00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: FRANKIN, VILLAGE OF

3) WATERCOURSE: RIVER ROUGE
FRANKLIN BRANCH

4) DOCUMENT TYPE: 100 YR FLOODWAY

00BREAK00

X1	5.200	0.000	0.000	0.000	500.000	500.000	500.000	0.000	2.300	0.000
X1	5.300	0.000	0.000	0.000	500.000	500.000	500.000	0.000	2.300	0.000
X1	5.800	8.000	184.000	222.000	500.000	500.000	500.000	0.000	-2.300	0.000
GR	725.300	135.000	723.300	147.000	719.800	184.000	716.000	195.000	714.100	206.000
GR	716.200	217.000	719.000	222.000	723.000	335.000	0.000	0.000	0.000	0.000
X1	6.000	0.000	0.000	0.000	500.000	500.000	500.000	0.000	2.300	0.000
X1	6.100	0.000	0.000	0.000	500.000	500.000	500.000	0.000	1.800	0.000
X1	6.200	0.000	0.000	0.000	500.000	500.000	500.000	0.000	1.700	0.000
X1	6.300	0.000	0.000	0.000	350.000	350.000	350.000	0.000	1.200	0.000
X1	6.400	9.000	279.000	305.000	500.000	500.000	500.000	0.000	-7.200	0.000
GR	735.400	170.000	734.200	200.000	732.600	279.000	730.200	285.000	727.700	288.000
GR	729.500	299.000	731.500	305.000	733.500	390.000	735.600	454.000	0.000	0.000
X1	6.500	0.000	0.000	0.000	500.000	500.000	500.000	0.000	2.000	0.000
X1	6.600	0.000	0.000	0.000	500.000	500.000	500.000	0.000	2.000	0.000
X1	6.700	0.000	0.000	0.000	500.000	500.000	500.000	0.000	1.900	0.000
X1	7.000	0.000	0.000	0.000	350.000	350.000	350.000	0.000	1.300	0.000
X1	7.100	0.000	0.000	0.000	400.000	400.000	400.000	0.000	1.800	0.000
X1	7.200	0.000	0.000	0.000	400.000	400.000	400.000	0.000	1.700	0.000
X1	7.300	0.000	0.000	0.000	400.000	400.000	400.000	0.000	1.800	0.000
X1	7.400	9.000	222.000	255.000	400.000	400.000	400.000	0.000	-5.200	0.000
GR	749.800	150.000	748.100	222.000	742.100	232.000	740.100	240.000	741.700	253.000
GR	744.400	255.000	742.700	300.000	746.000	400.000	764.500	450.000	0.000	0.000
X1	7.500	0.000	0.000	0.000	400.000	400.000	400.000	0.000	1.700	0.000
X1	7.600	0.000	0.000	0.000	400.000	400.000	400.000	0.000	1.800	0.000

X1	8.000	0.000	0.000	0.000	400.000	400.000	400.000	0.000	1.700	0.000
X1	8.100	0.000	0.000	0.000	500.000	500.000	500.000	0.000	2.700	0.000
X1	8.200	0.000	0.000	0.000	500.000	500.000	500.000	0.000	2.600	0.000
X1	8.300	8.000	490.000	540.000	500.000	500.000	500.000	0.000	-5.300	0.000
GR	757.400	350.000	757.000	400.000	757.400	490.000	753.900	500.000	753.300	515.000
GR	754.700	530.000	756.800	540.000	759.600	600.000	0.000	0.000	0.000	0.000
X1	8.400	0.000	0.000	0.000	500.000	500.000	500.000	0.000	2.600	0.000
X1	8.900	0.000	0.000	0.000	500.000	500.000	500.000	0.000	2.700	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000

** D/S FACE 14 MILE RD - BDRY OF FRANKLIN & BLOOMFIELD

X1	8.980	0.000	0.000	0.000	190.000	190.000	190.000	0.000	-.100	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	757.700	757.700	0.000
SB	0.000	1.950	2.600	0.000	11.360	0.000	51.140	0.000	753.200	753.200
X1	600.020	0.000	0.000	0.000	27.000	27.000	27.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	757.700	760.600	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	760.600	760.600	0.000
BT	8.000	350.000	762.200	0.000	400.000	761.900	0.000	490.000	761.000	0.000
BT	500.000	760.700	0.000	515.000	760.600	0.000	530.000	760.700	0.000	540.000
BT	761.000	0.000	600.000	762.400	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= .200 CEHV= .400
*SECNO 4.900
3280 CROSS SECTION 4.90 EXTENDED .72 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALCH	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
4.90	6.62	708.52	0.00	708.52	709.47	.95	0.00	0.00	707.20
1640.	110.	1457.	74.	55.	177.	32.	0.	0.	706.30
0.00	2.01	8.25	2.33	.111	.072	.111	0.000	701.90	185.00
.021300	0.	0.	0.	0	0	0	0.00	115.00	300.00

*SECNO 4.980
3280 CROSS SECTION 4.98 EXTENDED 5.73 FEET

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 731.90 ELREA= 731.90

** D/S FACE TELEGRAPH ROAD - D/S LIMIT OF STUDY - FRANKLIN CORP BDRY

4.98	8.63	710.23	0.00	0.00	710.62	.39	1.04	.11	701.60
1640.	0.	1640.	0.	0.	328.	0.	1.	0.	701.60
.01	0.00	5.00	0.00	.111	.072	.111	.071	701.60	378.00
.003386	150.	150.	150.	3	0	0	0.00	38.00	416.00

SPECIAL BRIDGE

SB	XK	XKCR	CUFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.20	2.70	250.00	15.00	0.00	167.00	.17	704.10	701.60

701.6 + 3.5 = 705.1

*SECNO 5.020
3280 CROSS SECTION 5.02 EXTENDED 6.17 FEET

714.10 (10) 711.60 (10) ELC ⇒ outlet unsub. on large pipe

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
713.52	713.12	0.00	0.	1640.	167.	79.	709.10	731.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 731.90 ELREA= 731.90

5.02	9.07	713.17	0.00	0.00	713.52	.35	2.91	0.00	704.10
1640.	0.	1640.	0.	0.	345.	0.	4.	1.	704.10
.03	0.00	4.76	0.00	.111	.072	.111	.071	704.10	378.00
.002875	340.	340.	340.	2	0	0	0.00	38.00	416.00

profile may be ≈.4ft low in this vicinity

*SECNO 5.050

5.05	8.88	713.38	0.00	0.00	713.61	.23	.07	.02	709.50
1640.	69.	1465.	106.	50.	362.	83.	4.	1.	709.50
.03	1.38	4.04	1.27	.111	.072	.111	.071	704.50	36.64
.002561	25.	25.	25.	2	0	0	0.00	114.40	151.05

*SECNO 5.100

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
5.10	8.33	713.33	0.00	0.00	713.82	.49	.11	.10	710.10
1640.	195.	1417.	28.	87.	237.	20.	4.	1.	711.00
.03	2.25	5.98	1.37	.111	.072	.111	.071	705.00	37.45
.008586	25.	25.	25.	2	0	0	0.00	94.85	132.29

*SECNO 5.200

5.20	9.30	716.60	0.00	0.00	716.90	.30	3.04	.04	712.40
1640.	248.	1332.	60.	123.	276.	49.	9.	2.	713.30
.06	2.02	4.82	1.24	.111	.072	.111	.071	707.30	36.03
.004532	500.	500.	500.	1	0	0	0.00	120.22	156.25

*SECNO 5.300

5.30	9.28	718.88	0.00	0.00	719.19	.31	2.28	.00	714.70
1640.	247.	1334.	59.	122.	276.	48.	14.	3.	715.60
.10	2.02	4.84	1.24	.111	.072	.111	.071	709.60	36.06
.004592	500.	500.	500.	3	0	0	0.00	119.94	156.00

*SECNO 5.800
3280 CROSS SECTION 5.80 EXTENDED .30 FEET

5.80	9.20	721.00	0.00	0.00	721.23	.23	2.03	.01	717.50
1640.	76.	1199.	365.	65.	268.	260.	20.	5.	716.70
.13	1.17	4.47	1.41	.111	.072	.111	.071	711.80	147.03
.003626	500.	500.	500.	2	0	0	0.00	187.97	335.00

*SECNO 6.000

6.00	8.89	722.99	0.00	0.00	723.28	.29	2.03	.02	719.80
1640.	67.	1249.	324.	54.	257.	225.	26.	7.	719.00
.17	1.24	4.87	1.44	.111	.072	.111	.071	714.10	150.25
.004560	500.	500.	500.	2	0	0	0.00	184.55	334.80

*SECNO 6.100
3280 CROSS SECTION 6.10 EXTENDED .29 FEET

SECNO	DEPTH	CWSEL	CRITWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
6.10	9.19	725.09	0.00	0.00	725.32	.24	2.03	.01	721.60
1640.	75.	1200.	364.	64.	268.	259.	33.	9.	720.80
.21	1.17	4.48	1.41	.111	.072	.111	.071	715.90	147.13
.003651	500.	500.	500.	2	0	0	0.00	187.87	335.00

Topo indicates ≈ 804

*SECNO 6.200
3280 CROSS SECTION 6.20 EXTENDED .37 FEET

6.20	9.27	726.87	0.00	0.00	727.10	.22	1.77	.00	723.30
1640.	79.	1187.	374.	67.	271.	268.	40.	11.	722.50
.25	1.17	4.38	1.40	.111	.072	.111	.071	717.60	146.57
.003430	500.	500.	500.	2	0	0	0.00	188.43	335.00

*SECNO 6.300
3280 CROSS SECTION 6.30 EXTENDED .37 FEET

6.30	9.27	728.07	0.00	0.00	728.30	.22	1.20	.00	724.50
1640.	79.	1186.	375.	67.	271.	268.	44.	13.	723.70
.27	1.17	4.38	1.40	.111	.072	.111	.071	718.80	146.56
.003427	350.	350.	350.	2	0	0	0.00	188.44	335.00

*SECNO 6.400
3280 CROSS SECTION 6.40 EXTENDED 1.30 FEET

6.40	9.00	729.50	0.00	0.00	729.58	.07	1.25	.03	725.40
1640.	389.	573.	678.	318.	181.	495.	54.	16.	724.30
.34	1.22	3.16	1.37	.111	.072	.111	.071	720.50	170.00
.001901	500.	500.	500.	2	0	0	0.00	284.00	454.00

*SECNO 6.500
3280 CROSS SECTION 6.50 EXTENDED .56 FEET

6.50	8.26	730.76	0.00	0.00	730.88	.13	1.29	.02	727.40
1640.	339.	661.	640.	237.	162.	384.	64.	19.	726.30
.40	1.43	4.08	1.67	.111	.072	.111	.071	722.50	170.00
.003681	500.	500.	500.	2	0	0	0.00	284.00	454.00

F.W. ≈ 190

*SECNO 6.600
3280 CROSS SECTION 6.60 EXTENDED .47 FEET

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

6.60	8.17	732.67	0.00	0.00	732.81	.14	1.92	.00	729.40
1640.	332.	674.	634.	227.	160.	371.	73.	22.	728.30
.45	1.46	4.22	1.71	.111	.072	.111	.071	724.50	170.00
.004009	500.	500.	500.	2	0	0	0.00	284.00	454.00

*SECNO 6.700
3280 CROSS SECTION 6.70 EXTENDED .52 FEET

6.70	8.23	734.63	0.00	0.00	734.76	.13	1.95	.00	731.30
1640.	336.	666.	638.	233.	161.	379.	81.	25.	730.20
.50	1.44	4.13	1.68	.111	.072	.111	.071	726.40	170.00
.003799	500.	500.	500.	1	0	0	0.00	284.00	454.00

*SECNO 7.000
3280 CROSS SECTION 7.00 EXTENDED .55 FEET

7.00	8.25	735.95	0.00	0.00	736.08	.13	1.31	.00	732.60
1640.	338.	662.	639.	236.	162.	382.	88.	28.	731.50
.54	1.43	4.09	1.67	.111	.072	.111	.071	727.70	170.00
.003715	350.	350.	350.	2	0	0	0.00	284.00	454.00

*SECNO 7.100
3280 CROSS SECTION 7.10 EXTENDED .36 FEET

7.10	8.06	737.56	0.00	0.00	737.71	.15	1.63	.01	734.40
1640.	322.	691.	627.	215.	157.	355.	95.	30.	733.30
.58	1.50	4.40	1.77	.111	.072	.111	.071	729.50	170.00
.004473	400.	400.	400.	2	0	0	0.00	284.00	454.00

*SECNO 7.200
3280 CROSS SECTION 7.20 EXTENDED .41 FEET

7.20	8.11	739.31	0.00	0.00	739.46	.15	1.74	.00	736.10
1640.	327.	683.	630.	221.	158.	362.	101.	33.	735.00
.62	1.48	4.31	1.74	.111	.072	.111	.071	731.20	170.00
.004248	400.	400.	400.	2	0	0	0.00	284.00	454.00

*SECNO 7.300
3280 CROSS SECTION 7.30 EXTENDED .36 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALCB	ACH	ARCB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
7.30	8.05	741.05	0.00	0.00	741.21	.15	1.75	.00	737.90
1640.	322.	691.	627.	215.	157.	354.	108.	36.	736.80
.66	1.50	4.41	1.77	.111	.072	.111	.071	733.00	170.00
.004491	400.	400.	400.	0	0	0	0.00	284.00	454.00

*SECNO 7.400

7.40	7.73	742.63	0.00	0.00	742.74	.11	1.52	.01	742.90
1640.	0.	632.	1008.	0.	181.	545.	115.	38.	739.20
.70	0.00	3.49	1.85	.111	.072	.111	.071	734.90	222.45
.003264	400.	400.	400.	2	0	0	0.00	182.51	404.95

*SECNO 7.500

7.50	7.47	744.07	0.00	0.00	744.19	.12	1.44	.01	744.60
1640.	0.	652.	988.	0.	172.	506.	121.	39.	740.90
.74	0.00	3.79	1.95	.111	.072	.111	.071	736.60	222.89
.004013	400.	400.	400.	2	0	0	0.00	181.34	404.23

Topo indicates majority of O.B flow would be in LOB

*SECNO 7.600

7.60	7.34	745.74	0.00	0.00	745.88	.13	1.69	.00	746.40
1640.	0.	663.	977.	0.	168.	487.	127.	41.	742.70
.78	0.00	3.93	2.01	.111	.072	.111	.071	738.40	223.09
.004427	400.	400.	400.	2	0	0	0.00	180.81	403.90

XSEC - D

*SECNO 8.000

8.00	7.39	747.49	0.00	0.00	747.62	.13	1.74	.00	748.10
1640.	0.	659.	981.	0.	170.	494.	133.	43.	744.40
.83	0.00	3.88	1.99	.111	.072	.111	.071	740.10	223.02
.004270	400.	400.	400.	2	0	0	0.00	181.00	404.02

*SECNO 8.100

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

8.10	7.09	749.89	0.00	0.00	750.05	.16	2.41	.01	750.80
1640.	0.	687.	953.	0.	160.	449.	141.	45.	747.10
.87	0.00	4.29	2.12	.111	.072	.111	.071	742.80	223.52
.005506	500.	500.	500.	2	0	0	0.00	179.68	403.20

Topo indicates LOB elev ≈ 849 & f.w width of ≈140

*SECNO 8.200

8.20	7.16	752.56	0.00	0.00	752.71	.15	2.66	.00	753.40
1640.	0.	679.	961.	0.	163.	460.	148.	47.	749.70
.92	0.00	4.18	2.09	.111	.072	.111	.071	745.40	223.40
.005159	500.	500.	500.	2	0	0	0.00	180.01	403.41

*SECNO 8.300
3280 CROSS SECTION 8.30 EXTENDED 2.51 FEET

8.30	6.62	754.62	0.00	0.00	754.75	.13	2.04	.00	752.10
1640.	563.	965.	113.	379.	267.	103.	156.	49.	751.50
.97	1.48	3.61	1.10	.111	.072	.111	.071	748.00	350.00
.003294	500.	500.	500.	2	0	0	0.00	250.00	600.00

*SECNO 8.400
3280 CROSS SECTION 8.40 EXTENDED 1.98 FEET

8.40	6.07	756.67	0.00	0.00	756.87	.20	2.09	.03	754.70
1640.	507.	1048.	84.	305.	241.	71.	163.	52.	754.10
1.01	1.66	4.35	1.18	.111	.072	.111	.071	750.60	350.00
.005506	500.	500.	500.	1	0	0	0.00	245.29	595.29

*SECNO 8.900
3280 CROSS SECTION 8.90 EXTENDED 2.00 FEET

8.90	6.10	759.40	0.00	0.00	759.60	.20	2.73	.00	757.40
1640.	510.	1045.	85.	308.	242.	72.	171.	55.	756.80
1.05	1.66	4.32	1.18	.111	.072	.111	.071	753.30	350.00
.005396	500.	500.	500.	3	0	0	0.00	245.72	595.72

CCHV= .400 CEHV= .800
*SECNO 8.980
3280 CROSS SECTION 8.98 EXTENDED 2.89 FEET

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

** D/S FACE 14 MILE RD - BDRY OF FRANKLIN & BLOOMFIELD

8.98	6.99	760.19	0.00	0.00	760.29	.10	.65	.04	757.30
1640.	592.	916.	133.	432.	286.	125.	174.	56.	756.70
1.07	1.37	3.20	1.06	.111	.072	.111	.071	753.20	350.00
.002365	190.	190.	190.	2	0	0	0.00	250.00	600.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.95	2.60	0.00	11.36	0.00	51.14	0.00	753.20	753.20

*SECNO 600.020
3280 CROSS SECTION 600.02 EXTENDED 5.60 FEET Wire xsec cut off at 2505ft.

PRESSURE AND WEIR FLOW

weir = 2504ft ✓

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
791.33	760.70	0.00	1159.	486.	51.	51.	757.70	760.60

600.02	9.70	762.90	0.00	0.00	762.92	.03	2.63	0.00	757.30
1640.	697.	728.	215.	812.	422.	288.	175.	56.	756.70
1.08	.86	1.73	.75	.111	.072	.111	.071	753.20	350.00
.000411	27.	27.	27.	2	0	6	0.00	250.00	600.00

Appears reasonable
structure is skewed, however
it appears water would be "piled" up
and eventually act as reservoir, with the
skew having no effect

PROFILE FOR STREAM FRANKLIN BRANCH : ROUGE

PLOTTED POINTS (BY PRIORITY)-E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

ELEVATION-FT	700.	710.	720.	730.	740.	750.	760.	770.	780.	790.
SECNO	CUMDIS-FT									
4.90	0.	C I RLME.	.	.	.	.	.	.	.	.
	50.	C I L M WE	.	.	.	.	.	.	.	.
	100.	C IL M E	.	.	.	.	.	.	.	.
4.98	150.	C I M WE	.	.	.	.	.	.	.	.
	200.	C I M .E	.	.	.	.	.	.	.	.
	250.	C I M .E	.	.	.	.	.	.	.	.
	300.	C I M . E	.	.	.	.	.	.	.	.
	350.	C I M . E	.	.	.	.	.	.	.	.
	400.	C I M . WE	.	.	.	.	.	.	.	.
	450.	C I M . E	.	.	.	.	.	.	.	.
5.02	500.	C I M . WE	.	.	.	.	.	.	.	.
5.05	550.	C I L WEM	.	.	.	.	.	.	.	.
5.10	600.	C I LR WEM	.	.	.	.	.	.	.	.
	650.	C I LR EM	.	.	.	.	.	.	.	.
	700.	C I .L EM	.	.	.	.	.	.	.	.
	750.	C I .LR WEM	.	.	.	.	.	.	.	.
	800.	C I .LR EM	.	.	.	.	.	.	.	.
	850.	C I .LR EM	.	.	.	.	.	.	.	.
	900.	C I .LR WE	.	.	.	.	.	.	.	.
	950.	C I . LR EM	.	.	.	.	.	.	.	.
	1000.	C I . LR EM	.	.	.	.	.	.	.	.
5.20	1050.	C I . LR E	.	.	.	.	.	.	.	.
	1100.	C I . LR EM	.	.	.	.	.	.	.	.
	1150.	C I . LR EM	.	.	.	.	.	.	.	.
	1200.	C I . LR WE	.	.	.	.	.	.	.	.
	1250.	C I . LR E	.	.	.	.	.	.	.	.
	1300.	C I . L E	.	.	.	.	.	.	.	.
	1350.	C I. LR EM.	.	.	.	.	.	.	.	.
	1400.	C I. LR WE.	.	.	.	.	.	.	.	.
	1450.	C I. LR WE.	.	.	.	.	.	.	.	.
	1500.	C I. LR E.	.	.	.	.	.	.	.	.
5.30	1550.	C I LR EM	.	.	.	.	.	.	.	.
	1600.	C I LR EM	.	.	.	.	.	.	.	.
	1650.	C I LR WE	.	.	.	.	.	.	.	.
	1700.	C I L E	.	.	.	.	.	.	.	.
	1750.	C I L E	.	.	.	.	.	.	.	.
	1800.	C .I L E	.	.	.	.	.	.	.	.
	1850.	C .I L E	.	.	.	.	.	.	.	.
	1900.	C .I RL WE	.	.	.	.	.	.	.	.
	1950.	C .I RL ME	.	.	.	.	.	.	.	.
	2000.	C . I L .E	.	.	.	.	.	.	.	.
5.80	2050.	C . I RL .E	.	.	.	.	.	.	.	.
	2100.	C . I RL .E	.	.	.	.	.	.	.	.
	2150.	C . I RL .WE	.	.	.	.	.	.	.	.
	2200.	C . I RL .ME	.	.	.	.	.	.	.	.
	2250.	C . I L . E	.	.	.	.	.	.	.	.
	2300.	C . I RL. E	.	.	.	.	.	.	.	.
	2350.	C . I RL. E	.	.	.	.	.	.	.	.
	2400.	C . I RL. WE	.	.	.	.	.	.	.	.

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      2450.  C          .   I    L.  E      .         .         .         .         .         .         .         .
      2500.  C          .   I    RL  E      .         .         .         .         .         .         .         .
6.00  2550.  C          .   I    RL  E      .         .         .         .         .         .         .         .
      2600.  C          .   I    RL  E      .         .         .         .         .         .         .         .
      2650.  C          .   I    RL  WE     .         .         .         .         .         .         .         .
      2700.  C          .    I    L   E     .         .         .         .         .         .         .         .
      2750.  C          .    I    RL  E     .         .         .         .         .         .         .         .
      2800.  C          .    I    RL  E     .         .         .         .         .         .         .         .
      2850.  C          .    I    RL  WE    .         .         .         .         .         .         .         .
      2900.  C          .    I    RL  WE    .         .         .         .         .         .         .         .
      2950.  C          .     I   RL  ME    .         .         .         .         .         .         .         .
      3000.  C          .     I   .L   E    .         .         .         .         .         .         .         .
6.10  3050.  C          .     I   .RL  E    .         .         .         .         .         .         .         .
      3100.  C          .     I   .RL  E    .         .         .         .         .         .         .         .
      3150.  C          .     I   .RL  WE   .         .         .         .         .         .         .         .
      3200.  C          .     I   .RL  ME   .         .         .         .         .         .         .         .
      3250.  C          .      I  .RL  ME   .         .         .         .         .         .         .         .
      3300.  C          .      I  . L   E   .         .         .         .         .         .         .         .
      3350.  C          .      I  . RL  E   .         .         .         .         .         .         .         .
      3400.  C          .      I  . RL  WE  .         .         .         .         .         .         .         .
      3450.  C          .      I  . RL  ME  .         .         .         .         .         .         .         .
      3500.  C          .      I  . RL  ME  .         .         .         .         .         .         .         .
6.20  3550.  C          .       I .  L   E  .         .         .         .         .         .         .         .
      3600.  C          .       I .  L   E  .         .         .         .         .         .         .         .
      3650.  C          .       I .  RL  E  .         .         .         .         .         .         .         .
      3700.  C          .       I .  RL  WE .         .         .         .         .         .         .         .
      3750.  C          .       I .  RL  ME .         .         .         .         .         .         .         .
      3800.  C          .       I .  RL  ME .         .         .         .         .         .         .         .
      3850.  C          .        I.   L   E .         .         .         .         .         .         .         .
6.30  3900.  C          .        I.   RL  E .         .         .         .         .         .         .         .
      3950.  C          .        I.   RL  E .         .         .         .         .         .         .         .
      4000.  C          .        I.   RL  WE.         .         .         .         .         .         .         .
      4050.  C          .        I.   RL  WE.         .         .         .         .         .         .         .
      4100.  C          .        I.   RL  ME.         .         .         .         .         .         .         .
      4150.  C          .         I   RL  ME.         .         .         .         .         .         .         .
      4200.  C          .         I   RL  ME.         .         .         .         .         .         .         .
      4250.  C          .         I   RL  ME.         .         .         .         .         .         .         .
      4300.  C          .         I   RL  ME.         .         .         .         .         .         .         .
      4350.  C          .         I   RL  ME.         .         .         .         .         .         .         .
6.40  4400.  C          .         .I  RL  M E         .         .         .         .         .         .         .
      4450.  C          .         .I  R L M E         .         .         .         .         .         .         .
      4500.  C          .         .I   RL  ME         .         .         .         .         .         .         .
      4550.  C          .         .I   RL  ME         .         .         .         .         .         .         .
      4600.  C          .         .I   RL  ME         .         .         .         .         .         .         .
      4650.  C          .         .I   RL  ME         .         .         .         .         .         .         .
      4700.  C          .         . I  R L ME         .         .         .         .         .         .         .
      4750.  C          .         . I   RL  E         .         .         .         .         .         .         .
      4800.  C          .         . I   RL  ME        .         .         .         .         .         .         .
      4850.  C          .         . I   RL  ME        .         .         .         .         .         .         .
6.50  4900.  C          .         .  I  RL  ME        .         .         .         .         .         .         .
      4950.  C          .         .  I  R L ME        .         .         .         .         .         .         .
      5000.  C          .         .  I   RL .E        .         .         .         .         .         .         .
      5050.  C          .         .  I   RL .E        .         .         .         .         .         .         .
      5100.  C          .         .  I   RL .ME       .         .         .         .         .         .         .
      5150.  C          .         .  I   RL .ME       .         .         .         .         .         .         .
      5200.  C          .         .   I  R L.ME       .         .         .         .         .         .         .
      5250.  C          .         .   I   RL. E       .         .         .         .         .         .         .
      5300.  C          .         .   I   RL. E       .         .         .         .         .         .         .
      5350.  C          .         .   I   RL. WE      .         .         .         .         .         .         .
6.60  5400.  C          .         .    I  RL. ME      .         .         .         .         .         .         .
      5450.  C          .         .    I  R L ME      .         .         .         .         .         .         .
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      5500.  C          .          .     I   RL  E      .          .          .          .          .          .          .
      5550.  C          .          .     I   RL  E      .          .          .          .          .          .          .
      5600.  C          .          .     I   RL  WE     .          .          .          .          .          .          .
      5650.  C          .          .     I   RL  ME     .          .          .          .          .          .          .
      5700.  C          .          .      I  R.L ME     .          .          .          .          .          .          .
      5750.  C          .          .      I   RL  E     .          .          .          .          .          .          .
      5800.  C          .          .      I   RL  E     .          .          .          .          .          .          .
      5850.  C          .          .      I   RL  WE    .          .          .          .          .          .          .
6.70  5900.  C          .          .      I   RL  ME    .          .          .          .          .          .          .
      5950.  C          .          .       I  RL  ME    .          .          .          .          .          .          .
      6000.  C          .          .       I  .RL ME    .          .          .          .          .          .          .
      6050.  C          .          .       I  .RL  E    .          .          .          .          .          .          .
      6100.  C          .          .       I  .RL  WE   .          .          .          .          .          .          .
      6150.  C          .          .       I  .RL  ME   .          .          .          .          .          .          .
      6200.  C          .          .        I .RL  ME   .          .          .          .          .          .          .
7.00  6250.  C          .          .        I . RL ME   .          .          .          .          .          .          .
      6300.  C          .          .        I . RL  E   .          .          .          .          .          .          .
      6350.  C          .          .        I . RL  E   .          .          .          .          .          .          .
      6400.  C          .          .        I . RL  ME  .          .          .          .          .          .          .
      6450.  C          .          .         I. R L ME  .          .          .          .          .          .          .
      6500.  C          .          .         I.  RL  E  .          .          .          .          .          .          .
      6550.  C          .          .         I.  RL  E  .          .          .          .          .          .          .
      6600.  C          .          .         I.  RL  WE .          .          .          .          .          .          .
7.10  6650.  C          .          .          I  RL  ME .          .          .          .          .          .          .
      6700.  C          .          .          I   RL ME .          .          .          .          .          .          .
      6750.  C          .          .          I   RL  E .          .          .          .          .          .          .
      6800.  C          .          .          I   RL  E .          .          .          .          .          .          .
      6850.  C          .          .          I   RL  WE.          .          .          .          .          .          .
      6900.  C          .          .          .I  RL  ME.          .          .          .          .          .          .
      6950.  C          .          .          .I   RL ME.          .          .          .          .          .          .
      7000.  C          .          .          .I   RL  E.          .          .          .          .          .          .
7.20  7050.  C          .          .          .I   RL  E.          .          .          .          .          .          .
      7100.  C          .          .          .I   RL  ME          .          .          .          .          .          .
      7150.  C          .          .          . I  R L ME          .          .          .          .          .          .
      7200.  C          .          .          . I   RL  E          .          .          .          .          .          .
      7250.  C          .          .          . I   RL  E          .          .          .          .          .          .
      7300.  C          .          .          . I   RL  WE         .          .          .          .          .          .
      7350.  C          .          .          .  I  RL  ME         .          .          .          .          .          .
      7400.  C          .          .          .  I   RL ME         .          .          .          .          .          .
7.30  7450.  C          .          .          .  I   RL .E         .          .          .          .          .          .
      7500.  C          .          .          .  I   R L.E         .          .          .          .          .          .
      7550.  C          .          .          .  I   R L.WE        .          .          .          .          .          .
      7600.  C          .          .          .   I   R L E        .          .          .          .          .          .
      7650.  C          .          .          .   I   R L EM       .          .          .          .          .          .
      7700.  C          .          .          .   I   R .LEM       .          .          .          .          .          .
      7750.  C          .          .          .   I    R. E M      .          .          .          .          .          .
      7800.  C          .          .          .    I   R. WEM      .          .          .          .          .          .
7.40  7850.  C          .          .          .    I   R.  E M     .          .          .          .          .          .
      7900.  C          .          .          .    I   R.  E M     .          .          .          .          .          .
      7950.  C          .          .          .    I    R  E M     .          .          .          .          .          .
      8000.  C          .          .          .     I   R  ELM     .          .          .          .          .          .
      8050.  C          .          .          .     I   R  ELM     .          .          .          .          .          .
      8100.  C          .          .          .     I   R   E M    .          .          .          .          .          .
      8150.  C          .          .          .     I   R   E M    .          .          .          .          .          .
      8200.  C          .          .          .     I   .R  E M    .          .          .          .          .          .
7.50  8250.  C          .          .          .      I  .R  ELM    .          .          .          .          .          .
      8300.  C          .          .          .      I  .R  EL M   .          .          .          .          .          .
      8350.  C          .          .          .      I  .R  WE M   .          .          .          .          .          .
      8400.  C          .          .          .      I  . R  E M   .          .          .          .          .          .
      8450.  C          .          .          .       I . R  ELM   .          .          .          .          .          .
      8500.  C          .          .          .       I . R  ELM   .          .          .          .          .          .
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	8550.	C	.	.	.	I . P EL M .	.	.	.	.	.	.
	8600.	C	.	.	.	I . R E M .	.	.	.	.	.	.
7.60	8650.	C	.	.	.	I . R E M .	.	.	.	.	.	.
	8700.	C	.	.	.	I. R ELM .	.	.	.	.	.	.
	8750.	C	.	.	.	I. R EL M.	.	.	.	.	.	.
	8800.	C	.	.	.	I. R WE M.	.	.	.	.	.	.
	8850.	C	.	.	.	I. R E M.	.	.	.	.	.	.
	8900.	C	.	.	.	I. R E M.	.	.	.	.	.	.
	8950.	C	.	.	.	I R ELM.	.	.	.	.	.	.
	9000.	C	.	.	.	I R EL M	.	.	.	.	.	.
8.00	9050.	C	.	.	.	I R WE M	.	.	.	.	.	.
	9100.	C	.	.	.	I R E M	.	.	.	.	.	.
	9150.	C	.	.	.	.I R ELM	.	.	.	.	.	.
	9200.	C	.	.	.	.I R EL.M	.	.	.	.	.	.
	9250.	C	.	.	.	.I R WE.M	.	.	.	.	.	.
	9300.	C	.	.	.	.I R E.M	.	.	.	.	.	.
	9350.	C	.	.	.	. I R ELM	.	.	.	.	.	.
	9400.	C	.	.	.	. I R EL M	.	.	.	.	.	.
	9450.	C	.	.	.	. I R WE M	.	.	.	.	.	.
	9500.	C	.	.	.	. I R ELM	.	.	.	.	.	.
8.10	9550.	C	.	.	.	. I R EL M	.	.	.	.	.	.
	9600.	C	.	.	.	. I R EL M	.	.	.	.	.	.
	9650.	C	.	.	.	. I R WE M	.	.	.	.	.	.
	9700.	C	.	.	.	. I R .ELM	.	.	.	.	.	.
	9750.	C	.	.	.	. I R .EL M	.	.	.	.	.	.
	9800.	C	.	.	.	. I R .EL M	.	.	.	.	.	.
	9850.	C	.	.	.	. I R.WE M	.	.	.	.	.	.
	9900.	C	.	.	.	. I R. ELM	.	.	.	.	.	.
	9950.	C	.	.	.	. I R. EL M	.	.	.	.	.	.
	10000.	C	.	.	.	. I R. EL M	.	.	.	.	.	.
8.20	10050.	C	.	.	.	. I R E M	.	.	.	.	.	.
	10100.	C	.	.	.	. I R E M	.	.	.	.	.	.
	10150.	C	.	.	.	. I R EM	.	.	.	.	.	.
	10200.	C	.	.	.	. I R EM	.	.	.	.	.	.
	10250.	C	.	.	.	. I R WE	.	.	.	.	.	.
	10300.	C	.	.	.	. I .R LE	.	.	.	.	.	.
	10350.	C	.	.	.	. I .R LE	.	.	.	.	.	.
	10400.	C	.	.	.	. I .RLME	.	.	.	.	.	.
	10450.	C	.	.	.	. I .RLME	.	.	.	.	.	.
	10500.	C	.	.	.	. I .RL WE	.	.	.	.	.	.
8.30	10550.	C	.	.	.	. I . L E	.	.	.	.	.	.
	10600.	C	.	.	.	. I . L E	.	.	.	.	.	.
	10650.	C	.	.	.	. 1. RL E	.	.	.	.	.	.
	10700.	C	.	.	.	. I. RL E	.	.	.	.	.	.
	10750.	C	.	.	.	. I. L WE	.	.	.	.	.	.
	10800.	C	.	.	.	. I. L E	.	.	.	.	.	.
	10850.	C	.	.	.	. I RL E	.	.	.	.	.	.
	10900.	C	.	.	.	. I RL E	.	.	.	.	.	.
	10950.	C	.	.	.	. I L E	.	.	.	.	.	.
	11000.	C	.	.	.	. I L WE	.	.	.	.	.	.
8.40	11050.	C	.	.	.	. .I RL E	.	.	.	.	.	.
	11100.	C	.	.	.	. .I RL E	.	.	.	.	.	.
	11150.	C	.	.	.	. .I L E	.	.	.	.	.	.
	11200.	C	.	.	.	. .I RLWE	.	.	.	.	.	.
	11250.	C	.	.	.	. . I RL E	.	.	.	.	.	.
	11300.	C	.	.	.	. . I RL E	.	.	.	.	.	.
	11350.	C	.	.	.	. . I L WE.	.	.	.	.	.	.
	11400.	C	.	.	.	. . I RL E.	.	.	.	.	.	.
	11450.	C	.	.	.	. . I RL E.	.	.	.	.	.	.
	11500.	C	.	.	.	. . I L E.	.	.	.	.	.	.
8.90	11550.	C	.	.	.	. . I L WE	.	.	.	.	.	.

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        11600.  C        .        .        .        .        .  I  L  E        .        .        .        .
        11650.  C        .        .        .        .        .  I  L  E        .        .        .        .
        11700.  C        .        .        .        .        .  I  L  E        .        .        .        .
   8.98 11750.  C        .        .        .        .        .  I  L  E        .        .        .        .
600.02  11800.  C        .        .        .        .        .  I  L  .  E     .        .        .        .
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  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  C1
  MODIFICATION -  50,51,52
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T1      HUD-FIA F-4705
T2      FRANKLIN
T3      FRANKLIN BRANCH : ROUGE RIVER 100 YR FLOW=1640 CFS ENCROACHMENT
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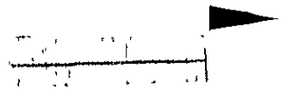
J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.	6.	0.	0.	0.000000	0.00	-1.0	0.	708.520	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	0.000	-1.000	0.000	0.000	1.300	0.000	0.000	0.000	0.000



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*PROF 2

CCHV=    .200 CEHV=    .400
*SECNO 4.900
 2800 NAT Q1=     112.37  WSEL=     708.52  ENC Q1=     112.37  WSEL=     708.62  RATIO=   0.0000
 NAT Q1=     118.  RATIOS LOB,CH,ROB=    .0741    .8775    .0483  WSEL=     708.62
3280 CROSS SECTION      4.90 EXTENDED       .72 FEET

   SECNO     DEPTH     CHSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALCB      ACH       ARCB      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=      207.3      283.4  TYPE=      4  TARGET=         .046
     4.90      6.62    708.52      0.00    708.52    709.59      1.07      0.00      0.00    707.20
    1640.       79.    1521.       40.       35.       177.       14.        0.        0.    706.30
     0.00      2.23      8.61      2.78      .111      .072      .111     0.000    701.90    207.35
  .023219        0.        0.        0.         0         0         0      0.00     76.10    283.44


*SECNO 4.980
 2800 NAT Q1=     281.86  WSEL=     710.23  ENC Q1=     287.19  WSEL=     710.33  RATIO=  -.0189
 NAT Q1=     287.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     710.33
3280 CROSS SECTION      4.98 EXTENDED      6.21 FEET

3301 HV CHANGED MORE THAN HV INS

3470 ENCROACHMENT STATIONS=      378.0      416.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      731.90 ELREA=      731.90

         **  D/S FACE TELEGRAPH ROAD - D/S LIMIT OF STUDY - FRANKLIN CORP BDRY

     4.98      9.11    710.71      0.00    710.23    711.06       .35      1.32       .15    701.60
    1640.        0.    1640.        0.        0.       346.        0.        1.        0.    701.60
      .01      0.00      4.74      0.00      .111      .072      .111      .071    701.60    378.00
  .004608       150.      150.      150.         2         0         0      0.00     38.00    416.00


SPECIAL BRIDGE

SB  XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00       2.20       2.70     250.00      15.00       0.00     167.00        .17     704.10     701.60

*SECNO 5.020
 2800 NAT Q1=     305.89  WSEL=     713.17  ENC Q1=     311.36  WSEL=     713.27  RATIO=  -.0179
 NAT Q1=     311.  RATICS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     713.27
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION      5.02 EXTENDED      6.66 FEET
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3470 ENCROACHMENT STATIONS=      378.0      416.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      731.90 ELREA=      731.90

     5.02       9.56    713.66       0.00    713.17    713.97       .32      1.46       .01    704.10
  1640.          0.     1640.          0.       0.       363.         0.       4.         0.     704.10
     .03        0.00      4.52        0.00     .111      .072       .111      .071    704.10    378.00
 .004016        340.      340.        340.        0         0          0      0.00     38.00    416.00


*SECNO 5.050
 2800 NAT Q1=     324.07  WSEL=     713.38  ENC Q1=     324.07  WSEL=     713.48  RATIO=    .0000
 NAT Q1=     332.  RATIOS LOB,CH,ROB=    .0433    .8894    .0673  WSEL=     713.48

3470 ENCROACHMENT STATIONS=       43.0      118.5  TYPE=      4  TARGET=         .025
     5.05       9.35    713.85       0.00    713.38    714.07       .21       .07       .02    709.50
  1640.         57.     1484.         99.      44.       383.        69.       4.        1.     709.50
     .03        1.29      3.87        1.44     .111      .072       .111      .071    704.50     43.03
 .002175         25.       25.         25.        2         0          0      0.00     75.42    118.45


*SECNO 5.100
 2800 NAT Q1=     176.99  WSEL=     713.33  ENC Q1=     176.99  WSEL=     713.43  RATIO=    .0000
 NAT Q1=     183.  RATIOS LOB,CH,ROB=    .1229    .8588    .0183  WSEL=     713.43
   SECNO      DEPTH      CHSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA     LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN       SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICCNT      CORAR      TOPWID      ENDST

3470 ENCROACHMENT STATIONS=       44.8      115.5  TYPE=      4  TARGET=         .034
     5.10       8.81    713.81       0.00    713.33    714.25       .44       .09       .09    710.10
  1640.        199.     1440.          1.      90.       256.         1.       4.        1.     711.00
     .03        2.22      5.62        .62      .111      .072       .111      .071    705.00     44.76
 .006830         25.       25.         25.        2         0          0      0.00     70.73    115.49


*SECNC 5.200
 2800 NAT Q1=     243.60  WSEL=     716.60  ENC Q1=     243.60  WSEL=     716.70  RATIO=    .0000
 NAT Q1=     251.  RATIOS LOB,CH,ROB=    .1536    .8068    .0396  WSEL=     716.70

3470 ENCROACHMENT STATIONS=       41.2      124.6  TYPE=      4  TARGET=         .031
     5.20       9.40    716.70       0.00    716.60    717.02       .32      2.75       .03    712.40
  1640.        235.     1364.         41.     117.      281.        26.       9.        1.     713.30
     .06        2.00      4.86        1.55     .111      .072       .111      .071    707.30     41.24
 .004518        500.      500.        500.        2         0          0      0.00     83.37    124.61


*SECNO 5.300
 2800 NAT Q1=     242.03  WSEL=     718.88  ENC Q1=     242.03  WSEL=     718.98  RATIO=    .0000
 NAT Q1=     250.  RATIOS LOB,CH,ROB=    .1530    .8079    .0390  WSEL=     718.98

3470 ENCROACHMENT STATIONS=       41.3      124.4  TYPE=      4  TARGET=         .031
     5.30       9.38    718.98       0.00    718.88    719.30       .32      2.28       .00    714.70
  1640.        234.     1366.         40.     116.      280.        26.      14.        2.     715.60
     .10        2.01      4.89        1.55     .111      .072       .111      .071    709.60     41.28
 .004589        500.      500.        500.        2         0          0      0.00     83.08    124.35
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*SECNO 5.800
 2800 NAT Q1=     272.35  WSEL=     721.00  ENC Q1=     272.35  WSEL=     721.10  RATIO=  0.0000
 NAT Q1=     283.  RATIOS LOB,CH,ROB=    .0488    .7210    .2302  WSEL=     721.10
3280 CROSS SECTION       5.80 EXTENDED        .40 FEET


3470 ENCROACHMENT STATIONS=       173.1       284.5  TYPE=       4  TARGET=          .037
     5.80       9.30    721.10       0.00    721.00    721.35       .25      2.04       .01    717.50
    1640.        50.      1229.       361.       34.      272.      206.       19.        4.    716.70
      .13       1.49      4.52       1.75      .111      .072      .111      .071    711.80    173.11
  .003637       500.       500.       500.         2         0         0      0.00    111.35    284.46

*SECNC 6.000
 2800 NAT Q1=     242.86  WSEL=     722.99  ENC Q1=     242.86  WSEL=     723.09  RATIO=    .0000
 NAT Q1=     252.  RATIOS LOB,CH,ROB=    .0425    .7515    .2060  WSEL=     723.09
3280 CROSS SECTION       6.00 EXTENDED        .10 FEET


3470 ENCROACHMENT STATIONS=       175.4       275.6  TYPE=       4  TARGET=          .037
     6.00       9.00    723.10       0.00    722.99    723.40       .31      2.03       .02    719.80
    1640.        38.      1281.       320.       25.      261.      169.       24.        5.    719.00
      .17       1.55      4.92       1.90      .111      .072      .111      .071    714.10    175.44
  .004564       500.       500.       500.         2         0         0      0.00    100.17    275.61

*SECNO 6.100
 2800 NAT Q1=     271.42  WSEL=     725.09  ENC Q1=     271.42  WSEL=     725.19  RATIO=    .0000
 NAT Q1=     282.  RATIOS LOB,CH,ROB=    .0486    .7219    .2295  WSEL=     725.19
3280 CROSS SECTION       6.10 EXTENDED        .39 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=       173.2       284.2  TYPE=       4  TARGET=          .037
     6.10       9.30    725.20       0.00    725.09    725.45       .25      2.03       .01    721.60
    1640.        50.      1230.       360.       33.      272.      205.       30.        6.    720.80
      .20       1.49      4.52       1.76      .111      .072      .111      .071    715.90    173.17
  .003648       500.       500.       500.         2         0         0      0.00    111.06    284.23

*SECNC 6.200
 2800 NAT Q1=     280.02  WSEL=     726.87  ENC Q1=     280.02  WSEL=     726.97  RATIO=    .0000
 NAT Q1=     291.  RATIOS LOB,CH,ROB=    .0507    .7136    .2356  WSEL=     726.97
3280 CROSS SECTION       6.20 EXTENDED        .48 FEET


3470 ENCROACHMENT STATIONS=       172.3       286.6  TYPE=       4  TARGET=          .037
     6.20       9.38    726.98       0.00    726.87    727.22       .24      1.77       .00    723.30
    1640.        54.      1216.       370.       36.      275.      215.       36.        7.    722.50
      .24       1.47      4.42       1.72      .111      .072      .111      .071    717.60    172.33
  .003428       500.       500.       500.         2         0         0      0.00    114.25    286.58
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*SECNO 6.300
 2800 NAT Q1=     280.14  WSEL=     728.07  ENC Q1=     280.14  WSEL=     728.17  RATIO=    .0000
 NAT Q1=     291.  RATIOS LOB,CH,ROB=    .0507    .7136    .2356  WSEL=     728.17
3280 CROSS SECTION       6.30 EXTENDED        .48 FEET


3470 ENCROACHMENT STATIONS=      172.2      286.7  TYPE=      4  TARGET=         .036
     6.30      9.38    728.18      0.00    728.07    728.41       .24      1.20       .00    724.50
     1640.       54.     1216.      370.      37.      275.      216.       40.        8.     723.70
      .27      1.47      4.42      1.72      .111      .072      .111      .071    718.80    172.25
  .003426      350.      350.      350.         2         0         0      0.00    114.44    286.69

*SECNO 6.400
 2800 NAT Q1=     376.15  WSEL=     729.50  ENC Q1=     376.15  WSEL=     729.60  RATIO=  0.0000
 NAT Q1=     392.  RATIOS LOB,CH,ROB=    .2404    .3437    .4159  WSEL=     729.60
3280 CROSS SECTION       6.40 EXTENDED       1.41 FEET


3470 ENCROACHMENT STATIONS=      191.5      427.0  TYPE=      4  TARGET=         .040
     6.40      9.11    729.61      0.00    729.50    729.69       .08      1.24       .03    725.40
     1640.      376.      587.      677.      290.      184.      467.       49.       10.     724.30
      .33      1.29      3.18      1.45      .111      .072      .111      .071    720.50    191.51
  .001887      500.      500.      500.         2         0         0      0.00    235.46    426.96

*SECNO 6.500
 2800 NAT Q1=     270.30  WSEL=     730.76  ENC Q1=     270.30  WSEL=     730.86  RATIO=  0.0000
 NAT Q1=     284.  RATIOS LOB,CH,ROB=    .2115    .3946    .3939  WSEL=     730.86
3280 CROSS SECTION       6.50 EXTENDED        .66 FEET


3470 ENCROACHMENT STATIONS=      199.9      411.7  TYPE=      4  TARGET=         .047
     6.50      8.36    730.86      0.00    730.76    730.99       .14      1.28       .02    727.40
     1640.      328.      677.      635.      210.      165.      350.       58.       13.     726.30
      .38      1.56      4.11      1.81      .111      .072      .111      .071    722.50    199.93
  .003659      500.      500.      500.         2         0         0      0.00    211.76    411.69

*SECNO 6.600
 2800 NAT Q1=     259.01  WSEL=     732.67  ENC Q1=     259.01  WSEL=     732.77  RATIO=    .0000
 NAT Q1=     272.  RATIOS LOB,CH,ROB=    .2074    .4019    .3907  WSEL=     732.77
3280 CROSS SECTION       6.60 EXTENDED        .57 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    ICC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      201.9      409.3  TYPE=      4  TARGET=         .048
     6.60      8.27    732.77      0.00    732.67    732.92       .15      1.92       .00    729.40
     1640.      316.      693.      631.      200.      162.      336.       66.       15.     728.30
      .43      1.58      4.27      1.88      .111      .072      .111      .071    724.50    201.85
  .004023      500.      500.      500.         2         0         0      0.00    207.42    409.27
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*SECNC 6.700
 2800 NAT Q1=     266.08  WSEL=     734.63  ENC Q1=     266.08  WSEL=     734.73  RATIO=    .0000
 NAT Q1=     280.  RATIOS LOB,CH,ROB=    .2102   .3969   .3929  WSEL=     734.73
3280 CROSS SECTION      6.70 EXTENDED       .63 FEET


3470 ENCROACHMENT STATIONS=      201.4      410.1  TYPE=      4  TARGET=         .049
     6.70      8.33   734.73      0.00   734.63   734.87      .14     1.95      .00   731.30
    1640.      320.     685.      635.     205.     1o4.     344.      74.      18.    730.20
      .48      1.56     4.18      1.84     .111     .072     .111     .071   726.40   201.37
  .003799      500.     500.      500.        2        0        0     0.00   208.72   410.09

*SECNO 7.000
 2800 NAT Q1=     269.09  WSEL=     735.95  ENC Q1=     269.09  WSEL=     736.05  RATIO=    .0000
 NAT Q1=     282.  RATIOS LOB,CH,ROB=    .2110   .3954   .3936  WSEL=     736.05
3280 CROSS SECTION      7.00 EXTENDED       .65 FEET


3470 ENCROACHMENT STATIONS=      200.1      411.5  TYPE=      4  TARGET=         .047
     7.00      8.35   736.05      0.00   735.95   736.19      .14     1.31      .00   732.60
    1640.      323.     680.      637.     209.     164.     349.      80.      19.    731.50
      .52      1.54     4.14      1.83     .111     .072     .111     .071   727.70   200.10
  .003714      350.     350.      350.        2        0        0     0.00   211.37   411.46

*SECNC 7.100
 2800 NAT Q1=     245.21  WSEL=     737.56  ENC Q1=     245.21  WSEL=     737.66  RATIO=   0.0000
 NAT Q1=     258.  RATIOS LOB,CH,ROB=    .2018   .4118   .3864  WSEL=     737.66
3280 CROSS SECTION      7.10 EXTENDED       .46 FEET


3470 ENCROACHMENT STATIONS=      204.0      406.5  TYPE=      4  TARGET=         .049
     7.10      8.16   737.66      0.00   737.56   737.82      .16     1.63      .01   734.40
    1640.      306.     710.      624.     188.     160.     320.      87.      21.    733.30
      .56      1.63     4.45      1.95     .111     .072     .111     .071   729.50   204.04
  .004474      400.     400.      400.        2        0        0     0.00   202.49   406.54

*SECNO 7.200
 2800 NAT Q1=     251.62  WSEL=     739.31  ENC Q1=     251.62  WSEL=     739.41  RATIO=    .0000
 NAT Q1=     264.  RATIOS LOB,CH,ROB=    .2045   .4071   .3885  WSEL=     739.41
3280 CROSS SECTION      7.20 EXTENDED       .51 FEET


3470 ENCROACHMENT STATIONS=      203.0      407.8  TYPE=      4  TARGET=         .049
     7.20      8.21   739.41      0.00   739.31   739.57      .16     1.74      .00   736.10
    1640.      311.     702.      627.     193.     161.     328.      93.      23.    735.00
      .60      1.61     4.36      1.91     .111     .072     .111     .071   731.20   203.00
  .004248      400.     400.      400.        2        0        0     0.00   204.82   407.82

*SECNO 7.300
 2800 NAT Q1=     244.72  WSEL=     741.05  ENC Q1=     244.72  WSEL=     741.15  RATIO=   0.0000
 NAT Q1=     257.  RATIOS LOB,CH,ROB=    .2015   .4123   .3862  WSEL=     741.15
3280 CROSS SECTION      7.30 EXTENDED       .45 FEET
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   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QRCB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VRCB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLCBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=      203.8      406.7  TYPE=      4  TARGET=          .048
     7.30      8.16    741.16      0.00    741.05    741.32       .16      1.75       .00    737.90
    1640.       306.       710.       624.       187.       159.       320.        99.        25.     736.80
      .63      1.63      4.46      1.95       .111       .072       .111       .071    733.00    203.81
  .004491       400.       400.       400.          2          0          0       0.00    202.90    406.71


*SECNO 7.400
 2800 NAT Q1=     287.05  WSEL=     742.63  ENC Q1=     287.05  WSEL=     742.73  RATIO=    .0000
 NAT Q1=     298.  RATIOS LOB,CH,ROB=  0.0000    .3812    .6188  WSEL=     742.73

3470 ENCROACHMENT STATIONS=      222.0      380.5  TYPE=      4  TARGET=          .037
     7.40      7.84    742.74      0.00    742.63    742.85       .11      1.52       .01    742.90
    1640.         0.       648.       992.         0.       184.       512.       105.        27.     739.20
      .68      0.00      3.52      1.94       .111       .072       .111       .071    734.90    222.27
  .003252       400.       400.       400.          2          0          0       0.00    158.24    380.51


*SECNO 7.500
 2800 NAT Q1=     258.88  WSEL=     744.07  ENC Q1=     258.88  WSEL=     744.17  RATIO=    .0000
 NAT Q1=     269.  RATIOS LOB,CH,ROB=  0.0000    .3930    .6070  WSEL=     744.17

3470 ENCROACHMENT STATIONS=      222.0      376.4  TYPE=      4  TARGET=          .039
     7.50      7.57    744.17      0.00    744.07    744.30       .13      1.44       .01    744.60
    1640.         0.       670.       970.         0.       176.       468.       111.        28.     740.90
      .72      0.00      3.82      2.07       .111       .072       .111       .071    736.60    222.72
  .004012       400.       400.       400.          2          0          0       0.00    153.62    376.35


*SECNO 7.600
 2800 NAT Q1=     246.47  WSEL=     745.74  ENC Q1=     246.47  WSEL=     745.84  RATIO=   0.0000
 NAT Q1=     257.  RATIOS LOB,CH,ROB=  0.0000    .3989    .6011  WSEL=     745.84

3470 ENCROACHMENT STATIONS=      222.0      374.1  TYPE=      4  TARGET=          .040
     7.60      7.44    745.84      0.00    745.74    745.99       .14      1.69       .00    746.40
    1640.         C.       681.       959.         0.       172.       448.       117.        29.     742.70
      .75      0.00      3.97      2.14       .111       .072       .111       .071    738.40    222.93
  .004429       400.       400.       400.          2          0          0       0.00    151.13    374.06


*SECNO 8.000
 2800 NAT Q1=     250.97  WSEL=     747.49  ENC Q1=     250.97  WSEL=     747.59  RATIO=    .0000
 NAT Q1=     261.  RATIOS LOB,CH,ROB=  0.0000    .3967    .6033  WSEL=     747.59

3470 ENCROACHMENT STATIONS=      222.0      375.0  TYPE=      4  TARGET=          .039
     8.00      7.49    747.59      0.00    747.49    747.73       .14      1.74       .00    748.10
    1640.         0.       677.       963.         C.       173.       455.       123.        31.     744.40
      .79      0.00      3.91      2.11       .111       .072       .111       .071    740.10    222.85
  .004269       400.       400.       400.          2          0          0       0.00    152.15    375.01


*SECNO 8.100
```

```
 2800 NAT Q1=     221.02  WSEL=     749.89  ENC Q1=     221.02  WSEL=     749.99  RATIO=  0.0000
 NAT Q1=    231.  RATIOS LOB,CH,ROB=  0.0000   .4127   .5873  WSEL=     749.99
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=      222.0      369.1  TYPE=      4  TARGET=         .042
     8.10      7.18    749.98      0.00    749.89    750.16       .17      2.42       .01    750.80
    1640.        0.      707.      933.        0.      163.      406.      130.       32.     747.10
      .84      0.00      4.33      2.30      .111      .072      .111      .071    742.80    223.36
  .005512      500.      500.      500.         2         0         0      0.00    145.70    369.06

*SECNC 8.200
 2800 NAT Q1=     228.32  WSEL=     752.56  ENC Q1=     228.32  WSEL=     752.66  RATIO=  0.0000
 NAT Q1=    238.  RATIOS LOB,CH,ROB=  0.0000   .4086   .5914  WSEL=     752.66

3470 ENCROACHMENT STATIONS=      222.0      370.9  TYPE=      4  TARGET=         .041
     8.20      7.26    752.66      0.00    752.56    752.83       .16      2.67       .00    753.40
    1640.        0.      699.      941.        0.      166.      419.      136.       34.     749.70
      .88      0.00      4.22      2.25      .111      .072      .111      .071    745.40    223.24
  .005168      500.      500.      500.         1         0         0      0.00    147.64    370.88

*SECNC 8.300
 2800 NAT Q1=     285.76  WSEL=     754.62  ENC Q1=     285.76  WSEL=     754.72  RATIO=   .0000
 NAT Q1=    300.  RATIOS LOB,CH,ROB=   .3485   .5790   .0725  WSEL=     754.72
3280 CROSS SECTION      8.30 EXTENDED      2.62 FEET


3470 ENCROACHMENT STATIONS=      360.2      561.7  TYPE=      4  TARGET=         .048
     8.30      6.72    754.72      0.00    754.62    754.86       .14      2.03       .00    752.10
    1640.      560.      997.        83.      368.      273.       59.      144.       36.     751.50
      .93      1.52      3.65      1.41      .111      .072      .111      .071    748.00    360.22
  .003286      500.      500.      500.         1         0         0      0.00    201.51    561.73

*SECNO 8.400
 2800 NAT Q1=     221.02  WSEL=     756.67  ENC Q1=     221.02  WSEL=     756.77  RATIO=   .0000
 NAT Q1=    231.  RATIOS LOB,CH,ROB=   .3163   .6299   .0538  WSEL=     756.77
3280 CROSS SECTION      8.40 EXTENDED      2.08 FEET


3470 ENCROACHMENT STATIONS=      360.8      554.2  TYPE=      4  TARGET=         .045
     8.40      6.17    756.77      0.00    756.67    756.98       .21      2.09       .03    754.70
    1640.      506.     1081.        53.      296.      246.       33.      151.       38.     754.10
      .97      1.71      4.40      1.61      .111      .072      .111      .071    750.60    360.77
  .005485      500.      500.      500.         1         0         0      0.00    193.39    554.16

*SECNO 8.900
 2800 NAT Q1=     223.25  WSEL=     759.40  ENC Q1=     223.25  WSEL=     759.50  RATIO=   .0000
 NAT Q1=    235.  RATIOS LOB,CH,ROB=   .3184   .6270   .0546  WSEL=     759.50
3280 CROSS SECTION      8.90 EXTENDED      2.10 FEET
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3470 ENCROACHMENT STATIONS=      361.7      553.3  TYPE=      4  TARGET=          .049
      8.90       6.20    759.50       0.00    759.40    759.71       .21       2.73        .00    757.40
    1640.        507.     1082.        51.      296.      247.        32.       158.        41.     756.80
      1.01       1.71      4.38       1.60      .111      .072       .111       .071    753.30    361.69
  .005416        500.      500.       500.         2         0          0       0.00    191.64    553.32

CCHV=     .400 CEHV=     .800
*SECNO 8.980
 2800 NAT Q1=     337.22  WSEL=     760.19  ENC Q1=     337.22  WSEL=     760.29  RATIO=   0.0000
 NAT Q1=     352.  RATIOS LOB,CH,ROB=    .3648    .5513    .0839  WSEL=     760.29
3280 CROSS SECTION       8.98 EXTENDED       2.99 FEET


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALCB      ACH       AROB      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=      358.2      569.5  TYPE=      4  TARGET=          .041

        **  D/S FACE 14 MILE RD - BDRY OF FRANKLIN & BLOOMFIELD

      8.98       7.09    760.29       0.00    760.19    760.40       .11        .65        .04    757.30
    1640.        590.      942.       108.      422.      292.        86.       161.        41.     756.70
      1.03       1.40      3.23       1.26      .111      .072       .111       .071    753.20    358.22
  .002353        190.      190.       190.         2         0          0       0.00    211.24    569.46

SPECIAL BRIDGE

SB   XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00        1.95       2.60        0.00      11.36       0.00       51.14       0.00     753.20     753.20

*SECNO 600.020
 2800 NAT Q1=     808.86  WSEL=     762.90  ENC Q1=     808.86  WSEL=     763.00  RATIO=    .0000
 NAT Q1=     829.  RATIOS LOB,CH,ROB=    .4262    .4416    .1322  WSEL=     763.00
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION     600.02 EXTENDED       5.70 FEET


3470 ENCROACHMENT STATIONS=      354.0      592.0  TYPE=      4  TARGET=          .025
    600.02       9.80    763.00       0.00    762.90    763.03        .03        .02        .03    757.30
     1640.       696.      741.       203.      804.      427.       265.       161.        42.     756.70
      1.04        .87      1.74        .77      .111      .072       .111       .071    753.20    353.96
  .000409         27.       27.        27.         0         0          6       0.00    238.03    591.99
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FRANKLIN BRANCH : ROUGE

SUMMARY PRINTOUT

CWSEL	.01K	EG	TOPWID	STENCL	STENCR	WSELK
708.520	112.37	709.47	115.00	0.00	0.00	708.52
708.520	107.63	709.59	76.10	207.35	283.45	708.52
710.227	281.86	710.62	38.00	0.00	0.00	0.00
710.714	241.58	711.06	38.00	378.00	416.00	710.23
713.170	305.89	713.52	38.00	0.00	0.00	0.00
713.657	258.78	713.97	38.00	378.00	416.00	713.17
713.384	324.07	713.61	114.40	0.00	0.00	0.00
713.853	351.66	714.07	75.42	43.03	118.45	713.38
713.334	176.99	713.82	94.85	0.00	0.00	0.00
713.806	198.44	714.25	70.73	44.76	115.49	713.33
716.600	243.60	716.90	120.22	0.00	0.00	0.00
716.704	243.98	717.02	83.37	41.24	124.61	716.60
718.879	242.03	719.19	119.94	0.00	0.00	0.00
718.979	242.09	719.30	83.08	41.28	124.35	718.88
720.998	272.35	721.23	187.97	0.00	0.00	0.00
721.098	271.92	721.35	111.35	173.11	284.46	721.00
722.993	242.86	723.28	184.55	0.00	0.00	0.00
723.095	242.77	723.40	100.17	175.44	275.61	722.99
725.088	271.42	725.32	187.87	0.00	0.00	0.00
725.195	271.54	725.45	111.06	173.17	284.23	725.09
726.873	280.02	727.10	188.43	0.00	0.00	0.00
726.979	280.11	727.22	114.25	172.33	286.58	726.87
728.073	280.14	728.30	188.44	0.00	0.00	0.00
728.179	280.19	728.41	114.44	172.25	286.69	728.07
729.503	376.15	729.58	284.00	0.00	0.00	0.00
729.615	377.51	729.69	235.46	191.51	426.96	729.50

CWSEL	.01K	EG	TOPWID	STENCL	STENCR	WSELK
730.757	270.30	730.88	284.00	0.00	0.00	0.00
730.857	271.10	730.99	211.76	199.93	411.69	730.76
732.671	259.01	732.81	284.00	0.00	0.00	0.00
732.767	258.56	732.92	207.42	201.85	409.27	732.67
734.630	266.08	734.76	284.00	0.00	0.00	0.00
734.730	266.07	734.87	208.72	201.37	410.10	734.63
735.948	269.09	736.08	284.00	0.00	0.00	0.00
736.049	269.12	736.19	211.37	200.10	411.46	735.95
737.560	245.21	737.71	284.00	0.00	0.00	0.00
737.661	245.18	737.82	202.49	204.04	406.54	737.56
739.312	251.62	739.46	284.00	0.00	0.00	0.00
739.413	251.63	739.57	204.82	203.00	407.82	739.31
741.055	244.72	741.21	284.00	0.00	0.00	0.00
741.155	244.72	741.32	202.90	203.81	406.71	741.05
742.633	287.05	742.74	182.51	0.00	0.00	0.00
742.737	287.60	742.85	158.24	222.00	380.51	742.63
744.066	258.88	744.19	181.34	0.00	0.00	0.00
744.165	258.92	744.30	153.62	222.00	376.35	744.07
745.745	246.47	745.88	180.81	0.00	0.00	0.00
745.844	246.42	745.99	151.13	222.00	374.06	745.74
747.488	250.97	747.62	181.00	0.00	0.00	0.00
747.588	250.99	747.73	152.15	222.00	375.01	747.49
749.885	221.02	750.05	179.68	0.00	0.00	0.00
749.984	220.90	750.16	145.70	222.00	369.06	749.89
752.559	228.32	752.71	180.01	0.00	0.00	0.00
752.663	228.14	752.83	147.64	222.00	370.88	752.56
754.619	285.76	754.75	250.00	0.00	0.00	0.00
754.724	286.11	754.86	201.51	360.22	561.73	754.62
756.671	221.02	756.87	245.29	0.00	0.00	0.00
756.769	221.44	756.98	193.39	360.77	554.16	756.67
759.400	223.25	759.60	245.72	0.00	0.00	0.00
759.495	222.84	759.71	191.64	361.69	553.33	759.40
760.189	337.22	760.29	250.00	0.00	0.00	0.00
760.294	338.10	760.40	211.24	358.22	569.46	760.19
762.897	808.86	762.92	250.00	0.00	0.00	0.00
763.003	811.16	763.03	238.03	353.96	591.99	762.90

SUMMARY OF ERRORS

JOB NO. UM9573 UNIVERSITY OF MICHIGAN TERMINAL SYSTEM MERIT NET 16:01:23 10-03-79

FRANKLIN2
FRANKLIN-
100 YR +10 YR
@ Telegraph Rd - x-sec 4.98
ELLC lowered From 709.1
to 708.5 in order to
correctly model pressure
Flow for 10 yr

N×1.3 used

PARAMETERS: ,ID=XSNL,PW=,ROUTE=NUBS

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MM          MM  NN          NN  EEEEEEEEEEEE  TTTTTTTTTTTT
MMM        MMM  NNN         NN  EEEEEEEEEEEE  TTTTTTTTTTTT
MMMM      MMMM  NNNN        NN  EE                  TT
MM MM    MM MM  NN NN       NN  EE                  TT
MM  MMMM  MM MM  NN  NN     NN  EE                  TT
MM   MM   MM MM  NN   NN    NN  EEEEEEEE            TT
MM        MM MM  NN    NN   NN  EEEEEEEE            TT
MM        MM MM  NN     NN  NN  EE                  TT
MM        MM MM  NN      NNNN  EE                  TT
MM        MM MM  NN       NNN  EE                  TT
MM        MM MM  NN        NN  EEEEEEEEEEEE        TT
MM        MM MM  NN         N  EEEEEEEEEEEE        TT

XX        XX   SSSSSSSSS   NN          NN  LL
XX        XX  SSSSSSSSSSS  NNN         NN  LL
 XX      XX   SS         SS NNNN        NN  LL
  XX    XX    SS            NN NN       NN  LL
   XX  XX     SSS           NN  NN      NN  LL
    XXXX       SSSSSSSSS    NN   NN     NN  LL
    XXXX         SSSSSSSSS  NN    NN    NN  LL
   XX  XX              SSS  NN     NN   NN  LL
  XX    XX             SS  NN      NNNN  LL
 XX      XX   SS        SS  NN       NNN  LL
XX        XX  SSSSSSSSSSS  NN        NN  LLLLLLLLLLL
XX        XX   SSSSSSSSS   NN         N  LLLLLLLLLLL
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10, 50, 100, 500

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**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**********************************************

C
T1       HUD-FIA H-4705
T2       FRANKLIN
T3       FRANKLIN BRANCH : ROUGE RIVER 100 YR FLOW=1640 CFS

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.       4.        0.        0.  0.000000      0.00     -1.0       0.    708.520    0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     0.000     0.000     0.000     0.000     0.000     1.300     0.000     0.000     0.000     0.000

NC      .085      .085      .055      .200      .400     0.000     0.000     0.000     0.000     0.000
QT     5.000   965.000  1410.000  1640.000  2220.000  1640.000     0.000     0.000     0.000     0.000
ET     0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000

X1     4.900     8.000   238.000   276.000     0.000     0.000     0.000     0.000     0.000     0.000
GR   707.800   185.000   707.500   210.000   707.200   238.000   703.800   246.000   701.900   254.000
GR   703.400   266.000   706.300   276.000   708.100   300.000     0.000     0.000     0.000     0.000

          **  D/S FACE TELEGRAPH ROAD - D/S LIMIT OF STUDY - FRANKLIN CORP BDRY

X1     4.980     4.000   378.000   416.000   150.000   150.000   150.000     0.000    -2.500     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   731.900   731.900     0.000
GR   707.000   365.000   704.100   378.000   704.100   416.000   707.000   426.000     0.000     0.000
SB     0.000     2.200     2.700   250.000    15.000     0.000   167.000      .170   704.100   701.600

X1     5.020     0.000     0.000     0.000   340.000   340.000   340.000     0.000     2.500     0.000
X2     0.000     0.000     1.000   708.500   731.900     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   731.900   731.900     0.000

X1     5.050    10.000    55.000   100.000    25.000    25.000    25.000     0.000     -.500     0.000
GR   715.000    35.000   711.600    40.000   710.000    55.000   705.000    62.000   705.000    92.000
GR   710.000   100.000   711.000   115.000   713.700   135.000   713.800   150.000   715.000   165.000

X1     5.100    11.000    74.000   115.000    25.000    25.000    25.000     0.000     0.000     0.000
GR   715.000    35.000   711.600    40.000   710.100    74.000   708.200    80.000   705.000    85.000
GR   705.000    95.000   708.300   102.000   711.000   115.000   713.700   135.000   713.800   150.000
GR   715.000   165.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     5.200     0.000     0.000     0.000   500.000   500.000   500.000     0.000     2.300     0.000
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X1	5.300	0.000	0.000	0.000	500.000	500.000	500.000	0.000	2.300	0.000
X1	5.800	8.000	184.000	222.000	500.000	500.000	500.000	0.000	-2.300	0.000
GR	725.300	135.000	723.300	147.000	719.800	184.000	716.000	195.000	714.100	206.000
GR	716.200	217.000	719.000	222.000	723.000	335.000	0.000	0.000	0.000	0.000
X1	6.000	0.000	0.000	0.000	500.000	500.000	500.000	0.000	2.300	0.000
X1	6.100	0.000	0.000	0.000	500.000	500.000	500.000	0.000	1.800	0.000
X1	6.200	0.000	0.000	0.000	500.000	500.000	500.000	0.000	1.700	0.000
X1	6.300	0.000	0.000	0.000	350.000	350.000	350.000	0.000	1.200	0.000
X1	6.400	9.000	279.000	305.000	500.000	500.000	500.000	0.000	-7.200	0.000
GR	735.400	170.000	734.200	200.000	732.600	279.000	730.200	285.000	727.700	288.000
GR	729.500	299.000	731.500	305.000	733.500	390.000	735.600	454.000	0.000	0.000
X1	6.500	0.000	0.000	0.000	500.000	500.000	500.000	0.000	2.000	0.000
X1	6.600	0.000	0.000	0.000	500.000	500.000	500.000	0.000	2.000	0.000
X1	6.700	0.000	0.000	0.000	500.000	500.000	500.000	0.000	1.900	0.000
X1	7.000	0.000	0.000	0.000	350.000	350.000	350.000	0.000	1.300	0.000
X1	7.100	0.000	0.000	0.000	400.000	400.000	400.000	0.000	1.800	0.000
X1	7.200	0.000	0.000	0.000	400.000	400.000	400.000	0.000	1.700	0.000
X1	7.300	0.000	0.000	0.000	400.000	400.000	400.000	0.000	1.800	0.000
X1	7.400	9.000	222.000	255.000	400.000	400.000	400.000	0.000	-5.200	0.000
GR	749.800	150.000	748.100	222.000	742.100	232.000	740.100	240.000	741.700	253.000
GR	744.400	255.000	742.700	300.000	746.000	400.000	764.500	450.000	0.000	0.000
X1	7.500	0.000	0.000	0.000	400.000	400.000	400.000	0.000	1.700	0.000
X1	7.600	0.000	0.000	0.000	400.000	400.000	400.000	0.000	1.800	0.000
X1	8.000	0.000	0.000	0.000	400.000	400.000	400.000	0.000	1.700	0.000
X1	8.100	0.000	0.000	0.000	500.000	500.000	500.000	0.000	2.700	0.000

X1	8.200	0.000	0.000	0.000	500.000	500.000	500.000	0.000	2.600	0.000
X1	8.300	8.000	490.000	540.000	500.000	500.000	500.000	0.000	-5.300	0.000
GR	757.400	350.000	757.000	400.000	757.400	490.000	753.900	500.000	753.300	515.000
GR	754.700	530.000	756.800	540.000	759.600	600.000	0.000	0.000	0.000	0.000
X1	8.400	0.000	0.000	0.000	500.000	500.000	500.000	0.000	2.600	0.000
X1	8.900	0.000	0.000	0.000	500.000	500.000	500.000	0.000	2.700	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000

** D/S FACE 14 MILE RD - BDRY OF FRANKLIN & BLOOMFIELD

X1	8.980	0.000	0.000	0.000	190.000	190.000	190.000	0.000	-.100	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	757.700	757.700	0.000
SB	0.000	1.950	2.600	0.000	11.360	0.000	51.140	0.000	753.200	753.200
X1	600.020	0.000	0.000	0.000	27.000	27.000	27.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	757.700	760.600	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	760.600	760.600	0.000
BT	8.000	350.000	762.200	0.000	400.000	761.900	0.000	490.000	761.000	0.000
BT	500.000	760.700	0.000	515.000	760.600	0.000	530.000	760.700	0.000	540.000
BT	761.000	0.000	600.000	762.400	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= .200 CEHV= .400
*SECNO 4.900
3280 CROSS SECTION 4.90 EXTENDED .72 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
4.90	6.62	708.52	0.00	708.52	709.47	.95	0.00	0.00	707.20
1640.	110.	1457.	74.	55.	177.	32.	0.	0.	706.30
0.00	2.01	8.25	2.33	.111	.072	.111	0.000	701.90	185.00
.021300	0.	0.	0.	0	0	0	0.00	115.00	300.00

*SECNO 4.980
3280 CROSS SECTION 4.98 EXTENDED 5.73 FEET

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 731.90 ELREA= 731.90

** D/S FACE TELEGRAPH ROAD - D/S LIMIT OF STUDY - FRANKLIN CORP BDRY

4.98	8.63	710.23	0.00	0.00	710.62	.39	1.04	.11	701.60
1640.	0.	1640.	0.	0.	328.	0.	1.	0.	701.60
.01	0.00	5.00	0.00	.111	.072	.111	.071	701.60	378.00
.003386	150.	150.	150.	3	0	0	0.00	38.00	416.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	SWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.20	2.70	250.00	15.00	0.00	167.00	.17	704.10	701.60

*SECNO 5.020
3280 CROSS SECTION 5.02 EXTENDED 6.17 FEET

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
713.52	713.12	0.00	0.	1640.	167.	69.	708.50	731.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 731.90 ELREA= 731.90

5.02	9.07	713.17	0.00	C.CO	713.52	.35	2.91	0.00	704.10
1640.	0.	1640.	0.	0.	345.	0.	4.	1.	704.10
.03	0.00	4.76	0.00	.111	.072	.111	.071	704.10	378.00
.002875	340.	340.	340.	2	0	0	0.00	38.00	416.00

*SECNO 5.050

5.05	8.88	713.38	0.00	0.00	713.61	.23	.07	.02	709.50
1640.	69.	1465.	106.	50.	362.	83.	4.	1.	709.50
.03	1.38	4.04	1.27	.111	.072	.111	.071	704.50	36.64
.002561	25.	25.	25.	2	0	0	0.00	114.40	151.05

*SECNC 5.100

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
5.10	8.33	713.33	0.00	0.00	713.82	.49	.11	.10	710.10
1640.	195.	1417.	28.	87.	237.	20.	4.	1.	711.00
.03	2.25	5.98	1.37	.111	.072	.111	.071	705.00	37.45
.008586	25.	25.	25.	2	0	0	0.00	94.85	132.29

*SECNO 5.200

5.20	9.30	716.60	0.00	0.00	716.90	.30	3.04	.04	712.40
1640.	248.	1332.	60.	123.	276.	49.	9.	2.	713.30
.06	2.02	4.82	1.24	.111	.072	.111	.071	707.30	36.03
.004532	500.	500.	500.	1	0	0	0.00	120.22	156.25

*SECNO 5.300

5.30	9.28	718.88	0.00	0.00	719.19	.31	2.28	.00	714.70
1640.	247.	1334.	59.	122.	276.	48.	14.	3.	715.60
.10	2.02	4.84	1.24	.111	.072	.111	.071	709.60	36.06
.004592	500.	500.	500.	3	0	0	0.00	119.94	156.00

*SECNO 5.800

3280 CROSS SECTION 5.80 EXTENDED .30 FEET

5.80	9.20	721.00	0.00	C.CC	721.23	.23	2.03	.01	717.50
1640.	76.	1199.	365.	65.	268.	260.	20.	5.	716.70
.13	1.17	4.47	1.41	.111	.072	.111	.071	711.80	147.03
.003626	500.	500.	500.	2	0	0	0.00	187.97	335.00

*SECNO 6.000

6.00	8.89	722.99	0.00	0.00	723.28	.29	2.03	.02	719.80
1640.	67.	1249.	324.	54.	257.	225.	26.	7.	719.00
.17	1.24	4.87	1.44	.111	.072	.111	.071	714.10	150.25
.004560	500.	500.	500.	2	0	0	0.00	184.55	334.80

*SECNO 6.100

3280 CROSS SECTICN 6.10 EXTENDED .29 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
6.10	9.19	725.09	0.00	0.00	725.32	.24	2.03	.01	721.60
1640.	75.	1200.	364.	64.	268.	259.	33.	9.	720.80
.21	1.17	4.48	1.41	.111	.072	.111	.071	715.90	147.13
.003651	500.	500.	500.	2	0	0	0.00	187.87	335.00

*SECNO 6.200
3280 CROSS SECTION 6.20 EXTENDED .37 FEET

6.20	9.27	726.87	0.00	0.00	727.10	.22	1.77	.00	723.30
1640.	79.	1187.	374.	67.	271.	268.	40.	11.	722.50
.25	1.17	4.38	1.40	.111	.072	.111	.071	717.60	146.57
.003430	500.	500.	500.	2	0	0	0.00	188.43	335.00

*SECNO 6.300
3280 CROSS SECTION 6.30 EXTENDED .37 FEET

6.30	9.27	728.07	0.00	0.00	728.30	.22	1.20	.00	724.50
1640.	79.	1186.	375.	67.	271.	268.	44.	13.	723.70
.27	1.17	4.38	1.40	.111	.072	.111	.071	718.80	146.56
.003427	350.	350.	350.	2	0	0	0.00	188.44	335.00

*SECNO 6.400
3280 CROSS SECTION 6.40 EXTENDED 1.30 FEET

6.40	9.00	729.50	0.00	0.00	729.58	.07	1.25	.03	725.40
1640.	389.	573.	678.	318.	181.	495.	54.	16.	724.30
.34	1.22	3.16	1.37	.111	.072	.111	.071	720.50	170.00
.001901	500.	500.	500.	2	0	0	0.00	284.00	454.00

*SECNO 6.500
3280 CROSS SECTION 6.50 EXTENDED .56 FEET

6.50	8.26	730.76	0.00	0.00	730.88	.13	1.29	.02	727.40
1640.	339.	661.	640.	237.	162.	384.	64.	19.	726.30
.40	1.43	4.08	1.67	.111	.072	.111	.071	722.50	170.00
.003681	500.	500.	500.	2	0	0	0.00	284.00	454.00

*SECNO 6.600
3280 CROSS SECTION 6.60 EXTENDED .47 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

6.60	8.17	732.67	0.00	0.00	732.81	.14	1.92	.00	729.40
1640.	332.	674.	634.	227.	160.	371.	73.	22.	728.30
.45	1.46	4.22	1.71	.111	.072	.111	.071	724.50	170.00
.004009	500.	500.	500.	2	0	0	0.00	284.00	454.00

*SECNO 6.700
3280 CROSS SECTION 6.70 EXTENDED .52 FEET

6.70	8.23	734.63	0.00	0.00	734.76	.13	1.95	.00	731.30
1640.	336.	666.	638.	233.	161.	379.	81.	25.	730.20
.50	1.44	4.13	1.68	.111	.072	.111	.071	726.40	170.00
.003799	500.	500.	500.	1	0	0	0.00	284.00	454.00

*SECNO 7.000
3280 CROSS SECTION 7.00 EXTENDED .55 FEET

7.00	8.25	735.95	0.00	0.00	736.08	.13	1.31	.00	732.60
1640.	338.	662.	639.	236.	162.	382.	88.	28.	731.50
.54	1.43	4.09	1.67	.111	.072	.111	.071	727.70	170.00
.003715	350.	350.	350.	2	0	0	0.00	284.00	454.00

*SECNO 7.100
3280 CROSS SECTION 7.10 EXTENDED .36 FEET

7.10	8.06	737.56	0.00	0.00	737.71	.15	1.63	.01	734.40
1640.	322.	691.	627.	215.	157.	355.	95.	30.	733.30
.58	1.50	4.40	1.77	.111	.072	.111	.071	729.50	170.00
.004473	400.	400.	400.	2	0	0	0.00	284.00	454.00

*SECNO 7.200
3280 CROSS SECTION 7.20 EXTENDED .41 FEET

7.20	8.11	739.31	0.00	0.00	739.46	.15	1.74	.00	736.10
1640.	327.	683.	630.	221.	158.	362.	101.	33.	735.00
.62	1.48	4.31	1.74	.111	.072	.111	.071	731.20	170.00
.004248	400.	400.	400.	2	0	0	0.00	284.00	454.00

*SECNO 7.300
3280 CROSS SECTION 7.30 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
7.30	8.05	741.05	0.00	0.00	741.21	.15	1.75	.00	737.90
1640.	322.	691.	627.	215.	157.	354.	108.	36.	736.80
.66	1.50	4.41	1.77	.111	.072	.111	.071	733.00	170.00
.004491	400.	400.	400.	0	0	0	0.00	284.00	454.00

*SECNO 7.400

7.40	7.73	742.63	0.00	0.00	742.74	.11	1.52	.01	742.90
1640.	0.	632.	1008.	0.	181.	545.	115.	38.	739.20
.70	0.00	3.49	1.85	.111	.072	.111	.071	734.90	222.45
.003264	400.	400.	400.	2	0	0	0.00	182.51	404.95

*SECNO 7.500

7.50	7.47	744.07	0.00	0.00	744.19	.12	1.44	.01	744.60
1640.	0.	652.	988.	0.	172.	506.	121.	39.	740.90
.74	0.00	3.79	1.95	.111	.072	.111	.071	736.60	222.89
.004013	400.	400.	400.	2	0	0	0.00	181.34	404.23

*SECNO 7.600

7.60	7.34	745.74	0.00	0.00	745.88	.13	1.69	.00	746.40
1640.	0.	663.	977.	0.	168.	487.	127.	41.	742.70
.78	0.00	3.93	2.01	.111	.072	.111	.071	738.40	223.09
.004427	400.	400.	400.	2	0	0	0.00	180.81	403.90

*SECNO 8.000

8.00	7.39	747.49	0.00	0.00	747.62	.13	1.74	.00	748.10
1640.	0.	659.	981.	0.	170.	494.	133.	43.	744.40
.83	0.00	3.88	1.99	.111	.072	.111	.071	740.10	223.02
.004270	400.	400.	400.	2	0	0	0.00	181.00	404.02

*SECNO 8.100

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
8.10	7.09	749.89	0.00	0.00	750.05	.16	2.41	.01	750.80
1640.	0.	687.	953.	0.	160.	449.	141.	45.	747.10
.87	0.00	4.29	2.12	.111	.072	.111	.071	742.80	223.52
.005506	500.	500.	500.	2	0	0	0.00	179.68	403.20

*SECNO 8.200

8.20	7.16	752.56	0.00	0.00	752.71	.15	2.66	.00	753.40
1640.	0.	679.	961.	0.	163.	460.	148.	47.	749.70
.92	0.00	4.18	2.09	.111	.072	.111	.071	745.40	223.40
.005159	500.	500.	500.	2	0	0	0.00	180.01	403.41

*SECNO 8.300

3280 CROSS SECTION 8.30 EXTENDED 2.51 FEET

8.30	6.62	754.62	0.00	0.00	754.75	.13	2.04	.00	752.10
1640.	563.	965.	113.	379.	267.	103.	156.	49.	751.50
.97	1.48	3.61	1.10	.111	.072	.111	.071	748.00	350.00
.003294	500.	500.	500.	2	0	0	0.00	250.00	600.00

*SECNO 8.400

3280 CROSS SECTION 8.40 EXTENDED 1.98 FEET

8.40	6.07	756.67	0.00	0.00	756.87	.20	2.09	.03	754.70
1640.	507.	1048.	84.	305.	241.	71.	163.	52.	754.10
1.01	1.66	4.35	1.18	.111	.072	.111	.071	750.60	350.00
.005506	500.	500.	500.	1	0	0	0.00	245.29	595.29

*SECNO 8.900
3280 CROSS SECTION 8.90 EXTENDED 2.00 FEET

8.90	6.10	759.40	0.00	0.00	759.60	.20	2.73	.00	757.40
1640.	510.	1045.	85.	308.	242.	72.	171.	55.	756.80
1.05	1.66	4.32	1.18	.111	.072	.111	.071	753.30	350.00
.005396	500.	500.	500.	3	0	0	0.00	245.72	595.72

CCHV= .400 CEHV= .800
*SECNO 8.980
3280 CROSS SECTION 8.98 EXTENDED 2.89 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

** D/S FACE 14 MILE RD - BDRY OF FRANKLIN & BLOOMFIELD

8.98	6.99	760.19	0.00	0.00	760.29	.10	.65	.04	757.30
1640.	592.	916.	133.	432.	286.	125.	174.	56.	756.70
1.07	1.37	3.20	1.06	.111	.072	.111	.071	753.20	350.00
.002365	190.	190.	190.	2	0	0	0.00	250.00	600.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.95	2.60	0.00	11.36	0.00	51.14	0.00	753.20	753.20

*SECNO 600.020
3280 CROSS SECTION 600.02 EXTENDED 5.60 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
791.33	760.70	0.00	1159.	486.	51.	51.	757.70	760.60

600.02	9.70	762.90	0.00	0.00	762.92	.03	2.63	0.00	757.30
1640.	697.	728.	215.	812.	422.	288.	175.	56.	756.70
1.08	.86	1.73	.75	.111	.072	.111	.071	753.20	350.00
.000411	27.	27.	27.	2	0	6	0.00	250.00	600.00

PROFILE FOR STREAM FRANKLIN BRANCH : ROUGE

PLOTTED POINTS (BY PRIORITY)-E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

ELEVATION-FT	700.	710.	720.	730.	740.	750.	760.	770.	780.	790.
SECNO	CUMDIS-FT									
4.90	0.	C I RLME.	.	.	.	.	.	.	.	.	.
	50.	C I L M WE	.	.	.	.	.	.	.	.	.
	100.	C IL M E	.	.	.	.	.	.	.	.	.
4.98	150.	C I M WE	.	.	.	.	.	.	.	.	.
	200.	C I M .E	.	.	.	.	.	.	.	.	.
	250.	C I M .E	.	.	.	.	.	.	.	.	.
	300.	C I M . E	.	.	.	.	.	.	.	.	.
	350.	C I M . E	.	.	.	.	.	.	.	.	.
	400.	C I M . WE	.	.	.	.	.	.	.	.	.
	450.	C I M . E	.	.	.	.	.	.	.	.	.
5.02	500.	C I M . WE	.	.	.	.	.	.	.	.	.
5.05	550.	C I L WEM	.	.	.	.	.	.	.	.	.
5.10	600.	C I LR WEM	.	.	.	.	.	.	.	.	.
	650.	C I LR EM	.	.	.	.	.	.	.	.	.
	700.	C I .L EM	.	.	.	.	.	.	.	.	.
	750.	C I .LR WEM	.	.	.	.	.	.	.	.	.
	800.	C I .LR EM	.	.	.	.	.	.	.	.	.
	850.	C I .LR EM	.	.	.	.	.	.	.	.	.
	900.	C I .LR WE	.	.	.	.	.	.	.	.	.
	950.	C I . LR EM	.	.	.	.	.	.	.	.	.
	1000.	C I . LR EM	.	.	.	.	.	.	.	.	.
5.20	1050.	C I . LR E	.	.	.	.	.	.	.	.	.
	1100.	C I . LR EM	.	.	.	.	.	.	.	.	.
	1150.	C I . LR EM	.	.	.	.	.	.	.	.	.
	1200.	C I . LR WE	.	.	.	.	.	.	.	.	.
	1250.	C I . LR E	.	.	.	.	.	.	.	.	.
	1300.	C I . L E	.	.	.	.	.	.	.	.	.
	1350.	C I. LR EM.	.	.	.	.	.	.	.	.	.
	1400.	C I. LR WE.	.	.	.	.	.	.	.	.	.
	1450.	C I. LR WE.	.	.	.	.	.	.	.	.	.
	1500.	C I. LR E.	.	.	.	.	.	.	.	.	.
5.30	1550.	C I LR EM	.	.	.	.	.	.	.	.	.
	1600.	C I LR EM	.	.	.	.	.	.	.	.	.
	1650.	C I LR WE	.	.	.	.	.	.	.	.	.
	1700.	C I L E	.	.	.	.	.	.	.	.	.
	1750.	C I L E	.	.	.	.	.	.	.	.	.
	1800.	C .I L E	.	.	.	.	.	.	.	.	.
	1850.	C .I L E	.	.	.	.	.	.	.	.	.
	1900.	C .I RL WE	.	.	.	.	.	.	.	.	.
	1950.	C .I RL ME	.	.	.	.	.	.	.	.	.
	2000.	C . I L .E	.	.	.	.	.	.	.	.	.
5.80	2050.	C . I RL .E	.	.	.	.	.	.	.	.	.
	2100.	C . I RL .E	.	.	.	.	.	.	.	.	.
	2150.	C . I RL .WE	.	.	.	.	.	.	.	.	.
	2200.	C . I RL .ME	.	.	.	.	.	.	.	.	.
	2250.	C . I L . E	.	.	.	.	.	.	.	.	.
	2300.	C . I RL. E	.	.	.	.	.	.	.	.	.
	2350.	C . I RL. E	.	.	.	.	.	.	.	.	.
	2400.	C . I RL. WE	.	.	.	.	.	.	.	.	.

	2450.	C	.	I	L.	E	.	.	.	.	.	.	.
	2500.	C	.	I	RL	E	.	.	.	.	.	.	.
6.00	2550.	C	.	I	RL	E	.	.	.	.	.	.	.
	2600.	C	.	I	RL	E	.	.	.	.	.	.	.
	2650.	C	.	I	RL	WE	.	.	.	.	.	.	.
	2700.	C	.	I	L	E	.	.	.	.	.	.	.
	2750.	C	.	I	RL	E	.	.	.	.	.	.	.
	2800.	C	.	I	RL	E	.	.	.	.	.	.	.
	2950.	C	.	I	RL	WE	.	.	.	.	.	.	.
	2900.	C	.	I	RL	WE	.	.	.	.	.	.	.
	2950.	C	.	I	RL	ME	.	.	.	.	.	.	.
	3000.	C	.	I	.L	E	.	.	.	.	.	.	.
6.10	3050.	C	.	I	.RL	E	.	.	.	.	.	.	.
	3100.	C	.	I	.RL	E	.	.	.	.	.	.	.
	3150.	C	.	I	.RL	WE	.	.	.	.	.	.	.
	3200.	C	.	I	.RL	ME	.	.	.	.	.	.	.
	3250.	C	.	I	.RL	ME	.	.	.	.	.	.	.
	3300.	C	.	I	. L	E	.	.	.	.	.	.	.
	3350.	C	.	I	. RL	E	.	.	.	.	.	.	.
	3400.	C	.	I	. RL	WE	.	.	.	.	.	.	.
	3450.	C	.	I	. RL	ME	.	.	.	.	.	.	.
	3500.	C	.	I	. RL	ME	.	.	.	.	.	.	.
6.20	3550.	C	.	I	. L	E	.	.	.	.	.	.	.
	3600.	C	.	I	. L	E	.	.	.	.	.	.	.
	3650.	C	.	I	. RL	E	.	.	.	.	.	.	.
	3700.	C	.	I	. RL	WE	.	.	.	.	.	.	.
	3750.	C	.	I	. RL	ME	.	.	.	.	.	.	.
	3800.	C	.	I	. RL	ME	.	.	.	.	.	.	.
	3850.	C	.	I.	L	E	.	.	.	.	.	.	.
6.30	3900.	C	.	I.	RL	E	.	.	.	.	.	.	.
	3950.	C	.	I.	RL	E	.	.	.	.	.	.	.
	4000.	C	.	I.	RL	WE.	.	.	.	.	.	.	.
	4050.	C	.	I.	RL	WE.	.	.	.	.	.	.	.
	4100.	C	.	I.	RL	ME.	.	.	.	.	.	.	.
	4150.	C	.	I	RL	ME.	.	.	.	.	.	.	.
	4200.	C	.	I	RL	ME.	.	.	.	.	.	.	.
	4250.	C	.	I	RL	ME.	.	.	.	.	.	.	.
	4300.	C	.	I	RL	ME.	.	.	.	.	.	.	.
	4350.	C	.	I	RL	ME.	.	.	.	.	.	.	.
6.40	4400.	C	.	.I	RL	M E	.	.	.	.	.	.	.
	4450.	C	.	.I	R L	M E	.	.	.	.	.	.	.
	4500.	C	.	.I	RL	ME	.	.	.	.	.	.	.
	4550.	C	.	.I	RL	ME	.	.	.	.	.	.	.
	4600.	C	.	.I	RL	ME	.	.	.	.	.	.	.
	4650.	C	.	.I	RL	ME	.	.	.	.	.	.	.
	4700.	C	.	. I	R L	ME	.	.	.	.	.	.	.
	4750.	C	.	. I	RL	E	.	.	.	.	.	.	.
	4800.	C	.	. I	RL	ME	.	.	.	.	.	.	.
	4850.	C	.	. I	RL	ME	.	.	.	.	.	.	.
6.50	4900.	C	.	. I	RL	ME	.	.	.	.	.	.	.
	4950.	C	.	. I	R L	ME	.	.	.	.	.	.	.
	5000.	C	.	. I	RL	.E	.	.	.	.	.	.	.
	5050.	C	.	. I	RL	.E	.	.	.	.	.	.	.
	5100.	C	.	. I	RL	.ME	.	.	.	.	.	.	.
	5150.	C	.	. I	RL	.ME	.	.	.	.	.	.	.
	5200.	C	.	. I	R L	.ME	.	.	.	.	.	.	.
	5250.	C	.	. I	RL.	E	.	.	.	.	.	.	.
	5300.	C	.	. I	RL.	E	.	.	.	.	.	.	.
	5350.	C	.	. I	RL.	WE	.	.	.	.	.	.	.
6.60	5400.	C	.	. I	RL.	ME	.	.	.	.	.	.	.
	5450.	C	.	. I	R L	ME	.	.	.	.	.	.	.

	5500.	C	.	.	I RL E	.	.	.	.	.	.	.
	5550.	C	.	.	I RL E	.	.	.	.	.	.	.
	5600.	C	.	.	I RL WE	.	.	.	.	.	.	.
	5650.	C	.	.	I RL ME	.	.	.	.	.	.	.
	5700.	C	.	.	I R.L ME	.	.	.	.	.	.	.
	5750.	C	.	.	I RL E	.	.	.	.	.	.	.
	5800.	C	.	.	I RL E	.	.	.	.	.	.	.
	5850.	C	.	.	I RL WE	.	.	.	.	.	.	.
6.70	5900.	C	.	.	I RL ME	.	.	.	.	.	.	.
	5950.	C	.	.	I RL ME	.	.	.	.	.	.	.
	6000.	C	.	.	I .RL ME	.	.	.	.	.	.	.
	6050.	C	.	.	I .RL E	.	.	.	.	.	.	.
	6100.	C	.	.	I .RL WE	.	.	.	.	.	.	.
	6150.	C	.	.	I .RL ME	.	.	.	.	.	.	.
	6200.	C	.	.	I .RL ME	.	.	.	.	.	.	.
7.00	6250.	C	.	.	I . RL ME	.	.	.	.	.	.	.
	6300.	C	.	.	I . RL E	.	.	.	.	.	.	.
	6350.	C	.	.	I . RL E	.	.	.	.	.	.	.
	6400.	C	.	.	I . RL ME	.	.	.	.	.	.	.
	6450.	C	.	.	I. R L ME	.	.	.	.	.	.	.
	6500.	C	.	.	I. RL E	.	.	.	.	.	.	.
	6550.	C	.	.	I. RL E	.	.	.	.	.	.	.
	6600.	C	.	.	I. RL WE	.	.	.	.	.	.	.
7.10	6650.	C	.	.	I RL ME	.	.	.	.	.	.	.
	6700.	C	.	.	I RL ME	.	.	.	.	.	.	.
	6750.	C	.	.	I RL E	.	.	.	.	.	.	.
	6800.	C	.	.	I RL E	.	.	.	.	.	.	.
	6850.	C	.	.	I RL WE	.	.	.	.	.	.	.
	6900.	C	.	.	.I RL ME	.	.	.	.	.	.	.
	6950.	C	.	.	.I RL ME	.	.	.	.	.	.	.
	7000.	C	.	.	.I RL E	.	.	.	.	.	.	.
7.20	7050.	C	.	.	.I RL E	.	.	.	.	.	.	.
	7100.	C	.	.	.I RL ME	.	.	.	.	.	.	.
	7150.	C	.	.	. I R L ME	.	.	.	.	.	.	.
	7200.	C	.	.	. I RL E	.	.	.	.	.	.	.
	7250.	C	.	.	. I RL E	.	.	.	.	.	.	.
	7300.	C	.	.	. I RL WE	.	.	.	.	.	.	.
	7350.	C	.	.	. I RL ME	.	.	.	.	.	.	.
	7400.	C	.	.	. I RL ME	.	.	.	.	.	.	.
7.30	7450.	C	.	.	. I RL .E	.	.	.	.	.	.	.
	7500.	C	.	.	. I R L.E	.	.	.	.	.	.	.
	7550.	C	.	.	. I R L.WE	.	.	.	.	.	.	.
	7600.	C	.	.	. I R L E	.	.	.	.	.	.	.
	7650.	C	.	.	. I R L EM	.	.	.	.	.	.	.
	7700.	C	.	.	. I R .LEM	.	.	.	.	.	.	.
	7750.	C	.	.	. I R. E M	.	.	.	.	.	.	.
	7800.	C	.	.	. I R. WE M	.	.	.	.	.	.	.
7.40	7850.	C	.	.	. I R. E M	.	.	.	.	.	.	.
	7900.	C	.	.	. I R. E M	.	.	.	.	.	.	.
	7950.	C	.	.	. I R E M	.	.	.	.	.	.	.
	8000.	C	.	.	. I R ELM	.	.	.	.	.	.	.
	8050.	C	.	.	. I R ELM	.	.	.	.	.	.	.
	8100.	C	.	.	. I R E M	.	.	.	.	.	.	.
	8150.	C	.	.	. I R E M	.	.	.	.	.	.	.
	8200.	C	.	.	. I .R E M	.	.	.	.	.	.	.
7.50	8250.	C	.	.	. I .R ELM	.	.	.	.	.	.	.
	8300.	C	.	.	. I .R EL M	.	.	.	.	.	.	.
	8350.	C	.	.	. I .R WE M	.	.	.	.	.	.	.
	8400.	C	.	.	. I . R E M	.	.	.	.	.	.	.
	8450.	C	.	.	. I . R ELM	.	.	.	.	.	.	.
	8500.	C	.	.	. I . R ELM	.	.	.	.	.	.	.

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       8550.  C        .        .        .        I . R  EL M .        .        .        .        .        .
       8600.  C        .        .        .        I . R   E M .        .        .        .        .        .
7.60   8650.  C        .        .        .        I .  R  E M .        .        .        .        .        .
       8700.  C        .        .        .         I.  R  ELM .        .        .        .        .        .
       8750.  C        .        .        .         I.  R  EL M.        .        .        .        .        .
       8800.  C        .        .        .         I.  R  WE M.        .        .        .        .        .
       8850.  C        .        .        .         I.   R  E M.        .        .        .        .        .
       8900.  C        .        .        .         I.   R  E M.        .        .        .        .        .
       8950.  C        .        .        .          I   R  ELM.        .        .        .        .        .
       9000.  C        .        .        .          I   R  EL M        .        .        .        .        .
8.00   9050.  C        .        .        .          I   R  WE M        .        .        .        .        .
       9100.  C        .        .        .          I    R  E M        .        .        .        .        .
       9150.  C        .        .        .          .I   R  ELM        .        .        .        .        .
       9200.  C        .        .        .          .I   R  EL.M       .        .        .        .        .
       9250.  C        .        .        .          .I   R  WE.M       .        .        .        .        .
       9300.  C        .        .        .          .I    R  E.M       .        .        .        .        .
       9350.  C        .        .        .          . I   R  ELM       .        .        .        .        .
       9400.  C        .        .        .          . I   R  EL M      .        .        .        .        .
       9450.  C        .        .        .          . I    R WE M      .        .        .        .        .
       9500.  C        .        .        .          .  I   R  ELM      .        .        .        .        .
8.10   9550.  C        .        .        .          .  I   R  EL M     .        .        .        .        .
       9600.  C        .        .        .          .  I   R  EL M     .        .        .        .        .
       9650.  C        .        .        .          .  I    R WE M     .        .        .        .        .
       9700.  C        .        .        .          .   I   R .ELM     .        .        .        .        .
       9750.  C        .        .        .          .   I   R .EL M    .        .        .        .        .
       9800.  C        .        .        .          .   I   R .EL M    .        .        .        .        .
       9850.  C        .        .        .          .   I    R.WE M    .        .        .        .        .
       9900.  C        .        .        .          .    I   R. ELM    .        .        .        .        .
       9950.  C        .        .        .          .    I   R. EL M   .        .        .        .        .
      10000.  C        .        .        .          .    I   R. EL M   .        .        .        .        .
8.20  10050.  C        .        .        .          .    I    R  E M   .        .        .        .        .
      10100.  C        .        .        .          .     I   R  E M   .        .        .        .        .
      10150.  C        .        .        .          .     I   R  FM    .        .        .        .        .
      10200.  C        .        .        .          .     I   R  EM    .        .        .        .        .
      10250.  C        .        .        .          .     I   R  WE    .        .        .        .        .
      10300.  C        .        .        .          .      I  .R LE    .        .        .        .        .
      10350.  C        .        .        .          .      I  .R LE    .        .        .        .        .
      10400.  C        .        .        .          .      I  .RLME    .        .        .        .        .
      10450.  C        .        .        .          .      I  .RLME    .        .        .        .        .
      10500.  C        .        .        .          .       I .RL WE   .        .        .        .        .
8.30  10550.  C        .        .        .          .       I . L  E   .        .        .        .        .
      10600.  C        .        .        .          .       I . L  E   .        .        .        .        .
      10650.  C        .        .        .          .        I. RL E   .        .        .        .        .
      10700.  C        .        .        .          .        I. RL E   .        .        .        .        .
      10750.  C        .        .        .          .        I.  L WE  .        .        .        .        .
      10800.  C        .        .        .          .        I.  L  E  .        .        .        .        .
      10850.  C        .        .        .          .         I  RL E  .        .        .        .        .
      10900.  C        .        .        .          .         I  RL E  .        .        .        .        .
      10950.  C        .        .        .          .         I   L E  .        .        .        .        .
      11000.  C        .        .        .          .         I   L WE .        .        .        .        .
8.40  11050.  C        .        .        .          .         .I  RL E .        .        .        .        .
      11100.  C        .        .        .          .         .I  RL E .        .        .        .        .
      11150.  C        .        .        .          .         .I   L E .        .        .        .        .
      11200.  C        .        .        .          .         .I   RLWE .        .        .        .        .
      11250.  C        .        .        .          .         . I  RL E .        .        .        .        .
      11300.  C        .        .        .          .         . I  RL E .        .        .        .        .
      11350.  C        .        .        .          .         . I   L WE.        .        .        .        .
      11400.  C        .        .        .          .         . I   RL E.        .        .        .        .
      11450.  C        .        .        .          .         .  I  RL E.        .        .        .        .
      11500.  C        .        .        .          .         .  I   L E.        .        .        .        .
8.90  11550.  C        .        .        .          .         .  I   L WE        .        .        .        .
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        11600.  C        .        .        .        .        .  I   L  E        .        .        .        .
        11650.  C        .        .        .        .        .  I   L  E        .        .        .        .
        11700.  C        .        .        .        .        .  I   L  E        .        .        .        .
   8.98 11750.  C        .        .        .        .        .  I   L  E        .        .        .        .
 600.02 11800.  C        .        .        .        .        .  I   L  .  E     .        .        .        .
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JOB NO. UM9609 UNIVERSITY OF MICHIGAN TERMINAL SYSTEM MERIT NET 17:16:57 10-03-79

FRANKLIN
BLOOMFIELD
100 YR FLOODWAY

N x 1.3

PARAMETERS: ,ID=XSNL,PW=,ROUTE=NUBS

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MM          MM   NN          NN  EEEEEEEEEEEE  TTTTTTTTTTTT
MMM         MMM  NNN         NN  EEEEEEEEEEEE  TTTTTTTTTTTT
MMMM       MMMM  NNNN        NN  EE                TT
MM MM     MM MM  NN NN       NN  EE                TT
MM  MMMMM  MM    NN  NN      NN  EE                TT
MM   MMM   MM    NN   NN     NN  EEEEEEEE          TT
MM         MM    NN    NN    NN  EEEEEEEE          TT
MM         MM    NN     NN   NN  EE                TT
MM         MM    NN      NN  NN  EE                TT
MM         MM    NN       NNNN  EE                TT
MM         MM    NN        NNN  EE                TT
MM         MM    NN         NN  EEEEEEEEEEEE      TT
MM         MM    NN          N  EEEEEEEEEEEE      TT

XX        XX   SSSSSSSSS   NN         NN  LL
XX        XX  SSSSSSSSSSS  NNN        NN  LL
 XX      XX   SS         SS NNNN       NN  LL
  XX    XX    SS            NN NN      NN  LL
   XX  XX     SSS           NN  NN     NN  LL
    XXXX       SSSSSSSSS    NN   NN    NN  LL
    XXXX        SSSSSSSSS   NN    NN   NN  LL
   XX  XX             SSS  NN     NN NN  LL
  XX    XX             SS  NN      NNNN  LL
 XX      XX   SS        SS  NN       NNN  LL
XX        XX  SSSSSSSSSSS  NN        NN  LLLLLLLLLLL
XX        XX   SSSSSSSSS   NN         N  LLLLLLLLLLL
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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
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C
T1      HUD-FIA H-47C5
T2      FRANKLIN
T3      FRANKLIN BRANCH : ROUGE RIVER 100 YR FLOW=1640 CFS

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.       4.        0.        0.   0.000000      0.00     -1.0       0.    754.620     0.000

J2  NPROF      IPLCT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     0.000     0.000     0.000     0.000     0.000     1.300     0.000     0.000     0.000     0.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     1.000    34.000     3.000     4.000    27.000    28.000     9.000     0.000     0.000     0.000

NC      .085      .085      .055      .200      .400     0.000     0.000     0.000     0.000     0.000
QT     5.000   965.000  1410.000  1640.000  2220.000  1640.000     0.000     0.000     0.000     0.000
ET     0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000

X1     8.300     8.000   490.000   540.000     0.000     0.000     0.000     0.000    -5.300     0.000
GR   757.400   350.000   757.000   400.000   757.400   490.000   753.900   500.000   753.300   515.000
GR   754.700   530.000   756.800   540.000   759.600   600.000     0.000     0.000     0.000     0.000

X1     8.400     0.000     0.000     0.000   500.000   500.000   500.000     0.000     2.600     0.000

X1     8.900     0.000     0.000     0.000   500.000   500.000   500.000     0.000     2.700     0.000
NC     0.000     0.000     0.000      .400      .800     0.000     0.000     0.000     0.000     0.000

X1     8.980     0.000     0.000     0.000   190.000   190.000   190.000     0.000     -.100     0.000
X3    10.000     0.000     0.000     0.000     0.000     0.000     0.000   757.700   757.700     0.000
SB     0.000     1.950     2.600     0.000    11.360     0.000    51.140     0.000   753.200   753.200

X1   600.020     0.000     0.000     0.000    27.000    27.000    27.000     0.000     0.000     0.000
X2     0.000     0.000     1.000   757.700   760.600     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   760.600   760.600     0.000
BT     8.000   350.000   762.200     0.000   400.000   761.900     0.000   490.000   761.000     0.000
BT   500.000   760.700     0.000   515.000   760.600     0.000   530.000   760.700     0.000   540.000
BT   761.000     0.000   600.000   762.400     0.000     0.000     0.000     0.000     0.000     0.000

X1   600.800    16.000   137.000   166.000    93.000    93.000    93.000     0.000     0.000     0.000
GR   765.100     0.000   763.100    14.000   761.000    38.000   759.800    70.000   758.800   105.000
GR   757.600   137.000   755.600   148.000   755.200   150.000   754.800   152.000   755.000   155.000
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GR	755.100	158.000	755.300	161.000	755.600	163.000	757.600	166.000	759.800	168.000
GR	761.700	174.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000

** D/S FACE FRANKLIN RD

X1	600.980	0.000	0.000	0.000	170.000	170.000	170.000	0.000	.300	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	763.100	763.100	0.000
SB	0.000	1.500	2.600	0.000	18.900	0.000	117.200	0.000	755.100	755.100
X1	601.020	17.000	112.000	139.000	41.000	41.000	41.000	0.000	-.400	0.000
X2	0.000	0.000	1.000	761.300	766.400	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	766.400	766.400	0.000
BT	8.000	64.000	767.600	0.000	89.000	767.000	0.000	123.000	766.400	0.000
BT	177.000	766.400	0.000	229.000	767.100	0.000	255.000	768.100	0.000	292.000
BT	768.800	0.000	309.000	769.400	0.000	0.000	0.000	0.000	0.000	0.000
GR	763.400	64.000	765.200	76.000	763.700	89.000	762.000	103.000	760.000	112.000
GR	756.300	117.000	755.500	123.000	756.300	129.000	759.400	139.000	759.600	162.000
GR	760.000	177.000	760.300	200.000	760.800	229.000	762.000	255.000	762.400	281.000
GR	765.000	292.000	770.000	309.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	870.000	1280.000	1490.000	2030.000	1490.000	0.000	0.000	0.000	0.000
X1	601.400	0.000	0.000	0.000	64.000	64.000	64.000	0.000	-.100	0.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** D/S FACE PRIVATE DRIVE

X1	601.420	17.000	117.000	129.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	4.000	64.000	768.300	0.000	117.000	758.900	757.900	129.000	758.900	757.900
BT	309.000	769.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	768.400	64.000	765.200	76.000	763.700	89.000	762.000	103.000	760.000	112.000
GR	757.900	117.000	755.000	117.100	755.000	128.900	757.900	129.000	759.600	162.000
GR	760.000	177.000	760.300	200.000	760.800	229.000	762.000	255.000	762.400	281.000
GR	765.000	292.000	770.000	309.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	601.430	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	757.900	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	601.450	17.000	112.000	139.000	1.000	1.000	1.000	0.000	-.500	0.000
GR	768.400	64.000	765.200	76.000	763.700	89.000	762.000	103.000	760.000	112.000
GR	756.300	117.000	755.500	123.000	756.300	129.000	759.400	139.000	759.600	162.000
GR	760.000	177.000	760.300	200.000	760.800	229.000	762.000	255.000	762.400	281.000
GR	765.000	292.000	770.000	309.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	601.500	0.000	0.000	0.000	35.000	35.000	35.000	0.000	.300	0.000

** D/S FACE FOOT BRIDGE

X1	601.520	0.000	0.000	0.000	.500	.500	.500	0.000	0.000	0.000
X2	0.000	0.000	0.000	758.400	759.200	0.000	0.000	0.000	0.000	0.000

X1	601.530	0.000	0.000	0.000	4.000	4.000	4.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	758.400	759.200	0.000	0.000	0.000	0.000	0.000
X1	601.550	0.000	0.000	0.000	.500	.500	.500	0.000	0.000	0.000
X1	601.800	0.000	0.000	0.000	19.000	19.000	19.000	0.000	.200	0.000
X1	601.900	19.000	208.000	276.000	400.000	400.000	400.000	0.000	-2.300	0.000
GR	772.600	26.000	768.600	47.000	766.000	63.000	765.800	73.000	766.000	98.000
GR	765.900	125.000	765.400	194.000	765.200	208.000	764.000	222.000	761.500	235.000
GR	761.000	240.000	760.500	242.000	760.100	246.000	760.000	248.000	760.100	250.000
GR	761.500	255.000	762.600	267.000	765.400	276.000	771.400	286.000	0.000	0.000
X1	602.000	0.000	0.000	0.000	400.000	400.000	400.000	0.000	2.300	0.000

** FRANKLIN MILL DAM (REMOVED)

X1	602.500	11.000	60.000	140.000	140.000	140.000	140.000	0.000	0.000	0.000
GR	780.000	0.000	770.000	32.000	765.000	60.000	764.000	68.000	762.000	100.000
GR	764.000	130.000	765.000	140.000	766.000	148.000	768.000	170.000	770.000	222.000
GR	780.000	244.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	603.000	16.000	146.000	244.000	500.000	500.000	500.000	0.000	0.000	0.000
GR	774.800	53.000	774.400	88.000	772.600	114.000	772.200	146.000	769.100	175.000
GR	765.800	206.000	765.300	210.000	764.400	220.000	764.300	222.000	764.800	230.000
GR	765.000	235.000	765.800	239.000	773.900	244.000	774.400	274.000	774.300	311.000
GR	774.500	355.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	603.500	16.000	190.000	244.000	460.000	460.000	460.000	0.000	2.200	0.000
GR	774.800	53.000	774.400	88.000	772.600	114.000	772.200	146.000	772.000	190.000
GR	765.800	206.000	765.300	210.000	764.400	220.000	764.300	222.000	764.800	230.000
GR	765.000	235.000	765.800	239.000	773.900	244.000	774.400	274.000	774.300	311.000
GR	774.500	355.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
I X1	604.000	13.000	125.000	164.000	460.000	460.000	460.000	0.000	0.000	0.000
6 in FIS GR	780.000	62.000	779.000	117.000	779.000	125.000	770.100	141.000	769.600	142.000
GR	768.800	150.000	769.200	158.000	770.100	159.000	775.200	164.000	776.200	182.000
GR	776.900	196.000	779.500	207.000	780.400	256.000	0.000	0.000	0.000	0.000
X1	604.500	7.000	430.000	490.000	750.000	750.000	750.000	0.000	1.200	0.000
GR	790.000	250.000	780.000	430.000	771.100	453.000	770.600	463.000	771.300	471.000
GR	780.000	490.000	790.000	510.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	604.600	0.000	0.000	0.000	570.000	570.000	570.000	0.000	2.300	0.000
X1	604.700	0.000	0.000	0.000	570.000	570.000	570.000	0.000	2.400	0.000
J X1	606.000	15.000	245.000	276.000	570.000	570.000	570.000	0.000	0.000	0.000
H-FIS GR	789.000	45.000	788.800	50.000	785.400	58.000	785.100	84.000	784.500	129.000

GR	784.000	223.000	783.700	245.000	781.200	262.000	779.000	263.000	778.800	266.000
GR	779.000	269.000	781.200	270.000	783.800	276.000	787.800	290.000	790.600	303.000
X1	606.100	0.000	0.000	0.000	275.000	275.000	275.000	0.000	1.100	0.000
X1	606.400	13.000	76.000	140.000	275.000	275.000	275.000	0.000	-1.200	0.000
GR	800.000	0.000	790.000	52.000	788.000	63.000	786.000	76.000	784.000	87.000
GR	782.700	94.000	782.300	108.000	782.700	118.000	784.000	122.000	786.000	140.000
GR	788.000	238.000	790.000	243.000	800.000	254.000	0.000	0.000	0.000	0.000
X1	606.500	0.000	0.000	0.000	270.000	270.000	270.000	0.000	1.200	0.000
X1	606.600	0.000	0.000	0.000	250.000	250.000	250.000	0.000	.700	0.000

** APPROX BDRY OF BLOOMFIELD & FRANKLIN

X1	606.700	0.000	0.000	0.000	250.000	250.000	250.000	0.000	.800	0.000
NC	.095	.095	.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	607.000	7.000	25.000	148.000	300.000	300.000	300.000	0.000	0.000	0.000
GR	800.000	0.000	790.000	25.000	784.800	50.000	786.000	135.000	788.000	138.000
GR	790.000	148.000	794.400	300.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	607.100	7.000	105.000	200.000	150.000	25.000	150.000	0.000	0.000	0.000
GR	797.800	50.000	795.000	105.000	788.000	142.000	786.300	162.000	788.000	183.000
GR	790.000	200.000	790.600	300.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	607.200	7.000	55.000	135.000	50.000	75.000	100.000	0.000	0.000	0.000
GR	800.000	0.000	790.000	55.000	787.400	80.000	788.000	100.000	790.000	135.000
GR	792.000	250.000	794.000	267.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	607.300	9.000	135.000	283.000	75.000	150.000	125.000	0.000	0.000	0.000
GR	796.800	50.000	792.500	135.000	790.000	155.000	788.500	190.000	790.000	225.000
GR	792.000	255.000	794.000	274.000	796.000	283.000	798.000	312.000	0.000	0.000
X1	607.400	7.000	210.000	266.000	25.000	150.000	150.000	0.000	0.000	0.000
GR	798.000	50.000	794.000	140.000	792.800	210.000	791.000	220.000	790.000	245.000
GR	793.000	266.000	800.000	295.000	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= .200 CEHV= .400
*SECNO 8.300
3280 CROSS SECTION 8.30 EXTENDED 2.52 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	ICC	ICONT	CORAR	TOPWID	ENDST
8.30	6.62	754.62	0.00	754.62	754.75	.13	0.00	0.00	752.10
1640.	563.	963.	113.	381.	268.	103.	0.	0.	751.50
0.00	1.48	3.59	1.10	.111	.072	.111	0.000	748.00	350.00
.003263	C.	0.	0.	0	0	0	0.00	250.00	600.00

*SECNO 8.400
3280 CROSS SECTION 8.40 EXTENDED 1.97 FEET

8.40	6.07	756.67	0.00	0.00	756.87	.20	2.09	.03	754.70
1640.	506.	1050.	84.	304.	240.	71.	8.	3.	754.10
.04	1.67	4.37	1.19	.111	.072	.111	.071	750.60	350.00
.005570	500.	500.	500.	2	0	0	0.00	245.05	595.05

*SECNO 8.900
3280 CROSS SECTION 8.90 EXTENDED 2.01 FEET

8.90	6.11	759.41	0.00	0.00	759.61	.20	2.73	.00	757.40
1640.	511.	1044.	86.	309.	242.	73.	15.	6.	756.80
.08	1.65	4.31	1.17	.111	.072	.111	.071	753.30	350.00
.005354	500.	500.	500.	3	0	0	0.00	245.88	595.88

CCHV= .400 CEHV= .800
*SECNO 8.980
3280 CROSS SECTION 8.98 EXTENDED 2.89 FEET

8.98	6.99	760.19	0.00	0.00	760.29	.10	.65	.04	757.30
1640.	592.	915.	133.	433.	287.	125.	18.	7.	756.70
.11	1.37	3.19	1.06	.111	.072	.111	.071	753.20	350.00
.002359	190.	190.	190.	2	0	0	0.00	250.00	600.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.95	2.60	0.00	11.36	0.00	51.14	0.00	753.20	753.20

*SECNO 600.020
3280 CROSS SECTION 600.02 EXTENDED 5.60 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROP	ALCB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROP	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 AREA	ELLC	ELTRD
791.33	760.70	0.00	1159.	486.	51.	51.	757.70	760.60

600.02	9.70	762.90	0.00	0.00	762.92	.03	2.63	0.00	757.30
1640.	697.	728.	215.	812.	422.	288.	19.	7.	756.70
.11	.86	1.73	.75	.111	.072	.111	.071	753.20	350.00
.000411	27.	27.	27.	2	0	6	0.00	250.00	600.00

*SECNO 600.800
3280 CROSS SECTION 600.80 EXTENDED 1.25 FEET

600.80	8.15	762.95	0.00	0.00	763.14	.19	.08	.13	757.60
1640.	709.	903.	28.	383.	206.	22.	21.	7.	757.60
.12	1.85	4.38	1.31	.111	.072	.111	.071	754.80	15.72
.003391	93.	93.	93.	2	0	0	0.00	158.28	174.00

CCHV= .200 CEHV= .400
*SECNO 600.980
3280 CROSS SECTION 600.98 EXTENDED 1.51 FEET

** D/S FACE FRANKLIN RD

600.98	8.41	763.51	0.00	0.00	763.67	.16	.53	.00	757.90
1640.	731.	879.	30.	415.	213.	24.	24.	8.	757.90
.14	1.76	4.12	1.25	.111	.072	.111	.071	755.10	13.25
.002857	170.	170.	170.	2	0	0	0.00	160.75	174.00

SPECIAL BRIDGE

SB	XK	XKOR	CDFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.50	2.60	0.00	18.90	0.00	117.20	0.00	755.10	755.10

*SECNO 601.020
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
768.07	764.72	0.00	172.	1475.	117.	117.	761.30	766.40

601.02	12.07	767.17	0.00	0.00	767.20	.03	3.53	0.00	759.60

1640.	129.	536.	975.	176.	284.	1030.	25.	8.	759.00
.14	.73	1.88	.95	.111	.072	.111	.071	755.10	67.11
.000388	41.	41.	41.	2	0	2	0.00	233.63	300.74

*SECNO 601.400

601.40	12.20	767.20	0.60	0.00	767.22	.02	.02	.00	759.50
1490.	119.	482.	888.	182.	288.	1051.	27.	8.	758.90
.16	.65	1.68	.85	.111	.072	.111	.071	755.00	66.63
.000302	64.	64.	64.	2	0	0	0.00	234.55	301.18

*SECNO 601.420

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

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 758.90 MAX ELLC= 757.90

** D/S FACE PRIVATE DRIVE

601.42	12.17	767.17	0.00	0.00	767.24	.08	.00	.02	757.90
1490.	244.	459.	787.	185.	134.	564.	27.	8.	757.90
.16	1.32	3.43	1.40	.111	.033	.111	.071	755.00	68.62
.001178	1.	1.	1.	2	0	0	-529.49	230.74	299.37

*SECNO 601.430

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 758.90 MAX ELLC= 757.90

601.43	12.18	767.18	0.00	0.00	767.26	.08	.02	.00	757.90
1490.	245.	458.	788.	185.	134.	565.	27.	9.	757.90
.16	1.32	3.42	1.39	.111	.033	.111	.071	755.00	68.59
.001172	13.	13.	13.	0	0	0	-529.80	230.81	299.40

*SECNO 601.450

601.45	12.25	767.25	0.00	0.00	767.27	.02	.00	.01	759.50
1490.	120.	481.	889.	184.	289.	1059.	27.	9.	758.90
.16	.65	1.66	.84	.111	.072	.111	.071	755.00	66.44
.000295	1.	1.	1.	2	0	0	0.00	234.91	301.35

*SECNO 601.500

601.50	11.96	767.26	0.00	0.00	767.28	.02	.01	.00	759.80
1490.	116.	490.	884.	172.	282.	1014.	28.	9.	759.20
.17	.67	1.74	.87	.111	.072	.111	.071	755.30	67.50
.000336	35.	35.	35.	1	0	0	0.00	232.89	300.39

*SECNO 601.520

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 759.20 MAX ELLC= 758.40

** D/S FACE FOOT BRIDGE

601.52	11.97	767.27	0.00	0.00	767.28	.02	.00	.00	759.80
1490.	135.	317.	1037.	171.	266.	1012.	28.	9.	759.20
.17	.79	1.19	1.02	.111	.072	.111	.071	755.30	67.53
.000463	1.	1.	1.	0	0	0	-15.60	232.84	300.36

*SECNO 601.530

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 0 MIN ELTRD= 759.20 MAX ELLC= 758.40

601.53	11.97	767.27	0.00	0.00	767.29	.02	.00	.00	759.80
1490.	136.	317.	1037.	172.	266.	1014.	29.	9.	759.20
.17	.79	1.19	1.02	.111	.072	.111	.071	755.30	67.49
.000461	4.	4.	4.	0	0	0	-15.60	232.90	300.39

*SECNO 601.550

601.55	11.97	767.27	0.00	0.00	767.29	.02	.00	.00	759.80
1490.	116.	490.	884.	172.	282.	1014.	29.	9.	759.20
.17	.67	1.74	.87	.111	.072	.111	.071	755.30	67.49
.000335	1.	1.	1.	0	0	0	0.00	232.90	300.39

*SECNO 601.800

601.80	11.77	767.27	0.00	0.00	767.30	.02	.01	.00	760.00
1490.	112.	497.	881.	163.	276.	982.	29.	9.	759.40
.18	.69	1.80	.90	.111	.072	.111	.070	755.50	68.23
.000367	19.	19.	19.	0	0	0	0.00	231.50	299.73

*SECNO 601.900

601.90	9.75	767.45	0.00	0.00	767.49	.04	.19	.01	762.90
1490.	529.	953.	8.	626.	489.	16.	41.	11.	763.10
.25	.85	1.95	.52	.111	.072	.111	.071	757.70	40.95
.000645	400.	400.	400.	2	0	0	0.00	242.30	283.25

*SECNO 602.000

602.00	7.86	767.86	0.00	0.00	767.98	.12	.46	.03	765.20
1490.	353.	1133.	4.	319.	361.	5.	49.	13.	765.40
.29	1.11	3.14	.70	.111	.072	.111	.071	760.00	51.55
.002525	400.	400.	400.	2	0	0	0.00	228.55	280.10

*SECNO 602.500

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

** FRANKLIN MILL DAM (REMOVED)

602.50	6.24	768.24	0.00	0.00	768.42	.19	.42	.03	765.00
1490.	32.	1399.	59.	29.	392.	50.	51.	14.	765.00
.30	1.09	3.57	1.19	.111	.072	.111	.071	762.00	41.87
.003556	140.	140.	140.	2	0	0	0.00	134.28	176.16

*SECNO 603.000

603.00	6.50	770.80	0.00	0.00	771.14	.34	2.66	.06	772.20
1490.	0.	1490.	0.	0.	319.	0.	56.	15.	773.90
.33	0.00	4.66	0.00	.111	.072	.111	.071	764.30	159.11
.008780	500.	500.	500.	2	0	0	0.00	82.98	242.09

*SECNO 603.500

603.50	7.73	774.23	0.00	0.00	774.62	.39	3.46	.02	774.20
1490.	0.	1490.	0.	0.	297.	0.	59.	16.	776.10
.36	.07	5.01	0.00	.111	.072	.111	.071	766.50	182.50
.006522	460.	460.	460.	2	0	0	0.00	60.34	242.85

*SECNO 604.000

604.00	8.82	777.62	0.00	0.00	778.18	.56	3.49	.07	779.00
1490.	0.	1401.	89.	0.	228.	51.	62.	16.	775.20
.38	0.00	6.15	1.75	.111	.072	.111	.071	768.80	127.48
.008932	460.	460.	460.	2	0	0	0.00	71.58	199.06

*SECNO 604.500

604.50	9.96	781.76	0.00	0.00	782.00	.23	3.76	.06	781.20
1490.	1.	1489.	0.	3.	383.	0.	68.	18.	781.20
.43	.33	3.89	.30	.111	.072	.111	.071	771.80	419.84
.003200	750.	750.	750.	3	0	0	0.00	71.29	491.13

*SECNO 604.600

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALCB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLCBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
604.60	9.64	783.74	0.00	0.00	784.00	.26	1.99	.01	783.50
1490.	0.	1490.	0.	1.	363.	0.	73.	19.	783.50
.47	.20	4.10	.01	.111	.072	.111	.071	774.10	425.72
.003817	570.	570.	570.	3	0	0	0.00	64.76	490.48

*SECNO 604.700

604.70	9.49	785.99	0.00	0.00	786.27	.27	2.26	.01	785.90
1490.	0.	1490.	0.	0.	355.	0.	77.	19.	785.90
.51	.01	4.20	.01	.111	.072	.111	.071	776.50	428.25
.004130	570.	570.	570.	2	0	0	0.00	61.94	490.19

*SECNO 606.000

606.00	9.06	787.86	0.00	0.00	787.93	.07	1.62	.04	783.70
1490.	885.	577.	28.	639.	193.	29.	85.	21.	783.80
.59	1.39	2.99	.97	.111	.072	.111	.071	778.80	52.23
.002082	570.	570.	570.	2	0	0	0.00	238.01	290.24

*SECNO 606.100

606.10	8.63	788.53	0.00	0.00	788.62	.10	.68	.01	784.80
1490.	850.	616.	25.	557.	180.	23.	90.	23.	784.90
.62	1.53	3.42	1.07	.111	.072	.111	.071	779.90	53.24
.003006	275.	275.	275.	2	0	0	0.00	235.45	288.69

*SECNO 606.400

606.40	7.97	789.07	0.00	0.00	789.15	.08	.53	.00	784.80
1490.	53.	1087.	349.	57.	415.	327.	95.	24.	784.80
.66	.94	2.62	1.07	.111	.072	.111	.071	781.10	50.60
.001328	275.	275.	275.	2	0	0	0.00	192.69	243.30

*SECNO 606.500

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROE	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	ICC	ICONT	CORAR	TOPWID	ENDST
606.50	7.20	789.50	0.00	0.00	789.63	.12	.46	.02	786.00
1490.	42.	1156.	292.	39.	366.	248.	100.	25.	786.00
.68	1.07	3.16	1.18	.111	.072	.111	.071	782.30	54.72
.002280	270.	270.	270.	2	0	0	0.00	187.04	241.76

*SECNO 606.600

606.60	7.09	790.09	0.00	0.00	790.23	.13	.59	.00	786.70
1490.	40.	1168.	282.	36.	359.	237.	103.	27.	786.70
.71	1.09	3.25	1.19	.111	.072	.111	.071	783.00	55.33
.002482	250.	250.	250.	2	0	0	0.00	186.15	241.48

*SECNO 606.700

** APPROX BDRY OF BLOOMFIELD & FRANKLIN

606.70	6.94	790.74	0.00	0.00	790.89	.15	.66	.01	787.50
1490.	37.	1184.	269.	33.	350.	222.	107.	28.	787.50
.73	1.12	3.38	1.21	.111	.072	.111	.071	783.80	56.16
.002792	250.	250.	250.	2	0	0	0.00	184.95	241.11

*SECNO 607.000

607.00	6.68	791.48	0.00	0.00	791.56	.08	.66	.01	790.00
1490.	1.	1473.	16.	3.	657.	38.	111.	29.	790.00
.77	.39	2.24	.41	.124	.085	.124	.072	784.80	21.29
.001763	300.	300.	300.	2	0	0	0.00	177.94	199.24

*SECNO 607.100

3280 CROSS SECTION 607.10 EXTENDED 1.28 FEET

607.10	5.58	791.88	0.00	0.00	792.12	.25	.50	.07	795.00
1490.	0.	1221.	269.	0.	283.	158.	113.	29.	790.00
.78	0.00	4.32	1.70	.124	.085	.124	.072	786.30	121.49
.011053	150.	150.	25.	2	0	0	0.00	178.51	300.00

*SECNO 607.200

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLCBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
607.20	5.35	792.75	0.00	0.00	792.91	.16	.77	.02	790.00
1490.	24.	1190.	276.	21.	333.	203.	114.	30.	790.00
.79	1.16	3.57	1.36	.124	.085	.124	.072	787.40	39.91
.006187	50.	100.	75.	2	0	0	0.00	216.41	256.32

*SECNO 607.300

607.30	5.10	793.60	0.00	0.00	793.78	.17	.86	.00	792.50
1490.	8.	1482.	0.	12.	442.	0.	116.	30.	796.00
.80	.70	3.35	0.00	.124	.085	.124	.072	788.50	113.23
.007526	75.	125.	150.	2	0	0	0.00	156.98	270.21

*SECNO 607.400

607.40	4.98	794.98	0.00	0.00	795.40	.43	1.53	.10	792.80
1490.	249.	1228.	13.	122.	216.	8.	117.	31.	793.00
.81	2.05	5.69	1.55	.124	.085	.124	.073	790.00	117.92
.017449	25.	150.	150.	2	0	0	0.00	156.29	274.21

PROFILE FOR STREAM FRANKLIN BRANCH : ROUGE

PLOTTED POINTS (BY PRIORITY)-E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

ELEVATION-FT	740.	750.	760.	770.	780.	790.	800.	810.	820.	830.
SECNO	CUMDIS-FT									
8.30	0. C	I . L E	.	.	.	.	.	.	.	.
	50. C	I . L E	.	.	.	.	.	.	.	.
	100. C	I. RL E	.	.	.	.	.	.	.	.
	150. C	I. RL E	.	.	.	.	.	.	.	.
	200. C	I. L WE	.	.	.	.	.	.	.	.
	250. C	I. L E	.	.	.	.	.	.	.	.
	300. C	I RL E	.	.	.	.	.	.	.	.
	350. C	I RL E	.	.	.	.	.	.	.	.
	400. C	I L E	.	.	.	.	.	.	.	.
	450. C	I L WE	.	.	.	.	.	.	.	.
8.40	500. C	.I RL E	.	.	.	.	.	.	.	.
	550. C	.I RL E	.	.	.	.	.	.	.	.
	600. C	.I L E	.	.	.	.	.	.	.	.
	650. C	.I RLWE	.	.	.	.	.	.	.	.
	700. C	. I RL E	.	.	.	.	.	.	.	.
	750. C	. I RL E	.	.	.	.	.	.	.	.
	800. C	. I L WE.	.	.	.	.	.	.	.	.
	850. C	. I RL E.	.	.	.	.	.	.	.	.
	900. C	. I RL E.	.	.	.	.	.	.	.	.
	950. C	. I L E.	.	.	.	.	.	.	.	.
8.90	1000. C	. I L WE	.	.	.	.	.	.	.	.
	1050. C	. I L E	.	.	.	.	.	.	.	.
	1100. C	. I L E	.	.	.	.	.	.	.	.
	1150. C	. I L E	.	.	.	.	.	.	.	.
8.98	1200. C	. I L E	.	.	.	.	.	.	.	.
600.02	1250. C	. I L . E	.	.	.	.	.	.	.	.
	1300. C	. I L M E	.	.	.	.	.	.	.	.
600.80	1350. C	. I L . ME	.	.	.	.	.	.	.	.
	1400. C	. I L . ME	.	.	.	.	.	.	.	.
	1450. C	. I L . ME	.	.	.	.	.	.	.	.
600.98	1500. C	. I L . M E	.	.	.	.	.	.	.	.
601.02	1550. C	. I RL EM	.	.	.	.	.	.	.	.
601.40	1600. C	. I RL EM	.	.	.	.	.	.	.	.
601.42	1650. C	. I L . EM	.	.	.	.	.	.	.	.
601.43	1700. C	. I L . EM	.	.	.	.	.	.	.	.
601.45	1750. C	. I RL EM	.	.	.	.	.	.	.	.
601.50	1800. C	. I RL EM	.	.	.	.	.	.	.	.
601.52	1850. C	. I RL EM	.	.	.	.	.	.	.	.
601.53	1900. C	. I RL EM	.	.	.	.	.	.	.	.
601.55	1950. C	. I RL EM	.	.	.	.	.	.	.	.
601.80	2000. C	. I RL EM	.	.	.	.	.	.	.	.
	2050. C	. I L EM	.	.	.	.	.	.	.	.
601.90	2100. C	. I . L E M.	.	.	.	.	.	.	.	.
	2150. C	. I . L EM.	.	.	.	.	.	.	.	.
	2200. C	. I . LR E M	.	.	.	.	.	.	.	.
	2250. C	. I. L E M	.	.	.	.	.	.	.	.
	2300. C	. I. L E M	.	.	.	.	.	.	.	.
	2350. C	. I. LR E .M	.	.	.	.	.	.	.	.
	2400. C	. I. L E .M	.	.	.	.	.	.	.	.

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  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
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T1       HUD-FIA H-4705
T2       FRANKLIN
T3       FRANKLIN BRANCH : ROUGE RIVER 100 YR FLOW=1640 CFS ENCROACHMENT
J1   ICHECK      INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
       -1.         6.         0.         0.   0.000000       0.00      -1.0          0.    754.620      0.000
J2   NPROF       IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
     15.000      0.000     -1.000      0.000      0.000      1.300      0.000      0.000      0.000      0.000
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*PROF 2

CCHV=    .200 CEHV=    .400
*SECNO 8.300
 2800 NAT Q1=     287.08  WSEL=     754.62  ENC Q1=     287.08  WSEL=     754.72  RATIO=    .0000
 NAT Q1=    300.  RATIOS LOB,CH,ROB=    .3486    .5789    .0725  WSEL=     754.72
3280 CROSS SECTION       8.30 EXTENDED       2.52 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=      359.4      562.9  TYPE=      4  TARGET=         .044
      8.30      6.62    754.62      0.00    754.62    754.77       .15      0.00      0.00    752.10
    1640.       551.    1004.        84.      357.      268.       59.        0.        0.    751.50
      0.00      1.55      3.75      1.42      .111      .072      .111     0.000    748.00    359.40
  .003548         0.        0.         0.         0         0         0      0.00    203.55    562.95

*SECNC 8.400
 2800 NAT Q1=     219.74  WSEL=     756.67  ENC Q1=     219.74  WSEL=     756.77  RATIO=    .0000
 NAT Q1=    231.  RATIOS LOB,CH,ROB=    .3162    .6300    .0538  WSEL=     756.77
3280 CROSS SECTION       8.40 EXTENDED       2.07 FEET

3470 ENCROACHMENT STATIONS=      362.0      552.8  TYPE=      4  TARGET=         .050
      8.40      6.17    756.77      0.00    756.67    756.99       .22      2.19       .03    754.70
    1640.       504.    1087.        49.      293.      246.       30.        7.        2.    754.10
       .04      1.72      4.43      1.61      .111      .072      .111      .071    750.60    361.98
  .005567       500.      500.      500.         1         0         0      0.00    190.79    552.77

*SECNO 8.900
 2800 NAT Q1=     224.14  WSEL=     759.41  ENC Q1=     224.14  WSEL=     759.51  RATIO=  0.0000
 NAT Q1=    236.  RATIOS LOB,CH,ROB=    .3190    .6262    .0548  WSEL=     759.51
3280 CROSS SECTION       8.90 EXTENDED       2.11 FEET

3470 ENCROACHMENT STATIONS=      361.6      553.4  TYPE=      4  TARGET=         .049
      8.90      6.21    759.51      0.00    759.41    759.72       .21      2.73       .00    757.40
    1640.       509.    1080.        51.      298.      247.       32.       14.        4.    756.80
       .08      1.71      4.36      1.60      .111      .072      .111      .071    753.30    361.64
  .005346       500.      500.      500.         2         0         0      0.00    191.80    553.44

CCHV=    .400 CEHV=    .800
*SECNO 8.980
 2800 NAT Q1=     337.67  WSEL=     760.19  ENC Q1=     337.67  WSEL=     760.29  RATIO=  0.0000
 NAT Q1=    352.  RATIOS LOB,CH,ROB=    .3649    .5511    .0839  WSEL=     760.29
3280 CROSS SECTION       8.98 EXTENDED       3.00 FEET
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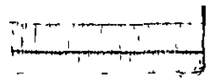

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3470 ENCROACHMENT STATIONS=      358.2      569.5  TYPE=      4  TARGET=          .041
      8.93       7.10    760.30      0.00    760.19    760.40       .11        .64        .04    757.30
      1640.       590.       941.       109.       423.       292.       86.        17.        5.     756.70
        .10       1.40       3.22       1.26       .111       .072       .111       .071    753.20    358.21
     .002342       190.       190.       190.          2          0          0       0.00    211.30    569.51


SPECIAL BRIDGE

SB  XK          XKOR        CCFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
       0.00        1.95        2.60        0.00       11.36        0.00       51.14        0.00     753.20      753.20

*SECNO 600.020
 2800 NAT Q1=      808.91  WSEL=      762.90  ENC Q1=      808.91  WSEL=      763.00  RATIO=     .0000
 NAT Q1=      829.  RATIOS LOB,CH,ROB=    .4262    .4416    .1322  WSEL=      763.00
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION     600.02 EXTENDED       5.71 FEET

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


3470 ENCROACHMENT STATIONS=      354.0      592.0  TYPE=      4  TARGET=          .025
    600.02       9.81    763.01      0.00    762.90    763.03       .03        .02        .03    757.30
     1640.       696.       741.       203.       804.       427.       265.       17.        5.     756.70
       .11        .87       1.73        .77       .111       .072       .111       .071    753.20    353.96
     .000408       27.        27.        27.          0          0          6       0.00    238.03    591.99

*SECNO 600.800
 2800 NAT Q1=      281.64  WSEL=      762.95  ENC Q1=      281.64  WSEL=      763.05  RATIO=     .0000
 NAT Q1=      291.  RATIOS LOB,CH,ROB=    .4376    .5448    .0177  WSEL=      763.05
3280 CROSS SECTION     600.80 EXTENDED       1.36 FEET


3470 ENCROACHMENT STATIONS=       39.3      166.6  TYPE=      4  TARGET=          .033
    600.80       8.26    763.06      0.00    762.95    763.25       .20        .08        .14    757.60
     1640.       715.       923.         2.       369.       209.         3.       20.        6.     757.60
       .12       1.94       4.42        .54       .111       .072       .111       .071    754.80     39.29
     .003378       93.        93.        93.          2          0          0       0.00    127.35    166.64


CCHV=     .200 CEHV=     .400
*SECNO 600.980
 2800 NAT Q1=      306.83  WSEL=      763.51  ENC Q1=      306.83  WSEL=      763.61  RATIO=     .0000
 NAT Q1=      317.  RATIOS LOB,CH,ROB=    .4508    .5307    .0184  WSEL=      763.61
3280 CROSS SECTION     600.98 EXTENDED       1.61 FEET


3470 ENCROACHMENT STATIONS=       36.6      167.2  TYPE=      4  TARGET=          .032

         **  D/S FACE FRANKLIN RD

    600.98       8.51    763.61      0.00    763.51    763.78       .17        .52        .01    757.90
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    1640.      739.      897.        4.      400.      217.        6.       22.        6.     757.90
     .13       1.85      4.14       .71      .111      .072       .111      .071    755.10     36.64
 .002834       170.      170.      170.         2         0          0      0.00    130.57    167.20


SPECIAL BRIDGE

SB   XK          XKOR       COEQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00        1.50       2.60        0.00     18.90       0.00      117.20       0.00     755.10     755.10

*SECNO 601.020
 2800 NAT Q1=     832.97  WSEL=     767.17  ENC Q1=     832.97  WSEL=     767.27  RATIO=    .0000
 NAT Q1=    852.  RATIOS LOB,CH,ROB=    .0797    .3244    .5959  WSEL=     767.27
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=       83.9      286.8  TYPE=      4  TARGET=         .022
   601.02     12.18    767.28      0.00    767.17    767.30       .03       .03       .03    759.60
    1640.      115.      544.      981.      146.      287.     1018.       23.        7.    759.00
      .14       .78      1.89       .96      .111      .072      .111      .071    755.10     83.90
 .000387        41.       41.       41.         0         0         2      0.00    202.90    286.80


*SECNO 601.400
 2800 NAT Q1=     857.52  WSEL=     767.20  ENC Q1=     857.52  WSEL=     767.30  RATIO=  0.0000
 NAT Q1=    877.  RATIOS LOB,CH,ROB=    .0810    .3216    .5974  WSEL=     767.30

3470 ENCROACHMENT STATIONS=       83.1      287.3  TYPE=      4  TARGET=         .022
   601.40     12.31    767.31      0.00    767.20    767.33       .02       .02       .00    759.50
    1490.      107.      490.      894.      153.      290.     1038.       25.        7.    758.90
      .16       .70      1.69       .86      .111      .072      .111      .071    755.00     83.09
 .000302        64.       64.       64.         0         0         0      0.00    204.26    287.35


*SECNO 601.420
 2800 NAT Q1=     434.09  WSEL=     767.17  ENC Q1=     434.09  WSEL=     767.27  RATIO=    .0000
 NAT Q1=    446.  RATIOS LOB,CH,ROB=    .1651    .3039    .5310  WSEL=     767.27
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
   Q          QLOB       QCH        QROB       ALCB       ACH        AROB       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,NPD=  4 MIN ELTRD=  758.90 MAX ELLC=  757.90

3470 ENCROACHMENT STATIONS=       87.5      231.6  TYPE=      4  TARGET=         .027

         **  D/S FACE PRIVATE DRIVE

   601.42     12.27    767.27      0.00    767.17    767.35       .08       .00       .02    757.90
    1490.      231.      466.      792.      161.      135.      537.       25.        7.    757.90
      .16       1.44      3.46      1.48      .111      .033      .111      .071    755.00     87.52
 .001182         1.        1.        1.         2         0         0   -247.28    144.06    231.58


*SECNO 601.430
 2800 NAT Q1=     435.24  WSEL=     767.18  ENC Q1=     435.24  WSEL=     767.28  RATIO=    .0000
 NAT Q1=    448.  RATIOS LOB,CH,ROB=    .1653    .3033    .5314  WSEL=     767.28
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3370 NORMAL BRIDGE,NRD=  4 MIN ELTRD=  758.90 MAX ELLC=  757.90


3470 ENCROACHMENT STATIONS=       87.9      231.0  TYPE=      4  TARGET=          .029
   601.43     12.29    767.29      0.00    767.19    767.37       .08       .02       .00    757.90
    1490.      231.      466.      793.      160.      135.      537.       25.        7.    757.90
      .16      1.44      3.45      1.48      .111      .033      .111      .071    755.00     87.94
  .001175       13.       13.       13.         0         0         0   -244.64    143.04    230.98


*SECNO 601.450
 2800 NAT Q1=     867.14  WSEL=     767.25  ENC Q1=     867.14  WSEL=     767.35  RATIO=    .0000
 NAT Q1=     887.  RATIOS LOB,CH,ROB=    .0815    .3205    .5979  WSEL=     767.35

3470 ENCROACHMENT STATIONS=       82.8      287.6  TYPE=      4  TARGET=          .022
   601.45     12.36    767.36      0.00    767.25    767.38       .02       .00       .01    759.50
    1490.      108.      488.      895.      155.      292.     1048.       25.        7.    758.90
      .16       .69      1.67       .85      .111      .072      .111      .071    755.00     82.79
  .000294         1.        1.        1.         2         0         0      0.00    204.77    287.55


*SECNO 601.500
 2800 NAT Q1=     813.47  WSEL=     767.26  ENC Q1=     813.47  WSEL=     767.36  RATIO=    .0000
 NAT Q1=     831.  RATIOS LOB,CH,ROB=    .0785    .3269    .5946  WSEL=     767.36

3470 ENCROACHMENT STATIONS=       83.7      287.0  TYPE=      4  TARGET=          .021
   601.50     12.07    767.37      0.00    767.26    767.39       .02       .01       .00    759.80
    1490.      103.      497.      889.      144.      284.     1003.       27.        7.    759.20
      .17       .72      1.75       .89      .111      .072      .111      .071    755.30     83.72
  .000334        35.       35.       35.         0         0         0      0.00    203.27    286.99


*SECNO 601.520
 2800 NAT Q1=     692.22  WSEL=     767.27  ENC Q1=     692.22  WSEL=     767.37  RATIO=    .0000
 NAT Q1=     711.  RATIOS LOB,CH,ROB=    .0921    .2114    .6966  WSEL=     767.37

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  759.20 MAX ELLC=  758.40


3470 ENCROACHMENT STATIONS=       84.3      286.6  TYPE=      4  TARGET=          .026

         **  D/S FACE FOOT BRIDGE

   601.52     12.07    767.37      0.00    767.27    767.39       .02       .00       .00    759.80
    1490.      121.      323.     1046.      142.      269.     1001.       27.        7.    759.20
      .17       .85      1.20      1.04      .111      .072      .111      .071    755.30     84.26
  .000463         1.        1.        1.         0         0         0    -15.60    202.33    286.59


*SECNO 601.530
 2800 NAT Q1=     693.74  WSEL=     767.27  ENC Q1=     693.74  WSEL=     767.37  RATIO=   0.0000
 NAT Q1=     711.  RATIOS LOB,CH,ROB=    .0921    .2114    .6966  WSEL=     767.37
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QRCB      ALOB      ACH       AROB      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=  0 MIN ELTRD=  759.20 MAX ELLC=  758.40
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3470 ENCROACHMENT STATIONS=       83.5      287.1  TYPE=      4  TARGET=          .024
   601.53     12.08    767.38      0.00    767.27    767.39       .02       .00       .00    759.80
    1490.      122.      323.     1045.      145.      269.     1005.      27.        7.     759.20
      .17       .84      1.20      1.04      .111      .072      .111      .071    755.30     83.51
  .000460        4.        4.        4.         0         0         0    -15.60    203.63    287.14


*SECND 601.550
 2800 NAT Q1=     813.78  WSEL=     767.27  ENC Q1=     813.78  WSEL=     767.37  RATIO=    .0000
 NAT Q1=     832.  RATIOS LOB,CH,RCB=    .0786    .3267    .5947  WSEL=     767.37

3470 ENCROACHMENT STATIONS=       84.2      286.7  TYPE=      4  TARGET=          .022
   601.55     12.07    767.37      0.00    767.27    767.40       .02       .00       .00    759.80
    1490.      103.      497.      890.      143.      285.     1003.      27.        7.     759.20
      .17       .72      1.75       .89      .111      .072      .111      .071    755.30     84.17
  .000334        1.        1.        1.         0         0         0      0.00    202.48    286.65


*SECNC 601.800
 2800 NAT Q1=     777.45  WSEL=     767.27  ENC Q1=     777.45  WSEL=     767.37  RATIO=    .0000
 NAT Q1=     796.  RATIOS LOB,CH,ROB=    .0765    .3312    .5923  WSEL=     767.37

3470 ENCROACHMENT STATIONS=       85.7      285.6  TYPE=      4  TARGET=          .023
   601.80     11.88    767.38      0.00    767.27    767.40       .03       .01       .00    760.00
    1490.       99.      505.      886.      132.      279.      970.      27.        7.     759.40
      .17       .75      1.81       .91      .111      .072      .111      .070    755.50     85.71
  .000366       19.       19.       19.         0         0         0      0.00    199.90    285.62


*SECNO 601.900
 2800 NAT Q1=     586.47  WSEL=     767.45  ENC Q1=     586.47  WSEL=     767.55  RATIO=    .0000
 NAT Q1=     604.  RATIOS LOB,CH,ROB=    .3594    .6349    .0057  WSEL=     767.55

3470 ENCROACHMENT STATIONS=       64.0      276.0  TYPE=      4  TARGET=          .030
   601.90      9.86    767.56      0.00    767.45    767.61       .04       .19       .01    762.90
    1490.      531.      959.        0.      596.      497.        0.       39.        9.     763.10
      .24       .89      1.93      0.00      .111      .072      .111      .071    757.70     64.03
  .000676      400.      400.      400.         1         0         0      0.00    211.97    276.00


*SECNO 602.000
 2800 NAT Q1=     296.52  WSEL=     767.86  ENC Q1=     296.52  WSEL=     767.96  RATIO=    .0000
 NAT Q1=     309.  RATIOS LOB,CH,ROB=    .2454    .7520    .0025  WSEL=     767.96

3470 ENCROACHMENT STATIONS=       84.7      276.0  TYPE=      4  TARGET=          .041
   602.00      7.99    767.99      0.00    767.86    768.11       .12       .47       .03    765.20
    1490.      330.     1160.        0.      281.      369.        0.       47.       11.     765.40
      .29      1.18      3.14      0.00      .111      .072      .111      .071    760.00     84.72
  .002571      400.      400.      400.         2         0         0      0.00    191.28    276.00


*SECNC 602.500
 2800 NAT Q1=     249.85  WSEL=     768.24  ENC Q1=     249.85  WSEL=     768.34  RATIO=    .0000
 NAT Q1=     259.  RATIOS LOB,CH,ROB=    .0225    .9353    .0422  WSEL=     768.34
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALCB      ACH       AROB      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=      58.5      148.2  TYPE=      4  TARGET=         .036

        **  FRANKLIN MILL DAM (REMOVED)

   602.50      6.36   768.36      0.00   768.24   768.56       .20       .42       .03   765.00
    1490.         4.    1449.        37.        5.      402.       23.       49.       11.   765.00
      .29        .81     3.61      1.57      .111      .072      .111      .071   762.00    58.53
  .003514       140.      140.      140.         2         0         0      0.00    89.72   148.25


*SECNO 603.000
 2800 NAT Q1=     159.01  WSEL=     770.80  ENC Q1=     164.86  WSEL=     770.90  RATIO=  -.0368
 NAT Q1=     165.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     770.90

3470 ENCROACHMENT STATIONS=     146.0      244.0  TYPE=      4  TARGET=        0.000
   603.00      6.57   770.87      0.00   770.80   771.20       .33      2.59       .05   772.20
    1490.         0.    1490.        0.        0.      325.        0.       53.       12.   773.90
      .33      0.00     4.58      0.00      .111      .072      .111      .071   764.30   158.45
  .008359       500.      500.      500.         2         0         0      0.00    83.68   242.13


*SECNO 603.500
 2800 NAT Q1=     184.49  WSEL=     774.23  ENC Q1=     189.68  WSEL=     774.33  RATIO=  -.0281
 NAT Q1=     190.  RATIOS LOB,CH,ROB=    .0002   .9998  0.0000  WSEL=     774.33

3470 ENCROACHMENT STATIONS=     190.0      244.0  TYPE=      4  TARGET=         .000
   603.50      7.73   774.23      0.00   774.23   774.62       .39      3.40       .03   774.20
    1490.         0.    1490.        0.        0.      297.        0.       56.       13.   776.10
      .35      0.00     5.02      0.00      .111      .072      .111      .071   766.50   190.00
  .006574       460.      460.      460.         1         0         0      0.00    52.84   242.84


*SECNO 604.000
 2800 NAT Q1=     157.66  WSEL=     777.62  ENC Q1=     157.66  WSEL=     777.72  RATIO=   .0000
 NAT Q1=     162.  RATIOS LOB,CH,ROB=  0.0000   .9359   .0641  WSEL=     777.72

3470 ENCROACHMENT STATIONS=     125.0      177.5  TYPE=      4  TARGET=         .028
   604.00      8.86   777.66      0.00   777.62   778.25       .59      3.55       .08   779.00
    1490.         0.    1435.        55.        0.      229.       28.       59.       14.   775.20
      .37      0.00     6.26      1.94      .111      .072      .111      .071   768.80   127.40
  .009183       460.      460.      460.         1         0         0      0.00    50.10   177.49


*SECNO 604.500
 2800 NAT Q1=     263.41  WSEL=     781.76  ENC Q1=     270.12  WSEL=     781.86  RATIO=  -.0255
 NAT Q1=     270.  RATIOS LOB,CH,ROB=   .0009   .9990   .0001  WSEL=     781.86

3470 ENCROACHMENT STATIONS=     430.0      490.0  TYPE=      4  TARGET=         .001
   604.50     10.05   781.85      0.00   781.76   782.08       .23      3.76       .07   781.20
    1490.         0.    1490.        0.        0.      388.        0.       65.       15.   781.20
      .43      0.00     3.84      0.00      .111      .072      .111      .071   771.80   430.00
  .003156       750.      750.      750.         2         0         0      0.00    60.00   490.00


*SECNO 604.600
 2800 NAT Q1=     241.16  WSEL=     783.74  ENC Q1=     247.73  WSEL=     783.84  RATIO=  -.0272
 NAT Q1=     248.  RATIOS LOB,CH,ROB=   .0002   .9998   .0000  WSEL=     783.84
   SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL        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=      430.0      490.0  TYPE=      4  TARGET=          .000
   604.60      9.70   783.80      0.00   783.74   784.06       .26      1.96       .01    783.50
    1490.        0.     1490.        0.       0.      366.        0.      70.       15.     783.50
      .46      0.00      4.07      0.00     .111     .072      .111     .071    774.10    430.00
  .003765      570.      570.      570.        1        0         0     0.00     60.00    490.00


*SECNO 604.700
 2800 NAT Q1=     231.87  WSEL=     785.99  ENC Q1=     238.05  WSEL=     786.09  RATIO=  -.0267
 NAT Q1=    238.  RATIOS LOB,CH,ROB=    .0000  1.0000    .0000  WSEL=     786.09

3470 ENCROACHMENT STATIONS=      430.0      490.0  TYPE=      4  TARGET=          .000
   604.70      9.53   786.03      0.00   785.99   786.30       .27      2.24       .01    785.90
    1490.        0.     1490.        0.       0.      357.        0.      74.       16.     785.90
      .50      0.00      4.18      0.00     .111     .072      .111     .071    776.50    430.00
  .004099      570.      570.      570.        2        0         0     0.00     60.00    490.00


*SECNO 606.000
 2800 NAT Q1=     326.51  WSEL=     787.86  ENC Q1=     326.51  WSEL=     787.96  RATIO=    .0000
 NAT Q1=    341.  RATIOS LOB,CH,ROB=    .5990   .3816   .0194  WSEL=     787.96

3470 ENCROACHMENT STATIONS=       65.8      276.0  TYPE=      4  TARGET=          .042
   606.00      9.15   787.95      0.00   787.86   788.02       .07      1.68       .04    783.70
    1490.      924.      566.        0.     630.      196.        0.      82.       18.     783.80
      .58      1.47      2.89      0.00     .111     .072      .111     .071    778.80     65.83
  .002224      570.      570.      570.        2        0         0     0.00    210.17    276.00


*SECNO 606.100
 2800 NAT Q1=     271.78  WSEL=     788.53  ENC Q1=     271.78  WSEL=     788.63  RATIO=    .0000
 NAT Q1=    284.  RATIOS LOB,CH,ROB=    .5765   .4066   .0169  WSEL=     788.63

3470 ENCROACHMENT STATIONS=       70.3      276.0  TYPE=      4  TARGET=          .044
   606.10      8.76   788.66      0.00   788.53   788.75       .09       .72       .01    784.80
    1490.      884.      606.        0.     547.      184.        0.      87.       19.     784.90
      .61      1.62      3.30      0.00     .111     .072      .111     .071    779.90     70.34
  .003128      275.      275.      275.        1        0         0     0.00    205.66    276.00


*SECNO 606.400
 2800 NAT Q1=     408.85  WSEL=     789.07  ENC Q1=     408.85  WSEL=     789.17  RATIO=    .0000
 NAT Q1=    423.  RATIOS LOB,CH,ROB=    .0370   .7244   .2386  WSEL=     789.17

3470 ENCROACHMENT STATIONS=       66.7      230.8  TYPE=      4  TARGET=          .032
   606.40      8.10   789.20      0.00   789.07   789.28       .08       .53       .00    784.80
    1490.       33.     1113.      344.       34.      423.      315.      92.       20.     784.80
      .65       .96      2.63      1.09     .111     .072      .111     .071    781.10     66.67
  .001304      275.      275.      275.        2        0         0     0.00    164.17    230.84


*SECNO 606.500
 2800 NAT Q1=     312.04  WSEL=     789.50  ENC Q1=     312.04  WSEL=     789.60  RATIO=    .0000
 NAT Q1=    324.  RATIOS LOB,CH,ROB=    .0289   .7694   .2017  WSEL=     789.60
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALCB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
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   SLOPE     XLOBL     XLCH      XLCBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


3470 ENCROACHMENT STATIONS=       71.4      222.4  TYPE=      4  TARGET=          .037
   606.50      7.32    789.62      0.00    789.50    789.75       .13       .45       .02    786.00
    1490.       15.     1190.       285.      15.       374.      229.       96.       21.    786.00
      .68      1.01      3.18      1.24      .111      .072      .111      .071    782.30     71.36
  .002254       270.      270.      270.         2         0         0      0.00    151.08    222.44


*SECNO 606.600
 2800 NAT Q1=     299.10  WSEL=     790.09  ENC Q1=     299.10  WSEL=     790.19  RATIO=    .0000
 NAT Q1=     311.  RATIOS LOB,CH,ROB=    .0278    .7768    .1954  WSEL=     790.19

3470 ENCROACHMENT STATIONS=       72.1      220.6  TYPE=      4  TARGET=          .038
   606.60      7.21    790.21      0.00    790.09    790.35       .14       .59       .00    786.70
    1490.       13.     1203.       274.      13.       366.      216.      100.       22.    786.70
      .70      1.00      3.29      1.27      .111      .072      .111      .071    783.00     72.08
  .002475       250.      250.      250.         1         0         0      0.00    148.52    220.59


*SECNO 606.700
 2800 NAT Q1=     282.00  WSEL=     790.74  ENC Q1=     282.00  WSEL=     790.84  RATIO=    .0000
 NAT Q1=     293.  RATIOS LOB,CH,ROB=    .0262    .7873    .1865  WSEL=     790.84

3470 ENCROACHMENT STATIONS=       73.0      217.8  TYPE=      4  TARGET=          .039

         **  APPROX BDRY OF BLOOMFIELD & FRANKLIN

   606.70      7.06    790.86      0.00    790.74    791.01       .15       .66       .01    787.50
    1490.        9.     1221.       260.       9.       356.      199.      103.       23.    787.50
      .72       .96      3.43      1.31      .111      .072      .111      .071    783.80     73.03
  .002790       250.      250.      250.         1         0         0      0.00    144.73    217.77


*SECNO 607.000
 2800 NAT Q1=     354.89  WSEL=     791.48  ENC Q1=     361.90  WSEL=     791.58  RATIO=   -.0198
 NAT Q1=     367.  RATIOS LOB,CH,ROB=    .0008    .9870    .0122  WSEL=     791.58

3470 ENCROACHMENT STATIONS=       25.0      148.0  TYPE=      4  TARGET=          .013
   607.00      6.80    791.60      0.00    791.48    791.68       .08       .65       .02    790.00
    1490.         0.     1490.         0.        0.       672.        0.      107.       24.    790.00
      .76      0.00      2.22      0.00      .124      .085      .124      .072    784.80     25.00
  .001739       300.      300.      300.         2         0         0      0.00    123.00    148.00


*SECNO 607.100
 2800 NAT Q1=     141.73  WSEL=     791.88  ENC Q1=     141.73  WSEL=     791.98  RATIO=    .0000
 NAT Q1=     149.  RATIOS LOB,CH,ROB=  0.0000    .8106    .1894  WSEL=     791.98
3280 CROSS SECTION    607.10 EXTENDED       1.39 FEET


3470 ENCROACHMENT STATIONS=      105.0      267.1  TYPE=      4  TARGET=          .051
   607.10      5.69    791.99      0.00    791.88    792.25       .26       .50       .07    795.00
    1490.         0.     1271.       219.        0.       291.      120.      109.       24.    790.00
      .77      0.00      4.36      1.82      .124      .085      .124      .072    786.30    120.90
  .010916       150.      150.       25.         2         0         0      0.00    146.16    267.06
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*SECNO 607.200
 2800 NAT Q1=     189.43  WSEL=     792.75  ENC Q1=     189.43  WSEL=     792.85  RATIO=    .0000
 NAT Q1=     200.  RATIOS LOB,CH,ROB=    .0168    .7895    .1937  WSEL=     792.85
   SECNO     DEPTH     CMSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=       55.0      205.2  TYPE=      4  TARGET=          .051
   607.20      5.48    792.88      0.00    792.75    793.05       .17       .78       .02    790.00
    1490.        0.      1233.      257.        0.      343.      159.      110.       25.    790.00
      .78      0.00      3.59      1.62      .124      .085      .124      .072    787.40     55.00
  .006288       50.       100.       75.         2         0         0      0.00    150.21    205.21

*SECNO 607.300
 2800 NAT Q1=     171.76  WSEL=     793.60  ENC Q1=     178.99  WSEL=     793.70  RATIO=   -.0421
 NAT Q1=     180.  RATIOS LOB,CH,ROB=    .0068    .9932  0.0000  WSEL=     793.70

3470 ENCROACHMENT STATIONS=      135.0      283.0  TYPE=      4  TARGET=          .007
   607.30      5.22    793.72      0.00    793.60    793.89       .16       .84       .00    792.50
    1490.        0.      1490.        0.        0.      458.        0.      111.       25.    796.00
      .79      0.00      3.25      0.00      .124      .085      .124      .072    788.50    135.00
  .006901       75.       125.      150.         2         0         0      0.00    136.36    271.36

*SECNO 607.400
 2800 NAT Q1=     112.80  WSEL=     794.98  ENC Q1=     112.80  WSEL=     795.08  RATIO=    .0000
 NAT Q1=     119.  RATIOS LOB,CH,ROB=    .1766    .8142    .0091  WSEL=     795.08

3470 ENCROACHMENT STATIONS=      162.7      266.0  TYPE=      4  TARGET=          .053
   607.40      5.05    795.05      0.00    794.98    795.51       .46      1.51       .12    792.80
    1490.      212.      1278.        0.       87.      220.        0.      112.       25.    793.00
      .80      2.43      5.81      0.00      .124      .085      .124      .073    790.00    162.69
  .018715       25.       150.      150.         2         0         0      0.00    103.30    266.00
```

1) COUNTY: OAKLAND

2) STUDY NAME: FRANKLIN, VILLAGE OF

3) WATERCOURSE: RIVER ROUGE ~ FRANKLIN BRANCH

4) DOCUMENT TYPE: 100 YR - RUN 2

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************

C
T1      HUD-FIA H-4705
T2      FRANKLIN
T3      FRANKLIN BRANCH : ROUGE RIVER 100 YR FLOW=1640 CFS

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.       4.        0.        0.  0.000000      0.00      -1.0       0.    754.620     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     0.000     0.000     0.000     0.000     0.000     1.300     0.000     0.000     0.000     0.000

NC       .085      .085      .055      .200      .400     0.000     0.000     0.000     0.000     0.000
QT      5.000   965.000  1410.000  1640.000  2220.000  1640.000     0.000     0.000     0.000     0.000
ET      0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000

X1      8.300     8.000   490.000   540.000     0.000     0.000     0.000     0.000    -5.300     0.000
GR    757.400   350.000   757.000   400.000   757.400   490.000   753.900   500.000   753.300   515.000
GR    754.700   530.000   756.800   540.000   759.600   600.000     0.000     0.000     0.000     0.000

X1      8.400     0.000     0.000     0.000   500.000   500.000   500.000     0.000     2.600     0.000

X1      8.900     0.000     0.000     0.000   500.000   500.000   500.000     0.000     2.700     0.000
NC      0.000     0.000     0.000      .400      .800     0.000     0.000     0.000     0.000     0.000

X1      8.980     0.000     0.000     0.000   190.000   190.000   190.000     0.000     -.100     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   757.700   757.700     0.000
SB      0.000     1.950     2.600     0.000    11.360     0.000    51.140     0.000   753.200   753.200

X1    600.020     0.000     0.000     0.000    27.000    27.000    27.000     0.000     0.000     0.000
X2      0.000     0.000     1.000   757.700   760.600     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   760.600   760.600     0.000
BT      8.000   350.000   762.200     0.000   400.000   761.900     0.000   490.000   761.000     0.000
BT    500.000   760.700     0.000   515.000   760.600     0.000   530.000   760.700     0.000   540.000
BT    761.000     0.000   600.000   762.400     0.000     0.000     0.000     0.000     0.000     0.000

X1    600.800    16.000   137.000   166.000    93.000    93.000    93.000     0.000     0.000     0.000
GR    765.100     0.000   763.100    14.000   761.000    38.000   759.800    70.000   758.800   105.000
GR    757.600   137.000   755.600   148.000   755.200   150.000   754.800   152.000   755.000   155.000
GR    755.100   158.000   755.300   161.000   755.600   163.000   757.600   166.000   759.800   168.000
GR    761.700   174.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      0.000     0.000     0.000      .200      .400     0.000     0.000     0.000     0.000     0.000
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** D/S FACE FRANKLIN RD

X1	600.980	0.000	0.000	0.000	170.000	170.000	170.000	0.000	.300	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	763.100	763.100	0.000
SB	0.000	1.500	2.600	0.000	18.900	0.000	117.200	0.000	755.100	755.100
X1	601.020	17.000	112.000	139.000	41.000	41.000	41.000	0.000	-.400	0.000
X2	0.000	0.000	1.000	761.300	766.400	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	766.400	766.400	0.000
BT	8.000	64.000	767.600	0.000	89.000	767.000	0.000	123.000	766.400	0.000
BT	177.000	766.400	0.000	229.000	767.100	0.000	255.000	768.100	0.000	292.000
BT	768.800	0.000	309.000	769.400	0.000	0.000	0.000	0.000	0.000	0.000
GR	768.400	64.000	765.200	76.000	763.700	89.000	762.000	103.000	760.000	112.000
GR	756.300	117.000	755.500	123.000	756.300	129.000	759.400	139.000	759.600	162.000
GR	760.000	177.000	760.300	200.000	760.800	229.000	762.000	255.000	762.400	281.000
GR	765.000	292.000	770.000	309.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	870.000	1280.000	1490.000	2030.000	1490.000	0.000	0.000	0.000	0.000
X1	601.400	0.000	0.000	0.000	64.000	64.000	64.000	0.000	-.100	0.000
NC	0.000	0.000	.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000

** D/S FACE PRIVATE DRIVE

X1	601.420	17.000	117.000	129.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	4.000	64.000	768.300	0.000	117.000	758.900	757.900	129.000	758.900	757.900
BT	309.000	769.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	768.400	64.000	765.200	76.000	763.700	89.000	762.000	103.000	760.000	112.000
GR	757.900	117.000	755.000	117.100	755.000	128.900	757.900	129.000	759.600	162.000
GR	760.000	177.000	760.300	200.000	760.800	229.000	762.000	255.000	762.400	281.000
GR	765.000	292.000	770.000	309.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	601.430	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	757.900	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.055	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	601.450	17.000	112.000	139.000	1.000	1.000	1.000	0.000	-.500	0.000
GR	768.400	64.000	765.200	76.000	763.700	89.000	762.000	103.000	760.000	112.000
GR	756.300	117.000	755.500	123.000	756.300	129.000	759.400	139.000	759.600	162.000
GR	760.000	177.000	760.300	200.000	760.800	229.000	762.000	255.000	762.400	281.000
GR	765.000	292.000	770.000	309.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	601.500	0.000	0.000	0.000	35.000	35.000	35.000	0.000	.300	0.000

** D/S FACE FOOT BRIDGE

X1	601.520	0.000	0.000	0.000	.500	.500	.500	0.000	0.000	0.000
X2	0.000	0.000	0.000	758.400	759.200	0.000	0.000	0.000	0.000	0.000
X1	601.530	0.000	0.000	0.000	4.000	4.000	4.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	758.400	759.200	0.000	0.000	0.000	0.000	0.000

X1	601.550	0.000	0.000	0.000	.500	.500	.500	0.000	0.000	0.000
X1	601.800	0.000	0.000	0.000	19.000	19.000	19.000	0.000	.200	0.000
X1	601.900	19.000	208.000	276.000	400.000	400.000	400.000	0.000	-2.300	0.000
GR	772.600	26.000	768.600	47.000	766.000	63.000	765.800	73.000	766.000	98.000
GR	765.900	125.000	765.400	194.000	765.200	208.000	764.000	222.000	761.500	235.000
GR	761.000	240.000	760.500	242.000	760.100	246.000	760.000	248.000	760.100	250.000
GR	761.500	255.000	762.600	267.000	765.400	276.000	771.400	286.000	0.000	0.000
X1	602.000	0.000	0.000	0.000	400.000	400.000	400.000	0.000	2.300	0.000

** FRANKLIN MILL DAM (REMOVED)

X1	602.500	11.000	60.000	140.000	140.000	140.000	140.000	0.000	0.000	0.000
GR	780.000	0.000	770.000	32.000	765.000	60.000	764.000	68.000	762.000	100.000
GR	764.000	130.000	765.000	140.000	766.000	148.000	768.000	170.000	770.000	222.000
GR	780.000	244.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	603.000	16.000	146.000	244.000	500.000	500.000	500.000	0.000	0.000	0.000
GR	774.800	53.000	774.400	88.000	772.600	114.000	772.200	146.000	769.100	175.000
GR	765.800	206.000	765.300	210.000	764.400	220.000	764.300	222.000	764.800	230.000
GR	765.000	235.000	765.800	239.000	773.900	244.000	774.400	274.000	774.300	311.000
GR	774.500	355.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	603.500	16.000	190.000	244.000	460.000	460.000	460.000	0.000	2.200	0.000
GR	774.800	53.000	774.400	88.000	772.600	114.000	772.200	146.000	772.000	190.000
GR	765.800	206.000	765.300	210.000	764.400	220.000	764.300	222.000	764.800	230.000
GR	765.000	235.000	765.800	239.000	773.900	244.000	774.400	274.000	774.300	311.000
GR	774.500	355.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	604.000	13.000	125.000	164.000	460.000	460.000	460.000	0.000	0.000	0.000
GR	780.000	62.000	779.000	117.000	779.000	125.000	770.100	141.000	769.600	142.000
GR	768.800	150.000	769.200	158.000	770.100	159.000	775.200	164.000	776.200	182.000
GR	776.900	196.000	779.500	207.000	780.400	256.000	0.000	0.000	0.000	0.000
X1	604.500	7.000	430.000	490.000	750.000	750.000	750.000	0.000	1.200	0.000
GR	790.000	250.000	780.000	430.000	771.100	453.000	770.600	463.000	771.300	471.000
GR	780.000	490.000	790.000	510.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	604.600	0.000	0.000	0.000	570.000	570.000	570.000	0.000	2.300	0.000
X1	604.700	0.000	0.000	0.000	570.000	570.000	570.000	0.000	2.400	0.000
X1	606.000	15.000	245.000	276.000	570.000	570.000	570.000	0.000	0.000	0.000
GR	789.000	45.000	788.800	50.000	785.400	58.000	785.100	84.000	784.500	129.000
GR	784.000	223.000	783.700	245.000	781.200	262.000	779.000	263.000	778.800	266.000
GR	779.000	269.000	781.200	270.000	783.800	276.000	787.800	290.000	790.600	303.000

X1	606.100	0.000	0.000	0.000	275.000	275.000	275.000	0.000	1.100	0.000
X1	606.400	13.000	76.000	140.000	275.000	275.000	275.000	0.000	-1.200	0.000
GR	800.000	0.000	790.000	52.000	788.000	63.000	786.000	76.000	784.000	87.000
GR	782.700	94.000	782.300	108.000	782.700	118.000	784.000	122.000	786.000	140.000
GR	788.000	238.000	790.000	243.000	800.000	254.000	0.000	0.000	0.000	0.000
X1	606.500	0.000	0.000	0.000	270.000	270.000	270.000	0.000	1.200	0.000
X1	606.600	0.000	0.000	0.000	250.000	250.000	250.000	0.000	.700	0.000

** APPROX BDRY OF BLOOMFIELD & FRANKLIN

X1	606.700	0.000	0.000	0.000	250.000	250.000	250.000	0.000	.800	0.000
NC	.095	.095	.065	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	607.000	7.000	25.000	148.000	300.000	300.000	300.000	0.000	0.000	0.000
GR	800.000	0.000	790.000	25.000	784.800	50.000	786.000	135.000	788.000	138.000
GR	790.000	148.000	794.400	300.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	607.100	7.000	105.000	200.000	150.000	25.000	150.000	0.000	0.000	0.000
GR	797.800	50.000	795.000	105.000	788.000	142.000	786.300	162.000	788.000	183.000
GR	790.000	200.000	790.600	300.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	607.200	7.000	55.000	135.000	50.000	75.000	100.000	0.000	0.000	0.000
GR	800.000	0.000	790.000	55.000	787.400	80.000	788.000	100.000	790.000	135.000
GR	792.000	250.000	794.000	267.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	607.300	9.000	135.000	283.000	75.000	150.000	125.000	0.000	0.000	0.000
GR	796.800	50.000	792.500	135.000	790.000	155.000	788.500	190.000	790.000	225.000
GR	792.000	255.000	794.000	274.000	796.000	283.000	798.000	312.000	0.000	0.000
X1	607.400	7.000	210.000	266.000	25.000	150.000	150.000	0.000	0.000	0.000
GR	798.000	50.000	794.000	140.000	792.800	210.000	791.000	220.000	790.000	245.000
GR	793.000	266.000	800.000	295.000	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= .200 CEHV= .400
*SECNO 8.300
3280 CROSS SECTION 8.30 EXTENDED 2.52 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
8.30	6.62	754.62	0.00	754.62	754.75	.13	0.00	0.00	752.10
1640.	563.	963.	113.	381.	268.	103.	0.	0.	751.50
0.00	1.48	3.59	1.10	.111	.072	.111	0.000	748.00	350.00
.003263	0.	0.	0.	0	0	0	0.00	250.00	600.00

*SECNO 8.400
3280 CROSS SECTION 8.40 EXTENDED 1.97 FEET

8.40	6.07	756.67	0.00	0.00	756.87	.20	2.09	.03	754.70
1640.	506.	1050.	84.	304.	240.	71.	8.	3.	754.10
.04	1.67	4.37	1.19	.111	.072	.111	.071	750.60	350.00
.005570	500.	500.	500.	2	0	0	0.00	245.05	595.05

*SECNO 8.900
3280 CROSS SECTION 8.90 EXTENDED 2.01 FEET

8.90	6.11	759.41	0.00	0.00	759.61	.20	2.73	.00	757.40
1640.	511.	1044.	86.	309.	242.	73.	15.	6.	756.80
.08	1.65	4.31	1.17	.111	.072	.111	.071	753.30	350.00
.005354	500.	500.	500.	3	0	0	0.00	245.88	595.88

CCHV= .400 CEHV= .800
*SECNO 8.980
3280 CROSS SECTION 8.98 EXTENDED 2.89 FEET

8.98	6.99	760.19	0.00	0.00	760.29	.10	.65	.04	757.30
1640.	592.	915.	133.	433.	287.	125.	18.	7.	756.70
.11	1.37	3.19	1.06	.111	.072	.111	.071	753.20	350.00
.002359	190.	190.	190.	2	0	0	0.00	250.00	600.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.95	2.60	0.00	11.36	0.00	51.14	0.00	753.20	753.20

*SECNO 600.020
3280 CROSS SECTION 600.02 EXTENDED 5.60 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

PRESSURE AND WEIR FLOW

LOB 525 CH 423 ROB 211

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
791.33	760.70	0.00	1159.	486.	51.	51.	757.70	760.60
600.02	9.70	762.90	0.00	0.00	762.92	.03	2.63	0.00	757.30
1640.	697.	728.	215.	812.	422.	288.	19.	7.	756.70
.11	.86	1.73	.75	.111	.072	.111	.071	753.20	350.00
.000411	27.	27.	27.	2	0	6	0.00	250.00	600.00

*SECNO 600.800
3280 CROSS SECTION 600.80 EXTENDED 1.25 FEET

X SEC does not appear to be appropriate, crosses 14mi Rd.

600.80	8.15	762.95	0.00	0.00	763.14	.19	.08	.13	757.60
1640.	709.	903.	28.	383.	206.	22.	21.	7.	757.60
.12	1.85	4.38	1.31	.111	.072	.111	.071	754.80	15.72
.003391	93.	93.	93.	2	0	0	0.00	158.28	174.00

CCHV= .200 CEHV= .400
*SECNO 600.980
3280 CROSS SECTION 600.98 EXTENDED 1.51 FEET

Dupe of 600.8, not appropriate
LOB, is different
Channel @ 137 of 166

** D/S FACE FRANKLIN RD

600.98	8.41	763.51	0.00	0.00	763.67	.16	.53	.00	757.90
1640.	731.	879.	30.	415.	213.	24.	24.	8.	757.90
.14	1.76	4.12	1.25	.111	.072	.111	.071	755.10	13.25
.002857	170.	170.	170.	2	0	0	0.00	160.75	174.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.50	2.60	0.00	18.90	0.00	117.20	0.00	755.10	755.10

*SECNO 601.020
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
768.07	764.72	0.00	172.	1475.	117.	117.	761.30	766.40
601.02	12.07	767.17	0.00	0.00	767.20	.03	3.53	0.00	759.60

Appears about 40ft of weir would be excluded, according to floodway delineations, negligable effect on profile

1640.	129.	536.	975.	176.	284.	1030.	25.	8.	759.00	Appears XSEZ is much more restrictive than the duped XSEZ used
.14	.73	1.88	.95	.111	.072	.111	.071	755.10	67.11	
.000388	41.	41.	41.	2	0	2	0.00	233.63	300.74	

*SECNO 601.400

601.40	12.20	767.20	0.00	0.00	767.22	.02	.02	.00	759.50
1490.	119.	482.	888.	182.	288.	1051.	27.	8.	758.90
.16	.65	1.68	.85	.111	.072	.111	.071	755.00	66.63
.000302	64.	64.	64.	2	0	0	0.00	234.55	301.18

*SECNO 601.420

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 758.90 MAX ELLC= 757.90

** D/S FACE PRIVATE DRIVE

601.42	12.17	767.17	0.00	0.00	767.24	.08	.00	.02	757.90
1490.	244.	459.	787.	185.	134.	564.	27.	8.	757.90
.16	1.32	3.43	1.40	.111	.033	.111	.071	755.00	68.62
.001178	1.	1.	1.	2	0	0	-529.49	230.74	299.37

*SECNO 601.430

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 758.90 MAX ELLC= 757.90

601.43	12.18	767.18	0.00	0.00	767.26	.08	.02	.00	757.90
1490.	245.	458.	788.	185.	134.	565.	27.	9.	757.90
.16	1.32	3.42	1.39	.111	.033	.111	.071	755.00	68.59
.001172	13.	13.	13.	0	0	0	-529.80	230.81	299.40

*SECNO 601.450

601.45	12.25	767.25	0.00	0.00	767.27	.02	.00	.01	759.50
1490.	120.	481.	889.	184.	289.	1059.	27.	9.	758.90
.16	.65	1.66	.84	.111	.072	.111	.071	755.00	66.44
.000295	1.	1.	1.	2	0	0	0.00	234.91	301.35

*SECNO 601.500

601.50	11.96	767.26	0.00	0.00	767.28	.02	.01	.00	759.80
1490.	116.	490.	884.	172.	282.	1014.	28.	9.	759.20
.17	.67	1.74	.87	.111	.072	.111	.071	755.30	67.50
.000336	35.	35.	35.	1	0	0	0.00	232.89	300.39

*SECNO 601.520

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 759.20 MAX ELLC= 758.40

** D/S FACE FOOT BRIDGE

601.52	11.97	767.27	0.00	0.00	767.28	.02	.00	.00	759.80
1490.	135.	317.	1037.	171.	266.	1012.	28.	9.	759.20
.17	.79	1.19	1.02	.111	.072	.111	.071	755.30	67.53
.000463	1.	1.	1.	0	0	0	-15.60	232.84	300.36

*SECNO 601.530

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 0 MIN ELTRD= 759.20 MAX ELLC= 758.40

601.53	11.97	767.27	0.00	0.00	767.29	.02	.00	.00	759.80
1490.	136.	317.	1037.	172.	266.	1014.	29.	9.	759.20
.17	.79	1.19	1.02	.111	.072	.111	.071	755.30	67.49
.000461	4.	4.	4.	0	0	0	-15.60	232.90	300.39

*SECNO 601.550

601.55	11.97	767.27	0.00	0.00	767.29	.02	.00	.00	759.80
1490.	116.	490.	884.	172.	282.	1014.	29.	9.	759.20
.17	.67	1.74	.87	.111	.072	.111	.071	755.30	67.49
.000335	1.	1.	1.	0	0	0	0.00	232.90	300.39

*SECNO 601.800

601.80	11.77	767.27	0.00	0.00	767.30	.02	.01	.00	760.00
1490.	112.	497.	881.	163.	276.	982.	29.	9.	759.40
.18	.69	1.80	.90	.111	.072	.111	.070	755.50	68.23
.000367	19.	19.	19.	0	0	0	0.00	231.50	299.73

*SECNO 601.900

601.90	9.75	767.45	0.00	0.00	767.49	.04	.19	.01	762.90
1490.	529.	953.	8.	626.	489.	16.	41.	11.	763.10
.25	.85	1.95	.52	.111	.072	.111	.071	757.70	40.95
.000645	400.	400.	400.	2	0	0	0.00	242.30	283.25

*SECNO 602.000

602.00	7.86	767.86	0.00	0.00	767.98	.12	.46	.03	765.20
1490.	353.	1133.	4.	319.	361.	5.	49.	13.	765.40
.29	1.11	3.14	.70	.111	.072	.111	.071	760.00	51.55
.002525	400.	400.	400.	2	0	0	0.00	228.55	280.10

*SECNO 602.500

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

** FRANKLIN MILL DAM (REMOVED)

602.50	6.24	768.24	0.00	0.00	768.42	.19	.42	.03	765.00
1490.	32.	1399.	59.	29.	392.	50.	51.	14.	765.00
.30	1.09	3.57	1.19	.111	.072	.111	.071	762.00	41.87
.003556	140.	140.	140.	2	0	0	0.00	134.28	176.16

*SECNO 603.000

603.00	6.50	770.80	0.00	0.00	771.14	.34	2.66	.06	772.20
1490.	0.	1490.	0.	0.	319.	0.	56.	15.	773.90
.33	0.00	4.66	0.00	.111	.072	.111	.071	764.30	159.11
.008780	500.	500.	500.	2	0	0	0.00	82.98	242.09

*SECNO 603.500

603.50	7.73	774.23	0.00	0.00	774.62	.39	3.46	.02	774.20
1490.	0.	1490.	0.	0.	297.	0.	59.	16.	776.10
.36	.07	5.01	0.00	.111	.072	.111	.071	766.50	182.50
.006522	460.	460.	460.	2	0	0	0.00	60.34	242.85

*SECNO 604.000

604.00	8.82	777.62	0.00	0.00	778.18	.56	3.49	.07	779.00
1490.	0.	1401.	89.	0.	228.	51.	62.	16.	775.20
.38	0.00	6.15	1.75	.111	.072	.111	.071	768.80	127.48
.008932	460.	460.	460.	2	0	0	0.00	71.58	199.06

*SECNO 604.500

604.50	9.96	781.76	0.00	0.00	782.00	.23	3.76	.06	781.20
1490.	1.	1489.	0.	3.	383.	0.	68.	18.	781.20
.43	.33	3.89	.30	.111	.072	.111	.071	771.80	419.84
.003200	750.	750.	750.	3	0	0	0.00	71.29	491.13

*SECNO 604.600

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
604.60	9.64	783.74	0.00	0.00	784.00	.26	1.99	.01	783.50
1490.	0.	1490.	0.	1.	363.	0.	73.	19.	783.50
.47	.20	4.10	.01	.111	.072	.111	.071	774.10	425.72
.003817	570.	570.	570.	3	0	0	0.00	64.76	490.48

*SECNO 604.700

604.70	9.49	785.99	0.00	0.00	786.27	.27	2.26	.01	785.90
1490.	0.	1490.	0.	0.	355.	0.	77.	19.	785.90
.51	.01	4.20	.01	.111	.072	.111	.071	776.50	428.25
.004130	570.	570.	570.	2	0	0	0.00	61.94	490.19

*SECNO 606.000

606.00	9.06	787.86	0.00	0.00	787.93	.07	1.62	.04	783.70
1490.	885.	577.	28.	639.	193.	29.	85.	21.	783.80
.59	1.39	2.99	.97	.111	.072	.111	.071	778.80	52.23
.002082	570.	570.	570.	2	0	0	0.00	238.01	290.24

*SECNO 606.100

606.10	8.63	788.53	0.00	0.00	788.62	.10	.68	.01	784.80
1490.	850.	616.	25.	557.	180.	23.	90.	23.	784.90
.62	1.53	3.42	1.07	.111	.072	.111	.071	779.90	53.24
.003006	275.	275.	275.	2	0	0	0.00	235.45	288.69

*SECNO 606.400

606.40	7.97	789.07	0.00	0.00	789.15	.08	.53	.00	784.80
1490.	53.	1087.	349.	57.	415.	327.	95.	24.	784.80
.66	.94	2.62	1.07	.111	.072	.111	.071	781.10	50.60
.001328	275.	275.	275.	2	0	0	0.00	192.69	243.30

*SECNO 606.500

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
506.50	7.20	789.50	0.00	0.00	789.63	.12	.46	.02	786.00
1490.	42.	1156.	292.	39.	366.	248.	100.	25.	786.00
.68	1.07	3.16	1.18	.111	.072	.111	.071	782.30	54.72
.002280	270.	270.	270.	2	0	0	0.00	187.04	241.76

*SECNO 606.600

606.60	7.09	790.09	0.00	0.00	790.23	.13	.59	.00	786.70
1490.	40.	1168.	282.	36.	359.	237.	103.	27.	786.70
.71	1.09	3.25	1.19	.111	.072	.111	.071	783.00	55.33
.002482	250.	250.	250.	2	0	0	0.00	186.15	241.48

*SECNO 606.700

** APPROX BDRY OF BLOOMFIELD & FRANKLIN

606.70	6.94	790.74	0.00	0.00	790.89	.15	.66	.01	787.50
1490.	37.	1184.	269.	33.	350.	222.	107.	28.	787.50
.73	1.12	3.38	1.21	.111	.072	.111	.071	783.80	56.16
.002792	250.	250.	250.	2	0	0	0.00	184.95	241.11

*SECNO 607.000

607.00	6.68	791.48	0.00	0.00	791.56	.08	.66	.01	790.00
1490.	1.	1473.	16.	3.	657.	38.	111.	29.	790.00
.77	.39	2.24	.41	.124	.085	.124	.072	784.80	21.29
.001763	300.	300.	300.	2	0	0	0.00	177.94	199.24

*SECNO 607.100

3280 CROSS SECTION 607.10 EXTENDED 1.28 FEET

607.10	5.58	791.88	0.00	0.00	792.12	.25	.50	.07	795.00
1490.	0.	1221.	269.	0.	283.	158.	113.	29.	790.00
.78	0.00	4.32	1.70	.124	.085	.124	.072	786.30	121.49
.011053	150.	150.	25.	2	0	0	0.00	178.51	300.00

*SECNO 607.200

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSFA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
607.20	5.35	792.75	0.00	0.00	792.91	.16	.77	.02	790.00
1490.	24.	1190.	276.	21.	333.	203.	114.	30.	790.00
.79	1.16	3.57	1.36	.124	.085	.124	.072	787.40	39.91
.006187	50.	100.	75.	2	0	0	0.00	216.41	256.32

*SECNO 607.300

607.30	5.10	793.60	0.00	0.00	793.78	.17	.86	.00	792.50
1490.	8.	1482.	0.	12.	442.	0.	116.	30.	796.00
.80	.70	3.35	0.00	.124	.085	.124	.072	788.50	113.23
.007526	75.	125.	150.	2	0	0	0.00	156.98	270.21

*SECNO 607.400

607.40	4.98	794.98	0.00	0.00	795.40	.43	1.53	.10	792.80
1490.	249.	1228.	13.	122.	216.	8.	117.	31.	793.00
.81	2.05	5.69	1.55	.124	.085	.124	.073	790.00	117.92
.017449	25.	150.	150.	2	0	0	0.00	156.29	274.21

PROFILE FOR STREAM FRANKLIN BRANCH : ROUGE

PLOTTED POINTS (BY PRIORITY)-E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

ELEVATION-FT			740.	750.	760.	770.	780.	790.	800.	810.	820.	830.
SECNO	CUMDIS-FT											
8.30	0.	C		I . L E	.	.	.	.	.	.	.	.
	50.	C		I . L E	.	.	.	.	.	.	.	.
	100.	C		I. RL E	.	.	.	.	.	.	.	.
	150.	C		I. RL E	.	.	.	.	.	.	.	.
	200.	C		I. L WE	.	.	.	.	.	.	.	.
	250.	C		I. L E	.	.	.	.	.	.	.	.
	300.	C		I RL E	.	.	.	.	.	.	.	.
	350.	C		I RL E	.	.	.	.	.	.	.	.
	400.	C		I L E	.	.	.	.	.	.	.	.
	450.	C		I L WE	.	.	.	.	.	.	.	.
8.40	500.	C		.I RL E	.	.	.	.	.	.	.	.
	550.	C		.I RL E	.	.	.	.	.	.	.	.
	600.	C		.I L E	.	.	.	.	.	.	.	.
	650.	C		.I RLWE	.	.	.	.	.	.	.	.
	700.	C		. I RL E	.	.	.	.	.	.	.	.
	750.	C		. I RL E	.	.	.	.	.	.	.	.
	800.	C		. I L WE	.	.	.	.	.	.	.	.
	850.	C		. I RL E	.	.	.	.	.	.	.	.
	900.	C		. I RL E	.	.	.	.	.	.	.	.
	950.	C		. I L E	.	.	.	.	.	.	.	.
8.90	1000.	C		. I L WE	.	.	.	.	.	.	.	.
	1050.	C		. I L E	.	.	.	.	.	.	.	.
	1100.	C		. I L E	.	.	.	.	.	.	.	.
	1150.	C		. I L E	.	.	.	.	.	.	.	.
8.98	1200.	C		. I L E	.	.	.	.	.	.	.	.
600.02	1250.	C		. I L . E	.	.	.	.	.	.	.	.
	1300.	C		. I L M E	.	.	.	.	.	.	.	.
600.80	1350.	C		. I L . ME	.	.	.	.	.	.	.	.
	1400.	C		. I L . ME	.	.	.	.	.	.	.	.
	1450.	C		. I L . ME	.	.	.	.	.	.	.	.
600.98	1500.	C		. I L . M E	.	.	.	.	.	.	.	.
601.02	1550.	C		. I RL EM	.	.	.	.	.	.	.	.
601.40	1600.	C		. I RL EM	.	.	.	.	.	.	.	.
601.42	1650.	C		. I L . EM	.	.	.	.	.	.	.	.
601.43	1700.	C		. I L . EM	.	.	.	.	.	.	.	.
601.45	1750.	C		. I RL EM	.	.	.	.	.	.	.	.
601.50	1800.	C		. I RL EM	.	.	.	.	.	.	.	.
601.52	1850.	C		. I RL EM	.	.	.	.	.	.	.	.
601.53	1900.	C		. I RL EM	.	.	.	.	.	.	.	.
601.55	1950.	C		. I RL EM	.	.	.	.	.	.	.	.
601.80	2000.	C		. I RL EM	.	.	.	.	.	.	.	.
	2050.	C		. I L EM	.	.	.	.	.	.	.	.
601.90	2100.	C		. I . L E M.	.	.	.	.	.	.	.	.
	2150.	C		. I . L EM.	.	.	.	.	.	.	.	.
	2200.	C		. I . LR E M	.	.	.	.	.	.	.	.
	2250.	C		. I. L E M	.	.	.	.	.	.	.	.
	2300.	C		. I. L E M	.	.	.	.	.	.	.	.
	2350.	C		. I. LR E .M	.	.	.	.	.	.	.	.
	2400.	C		. I. L E .M	.	.	.	.	.	.	.	.

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        2450.  C         .         I    L  E .M        .         .         .         .         .         .
602.00  2500.  C         .         I    L  E .M        .         .         .         .         .         .
        2550.  C         .         .I   L  E .   M     .         .         .         .         .         .
602.50  2600.  C         .         . I  L  E .         M         .         .         .         .         .
        2650.  C         .         . I   L WE.        M.         .         .         .         .         .
        2700.  C         .         . I   LR E.        M.         .         .         .         .         .
        2750.  C         .         .  I   LRE.       M .         .         .         .         .         .
        2800.  C         .         .  I    LWE       M .         .         .         .         .         .
        2850.  C         .         .  I     LE      M  .         .         .         .         .         .
        2900.  C         .         .  I     LE      M  .         .         .         .         .         .
        2950.  C         .         .   I     ER    M   .         .         .         .         .         .
        3000.  C         .         .   I     WER   M   .         .         .         .         .         .
        3050.  C         .         .   I     .E R M    .         .         .         .         .         .
603.00  3100.  C         .         .   I     .EL RM    .         .         .         .         .         .
        3150.  C         .         .    I    .WE RM    .         .         .         .         .         .
        3200.  C         .         .    I    . ELRM    .         .         .         .         .         .
        3250.  C         .         .    I    . EL R    .         .         .         .         .         .
        3300.  C         .         .    I    . WE R    .         .         .         .         .         .
        3350.  C         .         .    I    .  E RM   .         .         .         .         .         .
        3400.  C         .         .     I   .  ELRM   .         .         .         .         .         .
        3450.  C         .         .     I   .  WE R   .         .         .         .         .         .
        3500.  C         .         .     I   .   E R   .         .         .         .         .         .
        3550.  C         .         .     I   .   WERM  .         .         .         .         .         .
603.50  3600.  C         .         .      I  .   WERM  .         .         .         .         .         .
        3650.  C         .         .      I  .    ERM  .         .         .         .         .         .
        3700.  C         .         .      I  .    ERM  .         .         .         .         .         .
        3750.  C         .         .      I  .    WE M .         .         .         .         .         .
        3800.  C         .         .      I  .     E M .         .         .         .         .         .
        3850.  C         .         .       I .     WEM .         .         .         .         .         .
        3900.  C         .         .       I .     WE M.         .         .         .         .         .
        3950.  C         .         .       I .    R ELM.         .         .         .         .         .
        4000.  C         .         .       I .    R WE M         .         .         .         .         .
604.00  4050.  C         .         .        I.    R  ELM         .         .         .         .         .
        4100.  C         .         .        I.     R EL.M        .         .         .         .         .
        4150.  C         .         .        I.     R WE.M        .         .         .         .         .
        4200.  C         .         .        I.     R WE. M       .         .         .         .         .
        4250.  C         .         .         I      R EL  M      .         .         .         .         .
        4300.  C         .         .         I      R EL   M     .         .         .         .         .
        4350.  C         .         .         I       RWE   M     .         .         .         .         .
        4400.  C         .         .         I       R E    M    .         .         .         .         .
        4450.  C         .         .         I       R E     M   .         .         .         .         .
        4500.  C         .         .         .I       RE      M  .         .         .         .         .
        4550.  C         .         .         .I       RWE     M  .         .         .         .         .
        4600.  C         .         .         .I        RE      M .         .         .         .         .
        4650.  C         .         .         .I        RE       M.         .         .         .         .
        4700.  C         .         .         .I        RE        M         .         .         .         .
        4750.  C         .         .         . I       .WE       M         .         .         .         .
604.50  4800.  C         .         .         . I       .LE       .M        .         .         .         .
        4850.  C         .         .         . I       .LE       .M        .         .         .         .
        4900.  C         .         .         . I       . E       . M       .         .         .         .
        4950.  C         .         .         . I       . WE      . M       .         .         .         .
        5000.  C         .         .         .  I      . WE      . M       .         .         .         .
        5050.  C         .         .         .  I      . LE      . M       .         .         .         .
        5100.  C         .         .         .  I      . LE      . M       .         .         .         .
        5150.  C         .         .         .  I      .  E      .  M      .         .         .         .
        5200.  C         .         .         .  I      .  E      .  M      .         .         .         .
        5250.  C         .         .         .   I     .  WE     .  M      .         .         .         .
        5300.  C         .         .         .   I     .  WE     .  M      .         .         .         .
604.60  5350.  C         .         .         .   I     .   E     .   M     .         .         .         .
        5400.  C         .         .         .   I     .   E     .   M     .         .         .         .
        5450.  C         .         .         .    I    .   E     .   M     .         .         .         .
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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: FRANKLIN, VILLAGE OF

3) WATERCOURSE: ROUGE RIVER, FRANKLIN BRANCH

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

00BREAK00

FLOOD INSURANCE STUDY HYDRAULIC REPORT

PROJECT: HUD-FIA-H-4705 Franklin Village and Bloomfield Twp., Oakland Co., Michigan

CONSULTING FIRM: McNamee, Porter and Seeley/Smith, Hinchman and Grylls

WATERCOURSE: Franklin Branch - Rouge River

STUDY LIMITS: Telegraph Rd., - corporate limits (downstream limit) to just downstream Inkster Rd.-corporate limits (upstream limit)

DATE OF AERIAL SURVEY: Franklin work map-April, 1971 (x-section 100% field surveyed) Bloomfield Twp. Portion-November, 1978 (underwater field surveyed)

DATE OF LAND SURVEY: McNamee, Porter and Seeley field crew 1/8/79 - 1/25/79, 4/3/79, 6/7/79 (Franklin Village and Bloomfield Twp.)

SOURCE OF FLOWS: Discharges were computed by MP&S/SH&G and approved by MDNR on 2/15/79.

TOPOGRAPHIC INFORMATION: Franklin - 4 foot topographic map 1"=200'
Bloomfield Twp. 2 contour topographic map - 1"=200'

METHOD OF ANALYSIS: HEC-2 water surface profile computer program

VARIABLES AND COEFFICIENTS:

Channel "n"	.055 - .065*
Overbank "n"	.085 - .095*
n values thru bridges	0.013 - 0.025
Contraction Coefficients	0.2 - 0.4
Expansion Coefficients	0.4 - 0.8

*Final Value Raised by 30% "N x 1.3 was used due to severe meandering of Stream"

Bridge loss coefficients were chosen per References 1 and 2.

PHOTOGRAPHS: Enclosed for your review, please return

CROSS-SECTIONS: See Table 1 for cross-section description. Cross-section plots enclosed

XKOR-CALCULATIONS: See Table 2

REFERENCES:

1. "Hec-2 Water Surface Profiles", Users Manual, U.S. Army Corps of Engineers, Feb. 1972.

2. "Application of the Hec-2 Bridge Routines", U.S. Army Corps of Engineers, June 1974.

3. "Roughness Characteristics of Natural Channels", Barnes, Harry H. Jr., Geological Survey. Water Supply Paper 1849.

4. "Floodway Determination using computer program Hec-2", Bonner, Vernon R., U.S. Army Corps of Engineers Hec Training Document 5, May 1974.

HIGH WATER MARKS & CALIBRATION

No high water marks were available for use in calibrating the HEC-2 model for the Franklin Branch-Rouge River.

A sensitivity analysis was performed on the 100 year flow by raising and lowering all Manning "n" values by 30%. Water surface elevations differed on the average by ±0.5 feet. Due to the severe meandering of the Rouge River, the Manning "n" values were raised by 30% and used for all flows in Franklin Village and Bloomfield Twp. In addition, over-bank lengths are equal to river channel lengths in order to better model the hydraulic losses expected in the overbanks.

STARTING CONDITIONS

Field information was obtained about 4000 ft. downstream of the corporate limits of Franklin Village in order to establish a good starting elevation of the corporate limits. Normal depth was assumed for the starting elevation. The slope-area method was used to determine this starting elevation for all flows, utilizing the value of slope determined from the field surveyed cross-sections. A convergence test was run on the 100 yr. flow by changing the starting elevation determined by the slope-area method by ±1.5 feet. The convergence test was run to just inside the corporate limits, with the results indicating very good convergence at this point.

DESIGNATED FLOODWAY

Encroachment method 4 in the HEC-2 program was used to determine encroachment stations based on an allowable surcharge of 0.1 feet. At field surveyed sections the designated floodway was established using the computer determined encroachment stations. Between field surveyed sections, the available topographic information was used to complete the floodway delineation. (See the enclosed 1"=200' topographic maps for floodway delineation).

COMPUTER OUTPUTS

Enclosed are complete outputs for (i) 100 year natural and 100 year designated floodway (ii) 10, 50, and 500 year flood plain elevations, and (iii) sensitivity analysis and convergence test (downstream of limit of study) for your review.

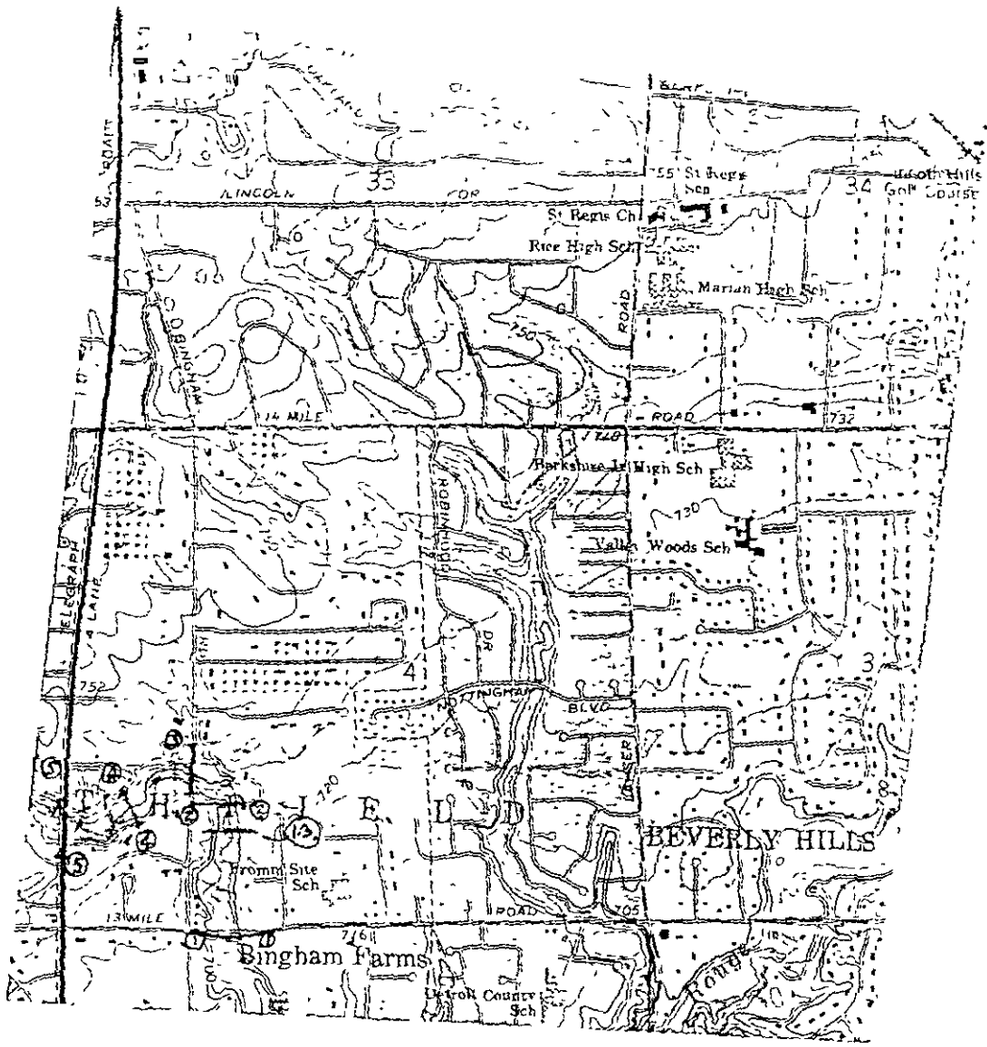
COMMENTS

At Telegraph Rd. (cross-sections 4.98-5.02), pressure flow occurs for the 50, 100, and 500 year floods. Therefore, the special bridge routine is used. The ELLC was lowered from 709.1 to 708.5 for the 10 year flood in order to correctly model pressure flow with the special bridge routine.

The downstream runs which were made to determine starting elevations were started at cross section 1.3, not at 13 Mile Road (cross section 1-refer to Figure 1). Cross section 1 is located 1250 feet downstream of cross section 1.3. Utilizing information about the bridge, and knowing the flows, it was determined this bridge would not control further upstream and was not included in the model. There is a footbridge located near cross section 1.3. It was determined to cause negligible loss and was therefore excluded from the model also.

The 100-year flood plain has been delineated for the Franklin Village as well as for the Bloomfield Twp. However, as for Bloomfield Twp. the 100-year floodplain delineation will be finalized by Abrams.

FIGURE 1



FRANKLIN VILLAGE -
DOWNSTREAM X-SECTIONS
FROM DOWNSTREAM LIMIT
OF STUDY - FOR STARTING
ELEVATION DETERMINATION

Note: There were cross sections taken upstream and downstream of the bridges noted above, however the locations of these are not noted above. For location and description of these Field surveyed sections, see the x-section table and the downstream computer runs.

HUD-FIA-H-4205

CONSULTING ENGINEERS
AN AFFILIATE OF MICHIGAN

COMMUNITY: FRANKLIN VILLAGE + BLOOMFIELD TWP. FILE NO.
WATERCOURSE: FRANKLIN BRANCH - ROUGE RIVER

TABLE 1 - SECNO

Section Types	Description
1	Surveyed (See Remarks if Other Than MPS and/or Abrams)
2	Field Survey Section, partly modified for modelling
3	Synthetic - Repeat of nearby surveyed section with an invert adjustment (See Remarks)
4	Synthetic - Developed from topo, surveyed sections, or other information

SECTION NO.	SECTION TYPE	REMARKS
1.3	2	Valley Section - Modified to limit top width - 1 on 4 D/S expansion
1.98	4	D/S Face Private Rd. - Repeat 2.02
1.99	4	Inside D/S Face Private Rd - Repeat 2.02
2.01	4	Inside U/S Face Private Rd - Repeat 2.02
2.02	4	U/S Face Private Rd. - Developed from bridge x-section and bridge sketch (models bridge opening)
2.1	2	Valley Section - Modified for 1 on 1 U/S expansion
2.4	4	Valley Section - Repeat 2.9 + 0.7', modified to limit top width
2.9	2	Valley Section - Modified for 1 on 4 D/S expansion
2.98	4	D/S Face Bingham Rd. - Repeat 3.03
2.99	4	Inside D/S Face Bingham Rd - Repeat 3.03
3.00	4	Inside Bingham Rd Bridge - Repeat 3.03
3.01	4	Inside Bingham Rd Bridge - Repeat 3.03
3.02	4	Inside U/S Face Bingham Rd - Repeat 3.03
3.03	4	U/S Face Bingham Rd - Developed from bridge x-section and bridge sketch (model bridge opening)
3.1	2	Valley Section - Modified for 1 on 1 U/S expansion
3.5	3	Valley Section - Repeat 4.00 - 1.4'
4.0	1	Valley Section
4.2	3	Valley Section - Repeat 4.00 + 1.5'
4.5	3	Valley Section - Repeat 4.9 - 3.0'
4.7	3	Valley Section - Repeat 4.9 - 1.5'
4.9	2	Valley Section - Modified for 1 on 4 D/S expansion
4.98	4	D/S Face Telegraph Rd. - Repeat 5.02 - 2.5'
5.02	4	U/S Face Telegraph Rd - Developed from bridge x-section and bridge sketch
5.05	4	Valley Section - Developed from bridge x-section and section 5.1, modified for 1 on 1 U/S expansion

COMMUNITY: FRANKLIN VILLAGE + BLOOMFIELD TWP. NO. _____

WATER COURSE: FRANKLIN BRANCH - ROUGE RIVER DATE _____

TABLE 1 - SECNO

Section Types	Description
1	Surveyed (See Remarks if Other Than MPS and/or Abrams)
2	Field Survey Section, partly modified For modelling
3	Synthetic - Repeat of nearby surveyed section with an invert adjustment (See Remarks)
4	Synthetic - Developed from topo, surveyed sections, or other information

SECTION NO.	SECTION TYPE		REMARKS
5.1	A	2	Valley Section - Modified to limit top width
5.2		3	Valley Section - Repeat 5.1 + 2.3'
5.3		3	Valley Section - Repeat 5.1 + 4.6'
5.8		3	Valley Section - Repeat 6.0 - 2.3'
6.0	B	2	Valley Section - Modified to limit top width
6.1		3	Valley Section - Repeat 6.0 + 1.8'
6.2		3	Valley Section - Repeat 6.0 + 3.5'
6.3		3	Valley Section - Repeat 6.0 + 4.7'
6.4		3	Valley Section - Repeat 7.0 - 7.2'
6.5		3	Valley Section - Repeat 7.0 - 5.2'
6.6		3	Valley Section - Repeat 7.0 - 3.2'
6.7		3	Valley Section - Repeat 7.0 - 1.9'
7.0	C	2	Valley Section - Modified to limit top width
7.1		3	Valley Section - Repeat 7.0 + 1.8'
7.2		3	Valley Section - Repeat 7.0 + 3.5'
7.3		3	Valley Section - Repeat 7.0 + 5.3'
7.4		3	Valley Section - Repeat 8.0 - 5.2'
7.5		3	Valley Section - Repeat 8.0 - 3.5'
7.6		3	Valley Section - Repeat 8.0 - 1.7'
8.0	D	2	Valley Section - Modified to limit top width
8.1		3	Valley Section - Repeat 8.0 + 2.7'
8.2		3	Valley Section - Repeat 8.0 + 5.3'
8.3		3	Valley Section - Repeat 8.9 - 5.3'
8.4		3	Valley Section - Repeat 8.9 - 2.7'
8.9	E	2	Valley Section - Modified to limit top width
8.98		3	D/S Face 14 Mile Rd - Bdry of Bloomfield + Franklin Repeat 8.9 - 0.1'
	F, A*		
600.02		3	U/S Face 14 Mile Rd - Repeat 8.9 - 0.1'
600.8	B*	1	Valley Section

* Bloomfield X-sections denoted with *, other X-sections located in Franklin

COMMUNITY: FRANKLIN VILLAGE + BLOOMFIELD TWP FILE NO.

WATER COURSE: FRANKLIN BRANCH - ROUGE RIVER DATE

TABLE 1 - SECNO

Section Types	Description
1	Surveyed (See Remarks if Other Than MPS and/or Abrams)
2	Field Survey Section, partly modified for modelling
3	Synthetic - Repeat of nearby surveyed section with an invert adjustment (See Remarks)
4	Synthetic - Developed from topo, surveyed sections, or other information

SECTION NO.	SECTION TYPE	REMARKS
600.98	3	D/S Face Franklin Rd - Repeat 600.8
C*		
601.02	3	U/S Face Franklin Rd - Repeat 601.8 - 0.4'
601.4	3	Valley Section - Repeat 601.8 - 0.5'
601.42	4	D/S Face Private Drive - Developed from
D*		X-sec 601.8 and bridge sketch
601.43	4	U/S Face Private Drive - Repeat 601.42
601.45	3	Valley Section - Repeat 601.8 - 0.5'
601.5	3	Valley Section - Repeat 601.8 - 0.2'
601.52	3	D/S Face FootBridge - Repeat 601.8
E*		+ Bridge Information
601.53	3	U/S Face FootBridge - Repeat 601.8
		+ Bridge Information
601.55	3	Valley Section - Repeat 601.8 - 0.2'
601.8	F* 1	Valley Section
601.9	3	Valley Section - Repeat 602 - 2.3'
602	G* 2	Valley Section - Modified to eliminate
		ineffective overbank flow
602.5	4	Valley Section - Location of Franklin Mill Dam -
		(removed now) - Developed from Abrams
		Aerial Topo.
603	H* 1	Valley Section
603.5	4	Valley Section - Developed from 603 and 604
604	I* 1	Valley Section
604.5	4	Valley Section - Developed From Abrams Aerial Topo
604.6	4	Valley Section - Repeat 604.5 + 2.3'
604.7	4	Valley Section - Repeat 604.5 + 4.7'
606	J* 2	Valley Section - Modified to eliminate
		ineffective overbank flow

*See note on previous page

...ULTING ENGINEER
...OF MICHIGAN

COMMUNITY: Franklin Village + Bloomfield Twp.
WATERCOURSE: Franklin Branch-Rouge River

TABLE 1 - SECNO

Section Types — Description

1 — Surveyed (See Remarks if Other Than MPS and/or Abrams)
2 — Field Survey Section, partly modified For modelling
3 — Synthetic - Repeat of nearby surveyed section with an invert adjustment (See Remarks)
4 — Synthetic - Developed from Topo, surveyed sections, or other information

SECTION NO.		SECTION TYPE	REMARKS
606.1		3	Valley Section - Repeat 606+1.1'
606.4		4	Valley Section Repeat 606.5 - 1.2'
606.5		4	Valley Section - Developed from Abrams Aerial Topo
606.6		4	Valley Section - Repeat 606.5 + 0.7'
606.7		4	Valley Section - Repeat 606.5 + 1.5'
607	K*	4	Valley Section - Developed from Abrams Aerial Topo
607.1		4	Valley Section - Developed from Abrams Aerial Topo
607.2		4	Valley Section - Developed from Abrams Aerial Topo
607.3		1	Valley Section
607.4	G	4	Valley Section - Developed from Abrams Aerial Topo

COMMUNITY: FRANKLIN & BLOOMFIELD TWP.
WATERCOURSE: FRANKLIN BRANCH - ROUGE RIVER

TABLE 2 - XKOR CALCULATIONS

$XKOR = 1 + K_e + K_f$ $\quad K_f = \frac{29n^2\ell}{R^{4/3}}$ $\quad R = A/P$

Cross Section Location	K_e	A	P	R	n	ℓ	K_f	XKOR	REMARKS
4.98-5.02	0.4	116.7	—	—	.013	340	0.8*	2.2	Telegraph Rd
8.98-600.02	0.55	51.1	44.	1.16	.025	27	0.4	1.95	14 Mile Rd
600.98-601.02	0.4	117.2	62.6	1.87	.013	41	0.1	1.5	Franklin Rd.

* Obtained K_F for Telegraph Rd From Kequiv calculation From Bridge Routine Book by Corp of Engs. Used this eqn because there are 3 culverts present: two 90"Ø and one 120"Ø, with the 120"Ø having a higher maximum low chord than the other two.

100 YR DOWNSTREAM

*PROF 1

CCHV= .200 CEHV= .400
*SECNO 1.300
3280 CROSS SECTION 1.30 EXTENDED 4.03 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOF	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNI	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XIOBR	ITRIAL	IDC	ICCNT	CORAR	TOPWID	ENDST
1.30	8.93	698.53	0.00	702.00	698.98	.45	0.00	0.00	694.00
1640.	105.	1535.	0.	43.	278.	0.	0.	0.	720.00
0.00	2.44	5.53	0.00	.085	.055	.085	0.000	689.60	231.00
.004422	0.	0.	0.	0	0	4	0.00	59.02	290.02

*SECNO 1.980
3280 CROSS SECTION 1.98 EXTENDED 7.77 FEET

** D/S PACE PRIVATE ROAD

1.98	7.87	698.77	0.00	0.00	700.18	1.41	.82	.38	691.00
1640.	0.	1640.	0.	0.	172.	0.	1.	0.	691.00
.00	0.00	9.52	0.00	.085	.055	.085	.055	690.90	139.00
.011933	120.	120.	120.	3	0	0	0.00	22.00	161.00

*SECNO 1.990
3280 CROSS SECTION 1.99 EXTENDED 7.65 FEET

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 710.00 MAX ELLC= 703.40

1.99	7.75	698.65	0.00	0.00	700.27	1.62	.01	.08	691.00
1640.	0.	1640.	0.	0.	161.	0.	1.	0.	691.00
.00	0.00	10.21	0.00	.085	.025	.085	.054	690.90	139.00
.005495	1.	1.	1.	2	0	0	-9.02	22.00	161.00

*SECNO 2.010
3280 CROSS SECTION 2.01 EXTENDED 7.76 FEET

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 710.00 MAX ELLC= 703.40

2.01	7.86	698.76	0.00	0.00	700.34	1.58	.06	.01	691.00
1640.	0.	1640.	0.	0.	163.	0.	1.	0.	691.00
.00	0.00	10.08	0.00	.085	.025	.085	.050	690.90	139.00
.005370	17.	17.	17.	2	0	0	-9.37	22.00	161.00

*SECNO 2.320

CONVERGENCE RUNS

X

3280 CROSS SECTION 2.02 EXTENDED 8.12 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	XNI	XNCH	XNF	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2.02	8.21	699.11	0.00	0.00	700.40	1.29	.01	.06	691.00
1640.	0.	1640.	0.	0.	180.	0.	1.	0.	691.00
.00	0.00	9.12	0.00	.085	.055	.085	.050	690.90	139.00
.010509	1.	1.	1.	2	0	0	0.00	22.30	161.00

*SECNO 2.100
3280 CROSS SECTION 2.10 EXTENDED 3.35 FEET

3301 HV CHANGED MORE THAN HVINS

2.10	9.65	700.55	0.00	0.00	700.76	.21	.14	.22	694.10
1640.	379.	1095.	166.	172.	256.	112.	1.	0.	697.50
.01	2.21	4.28	1.40	.085	.055	.085	.051	690.90	25.00
.001727	41.	41.	41.	3	0	0	0.00	100.00	125.00

*SECNO 2.400

2.40	9.92	701.52	0.00	0.00	701.65	.13	.88	.02	699.00
1640.	68.	1088.	484.	97.	319.	355.	10.	3.	696.40
.07	.69	3.41	1.36	.085	.055	.085	.054	691.60	217.71
.001159	625.	625.	625.	2	0	0	0.00	224.68	442.38

*SECNO 2.900
3280 CROSS SECTION 2.90 EXTENDED 2.62 FEET

2.90	10.02	702.32	0.00	0.00	702.50	.18	.83	.02	699.70
1640.	0.	1231.	409.	0.	324.	247.	20.	5.	697.10
.12	0.00	3.80	1.66	.085	.055	.085	.054	692.30	295.00
.001532	625.	625.	625.	2	0	0	0.00	105.00	400.00

CCHV= .400 CEHV= .800
*SECNO 2.980

** D/S FACE BINGHAM ROAD

2.98	9.10	702.60	0.00	0.00	703.68	1.08	.46	.72	705.10
1640.	0.	1640.	0.	0.	197.	0.	21.	5.	705.10
.13	0.00	8.33	0.00	.085	.055	.085	.054	693.50	374.02
.011120	140.	140.	140.	2	0	0	0.00	21.96	395.98

*SECNO 2.990

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

2.99	9.10	702.60	0.00	0.00	703.68	1.08	.00	.00	705.10
1640.	0.	1640.	0.	0.	197.	0.	21.	5.	705.10
.13	0.00	8.34	0.00	.085	.025	.085	.054	693.50	374.02
.002299	1.	1.	1.	0	0	0	0.00	21.96	395.98

*SECNO 3.000

3.00	9.12	702.62	0.00	0.00	703.69	1.08	.01	.00	705.10
1640.	0.	1640.	0.	0.	197.	0.	21.	5.	705.10
.13	0.00	8.33	0.00	.085	.025	.085	.054	693.50	374.02
.002292	5.	5.	5.	1	0	0	0.00	21.96	395.98

*SECNO 3.010

3.01	9.13	702.63	0.00	0.00	703.71	1.07	.01	.00	705.10
1640.	0.	1640.	0.	0.	197.	0.	21.	5.	705.10
.13	0.00	8.31	0.00	.085	.025	.085	.054	693.50	374.02
.002284	5.	5.	5.	1	0	0	0.00	21.96	395.98

ELLC = 704.2

*SECNO 3.020

3.02	9.15	702.65	0.00	0.00	703.72	1.07	.01	.00	705.10
1640.	0.	1640.	0.	0.	198.	0.	21.	5.	705.10
.13	0.00	8.30	0.00	.085	.025	.085	.054	693.50	374.02
.002270	4.	4.	4.	1	0	0	0.00	21.96	395.98

*SECNO 3.030

3.03	9.16	702.66	0.00	0.00	703.72	1.07	.00	.00	705.10
1640.	0.	1640.	0.	0.	198.	0.	21.	5.	705.10
.13	0.00	8.29	0.00	.085	.055	.085	.054	693.50	374.02
.010958	1.	1.	1.	0	0	0	0.00	21.96	395.98

*SECNO 3.100
3280 CROSS SECTION 3.10 EXTENDED 5.08 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	COPAR	TOPWID	ENDST
3.10	10.98	704.08	0.00	0.00	704.19	.11	.08	.38	696.60
1640.	234.	1032.	374.	166.	324.	277.	22.	5.	698.90
.13	1.41	3.18	1.35	.085	.055	.085	.054	693.10	158.00
.000759	44.	44.	44.	3	0	0	0.00	118.00	276.00

CLHV= .200 CEHV= .400
*SECNO 3.500

3.50	10.11	704.61	0.00	0.00	704.82	.21	.59	.04	698.90
1640.	584.	892.	164.	249.	195.	111.	30.	7.	700.30
.17	2.35	4.57	1.48	.085	.055	.085	.054	694.50	136.91
.002077	500.	500.	500.	2	0	0	0.00	122.23	259.13

*SECNO 4.000

4.00	9.82	705.72	0.00	0.00	705.96	.24	1.13	.01	700.30
1640.	580.	913.	146.	234.	188.	98.	36.	8.	701.70
.21	2.48	4.86	1.49	.085	.055	.085	.054	695.90	137.70
.002472	500.	500.	500.	2	0	0	0.00	120.67	258.37

*SECNO 4.200

4.20	8.79	706.19	0.00	0.00	706.60	.41	.57	.07	701.80
1640.	555.	998.	87.	183.	162.	55.	37.	8.	703.20
.22	3.03	6.15	1.50	.085	.055	.085	.054	697.40	140.50
.004803	170.	170.	170.	2	0	0	0.00	110.31	250.81

*SECNO 4.300

4.30	8.10	707.00	0.00	0.00	707.20	.20	.57	.04	704.20
1640.	508.	1017.	116.	271.	233.	87.	39.	9.	703.30
.24	1.87	4.36	1.32	.085	.055	.085	.054	698.90	149.99
.002442	170.	170.	170.	2	0	0	0.00	172.25	322.24

*SECNO 4.700

SECNO	DEPTH	CWSEL	CRIWS	WSEIK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XBI	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
4.70	7.09	707.49	0.00	0.00	707.88	.39	.60	.07	705.70
1640.	431.	1136.	74.	186.	195.	47.	41.	10.	704.80
.25	2.31	5.83	1.58	.085	.055	.085	.054	700.40	157.52
.005530	170.	170.	170.	2	0	0	0.00	152.96	310.47

*SECNO 4.900
3280 CROSS SECTION 4.90 EXTENDED .72 FEET

4.90	6.62	708.52	0.00	0.00	709.46	.94	1.36	.22	707.20
1640.	110.	1456.	74.	55.	177.	32.	43.	10.	706.30
.25	2.01	8.23	2.33	.085	.055	.085	.054	701.90	185.00
.012547	170.	170.	170.	2	0	0	0.00	115.00	300.00

*SECNO 4.980
3280 CROSS SECTION 4.98 EXTENDED 5.32 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 731.90 ELREA= 731.90

** D/S FACE TELEGRAPH ROAD

4.98	8.22	709.82	0.00	0.00	710.25	.43	.69	.10	701.60
1640.	0.	1640.	0.	0.	312.	0.	44.	10.	701.60
.26	0.00	5.25	0.00	.085	.055	.085	.054	701.60	378.00
.002347	150.	150.	150.	3	0	0	0.00	38.00	416.00

SPECIAL BRIDGE

SB	XK	XKOB	COPQ	RDLEN	EWC	RWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.00	2.70	250.00	15.00	0.00	167.00	.17	704.10	701.60

*SECNO 5.020
3280 CROSS SECTION 5.02 EXTENDED 5.40 FEET

PRESSURE FLOW

EGPRS	ESLWC	H3	QWEIR	CFF	BAREA	TRAPEZOID AREA	ELLC	ELTRD
712.81	712.75	0.00	0.	1640.	167.	79.	709.10	731.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEF= 731.90 ELFEA= 731.90

5.02	8.29	712.39	0.00	0.00	712.81	.42	2.57	0.00	704.10
1640.	0.	1640.	0.	0.	315.	0.	46.	11.	704.10
.28	0.00	5.20	0.00	.085	.055	.085	.054	704.10	378.00
.002277	340.	340.	340.	2	0	0	0.00	38.00	416.00

*SECNO 5.050

5.05	8.08	712.50	0.00	0.00	712.89	.31	.06	.02	709.50
1640.	51.	1515.	75.	36.	326.	55.	46.	11.	709.50
.28	1.41	4.64	1.36	.085	.055	.085	.054	704.50	37.82
.002296	25.	25.	25.	2	0	0	0.00	92.61	130.43

*SECNO 5.100

SECNO	DEPTH	CWSEL	CRIWS	WSEIK	FG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNI	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
5.10	7.37	712.37	0.00	0.00	713.21	.84	.11	.21	710.10
1640.	123.	1507.	10.	52.	197.	7.	47.	11.	711.00
.28	2.36	7.63	1.39	.085	.055	.085	.054	705.00	38.86
.010537	25.	25.	25.	3	0	0	0.00	86.31	125.18

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CODE -  01
  MODIFICATION -  50,51,52
**************************************************

T1      HUD-FIA H-4705
T2      FRANKLIN
T3      FRANKLIN BRANCH : ROUGE RIVER 100 YR FLOW=1640 CFS  CONVERGENCE

J1  ICHECK     INQ       NINV      IDIR       STIT      METRIC    HVINS     Q         WSEL      FQ
      -1.       4.        0.        0.  0.000000       0.00     -1.0       0.     700.080     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

CONV=    .200 CONV=    .400
*SECNO 1.300
3280 CROSS SECTION       1.30 EXTENDED       5.56 FEET

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

     1.30     10.48    700.08      0.00    700.08    700.35       .27      0.00      0.00    694.00
  1640.        111.    1529.        0.       58.       354.       0.        0.        3.     720.00
     0.00      1.90      4.32      0.00      .085      .055      .085     0.000    689.60    231.00
 .002035         0.        0.        0.         0         0         0     0.00     59.09    290.09

*SECNO 1.900
3280 CROSS SECTION       1.98 EXTENDED       9.05 FEET

3301 HV CHANGED MORE THAN HVINS

          **  D/S FACE PRIVATE ROAD

     1.98      9.14    700.04      0.00      0.00    701.09      1.04       .43       .31    691.00
  1640.           0.    1640.        0.        0.       200.       0.        1.        0.     691.00
      .00       0.00      8.19      0.00      .085      .055      .085      .055    690.90    139.00
 .000643        120.      120.      120.         2         0         0     0.00     22.00    161.00

*SECNO 1.990
3280 CROSS SECTION       1.99 EXTENDED       8.94 FEET

3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  710.00 MAX ELLC=  703.40

     1.99      9.04    699.94      0.00      0.00    701.16      1.22       .00       .07    691.00
  1640.           0.    1640.        0.        0.       185.       0.        1.        0.     691.00
      .00       0.00      8.88      0.00      .085      .025      .085      .054    690.90    139.00
 .002312          1.        1.        1.         2         0         0   -13.27     22.00    161.00

*SECNO 2.010
3280 CROSS SECTION       2.01 EXTENDED       8.99 FEET

3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  710.00 MAX ELLC=  703.40

     2.01      9.09    699.99      0.00      0.00    701.20      1.21       .04       .00    691.00
  1640.           0.    1640.        0.        0.       186.       0.        1.        0.     691.00
      .00       0.00      8.83      0.00      .085      .025      .085      .050    690.90    139.00
 .002275         17.       17.       17.         2         0         0   -13.45     22.00    161.00
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*SECNO 2.020
3280 CROSS SECTION 2.02 EXTENDED 9.26 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	XBI	XNCH	XNB	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2.02	9.36	700.26	0.00	0.00	701.25	.99	.00	.04	691.00
1640.	0.	1640.	0.	0.	205.	0.	1.	0.	691.00
.00	0.00	8.00	0.00	.085	.055	.085	.050	690.90	139.00
.007137	1.	1.	1.	2	0	0	0.00	22.30	161.00

*SECNO 2.100
3280 CROSS SECTION 2.10 EXTENDED 4.16 FEET

3301 HV CHANGED MORE THAN HVINS

2.10	10.46	701.36	0.00	0.00	701.52	.16	.10	.17	694.10
1640.	391.	1053.	196.	199.	281.	140.	1.	0.	697.50
.01	1.96	3.75	1.40	.085	.055	.085	.051	690.90	25.00
.001164	41.	41.	41.	2	0	0	0.00	100.00	125.00

*SECNO 2.400
2.40	10.44	702.04	0.00	0.00	702.14	.10	.61	.01	699.00
1640.	94.	1029.	517.	142.	341.	410.	12.	3.	696.40
.03	.67	3.01	1.26	.085	.055	.085	.054	691.60	201.78
.000851	625.	625.	625.	3	0	0	0.00	242.03	443.81

*SECNO 2.900
3280 CROSS SECTION 2.90 EXTENDED 2.96 FEET

2.90	10.35	702.65	0.00	0.00	702.80	.16	.64	.02	699.70
1640.	0.	1210.	430.	0.	338.	268.	23.	5.	697.10
.14	0.00	3.58	1.60	.085	.055	.085	.054	692.30	295.00
.001298	625.	625.	625.	1	0	0	0.00	105.00	400.00

CONV= .400 CEHV= .800
*SECNO 2.980

3301 HV CHANGED MORE THAN HVINS

** D/S FACE BINGHAM ROAD

2.98	9.37	702.87	0.00	0.00	703.89	1.02	.40	.69	705.10
1640.	0.	1640.	0.	0.	203.	0.	24.	5.	705.10
.14	0.00	8.09	0.00	.085	.055	.085	.054	693.50	374.02
.010257	140.	140.	140.	2	0	0	0.00	21.96	395.98

*SECNO 2.990

SECNO	DEPTH	CWSEL	CRIWS	WSEIK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNI	XNCH	XNB	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2.99	9.38	702.88	0.00	0.00	703.89	1.01	.00	.30	705.10
1640.	0.	1640.	0.	0.	203.	0.	24.	5.	705.10
.14	0.00	8.08	0.00	.085	.025	.085	.054	693.50	374.02
.002116	1.	1.	1.	0	0	0	0.00	21.96	395.98

*SECNO 3.000

3.00	9.39	702.89	0.00	0.00	703.90	1.01	.01	.00	705.10
1640.	0.	1640.	0.	0.	203.	0.	24.	5.	705.10
.14	0.00	8.06	0.00	.085	.025	.085	.054	693.50	374.02
.002100	5.	5.	5.	1	0	0	0.00	21.96	395.98

*SECNO 3.010

3.01	9.41	702.91	0.00	0.00	703.91	1.01	.01	.00	705.10
1640.	0.	1640.	0.	0.	203.	0.	24.	5.	705.10
.14	0.00	8.06	0.00	.085	.025	.085	.054	693.50	374.02
.002098	5.	5.	5.	0	0	0	0.00	21.96	395.98

*SECNO 3.020

3.02	9.42	702.92	0.00	0.00	703.92	1.01	.01	.00	705.10
1640.	0.	1640.	0.	0.	204.	0.	24.	5.	705.10
.15	0.00	8.05	0.00	.085	.025	.085	.054	693.50	374.02
.002092	4.	4.	4.	0	0	0	0.00	21.96	395.98

*SECNO 3.030

3.03	9.42	702.92	0.00	0.00	703.93	1.01	.00	.30	705.10
1640.	0.	1640.	0.	0.	204.	0.	24.	5.	705.10
.15	0.00	8.05	0.00	.085	.055	.085	.054	693.50	374.02
.010111	1.	1.	1.	0	0	0	0.00	21.96	395.98

*SECNO 3.100

3280 CROSS SECTION 3.10 EXTENDED 5.27 FEET

3501 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSEIK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNI	XNCH	XNB	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
3.10	11.16	704.26	0.00	0.00	704.37	.10	.08	.36	696.60
1640.	236.	1024.	380.	172.	331.	287.	25.	5.	698.90
.15	1.38	3.09	1.32	.005	.055	.085	.054	693.10	158.00
.000698	44.	44.	44.	2	0	0	0.00	118.00	276.00

SCHV= .200 CBHV= .400

*SECNO 3.500

3.50	10.25	704.75	0.00	0.00	704.95	.20	.54	.04	698.90
1640.	586.	882.	172.	256.	199.	117.	33.	7.	700.30
.19	2.29	4.44	1.47	.085	.055	.085	.054	694.50	136.52
.001914	500.	500.	500.	3	0	0	0.00	122.98	259.50

*SECNO 4.000

4.00	9.89	705.79	0.00	0.00	706.02	.23	1.06	.01	700.30
1640.	581.	908.	151.	238.	190.	101.	39.	8.	701.70
.23	2.45	4.79	1.49	.085	.055	.085	.054	695.90	137.51
.002371	500.	500.	500.	2	0	0	0.00	121.04	258.55

*SECNO 4.200

4.20	8.84	706.24	0.00	0.00	706.64	.40	.55	.07	701.80
1640.	557.	994.	89.	185.	163.	57.	41.	9.	703.20
.24	3.01	6.08	1.57	.085	.055	.085	.054	697.40	140.38
.004664	170.	170.	170.	2	0	0	0.00	110.96	251.35

*SECNO 4.300

4.30	8.13	707.03	0.00	0.00	707.23	.20	.55	.04	704.20
1640.	509.	1013.	117.	273.	234.	89.	43.	9.	703.30
.25	1.86	4.33	1.32	.085	.055	.085	.054	698.90	149.77
.002388	170.	170.	170.	2	0	0	0.00	172.54	322.31

*SECNO 4.700

SECNO	DEPTH	CWSEL	CRIWS	WSEIK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNI	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
4.70	7.11	707.51	0.00	0.00	707.89	.39	.59	.08	705.70
1640.	432.	1134.	74.	187.	195.	47.	45.	10.	704.80
.26	2.31	5.81	1.58	.085	.055	.085	.054	700.40	157.44
.005482	170.	170.	170.	2	0	0	0.00	153.15	310.60

*SECNO 4.900
3280 CROSS SECTION 4.90 EXTENDED .72 FEET

3301 HV CHANGED MORE THAN HVINS

4.90	6.63	708.53	0.00	0.00	709.47	.94	1.35	.22	707.20
1640.	110.	1456.	74.	55.	177.	32.	46.	10.	706.30
.27	2.01	8.23	2.33	.085	.055	.085	.054	701.90	185.00
.012547	170.	170.	170.	3	0	0	0.00	115.00	300.00

*SECNO 4.980
3280 CROSS SECTION 4.98 EXTENDED 5.33 FEET

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 731.90 ELREA= 731.90

** D/S FACE TELEGRAPH ROAD

4.98	8.25	709.83	0.00	0.00	710.25	.43	.68	.10	701.60
1640.	0.	1640.	0.	0.	313.	0.	47.	11.	701.60
.28	0.00	5.25	0.00	.085	.055	.085	.054	701.60	378.00
.002339	150.	150.	150.	2	0	0	0.00	38.00	416.00

SPECIAL BRIDGE

SB AR	AKOR	COPQ	BDLEN	BSC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.00	2.70	250.00	15.00	0.00	167.00	.17	704.10	701.60

*SECNO 5.020
3280 CROSS SECTION 5.02 EXTENDED 5.40 FEET

PRESSURE FLOW

LOPRS	ELWC	H3	QWEIR	CPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
712.82	712.75	0.00	0.	1640.	167.	79.	709.10	731.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 731.90 ELREA= 731.90

5.02	8.30	712.40	0.00	0.00	712.82	.42	2.57	0.00	704.10
1640.	0.	1640.	0.	0.	316.	0.	50.	11.	704.10
.30	0.00	5.20	0.00	.085	.055	.085	.054	704.10	378.00
.002269	340.	340.	340.	2	0	0	0.00	38.00	416.00

*SECNO 5.050

5.05	8.09	712.59	0.00	0.00	712.90	.31	.06	.02	709.50
1640.	51.	1514.	75.	36.	327.	55.	50.	11.	709.50
.30	1.41	4.64	1.36	.085	.055	.085	.054	704.50	37.81
.002280	25.	25.	25.	2	0	0	0.00	92.68	130.49

*SECNO 5.100

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	ASELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	AICB	ACH	ARCB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNI	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAI	IDC	ICCNT	COBAR	TOPWID	ENDST

5.10	7.38	712.38	0.00	0.00	713.22	.83	.11	.21	710.10
1640.	125.	1505.	10.	53.	198.	7.	50.	11.	711.00
.30	2.30	7.60	1.39	.085	.055	.085	.054	705.00	38.84
.010406	25.	25.	25.	2	0	0	0.00	86.45	125.29

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*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
*************************************************

T1      HUD-FIA H-4705
T2      FRANKLIN
T3      FRANKLIN BRANCH : ROUGE RIVER 100 YR FLOW=1640 CFS  CONVERGENCE

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.       4.        0.        0.   0.000000     0.00      -1.0       0.    697.080    0.000

J2  NPROF     IPLOT     PRFVS     XSECV     XSFCH     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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X

*PROF 3

CONV= .200 CONV= .400
*SECNO 1.300
3280 CROSS SECTION 1.30 EXTENDED 2.58 FEET

SECNO	DLPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNI	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	ALOBL	XICH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
1.30	7.48	697.08	0.00	697.08	697.91	.83	0.00	0.00	694.00
1640.	89.	1551.	0.	28.	208.	0.	0.	0.	720.00
0.00	3.15	7.46	0.00	.085	.055	.085	0.000	689.60	231.00
.011025	0.	0.	0.	0	0	0	0.00	56.96	287.96

*SECNO 1.980
3280 CROSS SECTION 1.98 EXTENDED 7.13 FEET

3301 HV CHANGED MORE THAN HVINS

** D/S FACE PRIVATE ROAD

1.98	7.23	698.13	0.00	0.00	699.80	1.67	1.55	.34	691.00
1640.	0.	1640.	0.	0.	158.	0.	1.	0.	691.00
.00	0.00	10.37	0.00	.085	.055	.085	.055	690.90	139.00
.015438	120.	120.	120.	2	0	0	0.00	22.00	161.00

*SECNO 1.990
3280 CROSS SECTION 1.99 EXTENDED 7.00 FEET

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 710.00 MAX ELLC= 703.40

1.99	7.10	698.00	0.00	0.00	699.89	1.89	.01	.09	691.00
1640.	0.	1640.	0.	0.	148.	0.	1.	0.	691.00
.00	0.00	11.04	0.00	.085	.025	.085	.054	690.90	139.00
.004424	1.	1.	1.	2	0	0	-6.87	22.00	161.00

*SECNO 2.010
3280 CROSS SECTION 2.01 EXTENDED 7.17 FEET

3370 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 710.00 MAX ELLC= 703.40

2.01	7.27	698.17	0.00	0.00	699.98	1.82	.07	.02	691.00
1640.	0.	1640.	0.	0.	152.	0.	1.	0.	691.00
.00	0.00	10.82	0.00	.085	.025	.085	.050	690.90	139.00
.004133	17.	17.	17.	0	0	0	-7.42	22.00	161.00

*SECNO 2.020
3280 CROSS SECTION 2.02 EXTENDED 7.58 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XLL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2.02	7.68	698.58	0.00	0.00	700.06	1.48	.01	.07	691.00
1640.	0.	1640.	0.	0.	168.	0.	1.	0.	691.00
.00	0.00	9.76	0.00	.085	.055	.085	.050	690.90	139.00
.012876	1.	1.	1.	3	0	0	0.00	22.00	161.00

*SECNO 2.100
3280 CROSS SECTION 2.10 EXTENDED 3.04 FEET

3301 HV CHANGED MORE THAN HVINS

2.10	9.34	700.24	0.00	0.00	700.48	.24	.17	.25	694.10
1640.	373.	1114.	153.	161.	246.	101.	1.	0.	697.50
.01	2.32	4.53	1.51	.085	.055	.085	.051	690.90	25.00
.002031	41.	41.	41.	3	0	0	0.00	100.00	125.00

*SECNO 2.400
2.40 9.75 701.35 0.00 0.00 701.49 .14 1.00 .02 699.00
1640. 60. 1108. 472. 85. 313. 338. 10. 2. 696.40
.07 .70 3.54 1.40 .085 .055 .085 .054 691.60 222.65
.001231 625. 625. 625. 3 0 0 0.00 219.29 441.94

*SECNO 2.900
3280 CROSS SECTION 2.90 EXTENDED 2.52 FEET

2.90 9.93 702.23 0.00 0.00 702.41 .19 .90 .02 699.70
1640. 0. 1237. 403. 0. 320. 241. 19. 5. 697.10
.12 0.00 3.87 1.67 .085 .055 .085 .054 692.30 295.00
.001610 625. 625. 625. 2 0 0 0.00 105.00 400.00

CHV= .400 CEHV= .800
*SECNO 2.980

3301 HV CHANGED MORE THAN HVINS

** D/S FACE BINGHAM ROAD

2.98	9.02	702.52	0.00	0.00	703.62	1.10	.48	.73	705.10
1640.	0.	1640.	0.	0.	195.	0.	20.	5.	705.10
.13	0.00	8.41	0.00	.085	.055	.085	.054	693.50	374.02
.011398	140.	140.	140.	2	0	0	0.00	21.95	395.98

*SECNO 2.990

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALCH	ACH	ARCH	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2.99	9.03	702.53	0.00	0.00	703.62	1.10	.00	.00	705.10
1640.	0.	1640.	0.	0.	155.	0.	20.	5.	705.10
.13	0.00	8.40	0.00	.085	.025	.085	.054	693.50	374.02
.002350	1.	1.	1.	0	0	0	0.00	21.95	395.98

*SECNO 3.000

3.00	9.05	702.55	0.00	0.00	703.64	1.09	.01	.00	705.10
1640.	0.	1640.	0.	0.	196.	0.	20.	5.	705.10
.13	0.00	8.38	0.00	.085	.025	.085	.054	693.50	374.02
.002329	5.	5.	5.	1	0	0	0.00	21.95	395.98

*SECNO 3.010

3.01	9.06	702.56	0.00	0.00	703.65	1.09	.01	.00	705.10
1640.	0.	1640.	0.	0.	196.	0.	20.	5.	705.10
.13	0.00	8.37	0.00	.085	.025	.085	.054	693.50	374.02
.002326	5.	5.	5.	0	0	0	0.00	21.95	395.98

*SECNO 3.020

3.02	9.07	702.57	0.00	0.00	703.66	1.09	.01	.00	705.10
1640.	0.	1640.	0.	0.	196.	0.	20.	5.	705.10
.13	0.00	8.36	0.00	.085	.025	.085	.054	693.50	374.02
.002319	4.	4.	4.	0	0	0	0.00	21.96	395.98

*SECNO 3.030

3.03	9.08	702.58	0.00	0.00	703.66	1.08	.00	.00	705.10
1640.	0.	1640.	0.	0.	196.	0.	20.	5.	705.10
.13	0.00	8.36	0.00	.085	.055	.085	.054	693.50	374.02
.011202	1.	1.	1.	0	0	0	0.00	21.96	395.98

*SECNO 3.100

3280 CROSS SECTION 3.10 EXTENDED 5.03 FEET

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALCH	ACH	ARCH	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
3.10	10.93	704.03	0.00	0.00	704.14	.11	.09	.39	696.60
1640.	234.	1034.	372.	165.	323.	275.	21.	5.	698.90
.13	1.42	3.20	1.36	.085	.055	.085	.054	693.10	158.00
.000774	44.	44.	44.	2	0	0	0.00	118.00	276.00

CONV= .200 CEHV= .400

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*[illegible] 3.500
     3.50     10.07    704.57      0.00      0.00    704.78       .21       .60       .04    698.90
     1640.      584.      895.      162.      247.      194.      109.       28.        6.    700.30
       .17      2.36      4.61      1.48      .085      .055      .085      .054    694.50    137.02
   .002128      500.      500.      500.         3         0         0      0.00    122.01    259.03

*SECNO 4.000
     4.00      9.80    705.70      0.00      0.00    705.95       .24      1.15       .01    700.30
     1640.      580.      915.      145.      233.      187.       97.       35.        8.    701.70
       .21      2.49      4.88      1.49      .085      .055      .085      .054    695.90    137.75
   .002501      500.      500.      500.         2         0         0      0.00    120.57    258.32

*SECNO 4.200
     4.20      8.78    706.18      0.00      0.00    706.59       .41       .58       .07    701.80
     1640.      554.      999.       86.      182.      162.       54.       36.        8.    703.20
       .22      3.04      6.17      1.59      .085      .055      .085      .054    697.40    140.55
   .004864      170.      170.      170.         2         0         0      0.00    110.04    250.59

*SECNO 4.500
     4.50      8.10    707.00      0.00      0.00    707.20       .20       .57       .04    704.20
     1640.      507.     1017.      116.      270.      233.       87.       38.        9.    703.30
       .23      1.88      4.37      1.32      .085      .055      .085      .054    698.90    150.01
   .002448      170.      170.      170.         2         0         0      0.00    172.22    322.23

*SECNO 4.700
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      AICB      ACH       ABCB      VOL       TWA      LEFT/RIGHT
   TINL      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

     4.70      7.09    707.49      0.00      0.00    707.88       .39       .60       .08    705.70
     1640.      430.     1137.       73.      185.      194.       46.       40.        9.    704.80
       .24      2.32      5.85      1.59      .085      .055      .085      .054    700.40    157.59
   .005582      170.      170.      170.         2         0         0      0.00    152.74    310.34

*SECNO 4.900
3280 CROSS SECTION       4.90 EXTENDED        .72 FEET


3301 HV CHANGED MORE THAN HVINS

     4.90      6.62    708.52      0.00      0.00    709.47       .94      1.37       .22    707.20
     1640.      110.     1456.       74.       55.      177.       32.       42.       10.    706.30
       .25      2.01      8.24      2.33      .085      .055      .085      .054    701.90    185.00
   .012572      170.      170.      170.         3         0         0      0.00    115.00    300.00

*SECNO 4.980
3280 CROSS SECTION       4.98 EXTENDED       5.33 FEET


3301 HV CHANGED MORE THAN HVINS
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X

X

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,EILEA= 731.90 ELREA= 731.90

** D/S RACE TELEGRAPH ROAD

4.98	8.23	709.83	0.00	0.00	710.25	.43	.69	.10	701.60
1640.	0.	1640.	0.	0.	313.	0.	43.	10.	701.60
.26	0.00	5.25	0.00	.085	.055	.085	.054	701.60	378.00
.002539	150.	150.	150.	2	0	0	0.00	38.00	416.00

SPECIAL BRIDGE

SKEW	XKOR	COPQ	BDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.00	2.70	250.00	15.00	0.00	167.00	.17	704.10	701.60

*SECNO 5.020
3280 CROSS SECTION 5.02 EXTENDED 5.40 FEET

PRESSURE FLOW

LOPRS	LSLWC	HB	QWEIR	CEE	BAREA	TRAPEZOID AREA	ELLC	ELTRD
712.42	712.75	0.00	0.	1640.	167.	79.	709.10	731.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,EILEA= 731.90 ELREA= 731.90

5.02	8.30	712.40	0.00	0.00	712.82	.42	2.57	0.00	704.10
1640.	0.	1640.	0.	0.	316.	0.	45.	11.	704.10
.27	0.00	5.20	0.00	.085	.055	.085	.054	704.10	378.00
.002269	340.	340.	340.	2	0	0	0.00	38.00	416.00

*SECNO 5.050

5.05	8.09	712.59	0.00	0.00	712.90	.31	.06	.02	709.50
1640.	51.	1514.	75.	36.	327.	55.	45.	11.	709.50
.27	1.41	4.64	1.36	.085	.055	.085	.054	704.50	37.81
.002286	25.	25.	25.	2	0	0	0.00	92.68	130.49

*SECNO 5.100

3501 HV CHANGED MORE THAN HVTOS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNI	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
5.10	7.39	712.39	0.00	0.00	713.22	.83	.11	.21	710.10
1640.	125.	1505.	10.	53.	198.	7.	45.	11.	711.00
.28	2.36	7.60	1.39	.085	.055	.085	.054	705.00	38.84
.010404	25.	25.	25.	2	0	0	0.00	86.45	125.29

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  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CODE -  01
  MODIFICATION -  50,51,52
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FRANKLIN BRANCH : ROUGE

SUMMARY PRINTOUT

CWSEL	.01K	EG	TOPWID	STENCL	STENCR	WSELK
698.528	246.62	698.98	59.02	0.00	0.00	702.00
700.030	363.51	700.35	59.09	0.00	0.00	700.08
697.080	156.19	697.91	55.96	0.00	0.00	697.08
698.774	150.13	700.18	22.00	0.00	0.00	0.00
700.045	187.59	701.09	22.00	0.00	0.00	0.00
698.128	131.99	699.80	22.00	0.00	0.00	0.00
698.653	277.43	700.27	22.00	0.00	0.00	0.00
699.939	341.07	701.16	22.00	0.00	0.00	0.00
698.001	246.56	699.89	22.00	0.00	0.00	0.00
698.738	282.49	700.34	22.00	0.00	0.00	0.00
699.994	343.87	701.20	22.00	0.00	0.00	0.00
698.167	254.42	699.98	22.00	0.00	0.00	0.00
699.109	159.98	700.40	22.00	0.00	0.00	0.00
700.258	194.12	701.25	22.00	0.00	0.00	0.00
698.578	144.53	700.06	22.00	0.00	0.00	0.00
700.546	394.65	700.76	100.00	0.00	0.00	0.00
701.358	480.60	701.52	100.00	0.00	0.00	0.00
700.238	363.90	700.48	100.00	0.00	0.00	0.00
701.523	481.70	701.65	224.68	0.00	0.00	0.00
702.042	568.85	702.14	242.03	0.00	0.00	0.00
701.354	456.51	701.49	219.29	0.00	0.00	0.00
702.321	418.95	702.50	105.00	0.00	0.00	0.00
702.646	455.27	702.80	105.00	0.00	0.00	0.00
702.225	408.70	702.41	105.00	0.00	0.00	0.00
702.598	155.52	703.68	21.96	0.00	0.00	0.00
702.870	161.93	703.89	21.96	0.00	0.00	0.00
702.519	153.61	703.62	21.95	0.00	0.00	0.00
702.602	342.04	703.68	21.96	0.00	0.00	0.00
702.876	356.55	703.89	21.96	0.00	0.00	0.00
702.526	338.29	703.62	21.95	0.00	0.00	0.00

CWSEL	.01K	EG	TOPWID	STENCL	STENCR	WSELK
702.617	342.60	703.69	21.96	0.00	0.00	0.00
702.894	357.85	703.90	21.96	0.00	0.00	0.00
702.547	339.80	703.64	21.95	0.00	0.00	0.00
702.634	343.42	703.71	21.96	0.00	0.00	0.00
702.906	358.07	703.91	21.96	0.00	0.00	0.00
702.561	340.03	703.65	21.95	0.00	0.00	0.00
702.648	344.24	703.72	21.96	0.00	0.00	0.00
702.917	358.56	703.92	21.96	0.00	0.00	0.00
702.574	340.59	703.66	21.96	0.00	0.00	0.00
702.655	156.66	703.72	21.96	0.00	0.00	0.00
702.922	163.10	703.93	21.96	0.00	0.00	0.00
702.580	154.95	703.66	21.96	0.00	0.00	0.00
704.079	595.38	704.19	118.00	0.00	0.00	0.00
704.262	620.67	704.37	118.00	0.00	0.00	0.00
704.027	589.47	704.14	118.00	0.00	0.00	0.00
704.608	359.83	704.82	122.23	0.00	0.00	0.00
704.749	374.87	704.95	122.98	0.00	0.00	0.00
704.568	355.52	704.78	122.01	0.00	0.00	0.00
705.720	329.84	705.96	120.67	0.00	0.00	0.00
705.789	336.83	706.02	121.04	0.00	0.00	0.00
705.702	327.93	705.95	120.57	0.00	0.00	0.00
706.191	236.63	706.60	110.31	0.00	0.00	0.00
706.240	240.14	706.64	110.96	0.00	0.00	0.00
706.178	235.15	706.59	110.04	0.00	0.00	0.00
707.005	331.84	707.20	172.25	0.00	0.00	0.00
707.031	335.62	707.23	172.54	0.00	0.00	0.00
706.998	331.46	707.20	172.22	0.00	0.00	0.00
707.490	220.55	707.88	152.96	0.00	0.00	0.00
707.507	221.50	707.89	153.15	0.00	0.00	0.00
707.467	219.51	707.88	152.74	0.00	0.00	0.00
708.516	146.44	709.46	115.00	0.00	0.00	0.00
708.525	146.41	709.47	115.00	0.00	0.00	0.00
708.523	146.27	709.47	115.00	0.00	0.00	0.00
709.819	338.51	710.25	38.00	0.00	0.00	0.00
709.828	339.07	710.25	38.00	0.00	0.00	0.00
709.823	339.00	710.25	38.00	0.00	0.00	0.00
712.394	343.67	712.81	38.00	0.00	0.00	0.00
712.403	344.29	712.82	38.00	0.00	0.00	0.00
712.403	344.31	712.82	38.00	0.00	0.00	0.00
712.582	342.23	712.89	92.61	0.00	0.00	0.00
712.591	343.03	712.90	92.68	0.00	0.00	0.00
712.591	343.04	712.90	92.68	0.00	0.00	0.00

CWSEL	.01K	EG	TOPWID	STENCL	STENCR	WSELK
712.373	159.77	713.21	86.31	0.00	0.00	0.00
712.385	160.77	713.22	86.45	0.00	0.00	0.00
712.385	160.78	713.22	86.45	0.00	0.00	0.00

SUMMARY OF ERRORS

10 YR DOWNSTREAM

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*PROF 1

CCHV=    .200 CEHV=    .400
*SECNO 1.300
3280 CROSS SECTION      1.30 EXTENDED      2.37 FEET

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

     1.30      7.27    696.87      0.00    702.00    697.19       .32      0.00      0.00    694.00
     965.       50.      915.        0.       26.      198.        0.        0.        0.    720.00
     0.00      1.92      4.61      0.00      .085      .055      .085     0.000    689.60    231.00
  .004430        0.        0.        0.         0         0         5      0.00     56.50    287.50

*SECNO 1.930
3280 CROSS SECTION      1.98 EXTENDED      6.31 FEET


          **  D/S FACE PRIVATE ROAD

     1.98      6.41    697.31      0.00      0.00    698.05       .74       .69       .17    691.00
     965.        0.      965.        0.        0.      140.        0.        1.        0.    691.00
      .00      0.00      6.38      0.00      .085      .055      .085      .055    690.90    139.00
  .007688      120.      120.      120.         2         0         0      0.00     22.00    161.00

*SECNO 1.990
3230 CROSS SECTION      1.99 EXTENDED      6.28 FEET


3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  710.00 MAX ELLC=  703.40

     1.99      6.39    697.28      0.00      0.00    698.07       .79       .00       .02    691.00
     965.        0.      965.        0.        0.      135.        0.        1.        0.    691.00
      .00      0.00      7.15      0.00      .085      .025      .085      .054    690.90    139.00
  .002043        1.        1.        1.         2         0         0     -4.48     22.00    161.00

*SECNO 2.010
3280 CROSS SECTION      2.01 EXTENDED      6.32 FEET


3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  710.00 MAX ELLC=  703.40

     2.01      6.42    697.32      0.00      0.00    698.11       .78       .03       .00    691.00
     965.        0.      965.        0.        0.      136.        0.        1.        0.    691.00
      .01      0.00      7.10      0.00      .085      .025      .085      .050    690.90    139.00
  .002003       17.       17.       17.         2         0         0     -4.64     22.00    161.00

*SECNO 2.020
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X

3280 CROSS SECTION 2.02 EXTENDED 6.41 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
2.02	6.51	697.41	0.00	0.00	698.13	.71	.00	.01	691.00
965.	0.	965.	0.	0.	142.	0.	1.	0.	691.00
.01	0.00	6.78	0.00	.085	.055	.085	.050	690.90	139.00
.007333	1.	1.	1.	2	0	0	0.00	22.00	161.00

*SECNO 2.100
3280 CROSS SECTION 2.10 EXTENDED .97 FEET

2.10	7.27	698.17	0.00	0.00	698.39	.22	.16	.10	694.10
965.	192.	751.	22.	95.	182.	29.	1.	0.	697.50
.01	2.02	4.13	.76	.085	.055	.085	.051	690.90	29.82
.002525	41.	41.	41.	3	0	0	0.00	95.18	125.00

*SECNO 2.400

2.40	7.95	699.55	0.00	0.00	699.71	.16	1.31	.01	699.00
965.	1.	810.	153.	5.	236.	152.	6.	2.	696.40
.07	.31	3.43	1.01	.085	.055	.085	.054	691.60	278.38
.001756	625.	625.	625.	2	0	0	0.00	158.57	436.95

*SECNO 2.900
3280 CROSS SECTION 2.90 EXTENDED .87 FEET

2.90	8.28	700.58	0.00	0.00	700.72	.14	1.01	.00	699.70
965.	0.	811.	154.	0.	250.	137.	11.	4.	697.10
.13	0.00	3.24	1.12	.085	.055	.085	.054	692.30	295.00
.001491	625.	625.	625.	2	0	0	0.00	105.00	400.00

CCHV= .400 CEHV= .800
*SECNO 2.980

** D/S FACE BINGHAM ROAD

2.98	7.38	700.88	0.00	0.00	701.45	.57	.39	.34	705.10

CCHV= .400 CEHV= .800
*SECNO 2.980

** D/S FACE BINGHAM ROAD

2.98	7.38	700.88	0.00	0.00	701.45	.57	.39	.34	705.10
965.	0.	965.	0.	0.	159.	0.	12.	4.	705.10
.13	0.00	6.06	0.00	.085	.055	.085	.054	693.50	374.04
.006919	140.	140.	140.	2	0	0	0.00	21.93	395.96

*SECNO 2.990

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2.99	7.39	700.89	0.00	0.00	701.46	.57	.00	.00	705.10

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     965.       0.      965.       0.       0.      159.       0.      12.       4.     705.10
      .13      0.00     6.06      0.00     .085     .025     .085     .054   693.50    374.04
  .001430       1.       1.        1.        0        0        0      0.00    21.93    395.96

*SECNO 3.000
     3.00      7.39    700.89      0.00     0.00    701.46      .57      .01      .00    705.10
     965.       0.      965.       0.       0.      159.       0.      12.       4.     705.10
      .13      0.00     6.06      0.00     .085     .025     .085     .054   693.50    374.04
  .001429       5.       5.        5.        0        0        0      0.00    21.93    395.96

*SECNO 3.010
     3.01      7.40    700.90      0.00     0.00    701.47      .57      .01      .00    705.10
     965.       0.      965.       0.       0.      159.       0.      12.       4.     705.10
      .13      0.00     6.06      0.00     .085     .025     .085     .054   693.50    374.04
  .001424       5.       5.        5.        0        0        0      0.00    21.93    395.96

*SECNO 3.020
     3.02      7.41    700.91      0.00     0.00    701.48      .57      .01      .00    705.10
     965.       0.      965.       0.       0.      160.       0.      12.       4.     705.10
      .13      0.00     6.05      0.00     .085     .025     .085     .054   693.50    374.04
  .001419       4.       4.        4.        0        0        0      0.00    21.93    395.96

*SECNO 3.030
     3.03      7.41    700.91      0.00     0.00    701.48      .57      .00      .00    705.10
     965.       0.      965.       0.       0.      160.       0.      12.       4.     705.10
      .13      0.00     6.04      0.00     .085     .055     .085     .054   693.50    374.04
  .006859       1.       1.        1.        0        0        0      0.00    21.93    395.96

*SECNO 3.100
3280 CROSS SECTION      3.10 EXTENDED      2.65 FEET

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

     3.10      8.55    701.65      0.00     0.00    701.76      .10      .09      .19    696.60
     965.      111.     704.      149.      96.      239.     146.      13.       4.     698.90
      .14      1.16     2.94      1.02     .085     .055     .085     .054   693.10    158.00
  .000971       44.      44.       44.        3        0        0      0.00   118.00    276.00

CCHV=     .200 CEHV=     .400
*SECNO 3.500
     3.50      7.88    702.38      0.00     0.00    702.62      .24      .31      .05    698.90
     965.      301.     637.       27.      140.     140.      27.      17.       5.     700.30
      .18      2.15     4.57      1.02     .085     .055     .085     .054   694.50    143.00
  .003242      500.     500.      500.        2        0        0      0.00    96.62    239.62

*SECNO 4.000
     4.00      9.04    703.94      0.00     0.00    704.15      .22     1.53      .00    700.30
     965.      306.     628.       31.      147.     143.      31.      21.       7.     701.70
      .21      2.08     4.38      1.01     .085     .055     .085     .054   695.90    142.59
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 .002883     500.     500.     500.        2        0        0     0.00    98.89   241.47

*SECNO 4.200
     4.20     7.12   704.52     9.00     0.00   704.91      .39      .69      .07   701.80
     965.     267.     687.      11.      106.     121.      11.      22.       7.   703.20
      .22     2.52     5.70     1.04     .085     .055     .085     .054   697.40   145.07
 .006129     170.     170.     170.        2        0        0     0.00    85.24   230.32

*SECNO 4.500
     4.50     6.57   705.47     0.00     0.00   705.67      .20      .73      .04   704.20
     965.     219.     715.      31.      145.     175.      30.      23.       7.   703.30
      .24     1.52     4.09     1.03     .085     .055     .085     .054   698.90   161.49
 .003148     170.     170.     170.        2        0        0     0.00   142.22   303.71

*SECNO 4.700
   SECNO     DEPTH     CWSEL     CPTWS     WSELK     EG        HV        BL        OLOSS   BANK ELEV
   Q         OLOB      QCH       QROB      AIOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XIOBL     XLCH      XIOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

     4.70     5.78   706.14     0.00     0.00   706.56      .42      .80      .09   705.70
     965.     146.     805.      14.      84.     143.      12.      24.       9.   704.80
      .25     1.73     5.61     1.18     .085     .055     .085     .054   700.40   157.65
 .007702     170.     170.     170.        2        0        0     0.00   125.57   293.21

*SECNO 4.900
     4.90     5.66   707.56     0.00     0.00   708.25      .70     1.59      .11   707.20
     965.       4.     947.      15.       6.     140.      11.      25.       9.   706.30
      .25      .65     6.76     1.33     .085     .055     .085     .054   701.90   205.16
 .011529     170.     170.     170.        2        0        0     0.00    87.62   292.77

*SECNO 4.980
3290 CROSS SECTION      4.98 EXTENDED      4.10 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,FLLEA=      731.90 ELREA=      731.90

          **  D/S FACE TELEGRAPH ROAD

     4.98     7.00   708.60     9.00     0.00   708.81      .20      .46      .10   701.60
     965.       0.     965.       0.       0.     266.       0.      26.       8.   701.60
      .27     0.00     3.63     0.00     .085     .055     .085     .054   701.60   378.00
 .001374     150.     150.     150.        3        0        0     0.00    38.00   416.00

SPECIAL BRIDGE

SB  XK        XKOR      COFO      RDLEN     BWC       BUP       BAREA     SS        ELCHU     ELCHD
     0.00      2.00      2.70    250.00     15.00      0.00    147.70      .17    704.10    701.60

*SECNO 5.020
 PRESS FLOW BECAUSE EGLWC OF     711.31  EXCEEDS 1.5 DEPTH
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3280 CROSS SECTION 5.02 EXTENDED 2.60 FEET

PRESSURE FLOW

FGPPS	EGLWC	H3	QWEIR	OPR	BAREA	TRAPEZOID AREA	ELLC	EITRD
709.93	711.31	0.00	0.	965.	148.	69.	708.50	731.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 731.90 ELREA= 731.90

5.02	5.50	709.60	0.00	0.00	709.93	.33	1.12	0.00	704.10
965.	0.	965.	0.	0.	209.	0.	27.	9.	704.10
.29	0.00	4.62	0.00	.085	.055	.085	.054	704.10	378.00
.003050	340.	340.	340.	2	0	0	0.00	38.00	416.00

*SECNO 5.050

5.05	5.17	709.67	0.00	0.00	710.05	.38	.10	.02	709.50
965.	0.	965.	0.	0.	195.	0.	29.	9.	709.50
.29	.24	4.35	.24	.085	.055	.085	.054	704.50	53.46
.005187	25.	25.	25.	2	0	0	0.00	49.01	102.47

*SECNO 5.100

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELLV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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

5.10	4.93	709.93	709.93	0.00	711.38	1.45	.27	.43	710.10
965.	0.	965.	0.	0.	100.	0.	28.	9.	711.00
.29	0.00	9.65	0.00	.085	.055	.085	.054	705.00	74.54
.034379	25.	25.	25.	20	11	0	0.00	35.31	109.85

X

50 YR DOWNSTREAM

*PROF 1

CCHV= .200 CEHV= .400
*SECNO 1.300
3280 CROSS SECTION 1.30 EXTENDED 3.54 FEET

SECNO	DEPTH	CRSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALCE	ACH	AROD	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNI	XNCH	XNF	WTN	ELMIN	SSTA
SLOPE	ALOBL	ALCH	ALOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
1.30	8.44	698.04	0.00	702.00	698.44	.40	0.00	0.00	694.00
1410.	87.	1323.	0.	38.	254.	0.	0.	0.	720.00
0.00	2.30	5.21	0.00	.085	.055	.085	0.000	689.60	231.00
.004389	0.	0.	0.	0	0	4	0.00	59.00	290.00

*SECNO 1.980
3280 CROSS SECTION 1.98 EXTENDED 7.37 FEET

** D/S FACE PRIVATE ROAD

1.98	7.46	698.36	0.00	0.00	699.51	1.16	.77	.30	691.00
1410.	0.	1410.	0.	0.	163.	0.	1.	0.	691.00
.00	0.00	8.63	0.00	.085	.055	.085	.055	690.90	139.00
.010353	120.	120.	120.	2	0	0	0.00	22.00	161.00

*SECNO 1.990
3280 CROSS SECTION 1.99 EXTENDED 7.27 FEET

3270 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 710.00 MAX ELLC= 703.40

1.99	7.37	698.27	0.00	0.00	699.58	1.31	.01	.06	691.00
1410.	0.	1410.	0.	0.	153.	0.	1.	0.	691.00
.00	0.00	9.19	0.00	.085	.025	.085	.054	690.90	139.00
.002961	1.	1.	1.	2	0	0	-7.75	22.00	161.00

*SECNO 2.010
3280 CROSS SECTION 2.01 EXTENDED 7.35 FEET

3270 NORMAL BRIDGE,NRD= 9 MIN ELTRD= 710.00 MAX ELLC= 703.40

2.01	7.45	698.35	0.00	0.00	699.63	1.29	.05	.01	691.00
1410.	0.	1410.	0.	0.	155.	0.	1.	0.	691.00
.00	0.00	9.10	0.00	.085	.025	.085	.050	690.90	139.00
.002876	17.	17.	17.	2	0	0	-8.02	22.00	161.00

*SECNO 2.020

3280 CROSS SECTION 2.02 EXTENDED 7.59 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	XNI	XNCH	XNF	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2.02	7.69	698.59	0.00	0.00	699.68	1.09	.00	.04	691.00
1410.	0.	1410.	0.	0.	166.	0.	1.	0.	691.00
.00	0.00	8.38	0.00	.085	.055	.085	.050	690.90	139.00
.009465	1.	1.	1.	2	0	0	0.00	22.00	161.00

*SECNO 2.100
3280 CROSS SECTION 2.10 EXTENDED 2.59 FEET

2.10	8.89	699.79	0.00	0.00	700.00	.21	.15	.18	694.10
1410.	513.	984.	113.	146.	232.	85.	1.	0.	697.50
.01	2.15	4.24	1.32	.085	.055	.085	.051	690.90	25.55
.001920	41.	41.	41.	3	0	0	0.00	99.45	125.00

*SECNO 2.400
2.40	9.27	700.87	0.00	0.00	701.01	.14	.99	.01	699.00
1410.	33.	1008.	370.	54.	292.	287.	9.	2.	696.40
.07	.61	3.45	1.29	.085	.055	.085	.054	691.60	237.65
.001338	625.	625.	625.	2	0	0	0.00	202.95	440.60

*SECNO 2.900
3280 CROSS SECTION 2.90 EXTENDED 2.05 FEET

2.90	9.45	701.75	0.00	0.00	701.92	.17	.90	.01	699.70
1410.	0.	1093.	317.	0.	300.	211.	17.	5.	697.10
.12	0.00	3.65	1.50	.085	.055	.085	.054	692.30	295.00
.001557	625.	625.	625.	2	0	0	0.00	105.00	400.00

CCHV= .400 CEHV= .800
*SECNO 2.980

** D/S FACE BINGHAM ROAD

2.98	8.54	702.04	0.00	0.00	702.95	.91	.44	.59	705.10
1410.	0.	1410.	0.	0.	185.	0.	18.	5.	705.10
.13	0.00	7.64	0.00	.085	.055	.085	.054	693.50	374.03
.009780	140.	140.	140.	2	0	0	0.00	21.95	395.97

*SECNO 2.990

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNI	XNCH	XNF	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2.99	8.55	702.05	0.00	0.00	702.95	.91	.00	.00	705.10

1410.	0.	1410.	0.	0.	185.	0.	18.	5.	705.10
.13	0.00	7.64	0.00	.CE9	.025	.085	.054	693.50	374.03
.002023	1.	1.	1.	0	0	0	0.00	21.95	395.97

*SECNO 3.000

3.00	8.58	702.08	0.00	C.00	702.98	.90	.01	.00	705.10
1410.	0.	1410.	0.	0.	185.	0.	18.	5.	705.10
.13	0.00	7.63	0.00	.CE9	.025	.085	.054	693.50	374.03
.002017	5.	5.	5.	1	0	0	0.00	21.95	395.97

*SECNO 3.010

3.01	8.58	702.08	0.00	C.CC	702.98	.90	.01	.00	705.10
1410.	0.	1410.	0.	0.	185.	0.	18.	5.	705.10
.13	0.00	7.62	0.00	.CE9	.025	.085	.054	693.50	374.03
.002008	5.	5.	5.	1	0	0	0.00	21.95	395.97

*SECNO 3.020

3.02	8.59	702.09	0.00	0.00	702.99	.90	.01	.00	705.10
1410.	0.	1410.	0.	0.	185.	0.	18.	5.	705.10
.13	0.00	7.61	0.00	.CE9	.025	.085	.054	693.50	374.03
.002000	4.	4.	4.	1	0	0	0.00	21.95	395.97

*SECNO 3.030

3.03	8.59	702.09	0.00	C.CC	702.99	.90	.00	.00	705.10
1410.	0.	1410.	0.	0.	186.	0.	18.	5.	705.10
.13	0.00	7.60	0.00	.CE9	.055	.085	.054	693.50	374.03
.009656	1.	1.	1.	0	0	0	0.00	21.95	395.97

*SECNO 3.100
3280 CROSS SECTION 3.10 EXTENDED 4.28 FEET

SECNO	DEPTH	CWSEL	CRITS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	ARCB	VOL	TWA	LEFT/RIGHT
AIME	VLOB	VCH	VROB	XNI	XNCH	XNF	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICCNT	CORAR	TOPWID	ENDST
3.10	10.16	703.28	0.00	0.00	703.39	.11	.09	.32	696.60
1410.	192.	922.	295.	143.	297.	234.	19.	5.	698.90
.13	1.34	3.11	1.26	.085	.055	.085	.054	693.10	158.00
.000818	44.	44.	44.	3	0	0	0.00	118.00	276.00

CCHV= .200 CEHV= .400
*SECNO 3.500

3.50	9.37	703.87	0.00	0.00	704.09	.22	.65	.05	698.90
1410.	492.	817.	100.	211.	177.	78.	25.	6.	700.30
.17	2.53	4.63	1.28	.085	.055	.085	.054	694.50	138.93
.002432	500.	500.	500.	2	0	0	0.00	118.25	257.18

*SECNO 4.000

4.00	9.23	705.13	0.00	0.00	705.37	.24	1.27	.01	700.30
1410.	489.	827.	93.	204.	173.	72.	30.	8.	701.70
.21	2.39	4.78	1.29	.085	.055	.085	.054	695.90	139.31

.002662	500.	500.	500.	2	0	0	0.00	116.83	256.15

*SECNO 4.200

4.20	8.25	705.65	0.00	0.00	706.05	.41	.62	.07	701.80
1410.	457.	900.	53.	157.	149.	37.	32.	8.	703.20
.22	2.91	6.05	1.45	.085	.055	.085	.054	697.40	141.99
.005229	170.	170.	170.	2	0	0	0.00	102.14	244.13

*SECNO 4.300

4.30	7.61	706.51	0.00	0.00	706.71	.20	.62	.04	704.20
1410.	408.	922.	81.	228.	214.	66.	34.	8.	703.30
.23	1.79	4.30	1.23	.085	.055	.085	.054	698.90	153.71
.002659	170.	170.	170.	2	0	0	0.00	163.24	316.95

*SECNO 4.400

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	AICE	ACH	ARCB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNI	XNCH	XNB	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
4.40	8.65	707.05	0.00	0.00	707.45	.40	.66	.08	705.70
1410.	350.	1032.	48.	151.	178.	32.	35.	9.	704.80
.24	2.18	5.80	1.48	.085	.055	.085	.054	700.40	160.83
.006171	170.	170.	170.	2	0	0	0.00	143.98	304.82

*SECNO 4.900
3280 CROSS SECTION 4.90 EXTENDED .41 FEET

4.90	6.31	708.21	0.00	0.00	709.10	.90	1.46	.20	707.20
1410.	61.	1301.	48.	38.	165.	24.	37.	10.	706.30
.25	1.61	7.89	1.97	.085	.055	.085	.054	701.90	185.00
.012600	170.	170.	170.	2	0	0	0.00	115.00	300.00

*SECNO 4.980
3280 CROSS SECTION 4.98 EXTENDED 4.98 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 731.90 ELREA= 731.90

** D/S FACE TELEGRAPH ROAD

4.98	7.88	709.48	0.00	0.00	709.82	.34	.61	.11	701.60
1410.	0.	1410.	0.	0.	295.	0.	37.	10.	701.60
.26	0.00	4.71	0.00	.085	.055	.085	.054	701.60	378.00
.001992	150.	150.	150.	3	0	0	0.00	38.00	416.00

SPECIAL BRIDGE

SB	XA	XAOB	COFQ	NOLPN	BWC	DWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.00	2.70	250.00	15.00	0.00	167.00	.17	704.10	701.60

*SECNO 5.020
PRESS FLOW BECAUSE EGLWC OF 712.32 EXCEEDS 1.5 DEPTH
3280 CROSS SECTION 5.02 EXTENDED 4.26 FEET

PRESSURE FLOW

ESPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRO
711.69	712.32	0.00	0.	1410.	167.	79.	709.10	731.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 731.90 ELREA= 731.90

5.02	7.18	711.28	0.00	0.00	711.69	.41	1.87	0.00	704.10
1410.	0.	1410.	0.	0.	273.	0.	40.	10.	704.10
.28	0.00	5.17	0.00	.065	.055	.085	.054	704.10	378.00
.002701	340.	340.	340.	2	0	0	0.00	38.00	416.00

*SECNO 5.050

5.33	6.90	711.40	0.00	0.00	711.78	.37	.08	.01	709.50
1410.	18.	1364.	29.	17.	273.	24.	40.	10.	709.50
.28	1.07	4.99	1.18	.065	.055	.085	.054	704.50	39.55
.003361	25.	25.	25.	2	0	0	0.00	82.15	121.70

*SECNO 5.100

3301 HV CHANGED MORE THAN HVINS

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

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

5.10	5.97	710.97	710.97	0.00	712.50	1.53	.19	.46	710.10
1410.	14.	1396.	0.	9.	140.	0.	40.	10.	711.00
.28	1.69	9.99	0.00	.085	.055	.085	.054	705.00	54.37
.028471	25.	25.	25.	4	11	0	0.00	60.47	114.84

500 YR DOWNSTREAM

```
*PROF 1

CCHV=     .200 CPHV=     .400
*SECNO 1.300
3280 CROSS SECTION       1.30 EXTENDED       5.21 FEET

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

     1.30     10.11    699.71      0.00    702.00    700.27       .56      0.00      0.00    694.00
    2220.      149.     2071.        0.       55.      336.        0.        0.        0.    720.00
     0.00      2.72      6.16      0.00      .085      .055      .085     0.000    689.60    231.00
  .004402        0.        0.        0.         0         0         3      0.00     59.08    290.08

*SECNO 1.980

1645 INT SEC ADDED BY RAISING SEC       1.98,    -.650FT AND MULTIPLYING BY    1.259

3280 CROSS SECTION       1.01 EXTENDED       9.36 FEET

     1.01      9.46    699.71      0.00      0.00    700.83      1.12       .34       .23    690.35
    2220.        0.     2220.        0.        0.      261.        0.        0.        0.    690.35
      .00      0.00      8.51      0.00      .085      .055      .085      .054    690.25    139.00
  .007351       60.       60.       60.         2         0         0      0.00     27.68    166.68

1645 INT SEC ADDED BY RAISING SEC       1.01,     .650FT AND MULTIPLYING BY     .795

3280 CROSS SECTION       1.98 EXTENDED       8.79 FEET

          **  D/S FACE PRIVATE ROAD

     1.98      8.89    699.79      0.00      0.00    701.81      2.02       .61       .36    691.00
    2220.        0.     2220.        0.        0.      195.        0.        1.        0.    691.00
      .00      0.00     11.40      0.00      .085      .055      .085      .054    690.90    139.00
  .015207       60.       60.       60.         2         0         0      0.00     22.00    161.00

*SECNO 1.990
3280 CROSS SECTION       1.99 EXTENDED       8.55 FEET

3370 NORMAL BRIDGE,NRD=  9 MIN ELTRD=  710.00 MAX ELLC=  703.40

     1.99      9.65    699.55      0.00      0.00    701.98      2.43       .01       .17    691.00
    2220.        0.     2220.        0.        0.      177.        0.        1.        0.    691.00
      .00      0.00     12.51      0.00      .085      .025      .085      .053    690.90    139.00
  .004770        1.        1.        1.         2         0         0    -11.98     22.00    161.00
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X

*SECNO 2.010
3280 CROSS SECTION 2.01 EXTENDED 8.70 FEET

3370 NORMAL BRIDGE,NRD= 9 4TH FLEN= 710.00 MAX ELLC= 703.40

2.01	8.84	699.74	0.00	0.00	702.08	2.33	.08	.02	691.00
2220.	0.	2220.	0.	0.	181.	0.	1.	0.	691.00
.00	0.00	12.26	0.00	.085	.025	.085	.050	690.90	139.00
.004495	17.	17.	17.	2	0	0	-12.62	22.00	161.00

*SECNO 2.020
3281 CROSS SECTION 2.02 EXTENDED 9.45 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	PV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	AIOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBP	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2.02	9.56	700.45	0.00	0.00	702.20	1.75	.01	.12	691.00
2220.	0.	2220.	0.	0.	209.	0.	1.	0.	691.00
.00	0.00	10.61	0.00	.085	.055	.085	.049	690.90	139.00
.012331	1.	1.	1.	3	0	0	0.00	22.00	161.00

*SECNO 2.100
3280 CROSS SECTION 2.10 EXTENDED 5.23 FEET

3301 PV CHANGED MORE THAN PVINS

2.10	11.53	702.43	0.00	0.00	702.63	.21	.13	.31	694.10
2220.	545.	1367.	308.	235.	314.	178.	1.	0.	697.50
.01	2.31	4.36	1.73	.085	.055	.085	.050	690.90	25.00
.001359	41.	41.	41.	3	0	0	0.00	100.00	125.00

*SECNO 2.400
3280 CROSS SECTION 2.40 EXTENDED 1.08 FEET

2.40	11.58	703.18	0.00	0.00	703.28	.10	.63	.02	699.00
2220.	230.	1233.	758.	250.	389.	534.	15.	3.	696.40
.08	.92	3.17	1.42	.085	.055	.085	.054	691.60	200.00
.000770	625.	625.	625.	2	0	0	0.00	246.94	446.94

*SECNO 2.900
3280 CROSS SECTION 2.90 EXTENDED 4.07 FEET

2.90	11.47	703.77	0.00	0.00	703.96	.20	.64	.04	699.70
2220.	0.	1560.	660.	0.	384.	338.	29.	5.	697.10
.13	0.00	4.06	1.95	.085	.055	.085	.054	692.30	295.00
.001443	625.	625.	625.	2	0	0	0.00	105.00	400.00

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CCHV=     .400 CEHV=     .800
*SECNO 2.980

1645 INT SEC ADDED BY RAISING SEC       2.98,    -.600FT AND MULTIPLYING BY    1.272

     1.01     10.93    703.83      0.00      0.00    704.67       .94       .19       .52    704.50
    2220.        0.      2220.        0.        0.      301.        0.       29.        5.    704.50
      .13      0.00      7.36      0.00      .085      .055      .085      .054    693.90    374.01
  .006576       70.       70.       70.         2         0         0      0.00     27.98    401.98


1645 INT SEC ADDED BY RAISING SEC       1.01,     .600FT AND MULTIPLYING BY     .786

          **  D/S FACE BINGHAM ROAD

     2.98     10.84    704.34      0.00      0.00    705.72      1.39       .52       .43    705.10
    2220.        0.      2220.        0.        0.      235.        0.       30.        5.    705.10
      .14      0.00      9.45      0.00      .085      .055      .085      .054    693.50    374.01
  .012629       70.       70.       70.         2         0         0      0.00     21.99    395.99

*SECNO 2.990
   SECNO     DEPTH     CHSEL     CFINS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA      LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

     2.99     10.84    704.34      0.00      0.00    705.73      1.39       .00       .00    705.10
    2220.        0.      2220.        0.        0.      235.        0.       30.        5.    705.10
      .14      0.00      9.45      0.00      .085      .025      .085      .054    693.50    374.01
  .002609        1.        1.        1.         0         0         0      0.00     21.99    395.99

*SECNO 3.000
     3.00     10.87    704.37      0.00      0.00    705.74      1.38       .01       .00    705.10
    2220.        0.      2220.        0.        0.      236.        0.       30.        5.    705.10
      .14      0.00      9.42      0.00      .085      .025      .085      .054    693.50    374.01
  .002591        5.        5.        5.         2         0         0      0.00     21.99    395.99

*SECNO 3.010
     3.01     10.88    704.38      0.00      0.00    705.76      1.38       .01       .00    705.10
    2220.        0.      2220.        0.        0.      236.        0.       30.        5.    705.10
      .14      0.00      9.42      0.00      .085      .025      .085      .054    693.50    374.01
  .002587        5.        5.        5.         1         0         0      0.00     21.99    395.99

*SECNO 3.020
     3.02     10.90    704.40      0.00      0.00    705.77      1.37       .01       .00    705.10
    2220.        0.      2220.        0.        0.      236.        0.       30.        5.    705.10
      .14      0.00      9.40      0.00      .085      .025      .085      .054    693.50    374.01
  .002577        4.        4.        4.         1         0         0      0.00     21.99    395.99

*SECNO 3.030
     3.03     10.91    704.41      0.00      0.00    705.78      1.37       .00       .00    705.10
    2220.        0.      2220.        0.        0.      236.        0.       30.        5.    705.10
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     .14      0.00      9.39      0.00      .085      .055      .085      .054    693.50    374.01
  .012444       1.        1.        1.         0         0         0      0.00     21.99    335.99

*SECNO 3.100
3230 CROSS SECTION       3.10 EXTENDED       7.24 FEET


3301 HV CHANGED MORE THAN HVINS

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

     3.10     13.14    706.24      0.00      0.00    706.35       .11       .07       .50    696.60
    2220.      340.     1299.      582.      229.      400.      394.       30.        5.    698.90
      .14      1.48      3.25      1.48      .085      .055      .085      .054    693.10    158.00
  .000597       44.       44.       44.         3         0         0      0.00    118.00    276.00

CCHV=     .200 CFHV=     .400
*SECNO 3.500
     3.50     12.13    706.63      0.00      0.00    706.80       .17       .43       .02    698.90
    2220.      821.     1046.      354.      380.      246.      208.       41.        7.    700.30
      .19      2.16      4.25      1.70      .085      .055      .085      .054    694.50     78.38
  .001323      500.      500.      500.         2         0         0      0.00    186.10    264.48

*SECNO 4.000
     4.00     11.48    707.38      0.00      0.00    707.59       .22       .77       .02    700.30
    2220.      805.     1093.      318.      323.      229.      175.       50.        9.    701.70
      .23      2.51      4.77      1.81      .085      .055      .085      .054    695.90    133.16
  .001824      500.      500.      500.         2         0         0      0.00    129.59    232.74

*SECNO 4.200
     4.20     10.31    707.71      0.00      0.00    708.06       .35       .41       .05    701.80
    2220.      735.     1187.      238.      260.      200.      120.       53.        9.    703.20
      .24      3.06      5.93      1.99      .085      .055      .085      .054    697.40    136.34
  .003378      170.      170.      170.         2         0         0      0.00    123.33    259.68

*SECNO 4.500

3265 DIVIDED FLOW

     4.50      9.42    708.32      0.00      0.00    708.50       .18       .41       .03    704.20
    2220.      767.     1211.      242.      399.      283.      151.       55.       10.    703.30
      .25      1.92      4.28      1.60      .085      .055      .085      .054    698.90     97.43
  .001807      170.      170.      170.         2         0         0      0.00    210.92    325.34

*SECNO 4.700
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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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     4.70      8.27    708.67      0.00      0.00    709.00       .33       .44       .06    705.70
    2220.       700.     1351.      170.      286.      240.       96.       59.       11.     704.80
      .26      2.45      5.64      1.78      .085      .055      .085      .054    700.40    148.69
  .003926      170.      170.      170.         2         0         0      0.00    173.96    322.64

*SECNO 4.900
3290 CROSS SECTION       4.90 EXTENDED       1.54 FEET

     4.90      7.44    709.34      0.00      0.00    710.31       .96      1.05       .25    707.20
    2220.       270.     1798.      152.       98.      208.       51.       60.       11.     706.30
      .27      2.75      8.65      2.96      .035      .055      .085      .054    701.90    185.00
  .011167      170.      170.      170.         3         0         0      0.00    115.00    300.00

*SECNO 4.990
3290 CROSS SECTION       4.98 EXTENDED       6.04 FEET


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLFA=       731.90 ELREA=       731.90

          **  O/S FACE TELEGRAPH ROAD

     4.98      8.93    710.53      0.00      0.00    711.19       .66       .83       .06    701.60
    2220.        0.     2220.        0.        0.      340.        0.       61.       12.     701.60
      .28      0.00      6.54      0.00      .085      .055      .085      .054    701.60    378.00
  .003273      150.      150.      150.         2         0         0      0.00     38.00    416.00


SPECIAL BRIDGE

SB  AK        AKOR       COFO       RDLEN      DUC        BWP        BAREA      SS         ELCHU      ELCHO
     0.00       2.00       2.70     250.00     15.00       0.00     167.00       .17     704.10     701.60

*SECNO 5.020
3290 CROSS SECTION       5.02 EXTENDED       8.62 FEET

PRESSURE FLOW

 EGPRS       FGLUC        HH        OWEIR       OPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                       AREA
   716.02     713.69      0.00         0.      2220.       167.        79.      709.10     731.90


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLFA=       731.90 ELREA=       731.90

     5.02     11.52    715.62      0.00      0.00    716.02       .40      4.82      0.00    704.10
    2220.        0.     2220.        0.        0.      438.        0.       64.       12.     704.10
      .29      0.00      5.17      0.00      .085      .055      .085      .054    704.10    378.00
  .001437      340.      340.      340.         2         0         0      0.00     38.00    416.00

*SECNO 5.050
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3280 CROSS SECTION 5.05 EXTENDED 1.42 FEET

5.05	11.42	715.92	0.00	0.00	716.09	.17	.03	.05	709.50
2220.	150.	1751.	319.	100.	476.	240.	65.	12.	709.50
.30	1.50	3.68	1.33	.085	.055	.085	.054	704.50	35.00
.000869	25.	25.	25.	2	0	0	0.00	130.00	165.00

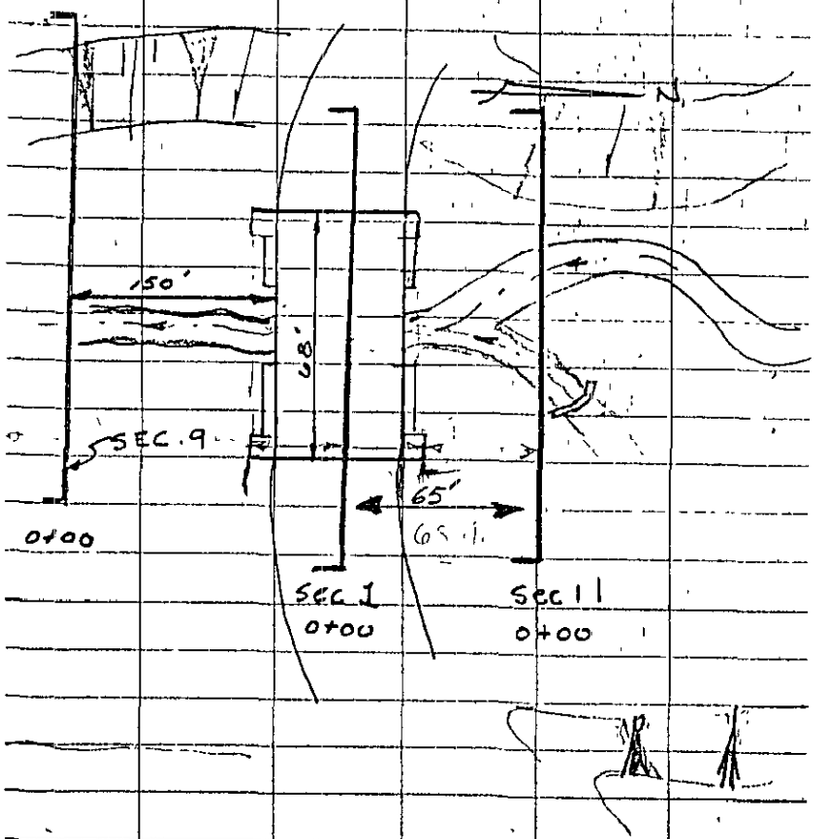
*SECNO 5.100
3280 CROSS SECTION 5.10 EXTENDED .89 FEET

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
5.10	10.89	715.89	0.00	0.00	716.16	.27	.03	.04	710.10
2220.	406.	1624.	190.	184.	342.	125.	65.	12.	711.00
.30	2.20	4.76	1.52	.085	.055	.085	.054	705.00	35.00
.001969	25.	25.	25.	2	0	0	0.00	130.00	165.00

X-SECTIONS 9-1.0 1.1

BRIDGE SKETCH

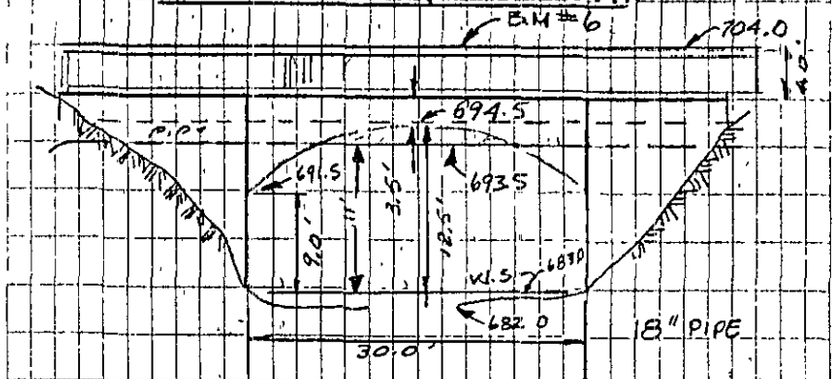
Bridge located on 13 mi Rd W of Telegraph Rd. X-ing Franklin branch Rouge River.



HUD-FIA H-4705 K. Doyle III 474/10
FRAKLIN X-SECTIONS J. O'Neil

8 Jan 79 - 22°F Cldy C. Martiucci

BRIDGE AT 13 MI



LOOKING DOWN STREAM & SOUTH

NOTE: SEC. 1 along ℄ 13 mi

Bridge Sketches

X-SECTIONS

Franklin branch of Rouge River

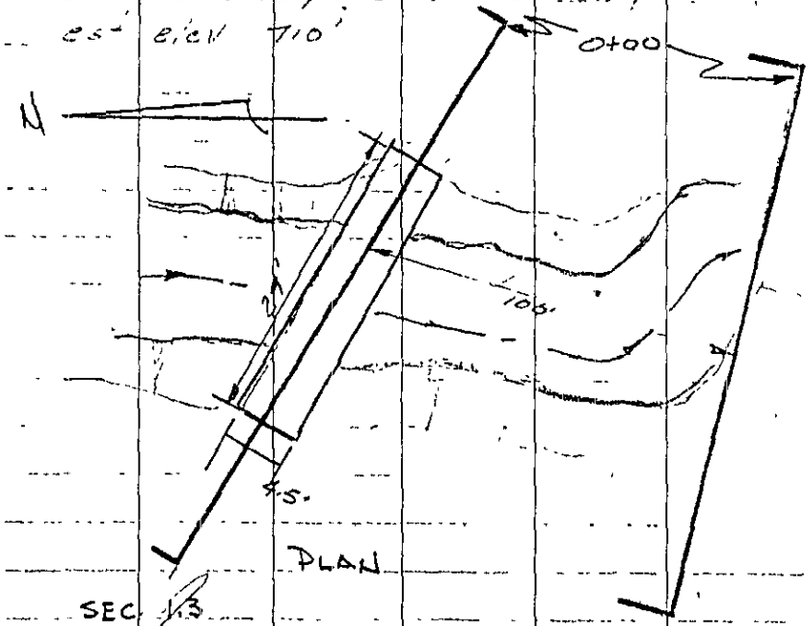
X-Section of foot bridge 200'± (S) D/S of Sec 2

X-SECTION # 1.2

100' D/S of ℄ bridge 0+00 det by est elev 710'.

X-SECTION # 1.3

℄ foot bridge 0+00 det by est elev 710'



HUD-FIA

Village of Franklin

474/15

712'

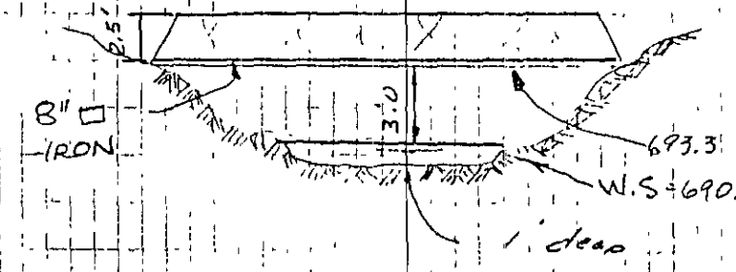
FOOT BRIDGE 130'±

S. of SEC. 2

bridge is a pipe squeak Howe Truss

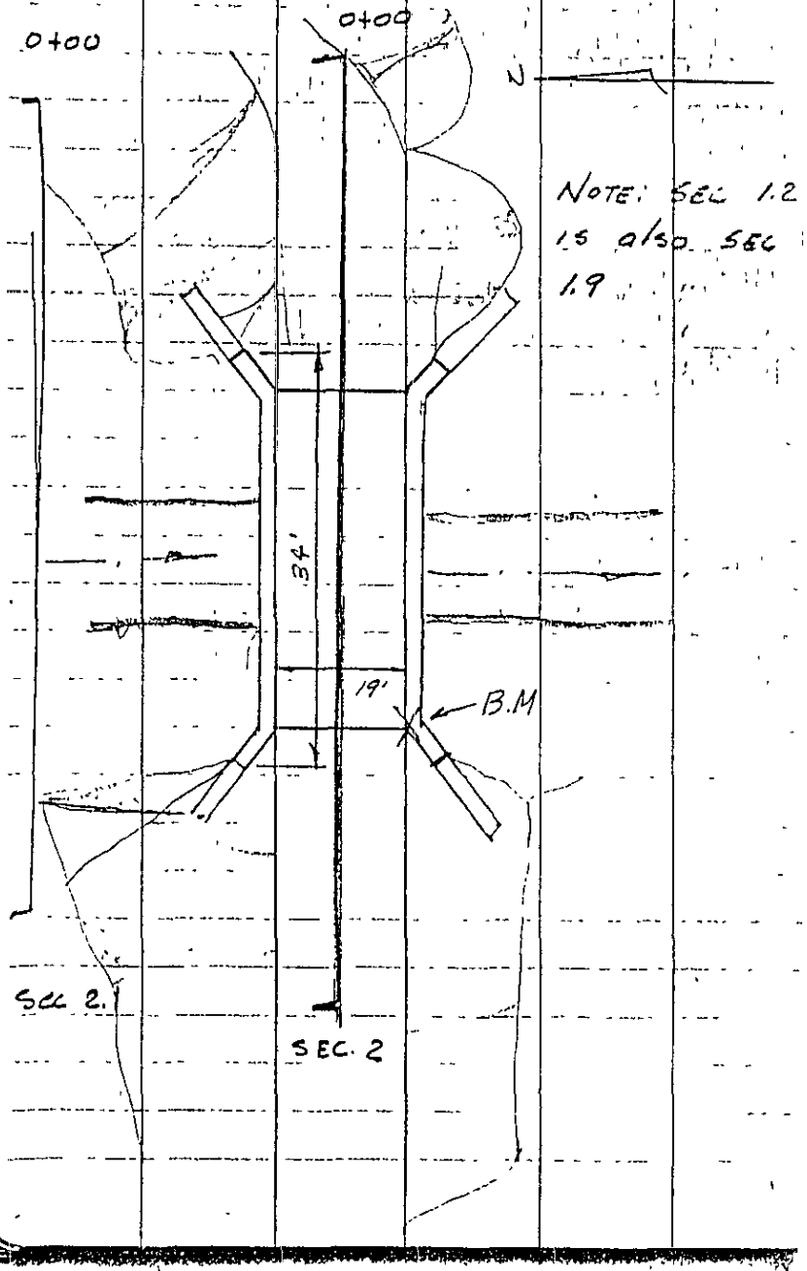
BRIDGE 4 Iron

6'2" plank deck



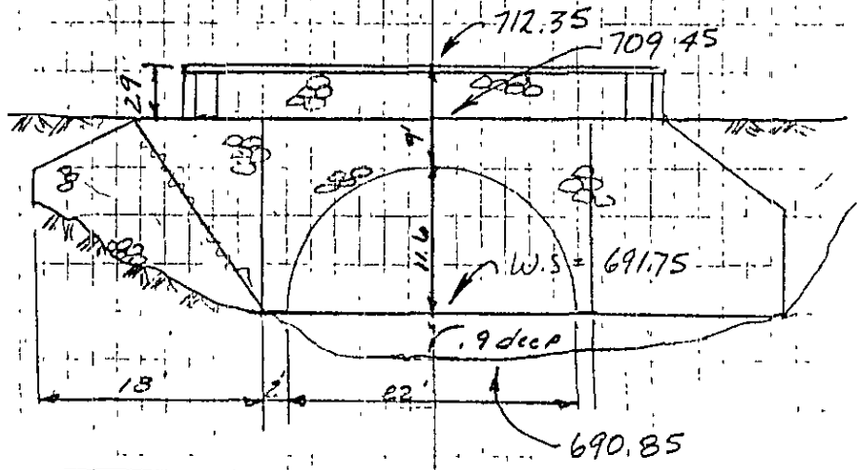
ELEV. VIEW

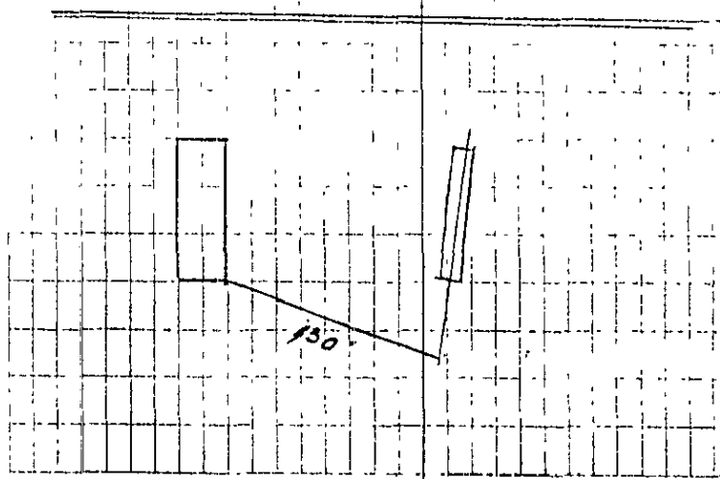
Looking D/S



NOTE: SEC 1.2 IS ALSO SEC 1.9

SECT 2 - PRIVATE ROAD



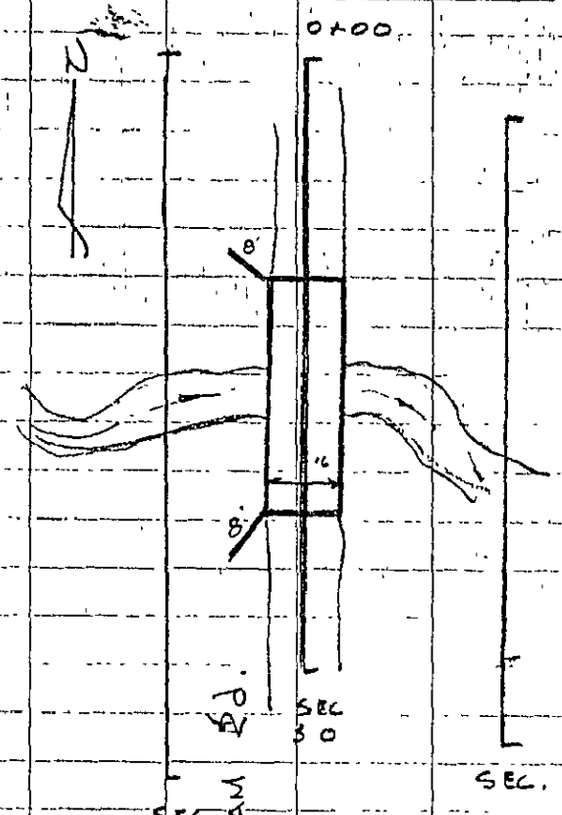


FRANKLIN TWP.

FRANKLIN BRANCH RIVER ROUGE

BRI

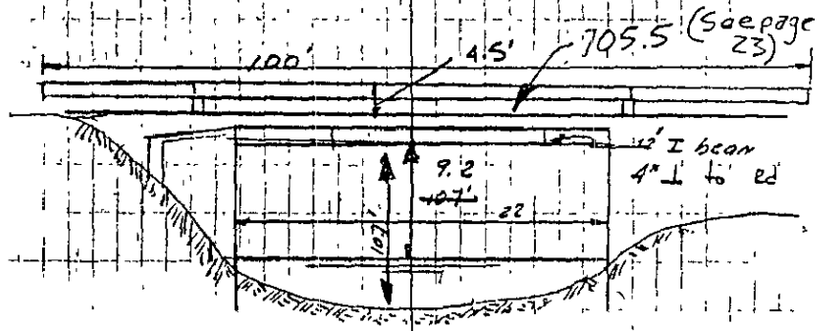
BRIDGE AT BINGHAM RD.



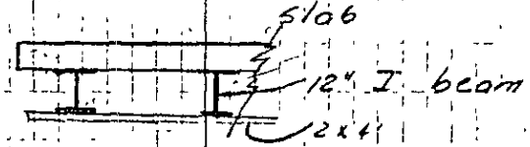
HUD - FIA H 4705

K. Doyle
J O'Neill
C Martell

474/21



ELEV. VIEW U/S

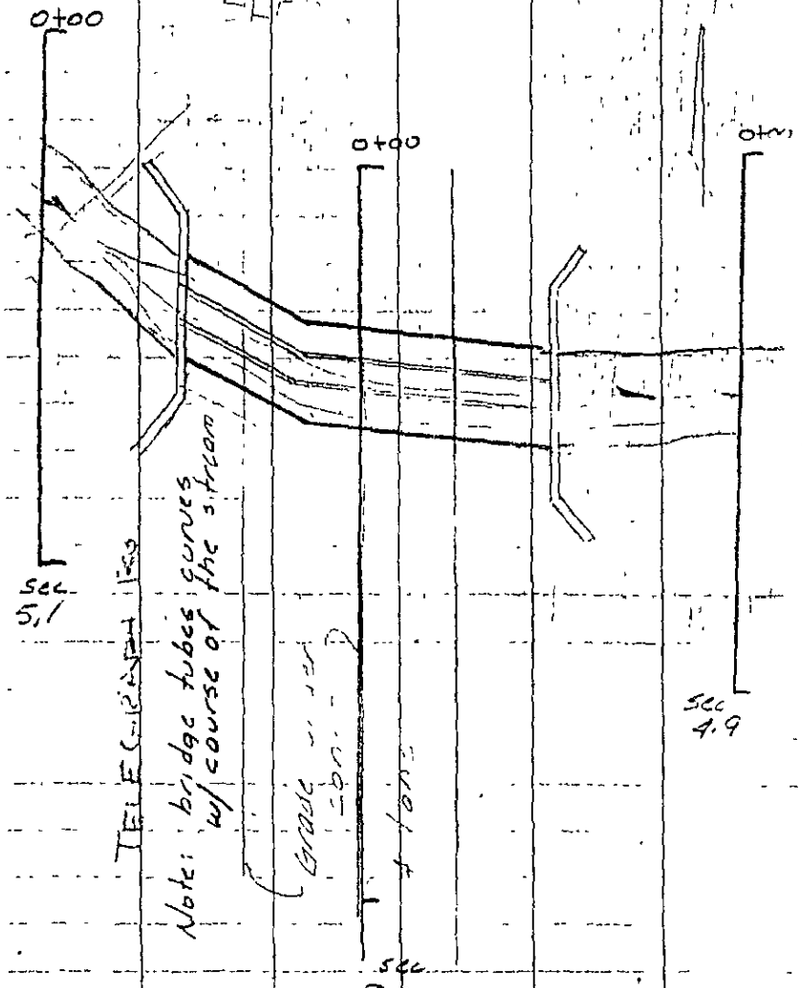


END SECTION VIEW

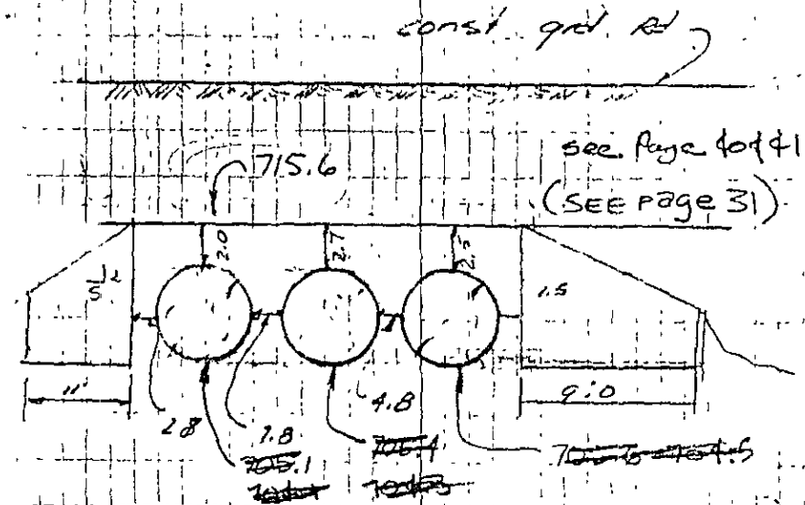
Top deck = 705.5
(1-4") − 1.3
704.2
Water Surface − 9.2
695.0
− 1.5
Ecreek 693.5

BRIDGE SKETCH

X-SECTIONS 4.9, 5.0, 5.1



TELEGRAPH RD.



See Page 40 & 41 (SEE page 31)

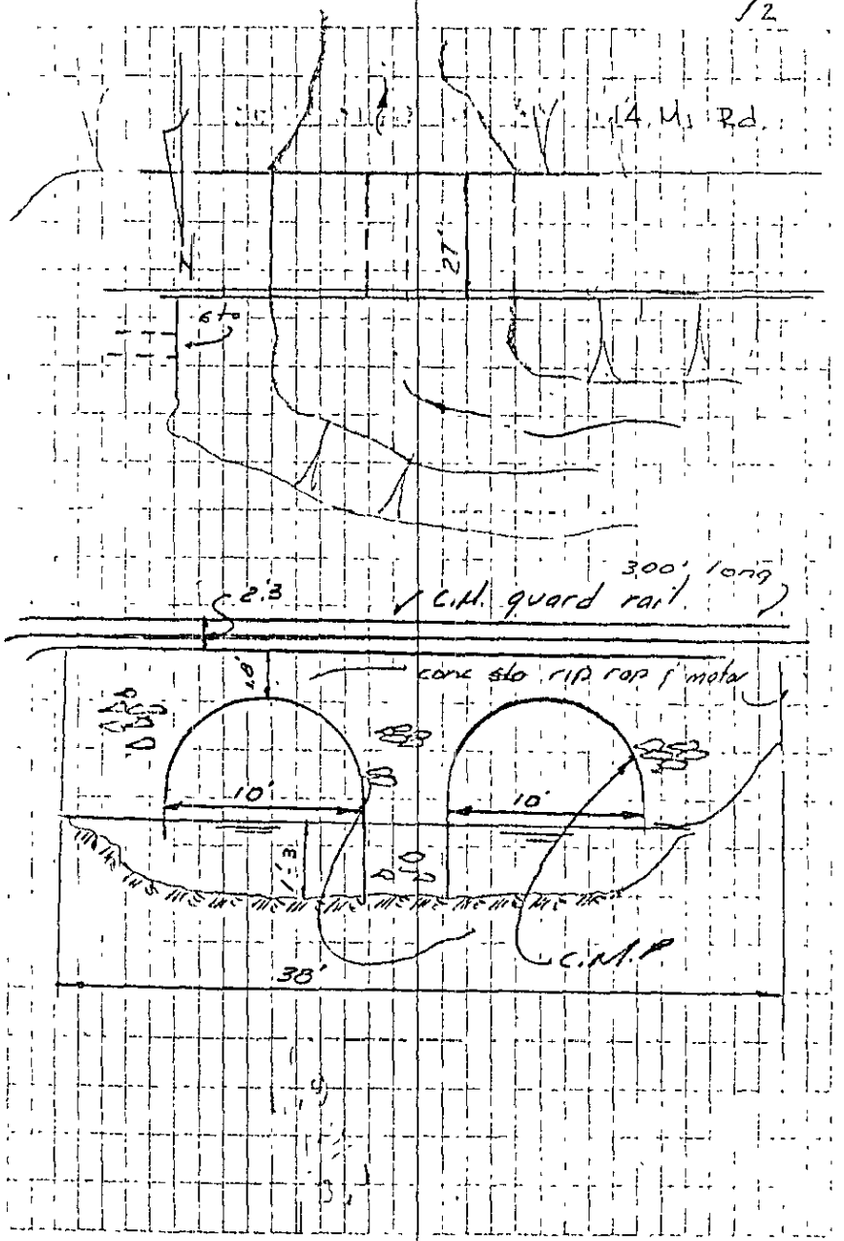
BRIDGE CAST CONC. face, tubes. RCSP

West face

ALL SHOULD BE 701-1 BY HIGHWAY PLANS.

476/2

BRIDGE @ 14 Mile 100' E. of FRANKLIN Rd.

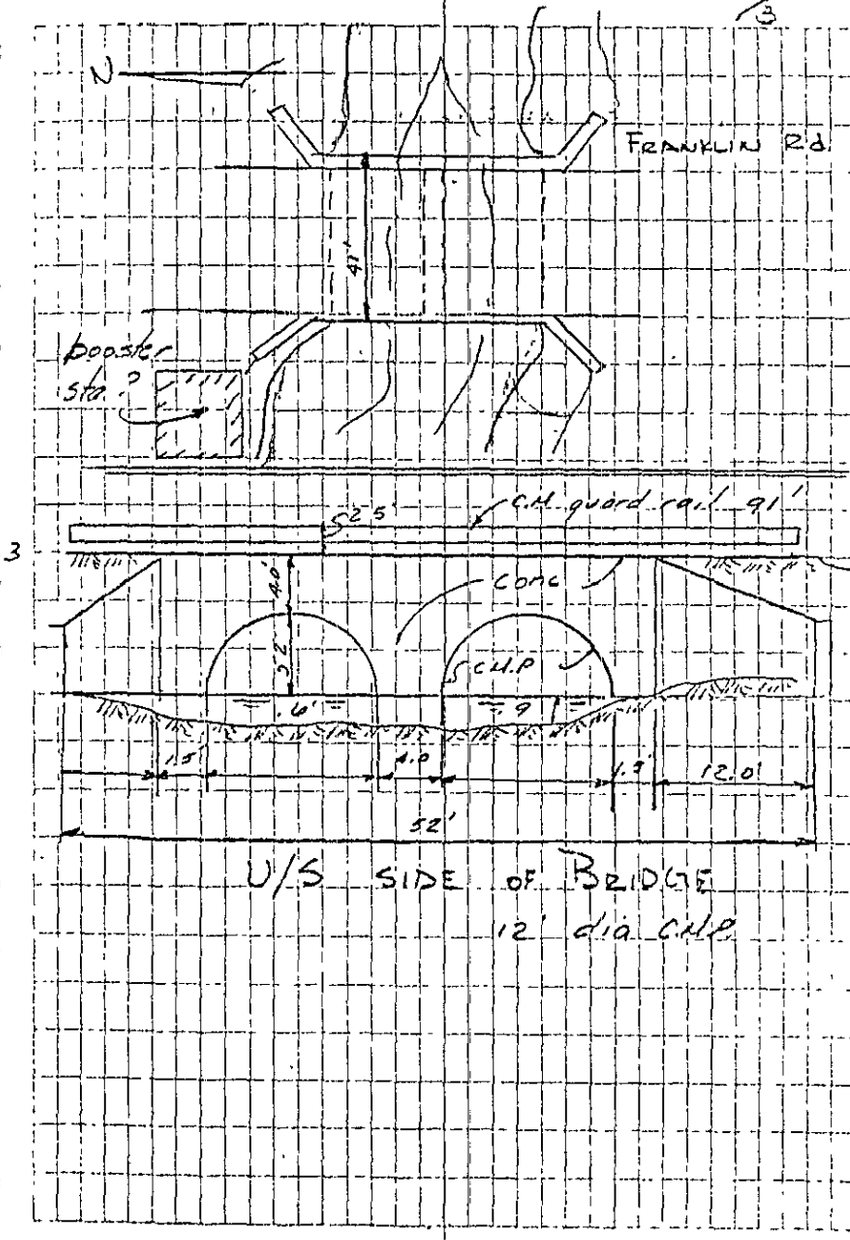


476
3

BRIDGE at FRANKLIN Rd (N o.c 14 M.)

STA	+S	H.I	Rod	-S	Elv
			16.60	6 cr	

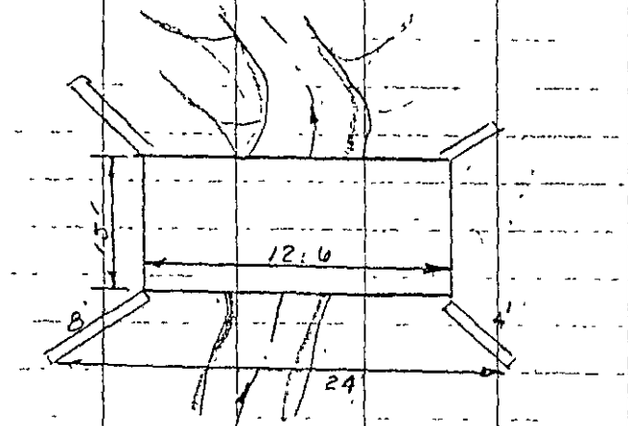
765.3

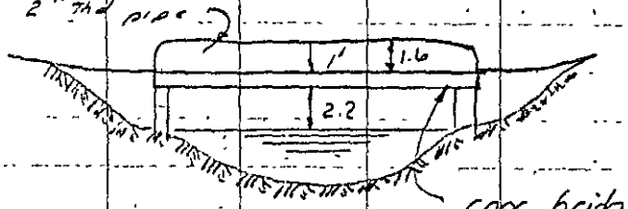


U/S SIDE OF BRIDGE
12' dia C.M.P

476/4

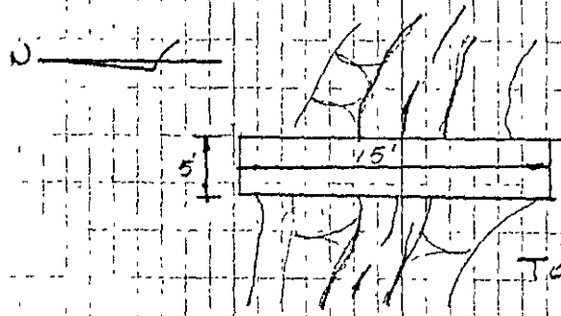
1ST ~~Foot~~ BRIDGE U/S of FRANKLIN
(Private Drive)





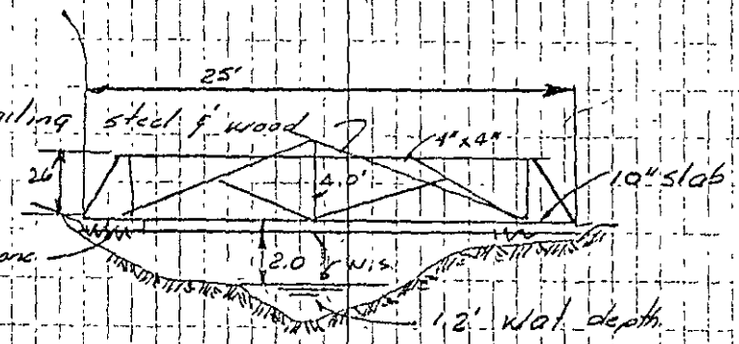
U/S SIDE

2nd BRIDGE U/S OF FRANKLIN RD



TOP VIEW

Note: rail length 25' deck 15'



U/S SIDE

1) COUNTY: OAKLAND

2) STUDY NAME: FRANKLIN, CITY OF

3) WATERCOURSE: RIVER ROUGE
FRANKLIN BRANCH

4) DOCUMENT TYPE: SUMMARY

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**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**********************************************
```

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FRANKLIN BRANCH : ROUGE

SUMMARY PRINTOUT

CWSEL	.01K	EG	TOPWID	STENCL	STENCR	WSELK
754.620	287.08	754.75	250.00	0.00	0.00	754.62
754.620	275.35	754.77	203.55	359.40	562.95	754.62
756.670	219.74	756.87	245.05	0.00	0.00	0.00
756.772	219.79	756.99	190.79	361.98	552.77	756.67
759.408	224.14	759.61	245.88	0.00	0.00	0.00
759.509	224.29	759.72	191.80	361.64	553.44	759.41
760.192	337.67	760.29	250.00	0.00	0.00	0.00
760.300	338.91	760.40	211.30	358.21	569.51	760.19
762.897	808.91	762.92	250.00	0.00	0.00	0.00
763.006	811.74	763.03	238.03	353.96	591.99	762.90
762.949	281.64	763.14	158.28	0.00	0.00	0.00
763.055	282.18	763.25	127.35	39.29	166.65	762.95
763.507	306.83	763.67	160.75	0.00	0.00	0.00
763.612	308.07	763.78	130.57	36.64	167.20	763.51
767.171	832.97	767.20	233.63	0.00	0.00	0.00
767.276	833.81	767.30	202.90	83.90	286.80	767.17
767.200	857.52	767.22	234.55	0.00	0.00	0.00
767.305	857.28	767.33	204.26	83.09	287.35	767.20
767.167	434.09	767.24	230.74	0.00	0.00	0.00
767.270	433.46	767.35	144.06	87.52	231.58	767.17
767.183	435.24	767.26	230.81	0.00	0.00	0.00
767.286	434.63	767.37	143.04	87.94	230.98	767.18
767.250	867.14	767.27	234.91	0.00	0.00	0.00
767.358	868.73	767.38	204.77	82.79	287.56	767.25
767.259	813.47	767.28	232.89	0.00	0.00	0.00
767.367	814.99	767.39	203.27	83.72	286.99	767.26

CWSEL	.01K	EG	TOPWID	STENCL	STENCR	WSELK
767.267	692.22	767.28	232.84	0.00	0.00	0.00
767.375	692.10	767.39	202.33	84.26	286.59	767.27
767.269	693.74	767.29	232.90	0.00	0.00	0.00
767.377	694.94	767.39	203.63	83.51	287.14	767.27
767.265	813.78	767.29	232.90	0.00	0.00	0.00
767.373	815.63	767.40	202.48	84.17	286.65	767.27
767.271	777.45	767.30	231.50	0.00	0.00	0.00
767.379	778.40	767.40	199.90	85.71	285.62	767.27
767.452	586.47	767.49	242.30	0.00	0.00	0.00
767.563	573.27	767.61	211.97	64.03	276.00	767.45
767.860	296.52	767.98	228.55	0.00	0.00	0.00
767.986	293.83	768.11	191.28	84.72	276.00	767.86
768.237	249.85	768.42	134.28	0.00	0.00	0.00
768.361	251.34	768.56	89.72	58.53	148.25	768.24
770.802	159.01	771.14	82.98	0.00	0.00	0.00
770.871	162.97	771.20	83.68	146.00	244.00	770.80
774.233	184.49	774.62	60.34	0.00	0.00	0.00
774.229	183.77	774.62	52.84	190.00	244.00	774.23
777.623	157.66	778.18	71.58	0.00	0.00	0.00
777.661	155.48	778.25	50.10	125.00	177.49	777.62
781.764	263.41	782.00	71.29	0.00	0.00	0.00
781.854	265.21	782.08	60.00	430.00	490.00	781.76
783.737	241.16	784.00	64.76	0.00	0.00	0.00
783.799	242.84	784.06	60.00	430.00	490.00	783.74
785.991	231.87	786.27	61.94	0.00	0.00	0.00
786.028	232.75	786.30	60.00	430.00	490.00	785.99
787.857	326.51	787.93	238.01	0.00	0.00	0.00
787.950	315.97	788.02	210.17	65.83	276.00	787.86
788.525	271.78	788.62	235.45	0.00	0.00	0.00
788.657	266.42	788.75	205.66	70.34	276.00	788.53
789.069	408.85	789.15	192.69	0.00	0.00	0.00
789.196	412.65	789.28	164.17	66.67	230.84	789.07
789.505	312.04	789.63	187.04	0.00	0.00	0.00
789.623	313.86	789.75	151.08	71.36	222.44	789.50
790.094	299.10	790.23	136.15	0.00	0.00	0.00
790.207	299.50	790.35	148.52	72.08	220.59	790.09
790.744	282.00	790.89	184.95	0.00	0.00	0.00
790.855	282.07	791.01	144.73	73.03	217.77	790.74

CWSEL	.01K	EG	TOPWID	STENCL	STENCR	WSELK
791.483	354.89	791.56	177.94	0.00	0.00	0.00
791.600	357.30	791.68	123.00	25.00	148.00	791.48
791.879	141.73	792.12	178.51	0.00	0.00	0.00
791.991	142.61	792.25	146.16	105.00	267.06	791.88
792.747	189.43	792.91	216.41	0.00	0.00	0.00
792.875	187.90	793.05	150.21	55.00	205.22	792.75
793.604	171.76	793.78	156.98	0.00	0.00	0.00
793.723	179.36	793.89	136.36	135.00	283.00	793.60
794.979	112.80	795.40	156.29	0.00	0.00	0.00
795.051	108.92	795.51	103.30	162.69	266.00	794.98

SUMMARY OF ERRORS

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: FRANKLIN, VILLAGE OF

3) WATERCOURSE: RIVER ROUGE, FRANKLIN BRANCH

4) DOCUMENT TYPE: SUMMARY

00BREAK00

100, 10, 50, 500
Franklin

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
**************************************************
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FRANKLIN BRANCH : RCUGF

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
100 yr	4.900	0.00	0.00	0.00	701.90	1640.00	708.52	0.00	709.47	213.00	8.25	262.85	112.37
50 yr.	4.900	0.00	0.00	0.00	701.90	1410.00	708.21	0.00	709.11	213.85	7.89	227.20	96.42
500 yr	4.900	0.00	0.00	0.00	701.90	2220.00	709.34	0.00	710.31	188.93	8.65	357.15	161.51
	4.980	150.00	0.00	0.00	701.60	1640.00	710.23	0.00	710.62	33.86	5.00	327.83	281.86
	4.980	150.00	0.00	0.00	701.60	1410.00	709.84	0.00	710.15	29.09	4.50	313.08	261.41
	4.980	150.00	0.00	0.00	701.60	2220.00	711.03	0.00	711.63	46.56	6.20	357.99	325.36
	5.020	340.00	731.90	709.10	704.10	1640.00	713.17	0.00	713.52	28.75	4.76	344.68	305.89
	5.020	340.00	731.90	709.10	704.10	1410.00	711.92	0.00	712.27	34.44	4.74	297.37	240.28
	5.020	340.00	731.90	709.10	704.10	2220.00	716.73	0.00	717.07	18.03	4.62	480.12	522.76
	5.050	25.00	0.00	0.00	704.50	1640.00	713.38	0.00	713.61	25.61	4.04	495.84	324.07
	5.050	25.00	0.00	0.00	704.50	1410.00	712.10	0.00	712.38	37.55	4.36	373.05	230.09
	5.050	25.00	0.00	0.00	704.50	2220.00	717.02	0.00	717.14	9.63	3.18	959.32	715.36
	5.100	25.00	0.00	0.00	705.00	1640.00	713.33	0.00	713.82	85.86	5.98	343.71	176.99
	5.100	25.00	0.00	0.00	705.00	1410.00	711.97	0.00	712.76	186.06	7.36	222.49	103.37
	5.100	25.00	0.00	0.00	705.00	2220.00	717.02	0.00	717.20	19.30	3.94	797.41	505.37
	5.200	500.00	0.00	0.00	707.30	1640.00	716.60	0.00	716.90	45.32	4.82	447.90	243.60
	5.200	500.00	0.00	0.00	707.30	1410.00	716.33	0.00	716.59	39.73	4.39	416.35	223.69
	5.200	500.00	0.00	0.00	707.30	2220.00	718.20	0.00	718.47	33.10	4.75	652.46	385.86
	5.300	500.00	0.00	0.00	709.60	1640.00	718.88	0.00	719.19	45.92	4.84	445.43	242.03
	5.300	500.00	0.00	0.00	709.60	1410.00	718.44	0.00	718.72	45.25	4.59	393.51	209.60
	5.300	500.00	0.00	0.00	709.60	2220.00	720.03	0.00	720.37	42.54	5.18	591.64	340.38
	5.800	500.00	0.00	0.00	711.80	1640.00	721.00	0.00	721.23	36.26	4.47	592.46	272.35
	5.800	500.00	0.00	0.00	711.80	1410.00	720.55	0.00	720.78	37.33	4.34	509.67	230.78
	5.800	500.00	0.00	0.00	711.80	2220.00	722.01	0.00	722.25	32.82	4.65	786.75	387.53
	6.000	500.00	0.00	0.00	714.10	1640.00	722.99	0.00	723.28	45.60	4.87	535.70	242.86
	6.000	500.00	0.00	0.00	714.10	1410.00	722.58	0.00	722.85	45.53	4.66	462.23	208.96
	6.000	500.00	0.00	0.00	714.10	2220.00	723.87	0.00	724.17	44.14	5.19	700.37	334.15
	6.100	500.00	0.00	0.00	715.90	1640.00	725.09	0.00	725.32	36.51	4.48	590.72	271.42
	6.100	500.00	0.00	0.00	715.90	1410.00	724.67	0.00	724.90	36.89	4.32	512.64	232.15
	6.100	500.00	0.00	0.00	715.90	2220.00	725.93	0.00	726.19	36.92	4.86	751.50	365.35

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
6.200	500.00	0.00	0.00	717.60	1640.00	726.87	0.00	727.10	34.30	4.38	606.42	280.02
6.200	500.00	0.00	0.00	717.60	1410.00	726.47	0.00	726.68	34.30	4.21	531.16	240.75
6.200	500.00	0.00	0.00	717.60	2220.00	727.73	0.00	727.98	34.55	4.74	771.24	377.70
6.300	350.00	0.00	0.00	718.80	1640.00	728.07	0.00	728.30	34.27	4.38	606.65	280.14
6.300	350.00	0.00	0.00	718.80	1410.00	727.67	0.00	727.88	34.29	4.21	531.23	240.78
6.300	350.00	0.00	0.00	718.80	2220.00	728.94	0.00	729.18	34.37	4.73	772.76	378.67
6.400	500.00	0.00	0.00	720.50	1640.00	729.50	0.00	729.58	19.01	3.16	993.88	376.15
6.400	500.00	0.00	0.00	720.50	1410.00	729.11	0.00	729.18	19.59	3.09	883.17	318.59
6.400	500.00	0.00	0.00	720.50	2220.00	730.36	0.00	730.44	18.35	3.36	1238.11	518.31
6.500	500.00	0.00	0.00	722.50	1640.00	730.76	0.00	730.88	36.81	4.08	782.60	270.30
6.500	500.00	0.00	0.00	722.50	1410.00	730.41	0.00	730.54	38.50	4.02	684.85	227.24
6.500	500.00	0.00	0.00	722.50	2220.00	731.55	0.00	731.67	33.58	4.22	1006.71	383.11
6.600	500.00	0.00	0.00	724.50	1640.00	732.67	0.00	732.81	40.09	4.22	757.80	259.01
6.600	500.00	0.00	0.00	724.50	1410.00	732.37	0.00	732.51	39.96	4.08	674.66	223.04
6.600	500.00	0.00	0.00	724.50	2220.00	733.35	0.00	733.50	39.50	4.49	950.79	353.22
6.700	500.00	0.00	0.00	726.40	1640.00	734.63	0.00	734.76	37.99	4.13	773.39	266.08
6.700	500.00	0.00	0.00	726.40	1410.00	734.33	0.00	734.45	37.95	4.00	688.73	228.87
6.700	500.00	0.00	0.00	726.40	2220.00	735.30	0.00	735.44	38.01	4.42	963.84	360.09
7.000	350.00	0.00	0.00	727.70	1640.00	735.95	0.00	736.08	37.15	4.09	779.96	269.09
7.000	350.00	0.00	0.00	727.70	1410.00	735.64	0.00	735.77	37.25	3.97	693.81	231.02
7.000	350.00	0.00	0.00	727.70	2220.00	736.62	0.00	736.76	37.33	4.39	970.00	363.36
7.100	400.00	0.00	0.00	729.50	1640.00	737.56	0.00	737.71	44.73	4.40	726.76	245.21
7.100	400.00	0.00	0.00	729.50	1410.00	737.26	0.00	737.41	44.98	4.27	642.80	210.23
7.100	400.00	0.00	0.00	729.50	2220.00	738.22	0.00	738.38	44.02	4.68	914.85	334.60
7.200	400.00	0.00	0.00	731.20	1640.00	739.31	0.00	739.46	42.48	4.31	741.28	251.62
7.200	400.00	0.00	0.00	731.20	1410.00	739.02	0.00	739.16	42.42	4.17	658.49	216.50
7.200	400.00	0.00	0.00	731.20	2220.00	739.96	0.00	740.12	42.63	4.62	925.35	339.99
7.300	400.00	0.00	0.00	733.00	1640.00	741.05	0.00	741.21	44.91	4.41	725.62	244.72
7.300	400.00	0.00	0.00	733.00	1410.00	740.76	0.00	740.91	44.78	4.26	644.01	210.71
7.300	400.00	0.00	0.00	733.00	2220.00	741.70	0.00	741.87	44.81	4.71	909.03	331.63
7.400	400.00	0.00	0.00	734.90	1640.00	742.63	0.00	742.74	32.64	3.49	726.37	287.05
7.400	400.00	0.00	0.00	734.90	1410.00	742.30	0.00	742.40	31.17	3.32	666.64	252.55
7.400	400.00	0.00	0.00	734.90	2220.00	743.34	0.00	743.47	35.95	3.94	860.70	370.23
7.500	400.00	0.00	0.00	736.60	1640.00	744.07	0.00	744.19	40.13	3.79	677.83	258.88
7.500	400.00	0.00	0.00	736.60	1410.00	743.70	0.00	743.82	40.15	3.66	612.01	222.54
7.500	400.00	0.00	0.00	736.60	2220.00	744.86	0.00	745.01	40.69	4.11	825.07	348.01
7.600	400.00	0.00	0.00	738.40	1640.00	745.74	0.00	745.88	44.27	3.93	655.80	246.47
7.600	400.00	0.00	0.00	738.40	1410.00	745.38	0.00	745.51	44.50	3.82	590.93	211.36
7.600	400.00	0.00	0.00	738.40	2220.00	746.55	0.00	746.70	44.07	4.22	803.44	334.42
8.000	400.00	0.00	0.00	740.10	1640.00	747.49	0.00	747.62	42.70	3.88	663.85	250.97
8.000	400.00	0.00	0.00	740.10	1410.00	747.13	0.00	747.25	42.63	3.75	599.63	215.94
8.000	400.00	0.00	0.00	740.10	2220.00	748.29	0.00	748.44	42.79	4.18	811.29	339.36

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
8.100	500.00	0.00	0.00	742.80	1640.00	749.89	0.00	750.05	55.06	4.29	609.18	221.02
8.100	500.00	0.00	0.00	742.80	1410.00	749.53	0.00	749.69	55.42	4.16	548.11	189.40
8.100	500.00	0.00	0.00	742.80	2220.00	750.67	0.00	750.85	54.02	4.55	751.48	302.06
8.200	500.00	0.00	0.00	745.40	1640.00	752.56	0.00	752.71	51.59	4.18	622.76	228.32
8.200	500.00	0.00	0.00	745.40	1410.00	752.22	0.00	752.36	51.59	4.04	561.77	196.30
8.200	500.00	0.00	0.00	745.40	2220.00	753.32	0.00	753.50	51.93	4.48	761.40	308.07
8.300	500.00	0.00	0.00	748.00	1640.00	754.62	0.00	754.75	32.94	3.61	749.49	285.76
8.300	500.00	0.00	0.00	748.00	1410.00	754.29	0.00	754.41	33.34	3.48	667.21	244.19
8.300	500.00	0.00	0.00	748.00	2220.00	755.37	0.00	755.52	32.10	3.89	937.20	391.84
8.400	500.00	0.00	0.00	750.60	1640.00	756.67	0.00	756.87	55.06	4.35	617.59	221.02
8.400	500.00	0.00	0.00	750.60	1410.00	756.37	0.00	756.57	56.15	4.21	543.97	188.17
8.400	500.00	0.00	0.00	750.60	2220.00	757.36	0.00	757.57	52.91	4.65	786.00	305.21
8.900	500.00	0.00	0.00	753.30	1640.00	759.40	0.00	759.60	53.96	4.32	622.44	223.25
8.900	500.00	0.00	0.00	753.30	1410.00	759.12	0.00	759.31	53.47	4.13	554.68	192.83
8.900	500.00	0.00	0.00	753.30	2220.00	760.03	0.00	760.25	53.95	4.69	780.49	302.24
8.980	190.00	0.00	0.00	753.20	1640.00	760.19	0.00	760.29	23.65	3.20	843.85	337.22
8.980	190.00	0.00	0.00	753.20	1410.00	759.89	0.00	759.98	22.70	3.02	768.69	295.92
8.980	190.00	0.00	0.00	753.20	2220.00	760.85	0.00	760.97	25.89	3.60	1009.07	436.31
600.020	27.00	760.60	757.70	753.20	1640.00	762.90	0.00	762.92	4.11	1.73	1521.31	808.86
600.020	27.00	760.60	757.70	753.20	1410.00	762.69	0.00	762.71	3.39	1.54	1468.43	766.16
600.020	27.00	760.60	757.70	753.20	2220.00	763.36	0.00	763.40	6.02	2.16	1636.14	904.74

FRANKLIN BRANCH : ROUGE

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
4.900	1640.00	708.52	0.00	0.00	0.00	115.00	0.00
4.900	1410.00	708.21	0.00	0.00	0.00	115.00	0.00
4.900	2220.00	709.34	0.00	0.00	0.00	115.00	0.00
4.980	1640.00	710.23	0.00	1.71	0.00	38.00	150.00
4.980	1410.00	709.84	0.00	1.63	0.00	38.00	150.00
4.980	2220.00	711.03	0.00	1.69	0.00	38.00	150.00
5.020	1640.00	713.17	0.00	2.94	0.00	38.00	340.00
5.020	1410.00	711.92	0.00	2.09	0.00	38.00	340.00
5.020	2220.00	716.73	0.00	5.70	0.00	38.00	340.00
5.050	1640.00	713.38	0.00	.21	0.00	114.40	25.00
5.050	1410.00	712.10	0.00	.17	0.00	88.31	25.00
5.050	2220.00	717.02	0.00	.28	0.00	130.00	25.00
5.100	1640.00	713.33	0.00	-.05	0.00	94.85	25.00
5.100	1410.00	711.97	0.00	-.13	0.00	82.72	25.00
5.100	2220.00	717.02	0.00	-.00	0.00	130.00	25.00
5.200	1640.00	716.60	0.00	3.27	0.00	120.22	500.00
5.200	1410.00	716.33	0.00	4.37	0.00	116.50	500.00
5.200	2220.00	718.20	0.00	1.19	0.00	130.00	500.00
5.300	1640.00	718.88	0.00	2.28	0.00	119.94	500.00
5.300	1410.00	718.44	0.00	2.10	0.00	113.73	500.00
5.300	2220.00	720.03	0.00	1.83	0.00	130.00	500.00
5.800	1640.00	721.00	0.00	2.12	0.00	187.97	500.00
5.800	1410.00	720.55	0.00	2.11	0.00	178.99	500.00
5.800	2220.00	722.01	0.00	1.98	0.00	194.09	500.00
6.000	1640.00	722.99	0.00	1.99	0.00	184.55	500.00
6.000	1410.00	722.58	0.00	2.03	0.00	168.39	500.00
6.000	2220.00	723.87	0.00	1.85	0.00	191.40	500.00
6.100	1640.00	725.09	0.00	2.10	0.00	187.87	500.00
6.100	1410.00	724.67	0.00	2.10	0.00	179.63	500.00
6.100	2220.00	725.93	0.00	2.07	0.00	192.99	500.00
6.200	1640.00	726.87	0.00	1.78	0.00	188.43	500.00
6.200	1410.00	726.47	0.00	1.79	0.00	183.59	500.00
6.200	2220.00	727.73	0.00	1.80	0.00	193.61	500.00
6.300	1640.00	728.07	0.00	1.20	0.00	188.44	350.00
6.300	1410.00	727.67	0.00	1.20	0.00	183.61	350.00
6.300	2220.00	728.94	0.00	1.21	0.00	193.65	350.00
6.400	1640.00	729.50	0.00	1.43	0.00	284.00	500.00
6.400	1410.00	729.11	0.00	1.44	0.00	284.00	500.00
6.400	2220.00	730.36	0.00	1.42	0.00	284.00	500.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
6.500	1640.00	730.76	0.00	1.25	0.00	284.00	500.00
6.500	1410.00	730.41	0.00	1.30	0.00	284.00	500.00
6.500	2220.00	731.55	0.00	1.18	0.00	284.00	500.00
6.600	1640.00	732.67	0.00	1.91	0.00	284.00	500.00
6.600	1410.00	732.37	0.00	1.96	0.00	283.29	500.00
6.600	2220.00	733.35	0.00	1.81	0.00	284.00	500.00
6.700	1640.00	734.63	0.00	1.96	0.00	284.00	500.00
6.700	1410.00	734.33	0.00	1.95	0.00	284.00	500.00
6.700	2220.00	735.30	0.00	1.94	0.00	284.00	500.00
7.000	1640.00	735.95	0.00	1.32	0.00	284.00	350.00
7.000	1410.00	735.64	0.00	1.32	0.00	284.00	350.00
7.000	2220.00	736.62	0.00	1.32	0.00	284.00	350.00
7.100	1640.00	737.56	0.00	1.61	0.00	284.00	400.00
7.100	1410.00	737.26	0.00	1.62	0.00	279.84	400.00
7.100	2220.00	738.22	0.00	1.61	0.00	284.00	400.00
7.200	1640.00	739.31	0.00	1.75	0.00	284.00	400.00
7.200	1410.00	739.02	0.00	1.76	0.00	281.55	400.00
7.200	2220.00	739.96	0.00	1.74	0.00	284.00	400.00
7.300	1640.00	741.05	0.00	1.74	0.00	284.00	400.00
7.300	1410.00	740.76	0.00	1.74	0.00	279.97	400.00
7.300	2220.00	741.70	0.00	1.74	0.00	284.00	400.00
7.400	1640.00	742.63	0.00	1.58	0.00	182.51	400.00
7.400	1410.00	742.30	0.00	1.55	0.00	181.07	400.00
7.400	2220.00	743.34	0.00	1.64	0.00	203.52	400.00
7.500	1640.00	744.07	0.00	1.43	0.00	181.34	400.00
7.500	1410.00	743.70	0.00	1.40	0.00	179.75	400.00
7.500	2220.00	744.86	0.00	1.52	0.00	195.48	400.00
7.600	1640.00	745.74	0.00	1.68	0.00	180.81	400.00
7.600	1410.00	745.38	0.00	1.68	0.00	179.23	400.00
7.600	2220.00	746.55	0.00	1.69	0.00	190.43	400.00
8.000	1640.00	747.49	0.00	1.74	0.00	181.00	400.00
8.000	1410.00	747.13	0.00	1.75	0.00	179.45	400.00
8.000	2220.00	748.29	0.00	1.74	0.00	192.28	400.00
8.100	1640.00	749.89	0.00	2.40	0.00	179.68	500.00
8.100	1410.00	749.53	0.00	2.40	0.00	178.19	500.00
8.100	2220.00	750.67	0.00	2.38	0.00	183.11	500.00
8.200	1640.00	752.56	0.00	2.67	0.00	180.01	500.00
8.200	1410.00	752.22	0.00	2.68	0.00	178.52	500.00
8.200	2220.00	753.32	0.00	2.65	0.00	183.34	500.00
8.300	1640.00	754.62	0.00	2.06	0.00	250.00	500.00
8.300	1410.00	754.29	0.00	2.07	0.00	249.59	500.00
8.300	2220.00	755.37	0.00	2.05	0.00	250.00	500.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
8.400	1640.00	756.67	0.00	2.05	0.00	245.29	500.00
8.400	1410.00	756.37	0.00	2.09	0.00	238.77	500.00
8.400	2220.00	757.36	0.00	1.99	0.00	250.00	500.00
8.900	1640.00	759.40	0.00	2.73	0.00	245.72	500.00
8.900	1410.00	759.12	0.00	2.75	0.00	239.73	500.00
8.900	2220.00	760.03	0.00	2.67	0.00	250.00	500.00
8.980	1640.00	760.19	0.00	.79	0.00	250.00	190.00
8.980	1410.00	759.89	0.00	.77	0.00	250.00	190.00
8.980	2220.00	760.85	0.00	.82	0.00	250.00	190.00
600.020	1640.00	762.90	0.00	2.71	0.00	250.00	27.00
600.020	1410.00	762.69	0.00	2.80	0.00	250.00	27.00
600.020	2220.00	763.36	0.00	2.51	0.00	250.00	27.00

SUMMARY OF ERRORS

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: FRANKLIN, VILLAGE OF

3) WATERCOURSE: RIVER ROUGE, FRANKLIN BRANCH

4) DOCUMENT TYPE: SUMMARY - RUN 2

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED FEB 1977
  ERROR CORR -  01
  MODIFICATION -  50,51,52
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100, 10, 50, 500 yr
Bloomfield

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

FRANKLIN BRANCH : ROUGE

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
100	8.300	0.00	0.00	0.00	748.00	1640.00	754.62	0.00	754.75	32.63	3.59	752.00	287.08
10	8.300	0.00	0.00	0.00	748.00	965.00	753.55	0.00	753.66	33.97	3.16	490.53	165.57
50	8.300	0.00	0.00	0.00	748.00	1410.00	754.29	0.00	754.42	33.04	3.47	669.50	245.28
500	8.300	0.00	0.00	0.00	748.00	2220.00	755.37	0.00	755.51	31.87	3.88	939.50	393.23
	8.400	500.00	0.00	0.00	750.60	1640.00	756.67	0.00	756.87	55.70	4.37	614.80	219.74
	8.400	500.00	0.00	0.00	750.60	965.00	755.70	0.00	755.89	58.89	3.87	388.71	125.75
	8.400	500.00	0.00	0.00	750.60	1410.00	756.37	0.00	756.57	56.55	4.22	542.41	187.49
	8.400	500.00	0.00	0.00	750.60	2220.00	757.35	0.00	757.57	53.21	4.66	784.40	304.35
	8.900	500.00	0.00	0.00	753.30	1640.00	759.41	0.00	759.61	53.54	4.31	624.37	224.14
	8.900	500.00	0.00	0.00	753.30	965.00	758.50	0.00	758.66	52.36	3.71	409.11	133.36
	8.900	500.00	0.00	0.00	753.30	1410.00	759.13	0.00	759.31	53.25	4.12	555.56	193.21
	8.900	500.00	0.00	0.00	753.30	2220.00	760.03	0.00	760.25	53.85	4.68	781.04	302.54
	8.980	190.00	0.00	0.00	753.20	1640.00	760.19	0.00	760.29	23.59	3.19	844.65	337.67
	8.980	190.00	0.00	0.00	753.20	965.00	759.22	0.00	759.29	20.45	2.63	600.90	213.41
	8.980	190.00	0.00	0.00	753.20	1410.00	759.89	0.00	759.98	22.67	3.02	769.05	296.11
	8.980	190.00	0.00	0.00	753.20	2220.00	760.85	0.00	760.97	25.89	3.60	1009.07	436.31
	600.020	27.00	760.60	757.70	753.20	1640.00	762.90	0.00	762.92	4.11	1.73	1521.37	808.91
	600.020	27.00	760.60	757.70	753.20	965.00	762.20	0.00	762.21	2.06	1.15	1348.56	672.84
	600.020	27.00	760.60	757.70	753.20	1410.00	762.69	0.00	762.71	3.39	1.54	1468.46	766.18
	600.020	27.00	760.60	757.70	753.20	2220.00	763.36	0.00	763.40	6.02	2.16	1636.14	904.74
	600.800	93.00	0.00	0.00	754.80	1640.00	762.95	0.00	763.14	33.91	4.38	610.69	281.64
	600.800	93.00	0.00	0.00	754.80	965.00	762.23	0.00	762.33	19.72	3.11	499.24	217.29
	600.800	93.00	0.00	0.00	754.80	1410.00	762.73	0.00	762.89	29.17	3.98	576.05	261.06
	600.800	93.00	0.00	0.00	754.80	2220.00	763.43	0.00	763.70	45.29	5.29	688.15	329.88
	600.980	170.00	0.00	0.00	755.10	1640.00	763.51	0.00	763.67	28.57	4.12	651.82	306.83
	600.980	170.00	0.00	0.00	755.10	965.00	762.57	0.00	762.99	58.24	5.18	186.35	126.45
	600.980	170.00	0.00	0.00	755.10	1410.00	763.21	0.00	763.35	25.59	3.80	605.85	278.73
	600.980	170.00	0.00	0.00	755.10	2220.00	764.16	0.00	764.38	34.74	4.81	759.05	376.65
	601.020	41.00	766.40	761.30	755.10	1640.00	767.17	0.00	767.20	3.88	1.88	1491.12	832.97
	601.020	41.00	766.40	761.30	755.10	965.00	763.76	0.00	764.15	53.10	5.02	192.32	132.43
	601.020	41.00	766.40	761.30	755.10	1410.00	766.50	0.00	766.52	3.95	1.82	1334.95	709.80
	601.020	41.00	766.40	761.30	755.10	2220.00	768.03	0.00	768.06	4.90	2.23	1693.48	1002.39

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
601.400	64.00	0.00	0.00	755.00	1490.00	767.20	0.00	767.22	3.02	1.68	1521.26	857.52
601.400	64.00	0.00	0.00	755.00	870.00	764.28	0.00	764.30	5.06	1.75	867.08	386.76
601.400	64.00	0.00	0.00	755.00	1280.00	766.52	0.00	766.54	3.05	1.61	1364.49	732.56
601.400	64.00	0.00	0.00	755.00	2030.00	768.06	0.00	768.09	3.88	2.00	1726.31	1030.96
601.420	1.00	758.90	757.90	755.00	1490.00	767.17	0.00	767.24	11.78	3.43	882.61	434.09
601.420	1.00	758.90	757.90	755.00	870.00	764.21	0.00	764.35	26.22	4.16	406.37	169.90
601.420	1.00	758.90	757.90	755.00	1280.00	766.49	0.00	766.57	12.78	3.42	752.37	358.09
601.420	1.00	758.90	757.90	755.00	2030.00	768.02	0.00	768.12	13.95	3.92	1053.29	543.47
601.430	13.00	758.90	757.90	755.00	1490.00	767.18	0.00	767.26	11.72	3.42	884.51	435.24
601.430	13.00	758.90	757.90	755.00	870.00	764.25	0.00	764.39	25.68	4.13	410.02	171.68
601.430	13.00	758.90	757.90	755.00	1280.00	766.51	0.00	766.59	12.70	3.42	754.11	359.15
601.430	13.00	758.90	757.90	755.00	2030.00	768.04	0.00	768.14	13.87	3.91	1055.62	545.04
601.450	1.00	0.00	0.00	755.00	1490.00	767.25	0.00	767.27	2.95	1.66	1532.99	867.14
601.450	1.00	0.00	0.00	755.00	870.00	764.39	0.00	764.41	4.71	1.71	890.26	400.94
601.450	1.00	0.00	0.00	755.00	1280.00	766.58	0.00	766.60	2.97	1.60	1376.96	742.25
601.450	1.00	0.00	0.00	755.00	2030.00	768.12	0.00	768.15	3.78	1.98	1740.58	1043.48
601.500	35.00	0.00	0.00	755.30	1490.00	767.26	0.00	767.28	3.36	1.74	1466.96	813.47
601.500	35.00	0.00	0.00	755.30	870.00	764.40	0.00	764.43	5.69	1.83	830.25	364.57
601.500	35.00	0.00	0.00	755.30	1280.00	766.59	0.00	766.61	3.41	1.68	1312.50	692.66
601.500	35.00	0.00	0.00	755.30	2030.00	768.13	0.00	768.17	4.24	2.07	1673.83	985.47
601.520	.50	759.20	758.40	755.30	1490.00	767.27	0.00	767.28	4.63	1.19	1449.54	692.22
601.520	.50	759.20	758.40	755.30	870.00	764.42	0.00	764.43	8.89	1.32	815.87	291.81
601.520	.50	759.20	758.40	755.30	1280.00	766.60	0.00	766.61	4.82	1.16	1294.93	583.07
601.520	.50	759.20	758.40	755.30	2030.00	768.14	0.00	768.17	5.73	1.41	1656.07	847.88
601.530	4.00	759.20	758.40	755.30	1490.00	767.27	0.00	767.29	4.61	1.19	1451.62	693.74
601.530	4.00	759.20	758.40	755.30	870.00	764.42	0.00	764.44	8.83	1.31	817.66	292.75
601.530	4.00	759.20	758.40	755.30	1280.00	766.60	0.00	766.61	4.80	1.16	1296.96	584.47
601.530	4.00	759.20	758.40	755.30	2030.00	768.15	0.00	768.17	5.70	1.40	1658.85	850.05
601.550	.50	0.00	0.00	755.30	1490.00	767.27	0.00	767.29	3.35	1.74	1467.35	813.78
601.550	.50	0.00	0.00	755.30	870.00	764.41	0.00	764.44	5.63	1.82	833.51	366.51
601.550	.50	0.00	0.00	755.30	1280.00	766.59	0.00	766.62	3.41	1.68	1312.69	692.81
601.550	.50	0.00	0.00	755.30	2030.00	768.14	0.00	768.17	4.24	2.07	1674.62	986.14
601.800	19.00	0.00	0.00	755.50	1490.00	767.27	0.00	767.30	3.67	1.80	1421.80	777.45
601.800	19.00	0.00	0.00	755.50	870.00	764.42	0.00	764.45	6.44	1.92	793.59	342.92
601.800	19.00	0.00	0.00	755.50	1280.00	766.60	0.00	766.62	3.77	1.74	1268.15	659.27
601.800	19.00	0.00	0.00	755.50	2030.00	768.15	0.00	768.18	4.60	2.13	1628.01	946.41
601.900	400.00	0.00	0.00	757.70	1490.00	767.45	0.00	767.49	6.45	1.95	1130.54	586.47
601.900	400.00	0.00	0.00	757.70	870.00	764.80	0.00	764.87	17.54	2.36	512.62	207.75
601.900	400.00	0.00	0.00	757.70	1280.00	766.79	0.00	766.84	7.28	1.94	972.34	474.56
601.900	400.00	0.00	0.00	757.70	2030.00	768.37	0.00	768.42	7.14	2.22	1354.69	759.62
602.000	400.00	0.00	0.00	760.00	1490.00	767.86	0.00	767.98	25.25	3.14	684.76	296.52
602.000	400.00	0.00	0.00	760.00	870.00	765.93	0.00	766.14	64.61	3.72	259.66	108.24
602.000	400.00	0.00	0.00	760.00	1280.00	767.27	0.00	767.41	31.98	3.27	551.15	226.33
602.000	400.00	0.00	0.00	760.00	2030.00	768.79	0.00	768.92	22.62	3.31	900.50	426.80

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
602.500	140.00	0.00	0.00	762.00	1490.00	768.24	0.00	768.42	35.56	3.57	471.10	249.85
602.500	140.00	0.00	0.00	762.00	870.00	766.74	0.00	766.89	44.31	3.13	293.93	130.70
602.500	140.00	0.00	0.00	762.00	1280.00	767.74	0.00	767.92	38.79	3.47	407.34	205.52
602.500	140.00	0.00	0.00	762.00	2030.00	769.12	0.00	769.35	35.56	3.99	602.20	340.43
603.000	500.00	0.00	0.00	764.30	1490.00	770.80	0.00	771.14	87.80	4.66	319.47	159.01
603.000	500.00	0.00	0.00	764.30	870.00	769.57	0.00	769.80	77.57	3.87	224.85	98.78
603.000	500.00	0.00	0.00	764.30	1280.00	770.43	0.00	770.73	85.09	4.43	288.87	138.77
603.000	500.00	0.00	0.00	764.30	2030.00	771.70	0.00	772.10	90.12	5.10	397.90	213.84
603.500	460.00	0.00	0.00	766.50	1490.00	774.23	0.00	774.62	65.22	5.01	297.49	184.49
603.500	460.00	0.00	0.00	766.50	870.00	772.58	0.00	772.84	56.54	4.06	214.41	115.70
603.500	460.00	0.00	0.00	766.50	1280.00	773.74	0.00	774.08	62.50	4.72	271.35	161.91
603.500	460.00	0.00	0.00	766.50	2030.00	775.23	0.00	775.71	67.78	5.62	412.87	246.58
604.000	460.00	0.00	0.00	768.80	1490.00	777.62	0.00	778.18	89.32	6.15	278.61	157.66
604.000	460.00	0.00	0.00	768.80	870.00	775.75	0.00	776.19	92.69	5.34	165.32	90.37
604.000	460.00	0.00	0.00	768.80	1280.00	777.06	0.00	777.59	91.03	5.95	239.49	134.16
604.000	460.00	0.00	0.00	768.80	2030.00	778.74	0.00	779.37	91.28	6.71	361.94	212.48
604.500	750.00	0.00	0.00	771.80	1490.00	781.76	0.00	782.00	32.00	3.89	385.96	263.41
604.500	750.00	0.00	0.00	771.80	870.00	779.77	0.00	779.93	30.39	3.25	268.03	157.82
604.500	750.00	0.00	0.00	771.80	1280.00	781.22	0.00	781.43	31.81	3.66	350.20	226.95
604.500	750.00	0.00	0.00	771.80	2030.00	782.97	0.00	783.27	32.66	4.41	486.58	355.23
604.600	570.00	0.00	0.00	774.10	1490.00	783.74	0.00	784.00	38.17	4.10	363.74	241.16
604.600	570.00	0.00	0.00	774.10	870.00	781.68	0.00	781.87	37.71	3.51	247.55	141.67
604.600	570.00	0.00	0.00	774.10	1280.00	783.17	0.00	783.41	37.58	3.88	329.52	208.79
604.600	570.00	0.00	0.00	774.10	2030.00	784.96	0.00	785.28	37.91	4.62	457.54	329.70
604.700	570.00	0.00	0.00	776.50	1490.00	785.99	0.00	786.27	41.30	4.20	354.82	231.87
604.700	570.00	0.00	0.00	776.50	870.00	783.92	0.00	784.12	41.33	3.63	239.35	135.32
604.700	570.00	0.00	0.00	776.50	1280.00	785.40	0.00	785.65	40.92	4.01	319.34	200.11
604.700	570.00	0.00	0.00	776.50	2030.00	787.19	0.00	787.54	41.05	4.74	443.16	316.83
606.000	570.00	0.00	0.00	778.80	1490.00	787.86	0.00	787.93	20.82	2.99	860.72	326.51
606.000	570.00	0.00	0.00	778.80	870.00	786.24	0.00	786.34	35.78	3.21	484.82	145.45
606.000	570.00	0.00	0.00	778.80	1280.00	787.35	0.00	787.43	23.74	3.02	741.78	262.68
606.000	570.00	0.00	0.00	778.80	2030.00	788.97	0.00	789.04	17.16	3.02	1128.90	490.07
606.100	275.00	0.00	0.00	779.90	1490.00	788.53	0.00	788.62	30.06	3.42	759.42	271.78
606.100	275.00	0.00	0.00	779.90	870.00	787.27	0.00	787.37	39.30	3.32	467.78	138.78
606.100	275.00	0.00	0.00	779.90	1280.00	788.10	0.00	788.20	33.11	3.42	660.62	222.46
606.100	275.00	0.00	0.00	779.90	2030.00	789.52	0.00	789.61	25.00	3.47	996.05	406.03
606.400	275.00	0.00	0.00	781.10	1490.00	789.07	0.00	789.15	13.28	2.62	798.64	408.85
606.400	275.00	0.00	0.00	781.10	870.00	787.85	0.00	787.90	11.22	2.09	567.76	259.78
606.400	275.00	0.00	0.00	781.10	1280.00	788.67	0.00	788.74	12.89	2.47	722.10	356.48
606.400	275.00	0.00	0.00	781.10	2030.00	790.01	0.00	790.11	13.79	2.92	983.66	546.59
606.500	270.00	0.00	0.00	782.30	1490.00	789.50	0.00	789.63	22.80	3.16	653.50	312.04
606.500	270.00	0.00	0.00	782.30	870.00	788.24	0.00	788.34	23.06	2.69	423.49	181.16
606.500	270.00	0.00	0.00	782.30	1280.00	789.10	0.00	789.22	23.14	3.03	578.45	266.09
606.500	270.00	0.00	0.00	782.30	2030.00	790.45	0.00	790.59	21.86	3.42	834.17	434.14

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
606.600	250.00	0.00	0.00	783.00	1490.00	790.09	0.00	790.23	24.82	3.25	632.84	299.10
606.600	250.00	0.00	0.00	783.00	870.00	788.84	0.00	788.95	25.44	2.78	405.91	172.48
606.600	250.00	0.00	0.00	783.00	1280.00	789.70	0.00	789.82	25.17	3.12	559.78	255.12
606.600	250.00	0.00	0.00	783.00	2030.00	791.02	0.00	791.17	23.87	3.53	808.06	415.50
606.700	250.00	0.00	0.00	783.80	1490.00	790.74	0.00	790.89	27.92	3.38	604.99	282.00
606.700	250.00	0.00	0.00	783.80	870.00	789.51	0.00	789.63	28.97	2.91	383.31	161.63
606.700	250.00	0.00	0.00	783.80	1280.00	790.36	0.00	790.50	28.34	3.25	534.24	240.42
606.700	250.00	0.00	0.00	783.80	2030.00	791.64	0.00	791.80	26.85	3.67	774.18	391.79
607.000	300.00	0.00	0.00	784.80	1490.00	791.48	0.00	791.56	17.63	2.24	698.17	354.89
607.000	300.00	0.00	0.00	784.80	870.00	790.21	0.00	790.26	15.19	1.74	502.00	223.24
607.000	300.00	0.00	0.00	784.80	1280.00	791.09	0.00	791.16	16.97	2.09	631.11	310.72
607.000	300.00	0.00	0.00	784.80	2030.00	792.38	0.00	792.48	18.64	2.56	875.23	470.21
607.100	150.00	0.00	0.00	786.30	1490.00	791.88	0.00	792.12	110.53	4.32	440.64	141.73
607.100	150.00	0.00	0.00	786.30	870.00	790.60	0.00	790.91	188.14	4.54	216.82	63.43
607.100	150.00	0.00	0.00	786.30	1280.00	791.49	0.00	791.75	126.40	4.36	371.21	113.85
607.100	150.00	0.00	0.00	786.30	2030.00	792.77	0.00	793.00	88.03	4.31	601.25	216.37
607.200	100.00	0.00	0.00	787.40	1490.00	792.75	0.00	792.91	61.87	3.57	556.60	189.43
607.200	100.00	0.00	0.00	787.40	870.00	791.81	0.00	791.94	62.37	3.02	360.04	110.16
607.200	100.00	0.00	0.00	787.40	1280.00	792.44	0.00	792.60	63.24	3.43	491.39	160.96
607.200	100.00	0.00	0.00	787.40	2030.00	793.49	0.00	793.67	57.07	3.83	721.14	268.71
607.300	125.00	0.00	0.00	788.50	1490.00	793.60	0.00	793.78	75.26	3.35	453.81	171.76
607.300	125.00	0.00	0.00	788.50	870.00	792.66	0.00	792.77	70.48	2.73	318.75	103.63
607.300	125.00	0.00	0.00	788.50	1280.00	793.31	0.00	793.46	74.07	3.17	409.02	148.73
607.300	125.00	0.00	0.00	788.50	2030.00	794.29	0.00	794.51	74.89	3.72	569.40	234.57
607.400	150.00	0.00	0.00	790.00	1490.00	794.98	0.00	795.40	174.49	5.69	345.61	112.80
607.400	150.00	0.00	0.00	790.00	870.00	794.08	0.00	794.42	181.45	4.86	216.51	64.59
607.400	150.00	0.00	0.00	790.00	1280.00	794.70	0.00	795.10	177.01	5.45	303.40	96.21
607.400	150.00	0.00	0.00	790.00	2030.00	795.60	0.00	796.08	170.42	6.21	447.60	155.50

FRANKLIN BRANCH : ROUGE

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
8.300	1640.00	754.62	0.00	0.00	0.00	250.00	0.00
8.300	965.00	753.55	0.00	0.00	0.00	233.93	0.00
8.300	1410.00	754.29	0.00	0.00	0.00	249.79	0.00
8.300	2220.00	755.37	0.00	0.00	0.00	250.00	0.00
8.400	1640.00	756.67	0.00	2.05	0.00	245.05	500.00
8.400	965.00	755.70	0.00	2.15	0.00	224.41	500.00
8.400	1410.00	756.37	0.00	2.08	0.00	238.63	500.00
8.400	2220.00	757.35	0.00	1.98	0.00	250.00	500.00
8.900	1640.00	759.41	0.00	2.74	0.00	245.88	500.00
8.900	965.00	758.50	0.00	2.80	0.00	226.35	500.00
8.900	1410.00	759.13	0.00	2.76	0.00	239.81	500.00
8.900	2220.00	760.03	0.00	2.67	0.00	250.00	500.00
8.980	1640.00	760.19	0.00	.78	0.00	250.00	190.00
8.980	965.00	759.22	0.00	.72	0.00	243.83	190.00
8.980	1410.00	759.89	0.00	.76	0.00	250.00	190.00
8.980	2220.00	760.85	0.00	.82	0.00	250.00	190.00
600.020	1640.00	762.90	0.00	2.71	0.00	250.00	27.00
600.020	965.00	762.20	0.00	2.99	0.00	250.00	27.00
600.020	1410.00	762.69	0.00	2.80	0.00	250.00	27.00
600.020	2220.00	763.36	0.00	2.51	0.00	250.00	27.00
600.800	1640.00	762.95	0.00	.05	0.00	158.28	93.00
600.800	965.00	762.23	0.00	.03	0.00	150.02	93.00
600.800	1410.00	762.73	0.00	.04	0.00	155.76	93.00
600.800	2220.00	763.43	0.00	.08	0.00	162.32	93.00
600.980	1640.00	763.51	0.00	.56	0.00	160.75	170.00
600.980	965.00	762.57	0.00	.35	0.00	29.00	170.00
600.980	1410.00	763.21	0.00	.48	0.00	157.93	170.00
600.980	2220.00	764.16	0.00	.73	0.00	165.35	170.00
601.020	1640.00	767.17	0.00	3.66	0.00	233.63	41.00
601.020	965.00	763.76	0.00	1.19	0.00	27.00	41.00
601.020	1410.00	766.50	0.00	3.28	0.00	228.80	41.00
601.020	2220.00	768.03	0.00	3.86	0.00	239.65	41.00
601.400	1490.00	767.20	0.00	.03	0.00	234.55	64.00
601.400	870.00	764.28	0.00	.52	0.00	211.41	64.00
601.400	1280.00	766.52	0.00	.03	0.00	229.72	64.00
601.400	2030.00	768.06	0.00	.04	0.00	240.11	64.00
601.420	1490.00	767.17	0.00	-.03	0.00	230.74	1.00
601.420	870.00	764.21	0.00	-.07	0.00	204.05	1.00
601.420	1280.00	766.49	0.00	-.04	0.00	225.90	1.00
601.420	2030.00	768.02	0.00	-.04	0.00	236.87	1.00
601.430	1490.00	767.18	0.00	.02	0.00	230.81	13.00
601.430	870.00	764.25	0.00	.04	0.00	204.42	13.00

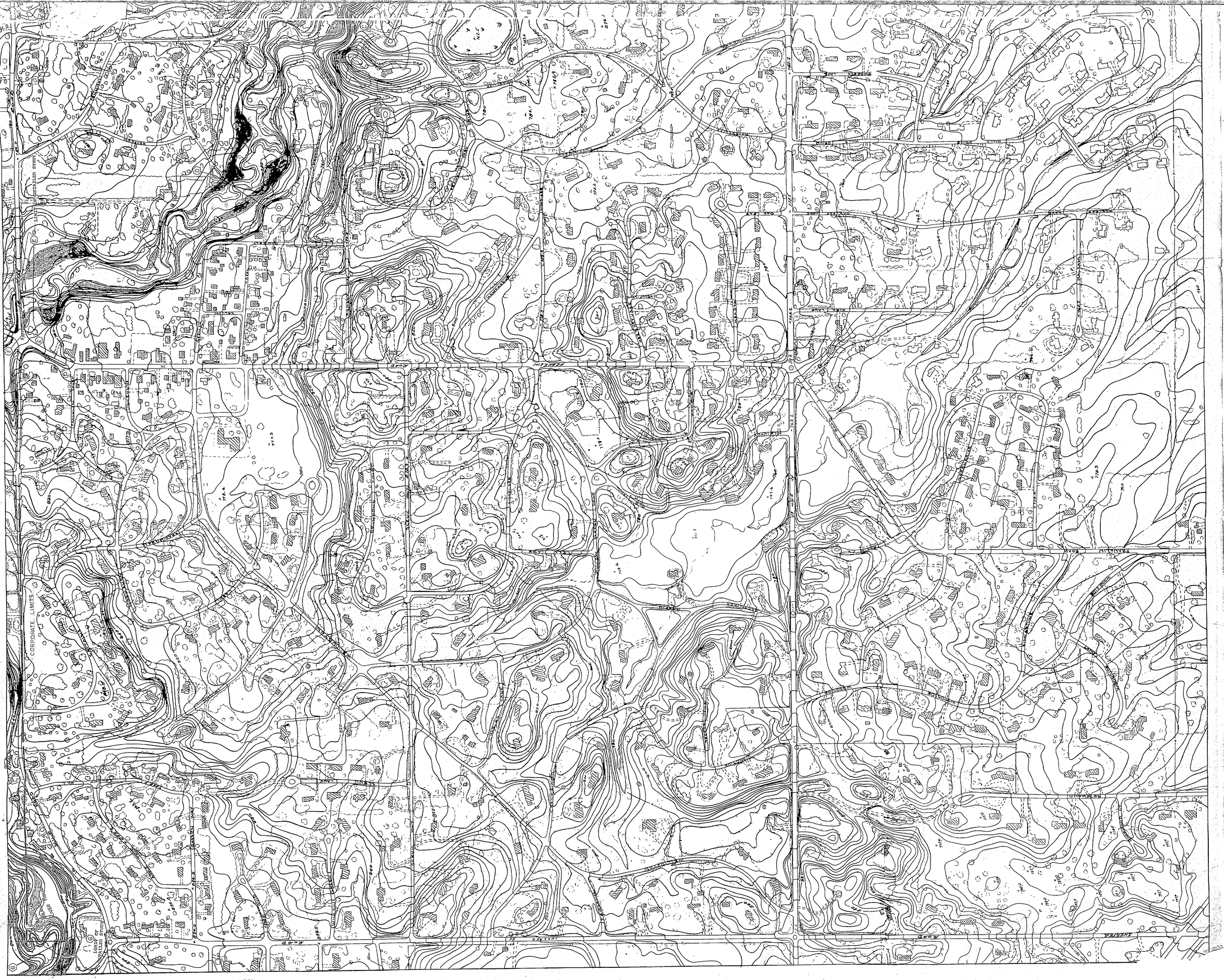
601.430	1280.00	766.51	0.00	.02	0.00	225.97	13.00
601.430	2030.00	768.04	0.00	.02	0.00	236.96	13.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
601.450	1490.00	767.25	0.00	.07	0.00	234.91	1.00
601.450	870.00	764.39	0.00	.14	0.00	212.82	1.00
601.450	1280.00	766.58	0.00	.07	0.00	230.11	1.00
601.450	2030.00	768.12	0.00	.08	0.00	240.32	1.00
601.500	1490.00	767.26	0.00	.01	0.00	232.89	35.00
601.500	870.00	764.40	0.00	.02	0.00	209.15	35.00
601.500	1280.00	766.59	0.00	.01	0.00	228.10	35.00
601.500	2030.00	768.13	0.00	.01	0.00	239.16	35.00
601.520	1490.00	767.27	0.00	.01	0.00	232.84	.50
601.520	870.00	764.42	0.00	.01	0.00	209.23	.50
601.520	1280.00	766.60	0.00	.01	0.00	228.04	.50
601.520	2030.00	768.14	0.00	.01	0.00	239.09	.50
601.530	1490.00	767.27	0.00	.00	0.00	232.90	4.00
601.530	870.00	764.42	0.00	.00	0.00	209.34	4.00
601.530	1280.00	766.60	0.00	.00	0.00	228.10	4.00
601.530	2030.00	768.15	0.00	.00	0.00	239.18	4.00
601.550	1490.00	767.27	0.00	-.00	0.00	232.90	.50
601.550	870.00	764.41	0.00	-.01	0.00	209.35	.50
601.550	1280.00	766.59	0.00	-.00	0.00	228.11	.50
601.550	2030.00	768.14	0.00	-.00	0.00	239.18	.50
601.800	1490.00	767.27	0.00	.01	0.00	231.50	19.00
601.800	870.00	764.42	0.00	.01	0.00	206.88	19.00
601.800	1280.00	766.60	0.00	.01	0.00	226.71	19.00
601.800	2030.00	768.15	0.00	.01	0.00	237.79	19.00
601.900	1490.00	767.45	0.00	.18	0.00	242.30	400.00
601.900	870.00	764.80	0.00	.37	0.00	222.58	400.00
601.900	1280.00	766.79	0.00	.19	0.00	237.74	400.00
601.900	2030.00	768.37	0.00	.22	0.00	248.62	400.00
602.000	1490.00	767.86	0.00	.41	0.00	228.55	400.00
602.000	870.00	765.93	0.00	1.13	0.00	183.58	400.00
602.000	1280.00	767.27	0.00	.48	0.00	223.93	400.00
602.000	2030.00	768.79	0.00	.42	0.00	235.64	400.00
602.500	1490.00	768.24	0.00	.38	0.00	134.28	140.00
602.500	870.00	766.74	0.00	.82	0.00	105.94	140.00
602.500	1280.00	767.74	0.00	.47	0.00	122.42	140.00
602.500	2030.00	769.12	0.00	.33	0.00	162.22	140.00
603.000	1490.00	770.80	0.00	2.57	0.00	82.98	500.00
603.000	870.00	769.57	0.00	2.82	0.00	70.70	500.00
603.000	1280.00	770.43	0.00	2.69	0.00	79.21	500.00
603.000	2030.00	771.70	0.00	2.58	0.00	91.92	500.00
603.500	1490.00	774.23	0.00	3.43	0.00	60.34	460.00
603.500	870.00	772.58	0.00	3.01	0.00	47.66	460.00
603.500	1280.00	773.74	0.00	3.31	0.00	51.34	460.00
603.500	2030.00	775.23	0.00	3.53	0.00	135.69	460.00

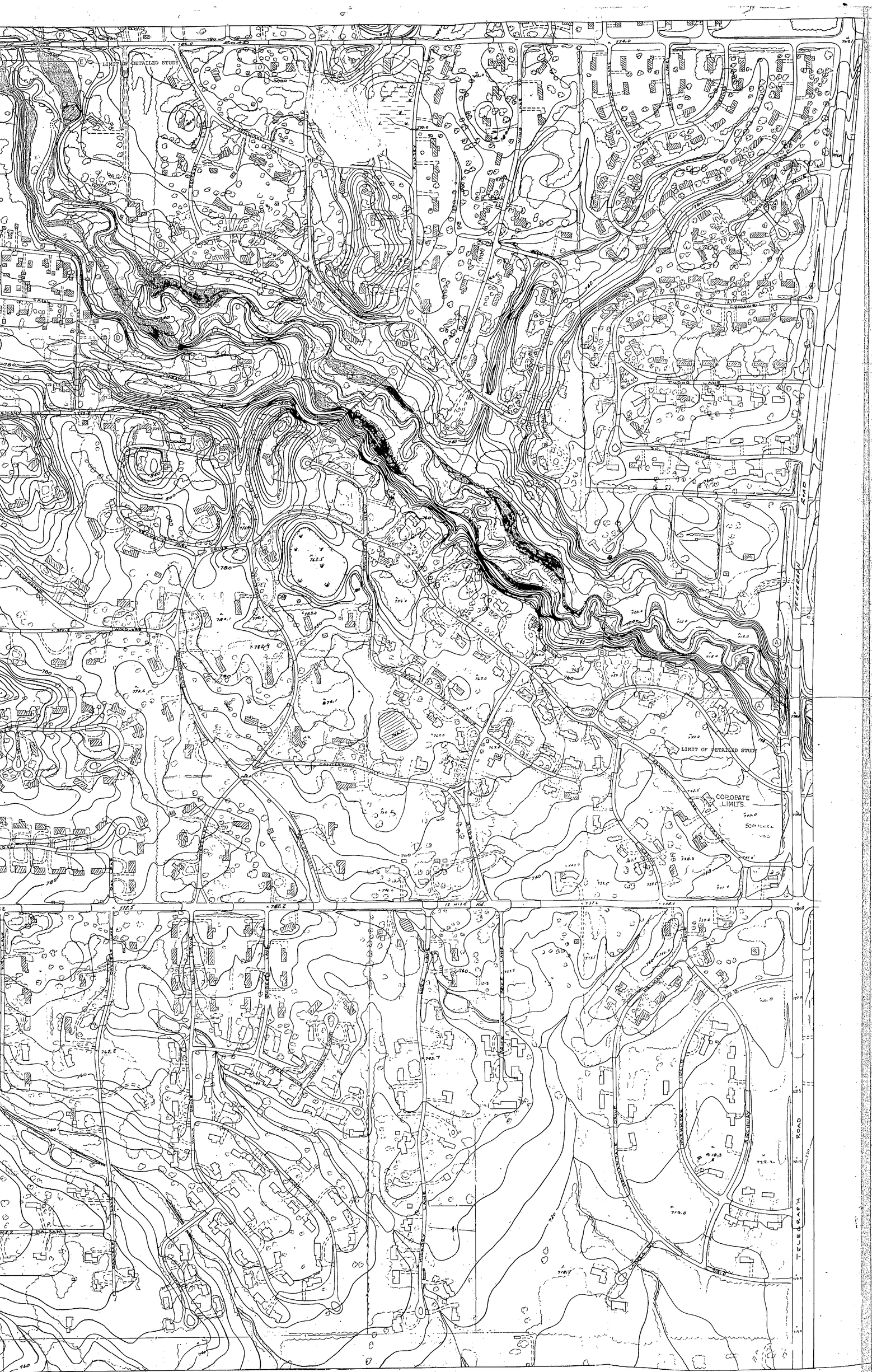
SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
604.000	1490.00	777.62	0.00	3.39	0.00	71.58	460.00
604.000	870.00	775.75	0.00	3.17	0.00	43.06	460.00
604.000	1280.00	777.06	0.00	3.33	0.00	68.21	460.00
604.000	2030.00	778.74	0.00	3.50	0.00	78.29	460.00
604.500	1490.00	781.76	0.00	4.14	0.00	71.29	750.00
604.500	870.00	779.77	0.00	4.02	0.00	53.19	750.00
604.500	1280.00	781.22	0.00	4.16	0.00	60.43	750.00
604.500	2030.00	782.97	0.00	4.24	0.00	95.43	750.00
604.600	1490.00	783.74	0.00	1.97	0.00	64.76	570.00
604.600	870.00	781.68	0.00	1.91	0.00	51.32	570.00
604.600	1280.00	783.17	0.00	1.95	0.00	58.44	570.00
604.600	2030.00	784.96	0.00	1.98	0.00	89.14	570.00
604.700	1490.00	785.99	0.00	2.25	0.00	61.94	570.00
604.700	870.00	783.92	0.00	2.24	0.00	50.55	570.00
604.700	1280.00	785.40	0.00	2.23	0.00	57.60	570.00
604.700	2030.00	787.19	0.00	2.24	0.00	85.85	570.00
606.000	1490.00	787.86	0.00	1.87	0.00	238.01	570.00
606.000	870.00	786.24	0.00	2.32	0.00	228.52	570.00
606.000	1280.00	787.35	0.00	1.95	0.00	235.01	570.00
606.000	2030.00	788.97	0.00	1.77	0.00	249.39	570.00
606.100	1490.00	788.53	0.00	.67	0.00	235.45	275.00
606.100	870.00	787.27	0.00	1.03	0.00	228.08	275.00
606.100	1280.00	788.10	0.00	.75	0.00	232.98	275.00
606.100	2030.00	789.52	0.00	.55	0.00	241.96	275.00
606.400	1490.00	789.07	0.00	.54	0.00	192.69	275.00
606.400	870.00	787.85	0.00	.58	0.00	183.33	275.00
606.400	1280.00	788.67	0.00	.57	0.00	189.95	275.00
606.400	2030.00	790.01	0.00	.50	0.00	198.65	275.00
606.500	1490.00	789.50	0.00	.44	0.00	187.04	270.00
606.500	870.00	788.24	0.00	.39	0.00	176.92	270.00
606.500	1280.00	789.10	0.00	.43	0.00	183.80	270.00
606.500	2030.00	790.45	0.00	.44	0.00	193.85	270.00
606.600	1490.00	790.09	0.00	.59	0.00	186.15	250.00
606.600	870.00	788.84	0.00	.60	0.00	176.13	250.00
606.600	1280.00	789.70	0.00	.60	0.00	182.98	250.00
606.600	2030.00	791.02	0.00	.57	0.00	193.00	250.00
606.700	1490.00	790.74	0.00	.65	0.00	184.95	250.00
606.700	870.00	789.51	0.00	.67	0.00	175.10	250.00
606.700	1280.00	790.36	0.00	.66	0.00	181.86	250.00
606.700	2030.00	791.64	0.00	.62	0.00	191.89	250.00
607.000	1490.00	791.48	0.00	.74	0.00	177.94	300.00
607.000	870.00	790.21	0.00	.70	0.00	130.88	300.00
607.000	1280.00	791.09	0.00	.73	0.00	163.39	300.00
607.000	2030.00	792.38	0.00	.74	0.00	211.62	300.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
607.100	1490.00	791.88	0.00	.40	0.00	178.51	150.00
607.100	870.00	790.60	0.00	.39	0.00	171.75	150.00
607.100	1280.00	791.49	0.00	.40	0.00	176.44	150.00
607.100	2030.00	792.77	0.00	.38	0.00	183.20	150.00
607.200	1490.00	792.75	0.00	.87	0.00	216.41	100.00
607.200	870.00	791.81	0.00	1.21	0.00	193.56	100.00
607.200	1280.00	792.44	0.00	.96	0.00	212.15	100.00
607.200	2030.00	793.49	0.00	.72	0.00	226.81	100.00
607.300	1490.00	793.60	0.00	.86	0.00	156.98	125.00
607.300	870.00	792.66	0.00	.85	0.00	129.37	125.00
607.300	1280.00	793.31	0.00	.86	0.00	148.39	125.00
607.300	2030.00	794.29	0.00	.81	0.00	175.79	125.00
607.400	1490.00	794.98	0.00	1.38	0.00	156.29	150.00
607.400	870.00	794.08	0.00	1.42	0.00	132.46	150.00
607.400	1280.00	794.70	0.00	1.39	0.00	148.92	150.00
607.400	2030.00	795.60	0.00	1.30	0.00	172.80	150.00

SUMMARY OF ERRORS



FR2



KEY TO MAP

500-year Flood Boundary ——

100-year Flood Boundary ——

FLOODWAY FRINGE — FLOODWAY

100-year Flood Boundary ——

500-year Flood Boundary ——

Elevation Reference Mark RM7

Cross Section Line (A)—(A)

NOTES TO USER

Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations without regard to economic, legal, or political factors.

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.

40' contour interval
1"=200'

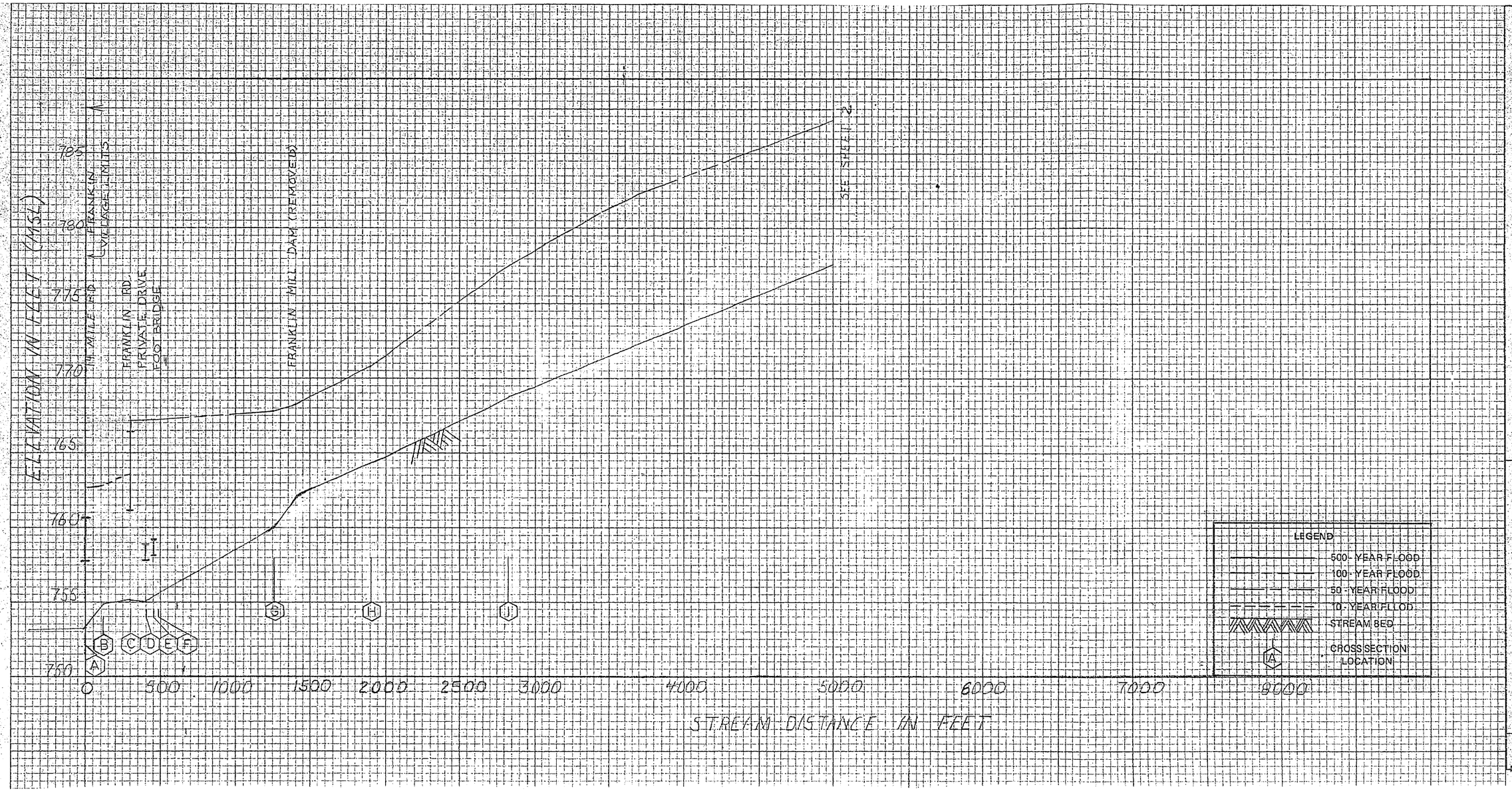
FR1

0 100 200 400 600
SCALE 1"= 200

FLOOD BOUNDARY AND FLOODWAY MAP
FLOOD INSURANCE RATE MAP

VILLAGE OF FRANKLIN
MICHIGAN
OAKLAND COUNTY

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION



FLOOD PROFILES

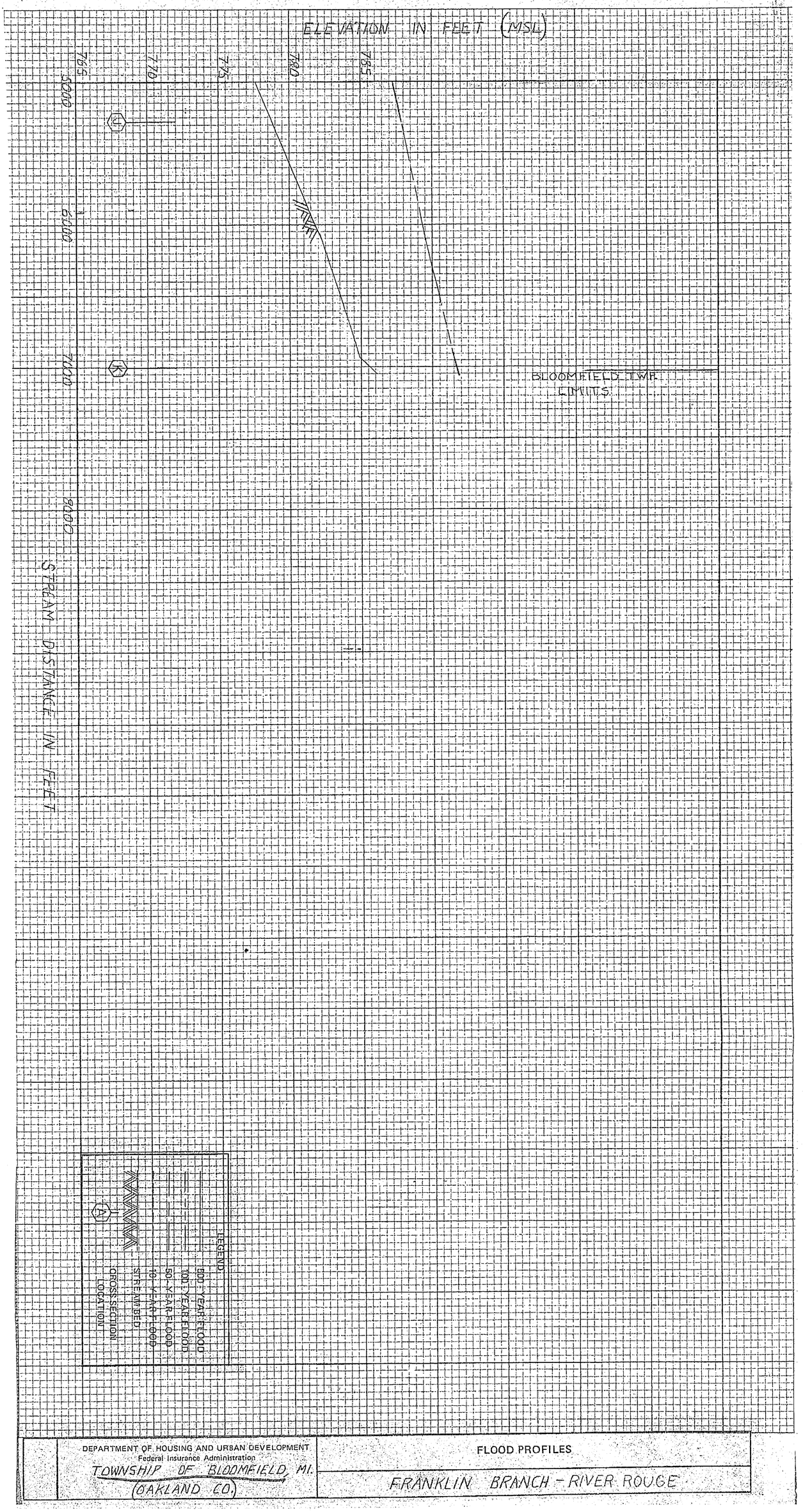
FRANKLIN BRANCH - RIVER ROUGE

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration

TOWNSHIP OF BLOOMFIELD, MI.
(OAKLAND CO.)

"PERFECT" ROSS SECTION
10 X 10 - 1 INCH
EUGENE L. ZGEN CO.

"PERFECT" CROSS SECTION
10 X 10 = ONE INCH
JOSEPH DIETZGEN CO.



DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration
TOWNSHIP OF BLOOMFIELD, MI.
(OAKLAND CO.)

FLOOD PROFILES

FRANKLIN BRANCH - RIVER ROUGE

FLOOD PROFILES
FRANKLIN BRANCH-RIVER ROUGE
VILLAGE OF FRANKLIN (OAKLAND CO.) MI.
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration
EXHIBIT 1
ELEVATION IN FEET (MSL)
760
750
740
730
720
710
700
690
680
SOUTHBOUND TELEGRAPH ROAD
FRANKLIN VILLAGE LIMITS
A
B
C
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
6500
7000
STREAM DISTANCE IN FEET
LEGEND
500-YEAR FLOOD
100-YEAR FLOOD
50-YEAR FLOOD
10-YEAR FLOOD
STREAM BED
CROSS SECTION LOCATION

"PERFECT" CROSS SECTION
10 X 10 = ONE INCH
KEUFFEL & ESSER CO.
"ENE" DIETZGEN CO.

FLOOD PROFILES

FRANKLIN BRANCH - RIVER ROUGE

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration

VILLAGE OF FRANKLIN, MI.
(OAKLAND CO.)

02P
EXHIBIT 1



1) COUNTY: OAKLAND

2) STUDY NAME: HIGHLAND TOWNSHIP

3) WATERCOURSE: PETTIBONE CREEK — ALDERMAN LAKE TO LEONARD LAKE

4) DOCUMENT TYPE: MULTIPLE PROFILES — DETAIL



WATER SURFACE PROFILES
VERSION OF NOVEMBER 1976
UPDATED JULY 1979

RUN DATE (MM, DD, YY) APR 27, 1981, 4:36 PM

U.S. ARMY CORPS OF ENGINEERS
THE HYDROLOGIC ENGINEERING CENTER
609 SECOND STREET, SUITE D
DAVIS, CALIFORNIA 95616
(916) 440-2020 (FTS) 448-2020

PETTIBONE CREEK
ALDERMAN LAKE TO
LEONARD LAKE
HILND4 6504-04

HIGHLAND TWP. FIS

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
*****************************************************

C
T1      HIGHLAND TOWNSHIP FIS - JOB NO. 6504-04 U/S ALDERMAN LK TO LEONARD LK
T2      10 YEAR EVENT FILE:  HILND4
T3      PETTIBONE CREEK          PROJECT MANAGER - R.S. MIHOS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         2.        0.        0.   .000000       .00         0        0.   [illegible].420       000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000      .000    -1.000      .000      .000      .000      .000      .000      .000      .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

    39.000     4.000    25.000      .000      .000      .000      .000      .000      .000      .000

OT      4.000    12.000    25.000    28.000    35.000      .000      .000      .000      .000      .000
NC       .120      .120      .052      .300      .500      .000      .000      .000      .000      .000

        NORTH END OF ALDERMAN LAKE / FROM SEC 19(SEE AERIAL AND COMPARE

X1  25174.000    22.000   474.000   496.000      .000      .000      .000      .000      1.400      .000
GR    999.700      .000   994.000    26.000   991.800    74.000   991.000   144.000   991.200   228.000
GR    990.800   310.000   990.800   370.000   990.200   420.000   985.600   474.000   989.600   475.000
GR    988.800   476.000   987.400   484.000   987.800   489.000   989.100   494.000   989.600   495.000
GR    989.800   493.000   990.100   838.000   991.400   890.000   993.700   928.000   996.500   938.000
GR    998.700   996.000   999.800  1010.000      .000      .000      .000      .000      .000      .000
NC       .070      .070      .045      .000      .000      .000      .000      .000      .000      .000

X1  25434.000      .000      .000      .000   310.000   250.000   260.000      .000      .400      .000

X1  25684.000    17.000   233.000   240.000   250.000   265.000   250.000      .000     -.600      .000
GR   1001.600      .000   998.000    14.000   995.900    40.000   995.800    98.000   995.600   166.000
GR    991.600   173.000   991.600   223.000   990.700   226.000   990.200   228.000   990.600   230.000
GR    991.600   240.000   992.200   290.000   993.600   426.000   995.200   494.000   996.000   532.000
GR    998.400   562.000  1001.600   574.000      .000      .000      .000      .000      .000      .000
NC       .070      .070      .045      .000      .000      .000      .000      .000      .000      .000

        300 FT D/S OF HARVEY LAKE ROAD -VALLEY SECTION 20

X1  26074.000      .000      .000      .000   340.000   340.000   350.000      .000      .600      .000
```

X1	26297.000	20.000	388.000	403.000	208.000	193.000	223.000	.906	-1.900	.000
X3	.000	.000	.000	390.750	.000	401.210	.000	.000	.000	.000
GR	1003.600	.000	1002.800	68.000	1001.800	162.000	1001.700	296.000	996.100	346.000
GR	995.900	388.000	995.600	390.000	994.300	393.500	994.300	396.000	994.500	398.500
GR	995.400	401.000	996.300	403.000	997.700	446.000	1001.700	496.000	1002.400	554.000
GR	1002.600	590.000	1003.600	650.000	1006.000	784.000	1005.000	884.000	1008.400	928.000

X1	26301.000	20.000	388.000	403.000	4.000	4.000	4.000	.906	-1.900	.000
X3	.000	.000	.000	391.790	.000	400.210	.000	.000	.000	.000
GR	1003.600	.000	1002.800	68.000	1001.800	162.000	1001.700	296.000	996.100	346.000
GR	995.900	388.000	995.600	390.000	994.300	393.500	994.300	396.000	994.500	398.500
GR	995.400	401.000	996.300	403.000	997.700	446.000	1001.700	496.000	1002.400	554.000
GR	1002.600	590.000	1003.600	650.000	1006.000	784.000	1005.000	884.000	1008.400	928.000

X1	26305.000	20.000	388.000	403.000	4.000	4.000	4.000	.906	-1.900	.000
X3	.000	.000	.000	392.790	.000	399.210	.000	.000	.000	.000
GR	1003.600	.000	1002.800	68.000	1001.800	162.000	1001.700	296.000	996.100	346.000
GR	995.900	388.000	995.600	390.000	994.300	393.500	994.300	396.000	994.500	398.500
GR	995.400	401.000	996.300	403.000	997.700	446.000	1001.700	496.000	1002.400	554.000
GR	1002.600	590.000	1003.600	650.000	1006.000	784.000	1005.000	884.000	1008.400	928.000

X1	26308.000	20.000	388.000	403.000	3.000	3.000	3.000	.906	-1.800	.000
X3	.000	.000	.000	393.540	.000	398.460	.000	.000	.000	.000
GR	1003.600	.000	1002.800	68.000	1001.800	162.000	1001.700	296.000	996.100	346.000
GR	995.900	388.000	995.600	390.000	994.300	393.500	994.300	396.000	994.500	398.500
GR	995.400	401.000	996.300	403.000	997.700	446.000	1001.700	496.000	1002.400	554.000
GR	1002.600	590.000	1003.600	650.000	1006.000	784.000	1005.000	884.000	1008.400	928.000

X1	26309.000	20.000	388.000	403.000	1.000	1.000	1.000	.906	-1.800	.000
X3	.000	.000	.000	395.790	.000	398.210	.000	.000	.000	.000
GR	1003.600	.000	1002.800	68.000	1001.800	162.000	1001.700	296.000	996.100	346.000
GR	995.900	388.000	995.600	390.000	994.300	393.500	994.300	396.000	994.500	398.500
GR	995.400	401.000	996.300	403.000	997.700	446.000	1001.700	496.000	1002.400	554.000
GR	1002.600	590.000	1003.600	650.000	1006.000	784.000	1005.000	884.000	1008.400	928.000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

*PROF

CCHV= .300 CEHV= .500

*SECNO 25174.000

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

NORTH END OF ALDERMAN LAKE / FROM SEC 19(SEE AERIAL AND COMPARE)

25174.00	1.62	990.42	.00	990.42	990.43	.01	.00	.00	991.00
12.	0.	12.	0.	0.	17.	0.	0.	0.	991.20
.00	.00	.69	.00	.120	.052	.20	.000	988.80	975.73
.000630	0.	0.	0.	0	0	0	.00	12.57	963.69

*SECNO 25434.000

25434.00	1.42	990.62	.00	.00	990.63	.01	.20	.00	991.40
12.	0.	12.	0.	0.	14.	0.	0	0.	991.60
.08	.00	.87	.00	.070	.045	.070	.045	989.20	975.98
.000934	310.	260.	250.	2	0	0	.00	12.92	492.91

*SECNO 25684.000

25684.00	1.36	990.98	.00	.00	990.98	.02	.35	.00	1051.60
12.	0.	.2.	0.	0.	19.	0.	0.	0.	991.00
.14	.00	1.16	.00	.070	.045	.070	.045	989.60	223.13
.002322	250.	250.	265.	2	0	0	.00	16.46	239.60

*SECNO 26074.000

300 FT D/S OF HARVEY LAKE ROAD -VALLEY SECTION 20

26074.00	1.53	991.73	.00	.00	991.73	.01	.75	.00	1001.60
12.	0.	12.	0.	0.	20.	1.	0.	1.	991.60
.33	.00	.59	.14	.070	.045	.070	.045	990.20	172.73
.001612	340.	390.	340.	3	0	0	.00	28.45	251.23

*SECNO 26297.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TOP	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
7593 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 354.1 363.5 TYPE= 1 TARGET= 10.420

26297.00	.60	993.00	993.00	.00	993.23	.23	1.00	.11	99998.10
12.	0.	12.	0.	0.	3.	0.	0.	1.	99998.10
.34	.00	3.83	.00	.070	.045	.070	.045	992.40	355.05
.040756	208.	223.	193.	20	15	0	.00	7.00	362.05

*SECNO 26301.002

3470 ENCROACHMENT STATIONS=		355.0	362.6	TYPE=	1	TARGET=		5.420		
26301.00	.85	993.25	.00	.00	993.3[illegible]	.09	.07	.01	99998.10	
12.	0.	12.	0.	0.	5.	0	0.	1.	99998.10	
.34	.00	2.39	.00	.070	.045	.070	.045	992.40	354.96	
.009973	4.	4.	4.	2	0	0	.00	7.63	362.59	

*SECNO 26305.000

3470 ENCROACHMENT STATIONS=		355.9	361.7	TYPE=	1	TARGET=		6.420		
26305.00	.89	993.29	.00	.00	993.39	.10	.04	.01	99998.10	
12.	0.	12.	0.	0.	5.	0.	0.	1.	99998.10	
.34	.00	2.55	.00	.070	.045	.070	.045	992.40	355.87	
.010644	4.	4.	4.	2	0	0	.00	5.52	361.60	

*SECNO 26308.000

3470 ENCROACHMENT STATIONS=		356.3	361.0	TYPE=	1	TARGET=		4.920		
26308.00	.78	993.28	.00	.00	993.49	.21	.05	.05	99998.20	
12.	0.	12.	0.	0.	3.	0.	0	1.	99998.20	
.34	.00	3.68	.00	.079	.045	.070	.045	992.50	356.55	
.026904	3.	3.	3.	2	0	0	.00	4.46	361.00	

*SECNO 26309.000

3470 ENCROACHMENT STATIONS=		356.8	360.8	TYPE=	1	TARGET=		4.420		
26309.00	.79	993.29	.00	.00	993.54	.24	.03	.02	99998.20	
12.	0.	12.	0.	0.	3.	0.	0	1.	99998.20	
.34	.00	3.97	.00	.070	.045	.070	.045	992.50	356.77	
.031517	1	1.	1.	0	0	0	.00	4.00	360.75	

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*****************************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
*****************************************************************

T1      HIGHLAND TOWNSHIP FIS - JOB NO. 6504-04 U/S ALDERMAN LK TO LEONARD LK
T2      50 YEAR EVENT FILE:  HILND4
T3      PETTIBONE CREEK          PROJECT MANAGER - R S. MIXOS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10.       3.        0.        0.   .000000      .00       .0        0.   990.580     .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2.000      .000    -1.000      .000      .000      .000      .000      .000      .000      .000

*PROF 2

CCHV=     .300 CEHV=     .500
*SECNO 25174.000
   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

        NORTH END OF ALDERMAN LAKE / FROM SEC 19(SEE AERIAL AND COMPARE)

 25174.00     1.78    990.58      .00    990.58    990.60      .02       .01       .00    991.00
      25.       0.       25.       0.        0.       20.       0.        0         0     991.20
      .00      .00      1.23      .00      .120      .052     .120      .000    988.80    475.52
  .001715       0.        0.       0.         0         0         0       .00     12.64    494.16

*SECNO 25434.000
 25434.00     1.77    990.97      .00       .00    990.99      .02       .39       .00    991.60
      25.       0.       25.       0.        0.       20.       0.        0.        0.    991.60
      .06      .00      1.24      .00      .070      .045     .070      .045    989.20    475.54
  .001325     310.      260.     250.         2         0         0        00     18.60    494.14

*SECNO 25684.000
 25684.00     1.72    991.32      .00       .00    991.33      .01       .33       .00   1051.60
      25.       0.       24.       1.        0.       33.       4.        0.        0.    991.00
      .15      .00       .74      .23      .070      .045     .070      .045    989.60    172.44
  .001329     250.      250.     265.         1         0         0       .00     94.22    266.66

*SECNO 26074.000

        300 FT D/S OF HARVEY LAKE ROAD -VALLEY SECTION 20

 26074.00     1.69    991.89      .00        00    991.90      .01       .57       .00   1051.60
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	25.	0.	24.	1.	0.	5..	4.	1	1	99'.60
	.30	.00	.79	.24	070	.045	070	.045	390.20	172.49
	.001641	340.	390.	340.	3	0	0	.00	91.82	364.30

*SECNO 26297.000

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

3585 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=		354.1	363.5	TYPE=	1	TARGET=		13.420		
26297.00	.30	993.30	993.30	.30	993.63	.33	.99	.16	99998.10	
25.	0.	25.	0.	0.	5.	0.	1.	1.	99998.10	
.31	.00	4.58	.00	.070	.045	.070	.045	992.40	354.32	
.036519	208.	223.	193.	20	11	0	.00	8.49	362.80	

*SECNO 26301.000

3470 ENCROACHMENT STATIONS=		355.0	362.6	TYPE=	1	TARGET=		8.420		
26301.00	1.18	993.58	.00	.00	993.75	.17	.08	.05	99998.10	
25.	0.	25.	0.	0.	7.	0.	1.	1.	99998.10	
.31	.00	3.34	.00	.070	.045	.070	.045	992.40	354.96	
.012691	4.	4.	4.	3	0	0	.00	1.63	362.59	

*SECNO 26305.000

3470 ENCROACHMENT STATIONS=		355.9	361.7	TYPE=	1	TARGET=		6.420		
26305.00	1.31	993.61	.00	.00	993.84	.23	.06	.03	99998.10	
25.	0.	25.	0.	0.	7.	0.	1.	1.	99998.10	
.31	.00	3.84	.00	.070	.045	.070	.045	992.40	355.87	
.016673	4.	4.	4.	2	0	0	.00	5.82	361.68	

*SECNO 26308.000

3470 ENCROACHMENT STATIONS=		356.5	361.0	TYPE=	1	TARGET=		4.920		
26308.00	1.06	993.56	.00	.00	994.04	.47	.08	.12	99998.20	
25.	0.	25.	0.	0.	5.	0.	1.	1.	99998.20	
.31	.00	5.51	.00	.070	.045	.070	.045	992.56	358.55	
.044105	3.	3.	3.	2	0	0	.00	4.46	361.00	

*SECNO 26309.000

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

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 356.0 340.8 TYPE= 1 TARGET= 4.20

26309.00	1.11	993.61	993.61	.00	994.14	.54	.0=	.03	99998.20
25.	0.	25.	0.	0.	4.	0.	1	1.	99998.20
.31	.00	5.88	.00	070	.045	.070	.045	992.50	356.77
.050772	1.	1	1.	2	3	0	30	4.00	360.78

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 HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
 ERROR CORR -  01,02,03
 MODIFICATION -  50,51,52,53
*****************************************************************

T1      HIGHLAND TOWNSHIP FIS - JOB NO. 6504-04 U/S ALDERMAN LK TO LEONARD LK
T2      100 YEAR EVENT FILE:  HILND4
T3      PETTIBONE CREEK          PROJECT MANAGER - R.S. MIHOS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         USEL      FQ

     -10.       4.        0.        0.   .000000       .00       .0        0    990.530     .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3.000     .000    -1.000     .000      .000      .000      .000      .000      .000      .000

*PROF 3

CCHV=     .300 CEHV=     500
*SECNO 25174.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EC        HV        HL        QLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       VTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CCRAR     TOPWID     ENDST

        NORTH END OF ALDERMAN LAKE / FROM SEC 19(SEE AERIAL AND COMPARE)

 25174.00     1.83    990.63      .00    990.63    990.66      .03       .00       .00    991.00
      28.       0.       28.       0.        0.       21.       0.        0.        0.    991.20
      .00      .00      1.32      .00      .120      .052     .120      .000    988.80    475.46
  .001876       0.        0.       0.         0         0         0       .00     18.80    494.26

*SECNO 25434.000
 25434.00     1.84    991.04      .00       .00    991.07      .03       .01       .00    991.10
      28.       0.       28.       0.        0.       21.       0.        0.        0.    991.60
      .06      .00      1.31      .00      .070      .045     .070      .045    989.20    475.45
  .001359     310.      260.     250.         2         0         0       .00     18.84    494.28

*SECNO 25684.000
 25684.00     1.77    991.37      .00       .00    991.38      .01       .30       .01   1051.60
      28.       0.       27.       1.        0.       37.       6.        0.        0.    991.00
      .15      .00       .72      .23      .070      .045     .070      .045    989.60    172.33
  .001095     250.      250.     265.         1         0         0       .00     99.43    271.76

*SECNO 26074.000

        300 FT D/S OF HARVEY LAKE ROAD -VALLEY SECTION 20

 26074.00     1.71    991.91      .00       .00    991.92      .01       .54       .00   1051.60
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	28.	0.	27.	1.	0.	32.	0.	1.	0.	991.60
	.29	.03	.85	.26	.070	.045	.070	.045	950.26	172.45
	.001816	340.	393.	340.	3	0	0	.00	93.23	265.65

*SECNO 26297.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	CLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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

3470 ENCROACHMENT STATIONS=		354.1	363.5	TYPE=	1	TARGET=		10.420	
26297.00	.96	993.36	993.36	.00	993.70	34	1.08	.?	99998.?0
28.	0.	28.	0.	0.	6.	0.	1.	2.	99998.10
.30	.00	4.69	.00	.070	.045	.070	.045	992.40	354.17
.035573	208.	223.	193.	20	11	0	.00	8.78	362.95

*SECNO 26301.000

3470 ENCROACHMENT STATIONS=		355.0	362.6	TYPE=	1	TARGET=		8.420	
26301.00	1.23	993.63	.00	.00	993.83	.20	.08	.04	99998.10
28.	0.	28.	0.	0.	8.	0.	1.	2.	99998.10
.30	.00	3.55	.00	.070	.045	.070	.045	992.43	354.96
.013569	4.	4.	4.	3	0	0	.00	7.63	362.59

*SECNO 26305.000

3470 ENCROACHMENT STATIONS=		355.9	361.7	TYPE=	1	TARGET=		6.420	
26305.00	1.25	993.66	.00	.00	993.92	.26	.06	.04	99998.?0
28.	0.	28.	0.	0.	7.	0.	1.	2.	99998.10
.30	.00	4.11	.00	.070	.045	.070	.045	992.40	355.87
.018271	4.	4.	4.	2	0	0	.00	5.82	361.68

*SECNO 26308.000

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

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=		356.5	361.0	TYPE=	1	TARGET=		4.920	
26308.00	1.12	993.62	993.62	.00	994.15	.54	.08	.14	99998.20
28.	0.	28.	0.	0.	5.	0.	1.	2.	99998.20
.30	.00	5.89	.00	070	.045	.070	.045	992.50	356.55
.048330	3.	3.	3.	2	11	0	.00	4.46	361.00

*SECNO 26309.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	CLOSS	BANK ELEV

Q	XLOB	DTH	DTOB	HLOB	HCH	HROB	VOL	TW	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XTL	XTCH	XTR	WTT.	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

P185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 356.8 360.8 TYPE= 1 TARGET= 4.420

26309.00	1.19	993.69	993.69	.00	994.27	.58	.05	.02	99998.20
28.	0.	28.	0.	3.	5.	0.	1.	2.	99998.20
.30	.00	6.11	.00	.070	.045	.070	.045	532.50	356.77
.051310	1.	1.	1.	2	8	0	.03	4.00	360.78

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*****************************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
*****************************************************************

T1       HIGHLAND TOWNSHIP FIS - JOB NO. 6504-04 J/S ALDERMAN LK TO LEONARD LK
T2       500 YEAR EVENT FILE:  HILND4
T3       PETTIBONE CREEK          PROJECT MANAGER - R.S. MIHOS

J1  ICHECK    INQ       NINV      IDTR      STRT      METRIC    HVINS     Q         USEL      FQ

     -10.       5         0.        0.   .000000       00        .0        0.   990.770     .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHXIN     STRALE

     15.000     .000    -1.000     .000      .000      .000      .000      .000      .000      .000

*PROF 4

CCHV=    .300 CEMV=    .500
*SECNO 25174.000
   SECNO     DEPTH     CUSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XMCH      XNR       WTH       ELMIN     SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

        NORTH END OF ALDERMAN LAKE / FROM SEC 19(SEE AERIAL AND COMPARE)

 25174.00     1.97    990.77      .00    990.77    990.80      .03       .00       .00    991.30
      35.       0        35.       0.        0.       24.       0.        0         0.    991.20
      .00      .00      1.47      .00      .120      .052      .120      .000    988.80    475.29
  .002050       0.        0.       0.         0         0         0       .00     19.25    494.54

*SECNO 25434.000
 25434.00     2.01    991.21      .00       .00    991.24      .03       .41       .00    991.40
      35.       0.       35.       0.        0.       25.       0.        0.        0.    991.60
      .05      .00      1.42      .00      .070      .045      .070      .045    989.20    475.24
  .001402     310.      260.     250.         2         0         0       .00     19.38    494.62

*SECNO 25684.000
 25684.00     1.91    991.51      .00       .00    991.51      .01       .27       .01   1051.60
      35.       0.       32.       3.        0.       45.       11.        0.        0.    991.00
      .15      .00       .72      .24      .070      .045      .070      .045    989.60    172.12
  .000835     250.      250.     265.         2         0         0       .00    109.75    281.87

*SECNO 26074.000

        300 FT D/S OF HARVEY LAKE ROAD -VALLEY SECTION 20

 26074.00     1.77    991.97      .00       .00    991.98      .01       .42       .00   1001.60
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     35.       0.      33.       2.       0.      36.       6.       1.       1.    991.80
     .27      .00      .93      .30     .070     .045     .070     .045   990.20   172.36
  .001861    340.     390.     340.        2        0        0      .00    98.34   270.70

*SECNO 26297.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

3695 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      354.1      363.5  TYPE=      1  TARGET=       10.420
 26297.00     1.07   993.47   993.47      .00   993.86       39      1.09      .19 99998.10
     35.       0.      35.       0.       0.       7.       0.       1.       2.  99998.10
     .28      .00     5.00      .00     .070     .045     .070     .045   992.40   354.06
  .035052     208.     223.     193.       20       14        0      .00     9.18   363.24

*SECNO 26301.000

3470 ENCROACHMENT STATIONS=      355.0      362.6  TYPE=      1  TARGET=        8.420
 26301.00     1.34   993.74      .00      .00   993.99      .25      .09      .04 99998.10
     35.       0.      35.       0.       0.       9.       0.       1.       2.  99998.10
     .28      .00     4.01      .00     .070     .045     .070     .045   992.40   354.93
  .015593       4        4.       4.        3        0        0      .00     7.63   362.59

*SECNO 26305.000

3470 ENCROACHMENT STATIONS=      355.9      361.7  TYPE=      1  TARGET=        6.420
 26305.00     1.37   993.77      .00      .00   994.11      .34      .07      .03 99998.10
     35.       0.      35.       0.       0.       7.       0.       1.       2.  99998.10
     .28      .00     4.69      .00     .070     .045     .070     .045   992.40   355.87
  .022003       4.       4.       4.        2        0        0      .00     5.82   361.68

*SECNO 26308.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      356.5      361.0  TYPE=      1  TARGET=        4.920
 26308.00     1.29   993.79   993.79      .00   994.41      .63      .09      .14 99998.20
     35.       0.      35.       0.       0.       6.       0.       1.       2.  99998.20
     .28      .00     6.35      .00     .070     .045     .070     .045   992.50   356.55
  .049281       3.       3.       3.        2       11        0      .00     4.46   361.00

*SECNO 26309.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
```

Q	QLOB	QCH	QROB	FLOS	ACH	FROE	VOL	T A	LEFT	RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTR	E_MIN		SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID		ENDST

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=		356.8	360.2	TYPE=	1	TARGET=	4.420			
26309.00	1.37	993.87	993.87	.00	994.54	.67	.03	.02	99998.20	
35.	0.	35.	0.	0.	0.	0	1.	2.	99999.20	
.28	.00	6.58	.00	.070	.045	.070	.045	992.30	356.77	
.052702	1.	1.	1.	2	2	0	.00	4.00	350.78	

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: HIGHLAND TOWNSHIP

3) WATERCOURSE: PETTIBONE CREEK — ALDERMAN LAKE TO LEONARD LAKE

4) DOCUMENT TYPE: SUMMARY

00BREAK00

HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
ERROR CORR - 31,0C,03
MODIFICATION - 50,51,52,53

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

PETTIBONE CREEK

SUMMARY PRINTOUT

	SECNO	FLTPO	FLLC	ELMIN	Q	CWSEL	DEPTH	VV	CLOSS	ES	WLCH	TOPLID	AL
	25174.000	.00	.00	988.20	12.00	990.42	1.62	.01	.00	990.43	.00	17.97	17.33
	25174.000	.00	.00	988.80	25.00	990.58	1.78	.02	.00	990.60	.00	18.64	20.25
	25174.000	.00	.00	988.80	28.00	990.63	1.87	.03	.00	990.66	.00	18.80	21.1
	25174.000	.00	.00	988.80	35.00	990.77	1.97	.03	.00	990.80	.00	19.25	23.11
	25434.000	.00	.00	989.20	12.00	990.52	1.42	.01	.00	990.63	260.00	16.92	13.1
	25434.000	.00	.00	989.20	25.00	990.97	1.77	.02	.00	990.99	260.00	18.60	20.08
	25434.000	.00	.00	989.20	28.00	991.04	1.84	.03	.00	991.07	260.00	18.84	21.45
	25434.000	.00	.00	989.20	35.00	991.21	2.01	.03	.00	991.24	260.00	9.38	9.67
	25684.000	.00	.00	989.60	12.00	990.96	1.36	.02	.00	990.98	250.00	10.46	9
	25684.000	.00	.00	989.60	25.00	991.32	1.72	.01	.00	991.33	250.00	94.22	36.39
	25684.000	.00	.00	989.60	28.00	991.37	1.77	.01	.01	991.38	250.00	99.43	42.77
	25684.000	.00	.00	989.60	35.00	991.51	1.91	.01	.01	991.51	250.00	109.75	55.46
	26074.000	.00	.00	990.20	12.00	991.73	1.53	.01	.00	991.73	390.00	73.49	5.0
	26074.000	.00	.00	990.20	25.00	991.89	1.69	.01	.00	991.90	390.00	91.32	1.21
	26074.000	.00	.00	990.20	28.00	991.91	1.71	.01	.00	991.92	390.00	93.23	35.75
	26074.000	.00	.00	990.20	35.00	991.97	1.77	.01	.00	991.98	390.00	98.34	41.58
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*	26297.000	.00	.00	992.40	25.00	993.30	.90	.33	.16	993.63	223.00	8.19	7.1
*	26297.000	.00	.00	992.40	28.00	993.36	.96	.34	.17	993.70	223.00	8.48	7.5
*	26297.000	.00	.00	992.40	35.00	993.47	1.07	.39	.19	993.83	223.00	9.18	7.00
	26301.000	.00	.00	992.40	12.00	993.25	.85	.09	.04	993.34	4.00	7.63	5.02
	26301.000	.00	.00	992.40	25.00	993.58	1.18	.17	.05	993.75	4.00	7.13	7.11
	26301.000	.00	.00	992.40	28.00	993.63	1.23	.20	.04	993.83	4.00	7.13	7.41
	26301.000	.00	.00	992.40	35.00	993.74	1.34	.25	.04	993.99	4.00	7.13	5.
	26305.000	.00	.00	992.40	12.00	993.29	.89	.10	.01	993.39	4.00	5.82	4.63
	26305.000	.00	.00	992.40	25.00	993.61	1.21	.23	.03	993.84	4.00	5.82	6.51
	26305.000	.00	.00	992.40	28.00	993.66	1.26	.26	.03	993.92	4.00	5.82	6.7
	26305.000	.00	.00	992.40	35.00	993.77	1.37	.34	.05	994.17	4.00	5.82	7.1
	26308.000	.00	.00	992.50	12.00	993.28	.78	.21	.05	993.49	3.00	4.46	3.05
	26308.000	.00	.00	992.50	25.00	993.56	1.06	.47	.12	994.04	3.00	4.46	4.74
*	26308.000	.00	.00	992.50	28.00	993.62	1.12	.54	.14	994.15	3.00	4.46	4.93
*	26308.000	.00	.00	992.50	35.00	993.75	1.25	.63	.16	994.54	3.10	4.63	5.21

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	AV	CLOSS	EG	MECH	TOPWID	AREA
	26309.000	.00	.00	992.50	12.00	993.29	.75	.24	.02	993.54	1.00	4.00	3.02
*	26309.000	.00	.00	992.50	25.00	993.61	1.11	.54	.03	994.14	1.00	4.00	[illegible]
*	26309.000	.00	.00	992.50	28.00	993.69	1.19	.58	.02	994.27	1.00	4.00	[illegible]
*	26309.000	.00	.00	992.50	35.00	993.87	1.37	.67	.02	994.54	1.00	4.00	[illegible]

SUMMARY OF ERRORS

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CAUTION   SECNO=26297.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=26297.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=26297.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=26297.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=26297.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=26297.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=26297.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=26297.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=26297.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION   SECNO=26297.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=26297.000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=26297.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION   SECNO=26308.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=26308.000  PROFILE= 3  MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=26308.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=26308.000  PROFILE= 4  MINIMUM SPECIFIC ENERGY

CAUTION   SECNO=26309.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=26309.000  PROFILE= 2  MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=26309.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=26309.000  PROFILE= 3  MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=26309.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=26309.000  PROFILE= 4  MINIMUM SPECIFIC ENERGY
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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: HIGHLAND TOWNSHIP

3) WATERCOURSE: PETTIBONE CREEK

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

00BREAK00

RECEIVED
MAY 8 1981
WATER MANAGEMENT

HIGHLAND TOWNSHIP
OAKLAND COUNTY
MICHIGAN

FLOOD INSURANCE STUDY
PETTIBONE CREEK

Caution - First submittal - Changes in file

HYDRAULIC ANALYSIS
REFERENCES
SECNO TABLE
BRIDGE SKETCHES AND CALCULATIONS
SUPPLEMENTAL HAND CALCULATIONS
STAGE/DISCHARGE CURVES
STAGE/STORAGE CURVES

JOHNSON & ANDERSON, INC.
2300 DIXIE HIGHWAY
PONTIAC, MICHIGAN 48055

J&A FILE NO. 6504-04

TABLE OF CONTENTS

	PAGE
INTRODUCTION	1
METHOD OF ANALYSIS	1
CROSS SECTION DATA ACQUISITION	3
VARIABLES AND COEFFICIENTS	3
SPECIAL PROBLEMS	3
LAKE ELEVATION AND FLOW SUMMARY	5
REFERENCES	6

APPENDICES

- Appendix A - SECNO Table
- Appendix B - Bridge Sketches and Calculations
- Appendix C - Supplemental Hand Calculations
- Appendix D - Stage/Discharge Curves
- Appendix E - Stage/Storage Curves

HYDRAULIC ANALYSIS

INTRODUCTION

The stream being studied in this analysis is Pettibone Creek in the Township of Highland, Oakland County, Michigan. The lakes connected by Pettibone Creek and included in this study are Moore, Lower Pettibone, Alderman, Leonard, Upper Pettibone, Duck, and White. Also included is Harvey Lake, which is independent of Pettibone Creek, and has no outfall. The study limit begins at the southern township boundary, which bisects Moore Lake. The study area is bounded to the west by Milford Road, to the north by White Lake Road, and to the east by Ormund Road and the Highland State Recreation Area. To insure that an accurate starting water surface elevation for Moore Lake is established, this hydraulic analysis begins approximately 4700 feet downstream of the township boundary, where Pettibone Creek crosses the northern corporate boundary of the City of Milford.

The flows used in this study have been established using the hydrological computer program described in Technical Release No. 20 compiled by the U.S. Department of Agriculture Soil Conservation Service (Reference 1). Initially the starting water surface elevations used at Section 0.0 of this analysis were determined by the slope-area method described in the HEC-2 Water Surface Profiles Users Manual (Reference 2). However, it was found that inlet control exists at the C&O Railroad culvert, Section 569. Therefore, a stage-discharge curve for this culvert was established, and the starting water surface elevations determined at this station.

The project manager for this study is Robert Mihos.

METHOD OF ANALYSIS

This study has been conducted using an iterative process involving the COE HEC-2 step-backwater computer program and the SCS TR-20 hydrology program. Stage-discharge relations for each of the lakes linked by Pettibone Creek required by the TR-20 program are generated by running multiple flows in the HEC-2 computer model. The TR-20 program simulates runoff for the four predetermined events,

into the various lakes, routes the collected runoff, and yields discharges and water surface elevations for each lake in the chain. The peak flow for each lake resulting from a particular storm event is then used in the HEC-2 computer program to establish flood elevations and refine the stage-discharge characteristics of the lakes. The revised data is installed in the TR-20 program which generates new flows and elevations. As this process is repeated, specific flows for each event are converged upon and final flood elevations are determined.

In this study there are two dams which have breached dikes. The first dam is at Section 17495, just north of Grubb Road. The reconstruction of this dam, in conversations with the MDNR (Reference 4), has been suspended and the scheduled completion date is unknown. Due to the uncertain condition of the reconstruction at this dam, the assumed HEC-2 model considers the by-pass channel around the dam and the existing headwalls at the time of field survey.

Aug 3, 1981 Revision include this reconstructed dam

The second dam, Section 20519, which is north of M-59, appears to have been abandoned permanently, and has been modelled accordingly with use of encroachments.

Within the HEC-2 program, bridges which are under low flow conditions for all four flows are coded according to the "normal bridge" routine requirements. The "special bridge" routine or hand calculations were used to determine the upstream water surface elevation for bridges experiencing pressure or weir flow for any of the four flows. The hydraulic model has been developed for the 100 year flow.

Valley sections upstream and downstream of bridges are located where full cross section flow would be developed out of the influence of the bridge constriction. The criteria for placement of these sections is that outlined on pages 18-21 of the HEC Training Document No. 6, Application of the HEC-2 Bridge Routines (Reference 3). Accordingly, the downstream section is placed at a distance of about four times the average length of the side constriction caused by the bridge abutment. The upstream section is 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.

CROSS SECTION DATA AQUISTION

Cross section data for the computer model of Pettibone Creek has been obtained from two sources: Johnson & Anderson (J&A) and Abrams Aerial Survey (AAS). Field crews from J&A collected field elevations and structure data at each section during March, 1980. Primary emphasis was placed on obtaining detailed channel cross sections. This information was then supplemented with overbank elevations determined by AAS (Reference 5). Additional data used in establishing stage-discharge curves for White Lake were taken from construction plans prepared by J&A and field survey.

VARIABLES AND COEFFICIENTS

The Mannings "n" values have been selected by comparing photos taken during field inspection in March and October 1980 with photographs and descriptions from Open-Channel Hydraulics, (Reference 6) pp. 101-123 and Roughness Characteristics of Natural Channels (Reference 7).

For channels, the "n" values varied generally from 0.035 for smooth sandy stream beds to 0.045 for winding reaches with weed growth along the banks and fallen timber. Sections adjacent to lakes were given "n" values closer to 0.030, while those of irregular courses with rough edges, stone, weeks and fallen timber were rated as high as 0.052

The Mannings "n" values for the overbanks varied from as low as 0.050 for residential lawns to as high as 0.125 for flood plains characterized by heavy stands of timber with dense underbrush. Typically, the overbank values ranged between 0.065 and 0.100.

The expansion and contraction coefficients employed in this analysis were 0.5 and 0.3, respectively.

SPECIAL PROBLEMS

There were three different occasions in this study where it was necessary to supplement the computer analysis with hand calculations to more correctly model

hydraulic structures along Pettibone Creek. The first occurred at the C & O Railroad culvert (Section 569) downstream of the study boundary. The geometry of this culvert is such that the condition of inlet control exists when the flow exceeds 50 cfs and inlet control with weir flow when the flow exceeds 185 cfs. To establish the proper water surface upstream of the culvert, inlet control headwater values were plotted and combined with a computer-generated weir rating curve to create a stage-discharge curve for this structure. As the four flows for the different storm events are converged upon, water surface elevations upstream of this culvert corresponding to each flow were read off this curve and placed on an X5 card.

The second structure requiring supplemental hand calculations was the Harvey Lake Road culvert (Section 26430). This culvert has a weir plate at the upstream end to maintain the level of Leonard Lake. As neither bridge routine of the HEC-2 program produced reasonable values for Leonard Lake water surface elevations, it was decided to model the pipe opening above the weir plate using the critical depths of flows through an arch pipe of similar end section dimensions. These depths were compared to the normal depths in the pipe for a series of flows, which in turn were compared to tailwater elevations to assure that the weir was not being influenced by a backwater. A velocity head was added to the critical depths for flows over the weir to obtain water surface elevations for Leonard Lake, which were used on an X5 card. Another structure requiring special calculations was the Grubb Road culvert. Inlet control exists for range of flows used in this study. Headwater elevations for each flow for this condition were used on an X5 card for the upstream face cross section of Grubb Road.

Hand calculations for these special problems can be found in Appendix C of this report.

LAKE ELEVATION AND FLOW SUMMARY

Discharge, cfs
Elevation

LAKE	STRUCTURE NO.	10-YEAR	50-YEAR	100-YEAR	500-YEAR	HEC-2 X-sec
PETTIBONE CREEK						
Moore	8	~~161~~ 160 956.41	~~222~~ 223 957.23	226 957.26	261 957.45	5957
Lower Pettibone	7	132 957.18	161 957.88	172 957.99	~~208~~ 209 958.40	8701
Alderman	5	94 990.42	121 990.58	132 990.63	159 990.77	25174
Duck	4	20.7 1016.63	21.5 1017.15	21.7 1017.35	22.1 1017.92	
White	101 3	11.1 1020.64	12.2 1020.97	12.4 1021.04	12.7 1021.17	
Leonard	2	~~17.4~~ 12 996.76	~~24.8~~ 25 997.20	28.0 997.37	~~35.2~~ 35 997.75	27589
Upper Pettibone	1 Study stops d/s of this lake	8 997.15	~~12~~ 13 997.42	~~14~~ 15 997.71	~~18~~ 19 998.17	
INDEPENDENT LAKES						
Harvey	1	2.2 998.95	2.5 1000.11	2.7 1000.56	3.1 1001.61	

REFERENCES

1. U.S. Department of Agriculture, Soil Conservation Service, Technical Release No. 20, Computer Program for Project Formulation, Hydrology, May 1965.

2. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2, Water Surface Profile User's Manual, 1973.

3. U.S. Army Corps of Engineers, Hydrologic Engineering Center, Application of the HEC-2 Bridge Routines, Training Document No. 6, June 1974.

4. Grace, Jon, Michigan Department of Natural Resources, Personal Communication, December 2, 1980.

5. Abrams Aerial Survey Corp., Lansing, Michigan
   Date of Photography: January 20, 1980
   Date of Mapping:

6. Chow, Ven Te, Ph.D., Open-Channel Hydraulics, McGraw-Hill Book Company, 1959.

7. Barnes, Harry H., Jr., Geological Survey Water - Supply Paper 1849, Roughness Characteristics of Natural Channels, 1967.

APPENDIX A

Pettibone Creek
Highland Township
6504-04

CROSS SECTION	SECNO	DESCRIPTION
	0	Field Section #1
	501	Field Section #2
	569	Upstream face, C&O Railroad culvert, Field Section #3 with bridge data.
	579	Field Section #3
	1679	Field Section #4
	2384	Upstream face, Moore Lake Dam; Field Section #5
A	7806	Upstream face, Reid Road culvert; Field Section #6 with bridge data.
	7819	Field Section #6
B	8171	Field Section #7
C	8701	Field Section #8; Downstream end of Lower Pettibone Lake.
D	12351	Field Section #9
E	14191	Field Section #10
F	15061	Field Section #11
G	16551	Field Section #12
H	17035	Upstream face, Grubb Road Culvert; Field Section #13 with bridge data.
	17036	Field Section #13
I	17495	Field Section #13-A; Dam Rehabilitation
J	17635	Field Section #14
K	18980	Upstream face, M-59 culvert; Field Section #15 with bridge data.
	18981	Field Section #15
L	19659	Field Section #16.
M	20519	Field Section #17; Abandoned Dam
N	22329	Field Section #18
O	23449	Field Section #19; Downstream end of Alderman Lake. STRUCTURE #5

Pettibone Creek
Highland Township
6504-04

CROSS SECTION	SECNO	DESCRIPTION
P	26074	Field Section #20
Q	26430	Upstream face, Harvey Lake Road Culvert; Field Section #21 with bridge data. (Not included in HEC-2 Model. See Special Problems)
R	27819	Field Section #22
S	29081	Upstream face, Dunleavy Drive culvert; Field Section #23 with bridge data.
	29083	Field Section #23.

APPENDIX B

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

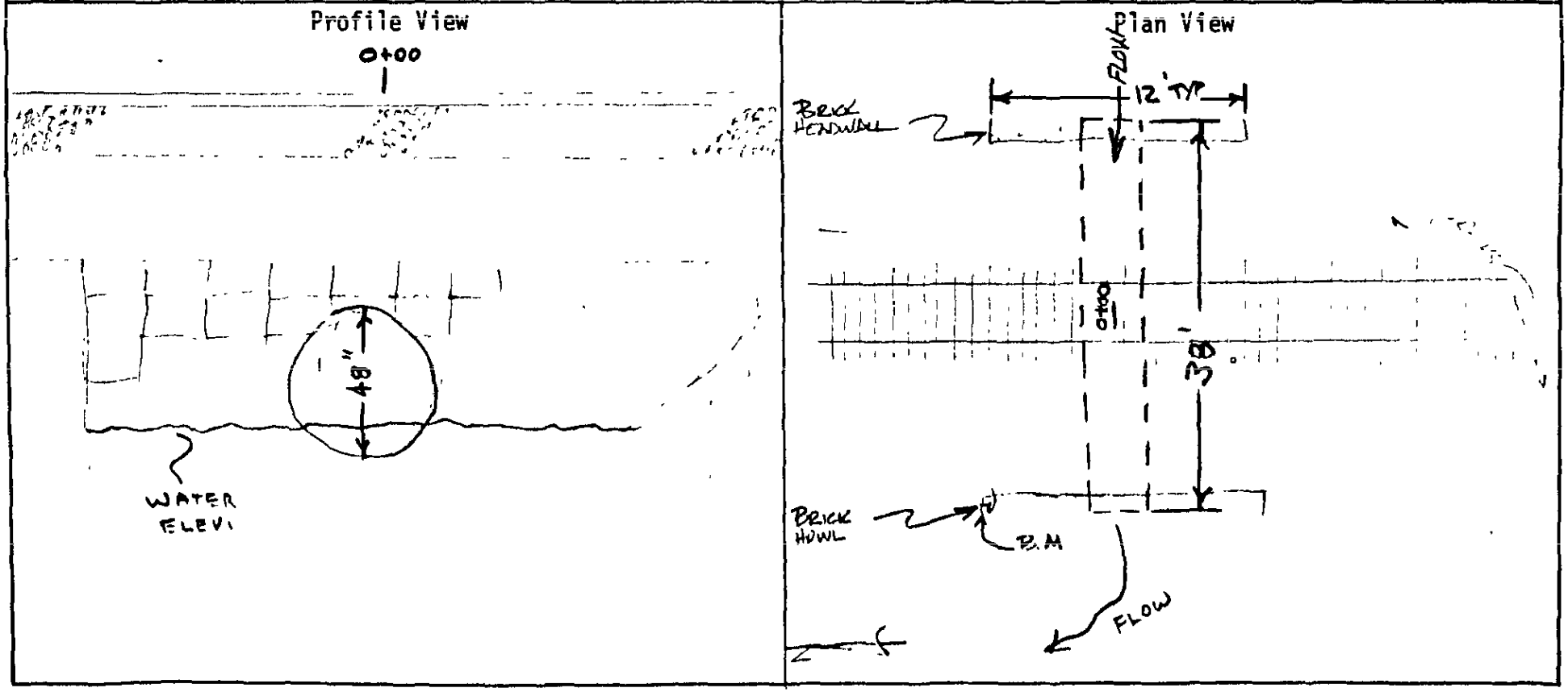
HYDRAULIC STRUCTURAL DATA

B.S. # 3

Code No. _____

Job Name: HIGHLAND TWP. F.I.S.			By: JONETTE, NETT, WELSH, MCPH
Date: 3-26-80	Feature: 48" STEEL CULVERT		Water Course: KETTLEBONE CREEK
Remarks: X-CULV. UNDER R.R., INV.: CLEAN, UPSTREAM: WIDE SWAMP, DOWN STREAM: WIDE SWAMP & FLOOD PLANE			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation:	Length: 38'	Width of Deck: —	Skew: 0

FIELD SKETCH



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Consulting Engineers
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HYDRAULIC STRUCTURAL DATA

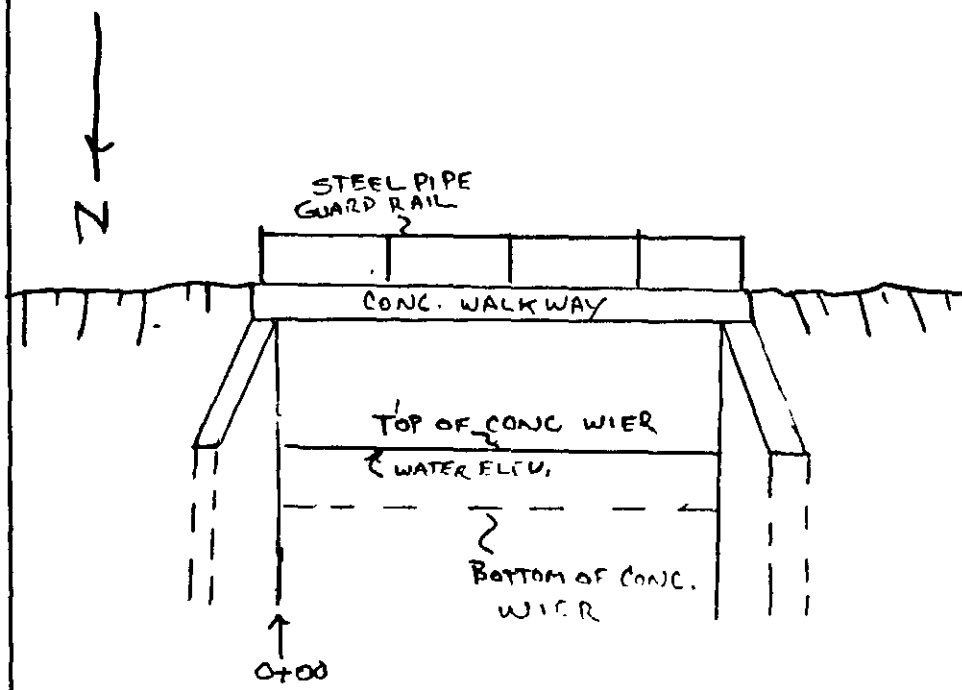
B.S.# 5
DAM

Code No. _____

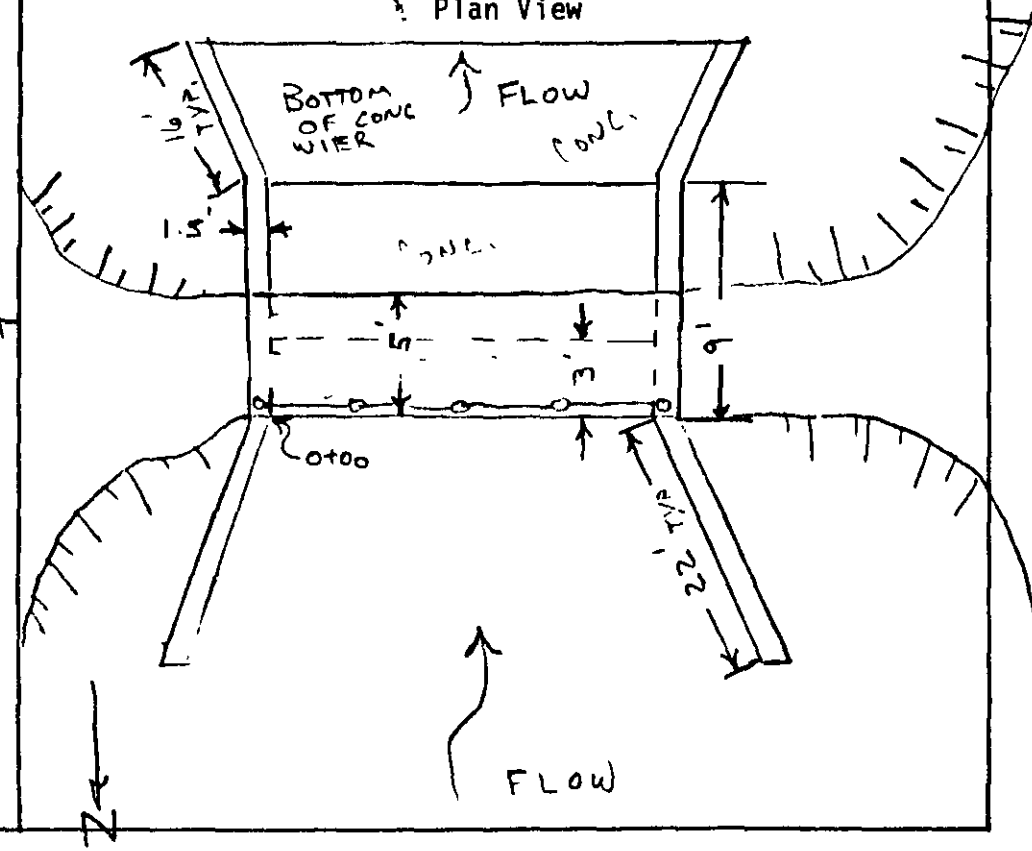
Job Name: HIGHLAND TWP. F.I.S.			By: D NETT
Date: 3-26-80	Feature: CONC. DAM (IN USE)		Water Course: NETT / BOGUE CREEK
Remarks: LEFT: PATHWAY UP HILL TO LIGHT BRUSH & TREE'S. RIGHT: PATHWAY UPHILL TO LIGHT BRUSH & TREE'S, LARGE ROCK'S DOWNSTREAM, OPEN WATER UP STREAM			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 954.8	Length: 9'	Width of Deck: —	Skew: 0

FIELD SKETCH

Profile View



Plan View



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

HYDRAULIC STRUCTURAL DATA

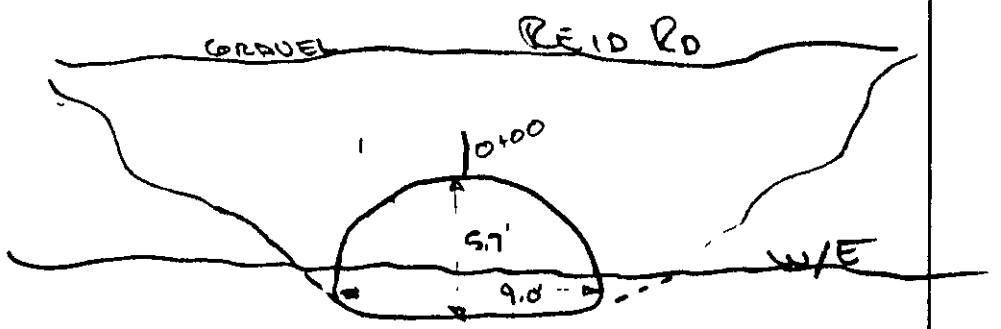
B.S. # 6

Code No. _____

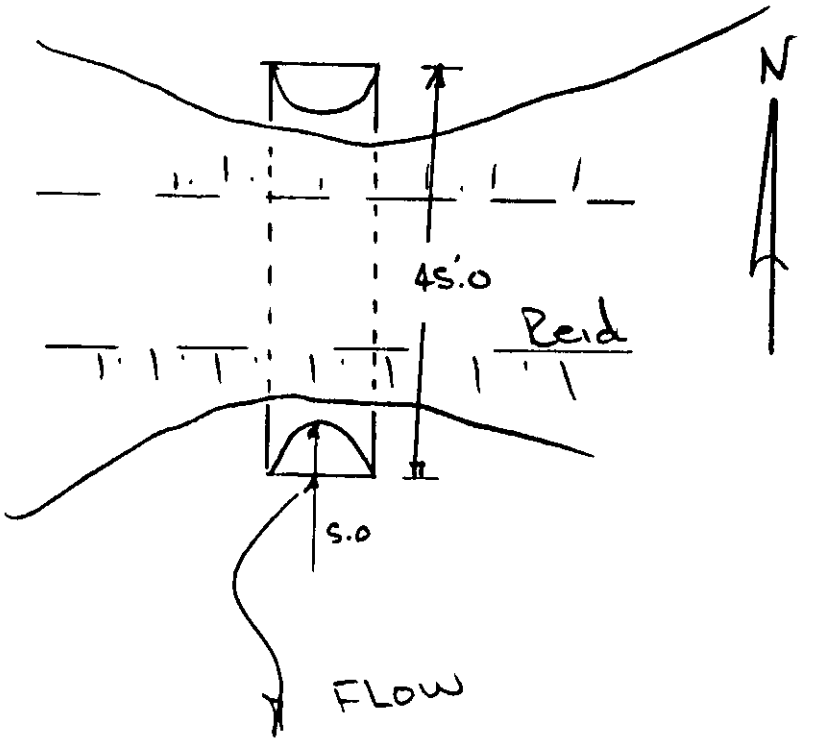
Job Name: HIGHLAND F.I.S.			By: R MOSOS
Date: 3-12-80	Feature: MULTI-PLATE METAL P.PE		Water Course: PETTIBONE CREEK
Remarks: STONE ON BOTTOM OF P.PE 2" TO 4" CULVERT IS ON REID RD			
DNSTREAM OPEN MARSH, UPSTREAM SCATTERED TREES & LIGHT BRUSH, ROLLING HILLS			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 954.94	Length: 45'	Width of Deck: —	Skew: 90°

FIELD SKETCH

Profile View



Plan View



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

HYDRAULIC STRUCTURAL DATA

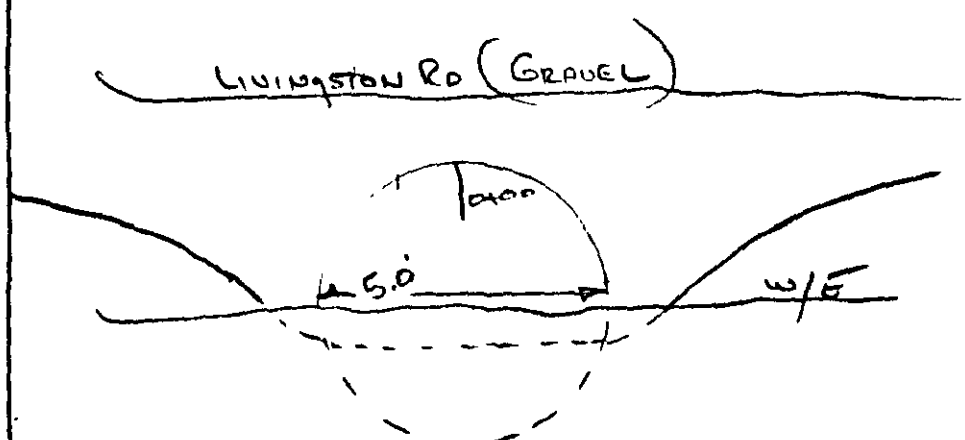
BS # 13

Code No. _____

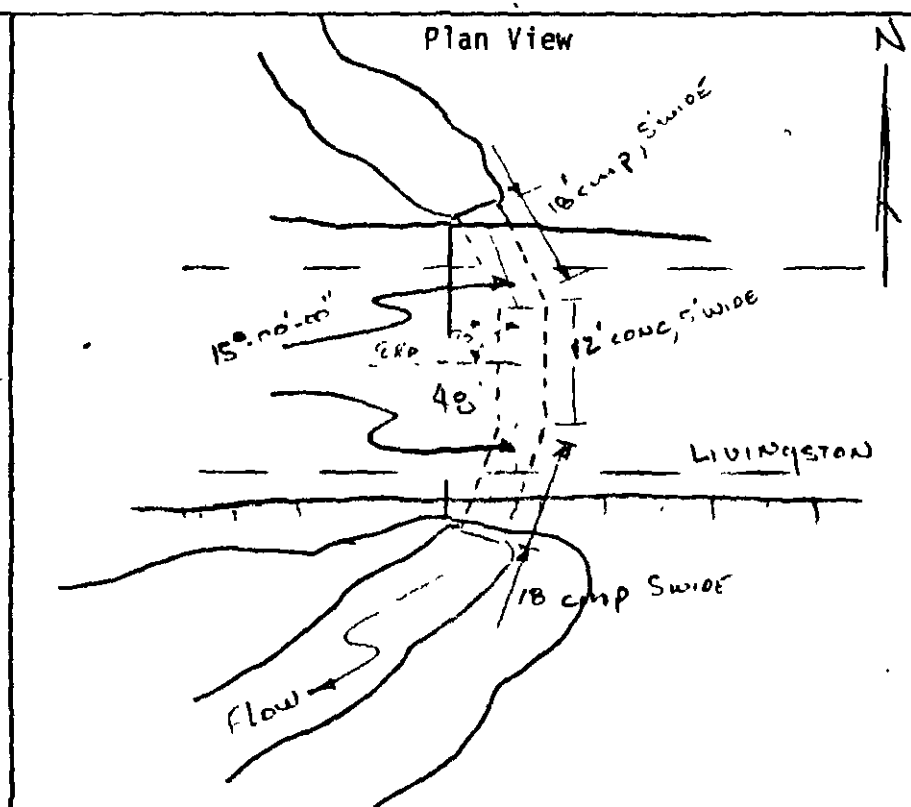
Job Name: HIGHLAND TWP F.I.S			By: R. MOSS
Date: 3-12-80	Feature: 5' DIA C.M.P.		Water Course: PETTIBONE CREEK
Remarks: LIVINGSTON RD., UPSTREAM - ROLLING HILLS & LIGHT RANCH.			
DNSTREAM -- ROLLING HILLS & MED RANCH			
PIPE HAD 0.4 OF SAND IN BOTTOM UPSTREAM, DNSTREAM 1½' OF SILT			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 962.05	Length: 48'	Width of Deck: —	Skew: SEE PLAN VIEW

FIELD SKETCH

Profile View



Plan View



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

HYDRAULIC STRUCTURAL DATA

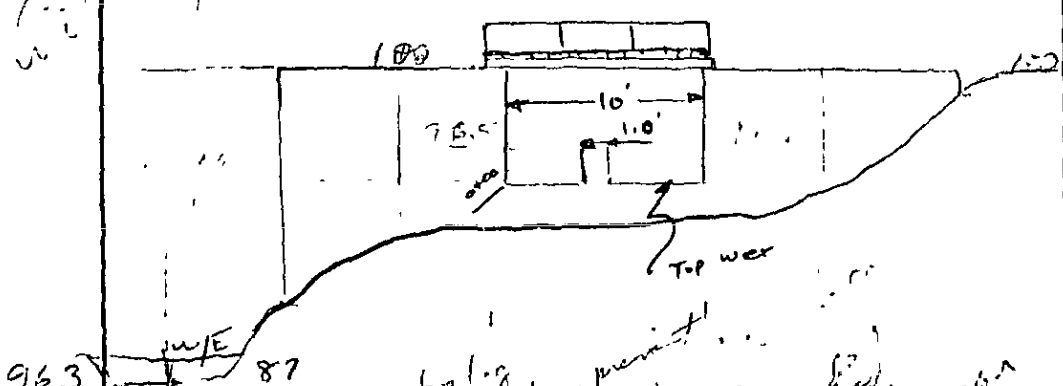
DAM 13-A

Code No. _____

Job Name: HIGHLAND TWP F.I.S		By: R. MOSES	
Date: 3-18-80	Feature: DAM	Water Course: PETTIBONE CREEK	
Remarks: DAM RE-CONSTRUCTION BY CORP OF ENGINEERS (PROJ #24-1786) (78-14-214)			
PERMIT BY DNR PO BOX 30028, LANSING, MICH			
WING-WALL'S HAVE BEEN RE-BUILD - OPEN FIELD w/ ROLLING HILLS R&L BANKS			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: N/A	Length:	Width of Deck: —	Skew: 90°

FIELD SKETCH

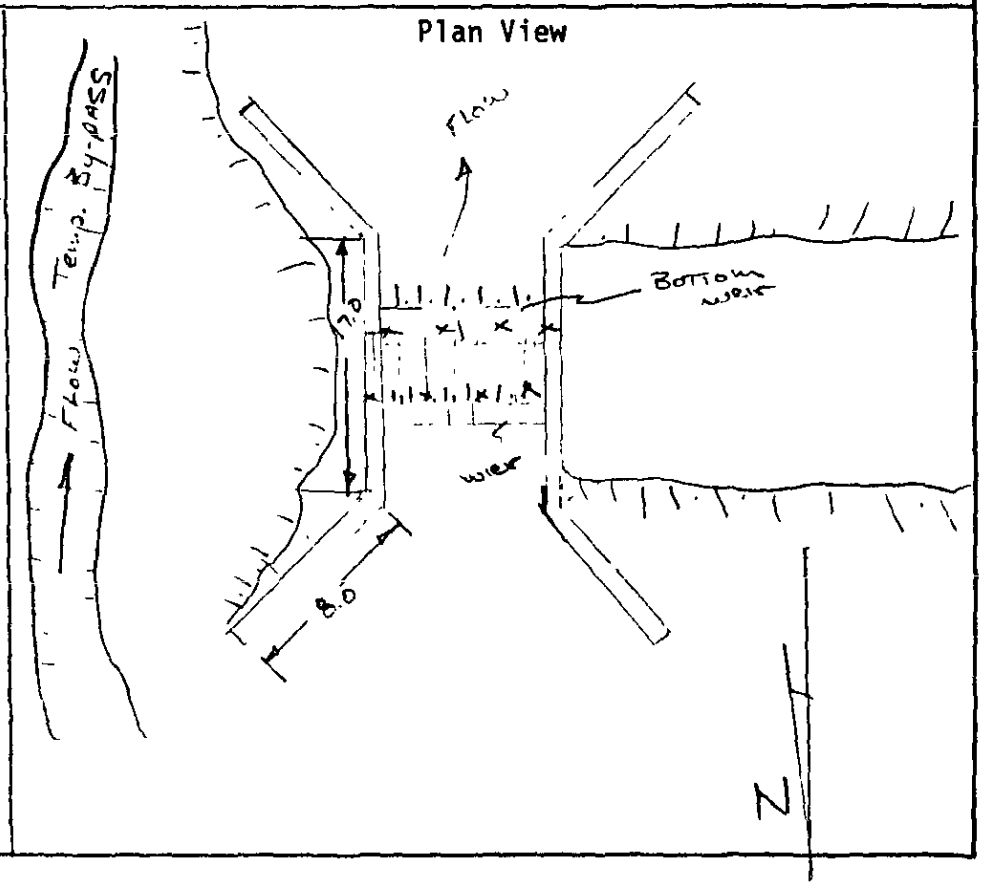
Profile View



level of max stoplog have been reduce to prevent wash outs

Construction per Doug Morgan

Plan View



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HYDRAULIC STRUCTURAL DATA

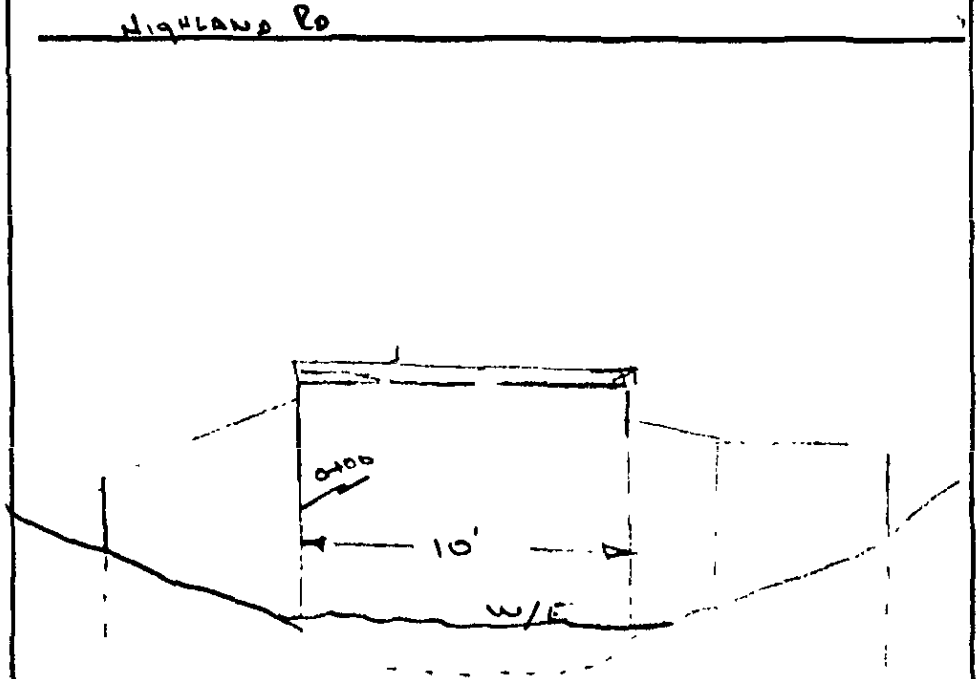
B.S. #15

Code No. _____

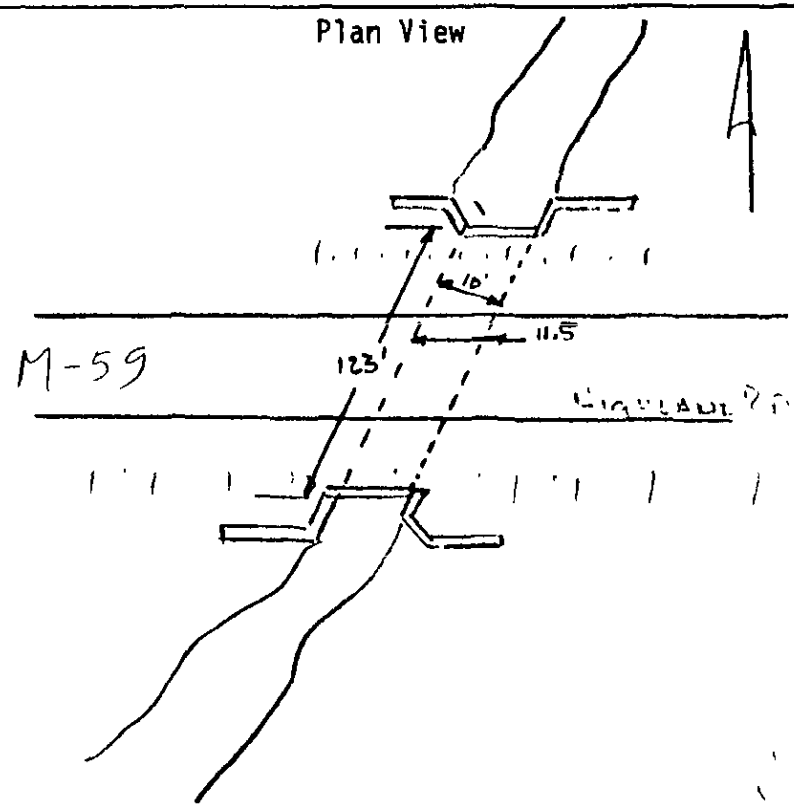
Job Name: Highland Twp F.I.S.		By: R. Moses	
Date: 3-12-80	Feature: 10' Conc Box Culvert	Water Course:	
Remarks: Highland Rd - Upstream - Light To Med. Brush, Dnstream Light Brush - Marsh			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area:
Water Elevation: 970.0	Length: 123	Width of Deck: 10'	Skew: 45° ± To Road

FIELD SKETCH

Profile View



Plan View



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HYDRAULIC STRUCTURAL DATA

B.S. # 17
(DAM)

Code No. _____

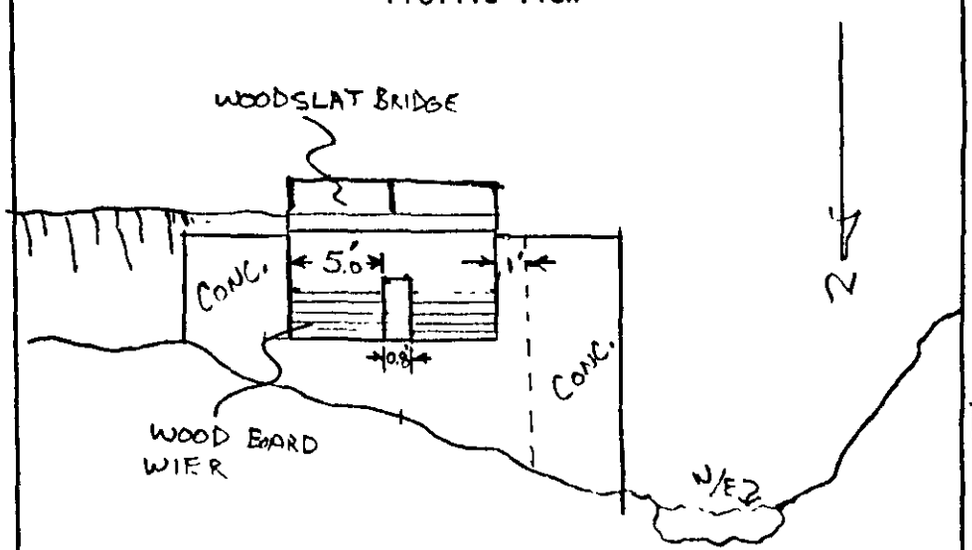
Job Name: HIGHLAND TWP. F.I.S.		By: D. JETT
Date: 3-17-80	Feature: DAM (UNUSED)	Water Course: PETTIBONE CREEK

Remarks: DAM NOT IN USE, RIGHT: SWAMP GRASS & LIGHT BRUSH [illegible]
LEFT: SWAMP GRASS & LIGHT BRUSH, [illegible] FOR [illegible] THEN STEEP

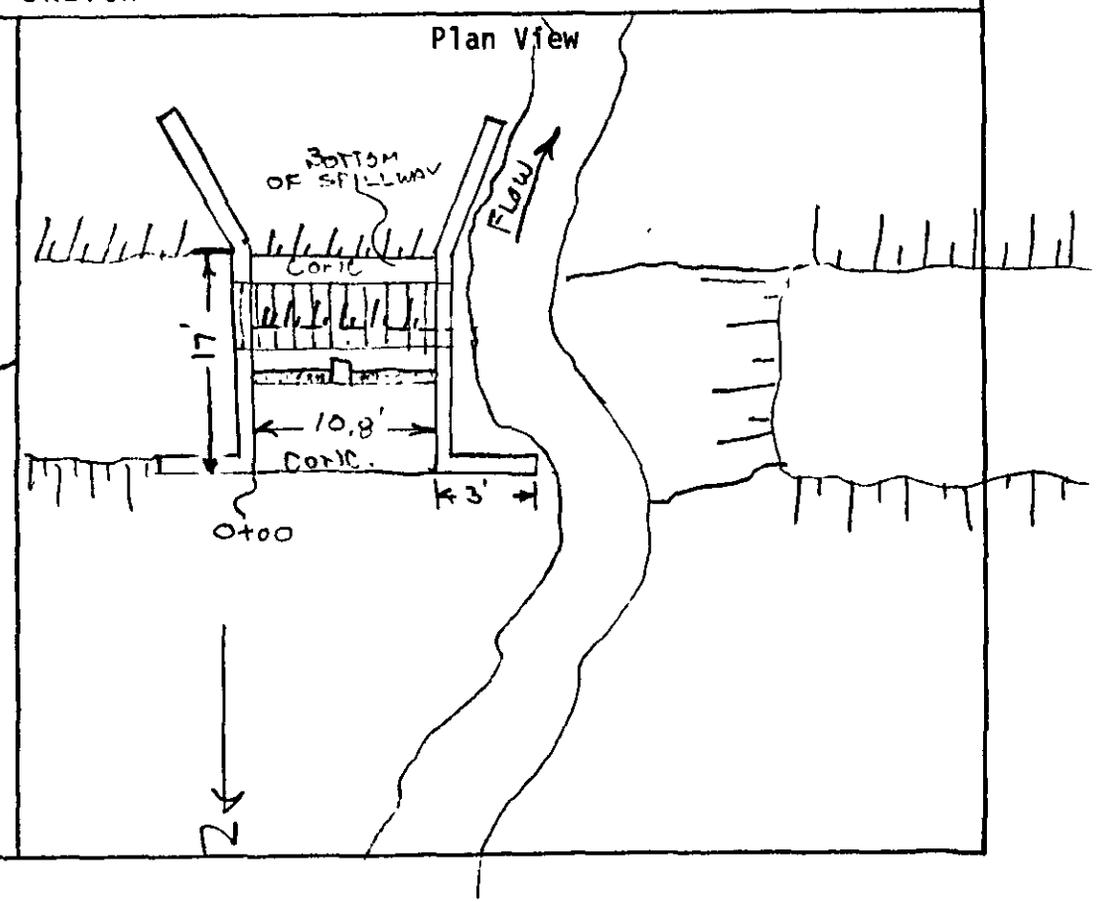
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 982.9	Length:	Width of Deck: —	Skew: 90°

FIELD SKETCH

Profile View



Plan View



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HYDRAULIC STRUCTURAL DATA

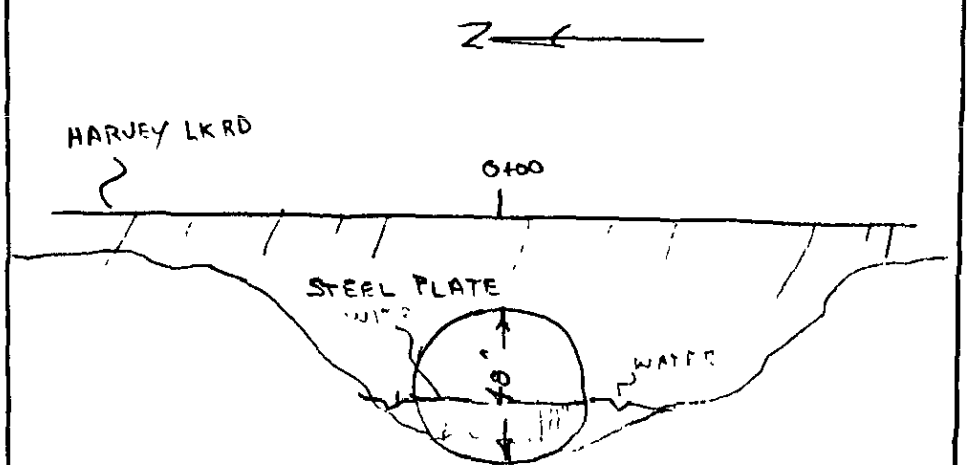
B.S II 21

Code No. _____

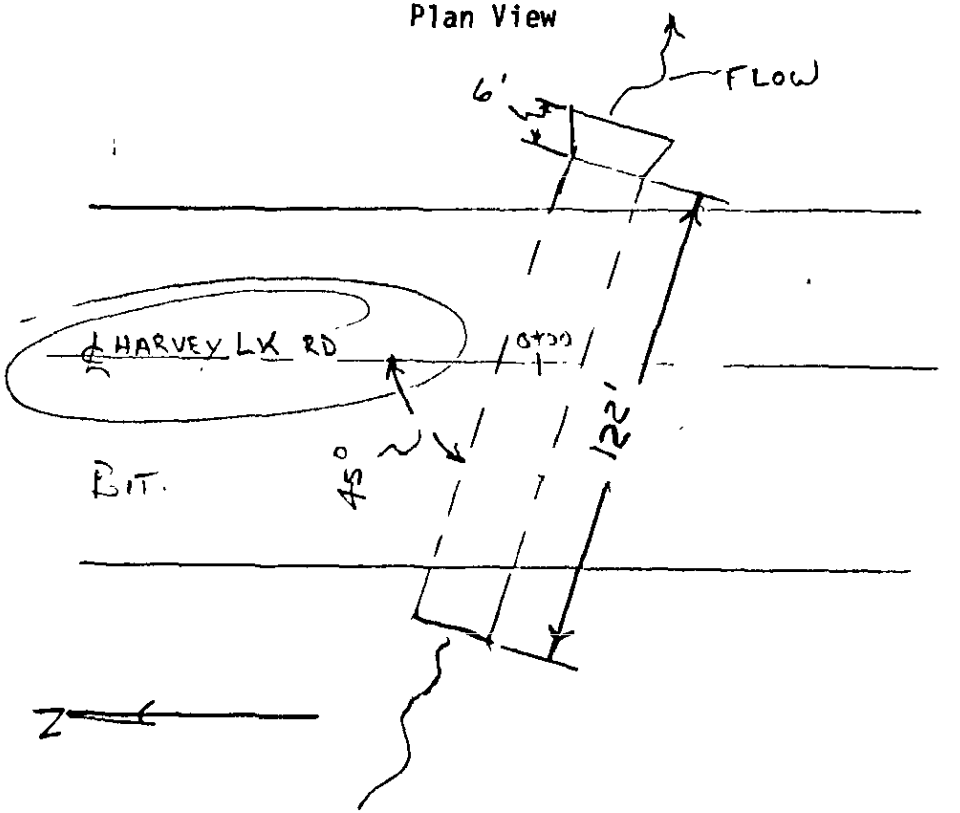
Job Name: HIGHLAND TWP F.I.S.			By: D NETT
Date: 3-19-80	Feature: 48" ϕ C.M.P. WITH FLARED END		Water Course: PETTIBONE CRK.
Remarks: UPSTREAM: EXIST TO LAKE DOWNSTREAM: SWAMP, THICK BRUSH & TREES, LARGE ROCK'S COMPLETELY THROUGH LENGTH OF CULV, TO 1'± ABOVE INV.			
Width of Piers:	Pier Shape: ~	No. of Piers: —	Area: —
Water Elevation: ~~975.7~~ 975.7	Length: 12	Width of Deck: —	Skew: 45°

FIELD SKETCH

Profile View



Plan View



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HYDRA[illegible] STRUCTURAL DATA

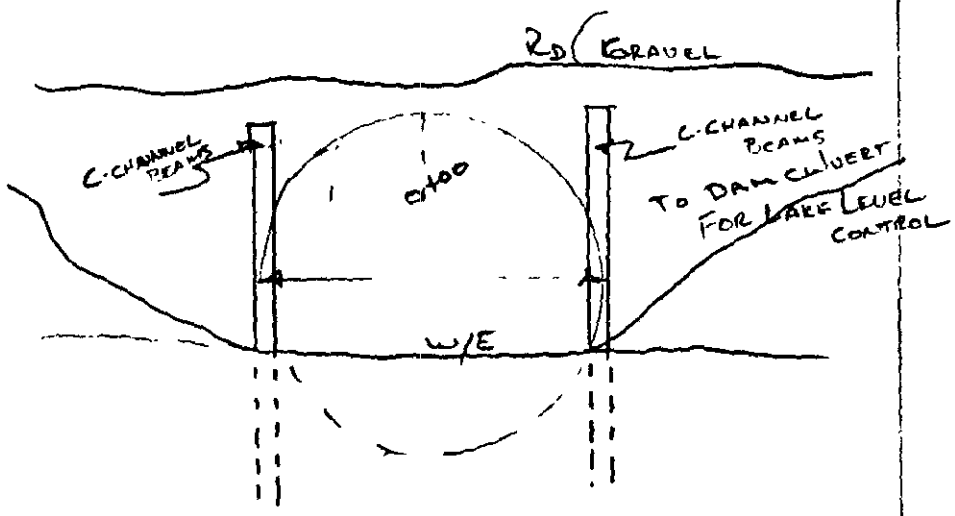
#23

Code No. _____

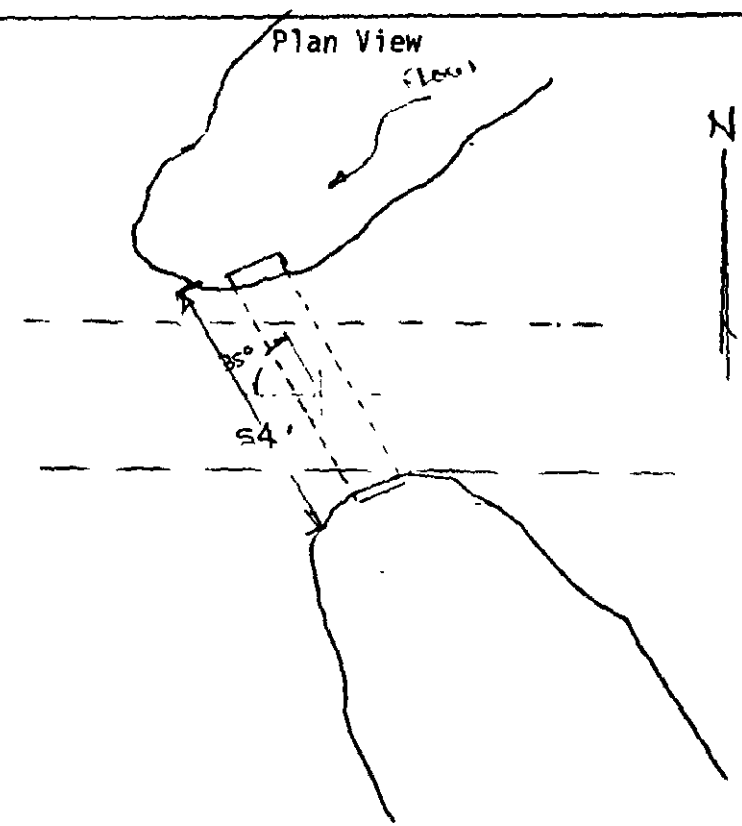
Job Name: HIGHLAND TWP. F.I.S.		By: R MOSES	
Date: 3-18-80	Feature: 30' R.C.P.	Water Course: [illegible] CREEK	
Remarks: LAWN AREA W/ HOMES & A FEW SCATTERED [illegible] TREES			
UP & DNSTREAM OF CULVERT 0.2' OF SAND & GRAVEL			
CULVERT IS ON DUNLEAVY DR			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 996.2	Length: 54'	Width of Deck: —	Skew: 35°± TO RD

FIELD SKETCH

Profile View



Plan View



JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY BMW DATE 11/28/88 JOB DESCRIPTION HIGHLAND TWP FIS SHEET ____ OF ____
SUBJECT SPECIAL BRIDGE SECTION 23 JOB NO 6504-04

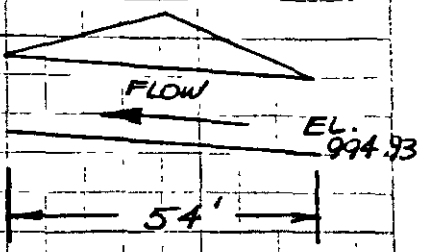
DUNLEAVY DRIVE

PIPE DATA - 30" ϕ CONCRETE PIPE

$A = 4.91\ FT^2$ $L = 54\ FT$

$P = 7.85\ FT$ $n = 0.014$

$R = 0.625$



XKOR = ENTRANCE LOSS + FRICTION LOSS + EXIT LOSS

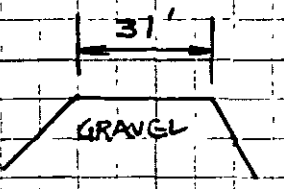
ASSUME

ENTRANCE LOSS FOR PROJECTING PIPE = 0.5

$$\text{FRICTION LOSS} = \frac{29.1 n^2 L}{R^{4/3}} = \frac{29.1 (0.014)^2 (54\ FT)}{(0.625\ FT)^{4/3}} = 0.576$$

EXIT LOSS = 1.0

XKOR = 0.5 + 0.576 + 1.0 = 2.08



WEIR COEFFICIENT

HEAD ON WEIR ASSUMED TO BE

LESS THAN OR EQUAL TO 1.0 FT

$\ell = 31\ FT$

$H/\ell = 1.0/31.0 = 0.03226$

FOR H/ℓ	< 0.15 AND	$H = 1.0$,	$C = 2.83$
" "	" "	$H = 0.5$,	$C = 2.69$
" "	" "	$H = 0.3$,	$C = 2.62$

TRY $C = 2.72$

Johnson & Anderson, Inc.
Consulting Engineers
2300 Dixie Hwy., Pontiac, MI 48055

HYDRAULIC STRUCTURAL DATA

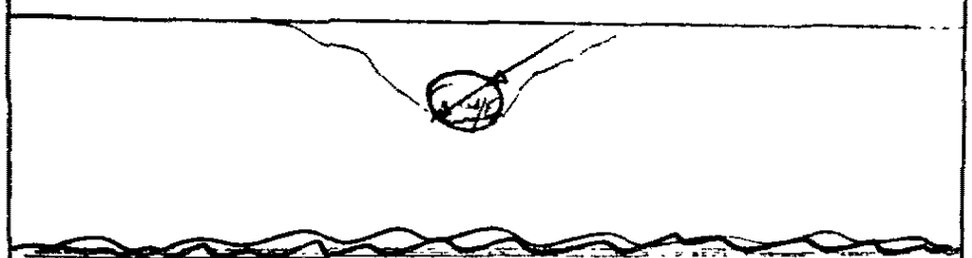
B.S. #1 & #2

Code No. 6.04.06

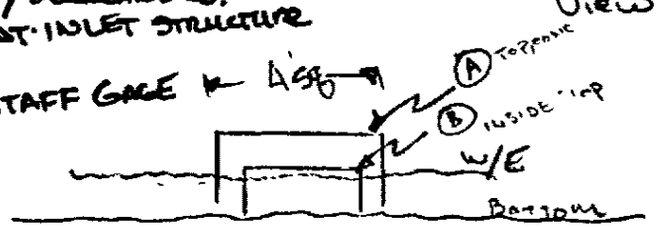
Job Name: Highland Twp. T.I.S.			By: R. Hayes
Date: 1-5-81	Feature: 24" CMP Dnstream		Water Course: Duck Lk Outlet
Remarks: Upstream structure is covered & locked. Took elev. of channel bottom, water elev. & top of conc structure of upstream end. Took inv., water elev. at dnstream end of culvert			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation:	Length: 792	Width of Deck: 24'	Skew: —

FIELD SKETCH

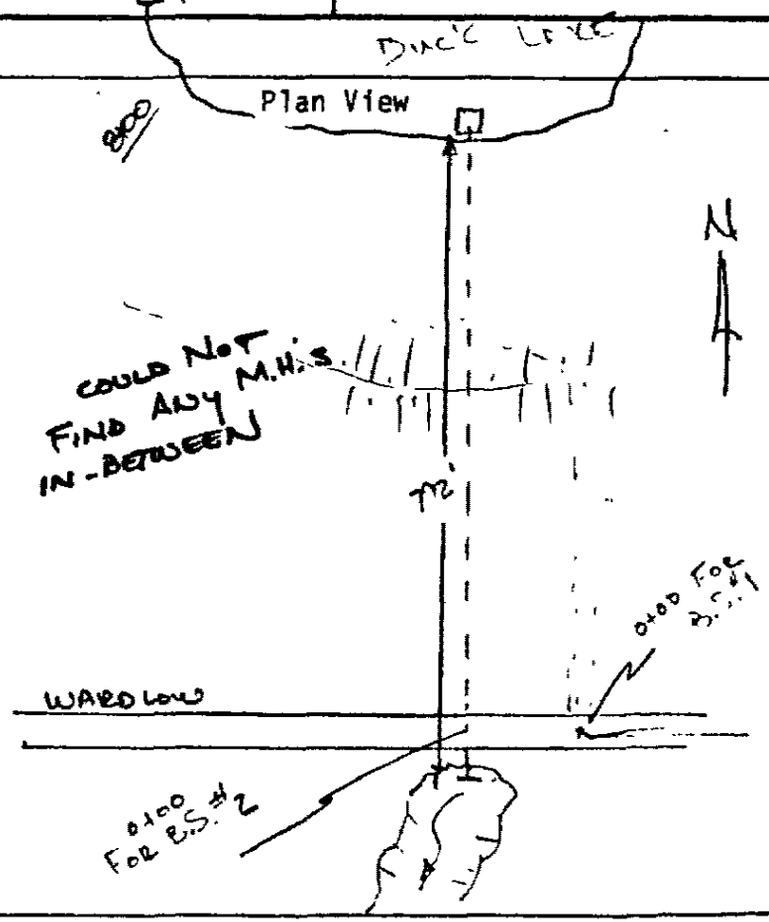
Profile View



Note: check w/ Oakland Co. about what inlet structure is, etc. Has staff gage



Plan View



APPENDIX C

JOB NAME: HIGHLAND TWP [illegible] JOB NO. 6504 04

WATERCOURSE: PETTIBONE CREEK CULVERT LOCATION: C+O RAILROAD (STA 569)

CULVERT DESCRIPTION: 48 IN Ø [illegible] (4') BY RMW DATE 3-9-81

WITH STRAIGHT HEADWALL

n= 0.014 Q_{10}= 161 TW_{10}= 948.6' (3.86)

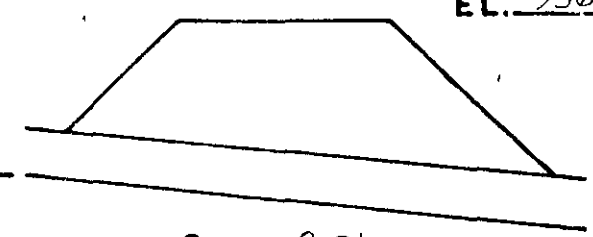
A= 12.57 FT² Q_{50}= 222 TW_{50}= 946.99' (2.25)

R= 1.00 FT Q_{100}= 226 TW_{100}= 941.01' (2.27)

Ke= 0.5 Q_{500}= 261 TW_{500}= 947.17' (2.43)

D= 4.0 FT

LSo= 0.38



So= 0.01

L= 38 FT

Sta. 569 Sta. 531

Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	D+(1+Ke) V²/2g	HW			
161	2.38	9.52	4.36	3.7	3.85	3.86	7.84	7.81	954.44	9.52	954.64	−0.20
50	0.78	3.12	0.42	2.15	3.08	3.08	3.12			3.12		
75	1.04	4.16	0.95	2.6	3.3	3.30	3.87			4.16		
100	1.33	5.32	1.69	3.05	3.53	3.53	4.84			5.32		
125	1.70	6.80	2.64	3.3	3.65	3.65	5.91			6.80		
150	2.15	8.60	3.81	3.6	3.80	3.80	7.23			8.60		
175	2.62	10.48	5.18	3.8	3.93		8.60			10.48		

CALCULATIONS AND COMMENTS ΔH HEC-2 150 952.60 175 955.52 161 ~954.44

XKOR = 1.72

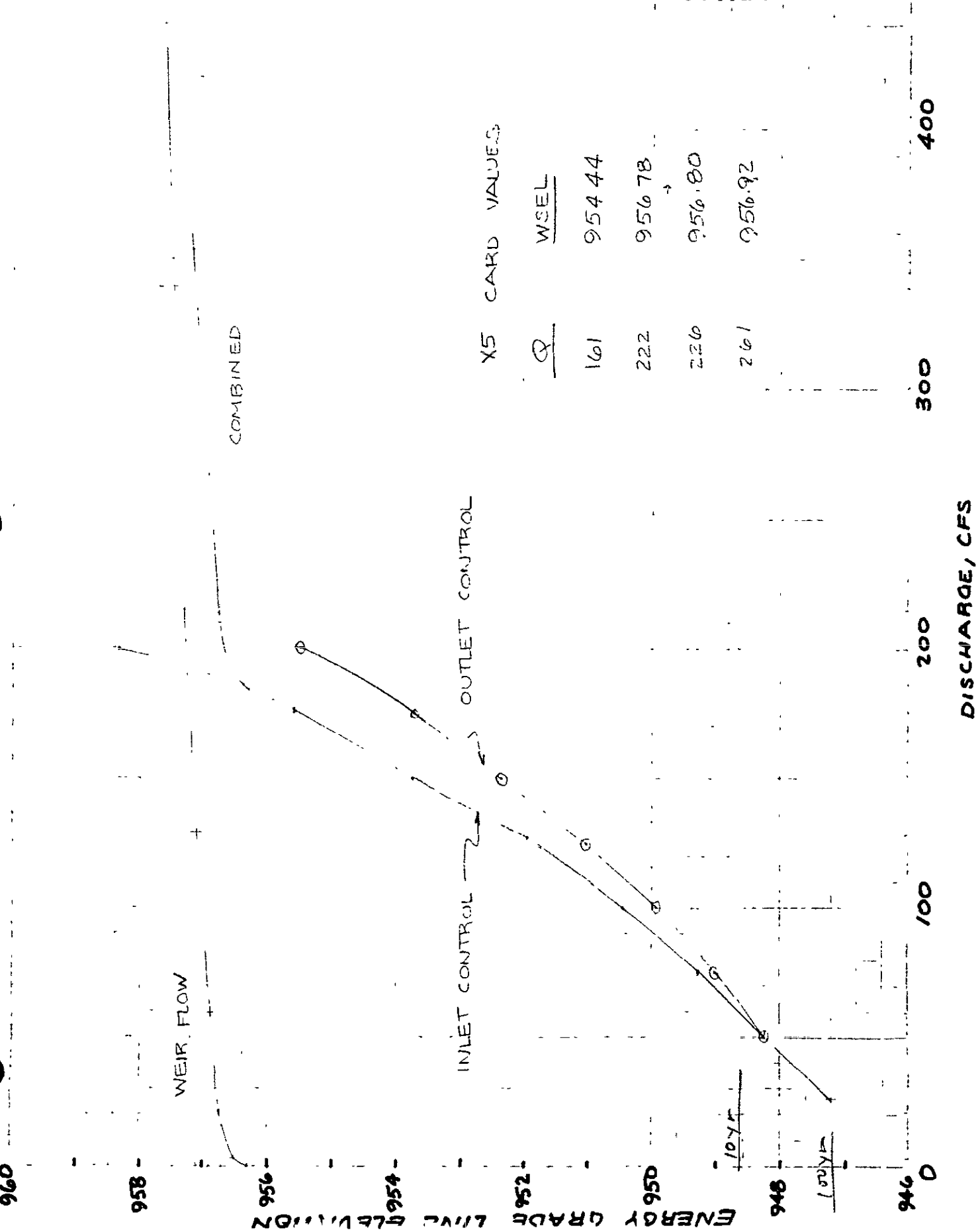
$H_{161} = [(161/12.6)^2/2g][1.72] = 4.36$

$D + (1+K_e)\frac{(161/12.6)^2}{2g} = 7.81$

2.00 4.11 10.27

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY KLM DATE 3-9-91 JOB DESCRIPTION HIGHLAND TWP FIS SHEET ____ OF ____
SUBJECT IF WSEL FOR C/O R.R. BRIDGE JOB NO. 6524-04



HIGHLAND TOWNSHIP FIS
PETTIBONE CREEK
C&O RAILROAD BRIDGE
GRAVEL BALLAST
22 FT. BREADTH
NUMBER OF POINTS= 6

STATION	ELEVATION
399.00	959.00
400.00	956.30
500.00	956.80
600.00	957.40
700.00	958.00
900.00	959.00

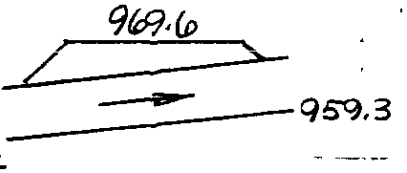
WIDTH OF ROADWAY= 22.00
ROAD SURFACE:GRAVEL

ELEVATION FEET	FLOW CFS	CAY	TOP WIDTH FEET	AREA SFT
956.30	.00	.000	0.	.00
956.50	3.67	2.540	40.	4.01
956.70	21.19	2.576	80.	16.05
956.90	59.49	2.616	117.	35.95
957.10	122.84	2.654	150.	62.71
957.30	214.68	2.687	184.	96.16
957.50	338.47	2.716	217.	136.31
957.70	497.07	2.742	250.	183.09

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RMW DATE 4-1-81 JOB DESCRIPTION HIGHLAND TWP FIS SHEET ____ OF ____
SUBJECT GRUBB ROAD CULVERT JOB NO. 6504-04

PIPE DATA



60 IN. Ø WITH PROJECTING UPSTREAM END

36 FT CMP $n = 0.032$

12 FT RCP $n = 0.014$

AREA = 19.63 FT^2 P = 15.71 FT R = 1.25 FT

XKOR CALCULATION

XKOR = ENTRANCE LOSS COEFF + FRICTION LOSS COEFF + EXIT LOSS COEFF.

ASSUME ENTRANCE LOSS COEFF. FOR PROJECTING CMP = 0.9

$$\text{FRICTION LOSS COEFF.} = \frac{29.1\,(0.014)^2\,12}{1.25^{(4/3)}} + \frac{29.1\,(0.032)^2\,36}{1.25^{(4/3)}} = 0.85$$

EXIT LOSS COEFF. = 1.0

$\therefore$ XKOR = 0.9 + 0.85 + 1.0 = **2.75**

assuming pressure flow

$$Q = \sqrt{2gH}\; A\; T\sqrt{\frac{1}{K}}$$

$$H_{100} = \frac{Q^2 K}{2g A^2} = \frac{(132^2)(2.75)}{(64.4)(19.63)^2} = 1.93$$

962.9
964.83

approx = 964.85 used by J&A

JOB NAME: HIGHLAND TWP FIS | JOB NO. 6504 | 04 | 1 | 1

WATERCOURSE: PETTIBONE CREEK | CULVERT LOCATION: GRUBB ROAD

CULVERT DESCRIPTION: 60 IN. Ø PIPE W/ PROJECTING U/S END 12 FT RCP, 36 FT CMP | BY RMW | DATE 4-20-81

n: 0.014 - 12 FT, 0.032 - 36 FT | Q_{10}: 94 | TW_{10}: 962.35 (3.05)

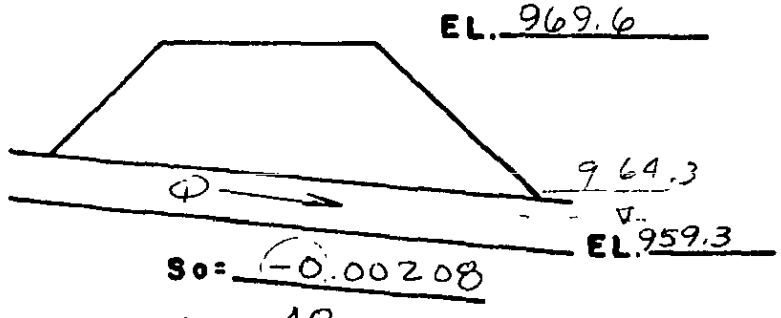
A: 19.63 FT² | Q_{50}: 121 | TW_{50}: 962.74 (3.44)

R: 1.25 FT | Q_{100}: 132 | TW_{100}: 962.90 (3.6)

Ke: 0.9 | Q_{500}: 159 | TW_{500}: 963.26 (3.96)

D: 5.0 FT | Sec No 16983

LSo: -0.1



Sta. 17035 | Sta.

HEADWATER ANALYSIS

NORMAL BRIDGE

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL HW INLET CONTROL	FINAL HW ELEV.	Δ H HEC-2
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+K_e)\frac{V^2}{2g}$	HW			
94	0.89	4.45	0.98	2.8	3.9	3.9	4.98	5.68	4.36	4.45	963.65	
121	1.06	5.30	1.62	3.2	4.1	4.1	5.82	6.12	5.19	5.30	964.50	
132	1.13	5.65	1.93	3.3	4.15	4.15	6.18	6.34	5.52	5.65	964.85	
159	1.32	6.60	2.80	3.55	4.28	4.28	7.18	6.94	6.38	6.60	965.80	

CALCULATIONS AND COMMENTS

3.6 - XKOR = 2.15

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RMW DATE 2-12-81 JOB DESCRIPTION HIGHLAND TWP FIS SHEET ____ OF ____
SUBJECT HARVEY LAKE ROAD CULVERT / LEONARD LAKE JOB NO. 6504-04

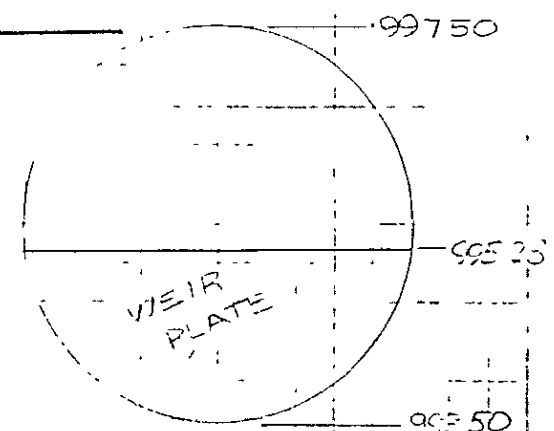
Q CFS	$\frac{Qn}{1.486 S^{1/2}}$ / $d^{8/3}$	Y/d_o	Y_N, FT	WSEL IN PIPE	CRITICAL DEPTH OVER WEIR / WSEL OVER WEIR
10	0 044	0 265	1.06	994.56	0.8 / 996.08
20	0 088	0.370	1 48	994.98	1.15 / 996 43
25	0.111	0 410	1.64	995.14	1.35 / 996.63
30	0 133	0 460	1.84	995 34	1 45 / 996.73
35	0 155	0 500	2.00	995.50	1.60 / 996 88
40	0 177	0 540	2.16	995.66	1.70 / 996.98
50	0 220	0 620	2.48	995 98	1.90 / 997 18

used table

100 yr 28 cfs 997.37

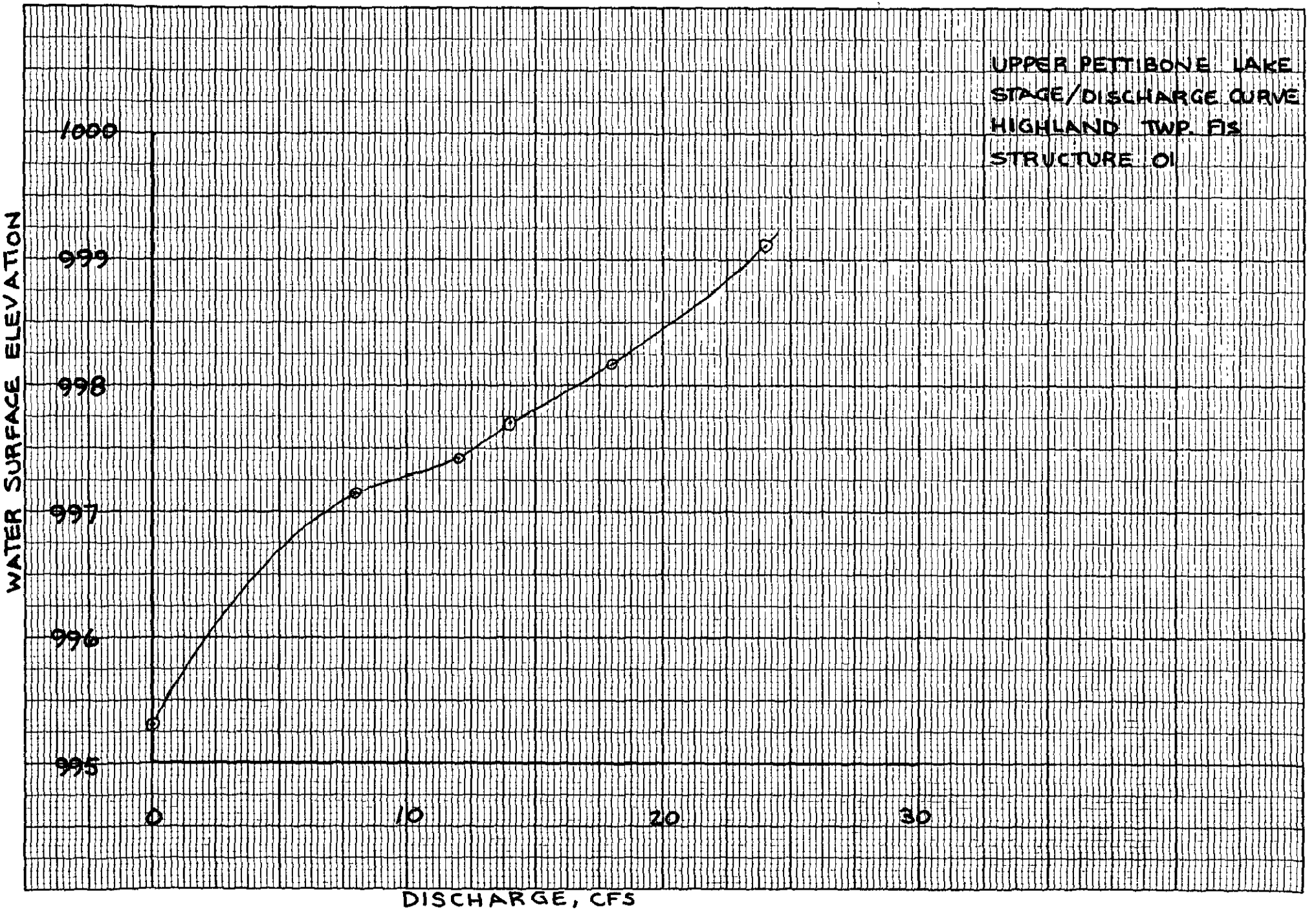
Q CFS	A, FT^2	V, FT/S	Hv, FT	WSEL LEONARD LAKE
10	2 48	4.03	0 25	996.33
20	3 47	5.76	0.52	996.95
25	4 01	6 23	0 60	997.23
28				997.37
30	4 31	6.96	0 75	997.48
35	4.70	7 45	0 86	997.74
40	4 87	8.21	1.05	998.03
50	5.26	9.51	1.40	998.58

Top of Pipe

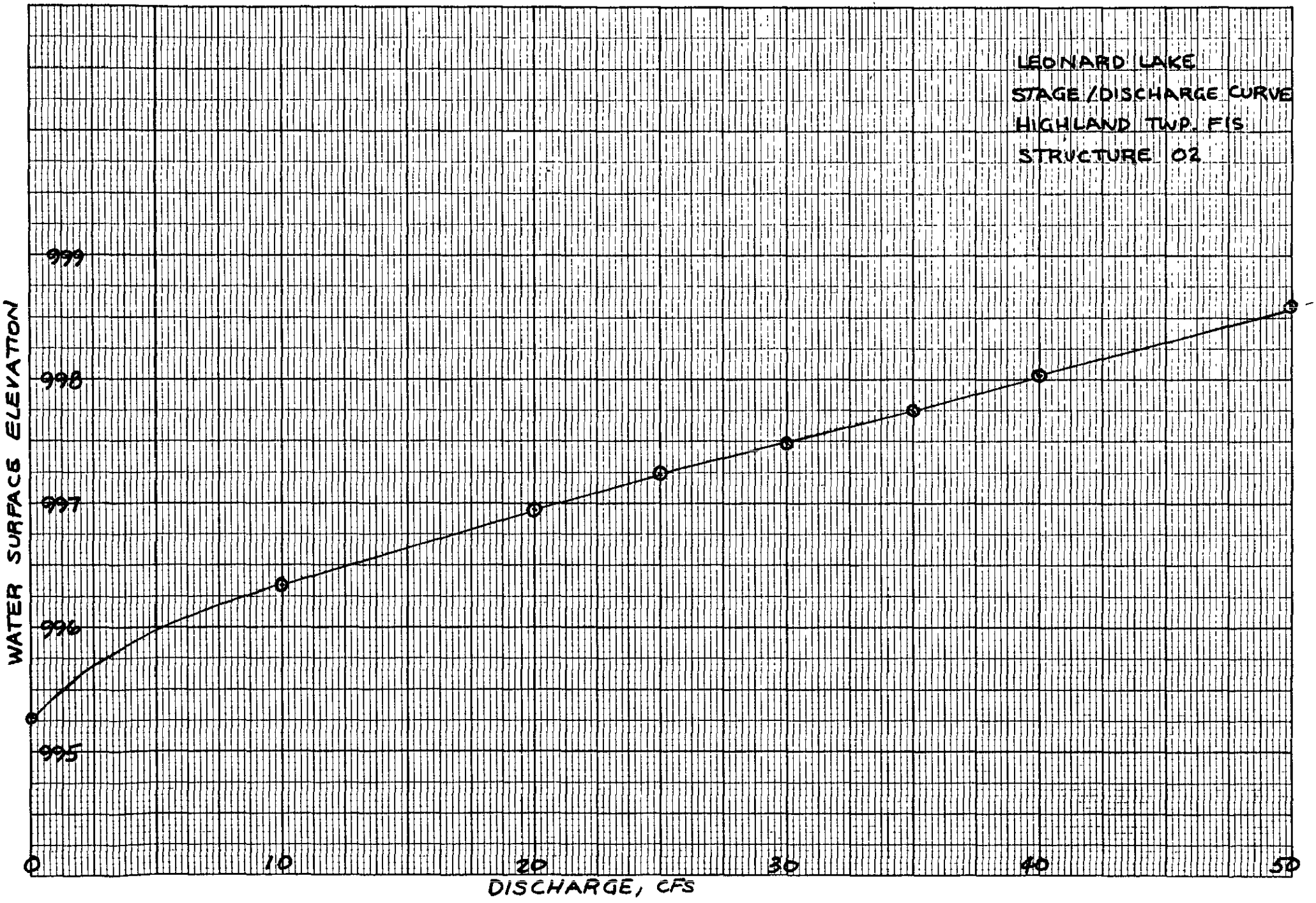


APPENDIX D

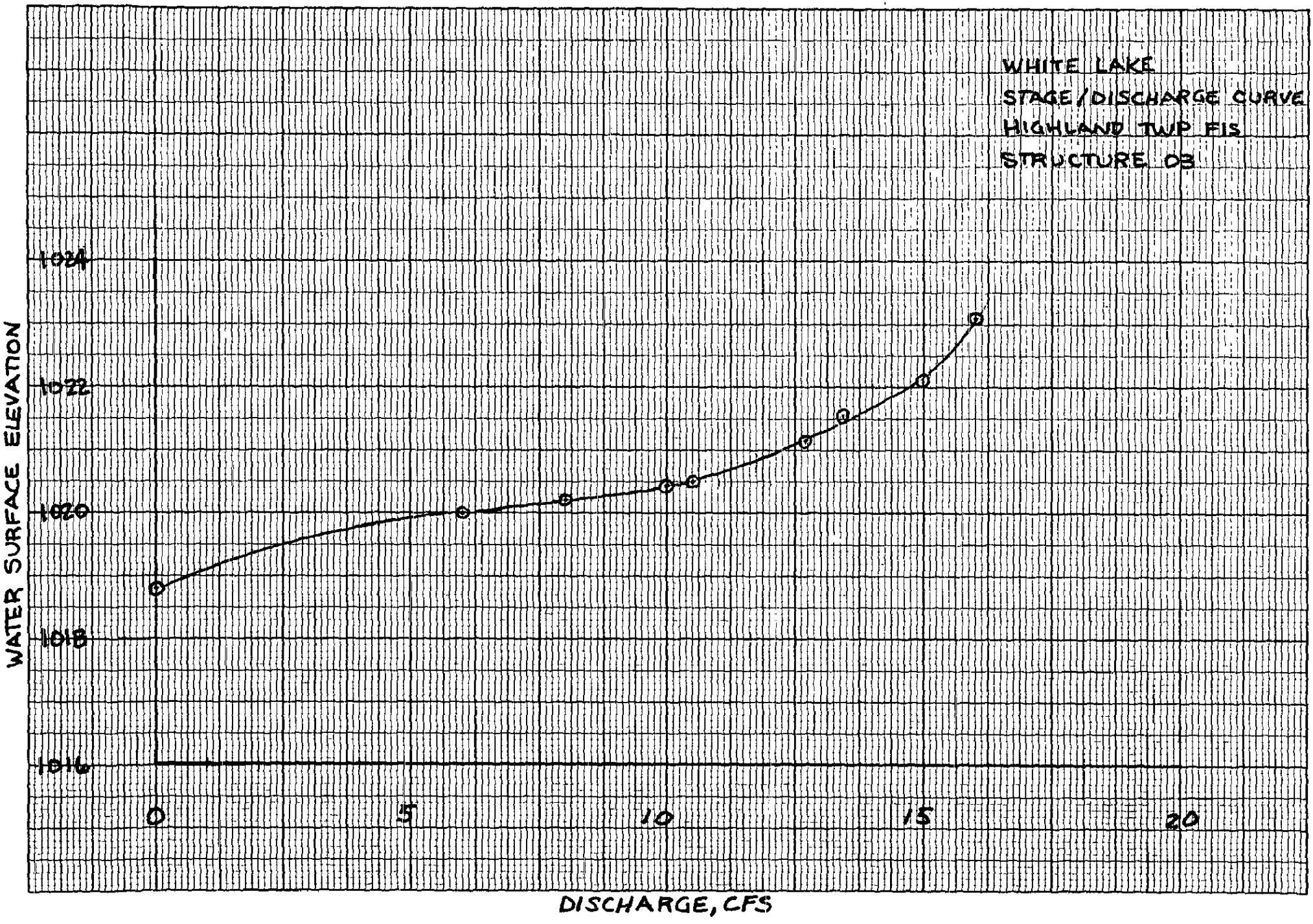
K·E 20 X 20 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO MADE IN U.S.A.



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

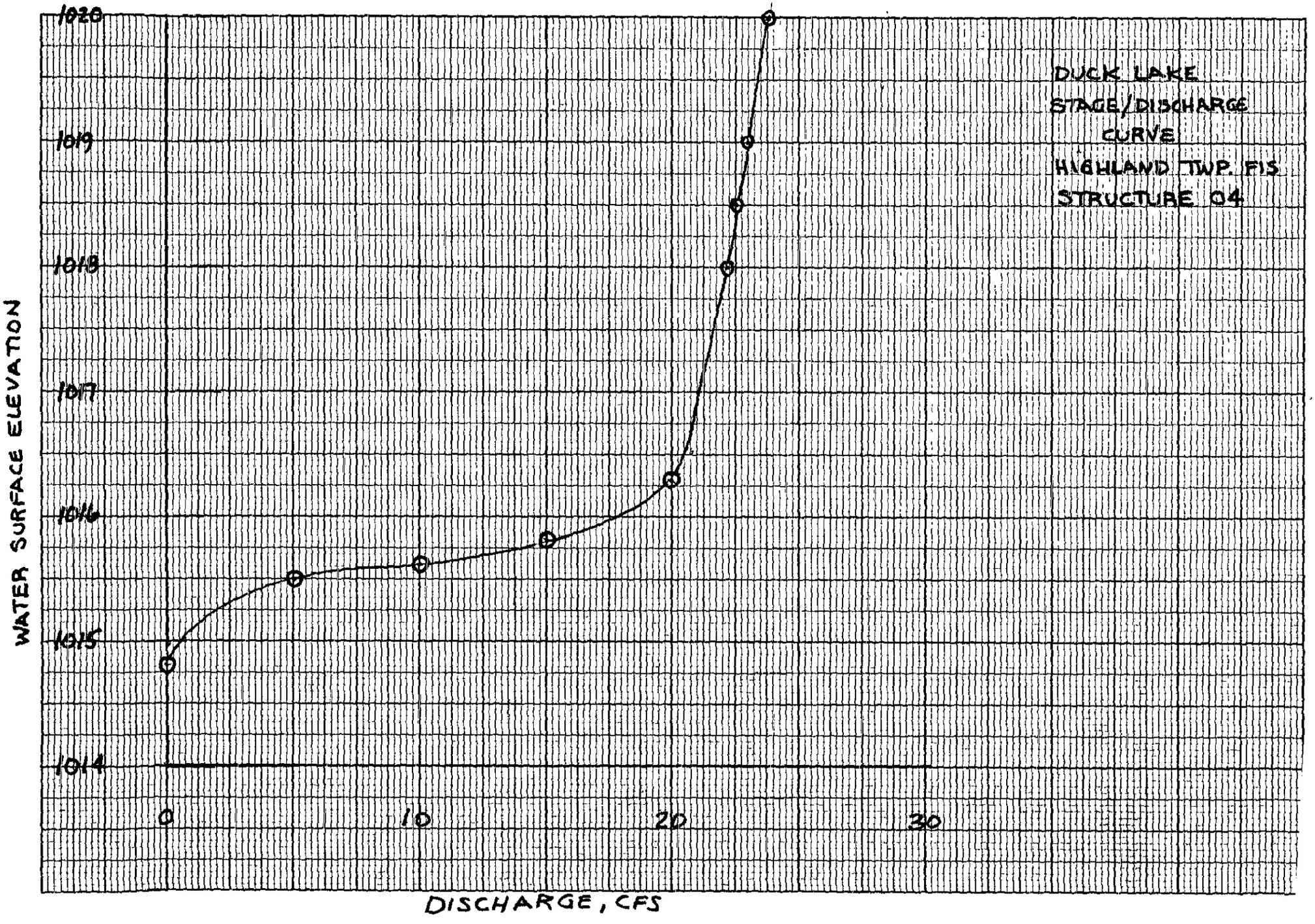


K•E 20 X 20 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO MADE IN U.S.A.

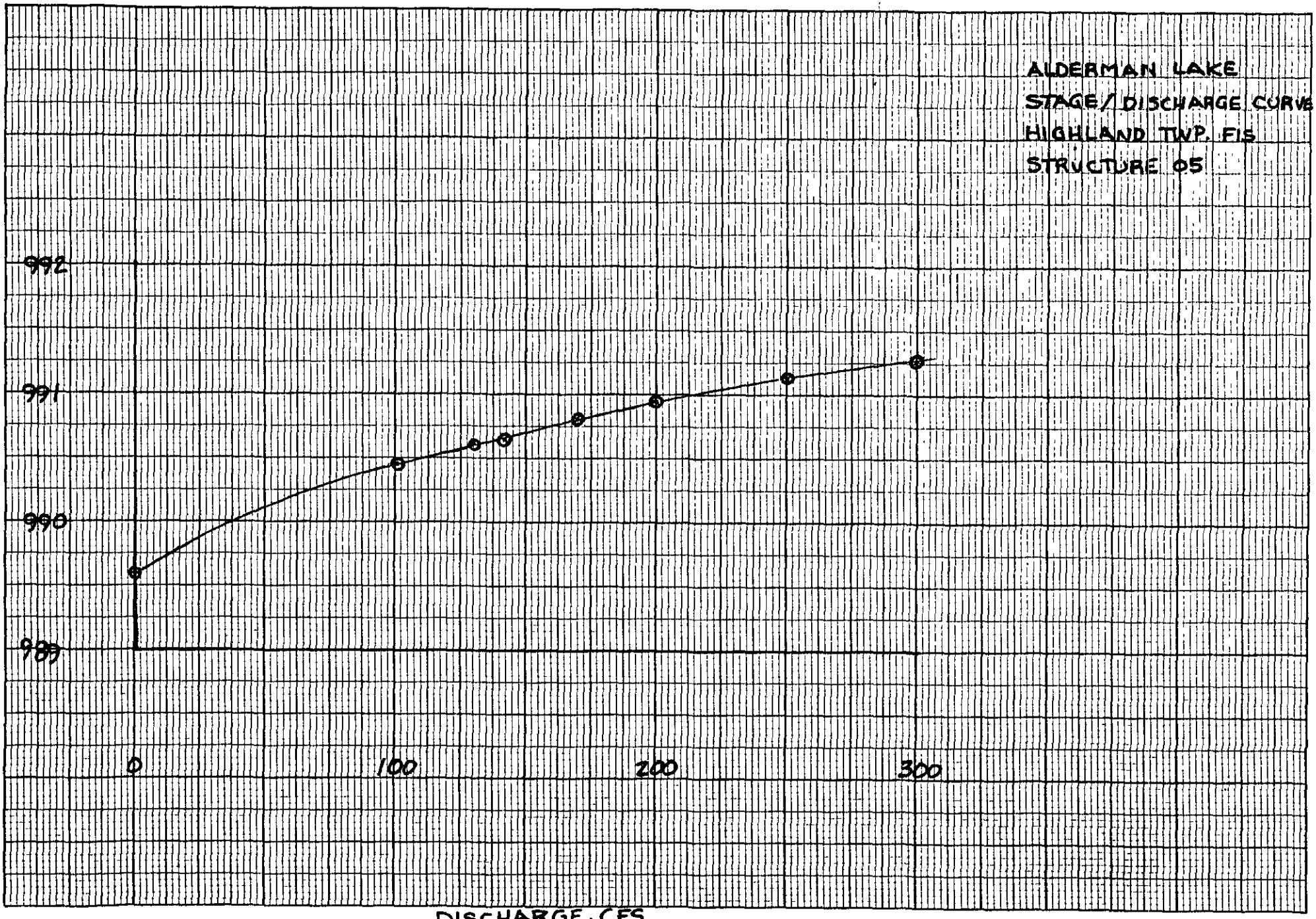


K+E 20 X 20 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO MADE IN U.S.A.

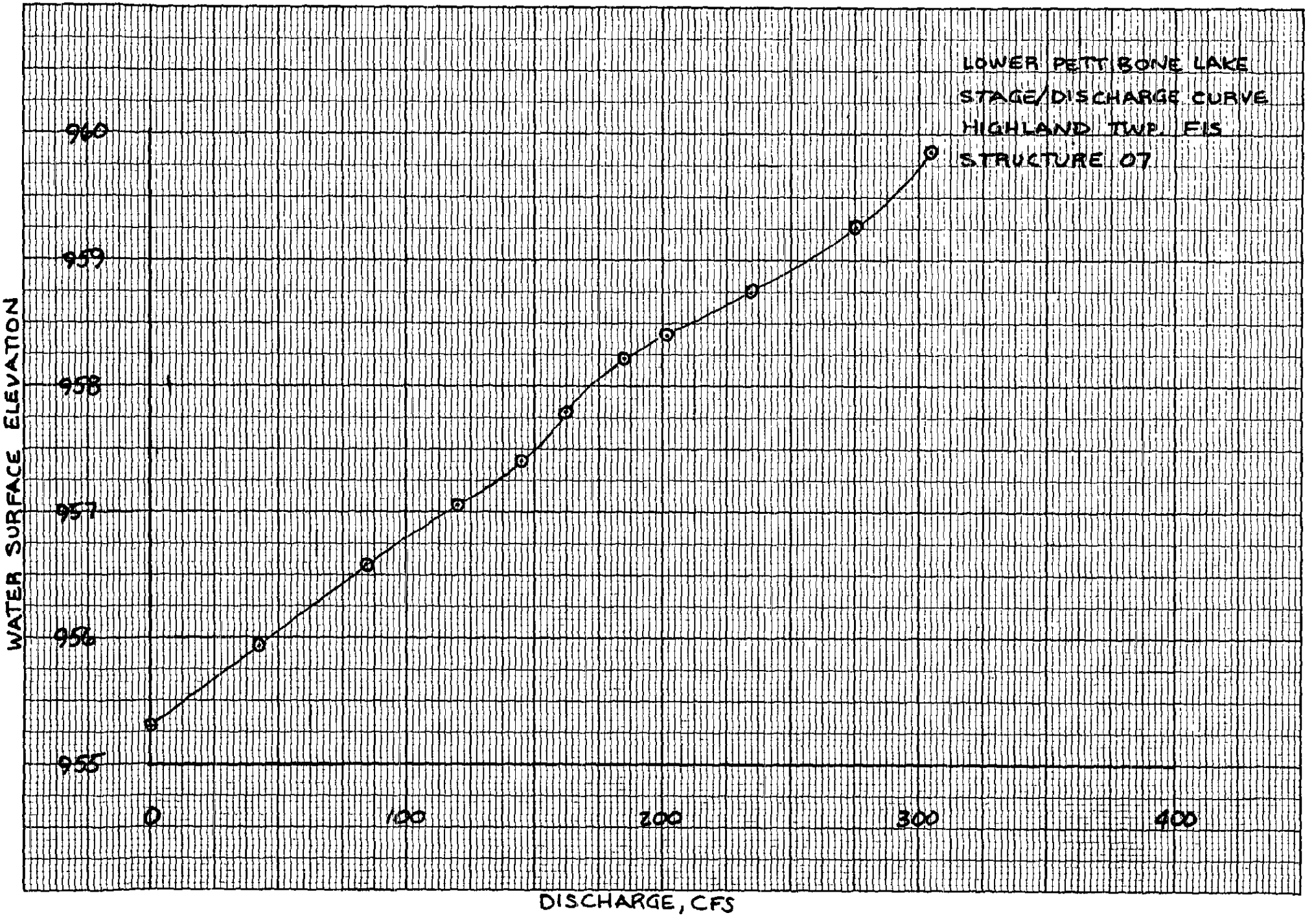
46 1240



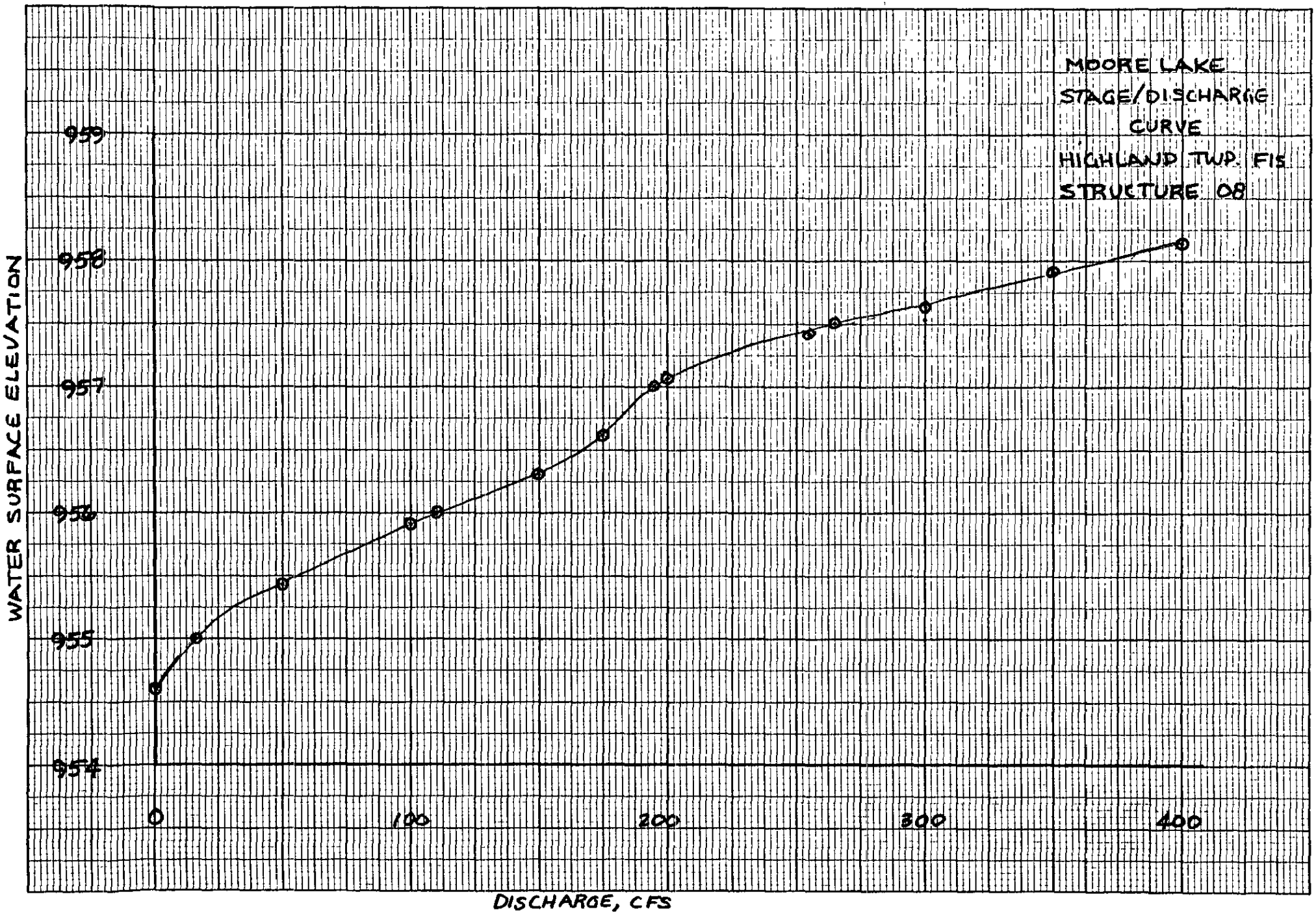
K·E 20 X 20 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO MADE IN U.S.A.



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



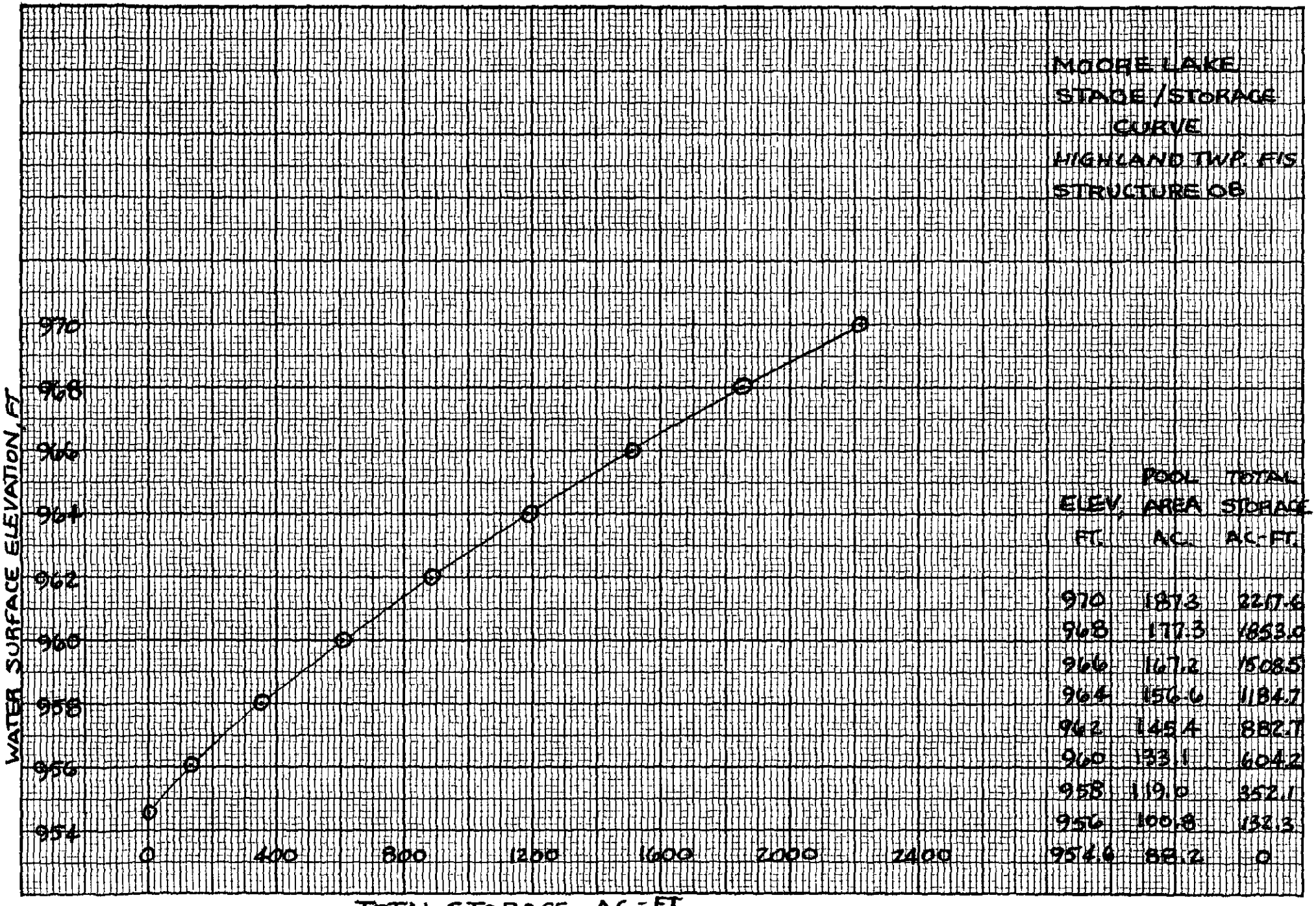
K+E 20 X 20 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO MADE IN U.S.A.



APPENDIX E

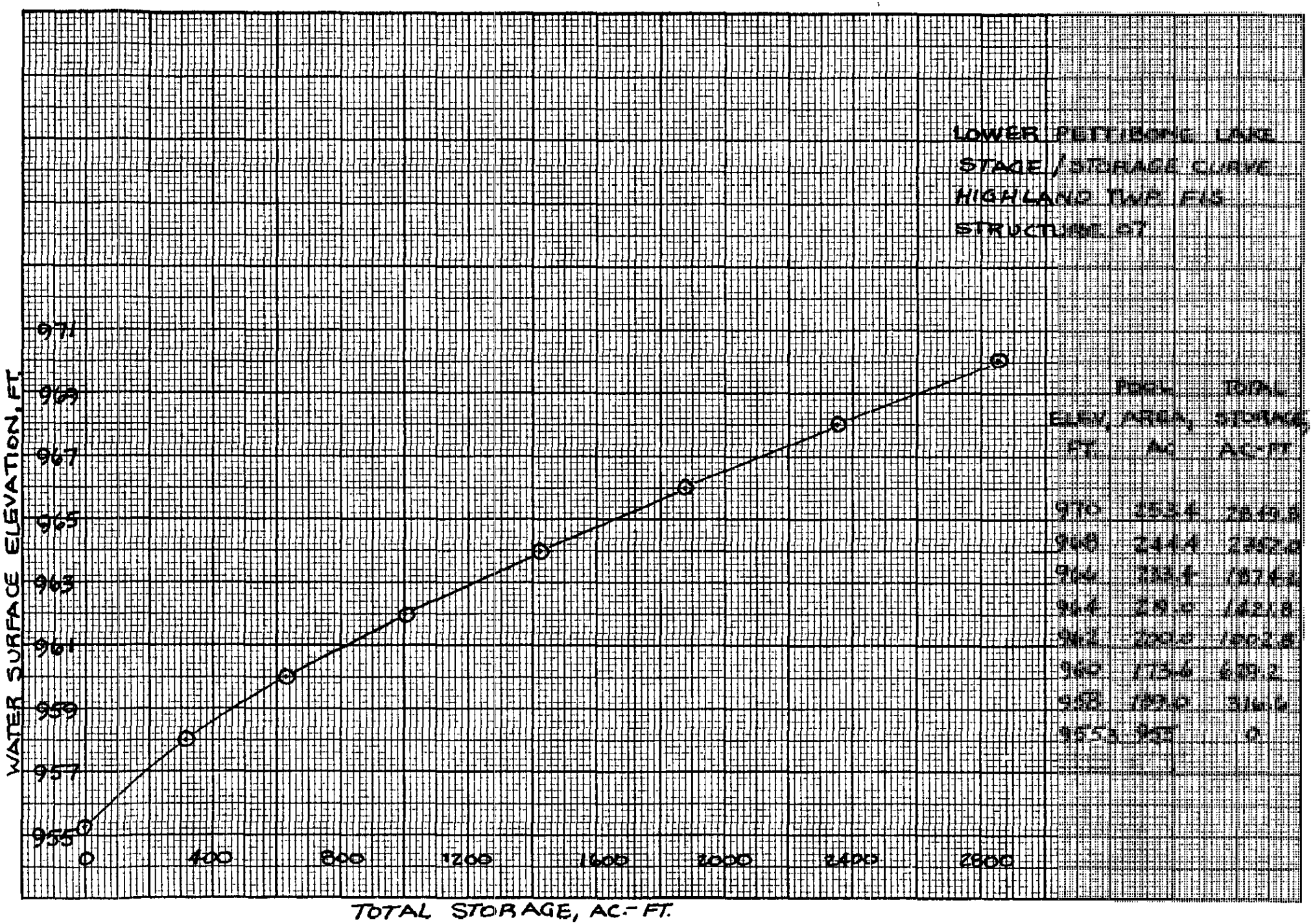
7 X 10 INCHES
KEUFFEL & ESSER CO.

MOORE LAKE
STAGE / STORAGE CURVE
HIGHLAND TWP. #15
STRUCTURE 08



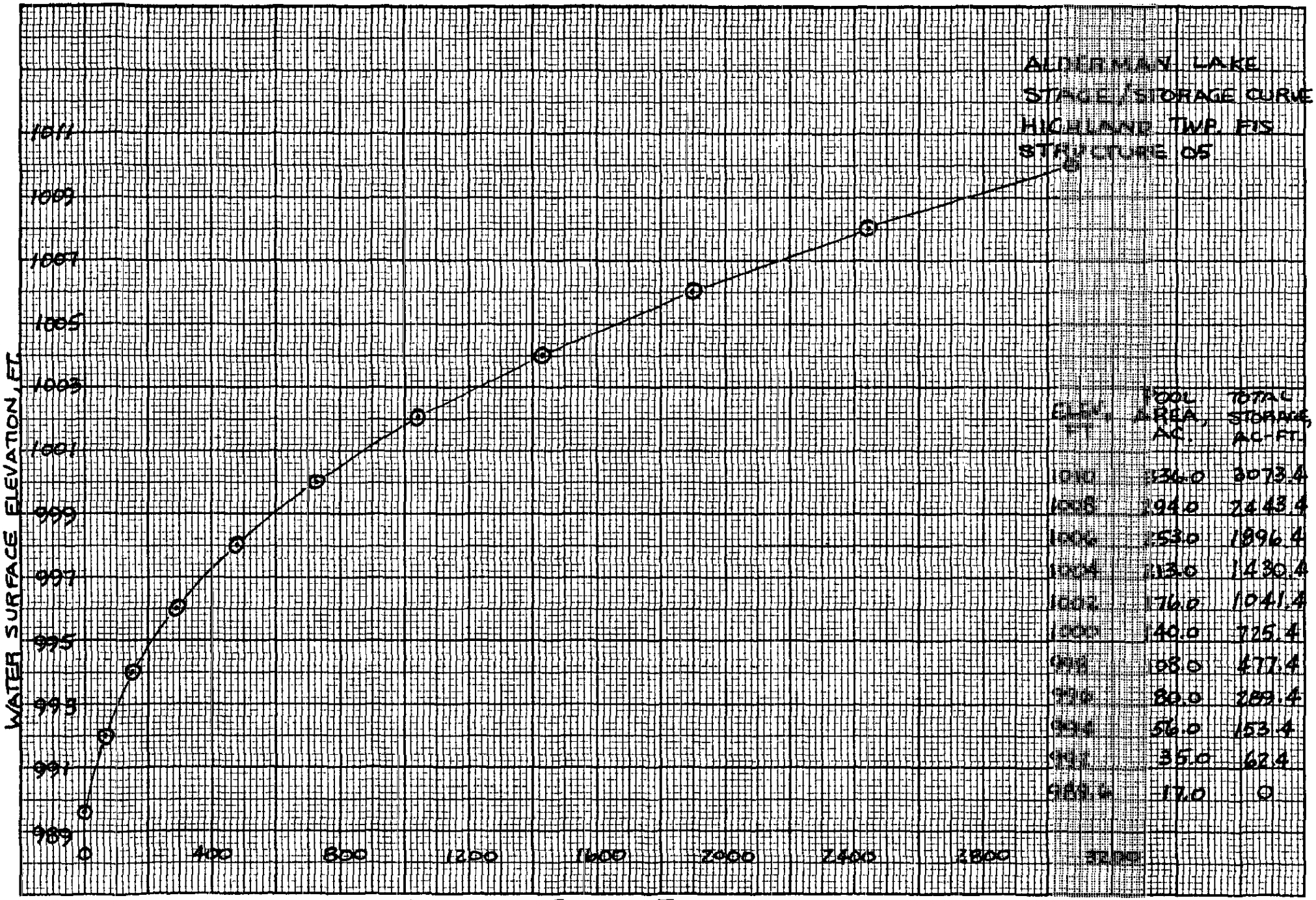
POOL ELEV, FT.	AREA AC.	TOTAL STORAGE AC.-FT.
970	187.3	2257.6
968	177.3	1853.0
966	167.2	1508.5
964	156.6	1184.7
962	145.4	882.7
960	133.1	604.2
958	119.0	352.1
956	100.8	132.3
954.6	88.2	0

7 X 10 INCHES MADE IN U.S.A.
KEUFFEL & ESSER CO.

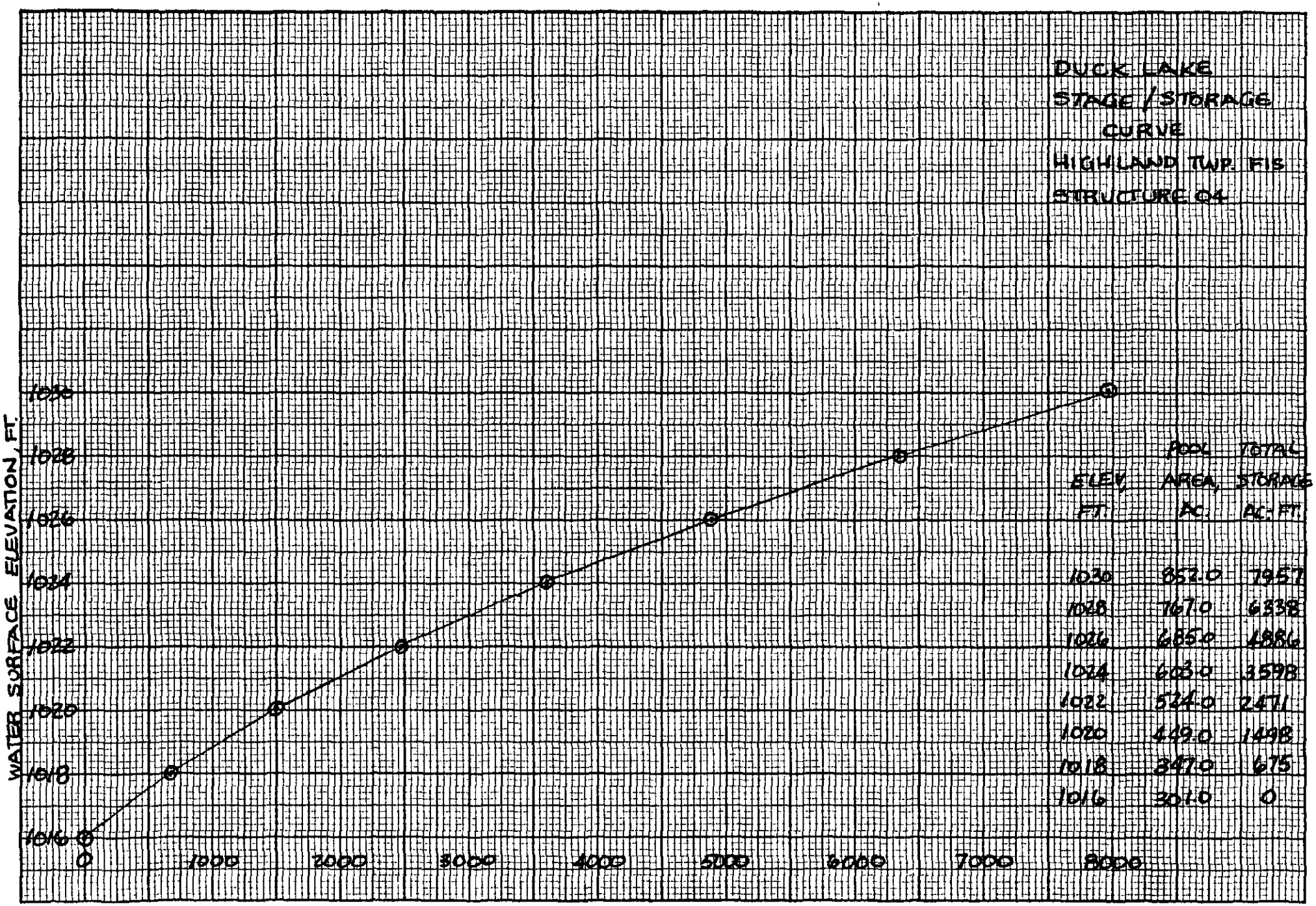


ELEV, FT.	POOL AREA, AC	TOTAL STORAGE AC-FT
970	253.4	2849.8
968	244.4	2352.0
966	233.4	1874.2
964	219.0	1421.8
962	200.0	1002.8
960	173.6	629.2
958	139.0	316.6
955.3	955	0

7 X 10 INCHES MADE IN U.S.A.
KEUFFEL & ESSER CO.

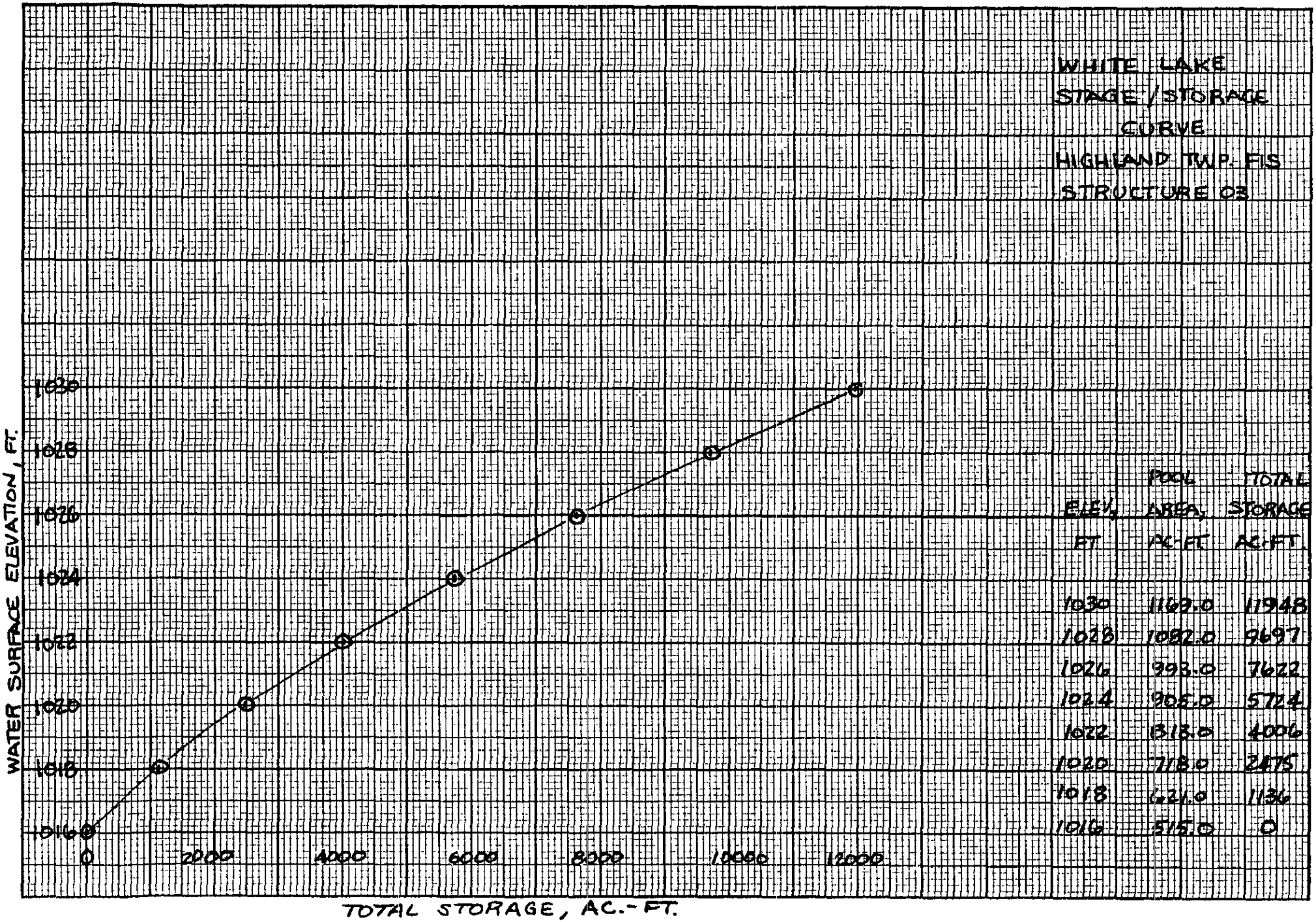


7 X 10 INCHES MADE IN U.S.A.
KEUFFEL & ESSER CO.



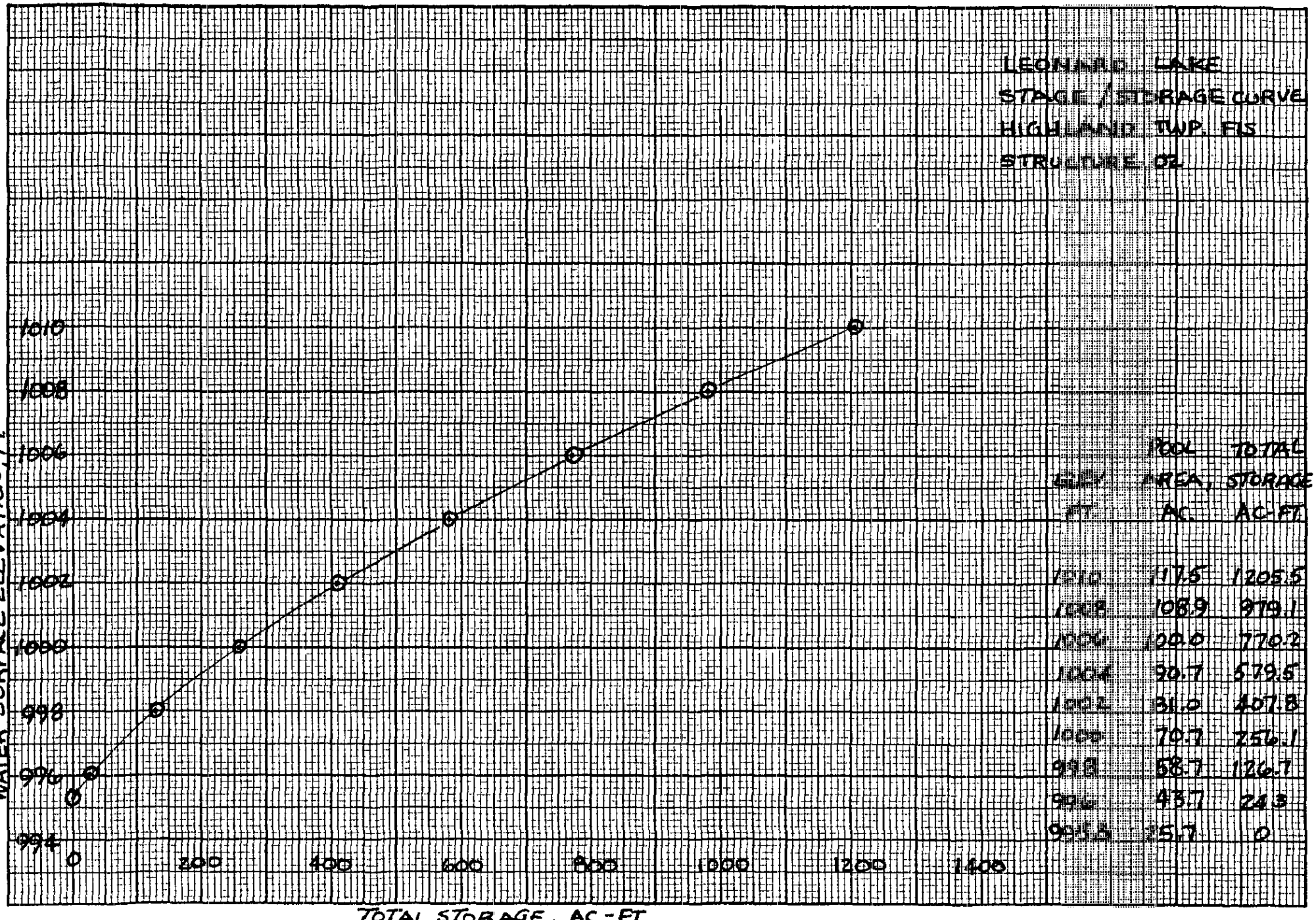
POOL ELEV, FT.	AREA, AC.	TOTAL STORAGE AC.-FT.
1030	852.0	7957
1028	767.0	6338
1026	685.0	4886
1024	603.0	3598
1022	524.0	2471
1020	449.0	1498
1018	347.0	675
1016	301.0	0

7 X 10 INCHES MADE IN U.S.A.
KEUFFEL & ESSER CO.



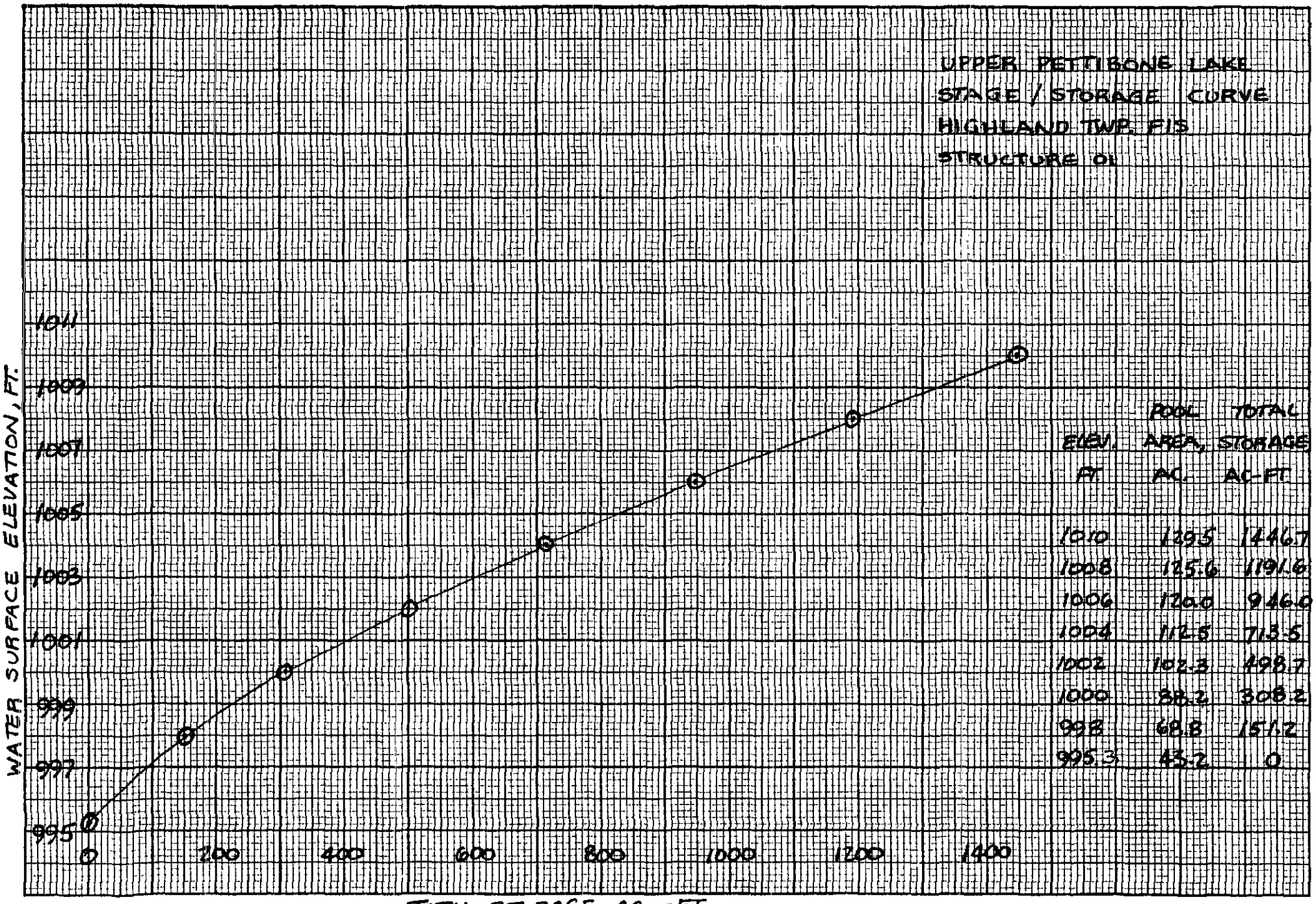
POOL ELEV, FT.	POOL AREA, AC-FT	TOTAL STORAGE AC-FT
1030	1169.0	11948
1028	1052.0	9697
1026	993.0	7622
1024	905.0	5724
1022	813.0	4006
1020	718.0	2475
1018	621.0	1136
1016	515.0	0

7 X 10 INCHES MADE IN U.S.A.
KEUFFEL & ESSER CO.



ELEV. FT	POOL AREA, AC.	TOTAL STORAGE AC-FT.
1010	117.5	1205.5
1008	108.9	979.1
1006	100.0	770.2
1004	90.7	579.5
1002	81.0	407.8
1000	70.7	256.1
998	58.7	126.7
996	43.7	24.3
994.5	25.7	0

KEUFFEL & ESSER CO.
7 X 10 INCHES
MADE IN U.S.A.





1) COUNTY: OAKLAND

2) STUDY NAME: HIGHLAND TOWNSHIP

3) WATERCOURSE: PETTIBONE CREEK — LEONARD LAKE TO UPPER PETTIBONE LAKE

4) DOCUMENT TYPE: SUMMARY



```
**************************************************
  HEC2 RELEASE DATED NOV 75 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

PETTIBONE CREEK

SUMMARY PRINTOUT
```

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	XLCH	TOPWID	AREA
27589.000	.00	.00	993.70	8.00	996.76	3.06	.00	.00	996.76	.00	38.78	59.77
27589.000	.00	.00	993.70	13.00	997.20	3.50	.00	.00	997.20	.00	49.51	79.19
27589.000	.00	.00	993.70	15.00	997.37	3.67	.00	.00	997.37	.00	53.66	87.95
27589.000	.00	.00	993.70	19.00	997.75	4.05	.00	.00	997.75	.00	62.93	110.1
27819.000	.00	.00	993.70	8.00	996.76	3.06	.00	.00	996.76	230.00	38.81	59.82
27819.000	.00	.00	993.70	13.00	997.20	3.50	.00	.00	997.20	230.00	49.56	79.29
27819.000	.00	.00	993.70	15.00	997.37	3.67	.00	.00	997.37	230.00	53.71	88.07
27819.000	.00	.00	993.70	19.00	997.75	4.05	.00	.00	997.75	230.00	62.98	110.24
28224.000	.00	.00	994.20	8.00	996.76	2.56	.00	.00	996.77	405.00	27.59	43.36
28224.000	.00	.00	994.20	13.00	997.21	3.01	.00	.00	997.21	405.00	37.44	57.68
28224.000	.00	.00	994.20	15.00	997.38	3.18	.00	.00	997.38	405.00	41.60	64.41
28224.000	.00	.00	994.20	19.00	997.76	3.56	.00	.00	997.76	405.00	50.87	81.98
29020.000	.00	.00	995.10	8.00	996.79	1.69	.02	.01	996.81	796.00	6.50	7.56
29020.000	.00	.00	995.10	13.00	997.24	2.14	.03	.01	997.26	796.00	6.50	10.20
29020.000	.00	.00	995.10	15.00	997.41	2.31	.03	.01	997.43	796.00	6.50	11.30
29020.000	.00	.00	995.10	19.00	997.78	2.68	.03	.01	997.81	796.00	6.50	13.75
29024.000	.00	.00	995.10	8.00	996.79	1.69	.03	.01	996.82	4.00	4.50	5.05
29024.000	.00	.00	995.10	13.00	997.23	2.13	.04	.01	997.27	4.00	4.50	7.85
29024.000	.00	.00	995.10	15.00	997.40	2.30	.05	.01	997.45	4.00	4.50	8.62
29024.000	.00	.00	995.10	19.00	997.77	2.67	.05	.01	997.83	4.00	4.50	10.30
29028.000	.00	.00	995.10	8.00	996.78	1.68	.07	.02	996.85	4.00	2.50	3.60
29028.000	.00	.00	995.10	13.00	997.20	2.10	.12	.04	997.32	4.00	2.50	4.89
29028.000	.00	.00	995.10	15.00	997.37	2.27	.13	.04	997.50	4.00	2.50	5.46
29028.000	.00	.00	995.10	19.00	997.73	2.63	.16	.05	997.89	4.00	2.50	6.81
29082.000	1001.10	997.10	994.90	8.00	996.99	2.09	.05	.01	997.04	54.00	2.50	4.30
29082.000	1001.10	997.10	994.90	13.00	997.34	2.44	.09	.00	997.43	54.00	2.50	5.30
29082.000	1001.10	997.10	994.90	15.00	997.57	2.67	.10	.00	997.67	54.00	2.50	5.83
29082.000	1001.10	997.10	994.90	19.00	998.11	3.21	.11	.00	998.22	54.00	2.50	7.21
29084.000	.00	.00	995.40	8.00	997.04	1.64	.01	.01	997.06	2.00	6.50	8.53
29084.000	.00	.00	995.40	13.00	997.43	2.03	.02	.02	997.45	2.00	6.50	11.06
29084.000	.00	.00	995.40	15.00	997.67	2.27	.02	.02	997.70	2.00	6.50	12.62
29084.000	.00	.00	995.40	19.00	998.22	2.82	.02	.03	998.25	2.00	6.50	16.20

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	XLCH	TOPWID	CPEA
29087.000	.00	.00	995.40	8.00	997.05	1.65	.01	.00	997.06	3.00	9.63	9.89
29087.000	.00	.00	995.40	13.00	997.46	2.04	.01	.00	997.46	3.00	10.95	[illegible]
29087.000	.00	.00	995.40	15.00	997.69	2.29	.01	.00	997.70	3.00	11.27	[illegible]
29087.000	.00	.00	995.40	19.00	998.24	2.84	.01	.00	998.25	3.00	12.01	[illegible]

SUMMARY OF ERRORS

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: HIGHLAND TOWNSHIP

3) WATERCOURSE: PETTIBONE CREEK — LEONARD LAKE TO UPPER PETTIBONE LAKE

4) DOCUMENT TYPE: MULTIPLE PROFILES — DETAILS

00BREAK00

```
*********************************************
*  WATER SURFACE PROFILES                   *
*  VERSION OF NOVEMBER 1976                 *
*  UPDATED JULY 1979                        *
*                                           *
*  RUN DATE TUE, APR 21, 1981,  6:27 PM     *
*********************************************
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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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PETTIBONE CREEK
LEONARD LAKE TO
UPPER PETTIBONE LAKE
HILND5 6504-04

HIGHLAND TWP. FIS

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************

C
T1      HIGHLAND TOWNSHIP FIS - JOB NO. 6504-04 D/S END UPPER PETTIBONE LAKE
T2      10 YEAR EVENT
T3      PETTIBONE CREEK          PROJECT MANAGER - R.S. MIHOS

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       -1.       2.        0.        0.   .000000       .00       .0        0.   996.760      .000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1.000      .000    -1.000      .000      .000      .000      .000      .000      .000      .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

    39.000     4.000    25.000      .000      .000      .000      .000      .000      .000      .000

QT      4.000     8.000    13.000    15.000    19.000      .000      .000      .000      .000      .000
NC       .085      .085      .042      .300      .500      .000      .000      .000      .000      .000

X1  27589.000    13.000    32.000    59.000      .000      .000      .000      .000      .000      .000
GR   1005.700      .000  1000.000    16.000   996.600    32.000   995.600    34.000   995.300    35.000
GR    994.900    40.000   993.700    48.000   994.600    57.000   995.600    58.000   996.200    59.000
GR    999.400   122.000  1002.900   136.000  1005.700   144.000      .000      .000      .000      .000

          FIELD SECTION C22

X1  27819.000      .000      .000      .000   215.000   260.000   230.000      .000      .000      .000

X1  28224.000      .000      .000      .000   405.000   430.000   405.000      .000      .500      .000
NC       .050      .050      .035      .300      .500      .000      .000      .000      .000      .000

          D/S DUNLEAVY DRIVE

X1  29020.000    12.000   291.000   307.000   775.000   850.000   796.000      .000      .000      .000
X3       .000      .000      .000   296.700      .000   303.200      .000      .000      .000      .000
GR   1005.600      .000  1003.400   100.000  1001.200   200.000  1000.400   276.000   998.500   291.000
GR    995.600   298.000   995.100   300.000   995.700   301.200   996.200   303.000   999.200   307.000
GR   1003.200   400.000  1006.100   490.000      .000      .000      .000      .000      .000      .000

          D/S DUNLEAVY DRIVE
```

X1	29024.000	12.000	291.000	307.000	4.000	4.000	4.000	.000	.000	.000
X3	.000	.000	.000	297.700	.000	302.200	.000	.000	.000	.000
GR	1005.600	.000	1003.400	100.000	1001.200	200.000	1000.400	276.000	998.500	291.000
GR	995.600	298.000	995.100	300.000	995.700	301.200	996.200	303.000	999.200	307.000
GR	1003.200	400.000	1006.100	490.000	.000	.000	.000	.000	.000	.000

D/S FACE DUNLEAVY DRIVE

X1	29028.000	12.000	291.000	307.000	4.000	4.000	4.000	.000	.000	.000
X3	.000	.000	.000	298.700	.000	301.200	.000	.000	.000	.000
GR	1005.600	.000	1003.400	100.000	1001.200	200.000	1000.400	276.000	998.500	291.000
GR	995.600	298.000	995.100	300.000	995.700	301.200	996.200	303.000	999.200	307.000
GR	1003.200	400.000	1006.100	490.000	.000	.000	.000	.000	.000	.000
SB	.000	2.080	2.720	.000	2.230	.000	4.910	.000	994.900	995.100

U/S FACE DUNLEAVY DRIVE -BRIDGE SECTION 23

X1	29082.000	16.000	298.700	301.200	54.000	54.000	54.000	.000	.000	.000
X2	.000	.000	1.000	997.100	1001.100	.000	.000	.000	.000	.000
X3	.000	.000	.000	298.700	.000	301.200	.000	.000	.000	.000
BT	12.000	.000	1005.600	.000	100.000	1003.400	.000	200.000	1001.200	.000
BT	298.700	1001.100	995.700	298.700	1001.100	996.600	299.200	1001.100	997.200	300.000
BT	1001.100	997.400	300.800	1001.100	997.200	301.200	1000.100	998.600	301.200	1001.100
BT	995.700	400.000	1003.200	.000	490.000	1006.100	.000	.000	.000	.000
GR	1005.600	.000	1003.400	100.000	1001.200	200.000	1000.400	276.000	998.500	291.000
GR	995.600	298.000	995.700	298.700	995.100	299.200	994.900	300.000	995.100	300.800
GR	998.600	301.200	995.700	301.200	996.200	303.000	999.200	307.000	1003.200	400.000
GR	1006.100	490.000	.000	.000	.000	.000	.000	.000	.000	.000

U/S DUNLEAVY DRIVE

X1	29084.000	12.000	291.000	307.000	2.000	2.000	2.000	.000	.000	.000
X3	.000	.000	.000	296.700	.000	303.200	.000	.000	.000	.000
GR	1005.600	.000	1003.400	100.000	1001.200	200.000	1000.400	276.000	998.500	291.000
GR	995.600	298.000	995.400	300.000	995.700	301.200	996.200	303.000	999.200	307.000
GR	1003.200	400.000	1006.100	490.000	.000	.000	.000	.000	.000	.000

U/S DUNLEAVY DRIVE

X1	29087.000	12.000	291.000	307.000	3.000	3.000	3.000	.000	.000	.000
X3	.000	.000	.000	293.700	.000	306.200	.000	.000	.000	.000
GR	1005.600	.000	1003.400	100.000	1001.200	200.000	1000.400	276.000	998.500	291.000
GR	995.600	298.000	995.400	300.000	995.700	301.200	996.200	303.000	999.200	307.000
GR	1003.200	400.000	1006.100	490.000	.000	.000	.000	.000	.000	.000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

*PROF 1

CCHV= .300 CEHV= .500

*SECNO 27589.000

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
27589.00	3.06	996.76	.00	996.76	996.76	.00	.00	.00	996.60
8.	0.	8.	0.	0.	57.	3.	0.	0.	996.20
.00	.00	.14	.02	.085	.042	.085	.000	993.70	31.25
.000006	0.	0.	0.	0	0	0	.00	38.78	70.02

*SECNO 27819.000

FIELD SECTION 022

27819.00	3.06	996.76	.00	.00	996.76	.00	.00	.00	996.60
8.	0.	8.	0.	0.	57.	3.	0.	0.	996.20
.46	.00	.14	.02	.085	.042	.085	.042	993.70	31.24
.000006	215.	230.	260.	0	0	0	.00	38.81	70.05

*SECNO 28224.000

28224.00	2.56	996.76	.00	.00	996.77	.00	.00	.00	997.10
8.	0.	8.	0.	0.	43.	0.	1.	1.	996.70
1.07	.00	.18	.00	.085	.042	.085	.042	994.20	32.67
.000015	405.	405.	430.	0	0	0	.00	27.59	60.26

CCHV= .300 CEHV= .500

*SECNO 29020.000

3470 ENCROACHMENT STATIONS= 296.7 303.2 TYPE= 1 TARGET= 6.500

D/S DUNLEAVY DRIVE

29020.00	1.69	996.79	.00	.00	996.81	.02	.04	.01	100000.00
8.	0.	8.	0.	0.	7.	0.	1.	1.	100000.00
1.27	.00	1.09	.00	.050	.035	.050	.038	995.10	296.70
.000749	775.	796.	850.	1	0	0	.00	6.50	303.20

*SECNO 29024.000

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= 297.7 302.2 TYPE= 1 TARGET= 4.500

D/S DUNLEAVY DRIVE

29024.00	1.69	996.79	.00	.00	996.82	.03	.00	.01	100000.00

```
      8.       0.       8.       0.       0.       6.       0.       1.       1. 100000.00
     1.27      .00     1.37      .00     .050     .035     .050     .038   995.10   297.70
  .001229       4.       4.       4.        0        0        0      .00     4.50   302.20
```

*SECNO 29028.000

3470 ENCROACHMENT STATIONS=   298.7   301.2 TYPE=   1 TARGET=   2.500

D/S FACE DUNLEAVY DRIVE

```
 29028.00     1.68   996.78      .00      .00   996.85      .07      .01      .02100000.00
      8.       0.       8.       0.       0.       4.       0.       1.       1. 100000.00
     1.27      .00     2.20      .00     .050     .035     .050     .038   995.10   298.70
  .004227       4.       4.       4.        1        0        0      .00     2.50   301.20
```

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	2.08	2.72	.00	2.23	.00	4.91	.00	994.90	995.10

*SECNO 29082.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=   .000 EGLWC=   996.662 ELLC=   997.100 PCWSE=   996.776 ELTRD=   1001.100

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD= 1001.10 MAX ELLC= 997.10

3470 ENCROACHMENT STATIONS=   298.7   301.2 TYPE=   1 TARGET=   2.500

U/S FACE DUNLEAVY DRIVE -BRIDGE SECTION 23

```
 29082.00     2.09   996.99      .00      .00   997.04      .05      .19      .01   995.70
      8.       0.       8.       0.       0.       4.       0.       1.       1. 100000.00
     1.28      .00     1.86      .00     .050     .035     .050     .038   994.90   298.70
  .002879      54.      54.      54.        2        0        0     -.11     2.50   301.20
```

*SECNO 29084.000

3470 ENCROACHMENT STATIONS=   296.7   303.2 TYPE=   1 TARGET=   6.500

U/S DUNLEAVY DRIVE

```
 29084.00     1.64   997.04      .00      .00   997.06      .01      .00      .01100000.00
      8.       0.       8.       0.       0.       9.       0.       1.       1. 100000.00
     1.28      .00      .94      .00     .050     .035     .050     .038   995.40   296.70
  .000476       2.       2.       2.        2        0        0      .00     6.50   303.20
```

*SECNO 29087.000

3470 ENCROACHMENT STATIONS=   293.7   306.2 TYPE=   1 TARGET=   12.500

U/S DUNLEAVY DRIVE

29087.00	1.65	997.05	.00	.00	997.06	.01	.00	.00	100000.00
8.	0.	8.	0.	0.	10.	0.	1.	1.	100000.00
1.28	.00	.81	.00	.050	.035	.050	.038	995.40	294.50
.000384	3.	3.	3.	0	0	0	.00	9.63	304.13

```
**********************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
   ERROR CORR -   01,02,03
   MODIFICATION -  50,51,52,53
**********************************************************

T1       HIGHLAND TOWNSHIP FIS - JOB NO. 6504-04 D/S END UPPER PETTIBONE LAKE
T2       50 YEAR EVENT
T3       PETTIBONE CREEK          PROJECT MANAGER - R.S. NIHOS

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       -10.         3.         0.         0.    .000000        .00         .0         0.    997.200       .000

J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      2.000       .000     -1.000       .000       .000       .000       .000       .000       .000       .000

*PROF 2

CCHV=     .300 CEHV=     .500
 *SECNO 27589.000
    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       XKL        XNCH       XNR        WTN        ELMIN        SSTA
    SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID       ENDST

 27589.00       3.50     997.20        .00     997.20     997.20        .00        .00        .00     996.60
       13.          0.       13.          0.          1.         68.         10.          0.          0.     996.20
      .00         .02        .18        .03        .085       .042       .085       .000    993.70      29.18
 .000008          0.         0.         0.          0          0          0        .00     49.51      78.69

 *SECNO 27819.000

          FIELD SECTION #22

 27819.00       3.50     997.20        .00        .00     997.20        .00        .00        .00     996.60
       13.          0.       13.          0.          1.         69.         10.          0.          0.     996.20
      .35         .02        .18        .03        .085       .042       .085       .042    993.70      29.17
 .000008         215.       230.       260.          0          0          0        .00     49.56      78.73


 *SECNO 28224.000
 28224.00       3.01     997.21        .00        .00     997.21        .00        .00        .00     997.10
       13.          0.       13.          0.          0.         55.          3.          1.          1.     996.70
      .84         .00        .23        .03        .085       .042       .085       .042    994.20      31.50
 .000018         405.       405.       430.          0          0          0        .00     37.44      68.95


CCHV=     .300 CEHV=     .500
 *SECNO 29020.000

3470 ENCROACHMENT STATIONS=     296.7     303.2  TYPE=       1  TARGET=       6.000
```

D/S DUNLEAVY DRIVE

29020.00	2.14	997.24	.00	.00	997.26	.03	.04	.01	100000.00
13.	0.	13.	0.	0.	10.	0.	2.	1.	100000.00
1.01	.00	1.27	.00	.050	.035	.050	.039	995.10	298.70
.000751	775.	796.	850.	1	0	0	.00	6.50	303.20

*SECNO 29024.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ALCH	AROB	VOL	TOA	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= 297.7 302.2 TYPE= 1 TARGET= 4.500

D/S DUNLEAVY DRIVE

29024.00	2.13	997.23	.00	.00	997.27	.04	.00	.01	100000.00
13.	0.	13.	0.	0.	8.	0.	2.	1.	100000.00
1.01	.00	1.66	.00	.050	.035	.050	.038	995.10	297.70
.001439	4.	4.	4.	0	0	0	.00	4.50	302.20

*SECNO 29028.000

3470 ENCROACHMENT STATIONS= 298.7 301.2 TYPE= 1 TARGET= 2.500

D/S FACE DUNLEAVY DRIVE

29028.00	2.10	997.20	.00	.00	997.32	.12	.01	.04	100000.00
13.	0.	13.	0.	0.	5.	0.	2.	1.	100000.00
1.01	.30	2.77	.00	.050	.035	.050	.036	995.10	298.70
.005883	4.	4.	4.	2	0	0	.00	2.50	301.20

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.00	2.08	2.72	.00	2.23	.00	4.91	.00	994.90	995.10

*SECNO 29082.000
PRESSURE FLOW

EGPRS	EGLWC	M3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
997.43	997.14	.00	0.	13.	5.	5.	997.10	1001.10

3470 ENCROACHMENT STATIONS= 298.7 301.2 TYPE= 1 TARGET= 2.500

U/S FACE DUNLEAVY DRIVE -BRIDGE SECTION 23

29082.00	2.44	997.34	.00	.00	997.43	.09	.11	.00	995.70
13.	0.	13.	0.	0.	5.	0.	2.	1.	100000.00

1.02	.00	2.45	.00	.050	.035	.050	.038	994.90	298.70
.004248	54.	54.	54.	2	0	0	.00	2.50	301.20

*SECNO 29084.000

3470 ENCROACHMENT STATIONS= 296.7 303.2 TYPE= 1 TARGET= 5.500

U/S DUNLEAVY DRIVE

29084.00	2.63	997.43	.00	.03	997.45	.02	.00	.02	100000.00
13.	0.	13.	0.	0.	11.	0.	2.	1.	100000.00
1.02	.00	1.18	.00	.050	.035	.050	.036	995.40	296.70
.000595	2.	2.	2.	2	0	0	.00	6.50	303.20

*SECNO 29087.300

3470 ENCROACHMENT STATIONS= 293.7 306.2 TYPE= 1 TARGET= 12.500

U/S DUNLEAVY DRIVE

29087.00	2.04	997.44	.00	.00	997.46	.01	.00	.00	100000.00
13.	0.	13.	0.	0.	14.	0.	2.	1.	100000.00
1.02	.00	.93	.00	.050	.035	.050	.038	995.40	293.70
.000390	3.	3.	3.	0	0	0	.00	10.95	304.65

```
**************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
   ERROR CORR -  01,02,03
   MODIFICATION -  50,51,52,53
**************************************************

T1      HIGHLAND TOWNSHIP FIS - JOB NO. 6504-04 D/S END UPPER PETTIBONE LAKE
T2      100 YEAR EVENT
T3      PETTIBONE CREEK          PROJECT MANAGER - R.S. MIHOS

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       -10.        4.         0.         0.    .000000        .00         .0         0.    997.370       .000

J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      3.000       .000    -1.000       .000       .000       .000       .000       .000       .000       .000

*PROF 3

CCHV=     .300 CEHV=     .500
*SECNO 27589.000
    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

 27589.00       3.67     997.37        .00     997.37     997.37        .00        .00        .00     996.60
       15.          0.        14.         0.         1.        73.        13.         0.         0.     996.20
      .00         .33        .20        .04       .085       .042       .085       .000     993.70      28.38
  .000009          3.         0.         0.          0          0          0        .00      53.66      82.03

*SECNO 27819.000

          FIELD SECTION 022

 27819.00       3.67     997.37        .00        .00     997.37        .00        .00        .00     996.60
       15.          0.        14.         0.         1.        73.        14.         0.         0.     996.20
      .33         .03        .20        .04       .085       .042       .085       .042     993.70      28.37
  .000009         215.       230.       260.          0          0          0        .00      53.71      82.07


*SECNO 28224.000
 28224.00       3.18     997.38        .00        .00     997.38        .00        .00        .00     997.10
       15.          0.        15.         0.         0.        60.         4.         1.         1.     996.70
      .79         .02        .25        .04       .085       .042       .085       .042     994.20      30.70
  .000018         405.       405.       430.          0          0          0        .00      41.60      72.30


CCHV=     .300 CEHV=     .500
*SECNO 29020.000

3470 ENCROACHMENT STATIONS=      296.7      303.2  TYPE=        1  TARGET=        6.500
```

D/S DUNLEAVY DRIVE

29020.00	2.31	997.41	.00	.00	997.43	.03	.04	.01	100000.00
15.	0.	15.	0.	0.	11.	0.	2.	1.	100000.00
.96	.00	1.33	.00	.050	.035	.050	.038	995.10	296.70
.000746	775.	796.	850.	1	0	0	.30	5.50	303.20

*SECNO 29024.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	.WR	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= 297.7 302.2 TYPE= 1 TARGET= 4.500

D/S DUNLEAVY DRIVE

29024.00	2.30	997.40	.00	.00	997.45	.05	.00	.01	100000.00
15.	0.	15.	0.	0.	9.	0.	2.	1.	100000.00
.96	.00	1.74	.00	.050	.035	.050	.038	995.10	297.70
.001492	4.	4.	4.	0	0	0	.00	4.50	302.20

*SECNO 29028.000

3470 ENCROACHMENT STATIONS= 298.7 301.2 TYPE= 1 TARGET= 2.500

D/S FACE DUNLEAVY DRIVE

29028.00	2.27	997.37	.00	.00	997.50	.13	.01	.04	100000.00
15.	0.	15.	0.	0.	5.	0.	2.	1.	100000.00
.96	.00	2.99	.00	.050	.035	.050	.038	995.10	298.70
.006364	4.	4.	4.	2	0	0	.00	2.50	301.20

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	2.08	2.72	.00	2.23	.00	4.91	.00	994.90	995.10

*SECNO 29082.000
PRESSURE FLOW

EGPRS	EGLWC	K3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
997.67	997.31	.00	0.	15.	5.	5.	997.10	1001.10

3470 ENCROACHMENT STATIONS= 298.7 301.2 TYPE= 1 TARGET= 2.500

U/S FACE DUNLEAVY DRIVE -BRIDGE SECTION 23

29082.00	2.67	997.57	.00	.00	997.67	.10	.17	.03	995.70
15.	0.	15.	0.	0.	6.	0.	2.	1.	100000.00

FORM 1A11.CU PRINTED BY ROTATE MANIFOLD FORMS

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      .97       .00      2.55       .00      .050      .035      .050      .038    994.90    298.70
  .004400       54.       54.       54.         2         0         0       .00      2.50    301.20
```

```
*SECNO 29084.000

3470 ENCROACHMENT STATIONS=      296.7      303.2  TYPE=       1  TARGET=        6.500

        U/S DUNLEAVY DRIVE

 29084.00      2.27    997.67       .00       .00    997.70       .02       .00       .02100000.00
       15.        0.       15.        0.        0.       13.        0.        2.         1. 100000.00
      .97       .00      1.39       .00      .050      .035      .050      .038    995.40    296.70
  .000546        2.        2.        2.         2         0         0       .00      6.50    303.20
```

```
*SECNO 29087.330

3470 ENCROACHMENT STATIONS=      293.7      306.2  TYPE=       1  TARGET=       12.500

        U/S DUNLEAVY DRIVE

 29087.00      2.29    997.69       .00       .00    997.70       .01       .00       .00100000.00
       15.        0.       15.        0.        0.       17.        0.        2.         1. 100000.00
      .97       .00       .90       .00      .050      .035      .050      .038    995.40    293.70
  .000311        3.        3.        3.         0         0         0       .00     11.27    304.97
```

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**********
   HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
   ERROR CORR -  01,02,03
   MODIFICATION -  50,51,52,53
**********

T1       HIGHLAND TOWNSHIP FIS - JOB NO. 6504-04 D/S END UPPER PETTIBONE LAKE
T2       500 YEAR EVENT
T3       PETTIBONE CREEK          PROJECT MANAGER - R.S. NIHOS

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

       -10.        5.         0.         0.    .000000        .00         .0         0.    997.750       .000

J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     15.000       .000    -1.000       .000       .000       .000       .000       .000       .000       .000

*PROF 4

CCHV=     .300 CEHV=     .500
*SECNO 27589.000
    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

  27589.00       4.05     997.75        .00     997.75     997.75        .00        .00        .00     996.60
       19.          0.       18.          1.         3.        83.        24.         0.         0.     996.20
       .00        .03        .21        .04       .085       .042       .085       .000     993.70      26.59
   .000009          0.         0.         0.          0          0          0        .00      62.93      85.52

*SECNO 27819.000

          FIELD SECTION 022

  27819.00       4.05     997.75        .00        .00     997.75        .00        .00        .00     996.60
       19.          0.       18.          1.         3.        83.        24.         1.         0.     996.20
       .32        .03        .21        .04       .085       .042       .085       .042     993.70      26.58
   .000009       215.       230.       260.          0          0          0        .00      62.98      89.56


*SECNO 28224.000
  28224.00       3.56     997.76        .00        .00     997.76        .00        .00        .00     997.10
       19.          0.       18.          1.         1.        70.        11.         2.         1.     996.70
       .75        .03        .26        .05       .085       .042       .085       .042     994.20      28.92
   .000016       405.       405.       430.          0          0          0        .00      50.87      79.78


CCHV=     .300 CEHV=     .500
*SECNO 29020.000

3470 ENCROACHMENT STATIONS=     296.7     303.2  TYPE=       1  TARGET=       6.500
```

D/S DUNLEAVY DRIVE

29020.00	2.68	997.78	.00	.00	997.81	.03	.04	.01	100000.00
19.	0.	19.	0.	0.	14.	0.	2.	1.	100000.00
.91	.00	1.38	.00	.050	.035	.050	.038	995.10	296.70
.000691	775.	796.	850.	1	0	0	.00	6.50	303.20

*SECNO 29024.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 297.7 302.2 TYPE= 1 TARGET= 2.500

D/S DUNLEAVY DRIVE

29024.00	2.67	997.77	.00	.00	997.83	.05	.00	.01	100000.00
19.	0.	19.	0.	0.	10.	0.	2.	1.	100000.00
.91	.00	1.84	.00	.050	.035	.050	.038	995.10	297.70
.001489	4.	4.	4.	0	0	0	.00	4.50	302.20

*SECNO 29028.000

3470 ENCROACHMENT STATIONS= 298.7 301.2 TYPE= 1 TARGET= 2.500

D/S FACE DUNLEAVY DRIVE

29028.00	2.63	997.73	.00	.00	997.89	.16	.01	.05	100000.00
19.	0.	19.	0.	0.	6.	0.	2.	1.	100000.00
.91	.00	3.16	.00	.050	.035	.050	.038	995.10	298.70
.006822	4.	4.	4.	2	0	0	.00	2.50	301.20

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	2.08	2.72	.00	2.23	.00	4.91	.00	994.90	995.10

*SECNO 29082.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
998.22	997.70	.00	0.	19.	5.	5.	997.10	1001.10

3470 ENCROACHMENT STATIONS= 298.7 301.2 TYPE= 1 TARGET= 2.500

U/S FACE DUNLEAVY DRIVE -BRIDGE SECTION 23

29082.00	3.21	998.11	.00	.00	998.22	.11	.33	.00	995.70
19.	0.	19.	0.	0.	7.	0.	2.	1.	100000.00

```
     .92      .00     2.63      .00     .050     .035     .050     .038   994.90   298.70
  .004307      54.      54.      54.        2        0        0      .00     2.50   301.20
```

```
*SECNO 29084.000

3470 ENCROACHMENT STATIONS=     296.7     303.2  TYPE=     1  TARGET=       6.500

        U/S DUNLEAVY DRIVE

 29084.00     2.82   998.22      .00      .00   998.25      .02      .00      .03100000.00
      19.       0.      19.       0.       0.      16.       0.       2.       1. 100000.00
      .92      .00     1.17      .00     .050     .035     .050     .038   995.40   296.70
  .000441       2.       2.       2.        2        0        0      .00     6.50   303.20
```

```
*SECNO 29087.000

3470 ENCROACHMENT STATIONS=     293.7     306.2  TYPE=     1  TARGET=      12.500

        U/S DUNLEAVY DRIVE

 29087.00     2.84   998.24      .00      .00   998.25      .01      .00      .00100000.00
      19.       0.      19.       0.       0.      23.       0.       2.       1. 100000.00
      .92      .00      .83      .00     .050     .035     .050     .038   995.40   293.70
  .000195       3.       3.       3.        0        0        0      .00    12.01   305.71
```

FORM 1411-00-PRINTED BY ROTARY MANIFOLD FORMS

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: HIGHLAND TOWNSHIP

3) WATERCOURSE: PETTIBONE CREEK

4) DOCUMENT TYPE: MULTIPLE PROFILE — REVISED

00BREAK00

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**********************************************
*  WATER SURFACE PROFILES                    *
*  VERSION OF NOVEMBER 1976                  *
*  UPDATED JULY 1979                         *
*                                            *
*  RUN DATE TUE, JUL 28, 1981,  3:50 PM      *
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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     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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PETTIBONE CREEK
LOWER PETTIBONE LAKE
TO ALDERMAN LAKE
HILND3 6504-04
HIGHLAND TWP. FIS
REVISION

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************

C
T1       HIGHLAND TOWNSHIP FIS - JOB NO. 6504-04 L.PETTIBONE TO ALDERMAN LAKE
T2       10 YEAR EVENT
T3       PETTIBONE CREEK          PROJECT MANAGER - R.S. MIHOS

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

        0.        2.         0.         0.    .000000        .00        .0         0.    957.200       .000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      1.000       .000     -1.000       .000       .000       .000       .000       .000       .000       .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


      39.000      4.000     25.000       .000       .000       .000       .000       .000       .000       .000

QT     4.000     94.000    121.000    132.000    159.000       .000       .000       .000       .000       .000
NC      .110      .125       .038       .000       .000       .000       .000       .000       .000       .000
ET      .000     7.100       .000       .000       .000       .000    472.000    630.000       .000       .000


        U/S OF LOWER PETTIBONE LAKE -VALLEY SECTION 9

X1  12351.000     35.000    576.000    616.000       .000       .000       .000       .000       .000       .000
X3       .000       .000       .000       .000       .000    762.000       .000       .000       .000       .000
GR    965.400       .000    964.200     32.000    961.200     70.000    961.200    120.000    961.000    172.000
GR    959.200    232.000    956.800    306.000    957.300    392.000    957.300    472.000    956.800    546.000
GR    955.800    576.000    955.300    576.500    954.800    577.000    953.800    583.000    953.300    590.000
GR    952.500    599.000    953.800    606.000    954.900    615.000    955.300    615.500    956.400    616.000
GR    958.400    646.000    959.000    706.000    959.200    762.000    958.600    846.000    958.200    946.000
GR    958.100   1026.000    957.900   1080.000    957.600   1160.000    957.000   1214.000    957.500   1296.000
GR    959.200   1396.000    960.600   1454.000    961.700   1514.000    963.600   1580.000    965.400   1628.000
NC       .100       .100       .042       .000       .000       .000       .000       .000       .000       .000


        D/S OF PICKEREL LAKE -VALLEY SECTION 10

X1  14191.000     26.000    136.000    191.000   1600.000   1100.000   1840.000       .000       .000       .000
GR    965.800       .000    962.000     22.000    960.200     58.000    958.300     86.000    956.300    136.000
GR    955.700    139.000    954.300    142.000    953.600    150.000    953.600    163.000    953.500    170.000
GR    954.300    172.000    955.200    186.000    955.700    190.000    955.800    191.000    958.500    236.000
GR    959.000    278.000    961.200    354.000    961.200    430.000    960.800    530.000    960.200    612.000
GR    959.600    688.000    959.400    730.000    959.500    800.000    958.900    856.000    962.200    890.000
GR    965.800    908.000       .000       .000       .000       .000       .000       .000       .000       .000
NC       .070       .080       .045       .000       .000       .000       .000       .000       .000       .000
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U/S OF PICKEREL LAKE -VALLEY SECTION 11

X1	15061.000	29.000	400.000	424.000	635.000	890.000	870.000	.000	.000	.000
X3	.000	.000	.000	.000	.000	550.000	.000	.000	.000	.000
GR	966.800	.000	964.600	20.000	964.400	46.000	962.800	70.000	959.700	114.000
GR	958.500	186.000	957.000	278.000	956.700	352.000	956.000	400.000	955.700	401.000
GR	955.200	403.000	955.100	412.000	954.600	417.000	954.100	423.000	955.700	423.500
GR	955.700	424.000	956.400	538.000	956.000	642.000	955.700	672.000	953.200	688.000
GR	955.700	708.000	956.500	730.000	957.900	780.000	960.700	854.000	960.800	916.000
GR	960.200	978.000	962.400	1034.000	964.200	1090.000	965.800	1118.000	.000	.000
NC	.110	.110	.048	.000	.000	.000	.000	.000	.000	.000
X1	15434.000	90.000	354.500	376.000	257.500	265.000	372.500	.000	.000	.000
X3	.000	.000	.000	.000	.000	483.000	.000	.000	.000	.000
GR	967.500	.000	966.100	12.200	965.400	24.400	965.100	36.700	964.400	48.900
GR	963.700	61.100	962.900	73.300	962.200	85.600	961.500	97.800	961.100	110.000
GR	960.900	122.200	960.800	134.500	960.500	146.700	960.200	158.900	959.900	171.100
GR	959.600	183.400	959.400	195.600	959.100	207.800	958.800	220.000	958.500	232.300
GR	958.300	244.500	958.300	256.700	958.200	268.900	958.100	281.200	957.900	293.400
GR	957.600	305.600	957.500	317.800	957.300	330.100	957.100	342.300	956.900	354.500
GR	956.700	355.200	956.400	355.900	956.200	356.600	956.100	357.400	956.100	358.100
GR	956.100	358.800	956.100	359.500	956.100	360.200	956.100	360.900	956.100	361.700
GR	956.100	362.400	956.100	363.100	956.000	363.800	956.000	364.500	956.000	365.200
GR	955.900	366.000	955.900	366.700	955.800	367.400	955.700	368.100	955.700	368.800
GR	955.600	369.500	955.600	370.300	955.600	371.000	955.500	371.700	955.500	372.400
GR	955.400	373.100	955.400	373.800	955.400	374.600	955.900	375.300	956.900	376.000
GR	957.000	397.300	957.200	418.600	957.300	439.900	957.400	461.200	957.500	482.500
GR	957.400	503.800	957.400	525.100	957.300	546.400	957.300	567.700	957.200	589.000
GR	956.300	610.300	956.500	631.600	957.600	652.900	958.300	674.200	958.900	695.500
GR	959.600	716.900	960.400	738.100	961.100	759.400	961.600	780.700	961.800	802.000
GR	961.900	823.300	961.900	844.600	961.800	865.900	961.800	887.200	962.500	908.500
GR	963.300	929.800	964.000	951.100	964.600	972.400	965.200	993.700	966.300	1015.000
X1	15600.000	.000	.000	.000	115.000	118.000	166.000	.000	.500	.000
X3	.000	.000	.000	.000	.000	466.000	.000	.000	.000	.000
X1	15806.000	90.000	309.000	328.000	160.500	147.000	206.500	.000	.000	.000
X3	.000	.000	.000	.000	.000	445.000	.000	.000	.000	.000
GR	968.200	.000	967.000	10.700	966.200	21.300	965.700	32.000	965.000	42.600
GR	964.500	53.300	964.000	63.900	963.500	74.600	963.000	85.200	962.700	95.900
GR	962.600	106.600	962.400	117.200	962.200	127.900	961.800	138.500	961.500	149.200
GR	961.100	159.800	960.800	170.500	960.400	181.100	960.100	191.800	959.700	202.400
GR	959.500	213.100	959.600	223.800	959.600	234.400	959.300	245.100	958.900	255.700
GR	958.600	266.400	958.300	277.000	958.200	287.700	958.000	298.300	957.800	309.000
GR	957.600	309.600	957.200	310.300	957.100	310.900	957.000	311.500	957.000	312.200
GR	957.100	312.800	957.100	313.400	957.100	314.100	957.000	314.700	957.000	315.300
GR	957.000	316.000	957.000	316.600	957.000	317.200	956.900	317.900	956.900	318.500
GR	956.800	319.100	956.800	319.800	956.700	320.400	956.700	321.000	956.700	321.700
GR	956.700	322.300	956.700	322.900	956.600	323.600	956.600	324.200	956.600	324.800
GR	956.600	325.500	956.600	326.100	956.600	326.700	957.200	327.400	958.100	328.000
GR	958.200	347.500	958.400	366.900	958.500	386.400	958.500	405.900	958.600	425.300
GR	958.600	444.800	958.500	464.300	958.500	483.700	958.500	503.200	958.500	522.700
GR	958.000	542.100	958.100	561.600	959.000	581.100	959.600	600.500	960.100	620.000
GR	960.700	639.500	961.400	658.900	962.000	678.400	962.500	697.900	962.800	717.300
GR	963.000	736.800	963.100	756.300	963.200	775.700	963.300	795.200	963.900	814.700
GR	964.600	834.100	965.100	853.600	965.500	873.100	966.000	892.500	966.700	912.000

X1	16179.000	90.000	263.500	280.000	257.500	265.000	372.500	.000	.000	.000
X3	.000	.000	.000	.000	.000	456.000	.000	.000	.000	.000
GR	968.900	.000	967.900	9.100	967.100	18.200	966.400	27.300	965.600	36.300
GR	965.300	45.400	965.000	54.500	964.800	63.600	964.500	72.700	964.300	81.800
GR	964.200	90.900	964.100	99.900	963.900	109.000	963.400	118.100	963.000	127.200
GR	962.600	136.300	962.200	145.400	961.800	154.500	961.400	163.600	961.000	172.600
GR	960.800	181.700	960.900	190.800	960.900	199.900	960.600	209.000	960.000	218.100
GR	959.500	227.200	959.200	236.200	959.000	245.300	958.900	254.400	958.700	263.500
GR	958.600	264.000	958.000	264.600	957.900	265.200	957.900	265.700	958.000	266.300
GR	958.000	266.800	958.000	267.400	958.000	267.900	958.000	268.500	958.000	269.000
GR	957.900	269.600	957.900	270.100	957.900	270.700	957.800	271.200	957.800	271.800
GR	957.700	272.300	957.700	272.900	957.700	273.400	957.700	274.000	957.700	274.500
GR	957.700	275.100	957.700	275.600	957.700	276.200	957.700	276.700	957.700	277.300
GR	957.800	277.800	957.800	278.400	957.800	278.900	958.400	279.500	959.300	280.000
GR	959.400	297.600	959.600	315.300	959.600	332.900	959.700	350.500	959.700	368.200
GR	959.700	385.800	959.700	403.400	959.700	421.100	959.800	438.700	959.800	456.300
GR	959.600	474.000	959.700	491.600	960.300	509.200	960.800	526.900	961.300	544.500
GR	961.900	562.100	962.400	579.800	963.000	597.400	963.400	615.000	963.800	632.700
GR	964.100	650.300	964.400	667.900	964.600	685.600	964.800	703.200	965.300	720.800
GR	965.800	738.500	966.200	756.100	966.400	773.700	966.700	791.400	967.200	809.000

SOUTH OF GRUBB ROAD -VALLEY SECTION 12

X1	16551.000	23.000	218.000	232.000	257.500	265.000	372.500	.000	.000	.000
GR	969.600	.000	966.200	30.000	965.800	86.000	962.000	146.000	962.300	168.000
GR	960.200	190.000	959.600	218.000	959.500	219.500	958.700	219.000	959.000	221.000
GR	958.800	224.000	958.600	226.000	958.800	229.000	959.000	231.000	959.500	231.500
GR	960.500	232.000	960.800	268.000	960.800	342.000	961.400	428.000	963.400	498.000
GR	965.600	578.000	967.200	648.000	967.600	706.000	.000	.000	.000	.000

X1	16765.000	.000	.000	.000	219.000	109.000	214.000	.000	.400	.000
NC	.080	.080	.045	.000	.000	.000	.000	.000	.000	.000
ET	.000	7.100	7.100	7.100	7.100	.000	557.500	566.500	.000	.000

X1	16979.000	23.000	550.000	570.000	209.000	109.000	214.000	.000	-.700	.000
GR	1004.700	.000	1002.000	54.000	998.400	100.000	993.400	168.000	988.600	256.000
GR	981.400	360.000	976.100	440.000	971.400	520.000	965.200	537.000	963.700	550.000
GR	962.100	552.000	961.400	554.000	960.300	559.000	960.700	562.000	961.700	565.000
GR	964.000	570.000	968.000	586.000	966.700	685.000	965.600	752.000	965.900	852.000
GR	970.000	984.000	970.000	1132.000	970.000	1198.000	.000	.000	.000	.000
NC	.000	.000	.033	.000	.000	.000	.000	.000	.000	.000
ET	.000	7.100	7.100	7.100	7.100	.000	558.500	565.500	.000	.000

X1	16983.000	.000	.000	.000	4.000	4.000	4.000	.000	.000	.000
ET	.000	7.100	7.100	7.100	7.100	.000	559.500	564.500	.000	.000

X1	16987.000	.000	.000	.000	4.000	4.000	4.000	.000	.000	.000
SB	.000	2.750	2.500	.000	4.133	.000	19.630	.000	959.200	959.300

GRUBB ROAD BRIDGE U/S FACE -BRIDGE SECTION 13

X1	17035.000	17.000	559.500	564.500	48.000	48.000	48.000	.000	.000	.000

FORM 1411 X 08

PRINTED IN U.S.A.

X2	.000	.000	1.000	963.950	967.800	.000	.000	.000	.000	.000
X3	10.000	.000	.000	.000	.000	630.000	.000	965.400	965.400	.000
X5	4.000	964.260	965.120	965.480	966.530	.000	.000	.000	.000	.000
BT	15.000	440.000	976.100	.000	462.000	974.900	.000	559.500	970.000	962.500
BT	559.900	970.000	963.100	560.700	970.000	963.900	562.000	969.900	964.200	563.300
BT	969.900	963.900	564.100	969.800	963.100	564.500	969.800	962.500	565.000	969.800
BT	.000	570.000	969.700	.000	587.000	969.100	.000	662.000	966.800	.000
BT	762.000	965.800	.000	862.000	966.600	.000	.000	.000	.000	.000
GR	976.100	440.000	974.900	462.000	970.000	559.500	960.900	559.500	960.300	559.900
GR	959.500	560.700	959.200	562.000	959.500	563.300	960.300	564.100	960.900	564.500
GR	969.800	564.500	969.900	565.000	969.800	570.000	969.200	587.000	966.900	662.000
GR	965.900	762.000	966.700	862.000	.000	.000	.000	.000	.000	.000
NC	.050	.050	.040	.000	.000	.000	.000	.000	.000	.000
X1	17418.000	16.000	117.000	135.000	305.000	356.000	383.000	.000	.000	.000
X3	.000	.000	.000	105.000	.000	157.000	.000	.000	.000	.000
GR	976.300	.000	974.300	50.000	972.300	63.000	970.300	69.000	968.300	76.000
GR	968.300	90.000	966.300	101.000	966.300	117.000	963.800	118.000	963.700	128.000
GR	966.100	135.000	966.300	137.000	968.300	196.000	970.300	212.000	972.300	232.000
GR	974.300	250.000	.000	.000	.000	.000	.000	.000	.000	.000
NC	.060	.060	.042	.000	.000	.000	.000	.000	.000	.000
X1	17478.000	6.000	136.000	158.000	55.000	65.000	60.000	.000	.000	.000
GR	976.300	.000	976.300	136.000	964.200	136.000	964.200	158.000	976.300	158.000
GR	976.300	200.000	.000	.000	.000	.000	.000	.000	.000	.000
X1	17485.000	6.000	142.000	152.000	7.000	7.000	7.000	.000	.000	.000
GR	976.300	.000	976.300	142.000	964.800	142.000	964.800	152.000	976.300	152.000
GR	976.300	200.000	.000	.000	.000	.000	.000	.000	.000	.000
X1	17494.000	.000	.000	.000	9.000	9.000	9.000	.000	.000	.000
SB	.000	1.000	3.100	.000	.010	.000	.010	.000	972.800	964.800

U/S OF GRUBB ROAD - DAM RECONSTRUCTION -BRIDGE SECTION 13-A

X1	17495.000	14.000	142.000	152.000	1.000	1.000	1.000	.000	.000	.000
X2	.000	.000	1.000	970.000	972.800	.000	.000	.000	.000	.000
BT	6.000	140.000	976.300	.000	142.000	976.300	.000	142.000	972.800	.000
BT	152.000	972.800	.000	152.000	976.300	.000	192.000	976.300	.000	.000
GR	976.300	.000	976.300	12.000	976.300	34.000	976.300	67.000	976.300	102.000
GR	976.300	103.000	976.300	113.000	976.300	120.000	976.300	142.000	970.000	142.000
GR	970.000	152.000	976.300	152.000	976.300	192.000	976.300	202.000	.000	.000
NC	.055	.055	.040	.000	.000	.000	.000	.000	.000	.000
X1	17500.000	6.000	152.000	166.000	5.000	5.000	5.000	.000	.000	.000
GR	976.300	.000	976.300	152.000	970.000	152.000	970.000	168.000	976.300	168.000
GR	976.300	240.000	.000	.000	.000	.000	.000	.000	.000	.000
X1	17505.000	6.000	150.000	168.000	5.000	5.000	5.000	.000	.000	.000
GR	976.300	.000	976.300	150.000	970.000	150.000	970.000	168.000	976.300	168.000
GR	976.300	240.000	.000	.000	.000	.000	.000	.000	.000	.000

X1	17535.000	16.000	65.000	282.000	30.000	30.000	30.000	.000	.000	.000
GR	976.300	.000	974.300	55.000	973.300	65.000	972.300	75.000	970.300	101.000
GR	968.300	120.000	966.300	138.000	966.000	142.000	966.000	168.000	966.300	171.000
GR	968.300	200.000	970.300	267.000	972.300	274.000	973.300	282.000	974.300	290.000
GR	976.300	299.000	.000	.000	.000	.000	.000	.000	.000	.000
NC	.050	.050	.035	.000	.000	.000	.000	.000	.000	.000

U/S OF GRUBB ROAD -VALLEY SECTION 14

X1	17635.000	17.000	136.000	156.000	100.000	100.000	100.000	.000	.000	.000
GR	975.700	.000	972.800	34.000	969.800	62.000	969.700	86.000	968.000	94.000
GR	965.800	136.000	965.700	137.000	964.700	139.000	964.200	146.000	963.700	152.000
GR	965.700	155.000	966.600	156.000	967.300	186.000	969.000	218.000	971.600	258.000
GR	973.000	276.000	975.800	286.000	.000	.000	.000	.000	.000	.000
NC	.090	.070	.038	.000	.000	.000	.000	.000	.000	.000

X1	17835.000	.000	.000	.000	177.000	156.000	200.000	.000	.900	.000

X1	18035.000	.000	.000	.000	177.000	156.000	200.000	.000	.900	.000

X1	18234.000	.000	.000	.000	178.000	155.000	199.000	.000	.900	.000

X1	18833.000	21.000	527.000	547.000	533.000	468.000	599.000	.000	-.100	.000
X3	.000	.000	.000	526.000	.000	548.000	.000	.000	.000	.000
GR	1001.900	.000	1000.800	102.000	999.400	180.000	990.000	230.000	997.800	330.000
GR	996.500	430.000	976.000	505.000	974.000	515.000	970.900	527.000	969.200	529.250
GR	969.100	535.000	969.200	540.750	969.200	545.000	972.200	547.000	973.800	555.000
GR	976.400	580.000	995.500	630.000	995.500	730.000	995.200	830.000	995.000	862.000
GR	994.600	972.000	.000	.000	.000	.000	.000	.000	.000	.000

X1	18845.000	.000	.000	.000	12.000	12.000	12.000	.000	.000	.000
X3	.000	.000	.000	529.000	.000	545.000	.000	.000	.000	.000

X1	18856.000	21.000	527.000	547.000	12.000	12.000	12.000	.000	.000	.000
X3	.000	.000	.000	532.000	.000	542.000	.000	.000	.000	.000
GR	1001.900	.000	1000.800	102.000	999.400	180.000	990.000	230.000	997.800	330.000
GR	996.500	430.000	976.000	505.000	974.000	515.000	970.900	527.000	969.200	529.250
GR	969.100	535.000	969.200	540.750	969.200	545.000	972.200	547.000	973.800	555.000
GR	976.400	580.000	995.500	630.000	995.500	730.000	995.200	830.000	995.000	862.000
GR	994.600	972.000	.000	.000	.000	.000	.000	.000	.000	.000
NC	.000	.000	.022	.000	.000	.000	.000	.000	.000	.000

X1	18857.000	21.000	529.250	540.750	1.000	1.000	1.000	.870	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.870	.000
X3	.000	.000	.000	529.250	.000	540.750	.000	.000	.000	.000
BT	22.000	.000	1001.900	.000	102.000	1000.800	.000	180.000	999.400	.000
BT	230.000	999.000	.000	282.000	998.600	.000	330.000	997.800	.000	346.000
BT	997.600	.000	414.000	996.600	.000	430.000	996.500	.000	512.000	996.000
BT	.000	529.250	995.900	.000	529.250	995.900	977.200	535.000	995.900	977.200
BT	540.750	996.000	977.200	540.750	996.000	.000	624.000	995.600	.000	630.000
BT	995.500	.000	730.000	995.500	.000	746.000	995.400	.000	830.000	995.200
BT	.000	862.000	995.000	.000	972.000	994.600	.000	.000	.000	.000

GR	1001.900	.000	1000.800	102.000	999.400	180.000	999.000	230.000	997.800	330.000
GR	997.600	346.000	996.600	414.000	996.500	430.000	996.000	512.000	995.900	529.250
GR	969.200	529.250	969.100	535.000	969.200	540.750	996.000	540.750	995.600	624.000
GR	995.500	630.000	995.500	730.000	995.400	746.000	995.200	830.000	995.000	862.000
GR	994.600	972.000	.000	.000	.000	.000	.000	.000	.000	.000

M-59 BRIDGE U/S FACE -BRIDGE SECTION 15

X1	18980.000	21.000	529.250	540.750	123.000	123.000	123.000	.870	.000	.000
X2	.000	.000	.000	.000	.000	.000	.000	.000	.870	.000
X3	.000	.000	.000	529.250	.000	540.750	.000	.000	.000	.000
BT	22.000	.000	1001.900	.000	102.000	1000.800	.000	180.000	999.400	.000
BT	230.000	999.000	.000	282.000	998.600	.000	330.000	997.800	.000	346.000
BT	997.600	.000	414.000	996.600	.000	430.000	996.500	.000	512.000	996.000
BT	.000	529.250	995.900	.000	529.250	995.900	977.700	535.000	995.900	977.700
BT	540.750	996.000	977.700	540.750	996.000	.000	624.000	995.600	.000	630.000
BT	995.500	.000	730.000	995.500	.000	746.000	995.400	.000	830.000	995.200
BT	.000	862.000	995.000	.000	972.000	994.600	.000	.000	.000	.000
GR	1001.900	.000	1000.800	102.000	999.400	180.000	999.000	230.000	997.800	330.000
GR	997.600	346.000	996.600	414.000	996.500	430.000	996.000	512.000	995.900	529.250
GR	969.700	529.250	969.700	535.000	969.600	540.750	996.000	540.750	995.600	624.000
GR	995.500	630.000	995.500	730.000	995.400	746.000	995.200	830.000	995.000	862.000
GR	994.600	972.000	.000	.000	.000	.000	.000	.000	.000	.000
NC	.085	.085	.042	.000	.000	.000	.000	.000	.000	.000

X1	18981.000	21.000	458.500	475.900	1.000	1.000	1.000	.000	.000	.000
X3	.000	.000	.000	459.400	.000	471.400	.000	.000	.000	.000
GR	1009.900	.000	1000.800	88.700	999.400	156.600	999.000	200.100	997.800	287.100
GR	996.500	374.100	976.000	439.400	974.000	448.100	970.900	458.500	969.700	460.400
GR	969.700	465.500	969.600	470.500	969.600	474.200	972.200	475.900	973.800	482.900
GR	976.400	504.600	995.500	548.100	995.500	635.100	995.200	722.100	995.000	749.900
GR	994.600	845.600	.000	.000	.000	.000	.000	.000	.000	.000

X1	19067.000	90.000	406.100	423.200	59.300	74.900	85.700	.000	.000	.000
GR	1006.800	.000	1005.400	14.000	1003.900	28.000	1002.400	42.000	1001.000	56.000
GR	999.500	70.000	998.500	84.000	998.200	98.000	997.900	112.000	997.500	126.000
GR	997.200	140.000	997.100	154.000	996.900	168.000	996.700	182.100	996.500	196.100
GR	996.200	210.100	996.000	224.100	995.800	238.100	995.600	252.100	995.200	266.100
GR	994.900	280.100	994.600	294.100	994.100	308.100	991.000	322.100	987.800	336.100
GR	984.700	350.100	981.600	364.100	978.500	378.100	975.300	392.100	971.500	406.100
GR	971.000	406.700	970.600	407.300	970.300	407.800	970.200	408.400	970.200	409.000
GR	970.200	409.500	970.200	410.100	970.200	410.700	970.100	411.300	970.100	411.800
GR	970.100	412.400	970.100	413.000	970.100	413.500	970.100	414.100	970.000	414.700
GR	970.000	415.200	970.000	415.800	970.000	416.400	970.100	417.000	970.200	417.500
GR	970.400	418.100	970.400	418.700	970.400	419.200	970.500	419.800	970.500	420.400
GR	970.500	421.000	970.600	421.500	971.300	422.100	972.200	422.700	973.000	423.200
GR	975.000	434.800	976.300	446.400	979.900	458.000	984.700	469.500	989.500	481.100
GR	993.600	492.700	993.600	504.300	993.600	515.800	993.600	527.400	993.600	539.000
GR	993.600	550.600	993.600	562.200	993.600	573.700	993.600	585.300	993.600	596.900
GR	993.500	608.500	993.500	620.000	993.500	631.600	993.500	643.200	993.400	654.800
GR	993.400	666.300	993.400	677.900	993.400	689.500	993.400	701.100	993.400	712.600
GR	993.400	724.200	993.400	735.800	993.400	747.400	993.400	759.000	993.400	770.500

X1	19215.000	90.000	310.100	326.700	99.500	128.100	147.900	.000	.000	.000
GR	1001.200	.000	1000.100	10.700	998.900	21.400	997.700	32.100	996.500	42.800
GR	995.400	53.500	994.500	64.200	994.200	74.800	993.900	85.500	993.600	96.200

FORM 1411 4-68
PRINTED IN U.S.A.

GR	993.200	106.900	993.000	117.600	992.800	128.300	992.600	139.000	992.400	149.700
GR	992.100	160.400	991.900	171.100	991.600	181.800	991.400	192.500	991.100	203.200
GR	990.700	213.900	990.400	224.500	990.000	235.200	987.600	245.900	985.100	256.600
GR	982.700	267.300	980.300	278.000	977.900	288.700	975.400	299.400	972.500	310.100
GR	971.800	310.600	971.400	311.200	971.200	311.700	971.100	312.300	971.100	312.900
GR	971.000	313.400	971.000	314.000	971.000	314.500	970.900	315.100	970.900	315.600
GR	970.900	316.200	970.800	316.700	970.800	317.300	970.700	317.800	970.700	318.400
GR	970.700	318.900	970.700	319.500	970.700	320.000	971.000	320.600	971.200	321.100
GR	971.700	321.700	971.900	322.300	972.000	322.800	972.100	323.400	972.200	323.900
GR	972.300	324.500	972.400	325.000	973.000	325.600	973.700	326.100	974.400	326.700
GR	975.900	336.900	976.900	347.100	979.700	357.300	983.300	367.500	986.900	377.700
GR	990.000	387.900	990.000	398.100	990.000	408.300	990.100	418.500	990.100	428.700
GR	990.100	439.000	990.200	449.200	990.200	459.400	990.200	469.600	990.200	479.800
GR	990.200	490.000	990.200	500.200	990.200	510.400	990.200	520.600	990.200	530.800
GR	990.200	541.000	990.300	551.200	990.400	561.400	990.500	571.700	990.700	581.900
GR	990.800	592.100	990.900	602.300	990.900	612.500	991.000	622.700	991.100	632.900
X1	19363.000	90.000	214.100	230.100	99.600	128.200	148.000	.000	.000	.000
GR	995.600	.000	994.700	7.400	993.800	14.800	993.000	22.100	992.100	29.500
GR	991.200	36.900	990.500	44.300	990.200	51.700	989.900	59.100	989.600	66.400
GR	989.300	73.800	989.000	81.200	988.800	88.600	988.600	96.000	988.300	103.300
GR	988.000	110.700	987.800	118.100	987.500	125.500	987.200	132.900	986.900	140.200
GR	986.600	147.600	986.300	155.000	985.900	162.400	984.200	169.800	982.400	177.200
GR	980.700	184.500	979.000	191.900	977.300	199.300	975.600	206.700	973.500	214.100
GR	972.600	214.600	972.300	215.100	972.100	215.700	972.000	216.200	971.900	216.700
GR	971.900	217.300	971.800	217.800	971.800	218.300	971.800	218.900	971.700	219.400
GR	971.600	219.900	971.600	220.500	971.500	221.000	971.400	221.600	971.400	222.100
GR	971.400	222.600	971.400	223.200	971.400	223.700	971.800	224.200	972.200	224.800
GR	973.100	225.300	973.300	225.800	973.500	226.400	973.700	226.900	973.800	227.400
GR	974.000	228.000	974.200	228.500	974.700	229.000	975.300	229.600	975.800	230.100
GR	976.900	239.000	977.600	247.800	979.400	256.600	981.900	265.500	984.300	274.300
GR	986.400	283.100	986.500	292.000	986.500	300.800	986.600	309.700	986.600	318.500
GR	986.700	327.300	986.700	336.200	986.800	345.000	986.800	353.900	986.800	362.700
GR	986.900	371.500	986.900	380.400	986.900	389.200	987.000	398.000	987.000	406.900
GR	987.100	415.700	987.300	424.600	987.500	433.400	987.700	442.200	987.900	451.100
GR	988.100	459.900	988.300	468.700	988.500	477.600	988.700	486.400	988.900	495.300
X1	19511.000	90.000	118.000	133.600	99.600	128.100	147.900	.000	.000	.000
GR	990.000	.000	989.400	4.100	988.800	8.100	988.200	12.200	987.600	16.300
GR	987.000	20.400	986.500	24.400	986.200	28.500	985.900	32.600	985.600	36.600
GR	985.300	40.700	985.000	44.800	984.800	48.800	984.500	52.900	984.200	57.000
GR	983.900	61.000	983.600	65.100	983.300	69.200	983.000	73.300	982.700	77.300
GR	982.400	81.400	982.100	85.500	981.800	89.500	980.700	93.600	979.700	97.700
GR	978.700	101.800	977.700	105.800	976.700	109.900	975.700	114.000	974.500	118.000
GR	973.500	118.500	973.100	119.100	972.900	119.600	972.900	120.100	972.800	120.600
GR	972.700	121.100	972.700	121.700	972.600	122.200	972.600	122.700	972.500	123.200
GR	972.400	123.700	972.300	124.200	972.200	124.800	972.100	125.300	972.100	125.800
GR	972.100	126.300	972.100	126.800	972.100	127.300	972.700	127.900	973.300	128.400
GR	974.500	128.900	974.800	129.400	975.000	129.900	975.200	130.500	975.500	131.000
GR	975.700	131.500	976.000	132.000	976.400	132.500	976.800	133.000	977.300	133.600
GR	977.800	141.000	978.200	148.500	979.200	156.000	980.500	163.400	981.700	170.900
GR	982.800	178.400	982.900	185.800	983.000	193.300	983.000	200.800	983.100	208.200
GR	983.200	215.700	983.300	223.200	983.300	230.700	983.400	238.100	983.500	245.600
GR	983.500	253.100	983.600	260.500	983.700	268.000	983.700	275.500	983.800	282.900
GR	984.000	290.400	984.300	297.900	984.600	305.300	984.900	312.800	985.200	320.300
GR	985.500	327.800	985.800	335.200	986.100	342.700	986.400	350.200	986.600	357.600
NC	.085	.085	.042	.000	.000	.000	.000	.000	.000	.000

700 FT U/S OF M-59 -VALLEY SECTION 16

X1	19659.000	13.000	22.000	37.000	99.500	128.200	148.000	.000	.000	.000
GR	984.400	.000	975.500	22.000	974.300	22.500	973.900	23.000	973.300	27.000
GR	972.800	29.000	972.800	31.000	974.300	32.000	975.600	32.000	978.700	37.000
GR	980.600	162.000	982.800	194.000	984.400	220.000	.000	.000	.000	.000
X1	19812.000	90.000	50.000	64.800	143.000	127.000	153.000	.000	.000	.000
GR	986.800	.000	986.500	1.700	986.200	3.400	985.900	5.100	985.600	6.800
GR	985.300	8.600	985.000	10.300	984.700	12.000	984.300	13.700	984.000	15.500
GR	983.700	17.200	983.500	18.900	983.200	20.600	983.000	22.400	982.700	24.100
GR	982.500	25.800	982.200	27.500	981.900	29.300	981.600	31.000	981.300	32.700
GR	981.000	34.400	980.600	36.200	979.900	37.900	979.200	39.600	978.600	41.300
GR	978.100	43.100	977.600	44.800	977.300	46.500	977.000	48.200	976.900	50.000
GR	975.900	50.400	975.600	50.900	975.500	51.400	975.400	51.900	975.300	52.400
GR	975.300	52.900	975.200	53.400	975.100	53.900	975.000	54.400	975.000	54.900
GR	974.800	55.400	974.700	55.900	974.600	56.400	974.500	56.900	974.500	57.300
GR	974.600	57.800	974.800	58.300	974.900	58.800	975.700	59.300	976.400	59.800
GR	977.900	60.300	978.300	60.800	978.700	61.300	979.100	61.800	979.500	62.300
GR	979.900	62.800	980.200	63.300	980.600	63.800	981.000	64.300	981.400	64.800
GR	981.400	70.600	981.400	76.500	981.300	82.300	981.300	88.200	981.200	94.100
GR	981.300	99.900	981.300	105.800	981.300	111.700	981.300	117.500	981.300	123.400
GR	981.300	129.300	981.400	135.100	981.400	141.000	981.500	146.900	981.600	152.700
GR	981.700	158.600	981.700	164.500	981.800	170.300	981.900	176.200	982.000	182.100
GR	982.200	187.900	982.600	193.800	983.000	199.700	983.400	205.500	983.900	211.400
GR	984.400	217.300	984.800	223.100	985.200	229.000	985.600	234.900	986.000	240.800
X1	19965.000	85.000	78.000	92.600	143.000	127.000	153.000	.000	.000	.000
GR	989.300	.000	989.000	2.600	988.700	5.300	988.400	8.000	988.100	10.700
GR	987.800	13.400	987.400	16.100	987.100	18.800	986.800	21.500	986.500	24.200
GR	986.100	26.800	985.900	29.500	985.700	32.200	985.500	34.900	985.300	37.600
GR	985.200	40.300	985.000	43.000	984.700	45.700	984.400	48.400	984.100	51.100
GR	983.800	53.700	983.300	56.400	982.200	59.100	981.100	61.800	980.200	64.500
GR	979.600	67.200	978.900	69.900	978.400	72.600	978.200	75.300	978.300	78.000
GR	977.600	78.400	977.300	78.900	977.200	79.400	977.100	79.900	977.100	80.400
GR	977.000	80.900	976.900	81.400	976.800	81.800	976.800	82.300	976.700	82.800
GR	976.600	83.300	976.500	83.800	976.400	84.300	976.200	84.800	976.200	85.200
GR	976.500	85.700	976.800	86.200	977.100	86.700	977.900	87.200	978.600	87.700
GR	979.900	88.200	980.400	88.700	980.800	89.100	981.300	89.600	981.800	90.100
GR	982.300	90.600	982.800	91.100	983.300	91.600	983.700	92.100	984.200	92.600
GR	984.100	98.200	983.900	103.800	983.700	109.400	983.500	115.100	983.400	120.700
GR	983.300	126.300	983.300	132.000	983.200	137.600	983.100	143.200	983.100	148.900
GR	983.000	154.500	983.000	160.100	983.000	165.800	983.100	171.400	983.100	177.000
GR	983.200	182.700	983.200	188.300	983.300	193.900	983.400	199.600	983.500	205.200
GR	983.700	210.800	984.100	216.500	984.400	222.100	984.900	227.700	985.400	233.400
X1	20118.000	90.000	106.000	120.300	143.000	127.000	153.000	.000	.000	.000
GR	991.800	.000	991.500	3.600	991.200	7.300	990.900	10.900	990.500	14.600
GR	990.200	18.200	989.900	21.900	989.600	25.500	989.200	29.200	988.900	32.800
GR	988.600	36.500	988.400	40.200	988.300	43.800	988.100	47.500	988.000	51.100
GR	987.900	54.800	987.700	58.400	987.500	62.100	987.200	65.700	986.900	69.400
GR	986.600	73.100	986.000	76.700	984.500	80.400	983.000	84.000	981.800	87.700
GR	981.000	91.300	980.200	95.000	979.600	98.600	979.400	102.300	979.700	106.000
GR	979.200	106.400	979.000	106.900	978.900	107.400	978.900	107.900	978.800	108.300
GR	978.700	108.800	978.600	109.300	978.500	109.800	978.500	110.300	978.400	110.700
GR	978.300	111.200	978.200	111.700	978.100	112.200	978.000	112.700	977.900	113.100

GR	978.400	113.600	978.800	114.100	979.300	114.600	980.000	115.100	980.800	115.500
GR	981.900	116.000	982.400	116.500	983.000	117.000	983.600	117.500	984.200	117.900
GR	984.700	118.400	985.300	118.900	985.900	119.400	986.500	119.900	987.000	120.300
GR	986.700	125.700	986.400	131.100	986.100	136.500	985.800	141.900	985.500	147.300
GR	985.400	152.700	985.200	158.100	985.100	163.500	985.000	168.900	984.800	174.300
GR	984.700	179.700	984.600	185.100	984.600	190.500	984.600	195.900	984.700	201.300
GR	984.700	206.700	984.800	212.100	984.800	217.500	984.900	222.900	985.000	228.300
GR	985.200	233.700	985.500	239.100	985.800	244.500	986.300	249.900	986.800	255.300
GR	987.400	260.700	987.900	266.100	988.400	271.500	988.900	276.900	989.400	282.400
X1	20271.000	90.000	134.000	148.200	143.000	127.000	153.000	.000	.000	.000
GR	994.200	.000	993.900	4.600	993.600	9.200	993.300	13.800	993.000	18.400
GR	992.700	23.100	992.400	27.700	992.000	32.300	991.700	36.900	991.300	41.500
GR	991.000	46.200	990.900	50.800	990.800	55.400	990.700	60.000	990.600	64.600
GR	990.600	69.300	990.500	73.900	990.300	78.500	990.000	83.100	989.700	87.700
GR	989.400	92.400	988.700	97.000	986.800	101.600	984.900	106.200	983.400	110.800
GR	982.400	115.500	981.500	120.100	980.800	124.700	980.700	129.300	981.200	134.000
GR	980.900	134.400	980.700	134.900	980.700	135.400	980.600	135.800	980.500	136.300
GR	980.400	136.800	980.300	137.300	980.300	137.700	980.200	138.200	980.100	138.700
GR	980.000	139.200	979.900	139.600	979.800	140.100	979.700	140.600	979.700	141.000
GR	980.300	141.500	980.900	142.000	981.500	142.500	982.200	142.900	983.000	143.400
GR	983.900	143.900	984.500	144.400	985.200	144.800	985.900	145.300	986.500	145.800
GR	987.200	146.300	987.800	146.700	988.500	147.200	989.200	147.700	989.800	148.200
GR	989.400	153.300	988.900	158.500	988.500	163.600	988.100	168.800	987.600	174.000
GR	987.400	179.100	987.200	184.300	987.000	189.500	986.800	194.600	986.600	199.800
GR	986.400	205.000	986.200	210.100	986.100	215.300	986.200	220.500	986.200	225.600
GR	986.200	230.800	986.300	236.000	986.300	241.100	986.300	246.300	986.500	251.500
GR	986.700	256.600	986.900	261.800	987.200	267.000	987.700	272.100	988.300	277.300
GR	988.900	282.500	989.400	287.600	990.000	292.800	990.600	298.000	991.100	303.200
X1	20468.000	15.000	116.000	176.000	187.000	177.000	197.000	.000	-.430	.000
X3	.000	.000	.000	146.000	.000	172.000	.000	.000	.000	.000
GR	997.100	.000	995.800	24.000	993.800	56.000	993.600	94.000	992.300	116.000
GR	987.400	145.000	986.100	150.400	983.800	155.800	983.400	158.000	982.500	160.000
GR	982.800	162.000	981.800	169.000	992.900	176.000	992.100	195.000	993.200	324.000
X1	20484.000	.000	.000	.000	16.000	16.000	16.000	.000	.130	.000
X3	.000	.000	.000	150.000	.000	168.000	.000	.000	.000	.000
X1	20492.000	23.000	145.000	176.000	8.000	8.000	8.000	.000	-.230	.000
X3	.000	.000	.000	.000	.000	176.000	993.000	.000	.000	.000
GR	997.100	.000	995.800	24.000	993.800	56.000	993.200	95.000	993.100	145.000
GR	990.300	145.000	990.300	150.000	991.400	150.000	991.400	150.800	990.900	150.800
GR	990.900	155.800	992.800	155.800	992.800	158.000	982.500	160.000	982.800	162.000
GR	981.800	169.000	992.900	176.000	992.100	195.000	990.200	200.000	988.100	236.000
GR	988.200	270.000	989.000	290.000	993.200	324.000	.000	.000	.000	.000
1500 FT U/S OF M-597ABANDONED DAM -VALLEY SECTION 17										
X1	20519.000	.000	.000	.000	27.000	27.000	27.000	.000	.230	.000
X3	.000	.000	.000	.000	.000	176.000	993.000	.000	.000	.000
X1	20521.000	15.000	157.000	176.000	2.000	2.000	2.000	.000	.000	.000
X3	.000	.000	.000	155.000	.000	171.000	.000	.000	.000	.000

FORM 1411 ½ GB

GR	997.100	.000	995.800	24.000	993.800	56.000	993.600	94.000	992.300	116.000
GR	987.400	145.000	986.100	150.400	983.800	155.800	983.400	158.000	982.500	160.000
GR	982.800	162.000	981.800	169.000	992.900	176.000	992.100	195.000	993.200	324.000
X1	20529.000	.000	.000	.000	8.000	8.000	8.000	.000	.000	.000
X3	.000	.000	.000	147.000	.000	179.000	.000	.000	.000	.000
NC	.052	.052	.038	.000	.000	.000	.000	.000	.000	.000

1000 FT D/S OF ALDERMAN LAKE -VALLEY SECTION 18

X1	22329.000	17.000	412.000	434.000	1295.000	1385.000	1795.000	.000	.000	.000
GR	998.600	.000	992.400	42.000	992.700	68.000	992.400	118.000	992.800	156.000
GR	988.500	412.000	988.400	413.000	987.900	415.000	987.700	424.000	987.900	429.000
GR	987.900	433.000	988.400	433.000	988.600	434.000	992.800	474.000	995.000	512.000
GR	996.800	548.000	998.600	582.000	.000	.000	.000	.000	.000	.000
NC	.110	.110	.040	.000	.000	.000	.000	.000	.000	.000

D/S OF ALDERMAN LAKE -VALLLEY SECTION 19

X1	23449.000	22.000	474.000	496.000	990.000	1030.000	1120.000	.000	.000	.000
X3	.000	.000	.000	228.000	991.200	.000	.000	.000	.000	.000
GR	999.700	.000	994.000	26.000	991.800	74.000	991.000	144.000	991.200	228.000
GR	990.800	310.000	990.800	370.000	990.200	420.000	989.600	474.000	989.600	475.000
GR	988.800	476.000	987.400	484.000	987.800	489.000	989.100	494.000	989.600	495.000
GR	989.800	496.000	990.100	838.000	991.400	890.000	993.700	928.000	996.500	958.000
GR	998.700	996.000	999.800	1010.000	.000	.000	.000	.000	.000	.000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

*PROF 1

*SECNO 12351.000

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
12351.00	4.70	957.20	.00	.00	957.21	.01	.00	.00	955.80
94.	3.	90.	0.	55.	139.	5.	0.	0.	956.40
.00	.06	.65	.05	.110	.038	.125	.000	952.50	293.67
.000055	0.	0.	0.	0	0	0	.00	222.33	628.00

3470 ENCROACHMENT STATIONS= .0 762.0 TYPE= 1 TARGET= 761.999

U/S OF LOWER PETTIBONE LAKE -VALLEY SECTION 9

*SECNO 14191.000

D/S OF PICKEREL LAKE -VALLEY SECTION 10

14191.00	3.81	957.31	.00	.00	957.31	.00	.10	.00	956.30
94.	1.	91.	2.	13.	164.	19.	8.	6.	955.80
.93	.07	.56	.09	.100	.042	.100	.042	953.50	110.87
.000059	1600.	1840.	1100.	2	0	0	.00	105.22	216.09

*SECNO 15061.000

3470 ENCROACHMENT STATIONS= .0 550.0 TYPE= 1 TARGET= 549.999

U/S OF PICKEREL LAKE -VALLEY SECTION 11

15061.00	3.28	957.38	.00	.00	957.38	.00	.07	.00	956.00
94.	18.	37.	39.	93.	58.	163.	13.	10.	955.70
1.55	.19	.63	.24	.070	.045	.080	.043	954.10	254.91
.000120	635.	870.	890.	2	0	0	.00	295.09	550.00

*SECNO 15434.000

3470 ENCROACHMENT STATIONS= .0 483.0 TYPE= 1 TARGET= 482.999

15434.00	2.01	957.41	.00	.00	957.50	.09	.12	.00	956.90
94.	3.	82.	9.	8.	32.	21.	14.	11.	956.90
1.59	.42	2.59	.42	.110	.048	.110	.045	955.40	323.76
.004415	258.	373.	265.	0	0	0	.00	138.10	461.86

*SECNO 15600.000

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= .0 466.0 TYPE= 1 TARGET= 465.999

15600.00	2.11	958.01	.00	.00	958.08	.07	.58	.00	957.40
94.	5.	77.	12.	11.	34.	30.	14.	11.	957.40
1.61	.40	2.27	.41	.110	.048	.110	.045	955.90	316.51
.003089	115.	166.	118.	2	0	0	.00	149.49	466.00

*SECNO 15806.000

3470 ENCROACHMENT STATIONS= .0 445.0 TYPE= 1 TARGET= 444.999

15806.00	2.02	958.62	.00	.00	958.69	.07	.61	.00	957.80
94.	9.	77.	8.	19.	32.	23.	15.	12.	958.10
1.64	.49	2.38	.34	.110	.048	.110	.045	956.60	265.61
.003123	161.	207.	147.	1	0	0	.00	179.39	445.00

*SECNO 16179.000

3470 ENCROACHMENT STATIONS= .0 456.0 TYPE= 1 TARGET= 455.999

16179.00	2.02	959.72	.00	.00	959.80	.08	1.11	.00	958.70
94.	15.	75.	4.	25.	30.	15.	15.	13.	959.30
1.68	.61	2.50	.28	.110	.048	.110	.046	957.70	223.18
.003223	258.	373.	265.	2	0	0	.00	201.60	424.78

*SECNO 16551.000

SOUTH OF GRUBB ROAD -VALLEY SECTION 12

16551.00	2.25	960.85	.00	.00	960.93	.08	1.13	.00	959.60
94.	21.	71.	2.	29.	27.	11.	16.	14.	960.50
1.73	.72	2.61	.21	.110	.048	.110	.046	958.60	183.21
.003303	258.	373.	265.	2	0	0	.00	165.72	348.93

*SECNO 16765.000

16765.00	2.41	961.41	.00	.00	961.47	.05	.53	.00	960.00
94.	22.	64.	8.	35.	30.	33.	16.	15.	960.90
1.76	.62	2.16	.25	.110	.048	.110	.046	959.00	181.42
.002028	219.	214.	109.	1	0	0	.00	192.00	373.42

*SECNO 16979.000

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 557.5 566.5 TYPE= 1 TARGET= 9.000

16979.00	2.25	961.85	.00	.00	962.54	.69	1.08	.00	99999.30
94.	0.	94.	0.	0.	14.	0.	16.	15.	99999.30
1.77	.00	6.68	.00	.080	.045	.080	.046	959.60	557.50

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 .031121     209.     214.     109.        2        0        0      .00     9.00   566.50

*SECNO 16983.000
   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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      558.5      565.5  TYPE=      1  TARGET=        7.000
 16983.00      2.35    961.95    961.95       .00    962.85       .90       .10       .00100000.00
      94.        0.       94.        0.        0.       12.        0.       16.       15. 100000.00
     1.77       .00      7.61       .00      .080      .033      .080      .046    959.60   558.50
  .022177        4.        4.        4.        20         8         0       .00      7.00   565.50

*SECNO 16987.000
   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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      559.5      564.5  TYPE=      1  TARGET=        5.000
 16987.00      2.75    962.35    962.35       .00    963.46      1.11       .10       .00100000.00
      94.        0.       94.        0.        0.       11.        0.       16.       15. 100000.00
     1.77       .00      8.46       .00      .080      .033      .080      .046    959.60   559.50
  .028016        4.        4.        4.        20         8         0       .00      5.00   564.50


SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .00       2.75       2.50        .00       4.13        .00       19.63       .00      959.20     959.30

*SECNO 17035.000
 WATER EL=X5 CARD=    964.260

3470 ENCROACHMENT STATIONS=         .0      630.0  TYPE=      1  TARGET=      629.999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       965.40 ELREA=       965.40

        GRUBB ROAD BRIDGE U/S FACE -BRIDGE SECTION 13

 17035.00      5.06    964.26       .00       .00    964.53       .27       .41       .00   970.00
      94.        0.       94.        0.        0.       23.        0.       16.       15.    969.80
     1.78       .00      4.15       .00      .080      .033      .080      .046    959.20   559.50
  .004078       48.       48.       48.         0         0         0       .00      5.00   564.50
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*SECNO 17418.000

3470 ENCROACHMENT STATIONS= 105.0 157.0 TYPE= 1 TARGET= 52.000

17418.00	2.22	965.92	.00	.00	966.07	.15	1.55	.00	966.30
94.	0.	94.	0.	0.	30.	0.	16.	15.	966.10
1.81	.00	3.16	.00	.050	.040	.050	.046	963.70	117.15
.004003	305.	383.	356.	5	0	0	.00	17.32	134.47

*SECNO 17478.000

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
17478.00	1.96	966.16	.00	.00	966.24	.07	.16	.00	976.30
94.	0.	94.	0.	0.	43.	0.	16.	15.	976.30
1.82	.00	2.18	.00	.060	.042	.060	.046	964.20	136.00
.001920	55.	60.	65.	0	0	0	.00	22.00	158.00

*SECNO 17485.000

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

17485.00	1.40	966.20	966.20	.00	966.90	.70	.03	.00	976.30
94.	0.	94.	0.	0.	14.	0.	16.	15.	976.30
1.82	.00	6.72	.00	.060	.042	.060	.046	964.80	142.00
.031984	7.	7.	7.	20	15	0	.00	10.00	152.00

*SECNO 17494.000

17494.00	1.89	966.69	.00	.00	967.07	.38	.17	.00	976.30
94.	0.	94.	0.	0.	19.	0.	16.	15.	976.30
1.82	.00	4.94	.00	.060	.042	.060	.046	964.80	142.00
.012729	9.	9.	9.	2	0	0	.00	10.00	152.00

SPECIAL BRIDGE

SB	XK	XKOR	CDFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.00	3.10	.00	.01	.00	.01	.00	972.80	964.80

*SECNO 17495.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID	ELLC	ELTRD

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373016.38	975.07	.00	94.	0.	0.	-0.	970.00	972.80	

U/S OF GRUBB ROAD = DAM RECONSTRUCTION -BRIDGE SECTION 13-A

17495.00	4.83	974.83	.00	.00	974.89	.06	7.82	.00	976.30
94.	0.	94.	0.	0.	48.	0.	16.	15.	976.30
1.82	.00	1.94	.00	.060	.042	.060	.046	970.00	142.00
.000911	1.	1.	1.	2	0	11	.00	10.00	152.00

*SECNO 17500.000

17500.00	4.87	974.87	.00	.00	974.90	.02	.00	.00	976.30
94.	0.	0.	94.	0.	0.	78.	16.	15.	1026.30
1.82	.00	.00	1.21	.055	.040	.055	.046	970.00	152.00
.000456	5.	5.	5.	0	0	0	.00	16.00	168.00

*SECNO 17505.000

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

17505.00	4.88	974.88	.00	.00	974.90	.02	.00	.00	976.30
94.	0.	94.	0.	0.	88.	0.	16.	15.	976.30
1.82	.00	1.07	.00	.055	.040	.055	.046	970.00	150.00
.000179	5.	5.	5.	0	0	0	.00	18.00	168.00

*SECNO 17535.000

17535.00	8.90	974.90	.00	.00	974.90	.00	.00	.00	973.30
94.	0.	94.	0.	16.	1286.	9.	17.	15.	973.30
1.94	.01	.07	.02	.055	.040	.055	.045	966.00	38.81
.000000	30.	30.	30.	0	0	0	.00	253.84	292.65

*SECNO 17635.000

U/S OF GRUBB ROAD -VALLEY SECTION 14

17635.00	11.20	974.90	.00	.00	974.90	.00	.00	.00	965.80
94.	35.	22.	38.	635.	207.	692.	20.	16.	966.60
2.36	.05	.11	.05	.050	.035	.050	.045	963.70	9.31
.000000	100.	100.	100.	0	0	0	.00	273.50	282.81

*SECNO 17835.000

17835.00	10.30	974.90	.00	.00	974.90	.00	.00	.00	966.70
94.	26.	31.	37.	525.	189.	579.	26.	17.	967.50
2.88	.05	.16	.06	.090	.038	.070	.045	964.60	19.97
.000001	177.	200.	156.	0	0	0	.00	259.60	279.56

*SECNO 18035.000

18035.00	9.40	974.90	.00	.00	974.90	.00	.00	.00	967.60
94.	25.	34.	35.	425.	171.	469.	30.	18.	968.40
3.31	.06	.20	.07	.090	.038	.070	.045	965.50	30.52

.000002	177.	200.	156.	0	0	0	.00	245.83	276.35

*SECNO 18234.000

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
18234.00	8.50	974.90	.00	.00	974.90	.00	.00	.00	968.50
94.	24.	37.	33.	335.	153.	365.	34.	19.	969.30
3.65	.07	.24	.09	.090	.038	.070	.045	966.40	39.62
.000003	178.	199.	155.	0	0	0	.00	226.06	265.68

*SECNO 18833.000

3470 ENCROACHMENT STATIONS= 526.0 548.0 TYPE= 1 TARGET= 22.000

18833.00	5.89	974.89	.00	.00	974.90	.01	.00	.00	970.80
94.	0.	93.	0.	4.	112.	3.	40.	20.	972.10
3.84	.10	.84	.13	.090	.038	.070	.045	969.00	526.00
.000053	533.	599.	468.	0	0	0	.00	22.00	548.00

*SECNO 18845.000

3470 ENCROACHMENT STATIONS= 529.0 545.0 TYPE= 1 TARGET= 16.000

18845.00	5.89	974.89	.00	.00	974.90	.02	.00	.00	100000.00
94.	0.	94.	0.	0.	93.	0.	40.	20.	100000.00
3.84	.00	1.01	.00	.090	.038	.070	.045	969.00	529.00
.000130	12.	12.	12.	0	0	0	.00	16.00	545.00

*SECNO 18856.000

3470 ENCROACHMENT STATIONS= 532.0 542.0 TYPE= 1 TARGET= 10.000

18856.00	5.76	974.86	.00	.00	974.91	.04	.00	.00	100000.00
94.	0.	94.	0.	0.	57.	0.	40.	20.	100000.00
3.84	.00	1.65	.00	.090	.038	.070	.045	969.10	532.00
.000477	12.	12.	12.	2	0	0	.00	10.00	542.00

*SECNO 18857.000

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD= 994.60 MAX ELLC= 977.20

3470 ENCROACHMENT STATIONS= 460.4 470.5 TYPE= 1 TARGET= 11.500

18857.00	5.76	974.86	.00	.00	974.91	.04	.00	.00	995.90
94.	0.	94.	0.	0.	57.	0.	40.	20.	100000.00
3.84	.00	1.64	.00	.090	.022	.070	.045	969.10	460.45
.000159	1.	1.	1.	0	0	0	.00	10.00	470.45

*SECNO 18980.000

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= 22 MIN ELTRD= 994.60 MAX ELLC= 977.70

3470 ENCROACHMENT STATIONS= 460.4 470.5 TYPE= 1 TARGET= 11.500

M-59 BRIDGE U/S FACE -BRIDGE SECTION 15

18980.00	5.28	974.88	.00	.00	974.93	.05	.02	.00	995.90
94.	0.	94.	0.	0.	52.	0.	40.	21.	100000.00
3.86	.00	1.81	.00	.090	.022	.070	.044	969.60	460.45
.000206	123.	123.	123.	2	0	0	.00	10.00	470.45

*SECNO 18981.000

3470 ENCROACHMENT STATIONS= 459.4 471.4 TYPE= 1 TARGET= 12.000

18981.00	5.29	974.89	.00	.00	974.93	.04	.00	.00	100000.00
94.	0.	94.	0.	0.	62.	0.	40.	21.	100000.00
3.86	.00	1.51	.00	.085	.042	.085	.044	969.60	459.40
.000456	1.	1.	1.	1	0	0	.00	12.00	471.40

*SECNO 19067.000

19067.00	4.93	974.93	.00	.00	974.95	.02	.02	.00	971.50
94.	6.	85.	2.	22.	77.	11.	40.	21.	973.00
3.89	.30	1.11	.21	.085	.042	.085	.044	970.00	393.48
.000150	59.	86.	75.	1	0	0	.00	40.88	434.36

*SECNO 19215.000

19215.00	4.25	974.95	.00	.00	974.98	.04	.03	.00	972.50
94.	4.	89.	0.	11.	58.	1.	41.	21.	974.40
3.91	.40	1.55	.15	.085	.042	.085	.044	970.70	301.07
.000424	100.	148.	128.	2	0	0	.00	29.35	330.42

*SECNO 19363.000

19363.00	3.61	975.01	.00	.00	975.09	.08	.10	.00	973.50
94.	2.	92.	0.	4.	40.	0.	41.	21.	975.80
3.93	.52	2.30	.00	.085	.042	.085	.044	971.40	208.80
.001371	100.	148.	128.	2	0	0	.00	20.51	229.31

*SECNO 19511.000

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
19511.00	3.13	975.23	.00	.00	975.40	.17	.31	.00	974.50
94.	0.	94.	0.	1.	28.	0.	41.	21.	977.30
3.94	.53	3.30	.00	.085	.042	.085	.044	972.10	115.57
.003677	100.	148.	128.	2	0	0	.00	14.98	130.55

*SECNO 19659.000

19659.00	3.03	975.83	.00	.00	976.06	.23	.66	.00	975.50
94.	0.	94.	0.	0.	24.	0.	41.	21.	978.70
3.95	.37	3.89	.00	.085	.042	.085	.044	972.80	21.19
.005607	100.	148.	128.	2	0	0	.00	11.17	32.36

*SECNO 19812.000

19812.00	2.41	976.91	.00	.00	977.37	.46	1.31	.00	976.90
94.	0.	94.	0.	0.	17.	0.	41.	21.	981.40
3.96	.00	5.43	.00	.085	.042	.085	.044	974.50	49.85
.014594	143.	153.	127.	3	0	0	.00	10.12	59.97

*SECNO 19965.000

19965.00	2.66	978.86	.00	.00	979.21	.35	1.84	.00	978.30
94.	4.	90.	0.	4.	18.	0.	41.	21.	984.20
3.97	1.15	4.85	.00	.085	.042	.085	.044	976.20	70.11
.010149	143.	153.	127.	3	0	0	.00	17.69	87.80

*SECNO 20118.000

20118.00	2.57	980.47	.00	.00	980.78	.31	1.56	.00	979.70
94.	15.	79.	0.	9.	17.	0.	41.	21.	987.00
3.98	1.58	4.78	.00	.085	.042	.085	.044	977.90	93.75
.010415	143.	153.	127.	2	0	0	.00	21.59	115.34

*SECNO 20271.000

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
20271.00	2.36	982.06	.00	.00	982.29	.22	1.51	.00	981.20
94.	29.	65.	0.	16.	15.	0.	41.	21.	989.80
3.99	1.81	4.41	.00	.085	.042	.085	.044	979.70	117.21
.009655	143.	153.	127.	2	0	0	.00	25.61	142.82

*SECNO 20468.000

3470 ENCROACHMENT STATIONS= 146.0 172.0 TYPE= 1 TARGET= 26.000

20468.00	2.47	983.84	.00	.00	984.09	.25	1.81	.00	99999.57
94.	0.	94.	0.	0.	23.	0.	42.	21.	99999.57
4.01	.00	4.02	.00	.085	.042	.085	.044	981.37	154.69
.008871	187.	197.	177.	2	0	0	.00	15.87	170.56

*SECNO 20484.000

3470 ENCROACHMENT STATIONS= 150.0 168.0 TYPE= 1 TARGET= 18.000

20484.00	2.35	983.85	.00	.00	984.30	.45	.20	.00	100000.00
94.	0.	94.	0.	0.	17.	0.	42.	21.	100000.00
4.01	.00	5.37	.00	.085	.042	.085	.044	981.50	154.97
.019862	16.	16.	16.	2	0	0	.00	13.03	168.00

*SECNO 20492.000

3470 ENCROACHMENT STATIONS= .0 176.0 TYPE= 1 TARGET= 175.999

20492.00	2.49	984.06	.00	.00	984.42	.36	.12	.00	992.87
94.	0.	94.	0.	0.	19.	0.	42.	21.	992.77
4.01	.00	4.83	.00	.085	.042	.085	.044	981.57	159.65
.011880	8.	8.	8.	2	0	0	.00	10.92	170.57

*SECNO 20519.000

3470 ENCROACHMENT STATIONS= .0 176.0 TYPE= 1 TARGET= 175.999

1500 FT U/S OF M-59/ABANDONED DAM -VALLEY SECTION 17

20519.00	2.59	984.39	.00	.00	984.71	.32	.29	.00	993.10
94.	0.	94.	0.	0.	21.	0.	42.	21.	993.00
4.01	.00	4.57	.00	.085	.042	.085	.044	981.80	159.63
.010072	27.	27.	27.	2	0	0	.00	11.00	170.63

*SECNO 20521.000

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= 155.0 171.0 TYPE= 1 TARGET= 16.000

20521.00	2.75	984.55	.00	.00	984.73	.18	.01	.00	100000.00
94.	0.	94.	0.	0.	28.	0.	42.	21.	100000.00
4.01	.00	3.39	.00	.085	.042	.085	.044	981.80	155.00
.005200	2.	2.	2.	2	0	0	.00	15.73	170.73

*SECNO 20529.000

3470 ENCROACHMENT STATIONS= 147.0 179.0 TYPE= 1 TARGET= 32.000

20529.00	2.80	984.60	.00	.00	984.77	.16	.04	.00	100000.00
94.	0.	94.	0.	0.	29.	0.	42.	21.	992.90
4.01	.00	3.25	.00	.085	.042	.085	.044	981.80	153.90
.004810	8.	8.	8.	0	0	0	.00	16.87	170.77

*SECNO 22329.000

1000 FT D/S OF ALDERMAN LAKE -VALLEY SECTION 18

22329.00	1.75	989.45	.00	.00	989.50	.06	4.74	.00	988.50
94.	19.	72.	2.	27.	34.	3.	43.	23.	988.60
4.28	.73	2.14	.67	.052	.038	.052	.043	987.70	355.62
.001752	1295.	1795.	1385.	6	0	0	.00	86.45	442.07

*SECNO 23449.000

3470 ENCROACHMENT STATIONS= 228.0 1010.0 TYPE= 1 TARGET= -228.000

ELENCL= 991.20 ELENCR= 100000.00

FORM 14111 5 GB

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D/S OF ALDERMAN LAKE -VALLLEY SECTION 19

	23449.00	3.00	990.40	.00	.00	990.42	.02	.92	.00	989.60
1	94.	5.	61.	28.	29.	46.	158.	47.	29.	989.80
2	4.60	.18	1.32	.18	.110	.040	.110	.043	987.40	402.86
3	.000494	990.	1120.	1030.	6	0	0	.00	447.36	850.23

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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T1      HIGHLAND TOWNSHIP FIS - JOB NO. 6504-04 L.PETTIBONE TO ALDERMAN LAKE
T2      50 YEAR EVENT
T3      PETTIBONE CREEK          PROJECT MANAGER - R.S. MIHOS

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

     -10.        3.         0.         0.    .000000        .00         .0         0.    957.900       .000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      2.000       .000     -1.000       .000       .000       .000       .000       .000       .000       .000

*PROF 2

*SECNO 12351.000
    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      762.0  TYPE=      1  TARGET=      761.999

        U/S OF LOWER PETTIBONE LAKE -VALLEY SECTION 9

 12351.00      5.40    957.90       .00    957.90    957.90       .00       .00       .00    955.80
     121.        19.       101.        1.       251.       157.        17.        0.         0.    956.40
      .00        .08        .60        .06        .110       .038       .125       .000    952.50    272.08
  .000037         0.         0.         0.         0          0          0        .00    366.42    638.50

*SECNO 14191.000

        D/S OF PICKEREL LAKE -VALLEY SECTION 10

 14191.00      4.47    957.97       .00       .00    957.98       .00       .07       .00    956.30
     121.         3.       114.        4.        35.       200.        39.        14.        9.    955.80
      .93        .09        .57        .11        .100       .042       .100       .043    953.50     94.36
  .000047      1600.      1840.      1100.         1          0          0        .00    132.73    227.09

*SECNO 15061.000

3470 ENCROACHMENT STATIONS=         .0      550.0  TYPE=      1  TARGET=      549.999

        U/S OF PICKEREL LAKE -VALLEY SECTION 11

 15061.00      3.92    958.02       .00       .00    958.02       .00       .04       .00    956.00
     121.        35.        36.       50.       198.        74.       244.        21.       13.    955.70
```

1.76	.18	.49	.21	.070	.045	.080	.044	954.10	215.81
.000052	635.	870.	890.	1	0	0	.00	334.19	550.00

*SECNO 15434.000

3470 ENCROACHMENT STATIONS= .0 483.0 TYPE= 1 TARGET= 482.999

15434.00	2.64	958.04	.00	.00	958.06	.02	.04	.00	956.90
121.	14.	73.	34.	41.	45.	87.	23.	15.	956.90
1.83	.36	1.60	.39	.110	.048	.110	.045	955.40	285.22
.001051	258.	373.	265.	0	0	0	.00	197.78	483.00

*SECNO 15600.000

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= .0 466.0 TYPE= 1 TARGET= 465.999

15600.00	2.34	958.24	.00	.00	958.29	.06	.23	.00	957.40
121.	10.	87.	24.	22.	39.	51.	24.	15.	957.40
1.86	.44	2.23	.48	.110	.048	.110	.046	955.90	299.92
.002487	115.	166.	118.	2	0	0	.00	166.08	466.00

*SECNO 15806.000

3470 ENCROACHMENT STATIONS= .0 445.0 TYPE= 1 TARGET= 444.999

15806.00	2.16	958.76	.00	.00	958.84	.08	.54	.00	957.80
121.	15.	90.	17.	26.	35.	40.	24.	16.	958.10
1.88	.57	2.57	.42	.110	.048	.110	.046	956.60	260.56
.003273	161.	207.	147.	2	0	0	.00	184.44	445.00

*SECNO 16179.000

3470 ENCROACHMENT STATIONS= .0 456.0 TYPE= 1 TARGET= 455.999

16179.00	2.18	959.88	.00	.00	959.95	.08	1.12	.00	958.70
121.	21.	86.	14.	31.	32.	41.	25.	17.	959.30
1.93	.68	2.65	.34	.110	.048	.110	.047	957.70	220.35
.003251	258.	373.	265.	2	0	0	.00	235.65	456.00

*SECNO 16551.000

SOUTH OF GRUBB ROAD -VALLEY SECTION 12

16551.00	2.41	961.01	.00	.00	961.09	.09	1.14	.00	959.60
121.	28.	83.	10.	34.	29.	31.	25.	19.	960.50
1.97	.81	2.82	.32	.110	.048	.110	.047	958.60	181.55
.003483	258.	373.	265.	2	0	0	.00	190.11	371.66

*SECNO 16765.000

16765.00	2.58	961.58	.00	.00	961.63	.05	.54	.00	960.00
121.	28.	74.	19.	41.	32.	58.	26.	19.	960.90
2.01	.69	2.30	.33	.110	.048	.110	.047	959.00	179.68

.002081	219.	214.	109.	1	0	0	.00	217.48	397.16

*SECNO 16979.000

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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

3470 ENCROACHMENT STATIONS= 557.5 566.5 TYPE= 1 TARGET= 9.000

16979.00	2.45	962.05	962.05	961.85	962.95	.90	1.11	.00	99999.30
121.	0.	121.	0.	0.	16.	0.	26.	20.	99999.30
2.02	.00	7.62	.00	.080	.045	.080	.047	959.60	557.50
.036026	209.	214.	109.	20	11	0	.00	9.00	566.50

*SECNO 16983.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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

3470 ENCROACHMENT STATIONS= 558.5 565.5 TYPE= 1 TARGET= 7.000

16983.00	2.68	962.28	962.28	961.95	963.34	1.06	.11	.00	100000.00
121.	0.	121.	0.	0.	15.	0.	26.	20.	100000.00
2.02	.00	8.26	.00	.080	.033	.080	.047	959.60	558.50
.022618	4.	4.	4.	20	8	0	.00	7.00	565.50

*SECNO 16987.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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

3470 ENCROACHMENT STATIONS= 559.5 564.5 TYPE= 1 TARGET= 5.000

16987.00	3.14	962.74	962.74	962.35	964.07	1.33	.10	.00	100000.00
121.	0.	121.	0.	0.	13.	0.	26.	20.	100000.00
2.02	.00	9.25	.00	.080	.033	.080	.047	959.60	559.50
.030043	4.	4.	4.	20	11	0	.00	5.00	564.50

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	2.75	2.50	.00	4.13	.00	19.63	.00	959.20	959.30

*SECNO 17035.000

WATER EL=X5 CARD= 965.120

3470 ENCROACHMENT STATIONS= .0 630.0 TYPE= 1 TARGET= 629.999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 965.40 ELREA= 965.40

GRUBB ROAD BRIDGE U/S FACE -BRIDGE SECTION 13

17035.00	5.92	965.12	.00	964.26	965.43	.31	.45	.00	970.00
121.	0.	121.	0.	0.	27.	0.	26.	20.	969.80
2.02	.00	4.49	.00	.080	.033	.080	.047	959.20	559.50
.004465	48.	48.	48.	0	0	0	.00	5.00	564.50

*SECNO 17418.000

3470 ENCROACHMENT STATIONS= 105.0 157.0 TYPE= 1 TARGET= 52.000

17418.00	2.83	966.53	.00	965.92	966.66	.13	1.23	.00	966.30
121.	1.	119.	1.	3.	41.	1.	27.	20.	966.10
2.06	.54	2.92	.50	.050	.040	.050	.047	963.70	105.00
.002415	305.	383.	356.	5	0	0	.00	38.74	143.74

*SECNO 17478.000

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
17478.00	2.50	966.70	.00	966.16	966.77	.08	.11	.00	976.30
121.	0.	121.	0.	0.	55.	0.	27.	20.	976.30
2.06	.00	2.20	.00	.060	.042	.060	.047	964.20	136.00
.001503	55.	60.	65.	2	0	0	.00	22.00	158.00

*SECNO 17485.000

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

17485.00	1.65	966.45	966.45	966.20	967.29	.83	.03	.00	976.30
121.	0.	121.	0.	0.	17.	0.	27.	20.	976.30
2.06	.00	7.33	.00	.060	.042	.060	.046	964.80	142.00

.032159	7.	7.	7.	20	14	0	.00	10.00	152.00

*SECNO 17494.000

17494.00	2.19	966.99	.00	966.69	967.47	.47	.18	.00	976.30
121.	0.	121.	0.	0.	22.	0.	27.	20.	976.30
2.07	.00	5.52	.00	.060	.042	.060	.046	964.80	142.00
.013856	9.	9.	9.	3	0	0	.00	10.00	152.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.00	3.10	.00	.01	.00	.01	.00	972.80	964.80

*SECNO 17495.000

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
274414.20	975.47	.00	121.	0.	0.	-0.	970.00	972.80

U/S OF GRUBB ROAD - DAM RECONSTRUCTION -BRIDGE SECTION 13-A

17495.00	5.19	975.19	.00	974.83	975.28	.08	7.81	.00	976.30
121.	0.	121.	0.	0.	52.	0.	27.	20.	976.30
2.07	.00	2.33	.00	.060	.042	.060	.046	970.00	142.00
.001247	1.	1.	1.	2	0	11	.00	10.00	152.00

*SECNO 17500.000

17500.00	5.25	975.25	.00	974.87	975.28	.03	.00	.00	976.30
121.	0.	0.	121.	0.	0.	84.	27.	20.	1026.30
2.07	.00	.00	1.44	.055	.040	.055	.046	970.00	152.00
.000614	5.	5.	5.	1	0	0	.00	16.00	168.00

*SECNO 17505.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
17505.00	5.26	975.26	.00	974.88	975.28	.03	.00	.00	976.30
121.	0.	121.	0.	0.	95.	0.	27.	20.	976.30
2.07	.00	1.28	.00	.055	.040	.055	.046	970.00	150.00
.000240	5.	5.	5.	0	0	0	.00	18.00	168.00

*SECNO 17535.000

17535.00	9.28	975.28	.00	974.90	975.28	.00	.00	.00	973.30
121.	1.	120.	0.	28.	1370.	14.	27.	20.	973.30
2.16	.02	.09	.02	.055	.040	.055	.046	966.00	28.15
.000000	30.	30.	30.	1	0	0	.00	266.24	294.39

*SECNO 17635.000

U/S OF GRUBB ROAD -VALLEY SECTION 14

17635.00	11.58	975.28	.00	974.90	975.28	.00	.00	.00	965.80
121.	45.	27.	49.	685.	215.	741.	31.	21.	966.60
2.51	.07	.13	.07	.050	.035	.050	.046	963.70	4.82
.000000	100.	100.	100.	1	0	0	.00	279.35	284.17

*SECNO 17835.000

17835.00	10.68	975.28	.00	974.90	975.28	.00	.00	.00	966.70
121.	34.	38.	48.	571.	196.	627.	37.	22.	967.50
2.95	.06	.20	.08	.090	.038	.070	.046	964.60	15.45
.000001	177.	200.	156.	0	0	0	.00	265.49	280.94

*SECNO 18035.000

18035.00	9.78	975.28	.00	974.90	975.28	.00	.00	.00	967.60
121.	33.	42.	46.	467.	178.	516.	42.	23.	968.40
3.32	.07	.23	.09	.090	.038	.070	.046	965.50	26.00
.000002	177.	200.	156.	0	0	0	.00	251.73	277.72

*SECNO 18234.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
18234.00	8.88	975.28	.00	974.90	975.28	.00	.00	.00	968.50
121.	32.	46.	43.	373.	160.	408.	46.	24.	969.30
3.61	.09	.29	.11	.090	.038	.070	.046	966.40	36.03
.000004	178.	199.	155.	0	0	0	.00	234.61	270.64

*SECNO 18833.000

3470 ENCROACHMENT STATIONS= 526.0 548.0 TYPE= 1 TARGET= 22.000

18833.00	6.27	975.27	.00	974.89	975.29	.02	.01	.00	970.80
121.	1.	120.	0.	4.	119.	3.	52.	25.	972.10
3.77	.12	1.01	.15	.090	.038	.070	.045	969.00	526.00
.000070	533.	599.	468.	1	0	0	.00	22.00	548.00

*SECNO 18845.000

3470 ENCROACHMENT STATIONS= 529.0 545.0 TYPE= 1 TARGET= 16.000

18845.00	6.27	975.27	.00	974.89	975.29	.02	.00	.00100000.00	
121.	0.	121.	0.	0.	99.	0.	52.	25.	100000.00
3.77	.00	1.22	.00	.090	.038	.070	.045	969.00	529.00
.000181	12.	12.	12.	0	0	0	.00	16.00	545.00

*SECNO 18856.000

3470 ENCROACHMENT STATIONS= 532.0 542.0 TYPE= 1 TARGET= 10.000

18856.00	6.13	975.23	.00	974.86	975.29	.06	.00	.00100000.00	

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      121.        0.      121.        0.        0.       61.        0.       52.       25. 100000.00
      3.77       .00      1.99       .00      .090      .038      .070      .045   969.10   532.00
  .000671        12.       12.       12.         2         0         0       .00    10.00   542.00

*SECNO 18857.000

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD=  994.60 MAX ELLC=  977.20


3470 ENCROACHMENT STATIONS=     460.4     470.5  TYPE=     1  TARGET=      11.500
 18857.00      6.13    975.23       .00    974.86    975.29       .06       .00       .00    995.90
      121.        0.      121.        0.        0.       61.        0.       52.       25. 100000.00
      3.77       .00      1.99       .00      .090      .022      .070      .045   969.10   460.45
  .000224         1.        1.        1.         0         0         0       .00    10.00   470.45

*SECNO 18980.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     QLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=  994.60 MAX ELLC=  977.70


3470 ENCROACHMENT STATIONS=     460.4     470.5  TYPE=     1  TARGET=      11.500

        M-59 BRIDGE U/S FACE -BRIDGE SECTION 15

 18980.00      5.65    975.25       .00    974.88    975.33       .07       .03       .00    995.90
      121.        0.      121.        0.        0.       56.        0.       52.       25. 100000.00
      3.79       .00      2.17       .00      .090      .022      .070      .045   969.60   460.45
  .000284        123.      123.      123.         2         0         0       .00    10.00   470.45

*SECNO 18981.000

3470 ENCROACHMENT STATIONS=     459.4     471.4  TYPE=     1  TARGET=      12.000
 18981.00      5.67    975.27       .00    974.89    975.33       .05       .00       .00100000.00
      121.        0.      121.        0.        0.       67.        0.       52.       25. 100000.00
      3.79       .00      1.81       .00      .085      .042      .085      .045   969.60   459.40
  .000622         1.        1.        1.         2         0         0       .00    12.00   471.40

*SECNO 19067.000
 19067.00      5.33    975.33       .00    974.93    975.35       .02       .03       .00    971.50
      121.       10.      107.        4.       27.       84.       16.       53.       25.    973.00
      3.81       .35      1.28       .27      .085      .042      .085      .045   970.00   391.98
  .000178        59.       86.       75.         2         0         0       .00    45.76   437.73


*SECNO 19215.000
 19215.00      4.65    975.35       .00    974.95    975.39       .05       .04       .00    972.50
      121.        7.      113.        1.       15.       64.        3.       53.       25.    974.40
      3.83       .47      1.77       .23      .085      .042      .085      .045   970.70   299.60
  .000473       100.      148.      128.         2         0         0       .00    33.52   333.13
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*SECNO 19363.000

19363.00	4.01	975.41	.00	975.01	975.50	.10	.11	.00	973.50
121.	4.	117.	0.	6.	46.	0.	53.	25.	975.80
3.85	.63	2.54	.00	.085	.042	.085	.045	971.40	207.42
.001454	100.	148.	128.	1	0	0	.00	22.27	229.70

*SECNO 19511.000

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
19511.00	3.53	975.63	.00	975.23	975.83	.19	.32	.00	974.50
121.	2.	119.	0.	2.	34.	0.	53.	25.	977.30
3.86	.71	3.56	.00	.085	.042	.085	.045	972.10	114.23
.003704	100.	148.	128.	2	0	0	.00	17.10	131.33

*SECNO 19659.000

700 FT U/S OF M-59 -VALLEY SECTION 16

19659.00	3.42	976.22	.00	975.83	976.50	.28	.68	.00	975.50
121.	0.	121.	0.	1.	28.	0.	53.	25.	978.70
3.87	.64	4.25	.00	.085	.042	.085	.045	972.80	20.21
.005789	100.	148.	128.	2	0	0	.00	12.79	33.01

*SECNO 19812.000

19812.00	2.77	977.27	.00	976.91	977.78	.51	1.28	.00	976.90
121.	1.	120.	0.	1.	21.	0.	53.	26.	981.40
3.88	.83	5.74	.00	.085	.042	.085	.044	974.50	46.66
.013183	143.	153.	127.	3	0	0	.00	13.43	60.09

*SECNO 19965.000

19965.00	2.94	979.14	.00	978.86	979.54	.40	1.76	.00	978.30
121.	9.	112.	0.	6.	21.	0.	54.	26.	984.20
3.89	1.48	5.25	.00	.085	.042	.085	.044	976.20	68.94
.010176	143.	153.	127.	2	0	0	.00	18.97	87.91

*SECNO 20118.000

20118.00	2.84	980.74	.00	980.47	981.08	.33	1.54	.00	979.70
121.	23.	98.	0.	13.	19.	0.	54.	26.	987.00
3.90	1.83	5.08	.00	.085	.042	.085	.044	977.90	92.47
.010070	143.	153.	127.	1	0	0	.00	23.00	115.47

*SECNO 20271.000

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
20271.00	2.61	982.31	.00	982.06	982.56	.25	1.48	.00	981.20

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      121.       41.       80.        0.       21.       17.        0.       54.       26.    989.80
     3.91      2.02      4.74       .00      .085      .042      .085      .044    979.70    115.98
  .009639      143.      153.      127.         2         0         0       .00     26.99    142.97

*SECNO 20468.000

3470 ENCROACHMENT STATIONS=      146.0      172.0  TYPE=         1  TARGET=        26.000
 20468.00      2.73    984.10       .00    983.84    984.40       .30      1.84       .00  99999.57
      121.        0.      121.        0.        0.       27.        0.       54.       26.  99999.57
     3.92       .00      4.40       .00      .085      .042      .085      .044    981.37    154.10
  .009202      187.      197.      177.         2         0         0       .00     16.62    170.72

*SECNO 20484.000

3470 ENCROACHMENT STATIONS=      150.0      168.0  TYPE=         1  TARGET=        18.000
 20484.00      2.55    984.05       .00    983.85    984.61       .56       .22       .00100000.00
      121.        0.      121.        0.        0.       20.        0.       54.       26. 100000.00
     3.92       .00      6.01       .00      .085      .042      .085      .044    981.50    154.50
  .021883       16.       16.       16.         3         0         0       .00     13.50    168.00

*SECNO 20492.000

3470 ENCROACHMENT STATIONS=         .0      176.0  TYPE=         1  TARGET=       175.999
 20492.00      2.71    984.28       .00    984.06    984.75       .47       .14       .00    992.87
      121.        0.      121.        0.        0.       22.        0.       54.       26.    992.77
     3.92       .00      5.53       .00      .085      .042      .085      .044    981.57    159.61
  .013897         8.        8.        8.         2         0         0       .00     11.10    170.71

*SECNO 20519.000

3470 ENCROACHMENT STATIONS=         .0      176.0  TYPE=         1  TARGET=       175.999

        1500 FT U/S OF M-59/ABANDONED DAM -VALLEY SECTION 17

 20519.00      2.88    984.68       .00    984.39    985.08       .40       .33       .00    993.10
      121.        0.      121.        0.        0.       24.        0.       54.       26.    993.00
     3.92       .00      5.08       .00      .085      .042      .085      .044    981.80    159.58
  .010868         27.       27.       27.         2         0         0       .00     11.24    170.82

*SECNO 20521.000
   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=      155.0      171.0  TYPE=         1  TARGET=        16.000
 20521.00      3.09    984.89       .00    984.55    985.10       .21       .01       .00100000.00
      121.        0.      121.        0.        0.       33.        0.       54.       26. 100000.00
     3.92       .00      3.66       .00      .085      .042      .085      .044    981.80    155.00
  .005018         2.        2.        2.         2         0         0       .00     15.95    170.95

*SECNO 20529.000
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3470 ENCROACHMENT STATIONS=      147.0      179.0  TYPE=      1  TARGET=       32.000
 20529.00      3.15    984.95       .00    984.60    985.13       .19       .04       .00100000.00
      121.         0.      121.         0.        0.       35.         0.       54.       26.    992.90
     3.92       .00      3.47       .00      .085      .042      .085      .044    981.80    153.10
  .004656         8.        8.         8.         0         0         0       .00     17.89    170.99

*SECNO 22329.000

         1000 FT D/S OF ALDERMAN LAKE -VALLEY SECTION 18

 22329.00      1.93    989.63       .00    989.45    989.69       .06      4.56       .00    988.50
      121.        31.       86.         4.        38.       38.         5.       56.       28.    988.60
     4.18        .81      2.28       .76      .052      .038      .052      .043    987.70    344.51
  .001701      1295.     1795.     1385.         6         0         0       .00     99.33    443.84

*SECNO 23449.000

3470 ENCROACHMENT STATIONS=      228.0     1010.0  TYPE=      1  TARGET=     -228.000
 ELENCL=     991.20  ELENCR= 100000.00

         D/S OF ALDERMAN LAKE -VALLLEY SECTION 19

 23449.00      3.16    990.56       .00    990.40    990.58       .02       .88       .00    989.60
      121.         9.       67.        45.        41.       49.      214.       61.       35.    989.80
     4.53        .21      1.36       .21      .110      .040      .110      .043    987.40    389.85
  .000478       990.     1120.     1030.         6         0         0       .00    466.63    856.47
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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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T1      HIGHLAND TOWNSHIP FIS - JOB NO. 6504-04 L.PETTIBONE TO ALDERMAN LAKE
T2      100 YEAR EVENT
T3      PETTIBONE CREEK          PROJECT MANAGER - R.S. MIHOS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10.       4.        0.        0.   ,000000       ,00       ,0        0.   958.000      ,000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3.000      ,000    -1.000      ,000      ,000      ,000      ,000      ,000      ,000      ,000

*PROF 3

*SECNO 12351.000
   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      762.0  TYPE=      1  TARGET=      761.999

        U/S OF LOWER PETTIBONE LAKE -VALLEY SECTION 9

 12351.00      5.50    958.00       ,00    958.00    958.00       ,00       ,00       ,00    955.80
     132.       24.       107.        1.       281.      171.       19.        0.        0.    956.40
      .00       .08       .63       .06       .110      .038      .125      .000   952.50    269.00
  ,000039         0.        0.        0.          0         0         0       ,00   371.00    640.00

*SECNO 14191.000

        D/S OF PICKEREL LAKE -VALLEY SECTION 10

 14191.00      4.58    958.08       ,00       .00    958.08       .01       .08       ,00    956.30
     132.        4.       123.        5.        39.       206.       43.       15.        9.    955.80
      .88       .10       .60       .11       .100      .042      .100      .043   953.50     91.78
  ,000050     1600.     1840.     1100.          1         0         0       .00   137.04    228.82

*SECNO 15061.000

3470 ENCROACHMENT STATIONS=          .0      550.0  TYPE=      1  TARGET=      549.999

        U/S OF PICKEREL LAKE -VALLEY SECTION 11

 15061.00      4.02    958.12       ,00       .00    958.13       .00       .04       .00    956.00
     132.        40.       38.       55.       217.       76.      257.       22.       13.    955.70
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    1.70      .18      .49      .21     .070     .045     .080     .044   954.10   209.32
  .000051    635.     870.     890.        1        0        0      .00   340.68   550.00

*SECNO 15434.000

3470 ENCROACHMENT STATIONS=        .0     483.0  TYPE=     1  TARGET=     482.999
 15434.00     2.75   958.15      .00      .00   958.17      .02      .04      .00   956.90
     132.      17.      75.      40.      48.      47.      98.      25.      15.    956.90
     1.78      .36     1.58      .40     .110     .048     .110     .046   955.40   276.26
  .000954     258.     373.     265.        0        0        0      .00   206.74   483.00

*SECNO 15600.000
   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     466.0  TYPE=     1  TARGET=     465.999
 15600.00     2.42   958.32      .00      .00   958.38      .05      .21      .00   957.40
     132.      12.      90.      29.      27.      41.      58.      25.      16.    957.40
     1.80      .45     2.22      .50     .110     .048     .110     .046   955.90   296.46
  .002309     115.     166.     118.        2        0        0      .00   169.54   466.00

*SECNO 15806.000

3470 ENCROACHMENT STATIONS=        .0     445.0  TYPE=     1  TARGET=     444.999
 15806.00     2.22   958.82      .00      .00   958.90      .08      .52      .00   957.80
     132.      17.      94.      21.      28.      36.      46.      26.      16.    958.10
     1.83      .59     2.62      .45     .110     .048     .110     .046   956.60   258.56
  .003266     161.     207.     147.        2        0        0      .00   186.44   445.00

*SECNO 16179.000

3470 ENCROACHMENT STATIONS=        .0     456.0  TYPE=     1  TARGET=     455.999
 16179.00     2.22   959.92      .00      .00   960.00      .08     1.11      .00   958.70
     132.      24.      90.      18.      34.      33.      50.      26.      18.    959.30
     1.88      .71     2.71      .37     .110     .048     .110     .047   957.70   219.41
  .003270     258.     373.     265.        2        0        0      .00   236.59   456.00

*SECNO 16551.000

        SOUTH OF GRUBB ROAD -VALLEY SECTION 12

 16551.00     2.46   961.06      .00      .00   961.15      .09     1.14      .00   959.60
     132.      31.      88.      14.      36.      30.      39.      27.      19.    960.50
     1.92      .84     2.90      .36     .110     .048     .110     .047   958.60   181.00
  .003558     258.     373.     265.        2        0        0      .00   198.18   379.18

*SECNO 16765.000
 16765.00     2.63   961.63      .00      .00   961.69      .05      .54      .00   960.00
     132.      31.      77.      24.      43.      33.      68.      28.      20.    960.90
     1.95      .71     2.36      .36     .110     .048     .110     .048   959.00   179.09
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.002108	219.	214.	109.	1	0	0	.00	226.22	405.31

*SECNO 16979.000

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

3470 ENCROACHMENT STATIONS= 557.5 566.5 TYPE= 1 TARGET= 9.000

16979.00	2.57	962.17	962.17	961.85	963.11	.94	1.11	.00	99999.30
132.	0.	132.	0.	0.	17.	0.	28.	20.	99999.30
1.96	.00	7.80	.00	.080	.045	.080	.048	959.60	557.50
.035603	209.	214.	109.	20	8	0	.00	9.00	566.50

*SECNO 16983.000

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 558.5 565.5 TYPE= 1 TARGET= 7.000

16983.00	2.80	962.40	962.40	961.95	963.52	1.12	.11	.00	100000.00
132.	0.	132.	0.	0.	16.	0.	28.	20.	100000.00
1.96	.00	8.51	.00	.080	.033	.080	.048	959.60	558.50
.022863	4.	4.	4.	20	8	0	.00	7.00	565.50

*SECNO 16987.000

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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 559.5 564.5 TYPE= 1 TARGET= 5.000

16987.00	3.30	962.90	962.90	962.35	964.31	1.41	.11	.00	100000.00
132.	0.	132.	0.	0.	14.	0.	28.	20.	100000.00
1.96	.00	9.52	.00	.080	.033	.080	.048	959.60	559.50
.030680	4.	4.	4.	20	11	0	.00	5.00	564.50

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	2.75	2.50	.00	4.13	.00	19.63	.00	959.20	959.30

*SECNO 17035.000

WATER EL=X5 CARD= 965.480

3470 ENCROACHMENT STATIONS= .0 630.0 TYPE= 1 TARGET= 629.999

GRUBB ROAD BRIDGE U/S FACE -BRIDGE SECTION 13

17035.00	6.28	965.48	.00	964.26	965.81	.33	.46	.00	970.00
132.	0.	132.	0.	0.	29.	0.	28.	20.	969.80
1.97	.00	4.59	.00	.080	.033	.080	.047	959.20	559.50
.004564	48.	48.	48.	0	0	0	.00	5.00	564.50

*SECNO 17418.000

3470 ENCROACHMENT STATIONS= 105.0 157.0 TYPE= 1 TARGET= 52.000

17418.00	3.07	966.77	.00	965.92	966.88	.11	1.08	.00	966.30
132.	4.	125.	3.	6.	45.	4.	28.	20.	966.10
2.00	.76	2.78	.60	.050	.040	.050	.047	963.70	105.00
.001916	305.	383.	356.	5	0	0	.00	45.80	150.80

*SECNO 17478.000

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
17478.00	2.70	966.90	.00	966.16	966.98	.08	.10	.00	976.30
132.	0.	132.	0.	0.	59.	0.	28.	20.	976.30
2.01	.00	2.22	.00	.060	.042	.060	.047	964.20	136.00
.001399	55.	60.	65.	2	0	0	.00	22.00	158.00

*SECNO 17485.000

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

17485.00	1.75	966.55	966.55	966.20	967.43	.88	.03	.00	976.30
132.	0.	132.	0.	0.	17.	0.	28.	20.	976.30
2.01	.00	7.55	.00	.060	.042	.060	.047	964.80	142.00
.032192	7.	7.	7.	20	14	0	.00	10.00	152.00

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*SECNO 17494.000
 17494.00      2.31    967.11       .00    966.69    967.62       .51       .18       .00    976.30
     132.        0.      132.        0.        0.       23.        0.       29.       20.    976.30
     2.01       .00      5.72       .00      .060      .042      .060      .047    964.80    142.00
  .014185        9.        9.        9.         3         0         0       .00     10.00    152.00


SPECIAL BRIDGE

SB  XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      .00        1.00       3.10        .00        .01        .00        .01        .00      972.80     964.80

*SECNO 17495.000
PRESSURE AND WEIR FLOW

 EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                       AREA
706557.17     975.62       .00       132.        0.         0.        -0.       970.00     972.80


        U/S OF GRUBB ROAD - DAM RECONSTRUCTION -BRIDGE SECTION 13-A

 17495.00      5.33    975.33       .00    974.83    975.42       .10      7.81       .00    976.30
     132.        0.      132.        0.        0.       53.        0.       29.       20.    976.30
     2.01       .00      2.48       .00      .060      .042      .060      .047    970.00    142.00
  .001385        1.        1.        1.         2         0        11       .00     10.00    152.00


*SECNO 17500.000
 17500.00      5.39    975.39       .00    974.87    975.43       .04       .00       .00    976.30
     132.        0.        0.      132.        0.        0.       86.       29.       20.   1026.30
     2.01       .00       .00      1.53      .055      .040      .055      .047    970.00    152.00
  .000674        5.        5.        5.         2         0         0       .00     16.00    168.00


*SECNO 17505.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        0LOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


 17505.00      5.40    975.40       .00    974.88    975.43       .03       .00       .00    976.30
     132.        0.      132.        0.        0.       97.        0.       29.       20.    976.30
     2.02       .00      1.36       .00      .055      .040      .055      .047    970.00    150.00
  .000264        5.        5.        5.         0         0         0       .00     18.00    168.00


*SECNO 17535.000
 17535.00      9.43    975.43       .00    974.90    975.43       .00       .00       .00    973.30
     132.        1.      131.        0.       34.     1402.       16.       29.       20.    973.30
     2.10       .02       .09       .02      .055      .040      .055      .047    966.00     24.09
  .000001       30.       30.       30.         1         0         0       .00    270.96    295.06


*SECNO 17635.000
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U/S OF GRUBB ROAD -VALLEY SECTION 14

17635.00	11.73	975.43	.00	974.90	975.43	.00	.00	.00	965.80
132.	49.	29.	54.	704.	218.	760.	33.	21.	966.60
2.43	.07	.13	.07	.050	.035	.050	.046	963.70	3.07
.000000	100.	100.	100.	1	0	0	.00	281.63	284.71

*SECNO 17835.000

17835.00	10.83	975.43	.00	974.90	975.43	.00	.00	.00	966.70
132.	38.	41.	53.	589.	199.	645.	39.	22.	967.50
2.85	.06	.21	.08	.090	.038	.070	.046	964.60	13.70
.000001	177.	200.	156.	0	0	0	.00	267.77	281.47

*SECNO 18035.000

18035.00	9.93	975.43	.00	974.90	975.43	.00	.00	.00	967.60
132.	36.	45.	51.	483.	181.	534.	44.	23.	968.40
3.20	.08	.25	.10	.090	.038	.070	.046	965.50	24.25
.000002	177.	200.	156.	0	0	0	.00	254.00	278.25

*SECNO 18234.000

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
18234.00	9.03	975.43	.00	974.90	975.43	.00	.00	.00	968.50
132.	35.	49.	48.	388.	163.	426.	48.	24.	969.30
3.48	.09	.30	.11	.090	.038	.070	.046	966.40	34.64
.000004	178.	199.	155.	0	0	0	.00	237.91	272.55

*SECNO 18833.000

3470 ENCROACHMENT STATIONS=			526.0	548.0	TYPE=	1	TARGET=	22.000	
18833.00	6.42	975.42	.00	974.89	975.44	.02	.01	.00	970.80
132.	1.	131.	1.	4.	122.	3.	55.	26.	972.10
3.62	.13	1.07	.16	.090	.038	.070	.045	969.00	526.00
.000077	533.	599.	468.	1	0	0	.00	22.00	548.00

*SECNO 18845.000

3470 ENCROACHMENT STATIONS=			529.0	545.0	TYPE=	1	TARGET=	16.000	
18845.00	6.41	975.41	.00	974.89	975.44	.03	.00	.00100000.00	
132.	0.	132.	0.	0.	102.	0.	55.	26. 100000.00	
3.63	.00	1.30	.00	.090	.038	.070	.045	969.00	529.00
.000202	12.	12.	12.	0	0	0	.00	16.00	545.00

*SECNO 18856.000

3470 ENCROACHMENT STATIONS=			532.0	542.0	TYPE=	1	TARGET=	10.000	
18856.00	6.27	975.37	.00	974.86	975.44	.07	.00	.00100000.00	
132.	0.	132.	0.	0.	62.	0.	55.	26. 100000.00	
3.63	.00	2.12	.00	.090	.038	.070	.045	969.10	532.00
.000753	12.	12.	12.	2	0	0	.00	10.00	542.00

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*SECNO 18857.000

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD=  994.60 MAX ELLC=  977.20


3470 ENCROACHMENT STATIONS=     460.4     470.5  TYPE=     1  TARGET=      11.500
 18857.00      6.27    975.37       .00    974.86    975.44       .07       .00       .00    995.90
     132.         0.      132.        0.        0.       62.        0.       55.       26.  100000.00
     3.63       .00      2.12       .00      .090      .022      .070      .045    969.10    460.45
  .000251        1.        1.        1.         0         0         0       .00     10.00    470.45


*SECNO 18980.000
   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= 22 MIN ELTRD=  994.60 MAX ELLC=  977.70


3470 ENCROACHMENT STATIONS=     460.4     470.5  TYPE=     1  TARGET=      11.500

        M-59 BRIDGE U/S FACE -BRIDGE SECTION 15

 18980.00      5.80    975.40       .00    974.88    975.48       .08       .03       .00    995.90
     132.         0.      132.        0.        0.       57.        0.       55.       26.  100000.00
     3.64       .00      2.31       .00      .090      .022      .070      .045    969.60    460.45
  .000316       123.      123.      123.         2         0         0       .00     10.00    470.45


*SECNO 18981.000

3470 ENCROACHMENT STATIONS=     459.4     471.4  TYPE=     1  TARGET=      12.000
 18981.00      5.82    975.42       .00    974.89    975.48       .06       .00       .00100000.00
     132.         0.      132.        0.        0.       69.        0.       55.       26.  100000.00
     3.64       .00      1.92       .00      .085      .042      .085      .045    969.60    459.40
  .000690        1.        1.        1.         2         0         0       .00     12.00    471.40


*SECNO 19067.000
 19067.00      5.48    975.48       .00    974.93    975.51       .02       .03       .00    971.50
     132.        11.      116.        5.       29.       86.       18.       55.       26.    973.00
     3.66       .38      1.34       .30      .085      .042      .085      .045    970.00    391.30
  .000187        59.       86.       75.         2         0         0       .00     47.80    439.10


*SECNO 19215.000
 19215.00      4.80    975.50       .00    974.95    975.55       .05       .04       .00    972.50
     132.         8.      123.        1.       17.       67.        4.       56.       26.    974.40
     3.69       .50      1.84       .26      .085      .042      .085      .045    970.70    298.98
  .000487       100.      148.      128.         2         0         0       .00     35.19    334.17


*SECNO 19363.000
 19363.00      4.16    975.56       .00    975.01    975.66       .10       .11       .00    973.50
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132.	5.	127.	0.	7.	48.	0.	56.	26.	975.80
3.70	.66	2.62	.00	.085	.042	.085	.045	971.40	206.88
.001470	100.	148.	128.	1	0	0	.00	22.97	229.85

*SECNO 19511.000

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
19511.00	3.68	975.78	.00	975.23	975.99	.20	.32	.00	974.50
132.	2.	130.	0.	3.	36.	0.	56.	26.	977.30
3.71	.80	3.65	.00	.085	.042	.085	.045	972.10	113.66
.003693	100.	148.	128.	2	0	0	.00	17.98	131.64

*SECNO 19659.000

700 FT U/S OF M-59 -VALLEY SECTION 16

19659.00	3.57	976.37	.00	975.83	976.66	.30	.68	.00	975.50
132.	1.	131.	0.	1.	30.	0.	56.	26.	978.70
3.72	.73	4.38	.00	.085	.042	.085	.045	972.80	19.85
.005855	100.	148.	128.	2	0	0	.00	13.39	33.24

*SECNO 19812.000

19812.00	2.91	977.41	.00	976.91	977.94	.53	1.27	.00	976.90
132.	1.	131.	0.	1.	22.	0.	56.	26.	981.40
3.73	1.01	5.85	.00	.085	.042	.085	.045	974.50	45.88
.012757	143.	153.	127.	3	0	0	.00	14.25	60.14

*SECNO 19965.000

19965.00	3.05	979.25	.00	978.86	979.67	.42	1.73	.00	978.30
132.	11.	121.	0.	7.	22.	0.	56.	26.	984.20
3.74	1.59	5.39	.00	.085	.042	.085	.045	976.20	68.53
.010201	143.	153.	127.	2	0	0	.00	19.42	87.95

*SECNO 20118.000

20118.00	2.95	980.85	.00	980.47	981.19	.34	1.52	.00	979.70
132.	27.	105.	0.	14.	20.	0.	56.	26.	987.00
3.75	1.91	5.18	.00	.085	.042	.085	.045	977.90	91.98
.009911	143.	153.	127.	1	0	0	.00	23.55	115.52

*SECNO 20271.000

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
20271.00	2.70	982.40	.00	982.06	982.66	.26	1.46	.00	981.20
132.	46.	86.	0.	22.	18.	0.	57.	26.	989.80
3.76	2.09	4.85	.00	.085	.042	.085	.044	979.70	115.49
.009562	143.	153.	127.	1	0	0	.00	27.53	143.03

*SECNO 20468.000

3470 ENCROACHMENT STATIONS=		146.0	172.0	TYPE=	1	TARGET=	26.000			
20468.00	2.82	984.19	.00	983.84	984.51	.32	1.86	.00	99999.57	
132.	0.	132.	0.	0.	29.	0.	57.	26.	99999.57	
3.77	.00	4.56	.00	.085	.042	.085	.044	981.37	153.89	
.009448	187.	197.	177.	1	0	0	.00	16.88	170.77	

*SECNO 20484.000

3470 ENCROACHMENT STATIONS=		150.0	168.0	TYPE=	1	TARGET=	18.000			
20484.00	2.63	984.13	.00	983.85	984.73	.60	.22	.00	100000.00	
132.	0.	132.	0.	0.	21.	0.	57.	26.	100000.00	
3.77	.00	6.22	.00	.085	.042	.085	.044	981.50	154.31	
.022329	16.	16.	16.	3	0	0	.00	13.69	168.00	

*SECNO 20492.000

3470 ENCROACHMENT STATIONS=		.0	176.0	TYPE=	1	TARGET=	175.999			
20492.00	2.78	984.35	.00	984.06	984.88	.52	.14	.00	992.87	
132.	0.	132.	0.	0.	23.	0.	57.	26.	992.77	
3.77	.00	5.80	.00	.085	.042	.085	.044	981.57	159.59	
.014771	8.	8.	8.	2	0	0	.00	11.16	170.76	

*SECNO 20519.000

3470 ENCROACHMENT STATIONS=		.0	176.0	TYPE=	1	TARGET=	175.999			

1500 FT U/S OF M-59/ABANDONED DAM -VALLEY SECTION 17

20519.00	2.99	984.79	.00	984.39	985.22	.43	.34	.00	993.10	
132.	0.	132.	0.	0.	25.	0.	57.	26.	993.00	
3.77	.00	5.27	.00	.085	.042	.085	.044	981.80	159.56	
.011160	27.	27.	27.	2	0	0	.00	11.33	170.89	

*SECNO 20521.000

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=		155.0	171.0	TYPE=	1	TARGET=	16.000			
20521.00	3.22	985.02	.00	984.55	985.24	.22	.01	.00	100000.00	
132.	0.	132.	0.	0.	35.	0.	57.	26.	100000.00	
3.77	.00	3.75	.00	.085	.042	.085	.044	981.80	155.00	
.004973	2.	2.	2.	2	0	0	.00	16.00	171.00	

*SECNO 20529.000

3470 ENCROACHMENT STATIONS=		147.0	179.0	TYPE=	1	TARGET=	32.000			
20529.00	3.28	985.08	.00	984.60	985.27	.20	.04	.00	100000.00	

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     132.       0.     132.       0.       0.      37.       0.      57.      26.    992.90
    3.77      .00     3.55      .00     .085     .042     .085     .044   981.80   152.79
 .004600       8.       8.       8.        0        0        0      .00    18.28   171.07

*SECNO 22329.000

        1000 FT D/S OF ALDERMAN LAKE -VALLEY SECTION 18

 22329.00     2.00   989.70      .00   989.45   989.76      .06     4.49      .00   988.50
     132.      36.     92.       5.      43.      39.       6.      59.      28.    988.60
    4.03      .83     2.32      .78     .052     .038     .052     .044   987.70   340.39
 .001679     1295.   1795.     1385.       6        0        0      .00   104.11   444.50


*SECNO 23449.000

3470 ENCROACHMENT STATIONS=     228.0    1010.0  TYPE=      1  TARGET=    -228.000
 ELENCL=    991.20  ELENCR= 100000.00

        D/S OF ALDERMAN LAKE -VALLLEY SECTION 19

 23449.00     3.22   990.62      .00   990.40   990.63      .02      .87      .00   989.60
     132.      10.     70.      52.      46.      51.      234.     64.      35.    989.80
    4.39      .21     1.38      .22     .110     .040     .110     .043   987.40   385.05
 .000473      990.    1120.    1030.       6        0        0      .00   473.72   858.77
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FORM 1411 X GB

U.S.A.

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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T1      HIGHLAND TOWNSHIP FIS - JOB NO. 6504-04 L.PETTIBONE TO ALDERMAN LAKE
T2      500 YEAR EVENT
T3      PETTIBONE CREEK          PROJECT MANAGER - R.S. MIHOS

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      -10.         5.         0.         0.   ,000000        ,00         ,0         0.    958.410       ,000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

     15.000       .000     -1.000       .000       .000       .000       .000       .000       .000       .000

*PROF 4

*SECNO 12351.000
   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      762.0  TYPE=      1   TARGET=      761.999

        U/S OF LOWER PETTIBONE LAKE -VALLEY SECTION 9

 12351.00       5.91     958.41        .00     958.41     958.41        .00        .00        .00     955.80
      159.         40.        117.         2.       410.       188.        30.         0.         0.     956.40
       .00         .10        .62        .07        .110       .038       .125       .000    952.50     256.36
  .000034          0.         0.         0.          0          0          0        .00     390.64     647.00


*SECNO 14191.000

        D/S OF PICKEREL LAKE -VALLEY SECTION 10

 14191.00       4.98     958.48        .00        .00     958.49        .01        .07        .00     956.30
      159.         7.        145.         8.        59.       228.        59.        19.        10.     955.80
       .84         .12        .64        .13        .100       .042       .100       .043    953.50     83.47
  .000049       1600.      1840.      1100.          1          0          0        .00     152.06     235.53


*SECNO 15061.000

 3470 ENCROACHMENT STATIONS=          .0      550.0  TYPE=      1   TARGET=      549.999

        U/S OF PICKEREL LAKE -VALLEY SECTION 11

 15061.00       4.42     958.52        .00        .00     958.52        .00        .04        .00     956.00
      159.         54.        40.        65.       297.        86.       307.        28.        14.     955.70
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1.71	.18	.47	.21	.070	.045	.080	.045	954.10	185.12
.000040	635.	870.	890.	0	0	0	.00	364.88	550.00

*SECNO 15434.000

3470 ENCROACHMENT STATIONS= .0 483.0 TYPE= 1 TARGET= 482.999

15434.00	3.14	958.54	.00	.00	958.55	.01	.03	.00	956.90
159.	29.	76.	54.	90.	56.	141.	31.	16.	956.90
1.81	.32	1.35	.39	.110	.048	.110	.046	955.40	230.84
.000562	258.	373.	265.	0	0	0	.00	252.16	483.00

*SECNO 15600.000

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= .0 466.0 TYPE= 1 TARGET= 465.999

15600.00	2.74	958.64	.00	.00	958.68	.04	.12	.00	957.40
159.	22.	93.	44.	48.	47.	87.	32.	17.	957.40
1.84	.45	1.96	.51	.110	.048	.110	.046	955.90	276.29
.001468	115.	166.	118.	2	0	0	.00	189.71	466.00

*SECNO 15806.000

3470 ENCROACHMENT STATIONS= .0 445.0 TYPE= 1 TARGET= 444.999

15806.00	2.38	958.98	.00	.00	959.05	.07	.37	.00	957.80
159.	23.	102.	33.	37.	39.	65.	32.	17.	958.10
1.86	.63	2.62	.51	.110	.048	.110	.047	956.60	253.55
.002925	161.	207.	147.	2	0	0	.00	191.45	445.00

*SECNO 16179.000

3470 ENCROACHMENT STATIONS= .0 456.0 TYPE= 1 TARGET= 455.999

16179.00	2.32	960.02	.00	.00	960.11	.08	1.06	.00	958.70
159.	29.	100.	30.	38.	35.	67.	33.	19.	959.30
1.91	.77	2.88	.44	.110	.048	.110	.047	957.70	217.74
.003480	258.	373.	265.	2	0	0	.00	238.26	456.00

*SECNO 16551.000

SOUTH OF GRUBB ROAD -VALLEY SECTION 12

16551.00	2.58	961.18	.00	.00	961.27	.09	1.16	.00	959.60
159.	37.	97.	25.	41.	32.	59.	34.	20.	960.50
1.95	.90	3.02	.43	.110	.048	.110	.048	958.60	179.67
.003579	258.	373.	265.	2	0	0	.00	217.70	397.37

*SECNO 16765.000

16765.00	2.76	961.76	.00	.00	961.81	.05	.54	.00	960.00
159.	36.	86.	37.	48.	34.	69.	35.	21.	960.90
1.99	.76	2.50	.41	.110	.048	.110	.048	959.00	177.87

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 .002220      219.      214.      109.         2         0         0       .00    244.04    421.92

*SECNO 16979.000

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

3470 ENCROACHMENT STATIONS=      557.5      566.5  TYPE=      1  TARGET=        9.000
 16979.00      2.82    962.42    962.42    961.85    963.48      1.07      1.15       .00 99999.30
     159.        0.       159.        0.        0.       19.        0.       35.       21.  99999.30
     1.99       .00      8.28       .00      .080      .045      .080      .048    959.60    557.50
 .035878       209.      214.      109.        20         5         0       .00      9.00    566.50


*SECNO 16983.000
    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


3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      558.5      565.5  TYPE=      1  TARGET=        7.000
 16983.00      3.09    962.69    962.69    961.95    963.97      1.27       .11       .00100000.00
     159.        0.       159.        0.        0.       18.        0.       35.       21.  100000.00
     1.99       .00      9.05       .00      .080      .033      .080      .048    959.60    558.50
 .023455         4.        4.        4.        20         8         0       .00      7.00    565.50


*SECNO 16987.000
    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


3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      559.5      564.5  TYPE=      1  TARGET=        5.000
 16987.00      3.66    963.26    963.26    962.35    964.86      1.59       .11       .00100000.00
     159.        0.       159.        0.        0.       16.        0.       35.       21.  100000.00
     1.99       .00     10.13       .00      .080      .033      .080      .048    959.60    559.50
 .032208         4.        4.        4.        20        11         0       .00      5.00    564.50
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SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	2.75	2.50	.00	4.13	.00	19.63	.00	959.20	959.30

*SECNO 17035.000
WATER EL=XS CARD= 966.530

3470 ENCROACHMENT STATIONS= .0 630.0 TYPE= 1 TARGET= 629.999

GRUBB ROAD BRIDGE U/S FACE -BRIDGE SECTION 13

17035.00	7.33	966.53	.00	964.26	966.87	.34	.46	.00	970.00
159.	0.	159.	0.	0.	34.	0.	35.	21.	969.80
2.00	.00	4.67	.00	.080	.033	.080	.048	959.20	559.50
.004485	48.	48.	48.	0	0	0	.00	5.00	564.50

*SECNO 17418.000

3470 ENCROACHMENT STATIONS= 105.0 157.0 TYPE= 1 TARGET= 52.000

17418.00	3.76	967.46	.00	965.92	967.53	.07	.66	.00	966.30
159.	13.	130.	15.	14.	57.	19.	36.	22.	966.10
2.05	.94	2.27	.81	.050	.040	.050	.047	963.70	105.00
.000921	305.	383.	356.	5	0	0	.00	52.00	157.00

*SECNO 17478.000

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
17478.00	3.32	967.52	.00	966.16	967.59	.07	.06	.00	976.30
159.	0.	159.	0.	0.	73.	0.	36.	22.	976.30
2.05	.00	2.18	.00	.060	.042	.060	.047	964.20	136.00
.001090	55.	60.	65.	2	0	0	.00	22.00	158.00

*SECNO 17485.000

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

17485.00	1.98	966.78	966.78	966.20	967.78	1.00	.02	.00	976.30
159.	0.	159.	0.	0.	20.	0.	36.	22.	976.30
2.06	.00	8.03	.00	.060	.042	.060	.047	964.80	142.00
.032301	7.	7.	7.	20	14	0	.00	10.00	152.00

FORM 1411 4 GB

*SECNO 17494.000

17494.00	2.58	967.38	.00	966.69	967.97	.59	.19	.00	976.30
159.	0.	159.	0.	0.	26.	0.	36.	22.	976.30
2.06	.00	6.16	.00	.060	.042	.060	.047	964.80	142.00
.014932	9.	9.	9.	3	0	0	.00	10.00	152.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.00	3.10	.00	.01	.00	.01	.00	972.80	964.80

*SECNO 17495.000

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
926588.50	975.97	.00	160.	0.	0.	-0.	970.00	972.80

U/S OF GRUBB ROAD - DAM RECONSTRUCTION -BRIDGE SECTION 13-A

17495.00	5.66	975.66	.00	974.83	975.78	.12	7.81	.00	976.30
159.	0.	159.	0.	0.	57.	0.	36.	22.	976.30
2.06	.00	2.81	.00	.060	.042	.060	.047	970.00	142.00
.001716	1.	1.	1.	2	0	10	.00	10.00	152.00

*SECNO 17500.000

17500.00	5.74	975.74	.00	974.87	975.79	.05	.01	.00	976.30
159.	0.	0.	159.	0.	0.	92.	36.	22.	1026.30
2.06	.00	.00	1.73	.055	.040	.055	.047	970.00	152.00
.000821	5.	5.	5.	2	0	0	.00	16.00	168.00

*SECNO 17505.000

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
17505.00	5.75	975.75	.00	974.88	975.79	.04	.00	.00	976.30
159.	0.	159.	0.	0.	103.	0.	36.	22.	976.30
2.06	.00	1.54	.00	.055	.040	.055	.047	970.00	150.00
.000321	5.	5.	5.	0	0	0	.00	18.00	168.00

*SECNO 17535.000

17535.00	9.79	975.79	.00	974.90	975.79	.00	.00	.00	973.30
159.	1.	157.	1.	50.	1479.	21.	36.	22.	973.30
2.14	.02	.11	.03	.055	.040	.055	.047	966.00	14.31
.000001	30.	30.	30.	1	0	0	.00	282.35	296.66

*SECNO 17635.000

3280 CROSS SECTION 17635.00 EXTENDED .10 FEET

FORM 1411 ½ GB

U/S OF GRUBB ROAD -VALLEY SECTION 14

17635.00	12.09	975.79	.00	974.90	975.79	.00	.00	.00	965.80
159.	60.	34.	65.	753.	225.	807.	40.	22.	966.60
2.43	.08	.15	.08	.050	.035	.050	.047	963.70	.00
.000001	100.	100.	100.	1	0	0	.00	285.99	285.99

*SECNO 17835.000

17835.00	11.19	975.79	.00	974.90	975.79	.00	.00	.00	966.70
159.	46.	48.	65.	633.	207.	690.	47.	23.	967.50
2.80	.07	.23	.09	.090	.038	.070	.047	964.60	9.50
.000002	177.	200.	156.	0	0	0	.00	273.25	282.75

*SECNO 18035.000

18035.00	10.29	975.79	.00	974.90	975.79	.00	.00	.00	967.60
159.	45.	52.	62.	524.	189.	578.	52.	25.	968.40
3.11	.09	.28	.11	.090	.038	.070	.047	965.50	20.05
.000003	177.	200.	156.	0	0	0	.00	259.48	279.53

*SECNO 18234.000

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
18234.00	9.39	975.79	.00	974.90	975.79	.00	.00	.00	968.50
159.	43.	57.	59.	425.	171.	468.	57.	25.	969.30
3.36	.10	.33	.13	.090	.038	.070	.047	966.40	30.60
.000005	178.	199.	155.	0	0	0	.00	245.72	276.32

*SECNO 18833.000

3470 ENCROACHMENT STATIONS=		526.0		548.0	TYPE=	1	TARGET=	22.000	
18833.00	6.77	975.77	.00	974.89	975.80	.02	.01	.00	970.80
159.	1.	158.	1.	5.	129.	4.	64.	27.	972.10
3.49	.14	1.22	.18	.090	.038	.070	.046	969.00	526.00
.000093	533.	599.	468.	1	0	0	.00	22.00	548.00

*SECNO 18845.000

3470 ENCROACHMENT STATIONS=		529.0		545.0	TYPE=	1	TARGET=	16.000	
18845.00	6.77	975.77	.00	974.89	975.80	.03	.00	.00100000.00	
159.	0.	159.	0.	0.	107.	0.	64.	27.	100000.00
3.50	.00	1.48	.00	.090	.038	.070	.046	969.00	529.00
.000254	12.	12.	12.	1	0	0	.00	16.00	545.00

*SECNO 18856.000

3470 ENCROACHMENT STATIONS=		532.0		542.0	TYPE=	1	TARGET=	10.000	
18856.00	6.61	975.71	.00	974.86	975.80	.09	.01	.00100000.00	

```
     159.        0.      159.        0.        0.       66.        0.       64.       27. 100000.00
     3.50       .00      2.42       .00      .090      .038      .070      .046   969.10    532.00
  .000952       12.       12.       12.         2         0         0       .00    10.00    542.00

*SECNO 18857.000

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD=  994.60 MAX ELLC=  977.20


3470 ENCROACHMENT STATIONS=     460.4     470.5  TYPE=     1  TARGET=      11.500
 18857.00      6.61    975.71       .00    974.86    975.81       .09       .00       .00    995.90
     159.        0.      159.        0.        0.       66.        0.       64.       27. 100000.00
     3.50       .00      2.42       .00      .090      .022      .070      .046   969.10    460.45
  .000318         1.        1.        1.         0         0         0       .00    10.00    470.45

*SECNO 18980.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=  994.60 MAX ELLC=  977.70

3470 ENCROACHMENT STATIONS=     460.4     470.5  TYPE=     1  TARGET=      11.500

        M-59 BRIDGE U/S FACE -BRIDGE SECTION 15

 18980.00      6.14    975.74       .00    974.88    975.85       .11       .04       .00    995.90
     159.        0.      159.        0.        0.       61.        0.       64.       27. 100000.00
     3.51       .00      2.62       .00      .090      .022      .070      .045   969.60    460.45
  .000393       123.      123.      123.         2         0         0       .00    10.00    470.45

*SECNO 18981.000

3470 ENCROACHMENT STATIONS=     459.4     471.4  TYPE=     1  TARGET=      12.000
 18981.00      6.18    975.78       .00    974.89    975.85       .07       .00       .00100000.00
     159.        0.      159.        0.        0.       73.        0.       64.       27. 100000.00
     3.51       .00      2.18       .00      .085      .042      .085      .045   969.60    459.40
  .000853         1.        1.        1.         2         0         0       .00    12.00    471.40

*SECNO 19067.000
 19067.00      5.85    975.85       .00    974.93    975.88       .03       .03       .00    971.50
     159.       15.      135.        8.       35.       93.       25.       65.       27.    973.00
     3.53       .44      1.46       .34      .085      .042      .085      .045   970.00    389.69
  .000202       59.       86.       75.         2         0         0       .00    52.71    442.40


*SECNO 19215.000
 19215.00      5.17    975.87       .00    974.95    975.92       .06       .04       .00    972.50
     159.       12.      144.        2.       21.       73.        7.       65.       27.    974.40
     3.55       .58      1.98       .32      .085      .042      .085      .045   970.70    297.40
  .000505      100.      148.      128.         2         0         0       .00    39.28    336.68
```

*SECNO 19363.000

19363.00	4.52	975.92	.00	975.01	976.04	.11	.12	.00	973.50
159.	8.	151.	0.	10.	54.	0.	65.	27.	975.80
3.56	.79	2.78	.01	.085	.042	.085	.045	971.40	205.31
.001452	100.	148.	128.	1	0	0	.00	25.74	231.06

*SECNO 19511.000

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
19511.00	4.04	976.14	.00	975.23	976.36	.22	.32	.00	974.50
159.	4.	155.	0.	5.	41.	0.	65.	27.	977.30
3.58	.98	3.81	.00	.085	.042	.085	.045	972.10	112.21
.003583	100.	148.	128.	2	0	0	.00	19.96	132.17

*SECNO 19659.000

700 FT U/S OF M-59 -VALLEY SECTION 16

19659.00	3.89	976.69	.00	975.83	977.03	.33	.67	.00	975.50
159.	2.	157.	0.	2.	34.	0.	66.	28.	978.70
3.58	.91	4.66	.00	.085	.042	.085	.045	972.80	19.05
.006004	100.	148.	128.	2	0	0	.00	14.72	33.77

*SECNO 19812.000

19812.00	3.22	977.72	.00	976.91	978.28	.56	1.26	.00	976.90
159.	4.	155.	0.	3.	26.	0.	66.	28.	981.40
3.59	1.36	6.08	.00	.085	.042	.085	.045	974.50	44.39
.011924	143.	153.	127.	3	0	0	.00	15.85	60.24

*SECNO 19965.000

19965.00	3.30	979.50	.00	978.86	979.96	.45	1.67	.00	978.30
159.	18.	141.	0.	10.	25.	0.	66.	28.	984.20
3.60	1.82	5.69	.00	.085	.042	.085	.045	976.20	67.57
.010163	143.	153.	127.	2	0	0	.00	20.47	88.05

*SECNO 20118.000

20118.00	3.20	981.10	.00	980.47	981.46	.37	1.51	.00	979.70
159.	37.	122.	0.	18.	22.	0.	66.	28.	987.00
3.61	2.09	5.42	.00	.085	.042	.085	.045	977.90	90.90
.009744	143.	153.	127.	1	0	0	.00	24.73	115.63

*SECNO 20271.000

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
20271.00	2.92	982.62	.00	982.06	982.90	.28	1.44	.00	981.20

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      159.       59.      100.        0.       26.       20.        0.       66.       28.     989.80
     3.62      2.25      5.08       .00      .085      .042      .085      .045    979.70    114.48
  .009420      143.      153.      127.         2         0         0       .00     28.68    143.16

*SECNO 20468.000

3470 ENCROACHMENT STATIONS=     146.0     172.0  TYPE=     1  TARGET=     26.000
 20468.00      3.03    984.40       .00    983.84    984.77       .37      1.87       .00  99999.57
      159.        0.      159.        0.        0.       33.        0.       66.       28.  99999.57
     3.63       .00      4.88       .00      .085      .042      .085      .045    981.37    153.39
  .009720      187.      197.      177.         1         0         0       .00     17.52    170.91

*SECNO 20484.000

3470 ENCROACHMENT STATIONS=     150.0     168.0  TYPE=     1  TARGET=     18.000
 20484.00      2.77    984.27       .00    983.85    985.00       .73       .24       .00100000.00
      159.        0.      159.        0.        0.       23.        0.       66.       28. 100000.00
     3.63       .00      6.85       .00      .085      .042      .085      .045    981.50    153.97
  .025026       16.       16.       16.         3         0         0       .00     14.02    168.00

*SECNO 20492.000

3470 ENCROACHMENT STATIONS=       .0     176.0  TYPE=     1  TARGET=    175.999
 20492.00      2.95    984.52       .00    984.06    985.17       .65       .16       .00    992.87
      159.        0.      159.        0.        0.       25.        0.       66.       28.    992.77
     3.63       .00      6.47       .00      .085      .042      .085      .045    981.57    159.56
  .017120        8.        8.        8.         2         0         0       .00     11.30    170.86

*SECNO 20519.000

3470 ENCROACHMENT STATIONS=       .0     176.0  TYPE=     1  TARGET=    175.999

        1500 FT U/S OF M-59/ABANDONED DAM -VALLEY SECTION 17

 20519.00      3.24    985.04       .00    984.39    985.55       .50       .38       .00    993.10
      159.        0.      159.        0.        0.       28.        0.       66.       28.    993.00
     3.63       .00      5.69       .00      .085      .042      .085      .045    981.80    159.51
  .011817       27.       27.       27.         2         0         0       .00     11.54    171.05

*SECNO 20521.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK         EG         HV         HL       QLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB          ACH        AROB       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     171.0  TYPE=     1  TARGET=     16.000
 20521.00      3.51    985.31       .00    984.55    985.56       .25       .01       .00100000.00
      159.        0.      159.        0.        0.       40.        0.       66.       28. 100000.00
     3.63       .00      3.98       .00      .085      .042      .085      .045    981.80    155.00
  .004916        2.        2.        2.         2         0         0       .00     16.00    171.00

*SECNO 20529.000
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 3470 ENCROACHMENT STATIONS=      147.0      179.0  TYPE=      1  TARGET=       32.000
  20529.00      3.58    985.38       .00    984.60    985.60       .21       .04       .00100000.00
      159.         0.      159.        0.        0.       43.        0.       66.       28.     992.90
     3.63       .00      3.71       .00       .085      .042      .085      .045    981.80    152.09
  .004481         8.        8.        8.         0         0         0       .00     19.17    171.26

 *SECNO 22329.000

         1000 FT D/S OF ALDERMAN LAKE -VALLEY SECTION 18

  22329.00      2.16    989.86       .00    989.45    989.93       .06      4.33       .00    988.50
      159.        49.      104.        6.        55.       43.        8.       69.       30.     988.60
     3.88        .89      2.42        .84       .052      .038      .052      .044    987.70    331.02
  .001624      1295.     1795.     1385.         5         0         0       .00    114.99    446.00


 *SECNO 23449.000

 3470 ENCROACHMENT STATIONS=      228.0     1010.0  TYPE=      1  TARGET=     -228.000
  ELENCL=     991.20  ELENCR= 100000.00

         D/S OF ALDERMAN LAKE -VALLLEY SECTION 19

  23449.00      3.35    990.75       .00    990.40    990.77       .02       .84       .00    989.60
      159.        14.       76.       70.       59.       54.      283.       75.       37.     989.80
     4.26        .23      1.41        .25       .110      .040      .110      .044    987.40    374.03
  .000460       990.     1120.     1030.         6         0         0       .00    490.03    864.06
```

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: HIGHLAND TOWNSHIP

3) WATERCOURSE: PETTI BONE CREEK

4) DOCUMENT TYPE: MULTIPLE PROFILES — DETAILS

00BREAK00

* WATER SURFACE PROFILES *
* VERSION OF NOVEMBER 1976 *
* UPDATED JULY 1979 *
* RUN DATE WED, APR 22 1981, 1:39 PM *

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

PETTIBONE CREEK

SECTION 0.0 TO
MOORE LAKE

HILND1 6504-04

HIGHLAND TWP. FIS

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**************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
   ERROR CORR -  01,02,03
   MODIFICATION -  50,51,52,53
**************************************************

C
T1       HIGHLAND TOWNSHIP FIS - JOB NO. 6504-04
T2       10 YEAR EVENT
T3       PETTIBONE CREEK              PROJECT MANAGER - R.S. NIHOS

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

         -1.        2.         0.         0.    .000200        .00        .0         0.    947.000       .000

J2   NPROF      IPLOT      PRFVS      XSECV      XSECH         FN      ALLOC       IBW       CHNIM      ITRACE

        1.000      .000    -1.000      .000      .000      .000      .000      .000      .000      .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

       39.000     4.000    25.000      .000      .000      .000      .000      .000      .000

NC        .065      .065      .042      .300      .500      .000      .000      .000      .000      .000
QT       4.000   160.000   223.000   226.000   261.000      .000      .000      .000      .000      .000

         VALLEY SECTION NO.1 FROM FIELD SURVEY

X1        .000    14.000   100.000   278.000      .000      .000      .000      .000      .000      .000
GR     956.300      .000   946.700   100.000   945.400   103.000   944.900   125.000   944.700   150.000
GP     944.900   175.000   945.000   200.000   945.700   225.000   944.900   250.000   945.400   275.000
GR     946.300   278.000   947.500   300.000   950.400   350.000   957.400   400.000      .000      .000
NC        .070      .060      .040      .000      .000      .000      .000      .000      .000      .000

X1      83.000    90.000   133.300   292.300    75.000    92.000    83.000      .000      .000      .000
GR     956.700      .000   956.400     4.500   956.000     9.100   955.700    13.700   955.300    18.300
GR     955.000    22.900   954.600    27.500   954.300    32.100   953.900    36.700   953.600    41.300
GR     953.300    45.900   953.000    50.500   952.800    55.100   952.600    59.700   952.400    64.300
GR     952.100    68.900   951.700    73.500   951.400    78.100   951.000    82.700   950.700    87.300
GR     950.300    91.900   949.900    96.500   949.500   101.100   949.100   105.700   948.700   110.300
GR     948.300   114.900   947.900   119.500   947.500   124.100   947.100   128.700   946.700   133.300
GR     945.000   138.600   944.900   143.900   944.900   149.200   944.800   154.500   944.800   159.800
GR     944.800   165.100   944.900   170.400   944.800   175.700   944.800   181.000   944.800   186.300
GR     944.900   191.600   944.900   196.900   944.900   202.200   944.900   207.500   944.900   212.800
GR     944.900   218.100   944.900   223.400   945.000   228.700   945.200   234.000   945.300   239.300
GR     945.500   244.600   945.300   249.900   945.200   255.200   945.000   260.500   944.800   265.800
GR     944.900   271.100   945.000   276.400   945.100   281.700   945.200   287.000   946.300   292.300
GR     946.500   296.800   946.700   301.200   946.900   305.700   947.100   310.200   947.200   314.700
GR     947.500   319.200   947.700   323.600   948.000   328.100   948.300   332.600   948.600   337.100
GR     948.800   341.500   949.100   346.000   949.400   350.500   949.700   355.000   949.900   359.500
GR     950.200   363.900   950.500   368.400   950.900   372.900   951.400   377.400   952.000   381.800
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GR	952.500	386.300	953.000	390.800	953.500	395.300	954.000	399.800	954.600	404.200
GR	955.100	408.700	955.600	413.200	956.100	417.700	956.600	422.100	957.100	426.600
X1	167.000	90.000	166.600	306.600	75.000	92.000	84.000	.000	.000	.000
GR	957.100	.000	956.800	5.700	956.400	11.400	956.100	17.200	955.700	22.900
GR	955.300	28.700	955.000	34.400	954.600	40.200	954.200	45.900	953.900	51.700
GR	953.600	57.400	953.500	63.100	953.300	68.900	953.200	74.600	953.100	80.400
GR	952.900	86.100	952.500	91.900	952.100	97.600	951.800	103.400	951.400	109.100
GR	951.000	114.800	950.500	120.600	950.000	126.300	949.500	132.100	949.100	137.800
GR	948.600	143.600	948.100	149.300	947.600	155.100	947.200	160.800	946.700	166.600
GR	944.700	171.200	944.700	175.900	944.700	180.600	944.700	185.200	944.800	189.900
GR	944.900	194.600	945.100	199.200	945.000	203.900	945.000	208.600	944.900	213.200
GR	944.900	217.900	944.900	222.600	944.900	227.200	944.900	231.900	944.800	236.600
GR	944.800	241.200	944.800	245.900	944.900	250.600	945.100	255.200	945.200	259.900
GR	945.300	264.600	945.200	269.200	945.100	273.900	944.900	278.600	944.800	283.200
GR	944.800	287.900	944.900	292.600	945.000	297.300	945.000	301.900	946.400	306.600
GR	946.500	311.500	946.700	316.400	946.800	321.300	947.000	326.100	947.100	331.000
GR	947.400	335.900	947.700	340.800	948.000	345.700	948.300	350.600	948.600	355.500
GR	948.900	360.400	949.200	365.200	949.600	370.100	949.900	375.000	950.200	379.900
GR	950.500	384.800	950.800	389.700	951.200	394.600	951.700	399.500	952.300	404.300
GR	952.800	409.200	953.200	414.100	953.700	419.000	954.200	423.900	954.600	428.800
GR	955.100	433.700	955.500	438.600	956.000	443.500	956.500	448.300	956.900	453.200
ET	.000	7.100	.000	.000	.000	.000	206.000	350.000	200.000	352.000
X1	250.000	90.000	200.000	321.000	75.000	92.000	83.000	.000	.000	.000
GR	957.600	.000	957.200	6.800	956.800	13.700	956.500	20.600	956.100	27.500
GR	955.700	34.400	955.300	41.300	954.900	48.200	954.500	55.100	954.200	62.000
GR	953.900	68.900	953.900	75.800	953.900	82.700	953.900	89.600	953.900	96.500
GR	953.700	103.400	953.300	110.300	952.900	117.200	952.500	124.100	952.100	131.000
GR	951.600	137.900	951.100	144.800	950.500	151.700	950.000	158.600	949.400	165.500
GR	948.900	172.400	948.300	179.300	947.800	186.200	947.200	193.100	946.700	200.000
GR	944.500	204.000	944.500	208.000	944.600	212.000	944.600	216.100	944.800	220.100
GR	945.000	224.100	945.200	228.200	945.100	232.200	945.100	236.200	945.000	240.300
GR	945.000	244.300	945.000	248.300	944.900	252.400	944.800	256.400	944.800	260.400
GR	944.700	264.500	944.700	268.500	944.800	272.500	944.900	276.600	945.000	280.600
GR	945.100	284.600	945.100	288.700	944.900	292.700	944.800	296.700	944.700	300.800
GR	944.700	304.800	944.800	308.800	944.900	312.900	944.900	316.900	946.500	321.000
GR	946.600	326.300	946.700	331.600	946.800	336.900	946.900	342.200	947.000	347.500
GR	947.200	352.700	947.600	358.000	947.900	363.300	948.300	368.600	948.600	373.900
GR	949.000	379.200	949.400	384.500	949.700	389.800	950.100	395.100	950.400	400.400
GR	950.800	405.700	951.100	411.000	951.500	416.300	952.000	421.600	952.600	426.900
GR	953.100	432.200	953.500	437.500	953.900	442.800	954.300	448.100	954.700	453.400
GR	955.100	458.700	955.500	464.000	955.900	469.300	956.300	474.600	956.700	480.000
ET	.000	7.100	.000	.000	.000	.000	239.300	341.800	233.300	343.800
X1	334.000	90.000	233.300	335.300	75.000	92.000	84.000	.000	.000	.000
GR	958.100	.000	957.700	8.000	957.300	16.000	956.900	24.100	956.500	32.100
GR	956.100	40.200	955.700	48.200	955.300	56.300	954.900	64.300	954.500	72.400
GR	954.200	80.400	954.300	88.500	954.400	96.500	954.500	104.600	954.600	112.600
GR	954.500	120.700	954.100	128.700	953.700	136.800	953.300	144.800	952.900	152.900
GR	952.300	160.900	951.700	169.000	951.100	177.000	950.400	185.100	949.800	193.100
GR	949.200	201.200	948.600	209.200	948.000	217.300	947.300	225.300	946.700	233.300
GR	944.200	236.700	944.300	240.100	944.400	243.500	944.600	246.900	944.800	250.300
GR	945.100	253.700	945.400	257.100	945.300	260.500	945.200	263.900	945.200	267.300
GR	945.100	270.700	945.000	274.100	944.900	277.500	944.800	280.900	944.700	284.300
GR	944.700	287.700	944.600	291.100	944.700	294.500	944.800	297.900	944.900	301.300
GR	945.000	304.700	944.900	308.100	944.800	311.500	944.800	314.900	944.700	318.300

GR	944.700	321.700	944.700	325.100	944.800	328.500	944.800	331.900	946.500	335.300
GR	946.600	341.000	946.700	346.700	946.700	352.400	946.800	358.200	946.900	363.900
GR	947.100	369.600	947.500	375.300	947.900	381.000	948.300	386.700	948.700	392.400
GR	949.100	398.100	949.500	403.900	949.900	409.600	950.300	415.300	950.600	421.000
GR	951.000	426.700	951.400	432.400	951.900	438.100	952.400	443.800	952.900	449.600
GR	953.300	455.300	953.700	461.000	954.000	466.700	954.400	472.400	954.700	478.100
GR	955.100	483.800	955.400	489.500	955.800	495.200	956.100	501.000	956.500	506.700
ET	.000	7.100	.000	.000	.000	.000	272.600	333.600	266.600	335.600
X1	417.000	90.000	266.600	349.600	75.000	92.000	83.000	.000	.000	.000
GR	958.500	.000	958.100	9.100	957.700	18.300	957.200	27.500	956.800	36.700
GR	956.400	45.900	956.000	55.100	955.600	64.300	955.200	73.500	954.700	82.700
GR	954.500	91.900	954.700	101.100	954.900	110.300	955.100	119.500	955.300	128.700
GR	955.200	137.800	954.800	147.000	954.400	156.200	954.000	165.400	953.600	174.600
GR	953.000	183.800	952.300	193.000	951.600	202.200	950.900	211.400	950.200	220.600
GR	949.500	229.800	948.800	239.000	948.100	248.200	947.400	257.400	946.700	266.500
GR	943.900	269.300	944.100	272.100	944.300	274.900	944.500	277.600	944.800	280.400
GR	945.200	283.200	945.600	285.900	945.500	288.700	945.400	291.500	945.300	294.200
GR	945.200	297.000	945.100	299.800	944.900	302.500	944.800	305.300	944.700	308.100
GR	944.600	310.800	944.600	313.600	944.600	316.400	944.700	319.100	944.700	321.900
GR	944.800	324.700	944.800	327.400	944.700	330.200	944.700	333.000	944.600	335.700
GR	944.600	338.500	944.600	341.300	944.700	344.100	944.700	346.800	946.600	349.500
GR	946.600	355.700	946.700	361.800	946.700	368.000	946.700	374.100	946.800	380.200
GR	947.000	386.300	947.400	392.400	947.900	398.600	948.300	404.700	948.700	410.800
GR	949.200	416.900	949.600	423.000	950.000	429.200	950.400	435.300	950.900	441.400
GR	951.300	447.500	951.700	453.700	952.200	459.800	952.700	465.900	953.200	472.000
GR	953.600	478.100	953.900	484.300	954.200	490.400	954.500	496.500	954.800	502.600
GR	955.100	508.700	955.400	514.900	955.700	521.000	956.000	527.100	956.300	533.200
ET	.000	7.100	.000	.000	.000	.000	266.000	306.000	260.000	308.000
X1	459.000	90.000	283.300	356.800	37.500	46.000	42.000	.000	.000	.000
GR	958.700	.000	958.300	9.700	957.900	19.500	957.400	29.300	957.000	39.000
GR	956.600	48.800	956.100	58.600	955.700	68.300	955.300	78.100	954.800	87.900
GR	954.700	97.600	954.900	107.400	955.200	117.200	955.400	126.900	955.700	136.700
GR	955.600	146.500	955.200	156.300	954.800	166.000	954.300	175.800	953.900	185.600
GR	953.300	195.300	952.600	205.100	951.800	214.900	951.100	224.600	950.400	234.400
GR	949.600	244.200	948.900	253.900	948.200	263.700	947.400	273.500	946.700	283.300
GR	943.800	285.700	944.000	288.200	944.200	290.600	944.400	293.000	944.800	295.500
GR	945.200	297.900	945.600	300.400	945.500	302.800	945.400	305.300	945.300	307.700
GR	945.200	310.200	945.100	312.600	944.900	315.100	944.800	317.500	944.700	320.000
GR	944.500	322.400	944.500	324.900	944.500	327.300	944.600	329.800	944.600	332.200
GR	944.700	334.700	944.700	337.100	944.600	339.600	944.600	342.000	944.600	344.500
GR	944.600	346.900	944.600	349.400	944.600	351.800	944.600	354.300	946.600	356.800
GR	946.600	363.100	946.700	369.400	946.700	375.700	946.700	382.100	946.700	388.400
GR	946.900	394.700	947.400	401.000	947.800	407.400	948.300	413.700	948.700	420.000
GR	949.200	426.300	949.600	432.700	950.100	439.000	950.500	445.300	951.000	451.600
GR	951.400	458.000	951.900	464.300	952.300	470.600	952.800	477.000	953.300	483.300
GR	953.700	489.600	954.000	495.900	954.300	502.300	954.500	508.600	954.800	514.900
GR	955.100	521.200	955.300	527.600	955.600	533.900	955.900	540.200	956.200	546.600
ET	.000	7.100	.000	.000	.000	.000	322.500	341.500	.000	.000
VALLEY SECTION NO.2 FROM FIELD SURVEY										
X1	501.000	18.000	300.000	364.000	37.500	46.000	42.000	.000	.000	.000
GR	959.000	.000	954.800	100.000	956.300	150.000	954.200	200.000	946.800	300.000
GR	943.600	301.000	944.000	305.000	944.500	309.000	945.800	315.000	945.200	325.000
GR	944.500	335.000	944.700	345.000	944.600	355.000	944.600	362.000	946.700	364.000

GR	946.700	400.000	953.900	500.000	956.100	560.000	.000	.000	.000	.000
ET	.000	7.100	.000	.000	.000	.000	330.000	334.000	.000	.000

D/S OF C+O RAILROAD BRIDGE

X1	531.000	.000	.000	.000	30.000	30.000	30.000	.000	.200	.000
SB	.000	1.720	2.500	.000	3.140	.000	12.570	.000	945.100	944.700
NC	.000	.000	.014	.000	.000	.000	.000	.000	.000	.000
ET	.000	7.100	9.100	9.100	9.100	.000	498.000	502.000	400.000	900.000

VALLEY SECTION NO. 3 FROM FIELD SURVEY -SPECIAL BRIDGE / C+O RAILROAD

X1	569.000	24.000	498.000	502.000	38.000	38.000	38.000	.000	.000	.000
X2	.000	.000	.000	949.100	956.300	.000	.000	.000	.000	.000
X5	4.000	954.440	956.780	956.800	956.920	.000	.000	.000	.000	.000
BT	17.000	.000	954.000	.000	100.000	954.600	.000	200.000	955.200	.000
BT	300.000	955.900	.000	400.000	956.300	.000	498.000	956.800	947.100	498.100
BT	956.800	947.900	499.000	956.800	948.900	500.000	956.800	949.100	501.000	956.800
BT	948.900	501.900	956.800	947.900	502.000	956.800	947.100	600.000	957.400	.000
BT	700.000	958.000	.000	800.000	958.500	.000	900.000	959.000	.000	1000.000
BT	959.500	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	954.000	.000	954.600	100.000	955.200	200.000	955.900	300.000	956.300	400.000
GR	950.300	450.000	944.700	495.000	944.900	498.000	947.100	498.000	946.300	498.100
GR	945.300	499.000	945.100	500.000	945.300	501.000	946.300	501.900	947.100	502.000
GR	945.000	502.000	945.200	503.000	949.800	505.000	949.800	550.000	957.400	600.000
GR	958.000	700.000	958.500	800.000	959.500	900.000	959.500	1000.000	.000	.000
NC	.080	.070	.042	.000	.000	.000	.000	.000	.000	.000
ET	.000	7.100	9.100	9.100	9.100	.000	497.000	503.000	400.000	900.000

X1	570.000	19.000	490.000	505.000	1.000	1.000	1.000	.000	.000	.000
GR	954.000	.000	954.600	100.000	955.200	200.000	955.900	300.000	956.300	400.000
GR	950.300	450.000	950.100	490.000	944.700	495.000	944.900	498.000	945.000	500.000
GR	945.000	502.000	945.200	503.000	949.800	505.000	949.800	550.000	957.400	600.000
GR	958.000	700.000	958.500	800.000	959.000	900.000	959.500	1000.000	.000	.000
ET	.000	7.100	9.100	9.100	9.100	.000	493.000	507.000	400.000	900.000

X1	574.000	.000	.000	.000	4.000	4.000	4.000	.000	.000	.000
ET	.000	7.100	9.100	9.100	9.100	.000	488.000	512.000	400.000	900.000

X1	579.000	.000	.000	.000	5.000	5.000	5.000	.000	.000	.000

VALLEY SECTION NO. 4

X1	1679.000	27.000	73.000	248.000	1200.000	1000.000	1100.000	.000	.000	.000
GR	958.000	.000	948.800	40.000	947.500	73.000	947.000	75.000	946.900	85.000
GR	946.500	95.000	946.200	105.000	946.300	115.000	946.000	125.000	945.600	135.000
GR	945.500	145.000	945.500	155.000	946.500	165.000	945.500	175.000	945.600	185.000
GR	945.600	195.000	945.200	205.000	945.000	215.000	946.100	225.000	946.000	235.000
GR	946.000	244.000	947.400	248.000	950.600	306.000	958.000	319.000	958.400	326.000
GR	959.900	330.000	959.900	335.000	.000	.000	.000	.000	.000	.000

SECTION 4 REPEATED AND ADJUSTED FOR FIELD INVERT ELEVATION.

X1	2069.000	.000	.000	.000	390.000	390.000	390.000	.000	2.390	.000

SECTION 4 REPEATED AND ADJUSTED FOR FIELD INVERT ELEVATION.

X1	2279.000	.000	.000	.000	210.000	210.000	210.000	.000	1.290	.000
X3	.000	.000	.000	125.500	.000	195.500	.000	.000	.000	.000

DAM SECTION NO. 5 - BOTTOM OF CONCRETE WEIR.

X1	2329.000	.000	.000	.000	50.000	50.000	50.000	.000	.310	.000
X3	.000	.000	.000	138.000	.000	163.000	.000	.000	.000	.000
NC	.040	.040	.015	.000	.000	.000	.000	.000	.000	.000

X1	2379.000	8.000	110.000	130.000	50.000	50.000	50.000	.000	.000	.000
GR	965.200	.000	959.300	50.000	958.800	110.000	949.300	110.000	949.300	130.000
GR	958.700	130.000	958.100	190.000	965.200	225.000	.000	.000	.000	.000
SB	.000	1.000	3.300	.000	.001	.000	.001	.000	.000	.000

DAM SECTION NO. 5 - TOP OF CONCRETE WEIR

X1	2384.000	8.000	110.000	130.000	5.000	5.000	5.000	.000	.000	.000
X2	.000	.000	1.000	950.700	954.600	.000	.000	.000	.000	.000
BT	2.000	110.000	954.600	950.700	130.000	954.600	950.600	.000	.000	.000
GR	965.200	.000	959.300	50.000	958.800	110.000	950.700	110.000	950.600	130.000
GR	958.700	130.000	958.100	190.000	965.200	225.000	.000	.000	.000	.000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

*PROF 1

CCHV= .300 CEHV= .500

*SECNO .000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
.00	1.82	946.52	.00	947.00	946.53	.01	.00	.00	946.70
160.	0.	160.	0.	0.	253.	0.	0.	0.	946.30
.00	.00	.63	.07	.065	.042	.065	.000	944.70	100.42
.000201	0.	0.	0.	0	0	6	.00	181.60	282.02

*SECNO 83.000

83.00	1.73	946.53	.00	.00	946.54	.01	.02	.00	946.70
160.	0.	160.	0.	0.	240.	1.	0.	0.	965.30
.03	.00	.67	.09	.070	.040	.060	.040	944.80	133.81
.000186	75.	83.	92.	0	0	0	.00	163.78	297.59

*SECNO 167.000

167.00	1.85	946.55	.00	.00	946.56	.01	.02	.00	946.70
160.	0.	160.	0.	0.	221.	1.	1.	1.	946.40
.07	.00	.72	.07	.070	.040	.060	.040	944.70	166.94
.000208	75.	84.	92.	0	0	0	.00	145.80	312.75

*SECNO 250.000

3470 ENCROACHMENT STATIONS= 206.0 350.0 TYPE= 1 TARGET= 144.000

250.00	2.07	946.57	.00	.00	946.58	.01	.02	.00100000.00	
160.	0.	160.	0.	0.	192.	0.	1.	1.	946.50
.09	.00	.83	.04	.070	.040	.060	.040	944.50	206.00
.000263	75.	83.	92.	0	0	0	.00	118.55	324.55

*SECNO 334.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 239.3 341.8 TYPE= 1 TARGET= 102.500

334.00	2.32	946.59	.00	.00	946.61	.01	.03	.00100000.00	
160.	0.	160.	0.	0.	164.	0.	2.	1.	945.50
.12	.00	.98	.06	.070	.040	.060	.040	944.28	239.30
.000351	75.	84.	92.	0	0	0	.00	101.03	340.33

*SECNO 417.000

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3470 ENCROACHMENT STATIONS=      272.6      333.6  TYPE=      1  TARGET=       61.000
   417.00      2.49    946.63       .00       .00    946.66       .04       .04       .01100000.00
     160.        0.      160.        0.        0.      106.        0.        2.        1. 100000.00
      .13       .00      1.51       .00      .070      .040      .060      .040    944.14    272.60
  .000865       75.       83.       92.         0         0         0       .00     61.00    333.60

*SECNO 459.000

3470 ENCROACHMENT STATIONS=      266.0      306.0  TYPE=      1  TARGET=       40.000
   459.00      2.79    946.59       .00       .00    946.85       .26       .08       .11    946.70
     160.        0.      160.        0.        0.       39.        0.        2.        1. 100000.00
      .14       .00      4.06       .00      .070      .040      .060      .039    943.80    283.39
  .006580       38.       42.       46.         2         0         0       .00     22.61    306.00

*SECNO 501.000

3470 ENCROACHMENT STATIONS=      322.5      341.5  TYPE=      1  TARGET=       19.000

        VALLEY SECTION NO.2 FROM FIELD SURVEY

   501.00      2.35    946.85       .00       .00    947.12       .26       .26       .00100000.00
     160.        0.      160.        0.        0.       39.        0.        2.        1. 100000.00
      .14       .00      4.12       .00      .070      .040      .060      .039    944.50    322.50
  .006019       38.       42.       46.         2         0         0       .00     19.00    341.50

*SECNO 531.000

3301 HV CHANGED MORE THAN XVINS

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTP
   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

3470 ENCROACHMENT STATIONS=      330.0      334.0  TYPE=      1  TARGET=        4.000

        D/S OF C+O RAILROAD BRIDGE

   531.00      3.87    948.57    948.57       .00    950.43      1.85       .42       .80100000.00
     160.        0.      160.        0.        0.       15.        0.        2.        1. 100000.00
      .14       .00     10.93       .00      .070      .040      .060      .039    944.70    330.00
  .061457       30.       30.       30.        20        14         0       .00      4.00    334.00

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHO     ELCHD
      .00      1.72      2.50       .00      3.14       .00     12.57       .00    945.10    944.70

*SECNO 569.000
 WATER EL=X5 CARD=    954.440
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This stage is inappropriately high. However, this bridge is outside the study area.

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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=      498.0      502.0  TYPE=      1  TARGET=         4.000

          VALLEY SECTION NO. 3 FROM FIELD SURVEY -SPECIAL BRIDGE / C+O RAILROAD

      569.00       9.54     954.44        .00        .00     954.75        .31        .13        .46    944.90
        160.          0.       160.          0.         0.       36.          0.         2.          1. 100000.00
         .14         .00       4.50        .00        .07        .14        .06        .04     944.90    493.00
    .001147         38.         38.         38.          0          0          0        .00       4.00    502.00

 *SECNO 570.000

 3470 ENCROACHMENT STATIONS=      497.0      503.0  TYPE=      1  TARGET=         6.000
      570.00       9.86     954.70        .00        .00     954.81        .12        .00        .06100000.00
        160.          0.       160.          0.         0.       58.          0.         2.          1. 100000.00
         .14         .00       2.74        .00        .08        .04        .07        .04     944.83    497.00
    .001984          1.          1.          1.          2          0          0        .00       6.00    503.00

 *SECNO 574.000

 3470 ENCROACHMENT STATIONS=      493.0      507.0  TYPE=      1  TARGET=        14.000
      574.00      10.11     954.81        .00        .00     954.84        .03        .00        .03100000.00
        160.          0.       156.          4.         0.      112.         10.         2.          1.    949.80
         .14         .00       1.40        .38        .08        .04        .07        .04     944.70    493.00
    .000200          4.          4.          4.          2          0          0        .00      14.00    507.00

 *SECNO 579.000

 3470 ENCROACHMENT STATIONS=      488.0      512.0  TYPE=      1  TARGET=        24.000
      579.00      10.13     954.83        .00        .00     954.85        .02        .00        .00    950.10
        160.          2.       144.         14.         9.      131.         35.         2.          1.    949.80
         .14         .21       1.10        .39        .08        .04        .07        .04     944.70    488.00
    .000081          5.          5.          5.          1          0          0        .00      24.00    512.00

 *SECNO 1679.000

          VALLEY SECTION NO. 4

     1679.00       9.85     954.85        .00        .00     954.85        .00        .00        .01    947.50
        160.         10.       136.         14.       301.      1559.       355.        32.         5.    947.40
        3.96         .03        .09        .04        .08        .04        .07        .04     945.00     13.68
    .000000       1200.       1100.       1000.          2          0          0        .00     299.79    313.47

 *SECNO 2069.000
     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
```

SECTION 4 REPEATED AND ADJUSTED FOR FIELD INVERT ELEVATION.

```
 2069.00     7.46   954.85      .00      .00   954.85      .00      .00      .00   949.89
    160.       8.     142.      10.     172.    1142.     204.      49.       8.    949.79
    4.90      .05      .12      .05     .080     .042     .070     .041   947.39    24.04
 .000001     390.     390.     390.        1        0        0      .00   285.25   309.29
```

```
*SECNO 2279.000

3470 ENCROACHMENT STATIONS=      125.5      195.5  TYPE=      1  TARGET=      70.000
```

SECTION 4 REPEATED AND ADJUSTED FOR FIELD INVERT ELEVATION.

```
 2279.00     6.17   954.85      .00      .00   954.86      .00      .00      .00100000.00
    160.       0.     160.       0.       0.     382.       0.      53.       9. 100000.00
    5.03      .00      .42      .00     .080     .042     .070     .041   948.68   125.50
 .000018     210.     210.     210.        0        0        0      .00    70.00   195.50
```

```
*SECNO 2329.000

3470 ENCROACHMENT STATIONS=      138.0      163.0  TYPE=      1  TARGET=      25.000
```

DAM SECTION NO. 5 - BOTTOM OF CONCRETE WEIR.

```
 2329.00     5.85   954.84      .00      .00   954.87      .02      .00      .01100000.00
    160.       0.     160.       0.       0.     131.       0.      54.       9. 100000.00
    5.05      .30     1.22      .00     .080     .042     .070     .041   948.99   138.00
 .000206      50.      50.      50.        0        0        0      .00    25.00   163.00
```

```
*SECNO 2379.000
 2379.00     5.54   954.84      .00      .00   954.68      .03      .00      .00   958.60
    160.       0.     160.       0.       0.     111.       0.      54.       9.    958.70
    5.06      .00     1.44      .00     .040     .015     .040     .040   949.30   110.00
 .000039      50.      50.      50.        0        0        0      .00    20.00   130.00
```

```
SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     .00      1.00      3.30       .00       .00       .00       .00       .00    949.30    949.30

*SECNO 2384.000
PRESSURE AND WEIR FLOW

 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                              AREA
0000#0000   954.88      .00      160.        0.        0.        0.      950.70    954.60
```

DAM SECTION NO. 5 - TOP OF CONCRETE WEIR

2384.00	5.77	956.37	.00	.00	956.41	.03	1.53	.00	958.80
160.	0.	160.	0.	0.	114.	0.	54.	9.	958.70
5.06	.00	1.40	.00	.040	.015	.040	.040	950.60	110.00
.000036	5.	5.	5.	2	0	9	.00	20.00	130.00

```
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
*****************************************************


T1      HIGHLAND TOWNSHIP FIS - JOB NO. 6504-04
T2      50 YEAR EVENT
T3      PETTIBONE CREEK - PROJECT MANAGER - R.S. MIHOS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10.       3.        0.        0.   .000200      .00       .0        0.   947.000     .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2.000      .000    -1.000      .000      .000      .000      .000      .000      .000      .000

*PROF 2

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


        VALLEY SECTION NO.1 FROM FIELD SURVEY

      .00      2.13    946.83      .00    947.00    946.84      .01       .00       .00    946.70
     223.        0.      223.       0.        0.      308.       3.        0.        0.    946.30
      .00       .00       .72      .13      .065      .042     .065      .000    944.70     98.63
  .000201        0.        0.       0.         0         0        5       .00    189.12    287.75

*SECNO 83.000
    83.00      2.05    946.85      .00       .00    946.86      .01       .02       .00    946.70
     223.        0.      222.       1.        0.      290.       3.        1.        0.    946.30
      .03       .05       .77      .17      .070      .040     .060      .040    944.80    131.59
  .000193       75.       83.      92.         0         0        0       .00    172.95    304.54

*SECNO 167.000
   167.00      2.16    946.86      .00       .00    946.87      .01       .02       .00    946.70
     223.        0.      222.       1.        0.      264.       4.        1.        1.    946.40
      .06       .06       .84      .17      .070      .040     .060      .040    944.70    164.70
  .000221       75.       84.      92.         0         0        0       .00    158.14    322.83

*SECNO 250.000
   250.00      2.38    946.88      .00       .00    946.90      .01       .02       .00    946.70
     223.        0.      222.       1.        0.      238.       4.        2.        1.    946.50
      .08       .07       .94      .16      .070      .040     .060      .040    944.50    197.50
  .000261       75.       83.      92.         0         0        0       .00    143.70    341.20
```

*SECNO 334.000

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
334.00	2.70	946.90	.00	.00	946.92	.02	.02	.00	946.70
223.	0.	222.	1.	0.	206.	8.	2.	1.	946.50
.10	.08	1.08	.18	.070	.040	.060	.040	944.20	230.60
.000335	75.	94.	92.	0	0	0	.00	133.37	363.97

*SECNO 417.000

417.00	3.03	946.93	.00	.00	946.96	.03	.03	.00	946.70
223.	0.	221.	2.	0.	173.	8.	2.	1.	946.60
.12	.11	1.28	.21	.070	.040	.060	.040	943.90	263.58
.000458	75.	83.	92.	0	0	0	.00	120.58	384.16

*SECNO 459.000

459.00	3.15	946.95	.00	.00	946.98	.03	.02	.00	946.70
223.	0.	221.	2.	0.	158.	10.	3.	2.	946.60
.13	.12	1.39	.24	.070	.040	.060	.039	943.80	279.80
.000525	38.	42.	46.	0	0	0	.00	115.54	395.33

*SECNO 501.000

VALLEY SECTION NO.2 FROM FIELD SURVEY

501.00	3.37	946.97	.00	.00	947.01	.04	.03	.00	946.80
223.	0.	220.	3.	0.	138.	10.	3.	2.	946.70
.14	.11	1.59	.27	.070	.040	.060	.039	943.60	297.67
.000703	38.	42.	46.	0	0	0	.00	106.12	403.75

*SECNO 531.000

D/S OF C+O RAILROAD BRIDGE

531.00	3.19	946.99	.00	.00	947.04	.05	.02	.00	947.00
223.	0.	222.	1.	0.	127.	3.	3.	2.	946.90
.14	.00	1.75	.15	.070	.040	.060	.039	943.80	300.00
.000961	30.	30.	30.	0	0	0	.00	101.27	401.27

SPECIAL BRIDGE

SB	XK	XKOR	COPQ	RDLEN	BWC	BWP	BAREA	SS	ELCHO	ELCHD
	.00	1.72	2.50	.00	3.14	.00	12.57	.00	945.10	944.70

*SECNO 569.000

WATER EL=XS CARD= 956.780

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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=      400.0      900.0  TYPE=       1  TARGET=      500.000
         VALLEY SECTION NO. 3 FROM FIELD SURVEY -SPECIAL BRIDGE / C+O RAILROAD
    569.00     12.08    956.78       .00    954.44    956.78       .00       .00       .01    944.90
      223.       110.      27.       86.      628.      45.      505.         3.        2.     945.00
       .19        .17       .61       .17      .070      .014      .060      .038    944.70    400.00
  .000005        38.       38.       38.         0         0         0       .00    195.92    595.92

*SECNO 570.000

3470 ENCROACHMENT STATIONS=      400.0      900.0  TYPE=       1  TARGET=      500.000
    570.00     12.08    956.78       .00    954.70    956.78       .00       .00       .00    950.10
      223.       69.       63.       91.      437.      160.      474.         3.        2.     949.80
       .19        .16       .39       .19      .080      .042      .070      .038    944.70    400.00
  .000008         1.        1.        1.         0         0         0       .00    195.92    595.92

*SECNO 574.000

3470 ENCROACHMENT STATIONS=      400.0      900.0  TYPE=       1  TARGET=      500.000
    574.00     12.08    956.78       .00    954.81    956.78       .00       .00       .00    950.10
      223.       69.       63.       91.      437.      160.      474.         4.        2.     949.80
       .20        .16       .39       .19      .080      .042      .070      .038    944.70    400.00
  .000008         4.        4.        4.         0         0         0       .00    195.92    595.92

*SECNO 579.000

3470 ENCROACHMENT STATIONS=      400.0      900.0  TYPE=       1  TARGET=      500.000
    579.00     12.08    956.78       .00    954.83    956.78       .00       .00       .00    950.10
      223.       69.       63.       91.      437.      160.      474.         4.        2.     949.80
       .20        .16       .39       .19      .080      .042      .070      .038    944.70    400.00
  .000008         5.        5.        5.         0         0         0       .00    195.92    595.92

*SECNO 1679.000
         VALLEY SECTION NO. 4

   1679.00     11.78    956.78       .00    954.85    956.78       .00       .00       .00    947.50
      223.       18.      185.       22.      424.     1898.      485.       53.        8.     947.40
      3.65        .04       .10       .05      .080      .042      .070      .041    945.00      5.27
  .000000       1200.     1100.     1000.         0         0         0       .00    311.61    316.87

*SECNO 2069.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        AV        RL        QLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA   LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

         SECTION 4 REPEATED AND ADJUSTED FOR FIELD INVERT ELEVATION.
```

2069.00	9.39	956.78	.00	954.85	956.78	.00	.00	.00	949.89
223.	14.	191.	18.	274.	1479.	325.	74.	11.	949.79
4.57	.05	.13	.06	.080	.042	.070	.041	947.39	15.68
.000001	390.	390.	390.	0	0	0	.00	296.99	312.87

*SECNO 2279.000

3470 ENCROACHMENT STATIONS= 125.5 195.5 TYPE= 1 TARGET= 70.000

SECTION 4 REPEATED AND ADJUSTED FOR FIELD INVERT ELEVATION.

2279.00	8.10	956.78	.00	954.85	956.78	.00	.00	.00100000.00	
223.	0.	223.	0.	0.	517.	0.	81.	12.	100000.00
4.71	.00	.43	.00	.080	.042	.070	.041	948.68	125.50
.000013	210.	210.	210.	0	0	0	.00	70.00	195.50

*SECNO 2329.000

3470 ENCROACHMENT STATIONS= 138.0 163.0 TYPE= 1 TARGET= 25.000

DAM SECTION NO. 5 - BOTTOM OF CONCRETE WEIR.

2329.00	7.78	956.77	.00	954.84	956.80	.02	.00	.01100000.00	
223.	0.	223.	0.	0.	179.	0.	81.	12.	100000.00
4.72	.00	1.25	.00	.080	.042	.070	.041	948.99	138.00
.000162	50.	50.	50.	0	0	0	.00	25.00	163.00

*SECNO 2379.000

2379.00	7.47	956.77	.00	954.84	956.80	.03	.00	.01	958.80
223.	0.	223.	0.	0.	150.	0.	81.	12.	958.70
4.73	.00	1.29	.00	.040	.015	.040	.040	949.30	110.00
.000033	50.	50.	50.	0	0	0	.00	20.00	130.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COPQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.00	3.30	.00	.00	.00	.00	.00	949.30	949.30

*SECNO 2384.000

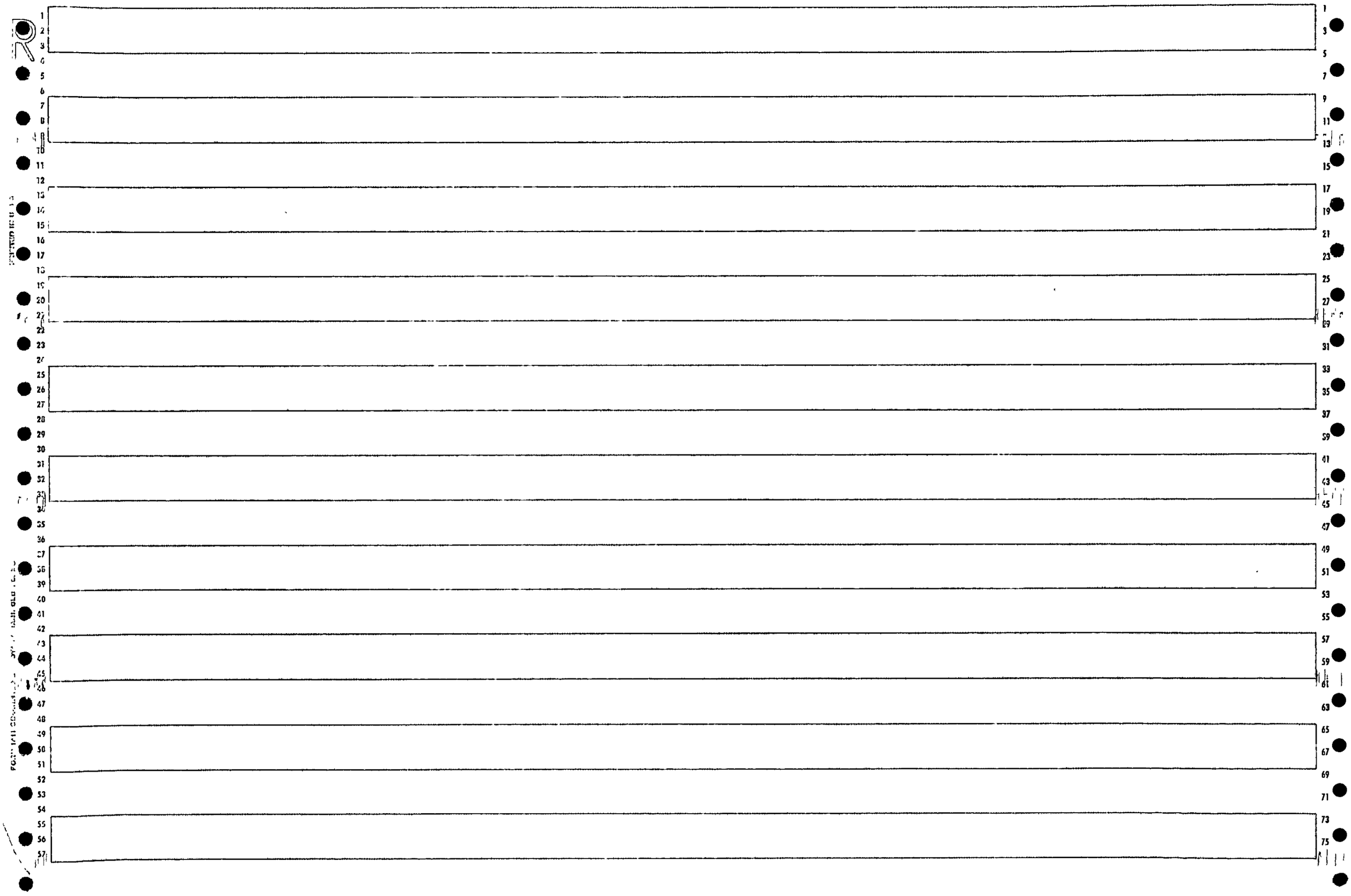
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
##########0#	956.80	.00	223.	0.	0.	0.	950.70	954.60

DAM SECTION NO. 5 - TOP OF CONCRETE WEIR

2384.00	6.59	957.19	.00	956.37	957.24	.05	.43	.00	958.80
223.	0.	223.	0.	0.	131.	0.	81.	12.	958.70
4.73	.00	1.70	.00	.040	.015	.040	.040	950.60	110.00

.000042 5. 5. 5. 2 0 9 .00 20.00 120.00



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*****************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
   ERROR CORR -  01,02,03
   MODIFICATION -  50,51,52,53
*****************************************************

 T1      HIGHLAND TOWNSHIP FIS - JOB NO. 5504-04
 T2      100 YEAR EVENT
 T3      PETTIBONE CREEK - PROJECT MANAGER - R.S. MIHOS

 J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      -10.        4.         3.         0.    .000200        .00        .0         0.    947.000       .000

 J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE

      3.000       .000     -1.000       .000       .000       .000       .000       .000       .000       .000

 *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

        VALLEY SECTION NO.1 FROM FIELD SURVEY

       .00       2.15     946.85       .00     947.00     946.85       .01        .00        .00     946.70
      226.         0.      226.         0.         0.      311.         3.         0.         0.      946.30
       .00        .06        .73        .14        .065       .042       .065       .000    944.70      98.48
   .000201         0.         0.         0.          0          0          5        .00    189.53      288.01

 *SECNO 83.000
     83.00       2.06     946.86       .00        .00     946.87       .01        .02        .00     946.70
      226.         0.      225.         1.         0.      292.         4.         1.         0.      946.30
       .03        .06        .77        .17        .070       .040       .060       .040    944.80      131.43
   .000193        75.        83.        92.          0          0          0        .00    173.43      304.86

 *SECNO 167.000
    167.00       2.18     946.88       .00        .00     946.89       .01        .02        .00     946.70
      226.         0.      225.         1.         0.      266.         4.         1.         1.      946.40
       .06        .06        .85        .17        .070       .040       .060       .040    944.70      164.53
   .000221        75.        84.        92.          0          0          0        .00    158.64      323.18

 *SECNO 250.000
    250.00       2.40     946.90       .00        .00     946.91       .01        .02        .00     946.70
      226.         0.      225.         1.         0.      239.         4.         2.         1.      946.50
       .08        .07        .96        .16        .070       .040       .060       .040    944.50      197.30
   .000261        75.        83.        92.          0          0          0        .00    144.65      341.95
```

*SECNO 334.000

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
334.00	2.72	946.92	.00	.00	946.94	.02	.02	.00	946.70
226.	0.	225.	1.	0.	207.	6.	2.	1.	946.50
.10	.09	1.08	.18	.070	.040	.060	.040	944.20	230.41
.000336	75.	84.	92.	0	0	0	.00	133.97	364.38

*SECNO 417.000

417.00	3.05	945.95	.00	.00	946.97	.03	.03	.00	946.70
226.	0.	224.	2.	0.	174.	8.	2.	1.	946.60
.12	.11	1.29	.22	.070	.040	.060	.040	943.90	263.39
.000459	75.	83.	92.	0	0	0	.00	121.21	384.60

*SECNO 459.000

459.00	3.17	946.97	.00	.00	947.00	.03	.02	.00	946.70
226.	0.	223.	3.	0.	159.	10.	3.	2.	946.60
.13	.13	1.40	.25	.070	.040	.060	.039	943.80	279.59
.000527	38.	42.	46.	0	0	0	.00	115.92	395.51

*SECNO 501.000

VALLEY SECTION NO.2 FROM FIELD SURVEY

501.00	3.39	946.99	.00	.00	947.03	.04	.03	.00	946.80
226.	0.	223.	3.	0.	139.	11.	3.	2.	946.70
.14	.12	1.60	.28	.070	.040	.060	.039	943.60	297.47
.000705	38.	42.	46.	0	0	0	.00	106.51	403.99

*SECNO 531.000

D/S OF C+O RAILROAD BRIDGE

531.00	3.21	947.01	.00	.00	947.06	.05	.02	.00	947.00
226.	0.	225.	1.	0.	128.	4.	3.	2.	946.90
.14	.00	1.76	.17	.070	.040	.060	.039	943.80	299.92
.000962	30.	30.	30.	0	0	0	.00	101.55	401.47

SPECIAL BRIDGE

SB	XK	XKOR	COEQ	RDLEN	BRC	BWP	BAREA	SS	ELCHO	ELCHD
	.00	1.72	2.50	.00	3.14	.00	12.57	.00	945.10	944.70

*SECNO 569.000

WATER EL=X5 CARD= 956.800

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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=	400.0	900.0	TYPE=	1	TARGET=	500.000			
VALLEY SECTION NO. 3 FROM FIELD SURVEY -SPECIAL BRIDGE / C+O RAILROAD									
569.00	12.10	956.80	.00	954.44	956.80	.00	.00	.01	944.90
226.	111.	28.	87.	630.	45.	506.	3.	2.	945.00
.19	.18	.61	.17	.070	.014	.060	.038	944.70	400.00
.000005	38.	38.	38.	0	0	0	.00	196.05	596.05

*SECNO 570.000

3470 ENCROACHMENT STATIONS=	400.0	900.0	TYPE=	1	TARGET=	500.000			
570.00	12.10	956.80	.00	954.70	956.80	.00	.00	.00	950.10
226.	70.	64.	92.	439.	161.	476.	3.	2.	949.80
.19	.16	.40	.19	.080	.042	.070	.038	944.70	400.00
.000008	1.	1.	1.	0	0	0	.00	196.06	596.06

*SECNO 574.000

3470 ENCROACHMENT STATIONS=	400.0	900.0	TYPE=	1	TARGET=	500.000			
574.00	12.10	956.80	.00	954.81	956.80	.00	.00	.00	950.10
226.	70.	64.	92.	439.	161.	476.	4.	2.	949.80
.19	.16	.40	.19	.080	.042	.070	.038	944.70	400.00
.000008	4.	4.	4.	0	0	0	.00	196.05	596.05

*SECNO 579.000

3470 ENCROACHMENT STATIONS=	400.0	900.0	TYPE=	1	TARGET=	500.000			
579.00	12.10	956.80	.00	954.83	956.80	.00	.00	.00	950.10
226.	70.	64.	92.	439.	161.	476.	4.	2.	949.80
.20	.16	.40	.19	.080	.042	.070	.038	944.70	400.00
.000008	5.	5.	5.	0	0	0	.00	196.05	596.05

*SECNO 1679.000

VALLEY SECTION NO. 4

1679.00	11.80	956.80	.00	954.85	956.80	.00	.00	.00	947.50
226.	16.	187.	22.	425.	1901.	487.	53.	8.	947.40
3.62	.04	.10	.05	.080	.042	.070	.041	945.00	5.18
.000000	1200.	1100.	1000.	0	0	0	.00	311.73	316.91

*SECNO 2069.000

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

SECTION 4 REPEATED AND ADJUSTED FOR FIELD INVERT ELEVATION.

2069.00	9.41	956.80	.00	954.85	956.80	.00	.00	.00	949.89
226.	14.	194.	19.	275.	1482.	327.	75.	11.	949.79
4.52	.05	.13	.06	.080	.042	.070	.041	947.39	15.59
.000001	390.	390.	390.	0	0	0	.00	297.71	312.70

*SECNO 2279.000

3470 ENCROACHMENT STATIONS= 125.5 195.5 TYPE= 1 TARGET= 70.000

SECTION 4 REPEATED AND ADJUSTED FOR FIELD INVERT ELEVATION.

2279.00	8.12	956.80	.00	954.85	956.80	.00	.00	.00	100000.00
226.	0.	226.	0.	0.	519.	0.	81.	12.	100000.00
4.65	.00	.44	.00	.080	.042	.070	.041	948.68	125.50
.000014	210.	210.	210.	0	0	0	.00	70.00	195.50

*SECNO 2329.000

3470 ENCROACHMENT STATIONS= 138.0 163.0 TYPE= 1 TARGET= 25.000

DAM SECTION NO. 5 - BOTTOM OF CONCRETE WEIR.

2329.00	7.80	956.79	.00	954.84	956.82	.02	.00	.01	100000.00
226.	0.	226.	0.	0.	179.	0.	81.	12.	100000.00
4.67	.00	1.26	.00	.080	.042	.070	.041	948.99	138.00
.000165	50.	50.	50.	0	0	0	.00	25.00	163.00

*SECNO 2379.000

2379.00	7.49	956.79	.00	954.84	956.83	.04	.00	.01	958.80
226.	0.	226.	0.	0.	150.	0.	81.	12.	958.70
4.68	.00	1.51	.00	.040	.015	.040	.040	949.30	110.00
.000033	50.	50.	50.	0	0	0	.00	20.00	130.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.00	3.30	.00	.00	.00	.00	.00	949.30	949.30

*SECNO 2384.000

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
##########	956.83	.00	226.	0.	0.	0.	950.70	954.60

DAM SECTION NO. 5 - TOP OF CONCRETE WEIR

2384.00	6.61	957.21	.00	956.37	957.26	.05	.43	.00	958.80
226.	0.	226.	0.	0.	131.	0.	81.	12.	958.70
4.68	.00	1.72	.00	.040	.015	.040	.040	950.60	110.00

.000048 5. 5. 5. 2 0 9 .00 20.00 130.00

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
*****************************************************

T1      HIGHLAND TOWNSHIP FIS - JOB NO. 6504-04
T2      500 YEAR EVENT
T3      PETTIBONE CREEK - PROJECT MANAGER - R.S. MIHOS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10.       5.        0.        0.   .000200      .00       .0        0.   947.000     .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBC       CHNIM     ITRACE

    15.000     .000    -1.000     .000      .000      .000      .000      .000      .000      .000

*PROF 4

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


        VALLEY SECTION NO.1 FROM FIELD SURVEY

      .00      2.30   947.00      .00   947.00   947.01      .01      .00      .00   946.70
     261.        0.     260.       1.       0.     338.       4.       0.       0.   946.30
      .00       .09      .77      .16     .065     .042     .065     .000   944.70    96.87
  .000202        0.       0.       0.        0        0        0      .00   193.96   290.83

*SECNO 83.000
    83.00      2.22   947.02      .00      .00   947.03      .01      .02      .00   946.70
     261.        0.     260.       1.       1.     316.       6.       1.       0.   946.30
      .03       .09      .82      .21     .070     .040     .060     .040   944.80   129.66
  .000196       75.      83.      92.        0        0        0      .00   178.67   308.33

*SECNO 167.000
   167.00      2.33   947.03      .00      .00   947.04      .01      .02      .00   946.70
     261.        0.     259.       1.       1.     288.       7.       1.       1.   946.40
      .05       .10      .90      .21     .070     .040     .060     .040   944.70   162.74
  .000226       75.      84.      92.        0        0        0      .00   164.95   327.69

*SECNO 250.000
   250.00      2.55   947.05      .00      .00   947.07      .02      .02      .00   946.70
     261.        0.     259.       2.       1.     258.       8.       2.       1.   946.50
      .08       .11     1.00      .20     .070     .040     .060     .040   944.50   195.17
  .000269       75.      83.      92.        0        0        0      .00   153.63   348.80
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*SECNO 334.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TOA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTR
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
334.00	2.87	947.07	.00	.00	947.10	.02	.03	.00	946.70
261.	0.	258.	3.	1.	223.	11.	2.	1.	946.50
.10	.13	1.16	.24	.070	.040	.060	.040	944.20	228.34
.000347	75.	84.	92.	0	0	0	.00	160.47	368.80

*SECNO 417.000

417.00	3.20	947.10	.00	.00	947.13	.03	.03	.00	946.70
261.	0.	257.	4.	1.	187.	14.	3.	2.	946.60
.11	.16	1.37	.29	.070	.040	.060	.039	943.90	261.34
.000475	75.	83.	92.	0	0	0	.00	126.49	387.83

*SECNO 459.000

459.00	3.32	947.12	.00	.00	947.16	.03	.02	.00	946.70
261.	0.	255.	5.	1.	171.	17.	3.	2.	946.60
.12	.18	1.49	.33	.070	.040	.060	.039	943.80	277.41
.000546	38.	42.	46.	0	0	0	.00	120.08	397.49

*SECNO 501.000

VALLEY SECTION NO.2 FROM FIELD SURVEY

501.00	3.54	947.14	.00	.00	947.19	.04	.03	.00	946.80
261.	0.	254.	7.	1.	149.	17.	3.	2.	946.70
.13	.18	1.70	.38	.070	.040	.060	.039	943.60	295.35
.000727	38.	42.	46.	0	0	0	.00	110.82	406.17

*SECNO 531.000

D/S OF C+O RAILROAD BRIDGE

531.00	3.36	947.16	.00	.00	947.22	.05	.03	.00	947.00
261.	0.	258.	3.	0.	138.	10.	3.	2.	946.90
.13	.12	1.87	.31	.070	.040	.060	.039	943.80	297.80
.000978	30.	30.	30.	0	0	0	.00	105.86	403.65

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHO	ELCHD
	.00	1.72	2.50	.00	3.14	.00	12.57	.00	945.10	944.70

*SECNO 569.000

WATER EL=XS CARD= 956.920

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWO	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTO

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    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

3470 ENCROACHMENT STATIONS=      400.0      900.0  TYPE=      1  TARGET=      500.000
         VALLEY SECTION NO. 3 FROM FIELD SURVEY -SPECIAL BRIDGE / C+O RAILROAD

    569.00     12.22     956.92       .00     954.44    956.92       .00       .00       .02     944.90
      261.       128.       32.      101.      641.      45.       518.        4.        2.      945.00
       .18        .20       .69       .20       .070      .014      .060      .038    944.75    400.00
   .000006       38.       38.       38.         0         0         0       .00    196.84    596.84

*SECNO 570.000

3470 ENCROACHMENT STATIONS=      400.0      900.0  TYPE=      1  TARGET=      500.000
    570.00     12.22     956.92       .00     954.70    956.92       .00       .00       .00     950.10
      261.       82.       73.      106.      450.      162.      487.        4.        2.      949.80
       .18        .18       .45       .22       .080      .042      .070      .038    944.70    400.00
   .000010         1.        1.        1.         0         0         0       .00    196.85    596.85

*SECNO 574.000

3470 ENCROACHMENT STATIONS=      400.0      900.0  TYPE=      1  TARGET=      500.000
    574.00     12.22     956.92       .00     954.81    956.92       .00       .00       .00     950.10
      261.       82.       73.      106.      450.      162.      487.        4.        2.      949.80
       .18        .18       .45       .22       .080      .042      .070      .038    944.70    400.00
   .000010         4.        4.        4.         0         0         0       .00    196.84    596.84

*SECNO 579.000

3470 ENCROACHMENT STATIONS=      400.0      900.0  TYPE=      1  TARGET=      500.000
    579.00     12.22     956.92       .00     954.83    956.92       .00       .00       .00     950.10
      261.       82.       73.      106.      450.      162.      487.        4.        2.      949.80
       .19        .18       .45       .22       .080      .042      .070      .038    944.70    400.00
   .000010         5.        5.        5.         0         0         0       .00    196.84    596.84

*SECNO 1679.000
         VALLEY SECTION NO. 4

   1679.00     11.92     956.92       .00     954.85    956.92       .00       .00       .00     947.50
      261.       19.      216.       26.      434.     1923.      495.       56.       8.      947.40
     3.18        .04       .11       .05       .080      .042      .070      .041    945.00      4.65
   .000000    1200.     1100.     1000.         0         0         0       .00    312.48    317.12

*SECNO 2069.000
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

         SECTION 4 REPEATED AND ADJUSTED FOR FIELD INVERT ELEVATION.
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2069.00	9.53	956.92	.00	954.85	956.92	.00	.00	.00	949.89
261.	16.	223.	22.	282.	1503.	335.	76.	11.	949.79
3.98	.06	.15	.07	.080	.042	.070	.041	947.39	15.06
.000001	390.	390.	390.	0	0	0	.00	297.85	312.91

*SECNO 2279.000

3470 ENCROACHMENT STATIONS= 125.5 195.5 TYPE= 1 TARGET= 70.000

SECTION 4 REPEATED AND ADJUSTED FOR FIELD INVERT ELEVATION.

2279.00	8.24	956.92	.00	954.85	956.93	.00	.00	.00100000.00	
261.	0.	261.	0.	0.	527.	0.	82.	12. 100000.00	
4.10	.00	.50	.00	.080	.042	.070	.041	948.68	125.50
.000017	210.	210.	210.	0	0	0	.00	70.00	195.50

*SECNO 2329.000

3470 ENCROACHMENT STATIONS= 138.0 163.0 TYPE= 1 TARGET= 25.000

DAM SECTION NO. 5 - BOTTOM OF CONCRETE WEIR.

2329.00	7.92	956.91	.00	954.84	956.94	.03	.00	.01100000.00	
261.	0.	261.	0.	0.	182.	0.	83.	12. 100000.00	
4.11	.00	1.43	.00	.080	.042	.070	.041	948.99	138.00
.000210	50.	50.	50.	1	0	0	.00	25.00	163.00

*SECNO 2379.000

2379.00	7.61	956.91	.00	954.84	956.95	.05	.00	.01	958.80
261.	0.	261.	0.	0.	152.	0.	83.	12.	958.70
4.12	.00	1.71	.00	.040	.015	.040	.040	949.30	110.00
.000042	50.	50.	50.	0	0	0	.00	20.00	130.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.00	1.00	3.30	.00	.00	.00	.00	.00	949.30	949.30

*SECHO 2384.000

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0########	956.95	.00	261.	0.	0.	0.	950.70	954.60

DAM SECTION NO. 5 - TOP OF CONCRETE WEIR

2384.00	6.80	957.40	.00	956.37	957.45	.06	.50	.00	958.80
261.	0.	261.	0.	0.	135.	0.	83.	12.	958.70
4.12	.00	1.93	.00	.040	.015	.040	.040	950.60	110.00

.000059 5. 5. 5. 2 0 9 .00 20.00 130.00

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: HIGHLAND TOWNSHIP

3) WATERCOURSE: PETTIBONE CREEK

4) DOCUMENT TYPE: SUMMARY

00BREAK00

****
HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
ERROR CORR - 01,02,03
MODIFICATION - 50,51,52,53
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

PETTIBONE CREEK

SUMMARY PRINTOUT

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	XLCH	TOPWID	AREA
.000	.00	.00	944.70	160.00	946.52	1.82	.01	.00	946.53	.00	181.60	253.1[illegible]
.000	.00	.00	944.70	223.00	946.83	2.13	.01	.00	946.84	.00	189.12	310.97
.000	.00	.00	944.70	226.00	946.85	2.15	.01	.00	946.85	.00	189.53	313.07
.000	.00	.00	944.70	261.00	947.00	2.30	.01	.00	947.01	.00	193.96	343.21
83.000	.00	.00	944.80	160.00	946.53	1.73	.01	.00	946.54	83.00	163.78	240.62
83.000	.00	.00	944.80	223.00	946.85	2.05	.01	.00	946.86	83.00	172.95	293.14
83.000	.00	.00	944.80	226.00	946.86	2.06	.01	.00	946.87	83.00	173.43	295.61
83.000	.00	.00	944.80	261.00	947.02	2.22	.01	.00	947.03	83.00	178.67	322.[illegible]
167.000	.00	.00	944.70	160.00	946.55	1.85	.01	.00	946.56	84.00	145.80	221.22
167.000	.00	.00	944.70	223.00	946.86	2.16	.01	.00	946.87	84.00	158.14	268.50
167.000	.00	.00	944.70	226.00	946.88	2.18	.01	.00	946.89	84.00	158.64	270.83
167.000	.00	.00	944.70	261.00	947.03	2.33	.01	.00	947.04	84.00	164.95	295.75
250.000	.00	.00	944.50	160.00	946.57	2.07	.01	.00	946.58	83.00	112.53	191.7[illegible]
250.000	.00	.00	944.50	223.00	946.88	2.38	.01	.00	946.90	83.00	143.70	241.91
250.000	.00	.00	944.50	226.00	946.90	2.40	.01	.00	946.91	83.00	144.65	243.77
250.000	.00	.00	944.50	261.00	947.05	2.55	.02	.00	947.07	83.00	153.63	266.91
334.000	.00	.00	944.28	160.00	946.59	2.32	.01	.00	946.61	84.00	101.03	154.15
334.000	.00	.00	944.20	223.00	946.90	2.70	.02	.00	946.92	84.00	133.37	212.[illegible]
334.000	.00	.00	944.20	226.00	946.92	2.72	.02	.00	946.94	84.00	133.97	213.93
334.000	.00	.00	944.20	261.00	947.07	2.87	.02	.00	947.10	84.00	140.47	235.23
417.000	.00	.00	944.14	160.00	946.63	2.49	.04	.01	946.66	83.00	61.00	106.18
417.000	.00	.00	943.90	223.00	946.93	3.03	.03	.00	946.96	83.00	120.58	181.33
417.000	.00	.00	943.90	226.00	946.95	3.05	.03	.00	946.97	83.00	121.21	183.06
417.000	.00	.00	943.90	261.00	947.10	3.20	.03	.00	947.13	83.00	126.49	202.42
459.000	.00	.00	943.80	160.00	946.59	2.79	.26	.11	946.85	42.00	22.61	39.45
459.000	.00	.00	943.80	223.00	946.95	3.15	.03	.00	946.98	42.00	115.54	168.65
459.000	.00	.00	943.80	226.00	946.97	3.17	.03	.00	947.00	42.00	115.92	170.32
459.000	.00	.00	943.80	261.00	947.12	3.32	.03	.00	947.16	42.00	120.08	183.77
501.000	.00	.00	944.50	160.00	946.85	2.35	.26	.00	947.12	42.00	19.00	38.86
501.000	.00	.00	943.60	223.00	946.97	3.37	.04	.00	947.01	42.00	106.12	148.97
501.000	.00	.00	943.60	226.00	946.99	3.39	.04	.00	947.03	42.00	106.51	150.51
501.000	.00	.00	943.60	261.00	947.14	3.54	.04	.00	947.19	42.00	110.82	167.57

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	XLCH	TOPWID	AREH
*	531.000	.00	.00	944.70	160.00	948.57	3.87	1.85	.80	950.43	30.00	4.00	14.64
	531.000	.00	.00	943.80	223.00	946.99	3.19	.05	.01	947.04	30.00	101.27	[illegible]
	531.000	.00	.00	943.80	226.00	947.01	3.21	.05	.00	947.06	30.00	101.55	131.56
	531.000	.00	.00	943.80	261.00	947.16	3.36	.05	.00	947.22	30.00	105.66	147.98
*	569.000	100000.00	100000.00	944.90	160.00	954.44	9.54	.31	.46	954.75	38.00	4.00	35.57
*	569.000	100000.00	100000.00	944.70	223.00	956.78	12.08	.00	.01	956.78	38.00	195.92	1177.08
*	569.000	100000.00	100000.00	944.70	226.00	956.80	12.10	.00	.01	956.80	38.00	196.05	1181.00
*	569.000	100000.00	100000.00	944.70	261.00	956.92	12.22	.00	.02	956.92	38.00	196.84	1204.59
	570.000	.00	.00	944.83	160.00	954.70	9.86	.12	.06	954.81	1.00	6.00	58.31
	570.000	.00	.00	944.70	223.00	956.78	12.08	.00	.00	956.78	1.00	195.92	1071.96
	570.000	.00	.00	944.70	226.00	956.80	12.10	.00	.00	956.80	1.00	196.06	1075.88
	570.000	.00	.00	944.70	261.00	956.92	12.22	.00	.00	956.92	1.00	195.65	1099.[illegible]
	574.000	.00	.00	944.70	160.00	954.81	10.11	.03	.03	954.84	4.00	14.00	1[illegible]
	574.000	.00	.00	944.70	223.00	956.78	12.08	.00	.00	956.78	4.00	195.92	1071.85
	574.000	.00	.00	944.70	226.00	956.80	12.10	.00	.00	956.80	4.00	196.05	1075.81
	574.000	.00	.00	944.70	261.00	956.92	12.22	.00	.00	956.92	4.00	196.84	1099.39
	579.000	.00	.00	944.70	160.00	954.83	10.13	.02	.00	954.85	5.00	24.00	175.57
	579.000	.00	.00	944.70	223.00	956.78	12.08	.00	.00	956.78	5.00	195.92	1071.[illegible]
	579.000	.00	.00	944.70	226.00	956.80	12.10	.00	.00	956.80	5.00	196.05	1075.82
	579.000	.00	.00	944.70	261.00	956.92	12.22	.00	.00	956.92	5.00	196.84	1099.[illegible]0
	1679.000	.00	.00	945.00	160.00	954.85	9.85	.00	.01	954.85	1100.00	299.79	2215.[illegible]
	1679.000	.00	.00	945.00	223.00	956.78	11.78	.00	.00	956.78	1100.00	311.61	2806 [illegible]
	1679.000	.00	.00	945.00	226.00	956.80	11.80	.00	.00	956.80	1100.00	311.73	2813 [illegible]
	1679.000	.00	.00	945.00	261.00	956.92	11.92	.00	.00	956.92	1100.00	312.48	2851.45
	2069.000	.00	.00	947.39	160.00	954.85	7.46	.00	.00	954.85	390.00	285.25	1578.55
	2069.000	.00	.00	947.39	223.00	956.78	9.39	.00	.00	956.78	390.00	296.99	2078.[illegible]
	2069.000	.00	.00	947.39	226.00	956.80	9.41	.00	.00	956.80	390.00	297.11	2084 [illegible]
	2069.000	.00	.00	947.39	261.00	956.92	9.53	.00	.00	956.92	390.00	297.85	2120 [illegible]
	2279.000	.00	.00	948.68	160.00	954.85	6.17	.00	.00	954.86	210.00	70.00	382.36
	2279.000	.00	.00	948.68	223.00	956.78	8.10	.00	.00	956.78	210.00	70.00	517.37
	2279.000	.00	.00	948.68	226.00	956.80	8.12	.00	.00	956.80	210.00	70.00	518 [illegible]
	2279.000	.00	.00	948.68	261.00	956.92	8.24	.00	.00	956.93	210.00	70.00	527.22
	2329.000	.00	.00	948.99	160.00	954.84	5.85	.02	.01	954.87	50.00	25.00	130.62
	2329.000	.00	.00	948.99	223.00	956.77	7.78	.02	.01	956.80	50.00	25.00	178.85
	2329.000	.00	.00	948.99	226.00	956.79	7.80	.02	.01	956.82	50.00	25.00	179.35
	2329.000	.00	.00	948.99	261.00	956.91	7.92	.03	.01	956.94	50.00	25.00	182.20
	2379.000	.00	.00	949.30	160.00	954.84	5.54	.03	.00	954.88	50.00	20.00	111.[illegible]
	2379.000	.00	.00	949.30	223.00	956.77	7.47	.03	.01	956.80	50.00	20.00	149.54
	2379.000	.00	.00	949.30	226.00	956.79	7.49	.04	.01	956.83	50.00	20.00	149.94
	2379.000	.00	.00	949.30	261.00	956.91	7.61	.05	.01	956.95	50.00	20.00	152.31
	2384.000	954.60	950.70	950.60	160.00	956.37	5.77	.03	.00	956.41	5.00	20.00	114.[illegible]
	2384.000	954.60	950.70	950.60	223.00	957.19	6.59	.05	.00	957.24	5.00	20.00	130.83
	2384.000	954.60	950.70	950.60	226.00	957.21	6.61	.05	.00	957.26	5.00	20.00	131.29
	2384.000	954.60	950.70	950.60	261.00	957.40	6.80	.06	.00	957.45	5.00	20.00	134.92

SUMMARY OF ERRORS

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CAUTION   SECNO=   531.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION   SECNO=   531.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION   SECNO=   531.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

NOTE      SECNO=   569.000  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE      SECNO=   569.000  PROFILE= 2  WSEL BASED ON X5 CARD
NOTE      SECNO=   569.000  PROFILE= 3  WSEL BASED ON X5 CARD
NOTE      SECNO=   569.000  PROFILE= 4  WSEL BASED ON X5 CARD
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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: ~~E~~ HIGHLAND TOWNSHIP

3) WATERCOURSE: PETTIBONE CREEK

4) DOCUMENT TYPE: SUMMARY - REVISED

~~MULTI~~

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  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

PETTIBONE CREEK

SUMMARY PRINTOUT
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SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	XLCH	TOPWID	AREA
12351.000	.00	.00	952.50	94.00	957.20	4.70	.01	.00	957.21	.00	222.33	199.14
12351.000	.00	.00	952.50	121.00	957.90	5.40	.00	.00	957.90	.00	366.42	434.80
12351.000	.00	.00	952.50	132.00	958.00	5.50	.00	.00	958.00	.00	371.00	471.67
12351.000	.00	.00	952.50	159.00	958.41	5.91	.00	.00	958.41	.00	390.64	627.64
14191.000	.00	.00	953.50	94.00	957.31	3.81	.00	.00	957.31	1840.00	105.22	195.21
14191.000	.00	.00	953.50	121.00	957.97	4.47	.00	.00	957.98	1840.00	132.73	273.77
14191.000	.00	.00	953.50	132.00	958.08	4.58	.01	.00	958.08	1840.00	137.04	287.71
14191.000	.00	.00	953.50	159.00	958.48	4.98	.01	.00	958.49	1840.00	152.06	346.13
15061.000	.00	.00	954.10	94.00	957.38	3.28	.00	.00	957.38	870.00	295.09	314.07
15061.000	.00	.00	954.10	121.00	958.02	3.92	.00	.00	958.02	870.00	334.19	514.64
15061.000	.00	.00	954.10	132.00	958.12	4.02	.00	.00	958.13	870.00	340.68	550.35
15061.000	.00	.00	954.10	159.00	958.52	4.42	.00	.00	958.52	870.00	364.88	689.65
15434.000	.00	.00	955.40	94.00	957.41	2.01	.09	.00	957.50	372.50	138.10	59.87
15434.000	.00	.00	955.40	121.00	958.04	2.64	.02	.00	958.06	372.50	197.78	172.70
15434.000	.00	.00	955.40	132.00	958.15	2.75	.02	.00	958.17	372.50	206.74	194.06
15434.000	.00	.00	955.40	159.00	958.54	3.14	.01	.00	958.55	372.50	252.16	286.54
15600.000	.00	.00	955.90	94.00	958.01	2.11	.07	.00	958.08	166.00	149.49	75.48
15600.000	.00	.00	955.90	121.00	958.24	2.34	.06	.00	958.29	166.00	166.08	112.14
15600.000	.00	.00	955.90	132.00	958.32	2.42	.05	.00	958.38	166.00	169.54	126.42
15600.000	.00	.00	955.90	159.00	958.64	2.74	.04	.00	958.68	166.00	189.71	182.49
15806.000	.00	.00	956.60	94.00	958.62	2.02	.07	.00	958.69	206.50	179.39	74.29
15806.000	.00	.00	956.60	121.00	958.76	2.16	.08	.00	958.84	206.50	184.44	100.09
15806.000	.00	.00	956.60	132.00	958.82	2.22	.08	.00	958.90	206.50	186.44	110.48
15806.000	.00	.00	956.60	159.00	958.98	2.38	.07	.00	959.05	206.50	191.45	140.99
16179.000	.00	.00	957.70	94.00	959.72	2.02	.08	.00	959.80	372.50	201.60	69.97
16179.000	.00	.00	957.70	121.00	959.88	2.18	.08	.00	959.95	372.50	235.65	104.53
16179.000	.00	.00	957.70	132.00	959.92	2.22	.08	.00	960.00	372.50	236.59	116.64
16179.000	.00	.00	957.70	159.00	960.02	2.32	.08	.00	960.11	372.50	238.26	139.47
16551.000	.00	.00	958.60	94.00	960.85	2.25	.08	.00	960.93	372.50	165.72	66.87
16551.000	.00	.00	958.60	121.00	961.01	2.41	.09	.00	961.09	372.50	190.11	95.08
16551.000	.00	.00	958.60	132.00	961.06	2.46	.09	.00	961.15	372.50	198.18	105.27
16551.000	.00	.00	958.60	159.00	961.18	2.58	.09	.00	961.27	372.50	217.70	131.65

	SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	XLCH	TOPWID	AREA
	16765.000	.00	.00	959.00	94.00	961.41	2.41	.05	.00	961.47	214.00	192.00	97.43
	16765.000	.00	.00	959.00	121.00	961.58	2.58	.05	.00	961.63	214.00	217.48	131.35
	16765.000	.00	.00	959.00	132.00	961.63	2.63	.05	.00	961.69	214.00	226.22	143.95
	16765.000	.00	.00	959.00	159.00	961.76	2.76	.05	.00	961.81	214.00	244.04	171.20
	16979.000	.00	.00	959.60	94.00	961.85	2.25	.69	.00	962.54	214.00	9.00	14.07
*	16979.000	.00	.00	959.60	121.00	962.05	2.45	.90	.00	962.95	214.00	9.00	15.88
*	16979.000	.00	.00	959.60	132.00	962.17	2.57	.94	.00	963.11	214.00	9.00	16.92
*	16979.000	.00	.00	959.60	159.00	962.42	2.82	1.07	.00	963.48	214.00	9.00	19.19
*	16983.000	.00	.00	959.60	94.00	961.95	2.35	.90	.00	962.85	4.00	7.00	12.35
*	16983.000	.00	.00	959.60	121.00	962.28	2.68	1.06	.00	963.34	4.00	7.00	14.64
*	16983.000	.00	.00	959.60	132.00	962.40	2.80	1.12	.00	963.52	4.00	7.00	15.52
*	16983.000	.00	.00	959.60	159.00	962.69	3.09	1.27	.00	963.97	4.00	7.00	17.58
*	16987.000	.00	.00	959.60	94.00	962.35	2.75	1.11	.00	963.46	4.00	5.00	11.12
*	16987.000	.00	.00	959.60	121.00	962.74	3.14	1.33	.00	964.07	4.00	5.00	13.08
*	16987.000	.00	.00	959.60	132.00	962.90	3.30	1.41	.00	964.31	4.00	5.00	13.86
*	16987.000	.00	.00	959.60	159.00	963.26	3.66	1.59	.00	964.86	4.00	5.00	15.70
*	17035.000	100000.00	100000.00	959.20	94.00	964.26	5.06	.27	.00	964.53	48.00	5.00	22.67
*	17035.000	100000.00	100000.00	959.20	121.00	965.12	5.92	.31	.00	965.43	48.00	5.00	26.97
*	17035.000	100000.00	100000.00	959.20	132.00	965.48	6.28	.33	.00	965.81	48.00	5.00	28.77
*	17035.000	100000.00	100000.00	959.20	159.00	966.53	7.33	.34	.00	966.87	48.00	5.00	34.02
	17418.000	.00	.00	963.70	94.00	965.92	2.22	.15	.00	966.07	383.00	17.32	29.77
	17418.000	.00	.00	963.70	121.00	966.53	2.83	.13	.00	966.66	383.00	38.74	44.84
	17418.000	.00	.00	963.70	132.00	966.77	3.07	.11	.00	966.88	383.00	45.80	54.94
	17418.000	.00	.00	963.70	159.00	967.46	3.76	.07	.00	967.53	383.00	52.00	90.34
	17478.000	.00	.00	964.20	94.00	966.16	1.96	.07	.00	966.24	60.00	22.00	43.16
	17478.000	.00	.00	964.20	121.00	966.70	2.50	.08	.00	966.77	60.00	22.00	54.93
	17478.000	.00	.00	964.20	132.00	966.90	2.70	.08	.00	966.98	60.00	22.00	59.50
	17478.000	.00	.00	964.20	159.00	967.52	3.32	.07	.00	967.59	60.00	22.00	72.95
*	17485.000	.00	.00	964.80	94.00	966.20	1.40	.70	.00	966.90	7.00	10.00	14.00
*	17485.000	.00	.00	964.80	121.00	966.45	1.65	.83	.00	967.29	7.00	10.00	16.51
*	17485.000	.00	.00	964.80	132.00	966.55	1.75	.88	.00	967.43	7.00	10.00	17.49
*	17485.000	.00	.00	964.80	159.00	966.78	1.98	1.00	.00	967.78	7.00	10.00	19.80
	17494.000	.00	.00	964.80	94.00	966.69	1.89	.38	.00	967.07	9.00	10.00	19.02
	17494.000	.00	.00	964.80	121.00	966.99	2.19	.47	.00	967.47	9.00	10.00	21.93
	17494.000	.00	.00	964.80	132.00	967.11	2.31	.51	.00	967.62	9.00	10.00	23.09
	17494.000	.00	.00	964.80	159.00	967.38	2.58	.59	.00	967.97	9.00	10.00	25.80
	17495.000	972.80	970.00	970.00	94.00	974.83	4.83	.06	.00	974.89	1.00	10.00	48.34
	17495.000	972.80	970.00	970.00	121.00	975.19	5.19	.08	.00	975.28	1.00	10.00	51.92
	17495.000	972.80	970.00	970.00	132.00	975.33	5.33	.10	.00	975.42	1.00	10.00	53.29
	17495.000	972.80	970.00	970.00	159.00	975.66	5.66	.12	.00	975.78	1.00	10.00	56.59
	17500.000	.00	.00	970.00	94.00	974.87	4.87	.02	.00	974.90	5.00	16.00	77.89
	17500.000	.00	.00	970.00	121.00	975.25	5.25	.03	.00	975.28	5.00	16.00	83.83
	17500.000	.00	.00	970.00	132.00	975.39	5.39	.04	.00	975.43	5.00	16.00	86.29
	17500.000	.00	.00	970.00	159.00	975.74	5.74	.05	.00	975.79	5.00	16.00	91.85

FORM 141 5 68

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	XLCH	TOPWID	AREA
17505.000	.00	.00	970.00	94.00	974.88	4.88	.02	.00	974.90	5.00	18.00	87.78
17505.000	.00	.00	970.00	121.00	975.26	5.26	.03	.00	975.28	5.00	18.00	94.55
17505.000	.00	.00	970.00	132.00	975.40	5.40	.03	.00	975.43	5.00	18.00	97.16
17505.000	.00	.00	970.00	159.00	975.75	5.75	.04	.00	975.79	5.00	18.00	103.45
17535.000	.00	.00	966.00	94.00	974.90	8.90	.00	.00	974.90	30.00	253.84	1310.75
17535.000	.00	.00	966.00	121.00	975.28	9.28	.00	.00	975.28	30.00	266.24	1411.51
17535.000	.00	.00	966.00	132.00	975.43	9.43	.00	.00	975.43	30.00	270.96	1451.16
17535.000	.00	.00	966.00	159.00	975.79	9.79	.00	.00	975.79	30.00	282.35	1549.64
17635.000	.00	.00	963.70	94.00	974.90	11.20	.00	.00	974.90	100.00	273.50	1534.77
17635.000	.00	.00	963.70	121.00	975.28	11.58	.00	.00	975.28	100.00	279.35	1640.53
17635.000	.00	.00	963.70	132.00	975.43	11.73	.00	.00	975.43	100.00	281.63	1682.39
17635.000	.00	.00	963.70	159.00	975.79	12.09	.00	.00	975.79	100.00	285.99	1784.66
17835.000	.00	.00	964.60	94.00	974.90	10.30	.00	.00	974.90	200.00	259.60	1292.52
17835.000	.00	.00	964.60	121.00	975.28	10.68	.00	.00	975.28	200.00	265.49	1393.74
17835.000	.00	.00	964.60	132.00	975.43	10.83	.00	.00	975.43	200.00	267.77	1433.37
17835.000	.00	.00	964.60	159.00	975.79	11.19	.00	.00	975.79	200.00	273.25	1530.33
18035.000	.00	.00	965.50	94.00	974.90	9.40	.00	.00	974.90	200.00	245.83	1065.09
18035.000	.00	.00	965.50	121.00	975.28	9.78	.00	.00	975.28	200.00	251.73	1161.01
18035.000	.00	.00	965.50	132.00	975.43	9.93	.00	.00	975.43	200.00	254.00	1198.59
18035.000	.00	.00	965.50	159.00	975.79	10.29	.00	.00	975.79	200.00	259.48	1290.62
18234.000	.00	.00	966.40	94.00	974.90	8.50	.00	.00	974.90	199.00	226.06	852.64
18234.000	.00	.00	966.40	121.00	975.28	8.88	.00	.00	975.28	199.00	234.61	941.47
18234.000	.00	.00	966.40	132.00	975.43	9.03	.00	.00	975.43	199.00	237.91	976.60
18234.000	.00	.00	966.40	159.00	975.79	9.39	.00	.00	975.79	199.00	245.72	1063.38
18833.000	.00	.00	969.00	94.00	974.89	5.89	.01	.00	974.90	599.00	22.00	118.30
18833.000	.00	.00	969.00	121.00	975.27	6.27	.02	.00	975.29	599.00	22.00	126.57
18833.000	.00	.00	969.00	132.00	975.42	6.42	.02	.00	975.44	599.00	22.00	129.92
18833.000	.00	.00	969.00	159.00	975.77	6.77	.02	.00	975.80	599.00	22.00	137.77
18845.000	.00	.00	969.00	94.00	974.89	5.89	.02	.00	974.90	12.00	16.00	93.21
18845.000	.00	.00	969.00	121.00	975.27	6.27	.02	.00	975.29	12.00	16.00	99.33
18845.000	.00	.00	969.00	132.00	975.41	6.41	.03	.00	975.44	12.00	16.00	101.68
18845.000	.00	.00	969.00	159.00	975.77	6.77	.03	.00	975.80	12.00	16.00	107.27
18856.000	.00	.00	969.10	94.00	974.86	5.76	.04	.00	974.91	12.00	10.00	57.14
18856.000	.00	.00	969.10	121.00	975.23	6.13	.06	.00	975.29	12.00	10.00	60.83
18856.000	.00	.00	969.10	132.00	975.37	6.27	.07	.00	975.44	12.00	10.00	62.24
18856.000	.00	.00	969.10	159.00	975.71	6.61	.09	.00	975.80	12.00	10.00	65.64
18857.000	994.60	977.20	969.10	94.00	974.86	5.76	.04	.00	974.91	1.00	10.00	57.16
18857.000	994.60	977.20	969.10	121.00	975.23	6.13	.06	.00	975.29	1.00	10.00	60.86
18857.000	994.60	977.20	969.10	132.00	975.37	6.27	.07	.00	975.44	1.00	10.00	62.27
18857.000	994.60	977.20	969.10	159.00	975.71	6.61	.09	.00	975.81	1.00	10.00	65.67
18980.000	994.60	977.70	969.60	94.00	974.88	5.28	.05	.00	974.93	123.00	10.00	52.05
18980.000	994.60	977.70	969.60	121.00	975.25	5.65	.07	.00	975.33	123.00	10.00	55.80
18980.000	994.60	977.70	969.60	132.00	975.40	5.80	.08	.00	975.48	123.00	10.00	57.23
18980.000	994.60	977.70	969.60	159.00	975.74	6.14	.11	.00	975.85	123.00	10.00	60.70

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SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	XLCH	TOPWID	AREA
18981.000	.00	.00	969.60	94.00	974.89	5.29	.04	.00	974.93	1.00	12.00	62.24
18981.000	.00	.00	969.60	121.00	975.27	5.67	.05	.00	975.33	1.00	12.00	66.92
18981.000	.00	.00	969.60	132.00	975.42	5.82	.06	.00	975.48	1.00	12.00	68.68
18981.000	.00	.00	969.60	159.00	975.78	6.18	.07	.00	975.85	1.00	12.00	72.92
19067.000	.00	.00	970.00	94.00	974.93	4.93	.02	.00	974.95	85.70	40.88	109.29
19067.000	.00	.00	970.00	121.00	975.33	5.33	.02	.00	975.35	85.70	45.76	126.76
19067.000	.00	.00	970.00	132.00	975.48	5.48	.02	.00	975.51	85.70	47.80	133.93
19067.000	.00	.00	970.00	159.00	975.85	5.85	.03	.00	975.88	85.70	52.71	152.51
19215.000	.00	.00	970.70	94.00	974.95	4.25	.04	.00	974.98	147.90	29.35	69.61
19215.000	.00	.00	970.70	121.00	975.35	4.65	.05	.00	975.39	147.90	33.52	82.12
19215.000	.00	.00	970.70	132.00	975.50	4.80	.05	.00	975.55	147.90	35.19	87.38
19215.000	.00	.00	970.70	159.00	975.87	5.17	.06	.00	975.92	147.90	39.28	101.13
19363.000	.00	.00	971.40	94.00	975.01	3.61	.08	.00	975.09	148.00	20.51	44.00
19363.000	.00	.00	971.40	121.00	975.41	4.01	.10	.00	975.50	148.00	22.27	52.35
19363.000	.00	.00	971.40	132.00	975.56	4.16	.10	.00	975.66	148.00	22.97	55.83
19363.000	.00	.00	971.40	159.00	975.92	4.52	.11	.00	976.04	148.00	25.74	64.70
19511.000	.00	.00	972.10	94.00	975.23	3.13	.17	.00	975.40	147.90	14.98	29.26
19511.000	.00	.00	972.10	121.00	975.63	3.53	.19	.00	975.83	147.90	17.10	35.68
19511.000	.00	.00	972.10	132.00	975.78	3.68	.20	.00	975.99	147.90	17.98	38.35
19511.000	.00	.00	972.10	159.00	976.14	4.04	.22	.00	976.36	147.90	19.96	45.05
19659.000	.00	.00	972.80	94.00	975.83	3.03	.23	.00	976.06	148.00	11.17	24.29
19659.000	.00	.00	972.80	121.00	976.22	3.42	.28	.00	976.50	148.00	12.79	29.04
19659.000	.00	.00	972.80	132.00	976.37	3.57	.30	.00	976.66	148.00	13.39	30.95
19659.000	.00	.00	972.80	159.00	976.69	3.89	.33	.00	977.03	148.00	14.72	35.53
19812.000	.00	.00	974.50	94.00	976.91	2.41	.46	.00	977.37	153.00	10.12	17.31
19812.000	.00	.00	974.50	121.00	977.27	2.77	.51	.00	977.78	153.00	13.43	21.75
19812.000	.00	.00	974.50	132.00	977.41	2.91	.53	.00	977.94	153.00	14.25	23.64
19812.000	.00	.00	974.50	159.00	977.72	3.22	.56	.00	978.28	153.00	15.85	28.38
19965.000	.00	.00	976.20	94.00	978.86	2.66	.35	.00	979.21	153.00	17.69	22.24
19965.000	.00	.00	976.20	121.00	979.14	2.94	.40	.00	979.54	153.00	18.97	27.50
19965.000	.00	.00	976.20	132.00	979.25	3.05	.42	.00	979.67	153.00	19.42	29.54
19965.000	.00	.00	976.20	159.00	979.50	3.30	.45	.00	979.96	153.00	20.47	34.50
20118.000	.00	.00	977.90	94.00	980.47	2.57	.31	.00	980.78	153.00	21.59	25.85
20118.000	.00	.00	977.90	121.00	980.74	2.84	.33	.00	981.08	153.00	23.00	32.01
20118.000	.00	.00	977.90	132.00	980.85	2.95	.34	.00	981.19	153.00	23.55	34.50
20118.000	.00	.00	977.90	159.00	981.10	3.20	.37	.00	981.46	153.00	24.73	40.17
20271.000	.00	.00	979.70	94.00	982.06	2.36	.22	.00	982.29	153.00	25.61	30.94
20271.000	.00	.00	979.70	121.00	982.31	2.61	.25	.00	982.56	153.00	26.99	37.30
20271.000	.00	.00	979.70	132.00	982.40	2.70	.26	.00	982.66	153.00	27.53	39.90
20271.000	.00	.00	979.70	159.00	982.62	2.92	.28	.00	982.90	153.00	28.68	45.96
20468.000	.00	.00	981.37	94.00	983.84	2.47	.25	.00	984.09	197.00	15.87	23.39
20468.000	.00	.00	981.37	121.00	984.10	2.73	.30	.00	984.40	197.00	16.62	27.48
20468.000	.00	.00	981.37	132.00	984.19	2.82	.32	.00	984.51	197.00	16.88	28.92
20468.000	.00	.00	981.37	159.00	984.40	3.03	.37	.00	984.77	197.00	17.52	32.60

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	XLCH	TOPWID	AREA
20484.000	.00	.00	981.50	94.00	983.85	2.35	.45	.00	984.30	16.00	13.03	17.49
20484.000	.00	.00	981.50	121.00	984.05	2.55	.56	.00	984.61	16.00	13.50	20.12
20484.000	.00	.00	981.50	132.00	984.13	2.63	.60	.00	984.73	16.00	13.69	21.22
20484.000	.00	.00	981.50	159.00	984.27	2.77	.73	.00	985.00	16.00	14.02	23.20
20492.000	.00	.00	981.57	94.00	984.06	2.49	.36	.00	984.42	8.00	10.92	19.44
20492.000	.00	.00	981.57	121.00	984.28	2.71	.47	.00	984.75	8.00	11.10	21.89
20492.000	.00	.00	981.57	132.00	984.35	2.78	.52	.00	984.88	8.00	11.16	22.75
20492.000	.00	.00	981.57	159.00	984.52	2.95	.65	.00	985.17	8.00	11.30	24.57
20519.000	.00	.00	981.80	94.00	984.39	2.59	.32	.00	984.71	27.00	11.00	20.56
20519.000	.00	.00	981.80	121.00	984.68	2.88	.40	.00	985.08	27.00	11.24	23.81
20519.000	.00	.00	981.80	132.00	984.79	2.99	.43	.00	985.22	27.00	11.33	25.05
20519.000	.00	.00	981.80	159.00	985.04	3.24	.50	.00	985.55	27.00	11.54	27.94
20521.000	.00	.00	981.80	94.00	984.55	2.75	.18	.00	984.73	2.00	15.73	27.70
20521.000	.00	.00	981.80	121.00	984.89	3.09	.21	.00	985.10	2.00	15.95	33.10
20521.000	.00	.00	981.80	132.00	985.02	3.22	.22	.00	985.24	2.00	16.00	35.18
20521.000	.00	.00	981.80	159.00	985.31	3.51	.25	.00	985.56	2.00	16.00	39.96
20529.000	.00	.00	981.80	94.00	984.60	2.80	.16	.00	984.77	8.00	16.87	28.88
20529.000	.00	.00	981.80	121.00	984.95	3.15	.19	.00	985.13	8.00	17.89	34.84
20529.000	.00	.00	981.80	132.00	985.08	3.28	.20	.00	985.27	8.00	18.28	37.19
20529.000	.00	.00	981.80	159.00	985.38	3.58	.21	.00	985.60	8.00	19.17	42.80
22329.000	.00	.00	987.70	94.00	989.45	1.75	.06	.00	989.50	1795.00	86.45	63.90
22329.000	.00	.00	987.70	121.00	989.63	1.93	.06	.00	989.69	1795.00	99.33	81.23
22329.000	.00	.00	987.70	132.00	989.70	2.00	.06	.00	989.76	1795.00	104.11	88.27
22329.000	.00	.00	987.70	159.00	989.86	2.16	.06	.00	989.93	1795.00	114.99	105.52
23449.000	.00	.00	987.40	94.00	990.40	3.00	.02	.00	990.42	1120.00	447.36	232.79
23449.000	.00	.00	987.40	121.00	990.56	3.16	.02	.00	990.58	1120.00	466.63	304.16
23449.000	.00	.00	987.40	132.00	990.62	3.22	.02	.00	990.63	1120.00	473.72	331.22
23449.000	.00	.00	987.40	159.00	990.75	3.35	.02	.00	990.77	1120.00	490.03	394.95

SUMMARY OF ERRORS

CAUTION SECNO=16979.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO=16979.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=16979.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=16979.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO=16979.000 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=16979.000 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=16979.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO=16979.000 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=16979.000 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO=16983.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO=16983.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=16983.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=16983.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO=16983.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO=16983.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO=16983.000 PROFILE= 3 CRITICAL DEPTH ASSUMED

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 CAUTION   SECNO=16983.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION   SECNO=16983.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION   SECNO=16983.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
 CAUTION   SECNO=16983.000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION   SECNO=16983.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION   SECNO=16987.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
 CAUTION   SECNO=16987.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION   SECNO=16987.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION   SECNO=16987.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
 CAUTION   SECNO=16987.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION   SECNO=16987.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION   SECNO=16987.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
 CAUTION   SECNO=16987.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION   SECNO=16987.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION   SECNO=16987.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
 CAUTION   SECNO=16987.000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION   SECNO=16987.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

 NOTE      SECNO=17035.000  PROFILE= 1  WSEL BASED ON X5 CARD
 NOTE      SECNO=17035.000  PROFILE= 2  WSEL BASED ON X5 CARD
 NOTE      SECNO=17035.000  PROFILE= 3  WSEL BASED ON X5 CARD
 NOTE      SECNO=17035.000  PROFILE= 4  WSEL BASED ON X5 CARD

 CAUTION   SECNO=17485.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
 CAUTION   SECNO=17485.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION   SECNO=17485.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION   SECNO=17485.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
 CAUTION   SECNO=17485.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION   SECNO=17485.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION   SECNO=17485.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
 CAUTION   SECNO=17485.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION   SECNO=17485.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION   SECNO=17485.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
 CAUTION   SECNO=17485.000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION   SECNO=17485.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL
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FORM 1411 5 GB
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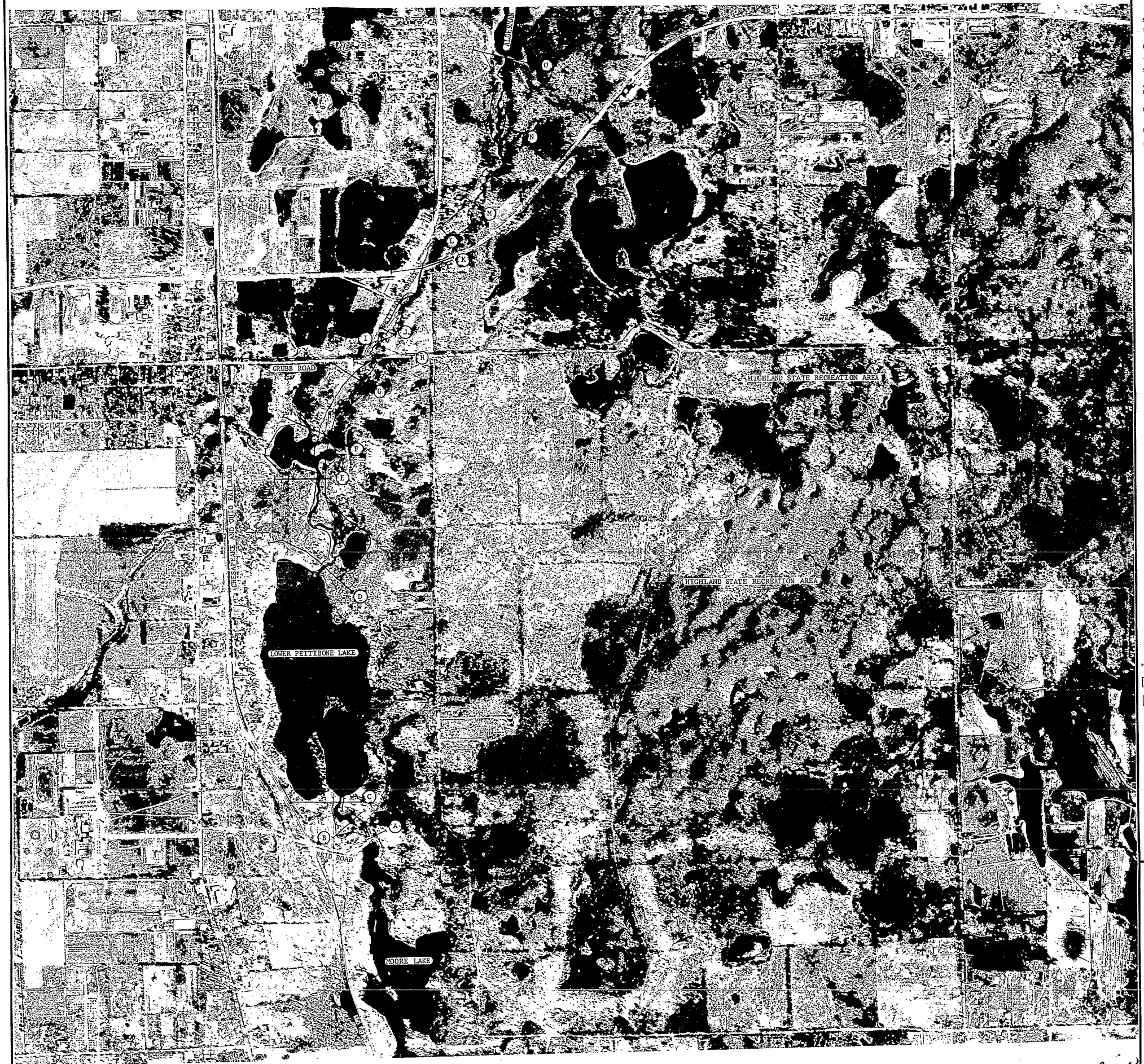


KEY TO MAP

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 — (A) — (A)

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.

HIGHLAND TOWNSHIP FIS

JOHNSON & ANDERSON, INC.

CONSULTING ENGINEERS

J&A FILE NO. 6504-04

PRELIMINARY

PETTIBONE CREEK
MOORE LAKE
LOWER PETTIBONE LAKE
ALDERMAN LAKE
LEONARD LAKE
UPPER PETTIBONE LAKE
HARVEY LAKE
DUCK LAKE
WHITE LAKE

LEGEND

(A) FIELD CROSS SECTION

FLOODWAY

FLOODFRINGE

SHEET 1 OF 2

RECEIVED
AUG 5 1981
WATER MANAGEMENT

APPROXIMATE SCALE
800 0 800 FEET
1" = 800'

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM 16	1007.42	At east end of Alderman Lake boat launch road, approximately 2100 feet south of Wardlow Road approximately 800 feet east of Harvey Lake Road, a large nail in southeast side of 12-inch oak tree.
RM 17	1002.90	Along Wardlow Road, 45 feet north of road, 12 feet east of Shewchenko Road, "J" in "E.J.I.W." on top of catch basin frame
RM 18	1016.12	At northwest corner of West Wardlow Road and Harvey Lake Road, 60 feet west of Harvey Lake Road, yellow spot on top of 2-inch pinched pipe, 2 feet above ground.
RM 19	1006.20	At intersection of East Wardlow Road and Harvey Lake Road, 45 feet west of Harvey Lake Road, on extension of East Wardlow Road, a large nail on east side of light pole.
RM 20	1021.66	Approximately 75 feet west of centerline Harvey Lake Road, approximately 20 feet north of centerline Dunleavy Street, a large nail on south side of high-voltage pole.
RM 21	998.07	Along Dunleavy Street, approximately 2300 feet west of Harvey Lake Road, approximately 22 feet south of centerline Dunleavy Street, a chiseled cross on south side of 24-inch concrete culvert between Upper Pettibone Lake and Leonard Lake
RM 22	1019.61	Nineteen feet east of Milford Road, approximately 700 feet south of centerline Middle Road, a large nail in west side of Michigan Bell Telephone pole.

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT NGVD)	DESCRIPTION OF LOCATION
RM 23	1040.89	At intersection of Lakeview Boulevard and Harvey Lake Road, approximately 30 feet north of Lakeview Boulevard, a punch hole on north rim of monument box.
RM 24	1026.30	Approximately 30 feet east of centerline of Chesapeake and Ohio Railroad tracks, approximately 3000 feet south of centerline Clyde Road, approximately 300 feet east of Milford Road, and approximately 36 feet south of centerline private driveway, a large nail in east side of telephone pole.
RM 25	1034.25	At west end of Whitehouse Drive, 25 feet north of centerline of Whitehouse Drive, in front of house No. 805, an arrow on top of fire hydrant.
RM 26	1018.85	Approximately 2120 feet east of Harvey Lake Road, 25 feet north of Wardlow Road, large nail in south side Michigan Bell Telephone pole.
RM 27	1034.91	Thirty six feet north of Wardlow Road, 33 feet west of centerline Waterbury Road, railroad spike on south side Michigan Bell Telephone pole.
RM 28	1024.64	Approximately 40 feet south of centerline Highland Road (M-59) approximately 65 feet east of Waterbury Road, railroad spike in north side of power pole.

Floodplains around lakes are not yet delineated - Abrahms will delineate + we will get a copy of revised preliminary

NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY

FLOOD BOUNDARY AND FLOODWAY MAP

TOWNSHIP OF

HIGHLAND, MICHIGAN

OAKLAND COUNTY

PANEL 1 OF 2

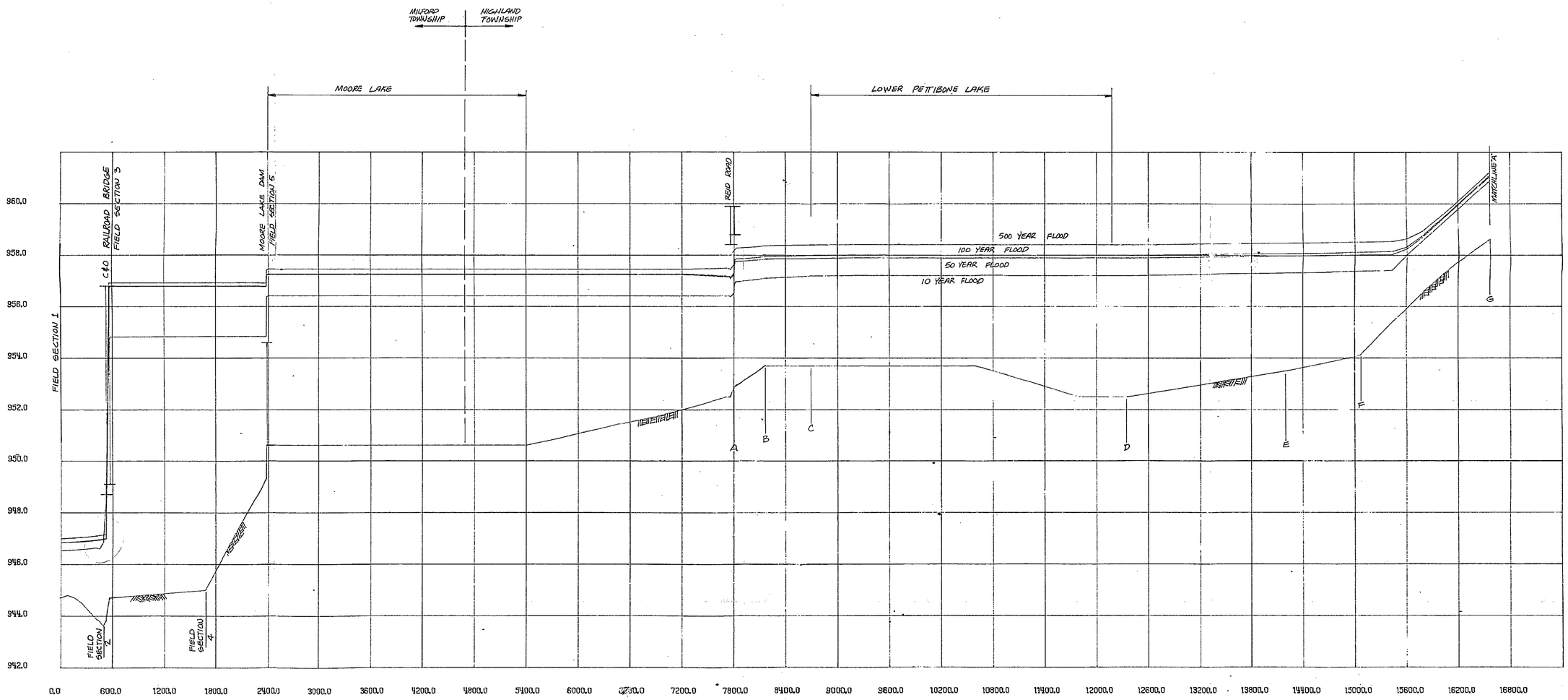
(SEE MAP INDEX FOR PANELS NOT PRINTED)

PRELIMINARY

COMMUNITY-PANEL NUMBER

EFFECTIVE DATE:

federal emergency management agency
federal insurance administration



DRAWN:
DESIGN:

VERT. 1" = 2'
SCALE:
HORIZ. 1" = 600'

REVISIONS	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE	MARK	ADDENDUM/CHANGE ORDER	DATE

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

PETTIBONE CREEK

HIGHLAND TOWNSHIP F.I.S.
OAKLAND COUNTY, MI.

JOB NO. 6504-04

SHEET NO. 1 of 2

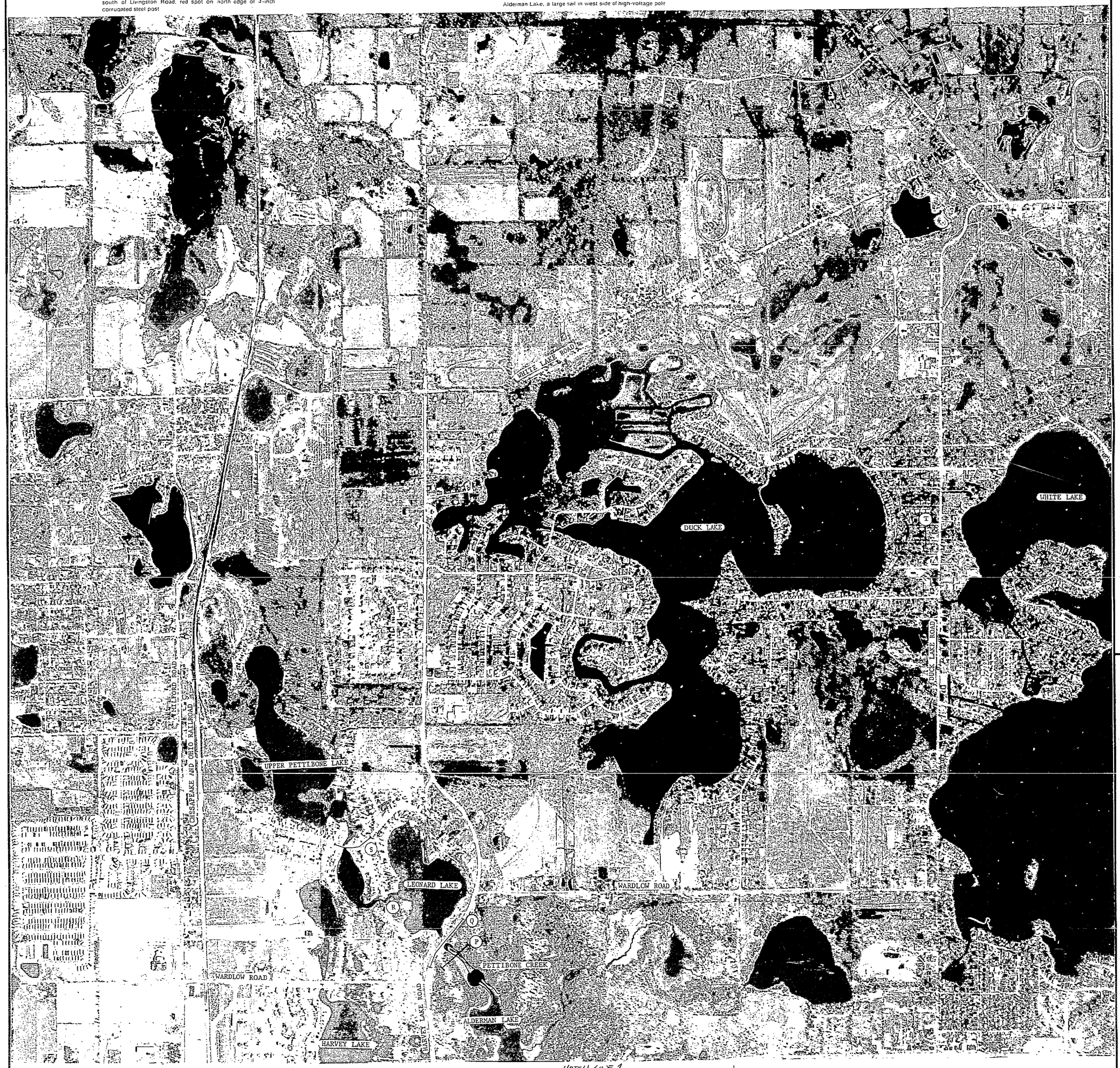
ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM 1	990.09	Approximately 24 feet east of centerline Pettibone Lake Road, approximately 20 feet north of centerline Cooley Lake Road, at railroad spike in southwest side of 18-inch oak tree
RM 2	975.40	Approximately 1750 feet south of centerline Reid Road, approximately 25 feet east of centerline of Chesapeake and Ohio Railroad tracks, at northeast corner of concrete headwall of 24-inch culvert.
RM 3	955.32	Along Chesapeake and Ohio Railroad tracks, 33 feet east of tracks, 56 feet north of Reid Road, a square on east end of 24-inch concrete culvert.
RM 4	1005.00	Along Pettibone Lake Road, at northwest intersection of Reid Road, a railroad spike in top of 30-inch tree stump
RM 5	1078.85	Along east side of Pettibone Lake Road, approximately 1000 feet north of Reid Road, in front of house No. 2215, a railroad spike in southeast side of power pole
RM 6	1005.86	Along Chesapeake and Ohio Railroad tracks, 30 feet east of tracks 90 feet north of Lake Drive, a large nail in west side of telephone pole.
RM 8	996.56	Thirty feet west of Pettibone Lake Road, approximately 2700 feet south of Livingston Road, red spot on north edge of 4-inch corrugated steel post

PRELIMINARY

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM 9	1037.47	Along west side of Pettibone Lake Road, approximately 1600 feet south of Livingston Road, a 10-penny nail, 1 foot lower than large bent spike on east side of 40-inch oak tree
RM 10	1002.95	Along Chesapeake and Ohio Railroad tracks, 15 feet east of tracks, approximately 1300 feet south of Livingston Road, a large nail in west side of power pole, 3 feet east of signal box
RM 11	1009.60	At southeast corner of Livingston Road and Chesapeake and Ohio Railroad tracks, 50 feet east of tracks and 15 feet south of south right-of-way line, an iron post with bronze cap stamped "1010."
RM 12	965.58	Along south side of Livingston Road, approximately 35 feet east of centerline Harvey Lake Road, a large spike in north side of power pole.
RM 13	1021.49	Along north side of Livingston Road, approximately 50 feet west of centerline Pettibone Lake Road, a 10-penny nail in south side of 36-inch oak tree
Rm 14	995.12	At northeast corner of Harvey Lake Road and Highland Road (M-59), a large nail in north side of high-voltage pole
RM 15	1014.78	Approximately 50 feet east of Harvey Lake Road, approximately 225 feet south of Garden Avenue, just south of DNR access to Alderman Lake, a large nail in west side of high-voltage pole



MATCH LINE 1

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 — (A)—(A)
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 for 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. See the latest official Flood Insurance Rate Map for any additional areas of special flood hazard.

PRELIMINARY

For adjoining map panels, see separately printed Index To Map Panels.

HIGHLAND TOWNSHIP FIS

JOHNSON & ANDERSON, INC.

CONSULTING ENGINEERS

J&A FILE NO. 6504-04

PETTIBONE CREEK
MOORE LAKE
LOWER PETTIBONE LAKE
ALDERMAN LAKE
LEONARD LAKE
UPPER PETTIBONE LAKE
HARVEY LAKE
DUCK LAKE
WHITE LAKE

N

LEGEND

(A) FIELD CROSS SECTION
FLOODWAY
FLOODFRINGE

SHEET 2 OF 2

PRELIMINARY

APPROXIMATE SCALE
800 0 800 FEET
1" = 800'

NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY

FLOOD BOUNDARY AND FLOODWAY MAP

TOWNSHIP OF

HIGHLAND, MICHIGAN

OAKLAND COUNTY

Floodplains around lakes are not yet delineated. Abrahms will delineate & we will get a "revised preliminary" map

PANEL 2 OF 2

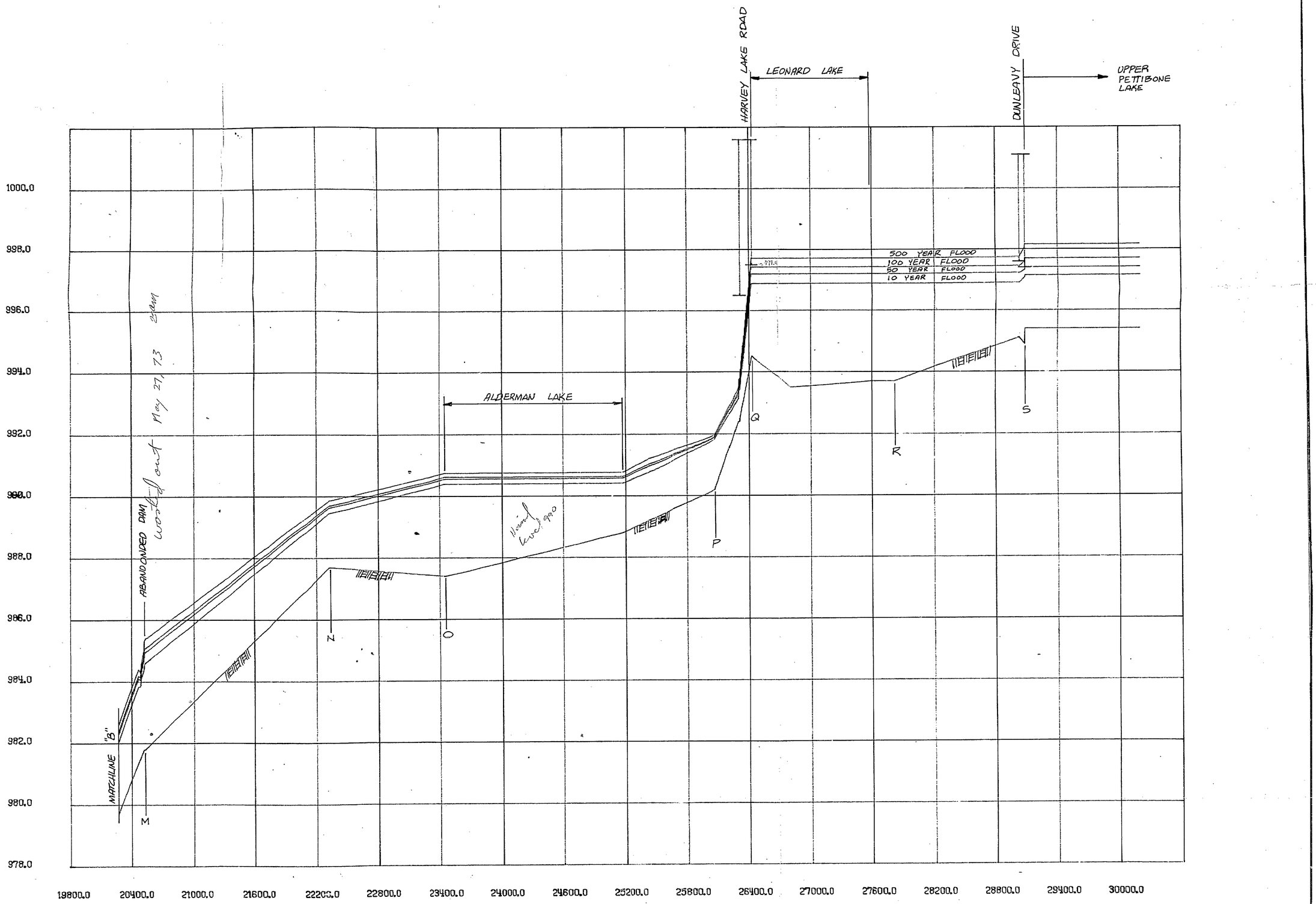
(SEE MAP INDEX FOR PANELS NOT PRINTED)

PRELIMINARY

COMMUNITY-PANEL NUMBER

EFFECTIVE DATE:

federal emergency management agency
federal insurance administration



SCALE: VERT. 1" = 2'
HORIZ. 1" = 600'

JOHNSON & ANDERSON, INC. CONSULTING ENGINEERS PONTIAC, MICHIGAN	PETTIBONE CREEK	HIGHLAND TOWNSHIP F.I.S. OAKLAND COUNTY, MI.

JOB NO. 6504-04

SHEET NO. 2 of 2

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM 17	1002.90	Along Wardlow Road, 45 feet north of road, 12 feet east of Shewchenko Road, "J" in "E.J.I.W." on top of catch basin frame.
RM 18	1016.12	At northwest corner of West Wardlow Road and Harvey Lake Road, 60 feet west of Harvey Lake Road, yellow spot on top of 2-inch pinched pipe, 2 feet above ground.
RM 19	1006.20	At intersection of East Wardlow Road and Harvey Lake Road, 45 feet west of Harvey Lake Road, on extension of East Wardlow Road, a large nail on east side of light pole.
RM 20	1021.66	Approximately 75 feet west of centerline Harvey Lake Road, approximately 20 feet north of centerline Dunleavy Street, a large nail on south side of high-voltage pole.
RM 21	998.07	Along Dunleavy Street, approximately 2300 feet west of Harvey Lake Road, approximately 22 feet south of centerline Dunleavy Street, a chiseled cross on south side of 24-inch concrete culvert between Upper Pettibone Lake and Leonard Lake.
RM 22	1019.61	Nineteen feet east of Milford Road, approximately 700 feet south of centerline Middle Road, a large nail in west side of Michigan Bell Telephone pole.

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FT. NGVD)	DESCRIPTION OF LOCATION
RM 23	1040.89	At intersection of Lakeview Boulevard and Harvey Lake Road, approximately 30 feet north of Lakeview Boulevard, a punch hole on north rim of monument box.
RM 24	1026.30	Approximately 30 feet east of centerline of Chesapeake and Ohio Railroad tracks, approximately 3000 feet south of centerline Clyde Road, approximately 300 feet east of Milford Road, and approximately 36 feet south of centerline private driveway, a large nail in east side of telephone pole.
RM 25	1034.25	At west end of Whitehouse Drive, 25 feet north of centerline of Whitehouse Drive, in front of house No. 805, an arrow on top of fire hydrant.
RM 26	1018.85	Approximately 2120 feet east of Harvey Lake Road, 25 feet north of Wardlow Road, large nail in south side Michigan Bell Telephone pole.
RM 27	1034.91	Thirty six feet north of Wardlow Road, 33 feet west of centerline Waterbury Road, railroad spike on south side Michigan Bell Telephone pole.



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 (A — A)

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 Emergency Management Agency.

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.

Floodway widths in some areas may be too narrow to show to scale. Refer to Floodway Data Table where floodway width is shown at 1/20 inch.

For adjoining map panels, see separately printed Index to Map Panels.

N

APPROXIMATE SCALE
800 0 800 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FLOODWAY

FLOOD BOUNDARY AND FLOODWAY MAP

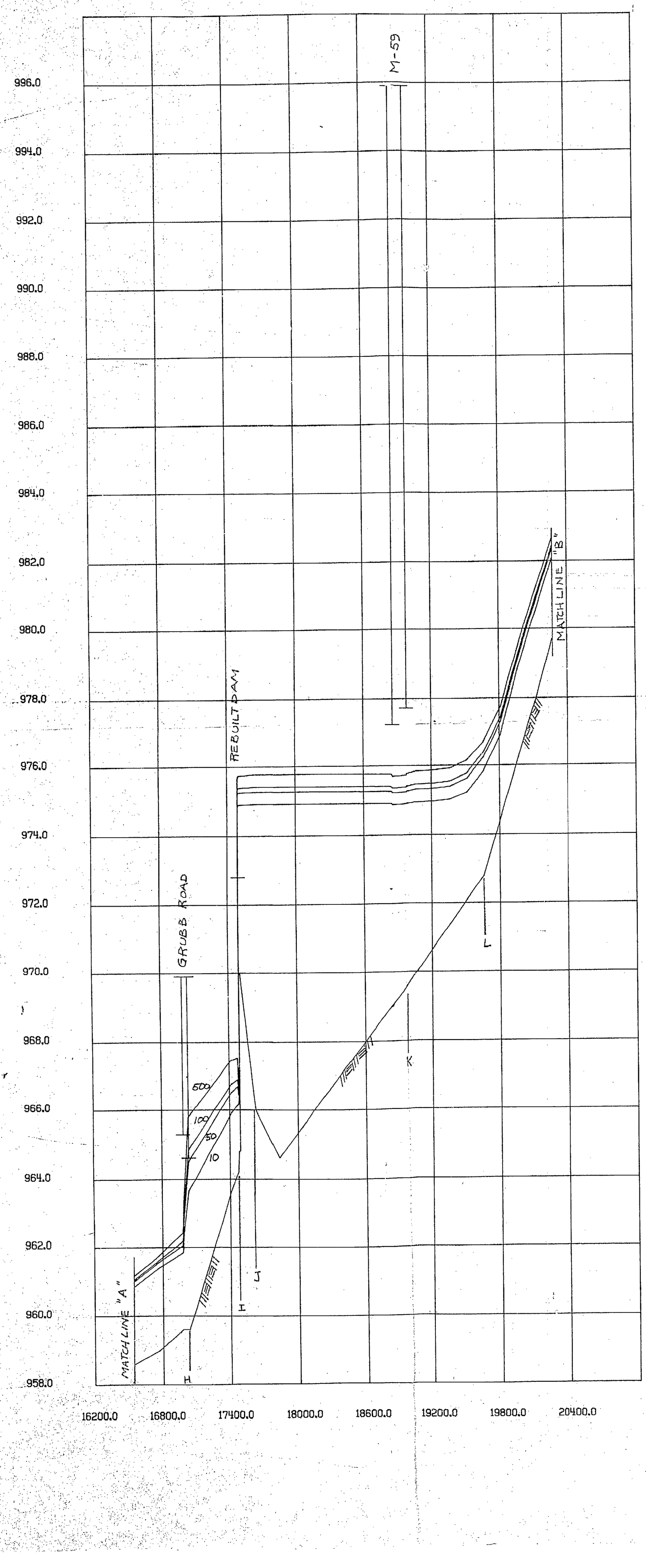
TOWNSHIP OF
HIGHLAND,
MICHIGAN
OAKLAND COUNTY

PANEL 10 OF 20

COMMUNITY-PANEL NUMBER
260650 0010

EFFECTIVE DATE:
JANUARY 18, 1984

Federal Emergency Management Agency



RECEIVED
AUG 5 1981
WATER MANAGEMENT

PETTIBONE CREEK
HIGHLAND TOWNSHIP FIS
OAKLAND COUNTY, MI
6504-04
1"=2' VERTICAL SCALE
1"=600' HORIZONTAL SCALE

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: HOLLY TOWNSHIP

3) WATERCOURSE: HOLLY PATTERSON DRAIN

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

00BREAK00

HYDRAULIC & HYDROLOGY ANALYSIS
SHIAWASSEE RIVER
HOLLY PATTERSON DRAIN
HOLLY TWP.
VILLAGE OF HOLLY

HYDRAULIC AND HYDROLOGY ANALYSIS

1. Introduction

The two main streams being investigated in this report are the Shiawasee River and the Holly-Patterson Drain through the City of Holly and Holly Township, Michigan. The Shiawasee River consists of a few unnamed tributaries, as is the Holly-Patterson Drain. In this study the hydrographs of each tributary were established. The hydrographs at each confluence point with a tributary and at the outlet of each control structure were also established for both study streams. The analysis technique will be described in Section 2.

2. Method of Analysis

2.1 Background Information

The study area is divided into three (3) sections according to the type of analysis used. The Holly-Patterson Drain consists of several large lakes with short reaches of channels between. The lakes serve as large storage areas during storm flows. The Shiawasee River consists of a channel reach from the starting section to the Mill Pond. The area upstream of the Mill Pond consists of a high percentage of swampy areas with several lakes that serve as storage areas.

2.2 TR-20 and HEC-2

2.2.1 Holly-Patterson Drain

As mentioned in Section 2.1, the several lakes between the Holly-Patterson Drain will serve as reservoirs in regulating the peak flow calculation, the TR-20 was employed in the analysis. The total basin has been divided into six (6) subbasins and three (3) control structures were encountered in the routing. The major difficulty involved, then is the adequate method to develop a meanful stage - discharge curve for each structure. Structure 01 is a bridge opening downstream of the lake. Without knowing the downstream stage, the upstream stage of the bridge cannot be established. Without knowledge of the energy slope, the control stage at the downstream embankment cannot be established either. This problem was solved by HEC-2 backwater program.

The drainage area, CN number, and the time of concentration for each subbasin and the locations of cross sections and structures are shown in Figure 1. Figure 1 also shows the flow diagram of the TR-20 computation. In this report the data sheets for the SCS method at each subbasin and the stage - discharge relation for each structure resulting from HEC-2 backwater computations are included. The stage - discharge relations for structure 02 and 03 are hand calculated.

2.2 TR-20 and HEC-2 (continued)

2.2.2 Shiawasee River

The water surface profiles for the Shiawasee River from the starting cross-section to the Mill Pond was determined using the HEC-2 computer program, developed by Hydrologic Engineering Center, United States Army Corps of Engineers.

The area upstream of the Mill Pond was modeled using the TR-20 computer program. Since a large percentage of the area upstream consists of swampy areas, the input for rainfull was reduced according to SCS recommended methodology. Since approximately 15 percent (15%) of the area in the drainage basins is swampy areas or ponding areas, a factor of .69 was used to reduce flows.

?

how was this arrived at? looks like Table E-3 Appendix H in Rio's report on SCS UD-21 method

APPENDIX

BY 4 S.C. DATE 11/5/81 FILE # 8561 & 62

WATERCOURSE HOLLY, LAKE BRAEMER AREA COUNTY OAKLAND

D.A. 2000 mi.² RECURRENCE INTERVAL 10 & 25 YR.

Flow type	Length (ft)	Δe/e (ft)	Slope (%)	Vel (fps)	t_c (hrs)
SMALL TRIB.	24500	77	0.31 %	1.18	5.78
WATERWAY	1000	20	2.00 %	1.70	0.16
SHEET	2000	20	1.00 %	0.48	1.16

Total t_c, hrs = 7.10

10.1

SOILS Group	%	mi²
A	2.15	0.43
B	65.60	13.12
C	19.0	0.38
D	16.1	3.22
	12.5	
	14.25	2.85. SWAMP/LAKE

LAND USE type		%	mi²	RCN	10YR: 24 Hr. RF = 3.47 R.O.	mi²-in	25YR – 24 Hr. RF = 3.86 R.O.	mi²-in
A	CROP	4.65	0.02	64	0.69	0.01	0.89	0.02
	FOREST	16.28	0.07	36	0.00	0.00	0.01	0.00
	MEADOW	76.74	0.33	30	0.06	0.02	0.03	0.01
	RESIDENTIAL	2.33	0.01	54	0.30	0.00	0.44	0.00
B	CROP	1.07	0.14	77	1.41	0.18	1.70	0.22
	FOREST	19.44	2.55	60	0.52	1.29	0.69	1.73
	MEADOW	78.89	10.35	58	0.44	4.57	0.60	6.25
	RESIDENTIAL	0.60	0.08	70	0.99	0.13	1.24	0.16
C	CROP	0	0					
	FOREST	21.05	0.08	73	1.16	0.09	1.43	0.11
	MEADOW	78.95	0.30	71	1.04	0.31	1.30	0.39
	RESIDENTIAL	0	0					
D	CROP	0	0					
	FOREST	39.44	1.27	79	1.54	1.94	1.85	2.32
	MEADOW	60.56	1.95	78	1.47	2.90	1.78	3.49
	RESIDENTIAL		0					
Total mi -in						11.46		14.71
Avg. R.O., ia.						0.67		0.86
Comp RCN						63.52		63.29
H.F.								
Qp, cfs/mi²-in					53.89		53.89	
Q, cfs					617.56		792.79	
Adj. factor								
Q _____								

BY C/SC DATE 11/10/81 FILE # 8561 & 62

WATERCOURSE HOLLY LAKE BREMER AREA COUNTY OAKLAND

D.A. 2000 mi² RECURRENCE INTERVAL 50 & 100 Yr.

Flow type	Length (ft)	Δe/e (ft)	Slope (%)	Vel (fps)	t_c (hrs)
SMALL TRIB	24500	77	0.31%	1.18	5.78
WATERWAY	1000	20	2.00%	1.70	0.16
SHEET	2.000	20	1.00%	0.48	1.16

Total t_c, hrs = 7.10

SOILS Group	%	mi²	LAND USE type	%	mi²	RCN	50 Yr. - 24 Hr. RF = 4.21 R.O.	mi²-in	100 Yr. - 24 Hr. RF = 4.55 R.O.	mi²-in
A	2.15	0.43	CROP .04	4.65	0.02	64	1.09	0.02	1.30	0.03
			FOREST .14	16.28	0.07	36	0.02	0.00	0.05	0.00
			MEADOW .77	76.74	0.33	30	0.01	0.00	0.00	0.00
			RESIDENTIAL .02	2.33	0.01	54	0.57	0.00	0.71	0.01
B	65.60	13.12	CROP .01	1.07	0.14	77	1.98	0.26	2.25	0.30
			FOREST .13	19.44	2.55	60	0.87	2.16	1.05	2.61
			MEADOW .79	78.89	10.35	58	0.76	7.90	0.93	9.64
			RESIDENTIAL .01	0.60	0.08	70	1.47	0.19	1.71	0.22
C	1.90	0.38	CROP	0	0					
			FOREST	21.05	0.08	73	1.68	0.13	1.93	0.15
			MEADOW	78.95	0.30	71	1.54	0.46	1.78	0.54
			RESIDENTIAL	0	0					
D	1.61	3.22	CROP	0	0					
			FOREST	39.44	1.27	79	2.14	2.68	2.42	3.04
			MEADOW	60.56	1.95	78	2.06	4.04	2.33	4.58
			RESIDENTIAL	0	0					
	14.25	17.15 2.85	SWAMP/LAKE							
			Total mi -in					17.87		21.12
			Avg. R.O., ia.					1.04		1.23
			Comp RCN					63.13		62.99
			H.F.							
			Qp, cfs/mi²-in				53.89		53.89	
			Q, cfs				962.77		1138.13	
			Adj. factor							
			Q							

BY 45C DATE 11/10/81 FILE = 8561 & 62

WATERCOURSE HOLLY COGGER LAKE AREA COUNTY OAKLAND

D.A. 8.10 mi² RECURRENCE INTERVAL 10 & 25 YRS

Flow type	Length (ft)	Δe/e (ft)	Slope (%)	Vel (fps)	t_c (hrs)
SMALL TRIB	23,400	78	0.33	1.21	5.36
WATERWAY	5,000	6	0.12	0.42	3.34
SHEET	1400	5	0.36	0.29	1.36

Total t_c, hrs = 10.06

SOILS Group	%	mi²	LAND USE type	%	mi²	RCN	10 Yr-24 Hr. RF = 3.47 R.O.	mi²-in	25 Yr-24 Hr. RF 3.86 R.O.	mi²-in
A	1.36	0.11	CROP	0	0	64				
			FOREST	0	0	36				
			MEADOW	100	0.11	36	0.06	0.01	0.03	0.00
			RESIDENTIAL	0	0	54				
B	78.52	6.36	CROP	0	0	77			0	0
			FOREST	14.78	0.94	60	0.52	0.49	0.69	0.66
			MEADOW	81.92	5.21	58	0.44	2.30	0.60	3.14
			RESIDENTIAL	3.30	0.21	70	0.99	0.19	1.24	0.24
C										
D	4.07	0.33	CROP	0	0	68				
			FOREST	45.45	0.15	79	1.54	0.23	1.85	0.27
			MEADOW	33.33	0.11	78	1.47	0.16	1.78	0.19
			RESIDENTIAL	21.22	0.07	85	1.99	0.14	2.33	0.17
TOTAL SOIL AREA-		8.10								
	16.05	1.30	LAKES/SWAMPS							
			Total mi -in					3.53		4.68
			Avg. R.O., ia.					0.52		0.69
			Comp RCN					60.00		59.87
			H.F.							
			Qp, cfs/mi²-in				434.8		434.8	
			Q, cfs				153.32		203.56	
			Adj. factor							
			Q							

BY J.S.C. DATE 11/6/81 FILE # 8561 & 62

WATERCOURSE HOLLY COOPER LAKE AREA COUNTY OAKLAND

D.A. 810 mi² RECURRENCE INTERVAL 50 & 100 yrs

Flow type	Length (ft)	Δe/e (ft	Slope (s)	Vel (fps)	t_c hrs
SMALL TRIB	23,400	.78	033	121	536
WATERWAY	5000	.6	012	042	334
SHEET	1400	.5	0.36	029	136

Total t_c, hrs = 1006

410

SOILS Group	%	mi²	LAND USE type	%	mi²	RCN	50Yr. 24 hr. RF = 4.21 R.O.	mi²-in	100Yr. 24 hr. RF 4.55 R.O.	mi²-in
A	1.36	0.11	CROP FOREST MEADOW RESIDENTIAL	100.0 – 011		30	001	000	000	000
B	7852	636	CROP	0	0	77				
			FOREST	1478	0.94	60	087	083	105	100
			MEADOW	8192	5.21	58	076	398	093	485
			RESIDENTIAL	3.30	0.21	70	147	028	171	033
C										
D	407	0.33	CROP	0	0	88				
			FOREST	4545	015	79	214	032	242	036
			MEADOW	3333	011	78	206	022	233	025
			RESIDENTIAL	21.22	007	85	265	019	295	021
TOTAL SOIL AREA		680								
	1605	130	LAKES/SWAMP							
			Total mi -in					582		700
			Avg. R.O., ia.					086		103
			Comp RCN					S979		S972
			H.F.							
			Qp, cfs/mi²-in				4348		4348	
			Q, cfs				25299		30453	
			Adj. factor							
			Q							

BY 45C DATE 11/5/81 FILE 8561 & 62

WATERCOURSE HOLLY, BUCKHORN CREEK AREA COUNTY OAKLAND

D.A. 331 mi² RECURRENCE INTERVAL 10 & 25 YR

Flow type	Length (ft)	Δe/e (ft)	Slope (%)	Vel (fps)	t_c (hrs)
SMALL TRIB	11660	11	0.09 %	0 65	502
WATERWAY	1 600	1.0	0 17%	0.49	0.34
SHEET	.1250	15	12%	0 53	066

Total t_c, hrs = 602

SOILS Group	%	mi²	LAND USE type	%	mi²	RCN	10YR-24 Hr. RF = 347 R.O.	mi²-in	25YR-24 Hr. RF = 386 R.O.	mi²-in
A										
B	83 99	2.78	CROP 01	0 72	002	77	141	004	170	005
			FOREST 12	12 23	0.34	60	052	0 17	0.69	0 23
			MEADOW 93	82 73	2.30	58	0 44	1 02	0 60	1.39
			RESIDENTIAL 04	4.32	0 12	70	099	0 11	1 24	0 14
C										
D										
	1601	0 53	LAKES/SWAMP							
			Total mi -in					1 34		1 81
			Avg. R.O., ia.					048		065
			Comp RCN					59 08		59 05
			F.F.							
			Qp, cfs/mi²-in				59 66		59 66	
			Q, cfs				79 97		107 80	
			Adj. factor							
			Q							

BY 4SC DATE 11/10/81 FILE # 8561 & 62

WATERCOURSE HOLLY/BUCKHORN CREEK AREA COUNTY OAKLAND

D.A. 331 mi² RECURRENCE INTERVAL 50 & 100YR

Flow type	Length (ft)	Δe/e (ft)	Slope (%)	Vel (fps)	t_c (hrs)
SMALL TRIB	11660	11	0.09%	0.65	5.02
WATERWAY	600	1.0	0.17%	0.49	0.34
SHEET	1250	15	12%	0.53	0.66

Total t_c, hrs = 6.02

SOILS Group	%	mi²	LAND USE type	%	mi²	RCN	50YR 24 Hr. RF = 4.21 R.O.	mi²-in	100YR 24 Hr. RF = 4.55 R.O.	mi²-in
A										
B	83.99	2.78	CROP	0.72	0.02	77	1.98	0.05	2.25	0.06
			FOREST	12.23	0.34	60	0.87	0.29	1.05	0.35
			MEADOW	82.73	2.30	58	0.76	1.74	0.93	2.12
			RESIDENTIAL	4.32	0.12	70	1.47	0.16	1.71	0.19
C										
D										
	16.01	0.53	LAKES/SWAMPS							
			Total mi -in					2.25		2.72
			Avg. R.O., ia.					0.81		0.98
			Comp RCN					59.88		58.55
			H.F.							
			Qp, cfs/mi²-in				59.66		59.66	
			Q, cfs				134.00		162.41	
			Adj. factor							
			Q							

BY 45C DATE 11/5/81 FILE # 8561 & 62

WATERCOURSE HOLLY, SHIAWASSEE LAKE AREA COUNTY OAKLAND

D.A. 4.17 mi.² RECURRENCE INTERVAL 10 & 25 YR.

Flow type	Length (ft)	Δe,e (ft)	Slope (%)	Vel (fps)	t, hrs
SMALL TRIBUTARY	16440	67 FT	0.41%	1.34	3.41
WATERWAY	3600	15 FT	0.04%	0.24	4.43
SHEET	800	40	5.00%	1.07	0.21

Total t_c, hrs = 8.04

SOILS Group	%	mi²	LAND USE type	%	mi²	RCN	10YR-24 Hr. RF = 3.47 R.O.	mi²-in	25YR – 24 hr. RF = 3.86 R.O.	mi²-in
A										
B	81.78	3.41	CROP	0	0					
			FOREST	25.51	0.87	60	0.52	0.46	0.69	0.62
			MEADOW	69.79	2.38	58	0.44	1.05	0.60	1.44
			RESIDENTIAL 1/4	4.70	0.16	70	0.99	0.13	1.24	0.17
C										
D										
	18.22	0.76	LAKES/SWAMPS							
			Total mi -in					1.65		2.22
			Avg. R.O., in.					0.48		0.65
			Comp RCN					59.10		59.09
			F.F.							
			Qp, cfs/mi²-in				49.92		49.92	
			Q, cfs				82.27		110.95	
			Adj. factor							
			Q							

BY JSC DATE 11/10/81 FILE # 8561 & 62

WATERCOURSE HOLLY SHIAWASSEE LAKE AREA COUNTY OAKLAND

D.A. 417 mi² RECURRENCE INTERVAL 50 & 100 YR

Flow type	Length (ft)	Δe/e (ft)	Slope (%)	Vel (fps)	t_c (hrs)
SMALL TRIB.	16440	67 FT.	0.41%	1.34	3.41
WATERWAY	3800	1.5 FT.	0.04%	0.24	4.43
SHEET	800	40	5.0%	1.07	0.21

Total t_c, hrs = 8.04

SOILS Group	%	mi²	LAND USE type	%	mi²	RCN	50YR-24 Hr. RF = 4.21 R.O.	50YR-24 Hr. RF = 4.21 mi²-in	100YR - 24 Hr. RF - 4.55 R.O.	100YR - 24 Hr. RF - 4.55 mi²-in
A										
B	81.78	3.41	CROP	0	0					
			FOREST	25.51	0.87	60	0.87	0.77	1.05	0.93
			MEADOW	69.79	2.38	58	0.76	1.82	0.93	2.22
			RESIDENTIAL	4.70	0.16	70	1.47	0.20	1.71	0.23
C										
D										
	18.22	0.76	LAKES/SWAMPS							
			Total mi -in					2.79		3.38
			Avg. R.O., ia.					0.82		0.99
			Comp RCN					59.08		59.07
			H.F.							
			Qp, cfs/mi²-in				4992		4992	
			Q, cfs				13925		16880	
			Adj. factor							
			Q							

BY ASC DATE 11/6/81 FILE # 8561/62

WATERCOURSE HOLLY/SHIAWASSEE RIVER D/S COUNTY OAKLAND

D.A. 1.30 RECURRENCE INTERVAL 10 & 25 YR

44.19

Flow type	Length (ft)	Δelev (ft)	Slope (%)	Vel (fps)	t_c (hrs)
SMALL TRIB	6600	35	0.05%	0.48	3.79
WATERWAY	800	20	0.25%	0.60	0.37
SHEET	1700	37	2.18%	0.71	0.67

Total t_c, hrs = 4.83

SOILS Group	%	mi^2	LAND USE Type	%	mi^2	PCN	10YR-24 Hr. RF = 3.47 P.Q.	mi^2-in	25YR-24 Hr. RF = 3.86 R.Q.	mi^2-in
A										
B	91.54	1.19	CROP	0	0	77				
			FOREST	5.04	0.06	60	0.52	0.03	0.69	0.04
			MEADOW	68.91	0.82	58	0.44	0.36	0.60	0.49
			RESIDENTIAL	26.05	0.31	70	0.99	0.31	1.24	0.38
C										
D										
	8.46	0.11	LAKES/SWAMPS							

Total mi -in		0.69		0.92
Avg. R.O., ia.		0.58		0.77
Comp RCN		61.57		61.60
H.F.				
Qp, cfs/mi^2-in	68.37		66.37	
Q, cfs	47.46		62.82	
Adj. factor				
Q				

BY A.S.C. DATE 11/6/81 FILE # 8561 & 62

WATERCOURSE HOLLY, SHIAWASSEE RIVER D/S COUNTY OAKLAND

D.A. 130 mi² RECURRENCE INTERVAL 50 & 100 YR

Flow type	Length (ft)	Δe/e (ft)	Slope (%)	Vel (fps)	t_c (hrs)
SMALL TRIB.	6600	3.5	0.05%	.048	3.79
WATERWAY	800	2.0	0.25%	0.60	0.37
SHEET	1200	37	2.18%	0.71	0.67

Total t_c, hrs = 4.83

SOILS Group	%	mi²	LAND USE type	%	mi²	RCN	50YR- Hr. RF = 4.21 R.O.	mi²-in	100YR- 24 hr. RF 4.55 R.O.	mi²-in
A										
B	91.54	1.19	CROP	0	0	77	0	0		
			FOREST	5.04	0.06	60	0.87	0.05	1.05	0.06
			MEADOW	68.91	0.82	58	0.76	0.63	0.93	0.76
			RESIDENTIAL	26.05	0.31	70	1.47	0.46	1.71	0.53
C										
D										
	8.46	0.11	LAKES/SWAMPS							
			Total mi -in					1.13		1.35
			Avg. R.O., ia.					0.95		1.14
			Comp RCN					61.55		61.58
			H.F.							
			Qp, cfs/mi²-in				68.37		68.37	
			Q, cfs				77.46		92.63	
			Adj. factor							
			Q							

BY JSC DATE 11/9/81 FILE # 8561 F62

WATERCOURSE HOLLY 16TH e.e. CULVERT COUNTY OAKLAND

D.A. .61 mi² RECURRENCE INTERVAL 10 & 25 YR FLOODS

Flow type	Length (ft)	Δe/e (ft)	Slope (%)	Vel (fps)	t_c (hrs)
SMALL TRIB	14,600	51	035	124	327
WATERWAY	2500	2	01	034	205
SHEET	1900	57	30	083	0.63

Total t_c, hrs = 595

SOILS Group	%	mi²	LAND USE type	%	mi²	RCN	10YR - 24 Hr. RF = 347 R.O.	mi²-in	25YR - 24 Hr. RF 386 R.O.	mi²-in
A	174	0.15	CROP	0	0	64				
			FOREST	5333	008	36	000	0.00	001	000
			MEADOW	4667	007	30	006	000	003	000
			RESIDENTIAL	0	0	57				
B	8583	739	CROP	0	0	0				
			FOREST	1231	091	60	0.52	0 46	0 69	0 62
			MEADOW	8268	611	58	044	2.67	0 60	3 65
			RESIDENTIAL	501	037	72	1.10	041	1 36	0 60
C	0	0								
D	035	003	CROP	0	0					
			FOREST	0	0					
			MEADOW	100.0	003	78	1.47	004	178	005
			RESIDENTIAL	0	0	0				
	1208	1 04	LAKES/SWAMPS							
			Total mi -in					3 59		493
			Avg. R.O., ia.					047		065
			Comp RCN					5887		5907
			H.F.							
			Qp, cfs/mi²-in				60 11		60 11	
			Q, cfs				21E 78		296.19	
			Adj. factor							
			Q							

4 S.C. DATE 11/5/81 FILE # 8561 & 62

WATERCOURSE Holly 6th R.R. Culvert COUNTY Oakland

D.A. 8.61 mi² RECURRENCE INTERVAL 50 & 100 yr FLOOD

Flow type	Length (ft)	Δ elev (ft)	Slope (%)	Vel (fps)	t_c hrs
SMALL TRIB	14600	51	035	1.24	3.27
WATERWAY	2500	20	0.8%	0.34	2.05
SHEET	1900	57	3.00	0.83	0.63

Total t_c, hrs = 5.95

SOILS Group	%	mi²	LAND USE type	%	mi²	RCN	50yr - 24 hr. RF = 4.21 P.C.	mi²-in	100yr - 24 Hr. RF 4.55 R.O.	mi²-in
A	1.74	0.15	CROP	0	0	64				
			FOREST	53.33	0.08	36	0.02	0.00	0.05	0.00
			MEADOW	46.67	0.07	30	0.01	0.00	0.00	0.00
			RESIDENTIAL	0	0	57				
B	85.83	7.39	CROP	0	0	0				
			FOREST	12.31	0.91	60	0.87	0.77	1.05	0.93
			MEADOW	82.68	6.11	58	0.76	4.62	0.93	5.64
			RESIDENTIAL	5.01	0.37	72	1.61	0.71	1.86	0.62
C	0	0								
D	0.35	0.03	CROP	0	0.00	0				
			FOREST	0	0.00					
			MEADOW	100.0	0.03	78	2.06	0.06	2.33	0.07
			RESIDENTIAL	0	0.0	0				
TOTAL DRAINAGE AREA (SQ MI)	12.08	1.04	LAKES/SWAMP							
			Total mi -in					6.17		7.46
			Avg. R.O., ia.					0.81		0.99
			Comp RCN					59.01		58.9
			H.F.							
			Qp, cfs/mi²-in				60.11		60.11	
			Q, cfs				370.73		448.62	
			Adj. factor							
			Q							

TABLE 1

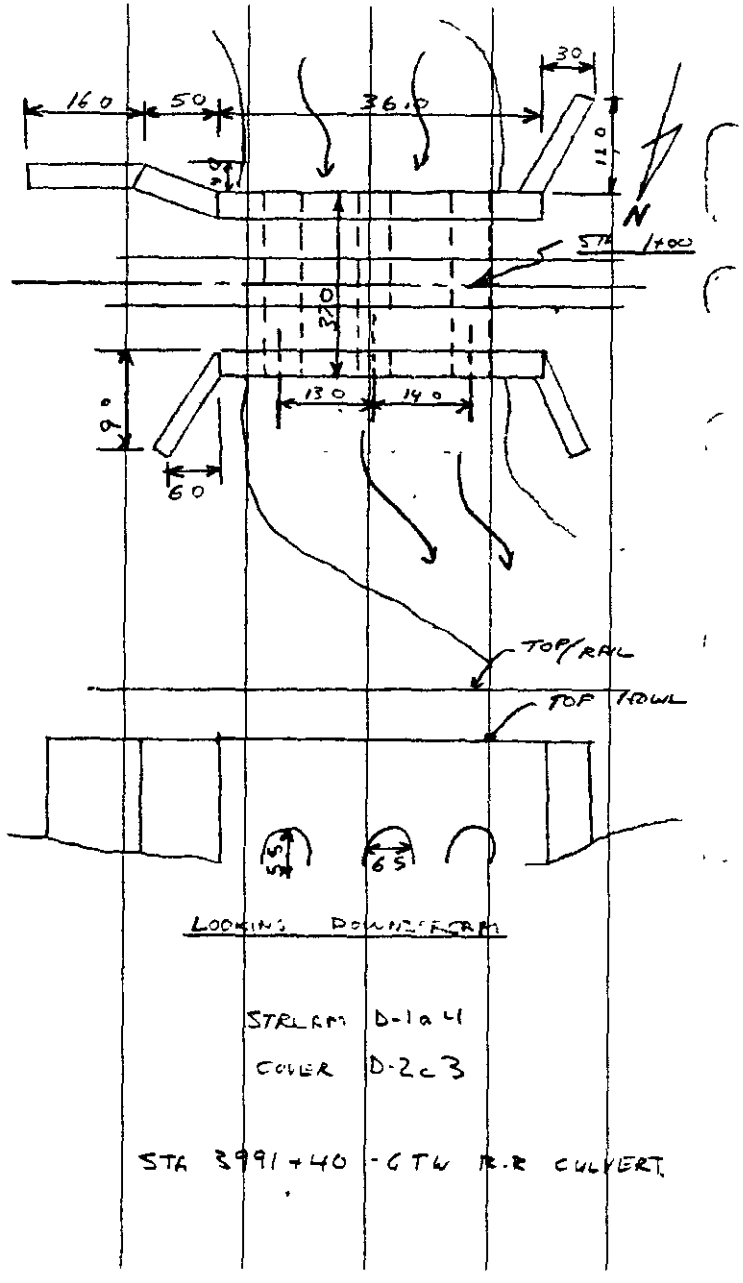
LOCATIONS OF CROSS SECTIONS
HOLLY PATTERSON DRAIN HOLLY TWP.

SECNO	CROSS SECTION	LOCATIONS AND DESCRIPTIONS
4750	A	100' Downstream of conc. Culvert
5000 5100 5110	B	Conc. Culvert 36" Dia. x 12.5 long.
5200 5201	C	Marion St. Culvert 60" conc. Culvert 61' long
5500	D	200 U/S of Marion St. Culvert
5600 5601 5602 5603 5670	E	Oddessa St. Culvert & Wer 2-5x7.5 Ellip. Culverts 65', long 30' long Wer.
5890 5898 6000	F	Private Foot bridge 8' wide 32' long
8000 8010 8045 8050	G	Inlet pipe to Bevins Lake 42" c.m.p. x 600' long
9000 9001 9050 9051 10000	H	C & O RR Culvert 4'x6' conc. Culvert 48' long
11500	I	700' U/S of C&O R.R. Culvert
11505 11510 12000 12010 12030 12500	J	Holly Bush Dr. Culvert 3'x6' C.M.P. culvert 40' long

TABLE 2

LOCATIONS OF CROSS SECTIONS
SHIAWASSEE RIVER, HOLLY TWP.

SECNO	CROSS SECTION	LOCATIONS AND DESCRIPTIONS
396340	A	30' D/S of Conc. Culvert
396350 396351	B	Wood Bridge 14' long 19' wide
397410	C	875' U/S of Wood Bridge
399110 399120 399140 399141	D	Grand Trunk R.R. Culvert 3-6.5 DIA. C.M.P.'s 37' wide
399210	E	100' U/S of R.R. Bridge
399610	F	100' D/S of Morrison Rd. Culvert
399620 399621 399700 400110	G	Morrison Rd. Culvert 7.5'x12' C.M.P. culvert 60' long
400210	H	100' D/S of High St. Culvert
400260 400270 400301 400310	I	Driveway Bridge 12' long 24'wide
402960	J	1600 U/S of High St. Culvert
403000	K	100 D/S of Milford Rd Culvert
403010 403011 403012 403013 403100	L	Milford Rd. Culvert 2-7'x12 C.M.P. Culverts 33' long
404000	M	1100' U/S of Milford Rd. Culvert
406000	N	2200' U/S of Milford Rd. Culvert



LOOKING DOWNSTREAM

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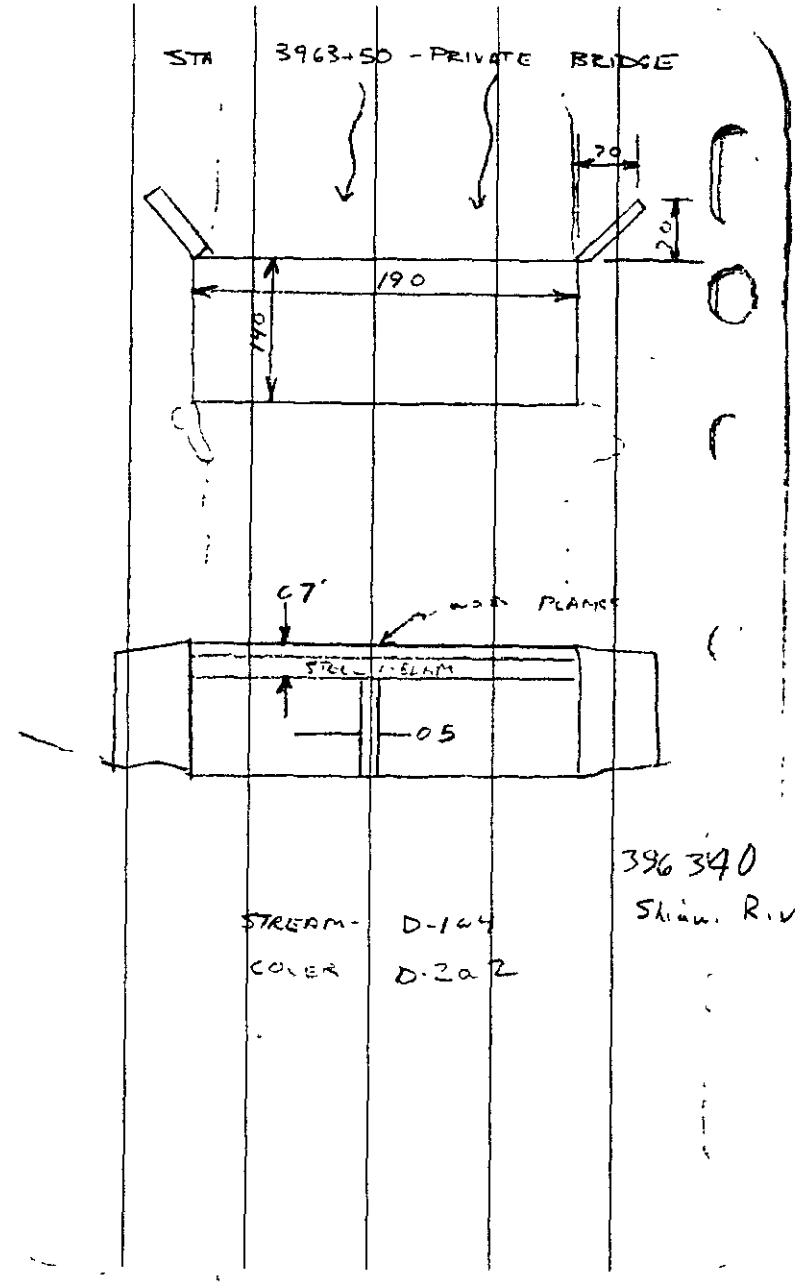
COVER D-2c3

STA 3991+40 - GTW R.R CULVERT

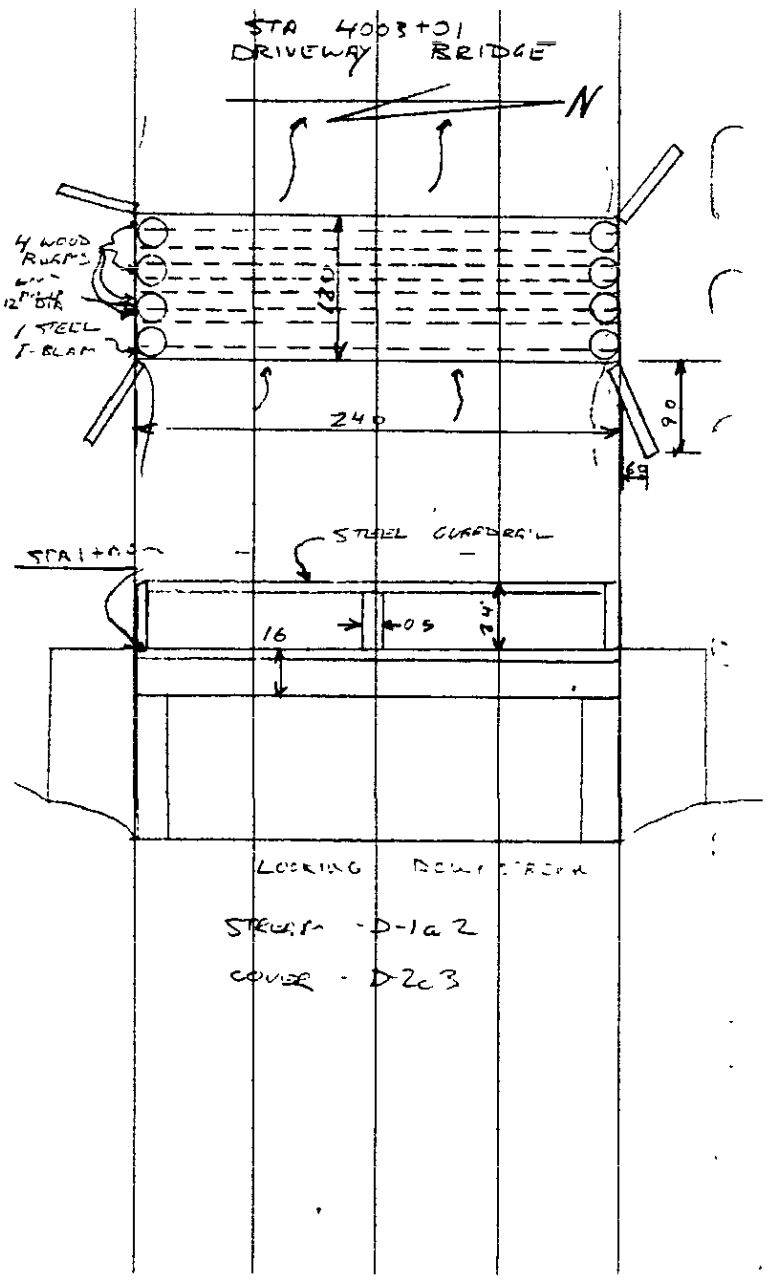


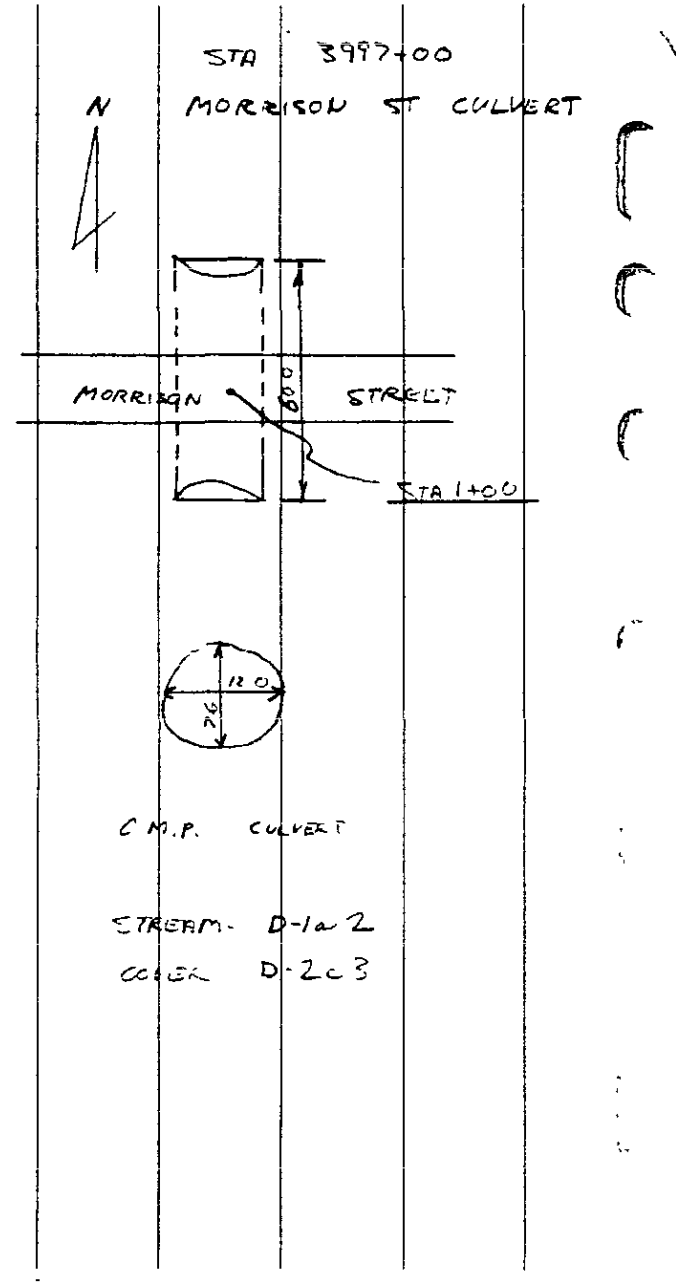
396340

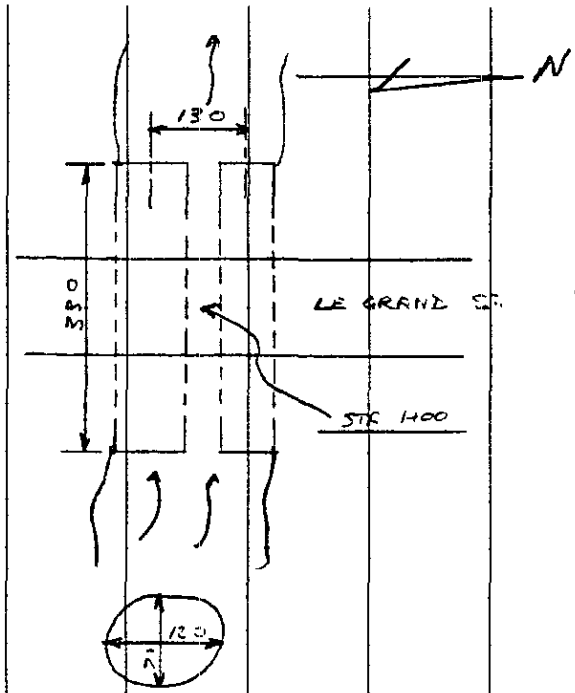
Skiam. R.V.

STREAM- D-1c4

COVER D-2a2


STA 4003+01
DRIVEWAY BRIDGE
N
4 WOOD RAILS
12" DIA
I STEEL I-BEAM
240
90
69
STEEL GUARDRAIL
STA 1+03
16
05
24
LOOKING DOWNSTREAM
STREAM - D-1a 2
COVER - D-2c 3


STA 3997+00
MORRISON ST CULVERT
N
MORRISON
STREET
80
STA 1+00
120
76
C.M.P. CULVERT
STREAM - D-1a 2
COVER D-2c 3



CMP CULVERTS

STREAM - D-1a 2

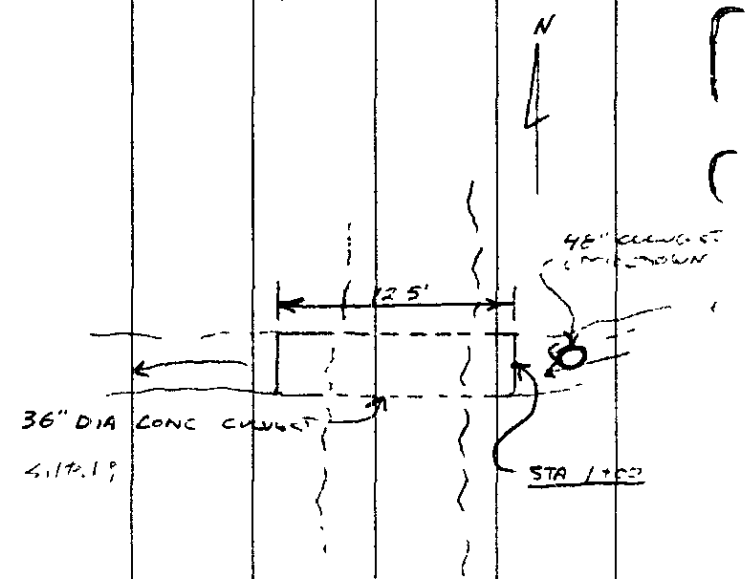
COLOR D-2a 2

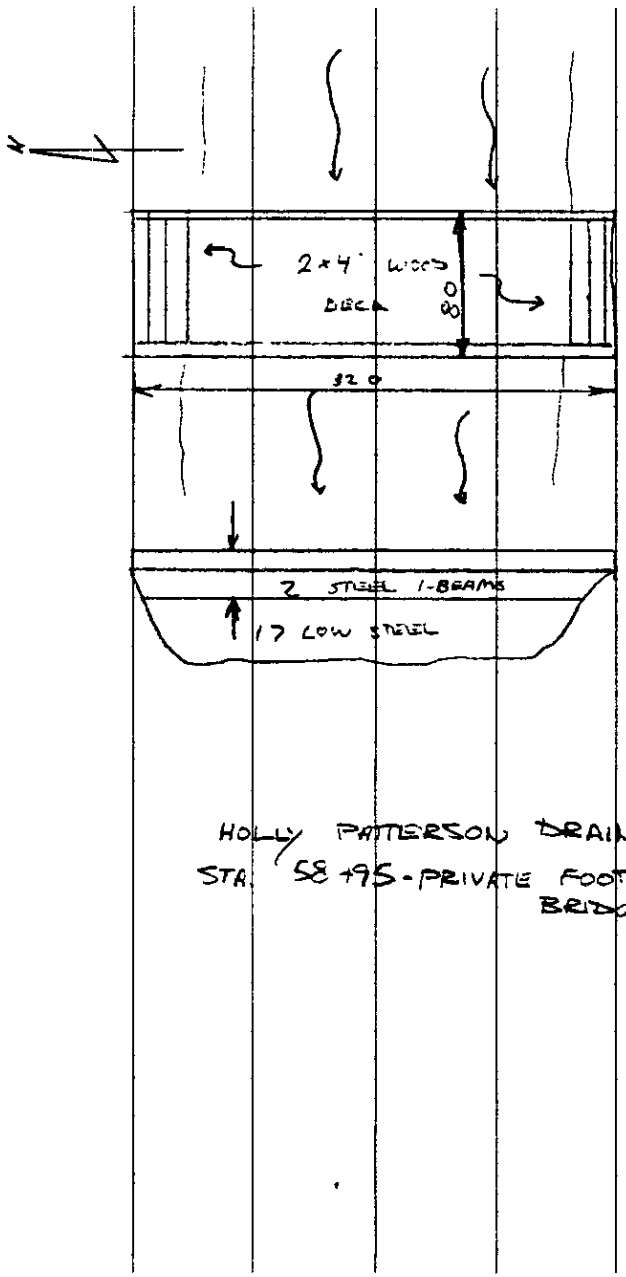
SHIAWASSEE RIVER

STA. 4030+12 - MILFORD RD CULVERT

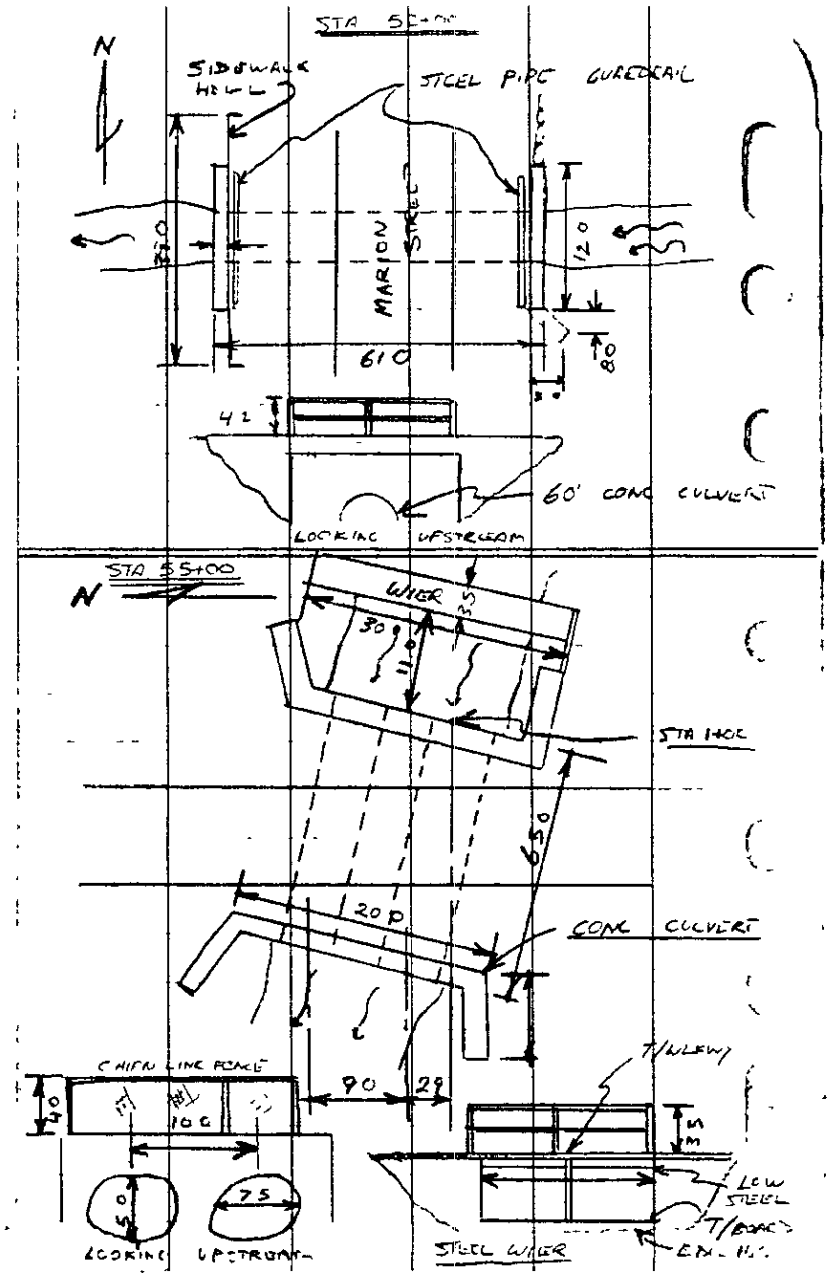
HOLLY PATTERSON DRAIN

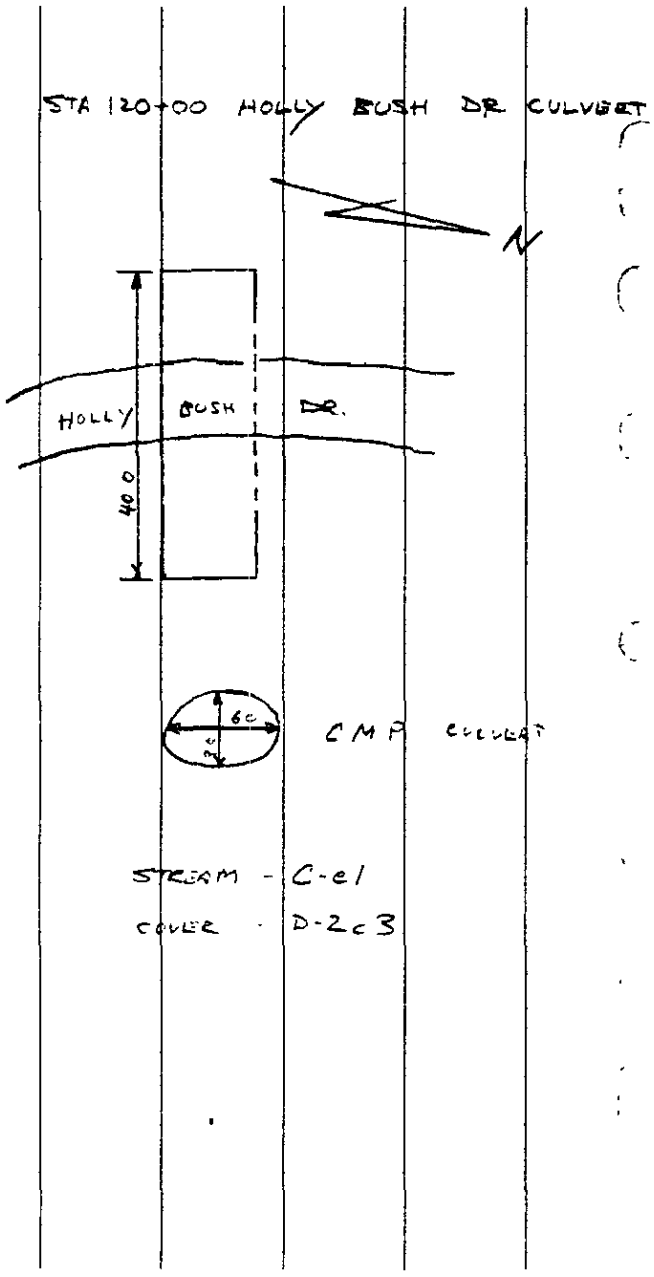
STA. 51+00 - CONC. FARM CULVERT

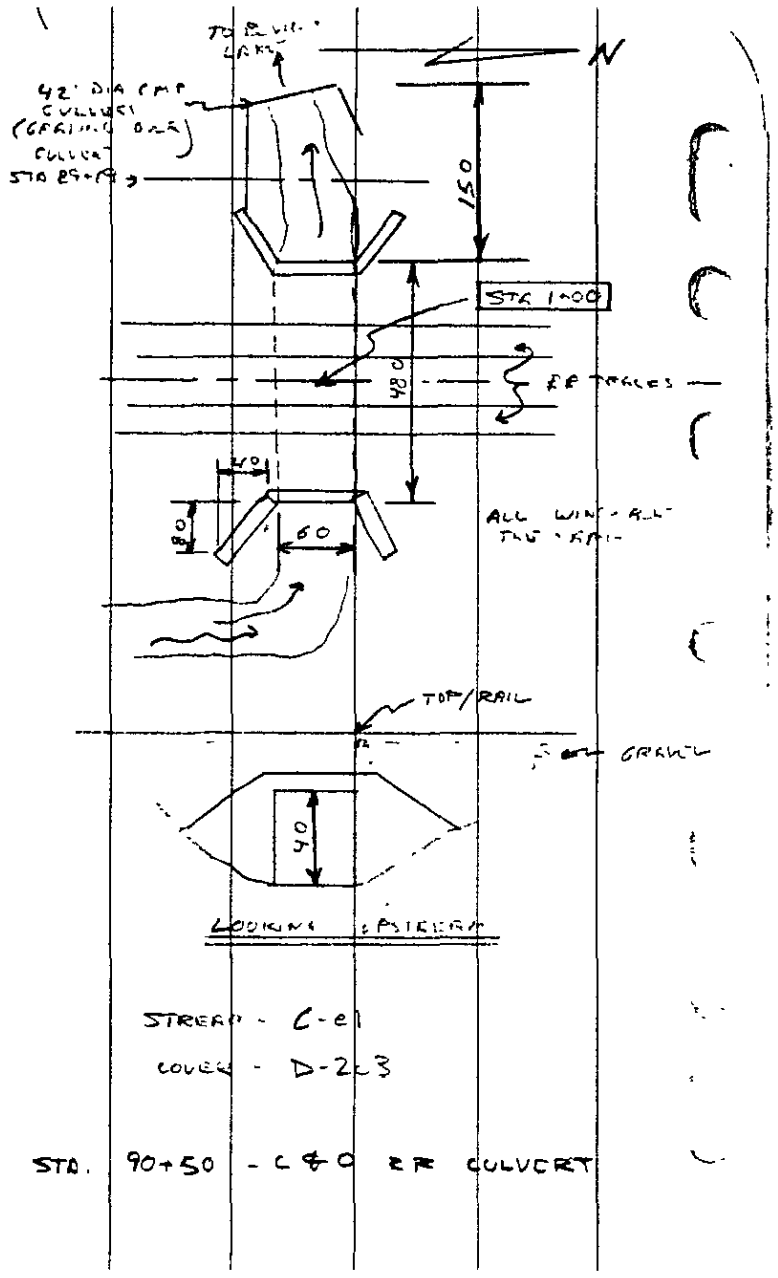




HOLLY PATTERSON DRAIN
STA. 58+95 - PRIVATE FOOT BRIDGE




STA 120+00 HOLLY BUSH DR CULVERT
N
HOLLY
BUSH
DR.
40
60
CMP CULVERT
STREAM - C-e1
COVER - D-2c3


42" DIA CMP
CULVERT
N
150
STA 1+00
48.0
RR TRACKS
40
80
60
ALL WING-RAIL
TOP/RAIL
GRAVEL
40
LOOKING UPSTREAM
STREAM - C-e1
COVER - D-2c3
STA. 90+50 - C & O RR CULVERT

AREA NOT INCLUDED

CORPORATE LIMITS

CORPORATE LIMITS

CORPORATE LIMITS

AREA NOT INCLUDED

FLOODWAY

100 YEAR FLOOD

SCALE IN FEET

0 400 800

N

CONTOUR INT. 4 FEET

VILLAGE OF HOLLY

HOLLY TOWNSHIP

OAKLAND COUNTY

MICHIGAN

PRIVATE FARM CULVERT

MAPLEAK ST. CULVERT

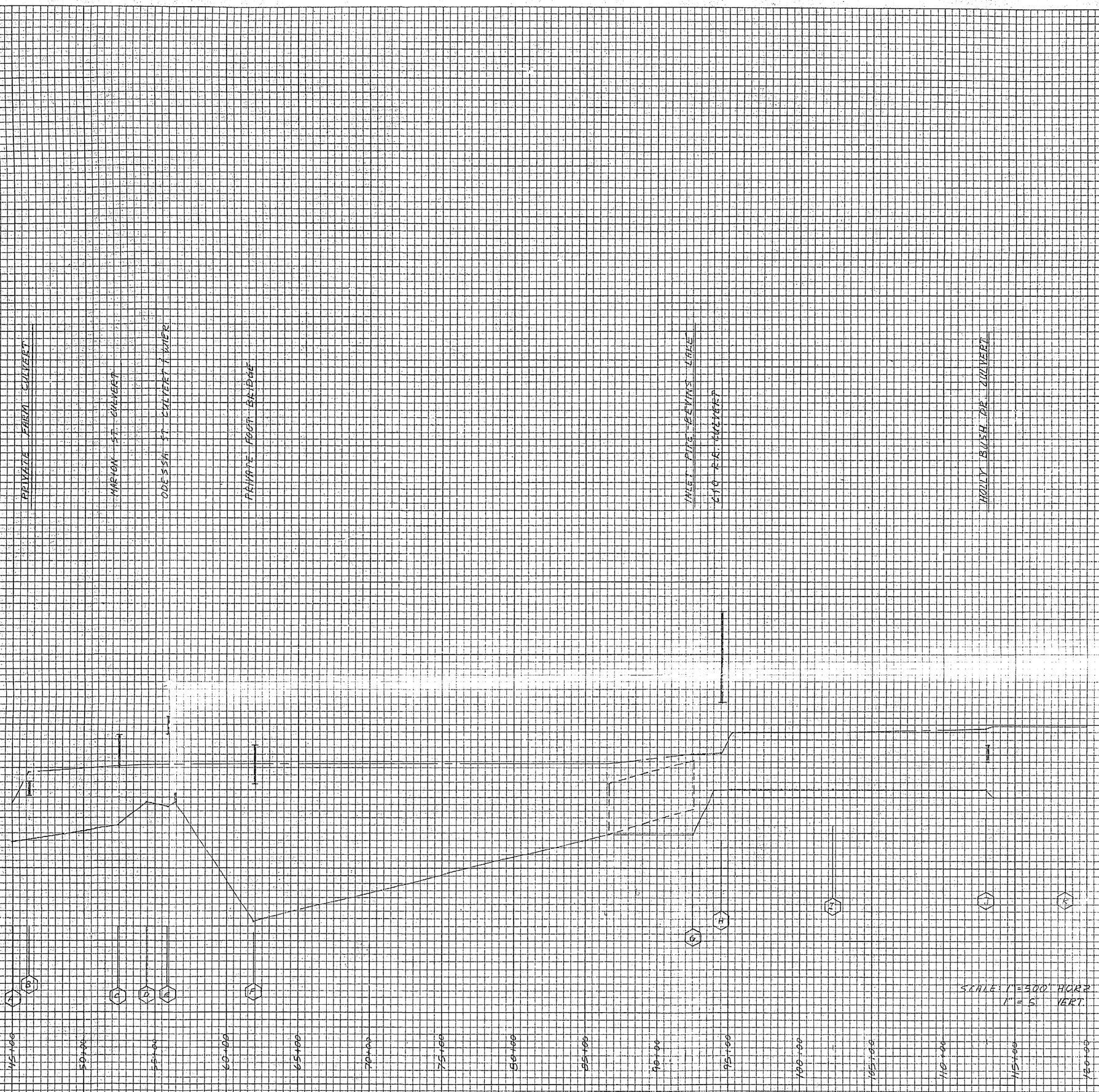
ODESSA ST. CULVERT & WATER

PRIVATE FOOT BRIDGE

INLET PIPE ELEVATIONS LARGE

CITY OF HOLLY

HOLLY BUSH DR. CULVERT



SCALE: 1"=500' HORZ.
1"=5' VERT.

LEGEND

- 10 YEAR FLOOD
- 50 YEAR FLOOD
- 100 YEAR FLOOD
- 500 YEAR FLOOD
- CROSS SECTION LOCATION
- STREAMBED

FLOOD INSURANCE STUDY
VILLAGE OF HOLLY HOLLY TOWNSHIP
HOLLY PATTERSON DRAIN

ARCHITECTS
ENGINEERS
PLANNERS
SURVEYORS

GOVE ASSOCIATES, INC.

1601 Portage Street
Kalamazoo, Michigan
(616) 385-0011

2724 E. Michigan
Lansing, Michigan
(517) 485-0555

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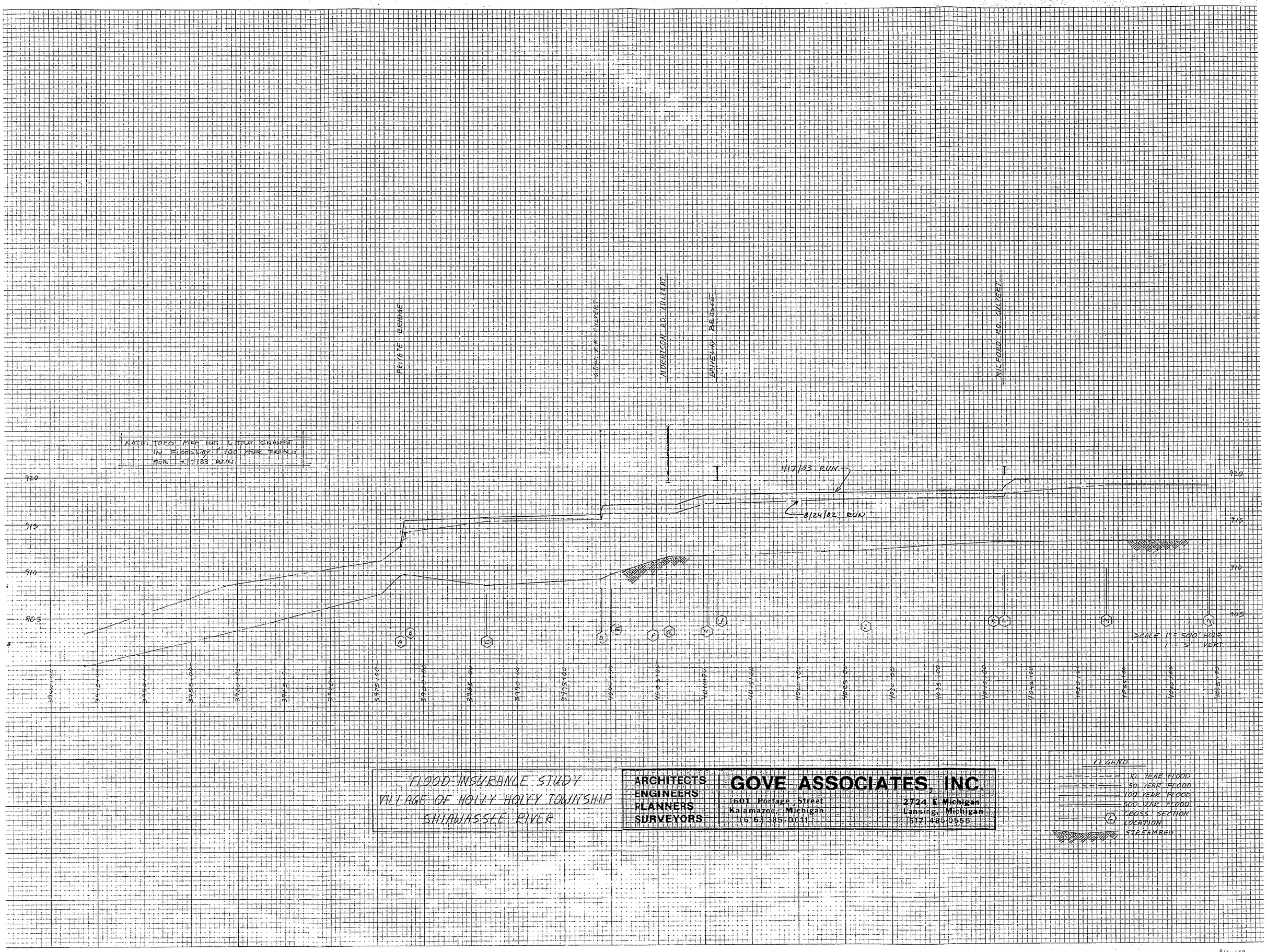
9/10/82



FLOOD INSURANCE STUDY
VILLAGE OF HOLLY HOLLY TOWNSHIP
SHIAWASSEE RIVER

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8/24/82
4/7/83 - REV.

00BREAK00

1) COUNTY: ~~#~~ OAKLAND

2) STUDY NAME: HOLLY, VILLAGE OF

3) WATERCOURSE: HOLLY PATTERSON DRAIN

4) DOCUMENT TYPE: MULTIPLE PROFILES 2 — DETAILS

00BREAK00

VILLAGE OF HOLLY
HOLLY PATTERSON DRAIN

```
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 PPPPPPPPP   UU      UU TTTTTTTTTTTT
IIIIIIII  NN      NN PPPPPPPPPP  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 PPPPPPPPPP  UU      UU     TT
  II      NN    NNNN PPPPPPPPP   UU      UU     TT
  II      NN     NN  PP          UU      UU     TT
  II      NN     NN  PP          UU      UU     TT
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  II      NN     NN  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
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EE            CC         HH      HH 00      00
EE            CC         HH      HH 00      00
EE            CC         HH      HH 00      00
EE            CC         HH      HH 00      00
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EEEEEEEEEEEE  CCCCCCCCCC  HH      HH  0000000000
EEEEEEEEEEEE   CCCCCCCC   HH      HH   00000000
```

```
C
C 14.0
C 4750. SECTION A
C 5000. SECTION B -- FARM CULVERT 36 IN. X 12.5 FT.
C 5200. SECTION C -- MARION STREET WIER AND CULVERT
C 5600. SECTION D - ODESSA ST. CULVERT AND WIER 2 - 5.0' X 7.5' ELLIP. CUVERTS
C 5600.                CONCRETE WIER 30' LONG
C 5895. SECTION E -- PRIVATE FOOT BRIDGE  L.C. 911.69  TRD 913.3
C 6000. SECTION F -- BEVINS LAKE OUTLET
C 8000. SECTION G -- INLET PIPE TO BEVINS LAKE
C 8000.                42  CMP X 35' LONG
C 9000. SECTION H -- C&O RR CULVERT
C 9000.                LC 914.4  TRD 923.0
C 11500.SECTION I -- HOLLY BUSH DR. CULVERT
C 11500.               LC 913.79  TRD 915.8
C 13000.SECTION J -- THOMAS RD. CULVERT
T1      HOLLEY PATTERSON DRAIN, HOLLY TWP, PROJECT NO. 8558. PATTZL
T2      HOLLEY PATTERSON DRAIN
T3
J1      2.                          0.0020                          905.00
J2 0.           -1.
J3110.  150.
J5 -10.  -10.
NC0.030 0.030   0.026   0.2     0.2
CT5.    62.64   93.33   105.72  136.47  105.72
X1 3000.8.      100.    151.    0.      0.      0.
GR920.1 0.      907.9   100.    906.6   107.    900.9   119.    899.9   131.
GR906.6 143.    907.7   151.    913.6   225.
X1 3950.                        800.    800.    800.            4.0
X1 4750. 12.    125.5   126.5   700.    700.    700.            -0.2
GR 916. 0       910.8   100.    903.5   109.    908.6   125.5   907.48  125.0
GR907.18126.5   907.1   127.    907.18  127.5   907.48  128.    903.6   128.5
GR913.2 149.    915.5   249.
X15000.                         100.    100.    100.            .20
X3100.                  125.5   911.1   127.5   911.1
S3 00    1.6    2.5     35.     3.0     0.0     7.1
X15100.                         12.50   12.5    12.5
X2              1.      910.5   911.1
X3                      125.5   911.1   128.5   911.1
GT12.   C       916.    916.    100.    910.8   910.8   109.    908.5   908.5
GT125.5 911.1   903.6   125.    911.1   909.72  126.5   911.1   910.01  127.
GT911.1 910.1   127.5   911.1   910.01  128.0   911.1   909.72  128.5   911.1
GT908.6 149.    913.2   913.2   249.    915.5   915.5
X15110.                         100.    100.    100.            0.2
GT5.    52.9    80.53   91.28   116.16  91.28
X15200. 13.     100.    13.     490.    490.    490.            -0.2
X3                      112.    614.3   113.    914.3
GR 916.00       911.2   100.    911.2   106.    911.2   112.    909.    113.
GR909.4 114.    908.2   115.    909.4   115.    909.0   117.    911.2   118.
GR911.2 120.    911.2   130.    916.0   230.
SB 00    1.6    2.5     50.     5.0     0.0     20.
X15201.                         39.     39.     39.
X3                      112.    910.3   113.    911.0
GT 13.  C       916.0   916.0   100.    911.2   911.2   106.    911.2   911.2
GT112.  914.3   911.2   113.    914.2   913.4   114.    914.3   914.0   115.
GT914.3 914.2   116.    914.2   914.0   117.    914.0   913.4   116.    914.3
GT911.2 120.    914.3   911.2   130.    914.3   911.2   230.    916.0   916.0
X15500. 00      100.    130.    200.    200.    200.
GR 916.90       913.0   99.     913.0   100.    909.7   130.    909.7   131.
GR913.0 230.
GT  5.  27.5    49.0    53.5    54.6    58.5
X1 5600. 15.    106.25  123.75  100.    100.    100.
X3                      105.25          123.75
GR 916. 0.      910.0   105.25  910.0   123.7   909.4   105.5   909.3   110.0
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GR 909.4 111.5	910.0	113.3	910.6	113.75	910.6	116.25	910.0	110.7	
GR 909.4 118.5	909.3	120.00	909.4	121.5	910.0	123.5	910.6	123.75	
GR 915.7 210.									
X15601.			1.	1.	1.				
X3		105.25		123.75					
BT 16. 0	916.0	915.0	106.25	915.8	910.6	106.7	915.8	913.0	
BT108.5 915.8	914.1	110.	915.8	914.3	111.5	915.8	914.1	113.3	
BT915.8 913.0	113.75	915.3	910.6	116.25	915.8	910.6	116.7	915.3	
BT913.0 113.5	915.3	914.1	120.0	915.8	914.3	121.5	915.8	914.1	
BT123.3 915.8	913.0	123.75	910.6	910.6	210.0	915.7	915.7		
X15602.0			39.	39.	39.				
X2					1.				
X3		106.25		123.75					
X15603.			1.	1.	1.				
X3		105.25		123.75					
X15670. 7.	100.	130.	50.	50.0	50.0				
GR 916. 0	910.8	100.	909.6	100.1	909.6	113.	909.6	120.	
GR909.6 130.	910.8	130.1	916.	230.					
X15390. 8.	100.	132.	540.	540.	540.0				
GR917.7 0	913.6	100.	911.9	102.	910.3	110.	909.7	115.	
GR901.3 123.	908.1	132.	915.0	232.					
SB 00 1.6	2.5	50.	32.	00.	32.				
X15895.			3.	8.	3.00				
BT 8. 0.	917.7	917.7	100.	913.6	913.6	102.	913.6	911.9	
BT110. 913.6	911.9	110.	913.6	911.9	123.	913.6	911.9	132.	
BT913.6 911.96	232.	913.1	916.1						
X16000.			50.0	50.0	50.0				
QT 5. 15.0	16.	16.7	17.	16.7					
X18000. 7.	98.25	101.75	2420.	2420.	2420.0				
GR913.0 0	909.15	98.25	907.7	99.	907.4	100.	907.7	101.	
GR909.15 1C1.75	913.0	200.							
X18010.			1.	1.	1.				
X3		98.25	914.2	101.75	914.2				
BT7. 0	913.	913.	98.25	913.0	909.15	99.	913.0	910.5	
BT100. 913.0	910.9	101.	913.0	910.6	101.75	913.0	909.15	200.	
BT913.0 913.0									
X18045.			500.	500.	500.				
X2		910.9	912.0						
X3		98.25	914.2	101.75	914.2				
X18050.			1.	1.	1.				
X3		96.25	914.2	101.75	914.2				
X19000. 6.	96.9	103.1	150.	150.	150.				
X3		98.25	914.2	101.75	914.2				
CR923.0 0	910.5	96.9	910.5	97.0	910.5	103.	910.5	103.1	
GR923.0 200.									
X19001.			1.	1.	1.				
X3		96.9		103.1					
BT 6. 0	923.0	923.	96.9	923.0	910.5	97.	923.	914.5	
BT103. 923.0	914.5	103.1	923.0	910.5	200.	923.0	923.		
X19050.			48.	48.	48.				
X2		914.4	923.0		1.				
X3		96.9		103.1					
QT5. 43.00	63.00	70.00	102.00	76.00					
X19051.			1.	1.	1.				
X3		96.9		103.1					
X5 5. 914.04	914.2	914.27	914.44	914.27					
X110000. 7.	100.	147.	75.	75.	75.		-.20		
GR916.0 0	915.4	100.	911.3	127.	910.7	137.0	911.3	147.0	
GR913.7 171.	916.0	270.							
QT 5. 10.0	18.7	19.6	21.5	19.6					
X111500.10.	33.	130.	700.	700.	700.		-.1		
GR915.8 0	914.2	83.	912.2	98.5	911.1	99.	910.7	100.	
GR911.1 101.0	912.2	101.5	913.2	117.	915.4	133.	923.0	247.	
X111505.			1015.	1015.	1015.				
X111510.			1.	1.	1.				
X3		98.5	914.5	101.5	914.5				

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BT10.    0       915.3   913.1   33.     915.8   914.2   98.5    915.3   912.2
BT99.    915.8   913.2   100.    915.3   913.7   101.    915.8   913.2   101.5
BT915.8  912.2   117.    915.8   913.2   130.    915.4   915.4   247.0   915.3
BT915.8
X112000.                         54.     54.     54.
X2                       912.4   913.7
X3                       96.5    915.3   101.5   915.3
X112010.                         1.      1.      1.
X3                       98.5    915.8   101.5   915.8
X112030. 6.      96.5    103.6   2.      2.      2.
GR915.8 0        914.4   96.5    913.6   96.6    913.6   103.5   914.4   103.6
GR915.8 203.
X112500.7.       100.    147.    50.     50.     50.
GR915.8 0        914.2   100.    913.2   106.    910.0   124.    913.2   134.
GR915.4 147.     915.3   247.
X112600.                         500.    500.    500.
X113000.                          100.    100.    100.
EJ
T1
T2
T3
J1       3.                      .00200                          904.2
J22.0            -1.
T1
T2
T3
J1       4.                      .002                            904.5
J23.             -1.
T1
T2
T3
J1       5.                      .00200                          904.7
J215.            -1.

ER
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  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
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C
T1      HOLLEY PATTERSON DRAIN, HOLLY TWP, PROJECT NO. 8558, PATTZ1
T2      HOLLEY PATTERSON DRAIN
T3
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	NSEL	EQ
	0.	2.	0.	0.	.002000	0.00	0.0	0.	905.000	0.000

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

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

110.000	150.000	0.000	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

NC	.030	.030	.023	.200	.200	0.000	0.000	0.000	0.000	0.000
GT	5.000	62.640	93.330	105.720	136.470	105.720	0.000	0.000	0.000	0.000
X1	3000.000	8.000	100.000	151.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	920.100	0.000	907.900	100.000	906.600	107.000	900.900	119.000	899.900	131.000
GR	906.600	143.000	907.700	151.000	913.600	225.000	0.000	0.000	0.000	0.000
X1	3950.000	0.000	0.000	0.000	800.000	800.000	800.000	0.000	4.000	0.000

SECTION A

X1	4750.000	12.000	125.500	129.500	700.000	700.000	700.000	0.000	-.200	0.000
GR	916.000	0.000	910.800	100.000	908.500	109.000	908.600	125.500	907.480	126.000
GR	907.180	126.500	907.100	127.000	907.180	127.500	907.480	128.000	908.600	129.500
GR	913.200	149.000	915.500	249.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION B -- FAR 4 CULVERT 36 IN. X 12.5 FT.

X1	5000.000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.200	0.000
X3	10.000	0.000	0.000	125.500	911.100	127.500	911.100	0.000	0.000	0.000
SB	0.000	1.630	2.500	85.000	3.000	0.000	7.100	0.000	0.000	0.000
X1	5100.000	0.000	0.000	0.000	12.500	12.500	12.500	0.000	0.000	0.000
X2	0.000	0.000	1.000	910.500	911.100	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	125.500	911.100	128.500	911.100	0.000	0.000	0.000
BT	12.000	0.000	916.000	916.000	100.000	910.800	910.300	109.000	908.500	908.500
BT	125.500	911.100	908.600	126.000	911.100	909.720	126.500	911.100	910.010	127.000
BT	911.100	910.100	127.500	911.100	910.010	128.000	911.100	909.720	129.500	911.100

ST	908.600	149.000	913.200	913.200	249.000	915.500	915.500	0.000	0.000	0.000
X1	5110.000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.200	0.000
GT	5.000	52.900	80.530	91.280	118.160	91.280	0.000	0.000	0.000	0.000
	SECTION C -- MARION STREET WIER AND CULVERT									
X1	5200.000	13.000	100.000	130.000	490.000	490.000	490.000	0.000	-.200	0.000
X3	0.000	0.000	0.000	112.000	614.300	118.000	914.300	0.000	0.000	0.000
GR	916.000	0.000	911.200	100.000	911.200	106.000	911.200	112.000	909.000	113.000
GR	908.400	114.000	908.200	115.000	908.400	116.000	909.000	117.000	911.200	118.000
GR	911.200	120.000	911.200	130.000	916.000	230.000	0.000	0.000	0.000	0.000
SB	0.000	1.600	2.500	50.000	5.000	0.000	20.000	0.000	0.000	0.000
X1	5201.000	0.000	0.000	0.000	39.000	39.000	39.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	112.000	910.300	118.000	911.000	0.000	0.000	0.000
BT	13.000	0.000	916.000	916.000	100.000	911.200	911.200	105.000	911.200	911.200
BT	112.000	914.300	911.200	113.000	914.200	913.400	114.000	914.300	914.000	115.000
BT	914.300	914.200	116.000	914.200	914.000	117.000	914.000	913.400	118.000	914.300
BT	911.200	120.000	914.300	911.200	130.000	914.300	911.200	230.000	916.000	916.000
X1	5500.000	6.000	100.000	130.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	916.900	0.000	913.000	99.000	913.000	100.000	909.700	130.000	909.700	131.000
GR	913.000	230.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GT	5.000	27.500	49.000	58.500	84.600	58.500	0.000	0.000	0.000	0.000
	SECTION D - ODESSA ST. CULVERT AND WIER 2 - 5.0' X 7.5' ELLIP. CUVERTS CONCRETE WIER 30' LONG									
X1	5600.000	16.000	106.250	123.750	100.000	100.000	100.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	106.250	0.000	123.750	0.000	0.000	0.000	0.000
GR	916.000	0.000	910.600	106.250	910.000	106.700	909.400	108.500	909.300	110.000
GR	909.400	111.500	910.000	113.300	910.600	113.750	910.300	116.250	910.000	116.700
GR	909.400	118.500	909.300	120.000	909.400	121.500	910.000	123.500	910.600	123.750
GR	915.700	210.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5601.000	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	106.250	0.000	123.750	0.000	0.000	0.000	0.000
BT	16.000	0.000	916.000	916.000	106.250	915.800	910.600	106.700	915.800	913.000
BT	108.500	915.800	914.100	110.000	915.800	914.300	111.500	915.800	914.100	113.300
BT	915.300	913.000	113.750	915.800	910.600	116.250	915.800	910.600	116.700	915.800
BT	913.000	118.500	915.800	914.100	120.000	915.300	914.300	121.500	915.800	914.100
BT	123.300	915.800	913.000	123.750	910.600	910.600	210.000	915.700	915.700	0.000
X1	5602.000	0.000	0.000	0.000	39.000	39.000	39.000	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	106.250	0.000	123.750	0.000	0.000	0.000	0.000
X1	5603.000	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	106.250	0.000	123.750	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC 27

X1	5670.000	7.000	100.000	130.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	916.000	0.000	910.200	100.000	909.600	100.100	909.600	113.000	909.600	120.000
GR	909.600	130.000	910.800	130.100	916.000	230.000	0.000	0.000	0.000	0.000
X1	5890.000	8.000	100.000	132.000	540.000	540.000	540.000	0.000	0.000	0.000
GR	917.700	0.000	913.600	100.000	911.900	102.000	910.300	110.000	909.700	115.000
GR	901.300	123.000	903.100	132.000	915.000	232.000	0.000	0.000	0.000	0.000
SB	0.000	1.600	2.500	50.000	32.000	0.000	32.000	0.000	0.000	0.000

SECTION E -- PRIVATE FOOT BRIDGE L.C. 911.6, TRD 913.3

X1	5895.000	0.000	0.000	0.000	3.000	3.000	3.000	0.000	0.000	0.000
BT	8.000	0.000	917.700	917.700	100.000	913.600	913.600	102.000	913.600	911.900
BT	110.000	913.600	911.900	115.000	913.600	911.900	123.000	913.600	911.900	132.000
BT	913.600	911.960	232.000	918.100	918.100	0.000	0.000	0.000	0.000	0.000

SECTION F -- BEVINS LAKE OUTLET

X1	6000.000	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
BT	5.000	15.000	10.000	16.700	17.000	16.700	0.000	0.000	0.000	0.000

SECTION G -- INLET PIPE TO BEVINS LAKE
42 CMP X 35' LONG

X1	8000.000	7.000	98.250	101.750	2420.000	2420.000	2420.000	0.000	0.000	0.000
GR	913.000	0.000	909.150	98.250	907.700	99.000	907.400	100.000	907.700	101.000
GR	909.150	101.750	913.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8010.000	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	98.250	914.200	101.750	914.200	0.000	0.000	0.000
BT	7.000	0.000	913.000	913.000	98.250	913.000	909.150	99.000	913.000	910.600
BT	100.000	913.000	910.900	101.000	913.000	910.600	101.750	913.000	909.150	200.000
BT	913.000	913.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8045.000	0.000	0.000	0.000	600.000	600.000	600.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	910.900	912.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	98.250	914.200	101.750	914.200	0.000	0.000	0.000
X1	8050.000	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	98.250	914.200	101.750	914.200	0.000	0.000	0.000

SECTION H -- C&O RR CULVERT
LC 914.4 TRD 923.0

X1	9000.000	6.000	96.900	103.100	150.000	150.000	150.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	98.250	914.200	101.750	914.200	0.000	0.000	0.000
GR	923.000	0.000	910.500	96.900	910.500	97.000	910.500	103.000	910.500	103.100
GR	923.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9001.000	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	96.900	0.000	103.100	0.000	0.000	0.000	0.000
BT	6.000	0.000	923.000	923.000	96.900	923.000	910.500	97.000	923.000	914.500
BT	103.000	923.000	914.500	103.100	923.000	910.500	200.000	923.000	923.000	0.000

X1	9050.000	0.000	0.000	0.000	45.000	45.000	48.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	914.400	923.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	96.900	0.000	103.100	0.000	0.000	0.000	0.000
QT	5.000	43.000	63.000	76.000	102.000	76.000	0.000	0.000	0.000	0.000
X1	9051.000	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	96.900	0.000	103.100	0.000	0.000	0.000	0.000
X5	5.000	914.040	914.200	914.270	914.440	914.270	0.000	0.000	0.000	0.000
X1	10000.000	7.000	100.000	147.000	75.000	75.000	75.000	0.000	-.200	0.000
GR	916.000	0.000	916.400	100.000	911.300	127.000	910.700	137.000	911.300	147.000
GR	913.700	171.000	916.000	270.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	10.000	10.700	19.600	21.500	19.600	0.000	0.000	0.000	0.000
	SECTION I -- HOLLY BUSH JR. CULVERT LC 913.7, TRD 915.8									
X1	11500.000	10.000	83.000	130.000	700.000	700.000	700.000	0.000	-.100	0.000
GR	915.800	0.000	914.200	83.000	912.200	93.500	911.100	99.000	913.700	100.000
GR	911.100	101.000	912.200	101.500	913.200	117.000	915.400	130.000	923.000	247.000
X1	11505.000	0.000	0.000	0.000	1015.000	1015.000	1015.000	0.000	0.000	0.000
X1	11510.000	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	93.500	914.500	101.500	914.500	0.000	0.000	0.000
BT	10.000	0.000	915.800	915.800	93.000	915.300	914.200	93.500	915.800	912.200
BT	99.000	915.800	913.200	100.000	915.800	913.700	101.000	915.500	913.200	101.500
BT	915.800	912.200	117.000	915.800	913.200	130.000	915.400	915.400	247.000	915.800
BT	915.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12000.000	0.000	0.000	0.000	54.000	54.000	54.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	912.400	913.700	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	93.500	915.800	101.500	915.800	0.000	0.000	0.000
X1	12010.000	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	93.500	915.800	101.500	915.800	0.000	0.000	0.000
X1	12030.000	6.000	96.500	103.600	2.000	2.000	2.000	0.000	0.000	0.000
GR	915.800	0.000	914.400	96.500	913.600	96.600	913.600	103.500	914.400	103.600
GR	918.800	203.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12500.000	7.000	100.000	147.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	915.300	0.000	914.200	100.000	913.200	103.000	910.000	124.000	913.200	134.000
GR	915.400	147.000	915.300	247.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12600.000	0.000	0.000	0.000	500.000	500.000	500.000	0.000	0.000	0.000
	SECTION J -- THOMAS RD. CULVERT									
X1	13000.000	0.000	0.000	0.000	100.000	100.000	100.000	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 MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
**************************************************

T1
T2
T3

J1  ICHECK     INQ       NINV      IOPT      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.        3.        0.        0.   .002000      0.00      0.0       0.   904.200      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 MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
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T1
T2
T3

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.        4.        0.        0.   .002000      0.00      0.0       0.   904.500     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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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CURR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
**************************************************

T1
T2
T3
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	EQ
	0.	5.	0.	0.	.002000	0.00	0.0	0.	904.700	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

HOOKE BUSINESS FORMS INC 77



1) COUNTY: OAKLAND

2) STUDY NAME: HOLLY, VILLAGE OF

3) WATERCOURSE: HOLLY PATTERSON DRAIN

4) DOCUMENT TYPE: MULTIPLE PROFILES - DETAILS



```
C
C 14.0
C 4750. SECTION A
C 5200. SECTION B -- FARM CULVERT 36 I.D. X 12.5 FT.
C 5600. SECTION C -- MARION STREET WIER AND CULVERT
C 5600. SECTON D - ODDESSA ST. CULVERT AND WIER 2 - 5.0' X 7.5' ELLIP. CUVERTS
C 5600.                  CONCRETE WIER 30' LONG
C 5895. SECTION E -- PRIVATE FOOT BRIDGE  L.C. 911.6, TRD 913.3
C 6000. SECTION F -- BEVINS LAKE OUTLET
C 8000. SECTION G -- INLET PIPE TO BEVINS LAKE
C 8000.                  42  CMP X 35' LONG
C 9000. SECTION H -- C&O RR CULVERT
C 9000.                  LC 914.4  TRD 923.0
C 11500.SECTION I -- HOLLY BUSH DR. CULVERT
C 11500.                 LC 913.7,  TRD 915.3
C 13000.SECTION J -- THOMAS RD. CULVERT
T1      HOLLEY PATTERSON DRAIN, HOLLY TWP, PROJECT NO. 8558, PATTY
T2      HOLLEY PATTERSON DRAIN
T3
J1      4.                      0.0020                          905.00
J2 0.           -1.
J3110.  150.    200.
NC0.030 0.030   0.028   0.2     0.2
ST5.    62.64   93.33   105.72  136.47  105.72
X1 3000.8.      100.    151.    0.      0.      0.
GR920.1 0.      907.9   100.    906.6   107.    900.9   119.    899.9   131.
GR906.6 143.    907.7   151.    913.6   225.
X1 3950.                        800.    800.    800.            4.0
X1 4750. 12.    125.5   123.5    700.    700.    700.           -0.2
GR 916. 0       910.8   100.    903.5   109.    908.6   125.5   907.48  126.0
GR907.18126.5   907.1   127.    907.18  127.5   907.48  123.    908.6   125.5
GR913.2 149.    915.5   249.
X15000.                         100.    100.    100.            .20
X310.           125.5   911.1   127.5   911.1
SB 00   1.6     2.5     35.     3.0     0.0     7.1
X15100.                         12.50   12.5    12.5
X2              1.      910.5   911.1
X3                      125.5   911.1   128.5   911.1
BT12.   0       91..    916.    100.    910.8   910.3   109.    908.5   908.5
BT125.5 911.1   908.6   126.    911.1   909.72  126.5   911.1   910.01  127.
BT911.1 910.1   127.5   911.1   910.01  128.0   911.1   909.72  128.5   911.1
BT908.6 149.    913.2   913.2   249.    915.5   915.5
X15110.                         100.    100.    100.            0.2
ST5.    52.9    80.53   91.28   118.16  91.28
X15200. 13.     100.    130.    490.    490.    490.            -0.2
X3                      112.    614.3   118.    914.3
GR 916.00       911.2   100.    911.2   106.    911.2   112.    909.    113.
GR908.4 114.    908.2   115.    908.4   116.    909.0   117.    911.2   118.
GR911.2 120.    911.2   130.    916.0   230.
SB 00   1.6     2.5     50.     5.0     0.0     20.
X15201.                         39.     39.     39.
X3                      112.    910.8   118.    911.0
BT 13.  0       916.0   916.0   100.    911.2   911.2   106.    911.2   911.2
BT112.  914.3   911.2   113.    914.2   913.4   114.    914.3   914.0   115.
BT914.3 914.2   116.    914.2   914.0   117.    914.0   913.4   118.    914.3
BT911.2 120.    914.3   911.2   130.    914.3   911.2   230.    916.0   916.0
X15500. 6.      100.    130.    200.    200.    200.
GR 916.90       913.0   99.     913.0   100.    909.7   130.    909.7   131.
GR913.0 230.
BT  5.  27.5    49.0    58.5    34.6    58.5
X1 5600. 16.    106.25  123.75  100.    100.    100.
X3                      106.25          123.75
GR 916. 0.      910.6   106.25  910.0   106.7   909.4   108.5   909.3   110.0
GR 909.4 111.5  910.0   113.3   910.6   113.75  910.0   110.25  910.0   110.7
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GR 909.4 118.5 909.3 120.00 909.4 121.5 910.0 123.5 910.6 123.75
GR 915.7 210.
X15601. 1. 1. 1.
X3 106.25 123.75
BT 16. 0 915.0 913.0 106.25 915.8 910.6 106.7 915.8 913.0
BT108.5 915.8 914.1 110. 915.8 914.3 111.5 915.8 914.1 113.3
BT915.8 913.0 113.75 915.8 910.6 116.25 915.8 910.6 115.7 915.3
BT913.0 118.5 915.8 914.1 120.0 915.8 914.3 121.5 915.8 914.1
BT123.3 915.8 913.0 123.75 910.6 910.6 210.0 915.7 915.7
X15602.0 39. 39. 39.
X2 1.
X3 106.25 123.75
X15603. 1. 1. 1.
X3 106.25 123.75
X15670. 7. 100. 130. 50. 50.0 50.0
GR 916. 0 910.8 100. 909.6 100.1 909.6 113. 909.6 120.
GR909.6 130. 910.8 130.1 916. 230.
X15390. 8. 100. 132. 540. 540. 540.0
GR917.7 0 913.6 100. 911.9 102. 910.3 110. 909.7 115.
GR901.3 123. 903.1 132. 915.0 232.
SB 00 1.6 2.5 50. 32. 00. 32.
X15895. 8. 8. 8.00
BT 8. 0. 917.7 917.7 100. 913.6 913.6 102. 913.6 911.9
BT110. 913.6 911.9 115. 913.6 911.9 123. 913.6 911.9 132.
BT913.6 911.96 232. 915.1 911.1
X16000. 50.0 50.0 50.0
BT 5. 15.0 16. 16.7 17. 16.7
X16000. 7. 98.25 101.75 2420. 2420. 2420.0
GR913.0 0 909.15 98.25 907.7 99. 907.4 100. 907.7 101.
GR909.15 101.75 913.0 200.
X18010. 1. 1. 1.
X3 98.25 914.2 101.75 914.2
BT7. 0 913. 913. 98.25 913.0 909.15 99. 913.0 910.6
BT100. 913.0 910.9 101. 913.0 910.6 101.75 913.0 909.15 200.
BT913.0 913.0
X18045. 600. 600. 600.
X2 910.9 912.0
X3 98.25 914.2 101.75 914.2
X19050. 1. 1. 1.
X3 98.25 914.2 101.75 914.2
X19000. 6. 96.9 103.1 150. 150. 150.
X3 98.25 914.2 101.75 914.2
GR923.0 0 910.5 96.9 910.5 97.0 910.5 103. 910.5 103.1
GR923.0 200.
X19001. 1. 1. 1.
X3 96.9 103.1
BT 6. 0 923.0 923. 96.9 923.0 910.5 97. 923. 914.5
BT103. 923.0 914.5 103.1 923.0 910.5 200. 923.0 923.
X19050. 48. 48. 48.
X2 914.4 923.0 1.
X3 96.9 103.1
BT5. 43.00 63.00 76.00 102.00 76.00
X19051. 1. 1. 1.
X3 96.9 103.1
X5 5. 914.04 914.2 914.27 914.44 914.27
X110000. 7. 100. 147. 75. 75. 75. -.20
GR916.0 0 916.4 100. 911.3 127. 910.7 137.0 911.3 147.0
GR913.7 171. 916.0 270.
QT 5. 10.0 18.7 19.6 21.5 19.6
X111500. 10. 33. 130. 700. 700. 700. -.1
GR915.8 0 914.2 33. 912.2 98.5 911.1 99. 910.7 100.
GR911.1 101.0 912.2 101.5 913.2 117. 915.4 130. 923.0 247.
X111505. 1015. 1015. 1015.
X111510. 1. 1. 1.
X3 98.5 914.5 101.5 914.5
BT10. 0 915.8 915.8 33. 915.8 914.2 98.5 915.8 912.2

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BT99.   915.3   913.2   130.    913.3   913.7   101.    915.8   913.2   101.5
BT915.6 912.2   117.    915.8   913.2   130.    915.4   915.4   247.3   915.8
BT915.8
X112000.                        54.     54.     54.
X2                      912.4   913.7
X3                      93.5    915.8   101.5   915.8
X112010.                        1.      1.      1.
X3                      98.5    915.8   101.5   915.8
X112030. 6.     96.5    103.6   2.      2.      2.
GR915.8 0       914.4   96.5    913.6   96.6    913.6   103.5   914.4   103.6
GR918.8 203.
X112500.7.      100.    147.    50.     50.     50.
GR915.8 0       914.2   100.    913.2   108.    910.0   124.    913.2   134.
GR915.4 147.    915.8   247.
X112500.                        500.    500.    500.
X113000.                        100.    100.    100.
EJ
T1
T2
T3
J1      6.                      0.002                           905.10
J215.           -1.

ER
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  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
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C
T1      HOLLEY PATTERSON DRAIN, HOLLY TWP, PROJECT NO. 8558, PATTY
T2      HOLLEY PATTERSON DRAIN
T3
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS		WSEL	EQ
	0.	4.	0.	0.	.002000	0.00	0.0	C.	905.000	0.000

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

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

110.000	150.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	.030	.030	.028	.200	.200	0.000	0.000	0.000	0.000	0.000
QT	5.000	62.640	93.330	105.720	136.470	105.720	0.000	0.000	0.000	0.000
X1	3000.000	8.000	100.000	151.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	920.100	0.000	907.900	100.000	906.600	107.000	900.900	119.000	899.900	131.000
GR	905.600	143.000	907.700	151.000	913.600	225.000	0.000	0.000	0.000	0.000
X1	3950.000	0.000	0.000	0.000	800.000	800.000	800.000	0.000	4.000	0.000
	SECTION A									
X1	4750.000	12.000	125.500	128.500	700.000	700.000	700.000	0.000	-.200	0.000
GR	916.000	0.000	910.300	100.000	903.500	109.000	908.600	125.500	907.480	126.000
GR	907.180	126.500	907.100	127.000	907.180	127.500	907.480	128.000	908.600	128.500
GR	913.200	149.000	915.500	249.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5000.000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.200	0.000
X3	10.000	0.000	0.000	125.500	911.100	127.550	911.100	0.000	0.000	0.000
SB	0.000	1.600	2.500	85.000	3.000	0.000	7.100	0.000	0.000	0.000
X1	5100.000	0.000	0.000	0.000	12.500	12.500	12.500	0.000	0.000	0.000
X2	0.000	0.000	1.000	910.500	911.100	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	125.500	911.100	128.500	911.100	0.000	0.000	0.000
BT	12.000	0.000	916.000	916.000	100.000	910.800	910.600	109.000	908.500	908.500
BT	125.500	911.100	908.600	125.000	911.100	909.720	126.500	911.100	910.010	127.000
BT	911.100	910.100	127.500	911.100	910.010	128.000	911.100	909.720	128.500	911.100
BT	908.600	149.000	913.200	913.200	249.000	915.500	915.500	0.000	0.000	0.000

X1	5110.000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.200	0.000
GT	5.000	52.900	80.530	91.280	118.160	91.280	0.000	0.000	0.000	0.000

SECTION 3 -- FAR 1 CULVERT 36 IN. X 12.5 FT.

X1	5200.000	13.000	100.000	130.000	490.000	490.000	490.000	0.000	-.200	0.000
X3	0.000	0.000	0.000	112.000	614.300	118.000	914.300	0.000	0.000	0.000
GR	910.000	0.000	911.200	100.000	911.200	106.000	911.200	112.300	909.000	113.000
GR	908.400	114.000	908.200	115.000	908.400	116.000	909.000	117.000	911.200	115.000
GR	911.200	120.000	911.200	130.000	916.000	230.000	0.000	0.000	0.000	0.000
SB	0.000	1.600	2.500	50.000	5.000	0.000	20.000	0.000	0.000	0.000
X1	5201.000	0.000	0.000	0.000	39.000	39.000	39.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	112.000	910.800	118.000	911.000	0.000	0.000	0.000
BT	13.000	0.000	916.000	916.000	100.000	911.200	911.200	105.000	911.200	911.200
BT	112.000	914.300	911.200	113.000	914.200	913.400	114.000	914.300	914.000	115.000
BT	914.300	914.200	116.000	914.200	914.000	117.000	914.000	913.400	116.000	914.300
BT	911.200	120.000	914.300	911.200	130.000	914.300	911.200	230.000	916.000	916.000
X1	5500.000	6.000	100.000	130.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	916.900	0.000	913.000	99.000	913.000	100.000	909.700	130.000	909.700	131.000
GR	913.000	230.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GT	5.000	27.500	49.000	58.500	84.600	58.500	0.000	0.000	0.000	0.000

SECTION C -- MARION STREET WIER AND CULVERT
SECTON D - ODDESSA ST. CULVERT AND WIER 2 - 3.0' X 7.5' ELLIP. CUVERTS
CONCRETE WIER 30' LONG

X1	5600.000	16.000	106.250	123.750	100.000	100.000	100.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	106.250	0.000	123.750	0.000	0.000	0.000	0.000
GR	916.000	0.000	910.600	106.250	910.000	106.700	909.400	108.500	909.300	110.000
GR	909.400	111.500	910.000	113.300	910.000	113.750	910.600	116.250	910.000	116.700
GR	909.400	118.500	909.300	120.000	909.400	121.500	910.000	123.500	910.000	123.750
GR	915.700	210.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5601.000	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	106.250	0.000	123.750	0.000	0.000	0.000	0.000
BT	1.000	0.000	910.000	916.000	106.250	915.800	910.600	106.700	915.900	913.000
BT	108.500	915.800	914.100	110.000	915.300	914.300	111.500	915.300	914.100	113.300
BT	915.800	913.000	113.750	915.800	910.600	116.250	915.300	910.600	116.700	915.800
BT	913.000	118.500	915.300	914.100	120.000	915.800	914.300	121.500	915.800	914.100
BT	123.300	915.800	913.000	123.750	910.600	910.600	210.000	915.700	915.700	0.000
X1	5602.000	0.000	0.000	0.000	39.000	39.000	39.000	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	106.250	0.000	123.750	0.000	0.000	0.000	0.000
X1	5603.000	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	106.250	0.000	123.750	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC

X1	5670.000	7.000	100.000	130.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	916.000	0.000	910.300	100.000	909.600	100.100	909.600	113.000	909.600	120.000
GR	909.600	130.000	910.800	130.100	916.000	230.000	0.000	0.000	0.000	0.000
X1	5890.000	8.000	100.000	132.000	540.000	540.000	540.000	0.000	0.000	0.000
GR	917.700	0.000	913.600	100.000	911.900	102.000	910.300	110.000	909.700	115.000
GR	901.300	123.000	908.100	132.000	915.000	232.000	0.000	0.000	0.000	0.000
SB	0.000	1.600	2.500	50.000	32.000	0.000	32.000	0.000	0.000	0.000

SECTION E -- PRIVATE FOOT BRIDGE L.C. 911.69 TRD 913.3

X1	5895.000	0.000	0.000	0.000	8.000	8.000	8.000	0.000	0.000	0.000
BT	8.000	0.000	917.700	917.700	100.000	913.600	913.600	102.000	913.600	911.900
3T	110.000	913.600	911.900	115.000	913.600	911.900	123.000	913.600	911.900	132.000
DT	913.600	911.950	232.000	918.100	918.100	0.000	0.000	0.000	0.000	0.000

SECTION F -- BEVINS LAKE OUTLET

X1	6000.000	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
QT	5.000	15.000	16.000	16.700	17.000	16.700	0.000	0.000	0.000	0.000

SECTION G -- INLET PIPE TO BEVINS LAKE
42" CMP X 35' LONG

X1	8000.000	7.000	93.250	101.750	2420.000	2420.000	2420.000	0.000	0.000	0.000
GR	913.000	0.000	909.150	93.250	907.700	99.000	907.400	100.000	907.700	101.000
GR	909.150	101.750	913.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8010.000	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	93.250	914.200	101.750	914.200	0.000	0.000	0.000
BT	7.000	0.000	913.000	913.000	93.250	913.000	909.150	99.000	913.000	910.600
3T	100.000	913.000	910.900	101.000	913.000	910.600	101.750	913.000	909.150	200.000
DT	913.000	913.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	8045.000	0.000	0.000	0.000	600.000	600.000	600.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	910.900	912.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	93.250	914.200	101.750	914.200	0.000	0.000	0.000
X1	8050.000	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	93.250	914.200	101.750	914.200	0.000	0.000	0.000

SECTION H -- C&O RR CULVERT
LC 914.4 TRD 923.0

X1	9000.000	6.000	96.900	103.100	150.000	150.000	150.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	93.250	914.200	101.750	914.200	0.000	0.000	0.000
GR	923.000	0.000	910.500	96.900	910.500	97.000	910.500	103.000	910.500	103.100
CR	923.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9001.000	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	96.900	0.000	103.100	0.000	0.000	0.000	0.000
3T	6.000	0.000	923.000	923.000	96.900	923.000	910.500	97.000	923.000	914.500
BT	103.000	923.000	914.500	103.100	923.000	910.500	200.000	923.000	923.000	0.000

X1	9050.000	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	914.400	923.000	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	96.900	0.000	103.100	0.000	0.000	0.000	0.000
JT	5.000	43.000	63.000	76.000	102.000	76.000	0.000	0.000	0.000	0.000
X1	9051.000	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	96.900	0.000	103.100	0.000	0.000	0.000	0.000
X5	5.000	914.040	914.200	914.270	914.440	914.270	0.000	0.000	0.000	0.000
X1	10000.000	7.000	100.000	147.000	75.000	75.000	75.000	0.000	-.200	0.000
GR	916.000	0.000	915.400	100.000	911.300	127.000	910.700	137.000	911.300	147.000
GR	913.700	171.000	916.000	270.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	10.000	18.700	19.600	21.500	19.600	0.000	0.000	0.000	0.000
	SECTION I -- HOLLY BUSH DR. CULVERT LC 913.7, TRD 915.8									
X1	11500.000	10.000	83.000	130.000	700.000	700.000	700.000	0.000	-.100	0.000
GR	915.800	0.000	914.200	83.000	912.200	98.500	911.100	99.000	910.700	100.000
GR	911.100	101.000	912.200	101.500	913.200	117.000	915.400	130.000	923.000	247.000
X1	11505.000	0.000	0.000	0.000	1015.000	1015.000	1015.000	0.000	0.000	0.000
X1	11510.000	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	98.500	914.500	101.500	914.500	0.000	0.000	0.000
BT	10.000	0.000	915.800	915.800	83.000	915.800	914.200	98.500	915.800	912.200
BT	99.000	915.800	913.200	100.000	915.800	913.700	101.000	915.800	913.200	101.500
BT	915.800	912.200	117.000	915.800	913.200	130.000	915.400	915.400	247.000	915.800
BT	915.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12000.000	0.000	0.000	0.000	54.000	54.000	54.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	912.400	913.700	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	98.500	915.800	101.500	915.800	0.000	0.000	0.000
X1	12010.000	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	98.500	915.800	101.500	915.800	0.000	0.000	0.000
X1	12030.000	6.000	93.500	103.600	2.000	2.000	2.000	0.000	0.000	0.000
GR	915.800	0.000	914.400	96.500	913.600	96.600	913.600	103.500	914.400	103.600
GR	913.800	203.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12500.000	7.000	100.000	147.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	915.300	0.000	914.200	100.000	913.200	108.000	910.000	124.000	913.200	134.000
GR	915.400	147.000	915.800	247.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	12600.000	0.000	0.000	0.000	500.000	500.000	500.000	0.000	0.000	0.000
	SECTION J -- THOMAS RD. CULVERT									
X1	13000.000	0.000	0.000	0.000	100.000	100.000	100.000	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

MOORE BUSINESS FORMS INC 27

SECNO	DEPTH	CWSEL	CRITWS	AREA	EG	HV	HL	CLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VCL	TRA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	XTW	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CCRAR	TOPWID	ENDST

*PROF 1

CCHV .200 CEPV .200

*SECNO 3000.000

3000.00	2.55	902.45	0.00	905.00	902.61	.16	0.00	0.00	907.90
106.	0.	106.	0.	0.	33.	0.	0.	0.	907.70
0.00	0.00	3.21	0.00	.030	.028	.030	0.000	899.90	115.74
.001997	0.	0.	0.	0	0	5	0.00	19.82	135.56

*SECNO 3950.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3950.00	1.72	905.62	905.62	0.00	906.17	.55	3.23	.06	911.90
106.	0.	106.	0.	0.	18.	0.	0.	0.	911.70
.04	0.00	5.95	0.00	.030	.028	.030	0.000	903.90	117.49
.012046	800.	800.	800.	20	19	0	0.00	16.58	134.07

*SECNO 4750.000 Insert C.S to bring WS up

SECTION A

4750.00	2.75	909.65	0.00	0.00	909.79	.15	3.55	.08	908.40
106.	73.	26.	5.	25.	7.	3.	1.	1.	908.40
.10	2.94	3.69	1.37	.030	.028	.030	0.000	906.90	103.73
.002777	700.	700.	700.	6	0	0	0.00	30.32	134.05

*SECNO 5000.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS 125.5 127.5 TYPE 1 TARGET 2.000

ELENCL		ELENCR							
5000.00	4.52	911.62	911.62	0.00	911.93	.31	.52	.03	908.60
106.	54.	49.	3.	16.	9.	1.	1.	1.	911.10
.11	3.38	5.46	2.26	.030	.028	.030	0.000	907.10	89.40
.012695	100.	100.	100.	20	15	0	0.00	44.17	133.57

SECNO	DEPTH	C.SEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VCL	T.A	LEFT/RIGHT
TIME	VLOB	VCH	VROB	X'L	XNCH	XNR	VTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CCRAR	TOPWID	ENDST

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COEF	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.60	2.50	35.00	3.00	0.00	7.10	0.00	907.10	907.10

*SECNO 5100.000

6870 D.S. ENERGY OF 911.93 HIGHER THAN COMPUTED ENERGY OF 911.73

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	Q.WEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
917.13	911.93	0.00	90.	15.	7.	10.	910.50	911.10

3470 ENCROACHMENT STATIONS 125.5 123.5 TYPE 1 TARGET 3.000

ELENCL	911.10	ELENCR	911.10						
5100.00	4.62	911.72	0.00	0.00	911.93	.20	0.00	0.00	908.60
106.	47.	56.	3.	20.	13.	2.	1.	1.	911.10
.11	2.33	4.44	1.58	.030	.028	.030	0.000	907.10	87.24
.004848	13.	13.	13.	0	0	7	0.00	47.36	134.60

*SECNO 5110.000

5110.00	4.38	911.98	0.00	0.00	911.99	.01	.03	.04	908.30
106.	77.	14.	15.	82.	13.	23.	1.	1.	908.60
.14	.94	1.05	.67	.030	.028	.030	0.000	907.30	81.17
.000103	100.	100.	100.	2	0	0	0.00	61.50	142.67

~ CORP Limit

*SECNO 5200.000

3470 ENCROACHMENT STATIONS 112.0 118.0 TYPE 1 TARGET 6.000

ELENCL	914.30	ELENCR	914.30						
SECTION 6 -- FARM CULVERT 36 IN. X 12.5 FT.									
5200.00	4.04	912.04	0.00	0.00	912.12	.08	.11	.01	911.00
91.	13.	78.	0.	11.	32.	0.	2.	2.	914.10
.20	1.17	2.46	0.00	.030	.028	.030	0.000	908.88	78.35
.001342	490.	490.	490.	3	0	0	0.00	39.65	118.00

36" culvert

SECNO	DEPTH	CHSEL	CRIWS	.SELK	EG	HV	HL	DLOSS	BANK ELEV
C	BLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TYP	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	.TW	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.60	2.50	50.00	5.00	0.00	20.00	0.00	908.00	908.00

*SECNO 5201.000

3370 NORMAL BRIDGE,NRD 13 MIN ELTRD 911.20 MAX ELLC 916.00

3470 ENCROACHMENT STATIONS 112.0 118.0 TYPE 1 TARGET 0.000

ELENCL	910.80	ELENCR	911.00		912.6				
5201.00	4.15	912.15	0.00	0.00	912.22	.07	.09	.00	911.00
91.	13.	70.	3.	14.	31.	4.	2.	2.	911.00
.20	1.29	2.27	.77	.030	.026	.030	0.000	908.00	76.02
.005187	39.	39.	39.	2	0	0	-26.07	77.96	153.98

*SECNO 5500.000

5500.00	2.60	912.30	0.00	0.00	912.31	.01	.08	.01	913.00
91.	0.	22.	70.	0.	30.	103.	3.	2.	909.70
.29	0.00	.71	.57	.030	.028	.030	0.000	909.70	106.46
.000128	200.	200.	200.	2	0	0	0.00	102.23	208.68

*SECNO 5600.000

3470 ENCROACHMENT STATIONS 106.3 123.3 TYPE 1 TARGET 17.500

SECTION C -- MAIN STREET WIER AND CULVERT
SECTION D - DOG.SSA ST. CULVERT AND WIER 2 - 5.0' X 7.5' ELLIP. CUVERTS
CONCRETE WIER 30' LONG

5600.00	3.00	912.30	0.00	0.00	912.33	.03	.02	.00	910.60
59.	0.	50.	0.	0.	44.	0.	3.	2.	100000.00
.31	0.00	1.32	0.00	.030	.028	.030	0.000	909.30	106.25
.000251	100.	100.	100.	2	0	0	0.00	17.50	123.75

*SECNO 5601.000

3370 NORMAL BRIDGE,NRD 16 MIN ELTRD 910.60 MAX ELLC 916.00

3470 ENCROACHMENT STATIONS 105.3 123.3 TYPE 1 TARGET 17.500

SECNO	DEPTH	CHSEL	CRWS	WSELK	EG	HV	EL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TRIA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
5601.00	2.99	912.29	0.00	0.00	912.33	.03	.00	.00	910.60
59.	0.	59.	0.	0.	39.	0.	3.	2.	100000.00
.31	0.00	1.50	0.00	.030	.028	.030	0.000	909.30	106.25
.000487	1.	1.	1.	0	0	0	-5.25	17.50	123.75

*SECNO 5602.000

3370 NORMAL BRIDGE,NRD 16 MIN ELTRD 910.60 MAX ELLC 916.00

3470 ENCROACHMENT STATIONS 106.3 123.8 TYPE 1 TARGET 17.500

5602.00	3.01	912.31	0.00	0.00	912.35	.03	.02	.00	910.60
59.	0.	58.	0.	0.	39.	0.	3.	2.	100000.00
.31	0.00	1.49	0.00	.030	.028	.030	0.000	909.30	106.25
.000484	39.	39.	39.	0	0	0	-5.29	17.50	123.75

*SECNO 5603.000

3470 ENCROACHMENT STATIONS 105.3 123.8 TYPE 1 TARGET 17.900

5603.00	3.02	912.32	0.00	0.00	912.35	.03	.00	.00	910.60
59.	0.	58.	0.	0.	45.	0.	3.	2.	100000.00
.31	0.00	1.31	0.00	.030	.028	.030	0.000	909.30	106.25
.000247	1.	1.	1.	0	0	0	0.00	17.50	123.75

*SECNO 5670.000

3230 CROSS SECTION 5670.00 EXTENDED 1.55 FEET

5670.00	2.75	912.35	0.00	0.00	912.36	.01	.00	.00	910.00
59.	6.	52.	0.	23.	82.	0.	3.	2.	909.60
.34	.26	.64	.06	.030	.028	.030	0.000	909.60	70.28
.000039	50.	50.	50.	1	0	0	0.00	59.82	130.10

*SECNO 5890.000

5890.00	11.06	912.35	0.00	0.00	912.36	.00	.00	.00	913.60
59.	0.	38.	21.	0.	146.	132.	5.	3.	908.10
1.01	0.00	.26	.16	.030	.028	.030	0.000	901.30	101.46
.000004	540.	540.	540.	2	0	0	0.00	92.31	193.77

SECNO	DEPTH	CSSEL	CRIWS	USELK	EG	HV	HL	OLOSS	BANK ELEV	
Q	SLOB	WCH	ORDB	ALOB	ACH	AROB	VOL	T.A	LEFT/RIGHT	
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	ITN	ELMIN	SSTA	
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TJPWID	ENDST	

SPECIAL BRIDGE

5070,VARIABLE ELCHO OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	SWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.60	2.50	60.00	32.00	0.00	32.00	0.00	901.30	901.30

*SECNO 5895.000

3370 NORMAL BRIDGE,NRD 8 MIN ELTRD 913.60 MAX ELLC 918.10

Bevins Lake

SECTION E -- PRIVATE FOOT BRIDGE LOC. 911.6, TRD 913.3

5895.00	11.06	912.36	0.00	0.00	912.36	.00	.00	.00	913.60
59.	0.	31.	20.	0.	132.	130.	5.	3.	908.10
1.02	0.00	.23	.21	.030	.028	.030	0.000	901.30	101.46
.000008	8.	8.	8.	0	0	0	-15.03	92.31	193.77

*SECNO 6000.000

SECTION F -- BEVINS LAKE OUTLET

6000.00	11.06	912.30	0.00	0.00	912.36	.00	.00	.00	913.60
59.	0.	38.	21.	0.	146.	132.	6.	3.	908.10
1.08	0.00	.26	.16	.030	.028	.030	0.000	901.30	101.46
.000004	50.	50.	50.	0	0	0	0.00	92.31	193.77

*SECNO 8000.000

SECTION ; -- INLET PIPE TO BEVINS LAKE
42 C IP X 35' LONG

8000.00	4.97	912.37	0.00	0.00	912.37	.00	.01	.00	909.15
17.	3.	1.	3.	133.	16.	133.	21.	10.	909.15
12.21	.06	.09	.06	.030	.028	.030	0.000	907.40	15.92
.000001	2420.	2420.	2420.	0	0	0	0.00	106.15	184.08

top width?

*SECNO 8010.000

3370 NORMAL BRIDGE,NRD 7 MIN ELTRD 913.00 MAX ELLC 913.00

3470 ENCROACHMENT STATIONS 98.3 101.6 TYPE 1 TARGET 3.500

ELENCL 914.20 ELENCR 914.20

8010.00	4.92	912.32	0.00	0.00	912.38	.05	.00	.01	909.15
17.	0.	17.	0.	0.	0.	0.	21.	10.	914.20
12.21	0.00	1.95	0.00	.030	.028	.030	0.000	907.40	98.25
.001810	1.	1.	1.	2	0	0	-6.81	3.50	101.75

SECNO	DEPTH	CNSEL	CRI.S	.SELK	EG	HV	HL	OLOSS	BANK ELEV
C	QLOB	CCH	IR33	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VR33	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 8045.000
3200 CROSS SECTION 8045.00 EXTENDED .01 FEET

3370 NORMAL BRIDGE,NRD 0 MIN ELTRD 912.00 MAX ELLC 910.90

3470 ENCROACHMENT STATIONS 93.3 101.8 TYPE 1 TARGET 3.500

ELENCL	914.20	ELENCR	914.20						
8045.00	5.61	913.01	0.00	0.00	913.03	.02	.64	.01	909.15
17.	0.	17.	0.	0.	14.	0.	21.	11.	914.20
12.35	0.00	1.20	0.00	.030	.028	.030	0.000	907.40	98.25
.000709	500.	500.	500.	2	0	0	-3.85	3.50	101.75

*SECNO 8050.000
3200 CROSS SECTION 8050.00 EXTENDED .01 FEET

3470 ENCROACHMENT STATIONS 93.3 101.8 TYPE 1 TARGET 3.500

ELENCL	914.20	ELENCR	914.20						
8050.00	5.62	913.02	0.00	0.00	913.03	.01	.00	.00	909.15
17.	0.	17.	0.	0.	13.	0.	21.	11.	914.20
12.35	0.00	.94	0.00	.030	.028	.030	0.000	907.40	98.25
.000207	1.	1.	1.	0	0	0	0.00	3.50	101.75

*SECNO 9000.000

3470 ENCROACHMENT STATIONS 98.3 101.8 TYPE 1 TARGET 3.500

ELENCL	914.20	ELENCR	914.20						
SECTION 4 -- C&O RR CULVERT									
LC 914.4 TRD 923.C									
9000.00	2.55	913.05	0.00	0.00	913.10	.05	.06	.01	914.20
17.	0.	17.	0.	0.	9.	0.	21.	11.	914.20
12.37	0.00	1.87	0.00	.030	.028	.030	0.000	910.50	98.25
.001184	150.	150.	150.	2	0	0	0.00	3.50	101.75

*SECNO 9001.000

3370 NORMAL BRIDGE,NRD 6 MIN ELTRD 923.00 MAX ELLC 923.00

SECNO	DEPTH	C/SEL	CRISS	RSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	ELOB	ACH	CROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	UTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOPWID	ENDST
3470 ENCROACHMENT STATIONS			96.9	103.1	TYPE	1	TARGET		6.200
9001.00	2.59	913.07	0.00	0.00	913.11	.02	.00	.01	910.50
17.	0.	17.	0.	0.	15.	0.	21.	11.	100000.00
12.37	0.00	1.05	0.00	.030	.028	.030	0.000	910.50	96.90
.000250	1.	1.	1.	2	0	0	-.17	6.20	103.10
*SECNO 9050.000									
3370 NORMAL BRIDGE.NRO		6 MIN ELTRD		923.00 MAX ELLC		914.40			
3470 ENCROACHMENT STATIONS			96.9	103.1	TYPE	1	TARGET		6.200
9050.00	2.51	913.11	0.00	0.00	913.12	.02	.01	.00	910.50
17.	0.	17.	0.	0.	16.	0.	21.	11.	100000.00
12.39	0.00	1.04	0.00	.030	.028	.030	0.000	910.50	96.90
.000247	48.	48.	43.	2	0	0	-.17	6.20	103.10
*SECNO 9051.000									
WATER EL X5 CARD		914.270							
3470 ENCROACHMENT STATIONS			9.9	103.1	TYPE	1	TARGET		6.200
9051.00	3.77	914.27	0.00	0.00	914.43	.15	.00	.03	910.50
76.	0.	76.	0.	0.	23.	0.	21.	11.	100000.00
12.39	0.00	3.25	0.00	.030	.028	.030	0.000	910.50	96.90
.001849	1.	1.	1.	0	0	0	0.00	6.20	103.10
*SECNO 10000.000									
10000.00	3.97	914.47	0.00	0.00	914.47	.00	.01	.03	91..20
76.	0.	52.	24.	0.	103.	72.	21.	11.	911.10
12.43	0.00	.50	.33	.030	.028	.030	0.000	910.50	109.16
.000024	75.	75.	75.	2	0	0	0.00	103.54	212.71
*SECNO 11500.000									
SECTION I -- ~~HOLLY BUSH DR. CULVERT~~									
LC 913.19 TRD 915.8									
11500.00	3.89	914.49	0.00	0.00	914.49	.00	.02	.00	914.10
20.	0.	19.	0.	4.	67.	0.	23.	12.	915.30
13.11	.07	.29	0.00	.030	.028	.030	0.000	910.60	62.93
.000017	700.	700.	700.	2	0	0	0.00	62.27	125.20

SECNO	DEPTH	CHSEL	CRIWS	ASELK	EG	FV	SL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	WCL	TIA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	XTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

XSEC J Holly Bush Dr.

J

*SECNO 11505.000

11505.00	3.90	914.50	0.00	0.00	914.51	.00	.02	.00	914.10
20.	0.	19.	0.	4.	63.	0.	25.	13.	915.30
14.11	.07	.29	0.00	.030	.028	.030	0.000	910.60	61.86
.000016	1015.	1015.	1015.	0	0	0	0.00	63.46	125.32

*SECNO 11510.030

3370 NORMAL BRIDGE,NRD 10 MIN ELTRD 915.40 MAX ELLC 915.80

3470 ENCROACHMENT STATIONS 96.5 101.5 TYPE 1 TARGET 3.000

ELENCL	914.50	ELENCR	914.50						
11510.00	3.79	914.39	0.00	0.00	914.93	.14	.00	.03	914.50
20.	0.	20.	0.	0.	60.	0.	25.	13.	915.30
14.11	0.00	3.04	0.00	.030	.028	.030	0.000	910.60	98.50
.005290	1.	1.	1.	2	0	0	-3.57	3.00	101.50

*SECNO 12000.000

3370 NORMAL BRIDGE,NRD 0 MIN ELTRD 913.70 MAX ELLC 912.40

3470 ENCROACHMENT STATIONS 96.5 101.5 TYPE 1 TARGET 3.000

ELENCL	915.30	ELENCR	915.80						
12000.00	4.13	914.73	0.00	0.00	914.85	.12	.31	.01	915.30
20.	0.	20.	0.	0.	7.	0.	25.	13.	915.30
14.12	0.00	2.75	0.00	.030	.028	.030	0.000	910.60	98.50
.006104	54.	54.	54.	2	0	0	-3.90	3.00	101.50

6'

*SECNO 12010.000

3370 NORMAL BRIDGE,NRD 0 MIN ELTRD 913.70 MAX ELLC 912.40

3470 ENCROACHMENT STATIONS 96.5 101.5 TYPE 1 TARGET 3.000

ELENCL	915.30	ELENCR	915.50						
12010.00	4.21	914.61	0.00	0.00	914.96	.05	.00	.01	915.30
20.	0.	20.	0.	0.	11.	0.	25.	13.	915.30
14.12	0.00	1.74	0.00	.030	.028	.030	0.000	910.60	98.50
.000909	1.	1.	1.	2	0	0	0.00	3.00	101.50

6'

3'x6' CMP

ELLC = 913.7

$A = 14.9 ft^2$ — $\frac{(40)(.02)^2 29.1}{(.95)^{4/3}} + 11.5$

Loss ≈ 1ft

Loss couple tenths high

SECNO / G / TIME / SLOPE	DEPTH / GLOB / VLOB / XLOBL	CHSEL / QCH / VCH / XLCH	CRMS / QROB / VROB / XLOBR	ASELK / ALOB / XNL / ITRIAL	EG / ACH / XNCH / IDC	HV / AROB / XNR / ICONT	EL / VCL / JTN / CCRAR	OLOSS / TWA / ELMIN / TOPWID	BANK ELEV LEFT/RIGHT / SSTA / EMOST
*SECNO 12030.000									
12030.00	1.23	914.33	0.00	0.00	914.87	.04	.00	.00	914.40
20.	4.	15.	1.	6.	9.	2.	25.	13.	914.40
14.12	.57	1.74	.57	.030	.028	.030	0.000	913.60	67.44
.001061	2.	2.	2.	0	0	0	0.00	45.69	113.13
*SECNO 12500.000									
12500.00	4.87	914.37	0.00	0.00	914.87	.00	.00	.01	914.20
20.	1.	19.	0.	14.	103.	0.	25.	14.	915.40
14.19	.05	.18	0.00	.030	.028	.030	0.000	910.00	57.66
.000004	50.	50.	50.	0	0	0	0.00	86.26	143.91
*SECNO 12600.000									
12600.00	4.37	914.87	0.00	0.00	914.88	.00	.00	.00	914.20
20.	1.	19.	0.	14.	103.	0.	27.	15.	915.40
14.97	.05	.18	0.00	.030	.028	.030	0.000	910.00	57.83
.000004	50.	50.	50.	2	0	0	0.00	86.07	143.90
*SECNO 13000.000									
SECTION J -- THD AS RD. CULVERT									
13000.00	4.88	914.88	0.00	0.00	914.88	.00	.00	.00	914.20
20.	1.	19.	0.	14.	103.	0.	27.	15.	915.40
15.12	.05	.13	0.00	.030	.028	.030	0.000	910.00	57.80
.000004	100.	100.	100.	0	0	0	0.00	86.10	143.90

Bush Lake 914.55 TRZO

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*****************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
 ERROR CORR -  01,02,03,04,05
 MODIFICATION -  50,51,52,53,54,55
*****************************************************

T1
T2
T3
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J1	ICHECK	IND	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	6.	0.	0.	.002000	0.00	0.0	0.	905.100	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

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

*PROF 2

CCHV .200 CEHV .200

*SECNO 3000.000

3000.00	2.55	902.45	0.00	905.10	902.61	.16	0.00	0.00	907.90
106.	0.	106.	0.	0.	33.	0.	0.	0.	907.70
0.00	0.00	3.21	0.00	.030	.028	.030	0.000	899.90	115.74
.001996	0.	0.	0.	0	0	5	0.00	19.82	135.56

*SECNO 3950.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3950.00	1.72	905.62	905.62	0.00	906.17	.55	3.23	.08	911.90
106.	0.	106.	0.	0.	13.	0.	0.	0.	911.70
.04	0.00	5.95	0.00	.030	.028	.030	0.000	903.90	117.49
.012046	800.	800.	300.	20	19	0	0.00	16.58	134.07

*SECNO 4750.000

SECTION A

4750.00	2.75	909.65	0.00	0.00	909.79	.15	3.55	.03	908.40
106.	73.	26.	5.	25.	7.	3.	1.	1.	908.40
.10	2.94	3.69	1.87	.030	.028	.030	0.000	906.90	103.73
.002777	700.	700.	700.	6	0	0	0.00	30.32	134.05

*SECNO 5000.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS 125.5 127.5 TYPE 1 TARGET 2.000

ELENCL 911.10 ELENCR 911.10

5000.00	4.52	911.62	911.62	0.00	911.93	.31	.52	.03	908.60
106.	54.	49.	3.	16.	9.	1.	1.	1.	911.10
.11	3.38	5.46	2.26	.030	.028	.030	0.000	907.13	89.40
.012695	100.	100.	100.	20	15	3	0.00	44.17	133.57

MOORE BUSINESS FORMS INC

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

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.60	2.50	35.00	3.00	0.00	7.10	0.00	907.10	907.10

*SECNO 5100.000
6970 D.S. ENERGY OF 911.93 HIGHER THAN COMPUTED ENERGY OF 911.73
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	HB	QWEIR	OPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
917.13	911.93	0.00	90.	15.	7.	10.	910.50	911.10

3470 ENCROACHMENT STATIONS 125.5 128.5 TYPE 1 TARGET 3.000

ELENCL	911.10	ELENCR	911.10						
5100.00	4.62	911.72	0.00	0.00	911.93	.20	0.00	0.00	905.00
106.	47.	56.	3.	20.	13.	2.	1.	1.	911.10
.11	2.33	4.44	1.58	.030	.028	.030	0.000	907.10	87.24
.004848	13.	13.	13.	0	0	7	0.00	47.36	134.60

*SECNO 5110.000

5110.00	4.68	911.98	0.00	0.00	911.99	.01	.03	.04	908.80
106.	77.	14.	15.	82.	13.	23.	1.	1.	908.80
.14	.94	1.05	.67	.030	.028	.030	0.000	907.30	81.17
.000103	100.	100.	100.	2	0	0	0.00	61.50	142.67

*SECNO 5200.000

3470 ENCROACHMENT STATIONS 112.0 118.0 TYPE 1 TARGET 6.000

ELENCL	914.30	ELENCR	914.30						
SECTION 5 -- FARM CULVERT 36 IN. X 12.5 FT.									
5200.00	4.04	912.04	0.00	0.00	912.12	.08	.11	.01	911.00
91.	13.	79.	0.	11.	32.	0.	2.	2.	914.10
.20	1.17	2.46	0.00	.030	.028	.030	0.000	908.00	78.35
.001342	490.	490.	490.	3	0	0	0.00	39.65	118.00

SECNO	DEPTH	C.SEL	CRIWS	HSELK	EG	HV	HL	OLOSS	BANK ELEV	
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	T.A	LEFT/RIGHT	
TIME	VLOB	VCH	VROB	X.L	XNCH	XNR	HTM	ELMIN	SSTA	
SLOPE	XLOBL	XLCH	XLOBR	IFRIAL	IDC	ICONT	CORAR	TOPWID	ENDST	

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFC	RDLEN	BWC	SWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.60	2.50	50.00	5.00	0.00	20.00	0.00	908.00	908.00

*SECNO 5201.000

3370 NORMAL BRIDGE,NRD 13 MIN ELTRD 911.20 MAX ELLC 916.00

3470 ENCROACHMENT STATIONS 112.0 118.0 TYPE 1 TARGET 5.000

ELENCL	910.30	ELENCR	911.00						
5201.00	4.15	912.15	0.00	0.00	912.22	.07	.09	.00	911.00
91.	18.	70.	3.	14.	31.	4.	2.	2.	911.00
.20	1.29	2.27	.77	.030	.026	.030	0.000	908.00	76.02
.005187	39.	39.	39.	2	0	0	-26.07	77.96	153.98

*SECNO 5500.000

5500.00	2.30	912.30	0.00	0.00	912.31	.01	.08	.01	913.00
91.	0.	22.	70.	0.	30.	103.	3.	2.	909.70
.29	0.00	.71	.67	.030	.028	.030	0.000	909.70	106.46
.000126	200.	200.	200.	2	0	0	0.00	102.23	203.68

*SECNO 5600.000

3470 ENCROACHMENT STATIONS 103.3 123.8 TYPE 1 TARGET 17.500

SECTION C -- MARION STREET WIER AND CULVERT
SECTION C - ODDESSA ST. CULVERT AND WIER 2 - 5.0' X 7.5' ELLIP. CULVERTS
CONCRETE WIER 30' LONG

5600.00	3.00	912.30	0.00	0.00	912.33	.03	.02	.00	910.60
59.	0.	58.	0.	0.	44.	0.	3.	2.	100000.00
.31	0.00	1.32	0.00	.030	.028	.030	0.000	909.30	106.25
.000251	100.	100.	100.	2	0	0	0.00	17.50	123.75

*SECNO 5601.000

3370 NORMAL BRIDGE,NRD 16 MIN ELTRD 910.60 MAX ELLC 916.00

3470 ENCROACHMENT STATIONS 106.3 123.8 TYPE 1 TARGET 17.500

MOORE BUSINESS FORMS INC

SECNO	DEPTH	CISEL	CRITS	SELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VCL	T.A	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	ZTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
5601.00	2.99	912.29	0.00	0.00	912.33	.03	.00	.00	910.60
59.	0.	58.	0.	0.	39.	0.	3.	2.	100000.00
.31	0.00	1.50	0.00	.030	.028	.030	0.000	909.30	106.25
.000487	1.	1.	1.	0	0	0	-5.25	17.50	123.75
*SECNO 5602.000									
3370 NORMAL BRIDGE,NRD 16 MIN ELTRD 910.60 MAX ELLC 916.00									
3470 ENCROACHMENT STATIONS		106.3	123.8	TYPE	1	TARGET		17.500	
5602.00	3.01	912.31	0.00	0.00	912.35	.03	.02	.00	910.60
59.	0.	58.	0.	0.	39.	0.	3.	2.	100000.00
.31	0.00	1.49	0.00	.030	.028	.030	0.000	909.30	106.25
.000484	39.	39.	39.	0	0	0	-5.29	17.50	123.75
*SECNO 5603.000									
3470 ENCROACHMENT STATIONS		106.3	123.8	TYPE	1	TARGET		17.500	
5603.00	3.02	912.32	0.00	0.00	912.35	.03	.00	.00	910.60
59.	0.	58.	0.	0.	45.	0.	3.	2.	100000.00
.31	0.00	1.31	0.00	.030	.028	.030	0.000	909.30	106.25
.000247	1.	1.	1.	0	0	0	0.00	17.50	123.75
*SECNO 5670.000									
3280 CROSS SECTION 5670.00 EXTENDED 1.55 FEET									
5670.00	2.75	912.35	0.00	0.00	912.36	.01	.00	.00	910.80
59.	5.	52.	0.	23.	62.	0.	3.	2.	909.60
.34	.26	.64	.06	.030	.028	.030	0.000	909.60	70.28
.000039	50.	50.	50.	1	0	0	0.00	59.82	130.10
*SECNO 5890.000									
5890.00	11.06	912.36	0.00	0.00	912.36	.00	.00	.00	913.60
59.	0.	38.	21.	0.	146.	132.	5.	3.	908.10
1.01	0.00	.26	.16	.030	.028	.030	0.000	901.30	101.46
.000004	540.	540.	540.	2	0	0	0.00	92.31	193.77

SECNO	DEPTH	C.SEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VCL	T.A	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XML	XNCH	XNR	.TN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

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	1.60	2.50	50.00	32.00	0.00	32.00	0.00	901.30	901.30

*SECNO 5895.000

3370 NORMAL BRIDGE,NRD 6 MIN ELTRD 913.60 MAX ELLC 918.10

SECTION E -- PRIVATE FOOT BRIDGE L.C. 911.6, TRD 913.3

5895.00	11.06	912.36	0.00	0.00	912.36	.00	.00	.00	913.60
59.	0.	31.	26.	0.	132.	130.	5.	3.	908.10
1.02	0.00	.23	.21	.030	.028	.030	0.000	901.30	101.46
.000008	3.	8.	3.	0	0	0	-15.03	92.31	193.77

*SECNO 6000.000

SECTION F -- BEVINS LAKE OUTLET

6000.00	11.36	912.36	0.00	0.00	912.36	.00	.00	.00	913.60
59.	0.	38.	21.	0.	146.	132.	6.	3.	908.10
1.08	0.00	.23	.16	.030	.028	.030	0.000	901.30	101.46
.000004	50.	50.	50.	0	0	0	0.00	92.31	193.77

*SECNO 8000.000

SECTION G -- INLET PIPE TO BEVINS LAKE
42 CMP X 35' LONG

8000.00	4.97	912.37	0.00	0.00	912.37	.00	.01	.00	909.15
17.	0.	1.	8.	133.	15.	133.	21.	10.	909.15
12.21	.06	.09	.06	.030	.028	.030	0.000	907.40	15.92
.000001	2420.	2420.	2420.	0	0	0	0.00	168.15	184.08

*SECNO 8010.000

3370 NORMAL BRIDGE,NRD 7 MIN ELTRD 913.00 MAX ELLC 913.00

3470 ENCROACHMENT STATIONS 98.3 101.8 TYPE 1 TARGET 3.500

ELENCL	914.20	ELENCR	914.20						
8010.00	4.92	912.32	0.00	0.00	912.38	.06	.00	.01	909.15
17.	0.	17.	0.	0.	9.	0.	21.	10.	914.20
12.21	0.00	1.95	0.00	.030	.028	.030	0.000	907.40	98.25
.001810	1.	1.	1.	2	0	0	-6.81	3.50	101.75

SECNO	DEPTH	C.SEL	CRINS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VCL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOPWID	ENDST

*SECNO 8045.000
3290 CROSS SECTION 8045.00 EXTENDED .01 FEET

3370 NORMAL BRIDGE,NRD 0 MIN ELTRD 912.00 MAX ELLC 910.90

3470 ENCROACHMENT STATIONS 98.3 101.8 TYPE 1 TARGET 3.500

ELENCL	914.20	ELENCR	914.20						
8045.00	5.61	913.01	0.00	0.00	913.03	.02	.64	.01	909.15
17.	0.	17.	0.	0.	14.	0.	21.	11.	914.20
12.35	0.00	1.20	0.00	.030	.028	.030	0.000	907.40	98.25
.000709	600.	600.	600.	2	0	0	-3.35	3.50	101.75

*SECNO 8050.000
3280 CROSS SECTION 8050.00 EXTENDED .01 FEET

3470 ENCROACHMENT STATIONS 98.3 101.8 TYPE 1 TARGET 3.500

ELENCL	914.20	ELENCR	914.20						
8050.00	5.62	913.02	0.00	0.00	913.03	.01	.00	.00	909.15
17.	0.	17.	0.	0.	18.	0.	21.	11.	914.20
12.35	0.00	.94	0.00	.030	.028	.030	0.000	907.40	98.25
.000207	1.	1.	1.	0	0	0	0.00	3.50	101.75

*SECNO 9000.000

3470 ENCROACHMENT STATIONS 98.3 101.8 TYPE 1 TARGET 3.500

ELENCL	914.20	ELENCR	914.20						
SECTION H -- C&O RR CULVERT									
		LC 914.4	TRD 923.0						
9000.00	2.55	913.05	0.00	0.00	913.10	.05	.06	.01	914.20
17.	0.	17.	0.	0.	9.	0.	21.	11.	914.20
12.37	0.00	1.87	0.00	.030	.028	.030	0.000	910.50	98.25
.001184	150.	150.	150.	2	0	0	0.00	3.50	101.75

*SECNO 9001.000

3370 NORMAL BRIDGE,NRD 6 MIN ELTRD 923.00 MAX ELLC 923.00

SECNO	DEPTH	CASEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VCL	T.A	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	.TN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS 96.9 103.1 TYPE 1 TARGET .200

9001.00	2.59	913.05	0.00	0.00	913.11	.02	.00	.01	910.50
17.	0.	17.	0.	0.	15.	0.	21.	11.	100000.00
12.37	0.00	1.05	0.00	.030	.028	.030	0.000	910.50	96.90
.000250	1.	1.	1.	2	0	0	-.17	6.20	103.10

*SECNO 9050.000

3370 NORMAL BRIDGE,NRD 6 MIN ELTRD 923.00 MAX ELLC 914.40

3470 ENCROACHMENT STATIONS 96.9 103.1 TYPE 1 TARGET .200

9050.00	2.61	913.11	0.00	0.00	913.12	.02	.01	.00	910.50
17.	0.	17.	0.	0.	16.	0.	21.	11.	100000.00
12.39	0.00	1.04	0.00	.030	.026	.030	0.000	910.50	96.90
.000247	48.	48.	48.	2	0	0	-.17	6.20	103.10

*SECNO 9051.000
WATER EL X5 CARD 914.270

3470 ENCROACHMENT STATIONS 96.9 103.1 TYPE 1 TARGET .200

9051.00	3.77	914.27	0.00	0.00	914.43	.16	.00	.03	910.50
76.	0.	76.	0.	0.	23.	0.	21.	11.	100000.00
12.39	0.00	3.25	0.00	.030	.028	.030	0.000	910.50	96.90
.001849	1.	1.	1.	0	0	0	0.00	6.20	103.10

*SECNO 10000.000

10000.00	3.97	914.47	0.00	0.00	914.47	.00	.01	.03	916.20
76.	0.	52.	24.	0.	103.	72.	21.	11.	911.10
12.43	0.00	.50	.33	.030	.028	.030	0.000	910.50	109.16
.000024	75.	75.	75.	2	0	0	0.00	103.54	212.71

*SECNO 11500.000
SECTION I -- HOLLY BUSH DR. CULVERT
LC 913.7, TRD 915.8

11500.00	3.89	914.49	0.00	0.00	914.49	.00	.02	.00	914.10
20.	0.	19.	0.	4.	67.	0.	23.	12.	915.30
13.11	.07	.29	0.00	.030	.028	.030	0.000	910.60	62.93
.000017	700.	700.	700.	2	0	0	0.00	62.27	125.20

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

*SECNO 11505.000
 11505.00     3.90    914.50      0.00      0.00    914.51       .00       .02       .00    914.10
      20.       0.       19.        0.        4.       63.        0.       25.       13.    915.30
    14.11      .07       .29      0.00      .030      .028      .030     0.000    910.60     61.86
  .000015    1015.     1015.     1015.         0         0         0      0.00     63.46    125.32

*SECNO 11510.000

3370 NORMAL BRIDGE,NRD  10 MIN ELTRD   915.40 MAX ELLC   915.80

3470 ENCROACHMENT STATIONS        93.5      101.5  TYPE      1  TARGET        3.000
 ELENCL     914.50  ELENCR     914.50
 11510.00     3.79    914.39      0.00      0.00    914.53       .14       .00       .03    914.50
      20.       0.       20.        0.        0.        6.        0.       25.       13.    915.30
    14.11     0.00      3.04      0.00      .030      .028      .030     0.000    910.60     98.50
  .005296       1.        1.        1.         2         0         0     -3.57      3.00    101.50

*SECNO 12000.000

3370 NORMAL BRIDGE,NRD   0 MIN ELTRD   913.70 MAX ELLC   912.40

3470 ENCROACHMENT STATIONS        98.5      101.5  TYPE      1  TARGET        3.000
 ELENCL     915.80  ELENCR     915.80
 12000.00     4.13    914.73      0.00      0.00    914.85       .12       .31       .01    915.80
      20.       0.       20.        0.        0.        7.        0.       25.       13.    915.80
    14.12     0.00      2.75      0.00      .030      .028      .030     0.000    910.60     98.50
  .006104      54.       54.       54.         2         0         0     -3.90      3.00    101.50

*SECNO 12010.000

3470 ENCROACHMENT STATIONS        98.5      101.5  TYPE      1  TARGET        3.000
 ELENCL     915.80  ELENCR     915.80
 12010.00     4.21    914.81      0.00      0.00    914.86       .05       .00       .01    915.80
      20.       0.       20.        0.        0.       11.        0.       25.       13.    915.80
    14.12     0.00      1.74      0.00      .030      .028      .030     0.000    910.60     98.50
  .000909       1.        1.        1.         2         0         0      0.00      3.00    101.50
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SECNO / TIME / SLOPE	DEPTH / ALOB / 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 / TRA / ELMIN / TOPWID	BANK ELEV LEFT/RIGHT / SSTA / ENDST
*SECNO 12030.000									
12030.00	1.23	914.83	0.00	0.00	914.37	.04	.00	.00	914.40
20.	4.	15.	1.	6.	9.	2.	25.	13.	914.40
14.12	.57	1.74	.57	.030	.028	.030	0.000	913.60	67.44
.001061	2.	2.	2.	0	0	0	0.00	45.69	113.13
*SECNO 12500.000									
12500.00	4.37	914.87	0.00	0.00	914.37	.00	.00	.01	914.20
20.	1.	19.	0.	14.	103.	0.	25.	14.	915.40
14.19	.05	.18	0.00	.030	.028	.030	0.000	910.00	57.56
.000004	50.	50.	50.	0	0	0	0.00	36.26	143.91
*SECNO 12600.000									
12600.00	4.87	914.87	0.00	0.00	914.88	.00	.00	.00	914.20
20.	1.	19.	0.	14.	103.	0.	27.	15.	915.40
14.97	.05	.18	0.00	.030	.028	.030	0.000	910.00	57.83
.000004	500.	500.	500.	2	0	0	0.00	36.07	143.90
*SECNO 13000.000									
SECTION J -- THOMAS RD. CULVERT									
13000.00	4.38	914.88	0.00	0.00	914.38	.00	.00	.00	914.20
20.	1.	19.	0.	14.	103.	0.	27.	15.	915.40
15.12	.05	.18	0.00	.030	.028	.030	0.000	910.00	57.80
.000004	100.	100.	100.	0	0	0	0.00	36.10	143.90

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HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
ERROR CORR - 01,02,03,04,05
MODIFICATION - 50,51,52,53,54,55
****

NOTE- ASTERISK * AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	3000.000	902.45	-2.55	902.61	19.82	0.00	105.72	0.00	0.00	0.00	100.00	151.00	0.00
	3000.000	902.45	-2.65	902.61	19.82	0.00	105.72	0.00	0.00	0.00	100.00	151.00	0.00
*	3950.000	905.62	0.00	906.17	16.58	0.00	105.72	0.00	0.00	0.00	100.00	151.00	0.00
*	3950.000	905.62	0.00	906.17	16.58	0.00	105.72	0.00	0.00	0.00	100.00	151.00	0.00
	4750.000	909.65	0.00	909.79	30.32	73.29	25.95	6.48	0.00	0.00	125.50	128.50	0.00
	4750.000	909.65	0.00	909.79	30.32	73.29	25.95	6.48	0.00	0.00	125.50	128.50	0.00
*	5000.000	911.62	0.00	911.93	44.17	53.98	48.76	2.98	2.00	125.50	125.50	128.50	127.50
*	5000.000	911.62	0.00	911.93	44.17	53.98	48.76	2.98	2.00	125.50	125.50	128.50	127.50
	5100.000	911.72	0.00	911.93	47.36	46.52	56.18	3.02	3.00	125.50	125.50	128.50	128.50
	5100.000	911.72	0.00	911.93	47.36	46.52	56.18	3.02	3.00	125.50	125.50	128.50	128.50
	5110.000	911.98	0.00	911.99	61.50	76.95	13.61	15.16	0.00	0.00	125.50	128.50	0.00
	5110.000	911.98	0.00	911.99	61.50	76.95	13.61	15.16	0.00	0.00	125.50	128.50	0.00
	5200.000	912.04	0.00	912.12	39.65	13.19	78.09	0.00	6.00	112.00	100.00	130.00	118.00
	5200.000	912.04	0.00	912.12	39.65	13.19	78.09	0.00	6.00	112.00	100.00	130.00	118.00
	5201.000	912.15	0.00	912.22	77.96	17.76	70.16	3.36	6.00	112.00	100.00	130.00	118.00
	5201.000	912.15	0.00	912.22	77.96	17.76	70.16	3.36	6.00	112.00	100.00	130.00	118.00
	5500.000	912.30	0.00	912.31	102.23	0.00	21.64	69.64	0.00	0.00	100.00	130.00	0.00
	5500.000	912.30	0.00	912.31	102.23	0.00	21.64	69.64	0.00	0.00	100.00	130.00	0.00
	5600.000	912.30	0.00	912.33	17.50	0.00	58.50	0.00	17.50	106.25	106.25	123.75	123.75
	5600.000	912.30	0.00	912.33	17.50	0.00	58.50	0.00	17.50	106.25	106.25	123.75	123.75
	5601.000	912.29	0.00	912.33	17.50	0.00	58.50	0.00	17.50	106.25	106.25	123.75	123.75
	5601.000	912.29	0.00	912.33	17.50	0.00	58.50	0.00	17.50	106.25	106.25	123.75	123.75

MOORE BUSINESS FORMS INC

	SECND	CYSEL	DIFCYS	EG	TOPMID	JLOB	MCH	MROB	PERENC	STENCL	STCHL	STCHR	STENCR
	5602.000	912.31	0.00	912.35	17.50	0.00	58.50	0.00	17.50	106.25	106.25	123.75	123.75
	5602.000	912.31	0.00	912.35	17.50	0.00	53.50	0.00	17.50	106.25	106.25	123.75	123.75
	5603.000	912.32	0.00	912.35	17.50	0.00	58.50	0.00	17.50	106.25	106.25	123.75	123.75
	5603.000	912.32	0.00	912.35	17.50	0.00	58.50	0.00	17.50	106.25	106.25	123.75	123.75
	5670.000	912.35	0.00	912.36	59.82	6.01	52.48	.01	0.00	0.00	100.00	130.00	0.00
	5670.000	912.35	0.00	912.36	59.82	6.01	52.48	.01	0.00	0.00	100.00	130.00	0.00
	5890.000	912.36	0.00	912.36	92.31	0.00	37.60	20.90	0.00	0.00	100.00	132.00	0.00
	5890.000	912.36	0.00	912.36	92.31	0.00	37.60	20.90	0.00	0.00	100.00	132.00	0.00
	5895.000	912.36	0.00	912.36	92.31	0.00	30.95	27.55	0.00	0.00	100.00	132.00	0.00
	5895.000	912.36	0.00	912.36	92.31	0.00	30.95	27.55	0.00	0.00	100.00	132.00	0.00
	6000.000	912.36	0.00	912.36	92.31	0.00	37.60	20.90	0.00	0.00	100.00	132.00	0.00
	6000.000	912.36	0.00	912.36	92.31	0.00	37.60	20.90	0.00	0.00	100.00	132.00	0.00
	8000.000	912.37	0.00	912.37	163.15	7.64	1.42	7.64	0.00	0.00	93.25	101.75	0.00
	8000.000	912.37	0.00	912.37	168.15	7.64	1.42	7.64	0.00	0.00	98.25	101.75	0.00
	8010.000	912.32	0.00	912.38	3.50	0.00	16.70	0.00	3.50	98.25	98.25	101.75	101.75
	8010.000	912.32	0.00	912.38	3.50	0.00	16.70	0.00	3.50	98.25	98.25	101.75	101.75
	8045.000	913.01	0.00	913.03	3.50	0.00	16.70	0.00	3.50	98.25	98.25	101.75	101.75
	8045.000	913.01	0.00	913.03	3.50	0.00	16.70	0.00	3.50	98.25	98.25	101.75	101.75
	8050.000	913.02	0.00	913.03	3.50	0.00	16.70	0.00	3.50	98.25	98.25	101.75	101.75
	8050.000	913.02	0.00	913.03	3.50	0.00	16.70	0.00	3.50	98.25	98.25	101.75	101.75
	9000.000	913.05	0.00	913.10	3.50	0.00	16.70	0.00	3.50	98.25	96.90	103.10	101.75
	9000.000	913.05	0.00	913.10	3.50	0.00	16.70	0.00	3.50	98.25	96.90	103.10	101.75
	9001.000	913.09	0.00	913.11	6.20	0.00	16.70	0.00	6.20	96.90	96.90	103.10	103.10
	9001.000	913.09	0.00	913.11	6.20	0.00	16.70	0.00	6.20	96.90	96.90	103.10	103.10
	9050.000	913.11	0.00	913.12	6.20	0.00	16.70	0.00	6.20	96.90	96.90	103.10	103.10
	9050.000	913.11	0.00	913.12	6.20	0.00	16.70	0.00	6.20	96.90	96.90	103.10	103.10
*	9051.000	914.27	0.00	914.43	6.20	0.00	76.00	0.00	6.20	96.90	96.90	103.10	103.10
*	9051.000	914.27	0.00	914.43	6.20	0.00	76.00	0.00	6.20	96.90	96.90	103.10	103.10
	10000.000	914.47	0.00	914.47	103.54	0.00	52.00	24.00	0.00	0.00	100.00	147.00	0.00
	10000.000	914.47	0.00	914.47	103.54	0.00	52.00	24.00	0.00	0.00	100.00	147.00	0.00
	11500.000	914.49	0.00	914.49	62.27	.27	19.33	0.00	0.00	0.00	83.00	130.00	0.00
	11500.000	914.49	0.00	914.49	62.27	.27	19.33	0.00	0.00	0.00	83.00	130.00	0.00
	11505.000	914.50	0.00	914.51	63.46	.30	19.30	0.00	0.00	0.00	83.00	130.00	0.00
	11505.000	914.50	0.00	914.51	63.46	.30	19.30	0.00	0.00	0.00	83.00	130.00	0.00

MOORE BUSINESS FORMS INC

SECND	CNSEL	DIFRNS	EG	TOPTID	GLOB	WCH	GRDB	PERENC	STENCL	STCHL	STCHR	STENCR
11510.000	914.39	0.00	914.53	3.00	0.00	19.60	0.00	3.00	98.50	83.00	130.00	101.50
11510.000	914.39	0.00	914.53	3.00	0.00	19.60	0.00	3.00	98.50	83.00	130.00	101.50
12000.000	914.73	0.00	914.35	3.00	0.00	19.60	0.00	3.00	93.50	83.00	130.00	101.50
12000.000	914.73	0.00	914.35	3.00	0.00	19.60	0.00	3.00	93.50	83.00	130.00	101.50
12010.000	914.81	0.00	914.36	3.00	0.00	19.60	0.00	3.00	98.50	83.00	130.00	101.50
12010.000	914.81	0.00	914.36	3.00	0.00	19.60	0.00	3.00	98.50	83.00	130.00	101.50
12030.000	914.83	0.00	914.37	45.69	3.50	14.95	1.15	0.00	0.00	96.50	103.60	0.00
12030.000	914.83	0.00	914.37	45.69	3.50	14.95	1.15	0.00	0.00	96.50	103.60	0.00
12500.000	914.87	0.00	914.37	85.26	.69	18.91	0.00	0.00	0.00	100.00	147.00	0.00
12500.000	914.87	0.00	914.87	86.26	.69	18.91	0.00	0.00	0.00	100.00	147.00	0.00
12600.000	914.87	0.00	914.88	85.07	.68	18.92	0.00	0.00	0.00	100.00	147.00	0.00
12500.000	914.87	0.00	914.88	85.07	.68	18.92	0.00	0.00	0.00	100.00	147.00	0.00
13000.000	914.88	0.00	914.88	86.10	.68	18.92	0.00	0.00	0.00	100.00	147.00	0.00
13000.000	914.88	0.00	914.88	85.10	.68	18.92	0.00	0.00	0.00	100.00	147.00	0.00

MOORE BUSINESS FORMS INC

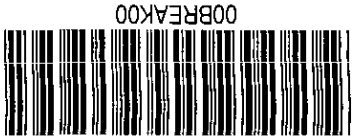


1) COUNTY: OAKLAND

2) STUDY NAME: HOLLY, VILLAGE OF

3) WATERCOURSE: HOLLY PATTERSON DRAIN

4) DOCUMENT TYPE: SUMMARY 2



****
HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
ERROR CORR - 01,02,03,04,05
MODIFICATION - 50,51,52,53,54,55
****

NOTE- ASTERISK * AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	3000.000	901.92	-3.08	902.03	17.75	0.00	62.64	0.00	0.00	0.00	100.00	151.00	0.00
	3000.000	902.31	-1.89	902.46	19.28	0.00	93.33	0.00	0.00	0.00	100.00	151.00	0.00
	3000.000	902.45	-2.05	902.61	19.82	0.00	105.72	0.00	0.00	0.00	100.00	151.00	0.00
	3000.000	902.76	-1.94	902.95	21.05	0.00	136.47	0.00	0.00	0.00	100.00	151.00	0.00
*	3950.000	905.26	0.00	905.68	15.21	0.00	62.64	0.00	0.00	0.00	100.00	151.00	0.00
*	3950.000	905.52	0.00	906.04	16.22	0.00	93.33	0.00	0.00	0.00	100.00	151.00	0.00
*	3950.000	905.62	0.00	906.17	16.58	0.00	105.72	0.00	0.00	0.00	100.00	151.00	0.00
*	3950.000	905.83	0.00	906.46	17.42	0.00	136.47	0.00	0.00	0.00	100.00	151.00	0.00
	4750.000	909.28	0.00	909.39	27.21	40.68	19.44	2.52	0.00	0.00	125.50	123.50	0.00
A	4750.000	909.55	0.00	909.69	29.50	63.93	24.18	5.21	0.00	0.00	125.50	123.50	0.00
	4750.000	909.65	0.00	909.79	30.32	73.29	25.95	6.48	0.00	0.00	125.50	123.50	0.00
	4750.000	909.87	0.00	910.04	32.17	90.41	30.07	9.99	0.00	0.00	125.50	123.50	0.00
	* 5000.000	910.53	0.00	912.10	2.00	0.00	62.64	0.00	2.00	125.50	125.50	123.50	127.50
3	* 5000.000	911.56	0.00	911.87	42.38	43.75	47.41	2.17	2.00	125.50	125.50	123.50	127.50
	* 5000.000	911.62	0.00	911.93	44.17	53.98	48.76	2.98	2.00	125.50	125.50	123.50	127.50
	* 5000.000	911.74	0.00	912.07	47.74	76.76	52.51	5.20	2.00	125.50	125.50	123.50	127.50
	5100.000	912.07	0.00	912.10	57.57	36.52	22.71	3.40	3.00	125.50	125.50	128.50	128.50
	5100.000	911.69	0.00	911.87	46.35	39.26	51.64	2.43	3.00	125.50	125.50	128.50	128.50
	5100.000	911.72	0.00	911.93	47.36	46.52	56.18	3.02	3.00	125.50	125.50	128.50	128.50
	5100.000	911.82	0.00	912.07	50.39	67.14	64.38	4.95	3.00	125.50	125.50	128.50	128.50
	5110.000	912.11	0.00	912.11	64.47	45.63	7.81	9.19	0.00	0.00	125.50	128.50	0.00
	5110.000	911.91	0.00	911.92	59.91	57.90	12.23	13.21	0.00	0.00	125.50	128.50	0.00
	5110.000	911.98	0.00	911.99	61.50	76.95	13.61	15.16	0.00	0.00	125.50	128.50	0.00
	5110.000	912.13	0.00	912.15	65.13	99.44	16.91	20.13	0.00	0.00	125.50	128.50	0.00
	5200.000	912.12	0.00	912.15	41.41	8.55	44.35	0.00	6.00	112.00	100.00	130.00	118.00
C	5200.000	911.96	0.00	912.04	33.04	10.36	70.17	0.00	6.00	112.00	100.00	130.00	118.00
	5200.000	912.04	0.00	912.12	39.65	13.19	78.09	0.00	6.00	112.00	100.00	130.00	118.00
	5200.000	912.22	0.00	912.32	43.39	21.38	96.78	0.00	6.00	112.00	100.00	130.00	118.00

SECNO	CHSEL	DIFKWS	ES	TOPWID	OLDB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
5201.000	912.15	0.00	912.18	78.03	10.32	40.64	1.95	6.00	112.00	100.00	130.00	118.00
5201.000	912.06	0.00	912.12	74.36	13.96	63.61	2.96	6.00	112.00	100.00	130.00	118.00
5201.000	912.15	0.00	912.22	77.96	17.76	70.16	3.36	6.00	112.00	100.00	130.00	118.00
5201.000	912.35	0.00	912.43	86.16	28.65	85.23	4.28	6.00	112.00	100.00	130.00	118.00
5500.000	912.21	0.00	912.21	98.94	0.00	12.53	40.37	0.00	0.00	100.00	130.00	0.00
5500.000	912.20	0.00	912.21	98.45	0.00	19.07	61.46	0.00	0.00	100.00	130.00	0.00
5500.000	912.30	0.00	912.31	102.23	0.00	21.64	69.64	0.00	0.00	100.00	130.00	0.00
5500.000	912.52	0.00	912.53	110.80	0.00	28.08	90.08	0.00	0.00	100.00	130.00	0.00
5600.000	912.21	0.00	912.22	17.50	0.00	27.50	0.00	17.50	106.25	106.25	123.75	123.75
5600.000	912.20	0.00	912.22	17.50	0.00	49.00	0.00	17.50	106.25	106.25	123.75	123.75
5600.000	912.30	0.00	912.33	17.50	0.00	58.50	0.00	17.50	106.25	106.25	123.75	123.75
5600.000	912.51	0.00	912.56	17.50	0.00	84.60	0.00	17.50	106.25	106.25	123.75	123.75
5601.000	912.21	0.00	912.22	17.50	0.00	27.50	0.00	17.50	106.25	106.25	123.75	123.75
5601.000	912.20	0.00	912.23	17.50	0.00	49.00	0.00	17.50	106.25	106.25	123.75	123.75
5601.000	912.29	0.00	912.33	17.50	0.00	58.50	0.00	17.50	106.25	106.25	123.75	123.75
5601.000	912.50	0.00	912.56	17.50	0.00	84.60	0.00	17.50	106.25	106.25	123.75	123.75
5602.000	912.21	0.00	912.22	17.50	0.00	27.50	0.00	17.50	106.25	106.25	123.75	123.75
5602.000	912.21	0.00	912.24	17.50	0.00	49.00	0.00	17.50	106.25	106.25	123.75	123.75
5602.000	912.31	0.00	912.35	17.50	0.00	58.50	0.00	17.50	106.25	106.25	123.75	123.75
5602.000	912.53	0.00	912.59	17.50	0.00	84.60	0.00	17.50	106.25	106.25	123.75	123.75
5603.000	912.21	0.00	912.22	17.50	0.00	27.50	0.00	17.50	106.25	106.25	123.75	123.75
5603.000	912.22	0.00	912.24	17.50	0.00	49.00	0.00	17.50	106.25	106.25	123.75	123.75
5603.000	912.32	0.00	912.35	17.50	0.00	58.50	0.00	17.50	106.25	106.25	123.75	123.75
5603.000	912.55	0.00	912.60	17.50	0.00	84.60	0.00	17.50	106.25	106.25	123.75	123.75
5670.000	912.22	0.00	912.22	57.38	2.47	25.03	.01	0.00	0.00	100.00	130.00	0.00
5670.000	912.24	0.00	912.25	57.71	4.48	44.51	.01	0.00	0.00	100.00	130.00	0.00
5670.000	912.35	0.00	912.36	59.82	6.01	52.48	.01	0.00	0.00	100.00	130.00	0.00
5670.000	912.60	0.00	912.61	64.74	10.94	73.65	.02	0.00	0.00	100.00	130.00	0.00
5890.000	912.22	0.00	912.22	90.28	0.00	17.93	9.57	0.00	0.00	100.00	132.00	0.00
5890.000	912.25	0.00	912.25	90.59	0.00	31.88	17.12	0.00	0.00	100.00	132.00	0.00
5890.000	912.36	0.00	912.36	92.31	0.00	37.60	20.90	0.00	0.00	100.00	132.00	0.00
5890.000	912.62	0.00	912.62	96.33	0.00	52.90	31.70	0.00	0.00	100.00	132.00	0.00
5895.000	912.22	0.00	912.22	90.15	0.00	14.95	12.55	0.00	0.00	100.00	132.00	0.00
5895.000	912.25	0.00	912.25	90.59	0.00	26.48	22.52	0.00	0.00	100.00	132.00	0.00
5895.000	912.36	0.00	912.36	92.31	0.00	30.95	27.55	0.00	0.00	100.00	132.00	0.00
5895.000	912.52	0.00	912.62	96.33	0.00	42.68	41.92	0.00	0.00	100.00	132.00	0.00
6000.000	912.22	0.00	912.22	90.15	0.00	17.95	9.55	0.00	0.00	100.00	132.00	0.00
6000.000	912.25	0.00	912.25	90.60	0.00	31.38	17.12	0.00	0.00	100.00	132.00	0.00
6000.000	912.36	0.00	912.36	92.31	0.00	37.60	20.90	0.00	0.00	100.00	132.00	0.00
6000.000	912.62	0.00	912.62	96.34	0.00	52.90	31.70	0.00	0.00	100.00	132.00	0.00

	SECND	CNSEL	DIFRNS	ES	TJPNTS	SLJS	WCH	JROB	PERENC	STENCL	STCHL	STCHR	STENCR
	8000.000	912.23	0.00	912.23	160.55	6.82	1.36	6.82	0.00	0.00	98.25	101.75	0.00
G	8000.000	912.26	0.00	912.26	162.37	7.28	1.43	7.28	0.00	0.00	98.25	101.75	0.00
	8000.000	912.37	0.00	912.37	168.15	7.64	1.42	7.64	0.00	0.00	98.25	101.75	0.00
	8000.000	912.63	0.00	912.63	181.43	7.85	1.31	7.85	0.00	0.00	98.25	101.75	0.00
	8010.000	912.19	0.00	912.24	3.50	0.00	15.00	0.00	3.50	98.25	98.25	101.75	101.75
	8010.000	912.21	0.00	912.27	3.50	0.00	16.00	0.00	3.50	98.25	98.25	101.75	101.75
	8010.000	912.32	0.00	912.38	3.50	0.00	16.70	0.00	3.50	98.25	98.25	101.75	101.75
	8010.000	912.58	0.00	912.64	3.50	0.00	17.00	0.00	3.50	98.25	98.25	101.75	101.75
	8045.000	912.79	0.00	912.81	3.50	0.00	15.00	0.00	3.50	98.25	98.25	101.75	101.75
	8045.000	912.88	0.00	912.90	3.50	0.00	16.00	0.00	3.50	98.25	98.25	101.75	101.75
	8045.000	913.01	0.00	913.03	3.50	0.00	16.70	0.00	3.50	98.25	98.25	101.75	101.75
	8045.000	913.24	0.00	913.26	3.50	0.00	17.00	0.00	3.50	98.25	98.25	101.75	101.75
	8050.000	912.80	0.00	912.81	3.50	0.00	15.00	0.00	3.50	98.25	98.25	101.75	101.75
	8050.000	912.89	0.00	912.90	3.50	0.00	16.00	0.00	3.50	98.25	98.25	101.75	101.75
	8050.000	913.02	0.00	913.03	3.50	0.00	16.70	0.00	3.50	98.25	98.25	101.75	101.75
	8050.000	913.24	0.00	913.26	3.50	0.00	17.00	0.00	3.50	98.25	98.25	101.75	101.75
	9000.000	912.83	0.00	912.88	3.50	0.00	15.00	0.00	3.50	98.25	96.90	103.10	101.75
#	9000.000	912.92	0.00	912.97	3.50	0.00	16.00	0.00	3.50	98.25	96.90	103.10	101.75
	9000.000	913.05	0.00	913.10	3.50	0.00	16.70	0.00	3.50	98.25	96.90	103.10	101.75
	9000.000	913.27	0.00	913.32	3.50	0.00	17.00	0.00	3.50	98.25	96.90	103.10	101.75
	9001.000	912.87	0.00	912.89	6.20	0.00	15.00	0.00	6.20	96.90	96.90	103.10	103.10
	9001.000	912.96	0.00	912.98	6.20	0.00	16.00	0.00	6.20	96.90	96.90	103.10	103.10
	9001.000	913.09	0.00	913.11	6.20	0.00	16.70	0.00	6.20	96.90	96.90	103.10	103.10
	9001.000	913.31	0.00	913.33	6.20	0.00	17.00	0.00	6.20	96.90	96.90	103.10	103.10
	9050.000	912.88	0.00	912.90	6.20	0.00	15.00	0.00	6.20	96.90	96.90	103.10	103.10
	9050.000	912.98	0.00	912.99	6.20	0.00	15.00	0.00	6.20	96.90	96.90	103.10	103.10
	9050.000	913.11	0.00	913.12	6.20	0.00	16.70	0.00	6.20	96.90	96.90	103.10	103.10
	9050.000	913.32	0.00	913.34	6.20	0.00	17.00	0.00	6.20	96.90	96.90	103.10	103.10
*	9051.000	914.04	0.00	914.10	6.20	0.00	43.00	0.00	6.20	96.90	96.90	103.10	103.10
*	9051.000	914.20	0.00	914.32	6.20	0.00	63.00	0.00	6.20	96.90	96.90	103.10	103.10
*	9051.000	914.27	0.00	914.43	6.20	0.00	76.00	0.00	6.20	96.90	96.90	103.10	103.10
*	9051.000	914.44	0.00	914.71	6.20	0.00	102.00	0.00	6.20	96.90	96.90	103.10	103.10
	10000.000	914.11	0.00	914.11	36.32	0.00	31.08	11.92	0.00	0.00	100.00	147.00	0.00
	10000.000	914.34	0.00	914.34	97.41	0.00	43.97	19.03	0.00	0.00	100.00	147.00	0.00
	10000.000	914.47	0.00	914.47	103.54	0.00	52.00	24.00	0.00	0.00	100.00	147.00	0.00
	10000.000	914.77	0.00	914.77	117.96	0.00	64.52	35.48	0.00	0.00	100.00	147.00	0.00
I	11500.000	914.12	0.00	914.12	41.19	.00	10.00	0.00	0.00	0.00	83.00	130.00	0.00
	11500.000	914.36	0.00	914.36	54.78	.10	13.60	0.00	0.00	0.00	83.00	130.00	0.00
	11500.000	914.49	0.00	914.49	62.27	.27	19.33	0.00	0.00	0.00	83.00	130.00	0.00
	11500.000	914.79	0.00	914.79	79.65	1.00	20.50	0.00	0.00	0.00	83.00	130.00	0.00

SECND	CASEL	DIFFAS	EG	TOPAID	GLOB	GCH	CROB	PERENC	STENCL	STCHL	STCHR	STENCR
11505.000	914.13	0.00	914.13	41.85	.00	10.00	0.00	0.00	0.00	83.00	130.00	0.00
11505.000	914.38	0.00	914.38	55.95	.12	13.58	0.00	0.00	0.00	83.00	130.00	0.00
11505.000	914.50	0.00	914.51	63.46	.30	19.30	0.00	0.00	0.00	83.00	130.00	0.00
11505.000	914.80	0.00	914.80	80.32	1.06	20.44	0.00	0.00	0.00	83.00	130.00	0.00
11510.000	914.10	0.00	914.14	3.00	0.00	10.00	0.00	3.00	98.50	83.00	130.00	101.50
11510.000	914.27	0.00	914.40	3.00	0.00	18.70	0.00	3.00	98.50	83.00	130.00	101.50
11510.000	914.39	0.00	914.53	3.00	0.00	19.60	0.00	3.00	98.50	83.00	130.00	101.50
11510.000	914.66	0.00	914.83	47.80	0.00	21.50	0.00	3.00	98.50	83.00	130.00	101.50
12000.000	914.20	0.00	914.25	3.00	0.00	10.00	0.00	3.00	98.50	83.00	130.00	101.50
12000.000	914.59	0.00	914.71	3.00	0.00	18.70	0.00	3.00	98.50	83.00	130.00	101.50
12000.000	914.73	0.00	914.85	3.00	0.00	19.60	0.00	3.00	98.50	83.00	130.00	101.50
12000.000	915.05	0.00	915.16	3.00	0.00	21.50	0.00	3.00	98.50	83.00	130.00	101.50
12010.000	914.24	0.00	914.26	3.00	0.00	10.00	0.00	3.00	98.50	83.00	130.00	101.50
12010.000	914.68	0.00	914.73	3.00	0.00	18.70	0.00	3.00	98.50	83.00	130.00	101.50
12010.000	914.81	0.00	914.86	3.00	0.00	19.60	0.00	3.00	98.50	83.00	130.00	101.50
12010.000	915.12	0.00	915.17	3.00	0.00	21.50	0.00	3.00	98.50	83.00	130.00	101.50
12030.000	914.18	0.00	914.28	7.05	0.00	10.00	0.00	0.00	0.00	96.50	103.60	0.00
12030.000	914.66	0.00	914.73	31.26	1.43	16.81	.47	0.00	0.00	96.50	103.60	0.00
12030.000	914.83	0.00	914.87	45.69	3.50	14.95	1.15	0.00	0.00	95.50	103.60	0.00
12030.000	915.17	0.00	915.18	77.55	3.16	10.67	2.07	0.00	0.00	96.50	103.60	0.00
12500.000	914.30	0.00	914.30	46.45	.00	10.00	0.00	0.00	0.00	100.00	147.00	0.00
12500.000	914.75	0.00	914.75	76.83	.40	18.30	0.00	0.00	0.00	100.00	147.00	0.00
12500.000	914.87	0.00	914.87	86.26	.69	18.91	0.00	0.00	0.00	100.00	147.00	0.00
12500.000	915.18	0.00	915.18	107.57	1.65	19.85	0.00	0.00	0.00	100.00	147.00	0.00
12600.000	914.30	0.00	914.30	46.53	.00	10.00	0.00	0.00	0.00	100.00	147.00	0.00
12600.000	914.75	0.00	914.75	77.54	.42	18.28	0.00	0.00	0.00	100.00	147.00	0.00
12600.000	914.87	0.00	914.88	86.07	.68	18.92	0.00	0.00	0.00	100.00	147.00	0.00
12600.000	915.18	0.00	915.18	107.04	1.62	19.88	0.00	0.00	0.00	100.00	147.00	0.00
13000.000	914.30	0.00	914.30	46.55	.00	10.00	0.00	0.00	0.00	100.00	147.00	0.00
13000.000	914.75	0.00	914.75	77.67	.42	18.28	0.00	0.00	0.00	100.00	147.00	0.00
13000.000	914.88	0.00	914.88	86.10	.68	18.92	0.00	0.00	0.00	100.00	147.00	0.00
13000.000	915.18	0.00	915.18	107.06	1.62	19.88	0.00	0.00	0.00	100.00	147.00	0.00

MOORE BUSINESS FORMS INC 22

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELVIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	3000.000	0.00	0.00	0.00	899.90	62.64	901.92	0.00	902.03	19.99	2.73	22.92	14.01
	3000.000	0.00	0.00	0.00	899.90	93.33	902.31	0.00	902.46	19.97	3.09	30.18	20.89
	3000.000	0.00	0.00	0.00	899.90	105.72	902.45	0.00	902.61	19.99	3.21	32.90	23.64
	3000.000	0.00	0.00	0.00	899.90	136.47	902.76	0.00	902.95	19.99	3.47	39.34	30.52
*	3950.000	300.00	0.00	0.00	903.90	62.64	905.26	905.26	905.68	132.12	5.15	12.16	5.45
*	3950.000	300.00	0.00	0.00	903.90	93.33	905.52	905.52	906.04	123.05	5.75	15.23	8.41
*	3950.000	300.00	0.00	0.00	903.90	105.72	905.62	905.62	906.17	120.46	5.95	17.78	9.63
*	3950.000	300.00	0.00	0.00	903.90	136.47	905.83	905.83	906.46	115.48	6.37	21.44	12.70
	4750.000	700.00	0.00	0.00	906.90	62.64	909.28	0.00	909.39	27.72	3.29	24.73	11.90
	4750.000	700.00	0.00	0.00	906.90	93.33	909.55	0.00	909.69	27.79	3.59	32.49	17.70
	4750.000	700.00	0.00	0.00	906.90	105.72	909.65	0.00	909.79	27.77	3.59	35.41	20.06
	4750.000	700.00	0.00	0.00	906.90	136.47	909.87	0.00	910.04	27.61	3.91	42.32	25.97
*	5000.000	100.00	0.00	0.00	907.10	62.64	910.53	910.53	912.10	506.31	10.03	6.24	2.78
*	5000.000	100.00	0.00	0.00	907.10	93.33	911.56	911.56	911.87	128.34	5.42	23.68	8.24
*	5000.000	100.00	0.00	0.00	907.10	105.72	911.62	911.62	911.93	126.95	5.46	25.24	9.39
*	5000.000	100.00	0.00	0.00	907.10	136.47	911.74	911.74	912.07	129.28	5.65	31.09	12.00
	5100.000	12.50	911.10	910.50	907.10	62.64	912.07	0.00	912.10	6.13	1.66	52.26	25.30
	5100.000	12.50	911.10	910.50	907.10	93.33	911.69	0.00	911.87	42.06	4.11	32.94	14.39
	5100.000	12.50	911.10	910.50	907.10	105.72	911.72	0.00	911.93	43.48	4.44	34.50	15.13
	5100.000	12.50	911.10	910.50	907.10	136.47	911.82	0.00	912.07	58.89	4.97	39.41	17.79
	5110.000	100.00	0.00	0.00	907.30	62.64	912.11	0.00	912.11	.31	.59	124.91	112.93
	5110.000	100.00	0.00	0.00	907.30	93.33	911.91	0.00	911.92	.87	.97	112.94	99.80
	5110.000	100.00	0.00	0.00	907.30	105.72	911.98	0.00	911.99	1.03	1.06	117.02	104.25
	5110.000	100.00	0.00	0.00	907.30	136.47	912.13	0.00	912.15	1.41	1.27	126.73	114.94
	5200.000	490.00	0.00	0.00	908.00	52.90	912.12	0.00	912.15	3.72	1.33	46.38	27.41
	5200.000	490.00	0.00	0.00	908.00	80.53	911.96	0.00	912.04	12.54	2.31	39.95	22.75
	5200.000	490.00	0.00	0.00	908.00	91.28	912.04	0.00	912.12	13.42	2.46	42.96	24.91
	5200.000	490.00	0.00	0.00	908.00	116.16	912.22	0.00	912.32	15.08	2.77	50.42	30.43
	5201.000	39.00	911.20	915.00	908.00	52.90	912.15	0.00	912.18	17.36	1.32	49.13	12.70
	5201.000	39.00	911.20	915.00	908.00	80.53	912.06	0.00	912.12	47.85	2.14	45.59	11.64
	5201.000	39.00	911.20	915.00	908.00	91.28	912.15	0.00	912.22	51.37	2.27	49.05	12.67
	5201.000	39.00	911.20	915.00	908.00	116.16	912.35	0.00	912.43	59.61	2.55	57.58	15.30
	5500.000	200.00	0.00	0.00	909.70	52.90	912.21	0.00	912.21	.51	.44	125.21	74.01
	5500.000	200.00	0.00	0.00	909.70	80.53	912.20	0.00	912.21	1.22	.68	123.96	73.02
	5500.000	200.00	0.00	0.00	909.70	91.28	912.30	0.00	912.31	1.26	.71	133.65	80.72
	5500.000	200.00	0.00	0.00	909.70	116.16	912.52	0.00	912.53	1.40	.78	157.02	100.03

SECNO	XLCH	ELTRO	ELLC	ELMIN	Q	CHSEL	CRIMS	EG	10K*S	VCH	AREA	.01K
5600.000	100.00	0.00	0.00	909.30	27.50	912.21	0.00	912.22	.62	.64	42.79	34.95
5600.000	100.00	0.00	0.00	909.30	49.00	912.20	0.00	912.22	1.96	1.15	42.72	34.86
5600.000	100.00	0.00	0.00	909.30	58.50	912.30	0.00	912.33	2.51	1.32	44.37	36.94
5600.000	100.00	0.00	0.00	909.30	84.60	912.51	0.00	912.56	4.13	1.76	43.03	41.64
5601.000	1.00	910.60	916.00	909.30	27.50	912.21	0.00	912.22	1.16	.73	37.38	25.49
5601.000	1.00	910.60	916.00	909.30	49.00	912.20	0.00	912.23	3.71	1.30	37.82	25.44
5601.000	1.00	910.60	916.00	909.30	58.50	912.29	0.00	912.33	4.87	1.50	39.12	26.51
5601.000	1.00	910.60	916.00	909.30	84.60	912.50	0.00	912.56	8.66	2.02	41.85	28.75
5602.000	39.00	910.60	916.00	909.30	27.50	912.21	0.00	912.22	1.16	.73	37.91	25.51
5602.000	39.00	910.60	916.00	909.30	49.00	912.21	0.00	912.24	3.69	1.29	37.91	25.52
5602.000	39.00	910.60	916.00	909.30	58.50	912.31	0.00	912.35	4.84	1.49	39.23	26.60
5602.000	39.00	910.60	916.00	909.30	84.60	912.53	0.00	912.59	8.54	2.01	42.10	28.95
5603.000	1.00	0.00	0.00	909.30	27.50	912.21	0.00	912.22	.62	.64	42.85	35.02
5603.000	1.00	0.00	0.00	909.30	49.00	912.22	0.00	912.24	1.95	1.14	42.90	35.09
5603.000	1.00	0.00	0.00	909.30	58.50	912.32	0.00	912.35	2.47	1.31	44.51	37.24
5603.000	1.00	0.00	0.00	909.30	84.60	912.55	0.00	912.60	3.99	1.74	48.59	42.37
5670.000	50.00	0.00	0.00	909.60	27.50	912.22	0.00	912.22	.11	.32	98.04	84.85
5670.000	50.00	0.00	0.00	909.60	49.00	912.24	0.00	912.25	.32	.56	99.04	85.95
5670.000	50.00	0.00	0.00	909.60	58.50	912.35	0.00	912.36	.39	.64	105.50	93.17
5670.000	50.00	0.00	0.00	909.60	84.60	912.60	0.00	912.61	.58	.82	121.40	111.36
5890.000	540.00	0.00	0.00	901.30	27.50	912.22	0.00	912.22	.01	.13	265.65	285.23
5890.000	540.00	0.00	0.00	901.30	49.00	912.25	0.00	912.25	.03	.22	267.47	287.76
5890.000	540.00	0.00	0.00	901.30	58.50	912.36	0.00	912.36	.04	.26	277.50	301.76
5890.000	540.00	0.00	0.00	901.30	84.60	912.62	0.00	912.62	.06	.34	301.68	336.18
5895.000	8.00	913.60	918.10	901.30	27.50	912.22	0.00	912.22	.02	.11	254.83	204.91
5895.000	8.00	913.60	918.10	901.30	49.00	912.25	0.00	912.25	.06	.20	256.42	206.06
5895.000	8.00	913.60	918.10	901.30	58.50	912.36	0.00	912.36	.08	.23	262.48	210.49
5895.000	8.00	913.60	918.10	901.30	84.60	912.62	0.00	912.62	.15	.32	276.59	220.74
6000.000	50.00	0.00	0.00	901.30	27.50	912.22	0.00	912.22	.01	.13	264.91	284.19
6000.000	50.00	0.00	0.00	901.30	49.00	912.25	0.00	912.25	.03	.22	267.50	287.79
6000.000	50.00	0.00	0.00	901.30	58.50	912.36	0.00	912.36	.04	.26	277.53	301.81
6000.000	50.00	0.00	0.00	901.30	84.60	912.62	0.00	912.62	.06	.34	301.74	336.26
8000.000	2420.00	0.00	0.00	907.40	15.00	912.23	0.00	912.23	.01	.09	255.69	175.35
8000.000	2420.00	0.00	0.00	907.40	16.00	912.26	0.00	912.26	.01	.09	262.46	180.56
8000.000	2420.00	0.00	0.00	907.40	16.70	912.37	0.00	912.37	.01	.09	281.17	197.73
8000.000	2420.00	0.00	0.00	907.40	17.00	912.63	0.00	912.63	.00	.08	326.62	240.91
8010.000	1.00	913.00	913.00	907.40	15.00	912.19	0.00	912.24	14.61	1.75	8.57	3.92
8010.000	1.00	913.00	913.00	907.40	16.00	912.21	0.00	912.27	16.62	1.87	8.57	3.92
8010.000	1.00	913.00	913.00	907.40	16.70	912.32	0.00	912.38	18.10	1.95	8.57	3.92
8010.000	1.00	913.00	913.00	907.40	17.00	912.58	0.00	912.64	13.76	1.98	8.57	3.92

	SECNO	XLOW	ELTRO	ELLO	EL IN	Q	CWSEL	CRITS	EG	IOK*S	VOH	AREA	.01K
	8045.000	600.00	912.00	910.90	907.40	15.00	912.79	0.00	912.81	6.08	1.14	13.13	5.80
	8045.000	600.00	912.00	910.90	907.40	16.00	912.88	0.00	912.90	7.14	1.19	13.48	5.99
	8045.000	600.00	912.00	910.90	907.40	16.70	913.01	0.00	913.03	7.09	1.20	13.94	6.27
	8045.000	600.00	912.00	910.90	907.40	17.00	913.24	0.00	913.26	6.32	1.15	14.73	6.76
	8050.000	1.00	0.00	0.00	907.40	15.00	912.80	0.00	912.81	1.85	.88	17.04	11.03
	8050.000	1.00	0.00	0.00	907.40	16.00	912.89	0.00	912.90	2.02	.92	17.34	11.25
	8050.000	1.00	0.00	0.00	907.40	16.70	913.02	0.00	913.03	2.07	.94	17.80	11.60
	8050.000	1.00	0.00	0.00	907.40	17.00	913.24	0.00	913.26	1.94	.91	18.59	12.19
H	9000.000	150.00	0.00	0.00	910.50	15.00	912.83	0.00	912.88	12.07	1.34	8.14	4.32
	9000.000	150.00	0.00	0.00	910.50	15.00	912.92	0.00	912.97	12.45	1.39	8.46	4.53
	9000.000	150.00	0.00	0.00	910.50	16.70	913.05	0.00	913.10	11.84	1.37	8.92	4.85
	9000.000	150.00	0.00	0.00	910.50	17.00	913.27	0.00	913.32	9.92	1.75	9.70	5.40
	9001.000	1.00	923.00	923.00	910.50	15.00	912.87	0.00	912.89	2.58	1.03	14.56	9.34
	9001.000	1.00	923.00	923.00	910.50	15.00	912.96	0.00	912.98	2.64	1.06	15.12	9.84
	9001.000	1.00	923.00	923.00	910.50	16.70	913.09	0.00	913.11	2.50	1.05	15.92	10.56
	9001.000	1.00	923.00	923.00	910.50	17.00	913.31	0.00	913.33	2.09	.99	17.24	11.76
	9050.000	48.00	923.00	914.40	910.50	15.00	912.88	0.00	912.90	2.54	1.03	14.63	9.41
	9050.000	48.00	923.00	914.40	910.50	16.00	912.98	0.00	912.99	2.60	1.05	15.20	9.91
	9050.000	48.00	923.00	914.40	910.50	16.70	913.11	0.00	913.12	2.47	1.04	15.99	10.63
	9050.000	48.00	923.00	914.40	910.50	17.00	913.32	0.00	913.34	2.05	.99	17.36	11.87
*	9051.000	1.00	0.00	0.00	910.50	43.00	914.04	0.00	914.10	6.98	1.96	21.94	16.23
*	9051.000	1.00	0.00	0.00	910.50	63.00	914.20	0.00	914.32	13.34	2.75	22.94	17.25
*	9051.000	1.00	0.00	0.00	910.50	75.00	914.27	0.00	914.43	18.49	3.25	23.37	17.67
*	9051.000	1.00	0.00	0.00	910.50	102.00	914.44	0.00	914.71	29.70	4.18	24.42	18.71
	10000.000	75.00	0.00	0.00	910.50	43.00	914.11	0.00	914.11	.12	.34	141.85	121.75
	10000.000	75.00	0.00	0.00	910.50	63.00	914.34	0.00	914.34	.19	.45	162.94	142.99
	10000.000	75.00	0.00	0.00	910.50	75.00	914.47	0.00	914.47	.24	.50	175.68	155.83
	10000.000	75.00	0.00	0.00	910.50	102.00	914.77	0.00	914.77	.29	.58	208.70	189.72
I	11500.000	700.00	0.00	0.00	910.60	10.00	914.12	0.00	914.12	.10	.19	51.75	31.63
	11500.000	700.00	0.00	0.00	910.60	13.70	914.36	0.00	914.36	.21	.30	63.04	41.23
	11500.000	700.00	0.00	0.00	910.60	19.60	914.49	0.00	914.49	.17	.29	70.62	47.37
	11500.000	700.00	0.00	0.00	910.60	21.50	914.79	0.00	914.79	.11	.26	91.96	64.13
J	11505.000	1015.00	0.00	0.00	910.60	10.00	914.13	0.00	914.13	.10	.19	52.22	32.06
	11505.000	1015.00	0.00	0.00	910.60	13.70	914.38	0.00	914.38	.20	.30	64.16	42.19
	11505.000	1015.00	0.00	0.00	910.60	19.60	914.50	0.00	914.51	.16	.29	71.92	48.40
	11505.000	1015.00	0.00	0.00	910.60	21.50	914.80	0.00	914.80	.11	.25	93.59	65.41
	11510.000	1.00	915.40	915.30	910.60	10.00	914.10	0.00	914.14	13.79	1.55	6.45	2.69
	11510.000	1.00	915.40	915.30	910.60	13.70	914.27	0.00	914.40	43.21	2.90	6.45	2.69
	11510.000	1.00	915.40	915.30	910.60	19.60	914.39	0.00	914.53	52.96	3.04	6.45	2.69
	11510.000	1.00	915.40	915.30	910.60	21.50	914.66	912.21	914.83	63.73	3.33	6.45	2.69

UNIFORM BUSINESS FORMS INC 77

SECNS	XLCH	ELTRO	ELLC	ELMIN	Q	CWSEL	CRIMS	ES	10K*S	VCH	AREA	.01K
12000.000	54.00	913.70	912.40	910.60	10.00	914.20	0.00	914.25	32.75	1.80	5.55	1.75
12000.000	54.00	913.70	912.40	910.60	18.70	914.59	0.00	914.71	66.32	2.79	6.71	2.30
12000.000	54.00	913.70	912.40	910.60	19.60	914.73	0.00	914.85	61.04	2.75	7.13	2.51
12000.000	54.00	913.70	912.40	910.60	21.50	915.05	0.00	915.16	51.53	2.66	8.08	3.00
12010.000	1.00	0.00	0.00	910.60	10.00	914.24	0.00	914.26	3.49	1.04	9.53	5.35
12010.000	1.00	0.00	0.00	910.60	18.70	914.68	0.00	914.73	9.00	1.72	10.89	6.23
12010.000	1.00	0.00	0.00	910.60	19.60	914.81	0.00	914.86	9.09	1.74	11.29	6.50
12010.000	1.00	0.00	0.00	910.60	21.50	915.12	0.00	915.17	9.12	1.76	12.21	7.12
12030.000	2.00	0.00	0.00	913.60	10.00	914.18	0.00	914.28	53.18	2.45	4.08	1.37
12030.000	2.00	0.00	0.00	913.60	18.70	914.66	0.00	914.73	21.35	2.25	10.66	4.05
12030.000	2.00	0.00	0.00	913.60	19.60	914.83	0.00	914.87	10.61	1.74	16.73	6.02
12030.000	2.00	0.00	0.00	913.60	21.50	915.17	0.00	915.18	2.32	.96	38.18	14.10
12500.000	50.00	0.00	0.00	910.00	10.00	914.30	0.00	914.30	.02	.13	78.68	63.66
12500.000	50.00	0.00	0.00	910.00	18.70	914.75	0.00	914.75	.04	.19	106.06	88.88
12500.000	50.00	0.00	0.00	910.00	19.60	914.87	0.00	914.87	.04	.18	117.29	98.41
12500.000	50.00	0.00	0.00	910.00	21.50	915.18	0.00	915.18	.03	.17	147.49	123.72
12600.000	500.00	0.00	0.00	910.00	10.00	914.30	0.00	914.30	.02	.13	78.74	63.71
12600.000	500.00	0.00	0.00	910.00	18.70	914.75	0.00	914.75	.04	.19	106.97	89.66
12600.000	500.00	0.00	0.00	910.00	19.60	914.87	0.00	914.88	.04	.18	117.06	98.22
12600.000	500.00	0.00	0.00	910.00	21.50	915.18	0.00	915.18	.03	.17	146.65	123.02
13000.000	100.00	0.00	0.00	910.00	10.00	914.30	0.00	914.30	.02	.13	78.75	63.73
13000.000	100.00	0.00	0.00	910.00	18.70	914.75	0.00	914.75	.04	.19	107.01	89.69
13000.000	100.00	0.00	0.00	910.00	19.60	914.88	0.00	914.88	.04	.18	117.09	98.24
13000.000	100.00	0.00	0.00	910.00	21.50	915.18	0.00	915.18	.03	.17	146.69	123.04

SUMMARY PRINTOUT TABLE 153

	SECNO	Q	CHSEL	DIFNSP	DIFJSX	DIFKAS	TOPWID	XLCH
	3000.000	62.64	901.92	0.00	0.00	-3.08	17.75	0.00
	3000.000	93.33	902.31	.39	0.00	-1.39	19.28	0.00
	3000.000	105.72	902.45	.14	0.00	-2.05	19.82	0.00
	3000.000	136.47	902.76	.32	0.00	-1.94	21.05	0.00
*	3950.000	62.64	905.26	0.00	3.35	0.00	15.21	800.00
*	3950.000	93.33	905.52	.26	3.21	0.00	16.22	800.00
*	3950.000	105.72	905.62	.09	3.17	0.00	16.58	800.00
*	3950.000	136.47	905.83	.22	3.07	0.00	17.42	800.00
	4750.000	62.64	909.28	0.00	4.01	0.00	27.21	700.00
	4750.000	93.33	909.55	.27	4.03	0.00	29.50	700.00
	4750.000	105.72	909.65	.10	4.03	0.00	30.32	700.00
	4750.000	136.47	909.87	.22	4.04	0.00	32.17	700.00
*	5000.000	62.64	910.53	0.00	1.26	0.00	2.00	100.00
*	5000.000	93.33	911.56	1.03	2.01	0.00	42.38	100.00
*	5000.000	105.72	911.62	.06	1.97	0.00	44.17	100.00
*	5000.000	136.47	911.74	.12	1.87	0.00	47.74	100.00
	5100.000	62.64	912.07	0.00	1.54	0.00	57.57	12.50
	5100.000	93.33	911.69	-.38	.13	0.00	46.35	12.50
	5100.000	105.72	911.72	.03	.11	0.00	47.36	12.50
	5100.000	136.47	911.82	.10	.09	0.00	50.39	12.50
	5110.000	62.64	912.11	0.00	.03	0.00	64.47	100.00
	5110.000	93.33	911.91	-.19	.22	0.00	59.91	100.00
	5110.000	105.72	911.98	.07	.26	0.00	61.50	100.00
	5110.000	136.47	912.13	.15	.31	0.00	65.13	100.00
	5200.000	52.90	912.12	0.00	.02	0.00	41.41	490.00
	5200.000	80.53	911.96	-.16	.05	0.00	38.04	490.00
	5200.000	91.28	912.04	.08	.06	0.00	39.65	490.00
	5200.000	118.16	912.22	.18	.08	0.00	43.39	490.00
	5201.000	52.90	912.15	0.00	.03	0.00	78.33	39.00
	5201.000	80.53	912.06	-.09	.10	0.00	74.36	39.00
	5201.000	91.28	912.15	.09	.11	0.00	77.96	39.00
	5201.000	118.16	912.35	.20	.13	0.00	86.16	39.00
	5500.000	52.90	912.21	0.00	.05	0.00	98.94	200.00
	5500.000	80.53	912.20	-.01	.14	0.00	98.45	200.00
	5500.000	91.28	912.30	.10	.15	0.00	102.23	200.00
	5500.000	118.16	912.52	.22	.17	0.00	110.80	200.00

SECNO	C	C.SEL	DIFNSP	DIFNSX	DIFKNS	TOPWID	XLCH
5600.000	27.50	912.21	0.00	.00	0.00	17.50	100.00
5600.000	49.00	912.20	-.00	.00	0.00	17.50	100.00
5600.000	58.50	912.30	.09	.00	0.00	17.50	100.00
5600.000	84.60	912.51	.21	-.01	0.00	17.50	100.00
5601.000	27.50	912.21	0.00	-.00	0.00	17.50	1.00
5601.000	49.00	912.20	-.01	-.00	0.00	17.50	1.00
5601.000	58.50	912.29	.09	-.01	0.00	17.50	1.00
5601.000	84.60	912.50	.20	-.01	0.00	17.50	1.00
5602.000	27.50	912.21	0.00	.00	0.00	17.50	39.00
5602.000	49.00	912.21	.00	.01	0.00	17.50	39.00
5602.000	58.50	912.31	.10	.02	0.00	17.50	39.00
5602.000	84.60	912.53	.22	.03	0.00	17.50	39.00
5603.000	27.50	912.21	0.00	.00	0.00	17.50	1.00
5603.000	49.00	912.22	.01	.01	0.00	17.50	1.00
5603.000	58.50	912.32	.10	.01	0.00	17.50	1.00
5603.000	84.60	912.55	.23	.02	0.00	17.50	1.00
5670.000	27.50	912.22	0.00	.01	0.00	57.38	50.00
5670.000	49.00	912.24	.02	.02	0.00	57.71	50.00
5670.000	58.50	912.35	.11	.03	0.00	59.82	50.00
5670.000	84.60	912.60	.25	.05	0.00	64.74	50.00
5890.000	27.50	912.22	0.00	.00	0.00	90.28	540.00
5890.000	49.00	912.25	.03	.01	0.00	90.59	540.00
5890.000	58.50	912.36	.11	.01	0.00	92.31	540.00
5890.000	84.60	912.62	.26	.02	0.00	96.33	540.00
5895.000	27.50	912.22	0.00	.00	0.00	90.15	8.00
5895.000	49.00	912.25	.03	.00	0.00	90.59	8.00
5895.000	58.50	912.36	.11	.00	0.00	92.31	8.00
5895.000	84.60	912.62	.26	.00	0.00	96.33	8.00
6000.000	27.50	912.22	0.00	.00	0.00	90.15	50.00
6000.000	49.00	912.25	.03	.00	0.00	90.60	50.00
6000.000	58.50	912.36	.11	.00	0.00	92.31	50.00
6000.000	84.60	912.62	.26	.00	0.00	96.34	50.00
8000.000	15.00	912.23	0.00	.00	0.00	160.55	2420.00
8000.000	16.00	912.26	.03	.01	0.00	162.37	2420.00
8000.000	16.70	912.37	.11	.01	0.00	168.15	2420.00
8000.000	17.00	912.63	.26	.01	0.00	181.43	2420.00
8010.000	15.00	912.19	0.00	-.04	0.00	3.50	1.00
8010.000	16.00	912.21	.03	-.04	0.00	3.50	1.00
8010.000	16.70	912.32	.11	-.05	0.00	3.50	1.00
8010.000	17.00	912.58	.26	-.05	0.00	3.50	1.00

MCCTE PJSI-ESS FORMS INC 27

	SECNO	D	CASEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLOP
	8045.000	15.00	912.79	0.00	.60	0.00	3.50	600.00
	8045.000	16.00	912.88	.09	.66	0.00	3.50	600.00
	8045.000	16.70	913.01	.13	.69	0.00	3.50	600.00
	8045.000	17.00	913.24	.23	.66	0.00	3.50	600.00
	8050.000	15.00	912.80	0.00	.01	0.00	3.50	1.00
	8050.000	16.00	912.89	.09	.01	0.00	3.50	1.00
	8050.000	15.70	913.02	.13	.01	0.00	3.50	1.00
	8050.000	17.00	913.24	.22	.01	0.00	3.50	1.00
	9000.000	15.00	912.93	0.00	.02	0.00	3.50	150.00
	9000.000	16.00	912.92	.09	.03	0.00	3.50	150.00
	9000.000	16.70	913.05	.13	.03	0.00	3.50	150.00
	9000.000	17.00	913.27	.22	.03	0.00	3.50	150.00
	9001.000	15.00	912.87	0.00	.04	0.00	6.20	1.00
	9001.000	16.00	912.96	.09	.05	0.00	6.20	1.00
	9001.000	16.70	913.09	.13	.05	0.00	6.20	1.00
	9001.000	17.00	913.31	.22	.04	0.00	6.20	1.00
	9050.000	15.00	912.88	0.00	.01	0.00	6.20	48.00
	9050.000	16.00	912.98	.09	.01	0.00	6.20	48.00
	9050.000	16.70	913.11	.13	.01	0.00	6.20	48.00
	9050.000	17.00	913.32	.22	.01	0.00	6.20	48.00
*	9051.000	43.00	914.04	0.00	1.16	0.00	6.20	1.00
*	9051.000	63.00	914.20	.16	1.22	0.00	6.20	1.00
*	9051.000	76.00	914.27	.07	1.16	0.00	6.20	1.00
*	9051.000	102.00	914.44	.17	1.12	0.00	6.20	1.00
	10000.000	43.00	914.11	0.00	.07	0.00	88.32	75.00
	10000.000	63.00	914.34	.23	.14	0.00	97.41	75.00
	10000.000	76.00	914.47	.13	.20	0.00	103.54	75.00
	10000.000	102.00	914.77	.30	.33	0.00	117.96	75.00
	11500.000	10.00	914.12	0.00	.01	0.00	41.19	700.00
	11500.000	18.70	914.36	.24	.02	0.00	54.78	700.00
	11500.000	19.60	914.49	.13	.02	0.00	62.27	700.00
	11500.000	21.50	914.79	.30	.02	0.00	79.65	700.00
	11505.000	10.00	914.13	0.00	.01	0.00	41.85	1015.00
	11505.000	18.70	914.38	.25	.02	0.00	55.95	1015.00
	11505.000	19.60	914.50	.13	.02	0.00	63.46	1015.00
	11505.000	21.50	914.80	.29	.01	0.00	80.82	1015.00
	11510.000	10.00	914.10	0.00	-.03	0.00	3.00	1.00
	11510.000	18.70	914.27	.17	-.10	0.00	3.00	1.00
	11510.000	19.60	914.39	.12	-.11	0.00	3.00	1.00
	11510.000	21.50	914.66	.27	-.14	0.00	47.80	1.00

MOORE BUSINESS FORMS INC 27

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFWS	TOPWID	XLCH
12000.000	10.00	914.20	0.00	.10	0.00	3.00	54.00
12000.000	18.70	914.59	.39	.32	0.00	3.00	54.00
12000.000	19.60	914.73	.14	.34	0.00	3.00	54.00
12000.000	21.50	915.05	.32	.38	0.00	3.00	54.00
12010.000	10.00	914.24	0.00	.04	0.00	3.00	1.00
12010.000	18.70	914.68	.44	.09	0.00	3.00	1.00
12010.000	19.60	914.81	.13	.09	0.00	3.00	1.00
12010.000	21.50	915.12	.31	.06	0.00	3.00	1.00
12030.000	10.00	914.18	0.00	-.06	0.00	7.05	2.00
12030.000	18.70	914.66	.48	-.02	0.00	31.26	2.00
12030.000	19.60	914.83	.16	.01	0.00	45.69	2.00
12030.000	21.50	915.17	.34	.05	0.00	77.55	2.00
12500.000	10.00	914.30	0.00	.11	0.00	46.45	50.00
12500.000	18.70	914.75	.45	.09	0.00	76.83	50.00
12500.000	19.60	914.87	.12	.04	0.00	86.26	50.00
12500.000	21.50	915.18	.31	.01	0.00	107.57	50.00
12600.000	10.00	914.30	0.00	.00	0.00	46.53	500.00
12600.000	18.70	914.75	.45	.00	0.00	77.64	500.00
12600.000	19.60	914.87	.12	.00	0.00	86.07	500.00
12600.000	21.50	915.18	.31	.00	0.00	107.04	500.00
13000.000	10.00	914.30	0.00	.00	0.00	46.55	100.00
13000.000	18.70	914.75	.45	.00	0.00	77.67	100.00
13000.000	19.60	914.88	.12	.00	0.00	86.10	100.00
13000.000	21.50	915.18	.31	.00	0.00	107.06	100.00

MOORE BUSINESS FO YS INC

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION	SECNO	3950.000	PROFILE	1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO	3950.000	PROFILE	1	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO	3950.000	PROFILE	2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO	3950.000	PROFILE	2	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO	3950.000	PROFILE	3	CRITICAL DEPTH ASSUMED
CAUTION	SECNO	3950.000	PROFILE	3	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO	3950.000	PROFILE	3	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO	3950.000	PROFILE	4	CRITICAL DEPTH ASSUMED
CAUTION	SECNO	3950.000	PROFILE	4	MINIMUM SPECIFIC ENERGY
CAUTION	SECNO	5000.000	PROFILE	1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO	5000.000	PROFILE	1	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO	5000.000	PROFILE	1	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO	5000.000	PROFILE	2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO	5000.000	PROFILE	2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO	5000.000	PROFILE	2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO	5000.000	PROFILE	3	CRITICAL DEPTH ASSUMED
CAUTION	SECNO	5000.000	PROFILE	3	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO	5000.000	PROFILE	3	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO	5000.000	PROFILE	4	CRITICAL DEPTH ASSUMED
CAUTION	SECNO	5000.000	PROFILE	4	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO	5000.000	PROFILE	4	20 TRIALS ATTEMPTED TO BALANCE WSEL
NOTE	SECNO	9051.000	PROFILE	1	WSEL BASED ON X5 CARD
NOTE	SECNO	9051.000	PROFILE	2	WSEL BASED ON X5 CARD
NOTE	SECNO	9051.000	PROFILE	3	WSEL BASED ON X5 CARD
NOTE	SECNO	9051.000	PROFILE	4	WSEL BASED ON X5 CARD

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  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: HOLLY, VILLAGE OF

3) WATERCOURSE: HOLLY PATTERSON DRAIN

4) DOCUMENT TYPE: SUMMARY — MULTIPLE PROFILES

00BREAK00

SUMMARY PRINTOUT TABLE 150

	SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	3000.000	0.00	0.00	0.00	899.90	105.72	902.45	0.00	902.61	19.97	3.21	32.91	23.66
	3000.000	0.00	0.00	0.00	899.90	105.72	902.45	0.00	902.61	19.96	3.21	32.92	23.67
*	3950.000	800.00	0.00	0.00	903.90	105.72	905.62	905.62	906.17	120.46	5.95	17.78	9.63
*	3950.000	300.00	0.00	0.00	903.90	105.72	905.62	905.62	906.17	120.46	5.95	17.78	9.63
	4750.000	700.00	0.00	0.00	906.90	105.72	909.65	0.00	909.79	27.77	3.69	35.41	20.05
	4750.000	700.00	0.00	0.00	906.90	105.72	909.65	0.00	909.79	27.77	3.69	35.41	20.05
*	5000.000	100.00	0.00	0.00	907.10	105.72	911.62	911.62	911.93	126.95	5.46	26.24	9.38
*	5000.000	100.00	0.00	0.00	907.10	105.72	911.62	911.62	911.93	126.95	5.46	26.24	9.38
	5100.000	12.50	911.10	910.50	907.10	105.72	911.72	0.00	911.93	43.48	4.44	34.50	15.18
	5100.000	12.50	911.10	910.50	907.10	105.72	911.72	0.00	911.93	45.48	4.44	34.50	15.13
	5110.000	100.00	0.00	0.00	907.30	105.72	911.98	0.00	911.99	1.03	1.06	117.02	104.25
	5110.000	100.00	0.00	0.00	907.30	105.72	911.98	0.00	911.99	1.03	1.06	117.02	104.25
	5200.000	490.00	0.00	0.00	903.00	91.28	912.04	0.00	912.12	13.42	2.46	42.96	24.91
	5200.000	490.00	0.00	0.00	903.00	91.28	912.04	0.00	912.12	13.42	2.46	42.96	24.91
	5201.000	39.00	911.20	916.00	908.00	91.28	912.15	0.00	912.22	51.87	2.27	49.05	12.67
	5201.000	39.00	911.20	916.00	908.00	91.28	912.15	0.00	912.22	51.87	2.27	49.05	12.67
	5500.000	200.00	0.00	0.00	909.70	91.28	912.30	0.00	912.31	1.28	.71	133.05	30.72
	5500.000	200.00	0.00	0.00	909.70	91.28	912.30	0.00	912.31	1.28	.71	133.65	30.72
	5600.000	100.00	0.00	0.00	909.30	53.50	912.30	0.00	912.33	2.51	1.32	44.37	36.94
	5600.000	100.00	0.00	0.00	909.30	53.50	912.30	0.00	912.33	2.51	1.32	44.37	36.94
	5601.000	1.00	910.60	916.00	909.30	53.50	912.29	0.00	912.33	4.87	1.50	39.12	26.51
	5601.000	1.00	910.60	916.00	909.30	53.50	912.29	0.00	912.33	4.87	1.50	39.12	26.51
	5602.000	39.00	910.60	916.00	909.30	53.50	912.31	0.00	912.35	4.84	1.49	39.23	26.60
	5602.000	39.00	910.60	916.00	909.30	53.50	912.31	0.00	912.35	4.84	1.49	39.23	26.60
	5603.000	1.00	0.00	0.00	909.30	53.50	912.32	0.00	912.35	2.47	1.31	44.61	37.24
	5603.000	1.00	0.00	0.00	909.30	53.50	912.32	0.00	912.35	2.47	1.31	44.61	37.24
	5670.000	50.00	0.00	0.00	909.60	58.50	912.35	0.00	912.36	.39	.64	105.50	93.17
	5670.000	50.00	0.00	0.00	909.60	53.50	912.35	0.00	912.36	.39	.64	105.50	93.17
	5890.000	540.00	0.00	0.00	901.30	53.50	912.36	0.00	912.36	.04	.26	277.50	301.76
	5890.000	540.00	0.00	0.00	901.30	53.50	912.36	0.00	912.36	.04	.26	277.50	301.76
	5895.000	8.00	913.60	913.10	901.30	58.50	912.36	0.00	912.36	.08	.23	262.48	210.49
	5895.000	8.00	913.60	913.10	901.30	53.50	912.36	0.00	912.36	.08	.23	262.48	210.49

	SECNO	XLOC	ELEVD	ELEC	ELMIN	Q	CWSEL	CRIWS	ES	TOPS	VCH	AREA	.01K
	6000.000	50.00	0.00	0.00	901.30	56.50	912.36	0.00	912.36	.04	.26	277.33	301.81
	6000.000	50.00	0.00	0.00	901.30	56.50	912.36	0.00	912.36	.04	.26	277.53	301.81
	8000.000	2420.00	0.00	0.00	907.40	16.70	912.37	0.00	912.37	.01	.09	281.17	197.70
	8000.000	2420.00	0.00	0.00	907.40	16.70	912.37	0.00	912.37	.01	.09	281.17	197.70
	8010.000	1.00	913.00	913.00	907.40	16.70	912.32	0.00	912.38	18.10	1.95	8.57	3.92
	8010.000	1.00	913.00	913.00	907.40	16.70	912.32	0.00	912.38	18.10	1.95	8.57	3.92
	8045.000	600.00	912.00	910.90	907.40	16.70	913.01	0.00	913.03	7.09	1.20	13.94	6.27
	8045.000	600.00	912.00	910.90	907.40	16.70	913.01	0.00	913.03	7.09	1.20	13.94	6.27
	8050.000	1.00	0.00	0.00	907.40	16.70	913.02	0.00	913.03	2.07	.94	17.80	11.60
	8050.000	1.00	0.00	0.00	907.40	16.70	913.02	0.00	913.03	2.07	.94	17.80	11.60
	9000.000	150.00	0.00	0.00	910.50	16.70	913.05	0.00	913.10	11.84	1.87	3.92	4.85
	9000.000	150.00	0.00	0.00	910.50	16.70	913.05	0.00	913.10	11.84	1.87	3.92	4.85
	9001.000	1.00	923.00	923.00	910.50	16.70	913.09	0.00	913.11	2.50	1.05	15.92	10.56
	9001.000	1.00	923.00	923.00	910.50	16.70	913.09	0.00	913.11	2.50	1.05	15.92	10.56
	9050.000	48.00	923.00	914.40	910.50	16.70	913.11	0.00	913.12	2.47	1.04	15.99	10.63
	9050.000	48.00	923.00	914.40	910.50	16.70	913.11	0.00	913.12	2.47	1.04	15.99	10.63
*	9051.000	1.00	0.00	0.00	910.50	76.00	914.27	0.00	914.43	18.49	3.25	23.37	17.67
*	9051.000	1.00	0.00	0.00	910.50	76.00	914.27	0.00	914.43	18.49	3.25	23.37	17.67
	10000.000	75.00	0.00	0.00	910.50	76.00	914.47	0.00	914.47	.24	.50	175.68	155.88
	10000.000	75.00	0.00	0.00	910.50	76.00	914.47	0.00	914.47	.24	.50	175.68	155.88
	11500.000	700.00	0.00	0.00	910.60	19.60	914.49	0.00	914.49	.17	.29	70.52	47.37
	11500.000	700.00	0.00	0.00	910.60	19.60	914.49	0.00	914.49	.17	.29	70.52	47.37
	11505.000	1015.00	0.00	0.00	910.60	19.60	914.50	0.00	914.51	.16	.29	71.92	48.40
	11505.000	1015.00	0.00	0.00	910.60	19.60	914.50	0.00	914.51	.16	.29	71.92	48.40
	11510.000	1.00	915.40	915.30	910.60	19.60	914.39	0.00	914.53	52.96	3.04	6.45	2.69
	11510.000	1.00	915.40	915.30	910.60	19.60	914.39	0.00	914.53	52.96	3.04	6.45	2.69
	12000.000	54.00	913.70	912.40	910.60	19.60	914.73	0.00	914.85	61.04	2.75	7.13	2.51
	12000.000	54.00	913.70	912.40	910.60	19.60	914.73	0.00	914.85	61.04	2.75	7.13	2.51
	12010.000	1.00	0.00	0.00	910.50	19.60	914.81	0.00	914.86	9.09	1.74	11.29	6.50
	12010.000	1.00	0.00	0.00	910.60	19.60	914.81	0.00	914.86	9.09	1.74	11.29	6.50
	12030.000	2.00	0.00	0.00	913.60	19.60	914.83	0.00	914.87	10.61	1.74	16.73	6.02
	12030.000	2.00	0.00	0.00	913.60	19.60	914.83	0.00	914.87	10.61	1.74	16.73	6.02
	12500.000	50.00	0.00	0.00	910.00	19.60	914.87	0.00	914.87	.04	.18	117.29	98.41
	12500.000	50.00	0.00	0.00	910.00	19.60	914.87	0.00	914.87	.04	.18	117.29	98.41

SECNO	XLCH	ELTRO	ELLC	ELMIN	Q	CWSEL	CRINS	EG	IOK*S	VCH	AREA	.01K
12600.000	500.00	0.00	0.00	910.00	19.60	914.87	0.00	914.88	.04	.18	117.06	98.22
12600.000	500.00	0.00	0.00	910.00	19.60	914.87	0.00	914.88	.04	.18	117.06	98.22
13000.000	100.00	0.00	0.00	910.00	19.60	914.88	0.00	914.89	.04	.18	117.09	98.24
13000.000	100.00	0.00	0.00	910.00	19.60	914.83	0.00	914.88	.04	.18	117.09	98.24

SUMMARY PRINTOUT TABLE 150

	SECNO	E	C/SEL	DIFNSP	DIFNSX	DIFKNS	TOPNID	XLCH
	3000.000	105.72	902.45	0.00	0.00	-2.55	19.32	0.00
	3000.000	105.72	902.45	.00	0.00	-2.65	19.82	0.00
*	3950.000	105.72	905.62	0.00	3.17	0.00	16.58	800.00
*	3950.000	105.72	905.62	-.00	3.17	0.00	16.58	800.00
	4750.000	105.72	909.65	0.00	4.03	0.00	30.32	700.00
	4750.000	105.72	909.65	.00	4.03	0.00	30.32	700.00
*	5000.000	105.72	911.62	0.00	1.97	0.00	44.17	100.00
*	5000.000	105.72	911.62	.00	1.97	0.00	44.17	100.00
	5100.000	105.72	911.72	0.00	.11	0.00	47.36	12.50
	5100.000	105.72	911.72	.00	.11	0.00	47.36	12.50
	5110.000	105.72	911.98	0.00	.26	0.00	61.50	100.00
	5110.000	105.72	911.98	-.00	.26	0.00	61.50	100.00
	5200.000	91.28	912.04	0.00	.06	0.00	39.65	490.00
	5200.000	91.28	912.04	-.00	.06	0.00	39.65	490.00
	5201.000	91.28	912.15	0.00	.11	0.00	77.96	39.00
	5201.000	91.28	912.15	-.00	.11	0.00	77.96	39.00
	5500.000	91.28	912.30	0.00	.15	0.00	102.23	200.00
	5500.000	91.28	912.30	-.00	.15	0.00	102.23	200.00
	5600.000	58.50	912.30	0.00	.00	0.00	17.50	100.00
	5600.000	58.50	912.30	-.00	.00	0.00	17.50	100.00
	5601.000	58.50	912.29	0.00	-.01	0.00	17.50	1.00
	5601.000	58.50	912.29	-.00	-.01	0.00	17.50	1.00
	5602.000	58.50	912.31	0.00	.02	0.00	17.50	39.00
	5602.000	58.50	912.31	-.00	.02	0.00	17.50	39.00
	5603.000	58.50	912.32	0.00	.01	0.00	17.50	1.00
	5603.000	58.50	912.32	-.00	.01	0.00	17.50	1.00
	5670.000	58.50	912.35	0.00	.03	0.00	59.82	50.00
	5670.000	58.50	912.35	-.00	.03	0.00	59.82	50.00
	5890.000	58.50	912.36	0.00	.01	0.00	92.31	540.00
	5890.000	58.50	912.36	-.00	.01	0.00	92.31	540.00
	5895.000	58.50	912.36	0.00	.00	0.00	92.31	8.00
	5895.000	58.50	912.36	-.00	.00	0.00	92.31	8.00

	SECND	Q	CASEL	DIFUSP	DIFUSX	DIFK/S	TOP/ID	XLCH
	6000.000	58.50	912.36	0.00	.00	0.00	92.31	50.00
	6000.000	58.50	912.36	-.00	.00	0.00	92.31	50.00
	8000.000	16.70	912.37	0.00	.01	0.00	168.15	2420.00
	8000.000	16.70	912.37	-.00	.01	0.00	168.15	2420.00
	8010.000	16.70	912.32	0.00	-.05	0.00	3.50	1.00
	8010.000	16.70	912.32	-.00	-.05	0.00	3.50	1.00
	8045.000	16.70	913.01	0.00	.69	0.00	3.50	600.00
	8045.000	16.70	913.01	-.00	.69	0.00	3.50	600.00
	8050.000	16.70	913.02	0.00	.01	0.00	3.50	1.00
	8050.000	16.70	913.02	-.00	.01	0.00	3.50	1.00
	9000.000	16.70	913.05	0.00	.03	0.00	3.50	150.00
	9000.000	16.70	913.05	-.00	.03	0.00	3.50	150.00
	9001.000	16.70	913.09	0.00	.05	0.00	6.20	1.00
	9001.000	16.70	913.09	-.00	.05	0.00	6.20	1.00
	9050.000	16.70	913.11	0.00	.01	0.00	6.20	48.00
	9050.000	16.70	913.11	-.00	.01	0.00	6.20	48.00
*	9051.000	76.00	914.27	0.00	1.16	0.00	6.20	1.00
*	9051.000	76.00	914.27	0.00	1.16	0.00	6.20	1.00
	10000.000	76.00	914.47	0.00	.20	0.00	103.54	75.00
	10000.000	76.00	914.47	0.00	.20	0.00	103.54	75.00
	11500.000	19.60	914.49	0.00	.02	0.00	62.27	700.00
	11500.000	19.60	914.49	0.00	.02	0.00	62.27	700.00
	11505.000	19.60	914.50	0.00	.02	0.00	63.46	1015.00
	11505.000	19.60	914.50	0.00	.02	0.00	63.46	1015.00
	11510.000	19.60	914.39	0.00	-.11	0.00	3.00	1.00
	11510.000	19.60	914.39	0.00	-.11	0.00	3.00	1.00
	12000.000	19.60	914.73	0.00	.34	0.00	3.00	54.00
	12000.000	19.60	914.73	0.00	.34	0.00	3.00	54.00
	12010.000	19.60	914.81	0.00	.09	0.00	3.00	1.00
	12010.000	19.60	914.81	0.00	.09	0.00	3.00	1.00
	12030.000	19.60	914.83	0.00	.01	0.00	45.69	2.00
	12030.000	19.60	914.83	0.00	.01	0.00	45.69	2.00
	12500.000	19.60	914.87	0.00	.04	0.00	86.26	50.00
	12500.000	19.60	914.87	0.00	.04	0.00	86.26	50.00

SECNO	Q	CWSEL	DIFHSP	DIF/SX	DIFKWS	TOPWID	KLOH
12600.000	19.60	914.87	0.00	.00	0.00	86.07	500.00
12600.000	19.60	914.87	0.00	.00	0.00	86.07	500.00
13000.000	19.60	914.88	0.00	.00	0.00	86.10	100.00
13000.000	19.60	914.88	0.00	.00	0.00	86.10	100.00

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION	SECNO	3950.000	PROFILE	1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO	3950.000	PROFILE	1	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO	3950.000	PROFILE	1	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO	3950.000	PROFILE	2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO	3950.000	PROFILE	2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO	3950.000	PROFILE	2	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO	5000.000	PROFILE	1	CRITICAL DEPTH ASSUMED
CAUTION	SECNO	5000.000	PROFILE	1	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO	5000.000	PROFILE	1	20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION	SECNO	5000.000	PROFILE	2	CRITICAL DEPTH ASSUMED
CAUTION	SECNO	5000.000	PROFILE	2	PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION	SECNO	5000.000	PROFILE	2	20 TRIALS ATTEMPTED TO BALANCE WSEL
NOTE	SECNO	9051.000	PROFILE	1	WSEL BASED ON X5 CARD
NOTE	SECNO	9051.000	PROFILE	2	WSEL BASED ON X5 CARD

MOORE BUSINESS FORMS INC 22

FLOODWAY DATA.
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
3000.000	20.	33.	3.2	902.4	902.4	0.0
3950.000	17.	18.	5.9	905.6	905.6	0.0
4750.000	30.	35.	3.0	909.6	909.6	0.0
5000.000	44.	26.	4.0	911.6	911.6	0.0
5100.000	47.	35.	3.1	911.7	911.7	0.0
5110.000	61.	117.	.9	912.0	912.0	0.0
5200.000	40.	43.	2.1	912.0	912.0	0.0
5201.000	78.	49.	1.9	912.2	912.2	0.0
5500.000	102.	134.	.7	912.3	912.3	0.0
5600.000	17.	44.	1.3	912.3	912.3	0.0
5601.000	17.	39.	1.5	912.3	912.3	0.0
5602.000	17.	39.	1.5	912.3	912.3	0.0
5603.000	17.	45.	1.3	912.3	912.3	0.0
5670.000	60.	135.	.6	912.4	912.4	0.0
5890.000	92.	277.	.2	912.4	912.4	0.0
5895.000	92.	252.	.2	912.4	912.4	0.0
6000.000	92.	278.	.2	912.4	912.4	0.0
8000.000	163.	281.	.1	912.4	912.4	0.0
8010.000	4.	9.	1.9	912.3	912.3	0.0
8045.000	4.	14.	1.2	913.0	913.0	0.0
8050.000	4.	15.	.9	913.0	913.0	0.0
9000.000	4.	9.	1.9	913.0	913.0	0.0
9001.000	6.	16.	1.0	913.1	913.1	0.0
9050.000	6.	16.	1.0	913.1	913.1	0.0
9051.000	6.	23.	3.3	914.3	914.3	0.0
10000.000	104.	176.	.4	914.5	914.5	0.0
11500.000	62.	71.	.3	914.5	914.5	0.0
11505.000	63.	72.	.3	914.5	914.5	0.0
11510.000	3.	6.	3.0	914.4	914.4	0.0
12000.000	3.	7.	2.7	914.7	914.7	0.0
12010.000	3.	11.	1.7	914.8	914.8	0.0
12030.000	45.	17.	1.2	914.8	914.8	0.0
12500.000	85.	117.	.2	914.9	914.9	0.0
12600.000	66.	117.	.2	914.9	914.9	0.0
13000.000	86.	117.	.2	914.9	914.9	0.0

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: HOLLY, VILLAGE OF

3) WATERCOURSE: SHIAWASSEE RIVER

COMPUTER RUN

4) DOCUMENT TYPE: RUN 2 -- DETAILS

00BREAK00

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1**************************************************
*  WATER SURFACE PROFILES                        *
*  VERSION OF NOVEMBER 1976                      *
*  UPDATED MARCH 1982                            *
*                                                *
*  RUN DATE  83/04/07. TIME  06.36.10.           *
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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     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

83/04/07. 06.36.10. PAGE 1

THIS RUN EXECUTED 83/04/07. 06.36.10.

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR =  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
**************************************************
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C
T1   VILLAGE OF HOLLEY,NO. 3562,'SHIAWA'
T2   SHIAWASSE RIVER
T3
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	2.	0.	0.	.002330	0.00	0.0	0.	904.000	0.030

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

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

150.000	110.000	0.000	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

NC	.040	.040	.024	.100	.300	0.000	0.000	0.000	0.000	0.000
QT	5.000	290.000	400.000	450.000	560.000	450.000	0.000	0.000	0.000	0.000
X1	394360.000	8.000	100.000	151.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	920.100	0.000	907.900	100.000	906.600	107.000	900.900	119.000	899.900	131.000

GR 7003000 145.000 [illegible] 191.500 [illegible] 229.000 0.000 0.000 0.000 0.000

SECTION A

X1	394410.000	7.000	92.500	107.500	1500.000	1500.000	1500.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	92.500	0.000	107.500	0.000	0.000	0.000	0.000
GR	920.100	0.000	905.810	92.500	903.600	95.500	903.400	100.000	903.600	104.500
GR	905.800	107.500	913.600	200.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	394411.000	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	92.500	0.000	107.500	0.000	0.000	0.000	0.000
BT	7.000	0.000	920.100	920.100	92.500	915.500	905.810	95.500	915.400	910.200
BT	100.000	915.400	912.400	104.500	915.400	910.200	107.500	915.300	905.810	200.000
BT	913.600	913.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	394450.000	0.000	0.000	0.000	45.000	45.000	45.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	912.400	915.400	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	92.500	0.000	107.500	0.000	0.000	0.000	0.000

1

93/04/07. 06.36.10. PAGE 2

X1	394451.000	7.000	92.500	107.500	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	92.500	0.000	107.500	0.000	0.000	0.000	0.000
GR	920.100	0.000	905.810	92.500	906.900	95.500	903.400	100.000	903.600	104.500
GR	905.800	107.500	913.600	200.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	364460.000	8.000	100.000	132.000	45.000	45.000	45.000	0.000	0.000	0.000
GR	920.100	0.000	907.600	100.000	906.600	105.000	903.900	112.000	904.100	119.000
GR	906.600	125.000	907.200	132.000	913.600	200.000	0.000	0.000	0.000	0.000
X1	395660.000	7.000	100.000	136.000	1600.000	1600.000	1600.000	0.000	2.500	0.000
GR	916.000	0.000	909.100	100.000	908.400	105.000	905.000	117.000	908.400	130.000
GR	909.600	136.000	914.000	218.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION B -- FISH LAKE ROAD CULVERT

X1	396290.000	9.000	100.000	137.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	920.000	0.000	914.900	100.000	914.100	104.000	913.400	112.000	910.300	121.000
GR	909.500	129.000	910.300	134.000	910.400	137.000	920.000	218.000	0.000	0.000
X1	396340.000	7.000	100.000	118.000	30.000	30.000	30.000	.866	0.000	0.000
X3	10.000	0.000	0.000	100.000	0.000	118.000	0.000	914.100	914.100	0.000
GR	914.900	0.000	910.300	100.000	909.500	104.000	909.300	109.000	909.300	114.000
GR	910.300	118.000	913.400	220.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.900	1.210	2.630	0.000	19.000	.500	77.900	0.000	0.000	0.000
X1	396350.000	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	913.400	914.100	0.000	0.000	0.000	.866	0.000
X3	10.000	0.000	0.000	100.000	0.000	118.000	0.000	914.100	914.100	0.000
BT	7.000	0.000	914.100	914.100	100.000	914.100	910.300	104.000	914.100	913.400
BT	109.000	914.100	913.400	114.000	914.100	913.400	118.000	914.100	913.400	220.000
BT	913.400	913.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	395351.000	0.000	0.000	0.000	75.000	75.000	75.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	100.000	0.000	137.000	0.000	0.000	0.000	0.000
X1	397410.000	7.000	100.000	144.000	800.000	800.000	800.000	0.000	0.000	0.000
GR	920.000	0.000	912.600	100.000	911.600	103.000	908.400	117.000	911.000	131.000
GR	913.500	144.000	920.000	222.000	0.000	0.000	0.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC 27

X1	399110.000	17.000	96.750	127.000	1200.000	1200.000	1200.000	0.000	0.000	0.000
GR	924.300	0.000	912.350	96.750	910.720	91.500	909.100	100.000	910.720	101.500
GR	912.350	102.750	912.350	110.750	910.720	112.400	909.100	114.000	910.720	115.620
GR	912.350	117.250	912.350	123.750	910.720	125.400	909.100	127.000	910.720	128.600
GR	912.350	130.000	925.100	240.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION C -- GRAND TRUNK RR CULVERT

X1	399120.000	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	96.750	0.000	127.000	0.000	0.000	0.000	0.000
BT	17.000	0.000	924.300	924.800	96.750	924.900	912.350	98.500	924.900	914.000
BT	100.000	924.900	915.600	101.500	924.900	914.000	102.750	924.900	912.350	110.750
BT	925.000	912.350	112.400	925.000	914.000	114.000	925.000	915.600	115.620	925.000
BT	914.000	117.250	925.000	912.350	123.750	925.000	912.350	125.400	925.000	914.000
BT	127.000	925.000	915.600	128.600	925.000	914.000	130.000	925.000	912.350	240.000
BT	925.100	925.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1

83/04/07. 06.35.10. PAGE 3

X1	399140.000	0.000	0.000	0.000	37.000	37.000	37.000	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	399141.000	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	96.750	0.000	127.000	0.000	0.000	0.000	0.000
X1	399210.000	8.000	100.000	135.000	130.000	100.000	100.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	924.800	0.000	913.100	100.000	912.100	104.000	909.600	113.000	909.800	122.000
GR	912.100	131.000	913.400	135.000	925.000	235.000	0.000	0.000	0.000	0.000

SECTION D

X1	399610.000	8.000	100.000	157.000	450.000	450.000	450.000	0.000	1.300	0.000
GR	929.400	0.000	915.000	100.000	912.900	111.000	909.500	125.000	909.200	140.000
GR	912.900	153.000	914.800	157.000	921.300	257.000	0.000	0.000	0.000	0.000

SECTION E -- MURRISON ST. CULVERT

X1	399620.000	13.000	94.000	106.000	130.000	100.000	100.000	0.000	-.500	0.000
X3	0.000	0.000	0.000	94.000	0.000	106.000	0.000	0.000	0.000	0.000
GR	920.300	0.000	913.700	94.000	912.600	94.500	912.400	95.400	912.000	96.900
GR	911.700	98.400	911.700	100.000	911.700	101.500	912.000	103.000	912.400	104.500
GR	912.600	105.400	913.700	106.000	921.300	200.000	0.000	0.000	0.000	0.000
X1	399621.000	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	94.000	0.000	106.000	0.000	0.000	0.000	0.000
BT	13.000	0.000	929.400	929.400	94.000	925.300	913.700	94.500	925.300	915.200
BT	95.400	925.300	916.900	96.900	925.300	918.300	98.400	925.300	919.100	100.000
BT	925.300	919.140	101.500	925.300	919.100	103.000	925.300	918.300	104.500	925.300
BT	925.300	105.400	925.300	915.200	106.000	925.300	913.700	200.000	925.600	921.300
X1	399700.000	0.000	0.000	0.000	60.000	60.000	60.000	0.000	.200	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	94.000	0.000	106.000	0.000	0.000	0.000	0.000
X1	400110.000	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	94.000	0.000	106.000	0.000	0.000	0.000	0.000

SECTION F

X1	400210.000	0.000	100.000	135.000	400.000	400.000	400.000	0.000	0.000	0.000
GR	920.000	0.000	915.900	100.000	913.200	105.000	911.500	113.000	912.400	121.000

MOORE BUSINESS FORMS, INC 27

SECTION 3 -- DRIVEWAY CULVERT

X1	400260.000	6.000	100.000	124.000	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	921.100	921.100	0.000
GR	921.000	0.000	913.200	100.000	911.500	108.000	911.700	116.000	913.200	124.000
GR	925.600	225.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1

83/04/07. 06.36.10. PAGE 4

SECTION H

X1	400270.000	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	100.000	0.000	124.000	0.000	0.000	0.000	0.000
BT	7.000	0.000	921.100	921.000	100.000	921.100	919.500	108.000	921.100	919.500
BT	116.000	921.100	919.500	124.000	921.100	919.500	124.000	921.100	919.500	225.000
BT	925.600	925.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	400301.000	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
X3	10.000	0.000	0.000	100.000	0.000	124.000	0.000	0.000	0.000	0.000
X1	400310.000	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	124.000	0.000	0.000	0.000	0.000
X1	402960.000	8.000	100.000	158.000	1600.000	1600.000	1600.000	0.000	0.000	0.000
GR	920.000	0.000	916.200	100.000	914.200	100.000	912.400	122.000	912.100	135.000
GR	914.200	148.000	914.800	158.000	920.000	258.000	0.000	0.000	0.000	0.000

SECTION I -- LEGRAND ST. CULVERT

X1	403000.000	27.000	87.000	116.000	1370.000	1370.000	1370.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	87.000	0.000	116.000	0.000	0.000	0.000	0.000
GR	920.000	0.000	914.900	87.000	913.800	87.500	913.600	88.500	913.200	90.000
GR	912.900	91.500	912.900	93.000	912.800	94.500	913.200	96.000	913.400	97.500
GR	913.800	98.500	914.900	99.000	914.900	100.000	913.800	100.500	913.600	101.500
GR	913.200	103.000	912.900	104.500	912.900	106.000	912.800	107.500	913.200	109.000
GR	913.400	110.500	913.800	111.500	914.900	112.000	913.800	113.000	913.600	114.500
GR	913.200	116.000	912.900	203.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	403010.000	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	87.000	0.000	100.000	0.000	0.000	0.000	0.000
X1	403011.000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	87.000	0.000	100.000	0.000	0.000	0.000	0.000
BT	27.000	0.000	914.900	914.900	87.000	920.800	916.400	87.500	920.800	918.100
BT	88.500	920.300	919.500	90.000	928.800	920.300	91.500	928.600	920.340	93.000
BT	928.000	920.300	94.500	928.800	919.500	96.000	920.800	918.100	97.500	920.800
BT	916.400	98.500	920.800	914.900	99.000	920.800	914.900	100.000	920.800	916.400
BT	100.500	920.800	913.100	101.500	920.800	919.500	103.000	920.800	920.300	104.500
BT	920.800	920.340	106.000	920.900	920.300	107.500	920.800	919.500	109.000	920.800
BT	918.100	110.500	920.800	916.400	111.500	920.800	916.400	112.000	920.900	914.900
BT	113.000	920.900	913.800	114.500	920.900	913.600	116.000	920.900	913.200	203.000
BT	920.900	912.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	403012.000	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
X3	10.000	0.000	0.000	87.000	0.000	100.000	0.000	0.000	0.000	0.000
X1	403013.000	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

MOORE BUSINESS FORMS INC 27

X3	10.000	0.000	0.000	37.050	0.050	100.000	0.000	0.050	0.000	0.050

X1	403100.000	3.000	136.000	186.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	920.000	0.000	918.900	100.000	914.200	136.000	912.700	144.000	912.500	152.000
GR	914.200	161.000	919.700	186.000	920.000	286.000	0.000	0.000	0.000	0.000
X1	404000.000	10.000	212.000	260.000	1000.000	1000.000	1000.000	0.000	0.000	0.000
GR	915.400	0.000	915.300	100.000	915.300	200.000	915.200	212.000	913.200	228.000
GR	912.800	244.000	913.400	260.000	914.200	272.000	914.200	300.000	914.200	400.000
X1	406000.000	8.000	110.000	129.000	1100.000	1100.000	1100.000	0.000	0.000	0.000
GR	920.000	0.000	918.400	94.000	914.900	110.000	913.500	116.000	912.900	122.000
GR	914.800	129.000	920.000	146.000	920.000	246.000	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

THIS RUN EXECUTED 83/04/07. 06.36.13.

****
HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
ERROR CORR - 01.02.03.04.05
MODIFICATION - 50.51.52.53.54.55
****

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	3.	0.	0.	.002330	0.00	0.0	0.	904.200	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

THIS RUN EXECUTED 83/04/07. 06.36.14.

****
HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
ERROR CORR - 01.02.03.04.05
MODIFICATION - 50.51.52.53.54.55
****

T1
T2

MOORE BUSINESS FORMS, INC 27

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: HOLLY, VILLAGE OF

3) WATERCOURSE: SHIAWASSEE RIVER

4) DOCUMENT TYPE: COMPUTER RUN 2 + SUMMARY

00BREAK00

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	-1.000030	0.00	0.0	0.	904.500	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

THIS RUN EXECUTED 83/04/07. 06.36.15.

****
HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
ERROR CORR - 01,02,03,04,05
MODIFICATION - 50,51,52,53,54,55
****

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	5.	0.	0.	.002330	0.00	0.0	0.	904.700	0.000

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

THIS RUN EXECUTED 83/04/07. 06.36.17.

****
HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
ERROR CORR - 01,02,03,04,05
MODIFICATION - 50,51,52,53,54,55
****

NOTE- ASTERISK * AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKNS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR

BUSINESS FORMS INC 27
MOORE

394300.000	903.34	-.45	903.95	24.15	0.00	290.00	0.00	0.00	0.00	100.00	151.00	0.00
394360.000	904.14	-.05	904.62	26.42	0.00	400.00	0.00	0.00	0.00	100.00	151.00	0.00
* 394360.000	903.36	-1.14	904.50	23.37	0.00	450.00	0.00	0.00	0.00	100.00	151.00	0.00
394360.000	904.84	.14	905.42	29.15	0.00	560.00	0.00	0.00	0.00	100.00	151.00	0.00
394410.000	907.21	0.00	907.77	15.00	0.00	290.00	0.00	15.00	92.50	92.50	107.50	107.50
394410.000	907.90	0.00	908.62	15.00	0.00	400.00	0.00	15.00	92.50	92.50	107.50	107.50
394410.000	908.97	0.00	909.53	15.00	0.00	450.00	0.00	15.00	92.50	92.50	107.50	107.50
394410.000	908.76	0.00	909.71	15.00	0.00	560.00	0.00	15.00	92.50	92.50	107.50	107.50
394411.000	907.19	0.00	907.78	15.00	0.00	290.00	0.00	15.00	92.50	92.50	107.50	107.50
394411.000	907.83	0.00	908.65	15.00	0.00	400.00	0.00	15.00	92.50	92.50	107.50	107.50
394411.000	908.87	0.00	909.53	15.00	0.00	450.00	0.00	15.00	92.50	92.50	107.50	107.50
394411.000	908.59	0.00	909.79	15.00	0.00	560.00	0.00	15.00	92.50	92.50	107.50	107.50
394450.000	907.39	0.00	907.92	15.00	0.00	290.00	0.00	15.00	92.50	92.50	107.50	107.50
394450.000	908.09	0.00	908.83	15.00	0.00	400.00	0.00	15.00	92.50	92.50	107.50	107.50
394450.000	909.04	0.00	909.71	15.00	0.00	450.00	0.00	15.00	92.50	92.50	107.50	107.50
394450.000	908.98	0.00	910.02	15.00	0.00	560.00	0.00	15.00	92.50	92.50	107.50	107.50
* 394451.000	907.05	0.00	908.20	15.00	0.00	290.00	0.00	15.00	92.50	92.50	107.50	107.50
394451.000	907.67	0.00	909.01	15.00	0.00	400.00	0.00	15.00	92.50	92.50	107.50	107.50
394451.000	908.94	0.00	909.76	15.00	0.00	450.00	0.00	15.00	92.50	92.50	107.50	107.50
394451.000	908.72	0.00	910.13	15.00	0.00	560.00	0.00	15.00	92.50	92.50	107.50	107.50
364460.000	908.21	0.00	908.40	47.65	.77	285.31	3.92	0.00	0.00	100.00	132.00	0.00
364460.000	909.02	0.00	909.20	62.66	6.08	378.20	15.71	0.00	0.00	100.00	132.00	0.00
364460.000	909.73	0.00	909.87	75.93	14.07	406.30	29.63	0.00	0.00	100.00	132.00	0.00
364460.000	910.14	0.00	910.30	83.55	23.18	491.25	45.57	0.00	0.00	100.00	132.00	0.00
395660.000	910.94	0.00	911.63	25.47	0.00	290.00	0.00	0.00	0.00	100.00	136.00	0.00
* 395660.000	911.25	0.00	912.17	29.35	0.00	400.00	0.00	0.00	0.00	100.00	136.00	0.00
* 395660.000	911.45	0.00	912.38	31.64	0.00	450.00	0.00	0.00	0.00	100.00	136.00	0.00
* 395660.000	911.77	0.00	912.80	36.68	.13	559.87	0.00	0.00	0.00	100.00	136.00	0.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
396290.000	912.13	0.00	912.75	35.85	0.00	259.53	30.47	0.00	0.00	100.00	137.00	0.00
396290.000	912.67	0.00	913.29	42.00	0.00	343.71	56.29	0.00	0.00	100.00	137.00	0.00
396290.000	912.83	0.00	913.49	43.91	0.00	382.01	67.99	0.00	0.00	100.00	137.00	0.00
396290.000	913.17	0.00	913.89	47.69	0.00	464.44	95.56	0.00	0.00	100.00	137.00	0.00
396340.000	912.14	0.00	912.95	15.59	0.00	290.00	0.00	18.00	86.60	86.60	102.19	102.19
* 396340.000	912.31	0.00	913.67	15.59	0.00	400.00	0.00	18.00	86.60	86.60	102.19	102.19
* 396340.000	912.53	0.00	914.01	15.59	0.00	450.00	0.00	18.00	86.60	86.60	102.19	102.19
* 396340.000	912.99	0.00	914.71	15.59	0.00	560.00	0.00	18.00	86.60	86.60	102.19	102.19
* 396350.000	915.18	0.00	915.37	18.00	0.00	36.13	253.87	18.00	100.00	86.60	102.19	118.00
* 396350.000	914.10	0.00	914.70	18.00	0.00	55.29	344.71	18.00	100.00	86.60	102.19	118.00
* 396350.000	914.75	0.00	915.29	18.00	0.00	58.21	391.79	18.00	100.00	86.60	102.19	118.00
* 396350.000	914.88	0.00	915.67	18.00	0.00	71.56	438.44	18.00	100.00	86.60	102.19	118.00
396351.000	915.38	0.00	915.43	37.00	0.00	17.67	272.33	37.00	100.00	86.60	102.19	137.00
396351.000	914.78	0.00	914.90	37.00	0.00	26.39	373.61	37.00	100.00	86.60	102.19	137.00
396351.000	915.35	0.00	915.46	37.00	0.00	27.54	422.46	37.00	100.00	86.60	102.19	137.00
396351.000	915.74	0.00	915.89	37.00	0.00	32.71	527.29	37.00	100.00	86.60	102.19	137.00

MOORE BUSINESS FORMS INC 27

397410.000	915.49	0.00	915.52	107.01	19.45	264.15	6.39	0.00	0.00	100.00	144.00	0.00
397410.000	915.09	0.00	915.15	96.89	21.41	372.82	5.77	0.00	0.00	100.00	144.00	0.00
397410.000	915.61	0.00	915.66	110.10	32.07	406.87	11.06	0.00	0.00	100.00	144.00	0.00
397410.000	916.06	0.00	916.12	121.56	48.55	492.14	19.31	0.00	0.00	100.00	144.00	0.00
399110.000	915.59	0.00	915.63	36.33	26.54	217.94	45.52	0.00	0.00	96.75	127.00	0.00
399110.000	915.34	0.00	915.42	32.22	33.45	306.39	60.16	0.00	0.00	96.75	127.00	0.00
399110.000	915.81	0.00	915.89	39.97	44.25	332.52	73.23	0.00	0.00	96.75	127.00	0.00
399110.000	916.27	0.00	916.36	97.55	82.68	399.59	97.73	0.00	0.00	96.75	127.00	0.00
399120.000	915.25	0.00	915.76	30.25	0.00	290.00	0.00	30.25	96.75	96.75	127.00	127.00
399120.000	914.69	0.00	915.71	30.25	0.00	400.00	0.00	30.25	96.75	96.75	127.00	127.00
399120.000	915.00	0.00	916.24	30.25	0.00	450.00	0.00	30.25	96.75	96.75	127.00	127.00
399120.000	914.99	0.00	916.91	30.25	0.00	560.00	0.00	30.25	96.75	96.75	127.00	127.00
399140.000	915.66	0.00	916.02	87.60	0.00	254.93	35.07	0.00	0.00	96.75	127.00	0.00
399140.000	915.51	0.00	916.20	85.20	0.00	351.35	48.65	0.00	0.00	96.75	127.00	0.00
399140.000	915.99	0.00	916.86	92.90	0.00	395.58	54.42	0.00	0.00	96.75	127.00	0.00
399140.000	916.53	0.00	917.67	101.81	0.00	492.28	67.72	0.00	0.00	96.75	127.00	0.00
399141.000	915.98	0.00	916.05	30.25	0.00	290.00	0.00	30.25	96.75	96.75	127.00	127.00
399141.000	916.13	0.00	916.25	30.25	0.00	400.00	0.00	30.25	96.75	96.75	127.00	127.00
399141.000	916.81	0.00	916.93	30.25	0.00	450.00	0.00	30.25	96.75	96.75	127.00	127.00
399141.000	917.85	0.00	917.99	30.25	0.00	550.00	0.00	30.25	96.75	96.75	127.00	127.00
399210.000	916.04	0.00	916.07	82.83	14.75	264.09	11.16	0.00	0.00	100.00	135.00	0.00
399210.000	916.23	0.00	916.28	86.11	22.38	360.37	17.25	0.00	0.00	100.00	135.00	0.00
399210.000	916.91	0.00	916.96	97.79	33.35	389.62	27.03	0.00	0.00	100.00	135.00	0.00
399210.000	917.97	0.00	918.01	116.03	56.95	454.57	48.48	0.00	0.00	100.00	135.00	0.00

MOORE BUSINESS FORMS, INC 27

SECNO	C.SEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
399610.000	916.07	0.00	916.11	55.77	0.00	290.00	0.00	0.00	0.00	100.00	157.00	0.00
399610.000	916.29	0.00	916.35	59.86	0.00	399.97	.03	0.00	0.00	100.00	157.00	0.00
399610.000	916.95	0.00	917.01	74.65	.30	448.34	1.36	0.00	0.00	100.00	157.00	0.00
399610.000	918.00	0.00	918.05	98.09	3.26	546.98	9.76	0.00	0.00	100.00	157.00	0.00
399620.000	915.76	0.00	916.29	12.00	0.00	290.00	0.00	12.00	94.00	94.00	106.00	106.00
399620.000	915.64	0.00	916.70	12.00	0.00	400.00	0.00	12.00	94.00	94.00	106.00	106.00
399620.000	916.34	0.00	917.32	12.00	0.00	450.00	0.00	12.00	94.00	94.00	106.00	106.00
399620.000	917.34	0.00	918.37	12.00	0.00	550.00	0.00	12.00	94.00	94.00	106.00	106.00
399621.000	915.74	0.00	916.30	12.00	0.00	290.00	0.00	12.00	94.00	94.00	106.00	106.00
399621.000	915.58	0.00	916.74	12.00	0.00	400.00	0.00	12.00	94.00	94.00	106.00	106.00
399621.000	916.26	0.00	917.36	12.00	0.00	450.00	0.00	12.00	94.00	94.00	106.00	106.00
399621.000	917.21	0.00	918.44	12.00	0.00	550.00	0.00	12.00	94.00	94.00	106.00	106.00
399700.000	915.90	0.00	916.48	12.00	0.00	290.00	0.00	12.00	94.00	94.00	106.00	106.00
399700.000	916.04	0.00	917.07	12.00	0.00	400.00	0.00	12.00	94.00	94.00	106.00	106.00
399700.000	916.62	0.00	917.66	12.00	0.00	450.00	0.00	12.00	94.00	94.00	106.00	106.00
399700.000	917.57	0.00	918.75	12.00	0.00	560.00	0.00	12.00	94.00	94.00	106.00	106.00
400110.000	915.95	0.00	916.43	12.00	0.00	290.00	0.00	12.00	94.00	94.00	106.00	106.00
400110.000	916.19	0.00	917.09	12.00	0.00	400.00	0.00	12.00	94.00	94.00	106.00	106.00
400110.000	916.80	0.00	917.68	12.00	0.00	450.00	0.00	12.00	94.00	94.00	106.00	106.00

400116.000	917.85	0.00	918.76	12.00	0.00	550.00	0.00	112.00	94.00	94.00	106.00	105.00
400210.000	916.69	0.00	916.77	51.51	2.45	287.55	0.00	0.00	0.00	100.00	135.00	0.00
400210.000	917.35	0.00	917.46	68.06	13.04	386.96	0.00	0.00	0.00	100.00	135.00	0.00
400210.000	917.90	0.00	918.00	81.91	28.02	421.98	0.00	0.00	0.00	100.00	135.00	0.00
400210.000	918.96	0.00	919.04	108.56	74.04	485.96	0.00	0.00	0.00	100.00	135.00	0.00
400260.000	916.69	0.00	916.80	24.00	0.00	290.00	0.00	0.00	0.00	100.00	124.00	0.00
400260.000	917.34	0.00	917.50	24.00	0.00	400.00	0.00	0.00	0.00	100.00	124.00	0.00
400260.000	917.88	0.00	918.04	24.00	0.00	450.00	0.00	0.00	0.00	100.00	124.00	0.00
400260.000	918.91	0.00	919.10	24.00	0.00	560.00	0.00	0.00	0.00	100.00	124.00	0.00
400270.000	916.69	0.00	916.80	24.00	0.00	290.00	0.00	24.00	100.00	100.00	124.00	124.00
400270.000	917.34	0.00	917.50	24.00	0.00	400.00	0.00	24.00	100.00	100.00	124.00	124.00
400270.000	917.88	0.00	918.04	24.00	0.00	450.00	0.00	24.00	100.00	100.00	124.00	124.00
400270.000	918.91	0.00	919.10	24.00	0.00	560.00	0.00	24.00	100.00	100.00	124.00	124.00
400301.000	916.70	0.00	916.81	24.00	0.00	290.00	0.00	24.00	100.00	100.00	124.00	124.00
400301.000	917.35	0.00	917.51	24.00	0.00	400.00	0.00	24.00	100.00	100.00	124.00	124.00
400301.000	917.88	0.00	918.05	24.00	0.00	450.00	0.00	24.00	100.00	100.00	124.00	124.00
400301.000	918.92	0.00	919.10	24.00	0.00	560.00	0.00	24.00	100.00	100.00	124.00	124.00
400310.000	916.70	0.00	916.81	24.00	0.00	290.00	0.00	24.00	100.00	100.00	124.00	124.00
400310.000	917.35	0.00	917.51	24.00	0.00	400.00	0.00	24.00	100.00	100.00	124.00	124.00
400310.000	917.89	0.00	918.05	24.00	0.00	450.00	0.00	24.00	100.00	100.00	124.00	124.00
400310.000	918.92	0.00	919.10	24.00	0.00	560.00	0.00	24.00	100.00	100.00	124.00	124.00

SECNO	CHSEL	DIFKHS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
402960.000	917.01	0.00	917.03	121.85	1.50	272.62	15.88	0.00	0.00	100.00	158.00	0.00
402960.000	917.73	0.00	917.75	154.36	7.96	359.00	33.04	0.00	0.00	100.00	158.00	0.00
402960.000	918.24	0.00	918.26	177.63	15.56	388.54	45.90	0.00	0.00	100.00	158.00	0.00
402960.000	919.25	0.00	919.27	223.69	38.41	444.70	76.89	0.00	0.00	100.00	158.00	0.00
403000.000	917.10	0.00	917.27	29.00	0.00	290.00	0.00	29.00	87.00	87.00	116.00	116.00
403000.000	917.85	0.00	918.00	29.00	0.00	400.00	0.00	29.00	87.00	87.00	116.00	116.00
403000.000	918.32	0.00	918.48	29.00	0.00	450.00	0.00	29.00	87.00	87.00	116.00	116.00
403000.000	919.23	0.00	919.45	29.00	0.00	560.00	0.00	29.00	87.00	87.00	116.00	116.00
403010.000	916.75	0.00	917.44	13.00	0.00	290.00	0.00	13.00	87.00	87.00	116.00	100.00
403010.000	917.25	0.00	918.25	13.00	0.00	400.00	0.00	13.00	87.00	87.00	116.00	100.00
403010.000	917.74	0.00	918.73	13.00	0.00	450.00	0.00	13.00	87.00	87.00	116.00	100.00
403010.000	918.67	0.00	919.71	13.00	0.00	560.00	0.00	13.00	87.00	87.00	116.00	100.00
403011.000	917.28	0.00	917.86	13.00	0.00	290.00	0.00	13.00	87.00	87.00	116.00	100.00
403011.000	917.82	0.00	918.80	13.00	0.00	400.00	0.00	13.00	87.00	87.00	116.00	100.00
403011.000	918.21	0.00	919.30	13.00	0.00	450.00	0.00	13.00	87.00	87.00	116.00	100.00
403011.000	918.99	0.00	920.36	13.00	0.00	560.00	0.00	13.00	87.00	87.00	116.00	100.00
403012.000	917.28	0.00	917.91	13.00	0.00	290.00	0.00	13.00	87.00	87.00	116.00	100.00
403012.000	917.94	0.00	918.88	13.00	0.00	400.00	0.00	13.00	87.00	87.00	116.00	100.00
403012.000	918.33	0.00	919.38	13.00	0.00	450.00	0.00	13.00	87.00	87.00	116.00	100.00
403012.000	919.14	0.00	920.46	13.00	0.00	560.00	0.00	13.00	87.00	87.00	116.00	100.00
403013.000	917.46	0.00	917.93	13.00	0.00	290.00	0.00	13.00	87.00	87.00	116.00	100.00
403013.000	918.31	0.00	918.92	13.00	0.00	400.00	0.00	13.00	87.00	87.00	116.00	100.00

MOORE BUSINESS FORMS INC 27

403013.000	919.83	0.00	920.53	13.00	0.00	560.00	0.00	13.00	37.00	87.00	116.00	100.00
403100.000	917.97	0.00	918.01	71.02	35.32	254.68	0.00	0.00	0.00	136.00	186.00	0.00
403100.000	918.97	0.00	919.00	88.58	61.96	338.04	0.00	0.00	0.00	136.00	186.00	0.00
403100.000	919.48	0.00	919.52	137.70	81.60	368.40	0.00	0.00	0.00	136.00	186.00	0.00
403100.000	920.59	0.00	920.61	236.00	136.72	404.24	17.04	0.00	0.00	136.00	186.00	0.00
404000.000	918.03	0.00	918.03	400.00	93.52	85.80	110.69	0.00	0.00	212.00	260.00	0.00
404000.000	919.02	0.00	919.02	400.00	143.65	108.75	147.60	0.00	0.00	212.00	260.00	0.00
404000.000	919.53	0.00	919.53	400.00	167.59	118.53	163.88	0.00	0.00	212.00	260.00	0.00
404000.000	920.62	0.00	920.63	400.00	220.44	140.09	199.47	0.00	0.00	212.00	260.00	0.00
406000.000	917.95	0.00	918.09	43.23	20.65	253.48	15.87	0.00	0.00	110.00	129.00	0.00
406000.000	918.94	0.00	919.08	80.09	44.49	325.82	29.69	0.00	0.00	110.00	129.00	0.00
406000.000	919.46	0.00	919.58	112.26	66.75	346.36	36.89	0.00	0.00	110.00	129.00	0.00
406000.000	920.59	0.00	920.66	246.00	142.91	347.11	69.98	0.00	0.00	110.00	129.00	0.00

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	J	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	394360.000	0.00	0.00	0.00	899.90	290.00	903.54	0.00	903.95	23.32	5.09	57.00	60.05
	394360.000	0.00	0.00	0.00	899.90	400.00	904.14	0.00	904.62	23.12	5.53	72.05	83.19
*	394360.000	0.00	0.00	0.00	899.90	450.00	903.36	903.36	904.50	70.46	8.56	52.56	53.61
	394360.000	0.00	0.00	0.00	899.90	560.00	904.84	0.00	905.42	23.39	6.12	91.57	115.80
	394410.000	1500.00	0.00	0.00	903.40	290.00	907.21	0.00	907.77	27.24	5.98	48.50	55.56
	394410.000	1500.00	0.00	0.00	903.40	400.00	907.90	0.00	908.62	29.90	6.80	58.80	73.15
	394410.000	1500.00	0.00	0.00	903.40	450.00	908.97	0.00	909.53	19.22	6.00	74.97	102.64
	394410.000	1500.00	0.00	0.00	903.40	560.00	908.76	0.00	909.71	33.68	7.81	71.69	96.49
	394411.000	1.00	913.60	920.10	903.40	290.00	907.19	0.00	907.78	31.83	6.20	46.79	51.40
	394411.000	1.00	913.60	920.10	903.40	400.00	907.83	0.00	908.65	39.18	7.23	54.96	63.90
	394411.000	1.00	913.60	920.10	903.40	450.00	908.87	0.00	909.58	29.77	6.72	66.99	82.48
	394411.000	1.00	913.60	920.10	903.40	560.00	908.59	0.00	909.79	51.86	8.76	53.92	77.76
	394450.000	45.00	915.40	912.40	903.40	290.00	907.39	0.00	907.92	27.45	5.87	49.39	55.35
	394450.000	45.00	915.40	912.40	903.40	400.00	908.09	0.00	908.83	33.87	6.89	58.08	68.73
	394450.000	45.00	915.40	912.40	903.40	450.00	909.04	0.00	909.71	27.86	6.54	68.80	85.26
	394450.000	45.00	915.40	912.40	903.40	560.00	908.96	0.00	910.02	44.51	8.24	67.94	83.94
*	394451.000	1.00	0.00	0.00	903.40	290.00	907.05	907.05	908.20	94.28	8.62	33.65	29.87
	394451.000	1.00	0.00	0.00	903.40	400.00	907.67	0.00	909.01	35.67	9.29	43.05	43.22
	394451.000	1.00	0.00	0.00	903.40	450.00	908.94	0.00	909.76	37.41	7.26	62.02	73.57
	394451.000	1.00	0.00	0.00	903.40	560.00	908.72	0.00	910.13	67.55	9.53	58.79	63.14
	364460.000	45.00	0.00	0.00	903.90	290.00	908.21	0.00	908.40	9.38	3.47	89.07	94.69
	364460.000	45.00	0.00	0.00	903.90	400.00	909.02	0.00	909.20	6.63	3.50	133.51	155.30
	364460.000	45.00	0.00	0.00	903.90	450.00	909.73	0.00	909.87	4.04	3.11	182.89	223.84
	364460.000	45.00	0.00	0.00	903.90	560.00	910.14	0.00	910.33	4.30	3.42	215.52	270.13
	395660.000	1600.00	0.00	0.00	907.50	290.00	910.94	0.00	911.63	59.61	6.67	43.48	37.56

MOORE BUSINESS FORMS INC 27

* 395o60o000	1600o00	0o00	0o00	907o50	400o00	911o26	911o26	912o17	73o99	7o69	52o25	45o30
* 395660o000	1600o00	0o00	0o00	907o50	450o00	911o43	911o45	912o30	72o98	7o76	58o00	52o68
* 39566Co000	1600o00	0o00	0o00	907o50	560o00	911o77	911o77	912o80	71o02	8o13	69o08	66o45
396290o000	200o00	0o00	0o00	909o50	290o00	912o13	0o00	912o75	52o55	6o64	51o62	40o00
396290o000	200o00	0o00	0o00	909o50	400o00	912o67	0o00	913o29	41o70	6o73	72o74	61o94
396290o000	200o00	0o00	0o00	909o50	450o00	912o83	0o00	913o49	41o53	6o95	79o97	69o83
396290o000	200o00	0o00	0o00	909o50	560o00	913o17	0o00	913o89	41o36	7o38	95o25	87o08
396340o000	30o00	0o00	0o00	909o30	290o00	912o14	0o00	912o95	45o63	7o23	40o13	42o93
* 396340o000	30o00	0o00	0o00	909o30	400o00	912o31	912o31	913o67	71o74	9o38	42o65	47o22
* 396340o000	30o00	0o00	0o00	909o30	450o00	912o53	912o53	914o01	71o39	9o77	46o06	53o26
* 396340o000	30o00	0o00	0o00	909o30	560o00	912o99	912o99	914o71	70o64	10o52	53o22	66o63

1

83/04/07o 06o36o10o PAGE 14

SECNO	XLCH	ELTRO	ELLC	ELMIN	J	CHSEL	CRITS	EG	10K*S	VCH	AREA	o31K
* 396350o000	15o00	914o10	913o40	909o67	290o00	915o13	0o00	915o37	15o90	3o19	34o15	72o72
* 396350o000	15o00	914o10	913o40	909o67	400o00	914o10	0o00	914o70	66o23	6o13	64o77	49o15
* 396350o000	15o00	914o10	913o40	909o67	450o00	914o75	0o00	915o29	51o09	5o58	76o38	62o96
* 396350o000	15o00	914o10	913o40	909o67	560o00	914o88	0o00	915o67	72o11	6o63	78o80	65o95
396351o000	75o00	0o00	0o00	909o67	290o00	915o38	0o00	915o43	3o47	1o50	167o41	155o68
396351o000	75o00	0o00	0o00	909o67	400o00	914o78	0o00	914o90	10o31	2o51	145o36	124o59
396351o000	75o00	0o00	0o00	909o67	450o00	915o35	0o00	915o46	8o56	2o35	166o13	153o61
396351o000	75o00	0o00	0o00	909o67	560o00	915o74	0o00	915o89	10o15	2o60	180o83	175o73
397410o000	800o00	0o00	0o00	908o40	290o00	915o49	0o00	915o52	o53	1o26	290o71	399o72
397410o000	800o00	0o00	0o00	908o40	400o00	915o09	0o00	915o15	1o40	1o93	250o27	330o11
397410o000	800o00	0o00	0o00	908o40	450o00	915o61	0o00	915o66	1o15	1o89	303o87	419o85
397410o000	800o00	0o00	0o00	908o40	560o00	916o06	0o00	916o12	1o25	2o09	355o90	499o91
399110o000	1200o00	0o00	0o00	909o10	290o00	915o59	0o00	915o63	1o64	1o77	224o10	226o51
399110o000	1200o00	0o00	0o00	909o10	400o00	915o34	0o00	915o42	4o00	2o64	202o99	199o97
399110o000	1200o00	0o00	0o00	909o10	450o00	915o81	0o00	915o89	3o20	2o55	243o71	251o67
399110o000	1200o00	0o00	0o00	909o10	560o00	916o27	0o00	916o36	3o29	2o77	287o03	306o90
399120o000	1o00	924o80	925o10	909o10	290o00	915o26	0o00	915o76	80o40	5o69	50o96	32o34
399120o000	1o00	924o80	925o10	909o10	400o00	914o68	913o26	915o71	150o86	8o14	49o17	32o57
399120o000	1o00	924o80	925o10	909o10	450o00	915o00	913o45	916o24	189o96	8o94	50o35	32o65
399120o000	1o00	924o80	925o10	909o10	560o00	914o99	913o82	916o91	294o14	11o12	50o34	32o65
399140o000	37o00	924o80	925o10	909o10	290o00	915o66	912o67	916o02	54o77	4o97	61o36	39o19
399140o000	37o00	924o80	925o10	909o10	400o00	915o51	913o04	916o20	102o38	6o86	61o35	39o53
399140o000	37o00	924o80	925o10	909o10	450o00	915o99	913o24	916o86	131o87	7o72	61o36	39o19
399140o000	37o00	924o80	925o10	909o10	560o00	916o53	913o58	917o87	204o22	9o61	51o36	39o19
399141o000	1o00	0o00	0o00	909o10	290o00	915o98	0o00	916o05	2o97	2o14	135o39	168o15
399141o000	1o00	0o00	0o00	909o10	400o00	916o13	0o00	916o25	5o11	2o86	139o94	176o92
399141o000	1o00	0o00	0o00	909o10	450o00	916o81	0o00	916o93	4o24	2o80	160o64	218o53
399141o000	1o00	0o00	0o00	909o10	560o00	917o86	0o00	917o99	3o82	2o91	192o19	286o62
399210o000	100o00	0o00	0o00	909o60	290o00	916o04	0o00	916o07	o70	1o50	243o22	346o25
399210o000	100o00	0o00	0o00	909o60	400o00	916o23	0o00	916o23	1o15	1o97	259o37	372o39
399210o000	100o00	0o00	0o00	909o60	450o00	916o91	0o00	916o96	o90	1o88	321o89	475o01
399210o000	100o00	0o00	0o00	909o60	560o00	917o97	0o00	918o01	o70	1o86	435o51	667o42

MOORE BUSINESS FORMS, INC 27

399610.000	450.00	0.00	0.00	910.50	400.00	916.29	0.00	916.35	1.87	1.95	205.12	292.51
399610.000	450.00	0.00	0.00	910.50	450.00	916.95	0.00	917.01	1.34	1.85	249.73	389.08
399610.000	450.00	0.00	0.00	910.50	560.00	918.00	0.00	918.05	.96	1.81	340.38	573.02
399620.000	100.00	0.00	0.00	911.20	290.00	915.76	0.00	916.29	23.97	5.82	49.79	59.23
399620.000	100.00	0.00	0.00	911.20	400.00	915.84	0.00	916.70	49.64	8.29	48.28	56.77
399620.000	100.00	0.00	0.00	911.20	450.00	916.34	0.00	917.32	40.43	7.93	56.75	70.77
399620.000	100.00	0.00	0.00	911.20	560.00	917.34	0.00	918.37	37.56	8.15	68.74	91.37

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
399621.000	1.00	925.30	929.40	911.20	290.00	915.74	0.00	916.30	27.61	6.05	47.94	55.19
399621.000	1.00	925.30	929.40	911.20	400.00	915.58	0.00	916.74	57.83	8.65	46.24	52.60
399621.000	1.00	925.30	929.40	911.20	450.00	916.25	0.00	917.36	50.09	8.43	53.41	63.59
399621.000	1.00	925.30	929.40	911.20	560.00	917.21	0.00	918.44	51.73	8.92	62.78	77.86
399700.000	50.00	925.30	929.60	911.40	290.00	915.90	0.00	916.48	28.36	6.11	47.46	54.46
399700.000	60.00	925.30	929.60	911.40	400.00	916.04	0.00	917.07	49.49	8.16	49.03	56.36
399700.000	60.00	925.30	929.60	911.40	450.00	916.62	0.00	917.66	46.34	8.18	55.04	66.10
399700.000	60.00	925.30	929.60	911.40	560.00	917.57	0.00	918.75	48.84	8.70	64.35	80.13
400110.000	1.00	0.00	0.00	911.40	290.00	915.95	0.00	916.48	24.16	5.84	49.65	59.00
400110.000	1.00	0.00	0.00	911.40	400.00	916.19	0.00	917.09	39.52	7.62	52.47	63.63
400110.000	1.00	0.00	0.00	911.40	450.00	916.80	0.00	917.63	35.04	7.52	59.86	76.02
400110.000	1.00	0.00	0.00	911.40	560.00	917.85	0.00	918.79	32.71	7.73	72.46	97.91
400210.000	400.00	0.00	0.00	911.50	290.00	916.69	0.00	916.77	2.70	2.34	130.40	176.48
400210.000	400.00	0.00	0.00	911.50	400.00	917.35	0.00	917.46	2.94	2.63	169.87	233.24
400210.000	400.00	0.00	0.00	911.50	450.00	917.90	0.00	918.00	2.41	2.59	211.34	289.37
400210.000	400.00	0.00	0.00	911.50	560.00	918.96	0.00	919.04	1.73	2.45	312.61	426.07
400260.000	100.00	0.00	0.00	911.50	290.00	916.69	0.00	916.80	2.45	2.65	109.46	184.76
400260.000	100.00	0.00	0.00	911.50	400.00	917.34	0.00	917.50	3.01	3.20	125.06	230.71
400260.000	100.00	0.00	0.00	911.50	450.00	917.88	0.00	918.04	2.75	3.26	137.90	271.52
400260.000	100.00	0.00	0.00	911.50	560.00	918.91	0.00	919.10	2.45	3.44	162.67	357.58
400270.000	1.00	921.10	925.60	911.50	290.00	916.69	0.00	916.80	3.45	2.65	109.46	156.13
400270.000	1.00	921.10	925.60	911.50	400.00	917.34	0.00	917.50	4.44	3.20	125.06	189.73
400270.000	1.00	921.10	925.60	911.50	450.00	917.88	0.00	918.04	4.24	3.26	137.90	218.54
400270.000	1.00	921.10	925.60	911.50	560.00	918.91	0.00	919.10	4.10	3.44	162.67	276.61
400301.000	12.00	921.10	925.60	911.50	290.00	916.70	0.00	916.81	3.44	2.65	109.55	156.31
400301.000	12.00	921.10	925.60	911.50	400.00	917.35	0.00	917.51	4.43	3.20	125.17	189.97
400301.000	12.00	921.10	925.60	911.50	450.00	917.88	0.00	918.05	4.23	3.26	138.00	218.77
400301.000	12.00	921.10	925.60	911.50	560.00	918.92	0.00	919.10	4.09	3.44	162.76	276.84
400310.000	1.00	0.00	0.00	911.50	290.00	916.70	0.00	916.81	3.44	2.65	109.57	156.37
400310.000	1.00	0.00	0.00	911.50	400.00	917.35	0.00	917.51	4.43	3.19	125.21	190.06
400310.000	1.00	0.00	0.00	911.50	450.00	917.89	0.00	918.05	4.23	3.26	138.04	218.86
400310.000	1.00	0.00	0.00	911.50	560.00	918.92	0.00	919.10	4.09	3.44	162.80	276.94
402960.000	1600.00	0.00	0.00	912.10	290.00	917.01	0.00	917.03	.73	1.25	274.46	340.50
402960.000	1600.00	0.00	0.00	912.10	400.00	917.73	0.00	917.75	.71	1.38	373.03	476.06
402960.000	1600.00	0.00	0.00	912.10	450.00	918.24	0.00	918.26	.58	1.34	457.86	592.31
402960.000	1600.00	0.00	0.00	912.10	560.00	919.25	0.00	919.27	.41	1.23	650.79	875.56

MOORE BUSINESS FORMS INC 27

403000.000	1370.00	0.00	0.00	912.80	290.00	917.16	0.00	917.27	4.73	2.67	108.82	133.33
403000.000	1370.00	0.00	0.00	912.80	400.00	917.85	0.00	918.00	5.36	3.10	128.92	172.79
403000.000	1370.00	0.00	0.00	912.80	450.00	918.32	0.00	918.48	4.99	3.15	142.64	201.40
403000.000	1370.00	0.00	0.00	912.80	560.00	919.28	0.00	919.45	4.54	3.29	170.34	262.71

1

83/04/07. 06.36.10. PAGE 16

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
403010.000	1.00	0.00	0.00	912.80	290.00	916.75	0.00	917.44	36.45	6.65	43.62	43.33
403010.000	1.00	0.00	0.00	912.80	400.00	917.26	0.00	918.25	46.82	7.98	50.13	58.46
403010.000	1.00	0.00	0.00	912.80	450.00	917.74	0.00	918.73	42.92	8.00	56.28	68.69
403010.000	1.00	0.00	0.00	912.80	560.00	918.67	0.00	919.71	39.05	8.19	68.37	89.61
403011.000	100.00	914.90	920.34	912.80	290.00	917.20	0.00	917.86	47.08	6.49	44.69	42.27
403011.000	100.00	914.90	920.34	912.80	400.00	917.82	0.00	918.80	65.09	7.94	50.38	49.58
403011.000	100.00	914.90	920.34	912.80	450.00	918.21	0.00	919.30	59.91	8.38	53.72	53.82
403011.000	100.00	914.90	920.34	912.80	560.00	918.99	0.00	920.36	84.59	9.38	59.68	60.89
403012.000	12.00	914.90	920.34	912.80	290.00	917.28	0.00	917.91	45.00	6.30	45.44	43.23
403012.000	12.00	914.90	920.34	912.80	400.00	917.94	0.00	918.88	61.66	7.73	51.44	50.94
403012.000	12.00	914.90	920.34	912.80	450.00	918.33	0.00	919.38	66.77	8.22	54.75	55.07
403012.000	12.00	914.90	920.34	912.80	560.00	919.14	0.00	920.46	81.50	9.23	60.69	62.03
403013.000	1.00	0.00	0.00	912.80	290.00	917.46	0.00	917.93	21.34	5.50	52.74	62.77
403013.000	1.00	0.00	0.00	912.80	400.00	918.31	0.00	918.92	24.04	6.27	63.80	81.58
403013.000	1.00	0.00	0.00	912.80	450.00	918.73	0.00	919.43	23.76	6.44	69.89	92.31
403013.000	1.00	0.00	0.00	912.80	560.00	919.83	0.00	920.53	22.91	6.71	83.50	117.00
403100.000	100.00	0.00	0.00	912.50	290.00	917.97	0.00	918.01	1.32	1.66	207.50	252.11
403100.000	100.00	0.00	0.00	912.50	400.00	918.97	0.00	919.00	1.15	1.71	284.32	373.29
403100.000	100.00	0.00	0.00	912.50	450.00	919.48	0.00	919.52	.98	1.66	342.54	453.66
403100.000	100.00	0.00	0.00	912.50	560.00	920.59	0.00	920.61	.58	1.46	610.63	736.03
404000.000	1000.00	0.00	0.00	912.80	290.00	918.03	0.00	918.03	.05	.39	1333.96	1271.82
404000.000	1000.00	0.00	0.00	912.80	400.00	919.02	0.00	919.02	.04	.41	1731.48	1918.34
404000.000	1000.00	0.00	0.00	912.80	450.00	919.53	0.00	919.53	.04	.41	1935.32	2290.36
404000.000	1000.00	0.00	0.00	912.80	560.00	920.62	0.00	920.63	.03	.41	2373.54	3176.41
406000.000	1100.00	0.00	0.00	912.90	290.00	917.95	0.00	918.09	4.03	3.18	117.12	144.53
406000.000	1100.00	0.00	0.00	912.90	400.00	918.94	0.00	919.08	3.29	3.31	171.51	220.69
406000.000	1100.00	0.00	0.00	912.90	450.00	919.46	0.00	919.53	2.70	3.20	221.40	273.81
406000.000	1100.00	0.00	0.00	912.90	560.00	920.59	0.00	920.66	1.49	2.67	435.63	459.54

1

83/04/07. 06.36.10. PAGE 17

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKHS	TOPWID	XLCH
394360.000	290.00	903.54	0.00	0.00	-.46	24.10	0.00
394360.000	400.00	904.14	.60	0.00	-.06	26.42	0.00

MOORE BUSINESS FORMS, INC 27

	394360.000	560.00	904.84	1.49	0.00	.14	29.15	0.00
	394410.000	290.00	907.21	0.00	3.67	0.00	15.00	1500.00
	394410.000	400.00	907.93	.69	3.76	0.00	15.00	1500.00
	394410.000	450.00	908.97	1.07	5.61	0.00	15.00	1500.00
	394410.000	560.00	908.76	-.21	3.92	0.00	15.00	1500.00
	394411.000	290.00	907.19	0.00	-.03	0.00	15.00	1.00
	394411.000	400.00	907.83	.64	-.07	0.00	15.00	1.00
	394411.000	450.00	908.87	1.04	-.10	0.00	15.00	1.00
	394411.000	560.00	908.59	-.28	-.17	0.00	15.00	1.00
	394450.000	290.00	907.39	0.00	.20	0.00	15.00	45.00
	394450.000	400.00	908.09	.70	.26	0.00	15.00	45.00
	394450.000	450.00	909.04	.95	.17	0.00	15.00	45.00
	394450.000	560.00	908.96	-.08	.37	0.00	15.00	45.00
*	394451.000	290.00	907.05	0.00	-.34	0.00	15.00	1.00
	394451.000	400.00	907.67	.62	-.42	0.00	15.00	1.00
	394451.000	450.00	908.94	1.27	-.10	0.00	15.00	1.00
	394451.000	560.00	908.72	-.22	-.24	0.00	15.00	1.00
	364460.000	290.00	908.21	0.00	1.16	0.00	47.65	45.00
	364460.000	400.00	909.02	.81	1.35	0.00	52.66	45.00
	364460.000	450.00	909.73	.71	.79	0.00	75.93	45.00
	364460.000	560.00	910.14	.41	1.42	0.00	83.55	45.00
	395660.000	290.00	910.94	0.00	2.72	0.00	25.47	1600.00
*	395660.000	400.00	911.26	.32	2.24	0.00	29.36	1600.00
*	395660.000	450.00	911.45	.19	1.72	0.00	31.64	1600.00
*	395660.000	560.00	911.77	.33	1.63	0.00	36.88	1600.00
	396290.000	290.00	912.13	0.00	1.19	0.00	35.85	200.00
	396290.000	400.00	912.67	.54	1.41	0.00	42.00	200.00
	396290.000	450.00	912.83	.17	1.39	0.00	43.91	200.00
	396290.000	560.00	913.17	.33	1.40	0.00	47.69	200.00
	396340.000	290.00	912.14	0.00	.02	0.00	15.59	30.00
*	396340.000	400.00	912.31	.16	-.36	0.00	15.59	30.00
*	396340.000	450.00	912.53	.22	-.31	0.00	15.59	30.00
*	396340.000	560.00	912.99	.46	-.18	0.00	15.59	30.00

SECNO	C	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
* 396350.000	290.00	915.18	0.00	3.04	0.00	18.00	15.00
* 396350.000	400.00	914.10	-1.08	1.80	0.00	18.00	15.00
* 396350.000	450.00	914.75	.65	2.22	0.00	18.00	15.00
* 396350.000	560.00	914.88	.13	1.90	0.00	18.00	15.00
396351.000	290.00	915.38	0.00	.20	0.00	37.00	75.00
396351.000	400.00	914.78	-.60	.69	0.00	37.00	75.00
396351.000	450.00	915.35	.56	.60	0.00	37.00	75.00
396351.000	560.00	915.74	.40	.86	0.00	37.00	75.00
397410.000	290.00	915.49	0.00	.11	0.00	107.01	800.00

MOORE BUSINESS FORMS, INC 27

397410.000	400.00	915.67	-.40	-.31	0.00	96.89	800.00
397410.000	450.00	915.61	.52	.27	0.00	110.10	800.00
397410.000	560.00	916.06	.45	.32	0.00	121.56	800.00
399110.000	290.00	915.59	0.00	.09	0.00	96.33	1200.00
399110.000	400.00	915.34	-.25	.24	0.00	82.22	1200.00
399110.000	450.00	915.81	.47	.20	0.00	89.97	1200.00
399110.000	560.00	916.27	.46	.21	0.00	97.55	1200.00
399120.000	290.00	915.26	0.00	-.32	0.00	30.25	1.00
399120.000	400.00	914.68	-.58	-.66	0.00	30.25	1.00
399120.000	450.00	915.00	.32	-.81	0.00	30.25	1.00
399120.000	560.00	914.99	-.01	-1.28	0.00	30.25	1.00
399140.000	290.00	915.66	0.00	.40	0.00	87.60	37.00
399140.000	400.00	915.51	-.15	.83	0.00	85.20	37.00
399140.000	450.00	915.99	.48	.99	0.00	92.90	37.00
399140.000	560.00	916.53	.54	1.53	0.00	101.81	37.00
399141.000	290.00	915.98	0.00	.32	0.00	30.25	1.00
399141.000	400.00	916.13	.15	.62	0.00	30.25	1.00
399141.000	450.00	916.81	.83	.82	0.00	30.25	1.00
399141.000	560.00	917.86	1.05	1.33	0.00	30.25	1.00
399210.000	290.00	916.04	0.00	.06	0.00	32.83	100.00
399210.000	400.00	916.23	.19	.10	0.00	96.11	100.00
399210.000	450.00	916.91	.68	.10	0.00	97.79	100.00
399210.000	560.00	917.97	1.06	.11	0.00	116.03	100.00
399610.000	290.00	916.07	0.00	.04	0.00	55.77	450.00
399610.000	400.00	916.29	.21	.00	0.00	59.85	450.00
399610.000	450.00	916.95	.66	.05	0.00	74.65	450.00
399610.000	560.00	918.00	1.05	.03	0.00	98.09	450.00
399620.000	290.00	915.76	0.00	-.31	0.00	12.00	100.00
399620.000	400.00	915.64	-.12	-.65	0.00	12.00	100.00
399620.000	450.00	916.34	.71	-.61	0.00	12.00	100.00
399620.000	560.00	917.34	1.00	-.66	0.00	12.00	100.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFWSS	TOPWID	XLCH
399621.000	290.00	915.74	0.00	-.03	0.00	12.00	1.00
399621.000	400.00	915.58	-.16	-.06	0.00	12.00	1.00
399621.000	450.00	916.26	.69	-.08	0.00	12.00	1.00
399621.000	560.00	917.21	.94	-.14	0.00	12.00	1.00
399700.000	290.00	915.90	0.00	.16	0.00	12.00	60.00
399700.000	400.00	916.04	.14	.46	0.00	12.00	60.00
399700.000	450.00	916.62	.58	.36	0.00	12.00	60.00
399700.000	560.00	917.57	.95	.37	0.00	12.00	60.00
400110.000	290.00	915.95	0.00	.06	0.00	12.00	1.00
400110.000	400.00	916.19	.23	.15	0.00	12.00	1.00
400110.000	450.00	916.80	.62	.18	0.00	12.00	1.00
400110.000	560.00	917.85	1.05	.28	0.00	12.00	1.00

MOORE BUSINESS FORMS INC. 27

400210.000	400.00	917.35	.56	1.15	0.00	58.06	400.00
400210.000	450.00	917.93	.55	1.10	0.00	81.91	400.00
400210.000	560.00	918.96	1.06	1.11	0.00	138.56	400.00
400260.000	290.00	916.69	0.00	.01	0.00	24.00	100.00
400260.000	400.00	917.34	.65	-.01	0.00	24.00	100.00
400260.000	450.00	917.83	.53	-.02	0.00	24.00	100.00
400260.000	560.00	918.91	1.03	-.05	0.00	24.00	100.00
400270.000	290.00	916.69	0.00	.00	0.00	24.00	1.00
400270.000	400.00	917.34	.65	.00	0.00	24.00	1.00
400270.000	450.00	917.83	.53	.00	0.00	24.00	1.00
400270.000	560.00	918.91	1.03	.00	0.00	24.00	1.00
400301.000	290.00	916.70	0.00	.00	0.00	24.00	12.00
400301.000	400.00	917.35	.65	.01	0.00	24.00	12.00
400301.000	450.00	917.89	.53	.01	0.00	24.00	12.00
400301.000	560.00	918.92	1.03	.01	0.00	24.00	12.00
400310.000	290.00	916.70	0.00	.00	0.00	24.00	1.00
400310.000	400.00	917.35	.65	.00	0.00	24.00	1.00
400310.000	450.00	917.89	.53	.00	0.00	24.00	1.00
400310.000	560.00	918.92	1.03	.00	0.00	24.00	1.00
402960.000	290.00	917.01	0.00	.31	0.00	121.85	1600.00
402960.000	400.00	917.73	.71	.38	0.00	154.36	1600.00
402960.000	450.00	918.24	.51	.35	0.00	177.63	1600.00
402960.000	560.00	919.25	1.01	.33	0.00	223.69	1600.00
403000.000	290.00	917.16	0.00	.14	0.00	29.00	1370.00
403000.000	400.00	917.85	.69	.12	0.00	29.00	1370.00
403000.000	450.00	918.32	.47	.09	0.00	29.00	1370.00
403000.000	550.00	919.28	.96	.03	0.00	29.00	1370.00

SECNO	W	C/SEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
403010.000	290.00	916.75	0.00	-.40	0.00	13.00	1.00
403010.000	400.00	917.26	.51	-.59	0.00	13.00	1.00
403010.000	450.00	917.74	.47	-.59	0.00	13.00	1.00
403010.000	560.00	918.67	.93	-.61	0.00	13.00	1.00
403011.000	290.00	917.20	0.00	.45	0.00	13.00	100.00
403011.000	400.00	917.82	.62	.56	0.00	13.00	100.00
403011.000	450.00	918.21	.39	.47	0.00	13.00	100.00
403011.000	560.00	918.99	.78	.33	0.00	13.00	100.00
403012.000	290.00	917.28	0.00	.08	0.00	13.00	12.00
403012.000	400.00	917.94	.66	.12	0.00	13.00	12.00
403012.000	450.00	918.33	.39	.13	0.00	13.00	12.00
403012.000	560.00	919.14	.81	.15	0.00	13.00	12.00
403013.000	290.00	917.46	0.00	.13	0.00	13.00	1.00
403013.000	400.00	918.31	.84	.37	0.00	13.00	1.00
403013.000	450.00	918.78	.48	.45	0.00	13.00	1.00
403013.000	560.00	919.83	1.05	.69	0.00	13.00	1.00

MOORE BUSINESS FORMS INC 27

403100.000	290.00	917.97	0.00	.51	0.00	71.02	100.00
403100.000	400.00	918.97	.99	.66	0.00	33.53	100.00
403100.000	450.00	919.48	.51	.70	0.00	137.70	100.00
403100.000	560.00	920.59	1.11	.76	0.00	286.00	100.00
404000.000	290.00	918.03	0.00	.00	0.00	400.00	1000.00
404000.000	400.00	919.02	.99	.05	0.00	400.00	1000.00
404000.000	450.00	919.53	.51	.05	0.00	400.00	1000.00
404000.000	560.00	920.62	1.10	.03	0.00	400.00	1000.00
406000.000	290.00	917.95	0.00	-.08	0.00	43.23	1100.00
406000.000	400.00	918.94	.99	-.03	0.00	80.09	1100.00
406000.000	450.00	919.46	.52	-.07	0.00	112.26	1100.00
406000.000	560.00	920.59	1.13	-.04	0.00	246.00	1100.00

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO ********* PROFILE 3 CRITICAL DEPTH ASSUMED

CAUTION SECNO ********* PROFILE 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO ********* PROFILE 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO ********* PROFILE 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO ********* PROFILE 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO ********* PROFILE 2 MINIMUM SPECIFIC ENERGY
CAUTION SECNO ********* PROFILE 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO ********* PROFILE 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO ********* PROFILE 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO ********* PROFILE 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO ********* PROFILE 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO ********* PROFILE 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO ********* PROFILE 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO ********* PROFILE 2 MINIMUM SPECIFIC ENERGY
CAUTION SECNO ********* PROFILE 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO ********* PROFILE 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO ********* PROFILE 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO ********* PROFILE 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO ********* PROFILE 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO ********* PROFILE 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO ********* PROFILE 1 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO ********* PROFILE 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO ********* PROFILE 2 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO ********* PROFILE 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO ********* PROFILE 3 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO ********* PROFILE 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO ********* PROFILE 4 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO ********* PROFILE 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

MOORE BUSINESS FORMS

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: HOLLY, VILLAGE OF

3) WATERCOURSE: SHIAWASSEE RIVER

4) DOCUMENT TYPE: MULTIPLE PROFILES · FLOWS

00BREAK00

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*  WATER SURFACE PROFILES                                  *
*  VERSION OF NOVEMBER 1976                                *
*  UPDATED MARCH 1982                                      *
*                                                          *
*  RUN DATE  83/04/07. TIME  06.35.36.                     *
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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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83/04/07. 06.35.36. PAGE 1

THIS RUN EXECUTED 83/04/07. 06.35.36.

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
  ERROR CORR -  01,02,03,04,05
  MODIFICATION -  50,51,52,53,54,55
*****************************************************
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C
T1   VILLAGE OF HOLLEY,NO. 3562,'SHIAWA'
T2   SHIAWASSE RIVER
T3
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	.002330	0.00	0.0	0.	904.500	0.000

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

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

150.000	110.000	200.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	.040	.040	.024	.100	.300	0.000	0.000	0.000	0.000	0.000
QT	5.000	290.000	400.000	450.000	560.000	450.000	0.000	0.000	0.000	0.000
X1	394360.000	8.000	100.000	151.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	920.100	0.000	907.900	100.000	906.600	107.000	900.900	119.000	899.900	131.000
GR	906.600	143.000	907.700	151.000	913.600	225.000	0.000	0.000	0.000	0.000

SECTION A

MOORE BUSINESS FORMS INC 27

X1	394410.000	7.000	92.500	107.500	1500.000	1500.000	1500.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	92.500	0.000	107.500	0.000	0.000	0.000	0.000
GR	920.100	0.000	905.810	92.500	903.600	95.500	903.400	100.000	903.600	104.500
GR	905.800	107.500	913.600	200.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	394411.000	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	92.500	0.000	107.500	0.000	0.000	0.000	0.000
BT	7.000	0.000	920.100	920.100	92.500	915.500	905.810	95.500	915.400	910.200
BT	100.000	915.400	912.400	104.500	915.400	910.200	107.500	915.300	905.810	200.000
BT	913.600	913.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	394450.000	0.000	0.000	0.000	45.000	45.000	45.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	912.400	915.400	0.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	92.500	0.000	107.500	0.000	0.000	0.000	0.000
X1	394451.000	7.000	92.500	107.500	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	92.500	0.000	107.500	0.000	0.000	0.000	0.000
GR	920.100	0.000	905.810	92.500	906.900	95.500	903.400	100.000	903.600	104.500
GR	905.800	107.500	913.600	200.000	0.000	0.000	0.000	0.000	0.000	0.000

1

33/04/07. 06.35.36.

X1	364460.000	8.000	100.000	132.000	45.000	45.000	45.000	0.000	0.000	0.000
GR	920.100	0.000	907.600	100.000	906.600	105.000	903.900	112.000	904.100	119.000
GR	906.600	125.000	907.200	132.000	913.600	200.000	0.000	0.000	0.000	0.000
X1	395660.000	7.000	100.000	136.000	1600.000	1600.000	1600.000	0.000	2.500	0.000
GR	916.000	0.000	909.100	100.000	908.400	105.000	905.000	117.000	908.400	130.000
GR	909.600	136.000	914.000	218.000	0.000	0.000	0.000	0.000	0.000	0.000

SECTION 3 -- FISH LAKE ROAD CULVERT

X1	396290.000	9.000	100.000	137.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	920.000	0.000	914.900	100.000	914.100	104.000	913.400	112.000	910.300	121.000
GR	909.500	129.000	910.300	134.000	910.400	137.000	920.000	218.000	0.000	0.000
X1	396340.000	7.000	100.000	118.000	30.000	30.000	30.000	.866	0.000	0.000
X3	10.000	0.000	0.000	100.000	0.000	118.000	0.000	914.100	914.100	0.000
GR	914.900	0.000	910.300	100.000	909.500	104.000	909.300	109.000	909.300	114.000
GR	910.300	118.000	913.400	220.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	.900	1.210	2.630	0.000	19.000	.500	77.900	0.000	0.000	0.000
X1	396350.000	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	913.400	914.100	0.000	0.000	0.000	.866	0.000
X3	10.000	0.000	0.000	100.000	0.000	118.000	0.000	914.100	914.100	0.000
BT	7.000	0.000	914.100	914.100	100.000	914.100	910.300	104.000	914.100	913.400
BT	109.000	914.100	913.400	114.000	914.100	913.400	118.000	914.100	913.400	220.000
BT	913.400	913.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	395351.000	0.000	0.000	0.000	75.000	75.000	75.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	100.000	0.000	137.000	0.000	0.000	0.000	0.000
X1	397410.000	7.000	100.000	144.000	800.000	800.000	800.000	0.000	0.000	0.000
GR	920.000	0.000	912.600	100.000	911.600	103.000	908.400	117.000	911.000	131.000
GR	913.500	144.000	920.000	222.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	399110.000	17.000	96.750	127.000	1200.000	1200.000	1200.000	0.000	0.000	0.000
GR	924.800	0.000	912.350	96.750	910.720	98.500	909.100	100.000	910.720	101.500
GR	912.350	102.750	912.350	110.750	910.720	112.400	909.100	114.000	910.720	115.620

MOORE BUSINESS FORMS INC 27

GR	912.350	130.000	925.100	240.000	0.000	0.000	0.000	0.000	0.000	0.000
	SECTION C -- GRAND TRUNK RR CULVERT									
X1	399120.000	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	96.750	0.000	127.000	0.000	0.000	0.000	0.000
BT	17.000	0.000	924.900	924.900	96.750	924.900	912.350	98.500	924.900	914.000
BT	100.000	924.900	915.600	101.500	924.900	914.000	102.750	924.900	912.350	110.750
BT	925.000	912.350	112.400	925.000	914.000	114.000	925.000	915.600	115.620	925.000
BT	914.000	117.250	925.000	912.350	123.750	925.000	912.350	125.400	925.000	914.000
BT	127.000	925.000	915.600	128.600	925.000	914.000	130.000	925.000	912.350	240.000
BT	925.100	925.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	399140.000	0.000	0.000	0.000	37.000	37.000	37.000	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	399141.000	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	96.750	0.000	127.000	0.000	0.000	0.000	0.000
X1	399210.000	8.000	100.000	135.000	100.000	100.000	100.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	924.800	0.000	913.100	100.000	912.100	104.000	909.600	113.000	909.800	122.000
GR	912.100	131.000	913.400	135.000	925.000	235.000	0.000	0.000	0.000	0.000
	SECTION D									
X1	399610.000	8.000	100.000	157.000	450.000	450.000	450.000	0.000	1.300	0.000
GR	929.400	0.000	915.000	100.000	912.900	111.000	909.500	125.000	909.200	140.000
GR	912.900	153.000	914.800	157.000	921.300	257.000	0.000	0.000	0.000	0.000
	SECTION E -- MORRISON ST. CULVERT									
X1	399620.000	13.000	94.000	106.000	100.000	100.000	100.000	0.000	-.500	0.000
X3	0.000	0.000	0.000	94.000	0.000	106.000	0.000	0.000	0.000	0.000
GR	920.300	0.000	913.700	94.000	912.600	94.500	912.400	95.400	912.000	96.900
GR	911.700	98.400	911.700	100.000	911.700	101.500	912.000	103.000	912.400	104.500
GR	912.600	105.400	913.700	106.000	921.300	200.000	0.000	0.000	0.000	0.000
X1	399621.000	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	94.000	0.000	106.000	0.000	0.000	0.000	0.000
BT	13.000	0.000	929.400	929.400	94.000	925.300	913.700	94.500	925.300	915.200
BT	95.400	925.300	916.900	96.900	925.300	918.300	98.400	925.300	919.100	100.000
BT	925.300	919.140	101.500	925.300	919.100	103.000	925.300	918.300	104.500	925.300
BT	925.300	105.400	925.300	915.200	106.000	925.300	913.700	200.000	925.600	921.300
X1	399700.000	0.000	0.000	0.000	60.000	60.000	60.000	0.000	.200	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	94.000	0.000	106.000	0.000	0.000	0.000	0.000
X1	400110.000	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	94.000	0.000	106.000	0.000	0.000	0.000	0.000
	SECTION F									
X1	400210.000	8.000	100.000	135.000	400.000	400.000	400.000	0.000	0.000	0.000
GR	920.000	0.000	915.900	100.000	913.200	105.000	911.500	113.000	912.400	121.000
GR	913.100	130.000	920.600	135.000	920.000	235.000	0.000	0.000	0.000	0.000
	SECTION G -- DRIVEWAY CULVERT									

MOORE BUSINESS FORMS INC 27

X1	400260.000	.000	100.000	124.000	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	921.100	921.100	0.000
GR	921.000	0.000	913.200	100.000	911.500	108.000	911.700	116.000	913.200	124.000
GR	925.600	225.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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SECTION H

X1	400270.000	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	100.000	0.000	124.000	0.000	0.000	0.000	0.000
BT	7.000	0.000	921.100	921.000	100.000	921.100	919.500	108.000	921.100	919.500
BT	116.000	921.100	919.500	124.000	921.100	919.500	124.000	921.100	919.500	225.000
BT	925.600	925.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	400301.000	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
X3	10.000	0.000	0.000	100.000	0.000	124.000	0.000	0.000	0.000	0.000
X1	400310.000	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	124.000	0.000	0.000	0.000	0.000
X1	402960.000	8.000	100.000	158.000	1600.000	1600.000	1600.000	0.000	0.000	0.000
GR	920.000	0.000	916.200	100.000	914.200	100.000	912.400	122.000	912.100	135.000
GR	914.200	148.000	914.800	158.000	920.000	258.000	0.000	0.000	0.000	0.000

SECTION F---LEGRAND ST. CULVERT

X1	403000.000	27.000	87.000	116.000	1370.000	1370.000	1370.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	87.000	0.000	116.000	0.000	0.000	0.000	0.000
GR	920.000	0.000	914.900	87.000	913.800	87.500	913.600	88.500	913.200	90.000
GR	912.900	91.500	912.900	93.000	912.800	94.500	913.200	96.000	913.400	97.500
GR	913.800	98.500	914.900	99.000	914.900	100.000	913.800	100.500	913.600	101.500
GR	913.200	103.000	912.900	104.500	912.900	106.000	912.800	107.500	913.200	109.000
GR	913.400	110.500	913.800	111.500	914.900	112.000	913.800	113.000	913.600	114.500
GR	913.200	116.000	912.900	203.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	403010.000	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	87.000	0.000	100.000	0.000	0.000	0.000	0.000
X1	403011.000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	87.000	0.000	100.000	0.000	0.000	0.000	0.000
BT	27.000	0.000	914.900	914.900	87.000	920.800	916.400	87.500	920.800	918.100
BT	88.500	920.800	919.500	90.000	928.800	920.300	91.500	928.800	920.340	93.000
BT	928.000	920.300	94.500	928.800	919.500	96.000	920.800	918.100	97.500	920.800
BT	916.400	98.500	920.800	914.900	99.000	920.800	914.900	100.000	920.800	916.400
BT	100.500	920.800	918.100	101.500	920.800	919.500	103.000	920.800	920.300	104.500
BT	920.800	920.340	106.000	920.900	920.300	107.500	920.800	919.500	109.000	920.800
BT	918.100	110.500	920.800	916.400	111.500	920.800	916.400	112.000	920.900	914.900
BT	113.000	920.900	913.800	114.500	920.900	913.600	116.000	920.900	913.200	203.000
BT	920.900	912.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	403012.000	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
X3	10.000	0.000	0.000	87.000	0.000	100.000	0.000	0.000	0.000	0.000
X1	403013.000	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	37.000	0.000	100.000	0.000	0.000	0.000	0.000

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MOORE BUSINESS FORMS INC 27

X1	403100.000	8.000	136.000	186.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	920.000	0.000	916.900	100.000	914.200	136.000	912.700	144.000	912.500	152.000
GR	914.200	161.000	919.700	136.000	920.000	286.000	0.000	0.000	0.000	0.000
X1	404000.000	10.000	212.000	260.000	1000.000	1000.000	1000.000	0.000	0.000	0.000
GR	915.400	0.000	915.300	100.000	915.300	200.000	915.200	212.000	913.200	228.000
GR	912.800	244.000	913.400	260.000	914.200	272.000	914.200	300.000	914.200	400.000
X1	406000.000	8.000	110.000	129.000	1100.000	1100.000	1100.000	0.000	0.000	0.000
GR	920.000	0.000	918.400	94.000	914.900	110.000	913.500	116.000	912.900	122.000
GR	914.800	129.000	920.000	146.000	920.000	246.000	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

1

SECNO	DEPTH	CWSEL	CRIWS	ASELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 .100 CEHV .300

*SECNO 394360.000

394360.00	4.48	904.38	0.00	904.50	904.89	.51	0.00	0.00	907.90
450.	0.	450.	0.	0.	79.	0.	0.	0.	907.70
0.00	0.00	5.73	0.00	.040	.024	.040	0.000	899.90	111.67
.002303	0.	0.	0.	0	0	4	0.00	27.36	139.03

0

*SECNO 394410.000

3470 ENCROACHMENT STATIONS 92.5 107.5 TYPE 1 TARGET 15.000

SECTION A

394410.00	4.78	908.13	0.00	0.00	908.97	.79	3.99	.08	905.81
450.	0.	450.	0.	0.	63.	0.	2.	1.	100000.00
.06	0.00	7.14	0.00	.040	.024	.040	0.000	903.40	92.50
.003109	1500.	1500.	1500.	1	0	0	0.00	15.00	107.50

0

*SECNO 394411.000

3370 NORMAL BRIDGE,NRD 7 MIN ELTRD 913.60 MAX ELLC 920.10

3470 ENCROACHMENT STATIONS 92.5 107.5 TYPE 1 TARGET 15.000

394411.00	4.68	908.08	0.00	0.00	909.02	.94	.00	.04	905.81
450.	0.	450.	0.	0.	58.	0.	2.	1.	100000.00
.06	0.00	7.76	0.00	.040	.024	.040	0.000	903.40	92.50
.004310	1.	1.	1.	2	0	0	-3.52	15.00	107.50

0

*SECNO 394450.000

3370 NORMAL BRIDGE,NRD 7 MIN ELTRD 915.40 MAX ELLC 912.40

3470 ENCROACHMENT STATIONS 92.5 107.5 TYPE 1 TARGET 15.000

BUSINESS FORMS INC 27 MOORE

394450.00	4.47	908.27	0.00	0.00	909.21	.83	.18	.01	905.81
450.	0.	450.	0.	0.	61.	0.	3.	1.	100000.00
.06	0.00	7.33	0.00	.040	.024	.040	0.000	903.40	92.50
.003715	45.	45.	45.	2	0	0	-4.48	15.00	107.50

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 394451.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS 92.5 107.5 TYPE 1 TARGET 15.000

394451.00	4.61	908.01	0.00	0.00	909.37	1.36	.01	.16	905.81
450.	0.	450.	0.	0.	48.	0.	3.	1.	100000.00
.06	0.00	9.37	0.00	.040	.024	.040	0.000	903.40	92.50
.007847	1.	1.	1.	3	0	0	0.00	15.00	107.50

0
*SECNO 364460.000

3301 HV CHANGED MORE THAN HVINS

364460.00	5.48	909.38	0.00	0.00	909.55	.18	.06	.12	907.60
450.	10.	416.	24.	13.	119.	25.	3.	1.	907.20
.06	.82	3.49	.94	.040	.024	.040	0.000	903.90	85.81
.000575	45.	45.	45.	3	0	0	0.00	69.29	155.10

0
*SECNO 395660.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

395660.00	3.95	911.45	911.45	0.00	912.38	.93	2.24	.23	911.60
450.	0.	450.	0.	0.	58.	0.	7.	3.	912.10
.12	0.00	7.76	0.00	.040	.024	.040	0.000	907.50	101.09
.007290	1600.	1600.	1600.	20	19	0	0.00	31.65	132.74

0
*SECNO 396290.000
SECTION 6 -- FISH LAKE ROAD CULVERT

396290.00	3.33	912.33	0.00	0.00	913.49	.65	1.08	.03	914.90
450.	0.	382.	68.	0.	55.	25.	7.	3.	910.40
.13	0.00	6.95	2.72	.040	.024	.040	0.000	909.50	113.64
.004156	200.	200.	200.	2	0	0	0.00	43.90	157.54

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

MOORE BUSINESS FORMS, INC 27

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 396340.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED ISEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS 86.6 102.2 TYPE 1 TARGET 18.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA 914.10 ELREA 914.10

XSEC A

396340.00	3.23	912.53	912.53	0.00	914.01	1.48	.16	.25	910.30
450.	0.	450.	0.	0.	46.	0.	7.	3.	100000.00
.13	0.00	9.77	0.00	.040	.024	.040	0.000	909.30	86.60
.007139	30.	30.	30.	20	6	0	0.00	15.59	102.19

0

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
.90	1.21	2.63	0.00	19.00	.50	77.90	0.00	909.30	909.30

*SECNO 396350.000
PRESS FLOW BECAUSE EGLWC OF 991.69 EXCEEDS 1.5 DEPTH
6110 EGLWC OF 913.15 LESS THAN XEG OF 914.01
3280 CROSS SECTION 396350.00 EXTENDED 1.35 FEET

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
913.15	991.69	.34	0.	450.	78.	76.	913.40	914.10

XSEC B

3685 20 TRIALS ATTEMPTED ISEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF

3470 ENCROACHMENT STATIONS 100.0 118.0 TYPE 1 TARGET 18.000

396350.00	5.03	914.75	0.00	0.00	915.29	.54	0.00	0.00	100000.00
450.	0.	58.	392.	0.	10.	66.	7.	3.	910.30
.13	0.00	5.58	5.94	.040	.024	.040	0.000	909.67	100.00
.005109	15.	15.	15.	20	0	0	0.00	18.00	118.00

0
1

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

MOORE BUSINESS FORMS, INC 27

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*SECNO 3.6351.000
3280 CROSS SECTION 396351.00 EXTENDED      1.95 FEET

3470 ENCROACHMENT STATIONS      100.0     137.0  TYPE      1  TARGET       37.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA    100000.00 ELREA       910.30

396351.00     5.66   915.35     0.00     0.00   915.45      .11      .13      .04100000.00
     450.       0.      23.     422.       0.      12.     154.       7.       3.    910.30
      .14     0.00     2.35     2.74     .040     .024     .040    0.000   909.67    100.00
  .000856      75.      75.      75.        2        0        0     0.00    37.00    137.00
0
*SECNO 397410.000
397410.00     7.21   915.61     0.00     0.00   915.66      .05      .20      .01    912.60
     450.      32.     407.      11.      61.     216.      27.      11.       4.    913.50
      .27      .52     1.39      .41     .040     .024     .040    0.000   908.40     59.27
  .000115     800.     800.     800.        3        0        0     0.00   110.10    169.37
0
*SECNO 399110.000
399110.00     6.71   915.81     0.00     0.00   915.89      .08      .22      .01    912.35
     450.      44.     333.      73.      46.     130.      67.      19.       7.    909.10
      .42      .95     2.55     1.09     .040     .024     .040    0.000   909.10     69.87
  .000320    1200.    1200.    1200.        2        0        0     0.00    89.97    159.84
0
*SECNO 399120.000

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD  17 MIN ELTRD   924.30 MAX ELLC   925.10

3470 ENCROACHMENT STATIONS       96.8     127.0  TYPE      1  TARGET       30.250
        SECTION C -- GRAND TRUNK RR CULVERT
399120.00     5.90   915.00   913.45     0.00   916.24     1.24      .00      .35    912.35
     450.       0.     450.       0.       0.      50.       0.      19.       7. 100000.00
      .42     0.00     8.94     0.00     .040     .024     .040    0.000   909.10     96.75
  .018996       1.       1.       1.        6       22        0   -55.29    30.25    127.00
0
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 83/04/07.   06.35.36.                                                                  PAGE   10

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 399140.000

3370 NORMAL BRIDGE,NRD  17 MIN ELTRD   924.30 MAX ELLC   925.10

399140.00     6.89   915.99   913.24     0.00   916.85      .37      .58      .04    912.35
     450.       0.     396.      54.       0.      51.      10.      19.       7.    909.10
      .42     0.00     7.72     5.38     .040     .024     .040    0.000   909.10     68.48
  .013187      37.      37.      37.        6       15        0  -198.67    92.90    161.38
0
*SECNO 399141.000
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3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS 96.8 127.0 TYPE 1 TARGET 30.250

399141.00	7.71	916.31	0.00	0.00	916.93	.12	.00	.07	912.35
450.	0.	450.	0.	0.	161.	0.	19.	7.	100000.00
.42	0.00	2.80	0.00	.040	.024	.040	0.000	909.10	96.75
.000424	1.	1.	1.	2	0	0	0.00	30.25	127.00

0

*SECNO 399210.000 XSEC E

399210.00	7.31	916.91	0.00	0.00	916.96	.05	.02	.01	913.10
450.	33.	390.	27.	62.	207.	53.	20.	7.	913.40
.44	.54	1.38	.51	.040	.024	.040	0.000	909.60	67.45
.000090	100.	100.	100.	2	0	0	0.00	97.79	165.24

0

*SECNO 399610.000 XSEC F
SECTION D

399610.00	6.45	916.95	0.00	0.30	917.01	.05	.05	.00	916.30
450.	0.	448.	1.	1.	243.	6.	23.	8.	916.10
.51	.20	1.35	.24	.040	.024	.040	0.000	910.50	95.47
.000134	450.	450.	450.	2	0	0	0.00	74.65	170.12

0

*SECNO 399620.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS 94.0 106.0 TYPE 1 TARGET 12.000

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83/04/07. 06.35.36. PAGE 11

XSEC G 7.5+3'

SECTION E -- MORRISON ST. CULVERT

399620.00	5.14	916.34	0.00	0.00	917.32	.98	.04	.28	913.20
450.	0.	450.	0.	0.	57.	0.	23.	8.	99999.50
.51	0.00	7.93	0.00	.040	.024	.040	0.000	911.20	94.00
.004043	100.	100.	100.	3	0	0	0.00	12.00	106.00

0

*SECNO 399621.000

3370 NORMAL BRIDGE,NRD 13 MIN ELTRD 925.30 MAX ELLC 929.40

3470 ENCROACHMENT STATIONS 94.0 106.0 TYPE 1 TARGET 12.000

399621.00	5.08	916.26	0.00	0.00	917.36	1.10	.00	.04	913.20
450.	0.	450.	0.	0.	53.	0.	23.	8.	100000.00
.51	0.00	8.43	0.00	.040	.024	.040	0.000	911.20	94.00
.005009	1.	1.	1.	2	0	0	-2.34	12.00	106.00

0

*SECNO 399700.000

3370 NORMAL BRIDGE,NRD 13 MIN ELTRD 925.30 MAX ELLC 929.60

3470 ENCROACHMENT STATIONS 94.0 106.0 TYPE 1 TARGET 12.000

399700.00	5.22	916.62	0.00	0.00	917.66	1.04	.29	.01	913.40
450.	0.	450.	0.	0.	55.	0.	23.	8.	100000.00
.51	0.00	8.13	0.00	.040	.024	.040	0.000	911.40	94.00
.004634	60.	60.	60.	2	0	0	-2.63	12.00	106.00

MOORE BUSINESS FORMS, INC 27

0
*SECNO 400110.000

3470 ENCROACHMENT STATIONS 94.0 106.0 TYPE 1 TARGET 12.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA 913.40 ELREA 100000.00

400110.00	5.40	916.80	0.00	0.00	917.63	.88	.00	.02	913.40
450.	0.	450.	0.	0.	60.	0.	23.	8.	100000.00
.51	0.00	7.52	0.00	.040	.024	.040	0.000	911.40	94.00
.003504	1.	1.	1.	2	0	0	0.00	12.00	106.00

0
*SECNO 400210.000

3301 HV CHANGED MORE THAN HVINS

SECTION 3 H

400210.00	6.40	917.90	0.00	0.00	918.00	.10	.24	.08	915.90
450.	28.	422.	0.	49.	153.	0.	24.	9.	920.60
.56	.58	2.59	0.00	.040	.024	.040	0.000	911.50	51.23
.000241	400.	400.	400.	2	0	0	0.00	31.91	133.20

0
1
83/04/07. 06.35.36. PAGE 12

SECNO	DEPTH	CWSEL	CRIAS	HSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 400260.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA 921.10 ELREA 921.10

SECTION 4 -- DRIVEWAY CULVERT

400260.00	6.33	917.88	0.00	0.00	918.04	.17	.03	.02	913.20
450.	0.	450.	0.	0.	138.	0.	25.	9.	913.20
.57	0.00	3.26	0.00	.040	.024	.040	0.000	911.50	100.00
.000275	100.	100.	100.	2	0	0	0.00	24.00	124.00

0
*SECNO 400270.000

3370 NORMAL BRIDGE,NRD 7 MIN ELTRD 921.10 MAX ELLC 925.60

3470 ENCROACHMENT STATIONS 100.0 124.0 TYPE 1 TARGET 24.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA 913.20 ELREA 100000.00

SECTION H

400270.00	6.38	917.88	0.00	0.00	918.04	.17	.00	.00	913.20
450.	0.	450.	0.	0.	138.	0.	25.	9.	100000.00
.57	0.00	3.26	0.00	.040	.024	.040	0.000	911.50	100.00
.000424	1.	1.	1.	0	0	0	0.00	24.00	124.00

0
*SECND 400301.000

3370 NORMAL BRIDGE,NRD 7 MIN ELTRD 921.10 MAX ELLC 925.60

MOORE BUSINESS FORMS, INC 27

3470 ENCROACHMENT STATIONS 100.0 124.0 TYPE 1 TARGET 24.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE. ELLEA 913.20 ELREA 100000.00

400301.00	6.38	917.83	0.00	0.00	918.05	.17	.01	.00	913.20
450.	0.	450.	0.	0.	136.	0.	25.	9.	100000.00
.57	0.00	3.26	0.00	.040	.024	.040	0.000	911.50	100.00
.000423	12.	12.	12.	0	0	0	0.00	24.00	124.00

0
1

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

*SECNO 400310.000

3470 ENCROACHMENT STATIONS 100.0 124.0 TYPE 1 TARGET 24.000

400310.00	6.39	917.89	0.00	0.00	918.05	.17	.00	.00	913.20
450.	0.	450.	0.	0.	138.	0.	25.	9.	100000.00
.57	0.00	3.26	0.00	.040	.024	.040	0.000	911.50	100.00
.000423	1.	1.	1.	0	0	0	0.00	24.00	124.00

0
*SECNO 402960.000 XSEC J

402960.00	6.14	918.24	0.00	0.00	918.26	.02	.20	.01	916.20
450.	16.	389.	46.	55.	290.	113.	36.	12.	914.30
.93	.29	1.34	.40	.040	.024	.040	0.000	912.10	46.43
.000358	1600.	1.00.	1600.	2	0	0	0.00	177.63	224.07

0
*SECNO 403000.000
3280 CROSS SECTION 403000.00 EXTENDED 3.42 FEET

3470 ENCROACHMENT STATIONS 37.0 116.0 TYPE 1 TARGET 29.000
~~SECTION 1~~ -- LEGNAND ST. CULVERT XSEC K

403000.00	5.52	918.32	0.00	0.00	918.43	.15	.18	.04	914.90
450.	0.	450.	0.	0.	143.	0.	45.	16.	100000.00
1.05	0.00	3.15	0.00	.040	.024	.040	0.000	912.80	87.00
.000499	1370.	1370.	1370.	2	0	0	0.00	29.00	116.00

0
*SECNO 403010.000
3280 CROSS SECTION 403010.00 EXTENDED 4.64 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS 37.0 100.0 TYPE 1 TARGET 13.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE. ELLEA 914.90 ELREA 100000.00

XSEC L

403010.00	4.94	917.74	0.00	0.00	918.73	.99	.00	.25	914.90
450.	0.	450.	0.	0.	56.	0.	45.	16.	100000.00
1.05	0.00	3.00	0.00	.040	.024	.040	0.000	912.80	87.00

MOORE BUSINESS FORMS INC 27

SECNO	DEPTH	CNSEL	CRIWS	SELK	EG	HV	HL	LOSS	BANK ELEV
Q	QLOB	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

*SECNO 403011.000
3280 CROSS SECTION 403011.00 EXTENDED 5.31 FEET

3370 NORMAL BRIDGE, NRD 27 MIN ELTRD 914.90 MAX ELLC 920.34

3470 ENCROACHMENT STATIONS 87.0 100.0 TYPE 1 TARGET 13.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA 914.90 ELREA 100000.00

403011.00	5.41	913.21	0.00	0.00	919.30	1.09	.54	.03	914.90
450.	0.	450.	0.	0.	54.	0.	45.	16.	100000.00
1.06	0.00	8.38	0.00	.040	.024	.040	0.000	912.80	87.00
.006991	100.	100.	100.	2	0	0	-8.70	13.00	100.00

*SECNO 403012.000
3280 CROSS SECTION 403012.00 EXTENDED 5.43 FEET

3370 NORMAL BRIDGE, NRD 27 MIN ELTRD 914.90 MAX ELLC 920.34

3470 ENCROACHMENT STATIONS 87.0 100.0 TYPE 1 TARGET 13.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA 914.90 ELREA 100000.00

403012.00	5.53	913.33	0.00	0.00	919.33	1.05	.08	.00	914.90
450.	0.	450.	0.	0.	55.	0.	45.	16.	100000.00
1.06	0.00	8.22	0.00	.040	.024	.040	0.000	912.80	87.00
.006677	12.	12.	12.	2	0	0	-9.30	13.00	100.00

*SECNO 403013.000
3280 CROSS SECTION 403013.00 EXTENDED 5.88 FEET

3470 ENCROACHMENT STATIONS 87.0 100.0 TYPE 1 TARGET 13.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA 914.90 ELREA 100000.00

403013.00	5.98	913.78	0.00	0.00	919.43	.64	.00	.04	914.90
450.	0.	450.	0.	0.	70.	0.	45.	16.	100000.00
1.06	0.00	6.44	0.00	.040	.024	.040	0.000	912.80	87.00
.002376	1.	1.	1.	3	0	0	0.00	13.00	100.00

MOORE BUSINESS FORMS, INC 27

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	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

*SECNO 403100.000

3301 HV CHANGED MORE THAN HVINS

403100.00	6.98	919.48	0.00	0.00	919.52	.04	.03	.06	914.20
450.	82.	369.	0.	121.	222.	0.	46.	16.	919.70
1.08	.68	1.66	0.00	.040	.024	.040	0.000	912.50	47.30
.000098	100.	100.	100.	2	0	0	0.00	137.70	185.00

0

*SECNO 404000.000

3280 CROSS SECTION 404000.00 EXTENDED 5.33 FEET

XSEC N

404000.00	6.73	919.53	0.00	0.00	919.53	.00	.01	.00	915.20
450.	168.	119.	164.	892.	293.	751.	72.	22.	913.40
2.16	.19	.41	.22	.040	.024	.040	0.000	912.80	0.00
.000004	1000.	1000.	1000.	2	0	0	0.00	400.00	400.00

0

*SECNO 406000.000

XSEC N

406000.00	6.56	919.46	0.00	0.00	919.58	.13	.01	.04	914.90
450.	67.	340.	37.	78.	108.	35.	99.	29.	914.80
2.28	.85	3.20	1.04	.040	.024	.040	0.000	912.90	31.96
.000270	1100.	1100.	1100.	2	0	0	0.00	112.26	144.22

0

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MOORE BUSINESS FORMS, INC 27

THIS RUN EXECUTED 83/04/07. 06.35.39.

****
HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
ERROR CORR - 01,02,03,04,05
MODIFICATION - 50,51,52,53,54,55
****

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	6.	0.	0.	.002330	0.00	0.0	0.	904.600	0.000

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

1

SECNO	DEPTH	CWSEL	CRITS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	VCH	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

*PROF 2

CCHV .100 CEHV .300

*SECNO 394360.000

394360.00	4.49	904.39	0.00	904.60	904.90	.51	0.00	0.00	907.90
450.	0.	450.	0.	0.	79.	0.	0.	0.	907.70
0.00	0.00	5.72	0.00	.040	.024	.040	0.000	399.90	111.65
.002289	0.	0.	0.	0	0	4	0.00	27.39	139.04

0

*SECNO 394410.000

3470 ENCROACHMENT STATIONS 92.5 107.5 TYPE 1 TARGET 15.000

SECTION 4

394410.00	4.77	903.17	0.00	0.00	908.97	.79	3.98	.09	905.81
450.	0.	450.	0.	0.	63.	0.	2.	1.	100000.00
.06	0.00	7.15	0.00	.040	.024	.040	0.000	903.40	92.50
.003119	1500.	1500.	1500.	1	0	0	0.00	15.00	107.50

0

*SECNO 394411.000

3370 NORMAL BRIDGE,NRD 7 MIN ELTRD 913.60 MAX ELLC 920.10

3470 ENCROACHMENT STATIONS 92.5 107.5 TYPE 1 TARGET 15.000

394411.00	4.68	903.08	0.00	0.00	909.01	.94	.00	.04	905.81
450.	0.	450.	0.	0.	58.	0.	2.	1.	100000.00
.06	0.00	7.77	0.00	.040	.024	.040	0.000	903.40	92.50
.004318	1.	1.	1.	2	0	0	-3.51	15.00	107.50

0

*SECNO 394450.000

3370 NORMAL BRIDGE,NRD 7 MIN ELTRD 915.40 MAX ELLC 912.40

3470 ENCROACHMENT STATIONS 92.5 107.5 TYPE 1 TARGET 15.000

394450.00	4.97	908.37	0.00	0.00	909.20	.84	.18	.01	905.81
450.	0.	450.	0.	0.	61.	0.	3.	1.	100000.00
.06	0.00	7.34	0.00	.040	.024	.040	0.000	903.40	92.50
.003720	45.	45.	45.	2	0	0	-4.47	15.00	107.50

0

1

SECNO	DEPTH	CWSEL	CRITS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	VCH	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

*SECNO 394451.000

3301 HV CHANGED MORE THAN HVINS

MOORE BUSINESS FORMS INC 27

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3470 ENCROACHMENT STATIONS        92.5      107.5  TYPE       1  TARGET        15.000
394451.00     4.60   908.00     0.00      0.00   909.37      1.37       .01       .16    905.81
    450.       0.     450.       0.        0.      48.        0.        3.        1. 100000.00
     .06     0.00     9.38     0.00      .040     .024      .040     0.000    903.40     92.50
  .007880       1.       1.       1.         3        0         0      0.00     15.00    107.50
0
*SECNO 364460.000

3301 HV CHANGED MORE THAN HVINS

364460.00     5.43   909.08     0.00      0.00   909.55       .18       .06       .12    907.60
    450.      10.     410.      24.       13.     119.       25.        3.        1.    907.20
     .06      .82     3.49      .94      .040     .024      .040     0.000    903.90     85.81
  .000575      45.      45.      45.         3        0         0      0.00     69.28    155.09
0
*SECNO 395660.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
395660.00     3.95   911.45   911.45      0.00   912.38       .93      2.24       .23    911.60
    450.       0.     450.       0.        0.      58.        0.        7.        3.    912.10
     .12     0.00     7.76     0.00      .040     .024      .040     0.000    907.50    101.09
  .007290    1600.    1600.    1600.        20       19         0      0.00     31.65    132.74
0
*SECNO 396290.000
        SECTION 3 -- FISH LAKE ROAD CULVERT
396290.00     3.33   912.83     0.00      0.00   913.49       .65      1.08       .03    914.90
    450.       0.     382.      68.        0.      55.       25.        7.        3.    910.40
     .13     0.00     6.95     2.72      .040     .024      .040     0.000    909.50    113.64
  .004156     200.     200.     200.         2        0         0      0.00     43.90    157.54
0
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83/04/07. 06.35.36. PAGE 19

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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 396340.000

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS        86.6      102.2  TYPE       1  TARGET        18.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA        914.10 ELREA        914.10

396340.00     3.23   912.53   912.53      0.00   914.01      1.48       .16       .25    910.30
    450.       0.     450.       0.        0.      46.        0.        7.        3. 100000.00
     .13     0.00     9.77     0.00      .040     .024      .040     0.000    909.30     86.60
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 .007139      30.      30.      30.      20       6       0     0.00    15.59   102.19
0

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     .90       1.21      2.63      0.00     19.00       .50     77.90      0.00    909.30    909.30

*SECNO 396350.000
 PRESS FLOW BECAUSE EGLWC OF    991.69  EXCEEDS 1.5 DEPTH
6110 EGLWC OF  913.15 LESS THAN XEG OF  914.01
3280 CROSS SECTION 396350.00 EXTENDED      1.35 FEET

PRESSURE FLOW

 EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID     ELLC     ELTRD
                                                                AREA
  913.15    991.69      .34        0.      450.       78.       76.      913.40    914.10

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF

3470 ENCROACHMENT STATIONS      100.0     118.0  TYPE      1  TARGET       18.000
396350.00     5.08   914.75     0.00      0.00   915.29      .54      0.00     0.00100000.00
    450.       0.      58.      392.       0.      10.      66.       7.       3.    910.30
     .13      0.00     5.58     5.94      .040     .024     .040    0.000   909.67   100.00
 .005109      15.      15.      15.       20        0        0      0.00    18.00   118.00
0
1
 83/04/07.   06.35.36.                                                                  PAGE   20

  SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
  Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 396351.000
3280 CROSS SECTION 396351.00 EXTENDED      1.95 FEET

3470 ENCROACHMENT STATIONS      100.0     137.0  TYPE      1  TARGET       37.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA    100000.00 ELREA       910.30

396351.00     5.63   915.35     0.00      0.00   915.46      .11      .13      .04100000.00
    450.       0.      28.      422.       0.      12.     154.       7.       3.    910.30
     .14      0.00     2.35     2.74      .040     .024     .040    0.000   909.67   100.00
 .000856      75.      75.      75.        2        0        0      0.00    37.00   137.00
0
*SECNO 397410.000
397410.00     7.21   915.61     0.00      0.00   915.66      .05      .20      .01   912.60
    450.       32.     407.      11.       61.     216.      27.      11.       4.    913.50
     .27      .52     1.39      .41      .040     .024     .040    0.000   908.40    59.27
 .000115     800.     800.     800.        3        0        0      0.00   110.10   169.37
0
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*SECNO 399110.000

399110.00	6.71	915.31	0.00	0.00	915.39	.00	.22	.01	912.35
450.	44.	333.	73.	46.	130.	67.	19.	7.	909.10
.42	.95	2.55	1.09	.040	.024	.040	0.000	909.10	69.87
.000320	1200.	1200.	1200.	2	0	0	0.00	89.97	159.84

0

*SECNO 399120.000

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE.NRO 17 MIN ELTRD 924.80 MAX ELLC 925.10

3470 ENCROACHMENT STATIONS 96.8 127.0 TYPE 1 TARGET 30.250

SECTION C -- GRAND TRUNK RR CULVERT

399120.00	5.90	915.00	913.45	0.00	916.24	1.24	.00	.35	912.35
450.	0.	450.	0.	0.	50.	0.	19.	7.	100000.00
.42	0.00	3.94	0.00	.040	.024	.040	0.000	909.10	96.75
.018996	1.	1.	1.	6	22	0	-55.29	30.25	127.00

0

1

83/04/07. 06.35.36. PAGE 21

SECNO	DEPTH	CHSEL	CRIWS	ASELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 399140.000

3370 NORMAL BRIDGE.NRO 17 MIN ELTRD 924.80 MAX ELLC 925.10

399140.00	6.89	915.99	913.24	0.00	916.80	.87	.58	.04	912.35
450.	0.	395.	54.	0.	51.	10.	19.	7.	909.10
.42	0.00	7.72	5.33	.040	.024	.040	0.000	909.10	68.48
.013187	37.	37.	37.	6	15	0	-198.67	92.90	161.38

0

*SECNO 399141.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS 96.8 127.0 TYPE 1 TARGET 30.250

399141.00	7.71	916.81	0.00	0.00	916.93	.12	.00	.07	912.35
450.	0.	450.	0.	0.	161.	0.	19.	7.	100000.00
.42	0.00	2.60	0.00	.040	.024	.040	0.000	909.10	96.75
.000424	1.	1.	1.	2	0	0	0.00	30.25	127.00

0

*SECNO 399210.000

399210.00	7.31	916.91	0.00	0.00	916.96	.05	.02	.01	913.10
450.	33.	390.	27.	62.	207.	53.	20.	7.	913.40
.44	.54	1.38	.51	.040	.024	.040	0.000	909.60	67.45
.000090	100.	100.	100.	2	0	0	0.00	97.79	165.24

0

*SECNO 399610.000

SECTION D

399610.00	6.45	916.95	0.00	0.00	917.01	.05	.05	.00	916.30

MOORE BUSINESS FORMS INC 27

450.	0.	445.	1.	1.	243.	6.	23.	8.	915.10
.51	.20	1.85	.24	.040	.024	.040	0.000	910.50	95.47
.000134	450.	450.	450.	2	0	0	0.00	74.65	170.12

0
*SECNO 399620.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS 94.0 106.0 TYPE 1 TARGET 12.000

1

SECTION E -- MORRISON ST. CULVERT

399620.00	5.14	916.34	0.00	0.00	917.32	.98	.04	.28	913.20
450.	0.	450.	0.	0.	57.	0.	23.	8.	99999.50
.51	0.00	7.93	0.00	.040	.024	.040	0.000	911.20	94.00
.004043	100.	100.	100.	3	0	0	0.00	12.00	106.00

0
*SECNO 399621.000

3370 NORMAL BRIDGE,NRD 13 MIN ELTRD 925.30 MAX ELLC 929.40

3470 ENCROACHMENT STATIONS 94.0 106.0 TYPE 1 TARGET 12.000

399621.00	5.06	915.26	0.00	0.00	917.36	1.10	.00	.04	913.20
450.	0.	450.	0.	0.	53.	0.	23.	8.	100000.00
.51	0.00	8.43	0.00	.040	.024	.040	0.000	911.20	94.00
.005009	1.	1.	1.	2	0	0	-2.34	12.00	106.00

0
*SECNO 399700.000

3370 NORMAL BRIDGE,NRD 13 MIN ELTRD 925.30 MAX ELLC 929.60

3470 ENCROACHMENT STATIONS 94.0 106.0 TYPE 1 TARGET 12.000

399700.00	5.22	916.62	0.00	0.00	917.66	1.04	.29	.01	913.40
450.	0.	450.	0.	0.	55.	0.	23.	8.	100000.00
.51	0.00	8.18	0.00	.040	.024	.040	0.000	911.40	94.00
.004634	60.	60.	60.	2	0	0	-2.63	12.00	106.00

0
*SECNO 400110.000

3470 ENCROACHMENT STATIONS 94.0 106.0 TYPE 1 TARGET 12.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA 913.40 ELREA 100000.00

400110.00	5.40	916.30	0.00	0.00	917.63	.88	.00	.02	913.40
450.	0.	450.	0.	0.	60.	0.	23.	8.	100000.00
.51	0.00	7.52	0.00	.040	.024	.040	0.000	911.40	94.00
.003504	1.	1.	1.	2	0	0	0.00	12.00	106.00

0
*SECNO 400210.000

3301 HV CHANGED MORE THAN HVINS

SECTION F

400210.00	6.40	917.90	0.00	0.00	918.00	.10	.24	.08	915.90
450.	28.	422.	0.	49.	163.	0.	24.	9.	920.60

MOORE BUSINESS FORMS, INC 27

.000241	430.	400.	430.	2	0	0	0.00	31.91	133.20

0
1

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

*SECNO 400260.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA 921.10 ELREA 921.10

SECTION G -- DRIVEWAY CULVERT

400260.00	6.38	917.88	0.00	0.00	918.04	.17	.03	.02	913.20
450.	0.	450.	0.	0.	138.	0.	25.	9.	913.20
.57	0.00	3.26	0.00	.040	.024	.040	0.000	911.50	100.00
.000275	100.	100.	100.	2	0	0	0.00	24.00	124.00

0
*SECNO 400270.000

3370 NORMAL BRIDGE,NRD 7 MIN ELTRD 921.10 MAX ELLC 925.60

3470 ENCROACHMENT STATIONS 100.0 124.0 TYPE 1 TARGET 24.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA 913.20 ELREA 100000.00

SECTION H

400270.00	6.38	917.88	0.00	0.00	918.04	.17	.00	.00	913.20
450.	0.	450.	0.	0.	138.	0.	25.	9.	100000.00
.57	0.00	3.26	0.00	.040	.024	.040	0.000	911.50	100.00
.000424	1.	1.	1.	0	0	0	0.00	24.00	124.00

0
*SECNO 400301.000

3370 NORMAL BRIDGE,NRD 7 MIN ELTRD 921.10 MAX ELLC 925.60

3470 ENCROACHMENT STATIONS 100.0 124.0 TYPE 1 TARGET 24.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA 913.20 ELREA 100000.00

400301.00	6.38	917.88	0.00	0.00	918.05	.17	.01	.00	913.20
450.	0.	450.	0.	0.	138.	0.	25.	9.	100000.00
.57	0.00	3.26	0.00	.040	.024	.040	0.000	911.50	100.00
.000423	12.	12.	12.	0	0	0	0.00	24.00	124.00

0
1

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

MOORE BUSINESS FORMS INC 27

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*SECNO 400310.000

3470 ENCROACHMENT STATIONS        100.0      124.0  TYPE       1  TARGET        24.000
400310.00      6.39    917.89      0.00      0.00    918.05       .17       .00       .00    913.20
     450.        0.      450.        0.        0.      138.        0.       25.        9.  100000.00
      .57      0.00      3.26      0.00      .040      .024      .040     0.000    911.50    100.00
  .000423        1.        1.        1.         0         0         0      0.00     24.00    124.00
0
*SECNO 402960.000
402960.00      6.14    918.24      0.00      0.00    918.26       .02       .20       .01    916.20
     450.       16.      389.       46.       55.      290.      113.       36.       12.    914.80
      .93       .29      1.34       .40      .040      .024      .040     0.000    912.10     46.43
  .000058     1600.     1600.     1600.         2         0         0      0.00    177.63    224.07
0
*SECNO 403000.000
3280 CROSS SECTION 403000.00 EXTENDED       5.42 FEET

3470 ENCROACHMENT STATIONS         87.0      116.0  TYPE       1  TARGET        29.000
          SECTION 1 -- LEGRAND ST. CULVERT
403000.00      5.52    918.32      0.00      0.00    918.48       .15       .18       .04    914.90
     450.        0.      450.        0.        0.      143.        0.       45.       16.  100000.00
     1.05      0.00      3.15      0.00      .040      .024      .040     0.000    912.80     87.00
  .000499     1370.     1370.     1370.         2         0         0      0.00     29.00    116.00
0
*SECNO 403010.000
3280 CROSS SECTION 403010.00 EXTENDED       4.34 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS         87.0      100.0  TYPE       1  TARGET        13.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA      914.90 ELREA     100000.00

403010.00      4.94    917.74      0.00      0.00    918.73       .99       .00       .25    914.90
     450.        0.      450.        0.        0.       56.        0.       45.       16.  100000.00
     1.05      0.00      3.00      0.00      .040      .024      .040     0.000    912.80     87.00
  .004292        1.        1.        1.         3         0         0      0.00     13.00    100.00
0
1
 83/04/07.   06.35.36.                                                                    PAGE   25

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 403011.000
3280 CROSS SECTION 403011.00 EXTENDED       5.31 FEET

3370 NORMAL BRIDGE,NRD  27 MIN ELTRD   914.90 MAX ELLC   920.34
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MOORE BUSINESS FORMS, INC 27

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA 914.90 ELREA 100000.00

403011.00	5.41	918.21	0.00	0.00	919.30	1.09	.54	.03	914.90
450.	0.	450.	0.	0.	54.	0.	45.	16.	100000.00
1.06	0.00	5.38	0.00	.040	.024	.040	0.000	912.80	87.00
.006991	100.	100.	100.	2	0	0	-8.70	13.00	100.00

0

*SECNO 403012.000

3280 CROSS SECTION 403012.00 EXTENDED 5.43 FEET

3370 NORMAL BRIDGE, NRD 27 MIN ELTRD 914.90 MAX ELLC 920.34

3470 ENCROACHMENT STATIONS 37.0 100.0 TYPE 1 TARGET 13.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA 914.90 ELREA 100000.00

403012.00	5.53	913.33	0.00	0.00	919.38	1.05	.08	.00	914.90
450.	0.	450.	0.	0.	55.	0.	45.	16.	100000.00
1.06	0.00	6.22	0.00	.040	.024	.040	0.000	912.80	87.00
.005677	12.	12.	12.	2	0	0	-9.30	13.00	100.00

0

*SECNO 403013.000

3280 CROSS SECTION 403013.00 EXTENDED 5.88 FEET

3470 ENCROACHMENT STATIONS 87.0 100.0 TYPE 1 TARGET 13.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA 914.90 ELREA 100000.00

403013.00	5.98	913.78	0.00	0.00	919.43	.64	.00	.04	914.90
450.	0.	450.	0.	0.	70.	0.	45.	16.	100000.00
1.06	0.00	6.44	0.00	.040	.024	.040	0.000	912.80	87.00
.002376	1.	1.	1.	3	0	0	0.00	13.00	100.00

0

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	PL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 403100.000

3301 HV CHANGED MORE THAN HVINS

403100.00	6.98	919.48	0.00	0.00	919.52	.04	.03	.06	914.20
450.	82.	368.	0.	121.	222.	0.	46.	16.	919.70
1.08	.68	1.56	0.00	.040	.024	.040	0.000	912.50	47.30
.000098	100.	100.	100.	2	0	0	0.00	137.70	185.00

0

*SECNO 404000.000

3280 CROSS SECTION 404000.00 EXTENDED 5.33 FEET

MOORE BUSINESS FORMS INC 27

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: HOLLY, VILLAGE

3) WATERCOURSE: SHIAWASSEE RIVER

4) DOCUMENT TYPE: SUMMARY

00BREAK00

404000.00	6.73	919.53	0.00	0.00	919.53	.00	.01	.00	915.20	
450.	158.	119.	154.	892.	293.	751.	72.	22.	913.40	
2.16	.19	.41	.22	.040	.024	.040	0.000	912.80	0.00	
.000004	1000.	1000.	1000.	2	0	0	0.00	400.30	400.00	

0

*SECNO 406000.000

406000.00	6.55	919.46	0.00	0.00	919.58	.13	.01	.04	914.90
450.	67.	346.	37.	78.	108.	35.	99.	29.	914.80
2.28	.86	3.20	1.04	.040	.024	.040	0.000	912.90	31.96
.000270	1100.	1100.	1100.	2	0	0	0.00	112.26	144.22

0

1

THIS RUN EXECUTED 83/04/07. 06.35.40.

****
HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
ERROR CORR - 01.02.03.04.05
MODIFICATION - 50.51.52.53.54.55
****

NOTE- ASTERISK * AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	394360.000	904.38	-.12	904.89	27.36	0.00	450.00	0.00	0.00	0.00	100.00	151.00	0.00
	394360.000	904.39	-.21	904.90	27.39	0.00	450.00	0.00	0.00	0.00	100.00	151.00	0.00
	394410.000	908.13	0.00	908.97	15.00	0.00	450.00	0.00	15.00	92.50	92.50	107.50	107.50
	394410.000	908.17	0.00	908.97	15.00	0.00	450.00	0.00	15.00	92.50	92.50	107.50	107.50
	394411.000	908.03	0.00	909.02	15.00	0.00	450.00	0.00	15.00	92.50	92.50	107.50	107.50
	394411.000	908.08	0.00	909.01	15.00	0.00	450.00	0.00	15.00	92.50	92.50	107.50	107.50
	394450.000	908.37	0.00	909.21	15.00	0.00	450.00	0.00	15.00	92.50	92.50	107.50	107.50
	394450.000	908.37	0.00	909.20	15.00	0.00	450.00	0.00	15.00	92.50	92.50	107.50	107.50
	394451.000	908.01	0.00	909.37	15.00	0.00	450.00	0.00	15.00	92.50	92.50	107.50	107.50
	394451.000	908.00	0.00	909.37	15.00	0.00	450.00	0.00	15.00	92.50	92.50	107.50	107.50
	364460.000	909.33	0.00	909.55	69.29	10.30	416.13	23.57	0.00	0.00	100.00	132.00	0.00
	364460.000	909.33	0.00	909.55	69.28	10.29	416.14	23.56	0.00	0.00	100.00	132.00	0.00
*	395660.000	911.45	0.00	912.38	31.65	0.00	450.00	0.00	0.00	0.00	100.00	136.00	0.00
*	395660.000	911.45	0.00	912.38	31.65	0.00	450.00	0.00	0.00	0.00	100.00	136.00	0.00
	396290.000	912.83	0.00	913.49	43.90	0.00	382.03	67.97	0.00	0.00	100.00	137.00	0.00
	396290.000	912.83	0.00	913.49	43.90	0.00	382.03	67.97	0.00	0.00	100.00	137.00	0.00
*	396340.000	912.53	0.00	914.01	15.59	0.00	450.00	0.00	18.00	36.60	86.60	102.19	102.19

MOORE BUSINESS FORMS, INC 27

* 396350.000	914.75	0.00	915.29	18.00	0.00	58.21	391.79	18.00	100.00	86.60	102.19	118.00
* 396350.000	914.75	0.00	915.29	18.00	0.00	58.21	391.79	18.00	100.00	86.60	102.19	118.00
396351.000	915.35	0.00	915.46	37.00	0.00	27.54	422.46	37.00	100.00	86.60	102.19	137.00
396351.000	915.35	0.00	915.46	37.00	0.00	27.54	422.46	37.00	100.00	86.60	102.19	137.00

1

83/04/07. 06.35.36. PAGE 28

SECNO	CWSEL	DIFKWS	EG	TOPWID	BLOB	BCH	CROS	PERENC	STENCL	STCHL	STCHR	STENCR
397410.000	915.61	0.00	915.66	110.10	32.07	406.87	11.06	0.00	0.00	100.00	144.00	0.00
397410.000	915.61	0.00	915.66	110.10	32.07	406.87	11.06	0.00	0.00	100.00	144.00	0.00
399110.000	915.81	0.00	915.89	89.97	44.25	332.52	73.23	0.00	0.00	96.75	127.00	0.00
399110.000	915.81	0.00	915.89	89.97	44.25	332.52	73.23	0.00	0.00	96.75	127.00	0.00
399120.000	915.00	0.00	916.24	30.25	0.00	450.00	0.00	30.25	96.75	96.75	127.00	127.00
399120.000	915.00	0.00	916.24	30.25	0.00	450.00	0.00	30.25	96.75	96.75	127.00	127.00
399140.000	915.99	0.00	916.86	92.90	0.00	395.58	54.42	0.00	0.00	96.75	127.00	0.00
399140.000	915.99	0.00	916.86	92.90	0.00	395.58	54.42	0.00	0.00	96.75	127.00	0.00
399141.000	916.81	0.00	916.93	30.25	0.00	450.00	0.00	30.25	96.75	96.75	127.00	127.00
399141.000	916.81	0.00	916.93	30.25	0.00	450.00	0.00	30.25	96.75	96.75	127.00	127.00
399210.000	916.91	0.00	916.96	97.79	33.35	389.62	27.03	0.00	0.00	100.00	135.00	0.00
399210.000	916.91	0.00	916.96	97.79	33.35	389.62	27.03	0.00	0.00	100.00	135.00	0.00
399610.000	916.95	0.00	917.01	74.65	.30	448.34	1.36	0.00	0.00	100.00	157.00	0.00
399610.000	916.95	0.00	917.01	74.65	.30	448.34	1.36	0.00	0.00	100.00	157.00	0.00
399620.000	916.34	0.00	917.32	12.00	0.00	450.00	0.00	12.00	94.00	94.00	106.00	106.00
399620.000	916.34	0.00	917.32	12.00	0.00	450.00	0.00	12.00	94.00	94.00	106.00	106.00
399621.000	916.26	0.00	917.35	12.00	0.00	450.00	0.00	12.00	94.00	94.00	106.00	106.00
399621.000	916.26	0.00	917.36	12.00	0.00	450.00	0.00	12.00	94.00	94.00	106.00	106.00
399700.000	916.62	0.00	917.66	12.00	0.00	450.00	0.00	12.00	94.00	94.00	106.00	106.00
399700.000	916.62	0.00	917.66	12.00	0.00	450.00	0.00	12.00	94.00	94.00	106.00	106.00
400110.000	916.80	0.00	917.63	12.00	0.00	450.00	0.00	12.00	94.00	94.00	106.00	106.00
400110.000	916.80	0.00	917.68	12.00	0.00	450.00	0.00	12.00	94.00	94.00	106.00	106.00
400210.000	917.90	0.00	918.00	81.91	28.02	421.98	0.00	0.00	0.00	100.00	135.00	0.00
400210.000	917.90	0.00	918.00	81.91	28.02	421.98	0.00	0.00	0.00	100.00	135.00	0.00
400260.000	917.88	0.00	918.04	24.00	0.00	450.00	0.00	0.00	0.00	100.00	124.00	0.00
400260.000	917.88	0.00	918.04	24.00	0.00	450.00	0.00	0.00	0.00	100.00	124.00	0.00
400270.000	917.88	0.00	918.04	24.00	0.00	450.00	0.00	24.00	100.00	100.00	124.00	124.00
400270.000	917.88	0.00	918.04	24.00	0.00	450.00	0.00	24.00	100.00	100.00	124.00	124.00
400301.000	917.83	0.00	918.05	24.00	0.00	450.00	0.00	24.00	100.00	100.00	124.00	124.00
400301.000	917.83	0.00	918.05	24.00	0.00	450.00	0.00	24.00	100.00	100.00	124.00	124.06
400310.000	917.89	0.00	918.05	24.00	0.00	450.00	0.00	24.00	100.00	100.00	124.00	124.00

MOORE BUSINESS FORMS, INC. 27

400310.000	917.89	0.00	918.05	24.00	0.00	450.00	0.00	24.00	100.00	150.00	124.00	124.00
402960.000	918.24	0.00	918.26	177.63	15.56	388.54	45.90	0.00	0.00	100.00	158.00	0.00
402960.000	918.24	0.00	918.26	177.63	15.56	388.54	45.90	0.00	0.00	100.00	158.00	0.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
403000.000	918.32	0.00	918.48	29.00	0.00	450.00	0.00	29.00	87.00	87.00	116.00	116.00
403000.000	918.32	0.00	918.48	29.00	0.00	450.00	0.00	29.00	87.00	87.00	116.00	116.00
403010.000	917.74	0.00	918.73	13.00	0.00	450.00	0.00	13.00	87.00	87.00	116.00	100.00
403010.000	917.74	0.00	918.73	13.00	0.00	450.00	0.00	13.00	87.00	87.00	116.00	100.00
403011.000	918.21	0.00	919.30	13.00	0.00	450.00	0.00	13.00	87.00	87.00	116.00	100.00
403011.000	918.21	0.00	919.30	13.00	0.00	450.00	0.00	13.00	87.00	87.00	116.00	100.00
403012.000	918.33	0.00	919.38	13.00	0.00	450.00	0.00	13.00	87.00	87.00	116.00	100.00
403012.000	918.33	0.00	919.38	13.00	0.00	450.00	0.00	13.00	87.00	87.00	116.00	100.00
403013.000	918.78	0.00	919.43	13.00	0.00	450.00	0.00	13.00	87.00	87.00	116.00	100.00
403013.000	918.78	0.00	919.43	13.00	0.00	450.00	0.00	13.00	87.00	87.00	116.00	100.00
403100.000	919.48	0.00	919.52	137.70	81.60	368.40	0.00	0.00	0.00	136.00	186.00	0.00
403100.000	919.48	0.00	919.52	137.70	81.60	368.40	0.00	0.00	0.00	136.00	186.00	0.00
404000.000	919.53	0.00	919.53	400.00	157.59	118.53	163.88	0.00	0.00	212.00	260.00	0.00
404000.000	919.53	0.00	919.53	400.00	157.59	118.53	163.88	0.00	0.00	212.00	260.00	0.00
406000.000	919.46	0.00	919.58	112.26	66.75	346.36	36.89	0.00	0.00	110.00	129.00	0.00
406000.000	919.46	0.00	919.58	112.26	66.75	346.36	36.89	0.00	0.00	110.00	129.00	0.00

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
394360.000	0.00	0.00	0.00	899.90	450.00	904.38	0.00	904.89	23.03	5.73	78.56	93.77
394360.000	0.00	0.00	0.00	899.90	450.00	904.39	0.00	904.90	22.89	5.72	78.74	94.06
394410.000	1500.00	0.00	0.00	903.40	450.00	908.18	0.00	908.97	31.09	7.14	63.05	80.70
394410.000	1500.00	0.00	0.00	903.40	450.00	908.17	0.00	908.97	31.19	7.15	62.98	80.57
394411.000	1.00	913.60	920.10	903.40	450.00	908.08	0.00	909.02	43.10	7.76	57.97	68.54
394411.000	1.00	913.60	920.10	903.40	450.00	908.08	0.00	909.01	43.18	7.77	57.93	68.48
394450.000	45.00	915.40	912.40	903.40	450.00	908.37	0.00	909.21	37.15	7.33	61.38	73.83
394450.000	45.00	915.40	912.40	903.40	450.00	908.37	0.00	909.20	37.20	7.34	61.35	73.78
394451.000	1.00	0.00	0.00	903.40	450.00	908.01	0.00	909.37	78.47	9.37	48.04	50.80
394451.000	1.00	0.00	0.00	903.40	450.00	908.00	0.00	909.37	78.80	9.38	47.97	50.69

MOORE BUSINESS FORMS, INC 27

364460.000	45.00	0.00	0.00	903.90	450.00	909.38	0.00	909.55	5.75	3.49	157.01	187.71
364460.000	45.00	0.00	0.00	903.90	450.00	909.38	0.00	909.55	5.75	3.49	156.99	187.68
* 395660.000	1600.00	0.00	0.00	907.50	450.00	911.45	911.45	912.33	72.90	7.76	58.02	52.70
* 395660.000	1600.00	0.00	0.00	907.50	450.00	911.45	911.45	912.38	72.90	7.76	58.02	52.70
396290.000	200.00	0.00	0.00	909.50	450.00	912.83	0.00	913.49	41.56	6.95	79.94	69.80
396290.000	200.00	0.00	0.00	909.50	450.00	912.83	0.00	913.49	41.56	6.95	79.94	69.80
* 396340.000	30.00	0.00	0.00	909.30	450.00	912.53	912.53	914.01	71.39	9.77	46.06	53.26
* 396340.000	30.00	0.00	0.00	909.30	450.00	912.53	912.53	914.01	71.39	9.77	46.06	53.26
* 396350.000	15.00	914.10	913.40	909.67	450.00	914.75	0.00	915.29	51.09	5.58	76.38	62.96
* 396350.000	15.00	914.10	913.40	909.67	450.00	914.75	0.00	915.29	51.09	5.58	76.38	62.96
396351.000	75.00	0.00	0.00	909.67	450.00	915.35	0.00	915.46	8.56	2.35	166.13	153.31
396351.000	75.00	0.00	0.00	909.67	450.00	915.35	0.00	915.46	8.56	2.35	166.13	153.31
397410.000	800.00	0.00	0.00	908.40	450.00	915.61	0.00	915.66	1.15	1.89	303.87	419.85
397410.000	800.00	0.00	0.00	908.40	450.00	915.61	0.00	915.66	1.15	1.89	303.87	419.85
399110.000	1200.00	0.00	0.00	909.10	450.00	915.81	0.00	915.89	3.20	2.55	243.71	251.67
399110.000	1200.00	0.00	0.00	909.10	450.00	915.81	0.00	915.89	3.20	2.55	243.71	251.67
399120.000	1.00	924.80	925.10	909.10	450.00	915.00	913.45	916.24	189.96	8.94	50.35	32.65
399120.000	1.00	924.80	925.10	909.10	450.00	915.00	913.45	916.24	189.96	8.94	50.35	32.65
399140.000	37.00	924.80	925.10	909.10	450.00	915.99	913.24	916.86	131.87	7.72	61.36	39.19
399140.000	37.00	924.80	925.10	909.10	450.00	915.99	913.24	916.86	131.87	7.72	61.36	39.19
399141.000	1.00	0.00	0.00	909.10	450.00	916.81	0.00	916.93	4.24	2.80	160.64	218.53
399141.000	1.00	0.00	0.00	909.10	450.00	916.81	0.00	916.93	4.24	2.80	160.64	218.53

FORMS INC 27
MOORE BUSINESS

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CHSEL	CRIMS	EG	10K*S	VCH	AREA	.01K
399210.000	100.00	0.00	0.00	909.60	450.00	916.91	0.00	916.96	.90	1.80	321.89	475.01
399210.000	100.00	0.00	0.00	909.60	450.00	916.91	0.00	916.96	.90	1.88	321.89	475.01
399610.000	450.00	0.00	0.00	910.50	450.00	916.95	0.00	917.01	1.34	1.85	249.73	389.08
399610.000	450.00	0.00	0.00	910.50	450.00	916.95	0.00	917.01	1.34	1.85	249.73	389.08
399620.000	100.00	0.00	0.00	911.20	450.00	916.34	0.00	917.32	40.43	7.93	56.75	70.77
399620.000	100.00	0.00	0.00	911.20	450.00	916.34	0.00	917.32	40.43	7.93	56.75	70.77
399621.000	1.00	925.30	929.40	911.20	450.00	916.26	0.00	917.36	50.09	8.43	53.41	63.59
399621.000	1.00	925.30	929.40	911.20	450.00	916.26	0.00	917.36	50.09	8.43	53.41	63.59
399700.000	60.00	925.30	929.60	911.40	450.00	916.62	0.00	917.66	46.34	8.18	55.04	66.10
399700.000	60.00	925.30	929.60	911.40	450.00	916.62	0.00	917.66	46.34	8.18	55.04	66.10
400110.000	1.00	0.00	0.00	911.40	450.00	916.80	0.00	917.69	35.04	7.52	59.86	76.02
400110.000	1.00	0.00	0.00	911.40	450.00	916.80	0.00	917.68	35.04	7.52	59.86	76.02
400210.000	400.00	0.00	0.00	911.50	450.00	917.90	0.00	918.00	2.41	2.59	211.34	289.87
400210.000	400.00	0.00	0.00	911.50	450.00	917.90	0.00	918.00	2.41	2.59	211.34	289.87

400260.000	100.00	0.00	0.00	911.50	450.00	917.88	0.00	918.04	2.75	3.26	137.90	271.52
400260.000	100.00	0.00	0.00	911.50	450.00	917.88	0.00	918.04	2.75	3.26	137.90	271.52
400270.000	1.00	921.10	925.60	911.50	450.00	917.88	0.00	918.04	4.24	3.26	137.90	218.54
400270.000	1.00	921.10	925.60	911.50	450.00	917.88	0.00	918.04	4.24	3.26	137.90	218.54
400301.000	12.00	921.10	925.60	911.50	450.00	917.88	0.00	918.05	4.23	3.26	138.00	218.77
400301.000	12.00	921.10	925.60	911.50	450.00	917.88	0.00	918.05	4.23	3.26	138.00	218.77
400310.000	1.00	0.00	0.00	911.50	450.00	917.89	0.00	918.05	4.23	3.26	138.04	218.86
400310.000	1.00	0.00	0.00	911.50	450.00	917.89	0.00	918.05	4.23	3.26	138.04	218.86
402960.000	1600.00	0.00	0.00	912.10	450.00	918.24	0.00	918.26	.58	1.34	457.86	592.31
402960.000	1600.00	0.00	0.00	912.10	450.00	918.24	0.00	918.26	.58	1.34	457.86	592.31
403000.000	1370.00	0.00	0.00	912.80	450.00	918.32	0.00	918.48	4.99	3.15	142.64	201.40
403000.000	1370.00	0.00	0.00	912.80	450.00	918.32	0.00	918.48	4.99	3.15	142.64	201.40
403010.000	1.00	0.00	0.00	912.80	450.00	917.74	0.00	918.73	42.92	8.00	56.28	68.69
403010.000	1.00	0.00	0.00	912.80	450.00	917.74	0.00	918.73	42.92	8.00	56.28	68.69
403011.000	100.00	914.90	920.34	912.80	450.00	918.21	0.00	919.30	69.91	8.38	53.72	53.82
403011.000	100.00	914.90	920.34	912.80	450.00	918.21	0.00	919.30	69.91	8.38	53.72	53.82
403012.000	12.00	914.90	920.34	912.80	450.00	918.33	0.00	919.38	66.77	8.22	54.75	55.07
403012.000	12.00	914.90	920.34	912.80	450.00	918.33	0.00	919.38	66.77	8.22	54.75	55.07
403013.000	1.00	0.00	0.00	912.80	450.00	918.78	0.00	919.43	23.76	6.44	69.89	92.31
403013.000	1.00	0.00	0.00	912.80	450.00	918.78	0.00	919.43	23.76	6.44	69.89	92.31

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
403100.000	100.00	0.00	0.00	912.50	450.00	919.48	0.00	919.52	.98	1.66	342.54	453.66
403100.000	100.00	0.00	0.00	912.50	450.00	919.48	0.00	919.52	.98	1.66	342.54	453.66
404000.000	1000.00	0.00	0.00	912.80	450.00	919.53	0.00	919.53	.04	.41	1935.32	2290.36
404000.000	1000.00	0.00	0.00	912.80	450.00	919.53	0.00	919.53	.04	.41	1935.32	2290.36
406000.000	1100.00	0.00	0.00	912.90	450.00	919.46	0.00	919.58	2.70	3.20	221.40	273.81
406000.000	1100.00	0.00	0.00	912.90	450.00	919.46	0.00	919.58	2.70	3.20	221.40	273.81

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
394360.000	450.00	904.38	0.00	0.00	-.12	27.36	0.00
394360.000	450.00	904.39	.01	0.00	-.21	27.39	0.00

394410.000	450.00	908.17	-.00	3.78	0.00	15.00	1530.00
394411.000	450.00	908.08	0.00	-.10	0.00	15.00	1.00
394411.000	450.00	908.08	-.00	-.10	0.00	15.00	1.00
394450.000	450.00	908.37	0.00	.29	0.00	15.00	45.00
394450.000	450.00	908.37	-.00	.29	0.00	15.00	45.00
394451.000	450.00	908.01	0.00	-.36	0.00	15.00	1.00
394451.000	450.00	908.00	-.00	-.37	0.00	15.00	1.00
364460.000	450.00	909.33	0.00	1.37	0.00	69.29	45.00
364460.000	450.00	909.33	-.00	1.37	0.00	69.23	45.00
* 395660.000	450.00	911.45	0.00	2.07	0.00	31.65	1600.00
* 395660.000	450.00	911.45	-.00	2.07	0.00	31.65	1600.00
396290.000	450.00	912.83	0.00	1.39	0.00	43.90	200.00
396290.000	450.00	912.83	.00	1.39	0.00	43.90	200.00
* 396340.000	450.00	912.53	0.00	-.31	0.00	15.59	30.00
* 396340.000	450.00	912.53	.00	-.31	0.00	15.59	30.00
* 396350.000	450.00	914.75	0.00	2.22	0.00	18.00	15.00
* 396350.000	450.00	914.75	.00	2.22	0.00	18.00	15.00
396351.000	450.00	915.35	0.00	.60	0.00	37.00	75.00
396351.000	450.00	915.35	.00	.60	0.00	37.00	75.00
397410.000	450.00	915.61	0.00	.27	0.00	110.10	300.00
397410.000	450.00	915.61	.00	.27	0.00	110.10	300.00
399110.000	450.00	915.81	0.00	.20	0.00	89.97	1200.00
399110.000	450.00	915.81	.00	.20	0.00	89.97	1200.00
399120.000	450.00	915.00	0.00	-.81	0.00	30.25	1.00
399120.000	450.00	915.00	.00	-.81	0.00	30.25	1.00
399140.000	450.00	915.99	0.00	.99	0.00	92.90	37.00
399140.000	450.00	915.99	.00	.99	0.00	92.90	37.00
399141.000	450.00	916.81	0.00	.82	0.00	30.25	1.00
399141.000	450.00	916.81	.00	.82	0.00	30.25	1.00

1

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
399210.000	450.00	916.91	0.00	.10	0.00	97.79	100.00
399210.000	450.00	916.91	.00	.10	0.00	97.79	100.00
399610.000	450.00	916.95	0.00	.05	0.00	74.65	450.00
399610.000	450.00	916.95	.00	.05	0.00	74.65	450.00
399620.000	450.00	916.34	0.00	-.61	0.00	12.00	100.00
399620.000	450.00	916.34	.00	-.61	0.00	12.00	100.00

MOORE BUSINESS FORMS INC 27

399621.000	450.00	916.26	0.00	-.03	0.00	12.00	1.00
399621.000	450.00	916.26	.00	-.03	0.00	12.00	1.00
399700.000	450.00	916.62	0.00	.36	0.00	12.00	60.00
399700.000	450.00	916.62	.00	.36	0.00	12.00	60.00
400110.000	450.00	916.80	0.00	.13	0.00	12.00	1.00
400110.000	450.00	916.80	.00	.13	0.00	12.00	1.00
400210.000	450.00	917.93	0.00	1.10	0.00	31.91	400.00
400210.000	450.00	917.93	.00	1.10	0.00	31.91	400.00
400260.000	450.00	917.88	0.00	-.02	0.00	24.00	100.00
400260.000	450.00	917.88	.00	-.02	0.00	24.00	100.00
400270.000	450.00	917.88	0.00	.00	0.00	24.00	1.00
400270.000	450.00	917.88	.00	.00	0.00	24.00	1.00
400301.000	450.00	917.83	0.00	.01	0.00	24.00	12.00
400301.000	450.00	917.88	.00	.01	0.00	24.00	12.00
400310.000	450.00	917.89	0.00	.00	0.00	24.00	1.00
400310.000	450.00	917.89	.00	.00	0.00	24.00	1.00
402960.000	450.00	918.24	0.00	.35	0.00	177.63	1600.00
402960.000	450.00	918.24	.00	.35	0.00	177.63	1600.00
403000.000	450.00	918.32	0.00	.09	0.00	29.00	1370.00
403000.000	450.00	918.32	.00	.09	0.00	29.00	1370.00
403010.000	450.00	917.74	0.00	-.59	0.00	13.00	1.00
403010.000	450.00	917.74	.00	-.59	0.00	13.00	1.00
403011.000	450.00	918.21	0.00	.47	0.00	13.00	100.00
403011.000	450.00	918.21	.00	.47	0.00	13.00	100.00
403012.000	450.00	918.33	0.00	.13	0.00	13.00	12.00
403012.000	450.00	918.33	.00	.13	0.00	13.00	12.00
403013.000	450.00	918.73	0.00	.45	0.00	13.00	1.00
403013.000	450.00	918.73	.00	.45	0.00	13.00	1.00

SECNO	@	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
403100.000	450.00	919.48	0.00	.70	0.00	137.70	100.00
403100.000	450.00	919.48	.00	.70	0.00	137.70	100.00
404000.000	450.00	919.53	0.00	.05	0.00	400.00	1000.00
404000.000	450.00	919.53	.00	.05	0.00	400.00	1000.00
406000.000	450.00	919.46	0.00	-.07	0.00	112.26	1100.00
406000.000	450.00	919.46	.00	-.07	0.00	112.26	1100.00

MOORE BUSINESS FORMS, INC 27

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION  SECNO *********  PROFILE  1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO *********  PROFILE  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO *********  PROFILE  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO *********  PROFILE  2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO *********  PROFILE  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO *********  PROFILE  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO *********  PROFILE  1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO *********  PROFILE  1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO *********  PROFILE  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO *********  PROFILE  2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO *********  PROFILE  2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO *********  PROFILE  2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO *********  PROFILE  1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO *********  PROFILE  1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO *********  PROFILE  2  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO *********  PROFILE  2  20 TRIALS ATTEMPTED TO BALANCE WSEL
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MOORE BUSINESS FORMS INC 27

FLOODWAY DATA.
PROFILE NO. 2

	STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
	394360.000	27.	79.	5.7	904.4	904.4	0.0
	394410.000	15.	63.	7.1	908.2	908.2	0.0
	394411.000	15.	53.	7.8	908.1	908.1	0.0
	394450.000	15.	61.	7.3	908.4	908.4	0.0
	394451.000	15.	48.	9.4	903.0	908.0	0.0
	364460.000	69.	157.	2.9	909.4	909.4	0.0
	395660.000	32.	58.	7.8	911.4	911.4	0.0
	396290.000	44.	80.	5.6	912.8	912.8	0.0
A	396340.000	16.	46.	9.8	912.5	912.5	0.0
B	396350.000	18.	76.	5.9	914.7	914.7	0.0
	396351.000	37.	166.	2.7	915.3	915.3	0.0
C	397410.000	110.	304.	1.5	915.6	915.6	0.0
D	399110.000	90.	244.	1.8	915.8	915.8	0.0
	399120.000	30.	50.	8.9	915.0	915.0	0.0
	399140.000	93.	61.	7.3	916.0	916.0	0.0
	399141.000	30.	161.	2.8	916.8	916.8	0.0
E	399210.000	98.	322.	1.4	916.9	916.9	0.0
F	399610.000	75.	250.	1.8	917.0	917.0	0.0
G	399620.000	12.	57.	7.9	916.3	916.3	0.0
	399621.000	12.	53.	8.4	916.3	916.3	0.0
	399700.000	12.	55.	8.2	916.6	916.6	0.0

	400110.000	12.	56.	7.5	916.3	916.3	0.C
H	400210.000	52.	211.	2.1	917.9	917.9	0.C
I	400260.000	24.	135.	3.3	917.9	917.9	0.0
	400270.000	24.	138.	3.3	917.9	917.9	0.C
	400301.000	24.	138.	3.3	917.9	917.9	0.C
	400310.000	24.	138.	3.3	917.9	917.9	0.C
J	402960.000	178.	458.	1.0	913.2	913.2	0.C
K	403000.000	29.	143.	3.2	918.3	918.3	0.C
L	403010.000	13.	56.	8.0	917.7	917.7	0.C
	403011.000	13.	54.	8.4	913.2	913.2	0.C
	403012.000	13.	55.	8.2	918.3	918.3	0.C
	403013.000	13.	70.	6.4	918.8	918.8	0.C
	403100.000	138.	343.	1.3	919.5	919.5	0.0
M	404000.000	400.	1035.	.2	919.5	919.5	0.0
N	406000.000	112.	221.	2.0	919.5	919.5	0.0

1

THIS RUN EXECUTED 83/04/07. 06.35.41.

****
HEC2 RELEASE DATED NOV 76 UPDATED MARC 1982
ERROR CORR - 01,02,03,04,05
MODIFICATION - 50,51,52,53,54,55
****

MOORE BUSINESS FORMS, INC 27

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: INDEPENDENCE TOWNSHIP

3) WATERCOURSE: SASHABAW CREEK

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

00BREAK00

FLOOD INSURANCE STUDY HYDRAULIC REPORT

PROJECT: HUD-FIA-H-4705 Township of Independence, Oakland Co., Michigan

CONSULTING FIRM: McNamee, Porter and Seeley/Smith, Hinchman and Grylls

WATERCOURSE: Sashabaw Creek

STUDY LIMITS: 200' D/S Mann Rd. to 150' U/S Maybee Road.

DATE OF AERIAL SURVEY: Abrams Aerial Survey - November 1975

DATE OF LAND SURVEY: McNamee, Porter and Seeley Field Crew 10/22/80, 11/13-14/79

SOURCE OF FLOWS: Flows computed using the Hydrocomp model by J & A, received from the DNR 6/26/80

TOPOGRAPHIC INFORMATION: Abrams 2 foot topographic map 1" = 400'

METHOD OF ANALYSIS: HEC-2 water surface profile computer program

VARIABLES AND COEFFICIENTS:

Channel "n"	.045
Overbank "n"	.060-.080
n values thru bridges	.025
Contraction Coefficients	.1-.4
Expansion Coefficients	.3-.8

Bridge loss coefficients were chosen per References 1 and 2.

PHOTOGRAPHS: Enclosed for your review, please return.

CROSS-SECTIONS: See Table 1 for cross-section description. Cross-section plots enclosed.

REFERENCES:

1. "Hec-2 Water Surface Profiles", Users Manual, U.S. Army Corps of Engineers, Feb. 1972.
2. "Application of the Hec-2 Bridge Routines", U.S. Army Corps of Engineers, June 1974.
3. "Roughness Characteristics of Natural Channels", Barnes, Harry H. Jr., Geological Survey Water Supply Paper 1849.
4. "Floodway Determination using computer Program Hec-2", Bonner, Vernon R., U.S. Army Corps of Engineers Hec Training Document 5, May 1974.

Starting Conditions

Normal depth was assumed for the starting condition approximately 200 feet downstream of Mann Road in Independence Township. The slope-area method was used to determine the starting elevation for all flows, utilizing the value of slope determined from the field surveyed profile. A convergence test was run on the 100-year flow by changing the starting depth determined by the slope-area method by ±15%.

High Water Marks and Calibration

There was no high water information available. Therefore, a calibration test was not possible.

A sensitivity analysis was performed on the 100 year flow by raising and lowering all Manning "n" values by 30%.

Designated Floodway

Encroachment method 4 in the HEC-2 program was used to determine encroachment stations based on an allowable surcharge of 0.1 feet. Please note that at some locations encroachment method 1 superceded method 4. At these locations the floodway delineation was arrived at after studying 1) topography information to locate any structures or other obstructions and 2) cross-section plots. These cross-sections were modified to exclude ineffective overbank areas, based on 1) velocity considerations 2) the presence of structures and 3) expansion and contraction of 1:4 and 1:1 respectively, near bridges.

Computer Outputs

Enclosed are computer outputs fir (i) 100 year natural and 100 year designated floodway (ii) 10, 50, and 500 year flood plain elevations and (iii) convergence test and sensitivity analysis for your review.

Source of Flows

The original hydrology submittal by McNamee, Porter and Seeley for this portion of Sashabaw Creek was based on a unit hydrograph developed from three storms of record. Although this method is appropriate and yielded a representative unit hydrograph for this basin, the DNR did not concur with the infiltration value used in its application. Instead, it was decided to use the flows

developed using the HYDROCOMP simulation as completed by Johnson and Anderson Consulting Engineers. These flows are nearly identical to the flows that would be calculated using the unit hydrograph with an "f" value of .7 in/hr. This is representative of the infiltration capacity observed during the June 25, 1968 storm. Therefore, we concur with the use of the HYDROCOMP flows. They are as follows: 10 yr. - 205 cfs, 50 yr. - 345 cfs, 100 yr - 410 cfs, and 500 yr. - 590 cfs.

Comments

We have not delineated the complete 100 or 500 year flood plains at this time since this will be done by Abrams after DNR approval of the 100 year and 500 year flood elevations (see the enclosed profile for the 10, 50, 100 and 500 year natural computed water surface profiles).

Please note that in order to model the 10 year water surface correctly using the HEC-2 model, the low chord elevation at Pine Knob Rd. was lowered.

JOB : HUD-FIA H-4705
COMMUNITY: Township of Independence, Oakland Co.
WATERCOURSE: Sashabow Drain

TABLE 1 - SECNO

Section Types:	Description
1	Surveyed (See Remarks if Other Than MPS and/or Abrams)
2	Field Survey Section; partly modified For modelling
3	Synthetic - Repeat of nearby surveyed section with an invert adjustment (See Remarks)
4	Synthetic - Developed from topo, surveyed sections, or other information

	Section No.	Section Type	Remarks
A	10.2	1	Valley Section D/S Limit Study
	10.205	3	Valley, repeat 10.2 restrict topwidth
	10.21	3	repeat 10.2 w/ modified channel for opening at Mann Rd
	10.3	1	D/S Face on Mann Normal Bridge
B	10.35	1	U/S Face on Mann, repeat 10.3
	10.4	3	2' U/S Mann Rd. Repeat 10.8 w/ invert adjustment
C	10.8	1	Valley Section
	10.9	3	Valley section, repeat 10.8
	19.8	3	Valley section, repeat 20, w/ invert adjustment
D	20.	1	Valley section
	20.5	3	Repeat 25 w/ invert change
E	25.	1	Valley section
	25.8	3	Repeat 25
F	30.2	1	Valley Section, do not allow flow in side (local) pond until elev > 971.7
	30.3	1	D/S Face Pine Knob Rd, repeat 30.2
G	30.4	1	U/S Face " , " repeat 30.8 lower low chord to correctly model pressure flow.
H	30.8	1	Valley Section
	30.9	3	Repeat 30.8 Include BWP=.01 so reverts to SB method

JOB : HUD-FIA H-4705
COMMUNITY :
WATERCOURSE :

TABLE 1 - SECNO

Section Types	Description
1	Surveyed (See Remarks if Other Than MPS and/or Abrams)
2	Field Survey Section ; partly modified For modelling
3	Synthetic - Repeat of nearby surveyed section with an invert adjustment (See Remarks)
4	Synthetic - Developed from topo, surveyed sections, or other information

	Section No.	Section Type	Remarks
	30.82	3	D/S Face Footbridge Repeat 40 w/ invert change
I	30.84	3	U/S Face Footbridge Repeat 40
J	40.0	1	Valley Section
	41.2	3	D/S Face Footbridge, repeat 40
K	41.3	3	U/S Face Footbridge, repeat 40
	49.7	4	Repeat 50.2 w/ invert adjustment
L	50.2	1	Valley Section, restrict available topwidth
	50.205	3	Repeat 50.2
	50.3	3	Valley section just D/S Maybee Rd. Repeat 50.8 w/ invert adjustment
	50.33	1	Modelling of Face D/S Face Maybee Rd.
M	50.34	3	Modelling of Face U/S face Maybee Rd. Repeat 50.33
	50.4	3	Repeat 50.8, just U/S Maybee Rd
N	50.8	1	Valley Section

SUBJ: COMMUNITY: INDEP/CLARKSTON

WATERCOURSE: CLINTON

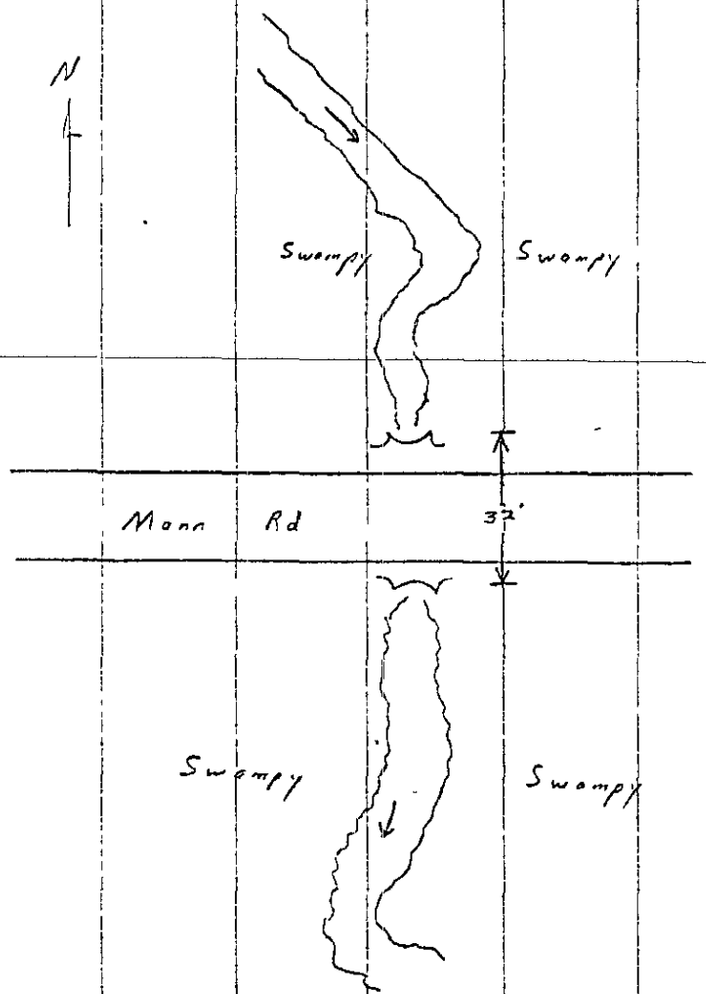
TABLE 2 - XKOR CALCULATIONS

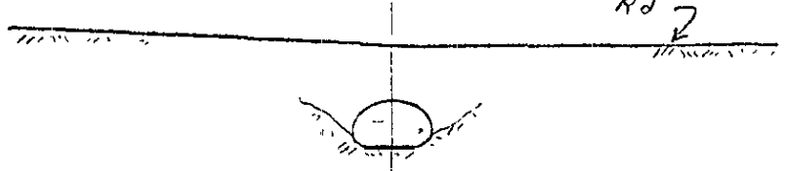
$XKOR = 1 + K_e + K_F$ $\quad K_F = \frac{29n^2\ell}{R^{4/3}}$ $\quad R = A/P$

Cross Section Location	K_e	A	P	R	n	ℓ	K_F	XKOR	REMARKS
10.3-10.35 (Mann Rd)	.7	76	37	2.05	.025	32	.223	1.92	modelled normal
30.3-30.4 (Pine Knob Rd)	.7	60 total	20	1.5	.025	31	.33	2.03 model	2 5x7.4 Flat Bottom CMP's lower low chord w/ BWP=.01
50.33-50.37 (Maybee Rd)	.7	78	22.5	1.73	.025	35	.31	2.01	2 6x8 CMP's modelled normal
FOOTBRIDGES:									
30.82-30.84 ≈ 75' d/s 40		wood unsubstantial, see photo Low Chord = T/Rd =				967.2 968.1		deck is 1/2 gone	normal
41.2-41.3 ≈ 250' u/s 40		unsubstantial, see photo Low Chord = T/Rd =				968.5 968.7		wood	normal

11-13-79

X-sec # 10





8'×15.5' Flat bottom C.M.P.

Culvert detail, see p. 64

11-13-79
30° cloudy

J. O'Neill
N. Shamart
D. Jeffries

HUD-FIA H-4705 Independence Twp
Sashabow Creek
X-sec # 10.8, # 10

Sta	+	HI	−	Elev	
Bm #111				965.87	RR spike in PP
	3.35	969.22			
	X-sec # 10.8, 75' u.s. from c.l.				
0+00			11.4	957.82	in swamp, ± 30' from land
0+20			11.8	957.4	in swamp
0+39			12.2	957.0	
			12.1	957.1	water surface
0+47			13.1	956.1	
0+55			12.5	956.7	
0+65			12.2	957.0	muck 3' deep, rod broke, rodman stuck
	X-sec # 10				
0+00			7.6	961.6	
0+16			7.7	961.5	
0+20			11.3	957.9	
0+23			12.2	957.0	water
0+30			12.9	956.3	Creek invert, ~~[illegible] pipe~~ 1.6' dirt in bottom of pipe
0+33			12.5	956.7	
0+36			11.3	957.9	
0+51			9.5	959.7	
0+28			6.4	962.8	Top of 8' x 16' ova CMP

Sasabaw Creek cont'd

Sta	+	HI 969.22	-	Elev	
			0.1	969.1	Top E end 145' long guard rail
			2.5	966.7	" W. end " " " "
			4.1	965.1	& Rd over culvert

X-sec # 10.2

100' D.S. from D.S. Face

0+00			8.6	960.6	
0+17			12.4	956.8	w. surface
0+25			14.0	955.2	
0+38			12.9	956.3	
0+53			12.3	956.9	
0+73			12.8	956.4	swamp
					swamp 150' beyond here to lawn, impassible
					lawn rises up 1' 3 slope
BM #111			3.34	65.88	

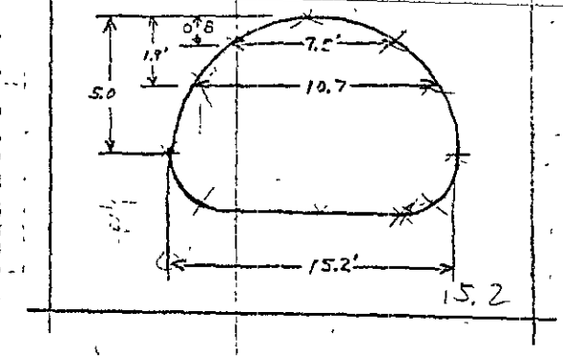
11-13-79

479-

Sashabaw Creek
X-sec. #20

Sta	+	HI	-	Elev	
Bm#113				979.16	RR spk. P.P
	3.67	82.83			
			12.67	70.16	
	0 18	70 34			
			8.67	61.67	
	4.21	965.88			
0+00			5.0	960.9	
0+19			6.5	959 4	W S
0-2°			6.9	959.0	
0+41			7 0	958.9	
0+42			6.0	959 9	
0+50			6.1	959.8	
			0.58	965.30	
	14.46	79.76			
			1.35	978 41	
	2.56	80.97			
BM#113			1.74	97923	0 17 4 gh

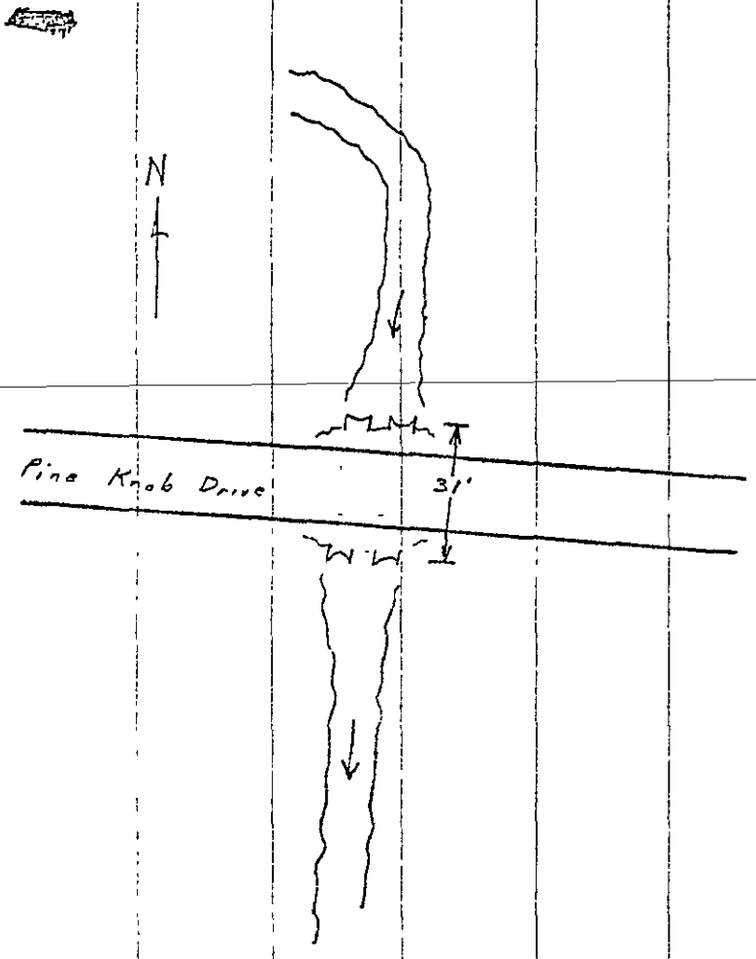
X-sec #10 Culvert Detail

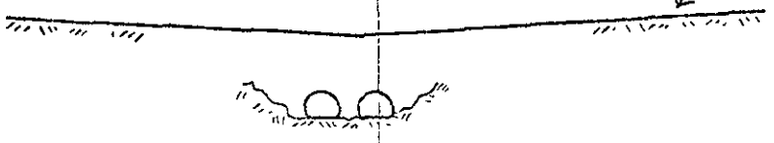


11-13-79

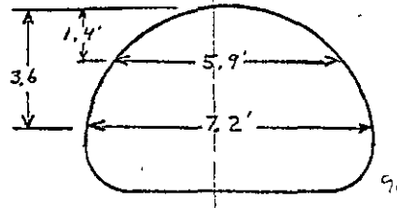
478-11
168

X-sec # 30





2- 5' x 7.4' Flat Bottom C.M.P



11-13-79

478-A/166

Sashabaw Creek

X-sec # 30.2, & # 30

Note: No Footbridge by #30.2

Sta	+	HI	-	Elev	
BM #114				979.38	
	0.21	79.59			
			12.05	67.54	Top culv. S. side
	4.76	72.30			

145' D.S From D.S Face X-sec # 30 = 30.2'

0+00			7.6	964.7	
0+11			9.6	962.7	w s
0+19			10.7	961.6	
0+27			10.0	962.3	
0+30			8.6	963.7	
0+34			7.0	965.3	

X-sec # 30

0+00			8.1	964.2	
0+11			8.8	963.5	w s.
0+16			9.4	962.9	
0+16			4.7	967.6	Top E culv, 5' x 7.4' cmp
0+21			9.5	962.8	
0+26			9.5	962.8	
0+31			9.3	963.0	
0+26			4.7	967.6	Top W. culv, 5' x 7.4' cmp
0+33			8.2	964.1	

11-13-79

478-A/67

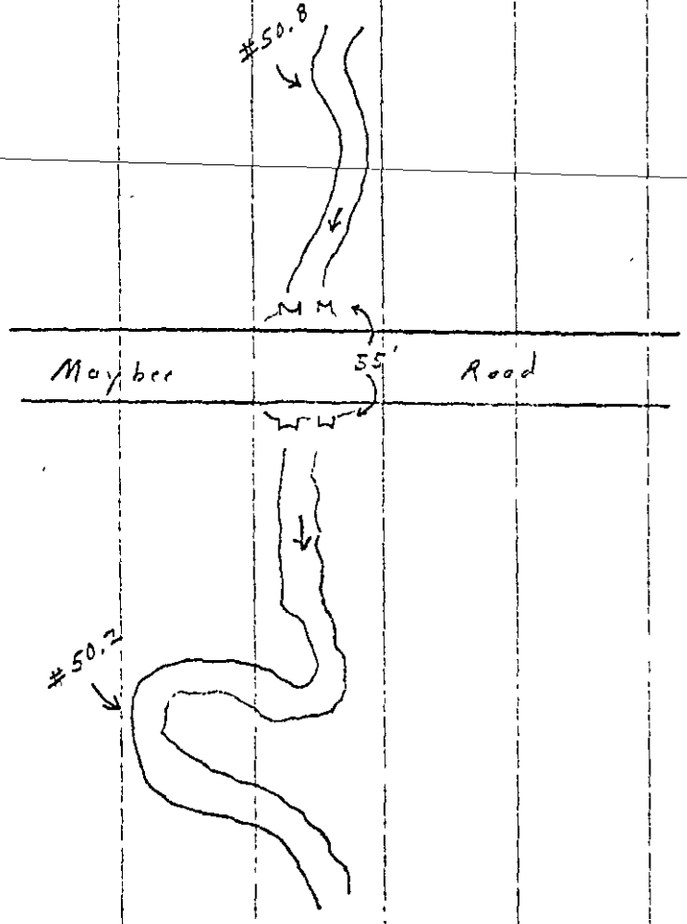
Sashabow Creek

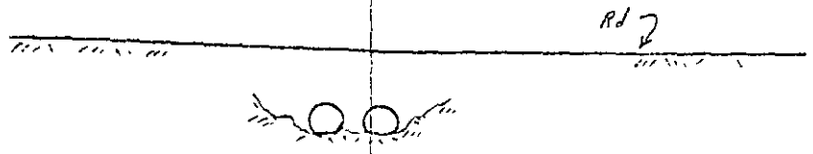
X-sec # 30 cont'd

Sta	+	HI	-	Elev	
		72.30			
0+45			7.3	965.0	
			4.3	968.0	℄ Rd over culv's
50' U.S. of U.S. Face					
X-sec # 30.8					
0+00			6.8	965.5	
0+02			8.0	964.3	
			8.8	963.5	W.S.
0+05			9.8	962.5	
0+10			9.8	962.5	
0+16			8.9	963.4	
0+26			8.3	964.0	
0+32			7.5	964.8	
			2.79	969.51	
		10.92	80.43		
BM 114			1.05	979.38	0.00

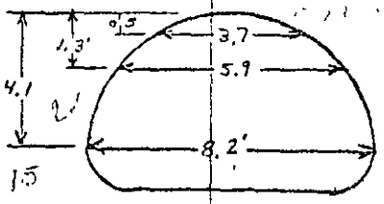
11-13-79

Sashoban Creek
X-sec # 50





6' x 8' CMP, Flat Bottom



11-13-79

478-A/71

Sashabaw Creek
X-sec # 50,

Sta	+	HI	-	Elev	
		78.60			
0+00			7.2	971.4	
0+08			8.4	970.2	
0+12			10.1	968.5	W. S
0+17			11.0	967.6	
0+17			5.3	973.3	Top E. culv, 6' x 8' CMP, Flat Bottom
0+22			10.6	968.0	
0+27			11.0	967.6	
0+27			5.4	973.2	Top W culv, 6' x 8' CMP, Flat Bottom
0+32			10.1	969.5	
0+46			6.9	971.7	
			4.2	974.4	℄ Rd over culv
0+48			2.4	976.2	W. end 80' long guard rail
(-32)			2.5	976.1	E end 80' " " "
BM 87			6.47	72.13	

Note: Stream Gage reads 2.02

478 C / 52

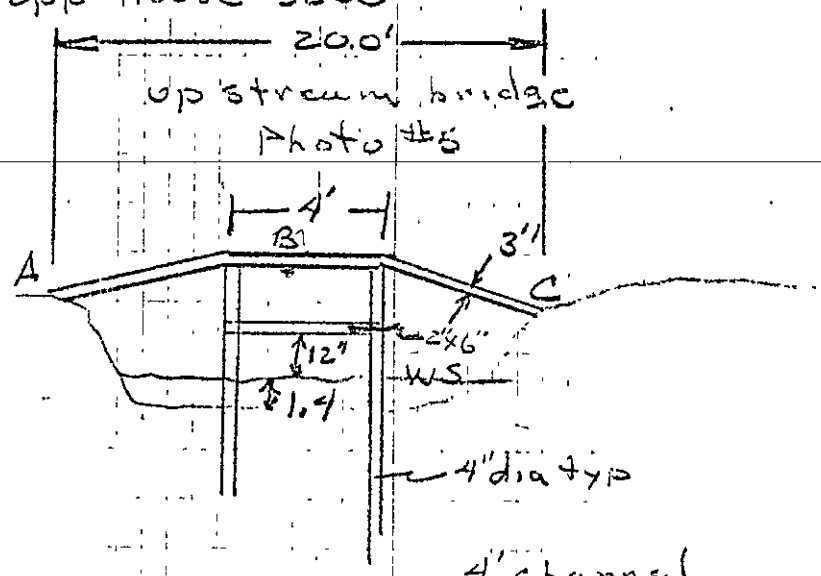
Foot bridges between 40 & 50.2

Oct 22, 1979

J. Myers
D. Jeffries

Sta	+	HI	−	Elev.
BM# 110				982.62
	3.10	985.72		
T.P.			11.86	973.86
	-0.05	973.81		
A			6.1	967.7
B			5.1	968.7
C			6.8	967.0
Low cord			5.35	968.46
W.S.			7.99	965.82
INVERT			9.4	964.41
		correct	5.35	968.46

R.R. spike in P. Pole w. side Eastview opp House #5200

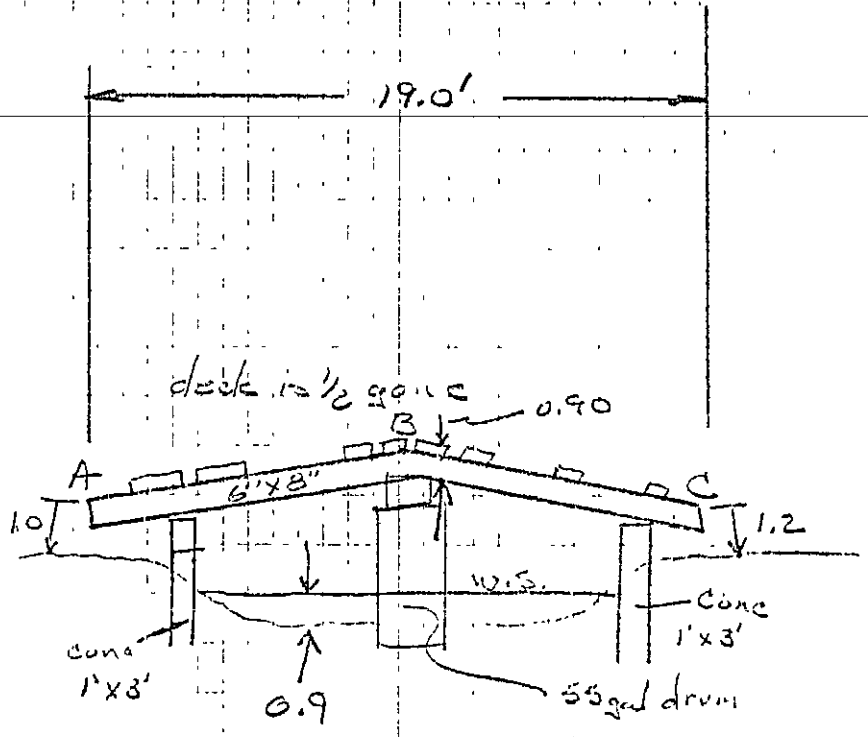


4" channel
20' wide channel

478 C/...

Sta	+	H.I	−	Elev
		973.81		
A			6.15	967.66
B			5.7	968.1
C			5.9	967.9
W.S			8.3	965.5
Low Cord			6.6	967.2
Invert			9.2	964.6
T.P.			0.35	973.46
	12.70	986.16		
BM II's			3.53	982.63

Down Stream bridge
Photo #6
Looking D.S.



00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: INDEPENDENCE TOWNSHIP

3) WATERCOURSE: SASHABAW DRAIN

4) DOCUMENT TYPE: CONVERGENCE RUN
WITH SUMMARY

00BREAK00

```
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************
```

CONVERGENCE RUN

```
C
T1      HUD-FIA H-4705
T2      INDEPENDENCE TOWNSHIP
T3      SASHABAW DRAIN
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-1.	4.	0.	0.	.002600	0.00	-1.0	0.	957.800	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	.080	.080	.045	.300	.500	0.000	0.000	0.000	0.000	0.000
QT	5.000	205.000	345.000	410.000	590.000	410.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
X1	10.200	9.000	488.000	542.000	0.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	422.000	0.000	542.000	0.000	0.000	0.000	0.000
GR	962.800	402.000	960.000	422.000	957.200	488.000	955.200	510.000	955.200	520.000
GR	956.700	542.000	956.700	640.000	960.000	660.000	963.400	682.000	0.000	0.000
X1	10.205	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.500	0.000
X3	0.000	0.000	0.000	488.000	0.000	542.000	0.000	0.000	0.000	0.000
X1	10.210	9.000	508.000	523.000	98.000	98.000	98.000	0.000	.500	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	962.800	962.800	0.000
GR	962.800	402.000	960.000	422.000	957.200	488.000	955.200	508.000	955.200	523.000
GR	956.700	542.000	956.700	640.000	960.000	660.000	963.400	682.000	0.000	0.000
NC	0.000	0.000	.025	.400	.800	0.000	0.000	0.000	0.000	0.000

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        ** D/S FACE MANN RD.
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X1	10.300	7.000	0.000	15.200	2.000	2.000	2.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	962.800	965.100	0.000	0.000	0.000	0.000	0.000
BT	7.000	0.000	965.100	957.800	2.250	965.100	959.800	3.850	965.100	961.800
BT	7.600	965.100	962.800	11.350	965.100	961.800	13.000	965.100	959.800	15.200
BT	965.100	957.800	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	957.800	0.000	956.300	2.250	956.300	3.850	956.300	7.600	956.300	11.350
GR	956.300	13.000	957.800	15.200	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.350	0.000	0.000	0.000	28.000	28.000	28.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	962.800	965.100	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	10.400	13.000	428.000	446.000	2.000	2.000	2.000	0.000	.200	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	965.100	965.100	0.000
GR	975.900	100.000	969.600	202.000	960.800	298.000	959.600	340.000	957.100	360.000
GR	956.800	428.000	956.100	438.000	956.800	446.000	957.000	510.000	960.400	518.000
GR	963.200	698.000	972.200	752.000	976.000	882.000	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
X1	10.800	0.000	0.000	0.000	70.000	70.000	70.000	0.000	-.200	0.000
X3	0.000	0.000	0.000	340.000	0.000	518.000	0.000	0.000	0.000	0.000
X1	10.900	0.000	0.000	0.000	500.000	500.000	500.000	0.000	.900	0.000
X1	19.800	20.000	380.000	444.000	550.000	550.000	550.000	0.000	-.800	0.000
X3	0.000	0.000	0.000	0.000	0.000	526.000	966.100	0.000	0.000	0.000
GR	970.200	312.000	966.400	334.000	961.700	380.000	959.800	396.000	959.200	408.000
GR	958.800	412.000	958.800	428.000	961.200	444.000	959.000	456.000	959.000	490.000
GR	959.200	516.000	963.300	526.000	966.900	538.000	963.200	550.000	959.900	560.000
GR	961.800	614.000	962.400	638.000	963.000	670.000	965.400	684.000	968.200	706.000
X1	20.000	0.000	0.000	0.000	500.000	500.000	500.000	0.000	.800	0.000
X3	0.000	0.000	0.000	0.000	0.000	526.000	966.900	0.000	0.000	0.000
X1	20.500	12.000	468.000	492.000	400.000	400.000	400.000	0.000	-.450	0.000
GR	968.000	426.000	967.600	438.000	962.700	468.000	961.100	472.000	959.700	480.000
GR	961.100	488.000	962.100	492.000	962.200	516.000	962.200	544.000	961.400	568.000
GR	962.900	624.000	970.000	672.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	25.000	12.000	468.000	492.000	400.000	400.000	400.000	0.000	0.000	0.000
GR	968.000	426.000	967.600	438.000	962.700	468.000	961.100	472.000	959.700	480.000
GR	961.100	488.000	962.100	492.000	962.200	516.000	962.200	544.000	961.400	568.000
GR	962.900	624.000	970.000	672.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	25.800	0.000	0.000	0.000	500.000	500.000	500.000	0.000	1.100	0.000
NC	.070	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	30.200	12.000	662.000	696.000	450.000	450.000	450.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	662.000	967.200	0.000	0.000	0.000	0.000	0.000
GR	972.400	484.000	968.200	522.000	964.600	644.000	964.800	656.000	967.200	662.000
GR	963.400	678.000	961.600	684.000	963.400	690.000	965.100	696.000	966.400	750.000
GR	969.800	796.000	971.900	894.000	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

** D/S FACE PINE KNOB RD.

X1	30.300	0.000	0.000	0.000	140.000	140.000	140.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	662.000	967.200	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.030	3.000	0.000	15.000	.010	60.000	0.000	962.800	962.800
X1	30.400	12.000	706.000	730.000	31.000	31.000	31.000	0.000	-1.200	0.000

X2	0.000	0.000	1.000	966.000	968.000	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	968.000	968.000	0.000
BT	7.000	540.000	970.000	0.000	600.000	968.500	0.000	642.000	967.900	0.000
BT	695.000	968.000	0.000	725.000	968.600	0.000	800.000	968.700	0.000	870.000
BT	970.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	971.600	628.000	970.000	634.000	966.400	660.000	966.400	706.000	964.000	710.000
GR	962.500	716.000	964.000	722.000	965.200	730.000	966.300	800.000	966.300	860.000
GR	969.800	874.000	976.600	920.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	30.800	0.000	0.000	0.000	65.000	65.000	65.000	0.000	1.000	0.000
X1	30.900	0.000	0.000	0.000	400.000	400.000	400.000	0.000	.400	0.000
NC	.070	.080	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000

** D/S FACE FOOTBRIDGE

X1	30.820	10.000	460.000	522.000	620.000	620.000	620.000	0.000	.800	0.000
X2	0.000	0.000	0.000	967.200	968.100	0.000	0.000	0.000	0.000	0.000
GR	980.500	242.000	974.200	248.000	970.000	300.000	967.400	460.000	965.300	508.000
GR	964.200	514.000	965.300	520.000	966.600	522.000	970.400	628.000	974.000	978.000
X1	30.840	0.000	0.000	0.000	5.000	5.000	5.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	967.200	968.100	0.000	0.000	0.000	0.000	0.000
X1	40.000	15.000	460.000	522.000	75.000	75.000	75.000	0.000	0.000	0.000
GR	980.500	242.000	974.200	248.000	970.000	300.000	967.400	460.000	965.300	464.000
GR	964.200	471.000	965.300	476.000	965.800	486.000	965.800	504.000	965.300	508.000
GR	964.200	514.000	965.300	520.000	966.600	522.000	970.400	628.000	974.000	978.000

** D/S FACE FOOTBRIDGE

X1	41.200	10.000	460.000	522.000	245.000	245.000	245.000	0.000	1.300	0.000
X2	0.000	0.000	0.000	968.500	968.700	0.000	0.000	0.000	0.000	0.000
GR	980.500	242.000	974.200	248.000	970.000	300.000	967.400	460.000	965.300	508.000
GR	964.200	514.000	965.300	520.000	966.600	522.000	970.400	628.000	974.000	978.000
X1	41.300	0.000	0.000	0.000	5.000	5.000	5.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	968.500	968.700	0.000	0.000	0.000	0.000	0.000
X1	49.700	12.000	512.000	674.000	350.000	350.000	350.000	0.000	-1.700	0.000
GR	971.100	288.000	970.500	334.000	969.100	512.000	968.700	532.000	968.200	600.000
GR	967.700	650.000	967.500	654.000	967.100	660.000	967.500	666.000	968.500	674.000
GR	968.800	716.000	972.700	810.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	50.200	0.000	0.000	0.000	600.000	600.000	600.000	0.000	1.700	0.000
X3	0.000	0.000	0.000	512.000	0.000	716.000	0.000	0.000	0.000	0.000
X1	50.205	0.000	0.000	0.000	125.000	125.000	125.000	0.000	.200	0.000
X3	0.000	0.000	0.000	600.000	0.000	716.000	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

X1	50.300	15.000	488.000	512.000	125.000	125.000	125.000	0.000	.200	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	974.000	974.000	0.000
GR	976.400	0.000	972.100	78.000	971.300	230.000	970.200	356.000	969.300	464.000
GR	969.300	480.000	969.000	488.000	967.200	502.000	967.200	508.000	969.000	512.000
GR	970.000	524.000	970.400	586.000	970.900	758.000	972.800	860.000	978.000	912.000
NC	0.000	0.000	.025	.400	.800	0.000	0.000	0.000	0.000	0.000

** D/S FACE MAYBEE RD.

X1	50.330	14.000	0.000	18.400	2.000	2.000	2.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	973.200	974.400	0.000	0.000	0.000	0.000	0.000
BT	14.000	0.000	974.400	969.100	1.200	974.400	971.900	2.300	974.400	972.700
BT	4.100	974.400	973.200	5.900	974.400	972.700	7.000	974.400	971.900	8.200
BT	974.400	969.100	10.200	974.400	969.100	11.400	974.400	971.900	12.500	974.400
BT	972.700	14.300	974.400	973.200	16.100	974.400	972.700	17.200	974.400	971.900
BT	18.400	974.400	969.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	969.100	0.000	967.600	1.200	967.600	2.300	967.600	4.100	967.600	5.900
GR	967.600	7.000	969.100	8.200	969.100	10.200	967.600	11.400	967.600	12.500
GR	967.600	14.300	967.600	16.100	967.600	17.200	969.100	18.400	0.000	0.000

X1	50.370	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	973.200	974.400	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	50.400	15.000	488.000	512.000	2.000	2.000	2.000	0.000	.400	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	974.400	974.400	0.000
GR	976.400	0.000	972.100	78.000	971.300	230.000	970.200	356.000	969.300	464.000
GR	969.300	480.000	969.000	488.000	967.200	502.000	967.200	508.000	969.000	512.000
GR	970.000	524.000	970.400	586.000	970.900	758.000	972.800	860.000	978.000	912.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000

X1	50.800	0.000	0.000	0.000	150.000	150.000	150.000	0.000	-.400	0.000
X3	0.000	0.000	0.000	367.000	0.000	670.000	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 JULY 1979
  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

SASHABAW DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	10.200	0.00	0.00	0.00	955.20	410.00	958.38	0.00	958.51	25.98	3.00	149.25	80.44
	10.200	0.00	0.00	0.00	955.20	410.00	958.90	0.00	958.99	13.15	2.41	195.36	113.07
	10.200	0.00	0.00	0.00	955.20	410.00	957.90	0.00	958.12	54.33	3.78	113.07	55.63
	10.205	100.00	0.00	0.00	955.70	410.00	958.67	0.00	958.84	37.57	3.37	121.61	66.89
	10.205	100.00	0.00	0.00	955.70	410.00	959.05	0.00	959.18	22.88	2.89	141.86	85.72
	10.205	100.00	0.00	0.00	955.70	410.00	958.44	0.00	958.66	52.53	3.74	109.63	56.57
	10.210	98.00	0.00	0.00	955.70	410.00	958.82	0.00	960.01	154.45	8.76	46.79	32.99
	10.210	98.00	0.00	0.00	955.70	410.00	959.03	0.00	960.07	123.99	8.20	49.98	36.82
	10.210	98.00	0.00	0.00	955.70	410.00	958.77	0.00	960.00	162.68	8.90	46.07	32.15
*	10.300	2.00	965.10	962.80	956.30	410.00	959.29	959.29	960.95	139.00	10.35	39.60	34.78
*	10.300	2.00	965.10	962.80	956.30	410.00	959.29	959.29	960.95	139.00	10.35	39.60	34.78
*	10.300	2.00	965.10	962.80	956.30	410.00	959.29	959.29	960.95	139.00	10.35	39.60	34.78
	10.350	28.00	965.10	962.80	956.30	410.00	960.59	0.00	961.51	67.11	7.69	53.35	50.05
	10.350	28.00	965.10	962.80	956.30	410.00	960.59	0.00	961.51	67.11	7.69	53.35	50.05
	10.350	28.00	965.10	962.80	956.30	410.00	960.59	0.00	961.51	67.11	7.69	53.35	50.05
	10.400	2.00	0.00	0.00	956.30	410.00	961.38	0.00	961.74	26.88	4.82	85.15	79.08
	10.400	2.00	0.00	0.00	956.30	410.00	961.38	0.00	961.74	26.88	4.82	85.15	79.08
	10.400	2.00	0.00	0.00	956.30	410.00	961.38	0.00	961.74	26.88	4.82	85.15	79.08
	10.800	70.00	0.00	0.00	956.10	410.00	961.79	0.00	961.79	.75	.87	831.49	474.38
	10.800	70.00	0.00	0.00	956.10	410.00	961.79	0.00	961.79	.75	.87	831.49	474.38
	10.800	70.00	0.00	0.00	956.10	410.00	961.79	0.00	961.79	.75	.87	831.49	474.38
	10.900	500.00	0.00	0.00	957.00	410.00	961.84	0.00	961.84	1.38	1.05	720.05	349.43
	10.900	500.00	0.00	0.00	957.00	410.00	961.84	0.00	961.84	1.38	1.05	720.05	349.43
	10.900	500.00	0.00	0.00	957.00	410.00	961.84	0.00	961.84	1.38	1.05	720.05	349.43
	19.800	550.00	0.00	0.00	958.00	410.00	961.94	0.00	961.95	2.78	1.14	465.98	245.76
	19.800	550.00	0.00	0.00	958.00	410.00	961.94	0.00	961.95	2.78	1.14	465.98	245.76
	19.800	550.00	0.00	0.00	958.00	410.00	961.94	0.00	961.95	2.78	1.14	465.98	245.76
	20.000	500.00	0.00	0.00	958.80	410.00	962.12	0.00	962.14	5.66	1.40	373.43	172.33
	20.000	500.00	0.00	0.00	958.80	410.00	962.12	0.00	962.14	5.66	1.40	373.43	172.33
	20.000	500.00	0.00	0.00	958.80	410.00	962.12	0.00	962.14	5.66	1.40	373.43	172.33

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
20.500	400.00	0.00	0.00	959.25	410.00	962.55	0.00	962.75	70.70	4.54	170.91	48.76
20.500	400.00	0.00	0.00	959.25	410.00	962.55	0.00	962.75	70.70	4.54	170.91	48.76
20.500	400.00	0.00	0.00	959.25	410.00	962.55	0.00	962.75	70.70	4.54	170.91	48.76
25.000	400.00	0.00	0.00	959.70	410.00	963.80	0.00	963.85	14.27	2.52	303.29	108.53
25.000	400.00	0.00	0.00	959.70	410.00	963.80	0.00	963.85	14.27	2.52	303.29	108.53
25.000	400.00	0.00	0.00	959.70	410.00	963.80	0.00	963.85	14.27	2.52	303.29	108.53
25.800	500.00	0.00	0.00	960.80	410.00	964.65	0.00	964.73	21.77	2.94	261.88	87.88
25.800	500.00	0.00	0.00	960.80	410.00	964.65	0.00	964.73	21.77	2.94	261.88	87.88
25.800	500.00	0.00	0.00	960.80	410.00	964.65	0.00	964.73	21.77	2.94	261.88	87.88
30.200	450.00	0.00	0.00	961.60	410.00	966.15	0.00	966.58	87.35	5.41	93.90	43.87
30.200	450.00	0.00	0.00	961.60	410.00	966.15	0.00	966.58	87.35	5.41	93.90	43.87
30.200	450.00	0.00	0.00	961.60	410.00	966.15	0.00	966.58	87.35	5.41	93.90	43.87
30.300	140.00	0.00	0.00	961.60	410.00	967.10	0.00	967.23	23.42	3.25	177.05	84.72
30.300	140.00	0.00	0.00	961.60	410.00	967.10	0.00	967.23	23.42	3.25	177.05	84.72
30.300	140.00	0.00	0.00	961.60	410.00	967.10	0.00	967.23	23.42	3.25	177.05	84.72
30.400	31.00	968.00	966.00	961.30	410.00	968.28	0.00	968.28	1.04	1.01	780.12	402.43
30.400	31.00	968.00	966.00	961.30	410.00	968.28	0.00	968.28	1.04	1.01	780.12	402.43
30.400	31.00	968.00	966.00	961.30	410.00	968.28	0.00	968.28	1.04	1.01	780.12	402.43
30.800	65.00	0.00	0.00	962.30	410.00	968.28	0.00	968.30	2.88	1.47	550.29	241.64
30.800	65.00	0.00	0.00	962.30	410.00	968.28	0.00	968.30	2.88	1.47	550.29	241.64
30.800	65.00	0.00	0.00	962.30	410.00	968.28	0.00	968.30	2.88	1.47	550.29	241.64
30.900	400.00	0.00	0.00	962.70	410.00	968.41	0.00	968.44	4.00	1.66	490.65	205.09
30.900	400.00	0.00	0.00	962.70	410.00	968.41	0.00	968.44	4.00	1.66	490.65	205.09
30.900	400.00	0.00	0.00	962.70	410.00	968.41	0.00	968.44	4.00	1.66	490.65	205.09
30.820	620.00	968.10	967.20	965.00	410.00	969.09	0.00	969.22	165.18	3.27	151.48	31.90
30.820	620.00	968.10	967.20	965.00	410.00	969.09	0.00	969.22	165.18	3.27	151.48	31.90
30.820	620.00	968.10	967.20	965.00	410.00	969.09	0.00	969.22	165.18	3.27	151.48	31.90
30.840	5.00	968.10	967.20	965.00	410.00	969.19	0.00	969.30	121.62	2.95	170.41	37.18
30.840	5.00	968.10	967.20	965.00	410.00	969.19	0.00	969.30	121.62	2.95	170.41	37.18
30.840	5.00	968.10	967.20	965.00	410.00	969.19	0.00	969.30	121.62	2.95	170.41	37.18
40.000	75.00	0.00	0.00	964.20	410.00	969.36	0.00	969.38	2.69	1.34	469.30	250.03
40.000	75.00	0.00	0.00	964.20	410.00	969.36	0.00	969.38	2.69	1.34	469.30	250.03
40.000	75.00	0.00	0.00	964.20	410.00	969.36	0.00	969.38	2.69	1.34	469.30	250.03
41.200	245.00	968.70	968.50	965.50	410.00	969.50	0.00	969.61	119.92	2.83	175.10	37.44
41.200	245.00	968.70	968.50	965.50	410.00	969.50	0.00	969.61	119.92	2.83	175.10	37.44
41.200	245.00	968.70	968.50	965.50	410.00	969.50	0.00	969.61	119.92	2.83	175.10	37.44
41.300	5.00	968.70	968.50	965.50	410.00	969.57	0.00	969.67	103.17	2.69	186.09	40.37
41.300	5.00	968.70	968.50	965.50	410.00	969.57	0.00	969.67	103.17	2.69	186.09	40.37
41.300	5.00	968.70	968.50	965.50	410.00	969.57	0.00	969.67	103.17	2.69	186.09	40.37
49.700	350.00	0.00	0.00	965.40	410.00	969.76	0.00	969.76	.59	.55	1053.70	534.52
49.700	350.00	0.00	0.00	965.40	410.00	969.76	0.00	969.76	.59	.55	1053.70	534.52
49.700	350.00	0.00	0.00	965.40	410.00	969.76	0.00	969.76	.59	.55	1053.70	534.52

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	50.200	600.00	0.00	0.00	967.10	410.00	969.83	0.00	969.86	10.24	1.45	310.62	128.14
	50.200	600.00	0.00	0.00	967.10	410.00	969.83	0.00	969.86	10.24	1.45	310.62	128.14
	50.200	600.00	0.00	0.00	967.10	410.00	969.83	0.00	969.86	10.24	1.45	310.62	128.14
	50.205	125.00	0.00	0.00	967.30	410.00	969.99	0.00	970.08	24.31	2.51	192.50	83.16
	50.205	125.00	0.00	0.00	967.30	410.00	969.99	0.00	970.08	24.31	2.51	192.50	83.16
	50.205	125.00	0.00	0.00	967.30	410.00	969.99	0.00	970.08	24.31	2.51	192.50	83.16
	50.300	125.00	0.00	0.00	967.40	410.00	970.22	0.00	971.21	219.56	8.00	51.24	27.67
	50.300	125.00	0.00	0.00	967.40	410.00	970.22	0.00	971.21	219.56	8.00	51.24	27.67
	50.300	125.00	0.00	0.00	967.40	410.00	970.22	0.00	971.21	219.56	8.00	51.24	27.67
*	50.330	2.00	974.40	973.20	967.60	410.00	970.47	970.47	971.96	148.94	9.81	41.81	33.60
*	50.330	2.00	974.40	973.20	967.60	410.00	970.47	970.47	971.96	148.94	9.81	41.81	33.60
*	50.330	2.00	974.40	973.20	967.60	410.00	970.47	970.47	971.96	148.94	9.81	41.81	33.60
	50.370	31.00	974.40	973.20	967.60	410.00	971.80	0.00	972.55	64.86	6.95	58.99	50.91
	50.370	31.00	974.40	973.20	967.60	410.00	971.80	0.00	972.55	64.86	6.95	58.99	50.91
	50.370	31.00	974.40	973.20	967.60	410.00	971.80	0.00	972.55	64.86	6.95	58.99	50.91
	50.400	2.00	0.00	0.00	967.60	410.00	972.50	0.00	972.75	22.57	4.04	101.39	86.31
	50.400	2.00	0.00	0.00	967.60	410.00	972.50	0.00	972.75	22.57	4.04	101.39	86.31
	50.400	2.00	0.00	0.00	967.60	410.00	972.50	0.00	972.75	22.57	4.04	101.39	86.31
	50.800	150.00	0.00	0.00	967.20	410.00	972.84	0.00	972.84	.92	.91	906.96	427.87
	50.800	150.00	0.00	0.00	967.20	410.00	972.84	0.00	972.84	.92	.91	906.96	427.87
	50.800	150.00	0.00	0.00	967.20	410.00	972.84	0.00	972.84	.92	.91	906.96	427.87

SASHABAW DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	10.200	410.00	958.38	0.00	0.00	.58	81.70	0.00
	10.200	410.00	958.90	.52	0.00	0.00	94.07	0.00
	10.200	410.00	957.90	-1.00	0.00	0.00	70.50	0.00
	10.205	410.00	958.67	0.00	.29	0.00	54.00	100.00
	10.205	410.00	959.05	.38	.15	0.00	54.00	100.00
	10.205	410.00	958.44	-.61	.54	0.00	54.00	100.00
	10.210	410.00	958.82	0.00	.15	0.00	15.00	98.00
	10.210	410.00	959.03	.21	-.02	0.00	15.00	98.00
	10.210	410.00	958.77	-.26	.33	0.00	15.00	98.00
*	10.300	410.00	959.29	0.00	.47	0.00	15.20	2.00
*	10.300	410.00	959.29	0.00	.26	0.00	15.20	2.00
*	10.300	410.00	959.29	0.00	.52	0.00	15.20	2.00
	10.350	410.00	960.59	0.00	1.31	0.00	15.20	28.00
	10.350	410.00	960.59	0.00	1.31	0.00	15.20	28.00
	10.350	410.00	960.59	0.00	1.31	0.00	15.20	28.00
	10.400	410.00	961.38	0.00	.79	0.00	18.00	2.00
	10.400	410.00	961.38	0.00	.79	0.00	18.00	2.00
	10.400	410.00	961.38	0.00	.79	0.00	18.00	2.00
	10.800	410.00	961.79	0.00	.41	0.00	178.00	70.00
	10.800	410.00	961.79	0.00	.41	0.00	178.00	70.00
	10.800	410.00	961.79	0.00	.41	0.00	178.00	70.00
	10.900	410.00	961.84	0.00	.05	0.00	255.97	500.00
	10.900	410.00	961.84	0.00	.05	0.00	255.97	500.00
	10.900	410.00	961.84	0.00	.05	0.00	255.97	500.00
	19.800	410.00	961.94	0.00	.10	0.00	154.76	550.00
	19.800	410.00	961.94	0.00	.10	0.00	154.76	550.00
	19.800	410.00	961.94	0.00	.10	0.00	154.76	550.00
	20.000	410.00	962.12	0.00	.19	0.00	147.27	500.00
	20.000	410.00	962.12	0.00	.19	0.00	147.27	500.00
	20.000	410.00	962.12	0.00	.19	0.00	147.27	500.00
	20.500	410.00	962.55	0.00	.43	0.00	158.50	400.00
	20.500	410.00	962.55	0.00	.43	0.00	158.50	400.00
	20.500	410.00	962.55	0.00	.43	0.00	158.50	400.00
	25.000	410.00	963.80	0.00	1.25	0.00	168.91	400.00
	25.000	410.00	963.80	0.00	1.25	0.00	168.91	400.00
	25.000	410.00	963.80	0.00	1.25	0.00	168.91	400.00
	25.800	410.00	964.65	0.00	.86	0.00	165.73	500.00
	25.800	410.00	964.65	0.00	.86	0.00	165.73	500.00
	25.800	410.00	964.65	0.00	.86	0.00	165.73	500.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
30.200	410.00	966.15	0.00	1.50	0.00	73.12	450.00
30.200	410.00	966.15	0.00	1.50	0.00	73.12	450.00
30.200	410.00	966.15	0.00	1.50	0.00	73.12	450.00
30.300	410.00	967.10	0.00	.95	0.00	97.00	140.00
30.300	410.00	967.10	0.00	.95	0.00	97.00	140.00
30.300	410.00	967.10	0.00	.95	0.00	97.00	140.00
30.400	410.00	968.28	0.00	1.18	0.00	235.02	31.00
30.400	410.00	968.28	0.00	1.18	0.00	235.02	31.00
30.400	410.00	968.28	0.00	1.18	0.00	235.02	31.00
30.800	410.00	968.28	0.00	.01	0.00	223.78	65.00
30.800	410.00	968.28	0.00	.01	0.00	223.78	65.00
30.800	410.00	968.28	0.00	.01	0.00	223.78	65.00
30.900	410.00	968.41	0.00	.13	0.00	220.76	400.00
30.900	410.00	968.41	0.00	.13	0.00	220.76	400.00
30.900	410.00	968.41	0.00	.13	0.00	220.76	400.00
30.820	410.00	969.09	0.00	.67	0.00	162.97	620.00
30.820	410.00	969.09	0.00	.67	0.00	162.97	620.00
30.820	410.00	969.09	0.00	.67	0.00	162.97	620.00
30.840	410.00	969.19	0.00	.10	0.00	173.05	5.00
30.840	410.00	969.19	0.00	.10	0.00	173.05	5.00
30.840	410.00	969.19	0.00	.10	0.00	173.05	5.00
40.000	410.00	969.36	0.00	.17	0.00	258.89	75.00
40.000	410.00	969.36	0.00	.17	0.00	258.89	75.00
40.000	410.00	969.36	0.00	.17	0.00	258.89	75.00
41.200	410.00	969.50	0.00	.15	0.00	156.35	245.00
41.200	410.00	969.50	0.00	.15	0.00	156.35	245.00
41.200	410.00	969.50	0.00	.15	0.00	156.35	245.00
41.300	410.00	969.57	0.00	.07	0.00	162.52	5.00
41.300	410.00	969.57	0.00	.07	0.00	162.52	5.00
41.300	410.00	969.57	0.00	.07	0.00	162.52	5.00
49.700	410.00	969.76	0.00	.18	0.00	492.12	350.00
49.700	410.00	969.76	0.00	.18	0.00	492.12	350.00
49.700	410.00	969.76	0.00	.18	0.00	492.12	350.00
50.200	410.00	969.83	0.00	.08	0.00	204.00	600.00
50.200	410.00	969.83	0.00	.08	0.00	204.00	600.00
50.200	410.00	969.83	0.00	.08	0.00	204.00	600.00
50.205	410.00	969.99	0.00	.15	0.00	116.00	125.00
50.205	410.00	969.99	0.00	.15	0.00	116.00	125.00
50.205	410.00	969.99	0.00	.15	0.00	116.00	125.00
50.300	410.00	970.22	0.00	.23	0.00	24.00	125.00
50.300	410.00	970.22	0.00	.23	0.00	24.00	125.00
50.300	410.00	970.22	0.00	.23	0.00	24.00	125.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	50.330	410.00	970.47	0.00	.25	0.00	18.40	2.00
*	50.330	410.00	970.47	0.00	.25	0.00	18.40	2.00
*	50.330	410.00	970.47	0.00	.25	0.00	18.40	2.00
	50.370	410.00	971.80	0.00	1.33	0.00	18.40	31.00
	50.370	410.00	971.80	0.00	1.33	0.00	18.40	31.00
	50.370	410.00	971.80	0.00	1.33	0.00	18.40	31.00
	50.400	410.00	972.50	0.00	.70	0.00	24.00	2.00
	50.400	410.00	972.50	0.00	.70	0.00	24.00	2.00
	50.400	410.00	972.50	0.00	.70	0.00	24.00	2.00
	50.800	410.00	972.84	0.00	.34	0.00	303.00	150.00
	50.800	410.00	972.84	0.00	.34	0.00	303.00	150.00
	50.800	410.00	972.84	0.00	.34	0.00	303.00	150.00

SUMMARY OF ERRORS

CAUTION SECNO= 10.300 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 10.300 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 10.300 PROFILE= 3 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 50.330 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 50.330 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 50.330 PROFILE= 3 CRITICAL DEPTH ASSUMED

00BREAK00

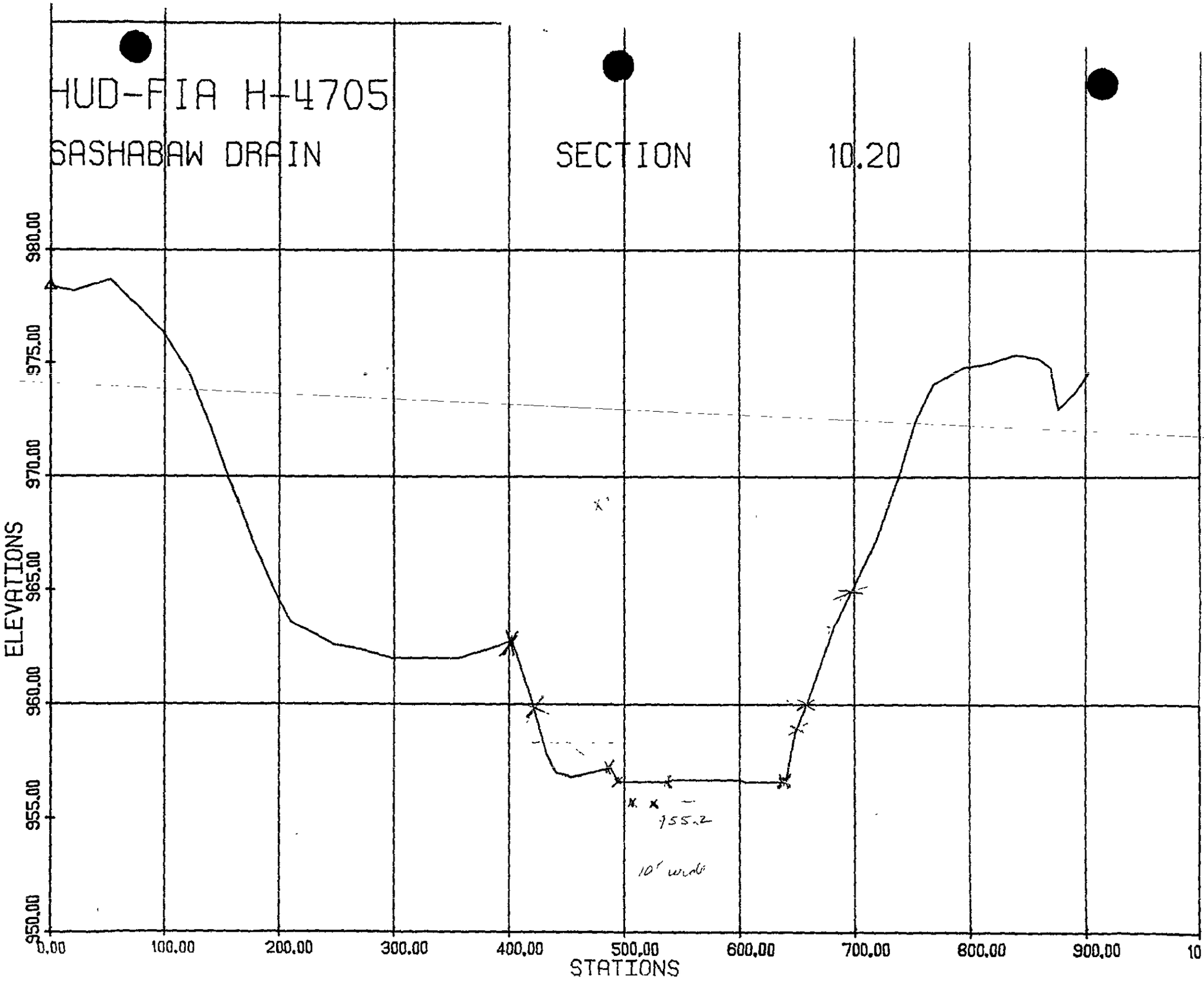
1) COUNTY: OAKLAND

2) STUDY NAME: INDEPENDENCE TOWNSHIP

3) WATERCOURSE: SAGHABAW DRAIN

4) DOCUMENT TYPE: CROSS SECTION DRAWINGS

00BREAK00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950.00
ELEVATIONS
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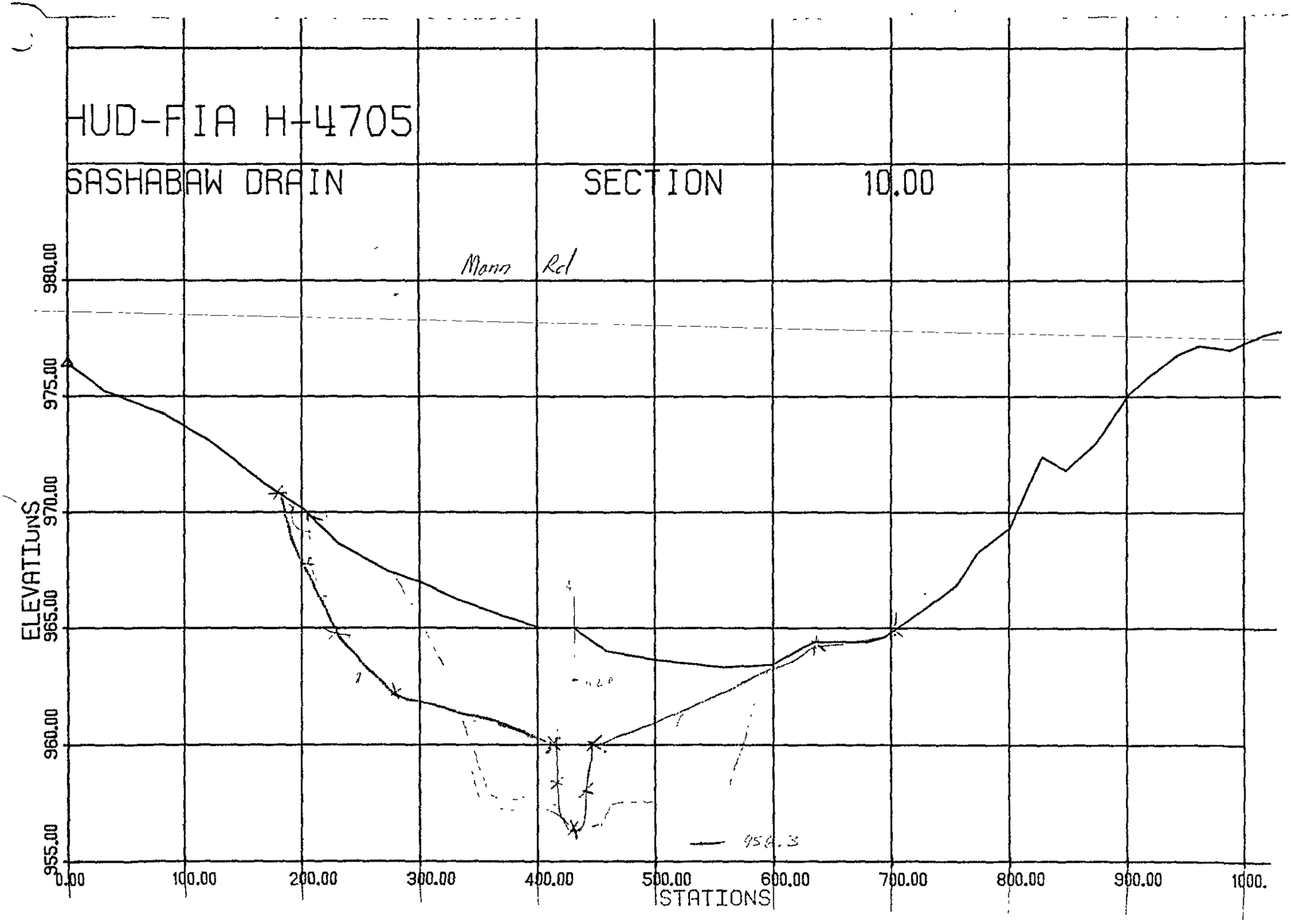
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955.00
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STATIONS
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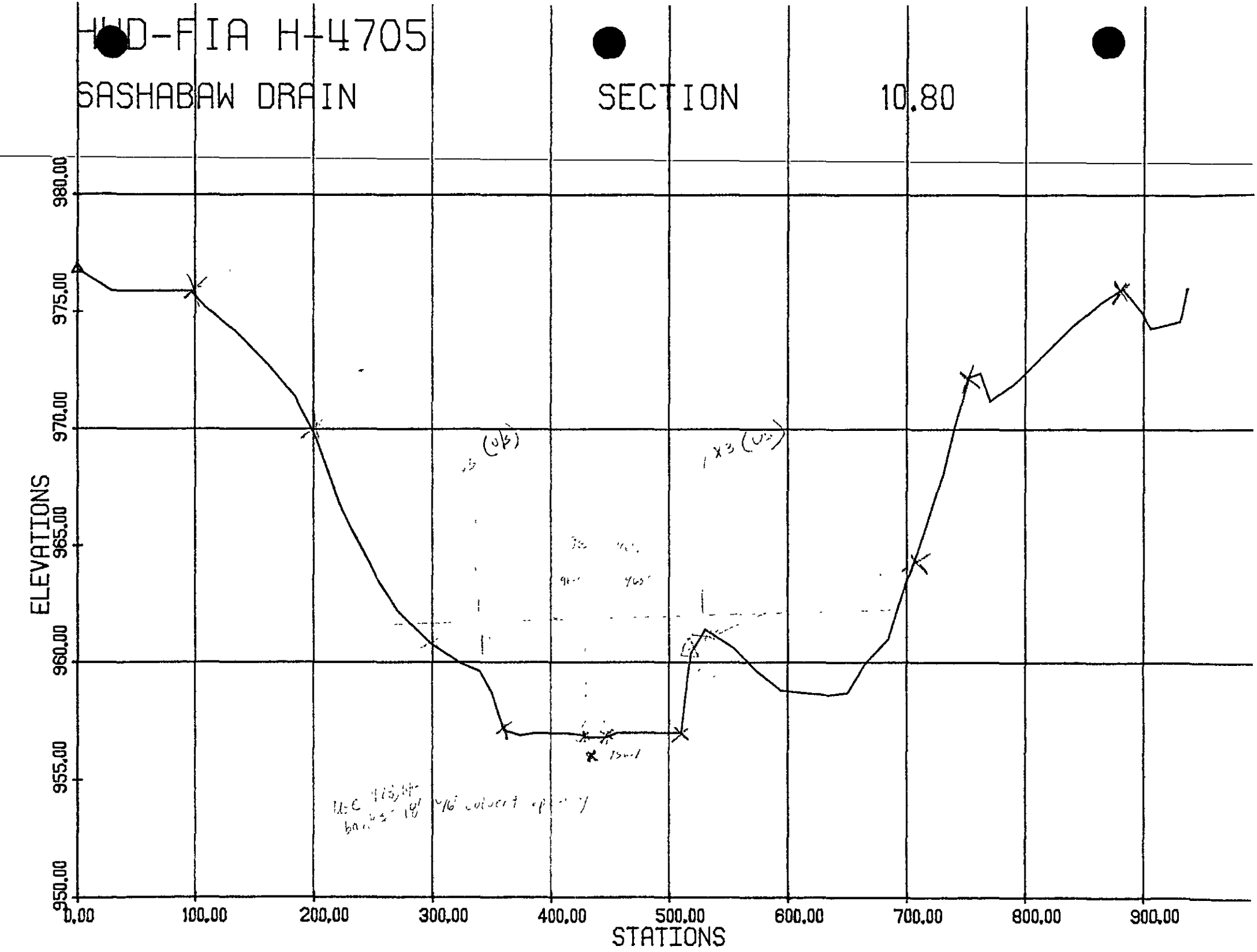
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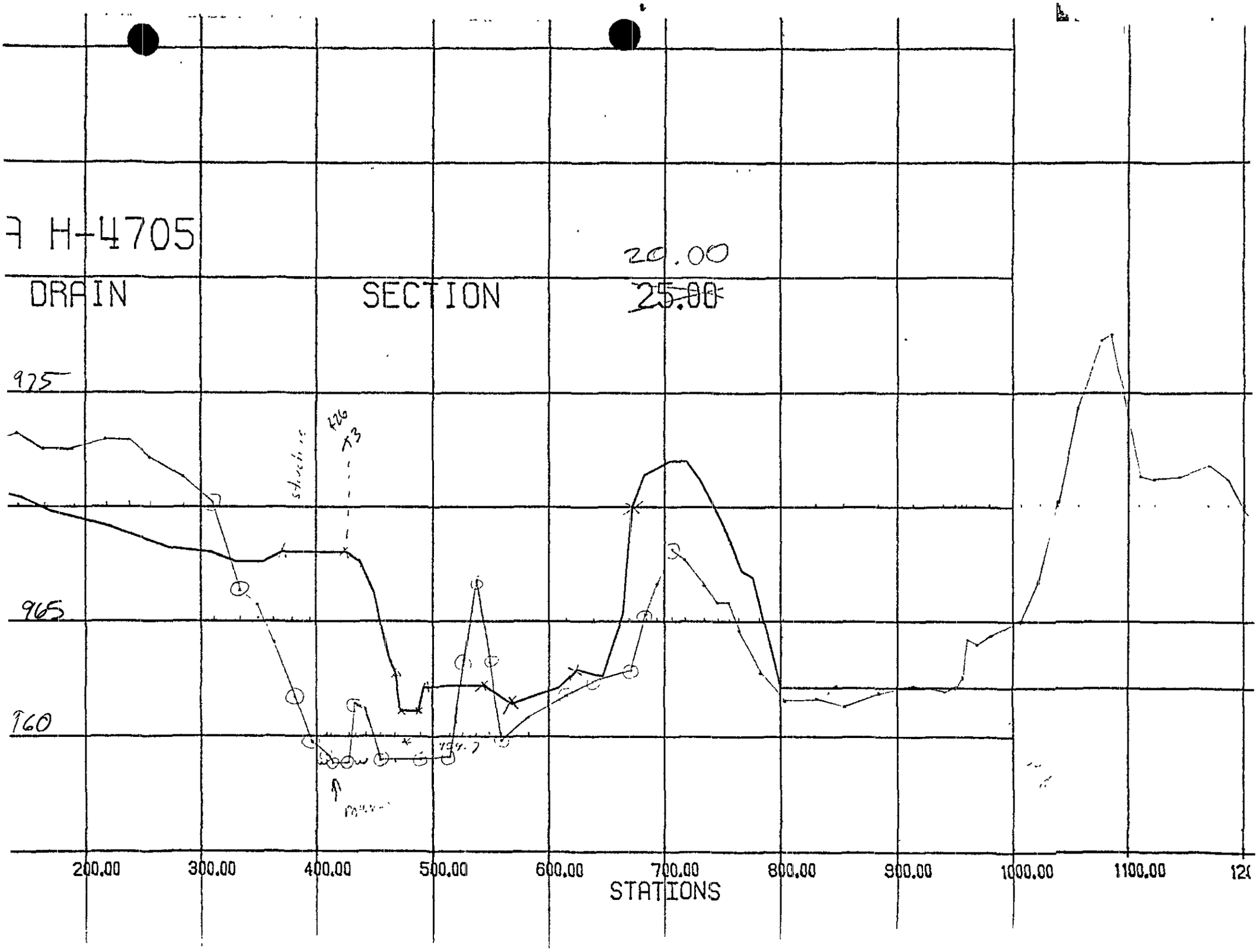
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1100.00
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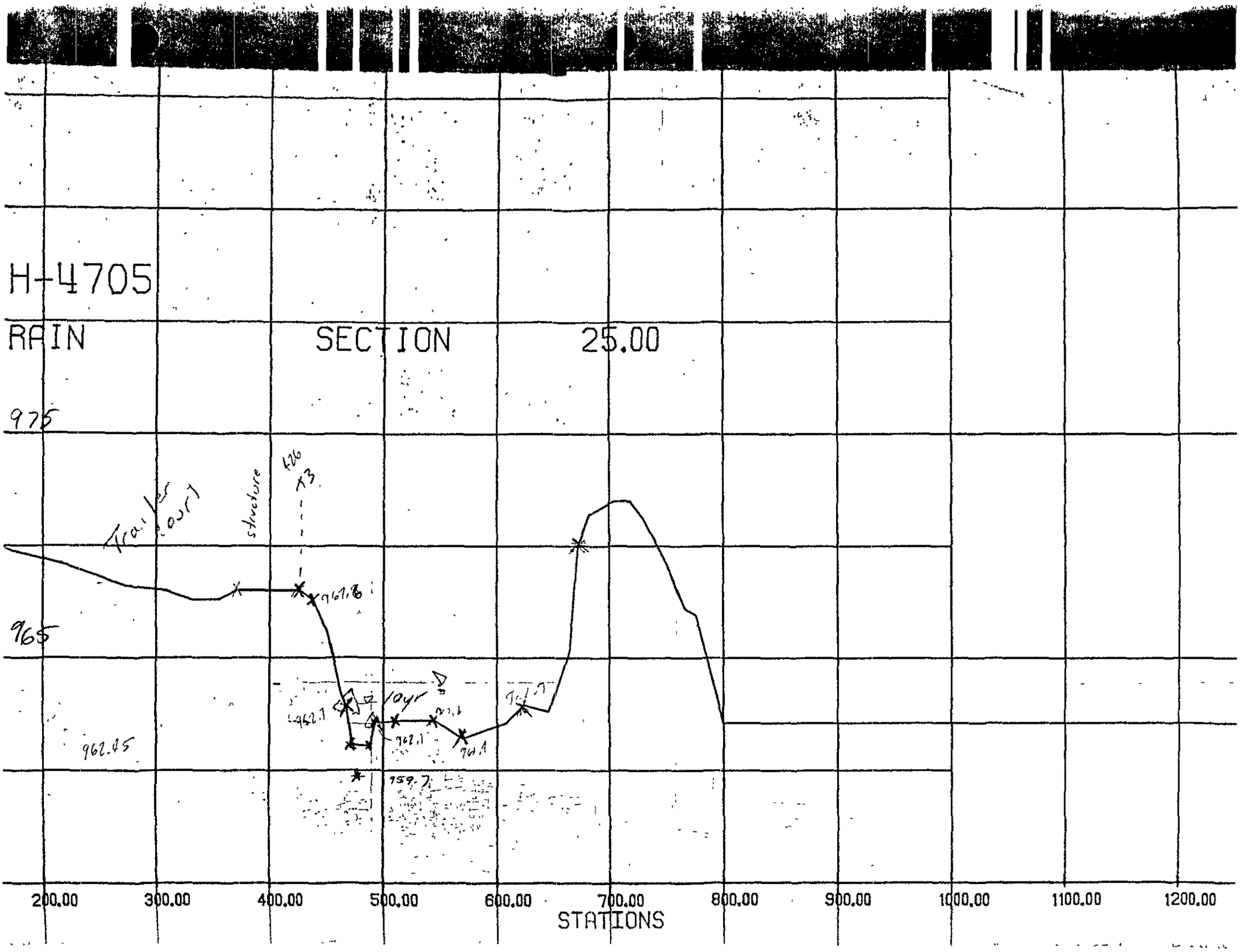
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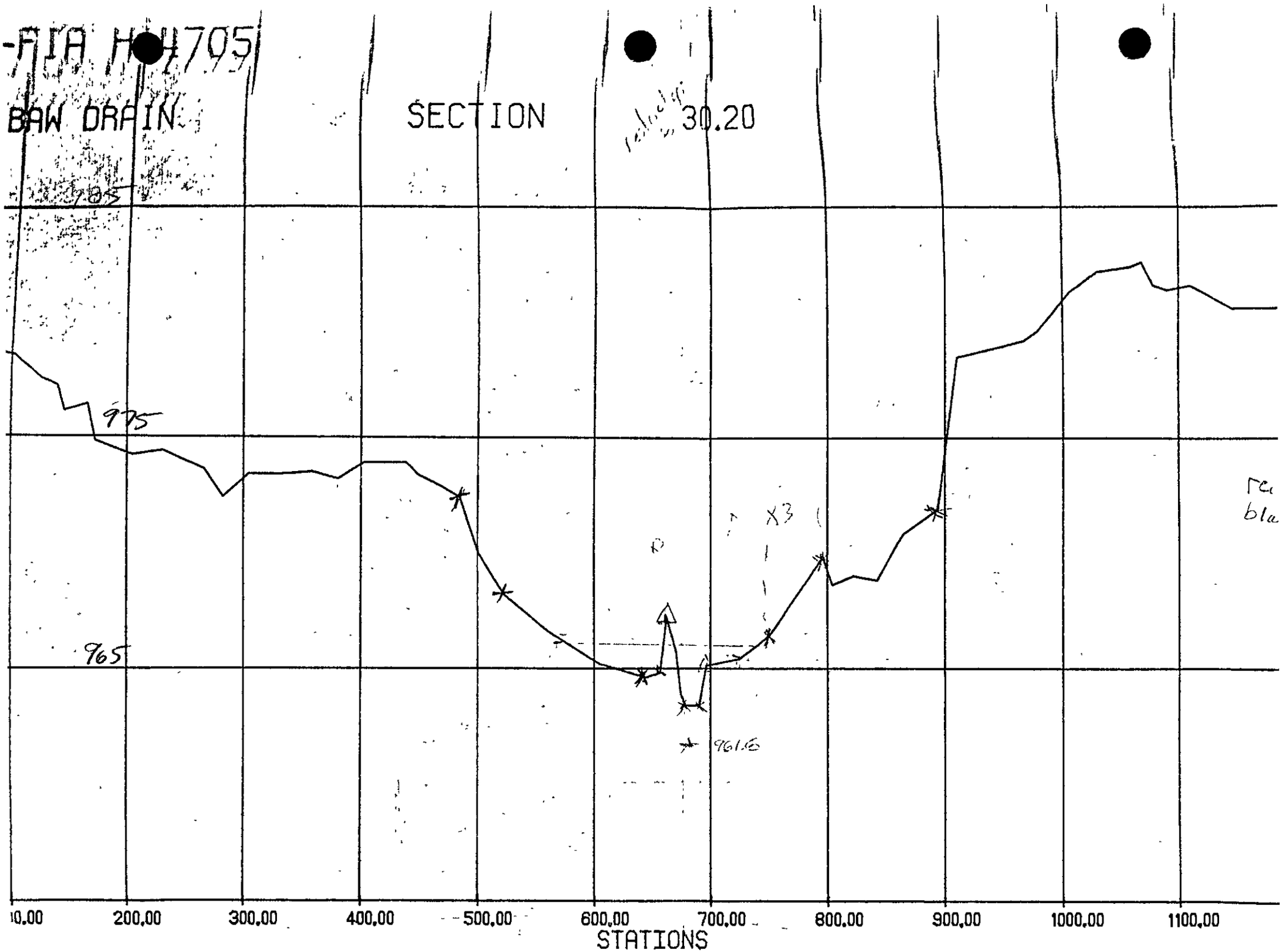
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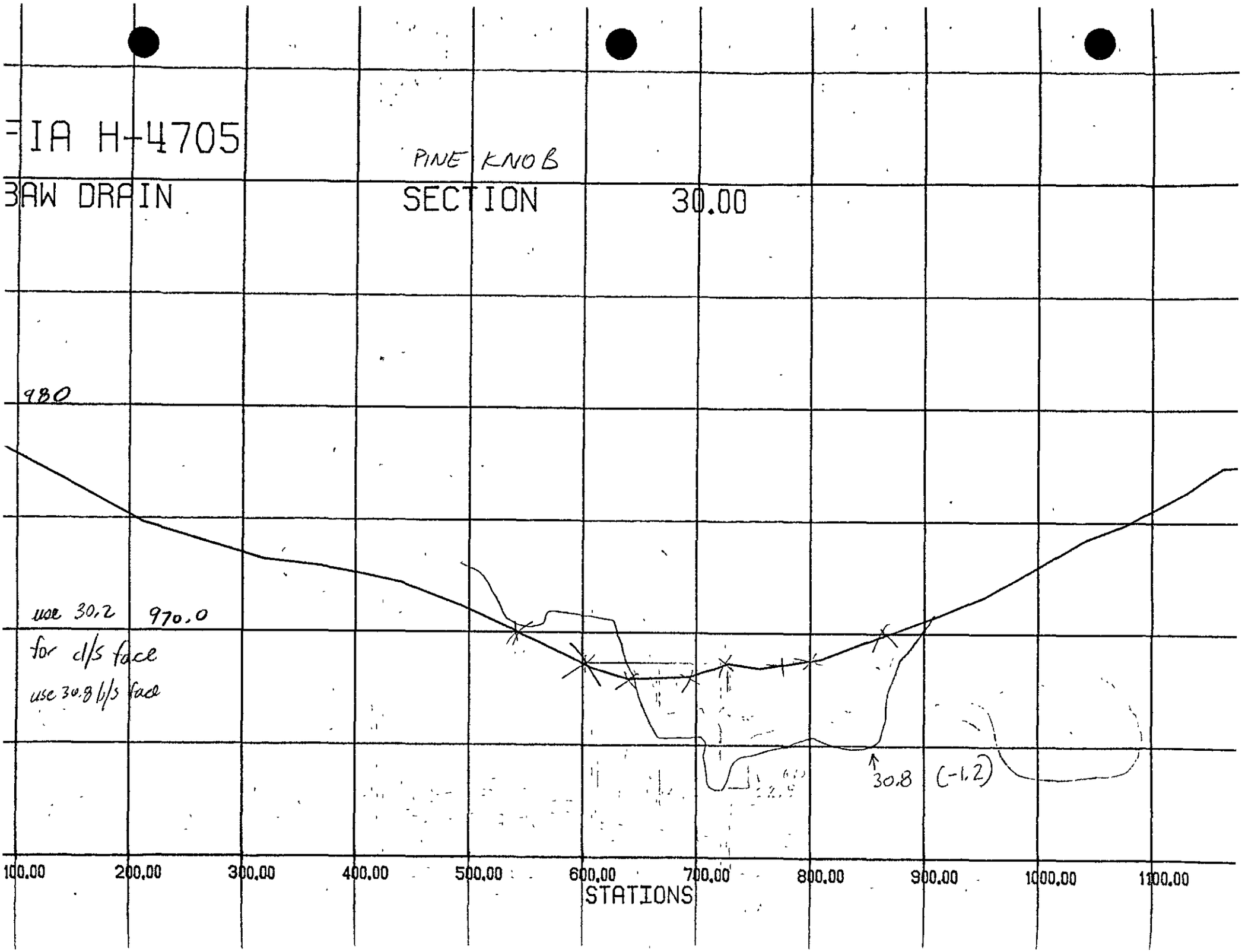
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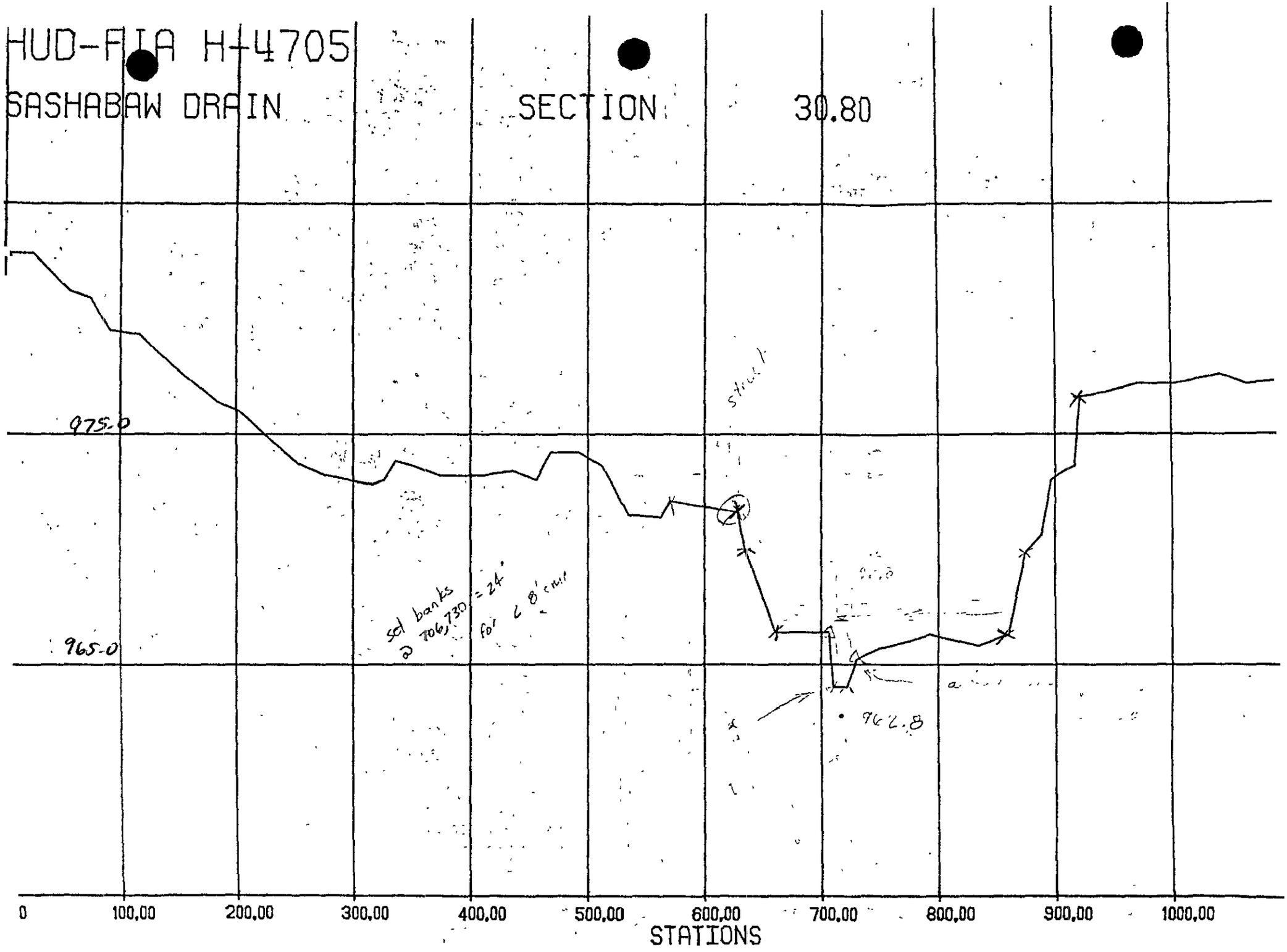
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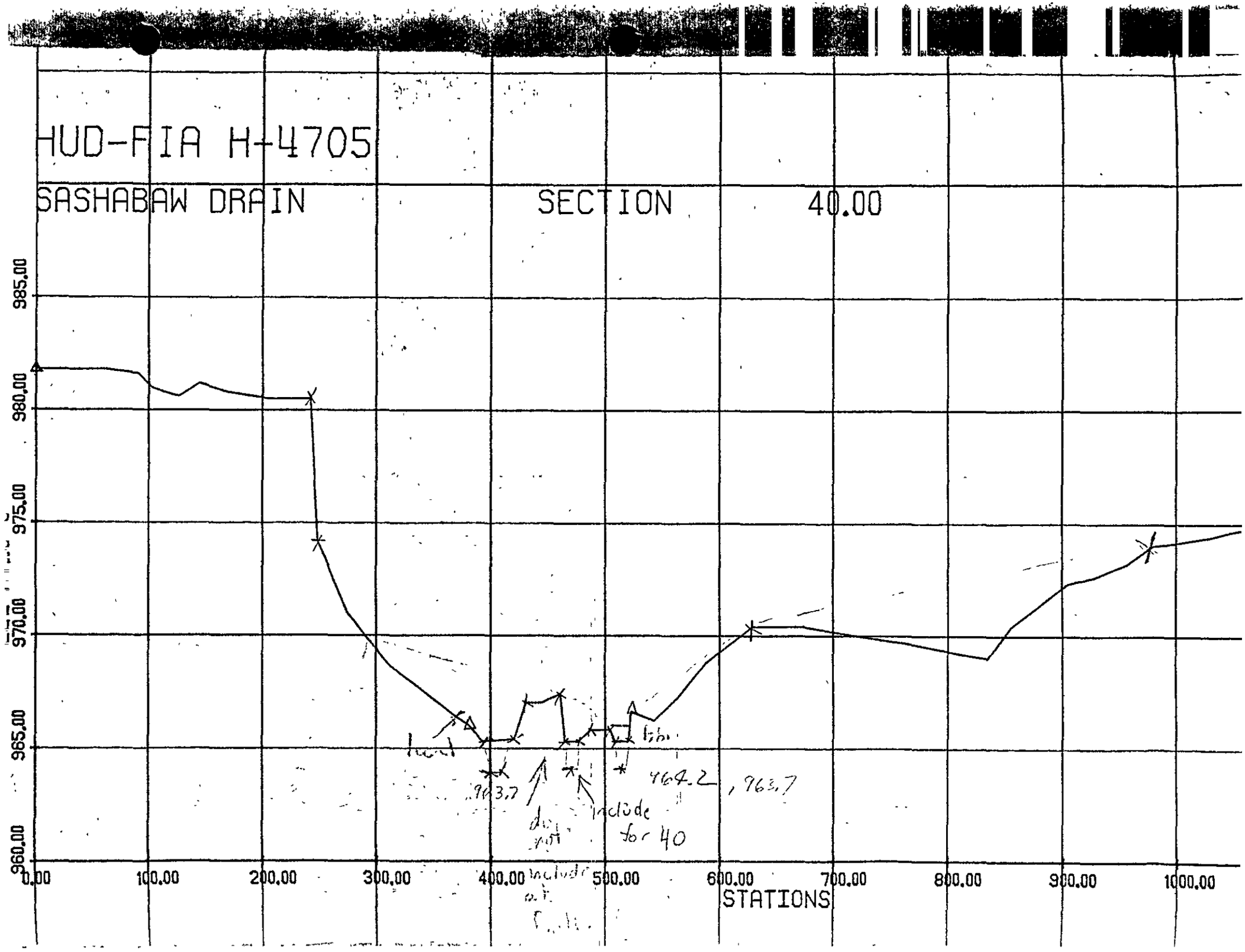
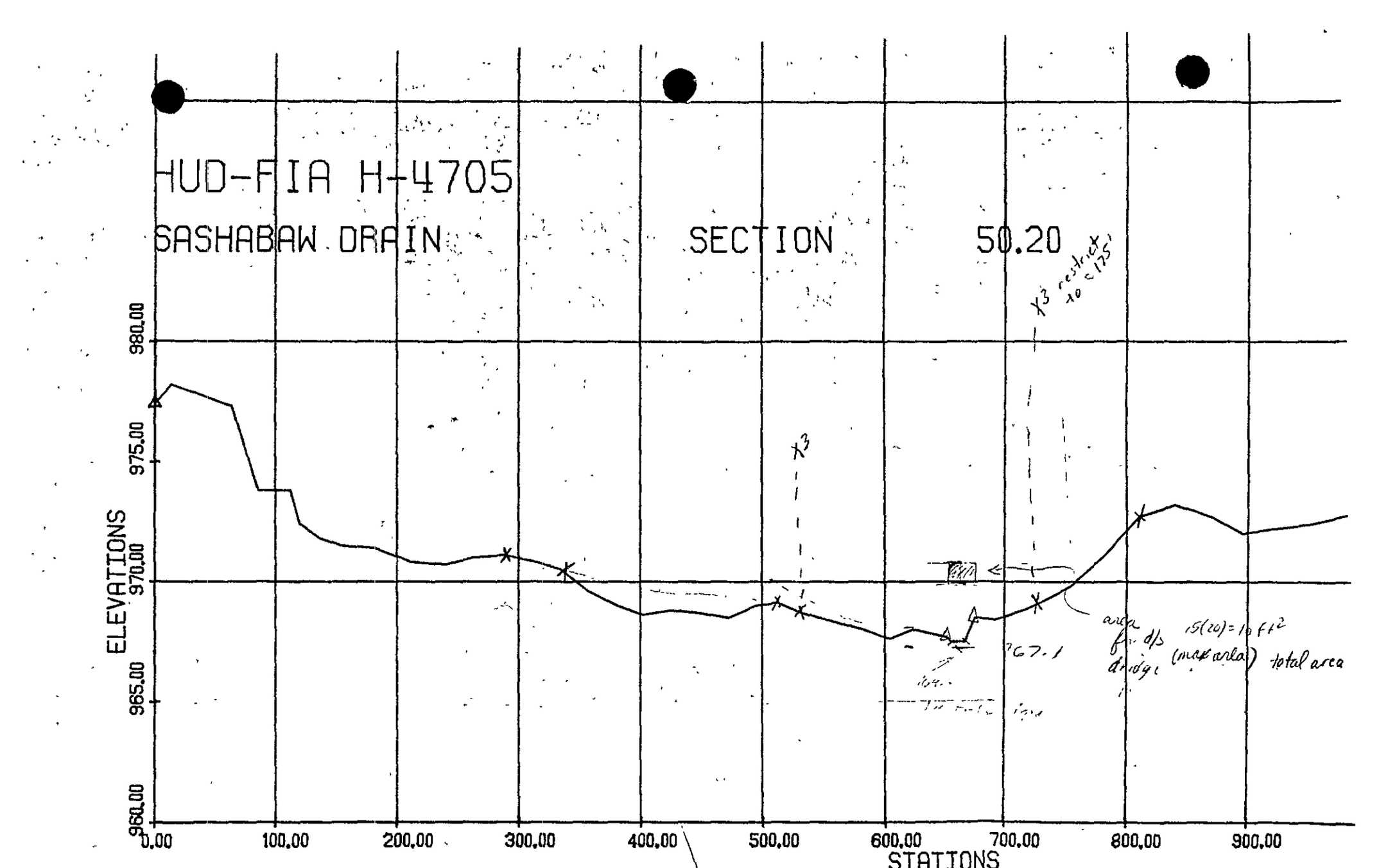
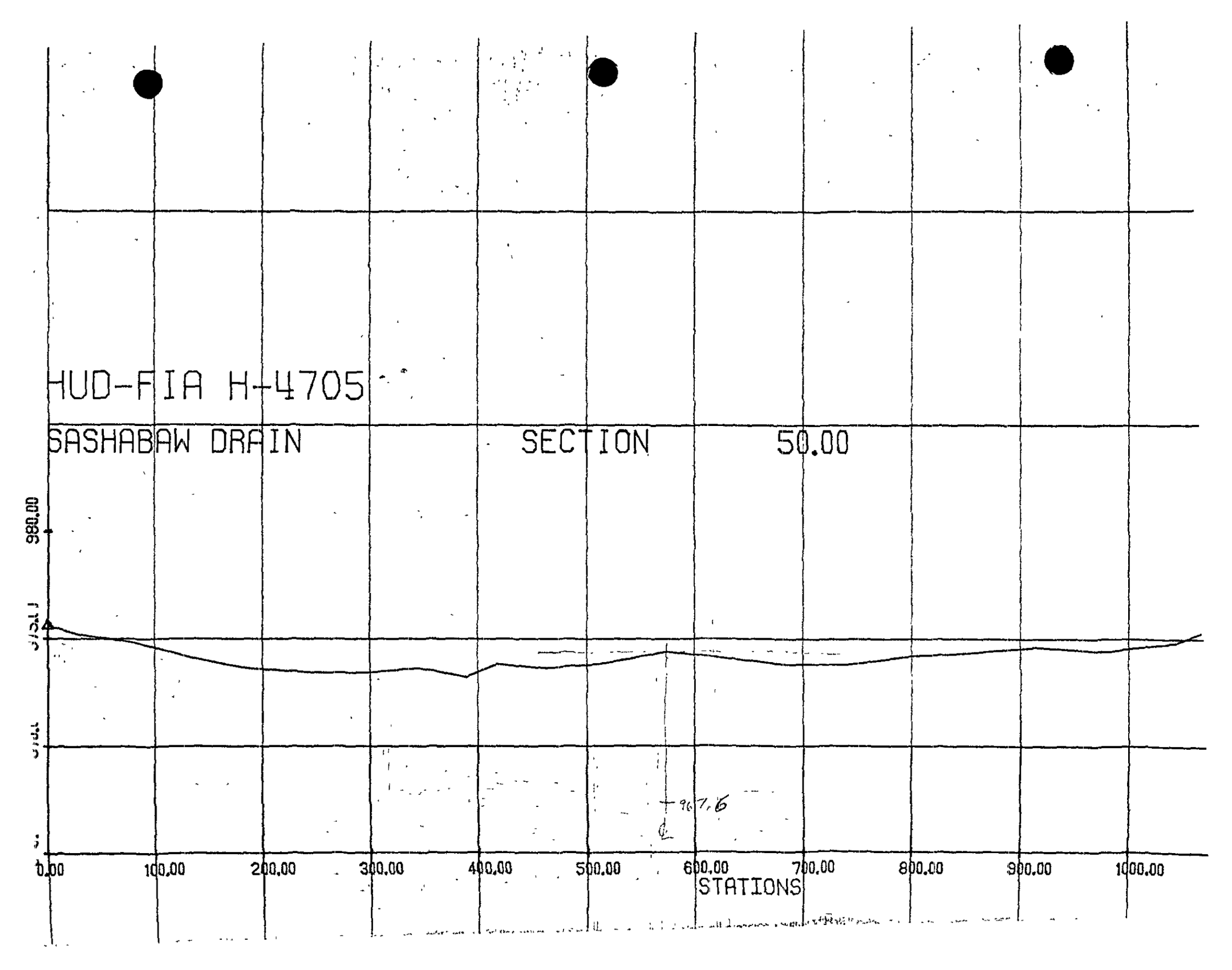
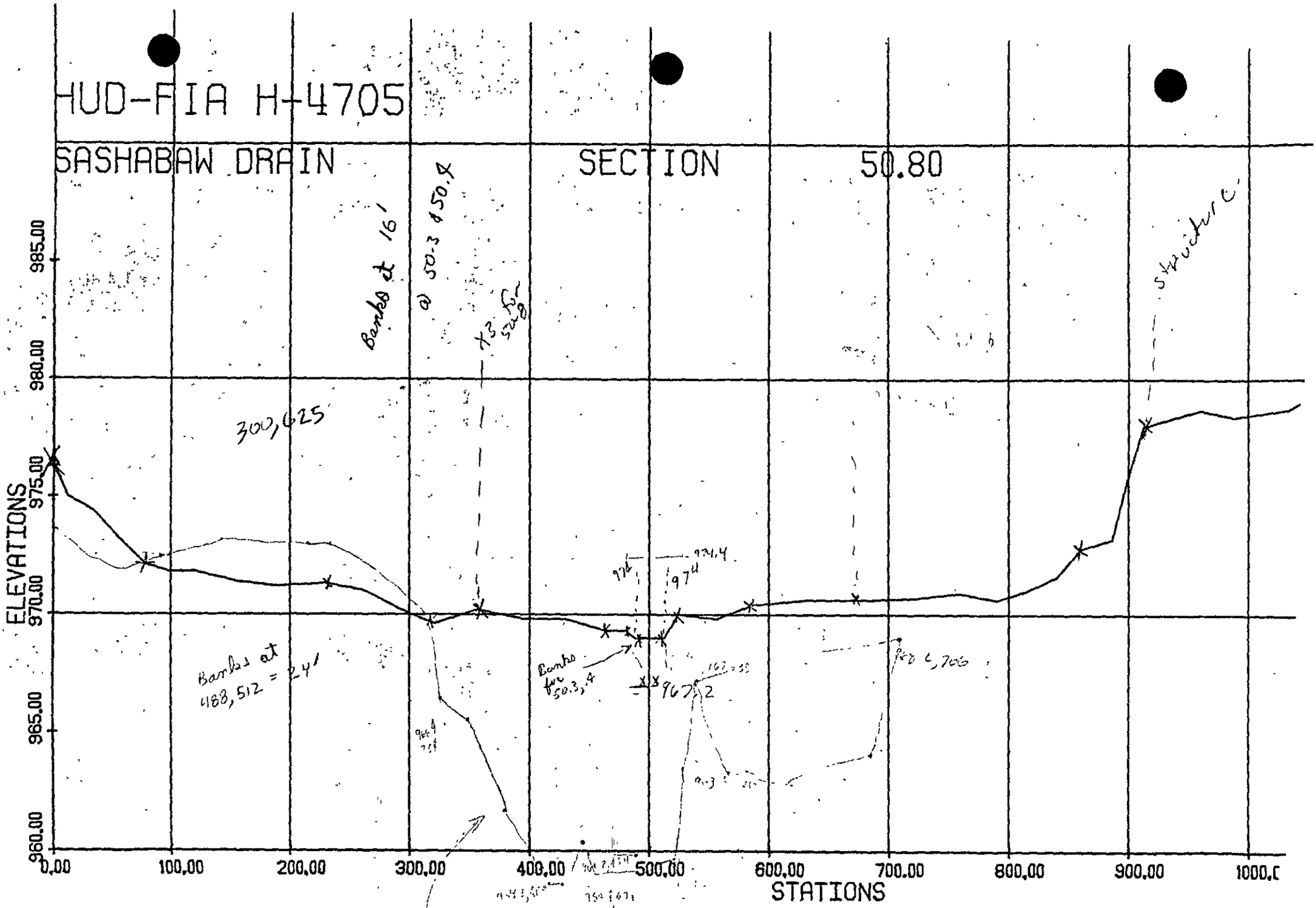
1000.00
STATIONS


HUD-FIA H-4705
SASHABAW DRAIN
SECTION 40.00
985.00
980.00
975.00
970.00
965.00
960.00
0.00
100.00
200.00
300.00
400.00
500.00
600.00
700.00
800.00
900.00
1000.00
STATIONS
963.7
964.2
963.7
include for 40


HUD-FIA H-4705
SASHABAW DRAIN
SECTION 50.20
X3 restrict to 175'
X3
967.1
ELEVATIONS
980.00
975.00
970.00
965.00
960.00
0.00
100.00
200.00
300.00
400.00
500.00
600.00
700.00
800.00
900.00
STATIONS


HUD-FIA H-4705
SASHABAW DRAIN
SECTION
50.00
980.00
967.6
0.00
100.00
200.00
300.00
400.00
500.00
600.00
700.00
800.00
900.00
1000.00
STATIONS


HUD-FIA H-4705
SASHABAW DRAIN
SECTION 50.80
ELEVATIONS
STATIONS
985.00
980.00
975.00
970.00
965.00
960.00
0.00
100.00
200.00
300.00
400.00
500.00
600.00
700.00
800.00
900.00
1000.0
300,625
Banks at 16'
@ 50.3 & 50.4
X3 for 50.8
Banks at 488,512 = 24'
Banks for 50.3, 4
967.2
Structure

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: INDEPENDENCE TOWNSHIP

3) WATERCOURSE: SASHABAW DRAIN

4) DOCUMENT TYPE: FLOODWAY MODELING RUNS

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************


C
T1      HUD-FIA H-4705
T2      INDEPENDENCE TOWNSHIP
T3      SASHABAW DRAIN

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      -1.        4.         0.         0.    .002600       0.00      -1.0         0.    957.800      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

    200.000      0.000    150.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

NC       .080       .080       .045       .300       .500      0.000      0.000      0.000      0.000      0.000
QT      5.000    205.000    345.000    410.000    590.000    410.000      0.000      0.000      0.000      0.000
ET      0.000      0.000      0.000      0.000      0.000      1.400      0.000      0.000      0.000      0.000

X1     10.200      9.000    488.000    542.000      0.000      0.000      0.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    422.000      0.000    542.000      0.000      0.000      0.000      0.000
GR    962.800    402.000    960.000    422.000    957.200    488.000    955.200    510.000    955.200    520.000
GR    956.700    542.000    956.700    640.000    960.000    660.000    963.400    682.000      0.000      0.000

X1     10.205      0.000      0.000      0.000    100.000    100.000    100.000      0.000       .500      0.000
X3      0.000      0.000      0.000    488.000      0.000    542.000      0.000      0.000      0.000      0.000

X1     10.210      9.000    508.000    523.000     98.000     98.000     98.000      0.000       .500      0.000
X3     10.000      0.000      0.000      0.000      0.000      0.000      0.000    962.800    962.800      0.000
GR    962.800    402.000    960.000    422.000    957.200    488.000    955.200    508.000    955.200    523.000
GR    956.700    542.000    956.700    640.000    960.000    660.000    963.400    682.000      0.000      0.000
NC      0.000      0.000       .025       .400       .800      0.000      0.000      0.000      0.000      0.000

        ** D/S FACE MANN RD.

X1     10.300      7.000      0.000     15.200      2.000      2.000      2.000      0.000      0.000      0.000
X2      0.000      0.000      0.000    962.800    965.100      0.000      0.000      0.000      0.000      0.000
BT      7.000      0.000    965.100    957.800      2.250    965.100    959.800      3.850    965.100    961.800
BT      7.600    965.100    962.800     11.350    965.100    961.800     13.000    965.100    959.800     15.200
BT    965.100    957.800      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    957.800      0.000    956.300      2.250    956.300      3.850    956.300      7.600    956.300     11.350
GR    956.300     13.000    957.800     15.200      0.000      0.000      0.000      0.000      0.000      0.000
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X1	10.350	0.000	0.000	0.000	28.000	28.000	28.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	962.800	965.100	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10.400	13.000	428.000	446.000	2.000	2.000	2.000	0.000	.200	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	965.100	965.100	0.000
GR	975.900	100.000	969.600	202.000	960.800	298.000	959.600	340.000	957.100	360.000
GR	956.800	428.000	956.100	438.000	956.800	446.000	957.000	510.000	960.400	518.000
GR	963.200	698.000	972.200	752.000	976.000	882.000	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
X1	10.800	0.000	0.000	0.000	70.000	70.000	70.000	0.000	-.200	0.000
X3	0.000	0.000	0.000	340.000	0.000	518.000	0.000	0.000	0.000	0.000
X1	10.900	0.000	0.000	0.000	500.000	500.000	500.000	0.000	.900	0.000
X1	19.800	20.000	380.000	444.000	550.000	550.000	550.000	0.000	-.800	0.000
X3	0.000	0.000	0.000	0.000	0.000	526.000	966.100	0.000	0.000	0.000
GR	970.200	312.000	966.400	334.000	961.700	380.000	959.800	396.000	959.200	408.000
GR	958.800	412.000	958.800	428.000	961.200	444.000	959.000	456.000	959.000	490.000
GR	959.200	516.000	963.300	526.000	966.900	538.000	963.200	550.000	959.900	560.000
GR	961.800	614.000	962.400	638.000	963.000	670.000	965.400	684.000	968.200	706.000
X1	20.000	0.000	0.000	0.000	500.000	500.000	500.000	0.000	.800	0.000
X3	0.000	0.000	0.000	0.000	0.000	526.000	966.900	0.000	0.000	0.000
X1	20.500	12.000	468.000	492.000	400.000	400.000	400.000	0.000	-.450	0.000
GR	968.000	426.000	967.600	438.000	962.700	468.000	961.100	472.000	959.700	480.000
GR	961.100	488.000	962.100	492.000	962.200	516.000	962.200	544.000	961.400	568.000
GR	962.900	624.000	970.000	672.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	25.000	12.000	468.000	492.000	400.000	400.000	400.000	0.000	0.000	0.000
GR	968.000	426.000	967.600	438.000	962.700	468.000	961.100	472.000	959.700	480.000
GR	961.100	488.000	962.100	492.000	962.200	516.000	962.200	544.000	961.400	568.000
GR	962.900	624.000	970.000	672.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	25.800	0.000	0.000	0.000	500.000	500.000	500.000	0.000	1.100	0.000
NC	.070	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	30.200	12.000	662.000	696.000	450.000	450.000	450.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	662.000	967.200	0.000	0.000	0.000	0.000	0.000
GR	972.400	484.000	968.200	522.000	964.600	644.000	964.800	656.000	967.200	662.000
GR	963.400	678.000	961.600	684.000	963.400	690.000	965.100	696.000	966.400	750.000
GR	969.800	796.000	971.900	894.000	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

** D/S FACE PINE KNOB RD.

X1	30.300	0.000	0.000	0.000	140.000	140.000	140.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	662.000	967.200	0.000	0.000	0.000	0.000	0.000

S8	0.000	2.030	3.000	0.000	15.000	.010	60.000	0.000	962.800	962.800
X1	30.400	12.000	706.000	730.000	31.000	31.000	31.000	0.000	-1.200	0.000
X2	0.000	0.000	1.000	966.000	968.000	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	968.000	968.000	0.000
BT	7.000	540.000	970.000	0.000	600.000	968.500	0.000	642.000	967.900	0.000
BT	695.000	968.000	0.000	725.000	968.600	0.000	800.000	968.700	0.000	870.000
BT	970.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	971.600	628.000	970.000	634.000	966.400	660.000	966.400	706.000	964.000	710.000
GR	962.500	716.000	964.000	722.000	965.200	730.000	966.300	800.000	966.300	860.000
GR	969.800	874.000	976.600	920.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	30.800	0.000	0.000	0.000	65.000	65.000	65.000	0.000	1.000	0.000
X1	30.900	0.000	0.000	0.000	400.000	400.000	400.000	0.000	.400	0.000
NC	.070	.080	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000

** D/S FACE FOOTBRIDGE

X1	30.820	10.000	460.000	522.000	620.000	620.000	620.000	0.000	.800	0.000
X2	0.000	0.000	0.000	967.200	968.100	0.000	0.000	0.000	0.000	0.000
GR	980.500	242.000	974.200	248.000	970.000	300.000	967.400	460.000	965.300	508.000
GR	964.200	514.000	965.300	520.000	966.600	522.000	970.400	628.000	974.000	978.000
X1	30.840	0.000	0.000	0.000	5.000	5.000	5.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	967.200	968.100	0.000	0.000	0.000	0.000	0.000
X1	40.000	15.000	460.000	522.000	75.000	75.000	75.000	0.000	0.000	0.000
GR	980.500	242.000	974.200	248.000	970.000	300.000	967.400	460.000	965.300	464.000
GR	964.200	471.000	965.300	476.000	965.800	486.000	965.800	504.000	965.300	508.000
GR	964.200	514.000	965.300	520.000	966.600	522.000	970.400	628.000	974.000	978.000

** D/S FACE FOOTBRIDGE

X1	41.200	10.000	460.000	522.000	245.000	245.000	245.000	0.000	1.300	0.000
X2	0.000	0.000	0.000	968.500	968.700	0.000	0.000	0.000	0.000	0.000
GR	980.500	242.000	974.200	248.000	970.000	300.000	967.400	460.000	965.300	508.000
GR	964.200	514.000	965.300	520.000	966.600	522.000	970.400	628.000	974.000	978.000
X1	41.300	0.000	0.000	0.000	5.000	5.000	5.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	968.500	968.700	0.000	0.000	0.000	0.000	0.000
X1	49.700	12.000	512.000	674.000	350.000	350.000	350.000	0.000	-1.700	0.000
GR	971.100	288.000	970.500	334.000	969.100	512.000	968.700	532.000	968.200	600.000
GR	967.700	650.000	967.500	654.000	967.100	660.000	967.500	666.000	968.500	674.000
GR	968.800	716.000	972.700	810.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	50.200	0.000	0.000	0.000	600.000	600.000	600.000	0.000	1.700	0.000
X3	0.000	0.000	0.000	512.000	0.000	716.000	0.000	0.000	0.000	0.000

X1	50.205	0.000	0.000	0.000	125.000	125.000	125.000	0.000	.200	0.000
X3	0.000	0.000	0.000	600.000	0.000	716.000	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
X1	50.300	15.000	488.000	512.000	125.000	125.000	125.000	0.000	.200	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	974.000	974.000	0.000
GR	976.400	0.000	972.100	78.000	971.300	230.000	970.200	356.000	969.300	464.000
GR	969.300	480.000	969.000	488.000	967.200	502.000	967.200	508.000	969.000	512.000
GR	970.000	524.000	970.400	586.000	970.900	758.000	972.800	860.000	978.000	912.000
NC	0.000	0.000	.025	.400	.800	0.000	0.000	0.000	0.000	0.000

** D/S FACE MAYBEE RD.

X1	50.330	14.000	0.000	18.400	2.000	2.000	2.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	973.200	974.400	0.000	0.000	0.000	0.000	0.000
BT	14.000	0.000	974.400	969.100	1.200	974.400	971.900	2.300	974.400	972.700
BT	4.100	974.400	973.200	5.900	974.400	972.700	7.000	974.400	971.900	8.200
BT	974.400	969.100	10.200	974.400	969.100	11.400	974.400	971.900	12.500	974.400
BT	972.700	14.300	974.400	973.200	16.100	974.400	972.700	17.200	974.400	971.900
BT	18.400	974.400	969.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	969.100	0.000	967.600	1.200	967.600	2.300	967.600	4.100	967.600	5.900
GR	967.600	7.000	969.100	8.200	969.100	10.200	967.600	11.400	967.600	12.500
GR	967.600	14.300	967.600	16.100	967.600	17.200	969.100	18.400	0.000	0.000
X1	50.370	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	973.200	974.400	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	50.400	15.000	488.000	512.000	2.000	2.000	2.000	0.000	.400	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	974.400	974.400	0.000
GR	976.400	0.000	972.100	78.000	971.300	230.000	970.200	356.000	969.300	464.000
GR	969.300	480.000	969.000	488.000	967.200	502.000	967.200	508.000	969.000	512.000
GR	970.000	524.000	970.400	586.000	970.900	758.000	972.800	860.000	978.000	912.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	50.800	0.000	0.000	0.000	150.000	150.000	150.000	0.000	-.400	0.000
X3	0.000	0.000	0.000	367.000	0.000	670.000	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 10.200
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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=      422.0      542.0  TYPE=      1  TARGET=       120.000
     10.20       3.18     958.38       0.00     957.80     958.51        .14       0.00       0.00     957.20
      410.        11.        399.         0.        16.        133.         0.         0.         0.  100000.00
      0.00        .66       3.00       0.00       .080       .045       .080      0.000     955.20     460.30
   .002598         0.         0.         0.          0          0          5       0.00      81.70     542.00


*SECNO 10.205

3470 ENCROACHMENT STATIONS=      488.0      542.0  TYPE=      1  TARGET=        54.000
     10.21       2.97     958.67       0.00       0.00     958.84        .18        .31        .02     957.70
      410.         0.        410.         0.         0.        122.         0.         0.         0.  100000.00
       .01        0.00       3.37       0.00       .080       .045       .080       .045     955.70     488.00
   .003757        100.       100.       100.          2          0          0       0.00      54.00     542.00


*SECNO 10.210

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       962.80 ELREA=       962.80

     10.21       3.12     958.82       0.00       0.00     960.01       1.19        .66        .51     955.70
      410.         0.        410.         0.         0.        47.         0.         1.         0.     955.70
       .01        0.00       8.76       0.00       .080       .045       .080       .045     955.70     508.00
   .015445        98.        98.        98.          2          0          0       0.00      15.00     523.00


CCHV=     .400 CEHV=     .800
*SECNO 10.300
3280 CROSS SECTION      10.30 EXTENDED       1.49 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=   7 MIN ELTRD=  965.10 MAX ELLC=  962.80

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

        ** D/S FACE MANN RD.
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    10.30      2.99    959.29    959.29      0.00    960.95      1.66       .03       .38    957.80
     410.        0.      410.        0.        0.      40.         0.        1.        0.     957.80
      .01      0.00     10.35      0.00      .080      .025      .080      .044    956.30      0.00
  .013900        2.        2.        2.         3         9         0     -2.46     15.20     15.20

*SECNO 10.350
3280 CROSS SECTION      10.35 EXTENDED       2.78 FEET


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


3370 NORMAL BRIDGE,NRD=  7 MIN ELTRD=  965.10 MAX ELLC=  962.80

    10.35      4.29    960.59      0.00      0.00    961.51       .92       .26       .30    957.80
     410.        0.      410.        0.        0.      53.         0.        1.        0.     957.80
      .01      0.00      7.69      0.00      .080      .025      .080      .042    956.30      0.00
  .006711       28.       28.       28.         4         0         0     -8.44     15.20     15.20

*SECNO 10.400

3301 HV CHANGED MORE THAN HVINS


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      965.10 ELREA=      965.10

    10.40      5.08    961.38      0.00      0.00    961.74       .36       .01       .22    957.00
     410.        0.      410.        0.        0.      85.         0.        1.        0.     957.00
      .01      0.00      4.82      0.00      .080      .045      .080      .041    956.30    428.00
  .002688        2.        2.        2.         3         0         0      0.00     18.00    446.00


CCHV=    .100 CEHV=    .300
*SECNO 10.800

3470 ENCROACHMENT STATIONS=      340.0      518.0  TYPE=      1  TARGET=      178.000
    10.80      5.69    961.79      0.00      0.00    961.79       .00       .02       .04    956.80
     410.      174.       84.      152.      398.       96.      338.        1.        0.     956.80
      .05       .44       .87       .45      .080      .045      .080      .042    956.10    340.00
  .000075       70.       70.       70.         2         0         0      0.00     178.00    518.00


*SECNO 10.900
    10.90      4.84    961.84      0.00      0.00    961.84       .01       .05       .00    957.70
     410.      175.       85.      150.      354.       81.      285.       10.        3.     957.70
      .27       .50      1.05       .53      .080      .045      .080      .044    957.00    296.51
  .000138      500.      500.      500.         2         0         0      0.00     255.97    552.48


*SECNO 19.800

3470 ENCROACHMENT STATIONS=         .0      526.0  TYPE=      1  TARGET=      525.999
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     19.80       3.94     961.94       0.00       0.00     961.95        .01        .10        .00     960.90
      410.         1.       220.       189.         5.       192.       268.        18.         5.      960.40
       .44        .20       1.14        .70       .080       .045       .080       .044     958.00     369.86
   .000278        550.       550.       550.          2          0          0       0.00     154.76     524.62

*SECNO 20.000
    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       526.0  TYPE=       1  TARGET=       525.999
     20.00       3.32     962.12       0.00       0.00     962.14        .02        .19        .00     961.70
      410.         0.       214.       195.         1.       153.       219.        22.         7.      961.20
       .56        .16       1.40        .89       .080       .045       .080       .044     958.80     375.86
   .000566        500.       500.       500.          2          0          0       0.00     147.27     523.13

*SECNO 20.500
     20.50       3.30     962.55       0.00       0.00     962.75        .20        .55        .05     962.25
      410.         0.       234.       176.         0.        52.       119.        25.         9.      961.65
       .59        .44       4.54       1.48       .080       .045       .080       .045     959.25     466.17
   .007070        400.       400.       400.          3          0          0       0.00     158.50     624.67

*SECNO 25.000
     25.00       4.10     963.80       0.00       0.00     963.85        .05       1.09        .01     962.70
      410.         2.       179.       229.         4.        71.       229.        27.        10.      962.10
       .66        .63       2.52       1.00       .060       .045       .080       .045     959.70     461.22
   .001427        400.       400.       400.          1          0          0       0.00     168.91     630.13

*SECNO 25.800
     25.80       3.85     964.65       0.00       0.00     964.73        .07        .87        .01     963.80
      410.         1.       191.       217.         2.        65.       195.        30.        12.      963.20
       .73        .65       2.94       1.12       .060       .045       .080       .045     960.80     462.74
   .002177        500.       500.       500.          3          0          0       0.00     165.73     628.46

*SECNO 30.200

3470 ENCROACHMENT STATIONS=        662.0        894.0  TYPE=       1  TARGET=      -662.000
 ELENCL=      967.20  ELENCR= 100000.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       967.20 ELREA=       965.10

     30.20       4.55     966.15       0.00       0.00     966.58        .43       1.74        .11     967.20
      410.         0.       384.        26.         0.        71.        23.        32.        13.      965.10
       .75       0.00       5.41       1.13       .070       .045       .080       .045     961.60     666.43
   .008735        450.       450.       450.          3          0          0       0.00      73.12     739.55

CCHV=      .300 CEHV=      .500
*SECNO 30.300
    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
```

3470 ENCROACHMENT STATIONS= 662.0 894.0 TYPE= 1 TARGET= -662.000
ELENCL= 967.20 ELENCR= 100000.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 967.20 ELREA= 965.10

** D/S FACE PINE KNOB RD.

30.30	5.50	967.10	0.00	0.00	967.23	.14	.57	.09	967.20
410.	0.	329.	81.	0.	101.	76.	33.	14.	965.10
.77	0.00	3.25	1.07	.070	.045	.080	.045	961.60	662.43
.002342	140.	140.	140.	2	0	0	0.00	97.00	759.43

SPECIAL BRIDGE

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	2.03	3.00	0.00	15.00	.01	60.00	0.00	962.80	962.80

*SECNO 30.400
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
968.57	967.35	0.00	40.	368.	60.	48.	966.00	968.00

30.40	6.98	968.28	0.00	0.00	968.28	.01	1.05	0.00	965.20
410.	75.	133.	203.	176.	131.	473.	33.	14.	964.00
.78	.42	1.01	.43	.070	.045	.080	.045	961.30	637.72
.000104	31.	31.	31.	0	0	0	0.00	235.02	872.74

CCHV= .200 CEHV= .400
*SECNO 30.800

30.80	5.98	968.28	0.00	0.00	968.30	.02	.01	.00	966.20
410.	62.	158.	190.	111.	107.	332.	34.	14.	965.00
.80	.56	1.47	.57	.070	.045	.080	.045	962.30	644.96
.000288	65.	65.	65.	2	0	0	0.00	223.78	868.73

*SECNO 30.900

30.90	5.71	968.41	0.00	0.00	968.44	.02	.13	.00	966.60
410.	57.	167.	185.	95.	101.	295.	39.	16.	965.40
.91	.60	1.66	.63	.070	.045	.080	.045	962.70	646.89
.000400	400.	400.	400.	2	0	0	0.00	220.76	867.66

CCHV= .200 CEHV= .400
*SECNO 30.820

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 968.10 MAX ELLC= 967.20

** D/S FACE FOOTBRIDGE

30.82	4.09	969.09	0.00	0.00	969.22	.14	.74	.05	968.20
410.	38.	312.	61.	24.	95.	33.	43.	19.	967.40
.96	1.58	3.27	1.87	.070	.045	.080	.045	965.00	405.88
.016518	620.	620.	620.	3	0	0	-51.29	162.97	568.85

*SECNO 30.840

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 0 MIN ELTRD= 968.10 MAX ELLC= 967.20

30.84	4.19	969.19	0.00	0.00	969.30	.11	.07	.01	968.20
410.	44.	301.	65.	30.	102.	38.	43.	19.	967.40
.96	1.47	2.95	1.70	.070	.045	.080	.045	965.00	398.94
.012162	5.	5.	5.	2	0	0	-51.29	173.05	571.99

*SECNO 40.000

40.00	5.16	969.36	0.00	0.00	969.38	.02	.06	.02	967.40
410.	40.	330.	40.	117.	246.	106.	44.	19.	966.60
.98	.34	1.34	.38	.070	.045	.080	.045	964.20	339.88
.000269	75.	75.	75.	2	0	0	0.00	258.89	598.77

*SECNO 41.200

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 968.70 MAX ELLC= 968.50

** D/S FACE FOOTBRIDGE

41.20	4.00	969.50	0.00	0.00	969.61	.11	.20	.03	968.70
410.	25.	349.	36.	20.	123.	32.	46.	20.	967.90
1.01	1.27	2.83	1.12	.070	.045	.080	.045	965.50	410.44
.011992	245.	245.	245.	3	0	0	-15.85	156.35	566.78

*SECNO 41.300

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 968.70 MAX ELLC= 968.50

41.30	4.07	969.57	0.00	0.00	969.67	.10	.06	.00	968.70
410.	29.	342.	38.	24.	127.	35.	46.	20.	967.90
1.01	1.24	2.69	1.09	.070	.045	.080	.045	965.50	406.19
.010317	5.	5.	5.	2	0	0	-15.85	162.52	568.71

*SECNO 49.700

3280 CROSS SECTION 49.70 EXTENDED .36 FEET

49.70	4.36	969.76	0.00	0.00	969.76	.00	.07	.02	967.40
410.	71.	291.	48.	326.	524.	203.	51.	23.	966.80
1.22	.22	.55	.24	.070	.045	.080	.045	965.40	288.00
.000059	350.	350.	350.	3	0	0	0.00	492.12	780.12

```
*SECNO 50.200
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=      512.0      716.0  TYPE=      1  TARGET=      204.000
    50.20      2.73    969.83      0.00      0.00    969.86       .03       .09       .01    969.10
     410.        0.      377.       33.        0.      261.       50.       60.       28.     968.50
     1.34      0.00      1.45       .65       .070      .045      .080      .045    967.10    512.00
  .001024      600.      600.      600.         3         0         0      0.00    204.00    716.00

*SECNO 50.205

3470 ENCROACHMENT STATIONS=      600.0      716.0  TYPE=      1  TARGET=      116.000
    50.21      2.69    969.99      0.00      0.00    970.08       .09       .19       .02100000.00
     410.        0.      363.       47.        0.      145.       48.       61.       28.     968.70
     1.36      0.00      2.51       .98       .070      .045      .080      .045    967.30    600.00
  .002431      125.      125.      125.         2         0         0      0.00    116.00    716.00

CCHV=     .300 CEHV=     .500
*SECNO 50.300

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      974.00 ELREA=      974.00

    50.30      2.82    970.22      0.00      0.00    971.21       .99       .68       .45    969.20
     410.        0.      410.        0.        0.      51.        0.       61.       28.     969.20
     1.36      0.00      8.00      0.00       .070      .045      .080      .045    967.40    488.00
  .021956      125.      125.      125.         1         0         0      0.00     24.00    512.00

CCHV=     .400 CEHV=     .800
*SECNO 50.330
3280 CROSS SECTION      50.33 EXTENDED       1.37 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=  14 MIN ELTRD=   974.40 MAX ELLC=   973.20

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

        ** D/S FACE MAYBEE RD.

    50.33      2.87    970.47    970.47      0.00    971.96      1.49       .04       .40    969.10
     410.        0.      410.        0.        0.      42.        0.       61.       28.     969.10
     1.36      0.00      9.81      0.00       .070      .025      .080      .045    967.60      0.00
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.014894	2.	2.	2.	2	12	0	-4.33	18.40	18.40

*SECNO 50.370
3280 CROSS SECTION 50.37 EXTENDED 2.70 FEET

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 974.40 MAX ELLC= 973.20

50.37	4.20	971.80	0.00	0.00	972.55	.75	.29	.30	969.10
410.	0.	410.	0.	0.	59.	0.	61.	28.	969.10
1.36	0.00	6.95	0.00	.070	.025	.080	.045	967.60	0.00
.006486	31.	31.	31.	4	0	0	-11.62	18.40	18.40

*SECNO 50.400

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 974.40 ELREA= 974.40

50.40	4.90	972.50	0.00	0.00	972.75	.25	.01	.20	969.40
410.	0.	410.	0.	0.	101.	0.	61.	28.	969.40
1.36	0.00	4.04	0.00	.070	.045	.080	.045	967.60	488.00
.002257	2.	2.	2.	3	0	0	0.00	24.00	512.00

Outlet control = 972.6

CCHV= .200 CEHV= .400
*SECNO 50.800

3470 ENCROACHMENT STATIONS= 367.0 670.0 TYPE= 1 TARGET= 303.000

50.80	5.64	972.84	0.00	0.00	972.84	.01	.04	.05	969.00
410.	171.	108.	131.	390.	119.	398.	63.	29.	969.00
1.44	.44	.91	.33	.070	.045	.080	.045	967.20	367.00
.000092	150.	150.	150.	2	0	0	0.00	303.00	670.00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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T1      JOB HUD-FIA H-4705  T06
T2      FLOOD INSURANCE STUDIES
T3      FLOODWAY DETERMINATION

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.        6.        0.        0.  0.000000      0.00      -1.0        0.   958.480     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 2

CCHV=    .300 CEHV=    .500
*SECNO 10.200
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=     422.0     542.0  TYPE=     1  TARGET=     120.000
    10.20      3.28   958.48      0.00   958.38   958.60      .12      0.00      0.00   957.20
     410.       13.     397.        0.     19.      138.       0.        0.        0.  100000.00
     0.00       .65     2.87      0.00     .080     .045     .080     0.000   955.20   457.94
  .002261        0.       0.        0.        0        0        0     0.00    84.06   542.00

*SECNO 10.205

3470 ENCROACHMENT STATIONS=     488.0     542.0  TYPE=     1  TARGET=      54.000
    10.21      3.03   958.73      0.00   958.67   958.90      .17       .28       .02   957.70
     410.        0.     410.        0.       0.     125.       0.        0.        0.  100000.00
      .01       0.00     3.28      0.00     .080     .045     .080      .045   955.70   488.00
  .003430       100.     100.      100.        2        0        0     0.00    54.00   542.00

*SECNO 10.210
 2800 NAT Q1=      32.99  WSEL=     958.82  ENC Q1=      34.74  WSEL=     958.92  RATIO=  -.0530
 NAT Q1=      35.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     958.92
3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     508.0     523.0  TYPE=     4  TARGET=       0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      962.80 ELREA=      962.80

    10.21      3.20   958.90      0.00   958.82   960.03     1.13       .65       .48   955.70
     410.        0.     410.        0.       0.      48.       0.        1.        0.    955.70
      .01       0.00     8.53      0.00     .080     .045     .080      .045   955.70   508.00
  .018296        98.      98.       98.        3        0        0     0.00    15.00   523.00


CCHV=    .400 CEHV=    .800
*SECNO 10.300
 2800 NAT Q1=      34.78  WSEL=     959.29  ENC Q1=      36.08  WSEL=     959.39  RATIO=  -.0376
 NAT Q1=      36.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     959.39
3280 CROSS SECTION      10.30 EXTENDED       1.49 FEET


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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3370 NORMAL BRIDGE,NRD=   7 MIN ELTRD=   965.10 MAX ELLC=   962.80

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

        ** D/S FACE MANN RD.

    10.30      2.99    959.29    959.29    959.29    960.95      1.66       .03       .43    957.80
     410.        0.      410.        0.        0.      40.        0.        1.        0.     957.80
      .01      0.00     10.35      0.00      .080      .025      .080      .044    956.30      0.00
  .013900         2.        2.        2.         3         9         0     -2.46     15.20     15.20


*SECNO 10.350
 2800 NAT Q1=      50.05  WSEL=     960.59  ENC Q1=      51.17  WSEL=     960.69  RATIO=  -.0225
 NAT Q1=      51.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     960.69
3280 CROSS SECTION      10.35 EXTENDED       2.80 FEET


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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3370 NORMAL BRIDGE,NRD=   7 MIN ELTRD=   965.10 MAX ELLC=   962.80

    10.35      4.30    960.60      0.00    960.59    961.51       .91       .26       .30    957.80
     410.        0.      410.        0.        0.      54.        0.        1.        0.     957.80
      .01      0.00      7.66      0.00      .080      .025      .080      .042    956.30      0.00
  .006663        28.       28.       28.         5         0         0     -8.54     15.20     15.20


*SECNO 10.400
 2800 NAT Q1=      79.08  WSEL=     961.38  ENC Q1=      81.95  WSEL=     961.48  RATIO=  -.0362
 NAT Q1=      82.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     961.48

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      428.0      446.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       965.10 ELREA=       965.10

    10.40      5.08    961.38      0.00    961.38    961.74       .36       .01       .22    957.00
     410.        0.      410.        0.        0.      85.        0.        1.        0.     957.00
      .01      0.00      4.81      0.00      .080      .045      .080      .041    956.30    428.00
  .003589         2.        2.        2.         3         0         0      0.00     18.00    446.00


CCHV=     .100 CEHV=     .300
*SECNO 10.800

3470 ENCROACHMENT STATIONS=      340.0      518.0  TYPE=      1  TARGET=      178.000
    10.80      5.69    961.79      0.00    961.79    961.79       .00       .02       .04    956.80
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     410.      174.       84.      152.      398.       96.      338.        1.        0.    956.80
      .05       .44       .87       .45      .080      .045      .080      .042   956.10   340.00
  .000075       70.       70.       70.         2         0         0      0.00   178.00   518.00


*SECNO 10.900
 2800 NAT Q1=     349.43  WSEL=     961.84  ENC Q1=     349.43  WSEL=     961.94  RATIO=    .0000
 NAT Q1=     366.  RATIOS LOB,CH,ROB=    .4292    .2054    .3654  WSEL=     961.94

3470 ENCROACHMENT STATIONS=      343.0      511.9  TYPE=      4  TARGET=         .045
    10.90      4.84    961.84      0.00    961.84    961.85       .01       .05       .00   957.70
      410.      173.       88.      149.      319.       81.      265.       10.        2.    957.70
      .26       .54      1.09       .56      .080      .045      .080      .044   957.00   342.97
  .000146       500.      500.      500.         0         0         0      0.00   168.96   511.93


*SECNO 19.800

3470 ENCROACHMENT STATIONS=         .0      526.0  TYPE=      1  TARGET=      525.999
    19.80      3.94    961.94      0.00    961.94    961.96       .01       .11       .00   960.90
      410.        1.      220.      189.         5.      193.      269.       17.        4.    960.40
       .42       .20      1.14       .70      .080      .045      .080      .044   958.00   369.80
  .000277       550.      550.      550.         2         0         0      0.00   154.83   524.64


*SECNO 20.000
   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      526.0  TYPE=      1  TARGET=      525.999
    20.00      3.33    962.13      0.00    962.12    962.15       .02       .19       .00   961.70
      410.        0.      214.      195.         1.      153.      220.       22.        6.    961.20
       .54       .16      1.40       .89      .080      .045      .080      .044   958.80   375.81
  .000563       500.      500.      500.         2         0         0      0.00   147.33   523.14


*SECNO 20.500
 2800 NAT Q1=      48.76  WSEL=     962.55  ENC Q1=      48.76  WSEL=     962.65  RATIO=    .0000
 NAT Q1=      55.  RATIOS LOB,CH,ROB=    .0006    .5464    .4530  WSEL=     962.65

3470 ENCROACHMENT STATIONS=      468.0      576.9  TYPE=      4  TARGET=         .114
    20.50      3.28    962.53      0.00    962.55    962.81       .28       .58       .08   962.25
      410.        0.      262.      148.         0.       51.       83.       24.        7.    961.65
       .57      0.00      5.12      1.78      .080      .045      .080      .045   959.25   468.00
  .009224       400.      400.      400.         3         0         0      0.00   108.91   576.91


*SECNO 25.000
 2800 NAT Q1=     108.53  WSEL=     963.80  ENC Q1=     108.53  WSEL=     963.90  RATIO=    .0000
 NAT Q1=     117.  RATIOS LOB,CH,ROB=    .0066    .4276    .5658  WSEL=     963.90

3470 ENCROACHMENT STATIONS=      468.0      600.5  TYPE=      4  TARGET=         .069
    25.00      4.23    963.93      0.00    963.80    963.99       .05      1.16       .02   962.70
      410.        0.      184.      226.         0.       74.      211.       26.        8.    962.10
       .63      0.00      2.48      1.07      .060      .045      .080      .045   959.70   468.00
  .001396       400.      400.      400.         3         0         0      0.00   132.53   600.53
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*SECNO 25.800
 2800 NAT Q1=      87.88  WSEL=     964.65  ENC Q1=      87.88  WSEL=     964.75  RATIO=    .0000
 NAT Q1=      96.  RATIOS LOB,CH,ROB=    .0044    .4542    .5414  WSEL=     964.75

3470 ENCROACHMENT STATIONS=      468.0      593.7  TYPE=      4  TARGET=         .080
    25.80      3.97    964.77      0.00    964.65    964.85       .08       .86       .01    963.80
     410.        0.       199.       211.        0.       68.      172.       29.       10.     963.20
      .70      0.00      2.94      1.22      .060      .045      .080      .045    960.80    468.00
  .002164      500.      500.      500.         2         0         0      0.00    125.68    593.68


*SECNO 30.200

3470 ENCROACHMENT STATIONS=      662.0      894.0  TYPE=      1  TARGET=     -662.000
 ELENCL=     967.20  ELENCR= 100000.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      967.20 ELREA=      965.10

    30.20      4.63    966.23      0.00    966.15    966.62       .39      1.67       .09    967.20
     410.        0.       380.        30.        0.       73.       26.       31.       11.     965.10
      .73      0.00      5.18      1.12      .070      .045      .080      .045    961.60    666.10
  .007803      450.      450.      450.         3         0         0      0.00     76.72    742.81


CCHV=     .300 CEHV=     .500
*SECNO 30.300
   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

3470 ENCROACHMENT STATIONS=      662.0      894.0  TYPE=      1  TARGET=     -662.000
 ELENCL=     967.20  ELENCR= 100000.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      967.20 ELREA=      965.10

        ** D/S FACE PINE KNOB RD.

    30.30      5.50    967.10      0.00    967.10    967.24       .13       .55       .08    967.20
     410.        0.       329.        81.        0.      101.       76.       31.       11.     965.10
      .74      0.00      3.25      1.07      .070      .045      .080      .045    961.60    662.41
  .002327      140.      140.      140.         2         0         0      0.00     97.09    759.50


SPECIAL BRIDGE

SB  XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       2.03       3.00       0.00      15.00        .01      60.00       0.00     962.80     962.80

*SECNO 30.400
 2800 NAT Q1=     402.43  WSEL=     968.28  ENC Q1=     402.43  WSEL=     968.38  RATIO=  0.0000
 NAT Q1=     419.  RATIOS LOB,CH,ROB=    .1850    .3193    .4957  WSEL=     968.38
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      658.2      859.9  TYPE=      4  TARGET=         .040
    30.40      6.98    968.28      0.00    968.28    968.29       .01       .01       .04    965.20
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     410.       69.      138.      203.      147.      131.      452.       32.       11.    964.00
      .75       .47      1.05       .45      .070      .045      .080      .045   961.30    658.17
  .000113       31.       31.       31.         0         0         0      0.00   201.71    859.89


CCHV=     .200 CEHV=     .400
*SECNO 30.800
 2800 NAT Q1=     241.64  WSEL=     968.28  ENC Q1=     241.64  WSEL=     968.38  RATIO=    .0000
 NAT Q1=     256.  RATIOS LOB,CH,ROB=    .1552    .3763    .4685  WSEL=     968.38

3470 ENCROACHMENT STATIONS=      662.8      854.6  TYPE=      4  TARGET=         .056
    30.80      5.99   968.29      0.00   968.28   968.31       .02       .01       .00    966.20
     410.       54.      166.      190.       91.      107.      312.       33.       12.    965.00
      .77       .60      1.55       .61      .070      .045      .080      .045   962.30    662.79
  .000317       65.       65.       65.         0         0         0      0.00   191.84    854.64


*SECNO 30.900
 2800 NAT Q1=     205.09  WSEL=     968.41  ENC Q1=     205.09  WSEL=     968.51  RATIO=    .0000
 NAT Q1=     218.  RATIOS LOB,CH,ROB=    .1444    .3987    .4569  WSEL=     968.51

3470 ENCROACHMENT STATIONS=      665.0      852.8  TYPE=      4  TARGET=         .061
    30.90      5.73   968.43      0.00   968.41   968.46       .02       .15       .00    966.60
     410.       49.      177.      184.       75.      101.      275.       37.       13.    965.40
      .87       .65      1.76       .67      .070      .045      .080      .045   962.70    664.96
  .000443       400.      400.      400.         1         0         0      0.00   187.81    852.76


CCHV=     .200 CEHV=     .400
*SECNO 30.820
 2800 NAT Q1=      31.90  WSEL=     969.09  ENC Q1=      31.90  WSEL=     969.19  RATIO=    .0000
 NAT Q1=      37.  RATIOS LOB,CH,ROB=    .1076    .7351    .1574  WSEL=     969.19

3370 NORMAL BRIDGE,NRD=   0 MIN ELTRD=   968.10 MAX ELLC=   967.20


3470 ENCROACHMENT STATIONS=      451.5      530.5  TYPE=      4  TARGET=         .136

        ** D/S FACE FOOTBRIDGE

    30.82      4.16   969.16      0.00   969.09   969.36       .20       .83       .07    968.20
     410.       20.      368.       22.        8.      100.        9.       41.       15.    967.40
      .92      2.58      3.69      2.49      .070      .045      .080      .045   965.00    451.46
  .019625       620.      620.      620.         3         0         0    -49.11    79.04    530.50


*SECNO 30.840
 2800 NAT Q1=      37.18  WSEL=     969.19  ENC Q1=      37.18  WSEL=     969.29  RATIO=    .0000
 NAT Q1=      42.  RATIOS LOB,CH,ROB=    .1230    .7117    .1653  WSEL=     969.29
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=   0 MIN ELTRD=   968.10 MAX ELLC=   967.20


3470 ENCROACHMENT STATIONS=      446.3      532.7  TYPE=      4  TARGET=         .120
    30.84      4.30   969.30      0.00   969.19   969.45       .15       .08       .01    968.20
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     410.      32.     350.      29.      14.     109.      13.      41.      15.    967.40
      .92     2.33     3.21     2.25    .070    .045    .080    .045   965.00   446.26
  .013296       5.       5.       5.       2        0        0   -49.88    86.39   532.65


*SECNO 40.000
 2800 NAT Q1=     250.03  WSEL=     969.36  ENC Q1=     250.03  WSEL=     969.46  RATIO=  0.0000
 NAT Q1=     265.  RATIOS LOB,CH,ROB=    .1062   .7927   .1011  WSEL=     969.46

3470 ENCROACHMENT STATIONS=      419.5     547.4  TYPE=     4  TARGET=         .057
    40.00     5.31   969.51     0.00   969.36   969.53      .02      .06      .02   967.40
      410.      35.      343.      32.      72.      256.      62.      41.      16.    966.60
      .94      .49     1.34      .51     .070     .045     .080     .045   964.20   419.47
  .000255       75.      75.      75.       2        0        0     0.00   127.92   547.39


*SECNO 41.200
 2800 NAT Q1=      37.44  WSEL=     969.50  ENC Q1=      37.44  WSEL=     969.60  RATIO=  0.0000
 NAT Q1=      42.  RATIOS LOB,CH,ROB=    .0755   .8285   .0960  WSEL=     969.60

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  968.70 MAX ELLC=  968.50


3470 ENCROACHMENT STATIONS=      453.2     527.0  TYPE=     4  TARGET=         .102

        ** D/S FACE FOOTBRIDGE

    41.20     4.13   969.63     0.00   969.50   969.77      .13      .19      .04   968.70
      410.      12.      389.       9.       6.      131.       7.      43.      16.    967.90
      .96     1.99     2.97     1.19     .070     .045     .080     .045   965.50   453.17
  .012128      245.      245.      245.       3        0        0   -12.94    73.83   527.00


*SECNO 41.300
 2800 NAT Q1=      40.37  WSEL=     969.57  ENC Q1=      40.37  WSEL=     969.67  RATIO=  0.0000
 NAT Q1=      45.  RATIOS LOB,CH,ROB=    .0855   .8128   .1017  WSEL=     969.67

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  968.70 MAX ELLC=  968.50


3470 ENCROACHMENT STATIONS=      450.5     527.8  TYPE=     4  TARGET=         .101
    41.30     4.21   969.71     0.00   969.57   969.83      .12      .06      .00   968.70
      410.      17.      383.      10.       9.      136.       9.      43.      16.    967.90
      .96     1.95     2.82     1.14     .070     .045     .080     .045   965.50   450.51
  .010472       5.       5.       5.       2        0        0   -13.10    77.26   527.77


*SECNO 49.700
 2800 NAT Q1=     534.52  WSEL=     969.76  ENC Q1=     534.52  WSEL=     969.86  RATIO=  0.0000
 NAT Q1=     568.  RATIOS LOB,CH,ROB=    .1810   .7006   .1184  WSEL=     969.86
3280 CROSS SECTION     49.70 EXTENDED       .51 FEET


3470 ENCROACHMENT STATIONS=      374.5     721.0  TYPE=     4  TARGET=         .059
    49.70     4.51   969.91     0.00   969.76   969.92      .00      .07      .02   967.40
      410.      67.      305.      38.      271.      549.      138.      47.      18.    966.80
      1.16      .25      .55      .28     .070     .045     .080     .045   965.40   374.46
  .000056      350.      350.      350.       3        0        0     0.00   346.51   720.96
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*SECNO 50.200
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=      512.0      716.0  TYPE=      1  TARGET=      204.000
    50.20      2.88    969.98      0.00    969.83    970.01       .03       .08       .01    969.10
     410.        0.      376.        34.       0.      285.        56.       56.       22.     968.50
     1.30      0.00      1.32       .61      .070      .045      .080      .045    967.10    512.00
  .000758      600.      600.      600.         3         0         0      0.00    204.00    716.00

*SECNO 50.205

3470 ENCROACHMENT STATIONS=      600.0      716.0  TYPE=      1  TARGET=      116.000
    50.21      2.80    970.10      0.00    969.99    970.17       .08       .15       .02100000.00
     410.        0.      360.        50.       0.      153.        52.       57.       22.     968.70
     1.31      0.00      2.36       .95      .070      .045      .080      .045    967.30    600.00
  .002005      125.      125.      125.         2         0         0      0.00    116.00    716.00


CCHV=     .300 CEHV=     .500
*SECNO 50.300
 2800 NAT Q1=      27.67  WSEL=     970.22  ENC Q1=      30.05  WSEL=     970.32  RATIO=  -.0860
 NAT Q1=      30.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     970.32

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=      488.0      512.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      974.00 ELREA=      974.00

    50.30      2.85    970.25      0.00    970.22    971.20       .95       .59       .44    969.20
     410.        0.      410.        0.        0.      52.         0.       58.       22.     969.20
     1.32      0.00      7.84       0.00      .070      .045      .080      .045    967.40    488.00
  .021713      125.      125.      125.         3         0         0      0.00     24.00    512.00


CCHV=     .400 CEHV=     .800
*SECNO 50.330
 2800 NAT Q1=      33.60  WSEL=     970.47  ENC Q1=      35.02  WSEL=     970.57  RATIO=  -.0424
 NAT Q1=      35.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     970.57
3280 CROSS SECTION      50.33 EXTENDED       1.37 FEET


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


3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD=  974.40 MAX ELLC=  973.20
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7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

** D/S FACE MAYBEE RD.

50.33	2.87	970.47	970.47	970.47	971.96	1.49	.04	.43	969.10
410.	0.	410.	0.	0.	42.	0.	58.	22.	969.10
1.32	0.00	9.81	0.00	.070	.025	.080	.045	967.60	0.00
.014894	2.	2.	2.	2	12	0	-4.33	18.40	18.40

*SECNO 50.370
2800 NAT Q1= 50.91 WSEL= 971.80 ENC Q1= 52.08 WSEL= 971.90 RATIO= -.0230
NAT Q1= 52. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 971.90
3280 CROSS SECTION 50.37 EXTENDED 2.70 FEET

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 14 MIN ELTRD= 974.40 MAX ELLC= 973.20

50.37	4.20	971.80	0.00	971.80	972.55	.75	.29	.30	969.10
410.	0.	410.	0.	0.	59.	0.	58.	22.	969.10
1.32	0.00	6.94	0.00	.070	.025	.080	.045	967.60	0.00
.006473	31.	31.	31.	5	0	0	-11.65	18.40	18.40

*SECNO 50.400
2800 NAT Q1= 86.31 WSEL= 972.50 ENC Q1= 89.77 WSEL= 972.60 RATIO= -.0401
NAT Q1= 90. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 972.60

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

3470 ENCROACHMENT STATIONS= 488.0 512.0 TYPE= 4 TARGET= 0.000

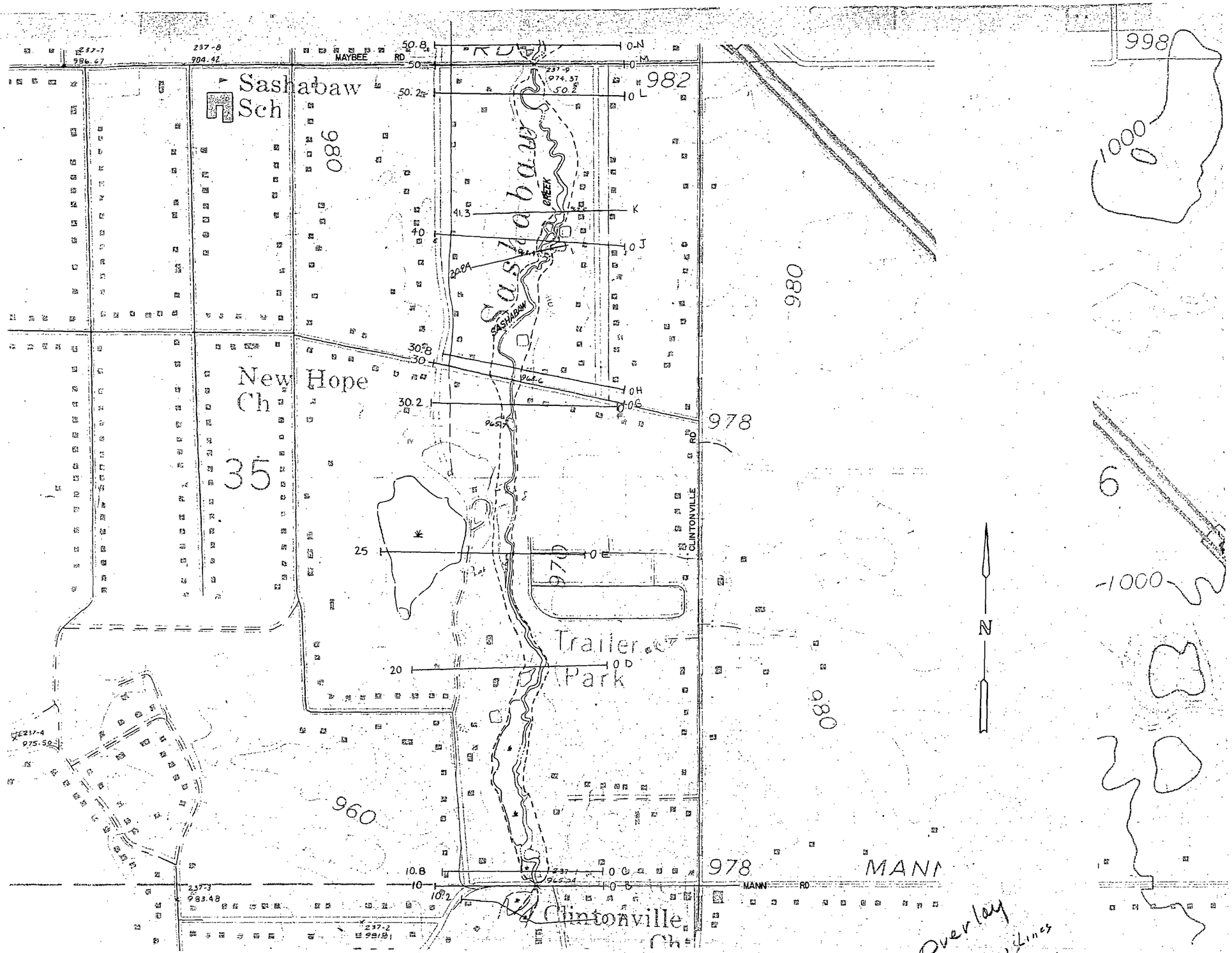
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 974.40 ELREA= 974.40

50.40	4.90	972.50	0.00	972.50	972.75	.25	.01	.20	969.40
410.	0.	410.	0.	0.	101.	0.	58.	22.	969.40
1.32	0.00	4.04	0.00	.070	.045	.080	.045	967.60	488.00
.002644	2.	2.	2.	3	0	0	0.00	24.00	512.00

CCHV= .200 CEHV= .400
*SECNO 50.800

3470 ENCROACHMENT STATIONS= 367.0 670.0 TYPE= 1 TARGET= 303.000

50.80	5.64	972.84	0.00	972.84	972.84	.01	.04	.05	969.00
410.	171.	108.	131.	390.	119.	398.	59.	23.	969.00
1.40	.44	.91	.33	.070	.045	.080	.045	967.20	367.00
.000092	150.	150.	150.	2	0	0	0.00	303.00	670.00



See Overlay for stream & x-section lines

McNamee Porter Seeley
Independence Twp.
1" = 400' x-sections

RECEIVED
APR 27 1981
WATER MANAGEMENT

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: INDEPENDENCE

3) WATERCOURSE: SAGINAW DRAIN

4) DOCUMENT TYPE: PROJECT MAP RUN

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************

C
T1      HUD-FIA H-4705
T2      INDEPENDENCE TOWNSHIP
T3      SASHABAW DRAIN

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      -1.        4.         0.         0.    .002600       0.00      -1.0         0.    957.800      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       .080       .080       .045       .300       .500      0.000      0.000      0.000      0.000      0.000
QT      5.000    205.000    345.000    410.000    590.000    410.000      0.000      0.000      0.000      0.000
ET      0.000      0.000      0.000      0.000      0.000      1.400      0.000      0.000      0.000      0.000

X1     10.200      9.000    488.000    542.000      0.000      0.000      0.000      0.000      0.000      0.000
X3      0.000      0.000      0.000    422.000      0.000    542.000      0.000      0.000      0.000      0.000
GR    962.800    402.000    960.000    422.000    957.200    488.000    955.200    510.000    955.200    520.000
GR    956.700    542.000    956.700    640.000    960.000    660.000    963.400    682.000      0.000      0.000

X1     10.205      0.000      0.000      0.000    100.000    100.000    100.000      0.000       .500      0.000
X3      0.000      0.000      0.000    488.000      0.000    542.000      0.000      0.000      0.000      0.000

X1     10.210      9.000    508.000    523.000     98.000     98.000     98.000      0.000       .500      0.000
X3     10.000      0.000      0.000      0.000      0.000      0.000      0.000    962.800    962.800      0.000
GR    962.800    402.000    960.000    422.000    957.200    488.000    955.200    508.000    955.200    523.000
GR    956.700    542.000    956.700    640.000    960.000    660.000    963.400    682.000      0.000      0.000
NC      0.000      0.000       .025       .400       .800      0.000      0.000      0.000      0.000      0.000

        ** D/S FACE MANN RD.

X1     10.300      7.000      0.000     15.200      2.000      2.000      2.000      0.000      0.000      0.000
X2      0.000      0.000      0.000    962.800    965.100      0.000      0.000      0.000      0.000      0.000
BT      7.000      0.000    965.100    957.800      2.250    965.100    959.800      3.850    965.100    961.800
BT      7.600    965.100    962.800     11.350    965.100    961.800     13.000    965.100    959.800     15.200
BT    965.100    957.800      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    957.800      0.000    956.300      2.250    956.300      3.850    956.300      7.600    956.300     11.350
GR    956.300     13.000    957.800     15.200      0.000      0.000      0.000      0.000      0.000      0.000

X1     10.350      0.000      0.000      0.000     28.000     28.000     28.000      0.000      0.000      0.000
X2      0.000      0.000      0.000    962.800    965.100      0.000      1.000      0.000      0.000      0.000
NC      0.000      0.000       .045      0.000      0.000      0.000      0.000      0.000      0.000      0.000
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X1	10.400	13.000	428.000	446.000	2.000	2.000	2.000	0.000	.200	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	965.100	965.100	0.000
GR	975.900	100.000	969.600	202.000	960.800	298.000	959.600	340.000	957.100	360.000
GR	956.800	428.000	956.100	438.000	956.800	446.000	957.000	510.000	960.400	518.000
GR	963.200	698.000	972.200	752.000	976.000	882.000	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
X1	10.800	0.000	0.000	0.000	70.000	70.000	70.000	0.000	-.200	0.000
X3	0.000	0.000	0.000	340.000	0.000	518.000	0.000	0.000	0.000	0.000
X1	10.900	0.000	0.000	0.000	500.000	500.000	500.000	0.000	.900	0.000
X1	19.800	20.000	380.000	444.000	550.000	550.000	550.000	0.000	-.800	0.000
X3	0.000	0.000	0.000	0.000	0.000	526.000	966.100	0.000	0.000	0.000
GR	970.200	312.000	966.400	334.000	961.700	380.000	959.800	396.000	959.200	408.000
GR	958.800	412.000	958.800	428.000	961.200	444.000	959.000	456.000	959.000	490.000
GR	959.200	516.000	963.300	526.000	966.900	538.000	963.200	550.000	959.900	560.000
GR	961.800	614.000	962.400	638.000	963.000	670.000	965.400	684.000	968.200	706.000
X1	20.000	0.000	0.000	0.000	500.000	500.000	500.000	0.000	-.800	0.000
X3	0.000	0.000	0.000	0.000	0.000	526.000	966.900	0.000	0.000	0.000
X1	20.500	12.000	468.000	492.000	400.000	400.000	400.000	0.000	-.450	0.000
GR	968.000	426.000	967.600	438.000	962.700	468.000	961.100	472.000	959.700	480.000
GR	961.100	488.000	962.100	492.000	962.200	516.000	962.200	544.000	961.400	568.000
GR	962.900	624.000	970.000	672.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	.060	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	25.000	12.000	468.000	492.000	400.000	400.000	400.000	0.000	0.000	0.000
GR	968.000	426.000	967.600	438.000	962.700	468.000	961.100	472.000	959.700	480.000
GR	961.100	488.000	962.100	492.000	962.200	516.000	962.200	544.000	961.400	568.000
GR	962.900	624.000	970.000	672.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	25.800	0.000	0.000	0.000	500.000	500.000	500.000	0.000	1.100	0.000
NC	.070	.080	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	30.200	12.000	662.000	696.000	450.000	450.000	450.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	662.000	967.200	0.000	0.000	0.000	0.000	0.000
GR	972.400	484.000	968.200	522.000	964.600	644.000	964.800	656.000	967.200	662.000
GR	963.400	678.000	961.600	684.000	963.400	690.000	965.100	696.000	966.400	750.000
GR	969.800	796.000	971.900	894.000	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

** D/S FACE PINE KNOB RD.

X1	30.300	0.000	0.000	0.000	140.000	140.000	140.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	662.000	967.200	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.030	3.000	0.000	15.000	.010	60.000	0.000	962.800	962.800
X1	30.400	12.000	706.000	730.000	31.000	31.000	31.000	0.000	-1.200	0.000

X2	0.000	0.000	1.000	966.000	968.000	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	968.000	968.000	0.000
BT	7.000	540.000	970.000	0.000	600.000	968.500	0.000	642.000	967.900	0.000
BT	695.000	968.000	0.000	725.000	968.600	0.000	800.000	968.700	0.000	870.000
BT	970.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	971.600	628.000	970.000	634.000	966.400	660.000	966.400	706.000	964.000	710.000
GR	962.500	716.000	964.000	722.000	965.200	730.000	966.300	800.000	966.300	860.000
GR	969.800	874.000	976.600	920.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	30.800	0.000	0.000	0.000	65.000	65.000	65.000	0.000	1.000	0.000
X1	30.900	0.000	0.000	0.000	400.000	400.000	400.000	0.000	.400	0.000
NC	.070	.080	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000

** D/S FACE FOOTBRIDGE

X1	30.820	10.000	460.000	522.000	620.000	620.000	620.000	0.000	.800	0.000
X2	0.000	0.000	0.000	967.200	968.100	0.000	0.000	0.000	0.000	0.000
GR	980.500	242.000	974.200	248.000	970.000	300.000	967.400	460.000	965.300	508.000
GR	964.200	514.000	965.300	520.000	966.600	522.000	970.400	628.000	974.000	978.000
X1	30.840	0.000	0.000	0.000	5.000	5.000	5.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	967.200	968.100	0.000	0.000	0.000	0.000	0.000
X1	40.000	15.000	460.000	522.000	75.000	75.000	75.000	0.000	0.000	0.000
GR	980.500	242.000	974.200	248.000	970.000	300.000	967.400	460.000	965.300	464.000
GR	964.200	471.000	965.300	476.000	965.800	486.000	965.800	504.000	965.300	508.000
GR	964.200	514.000	965.300	520.000	966.600	522.000	970.400	628.000	974.000	978.000

** D/S FACE FOOTBRIDGE

X1	41.200	10.000	460.000	522.000	245.000	245.000	245.000	0.000	1.300	0.000
X2	0.000	0.000	0.000	968.500	968.700	0.000	0.000	0.000	0.000	0.000
GR	980.500	242.000	974.200	248.000	970.000	300.000	967.400	460.000	965.300	508.000
GR	964.200	514.000	965.300	520.000	966.600	522.000	970.400	628.000	974.000	978.000
X1	41.300	0.000	0.000	0.000	5.000	5.000	5.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	968.500	968.700	0.000	0.000	0.000	0.000	0.000
X1	49.700	12.000	512.000	674.000	350.000	350.000	350.000	0.000	-1.700	0.000
GR	971.100	288.000	970.500	334.000	969.100	512.000	968.700	532.000	968.200	600.000
GR	967.700	650.000	967.500	654.000	967.100	660.000	967.500	666.000	968.500	674.000
GR	968.800	716.000	972.700	810.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	50.200	0.000	0.000	0.000	600.000	600.000	600.000	0.000	1.700	0.000
X3	0.000	0.000	0.000	512.000	0.000	716.000	0.000	0.000	0.000	0.000
X1	50.205	0.000	0.000	0.000	125.000	125.000	125.000	0.000	.200	0.000
X3	0.000	0.000	0.000	600.000	0.000	716.000	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

X1	50.300	15.000	488.000	512.000	125.000	125.000	125.000	0.000	.200	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	974.000	974.000	0.000
GR	976.400	0.000	972.100	78.000	971.300	230.000	970.200	356.000	969.300	464.000
GR	969.300	480.000	969.000	488.000	967.200	502.000	967.200	508.000	969.000	512.000
GR	970.000	524.000	970.400	586.000	970.900	758.000	972.800	860.000	978.000	912.000
NC	0.000	0.000	.025	.400	.800	0.000	0.000	0.000	0.000	0.000

** D/S FACE MAYBEE RD.

X1	50.330	14.000	0.000	18.400	2.000	2.000	2.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	973.200	974.400	0.000	0.000	0.000	0.000	0.000
BT	14.000	0.000	974.400	969.100	1.200	974.400	971.900	2.300	974.400	972.700
BT	4.100	974.400	973.200	5.900	974.400	972.700	7.000	974.400	971.900	8.200
BT	974.400	969.100	10.200	974.400	969.100	11.400	974.400	971.900	12.500	974.400
BT	972.700	14.300	974.400	973.200	16.100	974.400	972.700	17.200	974.400	971.900
BT	18.400	974.400	969.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	969.100	0.000	967.600	1.200	967.600	2.300	967.600	4.100	967.600	5.900
GR	967.600	7.000	969.100	8.200	969.100	10.200	967.600	11.400	967.600	12.500
GR	967.600	14.300	967.600	16.100	967.600	17.200	969.100	18.400	0.000	0.000

X1	50.370	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	973.200	974.400	0.000	1.000	0.000	0.000	0.000
NC	0.000	0.000	.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	50.400	15.000	488.000	512.000	2.000	2.000	2.000	0.000	.400	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	974.400	974.400	0.000
GR	976.400	0.000	972.100	78.000	971.300	230.000	970.200	356.000	969.300	464.000
GR	969.300	480.000	969.000	488.000	967.200	502.000	967.200	508.000	969.000	512.000
GR	970.000	524.000	970.400	586.000	970.900	758.000	972.800	860.000	978.000	912.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000

X1	50.800	0.000	0.000	0.000	150.000	150.000	150.000	0.000	-.400	0.000
X3	0.000	0.000	0.000	367.000	0.000	670.000	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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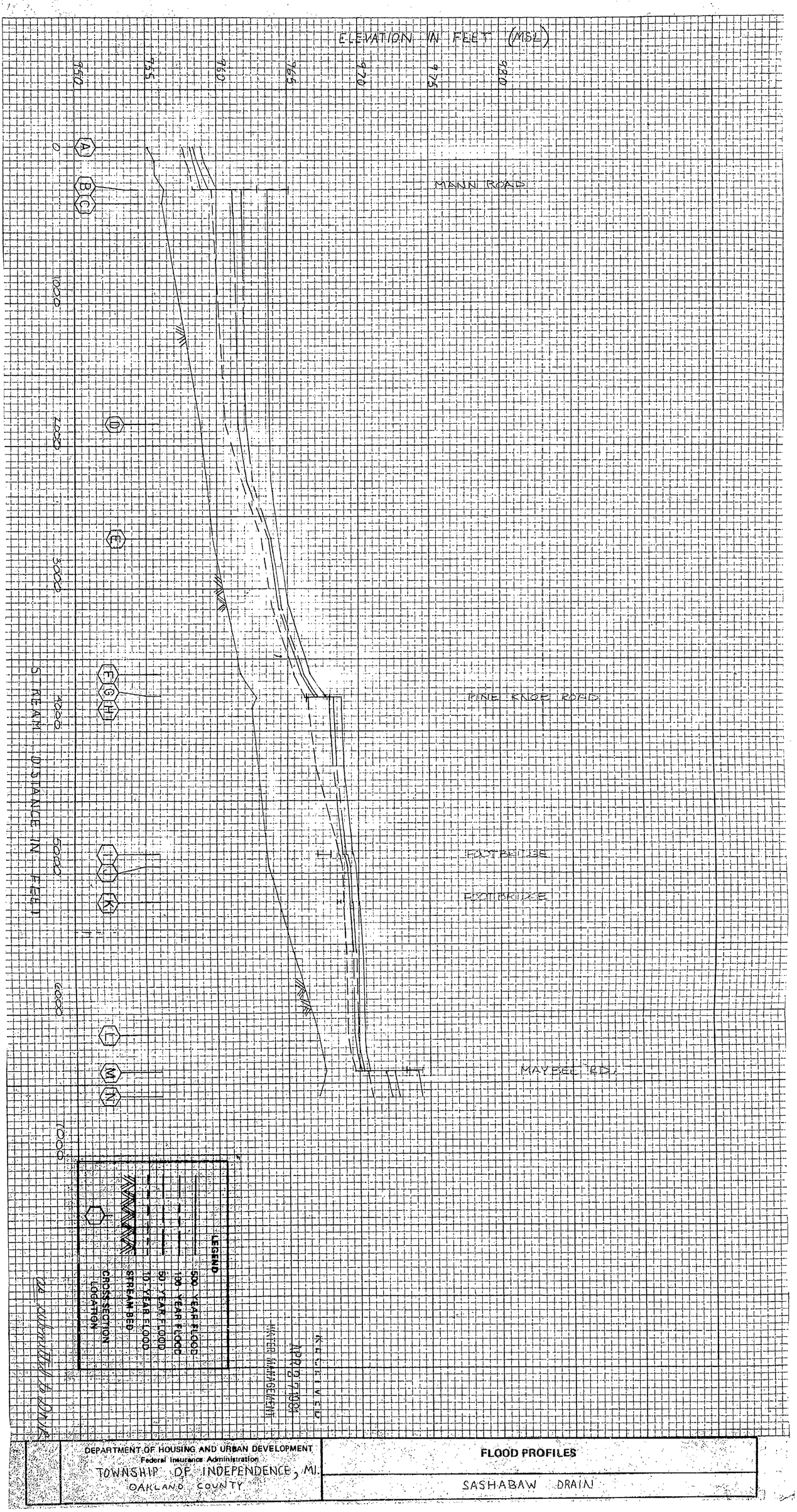

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration
TOWNSHIP OF INDEPENDENCE, MI.
OAKLAND COUNTY

FLOOD PROFILES

SASHABAW DRAIN

1) COUNTY: OAKLAND

2) STUDY NAME: INDEPENDENCE TOWNSHIP

3) WATERCOURSE: SASHABAW DRAIN

4) DOCUMENT TYPE: SUMMARY

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  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

SASHABAW DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	10.200	0.00	0.00	0.00	955.20	410.00	958.38	0.00	958.51	25.98	3.00	149.25	80.44
	10.200	0.00	0.00	0.00	955.20	410.00	958.48	0.00	958.60	22.61	2.87	157.54	86.23
	10.205	100.00	0.00	0.00	955.70	410.00	958.67	0.00	958.84	37.57	3.37	121.61	66.89
	10.205	100.00	0.00	0.00	955.70	410.00	958.73	0.00	958.90	34.30	3.28	125.10	70.01
	10.210	98.00	0.00	0.00	955.70	410.00	958.82	0.00	960.01	154.45	8.76	46.79	32.99
	10.210	98.00	0.00	0.00	955.70	410.00	958.90	0.00	960.03	182.96	8.53	48.06	30.31
*	10.300	2.00	965.10	962.80	956.30	410.00	959.29	959.29	960.95	139.00	10.35	39.60	34.78
*	10.300	2.00	965.10	962.80	956.30	410.00	959.29	959.29	960.95	139.00	10.35	39.60	34.78
	10.350	28.00	965.10	962.80	956.30	410.00	960.59	0.00	961.51	67.11	7.69	53.35	50.05
	10.350	28.00	965.10	962.80	956.30	410.00	960.60	0.00	961.51	66.63	7.66	53.51	50.23
	10.400	2.00	0.00	0.00	956.30	410.00	961.38	0.00	961.74	26.88	4.82	85.15	79.08
	10.400	2.00	0.00	0.00	956.30	410.00	961.38	0.00	961.74	35.89	4.81	85.17	68.43
	10.800	70.00	0.00	0.00	956.10	410.00	961.79	0.00	961.79	.75	.87	831.49	474.38
	10.800	70.00	0.00	0.00	956.10	410.00	961.79	0.00	961.79	.75	.87	831.67	474.55
	10.900	500.00	0.00	0.00	957.00	410.00	961.84	0.00	961.84	1.38	1.05	720.05	349.43
	10.900	500.00	0.00	0.00	957.00	410.00	961.84	0.00	961.85	1.46	1.09	664.76	338.79
	19.800	550.00	0.00	0.00	958.00	410.00	961.94	0.00	961.95	2.78	1.14	465.98	245.76
	19.800	550.00	0.00	0.00	958.00	410.00	961.94	0.00	961.96	2.77	1.14	466.89	246.52
	20.000	500.00	0.00	0.00	958.80	410.00	962.12	0.00	962.14	5.66	1.40	373.43	172.33
	20.000	500.00	0.00	0.00	958.80	410.00	962.13	0.00	962.15	5.63	1.40	374.13	172.85
	20.500	400.00	0.00	0.00	959.25	410.00	962.55	0.00	962.75	70.70	4.54	170.91	48.76
	20.500	400.00	0.00	0.00	959.25	410.00	962.53	0.00	962.81	92.24	5.12	134.33	42.69
	25.000	400.00	0.00	0.00	959.70	410.00	963.80	0.00	963.85	14.27	2.52	303.29	108.53
	25.000	400.00	0.00	0.00	959.70	410.00	963.93	0.00	963.99	13.96	2.48	284.76	109.74
	25.800	500.00	0.00	0.00	960.80	410.00	964.65	0.00	964.73	21.77	2.94	261.88	87.88
	25.800	500.00	0.00	0.00	960.80	410.00	964.77	0.00	964.85	21.64	2.94	240.19	88.13

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	30.200	450.00	0.00	0.00	961.60	410.00	966.15	0.00	966.58	87.35	5.41	93.90	43.87
	30.200	450.00	0.00	0.00	961.60	410.00	966.23	0.00	966.62	78.03	5.18	99.79	46.41
	30.300	140.00	0.00	0.00	961.60	410.00	967.10	0.00	967.23	23.42	3.25	177.05	84.72
	30.300	140.00	0.00	0.00	961.60	410.00	967.10	0.00	967.24	23.27	3.25	177.57	85.00
	30.400	31.00	968.00	966.00	961.30	410.00	968.28	0.00	968.28	1.04	1.01	780.12	402.43
	30.400	31.00	999999.00	0.00	961.30	410.00	968.28	0.00	968.29	1.13	1.05	730.11	385.91
	30.800	65.00	0.00	0.00	962.30	410.00	968.28	0.00	968.30	2.88	1.47	550.29	241.64
	30.800	65.00	0.00	0.00	962.30	410.00	968.29	0.00	968.31	3.17	1.55	509.85	230.34
	30.900	400.00	0.00	0.00	962.70	410.00	968.41	0.00	968.44	4.00	1.66	490.65	205.09
	30.900	400.00	0.00	0.00	962.70	410.00	968.43	0.00	968.46	4.43	1.76	451.05	194.83
	30.820	620.00	968.10	967.20	965.00	410.00	969.09	0.00	969.22	165.18	3.27	151.48	31.90
	30.820	620.00	968.10	967.20	965.00	410.00	969.16	0.00	969.36	196.25	3.69	116.41	29.27
	30.840	5.00	968.10	967.20	965.00	410.00	969.19	0.00	969.30	121.62	2.95	170.41	37.18
	30.840	5.00	968.10	967.20	965.00	410.00	969.30	0.00	969.45	132.96	3.21	135.20	35.56
	40.000	75.00	0.00	0.00	964.20	410.00	969.36	0.00	969.38	2.69	1.34	469.30	250.03
	40.000	75.00	0.00	0.00	964.20	410.00	969.51	0.00	969.53	2.55	1.34	390.42	256.51
	41.200	245.00	968.70	968.50	965.50	410.00	969.50	0.00	969.61	119.92	2.83	175.10	37.44
	41.200	245.00	968.70	968.50	965.50	410.00	969.63	0.00	969.77	121.28	2.97	144.31	37.23
	41.300	5.00	968.70	968.50	965.50	410.00	969.57	0.00	969.67	103.17	2.69	186.09	40.37
	41.300	5.00	968.70	968.50	965.50	410.00	969.71	0.00	969.83	104.72	2.82	153.08	40.07
	49.700	350.00	0.00	0.00	965.40	410.00	969.76	0.00	969.76	.59	.55	1053.70	534.52
	49.700	350.00	0.00	0.00	965.40	410.00	969.91	0.00	969.92	.56	.55	958.23	550.31
	50.200	600.00	0.00	0.00	967.10	410.00	969.83	0.00	969.86	10.24	1.45	310.62	128.14
	50.200	600.00	0.00	0.00	967.10	410.00	969.98	0.00	970.01	7.58	1.32	340.88	148.91
	50.205	125.00	0.00	0.00	967.30	410.00	969.99	0.00	970.08	24.31	2.51	192.50	83.16
	50.205	125.00	0.00	0.00	967.30	410.00	970.10	0.00	970.17	20.05	2.36	205.11	91.57
	50.300	125.00	0.00	0.00	967.40	410.00	970.22	0.00	971.21	219.56	8.00	51.24	27.67
	50.300	125.00	0.00	0.00	967.40	410.00	970.25	0.00	971.20	217.13	7.84	52.28	27.82
*	50.330	2.00	974.40	973.20	967.60	410.00	970.47	970.47	971.96	148.94	9.81	41.81	33.60
*	50.330	2.00	974.40	973.20	967.60	410.00	970.47	970.47	971.96	148.94	9.81	41.81	33.60
	50.370	31.00	974.40	973.20	967.60	410.00	971.80	0.00	972.55	64.86	6.95	58.99	50.91
	50.370	31.00	974.40	973.20	967.60	410.00	971.80	0.00	972.55	64.73	6.94	59.04	50.96
	50.400	2.00	0.00	0.00	967.60	410.00	972.50	0.00	972.75	22.57	4.04	101.39	86.31
	50.400	2.00	0.00	0.00	967.60	410.00	972.50	0.00	972.75	26.44	4.04	101.41	79.73
	50.800	150.00	0.00	0.00	967.20	410.00	972.84	0.00	972.84	.92	.91	906.96	427.87
	50.800	150.00	0.00	0.00	967.20	410.00	972.84	0.00	972.84	.92	.91	907.33	428.13

SASHABAW DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	10.200	410.00	958.38	0.00	0.00	.58	81.70	0.00
	10.200	410.00	958.48	.10	0.00	.10	84.06	0.00
	10.205	410.00	958.67	0.00	.29	0.00	54.00	100.00
	10.205	410.00	958.73	.06	.25	.06	54.00	100.00
	10.210	410.00	958.82	0.00	.15	0.00	15.00	98.00
	10.210	410.00	958.90	.08	.17	.08	15.00	98.00
*	10.300	410.00	959.29	0.00	.47	0.00	15.20	2.00
*	10.300	410.00	959.29	-.00	.38	-.00	15.20	2.00
	10.350	410.00	960.59	0.00	1.31	0.00	15.20	28.00
	10.350	410.00	960.60	.01	1.32	.01	15.20	28.00
	10.400	410.00	961.38	0.00	.79	0.00	18.00	2.00
	10.400	410.00	961.38	.00	.78	.00	18.00	2.00
	10.800	410.00	961.79	0.00	.41	0.00	178.00	70.00
	10.800	410.00	961.79	.00	.41	.00	178.00	70.00
	10.900	410.00	961.84	0.00	.05	0.00	255.97	500.00
	10.900	410.00	961.84	.00	.05	.00	168.96	500.00
	19.800	410.00	961.94	0.00	.10	0.00	154.76	550.00
	19.800	410.00	961.94	.01	.10	.01	154.83	550.00
	20.000	410.00	962.12	0.00	.19	0.00	147.27	500.00
	20.000	410.00	962.13	.00	.19	.00	147.33	500.00
	20.500	410.00	962.55	0.00	.43	0.00	158.50	400.00
	20.500	410.00	962.53	-.02	.40	-.02	108.91	400.00
	25.000	410.00	963.80	0.00	1.25	0.00	168.91	400.00
	25.000	410.00	963.93	.13	1.40	.13	132.53	400.00
	25.800	410.00	964.65	0.00	.86	0.00	165.73	500.00
	25.800	410.00	964.77	.12	.84	.12	125.68	500.00
	30.200	410.00	966.15	0.00	1.50	0.00	73.12	450.00
	30.200	410.00	966.23	.08	1.45	.08	76.72	450.00
	30.300	410.00	967.10	0.00	.95	0.00	97.00	140.00
	30.300	410.00	967.10	.01	.88	.01	97.09	140.00
	30.400	410.00	968.28	0.00	1.18	0.00	235.02	31.00
	30.400	410.00	968.28	.01	1.18	.01	201.71	31.00
	30.800	410.00	968.28	0.00	.01	0.00	223.78	65.00
	30.800	410.00	968.29	.01	.01	.01	191.84	65.00
	30.900	410.00	968.41	0.00	.13	0.00	220.76	400.00

30.900	410.00	968.43	.02	.15	.02	187.81	400.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	30.820	410.00	969.09	0.00	.67	0.00	162.97	620.00
	30.820	410.00	969.16	.07	.73	.07	79.04	620.00
	30.840	410.00	969.19	0.00	.10	0.00	173.05	5.00
	30.840	410.00	969.30	.11	.14	.11	86.39	5.00
	40.000	410.00	969.36	0.00	.17	0.00	258.89	75.00
	40.000	410.00	969.51	.15	.21	.15	127.92	75.00
	41.200	410.00	969.50	0.00	.15	0.00	156.35	245.00
	41.200	410.00	969.63	.13	.13	.13	73.83	245.00
	41.300	410.00	969.57	0.00	.07	0.00	162.52	5.00
	41.300	410.00	969.71	.13	.07	.13	77.26	5.00
	49.700	410.00	969.76	0.00	.18	0.00	492.12	350.00
	49.700	410.00	969.91	.15	.21	.15	346.51	350.00
	50.200	410.00	969.83	0.00	.08	0.00	204.00	600.00
	50.200	410.00	969.98	.15	.07	.15	204.00	600.00
	50.205	410.00	969.99	0.00	.15	0.00	116.00	125.00
	50.205	410.00	970.10	.11	.11	.11	116.00	125.00
	50.300	410.00	970.22	0.00	.23	0.00	24.00	125.00
	50.300	410.00	970.25	.03	.15	.03	24.00	125.00
*	50.330	410.00	970.47	0.00	.25	0.00	18.40	2.00
*	50.330	410.00	970.47	-.00	.22	-.00	18.40	2.00
	50.370	410.00	971.80	0.00	1.33	0.00	18.40	31.00
	50.370	410.00	971.80	.00	1.33	.00	18.40	31.00
	50.400	410.00	972.50	0.00	.70	0.00	24.00	2.00
	50.400	410.00	972.50	.00	.70	.00	24.00	2.00
	50.800	410.00	972.84	0.00	.34	0.00	303.00	150.00
	50.800	410.00	972.84	.00	.34	.00	303.00	150.00

SUMMARY OF ERRORS

CAUTION SECNO= 10.300 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 10.300 PROFILE= 2 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 50.330 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 50.330 PROFILE= 2 CRITICAL DEPTH ASSUMED

FLOODWAY DATA, SASHABAW DRAIN
PROFILE NO. 2

STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
10.200	84.	158.	2.6	958.5	958.4	.1
10.205	54.	125.	3.3	958.8	958.7	.1
10.210	15.	48.	8.5	958.9	958.8	.1
10.300	15.	40.	10.4	959.3	959.3	0.0
10.350	15.	54.	7.7	960.6	960.6	0.0
10.400	18.	85.	4.8	961.4	961.4	0.0
10.800	178.	832.	.5	961.8	961.8	0.0
10.900	169.	665.	.6	961.8	961.8	0.0
19.800	155.	467.	.9	961.9	961.9	0.0
20.000	147.	374.	1.1	962.1	962.1	0.0
20.500	109.	134.	3.1	962.6	962.6	0.0
25.000	133.	285.	1.4	963.9	963.8	.1
25.800	126.	240.	1.7	964.8	964.7	.1
30.200	77.	100.	4.1	966.2	966.1	.1
30.300	97.	178.	2.3	967.1	967.1	0.0
30.400	202.	730.	.6	968.3	968.3	0.0
30.800	192.	510.	.8	968.3	968.3	0.0
30.900	188.	451.	.9	968.4	968.4	0.0
30.820	79.	116.	3.5	969.2	969.1	.1
30.840	86.	135.	3.0	969.3	969.2	.1
40.000	128.	390.	1.1	969.6	969.4	.2
41.200	74.	144.	2.8	969.6	969.5	.1
41.300	77.	153.	2.7	969.7	969.6	.1
49.700	347.	958.	.4	970.0	969.8	.2
50.200	204.	341.	1.2	969.9	969.8	.1
50.205	116.	205.	2.0	970.1	970.0	.1
50.300	24.	52.	7.8	970.2	970.2	0.0
50.330	18.	42.	9.8	970.5	970.5	0.0
50.370	18.	59.	6.9	971.8	971.8	0.0
50.400	24.	101.	4.0	972.5	972.5	0.0
50.800	303.	907.	.5	972.8	972.8	0.0

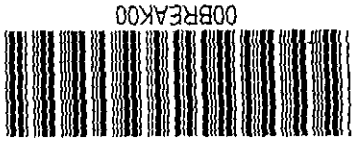


1) COUNTY: OAKLAND

2) STUDY NAME: INDEPENDENCE TOWNSHIP

3) WATERCOURSE: SASHABAW DRAIN

4) DOCUMENT TYPE: SUMMARY - PRODUCTION RUN



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  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  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

SASHABAW DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	10.200	0.00	0.00	0.00	955.20	410.00	958.38	0.00	958.51	25.98	3.00	149.25	80.44
	10.200	0.00	0.00	0.00	955.20	205.00	957.55	0.00	957.63	26.03	2.31	89.90	40.18
	10.200	0.00	0.00	0.00	955.20	345.00	958.14	0.00	958.26	25.99	2.82	130.77	67.67
	10.200	0.00	0.00	0.00	955.20	590.00	958.94	0.00	959.11	25.98	3.42	199.08	115.74
	10.205	100.00	0.00	0.00	955.70	410.00	958.67	0.00	958.84	37.57	3.37	121.61	66.89
	10.205	100.00	0.00	0.00	955.70	205.00	957.86	0.00	957.96	39.77	2.63	77.96	32.51
	10.205	100.00	0.00	0.00	955.70	345.00	958.43	0.00	958.59	37.70	3.16	109.17	56.19
	10.205	100.00	0.00	0.00	955.70	590.00	959.22	0.00	959.46	38.28	3.89	151.62	95.36
	10.210	98.00	0.00	0.00	955.70	410.00	958.82	0.00	960.01	154.45	8.76	46.79	32.99
	10.210	98.00	0.00	0.00	955.70	205.00	958.22	0.00	958.67	79.15	5.43	37.73	23.04
	10.210	98.00	0.00	0.00	955.70	345.00	958.67	0.00	959.60	128.92	7.75	44.54	30.39
*	10.210	98.00	0.00	0.00	955.70	590.00	959.32	959.32	961.15	194.35	10.86	54.34	42.32
*	10.300	2.00	965.10	962.80	956.30	410.00	959.29	959.29	960.95	139.00	10.35	39.60	34.78
*	10.300	2.00	965.10	962.80	956.30	205.00	958.27	958.27	959.21	103.04	7.78	26.34	20.19
*	10.300	2.00	965.10	962.80	956.30	345.00	958.98	958.98	960.42	127.53	9.64	35.80	30.55
*	10.300	2.00	965.10	962.80	956.30	590.00	960.05	960.05	962.39	178.88	12.29	48.01	44.11
	10.350	28.00	965.10	962.80	956.30	410.00	960.59	0.00	961.51	67.11	7.69	53.35	50.05
	10.350	28.00	965.10	962.80	956.30	205.00	959.10	0.00	959.57	40.40	5.49	37.33	32.25
	10.350	28.00	965.10	962.80	956.30	345.00	960.15	0.00	960.92	58.22	7.04	48.99	45.21
	10.350	28.00	965.10	962.80	956.30	590.00	961.83	0.00	963.15	94.10	9.23	63.91	60.82
	10.400	2.00	0.00	0.00	956.30	410.00	961.38	0.00	961.74	26.88	4.82	85.15	79.08
	10.400	2.00	0.00	0.00	956.30	205.00	959.39	0.00	959.66	41.59	4.16	49.28	31.79
	10.400	2.00	0.00	0.00	956.30	345.00	960.76	0.00	961.10	30.38	4.66	74.01	62.60
	10.400	2.00	0.00	0.00	956.30	590.00	963.13	0.00	963.53	19.49	5.06	116.66	133.66
	10.800	70.00	0.00	0.00	956.10	410.00	961.79	0.00	961.79	.75	.87	831.49	474.38
	10.800	70.00	0.00	0.00	956.10	205.00	959.70	0.00	959.71	1.23	.80	461.04	185.01
	10.800	70.00	0.00	0.00	956.10	345.00	961.15	0.00	961.15	.85	.85	717.18	373.87
	10.800	70.00	0.00	0.00	956.10	590.00	963.58	0.00	963.58	.54	.90	1149.80	801.01
	10.900	500.00	0.00	0.00	957.00	410.00	961.84	0.00	961.84	1.38	1.05	720.05	349.43
	10.900	500.00	0.00	0.00	957.00	205.00	959.80	0.00	959.81	3.80	1.17	321.16	105.17
	10.900	500.00	0.00	0.00	957.00	345.00	961.20	0.00	961.21	1.79	1.08	575.79	257.88
	10.900	500.00	0.00	0.00	957.00	590.00	963.61	0.00	963.61	.68	.92	1291.51	714.67

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
19.800	550.00	0.00	0.00	958.00	410.00	961.94	0.00	961.95	2.78	1.14	465.98	245.76
19.800	550.00	0.00	0.00	958.00	205.00	960.11	0.00	960.13	9.57	1.28	203.65	66.28
19.800	550.00	0.00	0.00	958.00	345.00	961.34	0.00	961.35	3.93	1.17	375.79	174.10
19.800	550.00	0.00	0.00	958.00	590.00	963.65	0.00	963.67	1.34	1.07	747.19	510.32
20.000	500.00	0.00	0.00	958.80	410.00	962.12	0.00	962.14	5.66	1.40	373.43	172.33
20.000	500.00	0.00	0.00	958.80	205.00	960.69	0.00	960.72	14.89	1.50	175.97	53.13
20.000	500.00	0.00	0.00	958.80	345.00	961.61	0.00	961.63	8.26	1.45	299.22	120.03
20.000	500.00	0.00	0.00	958.80	590.00	963.74	0.00	963.75	2.29	1.26	626.64	389.93
20.500	400.00	0.00	0.00	959.25	410.00	962.55	0.00	962.75	70.70	4.54	170.91	48.76
20.500	400.00	0.00	0.00	959.25	205.00	961.83	961.79	962.14	132.67	4.91	65.78	17.80
20.500	400.00	0.00	0.00	959.25	345.00	962.24	962.10	962.52	110.67	5.13	123.69	32.79
20.500	400.00	0.00	0.00	959.25	590.00	963.89	0.00	963.95	13.70	2.76	395.31	159.41
25.000	400.00	0.00	0.00	959.70	410.00	963.80	0.00	963.85	14.27	2.52	303.29	108.53
25.000	400.00	0.00	0.00	959.70	205.00	963.20	0.00	963.24	11.06	1.91	203.34	61.65
25.000	400.00	0.00	0.00	959.70	345.00	963.65	0.00	963.70	12.95	2.32	278.28	95.86
25.000	400.00	0.00	0.00	959.70	590.00	964.42	0.00	964.47	12.39	2.66	408.20	167.59
25.800	500.00	0.00	0.00	960.80	410.00	964.65	0.00	964.73	21.77	2.94	261.88	87.88
25.800	500.00	0.00	0.00	960.80	205.00	963.97	0.00	964.04	24.45	2.56	150.64	41.45
25.800	500.00	0.00	0.00	960.80	345.00	964.47	0.00	964.54	22.13	2.82	230.43	73.33
25.800	500.00	0.00	0.00	960.80	590.00	965.17	0.00	965.25	19.74	3.14	348.41	132.80
30.200	450.00	0.00	0.00	961.60	410.00	966.15	0.00	966.58	87.35	5.41	93.90	43.87
30.200	450.00	0.00	0.00	961.60	205.00	965.48	0.00	965.71	58.98	3.87	55.67	26.69
30.200	450.00	0.00	0.00	961.60	345.00	965.97	0.00	966.34	80.46	5.01	81.47	38.46
30.200	450.00	0.00	0.00	961.60	590.00	966.56	0.00	967.09	100.36	6.22	127.38	58.89
30.300	140.00	0.00	0.00	961.60	410.00	967.10	0.00	967.23	23.42	3.25	177.05	84.72
30.300	140.00	0.00	0.00	961.60	205.00	966.12	0.00	966.23	22.62	2.74	92.13	43.10
30.300	140.00	0.00	0.00	961.60	345.00	966.84	0.00	966.97	23.26	3.12	152.50	71.54
30.300	140.00	0.00	0.00	961.60	590.00	967.65	0.00	967.80	23.49	3.62	252.55	121.74
30.400	31.00	968.00	966.00	961.30	410.00	968.28	0.00	968.28	1.04	1.01	780.12	402.43
30.400	31.00	968.00	966.00	961.30	205.00	966.40	0.00	966.49	10.14	2.39	85.89	64.36
30.400	31.00	968.00	966.00	961.30	345.00	967.75	0.00	967.88	9.92	2.92	118.16	109.53
30.400	31.00	968.00	966.00	961.30	590.00	968.79	0.00	968.80	1.40	1.25	900.55	498.03
30.800	65.00	0.00	0.00	962.30	410.00	968.28	0.00	968.30	2.88	1.47	550.29	241.64
30.800	65.00	0.00	0.00	962.30	205.00	966.52	0.00	966.57	13.41	2.27	171.19	55.97
30.800	65.00	0.00	0.00	962.30	345.00	967.92	0.00	967.94	3.20	1.47	470.00	192.98
30.800	65.00	0.00	0.00	962.30	590.00	968.79	0.00	968.81	3.43	1.73	665.85	318.76
30.900	400.00	0.00	0.00	962.70	410.00	968.41	0.00	968.44	4.00	1.66	490.65	205.09
30.900	400.00	0.00	0.00	962.70	205.00	967.01	0.00	967.06	10.91	2.09	189.97	62.07
30.900	400.00	0.00	0.00	962.70	345.00	968.07	0.00	968.09	4.53	1.67	414.85	162.13
30.900	400.00	0.00	0.00	962.70	590.00	968.95	0.00	968.97	4.44	1.90	609.36	280.06
30.820	620.00	968.10	967.20	965.00	410.00	969.09	0.00	969.22	165.18	3.27	151.48	31.90
30.820	620.00	968.10	967.20	965.00	205.00	968.67	0.00	968.76	151.96	2.55	91.93	16.63
30.820	620.00	968.10	967.20	965.00	345.00	968.85	0.00	969.01	232.67	3.49	116.31	22.62
30.820	620.00	968.10	967.20	965.00	590.00	969.63	0.00	969.74	87.92	2.93	255.47	62.92

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	30.840	5.00	968.10	967.20	965.00	410.00	969.19	0.00	969.30	121.62	2.95	170.41	37.18
	30.840	5.00	968.10	967.20	965.00	205.00	968.75	0.00	968.83	112.24	2.30	103.21	19.35
	30.840	5.00	968.10	967.20	965.00	345.00	969.00	0.00	969.11	147.51	2.98	138.55	28.41
	30.840	5.00	968.10	967.20	965.00	590.00	969.69	0.00	969.78	78.63	2.82	266.67	66.54
	40.000	75.00	0.00	0.00	964.20	410.00	969.36	0.00	969.38	2.69	1.34	469.30	250.03
	40.000	75.00	0.00	0.00	964.20	205.00	968.86	0.00	968.87	1.20	.82	352.07	186.76
	40.000	75.00	0.00	0.00	964.20	345.00	969.17	0.00	969.19	2.37	1.22	421.52	224.07
	40.000	75.00	0.00	0.00	964.20	590.00	969.83	0.00	969.86	3.32	1.60	602.53	323.91
	41.200	245.00	968.70	968.50	965.50	410.00	969.50	0.00	969.61	119.92	2.83	175.10	37.44
	41.200	245.00	968.70	968.50	965.50	205.00	968.92	0.00	968.99	123.98	2.28	98.64	18.41
	41.200	245.00	968.70	968.50	965.50	345.00	969.30	0.00	969.41	136.26	2.81	144.49	29.55
	41.200	245.00	968.70	968.50	965.50	590.00	970.02	0.00	970.11	87.15	2.81	266.55	63.20
	41.300	5.00	968.70	968.50	965.50	410.00	969.57	0.00	969.67	103.17	2.69	186.09	40.37
	41.300	5.00	968.70	968.50	965.50	205.00	968.98	0.00	969.05	104.08	2.15	105.74	20.09
	41.300	5.00	968.70	968.50	965.50	345.00	969.37	0.00	969.47	113.88	2.64	155.43	32.33
	41.300	5.00	968.70	968.50	965.50	590.00	970.07	0.00	970.16	79.27	2.72	276.75	66.27
	49.700	350.00	0.00	0.00	965.40	410.00	969.76	0.00	969.76	.59	.55	1053.70	534.52
	49.700	350.00	0.00	0.00	965.40	205.00	969.11	0.00	969.11	.37	.38	743.13	337.27
	49.700	350.00	0.00	0.00	965.40	345.00	969.55	0.00	969.56	.54	.51	954.12	467.45
	49.700	350.00	0.00	0.00	965.40	590.00	970.25	0.00	970.25	.68	.66	1298.10	714.17
	50.200	600.00	0.00	0.00	967.10	410.00	969.83	0.00	969.86	10.24	1.45	310.62	128.14
	50.200	600.00	0.00	0.00	967.10	205.00	969.16	0.00	969.19	16.23	1.28	174.06	50.88
	50.200	600.00	0.00	0.00	967.10	345.00	969.63	0.00	969.66	11.59	1.41	268.44	101.32
	50.200	600.00	0.00	0.00	967.10	590.00	970.33	0.00	970.37	8.54	1.58	411.41	201.95
	50.205	125.00	0.00	0.00	967.30	410.00	969.99	0.00	970.08	24.31	2.51	192.50	83.16
	50.205	125.00	0.00	0.00	967.30	205.00	969.39	0.00	969.44	22.89	1.92	122.69	42.85
	50.205	125.00	0.00	0.00	967.30	345.00	969.80	0.00	969.88	24.64	2.37	170.86	69.50
	50.205	125.00	0.00	0.00	967.30	590.00	970.45	0.00	970.56	23.63	2.84	246.42	121.37
	50.300	125.00	0.00	0.00	967.40	410.00	970.22	0.00	971.21	219.56	8.00	51.24	27.67
	50.300	125.00	0.00	0.00	967.40	205.00	969.77	0.00	970.16	118.64	5.04	40.66	18.82
	50.300	125.00	0.00	0.00	967.40	345.00	970.11	0.00	970.88	181.52	7.05	48.91	25.61
*	50.300	125.00	0.00	0.00	967.40	590.00	970.72	970.72	972.06	223.51	9.31	63.40	39.46
*	50.330	2.00	974.40	973.20	967.60	410.00	970.47	970.47	971.96	148.94	9.81	41.81	33.60
	50.330	2.00	974.40	973.20	967.60	205.00	969.73	0.00	970.41	81.49	6.61	31.00	22.71
*	50.330	2.00	974.40	973.20	967.60	345.00	970.18	970.18	971.48	136.93	9.14	37.76	29.48
*	50.330	2.00	974.40	973.20	967.60	590.00	971.19	971.19	973.23	183.81	11.44	51.57	43.52
	50.370	31.00	974.40	973.20	967.60	410.00	971.80	0.00	972.55	64.86	6.95	58.99	50.91
	50.370	31.00	974.40	973.20	967.60	205.00	970.26	0.00	970.69	44.92	5.28	38.85	30.59
	50.370	31.00	974.40	973.20	967.60	345.00	971.36	0.00	972.00	57.11	6.43	53.69	45.65
	50.370	31.00	974.40	973.20	967.60	590.00	972.88	0.00	974.02	112.66	8.58	68.79	55.59
	50.400	2.00	0.00	0.00	967.60	410.00	972.50	0.00	972.75	22.57	4.04	101.39	86.31
	50.400	2.00	0.00	0.00	967.60	205.00	970.57	0.00	970.79	43.02	3.72	55.12	31.25
	50.400	2.00	0.00	0.00	967.60	345.00	971.93	0.00	972.17	25.90	3.93	87.71	67.79
	50.400	2.00	0.00	0.00	967.60	590.00	974.10	0.00	974.37	16.06	4.22	139.68	147.21

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
50.800	150.00	0.00	0.00	967.20	410.00	972.84	0.00	972.84	.92	.91	906.96	427.87
50.800	150.00	0.00	0.00	967.20	205.00	970.95	0.00	970.96	3.69	1.32	332.50	106.70
50.800	150.00	0.00	0.00	967.20	345.00	972.26	0.00	972.27	1.24	.97	732.41	310.07
50.800	150.00	0.00	0.00	967.20	590.00	974.45	0.00	974.45	.50	.81	1394.46	835.24

SASHABAW DRAIN

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	10.200	410.00	958.38	0.00	0.00	.58	81.70	0.00
	10.200	205.00	957.55	-.82	0.00	-.05	62.27	0.00
	10.200	345.00	958.14	.59	0.00	.24	76.19	0.00
	10.200	590.00	958.94	.80	0.00	.74	95.00	0.00
	10.205	410.00	958.67	0.00	.29	0.00	54.00	100.00
	10.205	205.00	957.86	-.81	.31	0.00	54.00	100.00
	10.205	345.00	958.43	.58	.29	0.00	54.00	100.00
	10.205	590.00	959.22	.79	.28	0.00	54.00	100.00
	10.210	410.00	958.82	0.00	.15	0.00	15.00	98.00
	10.210	205.00	958.22	-.60	.36	0.00	15.00	98.00
	10.210	345.00	958.67	.45	.23	0.00	15.00	98.00
*	10.210	590.00	959.32	.65	.10	0.00	15.00	98.00
*	10.300	410.00	959.29	0.00	.47	0.00	15.20	2.00
*	10.300	205.00	958.27	-1.02	.05	0.00	15.20	2.00
*	10.300	345.00	958.98	.71	.31	0.00	15.20	2.00
*	10.300	590.00	960.05	1.07	.72	0.00	15.20	2.00
	10.350	410.00	960.59	0.00	1.31	0.00	15.20	28.00
	10.350	205.00	959.10	-1.49	.83	0.00	15.20	28.00
	10.350	345.00	960.15	1.05	1.17	0.00	15.20	28.00
	10.350	590.00	961.83	1.68	1.78	0.00	15.20	28.00
	10.400	410.00	9[illegible].38	0.00	.79	0.00	18.00	2.00
	10.400	205.00	959.39	-1.99	.29	0.00	18.00	2.00
	10.400	345.00	960.76	1.37	.61	0.00	18.00	2.00
	10.400	590.00	963.13	2.37	1.30	0.00	18.00	2.00
	10.800	410.00	961.79	0.00	.41	0.00	178.00	70.00
	10.800	205.00	959.70	-2.08	.32	0.00	176.36	70.00
	10.800	345.00	961.15	1.44	.38	0.00	178.00	70.00
	10.800	590.00	963.58	2.43	.44	0.00	178.00	70.00
	10.900	410.00	961.84	0.00	.05	0.00	255.97	500.00
	10.900	205.00	959.80	-2.04	.10	0.00	168.82	500.00
	10.900	345.00	961.20	1.40	.06	0.00	202.39	500.00
	10.900	590.00	963.61	2.40	.03	0.00	389.18	500.00
	19.800	410.00	961.94	0.00	.10	0.00	154.76	550.00
	19.800	205.00	960.11	-1.83	.31	0.00	129.96	550.00
	19.800	345.00	961.34	1.23	.13	0.00	147.46	550.00
	19.800	590.00	963.65	2.31	.05	0.00	172.89	550.00
	20.000	410.00	962.12	0.00	.19	0.00	147.27	500.00
	20.000	205.00	960.69	-1.43	.59	0.00	124.98	500.00
	20.000	345.00	961.61	.91	.27	0.00	141.10	500.00
	20.000	590.00	963.74	2.13	.08	0.00	165.93	500.00
	20.500	410.00	962.55	0.00	.43	0.00	158.50	400.00
	20.500	205.00	961.83	-.72	1.13	0.00	131.78	400.00

20.500	345.00	962.24	.42	.64	0.00	148.25	400.00
20.500	590.00	963.89	1.65	.16	0.00	175.79	400.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
25.000	410.00	963.80	0.00	1.25	0.00	168.91	400.00
25.000	205.00	963.20	-.60	1.37	0.00	161.11	400.00
25.000	345.00	963.65	.45	1.41	0.00	167.00	400.00
25.000	590.00	964.42	.76	.53	0.00	176.73	400.00
25.800	410.00	964.65	0.00	.86	0.00	165.73	500.00
25.800	205.00	963.97	-.68	.77	0.00	155.92	500.00
25.800	345.00	964.47	.50	.81	0.00	163.26	500.00
25.800	590.00	965.17	.70	.76	0.00	172.32	500.00
30.200	410.00	966.15	0.00	1.50	0.00	73.12	450.00
30.200	205.00	965.48	-.67	1.51	0.00	43.00	450.00
30.200	345.00	965.97	.49	1.50	0.00	64.88	450.00
30.200	590.00	966.56	.59	1.39	0.00	87.44	450.00
30.300	410.00	967.10	0.00	.95	0.00	97.00	140.00
30.300	205.00	966.12	-.97	.64	0.00	72.00	140.00
30.300	345.00	966.84	.71	.87	0.00	92.40	140.00
30.300	590.00	967.65	.81	1.09	0.00	177.15	140.00
30.400	410.00	968.28	0.00	1.18	0.00	235.02	31.00
30.400	205.00	966.40	-1.87	.28	0.00	24.00	31.00
30.400	345.00	967.75	1.34	.91	0.00	24.00	31.00
30.400	590.00	968.79	1.04	1.14	0.00	241.23	31.00
30.800	410.00	968.28	0.00	.01	0.00	223.78	65.00
30.800	205.00	966.52	-1.77	.11	0.00	203.88	65.00
30.800	345.00	967.92	1.41	.17	0.00	219.71	65.00
30.800	590.00	968.79	.87	.01	0.00	229.50	65.00
30.900	410.00	968.41	0.00	.13	0.00	220.76	400.00
30.900	205.00	967.01	-1.40	.50	0.00	204.91	400.00
30.900	345.00	968.07	1.06	.15	0.00	216.88	400.00
30.900	590.00	968.95	.88	.15	0.00	226.72	400.00
30.820	410.00	969.09	0.00	.67	0.00	162.97	620.00
30.820	205.00	968.67	-.42	1.66	0.00	126.13	620.00
30.820	345.00	968.85	.18	.78	0.00	142.37	620.00
30.820	590.00	969.63	.79	.69	0.00	212.51	620.00
30.840	410.00	969.19	0.00	.10	0.00	173.05	5.00
30.840	205.00	968.75	-.44	.09	0.00	133.89	5.00
30.840	345.00	969.00	.24	.15	0.00	155.71	5.00
30.840	590.00	969.69	.69	.05	0.00	217.17	5.00
40.000	410.00	969.36	0.00	.17	0.00	258.89	75.00
40.000	205.00	968.86	-.50	.11	0.00	214.61	75.00
40.000	345.00	969.17	.31	.17	0.00	241.82	75.00
40.000	590.00	969.83	.66	.14	0.00	301.42	75.00
41.200	410.00	969.50	0.00	.15	0.00	156.35	245.00
41.200	205.00	968.92	-.59	.06	0.00	103.77	245.00
41.200	345.00	969.30	.38	.13	0.00	137.73	245.00
41.200	590.00	970.02	.72	.19	0.00	202.00	245.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	41.300	410.00	969.57	0.00	.07	0.00	162.52	5.00
	41.300	205.00	968.98	-.59	.07	0.00	109.72	5.00
	41.300	345.00	969.37	.39	.08	0.00	144.66	5.00
	41.300	590.00	970.07	.69	.05	0.00	206.46	5.00
	49.700	410.00	969.76	0.00	.18	0.00	492.12	350.00
	49.700	205.00	969.11	-.65	.13	0.00	454.47	350.00
	49.700	345.00	969.55	.44	.18	0.00	487.22	350.00
	49.700	590.00	970.25	.70	.18	0.00	503.95	350.00
	50.200	410.00	969.83	0.00	.08	0.00	204.00	600.00
	50.200	205.00	969.16	-.67	.05	0.00	204.00	600.00
	50.200	345.00	969.63	.46	.07	0.00	204.00	600.00
	50.200	590.00	970.33	.70	.08	0.00	204.00	600.00
	50.205	410.00	969.99	0.00	.15	0.00	116.00	125.00
	50.205	205.00	969.39	-.60	.22	0.00	116.00	125.00
	50.205	345.00	969.80	.41	.17	0.00	116.00	125.00
	50.205	590.00	970.45	.65	.12	0.00	116.00	125.00
	50.300	410.00	970.22	0.00	.23	0.00	24.00	125.00
	50.300	205.00	969.77	-.45	.38	0.00	24.00	125.00
	50.300	345.00	970.11	.34	.31	0.00	24.00	125.00
*	50.300	590.00	970.72	.60	.26	0.00	24.00	125.00
*	50.330	410.00	970.47	0.00	.25	0.00	18.40	2.00
	50.330	205.00	969.73	-.74	-.04	0.00	18.40	2.00
*	50.330	345.00	970.18	.45	.07	0.00	18.40	2.00
*	50.330	590.00	971.19	1.01	.48	0.00	18.40	2.00
	50.370	410.00	971.80	0.00	1.33	0.00	18.40	31.00
	50.370	205.00	970.26	-1.54	.53	0.00	18.40	31.00
	50.370	345.00	971.36	1.10	1.18	0.00	18.40	31.00
	50.370	590.00	972.88	1.52	1.69	0.00	18.40	31.00
	50.400	410.00	972.50	0.00	.70	0.00	24.00	2.00
	50.400	205.00	970.57	-1.93	.31	0.00	24.00	2.00
	50.400	345.00	971.93	1.36	.57	0.00	24.00	2.00
	50.400	590.00	974.10	2.17	1.22	0.00	24.00	2.00
	50.800	410.00	972.84	0.00	.34	0.00	303.00	150.00
	50.800	205.00	970.95	-1.89	.37	0.00	303.00	150.00
	50.800	345.00	972.26	1.32	.33	0.00	303.00	150.00
	50.800	590.00	974.45	2.18	.35	0.00	303.00	150.00

SUMMARY OF ERRORS

CAUTION SECNO= 10.210 PROFILE= 4 CRITICAL DEPTH ASSUMED

CAUTION SECNO= 10.300 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 10.300 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 10.300 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 10.300 PROFILE= 4 CRITICAL DEPTH ASSUMED

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CAUTION  SECNO=   50.300  PROFILE= 4  CRITICAL DEPTH ASSUMED

CAUTION  SECNO=   50.330  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   50.330  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   50.330  PROFILE= 4  CRITICAL DEPTH ASSUMED
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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: MURPHY DRAIN

3) WATERCOURSE: MURPHY DRAIN

4) DOCUMENT TYPE: FLOODWAY RUN

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
**************************************************

C
T1      HUD-FIA H-4705
T2      MURPHY BRANCH
T3      BLOOMFIELD TOWNSHIP FIS
J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.        4.        0.        0.  0.000000      0.00     -1.0       0.    848.400     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
   200.000     0.000   150.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

ET      0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000
NC       .100      .100      .063      .100      .300     0.000     0.000     0.000     0.000     0.000
QT      5.000   330.000   480.000   570.000   780.000   570.000     0.000     0.000     0.000     0.000

          **CONFLUENCE WITH STONYCROFT DRAIN

X1    130.900    11.000   337.000   355.000     0.000     0.000     0.000     0.000     0.000     0.000
X3      0.000     0.000     0.000   326.000     0.000   376.000     0.000     0.000     0.000     0.000
GR    850.000   110.000   848.000   260.000   848.000   325.000   846.000   337.000   844.000   343.000
GR    844.000   349.000   846.000   355.000   848.000   365.000   848.000   410.000   849.000   500.000
GR    850.000   740.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1    131.000    10.000   337.000   355.000   455.000   455.000   455.000     0.000     0.000     0.000
GR    851.400   180.000   850.400   215.000   849.000   300.000   846.500   346.000   846.500   350.000
GR    848.200   355.000   847.800   392.000   847.800   440.000   849.900   500.000   854.600   577.000

X1    132.200     9.000   309.000   353.000   525.000   525.000   525.000     0.000     0.000     0.000
GR    855.700   224.000   854.800   309.000   853.600   320.000   849.100   338.000   849.200   344.000
GR    850.800   353.000   851.000   385.000   853.800   447.000   855.000   488.000     0.000     0.000
NC       .063     0.000     0.000      .400      .800     0.000     0.000     0.000     0.000     0.000

          **D/S FACE OPDYKE RD.

X1    132.400     0.000     0.000     0.000   130.000   130.000   130.000     0.000      .300     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000   853.000   853.000     0.000
SB      0.000     1.250     3.000   150.000     4.000     0.000    12.600     0.000     0.000     0.000

X1    132.600     0.000     0.000     0.000    31.000    31.000    31.000     0.000      .200     0.000
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X2	0.000	0.000	1.000	852.500	856.100	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	856.100	856.100	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

**CONCRETE FOOTBRIDGE

X1	133.000	9.000	370.000	390.000	60.000	60.000	60.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	855.600	855.600	0.000
GR	857.500	130.000	856.200	220.000	854.900	235.000	854.500	370.000	851.000	380.000
GR	851.000	384.000	855.000	390.000	855.200	400.000	858.500	482.000	0.000	0.000
SB	0.000	1.370	2.700	200.000	9.000	0.000	37.800	0.000	0.000	0.000

X1	133.100	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	855.200	855.800	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	855.800	855.800	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000

**D/S FACE DRIVEWAY - STONE ARCH

X1	134.000	0.000	0.000	0.000	180.000	180.000	180.000	0.000	1.800	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	856.200	856.200	0.000
SB	0.000	1.630	2.600	100.000	9.000	0.000	17.500	0.000	0.000	0.000

X1	134.100	0.000	0.000	0.000	26.000	26.000	26.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	855.200	857.600	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	857.600	857.600	0.000

**D/S FACE DRIVEWAY - 3 FT. DIA. CMP

X1	135.000	0.000	0.000	0.000	85.000	85.000	85.000	0.000	.100	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	856.400	856.400	0.000
SB	0.000	2.350	2.900	100.000	3.000	0.000	7.100	0.000	0.000	0.000

X1	135.100	0.000	0.000	0.000	32.000	32.000	32.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	855.700	857.200	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	857.200	857.200	0.000
NC	.100	0.000	0.000	.150	.350	0.000	0.000	0.000	0.000	0.000

X1	136.000	11.000	155.000	168.000	450.000	450.000	450.000	0.000	0.000	0.000
GR	865.000	0.000	861.400	80.000	859.000	141.000	858.000	155.000	856.500	160.000
GR	856.500	164.000	858.200	168.000	858.200	190.000	857.700	239.000	859.400	278.000
GR	864.400	313.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000

X1	136.100	7.000	160.000	210.000	470.000	470.000	470.000	0.000	0.000	0.000
GR	866.000	0.000	864.000	130.000	862.000	160.000	860.200	175.000	860.200	190.000
GR	862.000	210.000	864.000	240.000	0.000	0.000	0.000	0.000	0.000	0.000

**D/S FACE CONCRETE DRIVEWAY

X1	137.300	7.000	280.000	325.000	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	864.600	864.600	0.000

GR	870.000	0.000	866.000	80.000	864.000	280.000	862.000	295.000	861.300	310.000
GR	862.000	325.000	870.000	400.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.330	3.000	180.000	11.000	0.000	29.700	0.000	0.000	0.000
X1	137.700	9.000	196.000	219.000	14.000	14.000	14.000	0.000	-3.200	0.000
X2	0.000	0.000	1.000	864.600	865.400	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	865.400	865.400	0.000
GR	875.000	0.000	870.800	32.000	867.000	91.000	865.000	196.000	864.500	202.000
GR	864.500	208.000	865.000	219.000	865.300	239.000	873.700	285.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	137.800	0.000	0.000	0.000	200.000	200.000	200.000	0.000	1.700	0.000
X1	138.000	0.000	0.000	0.000	175.000	175.000	175.000	0.000	1.500	0.000
X1	138.200	0.000	0.000	0.000	100.000	100.000	100.000	0.000	.800	0.000
X1	138.500	11.000	240.000	309.000	200.000	200.000	200.000	0.000	-1.500	0.000
GR	882.000	0.000	878.000	55.000	876.800	220.000	876.800	240.000	868.600	256.000
GR	868.600	262.000	870.800	269.000	875.500	309.000	876.700	326.000	878.200	366.000
GR	878.400	382.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	139.200	0.000	0.000	0.000	200.000	200.000	200.000	0.000	1.500	0.000
X3	0.000	0.000	0.000	100.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.400	.600	0.000	0.000	0.000	0.000	0.000

**D/S FACE WOODWARD AVE.

X1	139.300	0.000	0.000	0.000	140.000	140.000	140.000	0.000	1.700	0.000
X3	10.000	0.000	0.000	100.000	0.000	0.000	0.000	876.500	876.500	0.000
SB	0.000	2.580	3.000	180.000	12.000	0.000	52.800	0.000	0.000	0.000
X1	139.700	0.000	0.000	0.000	200.000	200.000	200.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	874.700	878.800	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	878.800	878.800	0.000
QT	5.000	300.000	445.000	525.000	730.000	525.000	0.000	0.000	0.000	0.000
X1	139.800	12.000	196.000	404.000	30.000	30.000	30.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	400.000	0.000	0.000	0.000	0.000
GR	882.000	0.000	877.200	50.000	873.400	136.000	872.000	196.000	870.200	242.000
GR	870.200	359.000	872.500	404.000	873.300	428.000	873.400	465.000	878.200	560.000
GR	878.900	589.000	882.000	614.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
X1	140.000	11.000	204.000	220.000	925.000	925.000	925.000	0.000	1.000	0.000
GR	882.000	0.000	876.900	33.000	872.400	91.000	872.100	204.000	871.360	206.000
GR	871.360	211.000	872.400	220.000	872.600	286.000	875.600	337.000	879.600	405.000
GR	882.000	422.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	.150	.300	0.000	0.000	0.000	0.000	0.000

X1	141.000	12.000	306.000	319.000	1100.000	1100.000	1100.000	0.000	1.000	0.000
X3	0.000	0.000	0.000	200.000	0.000	472.000	0.000	0.000	0.000	0.000
GR	887.100	65.000	885.100	92.000	878.000	223.000	876.600	280.000	876.500	306.000
GR	876.000	308.000	876.000	315.000	876.400	319.000	876.000	374.000	877.400	421.000
GR	882.100	472.000	887.000	502.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	142.200	12.000	110.000	123.000	800.000	800.000	800.000	0.000	.500	0.000
X3	0.000	0.000	0.000	0.000	0.000	324.000	0.000	0.000	0.000	0.000
GR	890.000	0.000	881.600	54.000	881.300	91.000	880.900	110.000	879.900	112.000
GR	879.900	120.000	881.000	123.000	880.500	324.000	880.400	439.000	882.300	531.000
GR	882.100	558.000	886.400	609.000	0.000	0.000	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

**D/S FACE HICKORY GROVE AND BLOOMFIELD HILLS CITY LIMIT

X1	142.300	0.000	0.000	0.000	120.000	120.000	120.000	0.000	-.200	0.000
X3	0.000	0.000	0.000	0.000	0.000	324.000	0.000	0.000	0.000	0.000
SB	0.000	2.160	3.000	200.000	8.500	0.000	30.900	0.000	0.000	0.000
X1	142.700	9.000	83.000	108.000	41.000	41.000	41.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	883.330	885.230	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	885.230	885.230	0.000
GR	890.000	0.000	888.000	18.000	886.000	33.000	884.000	63.000	882.000	83.000
GR	880.230	87.000	880.230	98.000	882.000	108.000	885.000	148.000	0.000	0.000
NC	0.000	0.000	0.000	.300	.600	0.000	0.000	0.000	0.000	0.000

**TWO 3 FT. CMP'S

X1	142.800	0.000	0.000	0.000	35.000	35.000	35.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	883.200	884.200	0.000	0.000	0.000	0.000	0.000
X1	142.810	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	883.200	884.200	0.000	0.000	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

**WOOD WEIR

X1	142.820	0.000	0.000	0.000	15.000	15.000	15.000	0.000	.100	0.000
X2	0.000	0.000	0.000	880.350	881.800	0.000	0.000	0.000	0.000	0.000
X1	142.830	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	880.350	881.800	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	.063	0.000	0.000	0.000	0.000	0.000	0.000	0.000

**CONC WEIR

X1	142.840	10.000	130.000	155.000	100.000	100.000	100.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	881.400	883.400	0.000	0.000	0.000	0.000	0.000
GR	890.000	0.000	888.000	50.000	886.000	80.000	884.000	110.000	882.700	130.000
GR	881.500	132.000	881.500	152.000	884.000	155.000	886.000	205.000	887.000	260.000
X1	142.850	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	881.400	883.400	0.000	0.000	0.000	0.000	0.000
	**TWO 2.5 CMP'S									
X1	142.860	0.000	0.000	0.000	80.000	80.000	80.000	0.000	1.100	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	886.200	886.200	0.000
SB	0.000	1.970	2.900	130.000	9.000	0.000	25.500	0.000	0.000	0.000
X1	142.870	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	886.000	886.500	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	886.500	886.500	0.000
	**TWO 2.5 CMP'S									
X1	142.900	0.000	0.000	0.000	90.000	90.000	90.000	0.000	.700	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	886.200	886.200	0.000
SB	0.000	2.150	3.000	170.000	5.000	0.000	9.820	0.000	0.000	0.000
X1	142.910	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	885.700	886.600	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	886.600	886.600	0.000
	**CONC AND STONE WEIR									
X1	142.930	0.000	0.000	0.000	6.000	6.000	6.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	883.200	885.700	0.000	0.000	0.000	0.000	0.000
X1	142.940	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	883.200	885.700	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
X1	143.200	8.000	100.000	121.000	350.000	350.000	350.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	60.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	897.000	0.000	890.800	67.000	889.000	100.000	887.300	108.000	887.300	112.000
GR	888.700	121.000	890.100	181.000	891.400	214.000	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
	**STONE WEIR									
X1	143.210	0.000	0.000	0.000	30.000	30.000	30.000	0.000	-.100	0.000
X2	0.000	0.000	0.000	887.200	889.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	60.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	143.220	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	887.200	889.000	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	60.000	0.000	0.000	0.000	0.000	0.000	0.000
	**D/S FACE LAHSER RD.									
X1	143.700	0.000	0.000	0.000	140.000	140.000	140.000	0.000	.300	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	891.500	891.500	0.000

SB	0.000	1.880	3.000	200.000	5.500	0.000	23.560	0.000	0.000	0.000
X1	143.750	9.000	22.000	177.000	35.000	35.000	35.000	0.000	-2.900	0.000
X2	0.000	0.000	1.000	890.820	892.600	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	892.600	892.600	0.000
GR	897.000	0.000	896.600	22.000	894.800	66.000	893.800	79.000	890.400	96.000
GR	890.400	103.000	892.400	120.000	892.700	129.000	900.000	177.000	0.000	0.000
NC	0.000	0.000	0.000	.100	.300	0.000	0.000	0.000	0.000	0.000
X1	143.760	9.000	22.000	177.000	10.000	10.000	10.000	0.000	0.000	0.000
GR	897.000	0.000	896.600	22.000	894.800	66.000	893.800	79.000	891.000	96.000
GR	891.000	103.000	892.400	120.000	892.700	129.000	900.000	177.000	0.000	0.000
X1	143.800	9.000	22.000	137.000	110.000	110.000	110.000	0.000	.800	0.000
GR	897.000	0.000	896.600	22.000	894.800	66.000	893.800	79.000	890.400	96.000
GR	890.400	103.000	892.400	120.000	892.700	129.000	896.900	137.000	0.000	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000

**PLUGGED 3' DIA RCP

X1	144.300	0.000	0.000	0.000	325.000	325.000	325.000	0.000	3.300	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	900.000	900.000	0.000
SB	0.000	2.200	2.900	150.000	3.000	0.000	7.070	0.000	0.000	0.000
X1	144.700	7.000	0.000	129.000	71.000	71.000	71.000	0.000	-.800	0.000
X2	0.000	0.000	1.000	897.000	901.200	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	901.200	901.200	0.000
GR	905.100	0.000	896.600	85.000	895.300	86.000	895.300	91.000	903.600	129.000
GR	904.000	170.000	905.200	194.000	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
X1	145.000	0.000	0.000	0.000	160.000	160.000	160.000	0.000	1.900	0.000
NC	0.000	0.000	0.000	.400	.800	0.000	0.000	0.000	0.000	0.000

**CULVERT UNDER ASPHALT DRIVE

X1	146.300	0.000	0.000	0.000	185.000	185.000	185.000	0.000	2.200	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	903.000	903.000	0.000
SB	0.000	2.250	3.000	250.000	3.000	0.000	7.070	0.000	0.000	0.000
X1	146.700	8.000	240.000	298.000	100.000	100.000	100.000	0.000	-.400	0.000
X2	0.000	0.000	1.000	900.500	905.000	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	905.000	905.000	0.000
GR	906.000	0.000	903.100	53.000	903.500	130.000	900.200	240.000	899.000	250.000
GR	899.000	259.000	904.800	298.000	906.000	338.000	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
X1	146.800	0.000	0.000	0.000	60.000	60.000	60.000	0.000	.400	0.000
NC	0.000	0.000	0.000	.300	.500	0.000	0.000	0.000	0.000	0.000

**FOOTBRIDGE

	X1	146.900	8.000	170.000	298.000	90.000	90.000	90.000	0.000	0.000	0.000
	X2	0.000	0.000	0.000	904.200	905.900	0.000	0.000	0.000	0.000	0.000
	GR	910.000	0.000	905.900	170.000	903.000	220.000	900.200	240.000	899.000	250.000
	GR	899.000	259.000	905.900	298.000	907.000	338.000	0.000	0.000	0.000	0.000
	X1	146.910	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	904.200	905.900	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
	X1	147.000	12.000	270.000	312.000	310.000	310.000	310.000	0.000	0.000	0.000
	GR	910.000	0.000	909.000	77.000	906.000	167.000	905.600	200.000	905.100	270.000
	GR	901.800	296.000	900.700	298.000	900.700	300.000	901.800	302.000	905.800	312.000
	GR	909.000	343.000	910.000	360.000	0.000	0.000	0.000	0.000	0.000	0.000
	X1	148.000	8.000	276.000	450.000	1125.000	1125.000	1125.000	0.000	0.000	0.000
T	GR	918.100	0.000	915.800	156.000	914.200	276.000	910.300	330.000	910.300	370.000
	GR	910.400	380.000	914.000	450.000	914.000	500.000	0.000	0.000	0.000	0.000
	NC	0.000	0.000	0.000	.200	.400	0.000	0.000	0.000	0.000	0.000
	X1	149.000	12.000	213.000	229.000	1025.000	1025.000	1025.000	0.000	0.000	0.000
U	GR	920.000	0.000	919.800	109.000	919.200	134.000	915.400	180.000	915.000	213.000
	GR	914.400	220.000	913.200	222.000	913.200	224.000	914.400	225.000	915.400	229.000
	GR	915.500	266.000	920.100	347.000	0.000	0.000	0.000	0.000	0.000	0.000
	X1	150.000	11.000	167.000	202.000	825.000	825.000	825.000	0.000	0.000	0.000
V	GR	925.000	0.000	924.400	67.000	924.200	96.000	922.800	123.000	922.000	167.000
	GR	918.600	185.000	917.800	190.000	917.800	195.000	918.600	199.000	922.100	202.000
	GR	924.000	217.000	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= .100 CEHV= .300
*SECNO 130.900

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 326.0 376.0 TYPE= 1 TARGET= 50.000

**CONFLUENCE WITH STONYCROFT DRAIN

130.90	4.40	848.40	0.00	848.40	849.13	.73	0.00	0.00	846.00
570.	40.	492.	38.	16.	67.	18.	0.	0.	846.00
0.00	2.45	7.32	2.09	.100	.063	.100	0.000	844.00	326.00
.017412	0.	0.	0.	0	0	0	0.00	50.00	376.00

*SECNO 131.000

3301 HV CHANGED MORE THAN HVINS

131.00	4.06	850.56	0.00	0.00	850.58	.02	1.38	.07	901.40
570.	0.	266.	304.	0.	236.	334.	4.	2.	848.20
.12	0.00	1.13	.91	.100	.063	.100	.063	846.50	209.27
.001211	455.	455.	455.	7	0	0	0.00	301.60	510.87

*SECNO 132.200

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

reach too long
no impact

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

132.20	3.02	852.12	852.12	0.00	852.78	.66	1.84	.19	854.80
570.	0.	410.	160.	0.	55.	53.	8.	4.	850.80
.15	0.00	7.43	3.01	.100	.063	.100	.063	849.10	325.91
.039330	525.	525.	525.	20	19	0	0.00	83.96	409.87

CCHV= .400 CEHV= .800
*SECNO 132.400

3301 HV CHANGED MORE THAN HVINS

**D/S FACE OPDYKE RD.

132.40	4.64	854.04	0.00	0.00	854.14	.09	1.13	.23	855.10

570.	0.	311.	259.	0.	104.	174.	8.	4.	851.10
.16	0.00	2.98	1.48	.063	.063	.100	.063	849.40	318.68
.003716	130.	130.	130.	5	0	0	0.00	127.09	445.77

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	1.25	3.00	150.00	4.00	0.00	12.60	0.00	849.40	849.40

*SECNO 132.600
3280 CROSS SECTION 132.60 EXTENDED 1.55 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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
893.77	854.57	0.00	415.	157.	13.	12.	852.50	856.10

132.60	7.44	857.04	0.00	0.00	857.05	.01	2.91	0.00	855.30
570.	45.	224.	301.	110.	223.	526.	9.	5.	851.30
.18	.41	1.01	.57	.063	.063	.100	.063	849.60	224.00
.000215	31.	31.	31.	0	0	7	0.00	264.00	488.00

CCHV= .300 CEHV= .500
*SECNO 133.000

**CONCRETE FOOTBRIDGE

133.00	6.05	857.05	0.00	0.00	857.08	.02	.02	.01	854.50
570.	388.	153.	29.	365.	92.	62.	10.	5.	855.00
.19	1.06	1.67	.46	.063	.063	.100	.063	851.00	161.00
.000740	60.	60.	60.	2	0	0	0.00	285.03	446.03

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	1.37	2.70	200.00	9.00	0.00	37.80	0.00	851.00	851.00

*SECNO 133.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
861.89	857.08	0.00	484.	86.	38.	38.	855.20	855.80

133.10	6.14	857.14	0.00	0.00	857.16	.02	.09	0.00	854.50
570.	391.	149.	30.	384.	93.	67.	10.	5.	855.00
.19	1.02	1.59	.45	.063	.063	.100	.063	851.00	154.95
.000657	8.	8.	8.	2	0	8	0.00	293.25	448.20

CCHV= .400 CEHV= .800
*SECNO 134.000

**D/S FACE DRIVEWAY - STONE ARCH

134.00	4.60	857.40	0.00	0.00	857.61	.21	.30	.15	856.30
570.	269.	295.	6.	125.	63.	7.	11.	6.	856.80
.21	2.16	4.72	.81	.063	.063	.100	.063	852.80	226.91
.009839	180.	180.	180.	2	0	0	0.00	183.07	409.98

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	1.63	2.60	100.00	9.00	0.00	17.50	0.00	852.80	852.80

*SECNO 134.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
884.25	858.69	0.00	432.	139.	18.	22.	855.20	857.60

134.10	6.18	858.98	0.00	0.00	859.00	.02	1.39	0.00	856.30
570.	393.	147.	31.	393.	94.	70.	11.	6.	856.80
.21	1.00	1.56	.44	.063	.063	.100	.063	852.80	152.01
.000620	26.	26.	26.	2	0	6	0.00	297.24	449.25

*SECNO 135.000

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

**D/S FACE DRIVEWAY - 3 FT. DIA. CMP

135.00	6.14	859.04	0.00	0.00	859.06	.02	.05	.00	856.40
570.	391.	149.	30.	383.	93.	67.	12.	7.	856.90
.23	1.02	1.60	.45	.063	.063	.100	.063	852.90	155.24
.000660	85.	85.	85.	2	0	0	0.00	292.86	448.09

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	2.35	2.90	100.00	3.00	0.00	7.10	0.00	852.90	852.90

*SECNO 135.100
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1094.22	859.06	0.00	553.	18.	7.	8.	855.70	857.20

135.10	6.34	859.24	0.00	0.00	859.26	.02	.20	0.00	856.40
570.	398.	139.	33.	431.	97.	80.	13.	7.	856.90
.24	.92	1.43	.41	.063	.063	.100	.063	852.90	140.39
.000497	32.	32.	32.	1	0	10	0.00	313.03	453.42

CCHV= .150 CEHV= .350
*SECNO 136.000

136.00	3.27	859.77	0.00	0.00	859.91	.15	.61	.05	858.00
570.	39.	166.	365.	25.	35.	172.	17.	9.	858.20
.29	1.52	4.68	2.12	.100	.063	.100	.063	856.50	121.31
.010933	450.	450.	450.	2	0	0	0.00	159.32	280.62

CCHV= .200 CEHV= .400
*SECNO 136.100

136.10	3.43	863.63	0.00	0.00	863.84	.21	3.90	.02	862.00
570.	21.	528.	21.	20.	140.	20.	19.	11.	862.00
.32	1.05	3.77	1.05	.100	.063	.100	.063	860.20	135.55
.006516	470.	470.	470.	3	0	0	0.00	98.91	234.45

*SECNO 137.300

**D/S FACE CONCRETE DRIVEWAY

137.30	3.33	864.63	0.00	0.00	864.90	.26	1.04	.02	864.00
570.	14.	498.	58.	20.	114.	32.	20.	11.	862.00
.33	.69	4.37	1.78	.100	.063	.100	.063	861.30	216.69
.009998	130.	130.	130.	2	0	0	0.00	133.00	349.69

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	1.33	3.00	180.00	11.00	0.00	29.70	0.00	861.30	861.30

1.20?

*SECNO 137.700

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 AREA	ELLC	ELTRD
872.24	865.60	0.00	321.	251.	30.	36.	864.60	865.40
137.70	4.79	866.09	0.00	0.00	866.11	.02	1.21	0.00	861.80
570.	296.	170.	103.	387.	106.	127.	20.	11.	861.80
.34	.77	1.60	.81	.100	.063	.100	.063	861.30	55.32
.000604	14.	14.	14.	1	0	5	0.00	205.57	260.89

CCHV= .100 CEHV= .300

*SECNO 137.800

137.80	3.29	866.29	0.00	0.00	866.36	.07	.24	.02	863.50
570.	249.	214.	107.	194.	72.	70.	22.	12.	863.50
.36	1.29	2.99	1.53	.100	.063	.100	.063	863.00	78.64
.003548	200.	200.	200.	2	0	0	0.00	174.03	252.67

*SECNO 138.000

138.00	2.70	867.20	0.00	0.00	867.36	.16	.97	.03	865.00
570.	209.	249.	111.	126.	58.	51.	23.	13.	865.00
.38	1.66	4.31	2.18	.100	.063	.100	.063	864.50	87.88
.009769	175.	175.	175.	3	0	0	0.00	161.54	249.41

*SECNO 138.200

138.20	2.81	868.11	0.00	0.00	868.24	.13	.88	.00	865.80
570.	218.	242.	110.	138.	60.	54.	24.	13.	865.80
.39	1.58	4.01	2.04	.100	.063	.100	.063	865.30	86.25
.008010	100.	100.	100.	2	0	0	0.00	163.73	249.98

*SECNO 138.500

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

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

138.50	3.91	871.01	871.01	0.00	872.03	1.01	3.24	.26	875.30
570.	0.	570.	0.	0.	71.	0.	25.	14.	874.00
.40	0.00	8.07	0.00	.100	.063	.100	.063	867.10	248.36
.048712	200.	200.	200.	7	11	0	0.00	35.23	283.59

*SECNO 139.200

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= 100.0 382.0 TYPE= 1 TARGET= -100.000

139.20	5.88	874.48	0.00	0.00	874.68	.20	2.57	.08	876.80
570.	0.	570.	0.	0.	160.	0.	25.	14.	875.50
.41	0.00	3.55	0.00	.100	.063	.100	.063	868.60	244.52
.005825	200.	200.	200.	6	0	0	0.00	55.84	300.36

CCHV= .400 CEHV= .600
*SECNO 139.300

3470 ENCROACHMENT STATIONS= 100.0 382.0 TYPE= 1 TARGET= -100.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 876.50 ELREA= 876.50

**D/S FACE WOODWARD AVE.

139.30	5.23	875.53	0.00	0.00	875.84	.32	1.09	.07	878.50
570.	0.	570.	0.	0.	126.	0.	26.	14.	877.20
.42	0.00	4.53	0.00	.100	.063	.100	.063	870.30	245.80
.010973	140.	140.	140.	4	0	0	0.00	48.96	294.76

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	2.58	3.00	180.00	12.00	0.00	52.80	0.00	870.30	870.30

skewed however, pond u/s ⇒ ES P 1552

*SECNO 139.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
880.20	875.84	0.00	76.	497.	53.	53.	874.70	878.80

channel=69

139.70	8.73	879.03	0.00	0.00	879.07	.04	3.23	0.00	878.50
570.	5.	555.	9.	30.	347.	26.	27.	15.	877.20
.46	.18	1.60	.35	.100	.063	.100	.063	870.30	146.91
.000560	200.	200.	200.	2	0	4	0.00	195.93	342.84

76

negligable flow in over banks

732 57 507 - 4
80

*SECNO 139.800

3470 ENCROACHMENT STATIONS= 200.0 400.0 TYPE= 1 TARGET= 200.000

139.80	8.88	879.08	0.00	0.00	879.09	.00	.00	.01100000.00	
525.	0.	525.	0.	0.	1699.	0.	28.	15.	100000.00
.48	0.00	.31	0.00	.100	.063	.100	.063	870.20	200.00
.000011	30.	30.	30.	2	0	0	0.00	200.00	400.00

130

CCHV= .200 CEHV= .400
*SECNO 140.000

140.00	6.74	879.10	0.00	0.00	879.11	.00	.02	.00	873.10
525.	279.	60.	186.	866.	102.	627.	63.	21.	873.40
1.23	.32	.58	.30	.100	.063	.100	.063	872.36	25.21
.000052	925.	925.	925.	2	0	0	0.00	354.35	379.56

CCHV= .150 CEHV= .300
*SECNO 141.000

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= 200.0 472.0 TYPE= 1 TARGET= 272.000

141.00	2.26	879.26	0.00	0.00	879.31	.05	.19	.02	877.50
525.	129.	82.	314.	100.	28.	190.	87.	28.	877.40
1.41	1.30	2.92	1.65	.100	.063	.100	.063	877.00	218.24
.005541	1100.	1100.	1100.	2	0	0	0.00	212.08	430.31

*SECNO 142.200

3470 ENCROACHMENT STATIONS= .0 324.0 TYPE= 1 TARGET= 323.999

142.20	2.45	882.85	0.00	0.00	882.89	.03	3.57	.00	881.40
525.	55.	71.	399.	60.	29.	324.	94.	32.	881.50
1.57	.92	2.41	1.23	.100	.063	.100	.063	880.40	49.09
.003676	800.	800.	800.	2	0	0	0.00	274.91	324.00

CCHV= .400 CEHV= .800
*SECNO 142.300

3470 ENCROACHMENT STATIONS= .0 324.0 TYPE= 1 TARGET= 323.999

**D/S FACE HICKORY GROVE AND BLOOMFIELD HILLS CITY LIMIT

142.30	2.95	883.15	0.00	0.00	883.16	.02	.27	.01	881.20
525.	67.	63.	395.	90.	36.	420.	95.	33.	881.30
1.60	.75	1.76	.94	.100	.063	.100	.063	880.20	46.02
.001520	120.	120.	120.	2	0	0	0.00	277.98	324.00

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	2.16	3.00	200.00	8.50	0.00	30.90	0.00	880.20	880.20

*SECNO 142.700
3280 CROSS SECTION 142.70 EXTENDED .70 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
892.83	884.31	0.00	251.	274.	31.	27.	883.33	885.23

142.70	5.47	885.70	0.00	0.00	885.79	.09	2.63	0.00	882.00
525.	78.	356.	92.	76.	124.	88.	95.	33.	882.00
1.61	1.03	2.86	1.05	.100	.063	.100	.063	880.23	37.53

invert
Q=464'

Δ 3.04' large change for depth of 1'

.001781	41.	41.	41.	2	0	6	0.00	110.47	148.00

CCHV= .300 CEHV= .600
*SECNO 142.800
3280 CROSS SECTION 142.80 EXTENDED .82 FEET

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 884.20 MAX ELLC= 883.20

**TWO 3 FT. CMP'S

142.80	5.59	885.82	0.00	0.00	885.93	.11	.13	.01	882.00
525.	96.	319.	110.	64.	102.	70.	95.	33.	882.00
1.61	1.49	3.12	1.56	.100	.063	.100	.063	880.23	35.69
.011662	35.	35.	35.	2	0	0	-64.77	112.31	148.00

*SECNO 142.810
3280 CROSS SECTION 142.81 EXTENDED .97 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= 0 MIN ELTRD= 884.20 MAX ELLC= 883.20

142.81	5.74	885.97	0.00	0.00	886.06	.09	.13	.00	882.00
525.	102.	309.	114.	71.	106.	76.	96.	33.	882.00
1.61	1.43	2.91	1.50	.100	.063	.100	.063	880.23	33.48
.009691	12.	12.	12.	2	0	0	-64.77	114.52	148.00

*SECNO 142.820
3280 CROSS SECTION 142.82 EXTENDED .90 FEET

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 881.80 MAX ELLC= 880.35

**WOOD WEIR

142.82	5.67	886.00	0.00	0.00	886.12	.13	.04	.02	882.10
525.	78.	355.	92.	85.	105.	96.	96.	33.	882.10
1.62	.92	3.39	.96	.100	.025	.100	.063	880.33	34.55
.001336	15.	15.	15.	2	0	0	-24.49	113.45	148.00

*SECNO 142.830
3280 CROSS SECTION 142.83 EXTENDED .90 FEET

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 881.80 MAX ELLC= 880.35

142.83	5.67	886.00	0.00	0.00	886.12	.12	.00	.00	882.10
525.	78.	355.	92.	85.	105.	96.	96.	33.	882.10
1.62	.92	3.39	.96	.100	.025	.100	.063	880.33	34.47
.001329	1.	1.	1.	0	0	0	-24.49	113.53	148.00

*SECNO 142.840

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 883.40 MAX ELLC= 881.40

**CONC WEIR

142.84	4.75	886.25	0.00	0.00	886.38	.13	.25	.00	882.70
525.	178.	258.	88.	92.	71.	64.	96.	34.	884.00
1.63	1.93	3.63	1.37	.100	.063	.100	.063	881.50	76.22
.006601	100.	100.	100.	2	0	0	-46.54	142.63	218.85

*SECNO 142.850

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 883.40 MAX ELLC= 881.40

142.85	4.76	886.26	0.00	0.00	886.38	.12	.01	.00	882.70
525.	178.	258.	88.	92.	71.	65.	96.	34.	884.00
1.63	1.93	3.63	1.37	.100	.063	.100	.063	881.50	76.17
.006563	1.	1.	1.	0	0	0	-46.54	142.89	219.06

*SECNO 142.860

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

**TWO 2.5'CMP'S

142.86	4.09	886.69	0.00	0.00	886.90	.20	.46	.05	883.80
525.	100.	396.	29.	64.	97.	32.	97.	34.	885.10
1.63	1.56	4.07	.92	.100	.063	.100	.063	882.60	86.11
.005181	80.	80.	80.	2	0	0	0.00	108.72	194.82

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	1.97	2.90	130.00	9.00	0.00	25.50	0.00	882.60	882.60

2.15

*SECNO 142.870
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
899.66	886.90	0.00	392.	133.	26.	31.	886.00	886.50

142.87	4.83	887.43	0.00	0.00	887.53	.10	.63	0.00	883.80
525.	121.	347.	57.	100.	116.	69.	97.	34.	885.10
1.64	1.20	3.00	.82	.100	.063	.100	.063	882.60	75.06
.002235	20.	20.	20.	2	0	6	0.00	148.06	223.12

*SECNO 142.900

**TWO 2.5 CMP'S

142.90	4.36	887.66	0.00	0.00	887.82	.16	.26	.03	884.50
525.	108.	379.	38.	76.	104.	43.	97.	34.	885.80
1.64	1.41	3.64	.87	.100	.063	.100	.063	883.30	82.04
.003795	90.	90.	90.	2	0	0	0.00	119.55	201.60

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	2.15	3.00	170.00	5.00	0.00	9.82	0.00	883.30	883.30

*SECNO 142.910
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
983.09	887.82	0.00	500.	22.	10.	12.	885.70	886.60

142.91	4.38	887.68	0.00	0.00	887.84	.15	.02	0.00	884.50
525.	108.	378.	39.	77.	105.	44.	97.	34.	885.80
1.65	1.40	3.61	.87	.100	.063	.100	.063	883.30	81.74
.003711	15.	15.	15.	2	0	8	0.00	120.36	202.10

*SECNO 142.930

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 885.70 MAX ELLC= 883.20

**CONC AND STONE WEIR

142.93	4.39	887.69	0.00	0.00	887.93	.24	.04	.05	884.50
525.	183.	251.	91.	67.	50.	45.	97.	34.	885.80
1.65	2.73	5.02	2.02	.100	.063	.100	.063	883.30	81.50
.019812	6.	6.	6.	1	0	0	-66.13	121.00	202.50

*SECNO 142.940

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 0 MIN ELTRD= 885.70 MAX ELLC= 883.20

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   142.94      4.42    887.72      0.00      0.00    887.95       .24       .02       .00    884.50
     525.      183.      251.       92.       67.       50.       46.       97.       34.     885.80
     1.65      2.71      4.99      2.01      .100      .063      .100      .063    883.30     81.35
  .019436        1.        1.        1.         1         0         0    -66.13    121.39    202.74


CCHV=    .100 CEHV=    .300
*SECNO 143.200

3470 ENCROACHMENT STATIONS=      60.0     214.0  TYPE=      1  TARGET=     -60.000
   143.20      3.91    891.21      0.00      0.00    891.35       .14      3.39       .01    889.00
     525.       59.      271.      195.       44.       69.      124.       99.       35.     888.70
     1.68      1.33      3.93      1.56      .100      .063      .100      .063    887.30     62.54
  .005776       350.      350.      350.         4         0         0      0.00    146.71    209.25


CCHV=    .300 CEHV=    .500
*SECNO 143.210
3280 CROSS SECTION    143.21 EXTENDED       .18 FEET


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  889.00 MAX ELLC=  887.20


3470 ENCROACHMENT STATIONS=      60.0     214.0  TYPE=      1  TARGET=     -60.000

        **STONE WEIR

   143.21      4.28    891.48      0.00      0.00    891.55       .07       .18       .02    888.90
     525.       96.      147.      282.       59.       52.      155.       99.       35.     888.60
     1.69      1.64      2.81      1.82      .100      .063      .100      .063    887.20     60.00
  .006510       30.       30.       30.         2         0         0    -28.22    154.00    214.00


*SECNO 143.220
3280 CROSS SECTION    143.22 EXTENDED       .19 FEET


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  889.00 MAX ELLC=  887.20


3470 ENCROACHMENT STATIONS=      60.0     214.0  TYPE=      1  TARGET=     -60.000
   143.22      4.29    891.49      0.00      0.00    891.56       .07       .01       .00    888.90
     525.       96.      147.      282.       59.       52.      156.       99.       35.     888.60
     1.69      1.63      2.80      1.81      .100      .063      .100      .063    887.20     60.00
  .006442        1.        1.        1.         0         0         0    -28.22    154.00    214.00


*SECNO 143.700
3280 CROSS SECTION    143.70 EXTENDED       .41 FEET


        **D/S FACE LAHSER RD.

   143.70      4.52    892.02      0.00      0.00    892.09       .07       .52       .00    889.20
     525.       74.      233.      218.       69.       82.      180.      100.       36.     888.90
     1.71      1.08      2.86      1.21      .100      .063      .100      .063    887.50     56.08
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.002448	140.	140.	140.	2	0	0	0.00	157.92	214.00

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	1.88	3.00	200.00	5.50	0.00	23.56	0.00	887.50	887.50

*SECNO 143.750

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 AREA	ELLC	ELTRD
906.51	892.14	0.00	369.	158.	24.	18.	890.82	892.60
143.75	5.78	B93.28	0.00	0.00	893.32	.04	1.24	0.00	893.70
525.	0.	525.	0.	0.	311.	0.	100.	36.	897.10
1.71	0.00	1.69	0.00	.100	.063	.100	.063	887.50	32.30
.001443	35.	35.	35.	2	0	6	0.00	119.58	151.87

CCHV= .100 CEHV= .300

*SECNO 143.760

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

143.76	2.47	893.47	893.47	0.00	894.21	.74	.04	.21	896.60
525.	0.	525.	0.	0.	76.	0.	100.	36.	900.00
1.71	0.00	6.89	0.00	.100	.063	.100	.063	891.00	80.99
.053063	10.	10.	10.	20	18	0	0.00	53.08	134.07

*SECNO 143.800

3301 HV CHANGED MORE THAN HVINS

143.80	4.35	895.55	0.00	0.00	895.71	.16	1.45	.06	897.40
525.	0.	525.	0.	0.	162.	0.	101.	36.	897.70
1.72	0.00	3.24	0.00	.100	.063	.100	.063	891.20	66.67
.005841	110.	110.	110.	5	0	0	0.00	66.23	132.90

CCHV= .400 CEHV= .800
*SECNO 144.300

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 900.00 ELREA= 900.00

**PLUGGED 3' DIA RCP

144.30	3.69	898.19	0.00	0.00	898.48	.29	2.66	.10	900.70
525.	0.	525.	0.	0.	121.	0.	102.	37.	901.00
1.74	0.00	4.32	0.00	.100	.063	.100	.063	894.50	75.27
.012300	325.	325.	325.	5	0	0	0.00	56.37	131.64

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	2.20	2.90	150.00	3.00	0.00	7.07	0.00	894.50	894.50

*SECNO 144.700
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1086.56	898.84	0.00	450.	77.	7. ?	8.	897.00	901.20

If culvert flow neg. d weir shortened to .05, profile increase .9 Ft

144.70	7.69	902.19	0.00	0.00	902.22	.03	3.75	0.00	904.30
525.	0.	525.	0.	0.	386.	0.	102.	37.	902.80
1.76	0.00	1.36	0.00	.100	.063	.100	.063	894.50	21.05
.000603	71.	71.	71.	2	0	9	0.00	105.18	126.23

CCHV= .100 CEHV= .300
*SECNO 145.000

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
145.00	5.93	902.33	0.00	0.00	902.42	.09	.18	.02	906.20
525.	0.	525.	0.	0.	223.	0.	103.	37.	904.70
1.78	0.00	2.36	0.00	.100	.063	.100	.063	896.40	38.67
.002588	160.	160.	160.	2	0	0	0.00	79.49	118.16

CCHV= .400 CEHV= .800
*SECNO 146.300

**CULVERT UNDER ASPHALT DRIVE

146.30	4.57	903.17	0.00	0.00	903.43	.26	.87	.14	908.40
525.	0.	525.	0.	0.	128.	0.	104.	37.	906.90
1.79	0.00	4.10	0.00	.100	.063	.100	.063	898.60	52.29
.011215	185.	185.	185.	2	0	0	0.00	59.63	111.93

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	2.25	3.00	250.00	3.00	0.00	7.07	0.00	898.60	898.60

*SECNO 146.700
3280 CROSS SECTION 146.70 EXTENDED .13 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1095.82	903.36	0.00	465.	60.	7.	6.	900.50	905.00

146.70	7.12	905.72	0.00	0.00	905.73	.01	2.30	0.00	899.80
525.	295.	226.	4.	772.	294.	29.	105.	38.	904.40
1.84	.38	.77	.13	.100	.063	.100	.063	898.60	0.00
.000123	100.	100.	100.	0	0	10	0.00	338.00	338.00

CCHV= .100 CEHV= .300
*SECNO 146.800

146.80	6.73	905.73	0.00	0.00	905.74	.01	.01	.00	900.20
525.	288.	235.	2.	677.	271.	14.	107.	38.	904.80
1.87	.43	.87	.12	.100	.063	.100	.063	899.00	4.95
.000175	60.	60.	60.	2	0	0	0.00	324.03	328.98

CCHV= .300 CEHV= .500
*SECNO 146.900

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 905.90 MAX ELLC= 904.20

**FOOTBRIDGE

146.90	6.74	905.74	0.00	0.00	905.82	.08	.05	.04	905.90
525.	0.	525.	0.	0.	234.	0.	108.	39.	905.90
1.88	0.00	2.25	0.00	.100	.063	.100	.063	899.00	172.71
.006359	90.	90.	90.	0	0	0	-164.66	124.40	297.11

*SECNO 146.910

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 0 MIN ELTRD= 905.90 MAX ELLC= 904.20

146.91	7.01	906.01	0.00	0.00	906.08	.07	.26	.00	905.90
525.	0.	525.	0.	0.	248.	0.	108.	39.	905.90
1.88	.22	2.12	.22	.100	.063	.100	.063	899.00	165.40
.010723	32.	32.	32.	6	0	0	-184.52	136.63	302.03

CCHV= .100 CEHV= .300

*SECNO 147.000									
147.00	6.38	907.08	0.00	0.00	907.14	.06	1.06	.00	905.10
525.	143.	379.	4.	181.	163.	8.	110.	40.	905.80
1.93	.79	2.32	.45	.100	.063	.100	.063	900.70	134.62
.001661	310.	310.	310.	4	0	0	0.00	189.77	324.39
*SECNO 148.000									
148.00	1.55	911.85	0.00	0.00	912.18	.33	4.96	.08	914.20
525.	0.	525.	0.	0.	114.	0.	116.	44.	914.00
1.99	0.00	4.62	0.00	.100	.063	.100	.063	910.30	308.59
.032108	1125.	1125.	1125.	3	0	0	0.00	99.54	408.13

CCHV= .200 CEHV= .400

*SECNO 149.000									
149.00	4.92	918.12	0.00	0.00	918.17	.05	5.93	.06	915.00
525.	180.	156.	188.	141.	60.	159.	122.	47.	915.40
2.17	1.28	2.62	1.18	.100	.063	.100	.063	913.20	147.08
.002330	1025.	1025.	1025.	8	0	0	0.00	165.04	312.12
*SECNO 150.000									
150.00	4.20	922.00	0.00	0.00	922.52	.52	4.16	.19	922.00
525.	0.	525.	0.	0.	91.	0.	126.	49.	922.10
2.21	0.00	5.78	0.00	.100	.063	.100	.063	917.80	166.84
.018075	825.	825.	825.	4	0	0	0.00	35.08	201.92

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
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T1       JOB HUD-FIA H-4705  T06
T2       FLOOD INSURANCE STUDIES
T3       FLOODWAY DETERMINATION

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -1.        6.        0.        0.  0.000000      0.00      -1.0        0.    848.500     0.000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     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 2

CCHV=    .100 CEHV=    .300
*SECNO 130.900
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=     326.0     376.0  TYPE=     1  TARGET=      50.000

        **CONFLUENCE WITH STONYCROFT DRAIN

   130.90     4.50   848.50     0.00   848.40   849.17      .67     0.00     0.00   846.00
    570.       42.    486.       42.     17.      69.      20.       0.       0.    846.00
     0.00     2.40     7.04     2.06     .100     .063     .100    0.000   844.00   326.00
  .015578       0.       0.       0.        0        0        0     0.00    50.00   376.00


*SECNO 131.000
 2800 NAT Q1=     163.79  WSEL=     850.56  ENC Q1=     163.79  WSEL=     850.66  RATIO=  0.0000
 NAT Q1=     177.  RATIOS LOB,CH,ROB=  0.0000    .4703    .5297  WSEL=     850.66

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     180.0     456.7  TYPE=     4  TARGET=       .074
   131.00     4.12   850.62     0.00   850.56   850.64      .02     1.41      .06   851.40
    570.       0.     289.      281.      0.      245.     275.       3.       2.    848.20
     .11     0.00     1.18     1.02     .100     .063     .100     .063   846.50   207.10
  .001283     455.     455.     455.        4        0        0     0.00   249.63   456.73


*SECNO 132.200
 2800 NAT Q1=      28.74  WSEL=     852.12  ENC Q1=      28.74  WSEL=     852.22  RATIO=   .0000
 NAT Q1=      32.  RATIOS LOB,CH,ROB=  0.0000    .7035    .2965  WSEL=     852.22

3301 HV CHANGED MORE THAN HVINS

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


7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     309.0     381.1  TYPE=     4  TARGET=       .089
   132.20     3.05   852.15   852.15   852.12   852.95      .80     1.97      .23   854.80
    570.       0.     444.     126.      0.       56.      36.       7.       3.    850.80
     .14     0.00     7.92     3.55     .100     .063     .100     .063   849.10   325.79
  .044064     525.     525.     525.        4       19        0     0.00    55.33   381.12


CCHV=    .400 CEHV=    .800
*SECNO 132.400
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 2800 NAT Q1=      93.50  WSEL=     854.04  ENC Q1=      93.50  WSEL=     854.14  RATIO=  0.0000
 NAT Q1=      99.  RATIOS LOB,CH,ROB=  0.0000   .5366   .4634  WSEL=     854.14

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      309.0      404.5  TYPE=      4  TARGET=         .053

        **D/S FACE OPDYKE RD.

    132.40      4.83    854.23      0.00    854.04    854.33       .09      1.09       .28    855.10
     570.        0.      321.       249.       0.      111.       146.       7.         4.     851.10
      .15       0.00     2.88      1.71      .063      .063      .100      .063     849.40    316.93
   .003420      130.     130.      130.         3         0         0      0.00      87.54    404.48


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       1.25       3.00     150.00       4.00       0.00      12.60       0.00     849.40     849.40

*SECNO 132.600
 2800 NAT Q1=     388.71  WSEL=     857.04  ENC Q1=     388.71  WSEL=     857.14  RATIO=  0.0000
 NAT Q1=     404.  RATIOS LOB,CH,ROB=   .0850   .3899   .5251  WSEL=     857.14
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION    132.60 EXTENDED       1.73 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=      253.7      470.2  TYPE=      4  TARGET=         .039
    132.60      7.63    857.23      0.00    857.04    857.24       .01       .02        .03    855.30
     570.       41.      230.       299.      90.      231.       515.       8.         4.     851.30
      .16       .46      1.00       .58      .063      .063      .100      .063     849.60    253.68
   .000201      31.       31.       31.         0         0         7      0.00      216.53    470.21


CCHV=     .300 CEHV=     .500
*SECNO 133.000
 2800 NAT Q1=     209.54  WSEL=     857.05  ENC Q1=     209.54  WSEL=     857.15  RATIO=   .0000
 NAT Q1=     224.  RATIOS LOB,CH,ROB=   .6875   .2597   .0528  WSEL=     857.15

3470 ENCROACHMENT STATIONS=      227.1      400.1  TYPE=      4  TARGET=         .066

        **CONCRETE FOOTBRIDGE

    133.00      6.24    857.24      0.00    857.05    857.26       .02       .02        .01    854.50
     570.      402.      155.        14.      359.       95.       22.        9.         4.     855.00
      .18      1.12      1.62       .63      .063      .063      .100      .063     851.00    227.06
   .000661      60.       60.       60.         1         0         0      0.00      173.07    400.13


SPECIAL BRIDGE
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5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB   XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00        1.37       2.70     200.00       9.00       0.00      37.80       0.00     851.00     851.00

*SECNO 133.100
 2800 NAT Q1=     222.46  WSEL=     857.14  ENC Q1=     222.46  WSEL=     857.24  RATIO=    .0000
 NAT Q1=     238.  RATIOS LOB,CH,ROB=    .6925    .2526    .0549  WSEL=     857.24
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      224.4      400.2  TYPE=       4  TARGET=          .065
    133.10      6.33    857.33      0.00    857.14    857.35       .02       .01       .00    854.50
      570.      405.      151.       14.      375.       97.       23.        9.        4.     855.00
       .18      1.08      1.56       .61      .063      .063      .100      .063    851.00    224.40
  .000595         8.        8.        8.         0         0         6      0.00    175.80    400.20


CCHV=     .400 CEHV=     .800
*SECNO 134.000
 2800 NAT Q1=      57.46  WSEL=     857.40  ENC Q1=      57.46  WSEL=     857.50  RATIO=    .0000
 NAT Q1=      64.  RATIOS LOB,CH,ROB=    .5011    .4863    .0127  WSEL=     857.50

3470 ENCROACHMENT STATIONS=      266.8      390.0  TYPE=       4  TARGET=          .109

        **D/S FACE DRIVEWAY - STONE ARCH

    134.00      4.76    857.56      0.00    857.40    857.77       .21       .27       .15    856.30
      570.      271.      299.         0.      114.       66.         0.       10.        5.     856.80
       .19      2.37      4.54      0.00      .063      .063      .100      .063    852.80    266.84
  .008903       180.      180.       180.         2         0         0      0.00    123.16    390.00

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        1.63       2.60     100.00       9.00       0.00      17.50       0.00     852.80     852.80

*SECNO 134.100
 2800 NAT Q1=     228.90  WSEL=     858.98  ENC Q1=     228.90  WSEL=     859.08  RATIO=    .0000
 NAT Q1=     245.  RATIOS LOB,CH,ROB=    .6948    .2493    .0559  WSEL=     859.08
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      223.0      400.9  TYPE=       4  TARGET=          .064
    134.10      6.34    859.14      0.00    858.98    859.16       .02       .04       .07    856.30
      570.      406.      150.       14.      380.       97.       24.       10.        5.     856.80
       .20      1.07      1.54       .59      .063      .063      .100      .063    852.80    222.95
  .000580         26.       26.       26.         0         0         6      0.00    177.92    400.87


*SECNO 135.000
 2800 NAT Q1=     221.83  WSEL=     859.04  ENC Q1=     221.83  WSEL=     859.14  RATIO=    .0000
 NAT Q1=     237.  RATIOS LOB,CH,ROB=    .6923    .2529    .0548  WSEL=     859.14
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=      224.6      400.0  TYPE=      4  TARGET=         .065

        **D/S FACE DRIVEWAY - 3 FT. DIA. CMP

   135.00      6.29   859.19      0.00   859.04   859.22       .02       .05       .00   856.40
     570.      404.      152.      14.      370.      96.      22.      11.       5.     856.90
      .22      1.09      1.58      .62      .063      .063      .100      .063   852.90   224.64
  .000620      85.      85.      85.        0         0         0      0.00   175.38   400.01


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       2.35      2.90     100.00      3.00      0.00       7.10      0.00    852.90    852.90

*SECNO 135.100
 2800 NAT Q1=      255.57  WSEL=     859.24  ENC Q1=     255.57  WSEL=     859.34  RATIO=  0.0000
 NAT Q1=     271.  RATIOS LOB,CH,ROB=    .7027    .2377    .0596  WSEL=     859.34
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      214.9      404.9  TYPE=      4  TARGET=         .056
   135.10      6.50   859.40      0.00   859.24   859.42       .02       .02       .00   856.40
     570.      409.      142.      18.      413.      100.      35.      12.       5.     856.90
      .23      .99      1.41      .53      .063      .063      .100      .063   852.90   214.91
  .000469      32.      32.      32.        0         0        12      0.00   190.00   404.91


CCHV=    .150 CEHV=    .350
*SECNO 136.000
 2800 NAT Q1=       54.51  WSEL=     859.77  ENC Q1=      54.51  WSEL=     859.87  RATIO=  0.0000
 NAT Q1=      59.  RATIOS LOB,CH,ROB=    .0724    .2817    .6459  WSEL=     859.87

3470 ENCROACHMENT STATIONS=      148.8      257.5  TYPE=      4  TARGET=         .082
   136.00      3.38   859.88      0.00   859.77   860.04       .16       .58       .05   858.00
     570.      19.      174.      376.      10.      37.      165.      16.       7.     858.20
      .27      1.87      4.74      2.29      .100      .063      .100      .063   856.50   148.79
  .010672      450.      450.      450.        3         0         0      0.00   108.73   257.52


CCHV=    .200 CEHV=    .400
*SECNO 136.100
 2800 NAT Q1=       70.61  WSEL=     863.63  ENC Q1=      70.61  WSEL=     863.73  RATIO=  0.0000
 NAT Q1=      75.  RATIOS LOB,CH,ROB=    .0401    .9197    .0401  WSEL=     863.73

3470 ENCROACHMENT STATIONS=      158.1      211.9  TYPE=      4  TARGET=         .065
   136.10      3.52   863.72      0.00   863.63   863.96       .23      3.88       .03   862.00
     570.       4.      563.       4.       3.      145.       3.      18.       8.     862.00
      .30      1.13      3.88      1.13      .100      .063      .100      .063   860.20   158.07
  .006589      470.      470.      470.        0         0         0      0.00    53.87   211.93


*SECNO 137.300
 2800 NAT Q1=       57.00  WSEL=     864.63  ENC Q1=      57.00  WSEL=     864.73  RATIO=   .0000
 NAT Q1=      62.  RATIOS LOB,CH,ROB=    .0332    .8631    .1036  WSEL=     864.73

3470 ENCROACHMENT STATIONS=      280.0      331.9  TYPE=      4  TARGET=         .075

        **D/S FACE CONCRETE DRIVEWAY
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   137.30      3.44    864.74      0.00    864.63    865.04       .30      1.05       .03    864.00
     570.        0.      533.       37.        0.      119.       16.       18.        8.     862.00
      .31      0.00      4.49      2.25      .100      .063      .100      .063    861.30    280.00
  .010217      130.      130.      130.         2         0         0      0.00     51.92    331.92


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       1.33       3.00     180.00      11.00       0.00      29.70       0.00     861.30     861.30

*SECNO 137.700
 2800 NAT Q1=     232.00  WSEL=     866.09  ENC Q1=     232.00  WSEL=     866.19  RATIO=  0.0000
 NAT Q1=     242.  RATIOS LOB,CH,ROB=    .5233    .2957    .1811  WSEL=     866.19
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=      86.4     244.6  TYPE=      4  TARGET=        .042
   137.70      4.89    866.19      0.00    866.09    866.21       .02       .02       .06    861.80
     570.       299.      177.       94.       367.      108.      105.       18.        8.     861.80
      .31        .82      1.63       .90       .100      .063      .100      .063    861.30     86.36
  .000606       14.       14.       14.          0         0         5      0.00    158.23    244.59

CCHV=    .100 CEHV=    .300
*SECNO 137.800
 2800 NAT Q1=      95.69  WSEL=     866.29  ENC Q1=      95.69  WSEL=     866.39  RATIO=   .0000
 NAT Q1=     103.  RATIOS LOB,CH,ROB=    .4452    .3680    .1868  WSEL=     866.39

3470 ENCROACHMENT STATIONS=     113.4     240.1  TYPE=      4  TARGET=        .070
   137.80      3.39    866.39      0.00    866.29    866.47       .08       .24       .02    863.50
     570.       249.      224.       97.       174.       74.       58.       20.        8.     863.50
      .34       1.43      3.04      1.68       .100      .063      .100      .063    863.00    113.41
  .003502       200.      200.      200.          2         0         0      0.00    126.71    240.12


*SECNO 138.000
 2800 NAT Q1=      57.67  WSEL=     867.20  ENC Q1=      57.67  WSEL=     867.30  RATIO=  0.0000
 NAT Q1=      63.  RATIOS LOB,CH,ROB=    .3820    .4246    .1934  WSEL=     867.30

3470 ENCROACHMENT STATIONS=     139.4     237.8  TYPE=      4  TARGET=        .091
   138.00      2.79    867.29      0.00    867.20    867.47       .18       .97       .03    865.00
     570.       210.      267.       93.        99.       60.       40.       21.        9.     865.00
      .35       2.12      4.45      2.31       .100      .063      .100      .063    864.50    139.42
  .009981       175.      175.      175.          2         0         0      0.00     98.38    237.81


*SECNO 138.200
 2800 NAT Q1=      63.69  WSEL=     868.11  ENC Q1=      63.69  WSEL=     868.21  RATIO=  0.0000
 NAT Q1=      70.  RATIOS LOB,CH,ROB=    .3962    .4120    .1919  WSEL=     868.21

3470 ENCROACHMENT STATIONS=     134.7     238.1  TYPE=      4  TARGET=        .089
   138.20      2.91    868.21      0.00    868.11    868.36       .15       .89       .00    865.80
     570.       220.      258.       93.       112.       63.       43.       22.        9.     865.80
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      .36      1.96      4.11      2.14      .100      .063      .100      .063    865.30    134.68
   .007998     100.      100.      100.         2         0         0      0.00    103.40    238.08

*SECNO 138.500
 2800 NAT Q1=      25.83  WSEL=     871.01  ENC Q1=      27.50  WSEL=     871.11  RATIO=  -.0650
 NAT Q1=     28.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     871.11

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

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=      240.0      309.0  TYPE=      4  TARGET=        0.000
   138.50      3.91    871.01    871.01    871.01    872.03      1.02      3.25       .26    875.30
     570.        0.      570.        0.        0.       70.        0.       22.        9.     874.00
      .37      0.00      8.09      0.00      .100      .063      .100      .063    867.10    248.37
   .049102     200.      200.      200.         3        11         0      0.00     35.16    283.54

*SECNO 139.200

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=      100.0      382.0  TYPE=      1  TARGET=     -100.000
   139.20      5.89    874.49      0.00    874.48    874.68       .20      2.57       .08    876.80
     570.        0.      570.        0.        0.       161.        0.       23.       10.     875.50
      .39      0.00      3.55      0.00      .100      .063      .100      .063    868.60    244.51
   .005813     200.      200.      200.         6         0         0      0.00     55.87    300.38

CCHV=     .400 CEHV=     .600
*SECNO 139.300

3470 ENCROACHMENT STATIONS=      100.0      382.0  TYPE=      1  TARGET=     -100.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      876.50 ELREA=      876.50

        **D/S FACE WOODWARD AVE.

   139.30      5.23    875.53      0.00    875.53    875.85       .32      1.09       .07    878.50
     570.        0.      570.        0.        0.       126.        0.       23.       10.     877.20
      .39      0.00      4.53      0.00      .100      .063      .100      .063    870.30    245.80
   .010967     140.      140.      140.         4         0         0      0.00     48.96    294.76
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SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

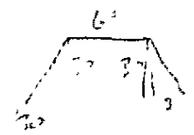
SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.58	3.00	180.00	12.00	0.00	52.80	0.00	870.30	870.30

*SECNO 139.700

2800 NAT Q1= 240.79 WSEL= 879.03 ENC Q1= 242.45 WSEL= 879.13 RATIO= -.0069
NAT Q1= 250. RATIOS LOB,CH,ROB= .0131 .9685 .0184 WSEL= 879.13
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 240.0 309.0 TYPE= 4 TARGET= .031

139.70	8.73	879.03	0.00	879.03	879.07	.04	.32	.11	878.50
570.	0.	570.	0.	0.	347.	0.	24.	10.	877.20
.43	0.00	1.64	0.00	.100	.063	.100	.063	870.30	240.00
.000616	200.	200.	200.	0	0	4	0.00	69.00	309.00



*SECNO 139.800

3470 ENCROACHMENT STATIONS= 200.0 400.0 TYPE= 1 TARGET= 200.000

139.80	8.89	879.09	0.00	879.08	879.09	.00	.00	.02100000.00	
525.	0.	525.	0.	0.	1700.	0.	25.	10. 100000.00	
.46	0.00	.31	0.00	.100	.063	.100	.063	870.20	200.00
.000011	30.	30.	30.	2	0	0	0.00	200.00	400.00

CCHV= .200 CEHV= .400
*SECNO 140.000

2800 NAT Q1= 729.30 WSEL= 879.10 ENC Q1= 729.30 WSEL= 879.20 RATIO= .0000
NAT Q1= 753. RATIOS LOB,CH,ROB= .5311 .1126 .3562 WSEL= 879.20

3470 ENCROACHMENT STATIONS= 54.9 337.9 TYPE= 4 TARGET= .032

140.00	6.75	879.11	0.00	879.10	879.11	.00	.02	.00	873.10
525.	279.	61.	185.	819.	103.	578.	59.	15.	873.40
1.16	.34	.60	.32	.100	.063	.100	.063	872.36	54.86
.000054	925.	925.	925.	0	0	0	0.00	283.07	337.93

CCHV= .150 CEHV= .300
*SECNO 141.000

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= 200.0 472.0 TYPE= 1 TARGET= 272.000

141.00	2.27	879.27	0.00	879.26	879.32	.05	.20	.01	877.50
525.	130.	82.	314.	101.	28.	192.	82.	22.	877.40
1.34	1.29	2.89	1.63	.100	.063	.100	.063	877.00	217.99
.005396	1100.	1100.	1100.	2	0	0	0.00	212.47	430.46

*SECNO 142.200

3470 ENCROACHMENT STATIONS= .0 324.0 TYPE= 1 TARGET= 323.999

142.20	2.46	882.86	0.00	882.85	882.89	.03	3.57	.00	881.40
525.	55.	71.	399.	59.	29.	322.	89.	26.	881.50
1.50	.92	2.43	1.24	.100	.063	.100	.063	880.40	49.15

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  .003748      800.      800.      800.         4         0         0      0.00    274.85    324.00


CCHV=     .400 CEHV=     .800
*SECNO 142.300

3470 ENCROACHMENT STATIONS=          .0     324.0  TYPE=      1  TARGET=     323.999

        **D/S FACE HICKORY GROVE AND BLOOMFIELD HILLS CITY LIMIT

   142.30      2.95    883.15      0.00    883.15    883.17       .02       .27       .01    881.20
     525.       67.       63.      395.       90.       36.      422.       90.       27.    881.30
     1.53       .75      1.75       .94      .100      .063      .100      .063    880.20     45.97
  .001501      120.      120.      120.         2         0         0      0.00    278.03    324.00


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        2.16       3.00      200.00       8.50       0.00       30.90       0.00     880.20     880.20

*SECNO 142.700
 2800 NAT Q1=     124.39  WSEL=     885.70  ENC Q1=     124.39  WSEL=     885.80  RATIO=  0.0000
 NAT Q1=     130.  RATIOS LOB,CH,ROB=    .1520    .6682    .1798  WSEL=     885.80
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION    142.70 EXTENDED        .71 FEET


3470 ENCROACHMENT STATIONS=         61.8      133.6  TYPE=      4  TARGET=         .045
   142.70      5.48    885.71      0.00    885.70    885.81       .10       .07       .07    882.00
     525.       69.       370.      86.       56.       124.      70.       91.       27.    882.00
     1.54       1.23      2.97      1.22      .100      .063      .100      .063    880.23     61.83
  .001922       41.       41.       41.         0         0         6      0.00     71.72    133.55


CCHV=     .300 CEHV=     .600
*SECNO 142.800
 2800 NAT Q1=      48.61  WSEL=     885.82  ENC Q1=      48.61  WSEL=     885.92  RATIO=  0.0000
 NAT Q1=      52.  RATIOS LOB,CH,ROB=    .1907    .5945    .2148  WSEL=     885.92
3280 CROSS SECTION    142.80 EXTENDED        .83 FEET


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  884.20 MAX ELLC=  883.20


3470 ENCROACHMENT STATIONS=         55.7      116.6  TYPE=      4  TARGET=         .061

        **TWO 3 FT. CMP'S

   142.80      5.60    885.83      0.00    885.82    886.01       .18       .15       .05    882.00
     525.       98.       391.      35.       51.       103.      21.       91.       27.    882.00
     1.54       1.93      3.82      1.65      .100      .063      .100      .063    880.23     55.75
  .017443       35.       35.       35.         2         0         0    -50.66     60.81    116.56


*SECNO 142.810
 2800 NAT Q1=      53.33  WSEL=     885.97  ENC Q1=      53.33  WSEL=     886.07  RATIO=   .0000
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 NAT Q1=     57.  RATIOS LOB,CH,ROB=    .2035    .5743    .2222  WSEL=     886.07
3280 CROSS SECTION     142.81 EXTENDED       1.05 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    IOC       ICONT     CORAR     TOPWID      ENDST


3370 NORMAL BRIDGE,NPD=  0 MIN ELTRD=  884.20 MAX ELLC=  883.20


3470 ENCROACHMENT STATIONS=       54.1      117.3  TYPE=      4  TARGET=          .061
   142.81      5.82    886.05      0.00    885.97    886.20       .15       .18       .01    882.00
     525.       110.      376.       38.       60.       108.       25.       91.       27.    882.00
     1.54      1.85      3.48      1.52      .100      .063      .100      .063    880.23     54.07
  .013477       12.       12.       12.         2         0         0    -51.36     63.19    117.26


*SECNO 142.820
 2800 NAT Q1=     143.61  WSEL=     886.00  ENC Q1=     143.61  WSEL=     886.10  RATIO=    .0000
 NAT Q1=     151.  RATIOS LOB,CH,ROB=    .1520    .6699    .1781  WSEL=     886.10
3280 CROSS SECTION     142.82 EXTENDED       1.02 FEET


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  881.80 MAX ELLC=  880.35

3470 ENCROACHMENT STATIONS=       60.6      134.7  TYPE=      4  TARGET=          .046

        **WOOD WEIR

   142.82      5.79    886.12      0.00    886.00    886.25       .13       .05       .00    882.10
     525.       70.      368.       86.       65.       108.       81.       91.       27.    882.10
     1.54      1.08      3.42      1.07      .100      .025      .100      .063    880.33     60.55
  .001312       15.       15.       15.         2         0         0    -24.49     74.16    134.71


*SECNO 142.830
 2800 NAT Q1=     143.99  WSEL=     886.00  ENC Q1=     143.99  WSEL=     886.10  RATIO=    .0000
 NAT Q1=     151.  RATIOS LOB,CH,ROB=    .1520    .6698    .1782  WSEL=     886.10
3280 CROSS SECTION     142.83 EXTENDED       1.02 FEET


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  881.80 MAX ELLC=  880.35


3470 ENCROACHMENT STATIONS=       60.2      135.0  TYPE=      4  TARGET=          .045
   142.83      5.79    886.12      0.00    886.00    886.25       .13       .00       .00    882.10
     525.       71.      368.       86.       66.       108.       81.       91.       27.    882.10
     1.54      1.08      3.41      1.07      .100      .025      .100      .063    880.33     60.20
  .001306        1.        1.        1.         0         0         0    -24.49     74.78    134.98


*SECNO 142.840
 2800 NAT Q1=      64.62  WSEL=     886.25  ENC Q1=      64.62  WSEL=     886.35  RATIO=    .0000
 NAT Q1=      70.  RATIOS LOB,CH,ROB=    .3409    .4811    .1780  WSEL=     886.35
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3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 883.40 MAX ELLC= 881.40

3470 ENCROACHMENT STATIONS= 98.8 179.2 TYPE= 4 TARGET= .075

**CONC WEIR

142.84	4.87	886.37	0.00	886.25	886.51	.14	.25	.01	882.70
525.	172.	273.	80.	79.	74.	46.	91.	27.	884.00
1.55	2.18	3.69	1.76	.100	.063	.100	.063	881.50	98.83
.006503	100.	100.	100.	2	0	0	-46.54	80.41	179.24

*SECNO 142.850
2800 NAT Q1= 64.81 WSEL= 886.26 ENC Q1= 64.81 WSEL= 886.36 RATIO= .0000
NAT Q1= 70. RATIOS LOB,CH,ROB= .3410 .4803 .1787 WSEL= 886.36

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 883.40 MAX ELLC= 881.40

3470 ENCROACHMENT STATIONS= 99.0 179.1 TYPE= 4 TARGET= .077

142.85	4.87	886.37	0.00	886.26	886.52	.14	.01	.00	882.70
525.	172.	273.	80.	79.	74.	46.	91.	27.	884.00
1.55	2.18	3.69	1.76	.100	.063	.100	.063	881.50	99.02
.006465	1.	1.	1.	0	0	0	-46.54	80.04	179.07

*SECNO 142.860
2800 NAT Q1= 72.94 WSEL= 886.69 ENC Q1= 72.94 WSEL= 886.79 RATIO= .0000
NAT Q1= 77. RATIOS LOB,CH,ROB= .1956 .7428 .0616 WSEL= 886.79

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 107.7 164.4 TYPE= 4 TARGET= .057

**TWO 2.5'CMP'S

142.86	4.20	886.80	0.00	886.69	887.02	.22	.46	.05	883.80
525.	93.	414.	18.	51.	100.	14.	92.	27.	885.10
1.56	1.82	4.13	1.29	.100	.063	.100	.063	882.60	107.74
.005127	80.	80.	80.	1	0	0	0.00	56.69	164.43

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	1.97	2.90	130.00	9.00	0.00	25.50	0.00	882.60	882.60

*SECNO 142.870
2800 NAT Q1= 111.05 WSEL= 887.43 ENC Q1= 111.05 WSEL= 887.53 RATIO= .0000
NAT Q1= 117. RATIOS LOB,CH,ROB= .2342 .6488 .1170 WSEL= 887.53
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 99.1 179.6 TYPE= 4 TARGET= .054

```
  142.87      4.94    887.54      0.00    887.43    887.64       .11       .06       .03    883.80
    525.      115.      360.       50.      84.      118.       48.       92.       27.     885.10
    1.56      1.36      3.04      1.05      .100      .063      .100      .063    882.60     99.13
 .002221       20.       20.       20.         0         0         6      0.00     80.44    179.57

*SECNO 142.900
 2800 NAT Q1=      85.22  WSEL=     887.66  ENC Q1=      85.22  WSEL=     887.76  RATIO=  0.0000
 NAT Q1=      90.  RATIOS LOB,CH,ROB=    .2104    .7111    .0785  WSEL=     887.76

3470 ENCROACHMENT STATIONS=      104.9      168.9  TYPE=      4  TARGET=         .054

       **TWO 2.5 CMP'S

  142.90      4.47    887.77      0.00    887.66    887.94       .17       .26       .04    884.50
    525.      101.      395.       29.      62.      107.       24.       92.       28.     885.80
    1.57      1.64      3.70      1.22      .100      .063      .100      .063    883.30    104.92
 .003789       90.       90.       90.         2         0         0      0.00     63.99    168.91


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       2.15       3.00     170.00       5.00       0.00       9.82       0.00     883.30     883.30

*SECNO 142.910
6870 D.S. ENERGY OF  887.94 HIGHER THAN COMPUTED ENERGY OF  887.92
 2800 NAT Q1=      86.19  WSEL=     887.68  ENC Q1=      86.19  WSEL=     887.78  RATIO=   .0000
 NAT Q1=      91.  RATIOS LOB,CH,ROB=    .2115    .7088    .0798  WSEL=     887.78
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      104.7      169.3  TYPE=      4  TARGET=         .054
  142.91      4.49    887.79      0.00    887.68    887.96       .17       .06       .00    884.50
    525.      102.      394.       29.      62.      107.       24.       92.       28.     885.80
    1.57      1.63      3.67      1.21      .100      .063      .100      .063    883.30    104.70
 .003704       15.       15.       15.         0         0         8      0.00     64.55    169.25

*SECNO 142.930
 2800 NAT Q1=      37.30  WSEL=     887.69  ENC Q1=      37.30  WSEL=     887.79  RATIO=   .0000
 NAT Q1=      41.  RATIOS LOB,CH,ROB=    .3487    .4708    .1805  WSEL=     887.79

3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  885.70 MAX ELLC=  883.20


3470 ENCROACHMENT STATIONS=      102.1      172.4  TYPE=      4  TARGET=         .085

       **CONC AND STONE WEIR

  142.93      4.48    887.78      0.00    887.69    888.07       .29       .04       .07    884.50
    525.      175.      271.       79.      55.       52.       28.       92.       28.     885.80
    1.57      3.17      5.19      2.79      .100      .063      .100      .063    883.30    102.11
 .020135         6.        6.        6.         2         0         0    -66.13     70.28    172.38


*SECNO 142.940
 2800 NAT Q1=      37.66  WSEL=     887.72  ENC Q1=      37.66  WSEL=     887.82  RATIO=   .0000
 NAT Q1=      42.  RATIOS LOB,CH,ROB=    .3488    .4682    .1829  WSEL=     887.82
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
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   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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=  0 MIN ELTRD=  885.70 MAX ELLC=  883.20


3470 ENCROACHMENT STATIONS=      102.8      171.7  TYPE=     4  TARGET=        .098
   142.94       4.50    887.80       0.00    887.72    888.09       .29        .02        .00    884.50
     525.        174.       273.        78.       55.       53.       28.        92.        28.     885.80
     1.57       3.18       5.20       2.81      .100      .063      .100       .063    883.30    102.84
  .019979         1.         1.         1.         0         0         0.    -66.13     68.84    171.68

CCHV=    .100 CEHV=    .300
*SECNO 143.200

3470 ENCROACHMENT STATIONS=       60.0      214.0  TYPE=     1  TARGET=      -60.000
   143.20       3.95    891.25       0.00    891.21    891.39       .13       3.28        .02    889.00
     525.        60.       268.       196.       46.       70.      128.        94.        28.     888.70
     1.61       1.31       3.84       1.53      .100      .063      .100       .063    887.30     62.09
  .005419        350.       350.       350.         5         0         0       0.00    148.20    210.29


CCHV=    .300 CEHV=    .500
*SECNO 143.210
3280 CROSS SECTION    143.21 EXTENDED       .21 FEET
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3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  889.00 MAX ELLC=  887.20


3470 ENCROACHMENT STATIONS=       60.0      214.0  TYPE=     1  TARGET=      -60.000

        **STONE WEIR

   143.21       4.31    891.51       0.00    891.48    891.58       .07        .17        .02    888.90
     525.        97.       146.       282.       60.       53.      158.        94.        29.     888.60
     1.61       1.61       2.76       1.79      .100      .063      .100       .063    887.20     60.00
  .006179        30.        30.        30.         2         0         0.    -28.22    154.00    214.00

*SECNO 143.220
3280 CROSS SECTION    143.22 EXTENDED       .22 FEET


3370 NORMAL BRIDGE,NRD=  0 MIN ELTRD=  889.00 MAX ELLC=  887.20


3470 ENCROACHMENT STATIONS=       60.0      214.0  TYPE=     1  TARGET=      -60.000
   143.22       4.32    891.52       0.00    891.49    891.59       .07        .01        .00    888.90
     525.        97.       146.       282.       60.       53.      158.        94.        29.     888.60
     1.61       1.61       2.76       1.78      .100      .063      .100       .063    887.20     60.00
  .006119         1.         1.         1.         0         0         0    -28.22    154.00    214.00


*SECNO 143.700
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 2800 NAT Q1=     106.11  WSEL=     892.02  ENC Q1=     106.11  WSEL=     892.12  RATIO=  0.0000
 NAT Q1=     114.  RATIOS LOB,CH,ROB=    .1448    .4344    .4208  WSEL=     892.12
3280 CROSS SECTION     143.70 EXTENDED        .45 FEET


3470 ENCROACHMENT STATIONS=       77.4      188.9  TYPE=      4  TARGET=         .066

        **D/S FACE LAHSER RD.

    143.70      4.55    892.05      0.00    892.02    892.13       .08       .54       .01    889.20
      525.       63.      246.       216.       51.       82.       160.       95.       29.     888.90
      1.63      1.24      2.99      1.35      .100      .063      .100      .063    887.50     77.42
  .002633      140.      140.      140.         2         0         0      0.00   -111.50     188.91


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       1.88       3.00     200.00       5.50       0.00      23.56       0.00     887.50     887.50

*SECNO 143.750
 2800 NAT Q1=     138.23  WSEL=     893.28  ENC Q1=     144.83  WSEL=     893.38  RATIO=  -.0477
 NAT Q1=     145.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     893.38
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=       22.0      177.0  TYPE=      4  TARGET=        0.000
    143.75      5.81    893.31      0.00    893.28    893.36       .04       .07       .01    893.70
      525.        0.      525.        0.        0.      315.        0.       95.       29.     897.10
      1.64      0.00      1.66      0.00      .100      .063      .100      .063    887.50     31.43
  .001395       35.       35.       35.         0         0         6      0.00    120.68    152.11


CCHV=     .100 CEHV=     .300
*SECNO 143.760
 2800 NAT Q1=      22.79  WSEL=     893.47  ENC Q1=      25.13  WSEL=     893.57  RATIO=  -.1026
 NAT Q1=      25.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     893.57

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

3470 ENCROACHMENT STATIONS=       22.0      177.0  TYPE=      4  TARGET=        0.000
    143.76      2.47    893.47    893.47    893.47    894.21       .74       .04       .21    896.60
      525.        0.      525.        0.        0.        76.       0.        95.       29.     900.00
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    1.64      0.00      6.89      0.00      .100      .063      .100      .063    891.00     80.99
  .053066      10.       10.       10.        20        18         0      0.00     53.08    134.07


*SECNO 143.800
 2800 NAT Q1=      68.69  WSEL=    895.55  ENC Q1=      72.13  WSEL=    895.65  RATIO=  -.0500
 NAT Q1=      72.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    895.65

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=      22.0     137.0  TYPE=      4  TARGET=       0.000
   143.80      4.35    895.55      0.00    895.55    895.71       .16      1.44       .06    897.40
     525.        0.      525.        0.        0.       162.        0.       96.       29.     897.70
     1.65      0.00      3.23      0.00      .100      .063      .100      .063    891.20     66.60
  .005809      110.      110.      110.         3         0         0      0.00     66.31    132.91


CCHV=    .400 CEHV=    .800
*SECNO 144.300
 2800 NAT Q1=      47.34  WSEL=    898.19  ENC Q1=      50.25  WSEL=    898.29  RATIO=  -.0615
 NAT Q1=      50.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    898.29

3470 ENCROACHMENT STATIONS=      22.0     137.0  TYPE=      4  TARGET=       0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      900.00 ELREA=      900.00


        **PLUGGED 3' DIA RCP

   144.30      3.68    898.18      0.00    898.19    898.47       .29      2.66       .10    900.70
     525.        0.      525.        0.        0.       121.        0.       97.       30.     901.00
     1.67      0.00      4.33      0.00      .100      .063      .100      .063    894.50     75.35
  .012384      325.      325.      325.         2         0         0      0.00     56.28    131.63


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       2.20       2.90      150.00      3.00       0.00       7.07       0.00     894.50     894.50

*SECNO 144.700
 2800 NAT Q1=     213.77  WSEL=    902.19  ENC Q1=     221.62  WSEL=    902.29  RATIO=  -.0367
 NAT Q1=     222.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    902.29
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
   144.70      7.69    902.19      0.00    902.19    902.22       .03       .12       .11    904.30
     525.        0.      525.        0.        0.       385.        0.       97.       30.     902.80
     1.68      0.00      1.36      0.00      .100      .063      .100      .063    894.50     21.12
  .000606       71.       71.       71.         0         0         9      0.00    105.08    126.20


CCHV=    .100 CEHV=    .300
*SECNO 145.000
 2800 NAT Q1=     103.20  WSEL=    902.33  ENC Q1=     108.02  WSEL=    902.43  RATIO=  -.0467
 NAT Q1=     108.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    902.43
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNP       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST
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   145.00      5.92   902.32      0.00   902.33   902.41      .09      .18      .02   906.20
     525.       0.     525.       0.       0.     222.       0.      98.      30.    904.70
     1.70      0.00     2.36     0.00     .100     .063     .100     .063   896.40    38.76
  .002609      160.     160.     160.        2        0        0     0.00    79.37   118.12


CCHV=    .400 CEHV=    .800
*SECNO 146.300
 2800 NAT Q1=      49.57  WSEL=    903.17  ENC Q1=      52.64  WSEL=    903.27  RATIO=  -.0618
 NAT Q1=     53.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    903.27

        **CULVERT UNDER ASPHALT DRIVE

   146.30      4.57   903.17      0.00   903.17   903.43      .26      .88      .14   908.40
     525.       0.     525.       0.       0.     128.       0.      99.      31.    906.90
     1.71      0.00     4.10     0.00     .100     .063     .100     .063   898.60    52.32
  .011248      185.     185.     185.        2        0        0     0.00    59.60   111.91


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       2.25       3.00     250.00       3.00       0.00       7.07       0.00     898.60     898.60

*SECNO 146.700
 2800 NAT Q1=     472.85  WSEL=    905.72  ENC Q1=     472.85  WSEL=    905.82  RATIO=    .0000
 NAT Q1=     492.  RATIOS LOB,CH,ROB=    .5644    .4270    .0087  WSEL=    905.82
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION    146.70 EXTENDED        .12 FEET


3470 ENCROACHMENT STATIONS=       49.0      298.0  TYPE=      4  TARGET=         .039
   146.70      7.12   905.72      0.00   905.72   905.73      .01      .04      .10   899.80
     525.      292.     233.       0.     699.     294.       0.     100.      31.    904.40
     1.76       .42      .79     0.00     .100     .063     .100     .063   898.60    48.95
  .000135      100.     100.     100.        0        0       10     0.00   249.05   298.00


CCHV=    .100 CEHV=    .300
*SECNO 146.800
 2800 NAT Q1=     397.14  WSEL=    905.73  ENC Q1=     397.14  WSEL=    905.83  RATIO=    .0000
 NAT Q1=     415.  RATIOS LOB,CH,ROB=    .5524    .4436    .0041  WSEL=    905.83

3470 ENCROACHMENT STATIONS=       56.7      298.0  TYPE=      4  TARGET=         .044
   146.80      6.73   905.73      0.00   905.73   905.74      .01      .01      .00   900.20
     525.      281.     244.       0.     604.     271.       0.     101.      31.    904.80
     1.79       .47      .90     0.00     .100     .063     .100     .063   899.00    56.65
  .000192       60.      60.      60.        0        0        0     0.00   241.35   298.00


CCHV=    .300 CEHV=    .500
*SECNO 146.900

3370 NORMAL BRIDGE, NRD=  0 MIN ELTRD=  905.90 MAX ELLC=  904.20
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      **FOOTBRIDGE

   146.90     6.74   905.74     0.00   905.74   905.82      .08      .05      .04   905.90
     525.       0.     525.       0.       0.     234.       0.     103.      32.    905.90
    1.80     0.00     2.25     0.00     .100     .063     .100     .063   899.00   172.69
 .006359      90.      90.      90.        2        0        0  -164.85   124.43   297.12


*SECNO 146.910
 2800 NAT Q1=      50.70  WSEL=     906.01  ENC Q1=      55.13  WSEL=     906.11  RATIO=   -.0873
 NAT Q1=      55.  RATIOS LOB,CH,ROB=    .0006    .9990    .0005  WSEL=     906.11
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       QLOSS    BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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=  0 MIN ELTRD=  905.90 MAX ELLC=  904.20


3470 ENCROACHMENT STATIONS=      170.0      298.0  TYPE=      4  TARGET=         .001
   146.91     7.02   906.02     0.00   906.01   906.08      .07      .26      .00   905.90
     525.       0.     525.       0.       0.     248.       0.     103.      32.    905.90
    1.80     0.00     2.11     0.00     .100     .063     .100     .063   899.00   170.00
 .010659      32.      32.      32.        2        0        0  -184.52   128.00   298.00


CCHV=     .100 CEHV=     .300
*SECNO 147.000
 2800 NAT Q1=     128.82  WSEL=     907.08  ENC Q1=     128.82  WSEL=     907.18  RATIO=    .0000
 NAT Q1=     137.  RATIOS LOB,CH,ROB=    .2847    .7075    .0078  WSEL=     907.18

3470 ENCROACHMENT STATIONS=      187.5      312.0  TYPE=      4  TARGET=         .060
   147.00     6.43   907.13     0.00   907.08   907.20      .07     1.12      .00   905.10
     525.      130.     395.       0.     143.     166.       0.     105.      33.    905.80
    1.84      .91     2.39     0.00     .100     .063     .100     .063   900.70   187.46
 .001796      310.     310.     310.        3        0        0     0.00   124.54   312.00


*SECNO 148.000
 2800 NAT Q1=      29.30  WSEL=     911.85  ENC Q1=      33.26  WSEL=     911.95  RATIO=   -.1351
 NAT Q1=      33.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     911.95

3470 ENCROACHMENT STATIONS=      276.0      450.0  TYPE=      4  TARGET=         0.000
   148.00     1.67   911.97     0.00   911.85   912.24      .27     4.98      .06   914.20
     525.       0.     525.       0.       0.     126.       0.     110.      36.    914.00
    1.92     0.00     4.15     0.00     .100     .063     .100     .063   910.30   306.86
 .023859     1125.    1125.    1125.        5        0        0     0.00   103.68   410.55


CCHV=     .200 CEHV=     .400
*SECNO 149.000
 2800 NAT Q1=     108.76  WSEL=     918.12  ENC Q1=     108.76  WSEL=     918.22  RATIO=    .0000
 NAT Q1=     116.  RATIOS LOB,CH,ROB=    .3450    .2927    .3623  WSEL=     918.22

3470 ENCROACHMENT STATIONS=      170.8      281.3  TYPE=      4  TARGET=         .060
   149.00     4.95   918.15     0.00   918.12   918.21      .06     5.92      .04   915.00
     525.      175.     165.     185.     119.      60.     133.     116.      38.    915.40
    2.07     1.47     2.75     1.38     .100     .063     .100     .063   913.20   170.76
 .002542     1025.    1025.    1025.        7        0        0     0.00   110.49   281.25
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*SECNO 150.000
 2800 NAT Q1=      39.05  WSEL=     922.00  ENC Q1=      41.46  WSEL=     922.10  RATIO=  -.0617
 NAT Q1=      41.  RATIOS LOB,CH,ROB=    .0001    .9999    .0000  WSEL=     922.10

3470 ENCROACHMENT STATIONS=      167.0     202.0  TYPE=      4  TARGET=         .000
   150.00      4.34    922.14      0.00   922.00   922.60      .47      4.24      .16   922.00
     525.       0.      525.       0.       0.       96.       0.       119.      39.    922.10
     2.12      0.00     5.48      0.00     .100     .063      .100     .063   917.80   167.00
  .015322      825.     825.      825.        3        0         0      0.00    35.00   202.00
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1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: BISHOP CREEK

4) DOCUMENT TYPE: 100 YR



3265 DIVIDED FLOW

3280 CROSS SECTION 13251.00 EXTENDED 0.96 FEET

DAM NORTH OF I-96

13251.00	3.95	896.85	0.00	0.00	896.85	0.00	0.00	0.00	896.10
20.	0.	0.	20.	0.	0.	584.	70.	30.	946.10
7.13	0.00	0.00	0.03	0.000	0.000	0.100	0.000	892.90	0.00
0 000002	616.	616.	616.	1	0	0	0.00	349.25	575.00

0

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	1.00	3.00	8.00	0.01	0.00	0.01	0.00	892.90	892.90

*SECNO 13311.000
PRESSURE AND WEIR FLOW

1

13 FEB 89 10:21:11 PAGE 51

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 AREA	ELLC	ELTRD
63068 65	896.85	0.00	20.	0.	0.	0.	892.30	895.40

3685 20 TRIALS ATTEMPTED WSEL, CWSEL
3720 CRITICAL DEPTH ASSUMED

13311.00	1.65	897.05	897.05	0.00	897.51	0.45	0.00	0.00	898.90
20.	0.	20.	0.	0.	4.	0.	70.	31.	898.90
7.14	0.00	5.40	0.00	0.000	0.040	0.000	0.000	895 40	2.87
0.041615	60.	60	60.	20	18	0	0.00	4 26	7.13

0
1

13 FEB 89 10:21:11 PAGE 52

THIS RUN EXECUTED 13 FEB 89 10:21:55

****
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 CITY OF NOVI
T2 100 YEAR FLOOD
T3 BISHOP CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	4.	0	0.	0.000000	0.00	0.0	0.	842.670	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE

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      3.000      0.000     -1.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
1
  13 FEB 89    10:21:11                                                                                  PAGE    53

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITR1AL    IDC       ICONT     CORAR     TOPWID      ENDST

 *PROF 3

 CCHV=    0.300 CEHV=    0.500
 *SECNO 0.000

 3470 ENCROACHMENT STATIONS=     1065.0     1215 0  TYPE=      1  TARGET=      150.000
                  300 FT. U/S OF CONFLUENCE WITH PATNALES
      0.00      6.07    842.67      0.00    842.67    842.68      0.01      0.00      0.00    838.60
       310      147.      145.        18       304.      122.       27.        0.        0.     840.90
      0.00      0.49      1.19      0.66     0.100     0.050     0.030     0.000    836.60   1065.00
  0.000212         0        0.        0.         0         0         0      0.00    145.78   1210.78
0
 *SECNO 475 000
    475.00      5.31    842.81      0.00      0.00    842.86      0.04      0.16      0.02    845.60
       310.        0.      113.      197.        0.      77.       111.         3.        1.     839.20
      0.08      0.00      1.47      1.78     0.000     0.050     0.030     0.000    837.50    775.15
  0.000591      475.      475.      475.         2         0         0      0.00     86.07    861.22
0
 *SECNO 950.000
    950.00      4.78    843.18      0.00      0.00    843.26      0.07      0.39      0 01    846.50
       310.        0.      126.      184.        0.      64.        81.         5.        2.     840.10
      0.14      0.00      1.96      2.28     0.000     0.050     0.030     0.000    838.40    777.26
  0.001193      475.      475.      475.         2         0         0      0.00     75.01    852.27
0
 *SECNO 1081.000
    1081.00     4.07    843.39      0.00      0.00    843.55      0.16      0.25      0.04    847.42
       310.        0.      152       158.        0       49.       47.         6.        2.     841.02
      0.15      0.00      3.11      3 33      0 000     0.050     0.030     0.000    839.32    780 14
  0.003616       125       131.      125.         2         0         0      0.00     59.97    840.10
0
 *SECNO 1212.000
    1212 00     3.71    843.96      0.00      0.00    844.21      0.26      0.62      0.05    848.35
       310.        0.      170.      140.        0.      42.        34.         6.        3.     841 95
      0.16      0.00      4.04      4.09     0.000     0.050     0.030     0.000    840.25    781.56
  0 006783       125.      131.      125.         2         0         0      0.00     52.50    834.06
0
 *SECNO 1475 000
    1475.00     3 67    845 77      0.00      0.00    846.04      0.27      1.82      0.01    850.20
       310.        0.      173       137.        0.      41.        33.         6.        3.     843.80
      0.18      0.00      4 18      4 20     0.000     0.050     0.030     0.000    842.10    781.75
  0.007391       250.      263       250.         3         0         0      0.00     51.53    833.28
0
1
  13 FEB 89    10:21:11                                                                                  PAGE    54

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 1737.000
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  1737.00      3.48    847.43      0.00      0.00    847.65      0.22      1.60      0.02    846.95
     310.        6.      275.       29.        4.       70.       15.        7.        3.    846.65
     0.20      1.39      3.95      1.92     0.030     0.050     0.030     0.000    843.95    981.41
 0.005233      250.      262.      250.         2         0         0      0.00     83.72   1065.13
0
 *SECNO 2001.000

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      848.80 ELREA=      848 50

                TEN MILE ROAD BRIDGE
  2001.00      2.46    848.26    848.26      0.00    849.09      0.83      0.85      0.31    848.80
     310.        0       310.        0.         0       42.        0.        7.        4.    848.50
     0.21      0.00      7.32      0.00     0.000     0.013     0 000     0.000    845.80   1000.95
 0.002170      251       264.      251.         3        16         0      0.00     25.54   1026.49
0

 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       1.98       2.90       0.00       8.20       0.00       19.50      0.00       845.80     845.80

 *SECNO 2038.800

 3301 HV CHANGED MORE THAN HVINS

 PRESSURE AND WEIR FLOW

  EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                        AREA
    856.03    849.09      0.00       108.       203         20.        24.       848.70     851.10

  2038.80      5.77    851.57      0.00      0.00    851.58      0.01      2.49      0.00    848.80
     310.       62.      138.      109.      150.      132.      215.        7.        4.    848 50
     0.22      0.42      1.05      0.51     0.015     0.013     0.015     0.000    845.80    874.24
 0.000011       38.       38.       38.         0         0         7      0.00    282.20   1156.44
0
1
 13 FEB 89    10:21:11                                                                          PAGE    55

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 2440.000
  2440.00      3.92    851.47      0.00      0.00    851.71      0.23      0.02      0.11    850.95
     310.        7.      287.       16         5.       72.        9.        10        5.    850.85
     0.25      1.44      4.01      1.85     0.030     0 050     0.030     0.000    847.55    584.33
 0.005010      351.      401.      376.         3         0         0      0.00     72.78    657.11
0
 *SECNO 2840.000
  2840.00      4.44    853.44      0.00      0.00    853.69      0.25      1.98      0.01    852.80
     310         6       299.        5.        4.       73.        4.        11.        6.    853.00
     0.28      1 64      4.09      1.28     0.030     0.050     0.030     0 000    849.00    193.13
 0.004922      350.      400.      375.         2         0         0      0.00     53.49    246.62
0
```

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 *SECNO 3178.000
   3178.00      3.40    856.00      0.00      0.00    856.56      0.56      2.71      0.16    855.70
      310.        3.      307.        0.        1.       51.        0.       11.        6.    856.40
      0.29      2 01      6.04      0.00     0.030     0.050     0.000     0.000    852.60    180.75
  0 015491      288.      338.      294.         3         0         0      0 00     31.88    212.63
0
 *SECNO 3515.000
   3515.00      3.71    859.91      0.00      0.00    860.22      0.32      3.59      0.07    858.70
      310.       30.      280.        0.       26.       59.        0.       12.        6     859.80
      0.31      1.16      4.74      0.19     0.100     0.050     0.100     0.000    856.20    131.60
  0.007874      287.      337.      294          4         0         0      0.00     68.06    199.66
0
 *SECNO 3853.000
   3853.00      3.08    862.88      0.00      0.00    863.16      0.28      2.92      0.01    861.60
      310.       81       229.        0.       62.       47.        0.       12.        7.    863.20
      0.34      1.32      4.89      0.00     0.100     0.050     0.000     0.000    859.80     66.09
  0.010105      288.      338.      294.         4         0         0      0.00    114.02    180.12
0
 *SECNO 4190.000
   4190.00      2.42    865.82      0.00      0.00    865.92      0.10      2.71      0.05    864.60
      310.      188.      122.        0.      126.       34         0.       13.        8.    866 70
      0 37      1.49      3.63      0.00     0.100     0.050     0.000     0.000    863.40     39.67
  0.007380      287.      337.      293.         3         0         0      0.00    122.59    162.26
0
1
  13 FEB 89     10:21:11                                                                          PAGE    56

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 4915.000
   4915.00      4.88    868.78      0.00      0.00    868.98      0.19      3.01      0.05    868.30
      310.        1.      302.        7.         3       84.       12.       15.        9.    867.90
      0.43      0.41      3.58      0.57     0 100     0.050     0.100     0 000    863.90    109.24
  0.003200      475.      725       625.         3         0         0      0.00     67.64    176.89
0
 *SECNO 5640.000
   5640.00      6.17    870.57      0.00      0.00    870.69      0.12      1.69      0.02    872.60
      310.        0.      284.       26.        0.       98.       44.       17        10.    869.80
      0 50      0.00      2.89      0 59     0.000     0 050     0.100     0.000    864.40    103.62
  0.001792      475       725.      625.         3         0         0      0 00     74.95    178.57
0
 *SECNO 5790.000
   5790.00      6.32    870 82      0.00      0.00    870.87      0.05      0.16      0 02    870.80
      310         0.      230.       80.        0.      115.      124.       18.       10.    868.60
      0.53      0.00      1.99      0.64     0.000     0.050     0.100     0.000    864 50    169.26
  0.000725      150.      150       150.         2         0         0      0.00     91.42    260.68
0
 *SECNO 5940.000
   5940.00      6.33    870.93      0.00      0.00    870.95      0.02      0.07      0.01    869.10
      310.       13.      186.      111.       43.      123.      208.       19.       11.    867.60
      0.56      0.30      1.51      0.54     0.100     0.050     0.100     0.000    864.60    191.97
  0.000329      150.      150.      150.         2         0         0      0.00    153.07    345.04
0
 *SECNO 5965.000
   5965.00      6.33    870.93      0.00      0.00    870.96      0.02      0.01      0.00    869.10
      310.       13.      185.      111.       44.      124.      209.       19.       11.    867.60
      0.57      0.30      1 50      0.53     0.100     0.050     0.100     0.000    864.60    191.60
  0.000325       25.       25.       25.         0         0         0      0.00    153.52    345.13
0
 *SECNO 6090 000
   6090.00      6.28    870.98      0.00      0.00    870.99      0.01      0.03      0.00    867 70
```

310.	55.	135	120	167.	121.	289.	20.	11.	866.90
0.62	0.33	1.12	0.41	0.100	0.050	0.100	0.000	864.70	221.23
0.000161	125	125.	125	0	0	0	0.00	211.11	432.34

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 6220.000

6220.00	6.20	871.00	0.00	0.00	871.01	0.00	0.02	0.00	866.70
310.	104.	95.	112.	337.	110.	349.	22.	12.	866.50
0.69	0.31	0.86	0.32	0.100	0.050	0.100	0.000	864.80	260.58
0.000096	130.	130.	130.	0	0	0	0.00	268.77	529.35

0
*SECNO 6241 000
GRAND RIVER AVE. BRIDGE

6241.00	6.20	871.00	0.00	0.00	871 01	0.00	0.00	0.00	866.70
310	119.	63.	128.	337.	110.	349.	23.	12.	866.50
0.71	0.35	0.57	0.37	0 015	0.013	0.015	0.000	864.80	260.68
0.000003	21.	21.	21.	0	0	0	0.00	268.56	529.25

0

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	2.00	2.70	0.00	5 00	0.00	28.00	0.00	864.80	864.80

*SECNO 6305.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
874.81	871.01	0.00	97.	215.	28.	30.	870.80	872.40

6305.00	8.04	872.84	0.00	0.00	872 84	0.00	1.83	0.00	866.70
310	127.	49.	134.	591.	148.	604	24.	13.	866.50
0 78	0.21	0.33	0.22	0.015	0.013	0.015	0.000	864.80	230.58
0.000001	64.	64.	64.	0	0	5	0.00	328 28	558.86

0
*SECNO 6311.000

6311.00	8.04	872.84	0.00	0.00	872.84	0.00	0.00	0.00	866.70
400.	146.	99.	155.	591.	148.	604.	25.	13.	866.50
0.79	0 25	0.67	0.26	0.100	0.050	0.100	0.000	864.80	230.60
0.000039	6.	6	6.	0	0	0	0.00	328.25	558.85

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 6450.000

6450 00	7.97	872.84	0.00	0 00	872 85	0 00	0.01	0.00	866.77

```
     400.      146.      100.      154.      580.      147.      593.       30.       14.     866.57
     0.91      0 25      0 68      0.26     0.100     0.050     0.100     0.000    864 87    231.71
  0.000041     189.      139.      140.         0         0         0      0.00    326.05    557.76
0
 *SECNO 6900.000

 3470 ENCROACHMENT STATIONS=        0.0      500.0  TYPE=      1  TARGET=      499.999
   6900.00     7.76    872 86      0.00      0.00    872.87      0.00      0.02      0.00    867.00
     400.      137.      184.       79.      559.      268.      331.       44.       18.     866.30
     1.22      0.25      0 69      0.24     0.100     0.050     0.100     0.000    865.10    206.56
  0.000038     606.      450.      455.         0         0         0      0.00    262.28    468.83
0
 *SECNO 7403.000
   7403.00     3.37    872.69      0.00      0.00    872.95      0.06      0 06      0.03    871.72
     400.       41.      207.      152.       52.       82.      140        52.       20.     870.62
     1.30      0.78      2.54      1.09     0 100     0.050     0.100     0.000    869.52     33.93
  0.001956     425.      503.      525.         1         0         0      0.00    139.22    173.15
0
 *SECNO 7504.000
                MEADOWBROOK ROAD BRIDGE
   7504 00     2.99    872.99      0.00      0.00    873.08      0.09      0.11      0.02    871.10
     400.       31.       28.      340.       26.       10.      139.       53.       20.     870.50
     1 31      1.23      2.97      2.44     0.025     0.025     0.025     0.000    870.00    954.56
  0.000812     176.      101.       76.         2         0         0      0.00    133.38   1087.94
0

 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      2.42      2.70      0.00      4.00      0.00      12.60     0.00      870.00    870.00

 *SECNO 7535 000

 3265 DIVIDED FLOW

1
  13 FEB 89     10:21:11                                                                    PAGE    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

 PRESSURE AND WEIR FLOW

  EGPRS       EGLWC       H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                       AREA
     910.86    873.08      0 00       271.       130.        13.        12.       873.00    875.40

   7535.00     6.97    876 97      0.00      0.00    876.97      0.00      3 89      0.00    871.10
     400.      100.       15.      284.      218.       25.      528.       53.       20.     870.50
     1.33      0.46      0.60      0.54     0.025     0.025     0.025     0.000    870.00    592.14
  0.000009      31.       31.       31.         0         0        11      0.00    243.34   1111.01
0
 *SECNO 7735.000
   7735.00     5.32    876.92      0.00      0.00    877.03      0.12      0.01      0.06    875.00
     400.       16       324       59.       28.      107.       73.       55.       21.     873.80
     1.35      0.59      3.03      0.81     0.100     0.050     0.100     0.000    871.60    270.84
  0 001653     200.      200.      200.         2         0         0      0.00    102.23    373.07
0
 *SECNO 8186.000
```

DRIVEWAY CULVERT 600 FT. D/S OF ELEVEN MILE ROAD BRIDGE

8186.00	5.26	877.46	0.00	0.00	877.63	0.38	0.67	0.13	872.50
400.	59.	208.	133.	47.	31.	111.	57.	22.	872.40
1.38	1.26	6.74	1.20	0.070	0.024	0.070	0.000	872.20	147.15
0.001346	451.	451.	451.	2	0	0	0 00	93.51	240.66

0

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	2.20	2.60	0.00	4.80	0.00	11.40	0.00	872.20	872.20

*SECNO 8202.000

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

1

13 FEB 89 10:21:11 PAGE 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

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
919.51	877.83	0.00	322.	82.	11.	13.	874.90	876.80

8202.00	7.24	879.14	0.00	0.00	879.21	0.07	1.37	0.00	872.20
400	75.	146.	180.	117.	43.	236.	58.	22.	872.10
1.38	0.64	3.41	0.76	0.070	0.024	0.070	0.000	871.90	62.48
0.000223	16.	16	16.	2	0	8	0.00	119.44	245.72

0

*SECNO 8475.000

8475.00	5.95	879 25	0.00	0.00	879.33	0.08	0.12	0.01	879.40
400	0	400.	0.	0.	171.	0.	59.	23.	885.40
1.41	0.00	2.33	0.00	0.000	0.050	0.000	0.000	873.30	143.49
0 001150	276.	273	276	2	0	0	0.00	46.74	190.22

0

*SECNO 8751.000

3470 ENCROACHMENT STATIONS= 190.0 400.0 TYPE= 1 TARGET= 210.000

ELEVEN MILE ROAD BRIDGE

8751.00	5.86	879.36	0.00	0.00	879.36	0.00	0.01	0.02	874.10
400	54.	7.	339.	158.	17.	859.	63.	23.	873.70
1.61	0.34	0.44	0.39	0.025	0.024	0.025	0.000	873.50	190.00
0.000005	276.	276	276.	2	0	0	0.00	210.00	400.00

0

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	2.88	2.90	0.00	3.00	0.00	7.10	0.00	873.50	873.50

*SECNO 8791.000

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1021.30	879.36	0.00	392.	8.	7.	10.	876.90	877.10

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 190.0 400.0 TYPE= 1 TARGET= 210 000

8791.00	5.91	879.41	0.00	0.00	879.42	0.00	0.05	0.00	874.10
400.	54.	7	339.	160.	17.	869.	64.	24.	873.70
1.64	0.34	0.43	0.39	0.025	0.024	0.025	0.000	873.50	190.00
0.000005	40.	40	40.	0	0	11	0.00	210.00	400.00

0

*SECND 8808.000

3470 ENCROACHMENT STATIONS= 183.0 423.0 TYPE= 1 TARGET= 240.000

FIELD CULVERT 15 FT. U/S OF ELEVEN MILE ROAD BRIDGE

8808.00	6.31	879.41	0.00	0.00	879.42	0.00	0.00	0.00	873.50
400	0.	0.	400.	0.	0.	1243.	65.	24.	100000.00
1.66	0.00	0.00	0.32	0.000	0.000	0.040	0.000	873.10	183.00
0.000009	17.	17.	17.	0	0	0	0.00	240.00	423.00

0

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	2.35	2.90	0.00	3.60	0.00	9.40	0.00	873.10	873.10

*SECNO 8824.000

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
945.49	879.42	0.00	392	8.	9.	8.	875.30	875.60

3470 ENCROACHMENT STATIONS= 183.0 423.0 TYPE= 1 TARGET= 240 000

8824 00	6.34	879.44	0 00	0 00	879.44	0 00	0.03	0.00	873.50
400	43.	357.	0.	233	1016.	0.	65.	24.	100000.00
1 67	0.18	0.35	0.00	0.040	0.024	0.000	0.000	873 10	183.00
0.000004	16.	16.	16.	0	0	8	0.00	240.00	423.00

0

*SECNO 9226 000

FIELD CULVERTS 425 FT. U/S OF ELEVEN MILE ROAD BRIDGE

9226.00	5.76	879.36	0.00	0.00	879.53	0.18	0.00	0.09	873.80
400.	120	131.	148.	166.	23.	176.	72	26.	873.80
1.71	0.72	5.81	0.85	0.050	0.013	0.050	0.000	873.60	152.35
0.000258	402.	402.	402.	2	0	0	0.00	231.91	384.26

0

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

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	2.31	2.60	0.00	4.00	0.00	10.00	0.00	873.60	873.60

*SECNO 9269.000
6870 D S. ENERGY OF 879.53 HIGHER THAN COMPUTED ENERGY OF 879 42
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
936 75	879.53	0 00	387.	13.	10.	12.	876.70	877.00

9269.00	6.68	879.48	0.00	0.00	879.53	0.05	0.00	0.00	873.00
400	147.	90.	163.	278.	24.	290.	73.	26.	873.00
1.72	0.53	3.79	0.56	0.050	0.013	0.050	0.000	872.80	144.37
0.000090	43.	43.	43	2	0	10	0.00	260.91	405.29

0
*SECNO 9375.000

9375.00	4.32	879.41	0.00	0.00	879.66	0 25	0.03	0.10	879.09
400.	4.	396.	0.	5	98.	0.	74.	27.	879.59
1.73	0 77	4.06	0.00	0 040	0.050	0.000	0.000	875.09	170.94
0.004908	101.	106.	101.	2	0	0	0.00	63.48	234.42

0
*SECNO 9475.000

9475 00	4.24	879.91	0.00	0.00	880.18	0.27	0.51	0.01	879 67
400.	2.	398	0.	3.	95.	0.	74	27.	880 17
1 74	0.67	4.19	0.00	0.040	0 050	0.000	0.000	875.67	177.84
0.005367	100.	100.	100	2	0	0	0.00	56.34	234.18

0
*SECNO 9575.000

9575 00	4.31	880.56	0.00	0.00	880.71	0 15	0.49	0.04	880.55
400.	0.	216	184.	0.	60.	79.	74.	27.	879.25
1 75	0.02	3.61	2.32	0 000	0.050	0.040	0.000	876.25	99.65
0.004412	100.	100.	100.	2	0	0	0.00	117.85	217.50

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 9675 000

9675.00	4 20	881.04	0.00	0.00	881.22	0.18	0.50	0.02	881.14
400.	0.	229.	171	0.	57.	70.	75.	27.	879.84
1.76	0 00	3.99	2.44	0.000	0.050	0.040	0.000	876.84	100.24
0.005627	100.	100	100.	0	0	0	0.00	114.30	214.54

0
*SECNO 9775 000

9775.00	4 19	881 61	0.00	0.00	881.80	0.19	0.58	0.00	881.72
400.	0.	232.	168.	0.	57.	68.	75.	27.	880.42
1.76	0 00	4.07	2.47	0.000	0.050	0.040	0.000	877 42	100.29
0 005877	100.	100	100.	2	0	0	0.00	113.73	214 02

0
*SECNO 9876.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
DRIVEWAY CULVERT 1075 FT. U/S OF ELEVEN MILE ROAD BRIDGE

9876.00	4.34	882.34	882 34	0.00	882.90	0 56	0.22	0 18	878.40
400.	50.	144.	206	20.	15.	107.	75.	28.	878 20
1.77	2.47	9.62	1.93	0 030	0.013	0.030	0.000	878.00	186.89
0.001090	101.	101.	101.	20	8	0	0.00	119.35	306.25

0

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	1.30	2 60	0.00	3 50	0.00	9 60	0.00	878.00	878.00

*SECNO 9893.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
917.38	882.90	0.00	339.	61.	10.	12.	881.50	882.00

9893.00	5.00	883 00	0.00	0.00	883.17	0.17	0.27	0.00	878 40
400.	49.	104.	246.	34	17.	179.	75.	28.	878.20
1.77	1.45	6.04	1.38	0.030	0.013	0.030	0.000	878.00	168.02
0.000353	17	17.	17.	2	0	9	0.00	144.66	312.68

0
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13 FEB 89 10:21:11 PAGE 64

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 9950.000

9950.00	4.43	883.01	0.00	0.00	883.25	0.24	0.05	0.04	882.88
400.	0.	288.	112.	0.	62.	91.	75.	28.	881.58
1.78	0.20	4.61	1.23	0.100	0.050	0.100	0.000	878.58	96.31
0 006793	51.	57.	51.	2	0	0	0.00	123.91	220.23

0
*SECNO 10000.000

10000.00	4.21	883.37	0.00	0.00	883 72	0.35	0.41	0.05	883.46
400.	0.	308.	92.	0.	58.	70.	76.	28.	882.16
1.78	0.00	5.36	1.31	0.000	0.050	0.100	0.000	879.16	100.23
0.010107	50.	50.	50.	2	0	0	0 00	114.39	214.62

0
*SECNO 10100.000

10100.00	4.12	884.44	0.00	0.00	884.85	0.41	1.10	0.03	884.62
400.	0.	318.	82.	0.	55.	62.	76.	28.	883.32
1.78	0.00	5.74	1.33	0.000	0.050	0.100	0.000	880.32	100.48
0.012034	100.	100.	100.	2	0	0	0.00	111 45	211.93

0
*SECNO 10200.000

10200.00	4 15	885.63	0.00	0.00	886.02	0.39	1.17	0.01	885.78
400.	0.	315.	85	0.	56	64.	76.	29.	884.48
1.79	0.00	5.62	1.33	0.000	0.050	0.100	0.000	881.48	100.40
0.011387	100.	100.	100.	2	0	0	0.00	112.37	212.77

0

*SECNO 10350.000

10350.00	4.10	887.32	0.00	0.00	887.81	0.49	1.73	0.05	885.92
400.	7.	393.	0.	5	69.	0.	76.	29.	887.72
1.80	1.26	5.68	0.00	0.100	0.050	0.000	0.000	883.22	127.20
0.011713	150.	150.	150.	1	0	0	0.00	36.47	163.67

0

*SECNO 10450.000

10450.00	4.11	888.49	0.00	0.00	888.98	0.49	1.17	0.00	887.08
400.	7	393.	0.	5.	69.	0.	77.	29.	888.88
1.80	1.26	5.68	0.00	0.100	0.050	0.000	0.000	884.38	127.21
0.011751	100.	100.	100.	1	0	0	0.00	36.45	163.66

0

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13 FEB 89 10:21:11 PAGE 65

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	GLOB	GCH	QROB	ALOB	ACH	AROB	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 10550.000

10550.00	4 12	889.66	0.00	0.00	890.15	0.49	1.16	0.00	888.24
400.	7.	393.	0.	6.	70.	0.	77.	29.	890.04
1.81	1.25	5.64	0.00	0.100	0.050	0.000	0.000	885.54	127.10
0.011475	100	100	100.	0	0	0	0.00	36.62	163.72

0

*SECNO 10600.000

10600.00	4.11	890.23	0.00	0.00	890.72	0.49	0.57	0.00	888.82
400.	7.	393.	0.	6.	70.	0.	77	29.	890.62
1.81	1.25	5.64	0.00	0.100	0.050	0.000	0.000	886 12	127.11
0.011485	50.	50.	50.	0	0	0	0.00	36.61	163.72

0

*SECNO 10651.000

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

DIRT DRIVE 1850 FT. U/S OF ELEVEN MILE ROAD

10651.00	3.89	890.59	890.59	0 00	891.53	0.94	0.46	0.23	886.90
400.	198.	111.	91.	38.	9	20.	77.	29.	887 10
1.81	5.29	12.37	4.44	0.040	0.024	0.040	0.000	886.70	128.41
0.007195	51.	51.	51.	3	11	0	0 00	34.52	162.93

0

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	2.44	2.80	0.00	2.50	0.00	4.90	0.00	886.70	886.70

*SECNO 10681.000

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1143.07	891 53	0 00	360.	40.	5.	6.	889.20	891.20

10681.00	6.37	893 07	0.00	0.00	893.17	0 10	1.64	0.00	886.90
400.	221.	68.	111.	116.	15.	58.	77.	29.	887.10
1 82	1.91	4.55	1.90	0.040	0.024	0.040	0.000	886.70	103.50
0.000494	30.	30.	30.	2	0	11	0.00	66.17	169.67

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 10755.000

3265 DIVIDED FLOW

10755.00	6.09	893.05	0.00	0.00	893.36	0.31	0.09	0.11	899.66
400	14	383.	3.	16.	84.	3.	77.	29.	891 46
1.82	0.88	4.58	0.85	0.100	0.050	0.100	0.000	886.96	106.70
0.004910	76.	74	76.	2	0	0	0.00	46.92	168 98

0

*SECNO 10795.000

3470 ENCROACHMENT STATIONS= 154.0 274.0 TYPE= 1 TARGET= 120.000

10795 00	6.35	893.45	0.00	0.00	893.47	0.01	0.02	0.09	887.80
400.	139.	236	25.	310.	210.	58.	78.	29.	887.80
1.83	0.45	1.12	0.42	0.100	0.050	0.100	0.000	887.10	154.00
0.000131	40.	40.	40.	2	0	0	0.00	120.00	274.00

0

*SECNO 11026.000

CULVERTS UNDER SUGDEN CONSTRUCTION

11026.00	5 57	893.47	0 00	0.00	893.49	0.02	0.02	0.00	888.00
160	71.	75.	14.	426.	45.	80.	81.	30.	888.20
1.91	0.17	1.68	0.17	0.100	0.013	0.100	0.000	887.90	109.37
0.000023	236.	231.	236.	2	0	0	0 00	169.96	279.33

0

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1 25	3.40	3.00	0.00	6 50	0 20	25.10	0 00	889.50	887.90

*SECNO 11416.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
895.61	893.56	0.00	0.	160.	25.	16.	892.00	900.00

11416.00	6.09	895.59	0.00	0.00	895.61	0.02	2.12	0.00	903.00
160.	0.	160.	0.	0	126.	0.	84.	31.	903.00
1 99	0 00	1.27	0.00	0.000	0 013	0.000	0.000	889.50	14.28
0.000023	390.	390.	390.	2	0	0	0.00	32.44	46.72

0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 11425 000

11425.00	6.09	895.59	0.00	0.00	895.61	0.02	0.00	0.00	903.00
160.	0.	160.	0.	0.	126.	0.	84.	31.	903.00
1.99	0.00	1.27	0.00	0.000	0.040	0.000	0.000	889.50	14.28
0.000214	9	9.	9.	0	0	0	0.00	32.44	46.72

0

*SECNO 11485.000

11485.00	6.00	895.60	0.00	0.00	895.63	0.03	0.01	0.00	903.10
160.	0.	160.	0.	0.	123.	0.	84.	31.	903.10
2.01	0.00	1.30	0.00	0.000	0.040	0.000	0.000	889.60	14.46
0.000229	60.	60.	60.	0	0	0	0.00	32.09	46.54

0

*SECNO 11517.000

PRIVATE ROADWAY BRIDGE 100 FT. U/S OF SUGDEN CONSTRUCTION

11517.00	5.89	895 59	0.00	0.00	895 65	0.07	0.01	0.02	889.70
160.	18.	124.	18.	33.	53.	33.	84.	31.	889.70
2.01	0.54	2.33	0.54	0.100	0.040	0.100	0.000	889.70	14.64
0.000369	32.	32.	32.	1	0	0	0 00	31.72	46.36

0

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	1.72	2 80	0 00	8.20	0.20	25.10	0.00	889 70	889.70

*SECNO 11553.000

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
896.67	895.65	0.00	0.	160.	25.	32.	893.70	903.00

11553 00	6.93	896.63	0.00	0.00	896.67	0.04	1.02	0.00	889.70
160.	21.	119.	21.	46.	62.	46	84.	31.	889.70
2.02	0.44	1.91	0.44	0.100	0.040	0.100	0.000	889.70	12 65
0.000199	36.	36.	36	2	0	0	0.00	35.70	48.35

0

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 11563.000

11563.00	6.93	896.63	0.00	0.00	896.68	0.04	0.00	0.00	889.70
160.	21.	119.	21.	46.	62.	46.	84.	31.	889.70
2.02	0.44	i 91	0.44	0.100	0.040	0.100	0.000	889.70	12.65
0.000199	10.	10.	10.	0	0	0	0.00	35.71	48.35

0

*SECNO 11755.000

11755.00	6.67	896.67	0.00	0.00	896.72	0.05	0.04	0.00	890.00
160.	20	120.	20.	43.	60.	43.	85.	31.	890.00
2.05	0.47	2.00	0.47	0.100	0.040	0.100	0.000	890.00	13.15
0.000231	192.	192.	192.	0	0	0	0.00	34.70	47.85

0

*SECNO 11955.000

11955 00	6.42	896 72	0.00	0 00	896.77	0.05	0.05	0.00	890.30
160.	19	121.	19.	40	58.	40.	85.	31.	890.30
2.09	0.49	2.10	0.49	0.100	0.040	0.100	0.000	890.30	13.65
0.000268	200.	200.	200.	0	0	0	0.00	33.71	47.35

0
*SECNO 12155.000

3470 ENCROACHMENT STATIONS= 35.0 175.0 TYPE= 1 TARGET= 140.000

12155.00	6.30	896.80	0.00	0.00	896.82	0.02	0.04	0.01	899.20
160	0.	160.	0.	0.	159.	0	86.	32.	899.70
2.14	0.00	1.01	0.00	0.000	0.040	0.000	0.000	890.50	38.88
0.000123	200.	200.	200.	2	0	0	0.00	38.56	77.44

0
*SECNO 12355.000

3470 ENCROACHMENT STATIONS= 225.0 265.0 TYPE= 1 TARGET= 40.000

12355.00	8.12	896.82	0.00	0.00	896.84	0.02	0.02	0.00	894.50
160.	0.	151.	9.	0.	139.	35.	87.	32.	894.20
2.19	0.00	1.09	0.25	0.000	0.040	0.100	0.000	888.70	225.00
0.000113	200.	200	200.	1	0	0	0.00	40.00	265.00

0
*SECNO 12425.000
3280 CROSS SECTION 12425.00 EXTENDED 0.24 FEET

1
13 FEB 89 10:21:11 PAGE 69

SECND	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 907.20 ELREA= 907.20

CULVERT UNDER I-96

12425.00	8.24	896.74	0.00	0.00	896.95	0.21	0.01	0.10	891.50
160.	0.	160.	0.	0	43.	0.	87.	32.	891.50
2.20	0.00	3.68	0.00	0.000	0.013	0.000	0.000	888.50	233.10
0.000131	70.	70	70.	2	0	0	0.00	5.80	238.90

0

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	2.00	2.80	300.00	5.80	0.00	28.00	0.00	888.50	888.50

*SECNO 12565.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
897.75	896.78	0.00	0.	160.	28	44.	896.00	907.60

3470 ENCROACHMENT STATIONS= 110.0 410.0 TYPE= 1 TARGET= 300.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 907.60 ELREA= 907.60

12565.00	7.72	897.72	0.00	0.00	897.75	0.03	0.80	0.00	895.90
160.	0.	160.	0.	0.	115.	0.	87.	32.	893.40
2.23	0.00	1.39	0.00	0.000	0.013	0.000	0.000	890.00	250.00
0.000024	140.	140	140.	2	0	0	0.00	22.00	272.00

0
*SECNO 12635.000

12635.00	7.36	897.75	0.00	0.00	897.76	0.00	0.00	0 01	895.90
25.	0.	18.	6.	12.	115.	145.	88.	32.	893 40
2.38	0.02	0.16	0.04	0.100	0.040	0.100	0 000	890.40	236.71
0 000002	70.	70.	70.	2	0	0	0.00	103.29	340.00

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	DLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 13251.000

3265 DIVIDED FLOW

3280 CROSS SECTION 13251.00 EXTENDED 1.87 FEET

DAM NORTH OF I-96

13251.00	4 86	897.76	0.00	0 00	897.76	0.00	0.00	0.00	896.10
25.	0.	0	25.	0.	0.	968.	96.	36.	946.10
9.00	0.00	0.00	0.03	0.000	0.000	0.100	0.000	892.90	0.00
0 000001	616.	616.	616.	0	0	0	0.00	477 30	575.00

0

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	1.00	3.00	8.00	0 01	0.00	0.01	0.00	892.90	892.90

*SECNO 13311.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
97947.45	897.76	0.00	25.	0.	0.	0.	892.30	895.40

13311.00	2.18	897.58	0.00	0.00	897.85	0.27	0.09	0.00	898.90
25.	0.	25.	0.	0.	6.	0.	97.	36.	898.90
9.01	0.00	4.17	0.00	0.000	0.040	0.000	0.000	895.40	2.76
0.016207	60.	60.	60.	3	0	10	0.00	4.47	7.24

0
1

THIS RUN EXECUTED 13 FEB 89 10:22:12

****
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 CITY OF NOVI
T2 500 YEAR FLOOD
T3 BISHOP CREEK

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOV I

3) WATERCOURSE: BISHOP CREEK

4) DOCUMENT TYPE: SUMMARY

00BREAK00

13311.00	3.85	899.25	0.00	0.00	899.35	0.10	0.10	0.00	898.90
36.	0.	35.	0.	1.	14.	1.	121.	41	898.90
10.73	0.36	2.53	0.36	0.100	0.040	0.100	0.000	895.40	0.00
0.002929	60.	60.	60.	2	0	8	0.00	10 00	10.00

0
1

THIS RUN EXECUTED 13 FEB 89 10:22:27

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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

BISHOP CREEK

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
0.000	841.56	0.00	841.57	126.48	67.82	81.04	1.15	150.00	1065.00	1154.00	1180.00	1215.00
0.000	842.35	0.00	842.36	140.22	113.70	116.65	9.65	150.00	1065.00	1154.00	1180.00	1215.00
0.000	842.67	0.00	842.68	145.78	147.30	144.60	18.10	150.00	1065.00	1154.00	1180.00	1215.00
0.000	843.30	0.00	843.32	150.00	219.55	201.30	49.14	150.00	1065.00	1154.00	1180.00	1215.00
475.000	841.69	0.00	841.72	62.52	0.00	71.05	78.95	0.00	0.00	764.00	800.00	0.00
475.000	842.47	0.00	842.51	78.96	0.00	93.60	146.40	0.00	0.00	764.00	800.00	0.00
475.000	842.81	0.00	842.86	86.07	0.00	112.81	197.19	0.00	0.00	764.00	800.00	0.00
475.000	843.47	0.00	843.53	99.80	0.00	152.62	317.38	0 00	0.00	764 00	800.00	0.00
950.000	842.14	0.00	842.20	53.16	0.00	81 46	68.54	0.00	0.00	764.00	800.00	0 00
950.000	842.83	0.00	842.89	67 62	0.00	106.42	133.58	0.00	0.00	764.00	800.00	0.00
950.000	843.18	0.00	843.26	75.01	0.00	126.09	183.91	0.00	0.00	764.00	800.00	0.00
950 000	843.85	0.00	843.94	88.89	0.00	166.75	303.25	0.00	0.00	764.00	800.00	0.00
1081.000	842.42	0.00	842 57	39.83	0.00	102.40	47.60	0.00	0.00	764.00	800.00	0.00
1081.000	843.04	0.00	843 19	52.81	0.00	131.06	108 94	0.00	0.00	764.00	800.00	0.00
1081.000	843.39	0.00	843.55	59.97	0.00	152 11	157.89	0.00	0.00	764.00	800.00	0.00
1081.000	844.03	0.00	844.21	73.38	0.00	194.65	275.34	0.00	0.00	764.00	800.00	0.00
1212.000	843 20	0.00	843.40	36.66	0.00	108.60	41.40	0.00	0.00	764.00	800.00	0.00
1212 000	843.67	0.00	843 90	46.45	0.00	145.58	94.42	0.00	0.00	764 00	800.00	0.00
1212.000	843.96	0.00	844.21	52.50	0.00	170.11	139.89	0.00	0.00	764.00	800.00	0.00
1212.000	844.50	0.00	844.80	63.93	0.00	218.48	251 52	0.00	0.00	764.00	800.00	0.00
1475 000	845.08	0.00	845.26	37.11	0.00	107.70	42.30	0.00	0.00	764.00	800.00	0.00
1475.000	845.51	0.00	845.75	46.18	0.00	146.26	93.74	0.00	0.00	764.00	800.00	0.00
1475.000	845.77	0.00	846.04	51.53	0.00	172.76	137.24	0.00	0.00	764.00	800.00	0.00
1475.000	846.21	0.00	846.56	61.11	0.00	226.99	243.01	0.00	0.00	764.00	800.00	0.00
1737.000	846.66	0.00	846.80	26.78	0.00	150.00	0 00	0.00	0.00	1000.00	1027.00	0.00
1737.000	847.16	0.00	847.36	59.79	0.67	230.18	9 14	0.00	0.00	1000 00	1027.00	0.00
1737.000	847.43	0.00	847.65	83.72	6.25	275.10	28.65	0.00	0.00	1000.00	1027.00	0.00
1737.000	847.89	0.00	848.11	123.65	35.03	342 29	92.68	0.00	0.00	1000.00	1027.00	0.00

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	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	2001 000	847.54	0.00	848.10	22.72	0.00	150.00	0 00	0.00	0.00	1000.00	1027.00	0.00
*	2001.000	847.96	0.00	848.70	24.38	0.00	240.00	0.00	0.00	0.00	1000.00	1027.00	0.00
*	2001.000	848.26	0.00	849.09	25.54	0.00	310.00	0.00	0.00	0.00	1000.00	1027.00	0.00
*	2001.000	848.99	0.00	849.84	58.56	0.59	460.50	8.92	0.00	0.00	1000.00	1027.00	0.00
*	2038.800	848.22	0.00	849.32	25.39	0.00	150 00	0.00	0 00	0.00	1000.00	1027.00	0.00
*	2038.800	848.70	0.00	850.59	36.56	0.00	240.00	0.00	0.00	0.00	1000.00	1027 00	0.00
	2038.800	851.57	0.00	851 58	282.20	62.45	138.32	109.24	0.00	0.00	1000.00	1027.00	0.00
	2038.800	851.83	0.00	851.85	328.14	106 12	192.73	171.15	0.00	0.00	1000.00	1027.00	0.00
	2440.000	850.82	0.00	850.93	25.76	0.00	150.00	0.00	0.00	0.00	602.50	628.50	0 00
	2440.000	852.01	0.00	852.07	113.23	23.42	176.10	40.48	0.00	0.00	602.50	628.50	0.00
	2440.000	851.47	0.00	851.71	72.78	6.83	286.69	16.47	0.00	0.00	602.50	628.50	0 00
	2440.000	851.67	0.00	852.06	88.59	21.79	404.47	43.75	0.00	0.00	602.50	628.50	0.00
	2840.000	852.36	0.00	852.52	22.27	0.00	150.00	0.00	0.00	0.00	205.00	230.00	0.00
	2840.000	852.77	0.00	853.05	24.20	0.00	240 00	0.00	0.00	0.00	205.00	230.00	0.00
	2840.000	853.44	0.00	853.69	53.49	6.31	298.91	4.78	0.00	0.00	205.00	230.00	0.00
	2840.000	854.08	0.00	854.34	88.64	36.33	386.81	46 86	0.00	0.00	205.00	230 00	0.00
	3178.000	854.98	0.00	855 39	18.70	0.00	150.00	0.00	0 00	0.00	189.50	213.70	0.00
	3178.000	855.83	0 00	856 23	26.89	0.23	239.77	0.00	0 00	0.00	189.50	213.70	0.00
	3178.000	856.00	0.00	856.56	31.88	2.86	307.14	0.00	0.00	0.00	189.50	213.70	0.00
	3178.000	856.42	0.00	857.21	42.59	29.18	440.82	0.00	0.00	0.00	189.50	213.70	0.00
	3515.000	858.99	0.00	859.22	32.50	0.87	149.13	0 00	0.00	0.00	174.00	197.50	0.00
	3515.000	859.47	0.00	859.79	48.43	10.39	229.61	0.00	0.00	0.00	174.00	197.50	0 00
	3515.000	859.91	0.00	860.22	68.06	29.82	280.16	0 02	0.00	0.00	174.00	197.50	0 00
	3515.000	860.54	0.00	860.89	102.37	83.31	382.60	4.09	0.00	0.00	174.00	197 50	0.00
	3853.000	862.15	0.00	862.43	61.12	10.38	139.62	0.00	0.00	0.00	158.50	181.20	0 00
	3853 000	862.67	0.00	862.93	107.12	49.20	190.80	0.00	0.00	0.00	158.50	181.20	0.00
	3853.000	862.88	0.00	863.16	114.02	81.45	228.55	0.00	0.00	0.00	158.50	181.20	0.00
	3853 000	863.29	0.00	863.59	126.33	169.97	300.03	0.00	0.00	0.00	158 50	181.20	0.00
	4190.000	865.28	0.00	865.36	113.21	78.49	71.51	0 00	0.00	0.00	143.00	165.00	0.00
	4190.000	865 58	0 00	865.67	119 42	138.72	101.28	0.00	0.00	0.00	143.00	165.00	0.00
	4190.000	865.82	0.00	865.92	122 59	188.22	121 78	0.00	0.00	0.00	143.00	165.00	0.00
	4190.000	866.21	0.00	866.34	125.08	302 10	167.90	0.00	0.00	0.00	143.00	165.00	0.00
	4915.000	867.79	0.00	867.88	24.29	0.00	150.00	0.00	0.00	0.00	121.50	147.00	0.00
	4915.000	868.44	0.00	868.59	47.03	0.06	238.23	1.71	0.00	0.00	121.50	147.00	0 00
	4915.000	868.78	0.00	868.98	67.64	1.37	301.71	6.92	0.00	0.00	121.50	147.00	0.00
	4915.000	869.39	0.00	869.65	101.54	10.90	427.85	31.24	0.00	0.00	121.50	147.00	0.00
	5640.000	869.21	0.00	869.29	22.11	0.00	150.00	0.00	0.00	0.00	100.00	129.00	0.00
	5640.000	870.10	0.00	870.21	72.55	0.00	232.28	7.72	0.00	0.00	100.00	129 00	0.00
	5640.000	870.57	0.00	870.69	74.95	0 00	284.06	25.93	0 00	0.00	100.00	129 00	0.00
	5640 000	871.38	0.00	871.52	79.10	0.00	391.66	78.34	0.00	0.00	100.00	129.00	0.00

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SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
5790.000	869.42	0.00	869.46	81.61	0.00	136.89	13.11	0 00	0.00	169.70	196.70	0.00
5790.000	870 34	0.00	870.38	87.98	0.00	189.75	50.25	0.00	0.00	169.70	196.70	0.00
5790.000	870.82	0.00	870.87	91.42	0.00	230.12	79.88	0.00	0.00	169.70	196.70	0.00
5790 000	871.66	0.00	871 72	110.47	1.96	320.42	147.62	0.00	0.00	169.70	196.70	0 00

	5940.000	869.53	0.00	869.55	107.60	0.29	111.53	38.18	0.00	0.00	239.50	264.50	0 00
	5940.000	870.44	0.00	870.46	136.38	5.67	154.35	79.98	0.00	0.00	239.50	264.50	0.00
	5940.000	870.93	0.00	870.95	153.07	13.03	185.73	111.24	0.00	0.00	239.50	264.50	0.00
	5940.000	871.78	0.00	871.80	171.46	36.91	251.49	181 60	0.00	0.00	239.50	264.50	0.00
	5965.000	869 54	0 00	869.55	108.11	0.31	111.26	38.43	0.00	0.00	239.50	264.50	0 00
	5965.000	870.45	0.00	870.47	136.82	5.77	154.05	80.17	0.00	0.00	239.50	264.50	0.00
	5965.000	870.93	0.00	870.96	153.52	13.20	185.39	111.42	0.00	0.00	239.50	264.50	0 00
	5965.000	871.79	0.00	871.81	171.74	37.19	251.05	181.76	0.00	0 00	239.50	264.50	0.00
	6090.000	869.58	0.00	869.59	174.39	14.18	84.85	50.97	0.00	0.00	309.20	332.20	0 00
	6090.000	870.49	0 00	870.50	192.52	36.52	113.46	90.02	0.00	0.00	309.20	332.20	0 00
	6090.000	870.98	0.00	870.99	211.11	54.92	135.34	119.73	0.00	0.00	309.20	332.20	0 00
	6090.000	871.84	0.00	871.85	234.01	100.60	182.04	187.37	0.00	0.00	309.20	332.20	0.00
	6220.000	869.60	0.00	869.61	223.20	43.23	58.79	47.98	0.00	0.00	384.00	405.00	0.00
	6220.000	870 51	0.00	870.51	252.80	77.34	78.82	83.84	0.00	0.00	384.00	405.00	0.00
	6220.000	871.00	0.00	871.01	268.77	103.81	94.50	111.69	0.00	0.00	384.00	405.00	0.00
	6220.000	871.86	0.00	871.87	296.76	165.26	128.57	176.18	0.00	0 00	384.00	405.00	0.00
	6241.000	869.61	0.00	869.61	223 12	51 80	40.69	57.51	0.00	0.00	384.00	405.00	0.00
	6241.000	870.51	0.00	870.51	252.58	89.78	52.87	97.34	0.00	0.00	384.00	405.00	0.00
	6241.000	871.00	0.00	871.01	268.56	119.14	62.66	128.20	0.00	0.00	384.00	405.00	0.00
	6241 000	871.86	0.00	871.87	296.57	186.85	83.94	199.21	0.00	0.00	384.00	405 00	0.00
*	6305.000	869.36	0.00	869.85	214.81	0.00	150.00	0.00	0.00	0.00	384.00	405.00	0 00
*	6305.000	870.12	0.00	870.91	239.97	0.00	240.00	0.00	0.00	0.00	384.00	405.00	0.00
	6305 000	872.84	0.00	872.84	328.28	126.56	49.49	133.95	0.00	0.00	384.00	405.00	0.00
	6305.000	873.22	0.00	873.22	340.70	193.49	72.20	204.31	0.00	0.00	384.00	405.00	0.00
	6311.000	869.99	0.00	870.00	235.67	70.10	83.03	76.87	0.00	0.00	384.00	405.00	0.00
	6311.000	871.14	0.00	871.15	273.12	118.24	104.74	127.01	0.00	0.00	384.00	405.00	0.00
	6311.000	872.84	0.00	872.84	328 25	146.19	99.09	154.72	0.00	0.00	384.00	405.00	0 00
	6311.000	873.22	0.00	873.22	340.65	188.69	122.07	199.24	0.00	0.00	384.00	405.00	0.00
	6450.000	870.01	0.00	870.02	234.12	69.67	83.83	76.50	0.00	0.00	384.00	405.00	0.00
	6450.000	871.16	0.00	871.16	271.33	117.82	105.53	126.65	0.00	0 00	384.00	405.00	0.00
	6450.000	872.84	0.00	872.85	326.05	145.85	99.72	154.43	0 00	0.00	384.00	405.00	0 00
	6450.000	873.23	0.00	873.23	338.47	188.30	122.79	198.91	0 00	0.00	384.00	405.00	0.00
	6900 000	870.08	0.00	870.09	200.44	51.86	138.95	39.19	500.00	0.00	345.00	382.00	500.00
	6900.000	871.21	0.00	871.22	238.25	98.73	186.92	64 35	500.00	0.00	345 00	382.00	500.00
	6900.000	872 86	0.00	872.87	262.28	137.06	183.84	79.10	500.00	0.00	345.00	382.00	500.00
	6900 000	873.25	0.00	873.26	267.93	179.66	227.83	102.51	500.00	0.00	345.00	382.00	500.00

1

13 FEB 89 10:21:11 PAGE 94

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	7403.000	871.21	0.00	871.56	87 03	0.00	171.05	58.95	0.00	0.00	75.00	105.00	0.00
*	7403.000	871.43	0.00	871 89	90.68	0.00	242.43	107.56	0.00	0.00	75.00	105.00	0 00
	7403 000	872.89	0.00	872.95	139.22	40.69	207.25	152.06	0 00	0.00	75.00	105.00	0.00
	7403.000	873 29	0.00	873.36	142.35	61.68	252.67	195.65	0.00	0.00	75.00	105.00	0.00
	7504.000	872.07	0.00	872.24	87.03	2.50	25.04	202.46	0.00	0.00	998.00	1002.00	0.00
	7504.000	872 36	0.00	872.58	97.28	4.90	32.64	312.45	0.00	0.00	998.00	1002.00	0.00
	7504.000	872.99	0.00	873.08	133.38	31.44	28.36	340.20	0.00	0.00	998 00	1002.00	0 00
	7504.000	873.38	0.00	873.46	136.52	62.05	31.76	416.19	0 00	0.00	998.00	1002.00	0.00
*	7535.000	872.25	0.00	872.62	88.53	6.30	49.05	174.65	0.00	0.00	998.00	1002 00	0.00
*	7535.000	872.54	0.00	872.97	121.39	15.66	62 47	271 87	0.00	0.00	998.00	1002.00	0.00
	7535.000	876.97	0.00	876.97	243.34	100.47	15.25	284.29	0.00	0.00	998.00	1002.00	0.00
	7535.000	877.16	0.00	877.17	310.86	130.62	19.12	360.26	0.00	0.00	998.00	1002.00	0.00

7735.000	874.46	0.00	874.88	34.92	0.00	227.15	2.85	0.00	0.00	300.00	326.00	0.00
7735.000	874.80	0.00	875.44	40.81	0.00	340 03	9.97	0.00	0.00	300 00	326.00	0.00
7735.000	876.92	0.00	877.03	102.23	16.39	324.13	59.48	0.00	0.00	300.00	326.00	0.00
7735 000	877.09	0.00	877.25	107.45	24.10	405.65	80.25	0.00	0.00	300.00	326.00	0 00
8186.000	876.25	0.00	876.69	63.83	26.86	153.10	50.04	0.00	0.00	174.00	180.00	0.00
8186.000	876.94	0 00	877.44	83.17	47.64	203.72	98.64	0.00	0.00	174.00	180.00	0.00
8186.000	877.46	0.00	877.83	93.51	59.25	207.69	133.07	0.00	0.00	174.00	180.00	0.00
8186 000	877.79	0.00	878.22	97 17	78.77	246.18	185.06	0.00	0.00	174.00	180.00	0 00
8202.000	878.44	0.00	878.48	107.80	39.86	92.97	97.16	0.00	0.00	174.00	180.00	0.00
8202.000	878 95	0.00	879.01	113.47	64.20	130.86	154 94	0.00	0.00	174.00	180.00	0.00
8202.000	879.14	0.00	879.21	119.44	74 90	145.55	179.55	0.00	0.00	174.00	180.00	0 00
8202.000	879 43	0.00	879.52	130.69	98.64	178.44	232.91	0.00	0.00	174.00	180.00	0.00
8475.000	878.50	0.00	878 55	42.92	0.00	230.00	0.00	0.00	0 00	143.00	202.00	0.00
8475.000	879.05	0.00	879.12	45.69	0.00	350.00	0.00	0.00	0.00	143.00	202.00	0.00
8475.000	879.25	0.00	879.33	46.74	0.00	400 00	0.00	0.00	0.00	143.00	202.00	0.00
8475.000	879.57	0.00	879.69	50.86	0.03	509.97	0.00	0.00	0.00	143.00	202.00	0.00
8751.000	878.56	0.00	878.56	210.00	30.17	4.41	195.42	210.00	190.00	225.50	228.50	400.00
8751.000	879.14	0.00	879.14	210.00	46.91	6.54	296.55	210.00	190.00	225.50	228.50	400.00
8751.000	879.36	0.00	879.36	210.00	53.95	7.41	338.64	210.00	190.00	225.50	228.50	400.00
8751.000	879.72	0.00	879.73	210.00	69.40	9.33	431.27	210.00	190.00	225.50	228.50	400.00
8791.000	878.62	0 00	878.62	210.00	30.24	4.40	195.36	210.00	190.00	225.50	228.50	400 00
8791.000	879.19	0.00	879.20	210.00	46.99	6.53	296.49	210.00	190.00	225.50	228.50	400.00
8791.000	879.41	0.00	879.42	210.00	54.03	7.40	338.57	210.00	190.00	225.50	228.50	400.00
8791.000	879.78	0.00	879.78	210.00	69.48	9.32	431.20	210.00	190.00	225 50	228.50	400.00
8808.000	878.62	0.00	878.62	240 00	0.00	0.00	230.00	240.00	183.00	233.20	8.00	423.00
8808.000	879 19	0.00	879.20	240.00	0.00	0.00	350.00	240.00	183.00	233.20	8.00	423 00
8808.000	879 41	0.00	879 42	240.00	0.00	0.00	400.00	240.00	183.00	233.20	8.00	423 00
8808.000	879 78	0.00	879.78	240.00	0.00	0.00	510.00	240.00	183.00	233.20	8.00	423.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
8824.000	878.64	0.00	878.64	240.00	23.91	206.09	0.00	240.00	183.00	233.20	833.01	423.00
8824.000	879.22	0.00	879.22	240.00	37.36	312.64	0.00	240.00	183.00	233.20	833.01	423 00
8824.000	879.44	0.00	879.44	240.00	43.04	356.96	0.00	240.00	183 00	233.20	833.01	423.00
8824.000	879.81	0.00	879.81	240.00	55.52	454.48	0.00	240.00	183 00	233.20	833.01	423.00
9226.000	878 54	0.00	878.74	193.42	50.94	101.73	77.33	0.00	0.00	268.00	272.00	0.00
9226 000	879.13	0.00	879.32	224.77	97.92	125.10	126.98	0.00	0.00	268.00	272.00	0.00
9226.000	879.36	0.00	879.53	231.91	120.12	131.49	148.39	0.00	0.00	268.00	272.00	0.00
9226.000	879.73	0.00	879.90	243.60	167.22	147.52	195 26	0 00	0.00	268.00	272.00	0.00
9269 000	878.69	0.00	878.74	236.10	74.20	66.46	89.34	0.00	0.00	268.20	271.80	0.00
9269 000	879.26	0.00	879.32	254.16	125.19	83.64	141.17	0.00	0.00	268.20	271.80	0.00
9269.000	879.48	0.00	879.53	260.91	146 98	89 72	163.29	0.00	0.00	268.20	271.80	0 00
9269 000	879.85	0.00	879.90	272 35	194.27	103.66	212.08	0.00	0.00	268.20	271.80	0.00
9375.000	878.66	0.00	878.81	31.57	0.00	230.00	0.00	0.00	0.00	200.00	235.00	0.00
9375.000	879.20	0.00	879.43	44.14	0.23	349.77	0.00	0.00	0.00	200.00	235.00	0.00
9375.000	879.41	0.00	879.66	63.48	3.56	396.44	0.00	0.00	0.00	200.00	235.00	0.00
9375.000	879.77	0.00	880.04	163.59	26.51	477.89	5.59	0.00	0.00	200.00	235.00	0.00
9475.000	879.08	0.00	879.26	30 88	0.00	230.00	0.00	0.00	0.00	200.00	235.00	0 00
9475.000	879.70	0.00	879.94	35 96	0.00	350.00	0.00	0.00	0 00	200.00	235.00	0.00
9475.000	879.91	0.00	880.18	56.34	1.81	398.19	0.00	0.00	0.00	200.00	235.00	0.00
9475.000	880.27	0 00	880.58	155.15	20.69	487.87	1.44	0.00	0.00	200 00	235.00	0.00

	9575.000	879.71	0.00	880.09	72.42	0.00	210.79	19.21	0.00	0.00	100.00	123.00	0.00
	9575.000	880.34	0.00	880 52	110.51	0.00	216.82	133.18	0.00	0.00	100.00	123.00	0.00
	9575.000	880.56	0.00	880.71	117.85	0.00	215.76	184.24	0 00	0.00	100.00	123.00	0.00
	9575.000	880.92	0.00	881.05	132.56	1.32	230.28	278.40	0.00	0.00	100.00	123.00	0.00
	9675.000	880.72	0.00	880.85	104.01	0.00	164 58	65.42	0.00	0.00	100.00	123.00	0.00
	9675 000	880 92	0.00	881.10	110.28	0.00	217.88	132.12	0.00	0.00	100.00	123.00	0.00
	9675.000	881.04	0.00	881.22	114.30	0.00	229.39	170.61	0.00	0.00	100.00	123.00	0.00
	9675.000	881 30	0.00	881.48	124.89	0.17	255.08	254.75	0.00	0.00	100.00	123.00	0.00
	9775.000	881 20	0.00	881.37	100.82	0.00	177.42	52.58	0.00	0.00	100.00	123.00	0.00
	9775.000	881.51	0.00	881.69	110.47	0.00	216.99	133.01	0.00	0.00	100.00	123.00	0.00
	9775.000	881.61	0.00	881.80	113.73	0.00	231.97	168.03	0.00	0.00	100.00	123.00	0 00
	9775.000	881 83	0.00	882.03	123.24	0.07	261.20	248.73	0.00	0.00	100 00	123.00	0.00
*	9876.000	881.87	0.00	882.36	103.66	32.34	107.10	90.57	0.00	0.00	198.20	201.80	0.00
*	9876.000	882.22	0.00	882.76	114.68	44.89	133.73	171.38	0.00	0.00	198.20	201.80	0 00
*	9876.000	882 34	0.00	882.90	119.35	50.13	143.57	206 30	0.00	0.00	198.20	201.80	0.00
*	9876 000	882.54	0.00	883.15	127.91	62.78	164.86	282.36	0.00	0 00	198.20	201.80	0 00
	9893.000	882.71	0.00	882.80	134.15	28.09	68.36	133.56	0.00	0.00	198.20	201.80	0.00
	9893.000	882.93	0.00	883.07	142.08	42 87	94.23	212.89	0.00	0.00	198.20	201.80	0.00
	9893.000	883.00	0.00	883.17	144.66	49.20	104.46	246.34	0.00	0.00	198.20	201.80	0.00
	9893.000	883.14	0.00	883.36	150.05	63.55	125.31	321.13	0.00	0.00	198.20	201 80	0.00

SECND	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
9950.000	882.72	0.00	882.85	112.04	0.00	181.59	48.41	0.00	0.00	100.00	123.00	0.00
9950.000	882.94	0.00	883.15	120.42	0.00	257.43	92.57	0.00	0.00	100.00	123.00	0.00
9950.000	883.01	0.00	883.25	123.91	0.05	288.04	111.91	0.00	0.00	100.00	123.00	0.00
9950.000	883.16	0.00	883.47	129.32	0.40	351.79	157.81	0.00	0 00	100.00	123.00	0.00
10000.000	882.92	0.00	883.18	100.24	0.00	206.95	23.05	0.00	0.00	100.00	123.00	0 00
10000.000	883.25	0.00	883.58	110.71	0.00	280.35	69.65	0.00	0.00	100.00	123 00	0 00
10000.000	883.37	0 00	883.72	114.39	0.00	307 97	92.03	0.00	0.00	100.00	123.00	0.00
10000.000	883.60	0.00	883.98	124.54	0.08	365.38	144.54	0.00	0.00	100.00	123.00	0.00
10100 000	883 85	0.00	884.24	79.21	0.00	219.44	10.56	0.00	0.00	100.00	123.00	0 00
10100.000	884.29	0.00	884.70	106.89	0.00	292.40	57.60	0.00	0.00	100.00	123.00	0.00
10100.000	884 44	0.00	884.85	111.45	0.00	317.83	82.17	0.00	0.00	100.00	123.00	0.00
10100.000	884.71	0.00	885.13	122.16	0.02	371.78	138.19	0.00	0.00	100 00	123.00	0.00
10200 000	885.08	0.00	885.44	85.71	0.00	216.82	13.18	0.00	0.00	100.00	123.00	0.00
10200.000	885.50	0.00	885.88	108.10	0.00	288.51	61.49	0.00	0.00	100.00	123.00	0.00
10200.000	885.63	0.00	886.02	112.37	0.00	314 68	85.32	0.00	0.00	100.00	123.00	0.00
10200 000	885.89	0.00	886.30	123 18	0.04	369.46	140.50	0.00	0.00	100.00	123 00	0.00
10350.000	886.69	0.00	886.99	30.82	1.25	228.75	0.00	0.00	0.00	135.00	165 00	0.00
10350.000	887.16	0.00	887 60	34.96	4.78	345.22	0.00	0.00	0.00	135.00	165.00	0.00
10350.000	887.32	0.00	887.81	36.47	6.89	393.11	0.00	0.00	0.00	135.00	165.00	0.00
10350.000	887.63	0.00	888 24	39.21	12.35	497.65	0.00	0.00	0.00	135.00	165.00	0 00
10450.000	887.72	0 00	888.06	29.63	0.84	229.16	0.00	0.00	0.00	135.00	165.00	0.00
10450.000	888.29	0.00	888.74	34.70	4.57	345 43	0.00	0.00	0.00	135.00	165 00	0.00
10450.000	888.49	0.00	888.98	36.45	6.87	393.13	0.00	0 00	0.00	135.00	165.00	0.00
10450.000	888.92	0.00	889.47	40.61	14.14	495.86	0.00	0.00	0.00	135.00	165.00	0.00
10550.000	888.88	0.00	889.23	29.66	0.85	229.15	0.00	0.00	0.00	135.00	165.00	0 00
10550.000	889.45	0.00	889.90	34 69	4 56	345.43	0.00	0.00	0 00	135.00	165.00	0.00
10550 000	889.66	0.00	890.15	36.62	7.04	392.96	0.00	0.00	0.00	135.00	165.00	0.00
10550.000	890.06	0.00	890.62	40.23	13.70	496.30	0 00	0.00	0.00	135.00	165.00	0.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	10600.000	889.46	0.00	889 81	29.70	0.86	229.14	0.00	0.00	0.00	135.00	165 00	0.00
	10600.000	890.04	0.00	890.48	34.77	4.62	345.37	0.00	0.00	0.00	135.00	165.00	0.00
	10600.000	890.23	0.00	890.72	36.61	7.03	392.97	0.00	0.00	0.00	135.00	165.00	0.00
	10600.000	890.64	0.00	891 20	40.17	13.63	496.37	0.00	0.00	0.00	135.00	165.00	0.00
*	10651.000	889.88	0.00	890.62	28.18	105.26	76.37	48.37	0.00	0.00	148.80	151.20	0.00
*	10651.000	890.40	0.00	891.29	32.85	170 70	101.33	77.96	0.00	0.00	148.80	151.20	0.00
*	10651.000	890.59	0 00	891.53	34.52	198.35	110.90	90.75	0.00	0.00	148.80	151.20	0 00
*	10651.000	890.92	0.00	892.00	37.49	259.09	131.70	119.21	0.00	0.00	148.80	151.20	0.00
	10681.000	892.50	0 00	892.55	58.24	124.25	43.03	62.72	0.00	0.00	148.80	151.20	0.00
	10681.000	892.92	0.00	893.01	64.10	192.14	60.92	96.94	0.00	0.00	148.80	151.20	0 00
	10681.000	893.07	0.00	893.17	66.17	220.84	67 94	111.21	0.00	0.00	148.80	151.20	0.00
	10681.000	893.35	0 00	893.49	69.31	285.01	82.56	142.43	0.00	0.00	148.80	151.20	0.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	10755.000	892.50	0.00	892.65	37.92	3.43	225.92	0.65	0.00	0.00	135.00	165.00	0.00
	10755 000	892.91	0.00	893.17	44.59	10.30	337.74	1.96	0.00	0.00	135.00	165.00	0 00
	10755.000	893.05	0.00	893.36	46.92	14.14	383.17	2.69	0.00	0.00	135.00	165.00	0.00
	10755.000	893.32	0.00	893.74	51.32	24.19	481.20	4.61	0.00	0.00	135.00	165.00	0 00
	10795 000	892.70	0.00	892.71	120.00	76.24	140.32	13.44	120.00	154.00	225.00	260.00	274.00
	10795.000	893.25	0.00	893.26	120.00	120.56	208.16	21.28	120.00	154.00	225.00	260.00	274.00
	10795.000	893.45	0.00	893.47	120.00	139 42	235 96	24.62	120.00	154.00	225.00	260.00	274.00
	10795.000	893.86	0.00	893.88	120.00	181.50	296.45	32.05	120.00	154.00	225.00	260.00	274.00
	11026.000	892 71	0.00	892.71	161.22	32.84	40.46	6.71	0.00	0.00	245.90	254.10	0.00
	11026.000	893.26	0.00	893.28	167.59	62.99	69.55	12.46	0.00	0.00	245.90	254.10	0.00
	11026.000	893.47	0.00	893.49	169.96	70.75	75.39	13.86	0.00	0.00	245.90	254.10	0.00
	11026.000	893.88	0.00	893.90	174.69	82.09	82.05	15.87	0.00	0.00	245.90	254.10	0.00
	11416.000	893.21	0.00	893.24	23.31	0.00	80.00	0.00	0.00	0.00	0.00	61.00	0.00
	11416.000	894.99	0.00	895.02	30.16	0.00	145.00	0.00	0 00	0.00	0.00	61.00	0.00
	11416.000	895.59	0.00	895.61	32.44	0.00	160.00	0.00	0.00	0.00	0.00	61.00	0.00
	11416.000	896.57	0.00	896.59	36.29	0.00	180.00	0.00	0.00	0.00	0.00	61.00	0.00
	11425.000	893.22	0.00	893.24	23.31	0.00	80.00	0.00	0.00	0.00	0.00	61.00	0.00
	11425 000	894.99	0.00	895 02	30.16	0.00	145.00	0.00	0.00	0.00	0.00	61.00	0 00
	11425.000	895.59	0.00	895.61	32.44	0.00	160.00	0.00	0.00	0.00	0.00	61.00	0.00
	11425.000	896.58	0.00	896.59	36.25	0.00	180.00	0.00	0.00	0.00	0.00	61.00	0.00
	11485.000	893.24	0.00	893.27	23.00	0.00	80.00	0.00	0.00	0.00	0.00	61.00	0.00
	11485.000	895.01	0.00	895.04	29.81	0.00	145.00	0.00	0.00	0.00	0.00	61.00	0.00
	11485.000	895.60	0.00	895.63	32.09	0.00	160.00	0.00	0.00	0.00	0.00	61.00	0.00
	11485.000	896.58	0 00	896.60	35.89	0 00	180.00	0.00	0.00	0.00	0.00	61.00	0.00
	11517.000	893.24	0.00	893.30	22.66	6.01	67.99	6.01	0.00	0 00	26.00	35.00	0.00
	11517.000	895.00	0.00	895.07	29.45	15.16	114.68	15.16	0.00	0.00	26.00	35.00	0.00
	11517 000	895 59	0.00	895.65	31.72	18.16	123.68	18.16	0.00	0.00	26.00	35.00	0.00
	11517.000	896.57	0.00	896.63	35.50	22.97	134.07	22.97	0.00	0 00	26.00	35.00	0.00
	11553.000	893.24	0.00	893.30	22.64	6.00	68.01	6.00	0.00	0.00	26.00	35.00	0.00
	11553 000	895.84	0.00	895.89	32.66	16.98	111.03	16.98	0.00	0 00	26.00	35.00	0.00
	11553.000	896.63	0.00	896.67	35.70	20.53	118.95	20.53	0.00	0 00	26.00	35.00	0.00
	11553.000	897 91	0.00	897.95	40.63	26.12	127.76	26.12	0.00	0 00	26 00	35.00	0.00
	11563.000	893.25	0 00	893.31	22.66	6.00	67.99	6.00	0.00	0.00	26.00	35.00	0.00
	11563.000	895.85	0.00	895.89	32.68	16.99	111.02	16.99	0.00	0.00	26.00	35.00	0.00
	11563.000	896.63	0.00	896.68	35.71	20.53	118.94	20.53	0.00	0.00	26.00	35.00	0.00
	11563.000	897.91	0.00	897 95	40.64	26.13	127.75	26.13	0.00	0.00	26.00	35.00	0.00

11755.000	893 37	0.00	893.44	21.96	5.74	68.52	5.74	0.00	0.00	26.00	35.00	0.00
11755.000	895.90	0.00	895.95	31.71	16.45	112.09	16.45	0.00	0.00	26 00	35.00	0.00
11755.000	896.67	0.00	896.72	34.70	19.95	120.10	19.95	0.00	0.00	26.00	35.00	0.00
11755.000	897.94	0.00	897.98	39.58	25 50	129.00	25.50	0 00	0.00	26.00	35 00	0.00

1

13 FEB 89 10:21:11 PAGE 98

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
11955.000	893.53	0 00	893 60	21.43	5.54	68.93	5.54	0.00	0.00	26.00	35 00	0.00
11955.000	895.96	0.00	896.02	30.77	15.93	113.15	15.93	0.00	0.00	26.00	35.00	0 00
11955.000	896.72	0.00	896.77	33.71	19.37	121.27	19.37	0.00	0.00	26.00	35.00	0.00
11955.000	897.97	0.00	898 01	38.53	24.87	130.27	24.87	0.00	0.00	26.00	35 00	0.00
12155.000	893.71	0.00	893.74	25.49	0.00	80.00	0.00	140.00	35.00	35.00	85 00	175.00
12155.000	896.06	0.00	896.08	35.43	0.00	145.00	0.00	140.00	35.00	35.00	85.00	175.00
12155.000	896 80	0.00	896.82	38.56	0.00	160.00	0.00	140.00	35.00	35.00	85.00	175.00
12155.000	898.03	0.00	898.04	65.76	0.00	179.69	0.31	140.00	35.00	35.00	85.00	175.00
12355.000	893.79	0.00	893 82	22.95	0.00	80.00	0.00	40.00	225.00	225.00	250.00	265.00
12355.000	896.09	0.00	896.11	40.00	0.00	139.55	5.45	40.00	225.00	225.00	250 00	265.00
12355.000	896.82	0.00	896.84	40.00	0.00	151.23	8.77	40.00	225.00	225.00	250 00	265.00
12355.000	898.04	0.00	898.06	40.00	0.00	166.23	13.77	40.00	225.00	225.00	250.00	265.00
12425.000	893.75	0.00	893.89	5.80	0.00	80 00	0.00	0.00	0.00	233.10	238.90	0.00
12425.000	896.01	0.00	896.22	5.80	0.00	145.00	0.00	0.00	0.00	233.10	238.90	0.00
12425.000	896.74	0.00	896.95	5.80	0.00	160.00	0.00	0.00	0.00	233.10	238.90	0.00
12425.000	897 96	0.00	898 15	5.80	0.00	180.00	0.00	0.00	0.00	233.10	238.90	0.00
12565 000	893.70	0.00	894.03	18.62	0.00	80 00	0.00	300.00	110.00	250.00	272.00	410.00
12565.000	896 80	0.00	896.84	22.00	0 00	145.00	0.00	300.00	110.00	250.00	272.00	410.00
12565.000	897.72	0.00	897.75	22.00	0.00	160.00	0.00	300.00	110.00	250.00	272.00	410.00
12565.000	899.22	0.00	899.24	22.00	0.00	180 00	0.00	300.00	110.00	250.00	272.00	410.00
12635.000	894.15	0.00	894.15	30.41	0.00	9.85	0.15	0.00	0.00	250.00	272.00	0.00
12635.000	896.85	0.00	896.85	82.61	0.05	15.99	3.96	0.00	0.00	250.00	272.00	0.00
12635.000	897.76	0 00	897.76	103.29	0.27	18.36	6.38	0.00	0.00	250.00	272.00	0.00
12635.000	899.25	0.00	899.25	134.50	1.05	23.12	11.82	0.00	0.00	250.00	272.00	0.00
13251.000	894.19	0.00	894.19	80.67	0.00	0.00	10.00	0.00	0.00	300.00	0.00	0.00
13251.000	896.85	0.00	896.85	349.25	0.00	0.00	20.00	0.00	0.00	300.00	0.00	0.00
13251.000	897 76	0.00	897.76	477.30	0.00	0.00	25.00	0.00	0.00	300.00	0.00	0 00
13251.000	899.25	0.00	899 25	575.00	0.00	0.00	36.00	0.00	0.00	300.00	0.00	0.00
* 13311 000	896.79	0.00	897.02	4.15	0.00	10.00	0.00	0.00	0.00	2 50	7.50	0.00
* 13311.000	897.05	0.00	897.51	4.26	0.00	20.00	0.00	0.00	0.00	2.50	7.50	0.00
13311.000	897.58	0.00	897.85	4.47	0.00	25.00	0.00	0.00	0.00	2.50	7.50	0.00
13311.000	899 25	0.00	899.35	10.00	0.32	35.36	0.32	0.00	0.00	2.50	7.50	0.00

1

BISHOP CREEK

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	836 60	150.00	841.56	0.00	841.57	1.64	0.87	301.73	117.18
0.000	0 00	0.00	0.00	836.60	240.00	842 35	0.00	842.36	1.75	1.03	407.07	181.56
0.000	0.00	0.00	0.00	836.60	310 00	842.67	0.00	842.68	2.12	1.19	452.83	212.81
0.000	0.00	0.00	0.00	836.60	470.00	843.30	0.00	843.32	2.70	1.45	546.82	285.91
475.000	475.00	0 00	0.00	837 50	150.00	841.69	0.00	841.72	6.91	1.38	103.89	57.05
475.000	475.00	0 00	0.00	837.50	240.00	842.47	0 00	842.51	5.51	1.36	159.39	102.23

	475.000	475.00	0.00	0.00	837.50	310.00	842.81	0.00	842.86	5.91	1.47	187.39	127.54
	475 000	475.00	0.00	0.00	837.50	470.00	843.47	0.00	843.53	6.29	1.62	248.33	187.45
	950.000	475.00	0.00	0.00	838.40	150.00	842.14	0 00	842.20	14.99	1.91	78.03	38.74
	950.000	475.00	0.00	0.00	838.40	240.00	842 83	0.00	842.89	12.04	1.88	119.72	69.18
	950.000	475.00	0.00	0.00	838.40	310.00	843.18	0.00	843.26	11.93	1.96	144.88	89.73
	950.000	475.00	0.00	0.00	838.40	470.00	843 85	0.00	843.94	11.49	2.08	199.17	138.63
	1081 000	131.00	0.00	0.00	839.32	150.00	842.42	0.00	842 57	52.96	3.23	48.46	20.61
	1081.000	131.00	0.00	0.00	839.32	240.00	843.04	0.00	843.19	39.57	3.09	77.14	38.15
	1081.000	131.00	0.00	0.00	839.32	310.00	843.39	0.00	843.55	36.16	3.11	96.42	51.56
	1081.000	131.00	0.00	0.00	839.32	470.00	844.03	0.00	844.21	30.65	3.11	139.12	84.90
	1212.000	131.00	0.00	0.00	840.25	150.00	843.20	0.00	843.40	73.57	3.70	42.67	17.49
	1212 000	131 00	0.00	0.00	840.25	240.00	843.67	0 00	843.90	70.71	3.94	62.08	28.54
	1212.000	131.00	0.00	0.00	840.25	310.00	843.96	0.00	844.21	67.83	4.04	76.37	37.64
	1212.000	131 00	0.00	0.00	840.25	470.00	844.50	0.00	844.80	60.86	4.14	108.15	60.25
	1475.000	263.00	0.00	0.00	842.10	150.00	845.08	0.00	845.26	70.21	3.63	43.46	17 90
	1475.000	263.00	0.00	0.00	842.10	240.00	845 51	0.00	845.75	72.54	3.98	61.48	28.18
	1475.000	263.00	0.00	0.00	842.10	310.00	845.77	0.00	846.04	73.91	4.18	73.96	36.06
	1475.000	263.00	0.00	0.00	842.10	470.00	846.21	0.00	846.56	75.88	4.53	99.71	53 95
	1737.000	262.00	0.00	0.00	843.95	150.00	846.66	0.00	846.80	49.72	3.08	48.72	21.27
	1737.000	262.00	0.00	0.00	843.95	240.00	847.16	0.00	847 36	53.33	3.70	69.35	32.86
	1737.000	262.00	0 00	0.00	843.95	310.00	847.43	0.00	847 65	52.33	3.95	89.06	42.85
	1737.000	262.00	0.00	0.00	843.95	470.00	847.89	0.00	848.11	46.96	4.17	136.58	68.58
*	2001.000	264.00	0.00	0.00	845.80	150.00	847.54	847.54	848.10	24.92	6.01	24.98	30.05
*	2001.000	264.00	0.00	0.00	845.80	240.00	847 96	847 96	848.70	23.09	6.87	34.95	49.95
*	2001.000	264.00	0.00	0.00	845.80	310.00	848 26	848.26	849.09	21.70	7.32	42.36	66.55
*	2001.000	264.00	0.00	0.00	845.80	470.00	848.99	848.99	849.84	14 73	7.45	68.51	122.47
*	2038.800	37.80	851.10	848.70	845.80	150.00	848 22	848.22	849.32	32.50	8.42	17.81	26 31
*	2038.800	37.80	851.10	848.70	845.80	240.00	848.70	848.70	850.59	90.80	11.04	21 73	25.19
	2038.800	37.80	851.10	848.70	845.80	310 00	851.57	0.00	851.58	0 11	1.05	496.71	947.67
	2038.800	37.80	851.10	848.70	845.80	470.00	851.83	0.00	851.85	0.18	1.39	575.22	1123.43

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
2440.000	401 00	0 00	0.00	847.55	150.00	850.82	0.00	850.93	33.12	2.74	54.69	26.06
2440.000	401.00	0.00	0.00	847.55	240.00	852.01	0.00	852.07	10.41	2.06	135.78	74.38
2440.000	401.00	0.00	0.00	847.55	310.00	851 47	0.00	851.71	50.10	4.01	85.23	43.80
2440.000	401.00	0.00	0.00	847.55	470.00	851.67	0.00	852 06	79.27	5.28	101.05	52 79
2840.000	400.00	0.00	0.00	849.00	150.00	852 36	0.00	852.52	47.07	3.21	46 71	21.86
2840.000	400.00	0.00	0.00	849.00	240.00	852.77	0.00	853.05	73.21	4.28	56.13	28.05
2840.000	400.00	0.00	0 00	849.00	310.00	853.44	0.00	853.69	49.22	4.09	80.65	44.19
2840.000	400.00	0 00	0.00	849.00	470.00	854 08	0 00	854.34	42.79	4.35	125.79	71 85
3178.000	338.00	0.00	0.00	852.60	150 00	854.98	854.60	855.39	171.93	5.11	29.36	11.44
3178.000	338.00	0.00	0.00	852.60	240.00	855.83	0.00	856.23	120.15	5.11	47.18	21.90
3178.000	338 00	0.00	0.00	852.60	310.00	856.00	0.00	856.56	154.91	6.04	52.27	24.91
3178.000	338 00	0.00	0.00	852.60	470.00	856.42	856.37	857.21	187.27	7.25	67.76	34.34
3515.000	337.00	0.00	0 00	856.20	150.00	858.99	0.00	859.22	78.81	3 87	40.52	16.90
3515.000	337.00	0.00	0.00	856.20	240.00	859.47	0.00	859.79	93.09	4.70	59.93	24.88
3515.000	337.00	0.00	0.00	856.20	310.00	859.91	0.00	860.22	78.74	4.74	84.97	34.93
3515.000	337.00	0.00	0.00	856.20	470.00	860.54	0.00	860.89	69.35	5.17	138.33	56.44
3853 000	338.00	0.00	0.00	859.80	150.00	862.15	0.00	862 43	116.48	4.36	43.97	13.90
3853.000	338.00	0.00	0.00	859.80	240.00	862.67	0.00	862.93	94.51	4.50	85.76	24.69
3853.000	338 00	0.00	0.00	859.80	310.00	862.88	0.00	863.16	101.05	4.89	108.52	30.84
3853 000	338.00	0.00	0.00	859 80	470.00	863.29	0.00	863.59	101.23	5.34	159 11	46.71

	4190.000	337.00	0 00	0.00	863.40	150.00	865.28	0.00	865.36	70.27	3.00	97.52	17.89
	4190.000	337.00	0.00	0.00	863.40	240.00	865.58	0.00	865.67	76.73	3.47	132.03	27.40
	4190.000	337.00	0.00	0.00	863.40	310.00	865.82	0.00	865.92	73.80	3.63	159.67	36.09
	4190.000	337.00	0.00	0.00	863.40	470.00	866 21	0.00	866.34	74.42	4.04	209.99	54.48
	4915.000	725.00	0 00	0.00	863.90	150.00	867.79	0.00	867.88	23 90	2.53	59.31	30.69
	4915.000	725.00	0.00	0.00	863.90	240.00	868.44	0.00	868.59	28.85	3.15	80.33	44.68
	4915.000	725.00	0.00	0.00	863.90	310 00	868.78	0.00	868.98	32.00	3.58	99.86	54.80
	4915.000	725.00	0.00	0.00	863.90	470.00	869.39	0.00	869.65	36.81	4.29	150.71	77.47
	5640.000	725.00	0.00	0.00	864.40	150.00	869.21	0.00	869.29	15.84	2.28	65.68	37.69
	5640.000	725.00	0.00	0.00	864.40	240.00	870.10	0.00	870.21	17.47	2.68	107.97	57.42
	5640.000	725.00	0.00	0.00	864.40	310.00	870.57	0.00	870.69	17.92	2.89	142.60	73.22
	5640.000	725.00	0.00	0.00	864.40	470.00	871.38	0.00	871.52	19.18	3.27	205.15	107.32
	5790.000	150.00	0.00	0.00	864.50	150.00	869.42	0.00	869.46	7.98	1.73	118.28	53.09
	5790.000	150.00	0.00	0.00	864.50	240.00	870.34	0.00	870.38	7.04	1.85	196.41	90.44
	5790.000	150.00	0.00	0.00	864.50	310.00	870.82	0.00	870.87	7.25	1.99	239.63	115.11
	5790.000	150.00	0.00	0.00	864.50	470.00	871.66	0.00	871.72	7.75	2.32	324.38	168.81
	5940.000	150.00	0 00	0.00	864.60	150.00	869.53	0.00	869.55	3.60	1 26	192.78	79 01
	5940.000	150.00	0.00	0.00	864.60	240.00	870.44	0.00	870.46	3.22	1.39	303.65	133.85
	5940 000	150.00	0.00	0.00	864.60	310.00	870.93	0.00	870.95	3.29	1.51	374.21	170.88
	5940.000	150.00	0.00	0.00	864.60	470.00	871.78	0.00	871.80	3.55	1.74	512.74	249.45

1

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	5965.000	25.00	0.00	0.00	864.60	150.00	869.54	0.00	869.55	3.54	1.25	194.34	79.75
	5965.000	25.00	0.00	0.00	864.60	240 00	870.45	0.00	870.47	3.17	1.38	305.40	134.75
	5965.000	25.00	0.00	0.00	864.60	310.00	870.93	0.00	870.96	3.25	1.50	376.23	171.96
	5965.000	25.00	0.00	0.00	864.60	470.00	871.79	0.00	871.81	3.51	1.73	515.16	250.91
	6090.000	125.00	0 00	0.00	864.70	150.00	869.58	0.00	869.59	1.76	0.95	312.21	113.10
	6090.000	125.00	0.00	0 00	864.70	240.00	870.49	0.00	870.50	1.56	1 03	478.35	191.93
	6090.000	125.00	0.00	0.00	864.70	310.00	870 98	0.00	870.99	1.61	1 12	577.42	244.39
	6090 000	125.00	0.00	0.00	864.70	470.00	871.84	0 00	871.85	1.76	1.29	767.62	353.87
	6220.000	130.00	0.00	0 00	864.80	150.00	869.60	0.00	869.61	1.05	0.73	452.14	146.67
	6220.000	130 00	0.00	0.00	864.80	240.00	870.51	0.00	870.51	0.92	0.79	668.72	249 56
	6220.000	130.00	0.00	0.00	864.80	310.00	871.00	0.00	871.01	0.96	0.86	796.77	316.78
	6220.000	130.00	0.00	0.00	864 80	470.00	871.86	0.00	871.87	1.07	1.00	1040.12	454.89
	6241.000	21.00	0.00	0.00	864.80	150.00	869.61	0.00	869.61	0.03	0 51	451.58	814.22
	6241.000	21.00	0.00	0.00	864.80	240.00	870.51	0.00	870.51	0.03	0.53	667.06	1427 50
	6241.000	21.00	0.00	0.00	864.80	310.00	871.00	0.00	871.01	0.03	0.57	795.09	1803.98
	6241 000	21.00	0.00	0.00	864.80	470 00	871.86	0.00	871 87	0.03	0.66	1038.45	2675.54
*	6305.000	64.00	872.40	870.80	864.80	150.00	869.36	868.41	869.85	5.79	5.60	26.80	62.32
*	6305.000	64.00	872.40	870.80	864.80	240.00	870.12	869.20	870.91	6.97	7.14	33.62	90.92
	6305.000	64 00	872.40	870.80	864.80	310.00	872.84	0.00	872.84	0.01	0.33	1343.04	3833.61
	6305 000	64.00	872.40	870 80	864.80	470 00	873.22	0.00	873.22	0.01	0.46	1470.79	4348.78
	6311.000	6.00	0.00	0.00	864.80	230.00	869.99	0.00	870.00	1.52	0.94	540.07	186.61
	6311.000	6.00	0.00	0 00	864.80	350.00	871.14	0.00	871.15	1.08	0.93	833.00	336.53
	6311.000	6.00	0.00	0.00	864.80	400.00	872.84	0.00	872.84	0.39	0.67	1342 75	642 17
	6311.000	6 00	0.00	0.00	864.80	510.00	873.22	0.00	873.22	0.49	0.78	1470.21	725.42
	6450.000	139.00	0.00	0.00	864.87	230.00	870.01	0.00	870.02	1.61	0.96	528.89	181.38
	6450.000	139.00	0.00	0.00	864.87	350.00	871.16	0.00	871.16	1.14	0.95	818.02	328.33
	6450.000	139.00	0.00	0.00	864.87	400.00	872.84	0.00	872.85	0.41	0.68	1320.60	627 95
	6450.000	139.00	0.00	0.00	864.87	510.00	873.23	0.00	873.23	0.52	0.79	1447.51	710 42
	6900.000	450.00	0.00	0.00	865.10	230.00	870.08	0.00	870.09	1.10	0.84	493.02	219.02
	6900.000	450.00	0 00	0.00	865.10	350.00	871.21	0.00	871.22	0.94	0.90	744.95	360.84
	6900.000	450.00	0.00	0.00	865.10	400.00	872 86	0.00	872.87	0.38	0.69	1157.86	645.37

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	6900.000	450.00	0.00	0.00	865.10	510.00	873.25	0.00	873.26	0.50	0.81	1260.79	724.38
*	7403.000	503 00	0.00	0.00	869.52	230.00	871.21	871.21	871.56	297.30	5.42	64.76	13.34
*	7403.000	503.00	0.00	0.00	869.52	350.00	871.43	871.43	871.89	327.02	6.36	84.78	19.35
	7403.000	503.00	0.00	0.00	869 52	400.00	872.89	0.00	872.95	19.56	2.54	273.63	90.45
	7403.000	503.00	0 00	0.00	869.52	510.00	873.29	0.00	873.36	18.47	2.70	329.45	118.66
	7504.000	101.00	0.00	0.00	870.00	230.00	872.07	0.00	872.24	31.81	4.25	70.19	40.78
	7504.000	101.00	0.00	0.00	870.00	350.00	872.36	0.00	872.58	29.79	4.64	95.85	64.13
	7504.000	101.00	0.00	0.00	870.00	400.00	872 99	0.00	873.08	8.12	2.97	174.43	140.38
	7504.000	101.00	0.00	0.00	870.00	510.00	873.38	0.00	873.46	6.16	2.86	226 85	205.40
	7535.000	31.00	875.40	873.00	870.00	230.00	872.25	872.25	872.62	84.20	7.45	52.35	25.07
*	7535.000	31.00	875.40	873.00	870.00	350.00	872 54	872.54	872.97	79.47	8.07	73.75	39.26
	7535 000	31.00	875.40	873.00	870.00	400.00	876.97	0.00	876.97	0.09	0.60	771.59	1338.90
	7535.000	31.00	875.40	873.00	870 00	510.00	877.16	0.00	877.17	0.13	0.73	827.81	1431.42
	7735.000	200.00	0.00	0.00	871.60	230.00	874 46	0.00	874.88	156 17	5.24	46.63	18.40
	7735 000	200.00	0.00	0.00	871.60	350.00	874.80	0.00	875.44	195.60	6.51	59.83	25.03
	7735.000	200.00	0.00	0.00	871.60	400.00	876.92	0.00	877.03	16.53	3.03	208.42	98.37
	7735.000	200 00	0.00	0.00	871.60	510.00	877.09	0.00	877.25	22.59	3.63	226.47	107.29
	8186.000	451.00	0.00	0.00	872.20	230.00	876.25	0.00	876.69	17.87	6.50	91.39	54.41
	8186.000	451.00	0.00	0.00	872.20	350.00	876.94	0.00	877.44	18.52	7.36	141.68	81.37
	8186.000	451.00	0.00	0.00	872.20	400.00	877.46	0.00	877.83	13.46	6.74	188.37	109.01
	8186.000	451.00	0.00	0.00	872.20	510.00	877.79	0.00	878.22	15.39	7.51	219.63	130.00
	8202.000	16.00	876.80	874.90	871.90	230.00	878.44	0.00	878.48	1.28	2.42	317.28	202.97
	8202.000	16.00	876.80	874.90	871.90	350.00	878.95	0.00	879.01	1.97	3.15	373.47	249.16
	8202.000	16 00	876.80	874.90	871.90	400.00	879.14	0.00	879.21	2.23	3.41	395.72	267.96
	8202.000	16 00	876.80	874.90	871 90	510.00	879.43	0.00	879.52	2 93	4.02	431.83	297.78
	8475.000	273.00	0.00	0.00	873.30	230.00	878.50	0.00	878.55	6.95	1.67	137.97	87.22
	8475.000	273.00	0.00	0.00	873.30	350.00	879.05	0.00	879 12	10.30	2.16	161.94	109.07
	8475.000	273.00	0 00	0 00	873.30	400.00	879.25	0.00	879.33	11.50	2.33	171.34	117.97
	8475.000	273.00	0.00	0 00	873.30	510.00	879.57	0.00	879.69	14.54	2.73	186.80	133 74
	8751.000	276.00	0.00	0.00	873.50	230.00	878 56	0.00	878.56	0.03	0.30	866.28	1313.37
	8751.000	276.00	0.00	0.00	873.50	350.00	879.14	0.00	879.14	0.05	0.40	987.89	1627.33
	8751.000	276.00	0.00	0.00	873.50	400.00	879.36	0.00	879.36	0.05	0.44	1033.94	1752.88
	8751.000	276 00	0.00	0.00	873.50	510.00	879.72	0.00	879.73	0.07	0.52	1109.89	1967.69
	8791.000	40.00	877.10	876.90	873.50	230.00	878.62	0.00	878.62	0.03	0.30	877.88	1342.19
	8791.000	40.00	877.10	876 90	873.50	350.00	879.19	0.00	879.20	0.04	0.40	999.12	1657.63
	8791 000	40.00	877.10	876.90	873.50	400.00	879.41	0.00	879.42	0.05	0.43	1045.37	1784.60
	8791.000	40.00	877.10	876.90	873.50	510.00	879.78	0.00	879.78	0 06	0.51	1122.38	2003.91
	8808.000	17.00	0.00	0.00	873.10	230.00	878.62	0.00	878.62	0.05	0.00	1051.49	1041 36
	8808.000	17 00	0.00	0 00	873.10	350.00	879.19	0.00	879 20	0.08	0.00	1189.85	1273.61
	8808.000	17.00	0.00	0.00	873.10	400.00	879.41	0.00	879.42	0.09	0.00	1242.62	1366 88
	8808.000	17.00	0.00	0.00	873.10	510.00	879 78	0.00	879.78	0.11	0.00	1330.42	1527.65
	8824.000	16.00	875 60	875.30	873.10	230.00	878.64	0.00	878.64	0.02	0.24	1056.33	1622.66
	8824.000	16.00	875.60	875.30	873.10	350.00	879.22	0.00	879.22	0.03	0.32	1196.07	1985.47
	8824.000	16 00	875.60	875.30	873 10	400.00	879.44	0.00	879.44	0.04	0.35	1249.32	2131 04
	8824.000	16.00	875.60	875.30	873.10	510.00	879.81	0.00	879.81	0.05	0.42	1338.28	2382 93
	9226.000	402.00	0.00	0 00	873.60	230.00	878.54	0.00	878.74	2.59	5.25	186.73	142.80
	9226.000	402 00	0.00	0.00	873.60	350.00	879.13	0.00	879.32	2.68	5.76	311.96	213 74
	9226 000	402.00	0.00	0.00	873 60	400.00	879.36	0.00	879 53	2.58	5.81	363.97	248.88
	9226.000	402.00	0.00	0.00	873.60	510.00	879.73	0.00	879 90	2.63	6.12	452.63	314 61

	SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	9269.000	43.00	877.00	876.70	872.80	230.00	878.69	0 00	878.74	0.75	3.19	395 10	264.73
	9269.000	43.00	877.00	876.70	872.80	350.00	879.26	0.00	879.32	0.87	3.65	536.32	374 94
	9269 000	43.00	877.00	876.70	872.80	400.00	879.48	0.00	879.53	0.90	3.79	591.82	422.25
	9269.000	43.00	877.00	876.70	872.80	510.00	879.85	0.00	879.90	1.00	4.15	689.05	509.82
	9375.000	106.00	0.00	0.00	875.09	230.00	878.66	0.00	878.81	38.84	3.16	72.90	36.90
	9375.000	106.00	0.00	0.00	875.09	350.00	879.20	0.00	879.43	47.72	3.86	91.30	50.67
	9375.000	106.00	0.00	0.00	875 09	400.00	879.41	0.00	879.66	49.08	4.06	102.37	57.09
	9375 000	106.00	0.00	0.00	875.09	510.00	879.77	0.00	880.04	48.76	4.33	139.75	73.03
	9475 000	100.00	0.00	0.00	875 67	230.00	879.08	0.00	879.26	47.85	3.39	67.82	33 25
	9475.000	100.00	0.00	0.00	875.67	350.00	879 70	0.00	879.94	52.71	3.99	87 82	48.21
	9475.000	100.00	0.00	0 00	875.67	400.00	879.91	0 00	880.18	53.67	4.19	97.82	54.60
	9475.000	100.00	0.00	0 00	875.67	510.00	880 27	0.00	880.58	55 02	4 53	127.92	68.75
	9575.000	100.00	0.00	0.00	876.25	230.00	879 71	879.52	880.09	126.31	5.10	53.41	20.46
	9575.000	100.00	0.00	0.00	876.25	350.00	880.34	0.00	880.52	58.08	3.96	113.59	45.93
	9575.000	100.00	0.00	0.00	876.25	400 00	880.56	0.00	880 71	44.12	3.61	139.27	60.22
	9575.000	100.00	0.00	0.00	876.25	510.00	880.92	0.00	881 05	32.83	3.39	183 86	89.01
	9675.000	100.00	0.00	0.00	876.84	230.00	880.72	0.00	880.85	43.43	3.29	91.25	34 90
	9675.000	100.00	0.00	0.00	876.84	350.00	880.92	0.00	881.10	59.17	4.00	112.78	45.50
	9675 000	100.00	0.00	0.00	876.84	400.00	881.04	0.00	881.22	56.27	3.99	127.25	53.32
	9675.000	100.00	0.00	0.00	876.84	510.00	881.30	0.00	881.48	51.56	4.04	156.73	71.03
	9775.000	100.00	0.00	0 00	877 42	230.00	881.20	0.00	881.37	57.75	3.71	80.79	30.27
	9775.000	100.00	0.00	0.00	877.42	350.00	881.51	0.00	881.69	58.25	3.97	113.46	45.86
	9775.000	100.00	0.00	0.00	877.42	400 00	881.61	0.00	881.80	58.77	4.07	125.19	52.18
	9775 000	100.00	0.00	0.00	877.42	510.00	881 83	0.00	882.03	57.15	4.21	151.10	67.46
*	9876.000	101.00	0.00	0.00	878.00	230.00	881 87	881.87	882.36	9.06	8.09	90.07	76.39
*	9876.000	101.00	0.00	0.00	878.00	350.00	882.22	882.22	882.76	10.41	9.22	128.65	108 48
*	9876.000	101.00	0.00	0.00	878.00	400.00	882.34	882.34	882.90	10.90	9.62	142.39	121.16
*	9876.000	101.00	0.00	0.00	878 00	510.00	882.54	882 54	883.15	12.28	10.53	167.23	145.53
	9893.000	17.00	882.00	881.50	878.00	230.00	882.71	0.00	882.80	1.86	4.20	189 70	168.83
	9893.000	17.00	882 00	881.50	878.00	350.00	882.93	0.00	883.07	3.01	5.53	219.78	201.58
	9893 000	17.00	882.00	881.50	878.00	400.00	883.00	0.00	883.17	3.53	6.04	229.97	213.04
	9893 000	17.00	882.00	881.50	878.00	510.00	883.14	0 00	883.36	4.58	7.02	251.81	238.18
	9950.000	57.00	0.00	0.00	878.58	230.00	882.72	0.00	882.85	38 40	3.25	119.07	37.12
	9950 000	57.00	0.00	0.00	878 58	350.00	882 94	0.00	883.15	59.32	4.23	144.62	45.44
	9950.000	57.00	0.00	0.00	878.58	400.00	883.01	0.00	883.25	67.93	4.61	153.39	48.53
	9950 000	57.00	0.00	0.00	878.58	510.00	883 16	0.00	883.47	84.83	5.34	172.22	55 37
	10000 000	50.00	0.00	0.00	879.16	230.00	882 92	0.00	883.18	80.59	4.36	78.90	25.62
	10000 000	50.00	0.00	0.00	879.16	350.00	883.25	0.00	883.58	96.34	5.11	114.31	35.66
	10000.000	50.00	0.00	0.00	879.16	400.00	883 37	0.00	883.72	101.07	5.36	127.60	39.79
	10000.000	50.00	0.00	0.00	879 16	510.00	883.60	0.00	883.98	107.01	5.81	155.54	49 30

1

	SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	10100.000	100.00	0.00	0.00	880.32	230.00	883.85	883.34	884 24	125.13	5.15	57.98	20.56
	10100.000	100.00	0.00	0.00	880.32	350.00	884.29	0 00	884.70	121.83	5.61	101.00	31.71
	10100 000	100.00	0.00	0 00	880.32	400.00	884.44	0.00	884.85	120 34	5.74	116.94	36.46
	10100.000	100.00	0 00	0.00	880 32	510.00	884 71	0.00	885.13	119.10	6.04	148.31	46.73
	10200.000	100.00	0.00	0.00	881.48	230.00	885.08	884.46	885.44	112 29	4.95	62.74	21.71
	10200.000	100.00	0 00	0.00	881.48	350.00	885.50	0.00	885 88	113.03	5.45	105.15	32.92
	10200.000	100.00	0.00	0.00	881.48	400.00	885 63	0 00	886.02	113.87	5.62	120.26	37.48
	10200.000	100.00	0.00	0.00	881.48	510.00	885.89	0 00	886.30	114.56	5.96	150.91	47 65
	10350.000	150.00	0.00	0.00	883.22	230.00	886.69	0.00	886.99	94.38	4 42	53.38	23 67

	10350.000	150.00	0.00	0.00	883.22	350.00	887.16	0.00	887.60	111.74	5.36	68.66	33.11
	10350.000	150.00	0.00	0.00	883.22	400.00	887.32	0.00	887.81	117.13	5.68	74.71	36.96
	10350.000	150.00	0.00	0.00	883.22	510.00	887.63	0.00	888.24	131.34	6.37	86.30	44.50
	10450.000	100.00	0.00	0.00	884.38	230.00	887.72	0.00	888.06	116.91	4.75	49.36	21.27
	10450.000	100.00	0.00	0.00	884.38	350.00	888.29	0.00	888.74	116.24	5.43	67.64	32.46
	10450.000	100.00	0.00	0.00	884.38	400.00	888.49	0.00	888.98	117.51	5.68	74.62	36.90
	10450.000	100.00	0.00	0.00	884.38	510.00	888.92	0.00	889.47	112.07	6.04	91.59	48.18
	10550.000	100.00	0.00	0.00	885.54	230.00	888.88	0.00	889.23	116.24	4.74	49.46	21.33
	10550.000	100.00	0.00	0.00	885.54	350.00	889.45	0.00	889.90	116.39	5.43	67.60	32.44
	10550.000	100.00	0.00	0.00	885.54	400.00	889.66	0.00	890.15	114.75	5.64	75.31	37.34
	10550.000	100.00	0.00	0.00	885.54	510.00	890.06	0.00	890.62	116.06	6.10	90.49	47.34
	10600.000	50.00	0.00	0.00	886.12	230.00	889.46	0.00	889.81	115.43	4.73	49.58	21.41
	10600.000	50.00	0.00	0.00	886.12	350.00	890.04	0.00	890.48	115.08	5.41	67.90	32.63
	10600.000	50.00	0.00	0.00	886.12	400.00	890.23	0.00	890.72	114.85	5.64	75.28	37.33
	10600.000	50.00	0.00	0.00	886.12	510.00	890.64	0.00	891.20	116.71	6.11	90.31	47.21
*	10651.000	51.00	0.00	0.00	886.70	230.00	889.88	889.88	890.62	68.97	10.52	44.66	27.70
*	10651.000	51.00	0.00	0.00	886.70	350.00	890.40	890.40	891.29	71.36	11.90	60.61	41.43
*	10651.000	51.00	0.00	0.00	886.70	400.00	890.59	890.59	891.53	71.95	12.37	66.95	47.16
*	10651.000	51.00	0.00	0.00	886.70	510.00	890.92	890.92	892.00	76.37	13.49	78.92	58.36
	10681.000	30.00	891.20	889.20	886.70	230.00	892.50	0.00	892.55	2.72	3.17	153.80	139.34
	10681.000	30.00	891.20	889.20	886.70	350.00	892.92	0.00	893.01	4.30	4.18	179.42	168.72
	10681.000	30.00	891.20	889.20	886.70	400.00	893.07	0.00	893.17	4.94	4.55	189.06	179.98
	10681.000	30.00	891.20	889.20	886.70	510.00	893.35	0.00	893.49	6.28	5.29	208.38	203.46
	10755.000	74.00	0.00	0.00	886.96	230.00	892.50	0.00	892.65	27.83	3.17	79.55	43.60
	10755.000	74.00	0.00	0.00	886.96	350.00	892.91	0.00	893.17	43.02	4.20	96.39	53.36
	10755.000	74.00	0.00	0.00	886.96	400.00	893.05	0.00	893.36	49.10	4.58	102.92	57.08
	10755.000	74.00	0.00	0.00	886.96	510.00	893.32	0.00	893.74	62.40	5.36	116.16	64.56
	10795.000	40.00	0.00	0.00	887.10	230.00	892.70	0.00	892.71	0.72	0.76	487.39	270.43
	10795.000	40.00	0.00	0.00	887.10	350.00	893.25	0.00	893.26	1.14	1.02	553.53	327.61
	10795.000	40.00	0.00	0.00	887.10	400.00	893.45	0.00	893.47	1.31	1.12	578.01	349.88
	10795.000	40.00	0.00	0.00	887.10	510.00	893.86	0.00	893.88	1.66	1.32	627.07	396.24

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
11026.000	231.00	0.00	0.00	887.90	80.00	892.71	0.00	892.71	0.11	1.05	424.42	244.73
11026.000	231.00	0.00	0.00	887.90	145.00	893.26	0.00	893.28	0.22	1.61	515.46	310.57
11026.000	231.00	0.00	0.00	887.90	160.00	893.47	0.00	893.49	0.23	1.68	550.21	337.06
11026.000	231.00	0.00	0.00	887.90	180.00	893.88	0.00	893.90	0.21	1.70	621.17	393.27
11416.000	390.00	900.00	892.00	889.50	80.00	893.21	0.00	893.24	0.43	1.33	60.01	122.58
11416.000	390.00	900.00	892.00	889.50	145.00	894.99	0.00	895.02	0.29	1.35	107.56	271.17
11416.000	390.00	900.00	892.00	889.50	160.00	895.59	0.00	895.61	0.23	1.27	126.11	336.16
11416.000	390.00	900.00	892.00	889.50	180.00	896.57	0.00	896.59	0.15	1.12	160.43	464.89
11425.000	9.00	0.00	0.00	889.50	80.00	893.22	0.00	893.24	4.03	1.33	60.02	39.84
11425.000	9.00	0.00	0.00	889.50	145.00	894.99	0.00	895.02	2.71	1.35	107.57	88.14
11425.000	9.00	0.00	0.00	889.50	160.00	895.59	0.00	895.61	2.14	1.27	126.11	109.26
11425.000	9.00	0.00	0.00	889.50	180.00	896.58	0.00	896.59	1.43	1.12	160.08	150.65
11485.000	60.00	0.00	0.00	889.60	80.00	893.24	0.00	893.27	4.40	1.38	58.15	38.16
11485.000	60.00	0.00	0.00	889.60	145.00	895.01	0.00	895.04	2.90	1.38	104.85	85.14
11485.000	60.00	0.00	0.00	889.60	160.00	895.60	0.00	895.63	2.29	1.30	123.12	105.78
11485.000	60.00	0.00	0.00	889.60	180.00	896.58	0.00	896.60	1.51	1.15	156.65	146.32
11517.000	32.00	0.00	0.00	889.70	80.00	893.24	0.00	893.30	6.07	2.13	56.16	32.46
11517.000	32.00	0.00	0.00	889.70	145.00	895.00	0.00	895.07	4.50	2.40	102.09	68.33
11517.000	32.00	0.00	0.00	889.70	160.00	895.59	0.00	895.65	3.69	2.33	120.05	83.27
11517.000	32.00	0.00	0.00	889.70	180.00	896.57	0.00	896.63	2.60	2.17	153.09	111.74

11553.000	36.00	903.00	893.70	889.70	80.00	893.24	0.00	893.30	6.11	2.13	56.02	32.36
11553.000	36.00	903.00	893.70	889.70	145.00	895.84	0.00	895.89	2.60	2.01	127.97	89.97
11553 000	36.00	903.00	893.70	889 70	160.00	896.63	0.00	896.67	1 99	1.91	154.89	113.32
11553 000	36.00	903.00	893.70	889.70	180.00	897.91	0.00	897.95	1.31	1.73	203.80	157.48
11563.000	10.00	0.00	0.00	889.70	80.00	893.25	0.00	893.31	6.08	2.13	56.15	32.46
11563.000	10.00	0.00	0.00	889.70	145.00	895.85	0.00	895.89	2.59	2.01	128.08	90.07
11563.000	10.00	0.00	0.00	889.70	160.00	896.63	0.00	896.68	1.99	1.91	154.99	113.41
11563.000	10.00	0.00	0.00	889.70	180.00	897.91	0.00	897.95	1.31	1.73	203.88	157.55
11755.000	192.00	0.00	0.00	890.00	80.00	893.37	0.00	893.44	7.36	2 26	52.08	29.49
11755.000	192.00	0.00	0.00	890.00	145.00	895 90	0.00	895.95	3.04	2.11	120.00	83.22
11755.000	192.00	0 00	0.00	890.00	160.00	896.67	0.00	896.72	2.31	2.00	145.75	105.31
11755.000	192.00	0.00	0.00	890.00	180.00	897.94	0.00	897.98	1.49	1.81	192.82	147.39
11955.000	200.00	0.00	0.00	890.30	80.00	893.53	0.00	893.60	8.56	2.37	49.08	27.34
11955.000	200.00	0.00	0.00	890.30	145.00	895.96	0.00	896 02	3.56	2.22	112.42	76.87
11955.000	200.00	0.00	0.00	890.30	160.00	896.72	0.00	896.77	2.68	2.10	136.97	97.70
11955 000	200.00	0.00	0.00	890.30	180.00	897 97	0.00	898.01	1 71	1.89	182.20	137 72
12155.000	200.00	0.00	0.00	890 50	80.00	893.71	0.00	893.74	4.50	1.33	59.98	37.70
12155.000	200.00	0.00	0.00	890.50	145.00	896.06	0.00	896.08	1.70	1.10	131.60	111.33
12155.000	200.00	0.00	0.00	890.50	160.00	896.80	0.00	896.82	1.23	1.01	159.00	144.00
12155.000	200 00	0.00	0.00	890.50	180.00	898.03	0.00	898.04	0.74	0.86	215.29	209.54

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
12355.000	200.00	0.00	0.00	888.70	80.00	893.79	0.00	893.82	3.42	1.25	63.86	43 28
12355.000	200.00	0.00	0.00	888.70	145.00	896.09	0.00	896.11	1.50	1.16	141.20	118.36
12355 000	200.00	0.00	0.00	888.70	160 00	896.82	0.00	896.84	1.13	1.09	173.81	150.37
12355.000	200.00	0.00	0.00	888.70	180.00	898.04	0.00	898.06	0.75	0.98	222.39	208.33
12425.000	70.00	0.00	0.00	888 50	80 00	893.75	0.00	893.89	1.78	3.06	26.15	60.00
12425.000	70.00	0.00	0.00	888.50	145.00	896.01	0.00	896.22	1 51	3.69	39.25	118 06
12425.000	70.00	0.00	0.00	888.50	160.00	896.74	0.00	896.95	1.31	3.68	43.48	140.03
12425.000	70.00	0.00	0.00	888 50	180.00	897.96	0.00	898.15	1.00	3.56	50.55	180.04
12565.000	140.00	907.60	896.00	890.00	80.00	893.70	0.00	894.03	8.48	4.60	17.40	27.47
12565.000	140.00	907.60	896.00	890.00	145.00	896.80	0.00	896.84	0.37	1.52	95.18	238.30
12565.000	140.00	907.60	896.00	890.00	160.00	897.72	0.00	897.75	0.24	1.39	115.36	328.30
12565 000	140.00	907.60	896.00	890.00	180.00	899.22	0.00	899.24	0.13	1 21	148.28	498.85
12635.000	70.00	0.00	0.00	890.40	10 00	894.15	0.00	894.15	0.22	0.26	42.54	21.42
12635 000	70 00	0.00	0.00	890.40	20.00	896.85	0.00	896.85	0.03	0.17	188.74	109.72
12635.000	70 00	0.00	0 00	890.40	25.00	897.76	0.00	897.76	0 02	0.16	273.19	163 99
12635.000	70.00	0.00	0.00	890.40	36 00	899.25	0 00	899.25	0.02	0.16	450.80	284.18
13251.000	616.00	0.00	0.00	892.90	10.00	894.19	0.00	894.19	4 40	0.00	41.91	4.77
13251.000	616 00	0.00	0.00	892.90	20.00	896.85	0 00	896.85	0.02	0.00	583.76	148.30
13251.000	616.00	0.00	0.00	892 90	25.00	897.76	0.00	897.76	0.01	0 00	967.71	279.49
13251.000	616 00	0.00	0.00	892.90	36.00	899.25	0.00	899.25	0.00	0.00	1788.19	629.75
* 13311.000	60.00	895.40	892 30	895.40	10.00	896.79	0 00	897.02	309.41	3.88	2.57	0.57
* 13311.000	60.00	895.40	892.30	895.40	20.00	897.05	897.05	897.51	416.15	5.40	3.71	0.98
13311.000	60.00	895.40	892.30	895.40	25.00	897.58	0.00	897.85	162.07	4.17	5.99	1.96
13311.000	60.00	895.40	892.30	895.40	36.00	899.25	0.00	899.35	29.29	2.53	15.73	6.65

1
BISHOP CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH

0.000	150.00	841.56	0.00	0.00	0.00	126.48	0.00
0.000	240.00	842.35	0.79	0.00	0.00	140.22	0 00
0 000	310.00	842.67	0.32	0.00	0.00	145.78	0.00
0 000	470 00	843.30	0.63	0.00	0.00	150.00	0.00
475.000	150.00	841.69	0.00	0.13	0.00	62.52	475.00
475.000	240.00	842.47	0.78	0.12	0.00	78.96	475.00
475.000	310.00	842.81	0.34	0.14	0.00	86.07	475.00
475.000	470.00	843 47	0.66	0.17	0.00	99 80	475.00
950.000	150.00	842.14	0.00	0.45	0.00	53.16	475.00
950 000	240.00	842.83	0.69	0 36	0.00	67.62	475.00
950.000	310.00	843.18	0.35	0.37	0.00	75.01	475.00
950.000	470.00	843.85	0.66	0.38	0.00	88.89	475.00
1081.000	150.00	842.42	0.00	0.28	0.00	39.83	131 00
1081.000	240.00	843.04	0.62	0.21	0.00	52.81	131.00
1081.000	310.00	843.39	0.34	0.20	0.00	59 97	131.00
1081.000	470.00	844.03	0.64	0 18	0.00	73.38	131.00
1212.000	150 00	843.20	0 00	0.78	0.00	36.66	131.00
1212.000	240.00	843.67	0.47	0.62	0.00	46.45	131.00
1212.000	310.00	843.96	0.29	0.57	0.00	52.50	131.00
1212.000	470.00	844.50	0.55	0.48	0 00	63.93	131.00
1475.000	150.00	845.08	0.00	1.87	0.00	37.11	263.00
1475.000	240.00	845.51	0.44	1.84	0.00	46.18	263.00
1475.000	310.00	845.77	0.26	1.81	0.00	51.53	263.00
1475.000	470.00	846.21	0 44	1.71	0.00	61 11	263.00
1737.000	150.00	846.66	0.00	1.58	0.00	26 78	262.00
1737.000	240.00	847.16	0.50	1.65	0 00	59.79	262.00
1737.000	310.00	847.43	0.27	1.66	0.00	83.72	262.00
1737.000	470.00	847.89	0.46	1.68	0.00	123.65	262.00
* 2001.000	150 00	847.54	0.00	0.89	0.00	22.72	264.00
* 2001.000	240.00	847.96	0.42	0.81	0.00	24.38	264.00
* 2001.000	310.00	848.26	0.30	0.83	0.00	25.54	264.00
* 2001.000	470.00	848.99	0.73	1.10	0.00	58.56	264.00
* 2038.800	150.00	848.22	0.00	0.68	0.00	25.39	37.80
* 2038.800	240.00	848.70	0.48	0.74	0.00	36.56	37.80
2038.800	310.00	851.57	2.87	3.31	0.00	282.20	37.80
2038.800	470.00	851.83	0.26	2.83	0.00	328.14	37.80

1

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
2440 000	150.00	850.82	0.00	2.59	0.00	25.76	401.00
2440.000	240 00	852.01	1.19	3.31	0.00	113.23	401.00
2440.000	310.00	851.47	-0.54	-0.10	0.00	72.78	401.00
2440.000	470.00	851.67	0.19	-0.16	0.00	88.59	401.00
2840.000	150.00	852.36	0.00	1.55	0.00	22.27	400.00
2840 000	240.00	852.77	0.40	0.75	0.00	24.20	400.00
2840.000	310 00	853.44	0.68	1.97	0.00	53.49	400.00
2840.000	470.00	854 08	0.64	2.42	0 00	88.64	400.00
3178.000	150 00	854.98	0.00	2.62	0.00	18.70	338.00
3178.000	240 00	855.83	0.84	3.06	0.00	26.89	338.00
3178.000	310.00	856.00	0.17	2.56	0.00	31.88	338.00
3178.000	470.00	856.42	0.42	2.34	0.00	42 59	338.00
3515.000	150.00	858.99	0.00	4.00	0.00	32.50	337.00
3515 000	240.00	859.47	0 48	3.64	0 00	48.43	337 00

3515 000	310.00	859.91	0.44	3.91	0.00	68.06	337.00
3515.000	470.00	860.54	0.64	4.12	0.00	102.37	337.00
3853.000	150.00	862.15	0.00	3.17	0.00	61.12	338 00
3853.000	240.00	862.67	0.52	3.21	0.00	107.12	338.00
3853.000	310.00	862.88	0.20	2.97	0.00	114.02	338.00
3853.000	470.00	863.29	0 42	2.75	0.00	126.33	338.00
4190.000	150.00	865.28	0.00	3.13	0.00	113.21	337.00
4190.000	240.00	865.58	0.29	2.90	0.00	119.42	337.00
4190.000	310.00	865.82	0.24	2.94	0.00	122.59	337.00
4190.000	470.00	866.21	0.40	2.92	0.00	125.08	337.00
4915.000	150 00	867.79	0.00	2.50	0.00	24.29	725.00
4915.000	240.00	868.44	0.65	2 86	0.00	47.03	725.00
4915.000	310 00	868.78	0.34	2.97	0.00	67.64	725.00
4915.000	470.00	869.39	0.60	3.17	0.00	101.54	725.00
5640.000	150.00	869.21	0.00	1.42	0.00	22.11	725.00
5640.000	240.00	870.10	0.89	1.66	0.00	72.55	725.00
5640.000	310.00	870.57	0.47	1.78	0 00	74.95	725.00
5640.000	470.00	871.38	0.81	1.99	0.00	79.10	725.00
5790.000	150.00	869.42	0.00	0.21	0.00	81.61	150.00
5790.000	240.00	870.34	0.92	0.24	0.00	87.98	150.00
5790.000	310.00	870.82	0 48	0.26	0.00	91.42	150.00
5790.000	470.00	871.66	0.84	0.28	0.00	110.47	150.00
5940 000	150.00	869.53	0 00	0.11	0.00	107.60	150.00
5940.000	240.00	870.44	0.91	0.10	0.00	136.38	150.00
5940.000	310.00	870.93	0.49	0.10	0.00	153 07	150.00
5940.000	470.00	871.78	0.85	0.12	0 00	171.46	150.00

1

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	5965.000	150.00	869.54	0.00	0.01	0.00	108.11	25.00
	5965.000	240.00	870.45	0.91	0.01	0.00	136.82	25.00
	5965.000	310.00	870.93	0.49	0.01	0.00	153.52	25.00
	5965.000	470.00	871.79	0.85	0.01	0.00	171.74	25.00
	6090.000	150.00	869.58	0.00	0.04	0.00	174.39	125.00
	6090.000	240.00	870.49	0.91	0.04	0.00	192.52	125.00
	6090.000	310.00	870.98	0.49	0.04	0.00	211.11	125.00
	6090.000	470 00	871.84	0.86	0.05	0.00	234.01	125.00
	6220.000	150.00	869.60	0.00	0.02	0.00	223 20	130.00
	6220.000	240.00	870.51	0.91	0 02	0.00	252 80	130.00
	6220.000	310.00	871.00	0 49	0 02	0.00	268.77	130.00
	6220.000	470.00	871 86	0.86	0.03	0.00	296 76	130.00
	6241.000	150.00	869.61	0.00	0 00	0.00	223.12	21.00
	6241.000	240.00	870.51	0.91	0.00	0 00	252 58	21.00
	6241.000	310.00	871.00	0.49	0.00	0.00	268.56	21.00
	6241.000	470.00	871.86	0.86	0.00	0.00	296.57	21.00
*	6305.000	150.00	869 36	0 00	-0.24	0.00	214.81	64.00
*	6305.000	240 00	870.12	0.75	-0.39	0.00	239.97	64.00
	6305.000	310.00	872.84	2.72	1.84	0.00	328.28	64.00
	6305.000	470.00	873 22	0.38	1.35	0.00	340.70	64.00
	6311.000	230.00	869.99	0 00	0.63	0.00	235.67	6.00
	6311.000	350 00	871.14	1.15	1.02	0.00	273.12	6.00
	6311.000	400.00	872.84	1 70	0.00	0.00	328.25	6.00
	6311.000	510.00	873.22	0.38	0.00	0 00	340.65	6.00

	6450 000	230.00	870.01	0.00	0.02	0.00	234.12	139 00
	6450.000	350.00	871.16	1.14	0.02	0.00	271.33	139.00
	6450.000	400 00	872.84	1.69	0.01	0.00	326.05	139.00
	6450 000	510.00	873.23	0.38	0.01	0.00	338.47	139.00
	6900.000	230.00	870.08	0.00	0.06	0.00	200.44	450.00
	6900.000	350 00	871.21	1.13	0.05	0.00	238.25	450.00
	6900.000	400.00	872.86	1.65	0.02	0.00	262.28	450.00
	6900.000	510.00	873.25	0.39	0.02	0.00	267.93	450.00
*	7403.000	230.00	871.21	0.00	1.13	0.00	87.03	503.00
*	7403 000	350.00	871.43	0.23	0.22	0.00	90.68	503.00
	7403.000	400.00	872.89	1.46	0 03	0.00	139 22	503.00
	7403.000	510.00	873.29	0.40	0.04	0.00	142.35	503.00
	7504.000	230.00	872.07	0.00	0.86	0.00	87.03	101.00
	7504.000	350.00	872.36	0.29	0.93	0.00	97.28	101.00
	7504.000	400.00	872.99	0.63	0.10	0.00	133.38	101.00
	7504.000	510.00	873.38	0.39	0.08	0.00	136.52	101.00

1

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	7535.000	230.00	872.25	0.00	0.18	0.00	88.53	31.00
*	7535.000	350.00	872.54	0.29	0.17	0.00	121.39	31.00
	7535.000	400.00	876.97	4.43	3.98	0.00	243.34	31.00
	7535.000	510.00	877.16	0.19	3.78	0.00	310.86	31.00
	7735.000	230.00	874.46	0.00	2.22	0 00	34.92	200.00
	7735.000	350.00	874.80	0.34	2.27	0.00	40.81	200.00
	7735.000	400.00	876.92	2.11	-0.05	0.00	102 23	200 00
	7735.000	510.00	877.09	0.17	-0.07	0.00	107 45	200.00
	8186.000	230.00	876.25	0.00	1.79	0 00	63.83	451.00
	8186.000	350.00	876.94	0.69	2.13	0.00	83.17	451.00
	8186.000	400 00	877.46	0.52	0.54	0.00	93.51	451 00
	8186.000	510.00	877.79	0.33	0.70	0.00	97 17	451.00
	8202 000	230.00	878.44	0.00	2.19	0.00	107.80	16.00
	8202.000	350.00	878.95	0.51	2.01	0.00	113.47	16.00
	8202.000	400.00	879.14	0.19	1.68	0.00	119.44	16.00
	8202.000	510.00	879.43	0 29	1.64	0.00	130.69	16.00
	8475.000	230.00	878.50	0.00	0.07	0.00	42.92	273.00
	8475.000	350.00	879.05	0.54	0.10	0.00	45.69	273.00
	8475.000	400.00	879.25	0.20	0.11	0.00	46.74	273.00
	8475.000	510.00	879.57	0.32	0.14	0.00	50.86	273.00
	8751.000	230.00	878.56	0.00	0.06	0.00	210.00	276.00
	8751.000	350.00	879.14	0.58	0.10	0.00	210.00	276.00
	8751.000	400.00	879.36	0.22	0.11	0.00	210.00	276.00
	8751.000	510.00	879.72	0.36	0.15	0.00	210.00	276.00
	8791.000	230 00	878.62	0 00	0.05	0.00	210.00	40.00
	8791.000	350.00	879.19	0 58	0.05	0.00	210.00	40.00
	8791.000	400.00	879.41	0 22	0.05	0.00	210.00	40.00
	8791.000	510.00	879.78	0.37	0 06	0.00	210.00	40.00
	8808.000	230.00	878.62	0.00	0.00	0.00	240.00	17.00
	8808.000	350.00	879.19	0.58	0.00	0.00	240.00	17.00
	8808.000	400.00	879.41	0.22	0.00	0 00	240 00	17.00
	8808.000	510.00	879.78	0.37	0.00	0.00	240.00	17.00
	8824.000	230.00	878.64	0.00	0.02	0 00	240.00	16.00
	8824.000	350.00	879.22	0.58	0.02	0 00	240.00	16.00
	8824 000	400.00	879.44	0 22	0.03	0.00	240.00	16.00

	8824.000	510.00	879.81	0.37	0.03	0.00	240.00	16.00
	9226.000	230.00	878.54	0.00	-0 09	0.00	193.42	402.00
	9226.000	350.00	879.13	0.59	-0.09	0.00	224.77	402.00
	9226.000	400 00	879.36	0.23	-0 08	0.00	231.91	402.00
	9226.000	510.00	879.73	0 37	-0 08	0.00	243.60	402.00

1

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	9269.000	230.00	878.69	0.00	0 15	0.00	236 10	43.00
	9269.000	350.00	879.26	0.58	0.14	0.00	254.16	43.00
	9269.000	400.00	879.48	0.22	0.13	0.00	260.91	43.00
	9269.000	510.00	879.85	0.36	0.12	0.00	272.35	43.00
	9375.000	230.00	878 66	0.00	-0.03	0.00	31.57	106.00
	9375.000	350.00	879.20	0.54	-0.06	0.00	44.14	106.00
	9375.000	400.00	879.41	0.21	-0.07	0.00	63.48	106.00
	9375.000	510.00	879.77	0.36	-0.08	0.00	163.59	106.00
	9475.000	230.00	879.08	0.00	0.42	0.00	30.88	100.00
	9475.000	350.00	879.70	0.62	0.49	0 00	35.96	100.00
	9475 000	400.00	879.91	0.22	0.50	0.00	56.34	100.00
	9475.000	510.00	880.27	0.36	0.50	0.00	155.15	100.00
	9575.000	230.00	879.71	0.00	0.64	0.00	72.42	100.00
	9575.000	350.00	880.34	0.62	0.64	0.00	110.51	100.00
	9575 000	400 00	880.56	0.22	0.65	0.00	117.85	100.00
	9575.000	510.00	880.92	0.36	0 65	0.00	132.56	100.00
	9675.000	230.00	880.72	0.00	1.01	0.00	104.01	100.00
	9675.000	350.00	880.92	0.20	0.58	0.00	110.28	100.00
	9675.000	400.00	881.04	0.12	0.48	0.00	114.30	100.00
	9675.000	510 00	881.30	0.26	0.38	0.00	124.89	100.00
	9775.000	230.00	881.20	0.00	0.48	0.00	100.82	100.00
	9775.000	350.00	881.51	0.31	0.59	0.00	110.47	100 00
	9775.000	400.00	881 61	0.10	0.57	0.00	113.73	100.00
	9775 000	510 00	881.83	0.22	0.53	0.00	123.24	100.00
*	9876.000	230.00	881.87	0.00	0.67	0.00	103.66	101.00
*	9876.000	350.00	882.22	0.35	0.71	0.00	114.68	101.00
*	9876.000	400.00	882.34	0.12	0.73	0.00	119.35	101.00
*	9876.000	510.00	882.54	0.20	0.71	0.00	127.91	101.00
	9893.000	230.00	882.71	0 00	0.84	0.00	134.15	17.00
	9893.000	350.00	882.93	0.22	0.70	0.00	142.08	17.00
	9893.000	400.00	883.00	0 07	0.66	0.00	144.66	17.00
	9893.000	510.00	883.14	0 15	0.60	0.00	150.05	17.00
	9950.000	230.00	882.72	0 00	0.01	0.00	112.04	57.00
	9950.000	350.00	882.94	0.22	0.01	0.00	120.42	57.00
	9950.000	400.00	883.01	0.07	0.01	0.00	123.91	57.00
	9950 000	510.00	883.16	0.15	0.02	0 00	129.32	57.00
	10000.000	230.00	882.92	0.00	0.20	0.00	100.24	50.00
	10000 000	350.00	883.25	0.33	0.31	0.00	110.71	50.00
	10000.000	400 00	883.37	0.12	0 36	0.00	114.39	50.00
	10000.000	510.00	883.60	0.23	0.44	0.00	124.54	50.00

1

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	10100 000	230.00	883.85	0.00	0.93	0.00	79.21	100.00
	10100.000	350.00	884.29	0.44	1.04	0.00	106.89	100.00
	10100.000	400 00	884.44	0 15	1.07	0.00	111.45	100.00

	10100.000	510.00	884.71	0.27	1.11	0.00	122.16	100.00
	10200 000	230 00	885.08	0.00	1 23	0.00	85.71	100.00
	10200.000	350.00	885.50	0.42	1.21	0.00	108.10	100.00
	10200.000	400.00	885.63	0.14	1.20	0.00	112.37	100.00
	10200.000	510.00	885.89	0.26	1.19	0.00	123.18	100.00
	10350.000	230.00	886.69	0.00	1.62	0.00	30.82	150.00
	10350 000	350.00	887.16	0.46	1.66	0.00	34 96	150.00
	10350.000	400.00	887.32	0.16	1.68	0.00	36.47	150.00
	10350.000	510.00	887 63	0.31	1.74	0.00	39 21	150.00
	10450.000	230.00	887.72	0.00	1.02	0.00	29.63	100.00
	10450.000	350.00	888.29	0.57	1.13	0.00	34.70	100.00
	10450.000	400.00	888.49	0.20	1.17	0.00	36.45	100.00
	10450.000	510.00	888.92	0.43	1.29	0.00	40.61	100.00
	10550.000	230.00	888.88	0.00	1.17	0.00	29.66	100.00
	10550.000	350.00	889.45	0.57	1.16	0.00	34.69	100.00
	10550.000	400.00	889.66	0.21	1.17	0.00	36.62	100.00
	10550.000	510.00	890.06	0.40	1 13	0.00	40.23	100.00
	10600.000	230.00	889.46	0.00	0.58	0.00	29.70	50.00
	10600.000	350.00	890.04	0.57	0.58	0.00	34.77	50.00
	10600.000	400.00	890.23	0.20	0.57	0.00	36.61	50.00
	10600.000	510.00	890.64	0.40	0.58	0.00	40.17	50.00
*	10651 000	230.00	889.88	0.00	0 41	0.00	28.18	51.00
*	10651.000	350.00	890.40	0.52	0.36	0.00	32.85	51.00
*	10651.000	400.00	890.59	0.19	0.35	0.00	34.52	51.00
*	10651.000	510.00	890.92	0 33	0.28	0.00	37.49	51.00
	10681.000	230 00	892.50	0.00	2.63	0.00	58.24	30.00
	10681.000	350.00	892.92	0.42	2.52	0.00	64.10	30.00
	10681 000	400.00	893.07	0.15	2.48	0.00	66.17	30.00
	10681.000	510.00	893.35	0.28	2.43	0.00	69.31	30 00
	10755.000	230.00	892.50	0.00	0.00	0.00	37.92	74.00
	10755.000	350.00	892.91	0.41	-0.01	0.00	44.59	74.00
	10755.000	400.00	893.05	0.14	-0.02	0.00	46 92	74.00
	10755.000	510.00	893.32	0 27	-0.04	0.00	51.32	74.00
	10795.000	230.00	892.70	0 00	0.20	0.00	120.00	40.00
	10795.000	350.00	893 25	0.55	0.34	0.00	120.00	40.00
	10795.000	400 00	893.45	0.20	0.41	0.00	120.00	40.00
	10795.000	510.00	893.86	0.41	0.54	0.00	120.00	40.00

1

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
11026.000	80 00	892.71	0.00	0 01	0.00	161.22	231 00
11026 000	145.00	893.26	0.55	0.01	0.00	167 59	231.00
11026.000	160 00	893.47	0.21	0.01	0.00	169.96	231 00
11026.000	180.00	893.88	0.41	0.02	0.00	174.69	231.00
11416.000	80.00	893.21	0 00	0.51	0.00	23.31	390.00
11416.000	145 00	894.99	1.78	1.73	0.00	30.16	390.00
11416.000	160.00	895.59	0.59	2.12	0.00	32.44	390.00
11416.000	180.00	896.57	0.99	2.70	0.00	36.29	390.00
11425.000	80.00	893.22	0.00	0.00	0 00	23.31	9.00
11425.000	145 00	894.99	1.78	0.00	0.00	30.16	9.00
11425.000	160.00	895.59	0.59	0.00	0.00	32.44	9.00
11425.000	180.00	896.58	0.99	0.00	0.00	36.25	9.00
11485.000	80 00	893.24	0.00	0.02	0 00	23.00	60.00

11485.000	145 00	895.01	1.77	0.02	0.00	29.81	60.00
11485.000	160.00	895.60	0.59	0.01	0.00	32.09	60.00
11485.000	180.00	896.58	0.98	0.01	0.00	35.89	60.00
11517.000	80.00	893.24	0.00	0.00	0 00	22.66	32.00
11517.000	145.00	895.00	1.76	-0.01	0 00	29.45	32.00
11517 000	160.00	895.59	0.59	-0.01	0.00	31.72	32.00
11517.000	180 00	896.57	0.98	-0.01	0 00	35.50	32.00
11553.000	80.00	893.24	0.00	0.00	0.00	22 64	36.00
11553.000	145.00	895.84	2.60	0.84	0.00	32.66	36.00
11553.000	160.00	896.63	0.79	1.04	0.00	35.70	36.00
11553.000	180.00	897 91	1.28	1.34	0.00	40.63	36 00
11563.000	80.00	893.25	0.00	0.01	0.00	22.66	10.00
11563.000	145.00	895.85	2.60	0.00	0.00	32.68	10.00
11563.000	160.00	896.63	0.79	0.00	0.00	35.71	10.00
11563.000	180.00	897.91	1.28	0.00	0.00	40.64	10.00
11755.000	80 00	893.37	0.00	0.12	0 00	21.96	192.00
11755.000	145.00	895.90	2.53	0.05	0.00	31.71	192.00
11755.000	160.00	896.67	0.77	0.04	0.00	34.70	192.00
11755.000	180.00	897.94	1.27	0.03	0.00	39 58	192 00
11955.000	80.00	893.53	0.00	0.15	0.00	21.43	200.00
11955.000	145.00	895.96	2.43	0.06	0.00	30.77	200.00
11955.000	160.00	896.72	0.76	0.05	0.00	33.71	200.00
11955.000	180.00	897.97	1 25	0.03	0.00	38.53	200.00
12155.000	80.00	893.71	0.00	0.18	0.00	25.49	200.00
12155.000	145 00	896.06	2.35	0.10	0.00	35.43	200.00
12155.000	160.00	896.80	0 74	0.08	0.00	38.56	200.00
12155 000	180 00	898.03	1.23	0.06	0.00	65.76	200.00

1

	SECND	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	12355.000	80.00	893.79	0 00	0.08	0.00	22.95	200.00
	12355.000	145.00	896.09	2.30	0.03	0.00	40.00	200.00
	12355.000	160.00	896.82	0.73	0.02	0.00	40.00	200.00
	12355.000	180.00	898.04	1.22	0.01	0.00	40.00	200.00
	12425.000	80.00	893 75	0.00	-0.04	0.00	5 80	70.00
	12425.000	145.00	896.01	2.26	-0.09	0.00	5.80	70.00
	12425.000	160.00	896.74	0.73	-0 09	0.00	5.80	70.00
	12425.000	180.00	897.96	1 22	-0.09	0.00	5.80	70.00
	12565.000	80.00	893 70	0.00	-0 04	0.00	18.62	140.00
	12565.000	145.00	896.80	3.10	0.80	0.00	22.00	140.00
	12565 000	160.00	897.72	0 92	0.98	0.00	22.00	140.00
	12565 000	180 00	899.22	1.50	1.26	0.00	22.00	140.00
	12635.000	10.00	894.15	0.00	0.45	0.00	30.41	70.00
	12635.000	20.00	896.85	2.70	0.05	0.00	82.61	70.00
	12635.000	25 00	897.76	0.91	0.04	0.00	103.29	70 00
	12635.000	36.00	899.25	1 49	0.03	0.00	134.50	70.00
	13251.000	10.00	894.19	0.00	0.04	0.00	80.67	616.00
	13251.000	20 00	896.85	2.66	0.00	0.00	349.25	616.00
	13251.000	25.00	897.76	0.91	0.00	0.00	477.30	616 00
	13251.000	36.00	899.25	1.49	0.00	0.00	575.00	616.00
*	13311.000	10.00	896.79	0.00	2.60	0.00	4.15	60.00
*	13311.000	20 00	897.05	0.27	0.20	0.00	4.26	60 00
	13311.000	25 00	897.58	0 52	-0.18	0.00	4.47	60.00
	13311.000	36.00	899.25	1.67	0.00	0.00	10.00	60.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION  SECNO=  2001.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  2001.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  2001.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  2001.000  PROFILE= 2  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  2001.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  2001.000  PROFILE= 3  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  2001.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  2001.000  PROFILE= 4  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=  2038.800  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  2038.800  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  2038.800  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  2038.800  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  2038.800  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  2038.800  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=  6305.000  PROFILE= 1  BRIDGE DECK DEFINITION ERROR
CAUTION  SECNO=  6305.000  PROFILE= 2  BRIDGE DECK DEFINITION ERROR

CAUTION  SECNO=  7403.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  7403.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  7403.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  7403.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  7403.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  7403.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=  7535.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  7535.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  7535.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  7535.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  7535.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  7535.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=  9876.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  9876.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  9876.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  9876.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  9876.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  9876.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  9876.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  9876.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  9876.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  9876.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  9876.000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  9876.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO= 10651.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
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CAUTION  SECNO= 10651.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 10651.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 10651.000  PROFILE= 2  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 10651.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 10651.000  PROFILE= 3  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 10651.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 10651.000  PROFILE= 4  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO= 13311.000  PROFILE= 1  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO= 13311.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 13311.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
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CAUTION SECNO= 12311.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

1

THIS RUN EXECUTED 13 FEB 89 10:22:57

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

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: CHAPMAN CREEK

4) DOCUMENT TYPE: ~~SUMMARY~~ 100 YR ENCROACHED WITH SUMMARY

00BREAK00

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1348.44	892.95	0.00	258.	2.	3.	5.	890.00	890.80

5424.00	5.39	892.99	0.00	0.00	892.99	0.00	0.03	0.00	890.80
260.	193.	1.	67.	1121.	10.	632.	97.	31.	890.80
4.80	0 17	0.07	0.11	0.020	0.024	0.020	0.000	887 60	316.32
0.000001	54	54.	54.	0	0	12	0.00	635 95	952.26

0
1

THIS RUN EXECUTED 13 JAN 88 11:54:11

```
**************************************************
  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      CITY OF NOVI   JOB NO. 5555-46-1   STREAM 05
T2      100 YEAR FLOOD
T3      CHAPMAN CREEK
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	4.	0.	0.	0.000000	0.00	0.0	0.	857.380	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	-1.000	0.000	0.000	0.000

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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

 CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

 CCHV=   0.300 CEHV=   0.500
 *SECNO 0.000
      0.00      3.33    857.38    856.05    857.38    857.45      0.07      0.00      0.00    857.65
      340.        0.      340.        0.         0      163.        0.        0.        0.     858.25
      0.00      0.00      2.09      0.00     0.000     0.100     0.000     0.000    854.05     26.50
  0.010057        0.         0        0.         0        13         0      0.00     97.79    124.29
0
 *SECNO 100.000
    100.00      3 19    858 49    857.30      0.00    858.57      0.08      1.12      0.01    858.90
      340.        0.      340.        0.         0      150.        0.        0.        0.     859.50
      0.01      0.00      2 27      0.00     0.000     0.100     0.000     0.000    855.30     27 25
  0.012560      100.      100.      100.         2        14         0      0.00     93 80    121.05
0
 *SECNO 200.000
```

```
   200.00      3.20    859.75    858.56      0.00    859.82      0.08      1.25      0.00    860 15
     340.        0.      340.        0.        0.      150.        0.        1.        0.     860.75
     0.02      0.00      2.26      0.00     0.000     0.100     0.000     0.000    856.55     27.22
 0.012446      100.      100.      100.         1        14         0      0.00     93.96    121.18
0
 *SECNO 300.000
   300.00      3.19    860.99    859.80      0.00    861.07      0.08      1.25      0.00    861.40
     340.        0.      340.        0.        0.      150.        0.        1.        1.     862.00
     0.04      0.00      2.27      0.00     0.000     0.100     0.000     0.000    857.80     27.25
 0.012531      100.      100.      100.         0        14         0      0.00     93.84    121.08
0
 *SECNO 775.000
              ORCHARD SERVICE ROAD
   775.00      1.95    872.05    871.72      0.00    872.25      0.19     11.12      0.06    876.40
     340.        0.      340.        0.        0.       96        0.        2.        2      873.00
     0.07      0.00      3.53      0.00     0.000     0.100     0.000     0.000    870.10    129.97
 0.058351      475.      475.      485.         3         8         0      0.00     98.44    228.41
0
 *SECNO 2051 000
1
 13 JAN 88    11:54:06                                                                          PAGE   15


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=      250.0      650.0  TYPE=      1  TARGET=     -250.000
              ORCHARD SERVICE ROAD
  2051.00      4.75    881.95    881.37      0.00    882.10      0 14      9.84      0.02    879.80
     340.      129.       39.      173.       45         9.       61.        5.        4.     879.80
     0.19      2.85      4.23      2.86     0.030     0.024     0.030     0.000    877.20    407.16
 0.003010     1201.     1276.     1151         7        14         0      0.00     99.99    507.15
0

 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       2.74       2.60       0.00       2.00       0.00       3.10       0.00     877.20     877.20

 *SECNO 2071.000
 6870 D S. ENERGY OF  882.10 HIGHER THAN COMPUTED ENERGY OF  882.03
 PRESSURE AND WEIR FLOW


  EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                        AREA
   1393.75    882.10       0.00       335.         4.         3.         4.       879.20     879.80


 3470 ENCROACHMENT STATIONS=      250.0      650.0  TYPE=      1  TARGET=     -250.000
  2071.00      4.76    881.96      0.00      0.00    882.10      0.14      0.00      0.00    879.80
     340.      129.       39.      173       45.        9.       61.        5.        5.     879.80
     0.19      2.85      4.23      2.85     0.030     0.024     0.030     0.000    877.20    407.14
 0.003004       20.       20.       20.         2         0        13      0 00    100.03    507.17
0
 *SECNO 2898.000
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
              NOVI ROAD
  2898.00      4.24    887.94    887 94      0.00    888.42      0.48      2.82      0.17    886.30
```

295.	102.	92.	101.	21.	13.	21.	7.	6.	886.30
0.23	4.88	6.90	4.88	0.020	0.024	0.020	0.000	883.70	772.67
0 005630	702.	827.	677.	0	9	0	0.00	54.26	826.93

0
1

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

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	3.30	2.70	0.00	3.50	0.00	9.60	0.00	883.70	883.70

*SECNO 2968.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
936.33	888.42	0.00	202.	95.	10.	12.	887.20	892.39

2968.00	9.28	892.98	0.00	0.00	892.98	0.00	4.56	0.00	886.30
295	144.	12.	140.	367.	30.	348.	7.	6.	886.30
0.27	0.39	0 38	0.40	0.020	0.024	0.020	0.000	883.70	601.26
0.000006	70	70.	70.	0	0	10	0.00	331.51	932.77

0
*SECNO 3519.000
3280 CROSS SECTION 3519.00 EXTENDED 6.79 FEET

3470 ENCROACHMENT STATIONS= 450.0 750.0 TYPE= 1 TARGET= 300.000

3519.00	7.79	892.99	886.45	0.00	892.99	0 00	0.01	0.00	888.20
295.	31.	164.	100.	201.	708.	607.	23.	10.	886.20
1.10	0 15	0.23	0.17	0 100	0.100	0.100	0.000	885.20	450.00
0.000018	421.	551.	751.	2	17	0	0 00	300.00	750.00

0
*SECNO 4569.000

3470 ENCROACHMENT STATIONS= 250.0 900 0 TYPE= 1 TARGET= -250.000

4569.00	5.71	893.01	888.35	0.00	893.01	0.00	0.02	0.00	887 80
295.	219.	5.	72.	1473.	27.	550.	67.	20.	887.80
3.14	0.15	0.17	0.13	0.100	0.100	0.100	0.000	887.30	250.00
0 000014	1075.	1050.	1050.	0	17	0	0.00	533.00	783.00

0
*SECNO 5370.000
TEN MILE ROAD

5370 00	5.41	893.01	888.30	0.00	893.01	0.00	0.00	0.00	890.80
295.	218	1.	76	1128.	10.	642.	97.	30.	890.80
4.23	0 19	0.08	0 12	0 020	0.024	0.020	0.000	887.60	315.90
0.000001	626.	801.	851.	1	14	0	0.00	637.90	953.79

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

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	4.17	2.60	0.00	2.00	0.00	3.10	0.00	887.60	887.60

*SECND 5424.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1479.38	893.01	0.00	293.	2.	3.	5.	890.00	890.80

5424.00	5.45	893.05	0.00	0.00	893.05	0.00	0.04	0.00	890.80
295	217.	1.	77.	1138	10	653.	99	31.	890.80
4.32	0.19	0 08	0 12	0 020	0.024	0.020	0.000	887.60	315.36
0.000001	54.	54.	54.	0	0	12	0.00	640.40	955.76

0
1

THIS RUN EXECUTED 13 JAN 88 11:54:12

****
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 CITY OF NOVI JOB NO. 5555-46-1
T2 500 YEAR FLOOD
T3 CHAPMAN CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	5.	0.	0.	0.000000	0.00	0.0	0.	857.710	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	-1.000	0.000	0.000	0.000

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 4

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= 0.300 CEHV= 0.500

```
 *SECNO 0.000
      0.00      3.66    857.71    856.25    857.71    857.78      0.07      0.00      0.00    857.65
       430.        0.      430.         0        0.      197.        0.        0.        0.    858.25
      0.00      0.01      2.19      0.00     0.000     0.100     0.000     0.000    854.05     24.82
  0.009679         0.        0.        0.         0        13         0      0.00    107.32    132.14
0
 *SECNO 100.000
    100.00      3.50    858.80    857.50      0.00    858.88      0.09      1.09      0.01    858.90
       430.        0.      430.        0.        0.      179.        0.        0.        0.    859.50
      0.01      0.00      2.40      0.00     0.000     0.100     0.000     0.000    855.30     25.58
  0.012432       100.      100.      100.         2        14         0      0.00    102.63    128.21
0
 *SECNO 200.000
    200.00      3.50    860.05    858.75      0.00    860.14      0.09      1.25      0.00    860.15
       430.        0.      430.        0.         0      179.        0.        1.        0.    860.75
      0.02      0.00      2.41      0.00     0.000     0.100     0.000     0.000    856.55     25.63
  0.012579       100.      100.      100.         1        14         0      0.00    102.40    128.03
0
 *SECNO 300.000
    300.00      3.50    861.30    860.00      0.00    861.39      0.09      1.25      0.00    861.40
       430.        0.      430.         0        0.      179.        0.        1.        1.    862.00
      0.03      0.00      2.40      0.00     0.000     0.100     0.000     0.000    857.80     25.58
  0.012415       100.      100.      100.         0        14         0      0.00    102.65    128.23
0
 *SECNO 775.000
                ORCHARD SERVICE ROAD
    775.00      2.14    872.24    871.89      0.00    872.46      0.22     11.01      0.06    876.40
       430         0.      430.        0.        0.      115.        0.        3.         2    873.00
      0.07      0.00      3.73      0.00     0.000     0.100     0.000     0.000    870.10    127.04
  0.057684       475.      475.       485         4         8         0      0.00    107.74    234.78
0
 *SECNO 2051.000
1
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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=      250.0      650.0  TYPE=       1  TARGET=     -250.000
                ORCHARD SERVICE ROAD
  2051.00      4.96    882.16    881.53      0.00    882.32      0.16      9.85      0.02    879.80
     430.       166.        42.       223        54.       10.       73.         6         5.    879.80
     0.18      3.05      4.37      3.05     0.030     0.024     0.030     0.000    877.20    403.04
 0.003026      1201.     1276.     1151.        10        20         0      0.00    109.65    512.68
0

 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       2.74       2.60       0.00       2.00       0.00       3.10       0.00     877.20     877.20

 *SECNO 2071.000
 6870 D.S. ENERGY OF  882.32 HIGHER THAN COMPUTED ENERGY OF  882.25
 PRESSURE AND WEIR FLOW


  EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC       ELTRD
                                                                        AREA
    1700.77     882.32       0.00       426.         4.         3.         4.       879.20     879.80
```

```
3470 ENCROACHMENT STATIONS=      250.0      650.0  TYPE=      1  TARGET=     -250.000
  2071.00      4.96    882.16      0.00      0.00    882.32      0.16      0.00      0.00    879.80
     430.       166.       42.      222.       54.       10.       73.         6        5.    879.80
     0.18       3.06      4 40      3.06     0.030     0.024     0.030     0.000    877.20    403.16
 0.003064        20.       20.       20.         2         0        14      0.00    109.37    512.53
0
*SECNO 2898 000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
              NOVI ROAD
  2898.00      4.42    888.12    888 12      0.00    888.68      0.56      2.93      0.20    886.30
     380.       140.      102.      138.       26.       14.       25.         8.        6     886.30
     0.21       5.42      7.38      5.42     0.020     0.024     0.020     0.000    883.70    769.90
 0.006068       702.      827.      677.         0         9         0      0.00     59.75    829.65
0
1
 13 JAN 88     11:54:06                                                                          PAGE    21

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


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       3.30       2 70       0.00       3.50       0.00       9.60       0.00     883.70     883.70

*SECNO 2968.000

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

 EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                       AREA
    968.41     888.68      0.00       286.        95.        10.        12.       887.20     892.39


  2968 00      9.38    893 08      0.00      0.00    893.08      0.00      4 41      0.00    886.30
     380.       186.       14.      180.      388.       31.      361.         9        7.     886 30
     0.25       0.48      0.47      0 50     0.020     0 024     0 020     0.000    883.70    576.46
 0.000009        70.       70.       70.         0         0        11      0 00    367.34    943.80
0
*SECNO 3519.000
3280 CROSS SECTION   3519 00 EXTENDED      6 89 FEET


3470 ENCROACHMENT STATIONS=      450.0      750 0  TYPE=      1  TARGET=      300.000
  3519.00      7.89    893.09    886.58      0.00    893.09      0.00      0.01      0.00    888.20
     380.        40.      210.      130.      206.      718.      623.       25.       11.     886.20
     0 90       0.19      0.29      0.21     0 100     0.100     0.100     0.000    885.20    450 00
 0.000028       421.      551.      751         2        20         0      0.00    300.00    750.00
0
*SECNO 4569.000

3470 ENCROACHMENT STATIONS=      250.0      900.0  TYPE=      1  TARGET=     -250.000
  4569.00      5.82    893.12    888.44      0.00    893.12      0.00      0.03      0.00    887.80
     380.       281.        6.       93.     1512.       28.      569        69       21.     887.80
```

2.53	0.19	0.21	0.16	0.100	0.100	0.100	0.000	887.30	250.00
0.000022	1075.	1050.	1050.	0	20	0	0.00	535.65	785.65

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 5370.000
TEN MILE ROAD

5370.00	5.52	893.12	888.41	0.00	893.12	0.00	0.00	0.00	890.80
380.	277	1.	102.	1161.	10.	683.	101	31.	890.80
3.42	0.24	0.09	0.15	0.020	0.024	0.020	0.000	887.60	314.04
0.000001	626.	801.	851.	1	17	0	0.00	646.52	960.56

0

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	4.17	2.60	0.00	2 00	0.00	3.10	0.00	887.60	887.60

*SECNO 5424.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1866.08	893.12	0.00	377.	3.	3.	5.	890.00	890.80

5424.00	5.57	893.17	0.00	0.00	893.17	0.00	0 05	0.00	890.80
380.	276.	1.	103.	1172.	10.	696.	104.	32.	890.80
3.49	0.24	0 09	0.15	0 020	0.024	0.020	0.000	887.60	313.42
0 000001	54.	54.	54.	0	0	12	0.00	649.41	962.83

0
1

THIS RUN EXECUTED 13 JAN 88 11:54.14

****
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

CHAPMAN CREEK

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
0.000	856.82	0.00	856.87	81.34	0.00	210 00	0.00	0.00	0.00	25.00	145.00	0.00

0.000	857.23	0.00	857.29	93.38	0.00	300.00	0.00	0.00	0.00	25.00	145.00	0 00
0.000	857.38	0.00	857 45	97.79	0.00	340.00	0.00	0.00	0.00	25.00	145.00	0.00
0.000	857.71	0.00	857.78	107.32	0.00	430.00	0.00	0.00	0.00	25.00	145.00	0.00
100 000	857.95	0.00	858.02	78.14	0.00	210.00	0.00	0.00	0.00	25.00	145.00	0.00
100.000	858.35	0.00	858.43	89.25	0.00	300 00	0.00	0.00	0.00	25.00	145.00	0 00
100.000	858.49	0.00	858.57	93.80	0.00	340.00	0.00	0.00	0.00	25.00	145.00	0.00
100.000	858.80	0.00	858.88	102.63	0.00	430.00	0.00	0.00	0.00	25.00	145.00	0 00
200.000	859.21	0.00	859 28	78.30	0.00	210.00	0.00	0.00	0.00	25.00	145.00	0 00
200.000	859.61	0.00	859.68	89.77	0.00	300.00	0.00	0.00	0.00	25.00	145.00	0 00
200.000	859.75	0.00	859.82	93.96	0 00	340.00	0.00	0.00	0.00	25.00	145.00	0.00
200.000	860.05	0.00	860.14	102.40	0.00	430.00	0.00	0.00	0.00	25.00	145.00	0.00
300 000	860.47	0.00	860.53	78.33	0.00	210.00	0.00	0.00	0.00	25.00	145.00	0.00
300.000	860.85	0.00	860.92	89 55	0.00	300.00	0.00	0.00	0.00	25.00	145.00	0.00
300.000	860.99	0.00	861.07	93.84	0.00	340.00	0.00	0.00	0.00	25.00	145.00	0.00
300.000	861.30	0.00	861.39	102.65	0.00	430.00	0.00	0.00	0.00	25.00	145.00	0.00
775.000	871.72	0.00	871.87	81.38	0.00	210.00	0 00	0.00	0.00	61.00	261.00	0.00
775 000	871.96	0.00	872.14	93.66	0.00	300.00	0.00	0.00	0.00	61.00	261.00	0.00
775.000	872.05	0.00	872.25	98.44	0.00	340.00	0.00	0.00	0.00	61.00	261.00	0.00
775.000	872.24	0.00	872.46	107.74	0.00	430.00	0.00	0.00	0.00	61.00	261 00	0.00
2051.000	881.57	0.00	881.69	82.52	75.56	32.99	101.45	-250.00	250.00	449.00	451.00	650.00
2051.000	881.85	0.00	881 99	95.19	112.27	36.98	150.74	-250.00	250.00	449.00	451.00	650.00
2051.000	881.95	0.00	882.10	99.99	128.68	38.55	172.77	-250.00	250.00	449 00	451.00	650.00
2051.000	882.16	0.00	882.32	109.65	165 75	41.70	222.55	-250.00	250.00	449.00	451.00	650 00
2071.000	881.57	0.00	881.69	82.48	75 55	33.02	101.43	-250 00	250.00	449.00	451.00	650.01
2071.000	881.85	0.00	881.99	95.22	112.28	36 96	150.75	-250.00	250.00	449.00	451.00	650 01
2071.000	881.96	0.00	882.10	100.03	128 69	38.52	172.79	-250.00	250.00	449.00	451.00	650 01
2071.000	882.16	0.00	882.32	109.37	165.68	41.87	222.45	-250.00	250.00	449.00	451.00	650.01

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	2898.000	887.54	0.00	888.00	41.79	50.52	79 75	49.73	0.00	0.00	798.30	801.70	0.00
*	2898.000	887.85	0.00	888.31	51.53	87.21	86 95	85.84	0.00	0.00	798.30	801.70	0 00
*	2898 000	887.94	0.00	888.42	54.26	102.49	91.62	100.88	0.00	0.00	798.30	801.70	0.00
*	2898.000	888.12	0.00	888.68	59.75	139.89	102.42	137.69	0.00	0.00	798.30	801.70	0.00
	2968.000	892.79	0.00	892.79	261.24	87.39	7.50	85 11	0 00	0.00	798.30	801.70	0.00
	2968.000	892.93	0.00	892.93	312.96	126.62	10.37	123.02	0.00	0.00	798.30	801.70	0.00
	2968.000	892.98	0.00	892.98	331.51	143.85	11.58	139.57	0.00	0.00	798.30	801.70	0.00
	2968.000	893.08	0.00	893.08	367 34	185.97	14.45	179.57	0.00	0.00	798.30	801.70	0.00
	3519.000	892.79	0.00	892.79	300.00	18.30	101.56	60 14	300.00	450.00	500.00	600.00	750.00
	3519.000	892.94	0.00	892.94	300.00	26.83	145.16	88.01	300.00	450.00	500.00	600.00	750.00
	3519.000	892 99	0.00	892.99	300.00	30 60	164.09	100.31	300.00	450.00	500.00	600.00	750.00
	3519.000	893.09	0.00	893.09	300.00	39.80	209.89	130.31	300.00	450.00	500.00	600.00	750 00
	4569.000	892.80	0 00	892 80	528.00	133.81	2 90	43.29	-250.00	250.00	600.00	605.00	900.00
	4569.000	892.95	0.00	892.95	531.66	192.86	4.13	63.01	-250.00	250.00	600.00	605.00	900.00
	4569 000	893 01	0.00	893.01	533.00	218.65	4.66	71.69	-250.00	250.00	600.00	605.00	900.00
	4569.000	893.12	0.00	893.12	535.65	281.20	5.94	92.86	-250.00	250.00	600.00	605.00	900.00
	5370.000	892.80	0.00	892.80	622.23	136.27	0.46	43.27	0.00	0.00	599.00	601.00	0.00
	5370.000	892.95	0.00	892 95	633.94	193.25	0.65	66.10	0.00	0 00	599.00	601.00	0 00
	5370 000	893.01	0.00	893.01	637.90	217.95	0.74	76.32	0.00	0.00	599.00	601.00	0 00
	5370.000	893.12	0.00	893.12	646.52	277.16	0.93	101.90	0.00	0.00	599.00	601.00	0.00
	5424.000	892.83	0.00	892.83	623.90	135.91	0.46	43.63	0.00	0.00	599 00	601.00	0.00

5424.000	892.99	0.00	892.99	635.95	192.66	0.65	66.69	0.00	0.00	599.00	601.00	0.00
5424.000	893.05	0.00	893.05	640.40	217.13	0.73	77.14	0.00	0.00	599.00	601.00	0.00
5424.000	893.17	0 00	893.17	649.41	276.00	0.93	103.07	0.00	0.00	599.00	601.00	0.00

CHAPMAN CREEK

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	854.05	210.00	856.82	855.70	856.87	102.43	1.86	112.66	20.75
	0.000	0 00	0.00	0.00	854 05	300.00	857.23	855.96	857.29	100.12	2.02	148.48	29 98
	0.000	0.00	0.00	0.00	854.05	340.00	857.38	856.05	857.45	100 57	2.09	162.81	33.90
	0.000	0 00	0.00	0.00	854.05	430.00	857.71	856.25	857.78	96.79	2.19	196.68	43.71
	100 000	100 00	0.00	0.00	855.30	210.00	857.95	856.95	858.02	126.90	2 02	103.96	18.64
	100.000	100.00	0.00	0.00	855.30	300.00	858.35	857.21	858.43	127.45	2.21	135.63	26.57
	100.000	100.00	0.00	0.00	855.30	340.00	858.49	857.30	858.57	125.60	2.27	149.80	30 34
	100.000	100.00	0.00	0.00	855.30	430.00	858.80	857.50	858.88	124.32	2.40	179.33	38.57
	200 000	100.00	0.00	0 00	856.55	210.00	859.21	858.20	859.28	125.48	2.01	104.40	18 75
	200.000	100.00	0.00	0.00	856.55	300.00	859.61	858.46	859.68	123.57	2.19	137.21	26.99
	200.000	100.00	0.00	0.00	856.55	340.00	859.75	858.56	859.82	124.46	2.26	150.31	30.48
	200 000	100.00	0.00	0.00	856 55	430.00	860.05	858.75	860.14	125.79	2.41	178.54	38 34
	300 000	100.00	0.00	0 00	857.80	210.00	860.47	859.45	860.53	125.27	2.01	104.47	18.76
	300.000	100.00	0.00	0.00	857.80	300.00	860.85	859.71	860.92	125.16	2.20	136.55	26.82
	300.000	100.00	0.00	0.00	857.80	340.00	860.99	859.80	861.07	125.31	2.27	149.92	30 37
	300.000	100.00	0.00	0 00	857.80	430.00	861.30	860.00	861.39	124.15	2.40	179.42	38 59
	775.000	475 00	0.00	0 00	870.10	210 00	871.72	871.43	871.87	614.19	3.19	65.77	8.47
	775.000	475 00	0.00	0.00	870.10	300.00	871.96	871.64	872.14	592.54	3.44	87.10	12.32
	775.000	475 00	0.00	0.00	870.10	340.00	872.05	871.72	872.25	583.51	3.53	96.23	14.08
	775.000	475.00	0.00	0.00	870.10	430.00	872.24	871.89	872.46	576.84	3.73	115.25	17.90
	2051.000	1276.00	0.00	0.00	877.20	210.00	881.57	881.15	881.69	29.57	3.95	79.65	38.62
	2051.000	1276.00	0.00	0.00	877.20	300.00	881.85	881.34	881.99	29.96	4.16	104.40	54.81
	2051.000	1276 00	0.00	0.00	877.20	340.00	881.95	881.37	882.10	30.10	4.23	114.71	61.97
	2051.000	1276.00	0.00	0 00	877.20	430.00	882.16	881.53	882.32	30.26	4.37	136 97	78.18
	2071.000	20 00	879.80	879.20	877.20	210.00	881.57	0 00	881.69	29.65	3.96	79.57	38 57
	2071.000	20.00	879.80	879 20	877.20	300.00	881 85	0.00	881.99	29.91	4.15	104.46	54.85
	2071.000	20.00	879.80	879.20	877.20	340.00	881.96	0 00	882.10	30.04	4.23	114.80	62.03
	2071.000	20.00	879.80	879 20	877.20	430.00	882.16	0.00	882.32	30.64	4.40	136.31	77 68
*	2898 000	827 00	0.00	0.00	883.70	180.00	887 54	887.54	888.00	61.27	6.70	35.67	23.00
*	2898.000	827.00	0.00	0.00	883.70	260.00	887.85	887.85	888.31	54.71	6.70	50.32	35 15
*	2898.000	827.00	0.00	0 00	883.70	295.00	887.94	887.94	888.42	56.30	6.90	54.98	39 32
*	2898.000	827 00	0.00	0.00	883.70	380.00	888.12	888.12	888 68	60.68	7.38	65.08	48.78
	2968.000	70.00	892.39	887.20	883.70	180.00	892.79	0.00	892.79	0.03	0.25	688.12	1125.83
	2968.000	70.00	892.39	887.20	883.70	260.00	892.93	0.00	892.93	0.05	0 34	729.25	1208.86
	2968.000	70 00	892.39	887.20	883.70	295.00	892.98	0.00	892.98	0.06	0.38	745.80	1239.98
	2968.000	70.00	892.39	887.20	883.70	380.00	893.08	0.00	893.08	0.09	0.47	780.47	1303 20

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K

3519.000	551.00	0 00	0 00	885.20	180.00	892.79	886.26	892.79	0.08	0.15	1456.81	655.04
3519.000	551.00	0 00	0 00	885.20	260.00	892.94	886.39	892.94	0.14	0.21	1500.38	685 42
3519.000	551.00	0.00	0.00	885.20	295.00	892.99	886.45	892.99	0.18	0.23	1516.09	696.52
3519.000	551.00	0.00	0.00	885.20	380.00	893.09	886.58	893.09	0.28	0.29	1546.67	718.35
4569 000	1050 00	0.00	0.00	887.30	180.00	892.80	888.23	892.80	0.06	0.11	1942.12	721 24
4569.000	1050.00	0.00	0.00	887.30	260.00	892.95	888.31	892.95	0.11	0.15	2021.57	767 08
4569.000	1050 00	0.00	0.00	887.30	295.00	893.01	888.35	893.01	0.14	0.17	2050.74	784.15
4569.000	1050.00	0.00	0 00	887.30	380.00	893.12	888.44	893.12	0.22	0.21	2108.87	818.55
5370.000	801.00	0.00	0.00	887.60	180.00	892.80	888.14	892.80	0.00	0.05	1647.84	2674 20
5370.000	801.00	0.00	0.00	887 60	260.00	892.95	888.26	892.95	0.01	0.07	1746.02	2895.09
5370.000	801.00	0.00	0.00	887.60	295 00	893.01	888.30	893.01	0.01	0.08	1779.58	2971.89
5370.000	801.00	0.00	0.00	887.60	380 00	893.12	888.41	893.12	0.01	0.09	1853.46	3143.17
5424.000	54.00	890.80	890.00	887.60	180.00	892.83	0.00	892.83	0.00	0.05	1661.73	2705.11
5424.000	54.00	890.80	890.00	887.60	260.00	892.99	0.00	892.99	0.01	0.07	1763.00	2933.86
5424.000	54.00	890.80	890.00	887.60	295.00	893.05	0.00	893.05	0.01	0.08	1800.93	3021.07
5424.000	54.00	890.80	890.00	887.60	380 00	893 17	0.00	893.17	0.01	0.09	1878.44	3201 76

CHAPMAN CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
0.000	210 00	856.82	0 00	0.00	0.00	81.34	0.00
0.000	300.00	857.23	0.41	0.00	0 00	93.38	0.00
0.000	340.00	857.38	0.15	0.00	0.00	97.79	0.00
0.000	430.00	857 71	0.33	0.00	0.00	107.32	0.00
100.000	210.00	857.95	0.00	1.13	0 00	78.14	100.00
100 000	300.00	858.35	0.40	1.12	0.00	89.25	100 00
100.000	340.00	858 49	0.15	1.11	0.00	93.80	100.00
100.000	430.00	858.80	0.30	1.09	0.00	102.63	100.00
200 000	210.00	859.21	0.00	1.26	0.00	78.30	100.00
200.000	300 00	859.61	0.39	1.26	0 00	89.77	100.00
200 000	340.00	859 75	0.14	1.25	0.00	93.96	100.00
200.000	430.00	860.05	0.30	1.25	0 00	102.40	100.00
300.000	210.00	860.47	0.00	1.25	0.00	78.33	100 00
300.000	300.00	860.85	0.38	1.24	0.00	89.55	100.00
300.000	340.00	860.99	0.14	1.25	0.00	93.84	100.00
300.000	430.00	861.30	0.30	1.25	0.00	102.65	100.00
775.000	210.00	871.72	0.00	11.25	0.00	81.38	475.00
775.000	300.00	871.96	0.24	11.11	0.00	93.66	475.00
775.000	340 00	872.05	0.10	11.06	0.00	98.44	475.00
775.000	430.00	872.24	0.18	10.94	0.00	107.74	475.00
2051.000	210.00	881.57	0.00	9.85	0.00	82.52	1276.00
2051 000	300.00	881 85	0.28	9.89	0.00	95.19	1276.00
2051.000	340.00	881.95	0.11	9.90	0.00	99.99	1276.00
2051.000	430.00	882.16	0.21	9.92	0.00	109.65	1276.00
2071.000	210.00	881.57	0.00	0.00	0.00	82.48	20.00
2071.000	300.00	881.85	0.28	0.00	0.00	95.22	20.00
2071.000	340.00	881.96	0.11	0.00	0.00	100.03	20.00
2071.000	430.00	882.16	0.21	0.00	0.00	109.37	20.00

*	2898.000	180.00	887.54	0 00	5.97	0.00	41.79	827.00
*	2898.000	260.00	887.85	0.31	6.00	0.00	51.53	827.00
*	2898.000	295.00	887.94	0.09	5.98	0.00	54.26	827.00
*	2898.000	380.00	888.12	0.18	5.96	0.00	59.75	827.00
	2968.000	180 00	892.79	0.00	5.25	0.00	261.24	70.00
	2968 000	260.00	892 93	0.14	5.08	0.00	312 96	70.00
	2968.000	295.00	892.98	0.05	5.04	0 00	331.51	70.00
	2968.000	380.00	893.08	0.10	4.96	0 00	367.34	70 00

1
13 JAN 88 11·54.06 PAGE 28

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
3519.000	180 00	892.79	0.00	0.00	0.00	300.00	551.00
3519.000	260.00	892.94	0.15	0.01	0.00	300.00	551.00
3519.000	295.00	892.99	0.05	0.01	0.00	300.00	551.00
3519.000	380.00	893.09	0.10	0.01	0.00	300 00	551.00
4569.000	180.00	892.80	0.00	0.01	0.00	528.00	1050.00
4569.000	260 00	892.95	0.15	0.01	0.00	531.66	1050.00
4569.000	295.00	893.01	0.06	0.02	0.00	533 00	1050.00
4569.000	380.00	893.12	0.11	0.03	0.00	535.65	1050.00
5370.000	180.00	892.80	0.00	0.00	0.00	622.23	801.00
5370.000	260 00	892.95	0.15	0.00	0.00	633.94	801.00
5370.000	295.00	893.01	0.06	0.00	0.00	637.90	801.00
5370.000	380 00	893.12	0 11	0.00	0.00	646.52	801.00
5424.000	180.00	892.83	0.00	0.03	0.00	623.90	54.00
5424.000	260.00	892.99	0.16	0.03	0.00	635.95	54.00
5424.000	295.00	893.05	0.06	0.04	0.00	640.40	54 00
5424.000	380.00	893.17	0.12	0.05	0.00	649.41	54.00

1
13 JAN 88 11·54:06 PAGE 29

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 2898.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2898.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2898.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2898.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2898.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2898.000 PROFILE= 3 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2898.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2898.000 PROFILE= 4 MINIMUM SPECIFIC ENERGY

1
13 JAN 88 11:54·16 PAGE 1

THIS RUN EXECUTED 13 JAN 88 11:54:16

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

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI CITY

3) WATERCOURSE: CHAPMAN CREEK

4) DOCUMENT TYPE: 100 YR NATURAL WITH SUMMARY

00BREAK00

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1*************************************************************
 *  WATER SURFACE PROFILES                                   *
 *  VERSION OF NOVEMBER 1976                                 *
 *  UPDATED MAY 1984                                         *
 *                                                           *
 *  RUN DATE  14 JAN 88 TIME    10:19:39                     *
 *************************************************************
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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
1
 14 JAN 88    10:19:39                                                                    PAGE    1
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THIS RUN EXECUTED 14 JAN 88 10:19:39

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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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C
T1      CITY OF NOVI   JOB NO. 5555-46-1   STREAM 05
T2      100 YEAR FLOOD
T3      CHAPMAN CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0        4.        0.        0   0.000000      0.00       0.0        0.   857.380     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

    110.000   150.000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000


NC      0.100     0.100     0.100     0.300     0.500     0.000     0.000     0.000     0.000     0.000
QT      5.000   210.000   300.000   340.000   430.000   340.000     0.000     0.000     0.000     0.000
ET      0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000
X1      0.000     5.000    25.000   145.000     0.000     0.000     0.000     0.000    -3.750     0.000
GR    869.900     0.000   861.400    25.000   857.800    45.000   862.000   145.000   868.800   225.000

X1    100.000     0.000     0.000     0.000   100.000   100.000   100.000     0.000     1.250     0.000

X1    200.000     0.000     0.000     0.000   100.000   100.000   100.000     0.000     1.250     0.000

X1    300.000     0.000     0.000     0.000   100.000   100.000   100.000     0.000     1.250     0.000
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		ORCHARD SERVICE ROAD								
X1	775.000	5.000	61 000	261.000	475.000	485.000	475.000	0.000	0.000	0.000
GR	882.000	0.000	876.400	61 000	870.100	161.000	873.000	261 000	880 600	361.000
NC	0 030	0.030	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		ORCHARD SERVICE ROAD								
X1	2051.000	12.000	449.000	451.000	1201 000	1151.000	1276.000	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	885.700	0.000	882.200	50.000	880.100	150.000	885.900	250.000	884.900	350.000
GR	879 800	449.000	877.600	449.000	877 200	450.000	877.600	451.000	879.800	451.000
GR	883.600	550.000	885.900	650.000	0.000	0.000	0.000	0.000	0.000	0.000

14 JAN 83 10:19:39 PAGE 2

SB	0.000	2.740	2 600	0 000	2.000	0.000	3.100	0.000	0.000	0.000
X1	2071 000	0.000	0.000	0.000	20.000	20.000	20.000	0.000	0.000	0 000
X2	0 000	0.000	1 000	879.200	879.800	0.000	0.000	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
BT	10 000	0.000	885 700	0.000	50.000	882.200	0.000	150.000	880.100	0.000
BT	250.000	885.900	0 000	350.000	884.900	0.000	449.000	879.800	878.800	450.000
BT	879.800	879.200	451.000	879.800	878 800	550.000	883 600	0.000	650.000	885.900
BT	0 000	0.000	0 000	0.000	0.000	0 000	0.000	0.000	0.000	0.000
NC	0 020	0.020	0 024	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	180.000	260 000	295.000	380.000	295.000	0.000	0.000	0.000	0.000
		NOVI ROAD								
X1	2898.000	18.000	798.300	801.700	702 000	677.000	827.000	0.000	0.000	0.000
GR	896.790	0 000	895.340	100.000	894.490	200.000	894.090	300.000	893.740	400.000
GR	893.390	500 000	892.990	600 000	892.590	700.000	886.300	798 300	884.600	798.300
GR	884.000	799.000	883.700	800.000	884.000	801.000	884.600	801.700	886.300	801.700
GR	892.690	900.000	893 590	1000 000	895.090	1100.000	0.000	0.000	0.000	0.000
SB	0 000	3.300	2.700	0.000	3.500	0.000	9.600	0.000	0.000	0.000
X1	2968 000	0 000	0.000	0.000	70.000	70.000	70.000	0.000	0.000	0.000
X2	0 000	0.000	1.000	887.200	892.390	0 000	0.000	0.000	0.000	0.000
BT	16 000	0.000	896 790	0 000	100.000	895.340	0.000	200.000	894.490	0.000
BT	300.000	894 090	0.000	400.000	893.740	0.000	500.000	893.390	0.000	600.000
BT	892 990	0 000	700.000	892.590	0.000	798.300	892.390	886.300	799.000	892.390
BT	886.900	800.000	892.390	887.200	801.000	892.390	886.900	801.700	892.400	886.300
BT	900 000	892 690	0 000	1000.000	893.590	0.000	1100.000	895.090	0.000	0.000
NC	0.100	0.100	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3519.000	18.000	500.000	600.000	421.000	751.000	551.000	0.000	0.000	0.000
X3	0 000	0.000	0.000	450.000	0.000	750.000	0.000	0.000	0.000	0.000
GR	894 100	0 000	890.600	100.000	885.900	200.000	890.700	300.000	891 300	400.000
GR	888 200	500.000	886.300	510.000	885.700	525.000	885.200	550.000	886.000	575.000
GR	886 100	590.000	886.200	600.000	890 200	700.000	891.100	800 000	890.400	900.000
GR	888 200	1000.000	886.100	1100.000	886.200	1200.000	0.000	0.000	0 000	0.000
X1	4569.000	12.000	600.000	605.000	1075.000	1050.000	1050.000	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	897 300	0.000	894.100	100.000	891.100	200 000	889.700	300.000	889.200	400.000
GR	887.800	500 000	887.800	600.000	887.300	603.000	887.800	605.000	889.600	700.000
GR	893 700	800.000	898.900	900.000	0.000	0.000	0.000	0.000	0.000	0 000
NC	0 020	0 020	0.024	0 000	0.000	0.000	0.000	0.000	0.000	0.000
		TEN MILE ROAD								
X1	5370.000	16 000	599 000	601.000	626.000	851.000	801.000	0.000	0.000	0.000
GR	897.200	0.000	895 100	100 000	894.300	200.000	894 000	300.000	887.800	400.000
GR	887 600	500.000	890 800	599.000	888 400	599.000	888.000	600.000	888.400	601.000
GR	890 900	601.000	890 500	700 000	890.900	800.000	892 100	900.000	893.800	1000.000
GR	895.300	1100 000	0.000	0 000	0.000	0.000	0.000	0.000	0.000	0.000

SB	0 000	4.170	2.600	0 000	2.000	0.000	3.100	0.000	0.000	0.000
X1	5424 000	0.000	0.000	0.000	54.000	54.000	54.000	0.000	0 000	0.000
X2	0 000	0.000	1 000	890 000	890.800	0.000	0.000	0.000	0.000	0.000
BT	14 000	0 000	897.200	0.000	100.000	895 100	0.000	200.000	894.300	0.000
BT	300 000	894.000	0.000	400 000	892.600	0.000	500.000	891.600	0.000	599.000
BT	890.800	889.600	600.000	890.800	890.000	601.000	890.800	889.600	700.000	892.500
BT	0 000	800.000	893.600	0.000	900.000	894.600	0.000	1000.000	895.700	0.000
BT	1100 000	896.900	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

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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

*SECNO 0 000

0.00	0 33	857.36	0.00	857.38	857.45	0.07	0.00	0.00	857.65
340.	0	340	0	0.	163.	0.	0.	0.	858.25
0.00	0.00	2.09	0.00	0 000	0.100	0.000	0.000	854.05	26.50
0 010057	0.	0	0.	0	0	0	0.00	97.79	124.29

0

*SECNO 100.000

100 00	3 19	858.49	0.00	0.00	858.57	0.08	1.12	0.01	858.90
340	0.	340	0	0	150.	0.	0.	0.	859.50
0.01	0 00	2.27	0 00	0 000	0.100	0.000	0.000	855.30	27.25
0.012560	100.	100	100	2	0	0	0.00	93.80	121.05

0

*SECNO 200 000

200.00	3 20	859 75	0.00	0.00	859.82	0 08	1.25	0 00	860.15
340.	0.	340.	0.	0	150	0.	1.	0.	860.75
0.02	0.00	2 26	0.00	0.000	0.100	0.000	0.000	856.55	27.22
0.012466	100	100	100	1	0	0	0.00	93.96	121.18

0

*SECNO 300.000

300.00	3.19	860.99	0.00	0.00	861.07	0.08	1.25	0.00	861.40
340.	0.	340	0	0.	150	0.	1.	1.	862.00
0.04	0 00	2.27	0.00	0.000	0 100	0.000	0.000	857.80	27.25
0 012531	100	100	100	0	0	0	0.00	93.84	121.08

0

*SECNO 775.000

ORCHARD SERVICE ROAD

775.00	1.96	872.06	0 00	0.00	872.25	0 19	11 12	0.06	876.40
340.	0	340	0	0	96	0.	2.	2.	873.00
0 07	0.00	2.53	0.00	0 000	0.100	0.000	0.000	870.10	129.97
0 058393	475.	475	485	4	0	0	0.00	98.43	228.40

0

*SECNO 2051.000

3470 ENCROACHMENT STATIONS= 250 0 650.0 TYPE= 1 TARGET= -250.000

ORCHARD SERVICE ROAD

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2051.00	4.76	881.96	0.00	0.00	882.10	0.14	9.83	0.02	879.80
340.	129.	39.	173.	45.	9.	61.	5.	4.	879.80
0.19	2.85	4.23	2.85	0.030	0.024	0.030	0.000	877.20	407.16
0.003009	1201.	1275.	1151.	7.	0.	0.	0.00	100.00	507.16

0

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COEFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.74	2.50	0.00	2.00	0.00	3.10	0.00	877.20	877.20

*SECNO 2071.000
6870 D.S. ENERGY OF 882.10 HIGHER THAN COMPUTED ENERGY OF 882.03
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	HB	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1393.75	882.10	0.00	335.	4.	3.	4.	879.20	879.80

3470 ENCROACHMENT STATIONS= 250.0 650.0 TYPE= 1 TARGET= -250.000

2071.00	4.76	881.96	0.00	0.00	882.10	0.14	0.00	0.00	879.80
340.	129.	39.	173.	45.	9.	61.	5.	5.	879.80
0.19	2.85	4.23	2.85	0.030	0.024	0.030	0.000	877.20	407.14
0.003002	20.	20.	20.	2.	0.	13.	0.00	100.04	507.18

0
*SECNO 2898.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
NOVI ROAD

2898.00	4.24	887.94	887.94	0.00	888.42	0.48	2.82	0.17	886.30
295.	102.	92.	101.	21.	13.	21.	7.	6.	886.30
0.23	4.89	6.90	4.88	0.020	0.024	0.020	0.000	883.70	772.67
0.005628	702.	827.	677.	20.	9.	0.	0.00	54.26	826.93

0
1

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

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COEFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.30	2.70	0.00	3.50	0.00	9.60	0.00	883.70	883.70

*SECNO 2968.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	HB	QWEIR	QPR	BAREA	TRAPEZOID	ELLC	ELTRD

						AREA			
936.33	888.42	0.00	202.	95	10.	12.	887.20	892.39	
2968.00	9.28	892.98	0.00	0.00	892.98	0.00	4.56	0.00	886.30
295	144.	12.	140.	367.	30.	348.	7.	6	886.30
0.27	0 39	0 38	0 40	0.020	0.024	0.020	0.000	883.70	601.26
0 000006	70.	70.	70.	0	0	10	0.00	331.51	932.77

0

*SECNO 3519 000

3280 CROSS SECTION 3519.00 EXTENDED 6 79 FEET

3470 ENCROACHMENT STATIONS= 450 0 750.0 TYPE= 1 TARGET= 300.000

3519 00	7 79	892.99	0 00	0.00	892.99	0.00	0.01	0.00	888.20
295	31	164.	100	201.	708	607.	23.	10	886.20
1.10	0.15	0.23	0.17	0.100	0.100	0.100	0.000	885.20	450.00
0.000018	421	551	751	2	0	0	0.00	300.00	750.00

0

*SECNO 4569.000

3470 ENCROACHMENT STATIONS= 250.0 900.0 TYPE= 1 TARGET= -250.000

4569.00	5.71	893.01	0.00	0.00	893.01	0.00	0.02	0.00	887.80
295	219.	5	72	1472.	27	550.	67.	20.	887 80
3.14	0.15	0.17	0.13	0.100	0.100	0.100	0.000	887.30	250.00
0.000014	1075	1050.	1050	0	0	0	0.00	533.00	783.00

0

*SECNO 5370.000

TEN MILE ROAD

5370.00	5.41	893.01	0.00	0.00	893.01	0.00	0.00	0.00	890.80
295.	218.	1.	76.	1128.	10.	642.	97	30.	890.80
4.23	0.19	0.08	0 12	0.020	0.024	0.020	0 000	887.60	315.90
0 000001	626	801.	851.	1	0	0	0.00	637.90	953.79

0

1

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

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	4.17	2.60	0.00	2.00	0.00	3.10	0.00	887.60	887.60

*SECNO 5424 000

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1479.38	893 01	0.00	293.	2.	3.	5.	890.00	890.80

5424.00	5 45	893 05	0 00	0.00	893 05	0.00	0.04	0.00	890.80
295	217	1.	77.	1138	10	653.	99	31.	890.80
4 32	0 19	0.08	0 12	0 020	0.024	0.020	0.000	887.60	315.36
0 000001	54.	54	54	0	0	12	0.00	640.40	955.76

0

1

THIS RUN EXECUTED 14 JAN 88 10:19:43

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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      CITY OF NOVI   JOB NO. 5555-46-1   STREAM 05
T2      100 YEAR FLOOD - ENCROACHED
T3      CHAPMAN CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        6.        0         0.   0.000000     0.00      0.0       0.    857.480    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

1
 14 JAN 88    10:19.39                                                                          PAGE    9

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
*SECNO 0 000
 2800 NAT Q1=      33.90  WSEL=     857 38  ENC Q1=      36.69  WSEL=     857 48  RATIO= -0.0821
 NAT Q1=      37   RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     857 48

3470 ENCROACHMENT STATIONS=       25.0      145.0  TYPE=      4  TARGET=        0.000
     0.00      3 43    857 48     0.00    857.38    857.54     0.06      0.00      0.00    857.65
     340.        0.      340.       0.        0.      173.       0.        0.        0      858.25
     0.00      0 00      1.97     0 00     0.000     0.100    0.000     0.000    854.05     25.94
 0.008589        0.        0        0.         0         0        0      0 00    100.72    126.67
0
*SECNO 100 000
 2800 NAT Q1=      30.34  WSEL=     858.49  ENC Q1=      32.94  WSEL=     858.59  RATIO= -0.0859
 NAT Q1=      33.   RATIOS LOB,CH,ROB=  0.0000  1 0000  0.0000  WSEL=     858.59

3470 ENCROACHMENT STATIONS=       25.0      145 0  TYPE=      4  TARGET=        0 000
   100 00      3.20    858.50     0.00    853.49    858.58     0 08      1.03      0.01    858.90
     340         0       340        0         0.      150        0.        0         0.     859.50
     0 01      0.00      2.27     0 00     0 000     0 100    0.000     0.000    855.30     27.24
 0.012497      100       100      100.         2         0        0      0.00     93.88    121.12
0
*SECNO 200 000
 2800 NAT Q1=      30 46  WSEL=     859 75  ENC Q1=      32.97  WSEL=     859.85  RATIO= -0.0818
 NAT Q1=      33   RATIOS LOB,CH,ROB=  0.0000  1.0000  0 0000  WSEL=     859.85

3470 ENCROACHMENT STATIONS=       25.0      145.0  TYPE=      4  TARGET=        0.000
   200 00      3.20    859 75     0 00    859 75    859 83     0 08      1.25      0.00    860.15
     340.        0       340.       0.        0.      150        0.        1.        0.     860.75
     0.02      0.00      2 26     0 00     0 000     0.100    0.000     0 000    856.55     27 23
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 0.012475      100.      100.      100.         1         0         0      0.00     93.91    121.15
0
 *SECNO 300.000
  2800 NAT Q1=      30.37  WSEL=     860.99  ENC Q1=      32.93  WSEL=     861.09  RATIO= -0.0843
  NAT Q1=      33   RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     861.09

 3470 ENCROACHMENT STATIONS=       25.0      145.0  TYPE=      4  TARGET=        0.000
    300.00      3.19    860.99      0.00    860.99    861.07      0.08      1.25      0.00    861.40
      340.        0.      340.        0.        0.      150.        0.        1.        1.    862.00
      0.04      0.00      2.27      0.00     0.000     0.100     0.000     0.000    857.80     27.24
  0.012501      100       100       100.         1         0         0      0.00     93.88    121.12
0
1
  14 JAN 88     10.19.39                                                                          PAGE    10


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 775.000
  2800 NAT Q1=      14.07  WSEL=     872.06  ENC Q1=      16.12  WSEL=     872.16  RATIO= -0.1458
  NAT Q1=      16.   RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     872.16

 3470 ENCROACHMENT STATIONS=       61.0      261.0  TYPE=      4  TARGET=        0.000
                ORCHARD SERVICE ROAD
    775.00      1.95    872.05      0.00    872.06    872.24      0.19     11.11      0.06    876.40
      340.        0.      340.        0.        0.       96.        0.        2.        2.    873.00
      0.07      0.00      3.54      0.00     0.000     0.100     0.000     0.000    870.10    129.99
  0.058513      475       475.      485.         4         0         0      0.00     98.39    228.38
0
 *SECNO 2051.000

 3470 ENCROACHMENT STATIONS=      250.0      650.0  TYPE=      1  TARGET=     -250.000
                ORCHARD SERVICE ROAD
   2051.00      4.76    881.96      0.00    881.96    882.10      0.14      9.84      0.02    879.80
      340       129        39       173        45.        9.       61.        5.        4.    879.80
      0.19      2.85      4.23      2.86     0.030     0.024     0.030     0.000    877.20    407.16
  0.003011     1201      1276     1151.         7         0         0      0.00     99.98    507.15
0

 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK         XKOR       COFQ       RDLEN      BWC        3WP        BAREA      SS         ELCHU      ELCHD
      0.00       2.74       2.60       0.00       2.00       0.00       3.10       0.00     877.20     877.20

 *SECNO 2071.000
 6870 D.S. ENERGY OF  882.10 HIGHER THAN COMPUTED ENERGY OF  882.03
 PRESSURE AND WEIR FLOW


  EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                         AREA
    1393.75    883.37      0.00       335.         4.         3.         4.       879.20     879.80


 3470 ENCROACHMENT STATIONS=      250.0      650.0  TYPE=      1  TARGET=     -250.000
   2071.00      4.76    881.96      0.00    881.96    882.10      0.14      0.00      0.00    879.80
      340.      129.       39.      173.       45.        9.       61.        5.        5.    879.80
      0.19      2.85      4.23      2.85     0.030     0.024     0.030     0.000    877.20    407.14
  0.003003       20        20.       20         2         0        13      0.00    100.04    507.18
0
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 2898.000
2800 NAT Q1= 39.32 WSEL= 887.94 ENC Q1= 39.32 WSEL= 888.04 RATIO= 0.0000
NAT Q1= 44. RATIOS LOB,CH,ROB= 0.3596 0.2863 0.3540 WSEL= 888.04

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 787.2 812.6 TYPE= 4 TARGET= 0.116

	NCVI ROAD								
2898.00	4.25	897.95	887.93	887.94	888.73	0.77	3.01	0.31	886.30
295.	98	100	97	14.	13.	14.	7	6.	886.30
0.22	6.81	7.51	6.81	0.020	0.024	0.020	0.000	883.70	787.15
0.006637	702.	827.	677	20	10	0	0.00	25.48	812.63

0

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XX	XKOR	CDFQ	RDLEN	EWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	3.30	2.70	0.00	2.50	0.00	9.60	0.00	883.70	883.70

*SECNO 2948.000
2800 NAT Q1= 1239.98 WSEL= 892.98 ENC Q1= 1239.98 WSEL= 893.08 RATIO= 0.0000
NAT Q1= 1502 RATIOS LOB,CH,ROB= 0.4894 0.0380 0.4726 WSEL= 893.08
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 737.4 858.9 TYPE= 4 TARGET= 0.048

2968.00	9.30	893.00	0.00	892.98	893.00	0.00	0.00	0.23	886.30
295.	144	12	139	289	30.	277.	7.	6.	886.30
0.26	0.50	0.39	0.50	0.020	0.024	0.020	0.000	883.70	737.37
0.000006	70	70.	70.	0	0	10	0.00	121.53	858.90

0

*SECNO 3519.000
3280 CROSS SECTION 3519.00 EXTENDED 6.91 FEET

3470 ENCROACHMENT STATIONS= 450.0 750.0 TYPE= 1 TARGET= 300.000

3519.00	7.91	893.01	0.00	892.99	893.01	0.00	0.01	0.00	888.20
295	33	154	100	202.	710.	610.	22.	9.	886.20
1.08	0.15	0.23	0.76	0.100	0.100	0.100	0.000	885.20	450.00
0.000018	421	551.	751	2	0	0	0.00	300.00	750.00

0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 4569.000

```
3470 ENCROACHMENT STATIONS=      230 0      900 0  TYPE=      1  TARGET=     -250.000
  4569.00      5 72    893 02      0.00    893.01    893 02      0.00      0.02      0.00    887.80
     295.       219         5        72      1479       27.       553.       66.       19.     887.80
     3.13      0.15      0.17      0 13     0 100     0 100     0.100     0.000    887.30    250.00
 0 000014      1075      1050      1050         0         0         0      0.00    533.36    783.36
0
 *SECNO 5370.000
  2800 NAT Q1=    2971 89  WSEL=     893.01  ENC Q1=    2971 89  WSEL=     893.11  RATIO=  0.0000
  NAT Q1=    3113.   RATIOS LOB,CH,ROB=  0.7310  0 0025  0.2665  WSEL=     893.11

 3470 ENCROACHMENT STATIONS=      368.4      850.7  TYPE=      4  TARGET=        0.045
                TEN MILE ROAD
  5370 00      5.42    893.02      0.00    893.01    893 02      0.00      0.00      0.00    890.80
     295       221         1        74      1046.       10.       561        95.       27.     890.80
     4 12      0.21      0.08      0.13     0 020     0.024     0.020     0.000    887.60    368.41
 0.000001      626.      801       851.         0         0         0      0.00    482.27    850.68
0

 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        4.17       2 60       0.00       2.00       0.00       3.10       0.00     887.60     887.60

 *SECNO 5424.000
  2800 NAT Q1=    3021.07  WSEL=     893 05  ENC Q1=    3021.07  WSEL=     893.15  RATIO=  0.0000
  NAT Q1=    3170.   RATIOS LOB,CH,ROB=  0.7279  0 0024  0.2696  WSEL=     893.15
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=      368.7      850 8  TYPE=      4  TARGET=        0.047
  5424.00      5 46    893 06      0.00    893.05    893.06      0 00      0.00      0.00    890.80
     295       220.        1        74.     1053       10.       569.       97.       28      890.80
     4.20      0.21      0 03      0 13     0 020     0 024     0.020     0.000    887.60    368.70
 0.000001       54.       54        54         0         0        12      0 00    482.06    850.76
0
1
  14 JAN 88     10:19:39                                                                          PAGE   13


                                                                                THIS RUN EXECUTED 14 JAN 88    10:19:45
 ************************************************
   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

 CHAPMAN CREEK

 SUMMARY PRINTOUT TABLE  110

      SECNO      CWSEL     DIFKWS      EG       TOPWID     QLOB       QCH       QROB      PERENC     STENCL     STCHL      STCHR     STENCR

       0.000     857 38      0.00     857.45     97.79      0.00     340.00      0.00      0.00      0.00     25.00     145.00      0.00
       0 000     857 48      0 10     857 54    100.72      0 00     340.00      0.00      0.00     25.00     25.00     145.00    145 00

     100.000     858.49      0 00     858 57     93.80      0.00     340.00      0.00      0.00      0.00     25.00     145.00      0.00
     100 000     858 50      0.00     858 58     93.88      0.00     340.00      0.00      0.00     25.00     25.00     145.00    145 00
```

200.000	859.75	0.00	859.82	98.46	0.00	340.00	0.00	0.00	0.00	25.00	145.00	0.00
200.000	859.75	0.00	859.83	98.91	0.00	340.00	0.00	0.00	25.00	25.00	145.00	145.00
300.000	860.99	0.00	861.07	98.84	0.00	340.00	0.00	0.00	0.00	25.00	145.00	0.00
300.000	860.99	0.00	861.07	98.88	0.00	340.00	0.00	0.00	25.00	25.00	145.00	145.00
775.000	872.06	0.00	872.25	98.43	0.00	340.00	0.00	0.00	0.00	61.00	261.00	0.00
775.000	872.05	-0.01	872.24	98.39	0.00	340.00	0.00	0.00	61.00	61.00	261.00	261.00
2051.000	881.96	0.00	882.10	100.05	128.68	38.54	172.77	-250.00	250.00	449.00	451.00	650.00
2051.000	881.96	0.00	882.10	99.98	128.68	38.55	172.77	-250.00	250.00	449.00	451.00	650.00
2071.000	881.96	0.00	882.10	100.04	128.70	38.51	172.79	-250.00	250.00	449.00	451.00	650.01
2071.000	881.96	0.00	882.10	100.04	128.69	38.52	172.79	-250.00	250.00	449.00	451.00	650.01
* 2898.000	887.94	0.00	888.42	54.26	102.50	91.61	100.89	0.00	0.00	798.30	801.70	0.00
* 2898.000	887.95	0.01	898.73	25.48	98.41	100.03	96.55	0.12	787.15	798.30	801.70	812.63
2968.000	892.98	0.00	892.98	301.51	143.85	11.58	139.57	0.00	0.00	798.30	801.70	0.00
2968.000	893.00	0.01	893.00	121.53	144.06	11.94	139.00	0.05	737.37	798.30	801.70	858.90
3519.000	892.99	0.00	892.99	300.00	30.60	164.09	100.31	300.00	450.00	500.00	600.00	750.00
3519.000	893.01	0.01	893.01	300.00	30.65	163.92	100.43	300.00	450.00	500.00	600.00	750.00
4569.000	893.01	0.00	893.01	533.00	218.65	4.66	71.69	-250.00	250.00	600.00	605.00	900.00
4569.000	893.02	0.01	893.02	533.36	218.60	4.65	71.75	-250.00	250.00	600.00	605.00	900.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	@LOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
5370.000	893.01	0.00	893.01	637.90	217.95	0.74	76.32	0.00	0.00	599.00	601.00	0.00
5370.000	893.02	0.01	893.02	482.27	220.50	0.77	73.73	0.05	368.41	599.00	601.00	850.68
5424.000	893.05	0.00	893.05	640.40	217.13	0.73	77.14	0.00	0.00	599.00	601.00	0.00
5424.000	893.06	0.01	893.06	482.06	219.75	0.76	74.49	0.05	368.70	599.00	601.00	850.76

CHAPMAN CREEK

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	854.05	340.00	857.38	0.00	857.45	100.57	2.09	162.81	33.90
0.000	0.00	0.00	0.00	854.05	340.00	857.48	0.00	857.54	85.89	1.97	172.74	36.69
100.000	100.00	0.00	0.00	855.30	340.00	858.49	0.00	858.57	125.60	2.27	149.80	30.34
100.000	100.00	0.00	0.00	855.30	340.00	858.50	0.00	858.58	124.97	2.27	150.08	30.41
200.000	100.00	0.00	0.00	856.55	340.00	859.75	0.00	859.82	124.46	2.26	150.31	30.48
200.000	100.00	0.00	0.00	856.55	340.00	859.75	0.00	859.83	124.75	2.26	150.17	30.44
300.000	100.00	0.00	0.00	857.80	340.00	860.99	0.00	861.07	125.31	2.27	149.92	30.37
300.000	100.00	0.00	0.00	857.80	340.00	860.99	0.00	861.07	125.01	2.27	150.06	30.41
775.000	475.00	0.00	0.00	870.10	340.00	872.06	0.00	872.25	583.93	3.53	96.20	14.07
775.000	475.00	0.00	0.00	870.10	340.00	872.05	0.00	872.24	585.13	3.54	96.13	14.06
2051.000	1276.00	0.00	0.00	877.20	340.00	881.96	0.00	882.10	30.09	4.23	114.73	61.99

	2051.000	1276.00	0.00	0.00	877.20	340.00	881.96	0.00	882.10	30.11	4.23	114.69	61.76
	2071.000	20.00	879.80	879.20	877.20	340.00	881.96	0.00	882.10	30.02	4.23	114.83	62.06
	2071.000	20.00	879.80	879.20	877.20	340.00	881.96	0.00	882.10	30.03	4.23	114.81	62.04
*	2898.000	827.00	0.00	0.00	883.70	295.00	887.94	887.94	888.42	56.28	6.90	54.98	39.32
*	2898.000	827.00	0.00	0.00	883.70	295.00	887.95	887.95	888.73	66.37	7.51	41.96	36.21
	2968.000	70.00	892.35	387.20	883.70	295.00	892.98	0.00	892.98	0.06	0.38	745.80	1239.98
	2968.000	70.00	999999.00	0.00	883.70	295.00	893.00	0.00	893.00	0.06	0.39	596.25	1204.40
	3519.000	551.00	0.00	0.00	885.20	295.00	892.99	0.00	892.99	0.18	0.23	1516.09	696.52
	3519.000	551.00	0.00	0.00	885.20	295.00	893.01	0.00	893.01	0.18	0.23	1520.53	699.67
	4569.000	1050.00	0.00	0.00	887.30	295.00	893.01	0.00	893.01	0.14	0.17	2050.74	784.15
	4569.000	1050.00	0.00	0.00	887.30	295.00	893.02	0.00	893.02	0.14	0.17	2058.71	788.83
	5370.000	801.00	0.00	0.00	887.60	295.00	893.01	0.00	893.01	0.01	0.08	1779.59	2971.89
	5370.000	801.00	0.00	0.00	887.60	295.00	893.02	0.00	893.02	0.01	0.08	1616.26	2864.56
	5424.000	54.00	890.80	890.00	887.60	295.00	893.05	0.00	893.05	0.01	0.08	1800.93	3021.07
	5424.000	54.00	999999.00	0.00	887.60	295.00	893.06	0.00	893.06	0.01	0.08	1631.93	2907.60

CHAPMAN CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	0.000	340.00	857.38	0.00	0.00	0.00	97.79	0.00
	0.000	340.00	857.48	0.10	0.00	0.10	100.72	0.00
	100.000	340.00	858.49	0.00	1.11	0.00	93.80	100.00
	100.000	340.00	858.50	0.00	1.02	0.00	93.88	100.00
	200.000	340.00	859.75	0.00	1.25	0.00	93.96	100.00
	200.000	340.00	859.75	0.00	1.25	0.00	93.91	100.00
	300.000	340.00	860.99	0.00	1.25	0.00	93.84	100.00
	300.000	340.00	860.99	0.00	1.25	0.00	93.88	100.00
	775.000	340.00	872.06	0.00	11.06	0.00	98.43	475.00
	775.000	340.00	872.05	-0.01	11.05	-0.01	98.39	475.00
	2051.000	340.00	881.96	0.00	9.90	0.00	100.00	1276.00
	2051.000	340.00	881.96	0.00	9.91	0.00	99.98	1276.00
	2071.000	340.00	881.96	0.00	0.00	0.00	100.04	20.00
	2071.000	340.00	881.96	0.00	0.00	0.00	100.04	20.00
*	2898.000	295.00	887.94	0.00	5.98	0.00	54.26	827.00
*	2898.000	295.00	887.95	0.01	6.00	0.01	25.48	827.00
	2968.000	295.00	892.98	0.00	5.04	0.00	331.51	70.00
	2968.000	295.00	893.00	0.01	5.04	0.01	121.53	70.00
	3519.000	295.00	892.99	0.00	0.01	0.00	300.00	551.00
	3519.000	295.00	893.01	0.01	0.01	0.01	300.00	551.00
	4569.000	295.00	893.01	0.00	0.02	0.00	533.00	1050.00
	4569.000	295.00	893.02	0.01	0.02	0.01	533.36	1050.00

5370.000	295.00	893.01	0.00	0.00	0.00	637.90	801.00
5370.000	295.00	893.02	0.01	0.00	0.01	482.27	801 00
5424.000	295.00	893.05	0 00	0.04	0.00	640.40	54.00
5424.000	295.00	893.06	0.01	0.04	0.01	482 06	54.00

1
14 JAN 88 10.19:39 PAGE 17

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 2898.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2898.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2898.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2898.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2898.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2898.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

1
14 JAN 88 10.19:39 PAGE 18

FLOODWAY DATA, CHAPMAN CREEK
PROFILE NO. 2

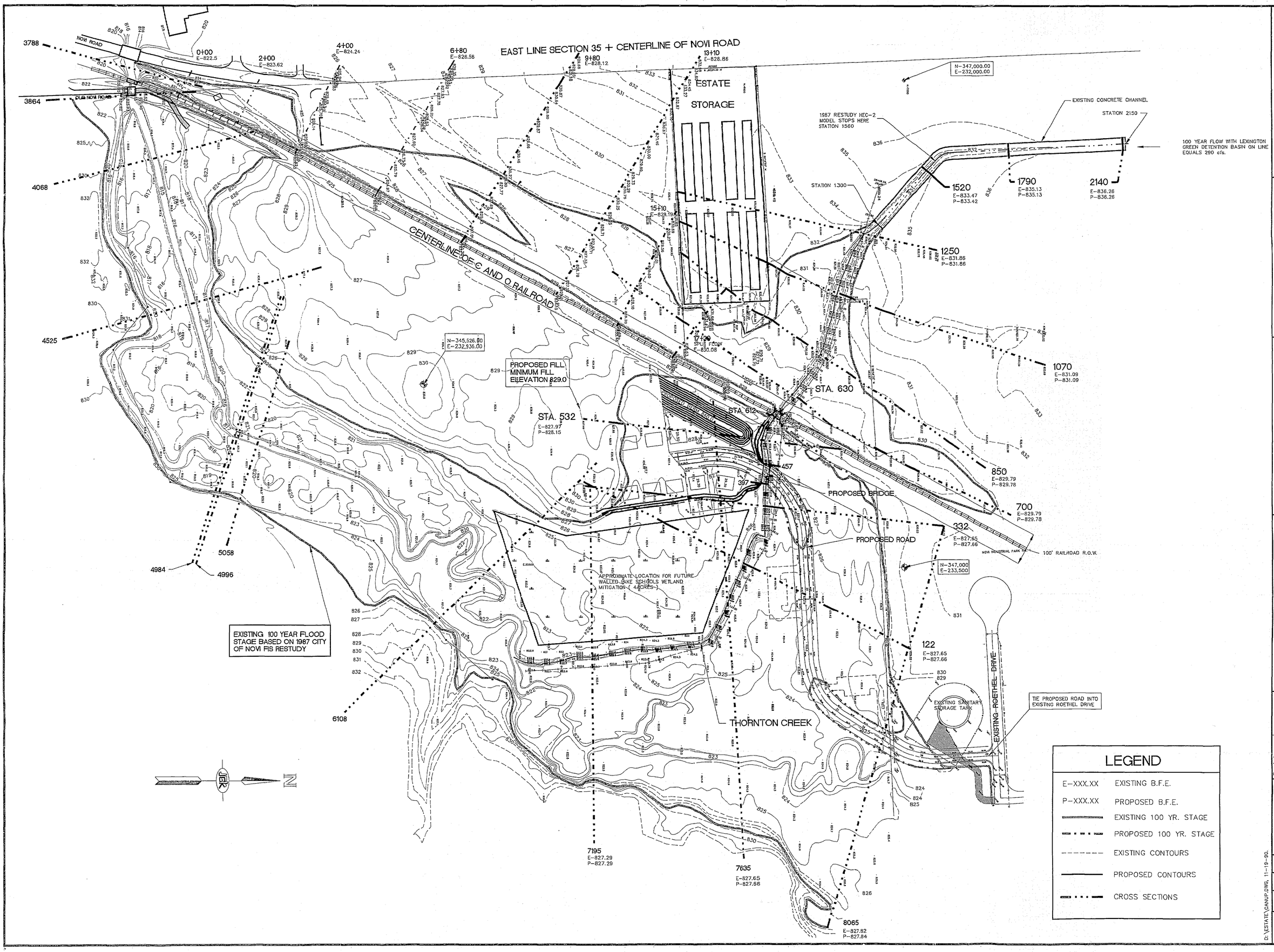
STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
0.000	101.	173.	2 0	857.5	857.4	0.1
100.000	94.	150.	2.3	858.5	858.5	0.0
200.000	94.	150.	2.3	859 7	859.7	0.0
300.000	94.	150.	2.3	861.0	861.0	0.0
775.000	98.	96.	3.5	872.1	872.1	0.0
2051.000	100.	115.	3.0	882.0	882.0	0.0
2071.000	100.	115.	3.0	882.0	882 0	0.0
2898.000	25	42	7.0	887.9	887.9	0.0
2968.000	122.	596.	0.5	893.0	893.0	0.0
3519.000	300.	1521.	0.2	893.0	893.0	0.0
4569.000	533.	2059.	0.1	893.0	893.0	0.0
5370.000	482	1616.	0.2	893.0	893.0	0.0
5424.000	482.	1632.	0.2	893.0	893.0	0.0

1
14 JAN 88 10:19:47 PAGE 1

THIS RUN EXECUTED 14 JAN 88 10:19:47

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

EJ



JCK & ASSOCIATES, INC.
CONSULTING ENGINEERS
NOVI, MICH. PH. NO. (313) 348-2680

JCK

SITE PLAN

THORNTON CREEK FLOODPLAIN STUDY

PART OF SECTION 35, TIN, R.8E
CITY OF NOVI
OAKLAND COUNTY MICHIGAN

Revisions

Drawn J.A.W.
Designed J.A.W.
Checked G.W.F.
Scale 1"=100'
Date 11-19-90
Job No. N-1815-2
Sht. No. 1.

D:\ESTATE\CANUP.DWG, 11-19-90.

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ROUGE
WALLED LAKE BRANCH

4) DOCUMENT TYPE: 100 YR ENCROACHED

00BREAK00

THIS RUN EXECUTED 08/27/91 15:34:23

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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 1.1
**************************************************

T1      CITY OF NOVI
T2      100 YEAR FLOOD - ENCROACHED CONDITION
T3      WALLED LAKE BRANCH

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        3.        0.        0.   .000000       .00        .0        0.   839.390      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     15.000      .000    -1.000      .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 2

CCHV=    .300 CEHV=    .500
#SECNO  .000
 2800 NAT Q1=   1832.04  WSEL=    839.29  ENC Q1=   1832.04  WSEL=    839.39  RATIO=   .0000
 NAT Q1=   1934.  RATIOS LOB,CH,ROB=   .7479   .2521   .0000  WSEL=    839.39

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      46.7     885.0  TYPE=     4  TARGET=        .053
        MEADOWBROOK LAKE
      .00     5.89   839.39      .00   839.29   839.40      .01      .00      .00   834.20
    1215.     891.     324.       0.    1377.     449.       0.       0.       0.   842.90
      .00      .65      .72      .00     .030     .040     .030     .000   833.50    46.72
  .000044       0.       0.       0.        0        0        0      .00   794.45   871.93
0
 #SECNO 62.000
 2800 NAT Q1=   1253.85  WSEL=    839.29  ENC Q1=   1253.85  WSEL=    839.39  RATIO=   .0000
 NAT Q1=   1349.  RATIOS LOB,CH,ROB=   .7188   .2812   .0000  WSEL=    839.39

3470 ENCROACHMENT STATIONS=      53.7     877.2  TYPE=     4  TARGET=        .070
    62.00     6.19   839.39      .00   839.29   839.40      .01      .00      .00   836.00
    1215.     848.     367.       0.    1158.     366.       0.       2.       1.   842.50
      .02      .73     1.00      .00     .030     .040     .030     .000   833.20    53.65
  .000093      62.      62.      62.        0        0        0      .00   813.44   867.09
0
 #SEC   125.000
```

2800 NAT Q1= 796.25 WSEL= 839.30 ENC Q1= 796.25 WSEL= 839.40 RATIO= .0000
NAT Q1= 877. RATIOS LOB,CH,ROB= .6811 .3189 .0000 WSEL= 839.40

3470 ENCROACHMENT STATIONS= 49.8 869.5 TYPE= 4 TARGET= .092

125.00	6.40	839.40	.00	839.30	839.42	.02	.01	.00	837.90
1215.	789.	426.	0.	884.	286.	0.	4.	2.	842.30
.04	.89	1.49	.00	.030	.040	.030	.000	833.00	49.85
.000231	63.	63.	63.	0	0	0	.00	811.70	861.55

0
*SECNO 187.000
2800 NAT Q1= 629.18 WSEL= 839.31 ENC Q1= 629.18 WSEL= 839.41 RATIO= .0000
NAT Q1= 695. RATIOS LOB,CH,ROB= .7078 .2922 .0000 WSEL= 839.41
1
08/27/91 15:30:39 PAGE 67

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

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 43.2 861.7 TYPE= 4 TARGET= .094

187.00	7.31	839.41	.00	839.31	839.44	.03	.02	.01	839.80
1215.	824.	391.	0.	710.	218.	0.	6.	3.	842.00
.05	1.16	1.79	.00	.030	.040	.030	.000	832.10	43.24
.000371	62.	62.	62.	0	0	0	.00	688.21	856.04

0
*SECNO 251.000
2800 NAT Q1= 627.75 WSEL= 839.33 ENC Q1= 627.75 WSEL= 839.43 RATIO= .0000
NAT Q1= 684. RATIOS LOB,CH,ROB= .8000 .1593 .0407 WSEL= 839.43

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 32.7 840.0 TYPE= 4 TARGET= .082
CHATTMAN DRIVE BRIDGE

251.00	6.93	839.43	.00	839.33	839.47	.04	.02	.00	833.20
1215.	1043.	172.	0.	740.	85.	0.	7.	4.	833.50
.06	1.41	2.03	.00	.030	.040	.030	.000	832.50	32.65
.000407	64.	64.	64.	0	0	0	.00	532.17	840.00

0

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
5227 DOWNSTREAM ELEV IS 837.73 ,NOT 839.43 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XY	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.56	2.70	.00	13.00	1.00	60.00	.00	832.50	832.50

*SECNO 292.000
2800 NAT Q1= 497.60 WSEL= 839.39 ENC Q1= 497.60 WSEL= 839.49 RATIO= .0000
NAT Q1= 548. RATIOS LOB,CH,ROB= .9229 .0771 .0000 WSEL= 839.49
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 104.0 806.5 TYPE= 4 TARGET= .092

292.00	5.79	839.39	.00	839.39	839.44	.05	.02	.01	841.90
1215.	1105.	110.	0.	581.	48.	0.	8.	5.	841.90

```
     .07     1.87     1.73      .00     .030     .040     .030     .000   833.60   103.96
  .000717      41.      41.      41.        0        0        8      .00   430.09   806.50
0
1
 08/27/91    15:30:39                                                                    PAGE   68


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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 503.000

 3470 ENCROACHMENT STATIONS=     755.0    1175.0  TYPE=     1  TARGET=     420.000
   503.00     4.92   839.62      .00   839.56   839.99      .37      .39      .16   837.80
    1215.     206.     761.     248.     223.     125.     200.      12.       8.   836.00
      .09      .92     6.09     1.24     .100     .040     .100     .000   834.70   755.00
  .004110     321.     211.     211.        2        0        0      .00   420.00  1175.00
0
 *SECNO 601.000
  2800 NAT Q1=    209.24  WSEL=    840.08  ENC Q1=    209.24  WSEL=    840.18  RATIO=   .0000
  NAT Q1=    589.  RATIOS LOB,CH,ROB=   .7313   .1941   .0746  WSEL=    840.18

 3470 ENCROACHMENT STATIONS=     499.9     927.0  TYPE=     4  TARGET=        .645
   601.00     5.04   840.12      .00   840.08   840.39      .28      .38      .03   838.18
    1215.     561.     654.       0.     495.     116.       0.      13.       8.   836.38
      .09     1.13     5.64      .00     .100     .040     .100     .000   835.08   499.87
  .004055      96.      98.      54.        3        0        0      .00   427.13   927.00
0
 *SECNO 699.000
  2800 NAT Q1=    344.39  WSEL=    840.54  ENC Q1=    344.39  WSEL=    840.64  RATIO=   .0000
  NAT Q1=    489.  RATIOS LOB,CH,ROB=   .6692   .2089   .1218  WSEL=    840.64

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     292.7     972.5  TYPE=     4  TARGET=        .296
   699.00     5.16   840.63      .00   840.54   840.67      .04      .21      .07   838.37
    1215.     869.     346.       0.    1105.     125.       0.      15.      10.   836.87
      .11      .79     2.76      .00     .100     .040     .100     .000   835.47   292.68
  .001304      96.      98.      54.        2        0        0      .00   677.92   972.50
0
 *SECNO 797.000

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     427.0    1037.0  TYPE=     1  TARGET=     610.000
   797.00     4.91   840.76      .00   840.66   840.85      .09      .16      .03   838.75
    1215.     624.     450.     141.     694.     119.     124.      17.      11.   837.25
      .13      .90     3.80     1.14     .100     .040     .100     .000   835.85   427.00
  .002312      96.      98.      55.        2        0        0      .00   608.10  1037.00
0
1
 08/27/91    15:30:39                                                                    PAGE   69


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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]
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 2800 NAT Q1=    201.42  WSEL=    840.91  ENC Q1=    201.42  WSEL=    841.01  RATIO=   .0000
 NAT Q1=    312.  RATIOS LOB,CH,ROB=   .6337   .2520   .1143  WSEL=    841.01

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     331.2     875.3  TYPE=     4  TARGET=        .354
   895.00     4.79   841.02      .00   840.91   841.14      .12      .27      .02   839.13
    1215.     761.     454.       0.     670.     104.       0.      19.      12.    837.63
      .14     1.14     4.38      .00     .100     .040     .100     .000   836.23   331.23
  .003736      95.      98.      54.        2        0        0      .00   542.31   875.25
0
 *SECNO 993.000
 2800 NAT Q1=    174.41  WSEL=    841.17  ENC Q1=    174.41  WSEL=    841.27  RATIO=   .0000
 NAT Q1=    202.  RATIOS LOB,CH,ROB=   .3115   .5312   .1573  WSEL=    841.27

3470 ENCROACHMENT STATIONS=     455.2     952.3  TYPE=     4  TARGET=        .138
   993.00     4.67   841.29      .00   841.17   841.67      .38      .40      .13   839.52
    1215.     347.     743.     125.     355.     118.      76.      21.      13.    838.22
      .14      .98     6.29     1.65     .100     .040     .100     .000   836.62   455.19
  .004720      96.      98.      54.        2        0        0      .00   497.12   952.31
0
 *SECNO 1091.000
 2800 NAT Q1=    189.25  WSEL=    841.64  ENC Q1=    189.25  WSEL=    841.74  RATIO=   .0000
 NAT Q1=    223.  RATIOS LOB,CH,ROB=   .3391   .5001   .1608  WSEL=    841.74

3470 ENCROACHMENT STATIONS=     450.7     951.0  TYPE=     4  TARGET=        .153
  1091.00     4.77   841.77      .00   841.64   842.09      .31      .40      .02   839.90
    1215.     387.     707.     121.     409.     122.      78.      22.      15.    838.60
      .15      .95     5.82     1.55     .100     .040     .100     .000   837.00   450.68
  .003891      96.      98.      54.        3        0        0      .00   500.27   950.95
0
 *SECNO 1385.000
 2800 NAT Q1=    186.06  WSEL=    842.77  ENC Q1=    186.06  WSEL=    842.87  RATIO=   .0000
 NAT Q1=    216.  RATIOS LOB,CH,ROB=   .3129   .5122   .1749  WSEL=    842.87

3470 ENCROACHMENT STATIONS=     597.5     900.7  TYPE=     4  TARGET=        .140
  1385.00     4.78   842.88      .00   842.77   843.22      .34     1.12      .01   841.00
    1215.     345.     721.     148.     297.     120.      92.      25.      17.    839.90
      .17     1.16     5.99     1.61     .100     .040     .100     .000   838.10   597.45
  .004197     288.     294.     163.        2        0        0      .00   303.25   900.70
0
1
  08/27/91    15:30:39                                                              PAGE   70


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 1678.000
 2800 NAT Q1=    179.20  WSEL=    843.95  ENC Q1=    179.20  WSEL=    844.05  RATIO=   .0000
 NAT Q1=    207.  RATIOS LOB,CH,ROB=   .2977   .5271   .1752  WSEL=    844.05

3470 ENCROACHMENT STATIONS=     608.0     841.3  TYPE=     4  TARGET=        .134
  1678.00     4.77   844.07      .00   843.95   844.44      .37     1.20      .02   842.10
    1215.     325.     737.     153.     246.     119.      92.      28.      19.    841.30
      .19     1.32     6.18     1.66     .100     .040     .100     .000   839.30   607.95
  .004528     287.     293.     162.        2        0        0      .00   233.35   841.30
0
 *SECNO 2253.000

3470 ENCROACHMENT STATIONS=     340.0     540.0  TYPE=     1  TARGET=     200.000
```

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    1215.     380.     742.      93.     254.     147.      50.      32.      21.    843.70
      .22     1.50     5.04     1.85     .100     .050     .100     .000   841.70   340.00
  .004627     375.     575.     250.        3        0        0      .00   200.00   540.00
0
 *SECNO 3404.000

 3470 ENCROACHMENT STATIONS=     280.0     460.0  TYPE=     1  TARGET=     180.000
         FOOTBRIDGE 350 FT. SE OF C&O RAILROAD BRIDGE
  3404.00     5.92   850.52      .00   850.54   850.77      .24     4.07      .00   848.00
    1215.     495.     585.     136.     271.     108.      91.      40.      24.    848.30
      .29     1.82     5.41     1.48     .100     .050     .100     .000   844.60   280.00
  .004526     576.    1151.     576.        4        0        0      .00   180.00   460.00
0

 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .00      1.83      2.90       .00     10.00       .00     56.80      2.40    844.60    844.60

 *SECNO 3410.000
  PRESS FLOW BECAUSE EGLWC OF    850.77  EXCEEDS 1.5 DEPTH
 6870 D.S. ENERGY OF  850.77 HIGHER THAN COMPUTED ENERGY OF  850.59
 PRESSURE AND WEIR FLOW

1
  08/27/91    15:30:39                                                                    PAGE   71


    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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
    863.52    850.77       .00     1128.       86.       57.       70.      848.30    847.70



 3470 ENCROACHMENT STATIONS=     280.0     460.0  TYPE=     1  TARGET=     180.000
  3410.00     5.92   850.52      .00   850.54   850.77      .24      .00      .00   848.00
    1215.     495.     585.     136.     271.     108.      91.      40.      24.    848.30
      .29     1.82     5.41     1.48     .100     .050     .100     .000   844.60   280.00
  .004525       6.       6.       6.        2        0        7      .00   180.00   460.00
0
 *SECNO 4011.000

 3301 HV CHANGED MORE THAN HVINS


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      861.80 ELREA=      861.80

  4011.00     7.34   853.24      .00   853.23   854.59     1.35     3.27      .56   847.30
    1215.       0.    1215.       0.       0.     130.       0.      44.      25.    848.50
      .31      .00     9.34      .00     .100     .050     .100     .000   845.90   180.00
  .008384     376.     601.     401.        2        0        0      .00    20.00   200.00
0
 *SECNO 4012.000

 3301 HV CHANGED MORE THAN HVINS


 3770 NORMAL BRIDGE NRD= 13 MIN ELTRD=  861.80 MAX ELLC=  854.50
```

C&O RR BRIDGE 1900 FT. SOUTH OF TEN MILE ROAD

4012.00	7.06	852.96	.00	852.95	854.89	1.92	.01	.29	864.20
1215.	0.	1215.	0.	0.	109.	0.	44.	25.	864.20
.31	.00	11.13	.00	.030	.021	.030	.000	845.90	290.00
.006030	1.	1.	1.	2	0	0	-24.91	20.00	310.00

0
#SECND 4038.000
1

SECND	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
B	OLOB	OCH	OROB	ALOB	ACH	AROB	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= 861.80 MAX ELLC= 854.50

4038.00	7.32	853.22	.00	853.21	855.06	1.84	.15	.03	864.20
1215.	0.	1215.	0.	0.	112.	0.	44.	25.	864.20
.31	.00	10.89	.00	.030	.021	.030	.000	845.90	290.00
.005746	26.	26.	26.	2	0	0	-27.67	20.00	310.00

0
#SECND 4039.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 861.80 ELREA= 861.80

4039.00	8.43	854.33	.00	854.32	855.32	.99	.01	.25	847.30
1215.	0.	1215.	0.	0.	152.	0.	44.	25.	848.50
.31	.00	7.99	.00	.100	.050	.100	.000	845.90	180.00
.004992	1.	1.	1.	4	0	0	.00	20.00	200.00

0
#SECND 4663.000
2800 NAT Q1= 874.32 WSEL= 855.88 ENC Q1= 874.32 WSEL= 855.98 RATIO= .0000
NAT Q1= 904. RATIOS LOB,CH,ROB= .6756 .2151 .1093 WSEL= 855.98

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 100.6 464.7 TYPE= 4 TARGET= .032

4663.00	7.70	855.90	.00	855.88	855.91	.01	.30	.29	850.70
1215.	826.	272.	117.	1398.	177.	201.	53.	26.	850.10
.49	.59	1.53	.58	.100	.050	.100	.000	848.20	100.61
.000204	325.	624.	650.	2	0	0	.00	364.12	464.73

0
#SECND 4969.000
2800 NAT Q1= 403.76 WSEL= 855.96 ENC Q1= 403.76 WSEL= 856.06 RATIO= .0000
NAT Q1= 425. RATIOS LOB,CH,ROB= .6191 .2764 .1045 WSEL= 856.06

3470 ENCROACHMENT STATIONS= 122.7 456.5 TYPE= 4 TARGET= .049

4969.00	5.83	855.98	.00	855.96	856.02	.04	.10	.02	852.65
1215.	754.	358.	103.	800.	131.	105.	60.	28.	852.05
.54	.94	2.74	.98	.100	.050	.100	.000	850.15	122.73
.000975	225.	306.	256.	2	0	0	.00	333.73	456.46

0
1

SECND DEPTH CWSEL CRIWS WSELK EG HV HL OLOSS BANK ELEV

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 5122.000
  2800 NAT Q1=    249.58  WSEL=    856.11  ENC Q1=    249.58  WSEL=    856.21  RATIO=   .0000
  NAT Q1=    267.  RATIOS LOB,CH,ROB=   .5663   .3329   .1008  WSEL=    856.21

 3470 ENCROACHMENT STATIONS=     147.6     449.9  TYPE=     4  TARGET=        .064
   5122.00     5.02   856.14      .00   856.11   856.24      .10      .19      .03   853.62
     1215.     686.     439.      90.     544.     110.      66.      63.      29.    853.02
       .55     1.26     3.97     1.37     .100     .050     .100     .000   851.12   147.62
    .002574     112.     153.     128.        2        0        0      .00   302.29   449.91
0
 #SECNO 5275.000
  2800 NAT Q1=    159.22  WSEL=    856.50  ENC Q1=    159.22  WSEL=    856.60  RATIO=   .0000
  NAT Q1=    175.  RATIOS LOB,CH,ROB=   .5021   .4017   .0962  WSEL=    856.60

 3470 ENCROACHMENT STATIONS=     180.3     441.0  TYPE=     4  TARGET=        .091
   5275.00     4.46   856.56      .00   856.50   856.81      .24      .49      .07   854.60
     1215.     604.     543.      67.     368.      97.      36.      64.      30.    854.00
       .57     1.64     5.63     1.86     .100     .050     .100     .000   852.10   180.27
    .006176     113.     153.     128.        2        0        0      .00   260.71   440.98
0
 #SECNO 5581.000
  2800 NAT Q1=    228.59  WSEL=    857.71  ENC Q1=    228.59  WSEL=    857.81  RATIO=   .0000
  NAT Q1=    242.  RATIOS LOB,CH,ROB=   .5416   .0785   .3799  WSEL=    857.81

 3470 ENCROACHMENT STATIONS=     127.8     359.3  TYPE=     4  TARGET=        .054
         U.S. OF CONFLUENCE WITH TRIB. "A"
   5581.00     3.77   857.82      .00   857.71   857.87      .05     1.01      .06   854.85
     1215.     658.     100.     457.     400.      28.     281.      68.      31.    854.75
       .60     1.64     3.54     1.62     .100     .050     .100     .000   854.05   127.85
    .002778     225.     306.     256.        2        0        0      .00   231.43   359.28
0
 #SECNO 5888.000

 3470 ENCROACHMENT STATIONS=     130.0     355.0  TYPE=     1  TARGET=     225.000
   5888.00     2.84   858.84      .00   858.76   858.94      .10     1.05      .02   856.80
     1115.     613.     103.     399.     277.      21.     186.      71.      32.    856.70
       .63     2.21     4.90     2.14     .100     .050     .100     .000   856.00   130.00
    .007981     225.     307.     257.        2        0        0      .00   225.00   355.00
0
1
```


SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 6238.000

 3470 ENCROACHMENT STATIONS=     360.0     430.0  TYPE=     1  TARGET=      70.000
   6238.00     5.37   861.77      .00   861.76   862.34      .57     3.16      .24   858.20
     1115.     526.     528.      61.     148.      66.      27.      74.      34.    859.70
       .65     3.56     8.05     2.21     .100     .050     .100     .000   856.40   360.00
    .011338     300.     350.     400.        3        0        0      .00    70.00   430.00
0
 #SECNO 6338.000

 3470 ENCROACHMENT STATIONS=     370.0     415.0  TYPE=     1  TARGET=      45.000
```

```
   1115.     508.     607.       0.     136.      79.       0.      74.      34. 100000.00
     .65     3.75     7.73     .00     .100     .050     .100     .000   856.60   370.00
  .010269     100.     100.     100.        2        0        0      .00    45.00   415.00
0
 #SECND 6438.000
 3280 CROSS SECTION   6438.00 EXTENDED      5.89 FEET


 3301 HV CHANGED MORE THAN HVINS


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      871.00 ELREA=      871.00

  6438.00     6.49   863.49      .00   863.49   865.21     1.72     1.22      .56   858.80
   1115.       0.    1115.       0.       0.    106.       0.      75.      34.    860.30
     .66      .00    10.52      .00     .100     .050     .100     .000   857.00   395.00
  .014646     100.     100.     100.        2        0        0      .00    20.00   415.00
0
 #SECND 6439.000

 3370 NORMAL BRIDGE.NRD= 13 MIN ELTRD=  871.00 MAX ELLC=  868.00

        C&O RR BRIDGE 233 FT. SOUTH OF TEN MILE ROAD
  6439.00     6.32   863.32      .00   863.32   865.40     2.08      .01      .18   872.60
   1115.       0.    1115.       0.       0.     96.       0.      75.      34.    872.60
     .66      .00    11.57      .00     .030     .026     .030     .000   857.00   390.44
  .007687       1.       1.       1.        2        0        0      .00    18.95   409.39
0
1
 08/27/91    15:30:39                                                                PAGE   75


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


 #SECND 6449.000

 3370 NORMAL BRIDGE.NRD= 13 MIN ELTRD=  871.00 MAX ELLC=  868.00

  6449.00     6.93   863.93      .00   863.93   865.59     1.66      .07      .13   872.60
   1115.       0.    1115.       0.       0.    108.       0.      75.      34.    872.60
     .66      .00    10.33      .00     .030     .026     .030     .000   857.00   390.38
  .005577      10.      10.      10.        6        0        0      .00    19.09   409.47
0
 #SECND 6450.000
 3280 CROSS SECTION   6450.00 EXTENDED      8.09 FEET


 3301 HV CHANGED MORE THAN HVINS


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      871.00 ELREA=      871.00

  6450.00     7.69   864.69      .00   864.69   865.77     1.08      .01      .17   858.80
   1115.       0.    1115.       0.       0.    134.       0.      75.      34.    860.30
     .66      .00     8.33      .00     .100     .050     .100     .000   857.00   395.00
  .006599       1.       1.       1.        3        0        0      .00    20.00   415.00
0
 #SECND 6470.000
  2800 NAT Q1=    281.24  WSEL=    865.87  ENC Q1=    281.24  WSEL=    865.97  RATIO=   .0000
  NAT Q1=   2170.  RATIOS LOB,CH,ROB=   .8375   .0837   .0788  WSEL=    865.97
 3280 CROSS SECTION   6470.00 EXTENDED      9.23 FEET
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 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     367.1     415.0  TYPE=     4  TARGET=        .870
   6470.00     9.23   865.89      .00   865.87   866.10      .21      .07      .26   858.86
    1115.      426.     669.       0.     200.     157.       0.      75.      34.    860.36
      .66     2.13     4.40      .00     .100     .050     .100     .000   856.66    367.06
   .002041      20.      20.      20.        3        0        0      .00    47.94   415.00
0
 #SECND 6600.000
1
  08/27/91    15:30:39                                                          PAGE   76


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


  2800 NAT Q1=    171.69  WSEL=    866.03  ENC Q1=    175.95  WSEL=    866.13  RATIO=  -.0249
  NAT Q1=    424.  RATIOS LOB,CH,ROB=   .0000   .4149   .5851  WSEL=    866.13

 3470 ENCROACHMENT STATIONS=      58.0     100.0  TYPE=     4  TARGET=        .585
   6600.00     8.65   866.13      .00   866.03   866.64      .51      .39      .15   868.88
    1115.        0.    1115.       0.       0.     195.       0.      76.      34.    859.98
      .66      .00     5.72      .00     .100     .050     .100     .000   857.48    65.18
   .004932     130.     130.     130.        2        0        0      .00    34.82   100.00
0
 #SECND 6650.000
  2800 NAT Q1=    158.21  WSEL=    866.28  ENC Q1=    179.84  WSEL=    866.38  RATIO=  -.1368
  NAT Q1=    434.  RATIOS LOB.CH.ROB=   .0000   .4143   .5857  WSEL=    866.38

 3470 ENCROACHMENT STATIONS=      58.0     100.0  TYPE=     4  TARGET=        .586
   6650.00     8.76   866.40      .00   866.28   866.88      .49      .24      .01   869.04
    1115.        0.    1115.       0.       0.     199.       0.      76.      34.    860.14
      .67      .00     5.62      .00     .100     .050     .100     .000   857.64    64.92
   .004702      50.      50.      50.        2        0        0      .00    35.08   100.00
0
 #SECND 6700.000
  2800 NAT Q1=     67.09  WSEL=    866.00  ENC Q1=    109.51  WSEL=    866.10  RATIO=  -.6323
  NAT Q1=    371.  RATIOS LOB.CH.ROB=   .0870   .2950   .6181  WSEL=    866.10

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=      87.5     100.5  TYPE=     4  TARGET=        .705
   6700.00     8.31   866.11      .00   866.00   868.10     1.99      .47      .75   858.08
    1115.        0.    1115.       0.       0.      98.       0.      76.      34.    860.16
      .67      .09    11.32      .00     .100     .050     .100     .000   857.80    87.50
   .026594      50.      50.      50.        2        0        0      .00    13.00   100.50
0
 #SECND 6701.000

 3370 NORMAL BRIDGE,NRD=  6 MIN ELTRD=  874.00 MAX ELLC=  866.00

         TEN MILE BRIDGE
   6701.00     8.39   866.19      .00   866.16   868.13     1.94      .02      .02   874.60
    1115.        0.    1115.       0.       0.     100.       0.      76.      34.    874.60
      .67      .00    11.18      .00     .030     .026     .030     .009   857.80    93.50
   .011741       1.       1.       1.        2        0        0    -2.84    13.00   106.50
0
1
  08/27/91    15:30:39                                                          PAGE   77
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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 6749.000

 3370 NORMAL BRIDGE.NRD=  6 MIN ELTRD=  874.00 MAX ELLC=  866.00

  6749.00     8.96   866.76      .00   866.72   868.70     1.94      .56      .00   874.60
    1115.       0.    1115.       0.       0.    100.       0.      76.      34.    874.60
      .67      .00    11.18      .00     .030     .026     .030     .000   857.80    93.50
   .011741     48.      48.      48.        2        0        0   -10.17    13.00   106.50
0
 #SECNO 6750.000
  2800 NAT Q1=    140.74  WSEL=    867.33  ENC Q1=    143.46  WSEL=    867.43  RATIO=  -.0194
  NAT Q1=    143.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    867.43

 3470 ENCROACHMENT STATIONS=     87.5     100.5  TYPE=     4  TARGET=        .000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      875.00 ELREA=      875.00

  6750.00     9.60   867.40      .00   867.33   868.85     1.46      .01      .14   858.08
    1115.       0.    1115.       0.       0.    115.       0.      76.      34.    860.10
      .67      .00     9.69      .00     .100     .050     .100     .000   857.80    87.50
   .010876       1.       1.       1.        3        0        0      .00    13.00   100.50
0
 #SECNO 6763.000
  2800 NAT Q1=    369.52  WSEL=    868.99  ENC Q1=    369.52  WSEL=    869.09  RATIO=   .0000
  NAT Q1=    963.  RATIOS LOB,CH,ROB=   .5431   .3087   .1481  WSEL=    869.09

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     165.9     200.0  TYPE=     4  TARGET=        .616
  6763.00    11.12   869.04      .00   868.99   869.26      .23      .04      .37   859.62
    1115.     234.     881.       0.     130.     210.       0.      76.      34.    859.72
      .67     1.80     4.20      .00     .100     .050     .100     .000   857.92   165.93
   .001474      13.      13.      13.        3        0        0      .00    34.07   200.00
0
 #SECNO 6841.000
  2800 NAT Q1=    868.02  WSEL=    869.28  ENC Q1=    868.02  WSEL=    869.38  RATIO=   .0000
  NAT Q1=    886.  RATIOS LOB,CH,ROB=   .5384   .3146   .1470  WSEL=    869.38

 3470 ENCROACHMENT STATIONS=     64.8     228.5  TYPE=     4  TARGET=        .020
1
  08/27/91    15:30:39                                                          PAGE   78


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


  6841.00    10.72   869.33      .00   869.28   869.35      .02      .03      .06   860.31
    1115.     601.     359.     155.     831.     202.     217.      78.      34.    860.41
      .69      .72     1.78      .71     .100     .050     .100     .000   858.61    64.79
   .000169      78.      78.      78.        2        0        0      .00   163.67   228.46
0
 #SECNO 7300.000
  2800 NAT Q1=    282.03  WSEL=    869.38  ENC Q1=    282.03  WSEL=    869.48  RATIO=   .0000
  NAT Q1=    293.  RATIOS LOB,CH,ROB=   .4546   .4147   .1308  WSEL=    869.48
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 3470 ENCROACHMENT STATIONS=      86.8     221.5  TYPE=     4  TARGET=        .037
   7300.00     6.74   869.44      .00   869.38   869.56      .12      .16      .05   864.40
     1115.     500.     478.     137.     349.     122.      91.      86.      36.    864.50
       .74     1.43     3.91     1.51     .100     .050     .100     .000   862.70    86.78
   .001588     384.     459.     384.        2        0        0      .00   134.72   221.49
0
 $SECNO 8050.000
  2800 NAT Q1=    221.84  WSEL=    870.88  ENC Q1=    221.84  WSEL=    870.98  RATIO=   .0000
  NAT Q1=    234.  RATIOS LOB,CH,ROB=   .6231   .3769   .0000  WSEL=    870.98

 3470 ENCROACHMENT STATIONS=      99.8     300.0  TYPE=     4  TARGET=        .050
   8050.00     7.06   870.96      .00   870.88   871.07      .12     1.51      .00   868.30
     1115.     673.     442.       0.     467.     112.       0.      96.      38.    878.70
       .82     1.44     3.95      .00     .100     .050     .100     .000   863.90    99.81
   .002557     775.     750.     700.        2        0        0      .00   196.42   296.24
0
 $SECNO 8400.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     165.0     209.0  TYPE=     1  TARGET=      44.000
   8400.00     5.80   872.32      .00   872.24   873.51     1.19     1.90      .54   871.22
     1115.       9.    1077.      29.       5.     121.      14.      99.      40.    870.72
       .83     1.66     8.90     2.16     .100     .050     .100     .000   866.52   165.00
   .014978     425.     350.     250.        3        0        0      .00    44.00   209.00
0
 $SECNO 8450.000
1
  08/27/91    15:30:39                                                                    PAGE   79


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


 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     178.0     197.0  TYPE=     1  TARGET=      19.000
   8450.00     5.98   872.88      .00   872.87   874.90     2.02      .97      .41100000.00
     1115.       0.    1115.       0.       0.      98.       0.      99.      40. 100000.00
       .84      .00    11.40      .00     .100     .050     .100     .000   866.90   178.00
   .026417      50.      50.      50.        2        0        0      .00    19.00   197.00
0
 $SECNO 8451.000

 3301 HV CHANGED MORE THAN HVINS


 3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  879.10 MAX ELLC=  875.90

         C&O RR BRIDGE 1300 FT. NORTH OF TEN MILE ROAD
   8451.00     6.72   873.62      .00   873.62   875.08     1.46      .01      .17   880.60
     1115.       0.    1115.       0.       0.     115.       0.      99.      40.    880.60
       .84      .00     9.70      .00     .030     .027     .030     .000   866.90   490.50
   .005311       1.       1.       1.        5        0        0      .00    19.00   509.50
0
 $SECNO 8461.000

 3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  879.10 MAX ELLC=  875.90

   [illegible]     6.95   873.75      .00   873.75   875.15     1.40      .05      .02   880.60
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    1115.       0.    1115.       0.       0.     117.       0.      99.      40.    880.60
      .84      .00     9.50      .00     .030     .027     .030     .000   866.90   490.50
   .005011      10.      10.      10.        2        0        0      .00    19.00   509.50
0
 #SECNO 8462.000

 3470 ENCROACHMENT STATIONS=     178.0     197.0  TYPE=     1  TARGET=      19.000
   8462.00     6.81   873.71      .00   873.70   875.21     1.50      .01      .05100000.70
    1115.       0.    1115.       0.       0.     113.       0.      99.      40. 100000.70
      .84      .00     9.83      .00     .100     .050     .100     .000   866.90   178.00
   .017451       1.       1.       1.        2        0        0      .00    19.00   197.00
0
1
  08/27/91    15:30:39                                                                PAGE   80

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 8475.000
  2800 NAT Q1=    216.02  WSEL=    875.22  ENC Q1=    216.02  WSEL=    875.32  RATIO=   .0000
  NAT Q1=    400.  RATIOS LOB,CH,ROB=   .1743   .5119   .3138  WSEL=    875.32
 3280 CROSS SECTION   8475.00 EXTENDED      1.11 FEET


 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     170.0     207.6  TYPE=     4  TARGET=        .460
   8475.00     8.31   875.17      .00   875.22   875.61      .44      .08      .32   871.56
    1115.       0.    1065.      50.       0.     196.      31.     100.      40.    871.06
      .84      .00     5.43     1.65     .100     .050     .100     .000   866.86   170.00
   .003374      13.      13.      13.        3        0        0      .00    37.59   207.59
0
 #SECNO 8787.000
  2800 NAT Q1=    175.73  WSEL=    876.19  ENC Q1=    179.67  WSEL=    876.29  RATIO=  -.0224
  NAT Q1=    180.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    876.29

 3470 ENCROACHMENT STATIONS=     100.0     150.0  TYPE=     4  TARGET=        .000
   8787.00    10.29   876.29      .00   876.19   876.74      .46     1.13      .01   880.30
    1115.       0.    1115.       0.       0.     206.       0.     101.      40.    883.00
      .85      .00     5.42      .00     .100     .050     .100     .000   866.06   105.35
   .003858     312.     312.     337.        2        0        0      .00    34.71   140.06
0
 #SECNO 8906.000
  2800 NAT Q1=    126.90  WSEL=    876.69  ENC Q1=    130.24  WSEL=    876.79  RATIO=  -.0264
  NAT Q1=    130.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    876.79

 3470 ENCROACHMENT STATIONS=     125.0     166.7  TYPE=     4  TARGET=        .000
   8906.00     9.08   876.76      .00   876.69   877.51      .75      .62      .15   878.68
    1115.       0.    1115.       0.       0.     161.       0.     102.      40.    883.48
      .86      .00     6.94      .00     .100     .050     .100     .000   867.68   127.14
   .007428     119.     119.     119.        2        0        0      .00    30.55   157.69
0
 #SECNO 9025.000
  2800 NAT Q1=    100.30  WSEL=    877.65  ENC Q1=    103.28  WSEL=    877.75  RATIO=  -.0297
  NAT Q1=    103.  RATIOS LOB,CH,ROB=   .0004   .9996   .0000  WSEL=    877.75

 3470 ENCROACHMENT STATIONS=     150.0     183.5  TYPE=     4  TARGET=        .000
1
  08/27/91    15:30:39                                                                PAGE   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


  9025.00      8.34    877.69       .00    877.65    878.82     1.12      1.12       .19    877.25
    1115.        0.      1115.        0.        0.      131.       0.      102.       40.     884.05
      .86       .00      8.50       .00      .100      .050      .100      .000    869.35    150.00
   .012272      119.      119.      119.         2         0         0       .00     25.98    175.98
0
 $SECNO 9144.000
  2800 NAT Q1=      96.64  WSEL=    879.09  ENC Q1=      96.64  WSEL=    879.19  RATIO=   .0000
  NAT Q1=      99.  RATIOS LOB,CH,ROB=   .0559   .9441   .0000  WSEL=    879.19

 3470 ENCROACHMENT STATIONS=     170.6     200.2  TYPE=     4  TARGET=        .028
  9144.00      8.07    879.10       .00    879.09    880.51     1.41      1.55       .14    875.73
    1115.       33.      1082.        0.       12.      112.       0.      102.       40.     884.63
      .87      2.62      9.65       .00      .100      .050      .100      .000    871.03    170.61
   .013888      119.      119.      119.         2         0         0       .00     24.20    194.81
0
 $SECNO 9262.000
  2800 NAT Q1=     114.34  WSEL=    881.18  ENC Q1=     114.34  WSEL=    881.28  RATIO=   .0000
  NAT Q1=     118.  RATIOS LOB,CH,ROB=   .3520   .6480   .0000  WSEL=    881.28

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     163.3     217.0  TYPE=     4  TARGET=        .032
  9262.00      8.60    881.30       .00    881.18    882.04      .74      1.33       .20    874.50
    1115.      370.      745.        0.      114.       92.       0.      103.       40.     885.50
      .87      3.25      8.13       .00      .100      .050      .100      .000    872.70    163.27
   .009380      118.      118.      118.         3         0         0       .00     50.70    213.97
0
 $SECNO 9494.000
  2800 NAT Q1=     166.61  WSEL=    883.04  ENC Q1=     166.61  WSEL=    883.14  RATIO=   .0000
  NAT Q1=     177.  RATIOS LOB,CH,ROB=   .4758   .5242   .0000  WSEL=    883.14

 3470 ENCROACHMENT STATIONS=     182.3     245.2  TYPE=     4  TARGET=        .060
  9494.00      8.88    883.16       .00    883.04    883.50      .34      1.34       .12    876.18
    1115.      494.      621.        0.      188.      107.       0.      104.       40.     884.38
      .88      2.62      5.82       .00      .100      .050      .100      .000    874.28    182.26
   .004425      188.      232.      219.         2         0         0       .00     61.90    244.15
0
1
  08/27/91    15:30:39                                                                  PAGE   82


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 9725.000

 3470 ENCROACHMENT STATIONS=     210.0     280.0  TYPE=     1  TARGET=      70.000
  9725.00      8.26    884.11       .00    884.01    884.49      .38       .97       .02    878.15
    1115.      459.      655.        1.      173.      108.       2.      105.       41.     883.45
      .90      2.65      6.08       .48      .100      .050      .100      .000    875.85    210.00
   .004686      187.      231.      218.         3         0         0       .00     68.23    278.23
0
 $SECNO 9956.000
  2800 NAT Q1=     189.85  WSEL=    885.03  ENC Q1=     189.85  WSEL=    885.13  RATIO=   .0000
  NAT Q1=     736.  RATIOS LOB,CH,ROB=   .8534   .1404   .0062  WSEL=    885.13
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3470 ENCROACHMENT STATIONS=     236.0     301.7  TYPE=     4  TARGET=        .742
  9956.00    62.81   885.14      .00   885.03   885.41      .27      .88      .03   880.13
     1115.     532.     583.       0.     216.     111.       0.     107.      41.    882.53
      .91     2.46     5.26      .00     .100     .050     .100     .000   822.33   236.03
  .005738     188.     231.     219.        2        0        0      .00    65.67   301.70
0
 #SECNO 10187.000
  2800 NAT Q1=    328.26  WSEL=    885.71  ENC Q1=    328.26  WSEL=    885.81  RATIO=   .0000
  NAT Q1=    344.  RATIOS LOB,CH,ROB=   .6880   .2624   .0496  WSEL=    885.81

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     107.6     342.8  TYPE=     4  TARGET=        .045
  10187.00     6.81   885.81      .00   885.71   885.86      .05      .39      .06   882.40
     1115.     776.     307.      32.     661.     101.      36.     109.      42.    882.00
      .95     1.17     3.02      .91     .100     .050     .100     .000   879.00   107.61
  .001155     187.     231.     219.        2        0        0      .00   219.49   342.81
0
 #SECNO 10812.000
  2800 NAT Q1=    144.18  WSEL=    886.91  ENC Q1=    144.18  WSEL=    887.01  RATIO=   .0000
  NAT Q1=    154.  RATIOS LOB,CH,ROB=   .6318   .3500   .0182  WSEL=    887.01

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     119.8     330.0  TYPE=     4  TARGET=        .064
         D.S. OF CONFLUENCE WITH TRIB. "B"
1
  08/27/91    15:30:39                                                          PAGE   83


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


  10812.00     5.33   887.03      .00   886.91   887.22      .19     1.29      .07   885.10
     1115.     719.     396.       0.     364.      75.       0.     117.      44.    884.70
     1.00     1.97     5.29      .00     .100     .050     .100     .000   881.70   119.82
  .006171     550.     625.     575.        2        0        0      .00   185.50   330.00
0
 CCHV=    .500 CEHV=   1.000
 #SECNO 11438.000

 3470 ENCROACHMENT STATIONS=     165.0     405.0  TYPE=     1  TARGET=     240.000
         NOVI ROAD BRIDGE
  11438.00     6.62   891.02      .00   890.96   891.32      .29     3.99      .10   887.40
      915.     324.     304.     287.      92.      47.     175.     122.      47.    887.40
     1.04     3.53     6.40     1.64     .100     .050     .100     .000   884.40   165.00
  .007908     551.     626.     576.        2        0        0      .00   224.27   389.27
0

 SPECIAL BRIDGE

 5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XFOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      3.07      2.90       .00      8.60       .00     40.00       .00    884.40    884.40

 #SECNO 11518.000
 PRESSURE AND WEIR FLOW


 EGPRS      EGLWC      HZ       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                      AREA
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   915.97    893.51      .00      665.      251.       40.       25.      887.30    894.30



 3470 ENCROACHMENT STATIONS=     175.0     375.0  TYPE=     1  TARGET=     200.000
  11518.00     8.45   892.85      .00   892.85   892.90      .05     1.58      .00   887.40
     915.      203.     192.      519.     120.      63.      486.     123.      47.    887.40
     1.05     1.69     3.04     1.07      .100     .050     .100     .000   884.40   175.00
   .001219     80.      80.      80.        2        0        9       .00   200.00   375.00
0
 CCHV=    .300 CEHV=    .500
 #SECNO 11694.000
  2800 NAT Q1=    132.11  WSEL=    893.15  ENC Q1=    132.11  WSEL=    893.25  RATIO=   .0000
  NAT Q1=    140.  RATIOS LOB,CH,ROB=   .0340   .5128   .4532  WSEL=    893.25
1
  08/27/91    15:30:39                                                                PAGE   84


    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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=      70.5     142.6  TYPE=     4  TARGET=        .053
  11694.00     6.75   893.15      .00   893.15   893.47      .32      .44      .14   891.80
     915.        6.      499.     410.        6.      86.      173.     125.      48.    888.30
     1.06     1.07     5.78     2.37      .100     .050     .100     .000   886.40    70.47
   .005191     138.     176.     226.        2        0        0       .00    72.10   142.57
0
 #SECNO 11869.000
  2800 NAT Q1=     87.06  WSEL=    894.39  ENC Q1=     87.06  WSEL=    894.49  RATIO=   .0000
  NAT Q1=     92.  RATIOS LOB,CH,ROB=   .0060   .5740   .4200  WSEL=    894.49

 3470 ENCROACHMENT STATIONS=      75.0     130.0  TYPE=     4  TARGET=        .054
  11869.00     5.97   894.47      .00   894.39   895.06      .60     1.46      .14   893.90
     915.        0.      551.     364.        0.      73.      114.     126.      48.    890.40
     1.07      .00     7.54     3.20      .100     .050     .100     .000   888.50    75.00
   .011483     138.     175.     225.        2        0        0       .00    54.96   129.96
0
 #SECNO 12094.000
  2800 NAT Q1=     92.10  WSEL=    896.87  ENC Q1=     92.10  WSEL=    896.97  RATIO=   .0000
  NAT Q1=     96.  RATIOS LOB,CH,ROB=   .2151   .6089   .1760  WSEL=    896.97

 3470 ENCROACHMENT STATIONS=      18.6      78.2  TYPE=     4  TARGET=        .042
         DOWNSTREAM ISLAND CONFLUENCE
  12094.00     6.78   896.98      .00   896.87   897.86      .88     2.66      .14   893.10
     915.      186.     582.     147.      76.      63.      48.     127.      49.    890.80
     1.08     2.43     9.22     3.06      .100     .050     .100     .000   890.20    18.64
   .009828     200.     225.     325.        2        0        0       .00    59.55    78.19
0
 #SECNO 12120.000
  2800 NAT Q1=    227.99  WSEL=    897.87  ENC Q1=    227.99  WSEL=    897.97  RATIO=   .0000
  NAT Q1=    924.  RATIOS LOB,CH,ROB=   .7407   .2164   .0429  WSEL=    897.97
 3280 CROSS SECTION  12120.00 EXTENDED      4.02 FEET


 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     503.1     585.5  TYPE=     4  TARGET=        .753
         C&O RR BRIDGE 600 FT. NW OF NOVI ROAD AND RR CROSSING
  12120.00     7.52   898.02      .00   897.87   898.17      .15      .08      .22   896.30
     820.      106.     714.        0.      94.     220.        0.     128.      49.    896.50
     1.08     1.12     7.25      .00      .670     .050     .070     .000   890.50   503.04
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  .001309      2.      26.     101.       3       0       0      .00    82.44   585.50
0
1
 08/27/91    15:30:39                                                                                    PAGE   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



 SPECIAL BRIDGE

 5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .00      1.77      3.00       .00     31.00       .00     70.40       .00    890.50    890.50

 *SECNO 12130.000
 6870 D.S. ENERGY OF  898.17 HIGHER THAN COMPUTED ENERGY OF  898.05
  2800 NAT Q1=    227.13  WSEL=    897.87  ENC Q1=    227.13  WSEL=    897.97  RATIO=   .0000
  NAT Q1=    924.  RATIOS LOB,CH,ROB=   .7407   .2165   .0428  WSEL=    897.97
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
 3280 CROSS SECTION  12130.00 EXTENDED      3.87 FEET


 3470 ENCROACHMENT STATIONS=     504.3     585.5  TYPE=     4  TARGET=        .754
  12130.00     7.37   897.87      .00   897.87   898.03      .16      .01      .01   896.30
      820.      94.     726.       0.      84.     215.       0.     128.      49.    896.50
      1.09     1.11     3.37      .00     .070     .050     .070     .000   890.50   504.34
   .001445      10.      10.      10.        0        0        6      .00    81.16   585.50
0
 *SECNO 12381.000
  2800 NAT Q1=     97.05  WSEL=    898.34  ENC Q1=    100.83  WSEL=    898.44  RATIO=  -.0389
  NAT Q1=    101.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    898.44

 3470 ENCROACHMENT STATIONS=     100.0     170.0  TYPE=     4  TARGET=        .000
  12381.00     5.44   898.38      .00   898.34   898.87      .49      .67      .17   905.74
      820.       0.     820.       0.       0.     145.       0.     129.      49.    905.74
      1.10      .00     5.64      .00     .070     .050     .070     .000   892.94   112.95
   .006893     201.     251.     301.        2        0        0      .00    39.83   152.78
0
 *SECNO 12581.000
  2800 NAT Q1=     83.51  WSEL=    899.92  ENC Q1=     87.14  WSEL=    900.02  RATIO=  -.0434
  NAT Q1=     87.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    900.02

 3470 ENCROACHMENT STATIONS=     100.0     170.0  TYPE=     4  TARGET=        .000
  12581.00     5.03   899.93      .00   899.92   900.55      .63     1.62      .07   907.70
      820.       0.     820.       0.       0.     129.       0.     130.      49.    907.70
      1.11      .00     6.35      .00     .070     .050     .070     .000   894.90   113.68
   .009593     200.     200.     200.        2        0        0      .00    38.13   151.81
0
1
 08/27/91    15:30:39                                                                                    PAGE   86


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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 12632.000
  2800 NAT Q1=    167.93  WSEL=    900.63  ENC Q1=    167.93  WSEL=    900.73  RATIO=   .0000
  NAT Q1=    177.  RATIOS LOB,CH,ROB=   .7741   .3426   .3833  WSEL=    900.73
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3470 ENCROACHMENT STATIONS=     198.6     236.6  TYPE=     4  TARGET=       .027
        FLINT STREET BRIDGE
 12632.00     7.41   900.61      .00   900.63   900.88      .27      .22      .11   893.33
    820.      223.     289.     308.      72.      51.      96.     130.      49.    893.38
    1.11     3.09     5.63     3.20     .070     .050     .070     .000   893.20   198.56
  .002521      51.      51.      51.        2        0        0      .00    38.02   236.58
0

SPECIAL BRIDGE

SB  XK        XKOR      COFB      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .00      1.72      2.70       .00      5.60       .00      39.00       .00    893.90    893.20

*SECND 12704.000
3280 CROSS SECTION  12704.00 EXTENDED       .40 FEET

PRESSURE AND WEIR FLOW


 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                              AREA
    912.42    908.55       .00      176.      650.       39.       39.      900.90    907.20



3470 ENCROACHMENT STATIONS=     150.0     300.0  TYPE=     1  TARGET=     150.000
 12704.00    14.10   908.00      .00   908.00   908.03      .03     7.14      .00   894.03
    820.      246.     204.     370.     256.      98.     376.     131.      49.    894.08
    1.13      .96     2.07      .98     .070     .050     .070     .000   893.90   150.00
  .000144      72.      72.      72.        2        0        5      .00   150.00   300.00
0
*SECND 12712.000
 2800 NAT Q1=    813.81  WSEL=    908.01  ENC Q1=    813.81  WSEL=    908.11  RATIO=   .0000
 NAT Q1=    837.  RATIOS LOB,CH,ROB=   .0062   .9581   .0357  WSEL=    908.11
3280 CROSS SECTION  12712.00 EXTENDED       .37 FEET


3470 ENCROACHMENT STATIONS=     100.0     200.5  TYPE=     4  TARGET=       .028
 12712.00    14.07   908.00      .00   908.01   908.03      .02      .00      .00   906.73
    820.        0.     809.      11.       0.     638.      42.     131.      49.    906.73
    1.13      .00     1.27      .27     .070     .050     .070     .000   893.93   100.00
  .000108        8.       8.       8.        0        0        0      .00   100.51   200.51
0
1
 08/27/91    15:30:39                                                                PAGE   87


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


*SECND 12905.000
 2800 NAT Q1=    428.02  WSEL=    908.02  ENC Q1=    428.02  WSEL=    908.12  RATIO=   .0000
 NAT Q1=    437.  RATIOS LOB,CH,ROB=   .0000   .8451   .1549  WSEL=    908.12
3280 CROSS SECTION  12905.00 EXTENDED       .94 FEET


3470 ENCROACHMENT STATIONS=     100.0     173.6  TYPE=     4  TARGET=       .020
 12905.00    13.24   908.02      .00   908.02   908.08      .06      .04      .02   911.48
    820.        0.     710.     110.       0.     332.     102.     133.      50.    900.78
    1.16      .00     2.14     1.08     .070     .050     .070     .000   894.78   107.91
  .000383      193.     193.     193.        2        0        0      .00    65.70   173.61
0
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 #SECNO 12955.000
  2800 NAT Q1=    403.56  WSEL=    908.03  ENC Q1=    403.56  WSEL=    908.13  RATIO=   .0000
  NAT Q1=    412.  RATIOS LOB,CH,ROB=   .1564   .6322   .2114  WSEL=    908.13
 3280 CROSS SECTION  12955.00 EXTENDED       .73 FEET


 3470 ENCROACHMENT STATIONS=     115.1     181.4  TYPE=     4  TARGET=        .020
  12955.00    13.02   908.02      .00   908.03   908.12      .09      .02      .01   898.27
     820.     126.     529.     165.      99.     182.     140.     134.      50.    898.51
     1.16     1.27     2.91     1.18     .070     .050     .070     .000   895.00   115.09
   .000424      50.      50.      50.        1        0        0      .00    66.32   181.41
0
 #SECNO 12956.000
  2800 NAT Q1=     51.32  WSEL=    907.86  ENC Q1=     51.32  WSEL=    907.96  RATIO=   .0000
  NAT Q1=     55.  RATIOS LOB,CH,ROB=   .0673   .5699   .3627  WSEL=    907.96

 3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  905.50 MAX ELLC=  900.80


 3470 ENCROACHMENT STATIONS=      89.5     138.3  TYPE=     4  TARGET=        .062
         FOOT BRIDGE NE OFF FLINT STREET
  12956.00    12.79   907.79      .00   907.86   908.36      .57      .00      .24   905.50
     820.      28.     518.     274.       6.      80.      52.     134.      50.    905.50
     1.16     4.40     6.50     5.23     .070     .050     .070     .000   895.00    89.51
   .030813       1.       1.       1.        2        0        0   -90.28    48.80   138.31
0
 #SECNO 12981.000
1
  08/27/91    15:30:39                                                                PAGE   88


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


  2800 NAT Q1=     80.78  WSEL=    908.53  ENC Q1=     80.78  WSEL=    908.63  RATIO=   .0000
  NAT Q1=     90.  RATIOS LOB,CH,ROB=   .0775   .4211   .5014  WSEL=    908.63

 3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  905.50 MAX ELLC=  901.20


 3470 ENCROACHMENT STATIONS=      90.3     168.7  TYPE=     4  TARGET=        .101
  12981.00    13.25   908.65      .00   908.53   908.87      .22      .41      .10   905.50
     820.      19.     385.     417.       7.      93.     123.     134.      50.    905.50
     1.16     2.64     4.14     3.39     .070     .050     .070     .000   895.40    90.29
   .010171      25.      25.      25.        2        0        0   -84.15    78.39   168.68
0
 #SECNO 12982.000
  2800 NAT Q1=    426.60  WSEL=    908.69  ENC Q1=    426.60  WSEL=    908.79  RATIO=   .0000
  NAT Q1=    436.  RATIOS LOB,CH,ROB=   .1585   .6193   .2222  WSEL=    908.79
 3280 CROSS SECTION  12982.00 EXTENDED      1.13 FEET


 3470 ENCROACHMENT STATIONS=     114.8     185.1  TYPE=     4  TARGET=        .021
  12982.00    13.43   908.83      .00   908.69   908.91      .08      .00      .04   898.67
     820.     128.     515.     177.     106.     188.     159.     134.      50.    898.91
     1.16     1.20     2.74     1.11     .070     .050     .070     .000   895.40   114.78
   .000359       1.       1.       1.        2        0        0      .00    70.34   185.12
0
 #SECNO 12997.000
  2800 NAT Q1=    427.95  WSEL=    908.72  ENC Q1=    427.95  WSEL=    908.82  RATIO=   .0000
  NAT Q1=    438.  RATIOS LOB,CH,ROB=   .0000   .8454   .1546  WSEL=    908.82
 3280 CROSS SECTION  12997.00 EXTENDED      1.08 FEET
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 3470 ENCROACHMENT STATIONS=     100.0     176.8  TYPE=     4  TARGET=        .022
  12997.00    13.38   908.86      .00   908.72   908.93      .06      .01      .01   912.18
     820.       0.      705.     115.       0.     338.     111.     134.      50.    901.48
     1.17      .00     2.08     1.04     .070     .050     .070     .000   895.48   107.58
   .000357     15.      15.      15.        2        0        0      .00    69.24   176.82
0
 #SECND 13097.000
  2800 NAT Q1=    382.51  WSEL=    908.76  ENC Q1=    382.51  WSEL=    908.86  RATIO=   .0000
  NAT Q1=    391.  RATIOS LOB,CH,ROB=   .0000   .8660   .1340  WSEL=    908.86
1
  08/27/91    15:30:39                                                                PAGE   89


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


 3280 CROSS SECTION  13097.00 EXTENDED       .59 FEET


 3470 ENCROACHMENT STATIONS=     100.0     168.6  TYPE=     4  TARGET=        .022
  13097.00    12.89   908.90      .00   908.76   908.97      .07      .04      .01   912.71
     820.       0.      724.      96.       0.     318.      85.     135.      50.    902.01
     1.18      .00     2.28     1.13     .070     .050     .070     .000   896.01   108.70
   .000448     100.     100.     100.        0        0        0      .00    59.92   168.62
0
 #SECND 13157.000

 3470 ENCROACHMENT STATIONS=     325.0     535.0  TYPE=     1  TARGET=     210.000
  13157.00    12.68   908.99      .00   908.85   909.00      .01      .01      .02   899.71
     820.      389.      382.      49.      645.     410.     195.     136.      50.    906.31
     1.20      .60       .93      .25      .070     .050     .070     .000   896.31   325.00
   .000052     60.       60.      60.         2        0        0      .00   210.00   535.00
0
 #SECND 13282.000
  2800 NAT Q1=    782.79  WSEL=    908.85  ENC Q1=    782.79  WSEL=    908.95  RATIO=   .0000
  NAT Q1=   2500.  RATIOS LOB,CH,ROB=   .4623   .1849   .3528  WSEL=    908.95

 3470 ENCROACHMENT STATIONS=     353.0     503.3  TYPE=     4  TARGET=        .687
  13282.00    11.99   908.99      .00   908.85   909.01      .02      .01      .00   900.40
     820.      310.      484.      25.      384.     381.      89.     139.      51.    907.00
     1.23      .81      1.27      .28      .070     .050     .070     .000   897.00   353.01
   .000108     125.     125.     125.        0        0        0      .00   150.29   503.30
0
 #SECND 13412.000
  2800 NAT Q1=   1384.00  WSEL=    908.88  ENC Q1=   1384.00  WSEL=    908.98  RATIO=   .0000
  NAT Q1=   1900.  RATIOS LOB,CH,ROB=   .7672   .1829   .0499  WSEL=    908.98
 3280 CROSS SECTION  13412.00 EXTENDED      1.60 FEET


 3470 ENCROACHMENT STATIONS=     239.0     540.0  TYPE=     4  TARGET=        .272
  13412.00    11.61   909.02      .00   908.88   909.02      .00      .01      .00   906.11
     820.      619.      201.       0.     1487.     319.       0.     143.      51.    907.11
     1.31      .42       .63      .00      .070     .050     .070     .000   897.41   239.00
   .000035     130.     130.     130.        1        0        0      .00   301.00   540.00
0
1
  08/27/91    15:30:39                                                                PAGE   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
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   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


#SECNO 13582.000
 2800 NAT Q1=    770.93  WSEL=    908.88  ENC Q1=    770.93  WSEL=    908.98  RATIO=   .0000
 NAT Q1=   1579.  RATIOS LOB,CH,ROB=   .7711   .1964   .0324  WSEL=    908.98
3280 CROSS SECTION  13582.00 EXTENDED      1.09 FEET


3470 ENCROACHMENT STATIONS=     311.7     540.0  TYPE=     4  TARGET=        .512
 13582.00    11.09   909.03      .00   908.88   909.04      .01      .01      .00   906.64
    820.     496.     324.       0.     625.     299.       0.     149.      52.    907.64
    1.37      .60     1.08      .00     .070     .050     .070     .000   897.94   311.69
  .000112     170.     170.     170.       0        0        0      .00   228.31   540.00
0
 #SECNO 13632.000
 2800 NAT Q1=    587.86  WSEL=    908.88  ENC Q1=    587.86  WSEL=    908.98  RATIO=   .0000
 NAT Q1=    617.  RATIOS LOB,CH,ROB=   .6576   .2296   .1128  WSEL=    908.98
3280 CROSS SECTION  13632.00 EXTENDED      3.83 FEET


3470 ENCROACHMENT STATIONS=       4.9     332.0  TYPE=     4  TARGET=        .047
        FLINT STREET BRIDGE SOUTH OF GRAND RIVER AVENUE
 13632.00    10.92   909.02      .00   908.88   909.06      .04      .01      .01   908.40
    820.     547.     194.      79.     633.      71.     152.     150.      53.    908.40
    1.38      .86     2.72      .52     .050     .015     .050     .000   898.10     4.86
  .000185      50.      50.      50.        1        0        0      .00   327.12   331.98
0

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK        XKOR      COFB      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     .00      1.80      2.70       .00      5.60       .00     39.00       .00    898.10    898.10

#SECNO 13732.000
 PRESS FLOW BECAUSE EGLWC OF    909.06  EXCEEDS 1.5 DEPTH
 2800 NAT Q1=    511.91  WSEL=    908.92  ENC Q1=    511.91  WSEL=    909.02  RATIO=   .0000
 NAT Q1=    625.  RATIOS LOB,CH,ROB=   .6643   .2182   .1175  WSEL=    909.02
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION  13732.00 EXTENDED      3.72 FEET


3470 ENCROACHMENT STATIONS=      19.4     281.0  TYPE=     4  TARGET=        .181
 13732.00    10.42   908.92      .00   908.92   908.98      .06      .02      .01   908.40
    820.     570.     226.      24.     552.      68.      50.     152.      53.    908.40
    1.40     1.03     3.34      .48     .050     .015     .050     .000   898.50    19.42
  .000285     100.     100.     100.        0        0        7      .00   261.59   281.01
0
1
  08/27/91    15:30:39                                                                PAGE   91


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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 13833.000
 2800 NAT Q1=   1249.02  WSEL=    908.90  ENC Q1=   1249.02  WSEL=    909.00  RATIO=   .0000
 NAT Q1=   2219.  RATIOS LOB,CH,ROB=   .6119   .2617   .1264  WSEL=    909.00
3280 CROSS SECTION  13833.00 EXTENDED      2.76 FEET
```

GRAND RIVER AVENUE BRIDGE

13833.00	10.76	908.96	.00	908.90	909.00	.04	.01	.01	899.80
820.	519.	301.	0.	795.	124.	0.	153.	54.	898.50
1.41	.65	2.42	.00	.050	.015	.050	.000	898.20	567.20
.000062	51.	101.	151.	2	0	0	.00	183.80	751.00

0

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	CDFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.82	2.80	.00	11.00	1.00	39.30	.00	898.20	898.20

*SECND 13899.000
6870 D.S. ENERGY OF 909.00 HIGHER THAN COMPUTED ENERGY OF 908.98
2800 NAT Q1= 1231.64 WSEL= 908.90 ENC Q1= 1231.64 WSEL= 909.00 RATIO= .0000
NAT Q1= 2216. RATIOS LOB,CH,ROB= .6119 .2618 .1263 WSEL= 909.00
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION 13899.00 EXTENDED 2.70 FEET

3470 ENCROACHMENT STATIONS= 572.2 751.0 TYPE= 4 TARGET= .444

13899.00	10.70	908.90	.00	908.90	908.94	.04	.00	.00	899.80
820.	512.	308.	0.	764.	123.	0.	154.	54.	898.50
1.43	.67	2.50	.00	.050	.015	.050	.000	898.20	572.16
.000066	66.	66.	66.	0	0	6	.00	178.84	751.00

0
*SECND 13916.000

3470 ENCROACHMENT STATIONS= 492.5 667.5 TYPE= 1 TARGET= 175.000
FOOTBRIDGE 15 FT. NORTH OF GRAND RIVER AVENUE

13916.00	9.83	908.93	.00	908.97	908.95	.02	.00	.01100000.00	
820.	0.	739.	81.	0.	601.	138.	154.	54.	905.10
1.43	.00	1.23	.59	.070	.050	.070	.000	899.10	492.50
.000221	17.	17.	17.	2	0	0	.00	175.00	667.50

0
1

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

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	CDFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.57	2.80	.00	31.00	.00	108.60	.00	899.10	899.10

*SECND 13918.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
910.32	908.95	.00	686.	133.	109.	155.	904.10	904.40

3470 ENCROACHMENT STATIONS= 492.5 667.5 TYPE= 1 TARGET= 175.000

13918.00	9.83	908.93	.00	908.97	908.96	.03	.02	.00	904.10
[illegible]									

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      1.43      .82     1.77      .64      .070      .050      .070      .000   899.10   492.50
   .000256       2.       2.       2.         2         0         6       .00   175.00   667.50
0
 CCHV=    .300 CEHV=    .500
 #SECNO 14119.000
  2800 NAT Q1=    470.26  WSEL=    909.04  ENC Q1=    470.26  WSEL=    909.14  RATIO=   .0000
  NAT Q1=    490.  RATIOS LOB,CH,ROB=   .5969   .2904   .1127  WSEL=    909.14

 3470 ENCROACHMENT STATIONS=     103.8     343.5  TYPE=     4  TARGET=        .039
  14119.00    10.20   909.00      .00   909.04   909.02      .03      .06      .00   903.70
      820.      486.      255.      79.      750.      121.      98.      158.      55.    900.60
      1.48      .65      2.10      .81      .100      .050      .100      .000   898.80   103.76
   .000338      201.      201.      201.         1         0         0       .00   239.70   343.46
0
 #SECNO 14919.000
  2800 NAT Q1=    169.18  WSEL=    909.49  ENC Q1=    169.18  WSEL=    909.59  RATIO=   .0000
  NAT Q1=    179.  RATIOS LOB,CH,ROB=   .0142   .4869   .4989  WSEL=    909.59

 3470 ENCROACHMENT STATIONS=     800.0     999.8  TYPE=     4  TARGET=        .056
  14919.00     5.90   909.50      .00   909.49   909.62      .12      .55      .05   909.10
      820.       0.      425.      395.       0.      119.      270.      170.      59.    909.10
      1.56      .00      3.57      1.46      .100      .050      .100      .000   903.60   800.00
   .002594      850.      800.      600.         2         0         0       .00   199.76   999.76
0
1
  08/27/91    15:30:39                                                                    PAGE   93


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


 #SECNO 15969.000
  2800 NAT Q1=    185.57  WSEL=    911.68  ENC Q1=    190.80  WSEL=    911.78  RATIO=  -.0282
  NAT Q1=    191.  RATIOS LOB,CH,ROB=   .0001   .9999   .0000  WSEL=    911.78

 3470 ENCROACHMENT STATIONS=     200.0     240.0  TYPE=     4  TARGET=        .000
  15969.00     7.59   911.76      .00   911.68   911.98      .22     2.30      .05   911.57
      820.       0.      820.       0.       0.      218.       0.      178.      62.    913.07
      1.64      .00      3.76      .00      .100      .050      .100      .000   904.17   200.00
   .001878     1050.    1050.     1050.         2         0         0       .00    38.22   238.22
0
 #SECNO 16020.000

 3470 ENCROACHMENT STATIONS=     175.0     350.0  TYPE=     1  TARGET=     175.000
         CULVERTS UNDER PARAGON STEEL
  16020.00     7.84   912.04      .00   911.97   912.11      .07      .09      .05   906.00
      820.      277.      266.      277.      174.      89.      209.      178.      62.    905.40
      1.65      1.59      2.98      1.33      .100      .050      .100      .000   904.20   175.00
   .001626       51.       51.       51.         2         0         0       .00   114.08   289.08
0

 SPECIAL BRIDGE

 5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      4.52      2.80    120.00     14.60      3.40     35.00       .00    904.20    904.20

 #SECNO 16490.000
 PRESSURE AND WEIR FLOW


  EGPRS      EGLWC      H3       QWEIR      QPR       AAREA   TRAPEZOID      ELLC      ELTRD
                                                      AREA
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   950.57    913.60       .00      677.      148.       35.       47.      908.40    911.30


3470 ENCROACHMENT STATIONS=     175.0     400.0  TYPE=     1  TARGET=     225.000
 16490.00     8.86   913.26      .00   913.26   913.30      .04     1.19      .00   906.20
    820.      267.     258.     294.     213.     108.     285.     184.     63.    905.60
    1.73     1.26     2.39     1.03     .100     .050     .100     .000   904.40   175.00
  .000805     470.     470.     470.        2        0        9      .00   128.70   303.70
0
1
 08/27/91    15:30:39                                                                PAGE   94


   SECNO     DEPTH    CWSEL    CRIWS    WSELK     EG       HV       HL       OLOSS   BANK ELEV
   Q         GLOB     GCH      QROB     ALOB      ACH      AROB     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 16816.000

3470 ENCROACHMENT STATIONS=     270.0     330.0  TYPE=     1  TARGET=      60.000
        RAILROAD SPUR FOR PARAGON STEEL
 16816.00    10.19   913.19      .00   913.19   913.59      .39      .11      .18   907.73
    820.      39.     723.      57.      90.     135.     106.     187.      64.    903.69
    1.75      .44     5.36      .54     .100     .015     .100     .000   903.00   270.00
  .000175     326.     326.     326.        2        0        0      .00    60.00   330.00
0

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XX        XKOR      COFD      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .00      1.85      2.80     60.00     12.60      1.40     35.00       .00    903.00    903.00

#SECNO 16871.000
6870 D.S. ENERGY OF  913.59 HIGHER THAN COMPUTED ENERGY OF  913.25
PRESSURE AND WEIR FLOW


 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA    TRAPEZOID      ELLC      ELTRD
                                                              AREA
    928.96    913.86       .00      772.       51.       35.       63.      908.60    911.80



3470 ENCROACHMENT STATIONS=     270.0     330.0  TYPE=     1  TARGET=      60.000
 16871.00    10.19   913.19      .00   913.19   913.59      .39      .00      .00   907.73
    820.      39.     724.      57.      90.     135.     106.     188.      64.    903.69
    1.76      .44     5.36      .54     .100     .015     .100     .000   903.00   270.00
  .000175      55.      55.      55.        2        0        8      .00    60.00   330.00
0
 #SECNO 16934.000
  2800 NAT Q1=    160.27  WSEL=    913.07  ENC Q1=    165.05  WSEL=    913.17  RATIO= -.0298
  NAT Q1=    167.  RATIOS LOB.CH.ROB=   .0044   .9861   .0095  WSEL=    913.17

 3470 ENCROACHMENT STATIONS=     730.0     770.0  TYPE=     4  TARGET=       .014
         C&O RR BRIDGE WEST OF PARAGON STEEL
 16934.00     6.16   913.06      .00   913.07   913.79      .73      .03      .17   912.60
    950.        0.     950.        0.       0.     138.        0.     188.      64.    914.20
    1.76      .00     6.87      .00     .050     .030     .050     .000   906.90   730.00
  .003670      63.      63.      63.        2        0        0      .00    37.41   767.41
0
1
 08/27/91    15:30:39                                                                PAGE   95
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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

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	YK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.90	3.00	.00	29.00	.00	99.20	.00	906.90	906.90

$SECNO 16960.000
PRESS FLOW BECAUSE EGLWC OF 915.04 EXCEEDS 1.5 DEPTH
2800 NAT Q1= 260.56 WSEL= 914.20 ENC Q1= 260.56 WSEL= 914.30 RATIO= .0900
NAT Q1= 272. RATIOS LOB,CH,ROB= .0509 .9138 .0353 WSEL= 914.30
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 715.2 786.6 TYPE= 4 TARGET= .042

16960.00	7.30	914.20	.00	914.20	914.58	.37	.06	.11	912.60
950.	28.	910.	12.	21.	183.	10.	188.	64.	914.20
1.76	1.34	4.98	1.16	.050	.030	.050	.000	906.90	715.25
.001441	26.	26.	26.	0	0	3	.00	71.31	786.56

0
$SECNO 17137.000
2800 NAT Q1= 192.43 WSEL= 914.79 ENC Q1= 192.43 WSEL= 914.89 RATIO= .0000
NAT Q1= 203. RATIOS LOB,CH,ROB= .6097 .1241 .2662 WSEL= 914.89

3470 ENCROACHMENT STATIONS= 118.9 228.4 TYPE= 4 TARGET= .054
CULVERTS 200 FT. WEST OF C&O RR BRIDGE,WEST OF PARAGON STEEL

17137.00	6.65	914.85	.00	914.79	914.94	.10	.29	.08	908.95
950.	584.	125.	241.	316.	25.	121.	189.	64.	908.31
1.78	1.84	4.93	2.00	.100	.050	.100	.000	908.20	118.93
.002515	127.	177.	127.	2	0	0	.00	109.44	228.37

0

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	2.34	2.70	.00	4.20	.20	6.30	.00	908.20	908.20

$SECNO 17157.000
2800 NAT Q1= 195.67 WSEL= 914.83 ENC Q1= 195.67 WSEL= 914.93 RATIO= .0000
NAT Q1= 207. RATIOS LOB,CH,ROB= .6109 .1232 .2659 WSEL= 914.93
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 118.0 228.5 TYPE= 4 TARGET= .055

17157.00	6.63	914.83	.00	914.83	914.93	.10	.05	.00	908.95
950.	584.	125.	241.	317.	25.	121.	190.	64.	908.31
1.78	1.84	4.94	2.00	.100	.050	.100	.000	908.20	117.99
.002539	20.	20.	20.	0	0	11	.00	110.49	228.48

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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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 *SECND 17795.000
  2800 NAT QI=    143.93  WSEL=    916.73  ENC QI=    143.93  WSEL=    916.83  RATIO=   .0000
  NAT QI=    152.  RATIOS LOB,CH,ROB=   .4743   .5226   .0031  WSEL=    916.83

 3470 ENCROACHMENT STATIONS=     121.8     200.0  TYPE=     4  TARGET=        .053
  17795.00     5.67   916.82      .00   916.73   917.04      .22     2.06      .06   911.85
     950.      431.      519.       0.     184.     112.       0.     195.      66.    915.85
     1.83     2.34     4.62      .00     .100     .050     .100     .000   911.15   121.76
   .004459     601.     638.     676.        2        0        0      .00    78.24   200.00
0
 *SECND 18433.000
  2800 NAT QI=    132.30  WSEL=    919.58  ENC QI=    132.30  WSEL=    919.68  RATIO=   .0000
  NAT QI=    138.  RATIOS LOB,CH,ROB=   .1757   .7027   .1216  WSEL=    919.68

 3470 ENCROACHMENT STATIONS=     252.1     310.3  TYPE=     4  TARGET=        .039
  18433.00     5.59   919.69      .00   919.58   920.15      .46     2.99      .12   915.60
     950.      155.      695.     101.      72.     112.      46.     199.      67.    915.20
     1.86     2.14     6.22     2.16     .100     .050     .100     .000   914.10   252.12
   .005090     600.     638.     675.        1        9        0      .00    58.19   310.30
0
 *SECND 19184.000

 3470 ENCROACHMENT STATIONS=      83.0     228.0  TYPE=     1  TARGET=     145.000
         CULVERTS SOUTH OF I-96 UNDER CANZAND CONSTRUCTUIN PROPERTY
  19184.00     8.12   921.42      .00   921.35   921.98      .56     1.77      .05   920.60
     790.       92.      698.       0.     121.     109.       0.     203.      68.  99999.30
     1.90      .76     6.40      .00     .070     .015     .070     .000   913.30    83.00
   .001233     751.     751.     751.        4        0        0      .00   145.00   228.00
0

 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       .00       1.91       3.00        .00       6.00        .00       28.40       .00     913.30     913.30

 *SECND 19372.000
 6870 D.S. ENERGY OF  921.98 HIGHER THAN COMPUTED ENERGY OF  921.68
 PRESSURE AND WEIR FLOW

1
  08/27/91    15:30:39                                                                                    PAGE   97


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
     944.36     922.34        .00       698.        85.        28.        31.      918.40     921.40



 3470 ENCROACHMENT STATIONS=     178.0     228.0  TYPE=     1  TARGET=      50.000
  19372.00     8.73   921.43      .00   921.39   921.98      .55      .00      .00   920.00
     790.       26.      764.       0.      32.     126.       0.     203.      69. 100000.00
     1.91      .80     6.06      .00     .070     .015     .000     .000   912.70   178.00
   .000924     100.     188.     300.        2        0        7      .00    50.00   228.00
0
 *SECND 19448.000
  2800 NAT QI=    101.13  WSEL=    921.13  ENC QI=    103.11  WSEL=    921.23  RATIO= -.0195
  NAT QI=    103.  RATIOS LOB,CH,ROB=   .0000   .1.00   .0000  WSEL=    921.23
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3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     603.0     613.0  TYPE=     4  TARGET=       .000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      925.40 ELREA=      925.40

 19448.00     9.11   921.21      .00   921.13   922.55     1.35      .18      .40   913.80
    790.       0.     790.       0.       0.      85.       0.     204.      69.    912.89
    1.91      .00     9.31      .00     .070     .050     .070     .000   912.10   603.00
  .013018      76.      76.      76.        2        0        0      .00    10.00   613.00
0
 $SECND 19449.000
 2800 NAT Q1=    106.54  WSEL=    921.09  ENC Q1=    108.18  WSEL=    921.19  RATIO=  -.0154
 NAT Q1=    108.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    921.19

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  926.40 MAX ELLC=  921.80


3470 ENCROACHMENT STATIONS=     295.0     305.0  TYPE=     4  TARGET=       .000
        I-96 BRIDGE
 19449.00     9.07   921.17      .00   921.09   922.60     1.43      .01      .04   928.90
    790.       0.     790.       0.       0.      82.       0.     204.      69.    928.90
    1.91      .00     9.61      .00     .030     .024     .030     .000   912.10   295.00
  .005372       1.       1.       1.        2        0        0      .00    10.00   305.00
0
1
 08/27/91    15:30:39                                                                PAGE   98


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


 $SECND 19605.000

 3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  926.40 MAX ELLC=  921.80

 19605.00    10.26   922.36      .00   922.33   923.60     1.24      .93      .06   928.90
    790.       0.     790.       0.       0.      88.       0.     204.      69.    928.90
    1.92      .00     8.93      .00     .030     .024     .030     .000   912.10   295.00
  .006716     156.     156.     156.        3        0        0    -5.65    10.00   305.00
0
 $SECND 19606.000
 2800 NAT Q1=    133.81  WSEL=    922.67  ENC Q1=    135.99  WSEL=    922.77  RATIO=  -.0163
 NAT Q1=    136.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    922.77

 3470 ENCROACHMENT STATIONS=     603.0     613.0  TYPE=     4  TARGET=       .000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      926.40 ELREA=      926.40

 19606.00    10.61   922.71      .00   922.67   923.68      .97      .01      .08   913.80
    790.       0.     790.       0.       0.     100.       0.     204.      69.    912.89
    1.92      .00     7.90      .00     .100     .050     .100     .000   912.10   603.00
  .008367       1.       1.       1.        2        0        0      .00    10.00   613.00
0
 $SECND 19756.000
 2800 NAT Q1=    540.96  WSEL=    924.00  ENC Q1=    540.96  WSEL=    924.10  RATIO=   .0000
 NAT Q1=    589.  RATIOS LOB,CH,ROB=   .5117   .3518   .1365  WSEL=    924.10

 3301 HV CHANGED MORE THAN HVINS
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3470 ENCROACHMENT STATIONS=     395.8     671.7  TYPE=     4  TARGET=        .081
 19756.00     9.39   924.05      .00   924.00   924.07      .02      .10      .29   917.36
    790.     403.     305.      82.     736.     183.     168.     206.      69.    919.86
    1.96      .55     1.67      .49     .100     .050     .100     .000   914.66   395.78
  .000222     150.     150.     150.        2        0        0      .00   275.94   671.72
0
 #SECND 20807.000
  2800 NAT Q1=    452.38  WSEL=    924.23  ENC Q1=    452.38  WSEL=    924.33  RATIO=   .0000
  NAT Q1=    529.  RATIOS LOB,CH,ROB=   .0808   .0617   .8575  WSEL=    924.33

 3470 ENCROACHMENT STATIONS=     305.4     420.8  TYPE=     4  TARGET=        .144
1
  08/27/91    15:30:39                                                                PAGE   99


         DRIVEWAY BRIDGE EAST TAFT ROAD
 20807.00     7.68   924.28      .00   924.23   924.33      .04      .25      .01   917.92
    790.      12.      57.     721.      14.      31.     431.     223.      73.    917.41
    2.12      .90     1.81     1.67     .070     .050     .040     .000   916.60   305.38
  .000313     926.    1051.     901.        2        0        0      .00   115.38   420.76
0

 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      1.60      2.70       .00      5.25       .00     10.80       .00    916.60    916.60

 #SECND 20819.000
  2800 NAT Q1=    458.79  WSEL=    924.26  ENC Q1=    458.79  WSEL=    924.36  RATIO=   .0000
  NAT Q1=    537.  RATIOS LOB,CH,ROB=   .0815   .0612   .8573  WSEL=    924.36
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=     305.3     421.0  TYPE=     4  TARGET=        .145
 20819.00     7.66   924.26      .00   924.26   924.31      .04      .00      .00   917.92
    790.      12.      57.     720.      14.      31.     429.     223.      73.    917.41
    2.12      .90     1.82     1.68     .070     .050     .040     .000   916.60   305.34
  .000317      12.      12.      12.        0        0        9      .00   115.63   420.97
0
 #SECND 20846.000
  2800 NAT Q1=    358.00  WSEL=    924.26  ENC Q1=    358.00  WSEL=    924.36  RATIO=   .0000
  NAT Q1=    489.  RATIOS LOB,CH,ROB=   .0649   .1048   .8303  WSEL=    924.36

 3470 ENCROACHMENT STATIONS=     331.0     415.5  TYPE=     4  TARGET=        .268
         GARAGE BRIDGE EAST OF TAFT ROAD
 20846.00     7.46   924.26      .00   924.26   924.33      .07      .01      .01   919.20
    790.       0.      86.     704.       0.      52.     315.     223.      74.    918.27
    2.12      .00     1.66     2.23     .070     .050     .040     .000   916.80   331.00
  .000544      27.      27.      27.        1        0        0      .00    84.51   415.51
0

 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.00      2.59      3.00       .00      8.00       .00     28.40       .00    916.80    916.80

 #SECND 20866.000
  2800 NAT Q1=    361.97  WSEL=    924.30  ENC Q1=    361.97  WSEL=    924.40  RATIO=   .0000
  NAT Q1=    498.  RATIOS LOB,CH,ROB=   .0657   .1040   .8304  WSEL=    924.40
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=     331.0     415.3  TYPE=     4  TARGET=        .272
 20866.00     7.50   924.30      .00   924.30   924.37      .07      .01      .00   919.20
    790.       0.      86.     704.       0.      52.     317.     223.      74.    918.27
    2.12      .00     1.65     2.22     .070     .050     .040     .000   916.80   331.00
```

.000532	20.	20.	20.	0	0	9	.00	84.30	415.30

0

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 21317.000

2800 NAT Q1= 665.76 WSEL= 924.45 ENC Q1= 665.76 WSEL= 924.55 RATIO= .0000

NAT Q1= 696. RATIOS LOB,CH,ROB= .2525 .0614 .6861 WSEL= 924.55

3470 ENCROACHMENT STATIONS= 171.7 389.4 TYPE= 4 TARGET= .044

21317.00	6.46	924.46	.00	924.45	924.48	.02	.09	.02	919.70
790.	190.	51.	549.	319.	47.	477.	228.	75.	919.50
2.22	.59	1.09	1.15	.070	.050	.040	.000	918.00	171.66
.000151	351.	451.	351.	2	0	0	.00	217.73	389.40

0

#SECNO 21817.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 790.0 819.0 TYPE= 1 TARGET= 29.000

21817.00	5.17	924.07	.00	924.04	925.33	1.25	.23	.62	920.40
790.	140.	556.	95.	37.	54.	21.	233.	76.	920.30
2.24	3.74	10.38	4.55	.100	.050	.070	.000	918.90	790.00
.016800	425.	500.	425.	3	0	0	.00	29.00	819.00

0

#SECNO 21867.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 933.10 ELREA= 933.10

21867.00	6.02	925.02	925.02	925.02	927.92	2.90	.96	.82	919.60
790.	0.	790.	0.	0.	58.	0.	233.	76.	920.40
2.24	.00	13.66	.00	.100	.050	.070	.000	919.00	801.00
.022392	50.	50.	50.	5	8	0	.00	10.00	811.00

0

#SECNO 21868.000

3301 HV CHANGED MORE THAN HVINS

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 16 MIN ELTRD= 931.20 MAX ELLC= 928.00

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

CRD CR BRIDGE / ^ ST OF 12 MILE ROAD

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 21868.00     7.63   926.63   924.79   926.63   928.29     1.67      .01      .37   934.00
    790.       0.     790.       0.       0.      76.       0.     233.      76.    934.00
     2.24      .00    10.36      .00      .030     .023     .030     .000   919.00   795.00
   .005888     1.       1.       1.       25       16        0      .00    10.00   805.00
0
 $SECND 21892.000

 3370 NORMAL BRIDGE.NRD= 16 MIN ELTRD=  931.20 MAX ELLC=  928.00

 21892.00     7.92   926.92      .00   926.92   928.47     1.54      .13      .04   934.00
    790.       0.     790.       0.       0.      79.       0.     233.      76.    934.00
     2.24      .00     9.97      .00      .030     .023     .030     .000   919.00   795.00
   .005350     24.      24.      24.       2        0        0      .00    10.00   805.00
0
 $SECND 21893.000
  2800 NAT Q1=     48.44  WSEL=    926.87  ENC Q1=     85.72  WSEL=    926.97  RATIO=  -.7697
  NAT Q1=   1179.  RATIOS LOB.CH.ROB=   .7678   .0727   .1595  WSEL=    926.97

 3470 ENCROACHMENT STATIONS=     801.0     811.0  TYPE=     4  TARGET=       .927
 21893.00     7.87   926.87      .00   926.87   928.53     1.66      .01      .06   919.60
    790.       0.     790.       0.       0.      76.       0.     233.      76.    920.40
     2.24      .00    10.34      .00      .100     .050     .100     .000   919.00   801.00
   .026575     1.       1.       1.       2        0        0      .00    10.00   811.00
0
 $SECND 22143.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     140.0     240.0  TYPE=     1  TARGET=     100.000
 22143.00     8.72   929.36      .00   929.32   929.43      .07      .42      .48   922.94
    790.      307.     422.      61.     304.     155.      75.     235.      76.    923.44
     2.27     1.01     2.72      .81      .100     .050     .100     .000   920.64   140.00
   .000574    205.     250.     196.       3        0        0      .00    100.00   240.00
0
1
  08/27/91    15:30:39                                                                PAGE  102


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


 $SECND 22568.000

 3470 ENCROACHMENT STATIONS=     195.0     220.0  TYPE=     1  TARGET=      25.000
 22568.00     7.91   929.65      .00   929.54   930.07      .42      .47      .18   924.04
    790.       46.     744.       0.      28.     139.       0.     238.      77. 100000.00
     2.30     1.67     5.34      .00      .100     .050     .100     .000   921.74   195.00
   .003444    345.     425.     329.       3        0        0      .00    25.00   220.00
0
 $SECND 22593.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=       .0     260.0  TYPE=     1  TARGET=     259.999

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      950.00 ELREA=      950.00

 22593.00     7.22   929.02      .00   928.88   930.99     1.97      .14      .78   922.66
    790.       0.     790.       0.       0.      70.       0.     238.      77.    922.60
     2.30      .00    11.27      .00      .100     .050     .100     .000   921.80   205.00
   .011110     25.      25.      25.       2        0        0      .00    10.00   215.00
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0
 $SECNO 22594.000

 3370 NORMAL BRIDGE.NRD= 19 MIN ELTRD=  930.00 MAX ELLC=  931.80


 3470 ENCROACHMENT STATIONS=     750.0    1050.0  TYPE=     1  TARGET=     300.000
         12 MILE ROAD
  22594.00     7.62   929.42      .00   929.33   931.09     1.67      .01      .09   934.90
      790.       0.     790.       0.       0.      76.       0.     238.      77.    934.90
      2.30      .00    10.37      .00     .030     .023     .030     .000   921.80   995.00
   .005907       1.       1.       1.        3        0        0      .00    10.00  1005.00
0
 $SECNO 22644.000

 3370 NORMAL BRIDGE.NRD= 19 MIN ELTRD=  930.00 MAX ELLC=  931.80


 3470 ENCROACHMENT STATIONS=     750.0    1050.0  TYPE=     1  TARGET=     300.000
1
  08/27/91    15:30:39                                                                                    PAGE  103


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


  22644.00     8.18   929.98      .00   929.92   931.42     1.45      .27      .07   934.90
      790.       0.     790.       0.       0.      82.       0.     238.      77.    934.90
      2.30      .00     9.66      .00     .030     .023     .030     .000   921.80   995.00
   .004941      50.      50.      50.        2        0        0      .00    10.00  1005.00
0
 $SECNO 22645.000

 3470 ENCROACHMENT STATIONS=        .0     260.0  TYPE=     1  TARGET=     259.999

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      950.00 ELREA=      950.00

  22645.00     8.13   929.93      .00   929.88   931.48     1.54      .00      .05   922.66
      790.       0.     790.       0.       0.      79.       0.     238.      77.    922.60
      2.30      .00     9.97      .00     .070     .040     .070     .000   921.80   205.00
   .004725       1.       1.       1.        2        0        0      .00    10.00   215.00
0
 $SECNO 22670.000
  2800 NAT Q1=    287.50  WSEL=    931.89  ENC Q1=    287.50  WSEL=    931.99  RATIO=   .0000
  NAT Q1=    296.  RATIOS LOB,CH.ROB=   .0286   .9559   .0155  WSEL=    931.99

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     143.2     187.5  TYPE=     4  TARGET=        .028
  22670.00    10.06   931.92      .00   931.89   931.95      .03      .02      .45   929.86
      340.       5.     335.       0.      14.     233.       1.     238.      77.    929.16
      2.30      .34     1.44      .15     .070     .040     .070     .000   921.86   143.20
   .000146      25.      25.      25.        2        0        0      .00    44.32   187.52
0
 $SECNO 22970.000
  2800 NAT Q1=    232.09  WSEL=    931.94  ENC Q1=    234.59  WSEL=    932.04  RATIO=  -.0108
  NAT Q1=    240.  RATIOS LOB,CH.ROB=   .0115   .9794   .0091  WSEL=    932.04

 3470 ENCROACHMENT STATIONS=     151.0     187.0  TYPE=     4  TARGET=        .021
  22970.00     9.37   931.97      .00   931.94   932.01      .04      .06      .00   930.60
      340.       0.     340.       0.       0.     208.       0.     240.      77.    929.90
      2.35      .36     1.43      .03     .070     .040     .070     .000   922.60   151.00
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  .000243    375.    300.    300.       0       0       0     .00   36.00  187.00
0
1
 08/27/91    15:30:39                                                                    PAGE  104


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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 23870.000
  2800 NAT Q1=    548.21  WSEL=    932.06  ENC Q1=    548.21  WSEL=    932.16  RATIO=   .0000
  NAT Q1=    570.  RATIOS LOB,CH,ROB=   .3742   .3265   .2993  WSEL=    932.16

 3470 ENCROACHMENT STATIONS=     189.2     386.8  TYPE=     4  TARGET=        .038
  23870.00     8.29   932.09      .00   932.06   932.09      .01      .07      .01   926.60
      340.     125.     116.      98.     332.     137.     310.     250.      80.   926.70
      2.83      .38      .85      .32     .070     .040     .070     .000   923.80   189.20
   .000040     850.     900.     950.       0        0        0      .00   197.62   386.82
0
 *SECNO 24870.000
  2800 NAT Q1=   1033.71  WSEL=    932.08  ENC Q1=   1033.71  WSEL=    932.18  RATIO=   .0000
  NAT Q1=   1091.  RATIOS LOB,CH,ROB=   .3052   .4978   .1970  WSEL=    932.18

 3470 ENCROACHMENT STATIONS=     173.3     728.1  TYPE=     4  TARGET=        .053
  24870.00     5.12   932.12      .00   932.08   932.12      .00      .02      .00   929.10
      340.     100.     179.      61.     684.     630.     407.     279.      88.   928.90
      4.12      .15      .28      .15     .070     .040     .070     .000   927.00   173.29
   .000012    1050.    1000.    1000.       0        0        0      .00   554.76   728.05
0
 *SECNO 26645.000
  2800 NAT Q1=    281.01  WSEL=    932.12  ENC Q1=    281.01  WSEL=    932.22  RATIO=   .0000
  NAT Q1=    301.  RATIOS LOB,CH,ROB=   .0014   .3479   .6507  WSEL=    932.22

 3470 ENCROACHMENT STATIONS=     231.0     462.1  TYPE=     4  TARGET=        .066
  26645.00     4.76   932.16      .00   932.12   932.17      .01      .05      .00   931.60
      340.       0.     127.     213.       0.     131.     447.     325.     104.   930.10
      4.84      .00      .97      .48     .070     .040     .070     .000   927.40   231.00
   .000160    1825.    1775.    1625.       2        0        0      .00   231.14   462.14
0
 *SECNO 27695.000
  2800 NAT Q1=    384.41  WSEL=    932.24  ENC Q1=    384.41  WSEL=    932.34  RATIO=   .0000
  NAT Q1=    418.  RATIOS LOB,CH,ROB=   .3877   .1029   .5095  WSEL=    932.34

 3470 ENCROACHMENT STATIONS=     126.1     637.6  TYPE=     4  TARGET=        .081
  27695.00     4.69   932.29      .00   932.24   932.29      .00      .12      .00   930.40
      340.     128.      39.     174.     433.      51.     538.     344.     113.   930.70
      5.65      .29      .76      .32     .070     .040     .070     .000   927.60   126.09
   .000086     775.    1050.    1150.       1        0        0      .00   511.48   637.57
0
1
 08/27/91    15:30:39                                                                    PAGE  105


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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 28670.000
  2800 NAT Q1=   1760.31  WSEL=    932.25  ENC Q1=   1760.31  WSEL=    932.35  RATIO=   .0000
  NAT Q1=   2119.  RATIOS LOB,CH,ROB=   .1257   .7914   .0829  WSEL=    932.35
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3470 ENCROACHMENT STATIONS=     504.8    1250.0  TYPE=     4  TARGET=        .169
 28670.00     4.10   932.30      .00   932.25   932.30      .00      .01      .00   930.10
     340.       16.     324.       0.     229.    2035.       0.     382.     127.    929.30
     7.43      .07      .16      .00     .070     .040     .070     .000   928.20   504.81
   .000004    1225.     975.     825.        2        0        0      .00   745.20  1250.00
0
 #SECNO 29070.000
  2800 NAT Q1=    971.01  WSEL=    932.25  ENC Q1=    971.01  WSEL=    932.35  RATIO=   .0000
  NAT Q1=   1145.  RATIOS LOB,CH,ROB=   .0959   .8073   .0968  WSEL=    932.35

 3470 ENCROACHMENT STATIONS=     497.2    1067.7  TYPE=     4  TARGET=        .152
 29070.00     3.65   932.30      .00   932.25   932.30      .00      .00      .00   930.55
     340.       8.     324.       8.      73.    1283.      67.     399.     133.    929.95
     7.88      .11      .25      .13     .070     .040     .070     .000   928.65   497.17
   .000013     382.     400.     406.        0        0        0      .00   570.53  1067.70
0
 #SECNO 29470.000
  2800 NAT Q1=    354.28  WSEL=    932.26  ENC Q1=    361.44  WSEL=    932.36  RATIO= -.0202
  NAT Q1=    414.  RATIOS LOB,CH,ROB=   .0498   .8725   .0776  WSEL=    932.36

 3470 ENCROACHMENT STATIONS=     469.5     825.0  TYPE=     4  TARGET=        .127
 29470.00     3.21   932.31      .00   932.26   932.32      .00      .01      .00   931.10
     340.       0.     340.       0.       0.     636.       0.     408.     138.    930.80
     8.09      .00      .53      .00     .070     .040     .070     .000   929.10   469.50
   .000097     382.     400.     406.        0        0        0      .00   355.50   825.00
0
 #SECNO 29870.000
  2800 NAT Q1=    113.31  WSEL=    932.33  ENC Q1=    118.69  WSEL=    932.43  RATIO= -.0474
  NAT Q1=    127.  RATIOS LOB,CH,ROB=   .0292   .9343   .0365  WSEL=    932.43

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     399.2     612.5  TYPE=     4  TARGET=        .066
 29870.00     2.84   932.39      .00   932.33   932.42      .03      .09      .01   931.65
     340.       0.     340.       0.       0.     243.       0.     412.     140.    931.55
     8.16      .00     1.40      .00     .070     .040     .070     .000   929.55   399.20
   .000905     382.     400.     406.        2        0        0      .00   171.76   612.50
0
1
  08/27/91    15:30:39                                                                PAGE  106


    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       KV       HL       QLOSS   BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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 30270.000
  2800 NAT Q1=     45.25  WSEL=    932.97  ENC Q1=     45.25  WSEL=    933.07  RATIO=   .0000
  NAT Q1=     50.  RATIOS LOB,CH,ROB=   .0585   .8924   .0490  WSEL=    933.07

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     325.4     401.3  TYPE=     4  TARGET=        .092
 30270.00     3.03   933.03      .00   932.97   933.28      .25      .75      .11   932.10
     340.       4.     335.       1.       3.      83.       1.     414.     141.    932.30
     8.19     1.32     4.05      .98     .070     .040     .070     .000   930.00   325.41
   .005972     382.     400.     406.        2        0        0      .00    52.58   401.27
0
 #SECNO -12094.000
 START TRIB COMP
  -12094.000 12094.000   896.982
 2800 NAT Q1=    184.14  WSEL=    896.97  ENC Q1=    184.14  WSEL=    896.97  RATIO=   .00
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 NAT QI=    193.  RATIOS LOB,CH,ROB=   .1302   .3032   .5666  WSEL=    896.97

3470 ENCROACHMENT STATIONS=      35.0      99.2  TYPE=     4  TARGET=        .036
-12094.00     6.78   896.98      .00   896.87   896.99      .01      .00      .00   893.10
    245.      28.      76.     141.      56.      63.     174.     414.     141.   890.80
    8.19      .51     1.20      .81     .070     .050     .070     .000   890.20    34.96
  .000166       0.       0.       0.        0        0        0      .00    64.23    99.19
0
 #SECNO 120.000
 2800 NAT QI=     52.52  WSEL=    896.89  ENC QI=     52.52  WSEL=    896.99  RATIO=   .0000
 NAT QI=     56.  RATIOS LOB,CH,ROB=   .3286   .6714   .0000  WSEL=    896.99
3280 CROSS SECTION    120.00 EXTENDED      2.09 FEET


3470 ENCROACHMENT STATIONS=       8.2      95.0  TYPE=     4  TARGET=        .069
   120.00     5.49   896.99      .00   896.89   897.08      .09      .05      .04   894.20
    245.      68.     177.       0.      62.      66.       0.     414.     141.   899.30
    8.21     1.09     2.69      .00     .070     .050     .070     .000   891.50     8.23
  .002183     120.     120.     120.        2        0        0      .00    77.35    85.59
0
 #SECNO 620.000
 2800 NAT QI=     19.85  WSEL=    898.95  ENC QI=     20.15  WSEL=    899.05  RATIO=  -.0153
 NAT QI=     21.  RATIOS LOB,CH,ROB=   .0600   .9400   .0000  WSEL=    899.05
1
 08/27/91    15:30:39                                                                PAGE  107


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       QLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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=     200.0     222.0  TYPE=     4  TARGET=        .060
   620.00     5.66   899.06      .00   898.95   899.62      .56     2.30      .24   898.50
    245.       0.      245.       0.       0.      41.       0.     415.     142.   903.50
    8.23      .00     6.00      .00     .070     .050     .070     .000   897.40   200.00
  .015310     500.     500.     500.        3        0        0      .00    14.60   214.60
0
 #SECNO 2000.000
 2800 NAT QI=     58.44  WSEL=    904.91  ENC QI=     60.02  WSEL=    905.01  RATIO=  -.0269
 NAT QI=     61.  RATIOS LOB,CH,ROB=   .0150   .9850   .0000  WSEL=    905.01

 3470 ENCROACHMENT STATIONS=      83.0     110.0  TYPE=     4  TARGET=        .015

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      903.90 ELREA=      906.60

  2000.00     6.02   905.02      .00   904.91   905.13      .11     5.38      .13   903.90
    245.       0.      245.       0.       0.      91.       0.     417.     142.   906.60
    8.37      .00     2.71      .00     .070     .050     .070     .000   899.00    83.00
  .001744    1380.    1380.    1380.        5        0        0      .00    23.77   106.77
0
 #SECNO 2095.000
 2800 NAT QI=     33.52  WSEL=    905.10  ENC QI=     34.75  WSEL=    905.20  RATIO=  -.0367
 NAT QI=     35.  RATIOS LOB,CH,ROB=   .0144   .9856   .0000  WSEL=    905.20

 3470 ENCROACHMENT STATIONS=      78.0     100.9  TYPE=     4  TARGET=        .014

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      904.40 ELREA=      907.00

  2095.00     4.81   905.21      .00   905.10   905.47      .26      .27      .07   904.40
    245.       0.      245.       0.       0.      60.       0.     417.     142.   907.00
    8.38      .00     4.08      .00     .070     .050     .070     .000   900.40    78.00
  .005165      95.      95.      95.        2        0        0      .00    19.47    97.47
0
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 #SECND 2190.000
  2800 NAT Q1=     20.80  WSEL=    905.73  ENC Q1=     21.52  WSEL=    905.83  RATIO=  -.0348
  NAT Q1=     22.  RATIOS LOB,CH,ROB=   .0273   .9727   .0000  WSEL=    905.83

 3470 ENCROACHMENT STATIONS=      73.0      91.9  TYPE=     4  TARGET=        .027
1
  08/27/91    15:30:39                                                          PAGE  108


    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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=      905.00 ELREA=      907.40

   2190.00     4.02   905.82      .00   905.73   906.37      .55      .76      .15   905.00
      245.       0.     245.       0.       0.      41.       0.     417.     142.   907.40
      8.38      .00     5.94      .00     .070     .050     .070     .000   901.80    73.00
    .013886     95.      95.      95.        2        0        0      .00    15.89    88.89
0
 #SECND 2285.000
  2800 NAT Q1=     22.59  WSEL=    907.13  ENC Q1=     22.59  WSEL=    907.23  RATIO=   .0000
  NAT Q1=     25.  RATIOS LOB,CH,ROB=   .2202   .7798   .0000  WSEL=    907.23
 3280 CROSS SECTION   2285.00 EXTENDED       .27 FEET


 3470 ENCROACHMENT STATIONS=      58.2      82.8  TYPE=     4  TARGET=        .088

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      905.60 ELREA=      907.80

   2285.00     3.97   907.17      .00   907.13   907.65      .48     1.26      .02   905.60
      245.       34.     211.       0.       12.      36.       0.     418.     142.   907.80
      8.39     2.78     5.87      .00     .070     .050     .070     .000   903.20    58.24
    .012639     95.      95.      95.        3        0        0      .00    23.50    81.74
0
1
  08/27/91    15:30:39                                                          PAGE  109
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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ROUGE
WALLED LAKE BRANCH

4) DOCUMENT TYPE: 100 YR NATURAL

00BREAK00

THIS RUN EXECUTED 08/27/91 15:30:39

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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 1.1
**********************************************


C
T1      CITY OF NOVI JOB NO.5555-46-1 STREAM 02
T2      100 YEAR FLOOD - NATURAL CONDITION
T3      WALLED LAKE BRANCH

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        2.        0.        0.   .000000       .00        .0        0.   839.290      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000      .000    -1.000      .000      .000      .000      .000      .000      .000      .000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    110.000   150.000   200.000      .000      .000      .000      .000      .000      .000      .000


NC       .030      .030      .040      .300      .500      .000      .000      .000      .000      .000
QT      2.000  1215.000  1215.000      .000      .000      .000      .000      .000      .000      .000
ET       .000      .000     1.400      .000      .000      .000      .000      .000      .000      .000
         MEADOWBROOK LAKE
X1       .000    24.000   783.000   885.000      .000      .000      .000      .000      .000      .000
GR    842.300      .000   834.700    35.000   836.500    49.000   837.700    85.000   839.000   185.000
GR    838.600   285.000   839.300   385.000   839.500   440.000   836.300   455.000   836.900   485.000
GR    836.600   585.000   836.200   685.000   834.200   783.000   833.500   785.000   833.500   812.000
GR    834.100   814.000   834.200   823.000   833.600   827.000   833.500   850.000   842.900   885.000
GR    846.300   985.000   845.100  1085.000   845.400  1092.000   847.600  1185.000      .000      .000

X1     62.000    90.000   789.500   877.200    62.000    62.000    62.000      .000      .000      .000
GR    841.900      .000   836.400    27.200   836.600    54.400   837.400    81.600   837.900   108.800
GR    838.200   136.100   838.500   163.300   838.600   190.500   838.500   217.700   838.400   245.000
GR    838.400   272.200   838.400   299.400   838.600   326.600   838.600   353.900   839.000   381.100
GR    839.100   408.300   839.100   435.500   836.900   462.800   837.300   490.000   837.400   517.200
GR    837.400   544.400   837.300   571.700   837.300   598.900   837.300   626.100   837.300   653.300
GR    837.300   680.600   837.200   707.800   836.900   735.000   836.400   762.200   836.000   789.500
GR    835.300   792.400   835.100   795.300   834.900   798.200   834.700   801.100   834.600   804.100
GR    834.400   807.000   834.200   809.900   834.600   812.800   834.200   815.800   834.200   818.700
GR    834.000   821.600   833.800   824.500   833.400   827.500   833.300   830.400   833.300   833.300
GR    833.200   836.200   833.200   839.200   833.300   842.100   833.300   845.000   833.600   847.900
GR    834.400   850.900   835.300   853.800   836.200   856.700   837.100   859.600   838.000   862.600
GR    838.900   865.500   839.800   868.400   840.600   871.300   841.700   874.300   842.500   877.200
GR    842.800   887.200   843.100   897.200   843.400   907.200   843.600   917.200   844.000   927.200
GR    844.200   937.200   844.500   947.200   844.800   957.200   845.100   967.200   845.400   977.200
GR    845.300   987.200   845.200   997.200   845.200  1007.200   845.100  1017.200   845.100  1027.200
GR    845.000  1037.200   844.900  1047.200   844.900  1057.200   844.800  1067.200   844.800  1077.200
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GR	845.100	1087.200	845.300	1097.200	845.400	1107.200	845.600	1117.200	845.900	1127.200
GR	846.200	1137.200	846.500	1147.200	846.800	1157.200	847.100	1167.200	847.400	1177.200
X1	125.000	90.000	796.000	869.500	63.000	63.000	63.000	.000	.000	.000
GR	841.500	.000	836.500	27.400	836.600	54.800	837.300	82.300	837.800	109.700
GR	838.200	137.200	838.400	164.600	838.400	192.100	838.300	219.500	838.100	247.000
GR	838.200	274.400	838.300	301.900	838.500	329.300	838.700	356.800	838.800	384.200
GR	838.900	411.700	838.900	439.100	837.500	466.600	837.900	494.000	838.000	521.500
GR	838.100	548.900	838.100	576.400	838.200	603.800	838.200	631.300	838.300	658.700
GR	838.500	686.200	838.600	713.600	838.500	741.100	838.200	768.500	837.900	796.000
GR	837.200	798.400	836.800	800.900	836.500	803.300	836.100	805.700	835.800	808.200
GR	835.400	810.600	835.100	813.100	834.700	815.500	834.600	818.000	834.300	820.400
GR	834.000	822.900	833.600	825.300	833.300	827.800	833.200	830.200	833.100	832.700
GR	833.000	835.100	833.000	837.600	833.100	840.000	833.200	842.500	833.500	844.900
GR	834.200	847.400	835.100	849.800	836.000	852.300	836.900	854.700	837.800	857.200
GR	838.700	859.600	839.600	862.100	840.500	864.500	841.400	867.000	842.300	869.500
GR	842.500	879.500	842.700	889.500	842.900	899.500	843.100	909.500	843.400	919.500
GR	843.600	929.500	843.800	939.500	844.000	949.500	844.300	959.500	844.500	969.500
GR	844.500	979.500	844.500	989.500	844.500	999.500	844.500	1009.500	844.500	1019.500
GR	844.500	1029.500	844.500	1039.500	844.500	1049.500	844.500	1059.500	844.600	1069.500
GR	844.800	1079.500	844.900	1089.500	845.000	1099.500	845.200	1109.500	845.500	1119.500
GR	845.900	1129.500	846.200	1139.500	846.600	1149.500	846.900	1159.500	847.300	1169.500
X1	187.000	90.000	802.500	861.700	62.000	62.000	62.000	.000	.000	.000
GR	841.100	.000	836.500	27.600	836.600	55.300	837.200	83.000	837.700	110.600
GR	838.100	138.300	838.300	166.000	838.200	193.700	838.000	221.300	837.800	249.000
GR	838.000	276.700	838.100	304.300	838.300	332.000	838.500	359.700	838.600	387.400
GR	838.600	415.000	838.600	442.700	838.100	470.400	838.400	498.100	838.600	525.700
GR	838.800	553.400	838.900	581.100	839.000	608.700	839.000	636.400	839.200	664.100
GR	839.600	691.800	839.900	719.400	840.100	747.100	840.000	774.800	839.800	802.500
GR	839.000	804.400	838.500	806.400	838.000	808.400	837.400	810.400	836.900	812.300
GR	836.400	814.300	835.900	816.300	835.300	818.200	834.900	820.200	834.400	822.200
GR	833.900	824.200	833.300	826.100	833.100	828.100	833.000	830.100	832.100	832.100
GR	832.800	834.000	832.700	836.000	832.900	838.000	833.100	840.000	833.400	841.900
GR	834.000	843.900	834.900	845.900	835.700	847.900	836.600	849.800	837.500	851.800
GR	838.400	853.800	839.300	855.800	840.200	857.700	841.100	859.700	842.000	861.700
GR	842.100	871.700	842.300	881.700	842.400	891.700	842.600	901.700	842.800	911.700
GR	842.900	921.700	843.100	931.700	843.200	941.700	843.400	951.700	843.600	961.700
GR	843.700	971.700	843.700	981.700	843.800	991.700	843.900	1001.700	843.900	1011.700
GR	844.000	1021.700	844.100	1031.700	844.100	1041.700	844.200	1051.700	844.300	1061.700
GR	844.400	1071.700	844.500	1081.700	844.600	1091.700	844.700	1101.700	845.100	1111.700
GR	845.500	1121.700	845.900	1131.700	846.300	1141.700	846.700	1151.700	847.200	1161.700

CHATTMAN DRIVE BRIDGE

X1	251.000	19.000	827.000	840.000	64.000	64.000	64.000	.000	.000	.000
X3	10.000	.000	.000	.000	.000	.000	.000	838.400	838.400	.000
GR	840.700	.000	835.100	39.000	836.700	54.000	838.300	154.000	837.600	254.000
GR	838.400	354.000	838.500	454.000	839.600	554.000	840.000	654.000	841.900	754.000
GR	841.700	809.000	833.200	827.000	832.500	834.000	833.500	840.000	841.700	854.000
GR	842.800	954.000	844.100	1054.000	844.300	1094.000	847.100	1154.000	.000	.000

1

SB	.000	1.560	2.700	.000	13.000	1.000	60.000	.000	.000	.000
X1	292.000	26.000	793.500	806.500	41.000	41.000	41.000	.000	.000	.000
X2	.000	.000	1.000	837.600	838.400	.000	.000	.000	.000	.000
X3	10.000	.000	.000	.000	.000	.000	.000	838.400	838.400	.000
BT	22.000	.000	839.600	.000	100.000	837.600	.000	200.000	837.100	.000
BT	300.000	837.700	.000	400.000	838.400	.000	500.000	839.200	.000	600.000
BT	840.100	.000	700.000	841.000	.000	793.500	841.900	837.600	794.500	841.900
BT	839.000	796.500	841.900	839.600	798.500	841.900	839.000	799.500	841.900	837.600
BT	800.500	841.900	837.600	801.500	841.900	839.000	803.500	841.900	839.600	805.500
BT	841.900	839.000	806.500	841.900	837.600	900.000	842.800	.000	1000.000	843.800

BT	.000	1100.000	844.900	.000	1200.000	846.200	.000	.000	.000	.000
GR	839.600	.000	837.600	100.000	837.100	200.000	837.700	300.000	838.400	400.000
GR	839.200	500.000	840.100	600.000	841.000	700.000	841.900	793.500	835.600	793.500
GR	834.200	794.500	833.600	796.500	834.200	798.500	835.600	799.500	837.600	799.500
GR	837.600	800.500	835.600	800.500	834.200	801.500	833.600	803.500	834.200	805.500
GR	835.600	806.500	841.900	806.500	842.800	900.000	843.800	1000.000	844.900	1100.000
GR	846.200	1200.000	.000	.000	.000	.000	.000	.000	.000	.000
NC	.100	.100	.040	.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	6.100	750.000	1180.000	755.000	1175.000	.000	.000	.000
X1	503.000	22.000	1000.000	1030.000	321.000	211.000	211.000	.000	.000	.000
GR	840.200	.000	839.000	88.000	838.700	100.000	835.700	137.000	837.000	200.000
GR	837.200	300.000	837.100	400.000	837.100	500.000	837.900	600.000	838.600	700.000
GR	838.800	800.000	839.100	900.000	837.800	1000.000	834.900	1010.000	835.000	1020.000
GR	834.700	1026.000	836.000	1030.000	838.000	1046.000	838.500	1100.000	838.500	1180.000
GR	841.200	1200.000	846.900	1300.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	1.400	555.000	1180.000	.000	.000	.000	.000	.000
X1	601.000	.000	.000	.000	96.000	54.000	98.000	.900	.390	.000
ET	.000	4.100	.000	335.000	1085.000	.000	.000	.000	.000	.000
X1	699.000	90.000	942.500	972.500	96.000	54.000	98.000	.000	-.430	.000
GR	843.000	.000	842.300	32.500	841.700	65.000	840.800	97.500	838.600	130.000
GR	839.000	162.500	839.300	194.900	839.100	227.400	839.100	259.900	839.100	292.400
GR	839.100	324.900	839.100	357.400	838.800	389.900	838.500	422.400	838.700	454.900
GR	839.000	487.400	839.200	519.900	839.400	552.400	839.600	584.900	839.700	617.400
GR	839.800	649.900	839.800	682.400	839.700	714.900	839.600	747.400	839.700	779.900
GR	839.800	812.400	839.900	844.900	839.600	877.400	839.200	909.900	838.800	942.500
GR	838.500	943.500	838.200	944.500	837.900	945.500	837.500	946.500	837.200	947.500
GR	836.900	948.500	836.600	949.500	836.300	950.500	836.100	951.500	835.900	952.500
GR	836.000	953.500	836.000	954.500	836.000	955.500	836.000	956.500	836.000	957.500
GR	836.000	958.500	836.000	959.500	836.000	960.500	836.100	961.500	836.200	962.500
GR	836.100	963.500	836.200	964.500	836.100	965.500	836.200	966.500	836.100	967.500
GR	836.200	968.500	836.400	969.500	836.700	970.500	837.000	971.500	837.300	972.500
GR	838.200	981.700	838.900	991.000	839.000	1000.200	839.100	1009.500	839.300	1018.700
GR	839.400	1028.000	839.500	1037.200	839.700	1046.500	839.700	1055.700	839.800	1065.000
GR	839.800	1074.200	839.700	1083.500	839.700	1092.700	839.700	1102.000	839.700	1111.200
GR	839.600	1120.500	839.900	1129.700	840.800	1139.000	841.600	1148.200	841.900	1157.500
GR	843.200	1166.700	844.500	1176.000	845.000	1185.200	845.400	1194.500	845.900	1203.700
GR	846.300	1213.000	846.700	1222.200	847.100	1231.500	847.600	1240.700	848.000	1250.000

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ET	.000	4.100	6.100	427.000	1250.000	427.000	1037.000	.000	.000	.000
X1	797.000	.000	.000	.000	96.000	55.000	98.000	.000	.380	.000
ET	.000	4.100	1.400	368.000	1250.000	.000	.000	.000	.000	.000
X1	895.000	.000	.000	.000	95.000	54.000	98.000	.900	.380	.000
ET	.000	4.100	.000	414.000	1250.000	.000	.000	.000	.000	.000
X1	993.000	90.000	885.000	915.000	96.000	54.000	98.000	.000	-.380	.000
GR	845.800	.000	845.000	30.500	844.300	61.000	843.300	91.500	841.500	122.000
GR	841.600	152.500	841.600	183.100	841.300	213.600	841.200	244.100	841.200	274.600
GR	841.100	305.100	841.100	335.600	840.600	366.200	939.900	396.700	840.300	427.200
GR	840.800	457.700	841.000	488.200	841.100	518.700	841.300	549.300	841.300	579.800
GR	841.200	610.300	841.000	640.800	840.800	671.300	840.600	701.800	840.700	732.400
GR	840.800	762.900	840.800	793.400	840.600	823.900	840.200	854.400	839.900	885.000
GR	839.600	886.000	839.200	887.000	838.900	888.000	838.500	889.000	838.200	890.000
GR	837.800	891.000	837.500	892.000	837.300	893.000	837.200	894.000	837.000	895.000
GR	837.100	896.000	837.100	897.000	837.100	898.000	837.100	899.000	837.100	900.000
GR	837.100	901.000	837.100	902.000	837.200	903.000	837.300	904.000	837.400	905.000
GR	837.400	906.000	837.500	907.000	837.500	908.000	837.600	909.000	837.600	910.000
GR	837.700	911.000	837.900	912.000	838.100	913.000	838.400	914.000	838.600	915.000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

GR	840.600	972.000	840.700	981.500	840.900	991.000	841.000	1000.500	841.200	1010.000
GR	841.100	1019.500	841.000	1029.000	841.000	1038.500	840.900	1048.000	840.900	1057.500
GR	840.800	1067.000	841.000	1076.500	841.500	1086.000	842.000	1095.500	842.200	1105.000
GR	844.300	1114.500	846.300	1124.000	846.800	1133.500	847.100	1143.000	847.500	1152.500
GR	847.800	1162.000	848.200	1171.500	848.500	1181.000	848.900	1190.500	849.200	1200.000
ET	.000	4.100	.000	443.000	1200.000	.000	.000	.000	.000	.000
X1	1091.000	.000	.000	.000	96.000	54.000	98.000	.000	.380	.000
ET	.000	4.100	.000	498.000	1200.000	.000	.000	.000	.000	.000
X1	1385.000	90.000	827.500	857.500	288.000	163.000	294.000	.000	.000	.000
GR	848.600	.000	847.700	28.500	846.800	57.000	845.800	85.600	844.400	114.100
GR	844.200	142.600	843.900	171.200	843.400	199.700	843.200	228.200	843.200	256.800
GR	843.100	285.300	843.100	313.800	842.300	342.400	841.300	370.900	841.900	399.400
GR	842.600	428.000	842.800	456.500	842.800	485.000	842.900	513.600	842.900	542.100
GR	842.500	570.600	842.200	599.200	841.800	627.700	841.600	656.200	841.600	684.800
GR	841.700	713.300	841.700	741.800	841.500	770.400	841.200	798.900	841.000	827.500
GR	840.600	828.500	840.200	829.500	839.900	830.500	839.500	831.500	839.100	832.500
GR	838.700	833.500	838.400	834.500	838.300	835.500	838.200	836.500	838.100	837.500
GR	838.200	838.500	838.200	839.500	838.200	840.500	838.200	841.500	838.200	842.500
GR	838.200	843.500	838.200	844.500	838.300	845.500	838.400	846.500	838.600	847.500
GR	838.600	848.500	838.800	849.500	838.800	850.500	839.000	851.500	839.000	852.500
GR	839.200	853.500	839.300	854.500	839.500	855.500	839.700	856.500	839.900	857.500
GR	840.400	867.200	840.800	877.000	841.000	886.700	841.200	896.500	841.500	906.200
GR	841.700	916.000	841.900	925.700	842.100	935.500	842.300	945.200	842.500	955.000
GR	842.400	964.700	842.300	974.500	842.200	984.200	842.100	994.000	842.100	1003.700
GR	842.000	1013.500	842.000	1023.200	842.200	1033.000	842.400	1042.700	842.500	1052.500
GR	845.300	1062.200	848.000	1072.000	848.500	1081.700	848.800	1091.500	849.100	1101.200
GR	849.300	1111.000	849.600	1120.700	849.800	1130.500	850.100	1140.200	850.400	1150.000

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ET	.000	4.100	.000	400.000	900.000	.000	.000	.000	.000	.000
X1	1678.000	18.000	770.000	800.000	287.000	162.000	293.000	.000	.000	.000
GR	851.500	.000	847.500	100.000	845.400	200.000	845.100	300.000	842.700	345.000
GR	844.600	400.000	844.600	500.000	842.600	600.000	842.700	700.000	842.100	770.000
GR	839.300	777.000	839.300	782.000	839.400	787.000	841.300	800.000	843.900	900.000
GR	842.800	1000.000	850.200	1021.000	851.600	1100.000	.000	.000	.000	.000
NC	.100	.100	.050	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	4.100	340.000	540.000	.000	.000	.000	.000	.000
X1	2253.000	15.000	483.000	520.000	375.000	250.000	575.000	.000	.000	.000
GR	854.500	.000	850.200	20.000	851.900	120.000	851.000	220.000	850.900	260.000
GR	845.500	320.000	844.500	420.000	844.200	483.000	841.700	492.000	842.100	501.000
GR	842.000	510.000	843.700	520.000	843.700	535.000	850.800	555.000	855.700	620.000
ET	.000	4.100	4.100	280.000	460.000	.000	.000	.000	.000	.000

FOOTBRIDGE 350 FT. SE OF C&D RAILROAD BRIDGE

X1	3404.000	20.000	389.000	411.000	576.000	576.000	1151.000	.000	.000	.000
GR	858.900	.000	855.200	100.000	852.500	200.000	847.900	300.000	848.000	368.000
GR	848.000	389.000	847.650	389.000	847.300	390.000	845.000	397.000	844.800	400.000
GR	844.600	402.000	844.900	407.000	846.900	410.000	847.600	411.000	848.300	411.000
GR	849.600	500.000	848.300	600.000	847.700	700.000	849.600	800.000	858.100	900.000
SB	.000	1.830	2.900	.000	10.000	.000	56.800	2.400	.000	.000
ET	.000	4.100	4.100	280.000	460.000	.000	.000	.000	.000	.000
X1	3410.000	.000	.000	.000	6.000	6.000	6.000	.000	.000	.000
X2	.000	.000	1.000	848.300	847.700	.000	.000	.000	.000	.000
BT	19.000	.000	858.900	.000	100.000	855.200	.000	200.000	852.500	.000
BT	300.000	847.900	.000	389.000	848.000	.000	389.000	849.200	848.000	390.000
BT	849.200	848.000	397.000	849.400	848.200	400.000	849.400	848.200	402.000	849.400
BT	848.200	407.000	849.500	848.300	410.000	849.500	848.300	411.000	849.500	848.300
BT	411.000	848.300	.000	500.000	849.600	.000	600.000	848.300	.000	700.000

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X1   4011.000    16.000   180.000   200.000   376.000   401.000   601.000     .000     -.300     .000
X3     10.000      .000      .000      .000      .000      .000      .000   861.800   861.800     .000
GR    861.900      .000   856.600    50.000   853.600   100.000   852.900   135.000   849.300   150.000
GR    847.600   180.000   846.800   184.000   846.200   190.000   846.800   194.000   848.800   200.000
GR    848.700   300.000   848.500   400.000   847.700   500.000   855.900   600.000   856.800   700.000
GR    859.400   800.000      .000      .000      .000      .000      .000      .000      .000      .000

NC       .030      .030      .021      .000      .000      .000      .000      .000      .000      .000
         C&O RR BRIDGE 1900 FT. SOUTH OF TEN MILE ROAD
X1   4012.000    15.000   290.000   310.000     1.000     1.000     1.000     .000      .000      .000
BT     13.000      .000   865.800      .000   100.000   865.300      .000   200.000   864.800      .000
BT    290.000   864.200   848.000   296.000   864.200   854.000   300.000   864.200   854.500   304.000
BT    864.200   853.600   310.000   864.200   848.200   400.000   863.800      .000   500.000   863.300
BT       .000   600.000   862.800      .000   700.000   862.300      .000   800.000   861.800      .000
GR    865.800      .000   865.300   100.000   864.800   200.000   864.200   290.000   846.500   290.000
GR    845.900   296.000   846.100   300.000   846.700   304.000   846.100   310.000   864.200   310.000
GR    863.800   400.000   863.300   500.000   862.800   600.000   862.300   700.000   861.800   800.000
1
 08/27/91    15:30:39                                                                        PAGE    6


X1   4038.000      .000      .000      .000    26.000    26.000    26.000     .000      .000      .000
X2       .000      .000      .000      .000      .000      .000     1.000     .000      .000      .000

NC       .100      .100      .050      .000      .000      .000      .000      .000      .000      .000
X1   4039.000    16.000   180.000   200.000     1.000     1.000     1.000     .000     -.300      .000
X3     10.000      .000      .000      .000      .000      .000      .000   861.800   861.800      .000
GR    861.900      .000   856.600    50.000   853.600   100.000   852.900   135.000   849.300   150.000
GR    847.600   180.000   846.800   184.000   846.200   190.000   846.800   194.000   848.800   200.000
GR    848.700   300.000   848.500   400.000   847.700   500.000   855.900   600.000   856.800   700.000
GR    859.400   800.000      .000      .000      .000      .000      .000      .000      .000      .000

ET       .000      .000     1.400      .000      .000      .000      .000      .000      .000      .000
X1   4663.000    13.000   400.000   425.000   325.000   650.000   624.000     .000      .000      .000
GR    865.800      .000   867.000    25.000   857.600    60.000   852.500   100.000   851.000   200.000
GR    851.100   300.000   850.700   400.000   848.400   404.000   848.200   410.000   848.400   417.000
GR    850.100   425.000   851.600   465.000   861.800   500.000      .000      .000      .000      .000

X1   4969.000      .000      .000      .000   225.000   256.000   306.000     .000     1.950      .000

X1   5122.000      .000      .000      .000   112.000   128.000   153.000     .000      .970      .000

ET       .000     4.100      .000   150.000   460.000      .000      .000      .000      .000      .000
X1   5275.000      .000      .000      .000   113.000   128.000   153.000     .000      .980      .000

ET       .000     4.100      .000    80.000   380.000      .000      .000      .000      .000      .000
         U.S. OF CONFLUENCE WITH TRIB. "A"
X1   5581.000    10.000   258.000   266.000   225.000   256.000   306.000     .000    -1.950      .000
GR    870.700      .000   869.800    23.000   860.400    58.000   856.400   158.000   856.800   258.000
GR    856.000   259.000   856.200   264.000   856.700   266.000   856.800   358.000   871.000   458.000

QT      2.000  1115.000  1115.000      .000      .000      .000      .000      .000      .000      .000
ET       .000     4.100     6.100   120.000   365.000   130.000   355.000     .000      .000      .000
X1   5888.000      .000      .000      .000   225.000   257.000   307.000     .000     1.950      .000

ET       .000     4.100     4.100   360.000   430.000      .000      .000      .000      .000      .000
X1   6238.000    14.000   400.000   415.000   300.000   400.000   350.000     .000    -1.300      .000
GR    858.300      .000   859.000   100.000   858.700   200.000   858.700   300.000   859.500   395.000
GR    859.500   400.000   857.700   403.000   857.800   408.000   861.000   415.000   863.700   500.000
GR    866.500   600.000   869.700   628.000   873.800   640.000   874.100   655.000      .000      .000

ET       .000     4.100     4.100   370.000   415.000      .000      .000      .000      .000      .000
X1   6338.000      .000      .000      .000   100.000   100.000   100.000     .000      .200      .000
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X1   6438.000    14.000   395.000   415.000   100.000   100.000   100.000      .000     -.700      .000
X3     10.000      .000      .000      .000      .000      .000      .000   871.000   871.000      .000
GR    858.300      .000   859.000   100.000   858.700   200.000   858.700   300.000   859.500   395.000
GR    859.500   400.000   857.700   403.000   857.800   408.000   861.000   415.000   863.700   500.000
GR    866.500   600.000   869.700   628.000   873.800   640.000   874.100   655.000      .000      .000
1
 08/27/91    15:30:39                                                                          PAGE    7


NC       .030      .030      .026      .000      .000      .000      .000      .000      .000      .000
         C&O RR BRIDGE 233 FT. SOUTH OF TEN MILE ROAD
X1   6439.000    15.000   390.000   410.000     1.000     1.000     1.000      .000      .000      .000
BT     13.000      .000   871.000      .000   100.000   871.500      .000   200.000   871.900      .000
BT    300.000   872.200      .000   390.000   872.600   868.000   391.000   872.600   868.000   396.000
BT    872.600   868.000   402.000   872.600   868.000   409.000   872.600   868.000   410.000   872.600
BT    868.000   500.000   873.100      .000   600.000   873.700      .000   633.000   874.000      .000
GR    871.000      .000   871.500   100.000   871.900   200.000   872.200   300.000   872.600   390.000
GR    868.000   390.000   857.400   391.000   857.000   396.000   858.100   402.000   860.300   409.000
GR    868.000   410.000   872.600   410.000   873.100   500.000   873.700   600.000   874.000   633.000

X1   6449.000      .000      .000      .000    10.000    10.000    10.000      .000      .000      .000
X2       .000      .000      .000      .000      .000      .000     1.000      .000      .000      .000

NC       .100      .100      .050      .000      .000      .000      .000      .000      .000      .000
X1   6450.000    14.000   395.000   415.000     1.000     1.000     1.000      .000     -.700      .000
X3     10.000      .000      .000      .000      .000      .000      .000   871.000   871.000      .000
GR    857.300      .000   859.000   100.000   858.700   200.000   858.700   300.000   859.500   395.000
GR    858.500   400.000   857.700   403.000   857.800   408.000   861.000   415.000   863.700   500.000
GR    866.500   600.000   869.700   628.000   873.800   640.000   874.100   655.000      .000      .000

ET       .000     4.100     1.400   375.000   435.000      .000      .000      .000      .000      .000
X1   6470.000      .000      .000      .000    20.000    20.000    20.000      .000      .060      .000

ET       .000     4.100      .000      .000   125.000      .000      .000      .000      .000      .000
X1   6600.000     8.000    58.000   100.000   130.000   130.000   130.000      .000    -1.320      .000
GR    873.300      .000   870.200    58.000   859.100    87.000   858.860    94.000   861.300   100.000
GR    861.100   175.000   871.300   195.000   873.700   217.000      .000      .000      .000      .000

ET       .000     4.100      .000      .000   100.000      .000      .000      .000      .000      .000
X1   6650.000      .000      .000      .000    50.000    50.000    50.000      .000      .160      .000

ET       .000     4.100      .000    87.500   100.500      .000      .000      .000      .000      .000
X1   6700.000    10.000    87.500   100.500    50.000    50.000    50.000      .000    -1.000      .000
GR    873.300      .000   870.200    58.000   859.100    87.000   859.080    87.500   858.800    94.000
GR    861.300   100.000   861.100   100.500   861.100   175.000   871.300   195.000   873.700   217.000

NC       .030      .030      .026      .000      .000      .000      .000      .000      .000      .000
         TEN MILE BRIDGE
X1   6701.000     8.000    93.500   106.500     1.000     1.000     1.000      .000      .000      .000
BT       6.000      .000   874.900      .000    93.500   874.600   865.900   100.000   874.600   866.000
BT     106.500   874.600   866.000   200.000   874.300      .000   235.000   874.000      .000      .000
GR    874.900      .000   874.600    93.500   859.000    93.500   858.200   100.000   857.800   106.500
GR    874.600   106.500   874.300   200.000   874.000   235.000      .000      .000      .000      .000

X1   6749.000      .000      .000      .000    48.000    48.000    48.000      .000      .000      .000
X2       .000      .000      .000      .000      .000      .000     1.000      .000      .000      .000
1
 08/27/91    15:30:39                                                                          PAGE    8


NC       .100      .100      .050      .000      .000      .000      .000      .000      .000      .000
X1   6750.000    10.000    87.500   100.500     1.000     1.000     1.000      .000    -1.000      .000
X3     10.000      .000      .000      .000      .000      .000      .000   875.000   875.000      .000
```

GR	861.300	100.000	861.100	100.500	861.100	175.000	871.300	195.000	873.700	217.000
ET	.000	4.100	1.400	170.000	210.000	.000	.000	.000	.000	.000
X1	6763.000	14.000	180.000	200.000	13.000	13.000	13.000	.000	-4.780	.000
GR	878.200	.000	867.200	85.000	866.600	100.000	864.400	180.000	863.100	185.000
GR	862.700	192.000	863.700	198.000	864.500	200.000	865.800	220.000	874.700	245.000
GR	876.600	258.000	874.300	275.000	877.900	300.000	880.600	310.000	.000	.000
ET	.000	4.100	.000	40.000	240.000	.000	.000	.000	.000	.000
X1	6841.000	.000	.000	.000	78.000	78.000	78.000	.000	.690	.000
X1	7300.000	.000	.000	.000	384.000	384.000	459.000	.000	4.090	.000
X1	8050.000	14.000	275.000	300.000	775.000	700.000	750.000	.000	.000	.000
GR	882.600	.000	871.100	60.000	868.100	100.000	868.400	200.000	868.300	275.000
GR	863.900	286.000	864.200	290.000	864.300	293.000	878.700	300.000	873.200	330.000
GR	877.300	342.000	879.600	361.000	879.100	385.000	881.900	400.000	.000	.000
ET	.000	4.100	4.100	165.000	209.000	.000	.000	.000	.000	.000
X1	8400.000	10.000	170.000	200.000	425.000	250.000	350.000	.000	.320	.000
GR	878.300	.000	872.500	100.000	870.900	170.000	866.400	183.000	866.200	188.000
GR	866.500	191.000	870.400	200.000	872.600	300.000	874.300	400.000	874.100	500.000
ET	.000	4.100	4.100	178.000	197.000	.000	.000	.000	.000	.000
X1	8450.000	.000	.000	.000	50.000	50.000	50.000	.000	.380	.000
NC	.030	.030	.027	.000	.000	.000	.000	.000	.000	.000

C&O RR BRIDGE 1300 FT. NORTH OF TEN MILE ROAD

X1	8451.000	17.000	490.500	509.500	1.000	1.000	1.000	.000	.000	.000
BT	15.000	.000	883.100	.000	100.000	882.600	.000	200.000	882.100	.000
BT	300.000	881.500	.000	400.000	881.000	.000	490.500	880.600	875.900	498.000
BT	880.600	875.900	500.000	880.600	875.900	505.000	880.600	875.900	509.500	880.600
BT	875.900	600.000	880.100	.000	700.000	879.800	.000	800.000	879.500	.000
BT	900.000	879.500	.000	1000.000	879.100	.000	.000	.000	.000	.000
GR	883.100	.000	882.600	100.000	882.100	200.000	881.500	300.000	881.000	400.000
GR	880.600	490.500	868.900	490.500	867.500	498.000	867.300	500.000	867.100	505.000
GR	866.900	509.500	880.600	509.500	880.100	600.000	879.800	700.000	879.500	800.000
GR	879.500	900.000	879.100	1000.000	.000	.000	.000	.000	.000	.000
X1	8461.000	.000	.000	.000	10.000	10.000	10.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	1.000	.000	.000	.000
NC	.100	.100	.050	.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	4.100	178.000	197.000	.000	.000	.000	.000	.000
X1	8462.000	10.000	170.000	200.000	1.000	1.000	1.000	.000	.700	.000
GR	878.300	.000	872.500	100.000	870.900	170.000	866.400	183.000	866.200	188.000
GR	866.500	191.000	870.400	200.000	872.600	300.000	874.300	400.000	874.100	500.000

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ET	.000	4.100	1.400	165.000	210.000	.000	.000	.000	.000	.000
X1	8475.000	.000	.000	.000	13.000	13.000	13.000	.000	-.040	.000
ET	.000	4.100	.000	75.000	200.000	.000	.000	.000	.000	.000
X1	8787.000	12.000	100.000	150.000	312.000	337.000	312.000	.000	.000	.000
GR	882.600	.000	882.400	22.000	877.000	35.000	879.900	50.000	876.400	70.000
GR	880.900	75.000	880.300	100.000	866.800	118.000	866.000	121.000	866.800	126.000
GR	883.000	150.000	885.500	200.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	.000	95.000	225.000	.000	.000	.000	.000	.000
X1	8906.000	90.000	125.000	166.700	119.000	119.000	119.000	.000	-.120	.000
GR	884.200	.000	884.100	4.300	884.000	8.600	883.900	12.900	883.700	17.200
GR	883.600	21.500	883.500	25.800	882.700	30.100	881.500	34.400	880.400	38.700

GR	880.500	64.600	879.900	68.900	879.300	73.200	878.700	77.500	878.200	81.800
GR	878.300	86.200	879.500	90.500	880.900	94.800	880.400	99.100	880.300	103.400
GR	880.200	107.700	880.100	112.000	880.000	116.300	879.300	120.600	878.800	125.000
GR	877.600	126.300	876.400	127.700	875.500	129.100	874.600	130.500	873.700	131.900
GR	872.700	133.300	871.800	134.700	870.800	136.100	869.900	137.500	869.000	138.900
GR	868.200	140.300	867.900	141.600	867.800	143.000	867.900	144.400	868.300	145.800
GR	869.000	147.200	870.100	148.600	871.100	150.000	872.100	151.400	873.100	152.800
GR	874.200	154.200	875.300	155.600	876.300	157.000	877.400	158.300	878.300	159.700
GR	879.400	161.100	880.400	162.500	881.500	163.900	882.500	165.300	883.600	166.700
GR	883.600	168.600	883.800	170.600	883.900	172.500	884.000	174.500	884.100	176.400
GR	884.300	178.300	884.300	180.300	884.500	182.200	884.600	184.600	884.600	186.100
GR	884.700	188.100	884.800	190.000	884.800	191.900	884.900	193.900	885.000	195.800
GR	885.000	197.800	885.100	199.700	885.100	201.600	885.200	203.600	885.300	205.500
GR	885.500	207.500	885.400	209.400	885.500	211.400	885.500	213.300	885.600	215.200
GR	885.700	217.200	885.700	219.100	885.800	221.100	885.900	223.000	886.000	225.000
ET	.000	4.100	.000	114.000	250.000	.000	.000	.000	.000	.000
X1	9025.000	90.000	150.000	183.500	119.000	119.000	119.000	.000	-.150	.000
GR	885.900	.000	885.700	5.100	885.500	10.300	885.300	15.500	885.100	20.600
GR	884.900	25.800	884.700	31.000	884.000	36.200	883.100	41.300	882.200	46.500
GR	881.300	51.700	881.300	56.800	881.500	62.000	881.600	67.200	881.800	72.400
GR	881.600	77.500	881.000	82.700	880.400	87.900	879.800	93.100	879.400	98.200
GR	880.200	103.400	880.600	108.600	881.000	113.700	880.100	118.900	879.900	124.100
GR	879.800	129.300	879.700	134.400	879.700	139.600	878.400	144.800	877.400	150.000
GR	876.200	151.100	875.200	152.200	874.600	153.300	874.000	154.400	873.400	155.500
GR	872.800	156.600	872.100	157.800	871.500	158.900	870.900	160.000	870.300	161.100
GR	869.800	162.200	869.600	163.300	869.500	164.500	869.600	165.600	870.100	166.700
GR	870.800	167.800	871.800	168.900	872.700	170.000	873.700	171.200	874.600	172.300
GR	875.600	173.400	876.600	174.500	877.500	175.600	878.500	176.700	879.400	177.900
GR	880.400	179.000	881.300	180.100	882.300	181.200	883.200	182.300	884.200	183.500
GR	884.300	185.700	884.500	187.900	884.600	190.100	884.800	192.300	884.900	194.500
GR	885.100	196.700	885.200	199.000	885.400	201.200	885.500	203.400	885.500	205.600
GR	885.600	207.800	885.600	210.000	885.700	212.300	885.700	214.500	885.800	216.700
GR	885.800	218.900	885.800	221.100	885.900	223.300	885.900	225.600	886.000	227.800
GR	886.000	230.000	886.100	232.200	886.100	234.400	886.200	236.600	886.200	238.900
GR	886.300	241.100	886.300	243.300	886.400	245.500	886.400	247.700	886.500	250.000

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ET	.000	4.100	.000	121.000	275.000	.000	.000	.000	.000	.000
X1	9144.000	90.000	175.000	200.200	119.000	119.000	119.000	.000	-.170	.000
GR	887.500	.000	887.200	6.000	886.900	12.000	886.700	18.100	886.400	24.100
GR	886.100	30.100	885.800	36.200	885.300	42.200	884.600	48.200	884.000	54.300
GR	883.400	60.300	883.200	66.300	883.100	72.400	883.000	78.400	882.900	84.400
GR	882.600	90.500	882.000	96.500	881.400	102.500	880.800	108.600	880.600	114.600
GR	882.000	120.600	881.700	126.700	881.000	132.700	879.800	138.700	879.500	144.800
GR	879.400	150.800	879.300	156.800	879.300	162.900	877.400	168.900	875.900	175.000
GR	874.800	175.800	873.900	176.600	873.600	177.500	873.300	178.300	873.000	179.200
GR	872.700	180.000	872.400	180.800	872.100	181.700	871.800	182.500	871.500	183.400
GR	871.300	184.200	871.200	185.000	871.200	185.900	871.300	186.700	871.900	187.600
GR	872.600	188.400	873.500	189.300	874.400	190.100	875.200	190.900	876.100	191.800
GR	877.000	192.600	877.900	193.500	878.700	194.300	879.600	195.100	880.400	196.000
GR	881.300	196.800	882.200	197.700	883.100	198.500	883.900	199.400	884.800	200.200
GR	885.600	202.700	885.200	205.200	885.300	207.700	885.500	210.200	885.700	212.700
GR	885.900	215.100	886.100	217.600	886.300	220.100	886.400	222.600	886.400	225.100
GR	886.400	227.600	886.400	230.100	886.500	232.600	886.500	235.100	886.500	237.600
GR	886.500	240.100	886.500	242.600	886.600	245.000	886.600	247.500	886.700	250.000
GR	886.700	252.500	886.700	255.000	886.700	257.500	886.800	260.000	886.800	262.500
GR	886.800	265.000	886.800	267.500	886.900	270.000	886.900	272.500	887.000	275.000
ET	.000	4.100	.000	139.000	300.000	.000	.000	.000	.000	.000
X1	9262.000	13.000	200.000	217.000	118.000	118.000	118.000	.000	.000	.000
GR	889.200	.000	883.900	100.000	881.500	130.000	884.200	139.000	879.200	160.000
GR	878.960	186.00	875.700	194.000	874.500	200.300	872.70	204.60	873.010	

GR	885.500	217.000	887.300	240.000	887.500	300.000	.000	.000	.000	.000
ET	.000	4.100	.000	158.000	395.000	.000	.000	.000	.000	.000
X1	9494.000	90.000	228.000	245.200	188.000	219.000	232.000	.000	-.220	.000
GR	890.600	.000	890.000	7.800	889.300	15.700	888.600	23.500	888.100	31.400
GR	887.600	39.300	887.000	47.100	886.500	55.000	885.900	62.800	885.400	70.700
GR	884.800	78.600	884.300	86.400	884.100	94.300	883.800	102.200	883.500	110.000
GR	883.200	117.900	882.800	125.700	882.400	133.600	882.000	141.500	881.900	149.300
GR	883.400	157.200	882.600	165.100	881.900	172.900	881.600	180.800	880.600	188.600
GR	879.700	196.500	879.500	204.400	879.500	212.200	877.700	220.100	876.400	228.000
GR	875.600	228.500	874.900	229.100	874.900	229.700	874.800	230.200	874.800	230.800
GR	874.700	231.400	874.700	232.000	874.700	232.500	874.600	233.100	874.600	233.700
GR	874.500	234.300	874.500	234.800	874.500	235.400	874.500	236.000	875.000	236.600
GR	875.600	237.100	876.200	237.700	876.800	238.300	877.300	238.300	877.900	239.400
GR	878.500	240.000	879.100	240.600	879.700	241.200	880.400	241.700	881.100	242.300
GR	881.800	242.900	882.400	243.500	883.200	244.000	883.900	244.600	884.600	245.200
GR	885.200	250.200	886.100	255.200	886.700	260.200	686.900	265.200	887.200	270.200
GR	887.500	275.100	887.700	280.100	886.900	285.100	886.500	290.100	886.600	295.100
GR	886.800	300.100	886.900	305.100	887.100	310.100	887.200	315.100	887.400	320.100
GR	887.500	325.100	887.700	330.100	887.800	335.000	887.800	340.000	887.900	345.000
GR	888.000	350.000	888.000	355.000	888.100	360.000	888.100	365.000	888.200	370.000
GR	888.300	375.000	888.400	380.000	888.400	385.000	888.500	390.000	888.700	395.000

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ET	.000	4.100	6.100	203.000	490.000	210.000	280.000	.000	.000	.000
X1	9725.000	90.000	256.000	273.500	187.000	218.000	231.000	.000	-.250	.000
GR	892.100	.000	891.200	8.800	890.200	17.600	889.300	26.400	888.600	35.300
GR	887.900	44.100	887.100	52.900	886.400	61.700	885.600	70.600	884.900	79.400
GR	884.200	88.200	883.600	97.100	883.500	105.900	883.300	114.700	883.100	123.500
GR	882.900	132.400	882.600	141.200	882.300	150.000	882.100	158.800	882.000	167.700
GR	883.000	176.500	882.500	185.300	882.800	194.200	883.800	203.000	883.100	211.800
GR	882.400	220.600	880.000	229.500	880.200	238.300	879.100	247.100	878.400	256.000
GR	877.800	256.600	877.300	257.100	877.100	257.700	877.000	258.300	876.900	258.900
GR	876.800	259.400	876.700	260.000	876.600	260.600	876.500	261.200	876.400	261.800
GR	876.200	262.400	876.200	262.900	876.100	263.500	876.100	264.100	876.400	264.700
GR	876.800	265.300	877.200	265.900	877.600	266.400	877.900	267.000	878.300	267.600
GR	878.700	268.200	879.100	268.800	879.500	269.400	880.000	269.900	880.600	270.500
GR	881.200	271.100	881.800	271.700	882.500	272.300	883.100	272.900	883.700	273.500
GR	884.700	280.700	886.300	287.900	887.300	295.100	887.600	302.300	887.900	309.500
GR	888.200	316.700	888.400	324.000	886.700	331.200	885.700	338.400	886.000	345.600
GR	886.300	352.800	886.600	360.000	886.900	367.300	887.200	374.500	887.500	381.700
GR	887.800	388.900	888.100	396.100	888.300	403.300	888.400	410.600	888.500	417.800
GR	888.600	425.000	888.700	432.200	888.800	439.400	888.900	446.600	889.100	453.900
GR	889.200	461.100	889.400	468.300	889.500	475.500	889.700	482.700	889.900	490.000
ET	.000	4.100	1.400	226.000	585.000	.000	.000	.000	.000	.000
X1	9956.000	90.000	284.000	301.700	188.000	219.000	231.000	.000	-.270	.000
GR	893.600	.000	892.300	9.700	891.100	19.500	889.900	29.300	889.000	39.100
GR	888.100	48.900	887.200	58.700	886.300	68.500	885.300	78.300	848.400	88.100
GR	883.500	97.900	882.800	107.700	882.800	117.500	882.700	127.300	882.600	137.100
GR	882.500	146.800	882.400	156.600	882.200	166.400	882.100	176.200	882.100	186.000
GR	822.600	195.800	882.300	205.600	883.600	215.400	886.000	225.200	883.600	235.000
GR	881.000	244.800	880.500	254.600	880.800	264.400	880.500	274.200	880.400	284.000
GR	879.900	284.500	879.500	285.100	879.300	285.700	879.200	286.300	879.000	286.900
GR	878.800	287.500	878.600	288.100	878.500	288.700	878.300	289.300	878.100	289.900
GR	877.900	290.500	877.800	291.000	877.700	291.600	877.700	292.200	877.800	292.800
GR	878.000	293.400	878.200	294.000	878.400	294.600	878.500	295.200	878.700	295.800
GR	878.900	296.400	879.000	297.000	879.200	297.600	879.600	298.100	880.200	298.700
GR	880.700	299.300	881.200	299.900	881.800	300.500	882.300	301.100	882.800	301.700
GR	884.200	311.100	886.400	320.600	887.900	330.000	888.200	339.500	888.600	348.900
GR	888.900	358.300	889.100	367.800	886.400	377.200	884.900	386.700	885.300	396.100
GR	885.800	405.600	886.200	415.000	886.700	424.400	887.100	433.900	887.600	443.300
[illegible]	[illegible]	452.800	888.500	462.200	888.700	471.600	888.800	481.100	857.100	456.500

GR	889.200	500.000	889.400	509.400	889.500	518.900	889.700	528.300	889.900	537.700
GR	890.100	547.200	890.300	556.600	890.600	566.100	890.800	575.500	891.100	585.000
X1	10187.000	19.000	312.000	330.000	187.000	219.000	231.000	.000	.000	.000
GR	895.100	.000	890.900	30.000	882.100	115.000	882.300	130.000	882.200	230.000
GR	888.400	248.000	880.800	272.000	882.400	312.000	879.500	319.000	879.200	322.000
GR	879.000	326.000	882.000	330.000	884.400	345.000	888.500	360.000	890.000	413.000
GR	883.900	430.000	889.100	530.000	890.900	630.000	892.400	680.000	.000	.000

1

08/27/91 15:30:39 PAGE 12

D.S. OF CONFLUENCE WITH TRIB. "B"

X1	10812.000	.000	.000	.000	550.000	575.000	625.000	.000	2.700	.000
BT	2.000	915.000	915.000	.000	.000	.000	.000	.000	.000	.000
NC	.100	.100	.050	.500	1.000	.000	.000	.000	.000	.000

NOVI ROAD BRIDGE

X1	11438.000	26.000	195.700	204.300	551.000	576.000	626.000	.000	.000	.000
X3	10.000	.000	.000	165.000	.000	405.000	.000	.000	.000	.000
GR	897.900	85.000	893.000	110.000	892.200	135.000	889.200	185.000	884.400	186.000
GR	884.400	195.000	887.400	195.700	884.600	195.700	884.900	197.000	885.300	199.000
GR	885.500	200.000	886.100	203.000	886.400	204.300	887.400	204.300	889.000	217.000
GR	890.200	285.000	891.000	385.000	891.500	485.000	894.200	585.000	886.600	685.000
GR	885.100	735.000	891.300	785.000	894.000	885.000	896.000	985.000	896.300	1085.000
GR	897.900	1185.000	.000	.000	.000	.000	.000	.000	.000	.000
SB	.000	3.070	2.900	.000	8.600	.000	40.000	.000	.000	.000
X1	11518.000	.000	.000	.000	80.000	60.000	80.000	.000	.000	.000
X2	.000	.000	1.000	887.300	894.300	.000	.000	.000	.000	.000
X3	10.000	.000	.000	175.000	.000	375.000	.000	.000	.000	.000
BT	23.000	85.000	897.900	.000	110.000	894.000	.000	135.000	893.700	.000
BT	185.000	893.300	.000	186.000	893.300	.000	195.000	893.300	.000	195.700
BT	893.300	887.400	197.000	893.300	889.300	200.000	893.300	890.300	203.000	893.300
BT	889.300	204.300	893.300	887.400	217.000	893.000	.000	285.000	892.200	.000
BT	385.000	891.600	.000	485.000	892.100	.000	585.000	894.200	.000	685.000
BT	893.100	.000	735.000	893.400	.000	785.000	893.700	.000	885.000	895.200
BT	.000	985.000	897.000	.000	1085.000	898.300	.000	1185.000	898.900	.000
NC	.100	.100	.050	.300	.500	.000	.000	.000	.000	.000
ET	.000	4.100	1.400	37.000	275.000	.000	.000	.000	.000	.000
X1	11694.000	11.000	75.000	92.000	138.000	226.000	176.000	.000	-2.100	.000
GR	904.700	.000	893.600	25.000	895.500	37.000	893.900	75.000	888.900	84.000
GR	888.500	91.000	890.400	92.000	893.500	147.000	899.700	159.000	899.700	175.000
GR	902.200	275.000	.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	.000	37.000	275.000	.000	.000	.000	.000	.000
X1	11869.000	.000	.000	.000	138.000	225.000	175.000	.000	2.100	.000

DOWNSTREAM ISLAND CONFLUENCE

X1	12094.000	12.000	55.000	65.000	200.000	325.000	225.000	.000	.000	.000
GR	906.800	.000	904.000	14.000	894.600	15.000	896.200	27.000	893.100	55.000
GR	890.400	57.000	890.200	61.000	890.800	65.000	892.600	67.000	898.600	100.000
GR	900.200	155.000	903.800	255.000	.000	.000	.000	.000	.000	.000
BT	2.000	820.000	820.000	.000	.000	.000	.000	.000	.000	.000
NC	.070	.070	.050	.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	.000	530.000	660.000	.000	.000	.000	.000	.000

C&O RR BRIDGE 600 FT. NW OF NOVI ROAD AND RR CROSSING

X1	12120.000	20.000	554.500	585.500	2.000	101.000	26.000	.000	.000	.000
GR	894.000	.000	894.200	70.000	894.700	170.000	895.100	270.000	895.600	370.000
GR	895.900	470.000	896.300	551.500	896.300	554.500	891.400	554.500	890.600	566.000
GR	890.500	570.000	890.500	577.000	892.200	585.500	896.500	585.500	896.500	588.500
GR	897.500	770.000	898.600	970.000	899.600	1170.000	900.700	1370.000	901.700	1570.000

SB	.000	1.770	3.000	.000	31.000	.000	70.400	.000	.000	.000
ET	.000	4.100	.000	530.000	660.000	.000	.000	.000	.000	.000
X1	12130.000	.000	.000	.000	10.000	10.000	10.000	.000	.000	.000
X2	.000	.000	1.000	893.300	894.000	.000	.000	.000	.000	.000
BT	20.000	.000	894.000	.000	70.000	894.200	.000	170.000	894.700	.000
BT	270.000	895.100	.000	370.000	895.600	.000	470.000	895.900	.000	551.500
BT	896.300	.000	551.500	898.100	.000	554.500	898.100	893.100	566.000	898.200
BT	893.200	570.000	898.200	893.200	577.000	898.200	893.200	585.500	898.300	893.300
BT	588.500	898.300	.000	588.500	896.500	.000	770.000	897.500	.000	970.000
BT	898.600	.000	1170.000	899.600	.000	1370.000	900.700	.000	1570.000	901.700
BT	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
NC	.070	.070	.050	.000	.000	.000	.000	.000	.000	.000
X1	12381.000	12.000	100.000	170.000	201.000	301.000	251.000	.000	-1.960	.000
GR	914.700	.000	909.200	50.000	907.700	100.000	895.200	122.000	895.030	126.500
GR	894.900	130.000	895.080	133.500	895.200	136.000	898.300	148.000	907.700	170.000
GR	907.500	200.000	908.600	280.000	.000	.000	.000	.000	.000	.000
X1	12581.000	.000	.000	.000	200.000	200.000	200.000	.000	1.960	.000
	FLINT STREET BRIDGE									
X1	12632.000	12.000	211.500	218.500	51.000	51.000	51.000	.000	-1.700	.000
X3	10.000	.000	.000	.000	.000	.000	.000	900.000	900.000	.000
GR	914.700	85.000	909.200	135.000	907.700	185.000	895.200	207.000	895.030	211.500
GR	894.900	215.000	895.080	218.500	895.200	221.000	898.300	233.000	907.700	255.000
GR	907.500	285.000	908.600	365.000	.000	.000	.000	.000	.000	.000
SB	.000	1.720	2.700	.000	5.600	.000	39.000	.000	893.900	893.200
X1	12704.000	.000	.000	.000	72.000	72.000	72.000	.000	.700	.000
X2	.000	.000	1.000	900.900	907.200	.000	.000	.000	.000	.000
X3	10.000	.000	.000	150.000	.000	300.000	.000	907.200	907.200	.000
BT	9.000	.000	915.000	.000	100.000	910.900	.000	211.500	908.000	898.600
BT	213.000	908.000	900.400	215.000	908.000	900.900	217.000	908.000	900.400	218.500
BT	908.000	898.600	315.000	907.200	.000	415.000	907.800	.000	.000	.000
NC	.070	.070	.050	.000	.000	.000	.000	.000	.000	.000
ET	.000	8.100	1.400	.000	.000	.000	.000	70.000	235.000	.000
X1	12712.000	12.000	100.000	170.000	8.000	8.000	8.000	.000	-.970	.000
GR	914.700	.000	909.200	50.000	907.700	100.000	895.200	122.000	895.030	126.500
GR	894.900	130.000	895.080	133.500	895.200	136.000	898.300	148.000	907.700	170.000
GR	907.500	200.000	908.600	280.000	.000	.000	.000	.000	.000	.000
X1	12905.000	11.000	100.000	150.000	193.000	193.000	193.000	.000	-.520	.000
GR	913.700	.000	912.000	100.000	898.570	130.700	898.000	132.000	895.600	134.000
GR	895.300	138.000	895.700	141.000	898.910	146.000	901.300	150.000	907.000	173.000
GR	907.600	200.000	.000	.000	.000	.000	.000	.000	.000	.000
X1	12955.000	11.000	130.700	146.000	50.000	50.000	50.000	.000	-.300	.000
GR	913.700	.000	912.000	100.000	898.570	130.700	898.000	132.000	895.600	134.000
GR	895.300	138.000	895.700	141.000	898.810	146.000	901.300	150.000	907.000	173.000
GR	907.600	200.000	.000	.000	.000	.000	.000	.000	.000	.000

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NC	.070	.070	.050	.000	.000	.000	.000	.000	.000	.000
ET	.000	8.100	.000	.000	.000	.000	.000	80.000	175.000	.000
	FOOT BRIDGE NE OFF FLINT STREET									
X1	12956.000	26.000	92.700	108.000	1.000	1.000	1.000	.000	.000	.000
BT	20.000	.000	912.800	.000	65.000	911.000	.000	92.700	905.500	899.600
BT	87.500	901.500	5.000	85.000	905.500	900.800	84.500	905.500	900.300	87.300

BT	905.500	899.600	97.700	905.500	898.200	98.500	905.500	898.900	100.000	905.500
BT	899.400	101.500	905.500	898.900	102.300	905.500	898.200	104.000	905.500	899.100
BT	105.000	905.500	900.200	106.000	905.500	900.400	107.000	905.500	900.200	108.000
BT	905.500	899.100	175.000	908.000	.000	200.000	908.000	.000	300.000	909.000
BT	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	912.800	.000	911.000	65.000	905.500	92.700	897.600	92.700	896.900	93.500
GR	896.400	95.000	896.900	96.500	897.600	97.300	899.600	97.300	898.200	97.700
GR	896.200	97.700	895.500	98.500	895.000	100.000	895.500	101.500	896.200	102.300
GR	898.200	102.300	899.100	104.000	897.700	104.000	896.600	105.000	896.400	106.000
GR	896.600	107.000	897.700	108.000	905.500	108.000	908.000	175.000	908.000	200.000
GR	909.000	300.000	.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	8.100	.000	.000	.000	.000	.000	80.000	175.000	.000
X1	12981.000	26.000	92.700	108.000	25.000	25.000	25.000	.000	.000	.000
BT	20.000	.000	912.800	.000	65.000	911.000	.000	92.700	905.500	899.600
BT	93.500	905.500	900.300	95.000	905.500	900.800	96.500	905.500	900.300	97.300
BT	905.500	899.600	97.700	905.500	898.600	98.500	905.500	899.300	100.000	905.500
BT	899.800	101.500	905.500	899.300	102.300	905.500	898.600	104.000	905.500	899.900
BT	105.000	905.500	901.000	106.000	905.500	901.200	107.000	905.500	901.000	108.000
BT	905.500	899.900	175.000	908.000	.000	200.000	908.000	.000	300.000	909.000
BT	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	912.800	.000	911.000	65.000	905.500	92.700	897.600	92.700	896.900	93.500
GR	896.400	95.000	896.900	96.500	897.600	97.300	899.600	97.300	898.600	97.700
GR	896.600	97.700	895.900	98.500	895.400	100.000	895.900	101.500	896.600	102.300
GR	898.600	102.300	899.900	104.000	898.500	104.000	897.400	105.000	897.200	106.000
GR	897.400	107.000	898.500	108.000	905.500	108.000	908.000	175.000	908.000	200.000
GR	909.000	300.000	.000	.000	.000	.000	.000	.000	.000	.000
NC	.070	.070	.050	.000	.000	.000	.000	.000	.000	.000
X1	12982.000	11.000	130.700	146.000	1.000	1.000	1.000	.000	.100	.000
GR	913.700	.000	912.000	100.000	898.570	130.700	898.000	132.000	895.600	134.000
GR	895.300	138.000	895.700	141.000	898.810	146.000	901.300	150.000	907.000	173.000
GR	907.600	200.000	.000	.000	.000	.000	.000	.000	.000	.000
X1	12997.000	11.000	100.000	150.000	15.000	15.000	15.000	.000	.180	.000
GR	913.700	.000	912.000	100.000	898.570	130.700	898.000	132.000	895.600	134.000
GR	895.300	138.000	895.700	141.000	898.810	146.000	901.300	150.000	907.000	173.000
GR	907.600	200.000	.000	.000	.000	.000	.000	.000	.000	.000
X1	13097.000	.000	.000	.000	100.000	100.000	100.000	.000	.530	.000
ET	.000	4.100	4.100	325.000	535.000	.000	.000	.000	.000	.000
X1	13157.000	22.000	400.000	443.000	60.000	60.000	60.000	.000	-.690	.000
GR	909.300	.000	907.100	100.000	904.600	200.000	902.200	300.000	900.400	400.000
GR	897.600	407.000	897.400	415.000	897.000	420.000	897.500	421.000	907.000	443.000
GR	907.600	460.000	907.600	500.000	907.900	600.000	908.100	700.000	907.800	800.000
GR	907.900	900.000	907.400	915.000	901.100	960.000	902.100	1000.000	901.100	1060.000

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GR	907.300	1075.000	908.800	1100.000	909.500	1150.000	.000	.000	.000	.000
ET	.000	4.100	1.400	360.000	820.000	.000	.000	.000	.000	.000
X1	13282.000	.000	.000	.000	125.000	125.000	125.000	.000	.690	.000
ET	.000	4.100	.000	250.000	760.000	.000	.000	.000	.000	.000
X1	13412.000	17.000	500.000	540.000	130.000	130.000	130.000	.000	-.790	.000
GR	908.200	.000	906.400	100.000	905.700	200.000	900.800	300.000	899.900	330.000
GR	904.800	340.000	905.100	400.000	906.900	500.000	898.500	510.000	898.200	515.000
GR	898.600	519.000	900.500	525.000	907.900	540.000	908.100	560.000	908.000	600.000
GR	908.000	700.000	911.700	800.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	.000	315.000	740.000	.000	.000	.000	.000	.000
X1	13582.000	.000	.000	.000	170.000	170.000	170.000	.000	.530	.000

NC	.050	.050	.015	.000	.000	.000	.000	.000	.000	.000
	FLINT STREET BRIDGE SOUTH OF GRAND RIVER AVENUE									
X1	13632.000	12.000	221.500	228.500	50.000	50.000	50.000	.000	.000	.000
GR	905.200	.000	904.600	25.000	906.000	125.000	908.400	221.500	900.400	221.500
GR	898.600	223.000	898.100	225.000	898.600	227.000	900.400	228.500	908.400	228.500
GR	906.800	325.000	910.400	425.000	.000	.000	.000	.000	.000	.000
SB	.000	1.800	2.700	.000	5.600	.000	39.000	.000	.000	.000
X1	13732.000	12.000	221.500	228.500	100.000	100.000	100.000	.000	.000	.000
X2	.000	.000	1.000	905.500	904.600	.000	.000	.000	.000	.000
BT	10.000	.000	905.200	.000	25.000	904.600	.000	125.000	906.000	.000
BT	221.500	908.400	903.200	223.000	908.400	905.000	225.000	908.400	905.500	227.000
BT	908.400	905.000	228.500	908.400	903.200	325.000	906.800	.000	425.000	910.400
BT	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	905.200	.000	904.600	25.000	906.000	125.000	908.400	221.500	900.800	221.500
GR	899.000	223.000	898.500	225.000	899.000	227.000	900.800	228.500	908.400	228.500
GR	906.800	325.000	910.400	425.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	.000	639.000	880.000	.000	.000	.000	.000	.000
	GRAND RIVER AVENUE BRIDGE									
X1	13833.000	14.000	739.000	751.000	51.000	151.000	101.000	.000	-.700	.000
GR	906.900	339.000	905.500	439.000	905.200	539.000	905.900	639.000	905.000	669.000
GR	904.400	724.000	900.500	739.000	899.400	742.000	898.900	747.000	899.200	751.000
GR	904.900	762.000	908.400	839.000	908.700	939.000	910.300	1039.000	.000	.000
SB	.000	1.820	2.800	.000	11.000	1.000	39.300	.000	.000	.000
ET	.000	4.100	.000	639.000	839.000	.000	.000	.000	.000	.000
X1	13899.000	.000	.000	.000	66.000	66.000	66.000	.000	.000	.000
X2	.000	.000	1.000	903.200	904.900	.000	.000	.000	.000	.000
BT	22.000	.000	909.800	.000	45.000	909.200	.000	145.000	908.200	.000
BT	245.000	907.300	.000	345.000	906.400	.000	445.000	905.400	.000	545.000
BT	904.900	.000	645.000	904.900	.000	739.500	905.500	901.600	740.500	905.500
BT	902.800	742.000	905.500	903.200	743.500	905.500	902.800	744.500	905.500	901.600
BT	745.500	905.500	901.600	746.500	905.500	902.800	748.000	905.500	903.200	749.500
BT	905.500	902.800	750.500	905.500	901.600	845.000	906.800	.000	945.000	908.500
BT	.000	1045.000	910.100	.000	1145.000	912.000	.000	.000	.000	.000

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NC	.070	.070	.050	.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	4.100	492.500	667.500	.000	.000	.000	.000	.000
	FOOTBRIDGE 15 FT. NORTH OF GRAND RIVER AVENUE									
X1	13916.000	20.000	584.600	615.500	17.000	17.000	17.000	.000	.000	.000
GR	907.100	192.500	905.700	292.500	905.400	392.500	906.100	492.500	905.200	522.500
GR	904.600	577.500	904.100	584.500	902.780	584.500	901.400	590.000	900.700	592.500
GR	899.600	595.500	899.400	597.000	899.200	600.000	899.100	600.500	899.400	604.500
GR	904.100	615.500	905.100	615.500	908.600	692.500	908.900	792.500	910.500	892.500
SB	.000	1.570	2.800	.000	31.000	.000	108.600	.000	.000	.000
ET	.000	4.100	4.100	492.500	667.500	.000	.000	.000	.000	.000
X1	13918.000	.000	.000	.000	2.000	2.000	2.000	.000	.000	.000
X2	.000	.000	1.000	904.100	904.400	.000	.000	.000	.000	.000
BT	15.000	192.500	907.100	.000	292.500	906.100	.000	392.500	905.400	.000
BT	492.500	906.100	.000	522.500	905.200	.000	577.500	904.600	.000	584.500
BT	905.100	904.100	590.000	905.100	904.100	597.000	905.100	904.100	600.000	905.100
BT	904.100	600.000	905.100	904.100	615.500	905.100	904.100	692.500	908.600	.000
BT	792.500	910.800	.000	892.500	911.300	.000	.000	.000	.000	.000
NC	.100	.100	.050	.300	.500	.000	.000	.000	.000	.000
ET	.000	.000	1.400	.000	.000	.000	.000	.000	.000	.000
X1	14119.000	13.000	315.000	328.000	201.000	201.000	201.000	.000	.000	.000
GR	910.600	.000	910.500	15.000	906.400	115.000	905.700	215.000	903.700	315.000
GR	899.000	318.000	898.800	322.000	899.600	327.000	900.600	328.000	901.700	332.000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

X1	14919.000	22.000	800.000	830.000	850.000	600.000	800.000	.000	.000	.000
GR	913.300	.000	911.600	100.000	911.800	200.000	913.200	300.000	912.900	400.000
GR	911.000	500.000	910.700	600.000	909.400	700.000	909.100	800.000	904.400	808.000
GR	903.600	814.000	904.300	821.000	909.100	830.000	909.500	900.000	908.200	925.000
GR	905.000	980.000	906.000	1000.000	912.900	1020.000	914.300	1100.000	914.800	1200.000
GR	915.300	1275.000	915.500	1800.000	.000	.000	.000	.000	.000	.000
X1	15969.000	21.000	200.000	240.000	1050.000	1050.000	1050.000	.000	.270	.000
GR	917.400	.000	913.900	100.000	911.300	200.000	904.500	206.000	904.100	210.700
GR	903.900	213.000	904.300	218.000	904.100	223.000	904.560	225.300	905.400	230.000
GR	912.800	240.000	913.200	300.000	914.900	400.000	914.700	500.000	914.300	600.000
GR	912.800	700.000	912.500	800.000	913.100	900.000	913.400	1000.000	914.000	1100.000
GR	914.400	1200.000	.000	.000	.000	.000	.000	.000	.000	.000
NC	.100	.100	.050	.000	.000	.000	.000	.000	.000	.000

CULVERTS UNDER PARAGON STEEL

X1	16020.000	29.000	211.700	226.300	51.000	51.000	51.000	.000	.000	.000
X3	10.000	.000	.000	175.000	.000	350.000	.000	910.300	910.300	.000
GR	917.400	.000	913.900	100.000	906.000	211.700	905.300	212.500	904.800	214.000
GR	905.300	215.500	906.000	216.300	908.000	216.300	908.300	218.000	907.100	218.000
GR	906.700	219.000	907.100	220.000	908.300	220.000	907.400	221.700	905.400	221.700
GR	904.700	222.500	904.200	224.000	904.700	225.500	905.400	226.300	913.200	300.000
GR	914.900	400.000	914.700	500.000	914.300	600.000	912.800	700.000	912.500	800.000
GR	913.100	900.000	913.400	1000.000	914.000	1100.000	914.400	1200.000	.000	.000

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SB	.000	4.520	2.800	120.000	14.600	3.400	35.000	.000	.000	.000
X1	16490.000	29.000	211.700	226.300	470.000	470.000	470.000	.000	.000	.000
X2	.000	.000	1.000	908.400	911.300	.000	.000	.000	.000	.000
X3	10.000	.000	.000	175.000	.000	400.000	.000	911.300	911.300	.000
BT	27.000	.000	917.400	.000	100.000	913.900	.000	200.000	911.300	.000
BT	211.700	911.700	908.200	212.500	911.800	908.900	214.000	911.800	909.400	215.500
BT	911.900	908.900	216.300	911.900	908.200	218.000	912.000	907.400	219.000	912.000
BT	907.800	220.000	912.000	907.400	221.700	912.100	907.600	222.500	912.100	908.300
BT	224.000	912.200	908.800	225.500	912.300	908.300	226.300	912.300	907.600	240.000
BT	912.800	.000	300.000	913.200	.000	400.000	914.900	.000	500.000	914.700
BT	.000	600.000	914.300	.000	700.000	912.800	.000	800.000	912.500	.000
BT	900.000	913.100	.000	1000.000	913.400	.000	1100.000	914.000	.000	1200.000
BT	914.400	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	917.400	.000	913.900	100.000	906.200	211.700	905.500	212.500	905.000	214.000
GR	905.500	215.500	906.200	216.300	908.200	216.300	907.400	218.000	906.200	218.000
GR	905.800	219.000	906.200	220.000	907.400	220.000	907.600	221.700	905.600	221.700
GR	904.900	222.500	904.400	224.000	904.900	225.500	905.600	226.300	913.200	300.000
GR	914.900	400.000	914.700	500.000	914.300	600.000	912.800	700.000	912.500	800.000
GR	913.100	900.000	913.400	1000.000	914.000	1100.000	914.400	1200.000	.000	.000
NC	.100	.100	.015	.000	.000	.000	.000	.000	.000	.000

RAILROAD SPUR FOR PARAGON STEEL

X1	16816.000	15.000	292.700	307.300	326.000	326.000	326.000	.000	-2.600	.000
X3	10.000	.000	.000	270.000	.000	330.000	.000	911.800	911.800	.000
GR	911.800	50.000	911.200	90.000	911.300	190.000	912.000	290.000	910.330	292.700
GR	906.400	297.000	905.600	300.000	905.600	305.000	906.290	307.300	906.400	308.000
GR	913.200	320.000	911.400	390.000	912.500	460.000	912.800	510.000	913.400	555.000
SB	.000	1.850	2.800	60.000	12.600	1.400	35.000	.000	.000	.000
X1	16871.000	.000	.000	.000	55.000	55.000	55.000	.000	.000	.000
X2	.000	.000	1.000	908.600	911.800	.000	.000	.000	.000	.000
X3	10.000	.000	.000	270.000	.000	330.000	.000	911.800	911.800	.000
BT	18.000	.000	911.400	.000	100.000	911.700	.000	200.000	912.200	.000
BT	293.700	911.800	906.800	294.500	911.800	907.500	296.000	911.800	908.000	297.500
BT	911.800	907.500	298.300	911.800	906.800	299.000	911.800	907.800	300.000	911.800
BT	908.200	301.000	911.500	907.800	301.700	911.800	907.400	302.500	911.800	906.100

BT	304.000	911.800	908.600	305.500	911.800	908.100	306.300	911.800	907.400	400.000
BT	912.100	.000	500.000	912.000	.000	.000	.000	.000	.000	.000
NC	.050	.050	.030	.000	.000	.000	.000	.000	.000	.000
QT	2.000	950.000	950.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	1.400	570.000	831.000	.000	.000	.000	.000	.000
	C&O RR BRIDGE WEST OF PARAGON STEEL									
X1	16934.000	17.000	730.000	770.000	63.000	63.000	63.000	.000	.900	.000
GR	918.800	230.000	917.300	330.000	916.100	430.000	914.500	530.000	914.500	630.000
GR	911.700	730.000	906.500	745.000	906.000	750.000	906.700	755.000	913.300	770.000
GR	913.000	781.000	911.100	785.000	911.000	786.000	912.200	792.000	912.700	797.000
GR	916.700	811.000	916.100	831.000	.000	.000	.600	.000	.000	.000

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SB	.000	1.900	3.000	.000	29.000	.000	99.200	.000	.000	.000
ET	.000	4.100	.000	570.000	831.000	.000	.000	.000	.000	.000
X1	16960.000	.000	.000	.000	26.000	26.000	26.000	.000	.000	.000
X2	.000	.000	1.000	911.400	911.000	.000	.000	.000	.000	.000
BT	26.000	.000	918.700	.000	50.000	918.400	.000	150.000	917.900	.000
BT	250.000	917.400	.000	350.000	916.900	.000	450.000	916.300	.000	550.000
BT	915.500	.000	650.000	914.900	.000	732.000	914.300	.000	732.000	916.200
BT	.000	735.000	916.200	911.400	735.500	916.200	911.400	750.000	916.200	911.400
BT	755.000	916.200	911.400	760.000	916.200	911.400	764.500	916.200	911.400	765.000
BT	916.200	911.400	768.000	916.200	.000	768.000	914.300	.000	779.000	913.000
BT	.000	783.000	911.100	.000	784.000	911.000	.000	790.000	912.200	.000
BT	795.000	912.700	.000	809.000	916.700	.000	829.000	916.100	.000	.000
NC	.100	.100	.050	.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	.000	99.000	309.000	.000	.000	.000	.000	.000
	CULVERTS 200 FT. WEST OF C&O RR BRIDGE.WEST OF PARAGON STEEL									
X1	17137.000	17.000	198.000	202.000	127.000	127.000	177.000	.000	.900	.000
GR	915.800	29.000	912.800	99.000	908.050	198.000	908.000	199.000	907.300	200.000
GR	907.410	202.000	907.700	207.000	912.000	229.000	915.700	269.000	916.000	299.000
GR	918.000	399.000	918.400	499.000	917.900	599.000	918.100	699.000	918.200	799.000
GR	918.200	899.000	918.100	999.000	.000	.000	.000	.000	.000	.000
SB	.000	2.340	2.700	.000	4.200	.200	6.300	.000	.000	.000
ET	.000	4.100	.000	99.000	309.000	.000	.000	.000	.000	.000
X1	17157.000	.000	.000	.000	20.000	20.000	20.000	.000	.000	.000
X2	.000	.000	1.000	910.200	911.700	.000	.000	.000	.000	.000
BT	16.000	.000	920.900	.000	100.000	912.500	.000	197.900	911.700	909.800
BT	198.900	911.700	910.200	199.900	911.700	909.800	200.100	911.700	909.800	201.100
BT	911.700	910.200	202.100	911.700	909.800	300.000	913.500	.000	400.000	916.600
BT	.000	500.000	918.500	.000	600.000	918.500	.000	700.000	918.900	.000
BT	800.000	919.100	.000	900.000	919.300	.000	1000.000	919.400	.000	.000
NC	.100	.100	.050	.000	.000	.000	.000	.000	.000	.000
X1	17795.000	17.000	170.000	200.000	601.000	676.000	638.000	.000	3.850	.000
GR	915.800	.000	912.800	70.000	908.050	169.000	908.000	170.000	907.300	171.000
GR	907.410	173.000	907.700	178.000	912.000	200.000	915.700	240.000	916.000	270.000
GR	918.000	370.000	918.400	470.000	917.900	570.000	918.100	670.000	918.200	770.000
GR	918.200	870.000	918.100	970.000	.000	.000	.000	.000	.000	.000
X1	18433.000	10.000	275.000	297.000	600.000	675.000	638.000	.000	.000	.000
GR	928.500	.000	927.100	75.000	925.600	100.000	923.800	175.000	915.600	275.000
GR	914.100	282.000	914.300	287.000	914.700	293.000	915.200	297.000	927.000	375.000
QT	2.000	790.000	790.000	.000	.000	.000	.000	.000	.000	.000
NC	.070	.070	.015	.600	.000	.000	.000	.000	.000	.000
	CULVERTS SOUTH OF I-96 UNDER CANZAND CONSTRUCTUIN PROPERTY									
X1	19184.000	21.000	200.000	240.000	751.000	751.000	751.000	.000	-.700	.000
X3	10.000	.000	.000	83.000	.000	228.000	.000	921.000	921.000	.000
[illegible]	[illegible]	.000	917.100	40.000	917.200	65.000	920.800	80.000	921.100	140.000

GR	921.300	200.000	918.600	217.000	917.300	217.000	916.700	218.000	915.500	220.000
GR	914.900	222.000	917.300	223.000	918.600	223.000	914.000	225.000	914.560	228.000
GR	915.500	233.000	921.100	240.000	921.400	340.000	921.700	440.000	923.500	540.000
GR	928.700	640.000	.000	.000	.000	.000	.000	.000	.000	.000

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SB	.000	1.910	3.000	.000	6.000	.000	28.400	.000	.000	.000
X1	19372.000	.000	.000	.000	100.000	300.000	188.000	.000	-.600	.000
X2	.000	.000	1.000	918.400	921.400	.000	.000	.000	.000	.000
X3	10.000	.000	.000	178.000	.000	228.000	.000	921.000	921.000	.000
BT	19.600	.000	929.600	917.500	40.000	925.300	915.800	65.000	918.400	915.900
BT	80.000	919.500	919.500	140.000	921.200	919.800	200.000	921.300	920.000	217.000
BT	921.400	917.300	218.000	921.400	918.700	220.000	921.400	919.300	222.000	921.400
BT	918.700	223.000	921.400	917.300	225.000	921.400	912.700	228.000	921.400	913.260
BT	233.000	921.500	914.200	240.000	921.500	919.800	340.000	922.200	920.100	440.000
BT	920.400	920.400	540.000	922.200	922.200	640.000	928.000	927.400	.000	.000
NC	.070	.070	.050	.000	.000	.000	.000	.000	.000	.000
X1	19448.000	14.000	603.000	613.000	76.000	76.000	76.000	.000	-2.000	.000
X3	10.000	.000	.000	.000	.000	.000	.000	925.400	925.400	.000
GR	926.200	.000	923.400	100.000	923.400	200.000	923.200	300.000	921.200	400.000
GR	920.700	500.000	916.800	600.000	915.800	603.000	914.100	608.000	914.890	613.000
GR	916.000	620.000	919.300	623.000	921.600	700.000	926.800	800.000	.000	.000
NC	.030	.030	.024	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	1.400	.000	.000	.000	.000	.000	.000	.000
	I-96 BRIDGE									
X1	19449.000	15.000	295.000	305.000	1.000	1.000	1.000	.000	.000	.000
BT	13.000	.000	934.300	.000	100.000	932.000	.000	200.000	930.100	.000
BT	295.000	928.900	921.800	300.000	928.900	921.800	305.000	928.900	921.800	400.000
BT	927.600	.000	500.000	926.800	.000	600.000	926.500	.000	700.000	926.400
BT	.000	800.000	926.600	.000	900.000	927.300	.000	1000.000	928.200	.000
GR	934.300	.000	932.000	100.000	930.100	200.000	928.900	295.000	912.100	295.000
GR	913.000	300.000	913.700	305.000	928.900	305.000	927.600	400.000	926.800	500.000
GR	926.500	600.000	926.400	700.000	926.600	800.000	927.300	900.000	928.200	1000.000
X1	19605.000	.000	.000	.000	156.000	156.000	156.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	1.000	.000	.000	.000
NC	.100	.100	.050	.000	.000	.000	.000	.000	.000	.000
X1	19606.000	14.000	603.000	613.000	1.000	1.000	1.000	.000	-2.000	.000
X3	10.000	.000	.000	.000	.000	.000	.000	926.400	926.400	.000
GR	926.200	.000	923.400	100.000	923.400	200.000	923.200	300.000	921.200	400.000
GR	920.700	500.000	916.800	600.000	915.800	603.000	914.100	608.000	914.890	613.000
GR	916.000	620.000	919.300	623.000	921.600	700.000	926.800	800.000	.000	.000
ET	.000	4.100	1.400	385.000	695.000	.000	.000	.000	.000	.000
X1	19756.000	14.000	600.000	623.000	150.000	150.000	150.000	.000	.560	.000
GR	926.200	.000	923.400	100.000	923.400	200.000	923.200	300.000	921.200	400.000
GR	920.700	500.000	916.800	600.000	915.800	603.000	914.100	608.000	914.890	613.000
GR	916.000	620.000	919.300	623.000	921.600	700.000	926.800	800.000	.000	.000
NC	.070	.040	.050	.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	.000	245.000	410.000	.000	.000	.000	.000	.000

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DRIVEWAY BRIDGE EAST TAFT ROAD

X1	20807.000	19.000	307.806	312.200	926.000	901.000	1051.000	.000	1.500	.000
GR	930.900	.000	927.200	100.000	924.100	200.000	920.300	300.000	918.100	302.000
GR	917.500	306.000	916.420	307.800	915.100	310.000	915.910	312.200	917.300	316.000

GR	919.700	400.000	921.300	450.000	927.900	490.000	928.200	500.000	.000	.000
SB	.000	1.600	2.700	.000	5.250	.000	10.800	.000	.000	.000
ET	.000	4.100	.000	245.000	410.000	.000	.000	.000	.000	.000
X1	20819.000	.000	.000	.000	12.000	12.000	12.000	.000	.000	.000
X2	.000	.000	1.000	919.600	920.700	.000	.000	.000	.000	.000
BT	13.000	10.000	929.500	.000	110.000	926.800	.000	210.000	921.300	.000
BT	307.800	921.400	918.700	308.000	921.400	919.600	308.400	921.400	919.600	310.000
BT	921.400	919.600	311.600	921.400	919.600	312.000	921.400	919.600	312.200	921.400
BT	918.700	410.000	920.700	.000	452.000	921.200	.000	470.000	926.700	.000
ET	.000	4.100	.000	270.000	410.000	.000	.000	.000	.000	.000
	GARAGE BRIDGE EAST OF TAFT ROAD									
X1	20846.000	18.000	331.000	339.000	27.000	27.000	27.000	.000	1.700	.000
GR	930.900	25.000	927.200	125.000	924.100	225.000	920.300	325.000	918.100	327.000
GR	917.500	331.000	915.100	335.000	916.570	339.000	917.300	341.000	919.400	344.000
GR	919.100	370.000	917.800	385.000	917.100	400.000	919.400	415.000	919.700	425.000
GR	921.300	475.000	927.900	515.000	928.200	525.000	.000	.000	.000	.000
SB	1.000	2.590	3.000	.000	8.000	.000	28.400	.000	.000	.000
ET	.000	4.100	.000	270.000	410.000	.000	.000	.000	.000	.000
X1	20866.000	.000	.000	.000	20.000	20.000	20.000	.000	.000	.000
X2	.000	.000	1.000	920.400	920.900	.000	.000	.000	.000	.000
BT	14.000	.000	929.800	.000	35.000	928.600	.000	135.000	926.600	.000
BT	235.000	921.600	.000	312.000	920.900	.000	312.000	932.600	.000	331.000
BT	932.600	920.400	335.000	932.600	920.400	339.000	932.600	920.400	350.000	932.600
BT	.000	350.000	921.000	.000	435.000	923.300	.000	535.000	928.300	.000
BT	635.000	931.500	.000	.000	.000	.000	.000	.000	.000	.000
NC	.070	.040	.050	.000	.000	.000	.000	.000	.000	.000
X1	21317.000	11.000	262.000	270.000	351.000	351.000	451.000	.000	.000	.000
GR	932.600	.000	928.100	70.000	922.200	170.000	919.700	262.000	918.400	265.000
GR	918.000	269.000	919.500	270.000	921.000	370.000	927.100	470.000	928.900	570.000
GR	931.400	660.000	.000	.000	.000	.000	.000	.000	.000	.000
NC	.100	.070	.050	.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	6.100	790.000	825.000	790.000	819.000	.000	.000	.000
X1	21817.000	20.000	800.000	811.000	425.000	425.000	500.000	.000	-2.500	.000
GR	935.100	.000	933.800	100.000	931.000	200.000	928.800	300.000	926.100	400.000
GR	924.100	500.000	927.400	600.000	921.600	700.000	922.900	800.000	922.000	801.000
GR	921.500	805.000	921.400	810.000	922.800	811.000	928.400	830.000	925.800	900.000
GR	926.700	1000.000	929.500	1100.000	930.100	1200.000	932.500	1300.000	934.900	1415.000
X1	21867.000	20.000	801.000	811.000	50.000	50.000	50.000	.000	-2.400	.000
X3	10.000	.000	.000	.000	.000	.000	.000	933.100	933.100	.000
GR	935.100	.000	933.800	100.000	931.000	200.000	928.800	300.000	926.100	400.000
GR	924.700	500.000	927.400	600.000	921.600	700.000	922.900	800.000	922.000	801.000
GR	921.500	805.000	921.400	810.000	922.800	811.000	928.400	830.000	925.800	900.000
GR	926.700	1000.000	929.500	1100.000	930.100	1200.000	932.500	1300.000	934.900	1415.000

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NC	.030	.030	.023	.000	.000	.000	.000	.000	.000	.000
	C&O RR BRIDGE 600 FT. SE OF 12 MILE ROAD									
X1	21868.000	18.000	795.000	805.000	1.000	1.000	1.000	.000	.000	.000
BT	16.000	.000	931.200	.000	100.000	931.600	.000	200.000	932.200	.000
BT	300.000	932.600	.000	400.000	933.100	.000	500.000	933.400	.000	600.000
BT	933.500	.000	700.000	933.800	.000	795.000	934.000	928.000	805.000	934.000
BT	928.000	900.000	934.200	.000	1000.000	934.400	.000	1100.000	934.500	.000
BT	1200.000	934.700	.000	1300.000	934.700	.000	1405.000	934.700	.000	.000
GR	931.200	.000	931.600	100.000	932.200	200.000	932.600	300.000	933.100	400.000
GR	933.400	500.000	933.500	600.000	933.800	700.000	934.000	795.000	919.000	795.000
GR	919.000	805.000	934.000	805.000	934.200	900.000	934.400	1000.000	934.500	1100.000
[illegible]	934.700	[illegible]	934.700	[illegible]	934.700	1405.000	.000	.000	.000	.000

X1	21892.000	.000	.000	.000	24.000	24.000	24.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	1.000	.000	.000	.000
NC	.100	.100	.050	.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	1.400	801.000	811.000	.000	.000	.000	.000	.000
X1	21893.000	20.000	801.000	811.000	1.000	1.000	1.000	.000	-2.400	.000
GR	935.100	.000	933.800	100.000	931.000	200.000	928.800	300.000	926.100	400.000
GR	924.700	500.000	927.400	600.000	921.600	700.000	922.900	800.000	922.000	801.000
GR	921.500	805.000	921.400	810.000	922.800	811.000	928.400	830.000	925.800	900.000
GR	926.700	1000.000	929.500	1100.000	930.100	1200.000	932.500	1300.000	934.900	1415.000
ET	.000	4.100	6.100	60.000	260.000	140.000	240.000	.000	.000	.000
X1	22143.000	15.000	200.000	220.000	205.000	196.000	250.000	.000	-4.560	.000
GR	937.000	.000	932.000	100.000	927.500	200.000	926.060	205.000	925.200	208.000
GR	925.200	213.000	926.000	215.000	928.000	220.000	933.400	245.000	934.600	300.000
GR	935.000	400.000	934.800	500.000	934.900	600.000	932.500	700.000	937.900	800.000
ET	.000	4.100	4.100	195.000	220.000	.000	.000	.000	.000	.000
X1	22568.000	.000	.000	.000	345.000	329.000	425.000	.000	1.100	.000
X1	22593.000	15.000	205.000	215.000	25.000	25.000	25.000	.000	-3.400	.000
X3	10.000	.000	.000	.000	.000	260.000	.000	950.000	950.000	.000
GR	937.000	.000	932.000	100.000	927.500	200.000	926.060	205.000	925.200	208.000
GR	925.200	213.000	926.000	215.000	928.000	220.000	933.400	245.000	934.600	300.000
GR	935.000	400.000	934.800	500.000	934.900	600.000	932.500	700.000	937.900	800.000
NC	.030	.030	.023	.000	.000	.000	.000	.000	.000	.000
	12 MILE ROAD									
X1	22594.000	21.000	995.000	1005.000	1.000	1.000	1.000	.000	.000	.000
X3	.000	.000	.000	750.000	.000	1050.000	.000	.000	.000	.000
BT	19.000	.000	933.300	.000	100.000	931.300	.000	200.000	930.000	.000
BT	300.000	930.400	.000	400.000	931.900	.000	500.000	933.000	.000	600.000
BT	933.800	.000	700.000	934.300	.000	800.000	934.500	.000	900.000	934.800
BT	.000	995.000	934.900	931.800	1000.000	934.900	931.800	1005.000	934.900	931.800
BT	1100.000	934.900	.000	1200.000	934.900	.000	1300.000	934.800	.000	1400.000
BT	934.700	.000	1500.000	935.500	.000	1600.000	938.200	.000	.000	.000
GR	933.300	.000	931.300	100.000	930.000	200.000	930.400	300.000	931.900	400.000
GR	933.000	500.000	933.800	600.000	934.300	700.000	934.500	800.000	934.800	900.000
GR	934.900	995.000	921.800	995.000	921.800	1000.000	921.800	1005.000	934.900	1005.000
GR	934.900	1100.000	934.900	1200.000	934.800	1300.000	934.700	1400.000	935.500	1500.000

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GR	938.200	1600.000	.000	.000	.000	.000	.000	.000	.000	.000
X1	22644.000	.000	.000	.000	50.000	50.000	50.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	1.000	.000	.000	.000
X3	.000	.000	.000	750.000	.000	1050.000	.000	.000	.000	.000
NC	.070	.070	.040	.000	.000	.000	.000	.000	.000	.000
X1	22645.000	15.000	205.000	215.000	1.000	1.000	1.000	.000	-3.400	.000
X3	10.000	.000	.000	.000	.000	260.000	.000	950.000	950.000	.000
GR	937.000	.000	932.000	100.000	927.500	200.000	926.060	205.000	925.200	208.000
GR	925.200	213.000	926.000	215.000	928.000	220.000	933.400	245.000	934.600	300.000
GR	935.000	400.000	934.800	500.000	934.900	600.000	932.500	700.000	937.900	800.000
BT	2.000	340.000	340.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	1.400	.000	.000	.000	.000	.000	.000	.000
X1	22670.000	12.000	151.000	187.000	25.000	25.000	25.000	.000	-.740	.000
GR	938.900	.000	938.300	63.000	934.700	100.000	932.400	123.000	930.600	151.000
GR	924.600	166.000	922.600	169.000	922.800	177.000	925.300	178.000	928.700	183.000
GR	929.900	187.000	932.900	200.000	.000	.000	.000	.000	.000	.000
X1	22971.000	.000	.000	.000	375.000	396.000	300.000	.000	.740	.000

X1	23870.000	20.000	262.000	281.000	850.000	950.000	900.000	.000	.000	.000
GR	945.300	.000	940.500	54.000	932.600	99.000	932.900	125.000	929.500	200.000
GR	927.200	211.000	926.600	262.000	924.400	266.000	923.800	271.000	924.500	275.000
GR	926.700	281.000	926.800	288.000	928.400	295.000	926.300	305.000	926.900	315.000
GR	930.300	330.000	931.000	400.000	931.100	418.000	934.100	500.000	935.600	600.000
X1	24870.000	27.000	409.000	595.000	1050.000	1000.000	1000.000	.000	.000	.000
GR	949.300	.000	935.000	100.000	929.800	153.000	929.200	200.000	929.300	300.000
GR	929.000	400.000	929.100	409.000	927.700	412.000	927.000	420.000	927.500	426.000
GR	929.000	429.000	929.500	455.000	928.800	500.000	928.900	567.000	928.000	571.000
GR	927.600	581.000	928.200	590.000	928.900	595.000	929.100	600.000	928.900	700.000
GR	930.200	748.000	932.200	800.000	934.200	850.000	937.800	900.000	941.200	950.000
GR	942.200	975.000	941.300	1000.000	.000	.000	.000	.000	.000	.000
X1	26645.000	17.000	231.000	274.000	1825.000	1625.000	1775.000	.000	.000	.000
GR	944.600	.000	937.400	100.000	933.000	200.000	931.600	231.000	928.600	248.000
GR	927.400	257.000	928.300	263.000	930.100	274.000	929.500	300.000	929.800	400.000
GR	930.200	461.000	931.100	500.000	934.500	600.000	935.100	700.000	935.500	800.000
GR	936.600	900.000	935.900	1000.000	.000	.000	.000	.000	.000	.000
X1	27695.000	24.000	481.000	500.000	775.000	1150.000	1050.000	.750	.000	.000
GR	937.000	.000	936.400	34.000	930.700	134.000	930.500	171.000	930.500	234.000
GR	930.400	334.000	930.400	434.000	930.400	481.000	928.500	484.000	927.600	491.000
GR	928.500	495.000	930.700	500.000	930.800	534.000	929.600	634.000	930.000	721.000
GR	929.200	728.000	929.800	734.000	930.700	800.000	930.900	834.000	931.500	934.000
GR	933.600	1034.000	934.300	1134.000	937.000	1234.000	938.900	1334.000	.000	.000

ET	.000	4.100	.000	600.000	1500.000	.000	.000	.000	.000	.000
X1	28670.000	13.000	610.000	1250.000	1225.000	825.000	975.000	.000	.000	.000
GR	937.200	.000	932.600	100.000	931.200	196.000	930.200	420.000	930.100	610.000
GR	928.200	1204.000	929.300	1250.000	930.400	1350.000	930.400	1450.000	931.200	1475.000
GR	934.300	1550.000	938.100	1650.000	937.300	1750.000	.000	.000	.000	.000
ET	.000	4.100	.000	400.000	1100.000	.000	.000	.000	.000	.000
X1	29070.000	90.000	539.700	1037.500	382.000	406.000	400.000	.000	-.050	.000
GR	936.500	.000	935.800	18.600	935.000	37.200	934.300	55.800	933.600	74.400
GR	933.000	93.000	932.700	111.600	932.500	130.200	932.300	148.800	932.000	167.500
GR	931.900	186.100	931.800	204.700	931.700	223.300	931.700	241.900	931.600	260.500
GR	931.500	279.100	931.500	297.700	931.400	316.400	931.300	335.000	931.200	353.600
GR	931.100	372.200	931.000	390.800	931.000	409.400	930.900	428.000	930.900	446.600
GR	930.800	465.300	930.800	483.900	930.700	502.500	930.600	521.100	930.600	539.700
GR	930.300	556.300	930.100	572.900	930.000	589.500	929.900	606.100	929.800	622.700
GR	930.000	639.200	930.300	655.800	930.300	672.400	930.300	689.000	930.300	705.600
GR	930.300	722.200	930.300	738.800	930.300	755.400	930.300	772.000	930.200	788.600
GR	930.100	805.200	930.000	821.800	929.900	838.300	929.800	854.900	929.600	871.500
GR	929.500	888.100	929.300	904.700	929.000	921.300	928.800	937.900	928.700	954.500
GR	928.700	971.100	928.700	987.700	928.800	1004.300	929.400	1020.900	930.000	1037.500
GR	930.200	1057.700	930.400	1078.000	930.600	1098.200	930.800	1118.400	931.000	1138.700
GR	931.100	1158.900	931.200	1179.200	931.200	1199.400	931.200	1219.700	931.200	1239.900
GR	931.200	1260.200	931.300	1280.400	931.700	1300.700	932.100	1320.900	932.600	1341.200
GR	933.100	1361.400	933.700	1381.700	934.300	1401.900	934.800	1422.200	935.500	1442.400
GR	936.400	1462.700	937.100	1482.900	937.900	1503.200	938.500	1523.400	938.500	1543.700
GR	938.600	1563.900	938.700	1584.200	938.900	1604.400	939.700	1624.700	939.900	1645.000
ET	.000	4.100	.000	450.000	950.000	.000	.000	.000	.000	.000
X1	29470.000	90.000	469.500	825.000	382.000	406.000	400.000	.000	.000	.000
GR	935.900	.000	935.400	16.100	934.900	32.300	934.400	48.500	933.900	64.700
GR	933.500	80.900	933.300	97.100	933.100	113.300	933.000	129.500	932.800	145.700
GR	932.700	161.800	932.700	178.000	932.600	194.200	932.600	210.400	932.600	226.600
GR	932.500	242.800	932.500	259.000	932.400	275.200	932.400	291.400	932.200	307.600

GR	931.600	404.700	931.500	420.900	931.300	437.100	931.200	453.300	931.100	469.500
GR	930.700	481.300	930.400	493.100	930.200	505.000	930.100	516.800	929.900	528.700
GR	930.500	540.500	931.000	552.400	931.200	564.200	931.200	576.100	931.300	587.900
GR	931.400	599.800	931.400	611.600	931.500	623.500	931.500	635.300	931.500	647.200
GR	931.300	659.000	931.100	670.900	931.000	682.700	930.800	694.600	930.600	706.400
GR	930.400	718.300	930.100	730.100	929.600	742.000	929.300	753.800	929.200	765.700
GR	929.100	777.500	929.200	789.400	929.400	801.200	930.100	813.100	930.800	825.000
GR	931.100	848.800	931.300	872.600	931.500	896.400	931.600	920.300	931.800	944.100
GR	932.000	967.900	932.000	991.800	932.000	1015.600	932.000	1039.400	932.100	1063.300
GR	932.100	1087.100	932.200	1110.900	932.500	1134.800	932.800	1158.600	933.100	1182.400
GR	933.400	1206.300	933.800	1230.100	934.300	1253.900	934.800	1277.800	935.600	1301.600
GR	936.600	1325.400	937.500	1349.300	938.400	1373.100	939.000	1396.900	939.200	1420.800
GR	939.500	1444.600	939.800	1468.400	940.300	1492.300	942.000	1516.100	942.600	1540.000

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ET	.000	4.100	.000	350.000	650.000	.000	.000	.000	.000	.000
X1	29870.000	90.000	399.200	612.500	382.000	406.000	400.000	.000	.050	.000
GR	935.300	.000	935.000	13.700	934.700	27.500	934.400	41.300	934.200	55.000
GR	934.000	68.800	933.800	82.600	933.700	96.300	933.700	110.100	933.600	123.900
GR	933.500	137.500	933.500	151.400	933.500	165.200	933.500	178.900	933.500	192.700
GR	933.400	206.500	933.400	220.200	933.400	234.000	933.400	247.800	933.200	261.500
GR	933.000	275.300	932.900	289.100	932.700	302.800	932.600	316.600	932.400	330.400
GR	932.300	344.100	932.100	357.900	931.900	371.700	931.700	385.400	931.600	399.200
GR	931.100	406.300	930.600	413.400	930.400	420.500	930.200	427.600	930.000	434.700
GR	930.900	441.800	931.700	449.000	932.000	456.100	932.100	463.200	932.200	470.300
GR	932.400	477.400	932.500	484.500	932.600	491.600	932.700	498.700	932.700	505.800
GR	932.500	512.900	932.200	520.000	932.000	527.100	931.800	534.300	931.500	541.400
GR	931.300	548.500	930.900	555.600	930.200	562.700	929.700	569.800	929.600	576.900
GR	929.500	584.000	929.700	591.100	930.000	598.200	930.700	605.300	931.500	612.500
GR	931.900	639.900	932.100	667.300	932.300	694.700	932.400	722.100	932.600	749.500
GR	932.800	776.900	932.900	804.400	932.900	831.800	932.900	859.200	932.900	886.600
GR	933.000	914.000	933.100	941.400	933.300	968.900	933.400	996.300	933.500	1023.700
GR	993.600	1051.100	933.900	1078.500	934.300	1105.900	934.700	1133.400	935.600	1160.800
GR	936.800	1188.200	937.900	1215.600	938.800	1243.000	939.400	1270.400	939.900	1297.900
GR	940.300	1325.300	940.900	1352.700	941.700	1380.100	944.200	1407.500	945.300	1435.000
X1	30270.000	27.000	329.000	400.000	382.000	406.000	400.000	.000	.000	.000
GR	934.700	.000	934.400	100.000	934.500	200.000	932.800	300.000	932.100	329.000
GR	930.900	334.000	930.500	337.000	930.200	341.000	932.800	346.000	934.100	364.000
GR	932.100	380.000	930.300	385.000	930.000	390.000	930.500	395.000	932.300	400.000
GR	932.700	420.000	933.200	500.000	933.800	600.000	933.800	700.000	934.200	800.000
GR	933.900	900.000	934.900	1000.000	939.100	1100.000	941.100	1200.000	942.800	1265.000
GR	946.700	1300.000	948.000	1330.000	.000	.000	.000	.000	.000	.000
NC	.070	.070	.050	.000	.000	.000	.000	.000	.000	.000
DT	2.000	245.000	245.000	.000	.000	.000	.000	.000	.000	.000
X1	-12094.000	12.000	55.000	65.000	.000	.000	.000	.000	.000	.000
GR	906.800	.000	904.000	14.000	896.600	15.000	896.200	27.000	893.100	55.000
GR	890.400	57.000	890.200	61.000	890.800	65.000	892.600	97.000	898.600	100.000
GR	900.200	155.000	903.800	255.000	.000	.000	.000	.000	.000	.000
X1	120.000	13.000	63.000	95.000	120.000	120.000	120.000	.000	.000	.000
GR	894.900	.000	896.900	39.000	894.200	63.000	891.600	69.000	891.500	70.000
GR	891.900	72.000	894.400	75.000	899.300	95.000	902.200	163.000	904.400	263.000
GR	907.400	363.000	909.100	463.000	910.200	563.000	.000	.000	.000	.000
X1	620.000	15.000	200.000	222.000	500.000	500.000	500.000	.000	.000	.000
GR	908.900	.000	908.200	80.000	898.500	100.000	899.600	177.000	898.500	200.000
GR	894.300	204.000	893.400	206.000	894.300	208.000	897.800	210.000	898.700	214.000
GR	903.500	222.000	905.800	300.000	906.400	333.000	908.900	400.000	912.300	450.000
X1	2000.000	13.000	83.000	110.000	1380.000	1380.000	1380.000	.000	.000	.000
X1	10.000	000	.0	00	.000	000	000	000	000	000

GR	906.900	.000	906.100	60.000	903.900	83.000	899.000	88.000	899.000	92.000
GR	901.700	100.000	906.600	110.000	908.300	130.000	907.300	160.000	904.100	165.000
GR	903.900	170.000	907.800	178.000	907.600	200.000	.000	.000	.000	.000

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X1	2095.000	90.000	78.000	100.900	95.000	95.000	95.000	.000	.000	.000
X3	10.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	906.900	.000	906.800	2.600	906.800	5.300	906.700	8.000	906.700	10.700
GR	906.700	13.400	906.700	16.100	906.700	18.800	906.600	21.500	906.600	24.200
GR	906.600	26.800	906.600	29.500	906.600	32.200	906.600	34.900	906.500	37.600
GR	906.500	40.300	906.500	43.000	906.500	45.700	906.500	48.400	906.400	51.100
GR	906.400	53.700	906.300	56.400	906.100	59.100	905.900	61.800	905.600	64.500
GR	905.300	67.200	905.100	69.900	904.900	72.600	904.600	75.300	904.400	78.000
GR	903.700	78.700	903.000	79.500	902.300	80.200	901.600	81.000	900.900	81.800
GR	900.500	82.500	900.400	83.300	900.400	84.100	900.400	84.800	900.400	85.600
GR	900.600	86.400	900.800	87.100	901.000	87.900	901.300	88.700	901.500	89.400
GR	901.800	90.200	902.100	91.000	902.400	91.700	902.700	92.500	903.000	93.200
GR	903.500	94.000	903.900	94.800	904.300	95.500	904.600	96.300	905.000	97.100
GR	905.400	97.800	905.800	98.600	906.200	99.400	906.600	100.100	907.000	100.900
GR	907.100	103.500	907.300	106.200	907.500	108.800	907.700	111.400	907.800	114.000
GR	908.100	116.700	908.200	119.300	908.100	121.900	908.000	124.500	908.000	127.200
GR	907.900	129.800	907.800	132.400	907.800	135.000	907.700	137.700	907.600	140.300
GR	907.600	142.900	907.000	145.500	905.600	148.200	905.100	150.800	905.000	153.400
GR	906.100	156.000	907.200	158.700	907.900	161.300	907.900	163.900	907.900	166.500
GR	907.900	169.200	907.900	171.800	907.900	174.400	907.900	177.000	907.900	179.700

X1	2190.000	90.000	73.000	91.900	95.000	95.000	95.000	.000	.000	.000
X3	10.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	906.900	.000	906.800	2.500	906.800	5.000	906.800	7.500	906.800	10.000
GR	906.800	12.500	906.800	15.100	906.800	17.600	906.800	20.100	906.800	22.600
GR	906.800	25.100	906.800	27.700	906.800	30.200	906.800	32.700	906.800	35.200
GR	906.800	37.700	906.800	40.300	906.800	42.800	906.800	45.300	906.800	47.800
GR	906.800	50.300	906.700	52.900	906.500	55.400	906.300	57.900	906.000	60.400
GR	905.800	62.900	905.600	65.500	905.400	68.000	905.200	70.500	905.000	73.000
GR	904.500	73.600	904.000	74.300	903.400	74.900	902.900	75.500	902.400	76.200
GR	902.100	76.800	902.000	77.400	901.900	78.000	901.800	78.700	901.800	79.300
GR	901.900	79.900	902.100	80.600	902.200	81.200	902.400	81.800	902.600	82.400
GR	902.800	83.100	903.200	83.700	903.400	84.300	903.700	84.900	904.000	85.600
GR	904.400	86.200	904.700	86.800	905.100	87.500	905.400	88.100	905.700	88.700
GR	906.100	89.300	906.400	90.000	906.700	90.600	907.100	91.200	907.400	91.900
GR	907.500	94.100	907.600	96.400	907.700	98.600	907.800	100.900	907.900	103.100
GR	908.100	105.400	908.200	107.600	908.100	109.900	908.100	112.100	908.100	114.400
GR	908.000	116.600	908.000	118.900	908.000	121.100	907.900	123.400	907.900	125.600
GR	907.900	127.900	907.500	130.100	906.600	132.400	906.200	134.600	906.200	136.900
GR	906.900	139.100	907.700	141.400	908.200	143.600	908.200	145.900	908.200	148.100
GR	908.200	150.400	908.200	152.600	908.200	154.900	908.200	157.100	908.200	159.400

X1	2285.000	90.000	68.000	82.800	95.000	95.000	95.000	.000	.000	.000
X3	10.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	906.900	.000	906.800	2.300	906.800	4.600	906.800	7.000	906.900	9.300
GR	906.900	11.700	906.900	14.000	906.900	16.400	906.900	18.700	906.900	21.100
GR	907.000	23.400	907.000	25.800	907.000	28.100	907.000	30.500	907.000	32.800
GR	907.000	35.200	907.000	37.500	907.100	39.900	907.100	42.200	907.100	44.500
GR	907.100	46.900	907.000	49.200	906.800	51.600	906.600	53.900	906.400	56.300
GR	906.200	58.600	906.100	61.000	905.900	63.300	905.700	65.700	905.600	68.000
GR	905.200	68.500	904.900	69.000	904.500	69.500	904.200	70.000	903.900	70.500
GR	903.600	71.000	903.500	71.500	903.300	72.000	903.200	72.500	903.200	72.900
GR	903.200	73.400	903.300	73.900	903.400	74.400	903.500	74.900	903.700	75.400

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GR	903.900	75.800	904.200	76.400	904.400	76.900	904.700	77.400	905.000	77.900

GR	905.300	76.400	905.600	78.900	905.800	79.400	906.100	79.800	906.400	80.300
GR	906.700	80.800	907.000	81.300	907.200	81.800	907.600	82.300	907.800	82.800
GR	907.800	84.700	907.900	86.600	907.900	88.400	907.900	90.300	908.000	92.200
GR	908.100	94.100	908.100	95.900	908.100	97.800	908.100	99.700	908.100	101.600
GR	908.100	103.400	908.100	105.300	908.100	107.200	908.100	109.100	908.100	110.900
GR	908.100	112.800	907.900	114.700	907.500	116.600	907.300	118.500	907.300	120.300
GR	907.700	122.200	908.100	124.100	908.400	126.000	908.400	127.800	908.400	129.700
GR	908.400	131.600	908.500	133.500	908.500	135.300	908.500	137.200	908.500	139.100
EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 .000

3265 DIVIDED FLOW

MEADOWBROOK LAKE

.00	5.79	839.29	.00	839.29	839.30	.01	.00	.00	834.20
1215.	901.	314.	0.	1401.	440.	0.	0.	0.	842.90
.00	.64	.71	.00	.030	.040	.030	.000	833.50	13.86
.000044	0.	0.	0.	0	0	0	.00	800.28	871.56

0
#SECNO 62.000

62.00	6.09	839.29	.00	.00	839.30	.01	.00	.00	836.00
1215.	859.	356.	0.	1178.	359.	0.	2.	1.	842.50
.02	.73	.99	.00	.030	.040	.030	.000	833.20	12.89
.000094	62.	62.	62.	0	0	0	.00	853.87	866.77

0
#SECNO 125.000

125.00	6.30	839.30	.00	.00	839.32	.02	.01	.00	837.90
1215.	803.	412.	0.	889.	279.	0.	4.	2.	842.30
.04	.90	1.47	.00	.030	.040	.030	.000	833.00	12.08
.000233	63.	63.	63.	0	0	0	.00	849.18	861.26

0
#SECNO 187.000

3265 DIVIDED FLOW

187.00	7.21	839.31	.00	.00	839.34	.03	.02	.01	839.80
1215.	837.	378.	0.	710.	213.	0.	6.	4.	842.00
.05	1.18	1.78	.00	.030	.040	.030	.000	832.10	10.76
.000373	62.	62.	62.	0	0	0	.00	712.84	855.81

0
#SECNO 251.000

3265 DIVIDED FLOW

CHATTMAN DRIVE BRIDGE

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

```
   251.00     6.83   839.33      .00      .00   839.37      .04      .02      .00   833.20
    1215.     958.     205.      51.     726.      83.      29.       7.       4.   833.50
      .06     1.32     2.47     1.77     .030     .040     .030     .000   832.50     9.55
  .000375      64.      64.      64.        0        0        0      .00   555.69   849.95
0

 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 5227 DOWNSTREAM ELEV IS    837.73 ,NOT    839.33 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      1.56      2.70       .00     13.00      1.00     60.00       .00    832.50    832.50

 #SECND 292.000

 3265 DIVIDED FLOW

 PRESSURE AND WEIR FLOW

  EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                 AREA
    849.26    841.41       .00     1093.      124.       60.       61.      837.60    838.40


   292.00     5.79   839.39      .00      .00   839.43      .04      .06      .00   841.90
    1215.    1115.     100.       0.     678.      64.       0.       8.       5.   841.90
      .07     1.64     1.58      .00     .030     .040     .000     .000   833.60    10.53
  .000596      41.      41.      41.        2        0        8      .00   523.53   806.50
0
 #SECND 503.000

 3470 ENCROACHMENT STATIONS=     750.0    1180.0  TYPE=     1  TARGET=     430.000
   503.00     4.86   839.56      .00      .00   839.95      .40      .35      .18   837.80
    1215.     195.     774.     246.     212.     123.     196.      12.       8.   836.00
      .09      .92     6.28     1.25     .100     .040     .100     .000   834.70   750.00
  .004460      321.     211.     211.        2        0        0      .00   430.00  1180.00
0
 #SECND 601.000

 3470 ENCROACHMENT STATIONS=     555.0    1180.0  TYPE=     1  TARGET=     625.000
1
  08/27/91    15:30:39                                                                PAGE   29

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


   601.00     5.00   840.08      .00      .00   840.34      .26      .34      .04   838.18
    1215.     348.     638.     229.     374.     115.     200.      13.       9.   836.38
      .09      .93     5.56     1.14     .100     .040     .100     .000   835.08   555.00
  .003372      96.      98.      54.        4        0        0      .00   514.98  1069.98
0
 #SECND 699.000

 3265 DIVIDED FLOW

 3470 ENCROACHMENT STATIONS=     335.0    1085.0  TYPE=     1  TARGET=     750.000
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    1215.     713.     349.     154.     966.     123.     193.      15.      10.   836.87
      .11      .74     2.84      .79     .100     .040     .100     .000   835.47   335.00
   .001245     96.      98.      54.        2        0        0      .00   748.10  1085.00
0
 #SECNO 797.000

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     427.0    1250.0  TYPE=     1  TARGET=     823.000
    797.00     4.81   840.66      .00      .00   840.76      .09      .15      .03   838.75
    1215.     566.     445.     204.     642.     116.     214.      18.      12.   837.25
      .12      .88     3.85      .95     .100     .040     .100     .000   835.85   427.00
   .002430     96.      98.      55.        2        0        0      .00   709.20  1138.11
0
 #SECNO 895.000

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     368.0    1250.0  TYPE=     1  TARGET=     882.000
    895.00     4.68   840.91      .00      .00   841.04      .13      .26      .02   839.13
    1215.     568.     457.     190.     548.     101.     172.      19.      13.   837.63
      .13     1.04     4.53     1.11     .100     .040     .100     .000   836.23   368.00
   .003639     95.      98.      54.        2        0        0      .00   653.32  1023.04
0
1
  08/27/91    15:30:39                                                                PAGE   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


 #SECNO 993.000

 3470 ENCROACHMENT STATIONS=     414.0    1250.0  TYPE=     1  TARGET=     836.000
    993.00     4.55   841.17      .00      .00   841.53      .36      .38      .12   839.52
    1215.     308.     715.     192.     332.     115.     160.      21.      15.   838.22
      .14      .93     6.24     1.20     .100     .040     .100     .000   836.62   426.82
   .004853     96.      98.      54.        1        0        0      .00   660.02  1086.84
0
 #SECNO 1091.000

 3470 ENCROACHMENT STATIONS=     443.0    1200.0  TYPE=     1  TARGET=     757.000
   1091.00     4.64   841.64      .00      .00   841.95      .31      .40      .02   839.90
    1215.     323.     688.     203.     359.     118.     178.      22.      16.   838.60
      .15      .90     5.85     1.14     .100     .040     .100     .000   837.00   443.00
   .004122     96.      98.      54.        3        0        0      .00   645.76  1088.76
0
 #SECNO 1385.000

 3470 ENCROACHMENT STATIONS=     498.0    1200.0  TYPE=     1  TARGET=     702.000
   1385.00     4.67   842.77      .00      .00   843.09      .32     1.13      .01   841.00
    1215.     306.     693.     216.     284.     117.     186.      26.      19.   839.90
      .17     1.08     5.92     1.16     .100     .040     .100     .000   838.10   551.57
   .004264     288.     294.     163.        1        0        0      .00   501.85  1053.43
0
 #SECNO 1678.000

 3470 ENCROACHMENT STATIONS=     400.0     900.0  TYPE=     1  TARGET=     500.000
   1678.00     4.65   843.95      .00      .00   844.30      .35     1.20      .01   842.10
    1215.     340.     708.     167.     285.     116.     135.      29.      21.   841.30
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   .004597     287.     293.     162.       2        0        0      .00   367.72   900.00
0
 #SECNO 2253.000
   2253.00     4.65   846.35      .00      .00   846.61      .26     2.29      .03   844.20
     1215.     383.     740.      91.     265.     144.      50.      33.      24.   843.70
       .22     1.45     5.13     1.84     .100     .050     .100     .000   841.70   310.54
   .004926     375.     575.     250.        3        0        0      .00   231.93   542.47
0
1
  08/27/91    15:30:39                                                                PAGE   31


    SECNO     DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
    0         GLOB     GCH      GROB     ALOB     ACH      ARDB     VOL      TWA    LEFT/RIGHT
    TIME      VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
    SLOPE     XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CDRAR    TOPWID     ENDST


 #SECNO 3404.000

 3470 ENCROACHMENT STATIONS=     280.0     460.0  TYPE=     1  TARGET=     180.000
         FOOTBRIDGE 350 FT. SE OF C&O RAILROAD BRIDGE
   3404.00     5.94   850.54      .00      .00   850.78      .24     4.16      .01   848.00
     1215.     496.     583.     136.     273.     109.      92.      41.      27.   848.30
       .29     1.82     5.37     1.48     .100     .050     .100     .000   844.60   280.00
   .004444     576.    1151.     576.        4        0        0      .00   180.00   460.00
0

 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      1.83      2.90       .00     10.00       .00     56.80      2.40    844.60    844.60

 #SECNO 3410.000
  PRESS FLOW BECAUSE EGLWC OF    850.78  EXCEEDS 1.5 DEPTH
 6870 D.S. ENERGY OF  850.78 HIGHER THAN COMPUTED ENERGY OF  850.60
 PRESSURE AND WEIR FLOW


  EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                 AREA
     863.54    850.78       .00     1129.       85.       57.       70.      848.30    847.70



 3470 ENCROACHMENT STATIONS=     280.0     460.0  TYPE=     1  TARGET=     180.000
   3410.00     5.94   850.54      .00      .00   850.78      .24      .00      .00   848.00
     1215.     496.     583.     136.     273.     109.      92.      41.      27.   848.30
       .29     1.82     5.37     1.48     .100     .050     .100     .000   844.60   280.00
   .004443       6.       6.       6.        2        0        7      .00   180.00   460.00
0
 #SECNO 4011.000

 3301 HV CHANGED MORE THAN HVINS


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      861.80 ELREA=      861.80

   4011.00     7.33   853.23      .00      .00   854.58     1.36     3.25      .56   847.30
     1215.       0.    1215.       0.       0.     130.       0.      45.      28.   848.50
       .31      .00     9.36      .00     .100     .050     .100     .000   845.90   180.00
   .008441     376.     601.     401.        2        0        0      .00    20.00   200.00
0
1
  08/27/91    15:30:39                                                                PAGE   32
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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

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 #SECNO 4012.000

 3301 HV CHANGED MORE THAN HVINS


 3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  861.80 MAX ELLC=  854.50

         C&O RR BRIDGE 1900 FT. SOUTH OF TEN MILE ROAD
   4012.00     7.05   852.95      .00      .00   854.88     1.93      .01      .28   864.20
     1215.       0.    1215.       0.       0.    109.       0.      45.      28.   864.20
       .31      .00    11.15      .00     .030    .021     .030     .000   845.90   290.00
   .006045       1.       1.       1.        2       0        0   -24.78    20.00   310.00
0
 #SECNO 4038.000

 3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  861.80 MAX ELLC=  854.50

   4038.00     7.31   853.21      .00      .00   855.06     1.84      .15      .03   864.20
     1215.       0.    1215.       0.       0.    112.       0.      45.      28.   864.20
       .31      .00    10.90      .00     .030    .021     .030     .000   845.90   290.00
   .005757      26.      26.      26.        2       0        0   -27.55    20.00   310.00
0
 #SECNO 4039.000

 3301 HV CHANGED MORE THAN HVINS


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      861.80 ELREA=      861.80

   4039.00     8.42   854.32      .00      .00   855.32      .99      .01      .25   847.30
     1215.       0.    1215.       0.       0.    152.       0.      45.      28.   848.50
       .31      .00     8.00      .00     .100    .050     .100     .000   845.90   180.00
   .005014       1.       1.       1.        4       0        0      .00    20.00   200.00
0
 #SECNO 4663.000

 3301 HV CHANGED MORE THAN HVINS

   4663.00     7.68   855.88      .00      .00   855.89      .01      .28      .29   850.70
     1215.     819.     264.     133.    1440.    177.     233.      54.      30.   850.10
       .50      .57     1.49      .57     .100    .050     .100     .000   848.20    73.46
   .000193     325.     624.     650.        3       0        0      .00   406.23   479.70
0
1
```


SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 4969.000
   4969.00     5.81   855.96      .00      .00   856.00      .04      .09      .01   852.65
     1215.     746.     342.     127.     842.    130.     136.      62.      32.   852.05
       .55      .89     2.63      .93     .100    .050     .100     .000   850.15    88.16
```

```
0
 #SECNO 5122.000
   5122.00     4.99   856.11      .00      .00   856.20      .09      .17      .03   853.62
     1215.     677.     416.     122.     588.     110.      98.      65.      33.   853.02
       .57     1.15     3.80     1.24     .100     .050     .100     .000   851.12    94.60
   .002370     112.     153.     128.        2        0        0      .00   375.85   470.45
0
 #SECNO 5275.000

 3470 ENCROACHMENT STATIONS=     150.0     460.0  TYPE=     1  TARGET=     310.000
   5275.00     4.40   856.50      .00      .00   856.72      .21      .46      .06   854.60
     1215.     593.     514.     108.     388.      95.      65.      67.      34.   854.00
       .58     1.53     5.41     1.67     .100     .050     .100     .000   852.10   150.00
   .005823     113.     153.     128.        2        0        0      .00   310.00   460.00
0
 #SECNO 5581.000

 3470 ENCROACHMENT STATIONS=      80.0     380.0  TYPE=     1  TARGET=     300.000
         U.S. OF CONFLUENCE WITH TRIB. "A"
   5581.00     3.66   857.71      .00      .00   857.76      .05      .99      .05   854.85
     1215.     659.      96.     460.     439.      27.     297.      70.      36.   854.75
       .62     1.50     3.50     1.55     .100     .050     .100     .000   854.05    80.00
   .002825     225.     306.     256.        2        0        0      .00   298.15   378.15
0
 #SECNO 5888.000

 3470 ENCROACHMENT STATIONS=     120.0     365.0  TYPE=     1  TARGET=     245.000
   5888.00     2.76   858.76      .00      .00   858.86      .10     1.07      .03   856.80
     1115.     600.      99.     415.     277.      20.     195.      74.      37.   856.70
       .65     2.17     4.90     2.13     .100     .050     .100     .000   856.00   120.00
   .008299     225.     307.     257.        2        0        0      .00   245.00   365.00
0
1
  08/27/91    15:30:39                                                                PAGE   34


    SECNO     DEPTH     CHSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 6238.000

 3470 ENCROACHMENT STATIONS=     360.0     430.0  TYPE=     1  TARGET=      70.000
   6238.00     5.36   861.76      .00      .00   862.34      .57     3.24      .24   858.20
     1115.     526.     528.      61.     148.      66.      27.      77.      39.   859.70
       .66     3.56     8.06     2.21     .100     .050     .100     .000   856.40   360.00
   .011382     300.     350.     400.        3        0        0      .00    70.00   430.00
0
 #SECNO 6338.000

 3470 ENCROACHMENT STATIONS=     370.0     415.0  TYPE=     1  TARGET=      45.000
   6338.00     6.23   862.83      .00      .00   863.43      .60     1.08      .01   858.40
     1115.     508.     607.       0.     136.      79.       0.      77.      39. 100000.00
       .67     3.75     7.73      .00     .100     .050     .100     .000   856.60   370.00
   .010277     100.     100.     100.        2        0        0      .00    45.00   415.00
0
 #SECNO 6438.000
 3280 CROSS SECTION   6438.00 EXTENDED      5.89 FEET


 3301 HV CHANGED MORE THAN HVINS


 7485 F TRT  / A TA 42  VER   EFFECTIVE ELEA=      871.00 ELBEA=      871.00
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  6438.00     6.49   863.49      .00      .00   865.21     1.72     1.22      .56   858.80
    1115.       0.    1115.       0.       0.    106.       0.     77.      39.    860.30
      .67      .00    10.52      .00     .100    .050     .100     .000   857.00   395.00
   .014649     100.    100.     100.        2       0        0      .00    20.00   415.00
0
 $SECNO 6439.000

 3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  871.00 MAX ELLC=  868.00

         C&O RR BRIDGE 233 FT. SOUTH OF TEN MILE ROAD
  6439.00     6.32   863.32      .00      .00   865.40     2.08      .01      .18   872.60
    1115.       0.    1115.       0.       0.     96.       0.     77.      39.    872.60
      .67      .00    11.57      .00     .030    .026     .030     .000   857.00   390.44
   .007688       1.      1.       1.        2       0        0      .00    18.95   409.39
0
1
  08/27/91    15:30:39                                                                PAGE   35


    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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 6449.000

 3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  871.00 MAX ELLC=  868.00

  6449.00     6.93   863.93      .00      .00   865.59     1.66      .07      .13   872.60
    1115.       0.    1115.       0.       0.    108.       0.     77.      39.    872.60
      .67      .00    10.33      .00     .030    .026     .030     .000   857.00   390.38
   .005586      10.     10.      10.        6       0        0      .00    19.09   409.47
0
 $SECNO 6450.000
 3280 CROSS SECTION   6450.00 EXTENDED      8.09 FEET


 3301 HV CHANGED MORE THAN HVINS


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      871.00 ELREA=      871.00

  6450.00     7.69   864.69      .00      .00   865.77     1.08      .01      .17   858.80
    1115.       0.    1115.       0.       0.    134.       0.     77.      39.    860.30
      .67      .00     8.33      .00     .100    .050     .100     .000   857.00   395.00
   .006601       1.      1.       1.        3       0        0      .00    20.00   415.00
0
 $SECNO 6470.000
 3280 CROSS SECTION   6470.00 EXTENDED      9.21 FEET


 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     375.0     435.0  TYPE=     1  TARGET=      60.000
  6470.00     8.81   865.87      .00      .00   866.09      .22      .06      .26   858.86
    1115.     252.     705.     159.     142.     156.     104.      78.      39.    860.36
      .67     1.77     4.51     1.53     .100     .050     .100     .000   857.06   375.00
   .001572      20.     20.      20.        3       0        0      .00    60.00   435.00
0
 $SECNO 6600.000
  6600.00     8.55   866.03      .00      .00   866.56      .53      .32      .16   868.88
    1115.       0.    1115.       0.       0.    192.       0.     78.      39.    859.98
      45      .70     5.83       .       130     .05      100       .      277.48    45.44
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  .004218     130.     130.     130.        2        0        0      .00    34.56   100.00
0
1
 08/27/91    15:30:39                                                                  PAGE   36

    SECNO     DEPTH    CWSEL    CRIWS    WSELK     EG       HV       HL       OLOSS   BANK ELEV
    Q         QLOB     QCH      QROB     ALOB      ACH      AROB     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 6650.000

 3470 ENCROACHMENT STATIONS=        .0     100.0  TYPE=     1  TARGET=     100.000
   6650.00     8.64   866.28      .00      .00   866.79      .51      .23      .00   869.04
     1115.       0.    1115.       0.       0.     195.       0.      79.      39. 100000.00
       .68      .00     5.73      .00     .100     .050     .100     .000   857.64    65.22
   .004967      50.      50.      50.        2        0        0      .00    34.78   100.00
0
 #SECNO 6700.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=      87.5     100.5  TYPE=     1  TARGET=      13.000
   6700.00     8.20   866.00      .00      .00   868.05     2.05      .49      .77   858.08
     1115.       0.    1115.       0.       0.      97.       0.      79.      39.  99999.00
       .68      .00    11.49      .00     .100     .050     .100     .000   857.80    87.50
   .027620      50.      50.      50.        2        0        0      .00    13.00   100.50
0
 #SECNO 6701.000

 3370 NORMAL BRIDGE,NRD=  6 MIN ELTRD=  874.00 MAX ELLC=  866.00

         TEN MILE BRIDGE
   6701.00     8.36   866.16      .00      .00   868.10     1.94      .02      .03   874.60
     1115.       0.    1115.       0.       0.     100.       0.      79.      39.   874.60
       .68      .00    11.18      .00     .030     .026     .030     .000   857.80    93.50
   .011741       1.       1.       1.        2        0        0    -2.40    13.00   106.50
0
 #SECNO 6749.000

 3370 NORMAL BRIDGE,NRD=  6 MIN ELTRD=  874.00 MAX ELLC=  866.00

   6749.00     8.92   866.72      .00      .00   868.66     1.94      .56      .00   874.60
     1115.       0.    1115.       0.       0.     100.       0.      79.      39.   874.60
       .68      .00    11.18      .00     .030     .026     .030     .000   857.80    93.50
   .011741      48.      48.      48.        2        0        0    -9.73    13.00   106.50
0
1
 08/27/91    15:30:39                                                                  PAGE   37

    SECNO     DEPTH    CWSEL    CRIWS    WSELK     EG       HV       HL       OLOSS   BANK ELEV
    Q         QLOB     QCH      QROB     ALOB      ACH      AROB     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 6750.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      875.00 ELREA=      875.00

   6750.00     9.53   867.33      .00      .00   868.81     1.48      .01      .14   858.08
     1115.       0.    1115.       0.       0.     114.       0.      79.      39.  99999.00
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      .68      .00     9.76      .00     .100     .050     .100     .000   857.80    87.50
   .006277      1.       1.       1.        3        0        0      .00    13.00   100.50
0
 #SECNO 6763.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     170.0     210.0  TYPE=     1  TARGET=      40.000
   6763.00    11.07   868.99      .00      .00   869.21      .22      .02      .38   859.62
     1115.      118.     883.      114.       92.      209.       89.       79.       39.    859.72
       .69     1.28     4.23     1.28     .100     .050     .100     .000   857.92   170.00
   .000910      13.      13.      13.        3        0        0      .00    40.00   210.00
0
 #SECNO 6841.000

 3470 ENCROACHMENT STATIONS=      40.0     240.0  TYPE=     1  TARGET=     200.000
   6841.00    10.67   869.28      .00      .00   869.30      .02      .03      .06   860.31
     1115.      599.     352.      164.      872.      201.      244.       81.       39.    860.41
       .71      .69     1.75      .67     .100     .050     .100     .000   858.61    40.00
   .000165      78.      78.      78.        1        0        0      .00   200.00   240.00
0
 #SECNO 7300.000
   7300.00     6.68   869.38      .00      .00   869.50      .11      .15      .05   864.40
     1115.      503.     467.      145.      366.      121.      103.       89.       41.    864.50
       .75     1.37     3.85     1.41     .100     .050     .100     .000   862.70    68.12
   .001563      384.     459.      384.        2        0        0      .00   161.95   230.07
0
 #SECNO 8050.000
   8050.00     6.98   870.88      .00      .00   870.99      .11     1.49      .00   868.30
     1115.      685.     430.       0.      504.      110.       0.      100.       44.    878.70
       .84     1.36     3.90      .00     .100     .050     .100     .000   863.90    62.94
   .002526      775.     750.      700.        3        0        0      .00   233.26   296.20
0
1
  08/27/91    15:30:39                                                                  PAGE   38


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL       OLOSS    BANK ELEV
    Q         OLOB      OCH       OROB      ALOB      ACH       AROB      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 8400.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     165.0     209.0  TYPE=     1  TARGET=      44.000
   8400.00     5.72   872.24      .00      .00   873.49     1.25     1.93      .57   871.22
     1115.       0.     1079.       28.       5.      118.       13.      103.       46.    870.72
       .86     1.64     9.11     2.17     .100     .050     .100     .000   866.52   165.00
   .016119      425.     350.      250.        3        0        0      .00    44.00   209.00
0
 #SECNO 8450.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     178.0     197.0  TYPE=     1  TARGET=      19.000
   8450.00     5.97   872.87      .00      .00   874.90     2.03     1.02      .39100000.00
     1115.       0.     1115.       0.       0.       98.       0.      103.       46. 100000.00
       .86      .00    11.43      .00     .100     .050     .100     .000   866.90   178.00
   .026610      50.      50.      50.        2        0        0      .00    19.00   197.00
0
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 #SECNO 8451.000

 3301 HV CHANGED MORE THAN HVINS


 3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  879.10 MAX ELLC=  875.90

         C&O RR BRIDGE 1300 FT. NORTH OF TEN MILE ROAD
   8451.00     6.72   873.62      .00      .00   875.08     1.46      .01      .17   880.60
     1115.       0.    1115.       0.       0.     115.       0.     103.     46.    880.60
       .86      .00     9.70      .00     .030     .027     .030     .000   866.90   490.50
    .005308       1.       1.       1.        5        0        0      .00    19.00   509.50
0
 #SECNO 8461.000

 3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  879.10 MAX ELLC=  875.90

   8461.00     6.85   873.75      .00      .00   875.15     1.40      .05      .02   880.60
     1115.       0.    1115.       0.       0.     117.       0.     103.     46.    880.60
       .86      .00     9.50      .00     .030     .027     .030     .000   866.90   490.50
    .005013      10.      10.      10.        2        0        0      .00    19.00   509.50
0
1
  08/27/91    15:30:39                                                                PAGE   39


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 8462.000

 3470 ENCROACHMENT STATIONS=     178.0     197.0  TYPE=     1  TARGET=      19.000
   8462.00     6.80   873.70      .00      .00   875.21     1.50      .01      .05100000.70
     1115.       0.    1115.       0.       0.     113.       0.     103.     46. 100000.70
       .86      .00     9.83      .00     .100     .050     .100     .000   866.90   178.00
    .017457       1.       1.       1.        2        0        0      .00    19.00   197.00
0
 #SECNO 8475.000
 3280 CROSS SECTION   8475.00 EXTENDED      1.15 FEET


 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     165.0     210.0  TYPE=     1  TARGET=      45.000
   8475.00     8.36   875.22      .00      .00   875.61      .39      .07      .33   871.56
     1115.      23.    1029.      63.      18.     198.      40.     104.     46.    871.06
       .86     1.26     5.21     1.56     .100     .050     .100     .000   866.86   165.00
    .002664      13.      13.      13.        3        0        0      .00    45.00   210.00
0
 #SECNO 8787.000

 3470 ENCROACHMENT STATIONS=      75.0     200.0  TYPE=     1  TARGET=     125.000
   8787.00    10.19   876.19      .00      .00   876.66      .47     1.01      .04   880.30
     1115.       0.    1115.       0.       0.     203.       0.     105.     46.    883.00
       .87      .00     5.50      .00     .100     .050     .100     .000   866.00   105.47
    .004026     312.     312.     337.        3        0        0      .00    34.44   139.92
0
 #SECNO 8906.000

 3470 ENCROACHMENT STATIONS=      95.0     225.0  TYPE=     1  TARGET=     130.000
   8906.00     9.01   876.69      .00      .00   877.46      .77      .65      .15   878.68
     1115.       0.    1115.       0.       0.     158.       0.     106.     46.    883.48
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      .88      .00     7.04      .00     .100     .050     .100     .000   867.68   127.22
   .007720     119.     119.     119.        2        0        0      .00    30.38   157.60
0
 #SECNO 9025.000
1
  08/27/91    15:30:39                                                                  PAGE   40


    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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=     114.0     250.0  TYPE=     1  TARGET=     136.000
   9025.00     8.30   877.65      .00      .00   878.79     1.14     1.15      .19   877.25
     1115.       0.     1115.       0.       0.     130.       0.     106.      46.   884.05
       .88      .56     8.57      .00     .100     .050     .100     .000   869.35   147.91
   .012357     119.     119.     119.        2        0        0      .00    28.02   175.93
0
 #SECNO 9144.000

 3470 ENCROACHMENT STATIONS=     121.0     275.0  TYPE=     1  TARGET=     154.000
   9144.00     8.06   879.09      .00      .00   880.40     1.32     1.53      .09   875.73
     1115.       59.    1056.       0.       21.    112.       0.     106.      46.   884.63
       .89     2.78     9.44      .00     .100     .050     .100     .000   871.03   163.03
   .013311     119.     119.     119.        2        0        0      .00    31.77   194.80
0
 #SECNO 9262.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     139.0     300.0  TYPE=     1  TARGET=     161.000
   9262.00     8.48   881.18      .00      .00   881.90      .72     1.32      .18   874.50
     1115.     384.     731.       0.     124.      90.       0.     107.      46.   885.50
       .89     3.11     8.13      .00     .100     .050     .100     .000   872.70   151.71
   .009509     118.     118.     118.        3        0        0      .00    62.17   213.88
0
 #SECNO 9494.000

 3470 ENCROACHMENT STATIONS=     158.0     395.0  TYPE=     1  TARGET=     237.000
   9494.00     8.76   883.04      .00      .00   883.37      .33     1.35      .12   876.18
     1115.     506.     609.       0.     207.     105.       0.     108.      47.   884.38
       .91     2.44     5.82      .00     .100     .050     .100     .000   874.28   158.60
   .004479     188.     232.     219.        2        0        0      .00    85.45   244.05
0
 #SECNO 9725.000

 3470 ENCROACHMENT STATIONS=     203.0     490.0  TYPE=     1  TARGET=     287.000
   9725.00     8.16   884.01      .00      .00   884.40      .39     1.00      .03   878.15
     1115.     459.     656.       0.     174.     106.       1.     109.      47.   883.45
       .92     2.64     6.19      .44     .100     .050     .100     .000   875.85   203.00
   .004965     187.     231.     218.        3        0        0      .00    74.51   277.51
0
1
  08/27/91    15:30:39                                                                  PAGE   41


    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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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 #SECNO 9956.000

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     226.0     585.0  TYPE=     1  TARGET=     359.000
   9956.00     7.60   885.03      .00      .00   885.31      .28      .87      .03   880.13
     1115.     502.     589.      24.     218.     109.      22.     111.      47.   882.53
       .93     2.30     5.42     1.09     .100     .050     .100     .000   877.43   228.10
   .003449     188.     231.     219.        1        0        0      .00    99.35   395.87
0
 #SECNO 10187.000

 3265 DIVIDED FLOW

  10187.00     6.71   885.71      .00      .00   885.76      .05      .38      .07   882.40
     1115.     765.     297.      53.     681.     100.      77.     114.      48.   882.00
       .97     1.12     2.98      .69     .100     .050     .100     .000   879.00    80.18
   .001154     187.     231.     219.        2        0        0      .00   292.99   464.70
0
 #SECNO 10812.000

 3265 DIVIDED FLOW

         D.S. OF CONFLUENCE WITH TRIB. "B"
  10812.00     5.21   886.91      .00      .00   887.11      .20     1.28      .08   885.10
     1115.     696.     400.      19.     376.      73.      16.     122.      52.   884.70
      1.02     1.85     5.51     1.16     .100     .050     .100     .000   881.70    94.63
   .005981     550.     625.     575.        2        0        0      .00   230.58   435.94
0
 CCHV=    .500 CEHV=   1.000
 #SECNO 11438.000

 3470 ENCROACHMENT STATIONS=     165.0     405.0  TYPE=     1  TARGET=     240.000
         NOVI ROAD BRIDGE
  11438.00     6.56   890.96      .00      .00   891.28      .32     4.05      .12   887.40
      915.     329.     310.     276.      90.      47.     163.     127.      55.   887.40
      1.06     3.66     6.61     1.69     .100     .050     .100     .000   884.40   165.00
   .008544     551.     626.     576.        3        0        0      .00   214.87   379.87
0
1
  08/27/91    15:30:39                                                                PAGE   42


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



 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XYOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      3.07      2.90       .00      8.60       .00     40.00       .00    884.40    884.40

 #SECNO 11518.000
 PRESSURE AND WEIR FLOW


  EGPRS      EGLWC      H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                          AREA
     915.90    891.30       .00      661.      255.       40.       25.      887.30    894.30
```

```
 3470 ENCROACHMENT STATIONS=     175.0     375.0  TYPE=     1  TARGET=     200.000
  11518.00     8.45   892.85      .00      .00   892.90      .05     1.62      .00   887.40
     915.      203.     192.      519.     120.      63.     485.     128.      55.    887.40
      1.07     1.69     3.05     1.07     .100     .050     .100     .000   884.40   175.00
    .001223     80.      80.      80.        2        0        9      .00   200.00   375.00
0
 CCHV=    .300 CEHV=    .500
 #SECNO 11694.000

 3470 ENCROACHMENT STATIONS=      37.0     275.0  TYPE=     1  TARGET=     238.000
  11694.00     6.75   893.15      .00      .00   893.44      .29      .43      .12   891.80
     915.      17.      480.     417.      22.      86.     185.     130.      56.    888.30
      1.09     .79      5.56     2.26     .100     .050     .100     .000   886.40    42.82
    .004797    138.     176.     226.        2        0        0      .00   107.58   150.40
0
 #SECNO 11869.000

 3470 ENCROACHMENT STATIONS=      37.0     275.0  TYPE=     1  TARGET=     238.000
  11869.00     5.89   894.39      .00      .00   894.94      .55     1.37      .13   893.90
     915.       2.      534.     380.       3.      72.     135.     132.      56.    890.40
      1.10     .61      7.45     2.81     .100     .050     .100     .000   888.50    63.41
    .011046    138.     175.     225.        3        0        0      .00    85.31   148.72
0
 #SECNO 12094.000
         DOWNSTREAM ISLAND CONFLUENCE
1
  08/27/91    15:30:39                                                                PAGE   43

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


  12094.00     6.67   896.87      .00      .00   897.71      .84     2.63      .14   893.10
     915.      190.     566.     159.      80.      62.      61.     133.      57.    890.80
      1.11     2.36     9.13     2.63     .100     .050     .100     .000   890.20    14.76
    .009871    200.     225.     325.        2        0        0      .00    75.74    90.50
0
 #SECNO 12120.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     530.0     660.0  TYPE=     1  TARGET=     130.000
         C&O RR BRIDGE 600 FT. NW OF NOVI ROAD AND RR CROSSING
  12120.00     7.37   897.87      .00      .00   898.02      .14      .10      .21   896.30
     820.      40.      704.      76.      40.     216.      89.     133.      57.    896.50
      1.11     1.01     3.27      .85     .079     .050     .070     .000   890.50   530.00
    .001294      2.      26.      101.        2        0        0      .00   130.00   660.00
0

 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      1.77      3.00       .00     31.00       .00     70.40       .00    890.50    890.50

 #SECNO 12130.000
 6870 D.S. ENERGY OF  898.02 HIGHER THAN COMPUTED ENERGY OF  897.90
 PRESSURE AND WEIR FLOW


 F   F     E   P       WP       WEIR      OBR       TAREA   TRAPEZOID      FLLC      FLTER
```

							AREA		
901.60	898.02	.00	747.	73.	70.	87.	893.30	894.00	

3470 ENCROACHMENT STATIONS= 530.0 660.0 TYPE= 1 TARGET= 130.000

12130.00	7.37	897.87	.00	.00	898.02	.14	.00	.00	896.30
820.	40.	705.	75.	40.	215.	88.	133.	57.	896.50
1.11	1.01	3.27	.85	.070	.050	.070	.000	890.50	530.00
.001303	10.	10.	10.	2	0	6	.00	130.00	660.00

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 12381.000

12381.00	5.40	898.34	.00	.00	898.84	.51	.65	.18	905.74
820.	0.	820.	0.	0.	143.	0.	135.	57.	905.74
1.12	.00	5.71	.00	.070	.050	.070	.000	892.94	113.03
.007139	201.	251.	301.	2	0	0	.00	39.64	152.67

0

*SECNO 12581.000

12581.00	5.02	899.92	.00	.00	900.55	.63	1.65	.06	907.70
820.	0.	820.	0.	0.	129.	0.	135.	58.	907.70
1.13	.00	6.36	.00	.070	.050	.070	.000	894.90	113.69
.009642	200.	200.	200.	2	0	0	.00	38.11	151.80

0

*SECNO 12632.000

FLINT STREET BRIDGE

12632.00	7.43	900.63	.00	.00	900.88	.25	.22	.11	893.33
820.	224.	282.	313.	77.	51.	104.	135.	58.	893.38
1.14	2.90	5.49	3.01	.070	.050	.070	.000	893.20	194.45
.002384	51.	51.	51.	2	0	0	.00	47.99	242.44

0

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.72	2.70	.00	5.60	.00	39.00	.00	893.90	893.20

*SECNO 12704.000

3280 CROSS SECTION 12704.00 EXTENDED .40 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
912.44	905.27	.00	177.	649.	39.	39.	900.90	907.20

3470 ENCROACHMENT STATIONS= 150.0 300.0 TYPE= 1 TARGET= 150.000

12704.00	14.10	908.00	.00	.00	908.03	.03	7.14	.00	894.03
820.	246.	203.	370.	256.	98.	377.	136.	58.	894.08
1.15	.96	2.07	.98	.070	.050	.070	.000	893.90	150.00
.000144	72.	72.	72.	2	0	5	.00	150.00	300.00

0
1

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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 12712.000

 3470 ENCROACHMENT STATIONS=      70.0     235.0  TYPE=     1  TARGET=     165.000
  12712.00    14.08   908.01      .00      .00   908.03      .02      .00      .00   906.73
     820.       5.     794.      21.      25.     639.      85.     136.      58.    906.73
     1.15      .19     1.24      .25     .070     .050     .070     .000   893.93    70.00
   .000102       8.       8.       8.        0        0        0      .00   165.00   235.00
0
 #SECNO 12905.000
 3280 CROSS SECTION  12905.00 EXTENDED       .95 FEET

  12905.00    13.24   908.02      .00      .00   908.08      .06      .03      .02   911.48
     820.       0.     696.     124.       0.     332.     135.     139.      58.    900.78
     1.18      .00     2.09      .92     .070     .050     .070     .000   894.78   107.89
   .000367     193.     193.     193.        0        0        0      .00    92.12   200.00
0
 #SECNO 12955.000
 3280 CROSS SECTION  12955.00 EXTENDED       .73 FEET

  12955.00    13.03   908.03      .00      .00   908.12      .09      .02      .01   898.27
     820.     128.     522.     170.     109.     182.     157.     140.      58.    898.51
     1.19     1.17     2.88     1.08     .070     .050     .070     .000   895.00   108.38
   .000413      50.      50.      50.        0        0        0      .00    91.62   200.00
0
 #SECNO 12956.000

 3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  905.50 MAX ELLC=  900.80


 3470 ENCROACHMENT STATIONS=      80.0     175.0  TYPE=     1  TARGET=      95.000
         FOOT BRIDGE NE OFF FLINT STREET
  12956.00    12.86   907.86      .00      .00   908.28      .42      .00      .16   905.50
     820.      53.     483.     284.      14.      81.      75.     140.      58.    905.50
     1.19     3.75     5.97     3.79     .070     .050     .070     .000   895.00    80.79
   .025532       1.       1.       1.        2        0        0   -90.28    90.61   171.39
0
 #SECNO 12981.000
1
  08/27/91    15:30:39                                                          PAGE   46


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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= 20 MIN ELTRD=  905.50 MAX ELLC=  901.20


 3470 ENCROACHMENT STATIONS=      80.0     175.0  TYPE=     1  TARGET=      95.000
  12981.00    13.13   908.53      .00      .00   908.73      .20      .39      .06   905.50
     820.      68.     374.     377.      23.      91.     120.     140.      58.    905.50
     1.19     3.04     4.11     3.15     .070     .050     .070     .000   895.40    80.00
   .010304      25.      25.      25.        2        0        0   -84.15    95.00   175.00
0
 #SECNO 12982.00
```

3280 CROSS SECTION 12982.00 EXTENDED .99 FEET

12982.00	13.29	908.69	.00	.00	908.77	.08	.00	.04	898.67
820.	129.	512.	179.	115.	185.	171.	140.	58.	898.91
1.19	1.13	2.76	1.05	.070	.050	.070	.000	895.40	107.80
.000369	1.	1.	1.	2	0	0	.00	92.20	200.00

0

#SECNO 12997.000

3280 CROSS SECTION 12997.00 EXTENDED .94 FEET

12997.00	13.24	908.72	.00	.00	908.78	.06	.01	.01	912.18
820.	0.	697.	123.	0.	332.	135.	140.	59.	901.48
1.19	.00	2.10	.92	.070	.050	.070	.000	895.48	107.91
.000367	15.	15.	15.	2	0	0	.00	92.09	200.00

0

#SECNO 13097.000

3280 CROSS SECTION 13097.00 EXTENDED .45 FEET

13097.00	12.75	908.76	.00	.00	908.83	.07	.04	.01	912.71
820.	0.	713.	107.	0.	312.	110.	141.	59.	902.01
1.20	.00	2.29	.97	.070	.050	.070	.000	896.01	109.03
.000460	100.	100.	100.	0	0	0	.00	90.97	200.00

0

#SECNO 13157.000

3470 ENCROACHMENT STATIONS= 325.0 535.0 TYPE= 1 TARGET= 210.000

13157.00	12.54	908.85	.00	.00	908.85	.01	.01	.02	899.71
820.	391.	384.	45.	635.	404.	181.	142.	59.	906.31
1.23	.62	.95	.25	.070	.050	.070	.000	896.31	325.00
.000056	60.	60.	60.	2	0	0	.00	210.00	535.00

0

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 13282.000

3470 ENCROACHMENT STATIONS= 360.0 820.0 TYPE= 1 TARGET= 460.000

13282.00	11.85	908.85	.00	.00	908.87	.02	.01	.00	900.40
820.	258.	475.	87.	324.	375.	382.	145.	60.	907.00
1.26	.80	1.27	.23	.070	.050	.070	.000	897.00	360.00
.000110	125.	125.	125.	2	0	0	.00	460.00	820.00

0

#SECNO 13412.000

3470 ENCROACHMENT STATIONS= 250.0 760.0 TYPE= 1 TARGET= 510.000

13412.00	11.47	908.88	.00	.00	908.88	.00	.01	.00	906.11
820.	568.	201.	50.	1383.	314.	301.	150.	61.	907.11
1.34	.41	.64	.17	.070	.050	.070	.000	897.41	250.00
.000035	130.	130.	130.	1	0	0	.00	494.84	744.84

0

#SECNO 13582.000

3470 ENCROACHMENT STATIONS= 315.0 740.0 TYPE= 1 TARGET= 425.000

13582.00	10.94	908.88	.00	.00	908.89	.01	.01	.00	906.64
820.	449.	323.	48.	770.	293.	200.	156.	63.	907.64
1.40	.58	1.10	.24	.070	.050	.070	.000	897.94	315.00
.000113	170.	170.	170.	0	0	0	.00	416.05	731.05

0

#SECNO 13637.000

```
3280 CROSS SECTION  13632.00 EXTENDED      3.69 FEET

        FLINT STREET BRIDGE SOUTH OF GRAND RIVER AVENUE
 13632.00    10.78   908.88      .00      .00   908.91      .04      .01      .01   908.40
    820.     539.     195.      87.     621.     70.      185.     157.      64.    908.40
    1.41      .87     2.77      .47     .050     .015     .050     .000   898.10      .00
  .000195     50.      50.      50.       0        0        0      .00   382.96   382.96
0

 SPECIAL BRIDGE

1
  08/27/91    15:30:39                                                                PAGE   48


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


 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      1.80      2.70       .00      5.60       .00     39.00       .00    898.10    898.10

 #SECND 13732.000

 6070.LOW FLOW BY NORMAL BRIDGE

 EGPRS=   921.234  EGLWC=   908.914  ELLC=   905.500  PCWSE=   908.877  ELTRD=   904.600
 3280 CROSS SECTION  13732.00 EXTENDED      3.72 FEET


 3370 NORMAL BRIDGE,NRD= 10 MIN ELTRD=  904.60 MAX ELLC=  905.50

 13732.00    10.42   908.92      .00      .00   908.94      .02      .02      .01   908.40
    820.     631.      85.     104.     629.     42.      190.     159.      64.    908.40
    1.44     1.00     2.02      .55     .050     .015     .050     .000   898.50      .00
  .000257    100.     100.     100.       2        0        0   -25.50   383.94   383.94
0
 #SECND 13833.000

 3470 ENCROACHMENT STATIONS=     639.0     880.0  TYPE=     1  TARGET=     241.000
        GRAND RIVER AVENUE BRIDGE
 13833.00    10.70   908.90      .00      .00   908.97      .07      .01      .02   899.80
    820.     286.     375.     159.     502.     123.     357.     161.      65.    898.50
    1.45      .57     3.04      .44     .050     .015     .050     .000   898.20   639.00
  .000043     51.     101.     151.       2        0        0      .00   241.00   880.00
0

 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      1.82      2.80       .00     11.00      1.00     39.30       .00    898.20    898.20

 #SECND 13899.000
 6870 D.S. ENERGY OF  908.97 HIGHER THAN COMPUTED ENERGY OF  908.93
 PRESSURE AND WEIR FLOW


  EGPRS      EGLWC      H3       QWEIR      QPR       BAREA    TRAPEZOID      ELLC      ELTRD
                                                              AREA
    921.21    908.97       .00      782.       38.       39.       50.      903.20    904.90
```

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

3470 ENCROACHMENT STATIONS= 639.0 839.0 TYPE= 1 TARGET= 200.000

13899.00	10.70	908.90	.00	.00	908.97	.07	.00	.00	899.80
820.	290.	380.	150.	501.	123.	310.	163.	65.	898.50
1.46	.58	3.08	.48	.050	.015	.050	.000	898.20	639.00
.000044	66.	66.	66.	2	0	6	.00	200.00	839.00

0
$SECNO 13916.000

3470 ENCROACHMENT STATIONS= 492.5 667.5 TYPE= 1 TARGET= 175.000
FOOTBRIDGE 15 FT. NORTH OF GRAND RIVER AVENUE

13916.00	9.87	908.97	.00	.00	908.99	.02	.00	.01100000.00	
820.	0.	738.	82.	0.	606.	140.	163.	66.	905.10
1.47	.00	1.22	.59	.070	.050	.070	.000	899.10	492.50
.000215	17.	17.	17.	2	0	0	.00	175.00	667.50

0

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.57	2.80	.00	31.00	.00	108.60	.00	899.10	899.10

$SECNO 13918.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	HS	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
910.36	908.99	.00	687.	133.	109.	155.	904.10	904.40

3470 ENCROACHMENT STATIONS= 492.5 667.5 TYPE= 1 TARGET= 175.000

13918.00	9.87	908.97	.00	.00	909.00	.03	.02	.00	904.10
820.	292.	439.	89.	356.	251.	140.	163.	66.	905.10
1.47	.82	1.75	.64	.070	.050	.070	.000	899.10	492.50
.000250	2.	2.	2.	2	0	6	.00	175.00	667.50

0
CCHV= .300 CEHV= .500
$SECNO 14119.000

14119.00	10.24	909.04	.00	.00	909.06	.02	.06	.00	903.70
820.	484.	243.	93.	815.	122.	133.	167.	67.	900.60
1.52	.59	2.00	.70	.100	.050	.100	.000	898.80	50.86
.000304	201.	201.	201.	1	0	0	.00	308.87	359.73

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 14919.000

 3265 DIVIDED FLOW

  14919.00     5.89   909.49      .00      .00   909.60      .11      .50      .04   909.10
     820.       7.      406.      407.      25.      119.     286.     181.      72.   909.10
     1.61      .28     3.42     1.42     .100     .050     .100     .000   903.60   692.76
   .002349     850.     800.     600.        2        0        0      .00   316.25  1010.13
0
 #SECNO 15969.000
  15969.00     7.51   911.68      .00      .00   911.90      .23     2.24      .06   911.57
     820.       0.      820.       0.       0.      215.       0.      188.      76.   913.07
     1.69      .09     3.82      .00     .100     .050     .100     .000   904.17   196.04
   .001953    1050.    1050.    1050.        2        0        0      .00    42.07   238.11
0
 #SECNO 16020.000

 3470 ENCROACHMENT STATIONS=     175.0     350.0  TYPE=     1  TARGET=     175.000
         CULVERTS UNDER PARAGON STEEL
  16020.00     7.77   911.97      .00      .00   912.04      .07      .09      .05   906.00
     820.      277.      267.      276.     172.      88.     204.     189.      77.   905.40
     1.69      1.62     3.03     1.35     .100     .050     .100     .000   904.20   175.00
   .001705      51.      51.      51.        2        0        0      .00   113.41   288.41
0

 SPECIAL BRIDGE

 5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR       CDFB       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       .00       4.52       2.80     120.00      14.60       3.40      35.00       .00     904.20     904.20

 #SECNO 16490.000
 PRESSURE AND WEIR FLOW


  EGPRS      EGLWC       WS       QWEIR      QPR        BAREA    TRAPEZOID      ELLC      ELTRD
                                                                    AREA
     950.50    912.04       .00      673.       152.       35.       47.      908.40    911.30



 3470 ENCROACHMENT STATIONS=     175.0     400.0  TYPE=     1  TARGET=     225.000
1
  08/27/91    15:30:39                                                                    PAGE   51


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


  16490.00     8.86   913.26      .00      .00   913.30      .04     1.26      .00   906.20
     820.      268.      258.      294.     213.      108.     285.     195.      78.   905.60
     1.78      1.26     2.39     1.03     .100     .050     .100     .000   904.40   175.00
   .000806      470.      470.      470.        2        0        9      .00   128.52   303.52
0
 #SECNO 16816.000

 3470 ENCROACHMENT STATIONS=     270.0     330.0  TYPE=     1  TARGET=      60.000
         RAILROAD SPUR FOR PARAGON STEEL
  16816.00    10.19   913.19      .00      .00   913.58      .39      .11      .18   907.73
     820.       39.      724.       57.      90.      135.     106.     198.      79.   903.69
     1.80      .44     5.36      .54     .100     .015     .100     .000   903.00   270.00
   .000176      326.      326.      326.        2        0        0      .00    60.00   330.00
0
```

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.85	2.80	60.00	12.60	1.40	35.00	.00	903.00	903.00

*SECND 16871.000
6870 D.S. ENERGY OF 913.58 HIGHER THAN COMPUTED ENERGY OF 913.25
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
928.96	913.58	.00	771.	51.	35.	63.	908.60	911.80

3470 ENCROACHMENT STATIONS= 270.0 330.0 TYPE= 1 TARGET= 60.000

16871.00	10.19	913.19	.00	.00	913.58	.39	.00	.00	907.73
820.	39.	724.	57.	90.	135.	106.	198.	79.	903.69
1.80	.44	5.36	.54	.100	.015	.100	.000	903.00	270.00
.000176	55.	55.	55.	2	0	8	.00	60.00	330.00

0
*SECND 16934.000

3265 DIVIDED FLOW

1
08/27/91 15:30:39 PAGE 52

SECNO	DEPTH	CWSEL	CRIWS	WSELV	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 570.0 831.0 TYPE= 1 TARGET= 261.000
C&O RR BRIDGE WEST OF PARAGON STEEL

16934.00	6.17	913.07	.00	.00	913.77	.71	.03	.16	912.60
950.	3.	940.	8.	4.	139.	6.	199.	79.	914.20
1.80	.67	6.78	1.32	.050	.030	.050	.000	906.90	713.31
.003513	63.	63.	63.	2	0	0	.00	63.20	791.84

0

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.90	3.00	.00	29.00	.00	99.20	.00	906.90	906.90

*SECND 16960.000
PRESS FLOW BECAUSE EGLWC OF 913.77 EXCEEDS 1.5 DEPTH
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
915.77	913.77	.00	245.	700.	99.	131.	911.40	911.00

3470 ENCROACHMENT STATIONS= 570.0 831.0 TYPE= 1 TARGET= 261.000

```
     950.      43.     876.      31.      46.     183.      24.     199.      79.   914.20
     1.81      .94     4.79     1.27     .050     .030     .050     .000   906.90   672.54
   .001329     26.      26.      26.        2        0        3      .00   126.59   799.13
0
 #SECNO 17137.000

 3470 ENCROACHMENT STATIONS=      99.0     309.0  TYPE=     1  TARGET=     210.000
         CULVERTS 200 FT. WEST OF C&O RR BRIDGE,WEST OF PARAGON STEEL
  17137.00     6.59   914.79      .00      .00   914.88      .09      .27      .07   908.95
     950.      572.     121.     257.     343.      25.     140.     200.      79.   908.31
     1.83     1.67     4.82     1.83     .100     .050     .100     .000   908.20    99.00
   .002437     127.     177.     127.        2        0        0      .00   150.45   249.45
0
1
  08/27/91    15:30:39                                                                PAGE   53


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



 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      2.34      2.70       .00      4.20       .20      6.30       .00   908.20    908.20

 #SECNO 17157.000
 PRESSURE AND WEIR FLOW


  EGPRS      EGLWC       HJ       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                 AREA
    1741.01   914.88       .00      942.       12.        6.        8.      910.20    911.70



 3470 ENCROACHMENT STATIONS=      99.0     309.0  TYPE=     1  TARGET=     210.000
  17157.00     6.63   914.83      .00      .00   914.91      .08      .04      .00   908.95
     950.      573.     121.     256.     347.      25.     142.     200.      79.   908.31
     1.83     1.65     4.76     1.81     .100     .050     .100     .000   908.20    99.00
   .002357     20.      20.      20.        2        0       12      .00   150.87   249.87
0
 #SECNO 17795.000
  17795.00     5.58   916.73      .00      .00   916.92      .20     1.95      .06   911.85
     950.      446.     502.       2.     248.     109.       4.     207.      81.   915.85
     1.88     1.80     4.58      .56     .100     .050     .100     .000   911.15    68.22
   .004356     601.     638.     676.        2        0        0      .00   141.25   209.47
0
 #SECNO 18433.000
  18433.00     5.48   919.58      .00      .00   920.01      .43     2.97      .12   915.60
     950.      163.     673.     114.      97.     109.      64.     211.      83.   915.20
     1.92     1.69     6.17     1.79     .100     .050     .100     .000   914.10   226.40
   .005157     660.     638.     675.        2        0        0      .00    99.58   325.99
0
 #SECNO 19184.000

 3470 ENCROACHMENT STATIONS=      83.0     228.0  TYPE=     1  TARGET=     145.000
         CULVERTS SOUTH OF I-96 UNDER CANZAND CONSTRUCTUIN PROPERTY
  19184.00     8.05   921.35      .00      .00   921.95      .60     1.86      .08   920.60
     790.       86.     704.       0.     114.     107.       0.     215.      85.  99999.30
     1.95      .76     6.56      .00     .070     .015     .070     .000   913.30    83.00
   .001719      751      751      751        4        0        0      .00   145.00   228.00
```

0
1

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

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.91	3.00	.00	6.00	.00	28.40	.00	913.30	913.30

#SECND 19372.000
6870 D.S. ENERGY OF 921.95 HIGHER THAN COMPUTED ENERGY OF 921.66
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
944.30	921.93	.00	699.	91.	28.	31.	918.40	921.40

3470 ENCROACHMENT STATIONS= 178.0 228.0 TYPE= 1 TARGET= 50.000

19372.00	8.69	921.39	.00	.00	921.95	.56	.00	.00	920.00
790.	25.	765.	0.	31.	125.	0.	216.	85.	100000.00
1.96	.80	6.11	.00	.070	.015	.000	.000	912.70	178.00
.000952	100.	188.	300.	2	0	B	.00	50.00	228.00

0
#SECND 19448.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 925.40 ELREA= 925.40

19448.00	9.03	921.13	.00	.00	922.50	1.37	.15	.40	913.80
790.	0.	790.	0.	0.	84.	0.	216.	86.	912.89
1.96	.00	9.39	.00	.070	.050	.070	.000	912.10	603.00
.006102	76.	76.	76.	2	0	0	.00	10.00	613.00

0
#SECND 19449.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 926.40 MAX ELLC= 921.80

I-96 BRIDGE

19449.00	8.99	921.09	.00	.00	922.55	1.46	.01	.05	928.90
790.	0.	790.	0.	0.	81.	0.	216.	86.	928.90
1.96	.00	9.70	.00	.030	.024	.030	.000	912.10	295.00
.005498	1.	1.	1.	2	0	0	.00	10.00	305.00

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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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 #SECNO 19605.000

 3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  926.40 MAX ELLC=  921.80

  19605.00    10.23   922.33      .00      .00   923.57     1.24      .95      .07   928.90
     790.       0.     790.       0.       0.      BB.       0.     217.      86.    926.90
     1.97      .00     8.93      .00     .030     .024     .030     .000   912.10   295.00
   .006716     156.     156.     156.        2        0        0    -5.30    10.00   305.00
0
 #SECNO 19606.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      926.40 ELREA=      926.40

  19606.00    10.57   922.67      .00      .00   923.65      .98      .00      .08   913.80
     790.       0.     790.       0.       0.     100.       0.     217.      86.    912.89
     1.97      .00     7.94      .00     .100     .050     .100     .000   912.10   603.00
   .003485       1.       1.       1.        2        0        0      .00    10.00   613.00
0
 #SECNO 19756.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     385.0     695.0  TYPE=     1  TARGET=     310.000
  19756.00     9.34   924.00      .00      .00   924.02      .02      .08      .29   917.36
     790.      395.     296.      99.     749.     182.     221.     219.      86.    919.86
     2.01      .53     1.63      .45     .100     .050     .100     .000   914.66   385.00
   .000213     150.     150.     150.        2        0        0      .00   310.00   695.00
0
 #SECNO 20807.000

 3470 ENCROACHMENT STATIONS=     245.0     410.0  TYPE=     1  TARGET=     165.000
         DRIVEWAY BRIDGE EAST TAFT ROAD
  20807.00     7.63   924.23      .00      .00   924.27      .04      .24      .01   917.92
     790.       72.      56.     663.     113.      31.     398.     237.      91.    917.41
     2.18      .63     1.78     1.66     .070     .050     .040     .000   916.60   245.00
   .000305     926.    1051.     901.        3        0        0      .00   165.00   410.00
0
1
  08/27/91    15:30:39                                                                PAGE   56


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


 SPECIAL BRIDGE

 5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       .00       1.60       2.70        .00       5.25        .00       10.80       .00     916.60     916.60

 #SECNO 20819.000
 PRESSURE AND WEIR FLOW


  EGPRS       EGLWC        H3        QWEIR       QFR        BAREA    TRAPEZOID       ELLC       ELTRD
                                                                        AREA
    1057.16     924.27       .00       777.        19.        11.        16.       919.60     920.70
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3470 ENCROACHMENT STATIONS=     245.0     410.0  TYPE=     1  TARGET=     165.000
 20819.00     7.66   924.26      .00      .00   924.30      .04      .03      .00   917.92
    790.       73.      55.     662.     115.      31.     401.     237.      91.    917.41
     2.18      .63     1.76     1.65     .070     .050     .040     .000   916.60   245.00
   .000297     12.      12.      12.        2        0        9      .00   165.00   410.00
0
 #SECNO 20846.000

 3470 ENCROACHMENT STATIONS=     270.0     410.0  TYPE=     1  TARGET=     140.000
         GARAGE BRIDGE EAST OF TAFT ROAD
 20846.00     7.46   924.26      .00      .00   924.32      .06      .01      .01   919.29
    790.       67.      111.    613.      93.      52.     296.     237.      91.    918.27
     2.18      .72     2.12     2.07     .070     .050     .040     .000   916.80   270.00
   .000487     27.      27.      27.        0        0        0      .00   140.00   410.00
0

 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      1.00       2.59       3.00        .00       8.00        .00       28.40       .00     916.80     916.80

 #SECNO 20866.000
 PRESSURE AND WEIR FLOW

1
  08/27/91    15:30:39                                                                                    PAGE   57


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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       QFR        BAREA   TRAPEZOID      ELLC      ELTRD
                                                                       AREA
     955.38     924.32       .00       744.        44.        28.       29.      920.40    920.90



 3470 ENCROACHMENT STATIONS=     270.0     410.0  TYPE=     1  TARGET=     140.000
 20866.00     7.50   924.30      .00      .00   924.36      .06      .04      .00   919.20
    790.       68.      110.    612.      95.      52.     298.     237.      91.    918.27
     2.19      .71     2.11     2.06     .070     .050     .040     .000   916.80   270.00
   .000476     20.      20.      20.        2        0        9      .00   140.00   410.00
0
 #SECNO 21317.000
 21317.00     6.45   924.45      .00      .00   924.46      .01      .09      .01   919.70
    790.       198.      49.    543.     364.      47.     517.     243.      93.    919.50
     2.30      .54     1.05     1.05     .070     .050     .040     .000   918.00   131.95
   .000141     351.     451.     351.        2        0        0      .00   294.53   426.48
0
 #SECNO 21817.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     790.0     825.0  TYPE=     1  TARGET=      35.000
 21817.00     5.14   924.04      .00      .00   925.29     1.25      .21      .62   920.40
    790.       139.     554.     97.      37.      53.      24.     248.      95.    920.30
     2.31      3.75    10.41     4.09     .100     .050     .070     .000   918.90   790.00
   .017043     425.     500.     425.        3        0        0      .00    33.70   823.70
0
 #SECNO 21847.000
```

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 933.10 ELREA= 933.10

1
08/27/91 15:30:39 PAGE 58

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
21867.00	6.02	925.02	925.02	.00	927.92	2.89	.97	.82	919.60
790.	0.	790.	0.	0.	58.	0.	248.	95.	920.40
2.31	.00	13.65	.00	.100	.050	.070	.000	919.00	801.00
.022373	50.	50.	50.	20	8	0	.00	10.00	811.00

0
#SECNO 21868.000

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 931.20 MAX ELLC= 928.00

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
C&O RR BRIDGE 600 FT. SE OF 12 MILE ROAD

21868.00	7.63	926.63	924.79	.00	928.29	1.67	.01	.37	934.00
790.	0.	790.	0.	0.	76.	0.	248.	95.	934.00
2.31	.00	10.36	.00	.030	.023	.030	.000	919.00	795.00
.005890	1.	1.	1.	25	16	0	.00	10.00	805.00

0
#SECNO 21892.000

3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD= 931.20 MAX ELLC= 928.00

21892.00	7.92	926.92	.00	.00	928.47	1.54	.13	.04	934.00
790.	0.	790.	0.	0.	79.	0.	248.	95.	934.00
2.31	.00	9.97	.00	.030	.023	.030	.000	919.00	795.00
.005351	24.	24.	24.	2	0	0	.00	10.00	805.00

0
#SECNO 21893.000

3470 ENCROACHMENT STATIONS= 801.0 811.0 TYPE= 1 TARGET= 10.000

21893.00	7.87	926.87	.00	.00	928.53	1.66	.01	.06	919.60
790.	0.	790.	0.	0.	76.	0.	248.	95.	99997.60
2.31	.00	10.34	.00	.100	.050	.100	.000	919.00	801.00
.026598	1.	1.	1.	2	0	0	.00	10.00	811.00

0
#SECNO 22143.000

1
08/27/91 15:30:39 PAGE 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

```
 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=      60.0     260.0  TYPE=     1  TARGET=     200.000
  22143.00     8.68   929.32      .00      .00   929.37      .05      .35      .48   922.94
     790.      354.     380.      55.     448.     155.      84.     250.      95.    923.44
     2.35      .79     2.46      .66     .100     .050     .100     .000   920.64    62.42
   .000474     205.     250.     196.        3        0        0      .00   197.58   260.00
0
 #SECND 22568.000

 3470 ENCROACHMENT STATIONS=     195.0     220.0  TYPE=     1  TARGET=      25.000
  22566.00     7.80   929.54      .00      .00   929.97      .43      .41      .19   924.04
     790.       46.     744.       0.       27.     137.       0.     254.      96. 100000.00
     2.38     1.70     5.43      .00     .100     .050     .100     .000   921.74   195.00
   .003622     345.     425.     329.        3        0        0      .00    25.00   220.00
0
 #SECND 22593.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=       .0     260.0  TYPE=     1  TARGET=     259.999

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      950.00 ELREA=      950.00

  22593.00     7.08   928.88      .00      .00   930.93     2.05      .15      .81   922.66
     790.       0.     790.       0.       0.      69.       0.     254.      96.    922.60
     2.38      .00    11.50      .00     .100     .050     .100     .000   921.80   205.00
   .011890      25.      25.      25.        3        0        0      .00    10.00   215.00
0
 #SECND 22594.000

 3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  930.00 MAX ELLC=  931.80


 3470 ENCROACHMENT STATIONS=     750.0    1050.0  TYPE=     1  TARGET=     300.000
         12 MILE ROAD
  22594.00     7.53   929.33      .00      .00   931.04     1.71      .01      .10   934.90
     790.       0.     790.       0.       0.      75.       0.     254.      96.    934.90
     2.38      .00    10.49      .00     .030     .023     .030     .000   921.80   995.00
   .006080       1.       1.       1.        3        0        0      .00    10.00  1005.00
0
1
  08/27/91    15:30:39                                                                PAGE   60


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


 #SECND 22644.000

 3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  930.00 MAX ELLC=  931.80


 3470 ENCROACHMENT STATIONS=     750.0    1050.0  TYPE=     1  TARGET=     300.000
  22644.00     8.12   929.92      .00      .00   931.39     1.47      .28      .07   934.90
     790.       0.     790.       0.       0.      81.       0.     254.      96.    934.90
     2.38      .00     9.72      .00     .030     .023     .030     .000   921.80   995.00
   .005023      50.      50.      50.        2        0        0      .00    10.00  1005.00
0
 #SECND 22645.000
```

```
3470 ENCROACHMENT STATIONS=       .0     260.0  TYPE=     1  TARGET=     259.999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      950.00 ELREA=      950.00

 22645.00     8.08   929.88      .00      .00   931.44     1.56      .00      .05   922.66
    790.        0.     790.       0.       0.     79.       0.      254.      96.    922.60
     2.38      .00    10.04      .00      .070    .040     .070     .000   921.80   205.00
   .004834      1.       1.       1.        2       0        0      .00    10.00   215.00
0
 $SECND 22670.000

 3301 HV CHANGED MORE THAN HVINS

 22670.00    10.03   931.89      .00      .00   931.92      .03      .02      .46   929.86
    340.        9.     326.       5.       32.    232.       16.      254.      96.    929.16
     2.36      .27     1.40      .30      .070    .040     .070     .000   921.86   120.60
   .000140     25.      25.      25.        2       0        0      .00    78.27   198.87
0
 $SECND 22970.000
 22970.00     9.34   931.94      .00      .00   931.98      .04      .05      .01   930.60
    340.        3.     334.       3.       14.    207.        9.      256.      97.    929.90
     2.44      .24     1.61      .31      .070    .040     .070     .000   922.60   130.15
   .000215     375.     300.     300.        2       0        0      .00    65.70   195.84
0
 $SECND 23870.000
 23870.00     8.26   932.06      .00      .00   932.06      .00      .07      .01   926.60
    340.      127.     113.     100.      376.    136.     351.      267.     101.    926.70
     2.95      .34      .83      .29      .070    .040     .070     .000   923.80   143.64
   .000038     850.     900.     950.        2       0        0      .00   300.46   444.10
0
1
  08/27/91    15:30:39                                                                PAGE   61


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


 $SECND 24870.000
 24870.00     5.08   932.08      .00      .00   932.08      .00      .02      .00   929.10
    340.      103.     170.      67.      751.    624.     491.      299.     112.    928.90
     4.33      .14      .27      .14      .070    .040     .070     .000   927.00   129.77
   .000011    1050.    1000.    1000.        2       0        0      .00   667.08   796.85
0
 $SECND 26645.000
 26645.00     4.72   932.12      .00      .00   932.13      .01      .05      .00   931.60
    340.        0.     120.      220.       3.    129.     510.      349.     131.    930.10
     5.12      .10      .93      .43      .070    .040     .070     .000   927.40   219.45
   .000146    1825.    1775.    1625.        0       0        0      .00   310.61   530.05
0
 $SECND 27695.000
 27695.00     4.64   932.24      .00      .00   932.24      .00      .11      .00   930.40
    340.      131.      36.      173.      480.     51.     599.      370.     143.    930.70
     6.01      .27      .72      .29      .070    .040     .070     .000   927.60    80.26
   .000078     775.    1050.    1150.        2       0        0      .00   646.60   726.86
0
 $SECND 28670.000

 3470 ENCROACHMENT STATIONS=     600.0    1500.0  TYPE=     1  TARGET=     900.000
 28670.00     4.05   932.25      .00      .00   932.25      .00      .01      .00   930.10
    340.        1.     307.       31.      21.    2002.     475.      410.     160.    929.30
     7.88      .06      .15      .07      .070    .040     .070     .000   928.20   600.00
   .000004    1225.     875.     825.        2       0        0      .00   960.00  1500.00
```

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0
 #SECNO 29070.000

 3470 ENCROACHMENT STATIONS=     400.0    1100.0  TYPE=     1  TARGET=     700.000
  29070.00     3.60   932.25      .00      .00   932.25      .00      .00      .00   930.55
     340.       21.     305.      15.     211.    1261.     125.     429.     167.    929.95
     8.37      .10       .24      .12     .070     .040     .070     .000   928.65   400.00
   .000912     382.     400.     406.        1        0        0      .00   700.00  1100.00
0
 #SECNO 29470.000

 3470 ENCROACHMENT STATIONS=     450.0     950.0  TYPE=     1  TARGET=     500.000
  29470.00     3.16   932.26      .00      .00   932.27      .00      .01      .00   931.10
     340.        5.     314.      21.      21.     613.     109.     440.     172.    930.80
     8.66      .21       .51      .20     .070     .040     .070     .000   929.10   450.00
   .000092     382.     400.     406.        0        0        0      .00   500.00   950.00
0
1
  08/27/91    15:30:39                                                                PAGE   62


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL       OLOSS   BANK ELEV
    0         QLOB      QCH       QROB      ALOB      ACH       AROB      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 29870.000

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     350.0     650.0  TYPE=     1  TARGET=     300.000
  29870.00     2.78   932.33      .00      .00   932.36      .03      .08      .01   931.65
     340.        8.     324.       8.      20.     234.      19.     445.     176.    931.55
     8.68      .39       1.38      .42     .070     .040     .070     .000   929.55   350.00
   .000900     382.     400.     406.        2        0        0      .00   255.24   650.00
0
 #SECNO 30270.000

 3265 DIVIDED FLOW

  30270.00     2.97   932.97      .00      .00   933.19      .22      .73      .10   932.10
     340.       16.     312.      12.      16.      80.      15.     446.     178.    932.30
     8.71      .99       3.92      .76     .070     .040     .070     .000   930.00   289.88
   .005645     382.     400.     406.        3        0        0      .00   148.99   463.52
0
 #SECNO -12094.000
 START TRIB COMP
  -12094.000 12094.000   896.874
 -12094.00     6.67   896.87      .00      .00   896.89      .01      .00      .00   893.10
     245.       30.      75.      139.      68.      62.     170.     446.     178.    890.80
     8.71      .45       1.21      .82     .070     .050     .070     .000   890.20    14.96
   .000173       0.       0.       0.        0        0        0      .00    84.17    99.14
0
 #SECNO 120.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION    120.00 EXTENDED      1.99 FEET

    120.00     5.39   896.89      .00      .00   896.97      .08      .05      .03   894.20
     245.       76.     169.       0.      71.      64.       0.     447.     178.    899.30
     8.73      1.07       2.66      .00     .070     .050     .070     .000   891.50      .00
   .002176     120.     120.     120.        0        0        0      .00    85.03    85.18
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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 620.000

 3265 DIVIDED FLOW

   620.00     5.55   898.95   897.96      .00   899.49      .54     2.29      .23   898.50
     245.       9.     236.       0.      10.      39.       0.     448.     179.    903.50
     8.75      .97     6.00      .00     .070     .050     .070     .000   893.40    99.06
  .015240     500.     500.     500.        8       14        0      .00    56.60   214.42
0
 *SECNO 2000.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      903.90 ELREA=      906.60

  2000.00     5.91   904.91      .00      .00   905.02      .12     5.41      .13   903.90
     245.       3.     242.       0.       5.      88.       0.     450.     180.    906.60
     8.89      .56     2.75      .00     .070     .050     .070     .000   899.00    72.47
  .001757    1380.    1380.    1380.        5        0        0      .00    34.08   106.55
0
 *SECNO 2095.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      904.40 ELREA=      907.00

  2095.00     4.70   905.10      .00      .00   905.37      .27      .27      .08   904.40
     245.       3.     242.       0.       3.      58.       0.     450.     180.    907.00
     8.90      .92     4.18      .00     .070     .050     .070     .000   900.40    69.83
  .005343      95.      95.      95.        2        0        0      .00    27.45    97.28
0
 *SECNO 2190.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      905.00 ELREA=      907.40

  2190.00     3.93   905.73      .00      .00   906.28      .55      .77      .14   905.00
     245.       5.     240.       0.       3.      40.       0.     450.     180.    907.40
     8.90     1.51     6.02      .00     .070     .050     .070     .000   901.80    63.71
  .013874      95.      95.      95.        2        0        0      .00    25.05    88.76
0
 *SECNO 2285.000
 3280 CROSS SECTION   2285.00 EXTENDED       .23 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


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=      905.60 ELREA=      907.80

  2285.00     3.93   907.13   906.69      .00   907.54      .41     1.21      .04   905.60
     245.      46.     199.       0.      25.      35.       0.     451.     180.    907.80
     8.91     1.84     5.63      .00     .070     .050     .070     .000   903.20      .00
  [illegible]
```

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ROUGE
WALLED LAKE BRANCH
DOWNSTREAM MEADOWBROOK LAKE

4) DOWNSTREAM TYPE: 100 YR 1987

00BREAK00

```
1*****************************************************
 *  WATER SURFACE PROFILES                           *
 *  VERSION OF NOVEMBER 1976                         *
 *  UPDATED MAY 1984                                 *
 *                                                   *
 *  RUN DATE  12 FEB 89 TIME   12:51:29              *
 *****************************************************
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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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1

13 FEB 89 12 51:30 PAGE 1

THIS RUN EXECUTED 13 FEB 89 12:51:30

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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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C
T1          CITY OF NOVI JOB NO. 555-46-04
T2          100 YEAR FLOOD
T3          WALLED LAKE BRANCH DS OF MEADOWBROOK LAKE

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        2.        0.        0.   0.000000     0.00       0.0       0.    806.300    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

   110.000   150.000   200.000     0.000     0.000     0 000     0.000     0.000     0.000     0.000

NC      0.100      0.100      0.040      0.300      0.500      0.000      0.000      0 000      0.000      0.000
QT      2 000   2380.000   2380 000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      4.100    357.000    417.000      0.000      0.000      0.000      0.000      0.000
X1      1 000     20.000    378.000    417.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    815.500      0.000    811.100    100.000    806.000    200.000    801.400    218.000    799.400    230.000
GR    798 300    300.000    799.800    378.000    798.100    378.000    796.800    398.000    798.500    398.000
GR    797 000    400.000    796.800    410.000    798.000    412.000    798.700    417.000    799.400    460.000
GR    800 400    476.000    807.500    489.000    811.400    600.000    814.100    700.000    816.200    900.000

NC      0 030      0.030      0.020      0.300      0.500      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      4.100    378.000    417.000      0.000      0.000      0.000      0 000      0.000
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CHESAPEAKE

X1	40.000	0.000	0.000	0.000	[illegible]					
SB	0.000	1.300	2.900	0.000	19.500	0.000	156.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	378.000	417.000	0.000	0.000	0.000	0.000	0.000
X1	80.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	804.000	813.500	0.000	0.000	0.000	0.000	0.000
BT	15.000	0.000	815.500	0.000	300.000	815.100	0.000	378.000	815.700	799.800
BT	380.000	815.700	804.200	383.000	815.700	806.300	386.000	815.700	807.500	388.000
BT	815.700	807.700	390.000	815.700	807.500	393.000	815.700	806.300	396.000	815.700
BT	804.200	398.000	815.700	798.500	489.000	816.100	0.000	600.000	816.000	0.000
BT	700.000	816.900	0.000	900.000	817.900	0.000	0.000	0.000	0.000	0.000

1

13 FEB 89 12:51:30 PAGE 2

NC	0.100	0.100	0.040	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	1.400	145.000	550.000	0.000	0.000	0.000	0.000	0.000
X1	314.000	0.000	0.000	0.000	234.000	234.000	234.000	0.000	0.900	0.000
ET	0.000	4.100	0.000	262.000	462.000	0.000	0.000	0.000	0.000	0.000
X1	725.000	17.000	262.000	362.000	790.000	332.000	411.000	0.000	-1.300	0.000
GR	822.500	0.000	822.600	12.000	821.700	52.000	818.400	112.000	812.500	212.000
GR	810.700	262.000	804.100	300.000	803.100	307.000	802.400	312.000	802.000	317.000
GR	800.600	324.000	809.800	362.000	809.700	412.000	808.300	473.000	810.300	584.000
GR	810.300	584.000	812.300	695.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.020	0.020	0.020	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	0.000	437.000	0.000	0.000	0.000	0.000	0.000

OLD NOVI ROAD

X1	1078.000	0.000	0.000	0.000	678.000	286.000	353.000	0.000	1.300	0.000
SB	0.000	1.630	2.800	0.000	24.000	0.000	116.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	0.000	430.000	0.000	0.000	0.000	0.000	0.000
X1	1106.000	0.000	0.000	0.000	28.000	28.000	28.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	807.300	809.700	0.000	0.000	0.000	0.000	0.000
BT	16.000	0.000	822.500	0.000	12.000	822.600	0.000	52.000	821.700	0.000
BT	112.000	818.400	0.000	212.000	812.500	0.000	262.000	810.700	0.000	300.000
BT	810.200	807.300	307.000	810.200	807.300	312.000	810.100	807.300	317.000	810.100
BT	807.300	324.000	810.100	807.300	362.000	809.800	0.000	412.000	809.700	0.000
BT	473.000	808.300	0.000	584.000	810.300	0.000	695.000	812.300	0.000	0.000
NC	0.100	0.100	0.040	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	6.100	375.000	590.000	425.000	545.000	0.000	0.000	0.000
X1	1278.000	21.000	430.000	542.000	172.000	172.000	172.000	0.000	0.000	0.000
GR	823.700	0.000	818.900	15.000	817.000	50.000	815.200	150.000	813.500	250.000
GR	813.300	350.000	811.000	430.000	807.900	450.000	807.300	500.000	806.800	516.000
GR	803.800	519.000	803.100	528.000	803.400	532.000	806.200	536.000	808.000	542.000
GR	812.600	550.000	813.500	615.000	813.500	650.000	813.600	727.000	810.600	750.000
GR	810.400	779.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	1.400	420.000	550.000	0.000	0.000	0.000	0.000	0.000
X1	1448.000	0.000	0.000	0.000	170.000	170.000	170.000	0.000	0.900	0.000
QT	2.000	2230.000	2230.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.030	0.030	0.020	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	588.000	630.000	0.000	0.000	0.000	0.000	0.000

CHESAPEAKE AND OHIO RAILROAD

X1	1618.000	21.000	588.000	630.000	151.000	191.000	170.000	0.000	0.000	0.000
GR	824.600	0.000	821.800	95.000	819.900	130.000	818.100	230.000	816.400	330.000
GR	816.200	430.000	813.900	510.000	810.800	530.000	807.700	588.000	806.000	592.500
GR	805.300	598.200	805.100	608.000	805.800	612.000	809.100	616.000	810.900	622.000
GR	815.500	630.000	816.400	695.000	816.400	730.000	816.500	807.000	813.500	830.000
GR	813.300	859.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1

SB	0.000	1.630	2.900	42.000	24.000	3.600	127.000	0.000	0.000	0.000
ET	0 000	4 100	0.000	588.000	630.000	0.000	0.000	0.000	0.000	0.000
X1	1664.000	0.000	0 000	0.000	46.000	46.000	46.000	0.000	0.200	0.000
X2	0 000	0.000	1.000	811.100	819.500	0.000	0 000	0.000	0.000	0.000
BT	15 000	0.000	822.900	0.000	7.000	822.900	0 000	100.000	822.400	0.000
BT	200 000	821 900	0 000	330.000	821.100	0.000	400.000	820.600	0.000	588.000
BT	819 600	811.200	592.500	819.600	811.200	599.400	819.600	811.200	600.500	819.600
BT	811.200	608 000	819.500	811.200	612.000	819.500	811.100	656.000	819.200	0.000
BT	800.000	818.300	0.000	859.000	817.900	0.000	0.000	0.000	0.000	0.000
NC	0 100	0.100	0.040	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	140.000	420.000	0.000	0.000	0.000	0.000	0.000
X1	1803.000	14.000	278.000	320.000	139.000	139.000	139.000	0.000	-0.700	0.000
GR	823 000	0.000	813.500	32.000	810.500	120.000	809.900	220.000	810.000	270.000
GR	809 100	278.000	807.300	281.000	806.300	290.000	806.500	293.000	811.100	301.000
GR	814 300	316.000	819.600	320.000	821.800	351.000	823.600	420.000	0.000	0.000
ET	0.000	4.100	0.000	200.000	420 000	0.000	0.000	0.000	0.000	0.000
X1	2053.000	0.000	0.000	0.000	151.000	276.000	250.000	0.000	0.600	0.000
NC	0 015	0.015	0.031	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0 000	4.100	0.000	675.000	724.000	0.000	0.000	0.000	0.000	0.000
		EIGHT MILE ROAD								
X1	2305 000	40.000	675.000	724.000	153.000	278.000	252.000	0.000	0.000	0.000
X3	0.000	808 500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	847.800	0.000	849.200	100.000	849.900	200.000	849.600	294.000	848.400	400.000
GR	846.500	500.000	843.600	600.000	843.600	601.000	809.600	675.000	806.800	677.000
GR	805.600	681.000	806.800	685.000	809.600	687.000	813.600	687.000	813.600	693.500
GR	809 600	693.500	806.800	695.500	805.600	699.500	806.800	703.500	809.600	705.500
GR	813 600	705.500	813.600	712.000	809.600	712.000	806.800	714.000	805.600	718.000
GR	806.800	722.000	809.600	724.000	837.600	799.000	837.600	800 000	834.600	900.000
GR	831.900	1000.000	830 300	1100.000	830.200	1200.000	831.800	1300 000	831.400	1325.000
GR	834.700	1400 000	837.800	1500.000	840.900	1600 000	842.300	1643.000	842.300	1700.000
SB	0.000	3.380	3.000	0.000	49.000	13.000	276.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	675.000	724.000	0.000	0.000	0.000	0.000	0.000
X1	2560.000	0.000	0.000	0.000	255.000	255.000	255.000	0.000	0.000	0.000
X2	0.000	0.000	1 000	817.600	830.200	0.000	0.000	0 000	0.000	0.000
X3	0.000	809.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	34 000	0.000	847.800	0.000	100.000	849.200	0.000	200.000	849.900	0.000
BT	294.000	849.600	0 000	400.000	848.400	0.000	500.000	846.500	0.000	600.000
BT	843.600	0.000	675.000	841.300	813.600	677.000	841.200	816.400	681.000	841.100
BT	817.600	685.000	841.000	816.400	687.000	841.000	813.600	693.500	840.800	813.600
BT	695.500	840.700	816.400	699.500	840.600	817.600	703.500	840.500	816.400	705.500
BT	840 400	813 600	712.000	840.200	813.600	714.000	840.200	816.400	718.000	840.100
BT	817 600	722.000	840.000	816.400	724.000	839.900	813.600	800.000	837.600	0.000
BT	900.000	834.600	0.000	1000 000	831.900	0.000	1100.000	830.300	0.000	1200.000
ET	830.200	0.000	1300.000	831.800	0.000	1325.000	831.400	0.000	1400.000	834.700
BT	0.000	1500.000	837 800	0.000	1600.000	840.900	0.000	1643.000	842.300	0.000
BT	1700.000	842.300	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	0.100	0.030	0.040	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0 000	345.000	660.000	0.000	0.000	0.000	0.000	0.000
X1	2693.000	27.000	466.000	486.000	133.000	133.000	133.000	0.000	0.000	0.000
GR	823.800	0.000	821 600	12.000	818.100	24.000	819 400	38.000	817.800	49.000
GR	820 700	62.000	818.500	154.000	820.000	186 000	820.700	296.000	815 700	397.000
GR	812.900	422.000	811.200	459.000	810.400	466.000	808.900	469.000	808.700	477.000
GR	809.100	485 000	810.500	486.000	811.500	493.000	812 200	536.000	812.500	586.000

GR	813.000	819.000	821.000	866.000	822.400	696.000	820.400	758.000	820.800	802.000
GR	822.000	886.000	825.800	986.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	11.000	879.000	0.000	0.000	0 000	0.000	0.000
X1	3093 000	0.000	0.000	0.000	300.000	425.000	400.000	0.000	0.900	0.000
ET	0.000	4.100	0.000	54.000	817.000	0.000	0.000	0.000	0.000	0.000
X1	3500 000	0.000	0.000	0.000	300.000	425.000	407.000	0.000	0.900	0.000
NC	0 015	0.015	0.020	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4 100	0.000	480.000	1005.000	0.000	0.000	0.000	0.000	0 000
		NOVI ROAD								
X1	3703.000	38 000	750.000	950.000	161.000	261.000	203.000	0.000	0 000	0.000
GR	818.500	0.000	818.400	50.000	818.000	70.000	820.800	88.000	820.200	150.000
GR	820 300	250.000	820.700	350.000	821.000	450.000	820.900	550.000	820.800	650.000
GR	820.900	750.000	820.000	780.000	819.900	785.000	814.900	825.000	811.000	839.000
GR	810.900	839.500	810.900	840.500	810.900	841.000	811.400	845.000	812.200	850.000
GR	813.100	855.000	814.100	859.700	814.100	860.200	814.100	861.200	814.100	861.700
GR	814.900	868.000	817 000	876.000	817.000	876.000	818.500	900.000	821.500	950.000
GR	823 900	1050.000	823 900	1150.000	824.200	1250.000	824 700	1350.000	825.200	1450.000
GR	826 100	1550.000	826.600	1650.000	827.600	1750.000	0.000	0.000	0.000	0.000
SB	0.000	1 670	2.900	0 000	51.000	4.000	378.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	493.000	1006.000	0.000	0.000	0.000	0.000	0.000
X1	3755.000	38.000	825.000	876.000	52.000	52 000	52.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	821.200	818.000	0.000	0.000	0.000	0.000	0.000
BT	23 000	0.000	818.500	0.000	50.000	818.400	0.000	70.000	818.000	0.000
BT	88 000	820.800	0 000	250.000	820.300	0.000	350.000	820.700	0.000	450.000
BT	821 000	0.000	550.000	821.400	0.000	650.000	821.900	0.000	750.000	822.200
BT	0.000	800 000	822.500	0.000	825.000	822.600	821.200	876.000	822.800	821.200
BT	900 000	822.900	0.000	950.000	822.900	0.000	1050.000	823.900	0.000	1150.000
BT	823 900	0.000	1250 000	824.200	0.000	1350.000	824.700	0.000	1450 000	825.200
BT	0 000	1550.000	826.100	0.000	1650.000	826.600	0.000	1750.000	827.600	0.000
GR	818.500	0.000	818.400	50 000	818.000	70.000	820.800	88.000	820.200	150.000
GR	820.300	250.000	820.700	350.000	821.000	450.000	820.900	550.000	820.800	650.000
GR	820.900	750.000	820.000	780.000	819.900	785.000	814.900	825.000	811.000	839.000
GR	810.900	839.500	810 900	840.500	810.900	841.000	811.400	845.000	812.200	850.000
GR	813.100	855.000	814.100	859.700	814 100	860.200	814.100	861.200	814.100	861.700
GR	814.900	868.000	817.000	876.000	817.000	876.000	818.500	900.000	821.500	950.000
GR	823 900	1050 000	823.900	1150.000	824.200	1250.000	824.700	1350.000	825.200	1450.000
GR	826 100	1550.000	826.600	1650 000	827.600	1750.000	0.000	0.000	0.000	0.000

1

13 FEB 89 12.51:30 PAGE 5

NC	0.070	0.070	0.040	0.300	0.500	0.000	0.000	0.000	0.000	.0.000
ET	0 000	0 000	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3788 000	17 000	366.450	408.550	33.000	33.000	33.000	0.000	0.000	0.000
GR	820.400	0.000	820.300	100.000	820.200	200.000	820 100	300.000	819.600	335.000
GR	818 100	350 000	815.600	366.450	814.300	375.000	812.200	379.000	812.000	391.000
GR	811 900	397.000	813.800	400.000	814.670	408.550	818.900	450.000	821.600	500.000
GR	823 900	600.000	823.900	700 000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0 015	0 015	0.020	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	460.000	853.000	0.000	0.000	0.000	0.000	0.000
		CHESAPEAKE AND OHIO RAILROAD								
X1	3814.000	25.000	723.400	756.600	26.000	26.000	26 000	0.000	0.500	0.000
GR	822.600	0.000	823.900	40.000	824.400	140.000	824.900	240.000	825.400	340.000
GR	821 100	440.000	820.700	540.000	820.500	640.000	820.000	685.000	813.200	723.400
GR	811 500	730.000	811.500	735.000	811.700	740.000	813.700	745.000	812.600	750.000
GR	815 100	756.600	822.000	540.000	824.600	940.000	828 200	990.000	828.500	1040.000
GR	828 900	1140.000	829 500	1240.000	830.000	1340.000	830.500	1440.000	830.900	1540.000
SB	0 000	1 520	2.900	0.000	33.200	0.000	245.000	0.000	0.000	0.000
ET	0 000	4 100	0.000	465.000	916.000	0.000	0.000	0.000	0.000	0.000

X1	3821.000	0.000	0.000	0.000	7.000	7.000	7.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	820.500	822.600	0.000	0.000	0.000	0.000	0.000
BT	16.000	0.000	822.600	0.000	40.000	823.900	0.000	140.000	824.400	0.000
BT	240.000	824.900	0.000	340.000	825.400	0.000	723.400	826.600	820.500	756.600
BT	826.700	820.500	756.600	826.700	815.100	840.000	827.200	0.000	940.000	827.900
BT	0.000	1040.000	828.500	0.000	1140.000	828.900	0.000	1240.000	829.500	0.000
BT	1340.000	830.000	0.000	1440.000	830.500	0.000	1540.000	830.900	0.000	0.000
NC	0.020	0.020	0.020	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	572.000	1117.000	0.000	0.000	0.000	0.000	0.000
	OLD NOVI ROAD									
X1	3835.000	29.000	633.000	855.000	14.000	14.000	14.000	0.000	0.000	0.000
GR	824.800	0.000	823.900	12.000	824.500	44.000	824.500	44.000	827.200	94.000
GR	827.300	144.000	826.800	244.000	826.200	344.000	822.800	444.000	820.900	544.000
GR	820.900	644.000	820.900	744.000	819.600	794.000	812.800	833.000	812.000	844.000
GR	814.300	855.000	817.500	884.000	819.000	897.000	820.400	922.000	821.700	946.000
GR	822.600	975.000	824.300	1044.000	823.700	1144.000	824.100	1244.000	825.000	1344.000
GR	825.500	1444.000	826.200	1544.000	825.700	1644.000	0.000	0.000	0.000	0.000
SB	0.000	1.560	2.800	0.000	22.000	0.000	238.000	0.000	0.000	0.000
ET	0.000	4.100	6.100	579.000	1109.000	625.000	1065.000	0.000	0.000	0.000
X1	3864.000	0.000	0.000	0.000	29.000	29.000	29.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	823.700	823.600	0.000	0.000	0.000	0.000	0.000
BT	26.000	0.000	824.800	0.000	12.000	823.900	0.000	44.000	824.500	0.000
BT	94.000	827.200	0.000	144.000	827.300	0.000	244.000	826.800	0.000	344.000
BT	826.200	0.000	444.000	824.700	0.000	544.000	823.800	0.000	644.000	823.600
BT	0.000	833.000	826.300	812.800	833.000	826.300	823.700	855.000	826.200	823.400
BT	884.000	825.200	817.500	894.000	824.800	0.000	897.000	824.700	0.000	722.000
BT	827.100	0.000	946.000	825.800	0.000	975.000	826.600	0.000	1044.000	825.600
BT	0.000	1144.000	823.700	0.000	1244.000	824.100	0.000	1344.000	825.000	0.000
BT	1444.000	825.500	0.000	1544.000	826.200	0.000	1644.000	825.700	0.000	0.000

QT	2.000	2380.000	2380.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.100	0.100	0.050	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	1.400	0.000	480.000	0.000	0.000	0.000	0.000	0.000
X1	4068.000	33.000	178.000	200.000	204.000	204.000	204.000	0.000	0.200	0.000
GR	829.600	0.000	829.500	13.000	815.800	44.000	815.000	59.000	813.600	60.000
GR	813.600	69.000	814.300	89.000	816.500	100.000	816.000	178.000	812.800	182.000
GR	812.400	190.000	812.900	197.000	816.300	200.000	817.100	274.000	820.000	300.000
GR	821.800	315.000	822.400	386.000	820.900	400.000	819.700	417.000	826.500	455.000
GR	828.800	480.000	827.600	492.000	823.800	500.000	820.200	527.000	823.900	557.000
GR	824.400	600.000	825.600	700.000	827.000	800.000	826.800	900.000	826.300	1000.000
GR	828.700	1047.000	828.700	1100.000	828.300	1200.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	0.000	480.000	0.000	0.000	0.000	0.000	0.000
X1	4525.000	0.000	0.000	0.000	485.000	417.000	457.000	0.000	1.200	0.000
NC	0.100	0.100	0.030	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	0.000	630.000	0.000	0.000	0.000	0.000	0.000
	FOOTBRIDGE									
X1	4984.000	30.000	257.500	282.500	487.000	418.000	459.000	0.000	0.000	0.000
GR	836.300	0.000	830.900	70.000	830.200	75.000	819.600	104.000	819.900	170.000
GR	820.400	220.000	820.700	257.500	819.400	257.500	819.200	262.000	819.200	263.500
GR	815.100	265.000	814.900	267.500	815.200	270.000	819.100	275.000	819.200	282.500
GR	820.500	282.500	820.600	320.000	819.900	370.000	823.200	470.000	827.300	570.000
GR	828.800	633.000	827.600	670.000	826.300	770.000	828.000	870.000	828.000	970.000
GR	827.500	1070.000	825.800	1120.000	825.700	1134.000	828.100	1144.000	829.600	1157.000
SB	0.000	1.730	2.600	0.000	5.000	0.000	40.000	1.700	0.000	0.000
ET	0.000	4.100	0.000	0.000	630.000	0.000	0.000	0.000	0.000	0.000
X1	4996.000	0.000	0.000	0.000	12.000	12.000	12.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	819.400	819.600	0.000	0.000	0.000	0.000	0.000

BT	22.000	0.000	855 300	0.000	70.000	930.900	0.000	75.000	630.200	0.000
BT	104.000	819.600	0.000	170.000	819.900	0.000	220.000	820.400	0.000	757.500
BT	920.700	815.400	282.500	820 500	819.200	320.000	820.600	0.000	370.000	819.900
BT	0.000	470.000	823 200	0.000	570 000	827.300	0.000	633.000	828.800	0.000
BT	670.000	827.600	0.000	770.000	826.300	0.000	870.000	828.000	0.000	970.000
BT	828.000	0 000	1070.000	827.500	0 000	1120.000	825.800	0.000	1134.000	825.700
BT	0.000	1144.000	828.100	0.000	1157.000	829.600	0.000	0.000	0.000	0.000
NC	0 100	0.100	0.050	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	0.000	600.000	0.000	0.000	0.000	0.000	0.000
X1	5058.000	29.000	274.000	300.000	62.000	62.000	62.000	0.000	0.000	0.000
GR	836.700	0.000	834.800	41.000	825.300	119.000	820.000	147.000	820.400	200.000
GR	819.400	274.000	817.200	282.000	815.000	284.000	814.700	287.000	815.100	292.000
GR	817.000	293.000	820.300	300.000	819 000	348.000	819.500	400.000	819.900	409.000
GR	824 300	458.000	824.800	500 000	828 600	600.000	828.400	700.000	826.900	800.000
GR	826.300	900.000	825.600	1000.000	924 700	1082.000	826.100	1097.000	829 200	1105.000
GR	831 400	1119.000	828 900	1128.000	824.600	1149.000	825.400	1160.000	0.000	0.000

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QT	2 000	2160.000	2160.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	0.000	1100.000	0.000	0.000	0.000	0 000	0.000
		CONFLUENCE WITH THORNTON CREEK								
X1	6108.000	27.000	710.000	722.000	680.000	900.000	1050.000	0.000	0.000	0.000
GR	841.500	0.000	831.800	90.000	831.100	122.000	829.700	222.000	827.300	322.000
GR	827 200	422.000	823 700	493.000	821.800	522.000	821.400	576.000	821.900	595.000
GR	822.600	622.000	820.700	710.000	818.200	711.000	818.100	718.000	818.300	721.000
GR	822.000	722.000	822.900	822.000	823.700	914.000	823.700	922.000	826.100	1022.000
GR	828 100	1082.000	828.100	1122.000	826.300	1222.000	826.700	1322.000	827.300	1422.000
GR	827.300	1522.000	827.900	1622.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	4 100	460.000	985.000	0.000	0.000	0.000	0.000	0.000
X1	7195.000	0 000	0.000	0.000	825.000	600.000	1087.000	0 000	2.300	0.000
NC	0 100	0.100	0 025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0 000	4.100	4.100	175.000	875.000	0.000	0 000	0.000	0.000	0.000
X1	8263.000	26.000	658.000	675.000	825.000	600.000	1088.000	0.000	0.000	0.000
GR	836.300	0.000	831.100	75.000	831.700	168.000	826.000	186.000	826.200	275.000
GR	826 600	375.000	826.400	475.000	826.200	575.000	825.100	658.000	824.100	660 000
GR	822.400	662.000	822.400	672.000	823.900	674.000	826.000	675.000	826.400	775.000
GR	827 900	875.000	827.800	975.000	827 400	1075.000	826.800	1175.000	826.600	1275.000
GR	827.000	1375.000	827.500	1475.000	828.300	1539.000	827.700	1565.000	839.100	1589.000
GR	839.600	1596 000	0 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	375 000	775.000	0.000	0.000	0.000	0 000	0.000
X1	8935 000	0.000	0.000	0.000	548.000	577.000	652.000	0.000	0.800	0.000
NC	0.100	0 100	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	4 100	175.000	1175.000	0.000	0.000	0.000	0.000	0.000
X1	8940.000	26.000	654.000	684.000	5.000	5.000	5.000	0.000	0 000	0.000
GR	837 100	0.000	831.900	75.000	832.500	168.000	826.800	186.000	827.000	275.000
GR	827.400	375.000	827.200	475 000	827.000	575.000	825.200	654.000	824.200	657.000
GR	823 200	660.000	823.200	675.000	824.200	678.000	826 200	684.000	827.200	775.000
GR	828 700	875.000	828.600	975.000	828.200	1075.000	827.600	1175.000	827.400	1275.000
GR	827.800	1375.000	828.300	1475.000	829 100	1539.000	828.500	1565.000	839.900	1589.000
GR	840.400	1596.000	0.000	0.000	0.000	0.000	0.000	0.000	0 000	0.000
ET	0 000	4 100	4.100	175.000	975.000	0.000	0.000	0.000	0.000	0.000
X1	9310 000	0.000	0.000	0.000	370.000	370.000	370.000	0.000	0 600	0.000
ET	0.000	4 100	4.100	150.000	925.000	175.000	900.000	0.000	0.000	0.000
X1	9375.000	17.000	465.000	510 000	65.000	65.000	65.000	0.000	0.000	0.000
GR	836 200	0.000	832.100	100.000	827.700	200.000	829.800	300.000	829.500	400.000
GR	828 900	465 000	823 900	480.000	823 900	495.000	828.900	510.000	829.500	600.000

GR	829 500	700 000	829.800	900.000	930.400	900.000	830.200	1000.000	830.200	1100.000
GR	830 100	1200.000	829.700	1300.000	0.000	0.000	0 000	0.000	0.000	0.000
ET	0.000	4.100	4.100	200.000	950.000	0.000	0.000	0.000	0 000	0.000

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LOCAL ACCESS BRIDGE

X1	9435.000	19 000	288 500	311.200	60.000	60.000	60.000	0 000	0 000	0.000
GR	835.000	0.000	827.200	219.000	833.000	264.500	825.000	288.500	824.000	291.500
GR	824.000	294 800	824.000	300.000	824.000	305.200	826.000	311.200	828.000	317.200
GR	831.000	326.200	831.200	392 000	830.900	550.000	831.700	633.000	830.900	650.000
GR	831 600	950.000	831.600	1050.000	832.500	1150.000	831.300	1350.000	0.000	0.000
SB	0 000	1.630	2.800	0.000	15.000	0 000	205.000	3.000	0.000	0.000
ET	0.000	4 100	4.100	200.000	950.000	200.000	324.000	0.000	0.000	0.000
X1	9447.000	0.000	0 000	0.000	12.000	12.000	12.000	0.000	0 000	0.000
X2	0.000	0.000	1.000	830.600	832.050	0.000	0.000	0.000	0.000	0.000
BT	11 000	0.000	845.000	0.000	219.000	837.200	0.000	288.500	832.050	825.000
BT	291.500	832 050	830.600	305.200	832.050	830.600	311.200	832.050	826.000	392.000
BT	831.200	0.000	550.000	830.900	0.000	633.000	831.700	0.000	650.000	830.900
BT	0.000	950.000	834.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9935.000	32.000	292.000	338.000	488.000	488.000	488.000	0.000	0.000	0.000
GR	845.300	0.000	843.700	20.000	842.900	57.000	840.800	80.000	840.700	120.000
GR	840.800	155 000	840.700	164.000	840.600	182.000	840.900	220.000	841.000	243.000
GR	828.400	292.000	824.800	305.000	824.800	307 000	824.800	313.000	824.800	318.000
GR	824.900	320.000	830.800	338.000	831.100	420.000	830.900	520.000	831.700	603.000
GR	830.900	620.000	831.800	720.000	831.000	742.000	832.500	762.000	833.600	820.000
GR	834.900	888.000	835.000	889.000	834.600	920.000	834.600	1020.000	836.500	1120.000
GR	840 600	1220.000	844 300	1320.000	0.000	0.000	0 000	0.000	0.000	0.000
X1	10198.000	20.000	285.000	330.000	263.000	263.000	263.000	0 000	0.000	0.000
GR	836.200	0.000	833.100	100.000	830.700	200.000	830.200	285.000	825.200	300.000
GR	825.200	315 000	830.200	330.000	831.700	350.000	831.100	400.000	831.400	475.000
GR	831.400	500.000	831.600	600.000	831 300	700.000	831.400	800.000	831.500	825.000
GR	832.800	900 000	834.200	1000.000	834 600	1100.000	835.000	1200.000	835.400	1300.000
NC	0.025	0.025	0 024	0.300	0.500	0.000	0.000	0.000	0.000	0.000

NINE MILE ROAD

X1	10218.000	30.000	294.000	321.000	20.000	20.000	20.000	0.000	0.000	0 000
GR	836.200	0.000	833.100	100.000	830.700	200.000	830.200	285.000	827.300	294.000
GR	826 300	295.000	825.300	298.000	825.300	302 000	826.300	305.000	827.300	306 000
GR	827.300	309.000	826.300	310.000	825.300	313.000	825.300	317.000	826.300	320.000
GR	827.300	321.000	830.200	330.000	831 700	350.000	831.100	400.000	831.400	475.000
GR	831.400	500.000	831.600	600.000	831.300	700.000	831.400	800.000	831.500	825.000
GR	832.800	900.000	834.200	1000.000	834.600	1100.000	835.000	1200.000	835.400	1300 000
SB	1.250	2.030	2.800	0.000	27.000	3.000	96.000	0.000	825.400	825.300
X1	10278 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	829.300	831.300	0.000	0.000	0.000	0.000	0.000
BT	29.000	0.000	836.200	0.000	100.000	833.100	0.000	200.000	832.300	0.000
BT	285.000	832.400	0.000	294.000	832.400	827.300	295.000	832.400	828.300	298.000
BT	832.400	829.300	302.000	832.400	829.300	305.000	832.400	828.300	306.000	832.400
BT	827 300	309.000	832.400	827.300	310.000	832.400	828.300	313.000	832.400	829.300
BT	317.000	832.300	829.300	320.000	832.300	828 300	321.000	832.200	827 300	330.000
BT	832 000	0.000	350.000	831.700	0.000	400.000	831.100	0.000	475.000	831.400
BT	0.000	500.000	831 400	0.000	600.000	831.600	0.000	700.000	831.300	0.000
BT	800.000	831 400	0.000	900.000	832.800	0.000	1000.000	834.200	0.000	1100.000
BT	834.600	0.000	1200.000	835.000	0.000	1300.000	835.400	0.000	0.000	0.000

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NC	0. 100	0. 050	0. 040	0. 300	0. 500	0. 000	0. 000	0. 000	0. 000	0. 000
ET	0. 000	4. 100	0. 000	192. 000	702 000	0. 000	0. 000	0. 000	0. 000	0. 000
X1	10925. 000	24. 000	352. 000	372. 000	241. 000	321. 000	647. 000	0. 000	0. 000	0. 000
GR	842. 100	0. 000	834. 600	72. 000	835. 800	172. 000	836. 200	192. 000	831. 500	217. 000
GR	831. 200	272. 000	831. 000	352. 000	827 900	355. 000	826. 800	362. 000	828. 500	371. 000
GR	831. 000	372. 000	830. 500	472. 000	831. 200	572. 000	831. 800	597. 000	834. 700	629. 000
GR	835 200	672. 000	836. 100	702. 000	835. 700	772. 000	835. 900	872. 000	837. 700	772. 000
GR	839. 100	1072. 000	842. 500	1172. 000	843. 100	1272. 000	844. 100	1372. 000	0. 000	0. 000
NC	0. 000	0. 000	0. 000	0. 000	0. 000	0. 000	0. 000	0 000	0. 000	0. 000
X1	11600 000	20. 000	400. 000	430. 000	675. 000	675 000	675. 000	0. 000	-0. 120	0. 000
GR	843. 600	0. 000	843. 500	70. 000	839. 700	100. 000	834. 700	200. 000	833. 200	300. 000
GR	833. 800	400. 000	829. 600	408. 000	828. 300	413. 000	828. 000	418. 000	827. 500	423. 000
GR	828. 000	424. 000	833. 800	430. 000	831. 900	500. 000	832. 200	600. 000	833. 200	700. 000
GR	837 600	800. 000	838. 800	815. 000	841. 000	900. 000	841. 400	910. 000	843. 000	1000. 000
X1	11685. 000	0. 000	0. 000	0. 000	85. 000	85. 000	85. 000	0. 000	0. 120	0. 000
SB	0. 000	1. 630	2. 900	0. 000	24. 000	0. 000	127. 000	0. 000	0. 000	0. 000
X1	11690. 000	0. 000	0. 000	0. 000	5. 000	5. 000	5. 000	0. 000	0. 000	0. 000
X2	0. 000	0. 000	1 000	833. 800	833. 200	0. 000	0. 000	0. 000	0. 000	0 000
BT	8 000	0. 000	843. 600	843. 600	100. 000	843. 500	839. 700	200. 000	834. 700	834. 700
BT	400. 000	834. 800	833. 800	430. 000	834. 800	833. 800	700. 000	833. 200	833. 200	300. 000
BT	837. 600	837. 600	1000. 000	843. 000	843. 000	0. 000	0 000	0. 000	0. 000	0. 000
X1	11716. 000	0 000	0. 000	0. 000	26. 000	26. 000	26. 000	0. 000	0. 100	0. 000
NC	0. 030	0. 030	0. 015	0. 000	0. 000	0. 000	0. 000	0. 000	0 000	0. 000
X1	11721. 000	6. 000	202. 000	230. 000	5. 000	5. 000	5. 000	0. 000	0. 000	0. 000
GR	837. 900	0. 000	838. 000	202. 000	833. 000	202. 000	833. 000	230. 000	838. 000	230. 000
GR	837. 900	400. 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

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
*SECNO 1. 000

3470 ENCROACHMENT STATIONS= 357. 0 417 0 TYPE= 1 TARGET= 60. 000

1. 00	9. 50	806. 30	0. 00	0 00	806. 81	0. 51	0. 00	0. 00	799. 80
2380.	281.	2099.	0.	141.	346.	0.	0.	0.	100000. 00
0. 00	1. 99	6 07	0. 00	0 100	0. 040	0. 000	0 000	796 80	357. 00
0. 002080	0	0.	0.	0	0	0	0. 00	60. 00	417 00

0
CCHV= 0. 300 CEHV= 0. 500
*SECNO 40. 000

3470 ENCROACHMENT STATIONS= 378 0 417. 0 TYPE= 1 TARGET= 39. 000
CHESAPEAKE AND OHIO RAILROAD

40. 00	9. 43	806. 23	0. 00	0 00	806. 98	0. 75	0. 05	0 12	799 80
2380.	0.	2380.	0.	0.	343.	0.	0	0.	100000. 00
0. 00	0. 00	6. 94	0. 00	0. 000	0 020	0. 000	0. 000	796. 80	378 00
0. 000803	21.	39.	61.	2	0	0	0. 00	39. 00	417 00

0

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	1.50	2.90	0.00	19.50	0 00	156 00	0.00	796.80	796.80

*SECNO 80 000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
811.65	806.98	0 00	0.	2380.	156.	140.	804.00	813.50

3470 ENCROACHMENT STATIONS= 378.0 417.0 TYPE= 1 TARGET= 39.000

80.00	14.55	811.35	0.00	0.00	811.65	0.30	4.67	0.00	799.80
2380.	0.	2380	0.	0.	543.	0.	1.	0.	100000.00
0.00	0.00	4 39	0.00	0.000	0.020	0.000	0.000	796 80	378.00
0.000216	40.	40	40.	2	0	0	0.00	39.00	417.00

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
*SECNO 314.000

3470 ENCROACHMENT STATIONS= 145.0 550.0 TYPE= 1 TARGET= 405.000

314.00	14.05	811 75	0.00	0.00	811.76	0.01	0.02	0.09	800.70
2380.	1176.	760	444.	2203.	523.	911.	12.	1.	799.60
0.08	0 53	1.45	0.49	0.100	0 040	0.100	0 000	797.70	145.00
0.000055	234.	234	234.	2	0	0	0.00	405.00	550.00

0
*SECNO 725.000
3280 CROSS SECTION 725.00 EXTENDED 0 75 FEET

3470 ENCROACHMENT STATIONS= 262.0 462.0 TYPE= 1 TARGET= 200.000

725.00	12 45	811.75	0.00	0.00	811.86	0.11	0.06	0.05	809.40
2380.	0.	2136.	244.	0.	768.	362.	43.	5.	808.50
0.14	0.00	2.78	0.67	0.000	0.040	0.100	0.000	799.30	262.00
0.000392	790.	411.	332.	2	0	0	0.00	200.00	462.00

0
CCHV= 0.300 CEHV= 0.500
*SECNO 1078 000
OLD NOVI ROAD

1078.00	11.21	811.81	0.00	0.00	811.98	0.17	0.09	0 03	810.70
2380.	12.	2205.	163.	17	643	103	50.	6.	809.80
0.17	0.68	3.43	1.58	0.020	0.020	0.020	0 000	800.60	231.08
0 000182	678.	353.	286.	2	0	0	0.00	180.92	412.00

0

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	1.63	2.80	0.00	24.00	0 00	116.00	0.00	800.60	800.60

*SECNO 1106.000

PRESSURE AND WEIR FLOW

1

13 FEB 89 12.51.30 PAGE 12

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 AREA	ELLC	ELTRD
822.47	811.98	0.00	2081.	319.	116.	161.	807.30	809.70

3470 ENCROACHMENT STATIONS= 0.0 430.0 TYPE= 1 TARGET= 430.000

1106.00	11.23	811 83	0.00	0.00	812.00	0.17	0.02	0.00	810.70
2380.	12.	2203.	165.	18.	646.	104.	51.	7.	809.80
0.17	0.68	3.41	1.58	0.020	0.020	0.020	0.000	800.60	230.47
0.000180	28.	28	28.	2	0	6	0.00	181.53	412.00

0

CCHV= 0.300 CEHV= 0.500

*SECNO 1278.000

3280 CROSS SECTION 1278.00 EXTENDED 1.43 FEET

3470 ENCROACHMENT STATIONS= 375.0 590.0 TYPE= 1 TARGET= 215.000

1278.00	8.73	811.83	0.00	0.00	812.15	0.32	0.07	0.07	811.00
2380.	4.	2364	12.	12.	522.	13.	53	7.	808.00
0.18	0.37	4.53	0.93	0.100	0.040	0 100	0.000	803.10	400.97
0.001970	172.	172.	172.	2	0	0	0.00	147.70	548.67

0

*SECNO 1448.000

3280 CROSS SECTION 1448.00 EXTENDED 0.90 FEET

3470 ENCROACHMENT STATIONS= 420.0 550.0 TYPE= 1 TARGET= 130.000

1448.00	8 20	812.20	0.00	0.00	812.60	0.41	0.41	0.05	811.90
2380	0.	2370	10.	2.	462	9.	55.	8.	808.90
0.19	0 23	5.13	1.03	0.100	0.040	0 100	0.000	804.00	420.00
0.002981	170.	170.	170.	2	0	0	0 00	127.73	547.73

0

CCHV= 0.300 CEHV= 0.500

*SECNO 1618.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY

1

13 FEB 89 12.51 30 PAGE 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

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 588.0 630 0 TYPE= 1 TARGET= 42.000

```
   1618.00      6 67    811.77    811.77      0.00    814.28      2.51      0.60      1.05    807.70
     2230.         0.      2230         0.        0.       175.        0.       57.         8.  100000.00
     0.19      0.00     12 72      0.00     0.000     0.020     0.000     0.000    805.10    588.00
  0.004314      151.       170.      191.         3        15         0      0.00     35 52    623.52
0

 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 5227 DOWNSTREAM ELEV IS     809.88 ,NOT     811.77 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

 SB   XK          XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00        1.63       2.90       42.00      24.00      3.60     127.00       0.00     805.10     805.10

 *SECNO 1664.000
 3280 CROSS SECTION    1664.00 EXTENDED       4.90 FEET


 3301 HV CHANGED MORE THAN HVINS

 PRESSURE AND WEIR FLOW

  EGPRS       EGLWC        H3         QWEIR       QPR         BAREA    TRAPEZOID       ELLC       ELTRD
                                                                          AREA
     819.58     816.05       0.00        133.       2118.        127.       122.       811.10     819.50



 3470 ENCROACHMENT STATIONS=       588.0      630.0  TYPE=       1   TARGET=       42.000
   1664.00     13.10    818.40       0.00       0.00    818.81      0.41       4.53       0.00    807.90
     2230.         0.      2230.         0.         0.      433.         0.       57.         8.  100000.00
      0.19      0.00       5.15       0.00     0.000     0.020     0.000     0.000    805.30    588.00
  0.000331        46         46.        46.         2         0         4      0.00     42.00    630.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 1803.000

 3470 ENCROACHMENT STATIONS=       140.0      420.0  TYPE=       1   TARGET=       280.000
1
  13 FEB 89     12:51:30                                                                          PAGE    14


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


   1803.00     13.31     818.91       0.00       0.00    818.96      0 04       0.04       0.11    808.40
     2230      1311.        919.         0       1322.      390.         0.       60.         8.     818.90
      0.22      0.99       2.36       0.00      0.100     0.040     0.000     0.000    805.60    140.00
  0.000238      139.       139.       139.         2         0         0      0.00    180.21    320.21
0
 *SECNO 2053.000

 3470 ENCROACHMENT STATIONS=       200.0      420.0  TYPE=       1   TARGET=       220.000
   2053.00     12.75    818.95       0 00       0.00    819.06      0.11       0.07       0.03    809.00
     2230.        995.      1235.         0.        713.      366.         0.       66.         9.     819.50
      0 24       1 40       3.37       0.00      0.100     0.040     0.000     0.000    806.20    200.00
  0 000519      151.       250.       276.         2         0         0      0.00    119.58    319.58
0
 CCHV=    0.300 CEHV=    0.500
 *SECND 2305 000

 3470 ENCROACHMENT STATIONS=       675.0      724 0  TYPE=       1   TARGET=       49.000
```

EIGHT MILE ROAD

2305.00	10.48	818.98	0.00	0.00	819.38	0.40	0.18	0.14	809.60
2230.	0.	2230.	0.	0.	441.	0	70	9	100000.00
0.25	0.00	5.06	0.00	0.000	0.031	0.000	0.000	808.50	675.00
0.001251	153.	252.	278.	2	0	0	0.00	49.00	724.00

0

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	3.38	3.00	0.00	49.00	13.00	276.00	0.00	808.50	808.50

#SECNO 2560.000
PRESSURE FLOW

EGPRS	EGLWC	P3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
822.41	819.43	0.00	0.	2230.	276	328.	817.60	830.20

3470 ENCROACHMENT STATIONS= 675.0 724.0 TYPE= 1 TARGET= 49.000

2560.00	12.77	822.17	0.00	0.00	822.41	0.24	3.03	0.00	809.60
2230.	0.	2230.	0.	0.	570.	0.	73.	10.	100000.00
0.27	0.00	3.91	0.00	0.000	0.031	0.000	0.000	809.40	675.00
0.000570	255.	255.	255.	2	0	0	0.00	49.00	724.00

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
#SECNO 2693.000

3470 ENCROACHMENT STATIONS= 345.0 660.0 TYPE= 1 TARGET= 315.000

2693.00	13.77	822.47	0.00	0.00	822.48	0.01	0.01	0.07	810.40
2230	277.	259.	1694.	956.	269.	1609.	78.	10.	810.50
0.31	0.29	0.96	1.05	0.100	0.040	0.030	0.000	808.70	345.00
0.000023	133.	133.	133.	2	0	0	0.00	315.00	660.00

0
#SECNO 3093.000

3265 DIVIDED FLOW

3093.00	12.88	822.48	0.00	0.00	822.49	0.01	0.01	0.00	811.30
2230.	333.	260.	1637.	1466.	251.	1550.	104.	15.	811.40
0.43	0.23	1.03	1.06	0.100	0.040	0.030	0.000	809.60	12.07
0.000028	300.	400.	425.	2	0	0	0.00	801.39	856.51

0
#SECNO 3500.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 54.0 817.0 TYPE= 1 TARGET= 763.000

3500.00	11.99	822.49	0.00	0.00	822.51	0.02	0.01	0.00	812.20
2230.	280.	284.	1667.	990	233.	1306.	129.	21.	812.30
0.53	0.28	1.21	1.28	0.100	0.040	0.030	0.000	810.50	54.00

```
 0.000043      300.      407.      425.         0         0         0      0.00    648.24    789.72
0
 CCHV=    0.300 CEHV=    0 500
 *SECNO 3703.000

 3470 ENCROACHMENT STATIONS=      480.0     1005.0  TYPE=      1  TARGET=      525 000
              NOVI ROAD
   3703.00     11.59    822.49      0.00      0.00    822.53      0.04      0.01      0.01    820.90
     2230.      492.     1727.       11.      439.      983.       21.       138       23.     821.50
      0.57      1.12      1.76      0.51     0.015     0.020     0.015     0.000    810.90    480.00
  0.000068      161.      203.      261.         0         0         0      0.00    511.53    991.53
0
1
  13 FEB 89     12.51:30                                                                                  PAGE    16


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


 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       1.67       2.90       0.00      51.00       4.00     378.00       0.00     810.90     810.90

 *SECNO 3755.000
 PRESSURE AND WEIR FLOW

  EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                         AREA
     822.57     822.55      0.00      1585.       646        378.       484.       821.20     818.00


 3470 ENCROACHMENT STATIONS=      493.0     1006.0  TYPE=      1  TARGET=      513.000
   3755.00     11.62    822.52      0.00      0.00    822.57      0.05      0.03      0.00    814.90
     2230.      866.      990       374.      705.      468.      262.       140.       24.     817.00
      0.58      1 23      2.12      1.43     0.015     0.020     0.015     0.000    810.90    493.00
  0.000044       52.       52.       52.         2         0         7      0.00    499.57    992.57
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 3788.000
 3280 CROSS SECTION    3788.00 EXTENDED       2.12 FEET

   3788.00     10 61    822.51      0.00      0.00    822 59      0.08      0.00      0.02    815.60
     2230.      695.     1157       378.      921.      390.      369.       141.       24.     814.67
      0.58      0.75      2 97      1.02     0.070     0.040     0.070     0.000    811.90      0.00
  0.000341       33.       33.       33.         1         0         0      0.00    539.84    539.84
0
 CCHV=    0 300 CEHV=    0.500
 *SECNO 3814.000

 3470 ENCROACHMENT STATIONS=      460.0      853.0  TYPE=      1  TARGET=      393.000
              CHESAPEAKE AND OHIO RAILROAD
   3814.00     10.52    822.52      0.00      0.00    822.59      0.07      0.00      0.00    813.70
     2230.      846.      842.      542.      521.      313.      289.       142.       25.     815.60
      0.59      1.62      2 69      1.88     0.015     0.020     0.015     0.000    812.00    460.00
  0.000069       26.       26        26.         0         0         0      0.00    380.54    840.54
0
1
  13 FEB 89     12:51 30                                                                                  PAGE    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

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	1.52	2.90	0.00	33.20	0.00	245 00	0.00	812.00	812.00

*SECNO 3821.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
824.47	822.59	0.00	131.	2097.	245.	282.	820.50	822.60

3470 ENCROACHMENT STATIONS= 465 0 916.0 TYPE= 1 TARGET= 451.000

3821 00	12.22	824.22	0.00	0.00	824.25	0.03	1.66	0.00	813.70
2230.	1063.	586.	581.	958.	370.	489.	142.	25.	815.60
0 59	1.11	1.58	1.19	0.015	0.020	0.015	0.000	812.00	465.00
0.000019	7.	7.	7.	2	0	3	0.00	441.30	906 30

0
CCHV= 0.300 CEHV= 0.500
*SECNO 3835.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 572.0 1117.0 TYPE= 1 TARGET= 545.000
OLD NOVI ROAD

3835.00	12.23	824.23	0.00	0.00	824.25	0.02	0.00	0.00	812.80
2230.	1091.	462.	678.	1083.	252.	633.	143.	25.	814.30
0 59	1.01	1.83	1.07	0.020	0 020	0.020	0.000	812.00	572.00
0.000024	14.	14.	14.	0	0	0	0.00	529.35	1117.00

0

SPECIAL BRIDGE

5070. VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

1

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

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.56	2.80	0.00	22.00	0.00	238.00	0.00	812.00	812.00

*SECNO 3864.000

6070, LOW FLOW BY NORMAL BRIDGE

EGPRS= 826.352 EGLWC= 824.250 ELLC= 823.700 PCWSE= 824.226 ELTRD= 823.600

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 823.60 MAX ELLC= 823.70

3470 ENCROACHMENT STATIONS= 579.0 1109.0 TYPE= 1 TARGET= 530.000

3864.00	11.93	823 93	818.50	0.00	824.54	0.61	0.00	0.29	812.80
2230.	22.	1622.	586.	21.	237.	132.	143.	25.	814.30
0.59	1.02	6.84	4.44	0.020	0.020	0.020	0.000	812.00	579.00
0.001215	29.	29.	29.	4	12	0	-1410.66	453.73	1109.00

0

CCHV= 0.300 CEHV= 0.500

*SECNO 4068.000

3301 HV CHANGED MORE THAN HVINS

4068.00	12.18	824.78	0.00	0.00	824 80	0.02	0.08	0.18	816.20
2380.	1135.	485.	761.	1297.	250.	1152.	151.	27.	816.50
0.65	0.87	1 94	0.66	0.100	0.050	0.100	0.000	812.60	24.13
0.000194	204.	204.	204.	2	0	0	0.00	420.14	444.27

0

*SECNO 4525 000

3470 ENCROACHMENT STATIONS= 0.0 480.0 TYPE= 1 TARGET= 480.000

4525.00	11.09	824.89	0 00	0.00	824.92	0.03	0.11	0 00	817.40
2380.	1169.	525.	686.	1131	226.	888.	176.	31.	817.70
0.75	1.03	2.32	0.77	0.100	0.050	0.100	0.000	813.80	26.60
0.000319	485.	457.	417.	2	0	0	0.00	411.57	438.17

0

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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

*SECNO 4984.000

FOOTBRIDGE

4984.00	10.16	825.06	0.00	0.00	825.15	0.09	0.20	0 03	820.70
2380	884.	732.	764.	806.	181.	803.	197.	36.	820.50
0.81	1.10	4.05	0.95	0.100	0.030	0.100	0.000	814.90	89.06
0.000661	487.	459.	418.	2	0	0	0.00	426.35	515.41

0

SPECIAL BRIDGE

5070, VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	CQFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.73	2.80	0.00	5 00	0.00	40.00	1.70	814.90	814.90

*SECNO 4996.000

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
920.16	825.15	0.00	2293	87.	40.	57.	819.40	819.60

```
 3470 ENCROACHMENT STATIONS=        0.0      630.0  TYPE=      1   TARGET=      630.000
   4996.00      10 20     825 10       0 00       0.00     825.19       0.09       0.04       0.00     820.70
     2380.        885.       729.       766.       813.       182.       812.       198.        36.      820.50
      0.82       1.09       4.01       0.94      0.100      0 030      0.100      0.000     814.90      88.95
  0.000644         12.        12         12.          2          0          9       0.00     427.39     516.35
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 5058.000
   5058 00      10.49     825.19       0.00       0.00     825.24       0.05       0 04       0.01     819.40
     2380.        829.       624.       927.       727.       211.       803.       201.        36.      820.30
      0.83       1.14       2.96       1.15      0.100      0.050      0.100      0.000     814.70     119.58
  0.000711         62.        62.        62.          2          0          0       0.00     380.42     500.00
0
 *SECNO 6108 000
            CONFLUENCE WITH THORNTON CREEK
   6108.00       7.84     825.94       0.00       0.00     825.98       0.04       0 73       0.00     820.70
     2160.       1171.       280.       709.       936.        90.       714.       233.        45.      822.00
      0.99       1.25       3.11       0.99      0.100      0.050      0.100      0.000     818.10     447.59
  0 001146        680.      1050.       900.          2          0          0       0.00     567.68    1015.27
0
1
  13 FEB 89     12:51:30                                                                                PAGE    20

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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 7195.000

 3470 ENCROACHMENT STATIONS=      460.0      985.0  TYPE=      1   TARGET=      525.000
   7195.00       6.90     827.30       0.00       0.00     827.39       0.09       1.39       0.02     823.00
     2160.       1203.       361.       596.       698.        79.       456.       258.        54.      824.30
      1.10       1.72       4 58       1.31      0.100      0.050      0.100      0.000     820.40     466.68
  0.002969        825       1087.       600.          2          0          0       0.00     509 38     976.06
0
 *SECNO 8283.000

 3470 ENCROACHMENT STATIONS=      175.0      875.0  TYPE=      1   TARGET=      700.000
   8283.00       6.38     828 78       0.00       0.00     828.94       0.17       1.51       0.04     825.10
     2160.       1195.       597.       368.       1222.       98.       420.       285         64.      826.00
      1.19       0.98       6.08       0.88      0.100      0.025      0.100      0.000     822.40     177.24
  0.001226        825.      1088.       600.          2          0          0       0.00     697.76     875.00
0
 *SECNO 8935.000

 3470 ENCROACHMENT STATIONS=      375.0      775.0  TYPE=      1   TARGET=      400.000
   8935.00       6.40     829.60       0.00       0.00     830.02       0.42       0.95       0.12     825.90
     2160.       1002.       816.       342.       743.        99        261.       303.        71.      826.80
      1.24       1 35       8 26       1.31      0.100      0.025      0.100      0.000     823.20     375.00
  0.002250        548.       652        577.          2          0          0       0 00     400.00     775.00
0
 *SECNO 8940.000

 3470 ENCROACHMENT STATIONS=      175.0     1175.0  TYPE=      1   TARGET=     1000.000
   8940.00       6.84     830.04       0.00       0.00     830.13       0.08       0.00       0.10     825.20
     2160.        915.       723.       522.      1461.       186.      1032.       303.        72.      826.20
      1.24       0 63       3.89       0.51      0.100      0.025      0.100      0.000     823.20     175.76
  0.000391          5.         5.         5.          3          0          0       0.00     999.24    1175.00
0
 *SECNO 9310.000
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3470 ENCROACHMENT STATIONS=      175 0      975.0  TYPE=      1  TARGET=      800.000
  9310 00      6.40    830.20      0.00      0.00    830.36      0.16      0.19      0.04    825.80
    2160.      956.      864.      340.     1248.      172.      523.      323.       79.     826.80
     1.28      0.77      5.01      0.65     0.100     0.025     0.100     0.000    823.80    177.17
 0.000715      370       370.      370.         2         0         0      0.00    797.83    975.00
0
1
 13 FEB 89     12:51:30                                                                                    PAGE    21

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 9375.000
 3280 CROSS SECTION    9375.00 EXTENDED       0.49 FEET

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      150.0      925 0  TYPE=      1  TARGET=      775.000
  9375.00      6.29    830.19    830.19      0.00    831.06      0 88      0 08      0.36    828.90
    2160.      283      1738.      139.      330       208.      223.      325.       80.     828.90
     1.28      0.86      8.36      0.62     0.100     0.025     0.100     0.000    823 90    150.00
 0.002697       65.       65.       65.         4         5         0      0.00    714.18    864.18
0
 *SECNO 9435.000

 3265 DIVIDED FLOW

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      200.0      950 0  TYPE=      1  TARGET=      750.000
             LOCAL ACCESS BRIDGE
  9435.00      6.53    830 53    830.53      0.00    832.83      2.30      0.20      0.71    825 00
    2160.      253.     1850.       58.      146.      141.       31.      326        81.     826.00
     1.28      1.73     13.14      1.87     0.100     0.025     0.100     0.000    824.00    200.00
 0.004415       60.       60.       60.        20        11         0      0.00     98.01    324.79
0

 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       1.63       2.80       0.00      15 00       0.00     205.00       3.00     824.00     824.00

 *SECNO 9447.000
1
 13 FEB 89     12:51:30                                                                                    PAGE    22

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

6870 D. S. ENERGY OF 832.83 HIGHER THAN COMPUTED ENERGY OF 831.94

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
833.34	832.83	0.00	645	1529.	205.	230.	830.60	832.05

3470 ENCROACHMENT STATIONS= 200.0 950.0 TYPE= 1 TARGET= 750.000

9447.00	6.42	830.42	0.00	0.00	832.83	2.42	0.00	0.00	825.00
2160.	246.	1858.	56.	140.	138.	29.	326.	81.	826.00
1.28	1.76	13.43	1.90	0.100	0.025	0.100	0.000	824.00	200.00
0.004715	12.	12.	12.	16	0	0	0.00	96.56	324.48

0

*SECNO 9935 000

3301 HV CHANGED MORE THAN HVINS

9935.00	8.96	833.76	0.00	0.00	833.98	0.22	0.48	0.66	828.40
2160.	32	1496.	632.	56.	335.	1133.	336.	85.	830 80
1.32	0.57	4.46	0 56	0.100	0.025	0.100	0.000	824.80	271.12
0.000416	488.	488.	488.	2	0	0	0.00	557.80	828.91

0

*SECNO 10198.000

10198.00	8.77	833.97	0.00	0.00	834.10	0.12	0.09	0.03	830.20
2160.	270.	1198.	692.	520.	320.	1473.	348.	89.	830.20
1.36	0.52	3.74	0.47	0.100	0.025	0.100	0.000	825.20	71.64
0.000304	263.	263.	263.	2	0	0	0.00	912 60	984.23

0

CCHV= 0.300 CEHV= 0.500

*SECNO 10218.000

NINE MILE ROAD

10218.00	8.82	834.12	0.00	0.00	834.13	0 02	0.00	0.03	827.30
2160.	526.	364.	1270.	598.	220.	1610.	349.	89.	827.30
1.36	0 88	1.65	0.79	0.025	0.024	0.025	0.000	825.30	67.25
0.000048	20.	20.	20.	2	0	0	0.00	926.69	993 94

0

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
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
	1.25	2.03	2.80	0.00	27.00	3.00	96.00	0.00	825.40	825.30

*SECNO 10278.000

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD

```
    850.07     834.13      0 00      2014.       145         96.         94        829.30     831.30


  10278.00      8.87    834.17      0.00      0.00    834.19      0.01      0.06      0.00    827.30
     2160.      526.      356.     1278.      613.      222      1654.      352.       91.     827.30
      1.38      0.86      1.61      0.77     0.025     0.024     0.025     0.000    825.30     65.19
  0.000045       60.       60.       60.         1         0         7      0.00    933.31    998.51
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 10925.000

 3470 ENCROACHMENT STATIONS=      192.0      702.0  TYPE=      1  TARGET=      510.000
  10925.00      7.39    834.19      0.00      0.00    834.25      0.06      0.04      0.02    831.00
     2160.      356.      399.     1404.      423.      125.      777.      367.       96.     831.00
      1 43      0.84      3.18      1.81     0.100     0.040     0.050     0.000    826.80    202.69
  0.000776      241.      647.      321.         0         0         0      0.00    420.69    623.38
0
 *SECNO 11600.000
  11600.00      7.47    834.85      0.00      0.00    834.96      0.10      0.68      0.02    833.68
     2160.      161.      608.     1391.      250.      158.      703.      385.      103.     833.68
      1.51      0.65      3.85      1.98     0.100     0.040     0.050     0.000    827.38    194.61
  0.001366      675.      675.      675.         2         0         0      0.00    545.60    740.21
0
 *SECNO 11685.000
  11685.00      7.47    834.97      0.00      0.00    835.07      0.10      0.12      0.00    833.80
     2160.      161.      609.     1390.      249.      158.      702.      388.      104.     833.80
      1.52      0.65      3.85      1.98     0.100     0.040     0.050     0.000    827.50    194.66
  0.001371       85.       85.       85.         2         0         0      0 00    545.50    740.16
0
1
  13 FEB 89     12:51:30                                                                          PAGE    24


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


 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       1.63       2.90       0.00      24 00       0.00     127.00       0.00     827.50     827.50

 *SECNO 11690.000

 6070,LOW FLOW BY NORMAL BRIDGE

 EGPRS=    842.288  EGLWC=    835.072  ELLC=    833.800  PCWSE=    834.967  ELTRD=    833.200

 3370 NORMAL BRIDGE,NRD=  8 MIN ELTRD=  833.20 MAX ELLC=  833 80

  11690 00      7.44    834.94      0.00      0.00    835.13      0.19      0.02      0.04    833.80
     2160.       93.       656      1411.      143.      127.      559.      388.      104.     833.80
      1.52      0.65      5.16      2.53     0.100     0.040     0.050     0.000    827.50    195.21
  0.012845        5.        5.        5.         2         0         0   -265.25    544.32    739.53
0
 *SECNO 11716.000
  11716.00      7.54    835.14      0.00      0.00    835.23      0.10      0.08      0.03    833.90
     2160.      168.      597.     1395.      262.      160.      722       388.      104.     833.90
      1.52      0.64      3.73      1.93     0.100     0 040     0.050     0 000    827.60    193.40
  0.001266       26.       26.       26.         1         0         0      0.00    548.20    741.60
0
 *SECNO 11721.000
```

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ROUGE
WALLED LAKE BRANCH
DOWNSTREAM
MEADOW BROOK LAKE

4) DOCUMENT TYPE: 100 YR. ENCROACHED

Address concerns ✓

WALLED LAKE BRANCH DS OF MEADOWBROOK LAKE #
100-YEAR ENCROACHED RUN (OLD Patnales Dr. South)

```
EEEEEE   X     X        W     W   EEEEEE   IIIII     SSSS     EEEEEE   RRRRR
E         X   X         W     W   E          I      S         E        R    R
E          XX           W     W   E          I       SSSS     E        R    R
EEEE       XX           W WW W   EEEE       I           S    EEEE     RRRRR
E         X   X         WW  WW   E          I      S    S    E        R   R
EEEEEE   X     X        W     W   EEEEEE   IIIII     SSSS     EEEEEE   R    R
```

USACOE DETROIT H800 VDS 5.1.1 PRINTER: 6

EX WEISER 22 MAR 88 14:32:14

TERMINAL: 110

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1**********************************************************
 *  WATER SURFACE PROFILES                                *
 *  VERSION OF NOVEMBER 1976                              *
 *  UPDATED MAY 1984                                      *
 *                                                        *
 *  RUN DATE  18 MAR 88 TIME    16:35:58                  *
 **********************************************************

                                                                                  ************************************
                                                                                  *  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
1
  18 MAR 88    16:35:58                                                                          PAGE    1


                                                                                  THIS RUN EXECUTED 18 MAR 88    16:35:58

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

   C
   T1          CITY OF NOVI JOB NO.  555-46-04
   T2          100 YEAR FLOOD
   T3          WALLED LAKE BRANCH DS OF MEADOWBROOK LAKE

   J1  ICHECK      INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

         0.          2.         0.         0.   0.000000       0.00       0.0         0.     806.300     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

       110.000     150.000    200.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000


   NC       0.100       0.100       0.040       0.300       0.500       0.000       0.000       0.000       0.000       0.000
   QT       2.000    2550.000    2550.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000
   ET       0.000       4.100       4.100     357.000     417.000       0.000       0.000       0.000       0.000       0.000
   X1       1.000      20.000     378.000     417.000       0.000       0.000       0.000       0.000       0.000       0.000
   GR     815.500       0.000     811.100     100.000     806.000     200.000     801.400     218.000     799.400     230.000
   GR     798.300     300.000     799.800     378.000     798.100     378.000     796.800     398.000     798.500     398.000
   GR     797.000     400.000     796.800     410.000     798.000     412.000     798.700     417.000     799.400     460.000
   GR     800.400     476.000     807.500     489.000     811.400     600.000     814.100     700.000     816.200     900.000

   NC       0.030       0.030       0.020       0.300       0.500       0.000       0.000       0.000       0.000       0.000
   ET       0.000       4.100       4.100     378.000     417.000       0.000       0.000       0.000       0.000       0.000
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CHESAPEAKE AND OHIO RAILROAD

X1	40.000	0.000	0.000	0.000	21.000	61.000	39.000	0.000	0.000	0.000
SB	0.000	1.500	2.900	0.000	19.500	0.000	156.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	378.000	417.000	0.000	0.000	0.000	0.000	0.000
X1	80.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	804.000	813.500	0.000	0.000	0.000	0.000	0.000
BT	15.000	0.000	815.500	0.000	300.000	815.100	0.000	378.000	815.700	799.800
BT	380 000	815 700	804.200	383.000	815 700	806.300	386.000	815.700	807.500	388.000
BT	815.700	807.700	390 000	815.700	807.500	393.000	815.700	806.300	396.000	815.700
BT	804.200	398.000	815.700	798.500	489 000	816.100	0.000	600.000	816.000	0.000
BT	700.000	816.900	0.000	900.000	817.900	0.000	0.000	0.000	0.000	0.000

1

18 MAR 88 16:35:58 PAGE 2

NC	0.100	0.100	0.040	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	1.400	145.000	550.000	0.000	0.000	0.000	0.000	0.000
X1	314.000	0.000	0 000	0.000	234.000	234.000	234 000	0.000	0.900	0.000
ET	0.000	4.100	0.000	262.000	462.000	0.000	0.000	0.000	0.000	0.000
X1	725.000	17.000	262.000	362.000	790.000	332.000	411 000	0.000	-1.300	0.000
GR	822.500	0.000	822.600	12.000	821.700	52.000	818.400	112.000	812.500	212.000
GR	810.700	262.000	804.100	300.000	803.100	307.000	802.400	312.000	802 000	317.000
GR	800.600	324 000	809.800	362.000	809.700	412.000	808.300	473.000	810.300	584.000
GR	810.300	584.000	812.300	695.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.020	0.020	0.020	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	0.000	437.000	0.000	0.000	0.000	0.000	0.000

OLD NOVI ROAD

X1	1078.000	0.000	0.000	0.000	678 000	286.000	353.000	0.000	1.300	0.000
SB	0.000	1.630	2.800	0.000	24.000	0.000	116.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	0.000	430.000	0.000	0.000	0.000	0.000	0.000
X1	1106 000	0 000	0.000	0.000	28.000	28.000	28.000	0.000	0.000	0.000
X2	0.000	0 000	1.000	807.300	809.700	0.000	0.000	0.000	0.000	0.000
BT	16.000	0.000	822.500	0.000	12.000	822.600	0.000	52.000	821.700	0.000
BT	112.000	818.400	0.000	212.000	812.500	0.000	262.000	810.700	0.000	300.000
BT	810.200	807.300	307.000	810.200	807.300	312.000	810.100	807.300	317.000	810.100
BT	807.300	324.000	810.100	807.300	362.000	809 800	0.000	412.000	809.700	0.000
BT	473.000	808.300	0.000	584.000	810.300	0.000	695.000	812.300	0.000	0.000
NC	0 100	0.100	0.040	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	375.000	590.000	0.000	0.000	0.000	0.000	0.000
X1	1278.000	21.000	430.000	542.000	172.000	172.000	172.000	0.000	0.000	0.000
GR	823.700	0 000	818.900	15.000	817.000	50.000	815.200	150.000	813.500	250.000
GR	813.300	350.000	811.000	430 000	807.900	450.000	807.300	500.000	806.800	516.000
GR	803.800	519.000	803.100	528.000	803.400	532 000	806.200	536.000	808.000	542.000
GR	812.600	550 000	813.500	615.000	813.500	650.000	813.600	727.000	810.600	750.000
GR	810.400	779.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	420.000	550.000	0.000	0.000	0.000	0.000	0.000
X1	1448.000	0.000	0.000	0.000	170.000	170.000	170.000	0.000	0.900	0.000
QT	2.000	2270.000	2270.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.030	0 030	0.020	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	588.000	630.000	0.000	0.000	0.000	0.000	0.000

CHESAPEAKE AND OHIO RAILROAD

X1	1618.000	21.000	588.000	630.000	151.000	191.000	170.000	0.000	0.000	0.000
GR	826 600	0.000	821.800	95.000	819 900	130.000	818.100	230.000	816.400	330.000
GR	816.200	430.000	813.900	510.000	810.800	530.000	807.700	588.000	806.000	592.500
GR	805.300	598.200	805.100	608.000	805.800	612.000	809.100	616.000	810.900	622.000
GR	815.500	630.000	816.400	695 000	816.400	730.000	816.500	807.000	813.500	830.000
GR	813.300	859.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1

SB	0.000	1.630	2.900	42.000	24.000	3.600	127.000	0.000	0.000	0.000
ET	0.000	4 100	0.000	588.000	630.000	0.000	0.000	0.000	0.000	0.000
X1	1664.000	0.000	0 000	0.000	46.000	46.000	46.000	0.000	0.200	0.000
X2	0.000	0.000	1.000	811.100	819.500	0.000	0.000	0.000	0.000	0.000
BT	15.000	0.000	822.900	0.000	7.000	822.900	0.000	100.000	822.400	0.000
BT	200.000	821.900	0.000	330.000	821.100	0.000	400.000	820.600	0.000	588.000
BT	819.600	811.200	592.500	819.600	811.200	599.400	819.600	811.200	600.500	819.600
BT	811.200	608.000	819.500	811.200	612.000	819.500	811.100	656.000	819.200	0.000
BT	800.000	818.300	0.000	859.000	817.900	0.000	0.000	0.000	0.000	0.000
NC	0.100	0.100	0 040	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4 100	0.000	140 000	420.000	0.000	0.000	0.000	0.000	0.000
X1	1803.000	14.000	278.000	320.000	139.000	139.000	139.000	0.000	-0.700	0.000
GR	823.000	0.000	813.500	32.000	810.500	120.000	809.900	220.000	810.000	270.000
GR	809.100	278.000	807.300	281.000	806.300	290.000	806.500	293.000	811.100	301.000
GR	814.300	316.000	819.600	320.000	821.800	351.000	823.600	420.000	0.000	0.000
ET	0 000	4.100	0.000	200.000	420.000	0.000	0.000	0.000	0.000	0.000
X1	2053 000	0.000	0.000	0.000	151 000	276.000	250.000	0.000	0.600	0.000
NC	0.015	0.015	0.031	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	675.000	724.000	0.000	0.000	0.000	0.000	0.000

EIGHT MILE ROAD

X1	2305.000	40.000	675.000	724.000	153.000	278.000	252.000	0.000	0.000	0.000
X3	0.000	808.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	847.800	0.000	849.200	100.000	849.900	200.000	849.600	294.000	848.400	400.000
GR	846 500	500.000	843.600	600.000	843.600	601 000	809.600	675.000	806.800	677.000
GR	805.600	681.000	806.800	685 000	809 600	687.000	813.600	687.000	813.600	693.500
GR	809.600	693.500	806.800	695.500	805.600	699.500	806.800	703.500	809.600	705.500
GR	813.600	705.500	813 600	712.000	809.600	712.000	806.800	714.000	805.600	718.000
GR	806.800	722.000	809.600	724.000	837.600	799.000	837.600	800.000	834 600	900.000
GR	831.900	1000.000	830.300	1100.000	830.200	1200.000	831.800	1300.000	831.400	1325.000
GR	834.700	1400.000	837 800	1500.000	840.900	1600.000	842.300	1643.000	842.300	1700.000
SB	0.000	3 380	3.000	0.000	49.000	13.000	276.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	675.000	724.000	0.000	0.000	0.000	0.000	0.000
X1	2560 000	0.000	0.000	0.000	255.000	255.000	255.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	817.600	830.200	0.000	0.000	0.000	0.000	0.000
X3	0.000	809.400	0 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	34.000	0.000	847.800	0.000	100.000	849.200	0.000	200.000	849.900	0.000
BT	294.000	849.600	0.000	400.000	848.400	0.000	500.000	846.500	0.000	600.000
BT	843.600	0.000	675.000	841.300	813.600	677.000	841.200	816.400	681.000	841.100
BT	817.600	685.000	841.000	816.400	687.000	841.000	813.600	693.500	840.800	813.600
BT	695.500	840.700	816.400	699.500	840.600	817.600	703.500	840.500	816.400	705.500
BT	840.400	813.600	712.000	840.200	813.600	714.000	840.200	816.400	718.000	840.100
BT	817.600	722.000	840.000	816.400	724.000	839.900	813.600	800.000	837.600	0.000
BT	900.000	834.600	0.000	1000.000	831.900	0.000	1100.000	830.300	0.000	1200.000
BT	830.200	0.000	1300.000	831.800	0.000	1325.000	831.400	0.000	1400.000	834.700
BT	0.000	1500.000	837.800	0 000	1600.000	840.900	0.000	1643.000	842.300	0.000
BT	1700.000	842.300	0 000	0.000	0 000	0.000	0.000	0.000	0.000	0.000

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NC	0.100	0.030	0.040	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	345.000	660.000	0.000	0.000	0.000	0.000	0.000
X1	2693.000	27.000	466.000	486.000	133.000	133.000	133.000	0 000	0.000	0.000
GR	823.800	0.000	821.600	12.000	818.100	24.000	819.400	38.000	817.800	49.000
GR	820.700	62.000	818.500	154.000	820.000	186 000	820.700	296.000	815.700	397.000
GR	812.900	422.000	811 200	459 000	810 400	466.000	808.900	469.000	808.700	477.000
GR	809 100	485.000	810.500	486 000	811 500	493.000	812.200	536.000	812.500	586.000

GR	813.000	619.000	821.000	666.000	822.400	696.000	820.400	758.000	820.800	802.000
GR	822.000	886.000	825.800	986.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	11.000	879.000	0.000	0.000	0.000	0.000	0.000
X1	3093.000	0.000	0.000	0.000	300.000	425.000	400.000	0.000	0.900	0.000
ET	0.000	4.100	0.000	54.000	817.000	0.000	0.000	0.000	0.000	0.000
X1	3500.000	0.000	0.000	0.000	300.000	425.000	407.000	0.000	0.900	0.000
NC	0.015	0.015	0.020	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	480.000	1005.000	0.000	0.000	0.000	0.000	0.000
		NOVI ROAD								
X1	3703.000	38.000	750.000	950.000	161.000	261.000	203.000	0.000	0.000	0.000
GR	818.500	0.000	818.400	50.000	818.000	70.000	820.800	88.000	820.200	150.000
GR	820.300	250.000	820.700	350.000	821.000	450.000	820.900	550.000	820.800	650.000
GR	820.900	750.000	820.000	780.000	819 900	785 000	814.900	825.000	811.000	839.000
GR	810.900	839.500	810.900	840.500	810.900	841 000	811.400	845.000	812.200	850.000
GR	813.100	855.000	814.100	859.700	814.100	860.200	814.100	861.200	814.100	861.700
GR	814 900	868.000	817.000	876.000	817.000	876.000	818.500	900.000	821.500	950.000
GR	823 900	1050.000	823.900	1150.000	824.200	1250.000	824.700	1350.000	825.200	1450.000
GR	826.100	1550.000	826.600	1650.000	827.600	1750.000	0.000	0.000	0.000	0.000
SB	0.000	1.670	2.900	0.000	51.000	4.000	378.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	493.000	1006.000	0.000	0.000	0.000	0.000	0.000
X1	3755.000	38.000	825.000	876.000	52.000	52 000	52.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	821 200	818.000	0.000	0.000	0.000	0.000	0.000
BT	23.000	0.000	818.500	0.000	50.000	818.400	0.000	70.000	818.000	0.000
BT	88.000	820.800	0.000	250.000	820.300	0 000	350.000	820.700	0.000	450.000
BT	821.000	0.000	550.000	821.400	0.000	650.000	821.900	0.000	750.000	822.200
BT	0 000	800.000	822.500	0.000	825.000	822.600	821.200	876.000	822.800	821.200
BT	900.000	822.900	0.000	950.000	822.900	0.000	1050.000	823.900	0.000	1150.000
BT	823.900	0.000	1250.000	824.200	0.000	1350.000	824.700	0.000	1450.000	825.200
BT	0.000	1550.000	826.100	0.000	1650.000	826.600	0.000	1750.000	827.600	0.000

GR	818.500	0.000	818.400	50.000	818.000	70.000	820.800	88.000	820.200	150.000
GR	820.300	250 000	820.700	350.000	821.000	450.000	820.900	550.000	820.800	650.000
GR	820.900	750 000	820.000	780.000	819.900	785.000	814.900	825.000	811.000	839.000
GR	810.900	839.500	810.900	840.500	810.900	841.000	811.400	845.000	812.200	850.000
GR	813.100	855.000	814.100	859 700	814 100	860.200	814.100	861.200	814.100	861.700
GR	814.900	868.000	817 000	876.000	817.000	876.000	818.500	900.000	821.500	950.000
GR	823.900	1050.000	823.900	1150 000	824.200	1250.000	824.700	1350.000	825.200	1450.000
GR	826.100	1550.000	826.600	1650.000	827.600	1750.000	0.000	0.000	0.000	0.000

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NC	0.070	0 070	0 040	0.300	0 500	0.000	0.000	0.000	0.000	0.000
X1	3788.000	17.000	366.450	408.550	33.000	33.000	33.000	0.000	0.000	0.000
GR	820.400	0.000	820.300	100.000	820.200	200.000	820.100	300.000	819.600	335.000
GR	818.100	350.000	815.600	366.450	814.300	375.000	812.200	379.000	812.000	391.000
GR	811.900	397 000	813.800	400.000	814.670	408 550	818.900	450.000	821.600	500.000
GR	823.900	600.000	823.900	700.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0 015	0.015	0.020	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	460.000	853.000	0.000	0.000	0.000	0.000	0.000
		CHESAPEAKE AND OHIO RAILROAD								
X1	3814.000	25 000	723.400	756.600	26.000	26.000	26.000	0.000	0.500	0.000
GR	822 600	0.000	823 900	40.000	824.400	140.000	824.900	240.000	825.400	340.000
GR	821.100	440.000	820.700	540.000	820.500	640.000	820.000	685.000	813.200	723.400
GR	811.500	730 000	811.500	735.000	811.700	740.000	813.700	745.000	812.600	750.000
GR	815 100	756.600	822.000	840 000	824.600	940.000	828.200	990.000	828.500	1040.000
GR	828 900	1140.000	829.500	1240.000	830.000	1340.000	830.500	1440.000	830.900	1540.000
SB	0.000	1.520	2.900	0.000	33.200	0.000	245 000	0.000	0.000	0.000
ET	0.000	4 100	0 000	465.000	916.000	0.000	0 000	0.000	0.000	0.000
X1	3821.000	0.000	0 000	0.000	7.000	7 000	7.000	0.000	0.000	0.000

X2	0.000	0.000	1.000	820.500	822.600	0.000	0.000	0.000	0.000	0.000
BT	16.000	0.000	822.600	0.000	40.000	823.900	0.000	140.000	824.400	0.000
BT	240 000	824.900	0.000	340.000	825.400	0.000	723.400	826.600	820.500	756.600
BT	826.700	820.500	756.600	826.700	815.100	840.000	827.200	0.000	940.000	827.900
BT	0.000	1040.000	828.500	0.000	1140 000	828.900	0.000	1240.000	829.500	0.000
BT	1340.000	830.000	0.000	1440.000	830.500	0.000	1540.000	830.900	0.000	0.000
NC	0.020	0.020	0.020	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0 000	4.100	0.000	572.000	1117.000	0.000	0.000	0.000	0.000	0.000
	OLD NOVI ROAD									
X1	3835.000	28.000	833.000	855.000	14.000	14.000	14.000	0.000	0.000	0.000
GR	824.800	0.000	823.900	12 000	824.500	44.000	824.500	44.000	827.200	94.000
GR	827.300	144.000	826.800	244.000	826.200	344.000	822.800	444.000	820.900	544.000
GR	820.900	644.000	820.900	744.000	819.600	794.000	812.800	833.000	812.000	844.000
GR	814.300	855 000	817.500	884.000	819.000	897.000	820.400	922.000	821.700	946.000
GR	822.600	975.000	824.300	1044.000	823.700	1144.000	824.100	1244.000	825.000	1344.000
GR	825.500	1444.000	826.200	1544.000	825.700	1644.000	0.000	0.000	0.000	0.000
SB	0.000	1.560	2.800	0.000	22.000	0.000	238.000	0.000	0.000	0.000
ET	0.000	4 100	6.100	579.000	1109.000	629.000	1059.000	0.000	0.000	0.000
X1	3864.000	0.000	0.000	0.000	29.000	29.000	29.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	823.700	823.600	0.000	0.000	0.000	0.000	0.000
BT	26.000	0.000	824 800	0 000	12.000	823.900	0.000	44 000	824.500	0.000
BT	94.000	827.200	0.000	144.000	827.300	0.000	244.000	826.800	0.000	344.000
BT	826.200	0.000	444.000	824.700	0.000	544.000	823.800	0.000	644.000	823.600
BT	0.000	833.000	826.300	812.800	833.000	826.300	823.700	855.000	826.200	823.400
BT	884.000	825.200	817.500	894.000	824.800	0.000	897.000	824.700	0.000	922.000
BT	827.100	0.000	946.000	825.800	0.000	975.000	826.600	0.000	1044.000	825.600
BT	0.000	1144.000	823.700	0.000	1244.000	824.100	0.000	1344.000	825.000	0.000
BT	1444 000	825.500	0.000	1544.000	826.200	0.000	1644.000	825.700	0.000	0.000

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QT	2.000	2550.000	2550.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.100	0.100	0.050	0 300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	1.400	0.000	480.000	0.000	0.000	0.000	0.000	0.000
X1	4068.000	33.000	178.000	200.000	204.000	204.000	204.000	0.000	0.200	0.000
GR	829.600	0.000	829.500	13.000	815.800	44.000	815.000	59.000	813 600	60.000
GR	813.600	69.000	814.300	89 000	816.500	100.000	816.000	178.000	812.800	182.000
GR	812.400	190.000	812.900	197 000	816.300	200.000	817.100	274.000	820.000	300.000
GR	821.800	315.000	822.400	386.000	820.900	400.000	819.700	417.000	826.500	455.000
GR	828.800	480 000	827.600	492.000	823.800	500.000	820.200	527.000	823.900	557.000
GR	824.400	600.000	825.600	700.000	827.000	800.000	826.800	900.000	826.300	1000.000
GR	828.700	1047.000	828.700	1100.000	828.300	1200.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	0.000	480.000	0.000	0.000	0.000	0.000	0.000
X1	4525.000	0 000	0.000	0.000	485.000	417.000	457.000	0.000	1.200	0.000
NC	0.100	0 100	0.030	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	0 000	630.000	0.000	0.000	0.000	0.000	0.000
	FOOTBRIDGE									
X1	4984.000	30.000	257.500	282.500	487.000	418.000	459.000	0.000	0.000	0.000
GR	836.300	0.000	830.900	70.000	830.200	75.000	819.600	104.000	819.900	170.000
GR	820.400	220.000	820.700	257.500	819.400	257.500	819.200	262.000	819.200	263.500
GR	815.100	265.000	814 900	267 500	815.200	270.000	819.100	275.000	819.200	282.500
GR	820.500	282.500	820.600	320.000	819 900	370.000	823.200	470.000	827.300	570.000
GR	828.800	633.000	827.600	670.000	826.300	770.000	828.000	870.000	828.000	970.000
GR	827.500	1070.000	825.800	1120.000	825.700	1134.000	828.100	1144.000	829.600	1157.000
SB	0.000	1.730	2.800	0.000	5.000	0.000	40.000	1.700	0.000	0.000
ET	0.000	4.100	0.000	0 000	630.000	0.000	0.000	0.000	0.000	0.000
X1	4996.000	0.000	0.000	0.000	12.000	12.000	12.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	819.400	819.600	0.000	0.000	0.000	0.000	0.000
BT	22 000	0.000	836.300	0.000	70.000	830.900	0.000	75.000	830.200	0.000

BT	104.000	819.600	0.000	170.000	819.900	0.000	220.000	820.400	0.000	257.500
BT	820.700	819.400	282.500	820.500	819.200	320.000	820.600	0.000	370.000	819.900
BT	0.000	470.000	823.200	0.000	570.000	827.300	0.000	633.000	828.800	0.000
BT	670 000	827.600	0.000	770.000	826.300	0.000	870.000	828.000	0.000	970.000
BT	828.000	0.000	1070.000	827.500	0.000	1120.000	825.800	0.000	1134.000	825.700
BT	0.000	1144 000	828.100	0.000	1157 000	829.600	0.000	0.000	0.000	0.000
NC	0.100	0.100	0.050	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	0.000	600.000	0.000	0.000	0.000	0.000	0.000
X1	5058.000	29.000	274.000	300.000	62.000	62.000	62.000	0.000	0.000	0.000
GR	836 700	0.000	834.800	41.000	825.300	119.000	820.000	147.000	820.400	200.000
GR	819.400	274.000	817 200	282.000	815 000	284.000	814.700	287 000	815.100	292.000
GR	817.000	293.000	820 300	300.000	819.000	348.000	819.500	400.000	819.900	409.000
GR	824.300	458.000	824.800	500.000	828.600	600.000	828.400	700.000	826.900	800.000
GR	826.300	900.000	825.600	1000.000	824.700	1082.000	826.100	1097.000	829.200	1105.000
GR	831 400	1119.000	828.900	1128.000	824.600	1149.000	825.400	1160.000	0.000	0.000

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QT	2 000	2360.000	2360.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4 100	0.000	0.000	1100 000	0.000	0.000	0.000	0.000	0.000
		CONFLUENCE WITH THORNTON CREEK								
X1	6108.000	27 000	710.000	722.000	680.000	900.000	1050.000	0.000	0.000	0.000
GR	841.500	0.000	831.800	90.000	831.100	122.000	829.700	222.000	827.300	322.000
GR	827.200	422.000	823.700	493 000	821.800	522.000	821.400	576.000	821.900	595.000
GR	822.600	622 000	820.700	710.000	818.200	711.000	818.100	718.000	818.300	721.000
GR	822.000	722.000	822.900	822.000	823.700	914.000	823.700	922.000	826.100	1022.000
GR	828 100	1082.000	828.100	1122.000	826.300	1222.000	826.700	1322.000	827.300	1422.000
GR	827.300	1522.000	827.900	1622 000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0 000	4.100	4.100	460.000	985.000	0.000	0 000	0.000	0.000	0.000
X1	7195 000	0.000	0.000	0.000	825.000	600.000	1087.000	0.000	2.300	0.000
NC	0.100	0 100	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	175.000	875.000	0.000	0.000	0.000	0.000	0.000
X1	8283.000	26.000	658.000	675.000	825.000	600.000	1088.000	0.000	0.000	0.000
GR	836.300	0.000	831.100	75.000	831.700	168.000	826.000	186.000	826.200	275.000
GR	826.600	375.000	826.400	475.000	826.200	575.000	825.100	658.000	824.100	660.000
GR	822 400	662 000	822.400	672.000	823.900	674.000	826.000	675.000	826.400	775.000
GR	827.900	875.000	827.800	975.000	827.400	1075.000	826.800	1175.000	826.600	1275.000
GR	827.000	1375.000	827 500	1475.000	828.300	1539 000	827.700	1565.000	839.100	1589.000
GR	839.600	1596.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	1.400	375.000	775.000	0.000	0.000	0.000	0.000	0.000
X1	8935.000	0.000	0.000	0.000	548.000	577.000	652.000	0.000	0.800	0.000
NC	0.100	0.100	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	175.000	1175.000	0.000	0.000	0.000	0.000	0.000
X1	8940.000	26.000	654.000	684.000	5.000	5.000	5.000	0.000	0.000	0.000
GR	837.100	0.000	831.900	75.000	832.500	168.000	826.800	186.000	827.000	275.000
GR	827.400	375.000	827 200	475.000	827.000	575.000	825.200	654.000	824.200	657.000
GR	823.200	660.000	823.200	675.000	824.200	678.000	826.200	684.000	827.200	775.000
GR	828.700	875.000	828.600	975.000	828.200	1075.000	827.600	1175.000	827.400	1275.000
GR	827.800	1375.000	828.300	1475.000	829.100	1539.000	828.500	1565.000	839.900	1589.000
GR	840.400	1596.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	175.000	975.000	0.000	0.000	0.000	0.000	0.000
X1	9310.000	0.000	0.000	0.000	370.000	370.000	370.000	0.000	0.600	0.000
ET	0.000	4.100	6.100	150.000	925.000	175.000	900.000	0.000	0.000	0.000
X1	9375 000	17.000	465.000	510.000	65.000	65.000	65.000	0.000	0.000	0.000
GR	836.200	0.000	832.100	100.000	827.700	200.000	829.800	300.000	829.500	400.000
GR	828.900	465.000	823.900	480.000	823.900	495.000	828.900	510 000	829.500	600.000
GR	829.500	700.000	829.800	800.000	830.400	900.000	830.200	1000.000	830.200	1100.000

GR	830.100	1200.000	829.700	1300.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	200.000	950.000	0.000	0.000	0.000	0.000	0.000

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LOCAL ACCESS BRIDGE

X1	9435.000	19.000	288.500	311.200	60.000	60.000	60.000	0.000	0.000	0.000
GR	835.000	0.000	827.200	219.000	833.000	264.500	825.000	288.500	824.000	291.500
GR	824.000	294.800	824.000	300 000	824.000	305.200	826.000	311.200	828.000	317.200
GR	831.000	326.200	831.200	392.000	830.900	550.000	831.700	633.000	830.900	650.000
GR	831.600	950.000	831.600	1050.000	832.500	1150.000	831.300	1350.000	0.000	0.000
SB	0.000	1.630	2.800	0.000	15.000	0.000	205.000	3.000	0.000	0.000
ET	0.000	4.100	4.100	200.000	950.000	0.000	0.000	0.000	0.000	0.000
X1	9447.000	0.000	0.000	0.000	12.000	12.000	12.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	830.600	832 050	0.000	0.000	0.000	0.000	0.000
BT	11.000	0.000	845.000	0.000	219.000	837.200	0.000	288.500	832.050	825.000
BT	291.500	832.050	830.600	305.200	832.050	830.600	311.200	832.050	826.000	392.000
BT	831.200	0.000	550.000	830.900	0.000	633.000	831.700	0.000	650.000	830.900
BT	0.000	950.000	834.600	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9935.000	32.000	292.000	338.000	488.000	488.000	488.000	0.000	0.000	0.000
GR	845.300	0.000	843.700	20.000	842.900	57.000	840.800	80.000	840.700	120.000
GR	840.800	155.000	840.700	164.000	840.600	182.000	840.900	220.000	841.000	243.000
GR	828.400	292.000	824.800	305.000	824.800	307.000	824.800	313.000	824.800	318.000
GR	824.800	320.000	830.800	338.000	831.100	420.000	830 900	520.000	831.700	603.000
GR	830.900	620.000	831.800	720.000	831.000	742.000	832.500	762.000	833.600	820.000
GR	834.900	888.000	835.000	889.000	834.600	920.000	834.600	1020.000	836.500	1120.000
GR	840.600	1220.000	844 300	1320.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10198.000	20 000	285.000	330.000	263.000	263.000	263.000	0.000	0.000	0.000
GR	836.200	0.000	833.100	100.000	830.700	200.000	830.200	285.000	825.200	300.000
GR	825.200	315.000	830.200	330.000	831.700	350.000	831.100	400.000	831.400	475.000
GR	831.400	500.000	831.600	600.000	831.300	700.000	831.400	800.000	831.500	825.000
GR	832.800	900.000	834.200	1000.000	834 600	1100.000	835.000	1200.000	835.400	1300.000
NC	0.025	0 025	0.024	0.300	0.500	0.000	0.000	0.000	0.000	0.000

NINE MILE ROAD

X1	10218.000	30.000	294.000	321.000	20.000	20.000	20.000	0.000	0.000	0.000
GR	836.200	0 000	833.100	100.000	830.700	200.000	830.200	285.000	827.300	294.000
GR	826 300	295.000	825.300	298.000	825.300	302.000	826.300	305.000	827.300	306.000
GR	827.300	309.000	826.300	310.000	825.300	313.000	825.300	317.000	826.300	320.000
GR	827.300	321.000	830.200	330.000	831.700	350 000	831.100	400.000	831.400	475.000
GR	831.400	500.000	831 600	600.000	831.300	700.000	831.400	800.000	831.500	825.000
GR	832.800	900.000	834.200	1000.000	834.600	1100.000	835.000	1200.000	835.400	1300.000
SB	1.250	2 030	2.800	0.000	27.000	3.000	96.000	0.000	825.400	825.300
X1	10278.000	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	829.300	831.300	0.000	0.000	0.000	0.000	0.000
BT	29.000	0.000	836.200	0.000	100.000	833.100	0.000	200.000	832.300	0.000
BT	285.000	832.400	0.000	294.000	832.400	827.300	295.000	832.400	828.300	298.000
BT	832.400	829.300	302.000	832.400	829.300	305.000	832.400	828.300	306.000	832.400
BT	827.300	309.000	832.400	827.300	310.000	832.400	828.300	313.000	832.400	829.300
BT	317.000	832.300	829.300	320.000	832.300	828.300	321.000	832.200	827.300	330.000
BT	832.000	0 000	350.000	831.700	0.000	400.000	831.100	0.000	475.000	831.400
BT	0.000	500.000	831 400	0.000	600.000	831.600	0.000	700.000	831.300	0.000
BT	800.000	831.400	0.000	900.000	832.800	0.000	1000.000	834.200	0.000	1100.000
BT	834.600	0.000	1200.000	835.000	0.000	1300.000	835.400	0.000	0.000	0.000

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NC      0.100      0.050      0.040      0.300      0.500      0.000      0.000      0.000      0.000      0.000
ET      0.000      4.100      0.000    192.000    702.000      0.000      0.000      0.000      0.000      0.000
X1  10925.000     24.000    352.000    372.000    241.000    321.000    627.000      0.000      0.000      0.000
GR    842.100      0.000    834.600     72.000    835.800    172.000    836.200    192.000    831.500    217.000
GR    831.200    272.000    831.000    352.000    827.900    355.000    826.800    362 000    828.500    371.000
GR    831.000    372.000    830.500    472.000    831.200    572.000    831.800    597.000    834.700    629.000
GR    835.200    672.000    836.100    702.000    835.700    772.000    835.900    872.000    837.700    972.000
GR    839.100   1072.000    842.500   1172.000    843.100   1272.000    844.100   1372.000      0.000      0.000

NC      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
X1  11600 000     20.000    400.000    430.000    675.000    675.000    675.000      0.000     -0.120      0.000
GR    843.600      0.000    843.500     70.000    839.700    100 000    834.700    200.000    833.200    300.000
GR    833.800    400.000    829.600    408.000    828.300    413.000    828.000    418.000    827.500    423.000
GR    828.000    424.000    833.800    430.000    831.900    500.000    832.200    600.000    833.200    700.000
GR    837.600    800.000    838.800    815.000    841.000    900.000    841.400    910.000    843.000   1000.000

X1  11685.000      0.000      0.000      0.000     85.000     85.000     85.000      0.000      0.120      0.000

SB      0.000      1 630      2.900      0.000     24.000      0.000    127.000      0.000      0.000      0.000
X1  11690.000      0.000      0.000      0.000      5.000      5.000      5.000      0.000      0.000      0.000
X2      0.000      0.000      1.000    833.800    833.200      0.000      0.000      0.000      0.000      0.000
BT      8.000      0.000    843 600    843.600    100.000    843.500    839.700    200.000    834.700    834.700
BT    400.000    834 800    833.800    430.000    834.800    833.800    700 000    833.200    833.200    800.000
BT    837.600    837.600   1000.000    843.000    843.000      0.000      0.000      0.000      0.000      0.000

X1  11721 000      0.000      0.000      0.000     31.000     31.000     31.000      0.000      0.100      0.000
EJ      0 000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
1
 18 MAR 88     16.35.58                                                                                  PAGE   10


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
*SECNO 1.000

3470 ENCROACHMENT STATIONS=      357.0      417.0  TYPE=      1  TARGET=       60.000
     1.00      9.50    806.30      0.00      0.00    806.89      0.59      0.00      0.00    799.80
    2550.      301.     2249.        0.       141       346.        0.        0.        0.  100000.00
     0.00      2.14      6.51      0.00     0 100     0.040     0.000     0.000    796.80    357.00
 0 002388        0.        0.        0.         0         0         0      0.00     60.00    417.00
0
CCHV=   0.300 CEHV=   0.500
*SECNO 40.000

3470 ENCROACHMENT STATIONS=      378.0      417.0  TYPE=      1  TARGET=       39.000
            CHESAPEAKE AND OHIO RAILROAD
    40.00      9.42    806.22      0.00      0.00    807.08      0.86      0.05      0.14    799.80
    2550.        0.     2550         0.        0.       342.        0.         0        0.  100000.00
     0.00      0.00      7 45      0.00     0.000     0.020     0.000     0.000    796.80    378.00
 0.000925       21.-       39.       61.         2         0         0      0.00     39.00    417.00
0

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       1.50       2.90       0.00      19.50       0.00     156.00      0.00     796.80     796.80

*SECNO 80.000
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3301 HV CHANGED MORE THAN HVINS

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
812.44	807.08	0.00	0.	2550.	156.	140.	804.00	813.50

3470 ENCROACHMENT STATIONS= 378.0 417.0 TYPE= 1 TARGET= 39.000

80.00	15 33	812.13	0.00	0.00	812 44	0.31	5.36	0.00	799.80
2550	0	2550.	0.	0.	573.	0	1.	0.	100000.00
0.00	0.00	4.45	0.00	0.000	0.020	0.000	0.000	796.80	378.00
0.000214	40.	40.	40.	2	0	0	0.00	39.00	417.00

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
*SECND 314.000

3470 ENCROACHMENT STATIONS= 145.0 550.0 TYPE= 1 TARGET= 405.000

314.00	14.84	812.54	0.00	0.00	812.55	0.01	0.02	0.09	800.70
2550.	1265.	797.	488.	2388.	554.	1016.	13.	1.	799.60
0.08	0.53	1.44	0.48	0.100	0.040	0.100	0.000	797.70	145.00
0.000050	234.	234.	234.	2	0	0	0.00	405.00	550.00

0
*SECND 725.000
3280 CROSS SECTION 725.00 EXTENDED 1.55 FEET

3470 ENCROACHMENT STATIONS= 262.0 462.0 TYPE= 1 TARGET= 200.000

725.00	13.25	812.55	0.00	0.00	812.64	0.10	0.05	0.04	809.40
2550.	0.	2248.	302.	0.	847.	441.	47.	5.	808.50
0.14	0.00	2 65	0.69	0.000	0.040	0.100	0.000	799.30	262.00
0.000316	790.	411.	332	2	0	0	0.00	200.00	462.00

0
CCHV= 0 300 CEHV= 0.500
*SECND 1078.000
OLD NOVI ROAD

1078.00	11.99	812.59	0.00	0.00	812.73	0.14	0.07	0.02	810.70
2550.	42.	2273.	235.	50.	721.	142	55.	7	809.80
0.17	0.85	3.15	1.65	0.020	0.020	0.020	0.000	800.60	210.45
0.000132	678	353.	286.	2	0	0	0 00	201.55	412.00

0

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	1.63	2.80	0.00	24.00	0.00	116 00	0.00	800.60	800.60

*SECND 1106.000
PRESSURE AND WEIR FLOW

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 AREA	ELLC	ELTRD
824.82	812.73	0.00	2272.	281.	116.	161.	807.30	809.70

3470 ENCROACHMENT STATIONS= 0.0 430.0 TYPE= 1 TARGET= 430.000

1106.00	12.00	812.60	0.00	0.00	812.74	0.14	0.01	0.00	810.70
2550.	43.	2272.	235.	50.	722	142.	56	7.	809.80
0 18	0.85	3 15	1.65	0.020	0.020	0 020	0.000	800.60	210.32
0.000132	28.	28.	28.	2	0	7	0.00	201.68	412.00

0

CCHV= 0.300 CEHV= 0.500

*SECNO 1278.000

3280 CROSS SECTION 1278.00 EXTENDED 2.19 FEET

3470 ENCROACHMENT STATIONS= 375.0 590.0 TYPE= 1 TARGET= 215.000

1278.00	9.49	812.59	0.00	0 00	812.85	0.26	0.05	0.06	811.00
2550.	21.	2513.	16.	44.	607.	18.	59.	8.	808.00
0.19	0.47	4.14	0.86	0.100	0.040	0.100	0.000	803.10	375.00
0 001349	172.	172.	172.	2	0	0	0.00	174.98	549.98

0

*SECNO 1448 000

3280 CROSS SECTION 1448.00 EXTENDED 1.53 FEET

3470 ENCROACHMENT STATIONS= 420.0 550.0 TYPE= 1 TARGET= 130.000

1448.00	8.83	812.83	0.00	0.00	813.18	0.35	0.28	0.04	811.90
2550.	4.	2533.	13.	8.	533.	13.	61.	8.	808.90
0.20	0.56	4.75	0.97	0 100	0.040	0.100	0.000	804.00	420.00
0.002112	170.	170.	170.	2	0	0	0.00	128.84	548.84

0

CCHV= 0.300 CEHV= 0.500

*SECNO 1618.000

3301 HV CHANGED MORE THAN HVINS

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 588.0 630.0 TYPE= 1 TARGET= 42.000

CHESAPEAKE AND OHIO RAILROAD

1618.00	7.32	812.42	0.00	0.00	814 45	2.03	0.43	0.84	807.70
2270.	0.	2270.	0.	0.	199.	0	63.	8	100000.00
0.20	0.00	11.42	0.00	0.000	0 020	0.000	0.000	805.10	588.00
0.003129	151.	170.	191	3	0	0	0.00	36.65	624 65

0

SPECIAL BRIDGE

5070, VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
5227 DOWNSTREAM ELEV IS 809.93 , NOT 812.42 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.63	2.90	42.00	24.00	3.60	127.00	0.00	805.10	805.10

*SECNO 1664.000
3280 CROSS SECTION 1664.00 EXTENDED 5.11 FEET

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
820.51	816.18	0.00	225.	2051.	127.	122.	811.10	819.50

3470 ENCROACHMENT STATIONS= 588 0 630.0 TYPE= 1 TARGET= 42.000

1664.00	13.31	818.61	0.00	0.00	819.02	0.41	4.58	0.00	807.90
2270.	0.	2270	0.	0.	442.	0.	63.	8.	100000.00
0.20	0.00	5.13	0.00	0.000	0.020	0.000	0.000	805.30	588.00
0.000323	46.	46.	46.	2	0	5	0.00	42.00	630.00

0
CCHV= 0.300 CEHV= 0.500
*SECNO 1803.000

3470 ENCROACHMENT STATIONS= 140 0 420.0 TYPE= 1 TARGET= 280.000

1803.00	13.53	819.13	0.00	0 00	819.17	0.04	0.04	0.11	808.40
2270.	1333.	937.	0.	1351.	399.	0.	67.	9.	818.90
0.23	0 99	2.35	0.05	0.100	0.040	0.100	0.000	805.60	140.00
0 000229	139.	139.	139.	2	0	0	0.00	183.18	323.18

0
1

SECND	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 2053.000

3470 ENCROACHMENT STATIONS= 200.0 420.0 TYPE= 1 TARGET= 220.000

2053.00	12.96	819.16	0.00	0.00	819.27	0.11	0.06	0 03	809.00
2270.	1013.	1257	0.	729.	375.	0.	73	9.	819.50
0.25	1.39	3.35	0.00	0.100	0.040	0.000	0.000	806.20	200.00
0.000500	151.	250.	276.	2	0	0	0.00	119.74	319.74

0
CCHV= 0.300 CEHV= 0.500
*SECNO 2305.000

3470 ENCROACHMENT STATIONS= 675.0 724.0 TYPE= 1 TARGET= 49.000
EIGHT MILE ROAD

2305.00	10.69	819.19	0.00	0 00	819 58	0.39	0.17	0.14	809.60
2270.	0.	2270.	0.	0	451.	0.	76.	10	100000.00
0.26	0.00	5 04	0.00	0.000	0.031	0.000	0.000	808.50	675.00
0.001210	153.	252.	278.	2	0	0	0.00	49.00	724.00

0

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	3.38	3.00	0.00	49.00	13.00	276.00	0.00	808.50	808.50

*SECNO 2560.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
822.74	819.63	0.00	0	2270.	276.	328.	817.60	830.20

3470 ENCROACHMENT STATIONS=		675.0	724.0	TYPE=	1	TARGET=	49.000		
2560.00	13.10	822 50	0 00	0.00	822.74	0.23	3.16	0.00	809.60
2270.	0.	2270	0.	0	586.	0.	79.	10.	100000.00
0.28	0.00	3.87	0.00	0.000	0.031	0.000	0.000	809.40	675.00
0.000543	255	255.	255.	2	0	0	0.00	49 00	724.00

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
*SECNO 2693.000

3470 ENCROACHMENT STATIONS=		345.0	660.0	TYPE=	1	TARGET=	315.000		
2693.00	14.10	822.80	0.00	0.00	822.81	0.01	0.01	0.07	810.40
2270.	284.	260.	1726.	996.	276.	1665.	85.	11	810.50
0 32	0.28	0.94	1.04	0.100	0.040	0.030	0.000	808.70	345.00
0 000021	133.	133	133.	2	0	0	0.00	315.00	660.00

0
*SECNO 3093.000

3265 DIVIDED FLOW

3093 00	13.21	822.81	0.00	0.00	822.82	0.01	0.01	0.00	811 30
2270.	354.	256.	1660.	1615.	258.	1664.	112.	15.	811.40
0.45	0 22	0.99	1.00	0.100	0.040	0.030	0.000	809.60	10.33
0.000025	300.	400.	425.	2	0	0	0.00	843 19	879.42

0
*SECNO 3500.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=		54.0	817.0	TYPE=	1	TARGET=	763.000		
3500.00	12.32	822.82	0.00	0.00	822.84	0.02	0.01	0.00	812.20
2270.	300.	281.	1689	1125.	240.	1385.	139.	22.	812.30
0.55	0.27	1 17	1 22	0.100	0.040	0.030	0.000	810.50	54.00
0.000039	300.	407.	425.	0	0	0	0.00	690.37	817.00

0
CCHV= 0.300 CEHV= 0.500
*SECNO 3703 000

```
3470 ENCROACHMENT STATIONS=      480.0     1005.0  TYPE=      1  TARGET=      525.000
            NOVI ROAD
  3703.00     11.92    822.82      0.00      0.00    822.85      0.03      0.01      0.01    820.90
    2270.      580.     1671.       20.       526.     1048.       36.      149.       24.     821.50
     0.60      1.10      1.59      0.54     0.015     0.020     0.015     0.000    810.90    480.00
 0.000051      161.      203.       261         0         0         0      0.00    525.00   1005.00
0
1
 18 MAR 88     16:35:58                                                                          PAGE    16

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


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       1.67       2.90       0.00      51.00       4.00     378.00       0.00     810 90     810.90

*SECNO 3755.000
PRESSURE AND WEIR FLOW

 EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                       AREA
   822.89     822.87       0.00      1646.       610.       378.       484.       821.20     818.00


3470 ENCROACHMENT STATIONS=      493.0     1006.0  TYPE=      1  TARGET=      513.000
  3755.00     11.95    822.85      0.00      0.00    822.89      0.04      0.03      0.00    814.90
    2270.      946.      931.       393.      814.      484.       303.      151        25.     817.00
     0.61      1.16      1.92      1.30     0.015     0.020     0.015     0.000    810.90    493.00
 0.000034       52.       52.        52.         2         0         6      0.00    513.00   1006.00
0
CCHV=    0.300 CEHV=    0.500
*SECNO 3788.000
3280 CROSS SECTION    3788.00 EXTENDED       2.44 FEET

  3788.00     10 94    822.84      0.00      0.00    822.90      0.06      0.00      0.01    815.60
    2270.      766.     1113.       391.     1041.      404.       414.      153.       25.     814.67
     0.61      0.74      2.76      0.94     0.070     0.040     0.070     0 000    811.90      0.00
 0.000281       33        33.        33.         1         0         0      0.00    554.09    554.09
0
CCHV=    0.300 CEHV=    0.500
*SECNO 3814 000

3470 ENCROACHMENT STATIONS=      460.0      853 0  TYPE=      1  TARGET=      393.000
            CHESAPEAKE AND OHIO RAILROAD
  3814.00     10.85    822.85      0.00      0.00    822 91      0.06      0.00      0.00    813.70
    2270.      918.      791.       560.      607.      324       319.      153.       26.     815.60
     0.61      1.51      2.44      1.76     0.015     0.020     0.015     0.000    812.00    460.00
 0.000054       26.       26         26.         0         0         0      0 00    393.00    853.00
0
1
 18 MAR 88     16:35:58                                                                          PAGE    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      XN_       XNCH      XNR       WTN       ELMIN       SSTA
```

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

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	1. 52	2. 90	0. 00	33. 20	0. 00	245. 00	0. 00	812. 00	812. 00

*SECNO 3821. 000

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
824. 87	822. 91	0. 00	219.	2046.	245.	282.	820. 50	822. 60

3470 ENCROACHMENT STATIONS=		465 0	916. 0	TYPE=	1	TARGET=	451. 000		
3821. 00	12. 47	824. 47	0. 00	0. 00	824. 49	0. 02	1. 59	0. 00	813. 70
2270.	1102.	571.	597.	1021.	378.	527	154.	26.	815. 60
0. 62	1. 08	1. 51	1. 13	0. 015	0. 020	0. 015	0. 000	812. 00	465. 00
0. 000017	7.	7.	7.	2	0	3	0. 00	450. 74	915. 74

0

CCHV= 0. 300 CEHV= 0. 500

*SECNO 3835. 000

3470 ENCROACHMENT STATIONS= OLD NOVI ROAD		572. 0	1117. 0	TYPE=	1	TARGET=	545. 000		
3835. 00	12. 47	824. 47	0 00	0 00	824. 49	0. 02	0 00	0. 00	812. 80
2270.	1121.	451	698	1148.	257.	697.	154.	26.	814. 30
0. 62	0. 98	1. 75	1. 00	0. 020	0. 020	0. 020	0. 000	812. 00	572. 00
0. 000021	14.	14.	14.	0	0	0	0. 00	545. 00	1117. 00

0

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	1. 56	2. 80	0. 00	22. 00	0. 00	238. 00	0. 00	812. 00	812. 00

*SECNO 3864 000

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
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= 826. 675 EGLWC= 824. 493 ELLC= 823 700 PCWSE= 824. 471 ELTRD= 823. 600

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 823. 60 MAX ELLC= 823 70

```
3470 ENCROACHMENT STATIONS=      579.0     1109.0  TYPE=      1  TARGET=      530.000
  3864.00     12.19    824.19    818.54      0 00    824.78      0.59      0.00      0.29    812.80
    2270.       70.     1616.      584.       46.      237.       132       155.       26.    814.30
     0.62      1.52      6.82      4.42     0.020     0.020     0.020     0.000    812.00    579.00
 0.001206       29        29.       29.         4        12         0 -1507.62    506.22   1109.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 4068.000

 3301 HV CHANGED MORE THAN HVINS

  4068.00     12.41    825.01      0.00      0.00    825.03      0.02      0.08      0.17    816.20
    2550.     1208.      511.      830.     1333.      255.     1208.      163.       28.    816.50
     0 67      0.91      2.00      0.69     0.100     0.050     0.100     0.000    812.60     23.61
 0.000202      204.      204.      204.         2         0         0      0.00    421.94    445.56
0
 *SECNO 4525.000

 3470 ENCROACHMENT STATIONS=        0.0      480.0  TYPE=      1  TARGET=      480.000
  4525.00     11.32    825.12      0.00      0.00    825.15      0 03      0.12      0.00    817.40
    2550.     1245       552.      753      1166.      231.      944.      190.       33.    817.70
     0 77      1.07      2.39      0.80     0 100     0.050     0.100     0.000    813.80     26.07
 0.000328      485.      457.      417.         2         0         0      0.00    413.40    439.48
0
 CCHV=    0.300 CEHV=    0.500
1
  18 MAR 88     16:35:58                                                                    PAGE    19

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 4984 000
             FOOTBRIDGE
  4984.00     10.40    825.30      0.00      0 00    825.39      0.09      0.21      0.03    820.70
    2550.      949.      766.      835.       846      187.      859.      212.       37.    820.50
     0.84      1.12      4.11      0.97     0.100     0.030     0.100     0.000    814.90     88.41
 0.000650      487.      459.      418.         2         0         0      0.00    432.74    521.16
0

 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       1.73       2.80       0.00       5.00       0.00      40.00       1.70     814.90     814.90

 *SECNO 4996.000
 PRESSURE AND WEIR FLOW

  EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                        AREA
     934.47     825.39      0.00      2461.        88.        40.        57.       819.40     819.60


 3470 ENCROACHMENT STATIONS=        0.0      630 0  TYPE=      1  TARGET=      630.000
  4996.00     10.44    825.34      0.00      0.00    825 43      0.09      0.04      0.00    820.70
    2550.      949.      763.      838.      853.      188.      869.      212.       37.    820.50
     0.84      1.11      4.07      0.96     0 100     0.030     0.100     0.000    814.90     88.30
 0.000633       12        12.       12.         2         0         9      0.00    433.89    522.19
```

```
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 5058.000
   5058.00     10.73    825.43      0.00      0.00    825.48      0.05      0.04      0.01    819.40
    2550.       895.      653.      1002.      764.      217       850.      215.       38.     820.30
     0.85       1.17      3.01      1.18      0.100     0.050     0.100     0.000    814.70    117.94
  0.000707       62.       62.       62.         2         0         0      0.00    382.06    500 00
0
 *SECNO 6108.000
            CONFLUENCE WITH THORNTON CREEK
   6108.00      8.07    826.17      0.00      0.00    826.21      0 04      0.72      0.00    820 70
    2360.      1270.      291.      799       997.       93.      783.      249.       47.     822.00
     1.01       1.27      3.13      1.02      0.100     0.050     0.100     0.000    818.10    442.92
  0.001115      680.     1050.      900.         2         0         0      0.00    581.14   1024.06
0
1
  18 MAR 88    16:35:58                                                                    PAGE    20

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 7195 000

 3470 ENCROACHMENT STATIONS=      460.0      985 0  TYPE=      1  TARGET=      525.000
   7195.00      7.09    827.49      0.00      0.00    827.57      0.09      1.34      0.02    823.00
    2360.      1308.      373.      680       743        81.      504.      277.       56.     824.30
     1.12       1.76      4.60      1.35      0.100     0.050     0.100     0.000    820.40    462.92
  0.002888      825.     1087.      600          2         0         0      0.00    520.85    983.78
0
 *SECNO 8283.000

 3470 ENCROACHMENT STATIONS=      175.0      875.0  TYPE=      1  TARGET=      700.000
   8283.00      6.54    828.94      0.00      0.00    829.10      0.17      1.49      0.04    825.10
    2360.      1321.      625.      414.      1299.      101       452.      305.       66.     826.00
     1.22       1.02      6 19      0.92      0.100     0.025     0.100     0.000    822.40    176.73
  0.001226      825.     1088.      600          2         0         0      0.00    698 27    875.00
0
 *SECNO 8935.000

 3470 ENCROACHMENT STATIONS=      375.0      775.0  TYPE=      1  TARGET=      400.000
   8935.00      6.56    829 76      0 00      0.00    830.19      0.43      0 96      0.13    825.90
    2360.      1116.      862.      382.      788.       101       277.      324.       73.     826.80
     1.26       1.42      8.50      1.38      0.100     0.025     0.100     0.000    823.20    375.00
  0.002296      548.      652       577          2         0         0      0.00    400.00    775.00
0
 *SECNO 8940.000

 3470 ENCROACHMENT STATIONS=      175.0     1175.0  TYPE=      1  TARGET=     1000.000
   8940.00      7.02    830.22      0 00      0.00    830.30      0.08      0.00      0.10    825.20
    2360.      1006.      761       594       1545.      191.     1117.      325.       73.     826.20
     1.26       0.65      3.98      0.53      0 100     0.025     0.100     0.000    823.20    175.21
  0.000394         5.         5         5.         3         0         0      0.00    999.79   1175 00
0
 *SECNO 9310.000

 3470 ENCROACHMENT STATIONS=      175.0      975.0  TYPE=      1  TARGET=      800.000
   9310.00      6.57    830 37      0.00      0.00    830.53      0.16      0.19      0.04    825.80
    2360.      1062.      908.      390.      1332.      178.      574.      346.       81.     826.80
     1.30       0.80      5.11      0.68      0.100     0.025     0.100     0.000    823.80    176.61
  0.000714      370.      370.      370.         2         0         0      0.00    798.39    975.00
0
1
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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 9375 000
3280 CROSS SECTION   9375.00 EXTENDED      0.72 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     150.0     925.0  TYPE=     1  TARGET=     775.000
  9375.00      6.52    830.42    830.42      0.00    831.20      0.78      0.08      0.31    828.90
    2360.      365.     1783.      212.      404.      218.      311.      348.       82.     828.90
     1.30      0.90      8.17      0.68     0.100     0.025     0.100     0.000    823.90    150.00
 0.002409       65.        65       65.        20         6         0      0.00    775 00    925.00
0
*SECNO 9435.000

3265 DIVIDED FLOW

3280 CROSS SECTION   9435.00 EXTENDED      0.73 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=     200 0     950.0  TYPE=     1  TARGET=     750.000
             LOCAL ACCESS BRIDGE
  9435.00      8 03    832.03    832.03      0.00    833.02      1.00      0.12      0.11    825.00
    2360       330.     1663.      368.      251.      175.      576.      349.       83.     826.00
     1.30      1 31      9.51      0.64     0.100     0.025     0.100     0.000    824.00    200.00
 0.001733       60.        60       60.        20        15         0      0.00    739.47    950.00
0

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       1.63       2.80       0 00      15 00      0.00      205.00      3.00      824.00     824.00

*SECNO 9447.000
1
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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

6870 D.S. ENERGY OF  833.02 HIGHER THAN COMPUTED ENERGY OF  832.48

3265 DIVIDED FLOW

3280 CROSS SECTION   9447.00 EXTENDED      0.86 FEET
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PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
835.38	833.02	0.00	1492.	868.	205.	230.	830 60	832.05

3470 ENCROACHMENT STATIONS= 200 0 950.0 TYPE= 1 TARGET= 750.000

9447.00	8.16	832.16	0.00	0.00	833.02	0.87	0.00	0.00	825.00
2360.	327.	1607.	426.	262.	178.	662.	349.	83.	826.00
1.31	1.25	9.04	0.64	0 100	0.025	0 100	0.000	824.00	200.00
0.001528	12.	12.	12.	3	0	0	0.00	740.94	950.00

0

*SECNO 9935.000

3301 HV CHANGED MORE THAN HVINS

9935.00	8.51	833.31	0.00	0.00	833.66	0.35	0.48	0.16	828.40
2360.	33.	1738.	589.	47.	315.	917.	363.	91.	830.80
1.34	0.70	5 53	0.64	0.100	0.025	0.100	0.000	824.80	272.86
0.000694	488.	488.	488.	2	0	0	0.00	532.46	805.32

0

*SECNO 10198.000

10198.00	8.47	833.67	0.00	0.00	833.86	0.19	0.15	0.05	830.20
2360.	278.	1390.	692.	456.	306.	1274.	373	95.	830.20
1.36	0.61	4.54	0.54	0 100	0.025	0.100	0.000	825.20	81.60
0.000475	263.	263.	263.	2	0	0	0.00	880.58	962.17

0

CCHV= 0.300 CEHV= 0.500

*SECNO 10218.000

NINE MILE ROAD

10218.00	8.59	833.89	0.00	0.00	833.91	0.02	0.00	0.05	827.30
2360.	574.	430.	1356	548.	214	1462.	374.	95.	827.30
1.37	1.05	2.01	0.93	0.025	0.024	0.025	0.000	825.30	74.47
0.000074	20.	20.	20.	2	0	0	0.00	903.49	977.96

0

1

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

Nine Mile

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	2.03	2.80	0.00	27.00	3.00	96.00	0.00	825 40	825.30

*SECNO 10278.000

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
852.94	833.92	0.00	2204.	157	96.	94.	829.30	831.30

10278.00	8.65	833.95	0.00	0.00	833.98	0.02	0.06	0.00	827.30
2360.	574.	420	1365.	562.	216.	1503.	377.	96.	827.30
1.38	1 02	1.95	0.91	0.025	0 024	0.025	0 000	825.30	72.47

```
 0.000069      60.       60.       60.         2         0         8      0.00    909.91    982.38
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 10925.000

 3470 ENCROACHMENT STATIONS=      192.0      702.0  TYPE=      1  TARGET=      510.000
  10925.00      7.18    833.98      0.00      0.00    834.07      0.09      0.06      0.03    831.00
     2360.      382.      457.     1522.      392.      121.      725.      390.      101.     831.00
      1 43      0.97      3 77      2 10     0.100     0.040     0.050     0.000    826.80    203.80
  0.001137      241.      627.      321.         0         0         0      0.00    417.28    621.07
0
 *SECNO 11600.000
  11600.00      7.49    834.87      0.00      0.00    834.99      0.12      0.90      0 02    833.68
     2360.      178.      661.     1521.      253.      159.      708.      408.      109.     833.68
      1.50      0.70      4.17      2.15     0.100     0.040     0.050     0.000    827.38    194.27
  0.001596      675       675.      675.         2         0         0      0.00    546.34    740.61
0
 *SECNO 11685.000
  11685.00      7.51    835.01      0.00      0.00    835.13      0 12      0 13      0.00    833.80
     2360.      181.      657      1523.      258.      159.      715.      411.      110.     833.80
      1.51      0.70      4.12      2.13     0.100     0.040     0.050     0.000    827.50    193.84
  0.001554       85.       85        85.         2         0         0      0.00    547.25    741.09
0
1
  18 MAR 88     16:35:58                                                                          PAGE    24

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


 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       1.63       2.90       0.00      24.00       0.00     127.00       0.00     827.50     827.50

 *SECNO 11690.000

 6070,LOW FLOW BY NORMAL BRIDGE

 EGPRS=    843 748  EGLWC=    835.127  ELLC=    833.800  PCWSE=    835.008  ELTRD=    833.200

 3370 NORMAL BRIDGE,NRD=  8 MIN ELTRD=  833.20 MAX ELLC=  833 80

  11690.00      7 48    834.98      0.00      0.00    835.19      0.22      0.02      0.05    833.80
     2360.      107.      707.     1546.      151.      128.      570.      411.      110.     833.80
      1.51      0.71      5.51      2.71     0.100     0.040     0.050     0.000    827.50    194.46
  0.014467        5.         5         5.         2         0         0   -265.33    545.93    740.39
0
 *SECNO 11721.000
  11721.00      7.62    835.22      0.00      0.00    835 32      0.11      0 10      0.03    833.90
     2360.      194.      634.     1532       282.      163.      751.      411.      110.     833.90
      1.51      0.69      3 89      2.04     0 100     0.040     0.050     0.000    827.60    191.49
  0.001346       31        31.       31.         0         0         0      0 00    552.27    743.76
0
1
  18 MAR 88     16:35.58                                                                          PAGE    25


                                                                                THIS RUN EXECUTED 18 MAR 88    16:3':08
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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        CITY OF NOVI
T2        100 YEAR FLOOD - ENCROACHED
T3        WALLED LAKE BRANCH DS OF MEADOWBROOK LAKE

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        3.        0         0.   0.000000     0.00      0.0       0     806.400    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

1
 18 MAR 88    16:35:58                                                                          PAGE   26

   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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
*SECNO 1.000

3470 ENCROACHMENT STATIONS=     357.0     417.0  TYPE=     1  TARGET=      60.000
     1.00     9.60   806.40     0.00   806.30   806.97     0.57     0.00     0.00   799.80
    2550.     302     2248.       0.     143.     350.       0.       0.       0.  100000.00
     0.00     2.11     6.43     0.00    0.100    0.040    0.000    0.000   796.80   357.00
 0.002303       0.       0.       0.        0        0        0     0.00    60.00   417.00
0
CCHV=   0.300 CEHV=   0.500
*SECNO 40.000

3470 ENCROACHMENT STATIONS=     378.0     417.0  TYPE=     1  TARGET=      39.000
            CHESAPEAKE AND OHIO RAILROAD
    40.00     9.52   806.32     0.00   806.22   807.16     0.84     0.05     0.13   799.80
    2550.       0.     2550       0.       0.     346.       0.       0.       0.  100000.00
     0.00     0 00     7.36     0.00    0.000    0.020    0.000    0.000   796.80   378.00
 0.000895      21.      39.      61.        2        0        0     0.00    39 00   417.00
0

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      1.50      2.90      0.00     19.50      0.00    156.00      0.00    796.80    796.80

*SECNO 80.000

3301 HV CHANGED MORE THAN HVINS

PRESSURE FLOW


 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                AREA
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    812.54    807.16      0.00        0.      2550       156.       140.       804.00    813.50


 3470 ENCROACHMENT STATIONS=      378.0      417.0  TYPE=      1  TARGET=       39.000
     80.00     15.44   812.24      0.00   812.13   812.54      0.30      5.38      0.00    799.80
     2550.        0.    2550.        0.       0.      577.        0.        1.        0.  100000.00
      0.00      0.00     4.42      0.00    0.000    0.020     0.000     0.000    796.80    378.00
  0.000209       40.      40.        40        2        0         0      0.00     39.00    417.00
0
1
  18 MAR 88     16:35:58                                                                                PAGE    27


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
 *SECNO 314.000
  2800 NAT Q1=    3601.12  WSEL=     812.54  ENC Q1=    3601.12  WSEL=     812.64  RATIO=  0 0000
  NAT Q1=    3670.   RATIOS LOB,CH,ROB=  0.4973  0.3101  0 1926  WSEL=     812.64

 3470 ENCROACHMENT STATIONS=      164.5      513.1  TYPE=      4  TARGET=        0.019
    314.00     14.94   812.64      0.00   812.54   812.65      0.01      0.02      0.09    800.70
     2550.     1268.     806.      476.     2344.     558.      928.       13.        1.     799.60
      0.08      0.54     1.45      0.51    0 100    0.040     0 100     0.000    797.70    164.53
  0.000050      234.     234.      234        2        0         0      0.00    348 57    513.10
0
 *SECNO 725.000
  2800 NAT Q1=    1434.45  WSEL=     812.55  ENC Q1=    1434.45  WSEL=     812.65  RATIO=  0.0000
  NAT Q1=    1856   RATIOS LOB,CH,ROB=  0.0177  0.7090  0.2733  WSEL=     812.65
 3280 CROSS SECTION     725.00 EXTENDED       1.64 FEET


 3470 ENCROACHMENT STATIONS=      262.0      435.1  TYPE=      4  TARGET=        0.227
    725 00     13.34   812.64      0 00   812.55   812.75      0 11      0.05      0.05    809.40
     2550.        0.    2336.      214.       0.      856.      313.       45.        4      808.50
      0.14      0.00     2.73      0 68    0.000    0.040     0.100     0.000    799.30    262.00
  0.000329      790.     411.      332.        2        0         0      0.00    173.06    435.06
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 1078.000
  2800 NAT Q1=    2215.99  WSEL=     812.59  ENC Q1=    2215.99  WSEL=     812.69  RATIO=  0.0000
  NAT Q1=    3462   RATIOS LOB,CH,ROB=  0.0124  0.5838  0.4038  WSEL=     812.69
 3280 CROSS SECTION    1078.00 EXTENDED       0 39 FEET


 3470 ENCROACHMENT STATIONS=      262.0      407 5  TYPE=      4  TARGET=        0.360
             OLD NOVI ROAD
   1078.00     12.09   812.69      0.00   812.59   812.84      0.15      0.07      0.02    810.70
     2550.        0.    2323.      227.       0.      731.      134.       53         6.     809.80
      0.17      0.00     3.18      1.70    0 000    0.020     0.020     0.000    800.60    262.00
  0.000136      678      353.      286.        2        0         0      0.00    145.51    407.51
0
1
  18 MAR 88     16:35:58                                                                                PAGE    28


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

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	1.63	2.80	0.00	24.00	0.00	116.00	0.00	800.60	800.60

*SECNO 1106.000
6870 D.S. ENERGY OF 812.84 HIGHER THAN COMPUTED ENERGY OF 812.83
2800 NAT Q1= 2220.85 WSEL= 812.60 ENC Q1= 2220.85 WSEL= 812.70 RATIO= 0.0000
NAT Q1= 3472. RATIOS LOB,CH,ROB= 0 0125 0.5831 0.4043 WSEL= 812 70
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION 1106 00 EXTENDED 0.40 FEET

3470 ENCROACHMENT STATIONS= 262.0 407.6 TYPE= 4 TARGET= 0.360

1106.00	12.10	812.70	0.00	812.60	812.84	0.15	0.00	0.00	810.70
2550.	0.	2322.	228.	0.	732.	134.	54.	6.	809.80
0 17	0.00	3.17	1.70	0.000	0.020	0.020	0.000	800.60	262.00
0.000135	28.	28.	28.	0	0	7	0.00	145.64	407.64

0
CCHV= 0.300 CEHV= 0.500
*SECNO 1278.000
2800 NAT Q1= 694.16 WSEL= 812.59 ENC Q1= 705.40 WSEL= 812 69 RATIO= -0.0162
NAT Q1= 734. RATIOS LOB,CH,ROB= 0.0090 0.9606 0.0304 WSEL= 812.69
3280 CROSS SECTION 1278.00 EXTENDED 2.29 FEET

3470 ENCROACHMENT STATIONS= 430.0 542.0 TYPE= 4 TARGET= 0.039

1278.00	9.59	812.69	0.00	812.59	812.96	0.26	0.05	0.06	811.00
2550	0	2550.	0.	0.	618.	0.	57.	6.	808.00
0.18	0 00	4.13	0.00	0.000	0.040	0.000	0.000	803.10	430.00
0.001403	172.	172.	172.	2	0	0	0.00	112.00	542.00

0
*SECNO 1448 000
2800 NAT Q1= 554.91 WSEL= 812.83 ENC Q1= 570.53 WSEL= 812.93 RATIO= -0.0282
NAT Q1= 585. RATIOS LOB,CH,ROB= 0 0030 0.9757 0.0213 WSEL= 812.93
3280 CROSS SECTION 1448 00 EXTENDED 1.64 FEET

3470 ENCROACHMENT STATIONS= 430.0 542.0 TYPE= 4 TARGET= 0.024

1448.00	8.94	812.94	0.00	812.83	813.28	0.34	0.29	0.04	811.90
2550.	0.	2550.	0.	0.	545.	0.	59.	7.	808.90
0.19	0.00	4 68	0.00	0.000	0.040	0.000	0.000	804.00	430.00
0.002098	170.	170.	170.	2	0	0	0.00	112.00	542.00

0
1
18 MAR 88 16:35:58 PAGE 29

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
*SECNO 1618.000
2800 NAT Q1= 405 81 WSEL= 812.42 ENC Q1= 449.93 WSEL= 812.52 RATIO= -0.1087
NAT Q1= 661. RATIOS LOB,CH,ROB= 0.3194 0.6806 0.0000 WSEL= 812 52

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 588.0 630.0 TYPE= 4 TARGET= 0.319

```
            CHESAPEAKE AND OHIO RAILROAD
  1618.00     7.47   812.57     0.00   812.42   814.49     1.92     0.41     0.79   807.70
    2270.       0.    2270.       0.       0.     204.        0      60.       7.    815.50
     0.20     0.00    11.12     0.00    0.000    0.020    0.000    0.000   805.10   588.00
 0.002902     151.     170.     191.        3        0        0     0.00    36.90   624.90
0

 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 5227 DOWNSTREAM ELEV IS    809.93 ,NOT    812.57 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.63      2.90      42.00     24.00      3 60    127.00      0.00    805.10    805.10

 *SECNO 1664.000
  2800 NAT Q1=   1262.41  WSEL=    818.61  ENC Q1=   1529.15  WSEL=    818.71  RATIO= -0.2113
  NAT Q1=   4110.  RATIOS LOB,CH,ROB=  0.4747  0.3721  0.1532  WSEL=    818.71
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
 3280 CROSS SECTION   1664.00 EXTENDED      5.26 FEET


 3470 ENCROACHMENT STATIONS=     588.0     630 0  TYPE=     4  TARGET=       0.628
  1664.00    13.46   818.76     0.00   818.61   819.16     0.40     0.03     0.46   807.90
    2270        0.    2270        0.       0.     448.       0.      61.       7.    815.70
     0.20     0.00     5.06     0.00    0.000    0 020    0.000    0.000   805.30   588.00
 0.000311      46.      46.      46.        0        0        5     0.00    42.00   630.00
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 1803.000
  2800 NAT Q1=   1499.89  WSEL=    819.13  ENC Q1=   1499.89  WSEL=    819 23  RATIO=  0.0000
  NAT Q1=   2124.  RATIOS LOB,CH,ROB=  0.7035  0.2965  0.0000  WSEL=    819.23

 3470 ENCROACHMENT STATIONS=     143.3     320.0  TYPE=     4  TARGET=       0.294
1
  18 MAR 88    16.35:58                                                                    PAGE   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


  1803.00    13.66   819 26     0.00   819.13   819.30     0.04     0.04     0 11   808.40
    2270.    1322.     948.       0.     1337     404.       0.      64.       7.    818.90
     0.22     0.99     2 34     0.00    0 100    0.040    0.000    0.000   805 60   143.34
 0.000226     139.     139.     139.        2        0        0     0.00   176.67   320.00
0
 *SECNO 2053.000
  2800 NAT Q1=   1015 17  WSEL=    819.16  ENC Q1=   1015.17  WSEL=    819.26  RATIO=  0.0000
  NAT Q1=   1913.  RATIOS LOB,CH,ROB=  0.7013  0.2987  0.0000  WSEL=    819 26

 3470 ENCROACHMENT STATIONS=     205 3     320 0  TYPE=     4  TARGET=       0.469
  2053.00    13.09   819.29     0.00   819.16   819.40     0 12     0.07     0.04   809.00
    2270.     976.    1294        0.     690.     381.       0.      70.       8.    819.50
     0.25     1.41     3.40     0.00    0 100    0.040    0.000    0.000   806.20   205.26
 0.000507     151.     250.     276.        1        0        0     0.00   114.59   319.84
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 2305.000
  2800 NAT Q1=    652.54  WSEL=    819.19  ENC Q1=    786.33  WSEL=    819.29  RATIO= -0.2050
  NAT Q1=   1399   RATIOS LOB,CH,ROB=  0.1941  0.5620  0.2438  WSEL=    819.29

 3470 ENCROACHMENT STATIONS=     675.0     724.0  TYPE=     4  TARGET=       0.438
            EIGHT MILE ROAD
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  2305.00     10.82    819.32      0.00    819.19    819.70      0.38      0.17      0.13    809.60
    2270.        0.     2270.        0.        0.       457        0.       74.        8.     809.60
     0.26      0.00      4.96      0.00     0.000     0.031     0.000     0.000    808.50    675.00
 0.001157      153.      252.      278.         2         0         0      0.00     49.00    724.00
0

 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       3.38       3.00       0.00      49.00      13.00     276.00      0.00     808.50     808.50

 *SECNO 2560.000
  2800 NAT Q1=     974.01  WSEL=     822.50  ENC Q1=    1234.04  WSEL=     822.60  RATIO= -0.2670
  NAT Q1=    2578.   RATIOS LOB,CH,ROB=  0.2311  0.4787  0.2902  WSEL=     822.60
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=      675 0      724.0  TYPE=      4  TARGET=        0.521
  2560.00     13.24    822.64      0 00    822.50    822 87      0.23      0.19      0.05    809.60
    2270.        0.     2270.        0.        0.       593.       0.       77.        9.     809.60
     0.28      0.00      3.83      0.00     0.000     0.031     0.000     0.000    809.40    675.00
 0.000525      255.      255.      255         0         0         0      0.00     49.00    724.00
0
1
  18 MAR 88     16:35:58                                                                                PAGE    31

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
 *SECNO 2693.000
  2800 NAT Q1=    4963.24  WSEL=     822.80  ENC Q1=    4963 24  WSEL=     822.90  RATIO=  0.0000
  NAT Q1=    5659.   RATIOS LOB,CH,ROB=  0.1724  0.1016  0.7260  WSEL=     822.90

 3470 ENCROACHMENT STATIONS=      347 2      646 7  TYPE=      4  TARGET=        0.123
  2693.00     14.22    822.92      0.00    822.80    822.94      0 01      0.01      0.06    810.40
    2270.      287.      262.     1721.     1001.      278.     1634.       82.        9.     810.50
     0.32      0.29      0.94      1.05     0.100     0.040     0.030     0.000    808.70    347.23
 0.000021      133.      133.      133.         2         0         0      0.00    299.49    646 71
0
 *SECNO 3093.000
  2800 NAT Q1=    4506.57  WSEL=     822 81  ENC Q1=    4506.57  WSEL=     822.91  RATIO=  0.0000
  NAT Q1=    4611.   RATIOS LOB,CH,ROB=  0.1579  0.1116  0.7304  WSEL=     822.91

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=       88.7      762.1  TYPE=      4  TARGET=        0.023
  3093.00     13.33    822 93      0.00    822.81    822.95      0.01      0.01      0.00    811.30
    2270.      341.      259.     1670.     1482.      260.     1601.      109.       13.     811.40
     0.44      0.23      0.99      1.04     0.100     0.040     0.030     0.000    809.60     88.71
 0 000025      300.      400.      425         0         0         0      0.00    654.03    762.07
0
 *SECNO 3500.000
  2800 NAT Q1=    3645.32  WSEL=     822.82  ENC Q1=    3645.32  WSEL=     822.92  RATIO=  0.0000
  NAT Q1=    3753.   RATIOS LOB,CH,ROB=  0.1393  0.1218  0.7389  WSEL=     822.92

 3470 ENCROACHMENT STATIONS=      156.2      640.2  TYPE=      4  TARGET=        0.029
  3500.00     12.44    822.94      0.00    822.82    822.96      0.02      0.01      0.00    812.20
    2270.      293       284.     1692.     1020.      243.     1322.      134.       18.     812.30
     0.54      0.29      1.17      1 28     0 100     0.040     0.030     0.000    810.50    156.24
 0.000038      300.      407.      425.         0         0         0      0.00    483.98    640.22
```

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0
 CCHV=    0.300 CEHV=    0.500
 *SECND 3703.000
  2800 NAT Q1=    3175.06  WSEL=     822.82  ENC Q1=    3175.06  WSEL=     822.92  RATIO=   0.0000
  NAT Q1=    5927.   RATIOS LOB,CH,ROB=  0.5880  0.4064  0.0056  WSEL=     822.92
 3280 CROSS SECTION    3703.00 EXTENDED       4.45 FEET

1
  18 MAR 88    16:35:58                                                                    PAGE    32

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=      516.8      950.0  TYPE=      4  TARGET=        0.464
             NOVI ROAD
   3703.00     12.04    822.94      0.00    822.82    822.98      0.03      0.01      0.01    820.90
     2270.       555.     1715.        0.      487.     1073.        0.       144.       20.     821.50
      0.58      1.14      1.60      0.00    0.015     0.020     0.000     0.000    810.90    516.83
  0.000050       161.      203.       261.        0         0         0      0.00    433.17    950.00
0
 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       1.67       2.90       0.00      51.00       4.00      378.00      0.00      810.90     810.90

 *SECND 3755.000
  2800 NAT Q1=    3874.58  WSEL=     822.85  ENC Q1=    3874.58  WSEL=     822.95  RATIO=   0.0000
  NAT Q1=    6730.   RATIOS LOB,CH,ROB=  0.6548  0.2404  0.1048  WSEL=     822.95
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
 3280 CROSS SECTION    3755.00 EXTENDED       4.48 FEET


 3470 ENCROACHMENT STATIONS=      332.1      876.0  TYPE=      4  TARGET=        0.424
   3755.00     12.08    822.98      0.00    822.85    823.01      0.03      0.00      0.00    814.90
     2270.      1368.      902.        0.      1195       491.        0.       146.       20.     817.00
      0.59      1.14      1.84      0.00    0.015     0.020     0.000     0.000    810.90    332.08
  0.000036         52        52.        52.        0         0         6      0.00    543.92    876.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECND 3788.000
  2800 NAT Q1=    1355.30  WSEL=     822.84  ENC Q1=    1355.30  WSEL=     822.94  RATIO=   0.0000
  NAT Q1=    1399.   RATIOS LOB,CH,ROB=  0.3441  0.4825  0.1734  WSEL=     822.94
 3280 CROSS SECTION    3788.00 EXTENDED       2.57 FEET


 3470 ENCROACHMENT STATIONS=       21.6      476.9  TYPE=      4  TARGET=        0.032
   3788.00     11.06    822.96      0.00    822.84    823.03      0.06      0.00      0.02    815.60
     2270.       775.     1125.       369.     1032.       409.       346.       147.       21.     814.67
      0.59      0.75      2.75      1.07    0.070     0.040     0.070     0.000    811.90     21.64
  0.000275         33.       33.        33.        1         0         0      0.00    455.22    476.86
0
1
  18 MAR 88    16:35:58                                                                    PAGE    33

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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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CCHV=    0.300 CEHV=    0.500
*SECNO 3814 000
 2800 NAT Q1=    3082.13  WSEL=     822 85  ENC Q1=    3082.13  WSEL=     822.95  RATIO=  0.0000
 NAT Q1=    3267.   RATIOS LOB,CH,ROB=  0 4213  0.3348  0.2439  WSEL=     822.95

3470 ENCROACHMENT STATIONS=      481.4      799.8  TYPE=      4  TARGET=        0.057
             CHESAPEAKE AND OHIO RAILROAD
  3814 00     10.96    822.96      0.00    822.85    823.03      0.07      0.00      0.00    813.70
    2270.      949       802.       518.      608.      328.       241       148.       21.     815.60
     0.60      1.56      2.44      2.15     0.015     0 020     0.015     0.000    812.00    481.41
 0.000053       26.       26.       26.         0         0         0      0.00    318.42    799.83
0

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       1.52       2.90       0.00      33 20      0.00     245.00      0.00     812.00     812.00

*SECNO 3821 000
 2800 NAT Q1=    5522.17  WSEL=     824.47  ENC Q1=    5522.17  WSEL=     824.57  RATIO=  0.0000
 NAT Q1=    6031.   RATIOS LOB,CH,ROB=  0.5167  0.2338  0.2495  WSEL=     824.57
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION    3821 00 EXTENDED       1.49 FEET


3470 ENCROACHMENT STATIONS=      452.8      814.4  TYPE=      4  TARGET=        0.084
  3821.00     12.59    824.59      0.00    824.47    824.61      0 02      0.00      0.01    813.70
    2270.     1177       577.       516.     1089.      382.       381.      148.       21.     815.60
     0.60      1.08      1 51      1.35     0.015     0.020     0.015     0.000    812.00    452.84
 0 000017        7.        7.        7.         0         0         3      0.00    361.60    814.43
0
CCHV=    0.300 CEHV=    0.500
*SECNO 3835.000
 2800 NAT Q1=    4921.53  WSEL=     824.47  ENC Q1=    4921.53  WSEL=     824.57  RATIO=  0.0000
 NAT Q1=    5763.   RATIOS LOB,CH,ROB=  0.5459  0.1720  0.2821  WSEL=     824.57

3470 ENCROACHMENT STATIONS=      542.2      919 6  TYPE=      4  TARGET=        0.146
             OLD NOVI ROAD
  3835.00     12.59    824.59      0.00    824.47    824.61      0.02      0.00      0 00    812.80
    2270.     1257.      457        557.     1288       260.       446.      149.       21.     814.30
     0.60      0.98      1.76      1.25     0.020     0.020     0.020     0.000    812.00    542.20
 0.000021       14.       14        14.         0         0         0      0.00    377 37    919.57
0
1
 18 MAR 88     16:35:58                                                                                PAGE    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


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       1.56       2.80       0.00      22.00      0.00     238.00      0.00     812.00     812.00

*SECNO 3864.000

6070,LOW FLOW BY NORMAL BRIDGE
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 EGPRS=   826.793  EGLWC=   824 613  ELLC=   823.700  PCWSE=   824.589  ELTRD=   823 600

 3265 DIVIDED FLOW


 3301 HV CHANGED MORE THAN HVINS


 3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  823.60 MAX ELLC=  823.70


 3470 ENCROACHMENT STATIONS=     629.0    1059.0  TYPE=      1  TARGET=     430.000
   3864.00     12 29   824.29   818.54   824.19   824 91     0.62      0.00      0 30   812.80
      2270.       42.     1637.      591.       27.      237.      132.      150.       21.    814.30
       0 60     1.54      6 91     4.48    0.020    0.020    0.020     0.000   812.00   629.00
  0.001237       29.       29       29.        4       12        0 -1400.81   428.50  1059.00
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 4068.000
  2800 NAT Q1=    1793.75  WSEL=     825.01  ENC Q1=    1793.75  WSEL=     825.11  RATIO=  0.0000
  NAT Q1=    1886.   RATIOS LOB,CH,ROB=  0 4590  0.1935  0.3475  WSEL=     825.11

 3265 DIVIDED FLOW


 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=      41.6     516.1  TYPE=      4  TARGET=       0.049
   4068.00     12.55   825.15     0.00   825.01   825.17     0.02      0.08      0.18   816.20
      2550.     1175       513      861.     1280.      258.     1278.      157        23.    816.50
       0.66     0.92      1.99     0.67    0.100    0 050    0 100     0.000   812.60    41.57
  0.000196      204.      204.      204.        2        0        0      0.00   423.30   516.14
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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 4525.000
  2800 NAT Q1=    1408.71  WSEL=     825.12  ENC Q1=    1408 71  WSEL=     825.22  RATIO=  0.0000
  NAT Q1=    1465.   RATIOS LOB,CH,ROB=  0.4792  0.2117  0.3091  WSEL=     825.22

 3470 ENCROACHMENT STATIONS=      40.8     422.6  TYPE=      4  TARGET=       0.038
   4525.00     11.45   825.25     0 00   825.12   825.28     0 03      0.11      0.01   817.40
      2550.     1227.       557      766.     1137.       234      949.      184        27.    817.70
       0.76     1.08      2.38     0.81    0.100    0.050    0.100     0.000   813.80    40.85
  0 000319      485.      457.      417.        0        0        0      0.00   381.73   422.58
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 4984.000
  2800 NAT Q1=     999.96  WSEL=     825.30  ENC Q1=     999.96  WSEL=     825.40  RATIO=  0.0000
  NAT Q1=    1032.   RATIOS LOB,CH,ROB=  0.3721  0.2975  0.3304  WSEL=     825.40

 3470 ENCROACHMENT STATIONS=     101.6     461 1  TYPE=      4  TARGET=       0.031
          FOOTBRIDGE
   4984.00     10.52   825.42     0.00   825.30   825.52     0.09      0.20      0.03   820.70
      2550.      947       777.      826       834.      190       808.      206.       31.    820.50
       0.82     1.14      4.10     1.02    0.100    0 030    0 100     0.000   814 90   101.64
  0.000633      487       459.      418.        2        0        0      0 00   359.45   461.09
```

0

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	1.73	2.80	0.00	5.00	0.00	40.00	1.70	814.90	814.90

*SECNO 4996.000
2800 NAT Q1= 1013.54 WSEL= 825.34 ENC Q1= 1013.54 WSEL= 825.44 RATIO= 0.0000
NAT Q1= 1046. RATIOS LOB,CH,ROB= 0.3721 0.2963 0.3315 WSEL= 825.44
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=	101.6	462.1	TYPE=	4	TARGET=	0.031			
4996.00	10.57	825.47	0.00	825.34	825.56	0.09	0.01	0.00	820.70
2550.	947.	774.	829.	841.	191.	818.	206.	31.	820.50
0.82	1.13	4.06	1 01	0.100	0.030	0.100	0.000	814.90	101.55
0.000616	12.	12.	12.	0	0	10	0 00	360.58	462.13

0
CCHV= 0.300 CEHV= 0 500
1
18 MAR 88 16:35:58 PAGE 36

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 5058 000
2800 NAT Q1= 959.14 WSEL= 825.43 ENC Q1= 959.14 WSEL= 825.53 RATIO= 0.0000
NAT Q1= 992. RATIOS LOB,CH,ROB= 0.3507 0.2524 0 3969 WSEL= 825.53
3280 CROSS SECTION 5058.00 EXTENDED 0.15 FEET

3470 ENCROACHMENT STATIONS=	142.9	443.4	TYPE=	4	TARGET=	0.033			
5058.00	10.85	825.55	0.00	825.43	825.61	0.05	0.04	0.01	819.40
2550.	878.	666.	1006.	723.	220.	805.	209.	32.	820.30
0.83	1.21	3.02	1.25	0.100	0.050	0.100	0.000	814.70	142.88
0.000700	62.	62.	62.	2	0	0	0.00	300.56	443.45

0
*SECNO 6108 000
2800 NAT Q1= 706.70 WSEL= 826.17 ENC Q1= 706 70 WSEL= 826.27 RATIO= 0.0000
NAT Q1= 738. RATIOS LOB,CH,ROB= 0.5363 0.1205 0 3432 WSEL= 826.27

3470 ENCROACHMENT STATIONS=	495.3	938.0	TYPE=	4	TARGET=	0.043			
CONFLUENCE WITH THORNTON CREEK									
6108 00	8.19	826 29	0.00	826.17	826.33	0.04	0.71	0.00	820.70
2360	1270.	296.	794.	954	94.	717.	241.	39.	822.00
0.99	1.33	3.14	1.11	0.100	0.050	0.100	0.000	818.10	495.35
0.001101	680	1050.	900.	2	0	0	0.00	442.61	937.95

0
*SECNO 7195 000

3470 ENCROACHMENT STATIONS=	460.0	985.0	TYPE=	1	TARGET=	525.000			
7195 00	7.16	827.56	0.00	827.49	827.64	0 08	1.29	0.02	823.00
2360.	1305.	365.	690.	761.	82.	523.	268.	46.	824.30
1.10	1.71	4.46	1 32	0.100	0.050	0.100	0 000	820.40	461.48
0.002675	825.	1087.	600.	2	0	0	0.00	523.52	985.00

0
*SECNO 8283.000

3470 ENCROACHMENT STATIONS=	175.0	875.0	TYPE=	1	TARGET=	700.000			
8283.00	6.55	828.95	0.00	828.94	829 11	0.17	1.43	0.04	825.10
2360.	1322.	623.	415.	1304.	101	454.	297.	57.	826 00

```
     1.19      1.01      6.16      0.91     0.100     0.025     0 100     0.000    822.40    176.70
  0.001211     825.     1088.      600.         2         0         0      0.00    698.30    875.00
0
1
  18 MAR 88    16.35:58                                                                        PAGE    37

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 8935.000
  2800 NAT Q1=     492.48  WSEL=     829 76  ENC Q1=     492 48  WSEL=     829.86  RATIO=  0.0000
  NAT Q1=     994.   RATIOS LOB,CH,ROB=  0.4101   0.1861   0.4038  WSEL=     829.86

 3470 ENCROACHMENT STATIONS=      498.2      976.6  TYPE=      4  TARGET=        0.505
   8935 00      6.58    829.78      0.00    829.76    830.26      0 49      0.99      0.16    825.90
     2360.       751.      904.       705.      484.       102       577.      316         65.     826.80
      1 23      1 55      8.88      1.22     0.100     0.025     0.100     0.000    823.20    498.20
  0.002497       548.      652.       577.         2         0         0      0.00    478.43    976.63
0
 *SECNO 8940.000
  2800 NAT Q1=    1189.37  WSEL=     830 22  ENC Q1=    1189.37  WSEL=     830.32  RATIO=  0.0000
  NAT Q1=    1498.   RATIOS LOB,CH,ROB=  0.3558   0.2627   0.3815  WSEL=     830 32

 3470 ENCROACHMENT STATIONS=      318.4     1289.7  TYPE=      4  TARGET=        0.206
   8940.00      7 10    830.30      0.00    830.22    830.39      0.09      0.00      0.12    825.20
     2360.       752.      784.       824      1122.       193.     1479.      317.        65.     826.20
      1.23      0.67      4.05      0.56     0.100     0.025     0.100     0.000    823.20    318.37
  0.000401         5.        5.         5.         3         0         0      0.00    971.28   1289.65
0
 *SECNO 9310.000

 3470 ENCROACHMENT STATIONS=      175.0      975.0  TYPE=      1  TARGET=      800.000
   9310.00      6.66    830.46      0.00    830.37    830.61      0.15      0.19      0.03    825.80
     2360.      1070.      891.       399.     1372.       180.      599.      338         72.     826.80
      1.28      0.78      4.94      0.67     0 100     0.025     0.100     0.000    823.80    176.34
  0 000656       370       370.       370.         2         0         0      0.00    798 66    975.00
0
 *SECNO 9375 000
 3280 CROSS SECTION    9375.00 EXTENDED       0.75 FEET


 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      175.0      900.0  TYPE=      1  TARGET=      725.000
   9375.00      6.55    830.45    830.45    830.42    831.22      0.77      0.07      0.31    828.90
     2360.       357.     1780.       223.      387.       220.      323.      340.        73.     828.90
      1.28      0.92      8.10      0.69     0.100     0.025     0.100     0.000    823 90    175.00
  0.002347         65.       65.        65.         4         6         0      0.00    725.00    900.00
0
1
  18 MAR 88    16:35 58                                                                        PAGE    38

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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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*SECNO 9435.000

3265 DIVIDED FLOW

3280 CROSS SECTION 9435.00 EXTENDED 0 68 FEET

3685 20 TRIALS ATTEMPTED WSEL, CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 200.0 950.0 TYPE= 1 TARGET= 750 000

LOCAL	ACCESS	BRIDGE							
9435.00	7.98	831.98	831 98	832.03	833.03	1.04	0.12	0.14	825.00
2360.	330.	1682.	348	247.	174.	546.	341.	74.	826.00
1.28	1.34	9.68	0.64	0.100	0.025	0.100	0.000	824.00	200.00
0.001809	60.	60.	60.	20	17	0	0.00	738.98	950.00

0

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	1.63	2.80	0.00	15.00	0.00	205.00	3.00	824.00	824.00

*SECNO 9447.000
6870 D.S. ENERGY OF 833.03 HIGHER THAN COMPUTED ENERGY OF 832.47

3265 DIVIDED FLOW

3280 CROSS SECTION 9447.00 EXTENDED 0.87 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
835.34	833.03	0.00	1469.	895.	205.	230.	830.60	832.05

3470 ENCROACHMENT STATIONS= 200.0 950 0 TYPE= 1 TARGET= 750.000

9447.00	8.16	832.16	0.00	832.16	833.03	0.87	0.00	0.00	825.00
2360.	327.	1606.	426.	262.	178.	663.	342.	75.	826.00
1.28	1.25	9.03	0.64	0.100	0.025	0.100	0.000	824.00	200.00
0.001526	12.	12.	12.	3	0	0	0.00	740.95	950.00

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 9935.000
2800 NAT Q1= 895.79 WSEL= 833.31 ENC Q1= 895 79 WSEL= 833.41 RATIO= 0.0000
NAT Q1= 927. RATIOS LOB, CH, ROB= 0.0141 0.7273 0.2586 WSEL= 833.41

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 292.0 722 7 TYPE= 4 TARGET= 0.034

9935.00	8.54	833.34	0.00	833.31	833.71	0.37	0.53	0.15	828.40
2360.	0.	1765.	595.	0.	315.	836.	354.	81.	830.80

```
     1.31      0.00      5.60      0.71     0.000     0.025     0.100     0.000    824.80    292.00
  0 000810      488.      488.      488.         3         0         0      0.00    430.71    722.71
0
 *SECNO 10198.000
  2800 NAT Q1=    1083.27  WSEL=     833.67  ENC Q1=    1083.27  WSEL=     833.77  RATIO=   0.0000
  NAT Q1=    1132.   RATIOS LOB,CH,ROB=   0.1201   0.5775   0.3023  WSEL=     833.77

 3470 ENCROACHMENT STATIONS=      176.6      831.7  TYPE=      4  TARGET=        0.043
  10198.00      8.51    833.71      0.00    833.67    833.92      0.21      0.16      0.05    830.20
     2360.       241.     1439.       680.      341.      308.     1167.       363.        84.     830.20
      1.34      0.71      4.67      0.58     0.100     0.025     0.100     0.000    825.20    176.63
  0 000499       263.      263.      263.         2         0         0      0.00    655.03    831.65
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 10218.000
  2800 NAT Q1=    2738.68  WSEL=     833.89  ENC Q1=    2738.68  WSEL=     833.99  RATIO=   0.0000
  NAT Q1=    2897.   RATIOS LOB,CH,ROB=   0.2434   0.1757   0.5809  WSEL=     833.99

 3470 ENCROACHMENT STATIONS=      160.0      855.0  TYPE=      4  TARGET=        0.055
              NINE MILE ROAD
  10218.00      8.65    833.95      0.00    833.89    833.97      0.03      0.00      0.05    827.30
     2360.       540.      444.     1375.      455.      216.     1383       364.        85.     827.30
      1.34      1.19      2.06      0.99     0.025     0.024     0.025     0.000    825.30    159.99
  0.000078       20.       20.       20.         2         0         0      0.00    694.97    854.96
0
1
  18 MAR 88    16:35:58                                                                  PAGE    40

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
     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
       1.25       2.03       2.80       0.00      27.00       3.00      96.00       0.00     825.40     825.30

  *SECNO 10278.000
   2800 NAT Q1=    2836.75  WSEL=     833.95  ENC Q1=    2836.75  WSEL=     834.05  RATIO=   0.0000
   NAT Q1=    2999.   RATIOS LOB,CH,ROB=   0.2435   0.1720   0.5846  WSEL=     834.05
   WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

  3470 ENCROACHMENT STATIONS=      158.2      857.8  TYPE=      4  TARGET=        0.054
   10278.00      8.71    834.01      0.00    833.95    834.04      0.02      0.00      0.00    827.30
      2360.       541.      435.     1385.      468.      217.     1422.       367.        86.     827.30
       1.36      1.16      2.00      0.97     0.025     0.024     0.025     0.000    825.30    158.18
   0.000072       60.       60.       60.         0         0         8      0.00    699.59    857.77
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 10925.000
  2800 NAT Q1=     699.84  WSEL=     833.98  ENC Q1=     699.84  WSEL=     834.08  RATIO=   0.0000
  NAT Q1=     736.   RATIOS LOB,CH,ROB=   0.1634   0.1891   0.6475  WSEL=     834.08

 3470 ENCROACHMENT STATIONS=      235.3      591.7  TYPE=      4  TARGET=        0.050
  10925.00      7.24    834.04      0.00    833.98    834.14      0.10      0.07      0.04    831.00
     2360.       343.      473.     1544       336.      122.      700.       379.        89.     831.00
      1.40      1.02      3.87      2.21     0.100     0.040     0.050     0.000    826.80    235.32
   0.001182       241.      627.      321         2         0         0      0.00    356.37    591.69
0
 *SECNO 11600.000
  2800 NAT Q1=     590.74  WSEL=     834.87  ENC Q1=     590.74  WSEL=     834.97  RATIO=   0.0000
  NAT Q1=     630    RATIOS LOB,CH,ROB=   0.0806   0.2714   0.6480  WSEL=     834.97
```

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 3470 ENCROACHMENT STATIONS=      301.3      692.9  TYPE=      4  TARGET=        0.062
  11600.00      7.57    834.95      0.00    834.87    835.09      0.13      0.93      0.02    833.68
     2360.       124.      686.     1551.      155.      161.      682.      396.       95.     833.68
      1.47      0.80      4 25      2.27     0.100     0.040     0.050     0.000    827.38    301.30
  0.001626       675.      675.      675.        .2         0         0      0.00    391.56    692.86
0
 *SECNO 11685 000
  2800 NAT Q1=      598.60  WSEL=     835.01  ENC Q1=      598.60  WSEL=     835.11  RATIO=   0.0000
  NAT Q1=      636.   RATIOS LOB,CH,ROB=   0.0815   0.2700   0 6485  WSEL=     835.11
1
  18 MAR 88     16:35:58                                                                  PAGE    41


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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=      299.7      694.0  TYPE=      4  TARGET=        0.059
  11685.00      7.59    835.09      0.00    835.01    835.23      0.13      0.14      0.00    833.80
     2360.       128.      681.     1551.      159.      162.      687.      398.       96.     833.80
      1.48      0.80      4.21      2.26     0.100     0.040     0.050     0.000    827.50    299.68
  0.001591        85.       85.       85.         1         0         0      0.00    394.28    693.96
0

 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        1 63        2.90         0.00       24.00        0.00      127.00        0.00      827.50      827.50

 *SECNO 11690.000

 6070,LOW FLOW BY NORMAL BRIDGE

 EGPRS=    843.834  EGLWC=    835.209  ELLC=    833.800  PCWSE=    835.094  ELTRD=    833 200
  2800 NAT Q1=      196.21  WSEL=     834.98  ENC Q1=      196.21  WSEL=     835.08  RATIO=   0.0000
  NAT Q1=      212.   RATIOS LOB,CH,ROB=   0.0518   0.2888   0 6594  WSEL=     835.08
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=      385 6      633 6  TYPE=      4  TARGET=        0.073
  11690 00      7.56    835.06      0.00    834.98    835.28      0 22      0.01      0.04    833.80
     2360        15.      821.     1524.       19.       161       547.      398.        96     833.80
      1 48      0.81      5.10      2.79     0.100     0.040     0.050     0.000    827.50    385.55
  0.002345         5.        5.        5.         0         0         0      0.00    248.07    633.63
0
 *SECNO 11721.000
  2800 NAT Q1=      643.22  WSEL=     835.22  ENC Q1=      643.22  WSEL=     835 32  RATIO=   0.0000
  NAT Q1=      680.   RATIOS LOB,CH,ROB=   0.0867   0.2615   0.6519  WSEL=     835.32

 3470 ENCROACHMENT STATIONS=      290.8      697 3  TYPE=      4  TARGET=        0.054
  11721 00      7 65    835.25      0.00    835.22    835.37      0 12      0.06      0.03    833.90
     2360.       143.      664.     1552.      182.       163       710.      399.       96.     833.90
      1.48      0.79      4.06      2.19     0.100     0.040     0.050     0.000    827.60    290.81
  0.001458        31.       31        31.         2         0         0      0.00    406.47    697.28
0
1
  18 MAR 88     16:35.58                                                                  PAGE    42


                                                                  THIS RUN EXECUTED 18 MAR 88    16:36:15
```

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ROUGE
WALLED LAKE BRANCH
DOWNSTREAM MEADOWBROOK LAKE

4) DOUBLE TYPE: 100YR ENCROACHED 2

00BREAK00

```
3720 CRITICAL DEPTH ASSUMED
 11721.00      5.95    838.95    838.95    836.84    839.60      0.64      0.00      0.28    838.00
    1795.      286.     1268.      241.      202.      167.      170.      289.       91.     838.00
     1 33      1.42      7.61      1.42     0.030     0.015     0.030     0.000    833.00      0.00
 0.000822        5.        5.        5.        20        14         0      0.00    400.00    400.00
0
1
  8 FEB 89    13:36:44                                                                          PAGE   43


                                                                                THIS RUN EXECUTED  8 FEB 89   13:37:23
 ***************************************************
   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        CITY OF NOVI
 T2        100 YEAR FLOOD
 T3         WALLED LAKE BRANCH DS OF MEADOWBROOK LAKE

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        4.        0.        0.   0.000000     0.00       0.0        0    806.300     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

1
  8 FEB 89    13:36:44                                                                          PAGE   44


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=   0.300 CEHV=   0.500
 *SECNO 1.000

 3470 ENCROACHMENT STATIONS=     357.0     417 0  TYPE=     1  TARGET=      60.000
     1.00      9.50    806.30     0.00    806.30    806 81     0.51      0.00      0.00    799.80
    2380.      281.     2099.       0.      141.      346.       0.        0.        0.  100000.00
     0.00      1.99      6.07     0.00     0.100     0.040    0.000     0.000    796.80    357.00
 0.002080        0.        0.       0.         0         0        0      0.00     60.00    417.00
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 40.000

 3470 ENCROACHMENT STATIONS=     378.0     417.0  TYPE=     1  TARGET=      39.000
  ELENCL=     813.50  ELENCR=    813.50
             CHESAPEAKE AND OHIO RAILROAD
    40 00      9.43    806.23     0.00      0.00    806.98     0.75      0.05      0.12    799.80
    2380.        0.     2380        0.        0.      343.       0.        0.        0.     813.50
     0.00      0 00      6 94     0.00     0.000     0.020    0.000     0.000    796.80    378.00
 0.000803       21.       39.       61.         2         0        0      0.00     39.00    417.00
0

 SPECIAL BRIDGE
```

5070, VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	CDFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.50	2.90	0.00	19.50	0.00	156.00	0.00	796.80	796.80

*SECNO 80.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
811.65	806.98	0.00	0.	2380.	156	140.	804.00	813.50

3470 ENCROACHMENT STATIONS= 338.0 457.0 TYPE= 1 TARGET= 119.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 813.50 ELREA= 813.50

1
8 FEB 89 13:36:44 PAGE 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
80.00	14.55	811.35	0.00	0.00	811.65	0.30	4.67	0.00	799.80
2380.	0.	2380.	0.	0.	543.	0.	1.	0.	798.70
0.00	0.00	4.39	0.00	0.000	0.020	0 000	0.000	796.80	378.00
0.000120	40.	40.	40.	2	0	0	0.00	39.00	417.00

0
CCHV= 0.300 CEHV= 0.500
*SECNO 314.000

3470 ENCROACHMENT STATIONS= 145 0 550.0 TYPE= 1 TARGET= 405.000

314.00	14.04	811.74	0.00	0.00	811.75	0.01	0.02	0.09	800.70
2380.	1176.	760.	444.	2202.	523.	910.	12.	1.	799.60
0.08	0.53	1.45	0.49	0.100	0.040	0.100	0 000	797 70	145.00
0.000055	234.	234	234.	2	0	0	0 00	405.00	550 00

0
*SECNO 725 000
3280 CROSS SECTION 725.00 EXTENDED 0.75 FEET

3470 ENCROACHMENT STATIONS= 262.0 462.0 TYPE= 1 TARGET= 200.000

725.00	12.45	811.75	0.00	0.00	811.86	0.11	0.06	0.05	809.40
2380.	0.	2137.	243.	0.	767.	361	43.	5.	808.50
0.14	0.00	2.78	0.67	0.000	0.040	0.100	0.000	799.30	262.00
0.000393	790.	411.	332.	2	0	0	0.00	200.00	462.00

0
CCHV= 0 300 CEHV= 0.500
*SECNO 1078.000

3470 ENCROACHMENT STATIONS= 0.0 437.0 TYPE= 1 TARGET= 436.999
OLD NOVI ROAD

1078 00	11.21	811.81	0.00	0.00	811.97	0.15	0 08	0.02	810.70
2380.	11.	2112.	257.	17.	644.	163.	50.	7.	809.80
0.17	0.65	3.28	1.58	0.020	0.020	0.020	0.000	800.60	231.07
0.000167	678.	353.	286.	2	0	0	0.00	205.93	437.00

0
1
8 FEB 89 13.36:44 PAGE 46

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

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	1.63	2.80	0.00	24.00	0.00	116.00	0.00	800.60	800.60

*SECNO 1106.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
822.47	811.97	0.00	2081.	319.	116.	161.	807.30	809.70

3470 ENCROACHMENT STATIONS= 300.0 430.0 TYPE= 1 TARGET= 130.000
ELENCL= 810.00 ELENCR= 100000 00

1106.00	11.19	811.79	0.00	0.00	812.01	0.21	0.04	0.00	810.70
2380.	15.	2056.	309.	17.	529.	144.	51.	7.	809.80
0.17	0.90	3 88	2.15	0.020	0.020	0.020	0.000	800.60	231.60
0.000325	28.	28	28.	2	0	6	0.00	198.40	430.00

0
CCHV= 0.300 CEHV= 0.500
*SECNO 1278.000
3280 CROSS SECTION 1278.00 EXTENDED 1.44 FEET

3470 ENCROACHMENT STATIONS= 375.0 590.0 TYPE= 1 TARGET= 215.000

1278.00	8.75	811.85	0.00	0.00	812.17	0.31	0.11	0.05	811.00
2380.	5.	2364.	12.	12.	523.	13.	53.	7.	808.00
0.18	0.37	4.52	0.92	0.100	0.040	0.100	0.000	803.10	400.61
0.001955	172.	172.	172.	1	0	0	0 00	148.08	548.69

0
*SECNO 1448.000
3280 CROSS SECTION 1448.00 EXTENDED 0.91 FEET

3470 ENCROACHMENT STATIONS= 420.0 550.0 TYPE= 1 TARGET= 130.000

1448 00	8.21	812.21	0.00	0 00	812.62	0.40	0.40	0.04	811 90
2380.	0.	2370.	10.	2.	464.	10.	55.	8.	808.90
0.19	0.25	5.11	1.03	0.100	0.040	0.100	0 000	804.00	420.00
0.002940	170.	170.	170.	2	0	0	0.00	127 76	547.76

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
*SECNO 1618.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 588.0 630.0 TYPE= 1 TARGET= 42.000
CHESAPEAKE AND OHIO RAILROAD

1618.00	6.67	811.77	811.77	0.00	814 28	2.51	0.60	1.05	807.70
2230.	0.	2230.	0.	0.	175.	0.	57.	8.	100000 00
0.19	0.00	12.72	0.00	0.000	0.020	0.000	0.000	805.10	588.00
0.004314	151.	170.	191.	3	15	0	0.00	35.52	623.52

0

SPECIAL BRIDGE

5070; VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
5227 DOWNSTREAM ELEV IS 809.88 , NOT 811.77 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.63	2.90	42.00	24.00	3.60	127 00	0.00	805.10	805.10

*SECNO 1664.000
3280 CROSS SECTION 1664.00 EXTENDED 4 90 FEET

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
819.58	816.05	0.00	133.	2118.	127.	122.	811 10	819.50

3470 ENCROACHMENT STATIONS= 588.0 630.0 TYPE= 1 TARGET= 42.000

1664.00	13.10	818.40	0.00	0.00	818.81	0.41	4.53	0 00	807.90
2230.	0.	2230.	0.	0.	433.	0.	57.	8.	100000.00
0.20	0.00	5.15	0.00	0.000	0.020	0.000	0.000	805 30	588.00
0.000331	46.	46.	46.	2	0	4	0.00	42.00	630.00

0
1
8 FEB 89 13:36:44 PAGE 48

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
*SECNO 1803.000

3470 ENCROACHMENT STATIONS= 140.0 420.0 TYPE= 1 TARGET= -140.000

1803 00	13.31	818.91	0.00	0.00	818 96	0.04	0.04	0.11	808.40
2230.	1311.	919.	0.	1322.	390.	0	60	9.	818.90
0.22	0.99	2.36	0.00	0.100	0.040	0.000	0.000	805.60	140 00
0.000238	139.	139.	139.	2	0	0	0.00	180.21	320.21

0
*SECNO 2053.000

3470 ENCROACHMENT STATIONS= 200.0 420.0 TYPE= 1 TARGET= -200 000

2053.00	12.75	818.95	0.00	0.00	819 06	0.11	0.07	0.03	809.00
2230.	995.	1235.	0.	713.	366	0.	66.	9.	819.50
0.24	1.40	3.37	0.00	0.100	0.040	0.000	0.000	806 20	200 00

```
  0.000519      151.      250.      276.         2         0         0      0.00    119.58    319 58
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 2305.000

 3470 ENCROACHMENT STATIONS=      675.0      724.0  TYPE=      1  TARGET=       49.000
  ELENCL=     830.20  ELENCR=     830 20
             EIGHT MILE ROAD
   2305.00     10 48    818 98      0.00      0.00    819.38      0 40      0.18      0.14    809.60
     2230.        0.     2230.        0.        0.      441.        0.        70       10.     830 20
      0.26      0.00      5 06      0.00     0.000     0.031     0.000     0.000    808.50    675.00
  0.001251      153.      252       278.         2         0         0      0.00     49.00    724.00
0

 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       3 38       3.00       0.00      49.00      13.00     276 00      0.00     808.50     808.50

 *SECNO 2560.000
 PRESSURE FLOW

1
   8 FEB 89     13:36:44                                                                                  PAGE    49


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
     822.41     819.43      0.00         0.      2230.       276.       328.       817.60     830.20


 3470 ENCROACHMENT STATIONS=      675.0      724.0  TYPE=      1  TARGET=       49.000
  ELENCL=     830.20  ELENCR=     830.20
   2560 00     12.77    822.17      0.00      0.00    822.41      0.24      3.03      0.00    809.60
     2230         0.     2230.        0.        0.      570.        0        73.       10.     830.20
      0.27      0.00      3.91      0.00     0.000     0.031     0.000     0.000    809.40    675.00
  0.000570      255.      255.      255.         2         0         0      0.00     49.00    724.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 2693.000

 3470 ENCROACHMENT STATIONS=      345.0      660.0  TYPE=      1  TARGET=      315.000
   2693.00     13.77    822.47      0.00      0.00    822.48      0.01      0.01      0.07    810.40
     2230.      277.      259.     1694.      956.      269.     1609.        78.       10.     810.50
      0.31      0.29      0 96      1.05     0.100     0.040     0.030     0.000    808.70    345.00
  0.000023      133.      133.      133.         2         0         0      0 00    315.00    660.00
0
 *SECNO 3093.000

 3265 DIVIDED FLOW

   3093.00     12.88    822.48      0.00      0.00    822.49      0.01      0.01      0.00    811.30
     2230.      333.      260.     1637.     1466.      251.     1550.       104        15.     811.40
      0.43      0 23      1.03      1.06     0.100     0.040     0.030     0.000    809.60     12.07
  0.000028      300.      400.      425.         2         0         0      0.00    801.39    856.51
0
 *SECNO 3500.000
```

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 53.5 898.5 TYPE= 2 TARGET= 845.000

3500.00	11.99	822.49	0 00	815 98	822.51	0.02	0.01	0.00	812.20
2230.	280.	284.	1667.	991.	233.	1306.	129.	21.	812.30
0.53	0.28	1.21	1.28	0.100	0.040	0.030	0.000	810.50	53.50
0.000043	300.	407.	425.	0	0	0	0.00	648.74	789.72

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
*SECNO 3703.000

3470 ENCROACHMENT STATIONS= 480.0 1220.0 TYPE= 2 TARGET= 740.000
NOVI ROAD

3703.00	11.59	822.49	0.00	816.11	822.53	0.04	0.01	0.01	820.90
2230.	492.	1727.	11.	439.	983.	21.	138.	23.	821.50
0.57	1.12	1.76	0.51	0.015	0.020	0.015	0.000	810.90	480.00
0.000068	161.	203.	261.	0	0	0	0.00	511.53	991.53

0

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	1.67	2.90	0.00	51 00	4 00	378.00	0.00	810.90	810.90

*SECNO 3755.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
822 57	822.55	0.00	1585.	646.	378.	484.	821.20	818.00

3470 ENCROACHMENT STATIONS= 493.0 1208.0 TYPE= 2 TARGET= 715.000

3755.00	11.62	822.52	0 00	816.11	822.57	0.05	0.03	0.00	814.90
2230	866.	990.	374	705.	468.	262.	140.	24.	817 00
0 58	1.23	2.12	1.43	0.015	0.020	0.015	0 000	810.90	493.00
0.000044	52	52.	52	2	0	7	0.00	499.57	992 57

0
CCHV= 0.300 CEHV= 0.500
*SECNO 3788.000

3470 ENCROACHMENT STATIONS= 30.0 745.0 TYPE= 2 TARGET= 715.000

3788 00	10.61	822.51	0.00	816.34	822.59	0.08	0.00	0 02	815.60
2230.	665.	1180	385.	857.	390.	369.	141.	24.	814.67
0 58	0.78	3.03	1.04	0.070	0.040	0.070	0.000	811.90	30.00
0.000354	33.	33.	33.	1	0	0	0.00	509.80	539.80

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
*SECNO 3814.000

3470 ENCROACHMENT STATIONS= 460.0 1020.0 TYPE= 2 TARGET= 560.000
CHESAPEAKE AND OHIO RAILROAD

3814.00	10.52	822.52	0.00	816.72	822.59	0.07	0.00	0.00	813.70
2230.	846.	841.	542	522.	313.	289.	142.	25.	815.60
0.59	1.62	2.68	1 88	0.015	0.020	0.015	0 000	812.00	460.00
0.000069	26.	26.	26	1	0	0	0.00	380.67	840.67

0

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	1.52	2.90	0.00	33 20	0.00	245 00	0.00	812.00	812.00

*SECNO 3821.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
824.48	822.59	0.00	131.	2096.	245.	282.	820.50	822.60

3470 ENCROACHMENT STATIONS= 465.0 1015.0 TYPE= 2 TARGET= 550 000

3821 00	12.23	824.23	0.00	817.55	824.25	0.03	1.66	0.00	813.70
2230.	1064.	586.	581.	958.	370.	489.	142.	25.	815.60
0.59	1.11	1.58	1.19	0.015	0.020	0.015	0.000	812.00	465.00
0.000019	7.	7.	7.	2	0	3	0.00	441.40	906.40

0
CCHV= 0.300 CEHV= 0.500
*SECNO 3835.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 571.5 1116 5 TYPE= 2 TARGET= 545.000
OLD NOVI ROAD

3835.00	12.23	824.23	0.00	817.56	824 25	0.02	0.00	0.00	812.80
2230	1091.	461.	677	1086.	252.	634.	143.	25	814 30
0.59	1.01	1.83	1.07	0 020	0.020	0.020	0.000	812.00	571.50
0.000024	14.	14.	14.	0	0	0	0.00	529 89	1116.50

0
1

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

SPECIAL BRIDGE

5070, VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

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SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.56      2.80      0.00     22.00      0.00    238.00      0.00    812.00    812.00

*SECNO 3864.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS=   826.355  EGLWC=   824.252  ELLC=   823.700  PCWSE=   824.228  ELTRD=   823.600

3265 DIVIDED FLOW


3301 HV CHANGED MORE THAN HVINS


3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  823.60 MAX ELLC=  823.70


3470 ENCROACHMENT STATIONS=      579.0     1109.0  TYPE=      2  TARGET=      530.000
  3864.00     11.94    823.94    818.50    818.87    824.55      0.61      0.00      0.29    812.80
    2230.       22.     1622.      586.       21.      237.      132.      143.       25.    814.30
     0.59      1.03      6.84      4.44     0.020     0.020     0.020     0.000    812.00    579.00
 0.001214       29.       29.       29.         4        12         0  -1411.68    454.31   1109.00
0
CCHV=   0.300 CEHV=   0.500
*SECNO 4068.000

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=        0.0      480.0  TYPE=      1  TARGET=      479.999
  4068.00     12.18    824.78      0.00    820.96    824.80      0.02      0.08      0.18    816.20
    2380.     1135.      485.      761.     1298.      250.     1152.      151.       27.    816.50
     0.65      0.87      1.94      0.66     0.100     0.050     0.100     0.000    812.60     24.13
 0.000194      204.      204       204.         2         0         0      0.00    420.16    444.28
0
*SECNO 4525.000

3470 ENCROACHMENT STATIONS=        0.0      480.0  TYPE=      1  TARGET=      479.999
1
  8 FEB 89    13:36:44                                                                          PAGE   53


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


  4525.00     11.09    824.89      0.00    821.22    824.92      0.03      0.11      0.00    817.40
    2380.     1169.      525.      686.     1131.      226.      889.      176.       32.    817.70
     0.75      1.03      2.32      0.77     0.100     0.050     0.100     0.000    813.80     26.60
 0.000319      485.      457.      417.         2         0         0      0.00    411.58    438.18
0
CCHV=   0.300 CEHV=   0.500
*SECNO 4984.000

3470 ENCROACHMENT STATIONS=        0.0      630.0  TYPE=      1  TARGET=      629.999
            FOOTBRIDGE
  4984.00     10.16    825.06      0.00    821.79    825.15      0.09      0.20      0.03    820.70
    2380.      884.      732.      764.      806.      181.      804.      198.       36.    820.50
     0.82      1.10      4.05      0.95     0.100     0.030     0.100     0.000    814.90     89.05
 0.000660      487.      459.      418.         2         0         0      0.00    426.40    515.46
0

SPECIAL BRIDGE
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5070, VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1 73	2.80	0.00	5.00	0.00	40.00	1.70	814.90	814.90

*SECND 4996.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
920.17	825.15	0.00	2293.	87.	40.	57.	819.40	819 60

3470 ENCROACHMENT STATIONS= 0.0 630 0 TYPE= 1 TARGET= 629.999

4996.00	10.20	825.10	0.00	821.80	825 19	0.09	0.04	0.00	820.70
2380.	885.	729.	766.	813.	182.	813.	198.	36.	820.50
0.82	1.09	4.01	0.94	0.100	0.030	0.100	0.000	814.90	88.95
0.000643	12.	12.	12.	2	0	9	0.00	427.45	516 40

0
CCHV= 0.300 CEHV= 0.500
*SECND 5058.000

3470 ENCROACHMENT STATIONS= 0.0 600.0 TYPE= 1 TARGET= 599.999

1
8 FEB 89 13·36:44 PAGE 54

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
5058.00	10.49	825.19	0.00	822.42	825 24	0.05	0.04	0.01	819.40
2380.	829.	623.	927.	727.	211.	805.	201.	37.	820.30
0.83	1.14	2.96	1.15	0.100	0.050	0.100	0.000	814 70	119.57
0.000710	62.	62.	62.	2	0	0	0.00	390.76	510.33

0
*SECND 6108.000

3470 ENCROACHMENT STATIONS= 0.0 1100.0 TYPE= 1 TARGET= 1099 999
CONFLUENCE WITH THORNTON CREEK

6108.00	7 84	825.94	0.00	824.23	825.98	0.04	0.73	0.00	820.70
2160.	1171.	280.	709.	936.	90.	714.	233	45.	822.00
0.99	1.25	3.11	0.99	0.100	0.050	0.100	0.000	818.10	447.57
0.001145	680.	1050.	900.	2	0	0	0.00	567.74	1015.31

0
*SECND 7195.000

3470 ENCROACHMENT STATIONS= 0.0 1100.0 TYPE= 1 TARGET= 1099.999

7195.00	6.90	827.30	0.00	826.41	827.39	0.09	1.39	0.02	823.00
2160.	1203	361.	596.	698.	79.	456.	258	54.	824.30
1.10	1.72	4.58	1 31	0.100	0.050	0.100	0.000	820.40	466.68
0.002969	825.	1087.	600.	2	0	0	0.00	509.39	976 07

0
*SECND 8283.000

3470 ENCROACHMENT STATIONS= 0.0 900.0 TYPE= 1 TARGET= 899.999

8283.00	6.37	828.77	0.00	827.90	828 94	0.17	1.51	0.04	825.10
2160.	1189.	595	377.	1220.	98.	441.	285.	65.	826.00
1.20	0.97	6.06	0.85	0 100	0.025	0.100	0.000	822.40	177.25
0.001220	825.	1088.	600.	2	0	0	0.00	722.75	900.00

0
*SECND 8935.000

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 3470 ENCROACHMENT STATIONS=      175.0     1175.0  TYPE=      1  TARGET=     1000.000
   8935.00      6.29    829.49      0.00    828.71    829.63      0.14      0.68      0.01    825.90
     2160.     1076.      556.      528.     1179.       97.      753.      309.       76.    826.80
      1.27      0.91      5.74      0.70     0.100     0.025     0.100     0.000    823.20    177.52
  0.001118      548.      652.      577.         2         0         0      0.00    997.48   1175.00
0
1
   8 FEB 89     13:36:44                                                                          PAGE    55

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 8940.000

 3470 ENCROACHMENT STATIONS=      175.0     1175.0  TYPE=      1  TARGET=     1000.000
   8940.00      6 29    829.49      0.00    828.93    829.63      0.15      0.00      0.00    825.20
     2160.      888.      832.      440.     1197.      169.      761.      310.       76.    826.20
      1.27      0.74      4.92      0.58     0.100     0.025     0.100     0.000    823.20    177.50
  0.000706        5.         5        5.         0         0         0      0.00    997.50   1175.00
0
 *SECNO 9310.000

 3470 ENCROACHMENT STATIONS=      175.0      975.0  TYPE=      1  TARGET=      800.000
   9310.00      5.96    829.76      0.00    829.16    830.02      0.26      0.33      0.06    825.80
     2160.      904       964.      292.     1040.      159.      396.      326.       84.    826.80
      1.31      0.87      6 05      0.74     0.100     0.025     0.100     0.000    823.80    178.55
  0.001159      370       370.      370.         2         0         0      0.00    796.45    975.00
0
 *SECNO 9375.000
 3280 CROSS SECTION    9375.00 EXTENDED       0.50 FEET


 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      150.0      925.0  TYPE=      1  TARGET=      775.000
   9375.00      6 30    830.20    830.20    829.05    831 06      0.86      0.11      0.30    828.90
     2160.      287.     1729.      144.      336.      209.      230.      327.       85.    828.90
      1.31      0 86      8 29      0 63     0.100     0.025     0.100     0.000    823.90    150.00
  0.002635       65.       65.       65.        20         8         0      0.00    717.25    867.25
0
 *SECNO 9435.000

 3265 DIVIDED FLOW


 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
1
   8 FEB 89     13:36 44                                                                          PAGE    56

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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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 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      200.0      950.0  TYPE=       1  TARGET=      750.000
             LOCAL ACCESS BRIDGE
   9435.00      6.53    830.53    830.53    828.93    832.83      2.30      0.20      0.72    825.00
     2160.       253.      1850.       58.       146.       141.       31.       328.       85.     826.00
     1.31      1.73     13.14      1.87     0.100     0.025     0.100     0.000    824 00    200.00
  0.004413       60.       60.       60        20        11         0      0.00     98.01    324.79
0

 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       1.63       2.80       0.00      15.00       0.00     205.00       3.00     824.00     824.00

 *SECNO 9447.000
 6870 D.S. ENERGY OF  832.83 HIGHER THAN COMPUTED ENERGY OF  831.94

 3265 DIVIDED FLOW

 PRESSURE AND WEIR FLOW

  EGPRS       EGLWC        H3         QWEIR       QPR        BAREA    TRAPEZOID       ELLC       ELTRD
                                                                        AREA
     833.34     832.83       0.00        645.      1529.        205.       230.       830.60     832.05



 3470 ENCROACHMENT STATIONS=      200.0      950.0  TYPE=       1  TARGET=      750.000
   9447.00      6.42    830.42      0.00    828.71    832.83      2.42      0 00      0.00    825.00
      2160       246.      1858.       56.       140.       138.       29.       328.       85.     826.00
      1.31      1.76     13.43      1.90     0.100     0.025     0.100     0.000    824.00    200.00
   0 004721       12.       12.       12.        16         0         0      0.00     96.53    324.47
0
  *SECNO 9935.000

  3301 HV CHANGED MORE THAN HVINS

    9935.00      8.96    833.76      0.00    832.48    833.98      0.22      0.48      0.66    828.40
      2160.       32.      1496.       632.       56.       335.      1133.       338.       89.     830.80
      1.35      0.57      4.46      0.56     0.100     0.025     0.100     0.000    824 80    271.11
   0.000415       488.      488.      488.         2         0         0      0.00     557.84    828.95
0
1
    8 FEB 89     13:36:44                                                                          PAGE    57


     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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 10198.000
   10198 00      8.78    833.98      0.00    832 61    834.10      0.12      0.09      0 03    830.20
      2160.       270.      1198.       692.       521.       320.      1473.       350.       93.     830.20
      1.38      0.52      3.74      0 47     0.100     0.025     0.100     0.000    825.20     71.62
   0.000304       263       263.      263.         2         0         0      0 00     912.66    984.28
0
  CCHV=    0 300 CEHV=    0.500
  *SECNO 10218.000
              NINE MILE ROAD
```

```
 10218.00     8.82   834.12     0.00   832.76   834 13     0.02     0.00     0.03   827.30
    2160.      526.     364.    1270.     598.     220.    1611.     351.      94.    827.30
     1.39     0.88     1.65     0.79    0.025    0.024    0.025    0.000   825.30    67.24
 0.000048      20.      20.      20.        2        0        0     0.00   926.74   993.98
0

 SPECIAL BRIDGE

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      1.25      2.03      2.80      0.00     27.00      3.00     96.00      0.00    825.40    825.30

 *SECNO 10278.000
 PRESSURE AND WEIR FLOW


  EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC     ELTRD
                                                                 AREA
     850.07    834.13      0 00     2014.      144.       96.       94.      829.30    831.30


 10278.00     8.87   834.17     0.00   832.81   834.19     0.01     0.06     0.00   827.30
    2160.      526.     356.    1278.     613.     222.    1654.     354.      95.    827.30
     1.41     0.86     1.61     0.77    0.025    0.024    0.025    0.000   825.30    65.17
 0.000045      60.      60.      60.        1        0        7     0.00   933.37   998.54
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 10925.000

 3470 ENCROACHMENT STATIONS=     192.0     702.0  TYPE=     1  TARGET=     510.000
 10925.00     7.39   834.19     0.00   832.87   834.25     0.06     0.04     0.02   831.00
    2160.      357.     399.    1404.     423.     125.     777.     369.     100.    831.00
     1.46     0.84     3.18     1.81    0.100    0.040    0.050    0.000   826.80   202.69
 0.000776     241.     647.     321.        0        0        0     0.00   420.70   623.38
0
1
  8 FEB 89    13.36:44                                                                  PAGE   58


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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 11600.000
 11600.00     7.47   834.85     0.00   833.81   834.96     0.10     0.68     0.02   833.68
    2160.      161.     608.    1391.     250.     158.     703.     388.     107.    833.68
     1.54     0.65     3.85     1 98    0.100    0.040    0.050    0.000   827.38   194.61
 0.001366     675.     675.     675        2        0        0     0.00   545.61   740.22
0
 *SECNO 11685.000
 11685 00     7.47   834.97     0.00   833.98   835.07     0.10     0.12     0.00   833.80
    2160.      161      609.    1390.     249.     158.     702.     390.     109.    833.80
     1.55     0.65     3.85     1.98    0.100    0.040    0.050    0.000   827.50   194.66
 0.001370      85.      85.      85.        2        0        0     0.00   545.50   740.16
0

 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      1.63      2.90      0.00     24.00      0.00    127.00      0.00    827.50    827.50

 *SECNO 11690 000

 6070,LOW FLOW BY NORMAL BRIDGE
```

EGPRS= 842 289 EGLWC= 835.072 ELLC= 833.800 PCWSE= 834.967 ELTRD= 833.200

3370 NORMAL BRIDGE, NRD= 8 MIN ELTRD= 833.20 MAX ELLC= 833.80

11690.00	7.44	834.94	0.00	833 95	835.13	0.19	0.02	0.04	833.80
2160.	93.	656.	1411.	143.	127.	559	390.	109.	833.80
1.55	0.65	5.16	2.53	0.100	0.040	0.050	0.000	827.50	195.21
0.012841	5.	5.	5.	2	0	0	-265.25	544.33	739.54

0

*SECNO 11716 000

11716.00	7.54	835.14	0.00	834.19	835.23	0.10	0.08	0.03	833.90
2160.	168.	597.	1395.	262.	160.	722.	391.	109.	833.90
1.55	0.64	3.73	1.93	0.100	0.040	0.050	0.000	827.60	193.39
0.001266	26.	26.	26.	1	0	0	0.00	548.21	741.60

0

*SECNO 11721.000

3280 CROSS SECTION 11721 00 EXTENDED 1.26 FEET

1

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

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL, CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

11721.00	6.16	839.16	839.16	836.84	839.84	0.69	0.01	0.29	838.00
2160	410.	1405	345.	244.	172.	205.	391.	109.	838.00
1.55	1.68	8.15	1 68	0.030	0.015	0.030	0.000	833.00	0.00
0.000900	5.	5.	5.	20	14	0	0.00	400.00	400 00

0

1

THIS RUN EXECUTED 8 FEB 89 13:37:36

****
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 CITY OF NOVI JOB NO. 555-46-04
T2 500 YEAR FLOOD
T3 WALLED LAKE BRANCH DS OF MEADOWBROOK LAKE

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	5.	0.	0.	0.000000	0.00	0.0	0.	807.150	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

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 4

CCHV= 0.300 CEHV= 0.500
*SECNO 1.000

3470 ENCROACHMENT STATIONS= 357.0 417.0 TYPE= 1 TARGET= 60.000

1.00	10.35	807.15	0.00	807.15	808.00	0.85	0.00	0.00	799.80
3380.	412.	2968.	0.	159.	379.	0.	0.	0.	100000.00
0.00	2.60	7.84	0.00	0.100	0.040	0.000	0.000	796.80	357.00
0.003132	0.	0.	0.	0	0	0	0.00	60.00	417.00

0
CCHV= 0.300 CEHV= 0 500
*SECNO 40.000

3470 ENCROACHMENT STATIONS= 378.0 417.0 TYPE= 1 TARGET= 39.000
ELENCL= 813.50 ELENCR= 813.50
CHESAPEAKE AND OHIO RAILROAD

40.00	10.21	807.01	0.00	0.00	808.28	1.27	0.07	0.21	799.80
3380.	0.	3380.	0.	0.	373.	0.	0.	0.	813.50
0.00	0.00	9.05	0.00	0.000	0.020	0.000	0.000	796.80	378.00
0.001264	21.	39.	61.	2	0	0	0.00	39.00	417.00

0
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	1 50	2.90	0.00	19.50	0.00	156.00	0.00	796.80	796.80

*SECNO 80.000

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
817.94	808.28	0.00	339.	3026.	156	140.	804.00	813.50

3470 ENCROACHMENT STATIONS= 338.0 457.0 TYPE= 1 TARGET= 119.000

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

80.00	18.92	815.72	0.00	0.00	815.78	0.06	7 49	0.00	799.80
3380.	819.	1706.	855.	652.	713.	668.	1.	0.	798.70
0.01	1.26	2.39	1.28	0.030	0.020	0.030	0.000	796.80	338.00

```
 0 000025      40.       40.       40.        2        0        3     0.00   119.00   457.00
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 314.000

 3470 ENCROACHMENT STATIONS=      145.0     550.0  TYPE=      1  TARGET=      405.000
    314.00    18.08   815.78      0.00     0.00   815.80     0.01     0.01     0.01   800.70
     3380.    1694.     982.      703.    3144.     680.    1448.      21.       2.    799.60
      0.09     0.54     1.44      0.49    0.100    0.040    0.100    0.000   797 70   145.00
  0.000038     234.     234.      234.        2        0        0     0.00   405.00   550.00
0
 *SECNO 725.000
 3280 CROSS SECTION    725.00 EXTENDED      4.79 FEET


 3470 ENCROACHMENT STATIONS=      262.0     462.0  TYPE=      1  TARGET=      200.000
    725.00    16 49   815.79      0.00     0 00   815.86     0.08     0.04     0.03   809.40
     3380        0.    2824.      556.        0     1171.     766.      67.       5.    808.50
      0 15     0.00     2.41      0.73    0.000    0.040    0.100    0.000   799.30   262.00
  0.000176     790.     411.      332.        1        0        0     0.00   200.00   462.00
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 1078.000
 3280 CROSS SECTION   1078.00 EXTENDED      3.53 FEET


 3470 ENCROACHMENT STATIONS=        0.0     437.0  TYPE=      1  TARGET=      436.999
             OLD NOVI ROAD
   1078 00    15.23   815.83      0.00     0.00   815.89     0 06     0.03     0.00   810.70
     3380.     326.     2347       707.     306.    1046.     465.      82.       7.    809.80
      0.20     1.07     2.24      1.52    0.020    0.020    0.020    0.000   800.60   155.49
  0.000041     678.     353.      286.        0        0        0     0.00   281.51   437.00
0
1
  8 FEB 89    13:36:44                                                                  PAGE   63

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


 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      1.63      2.80      0.00     24.00      0.00    116.00      0.00    800.60    800.60

 *SECNO 1106.000
 3280 CROSS SECTION   1106.00 EXTENDED      2.28 FEET

 PRESSURE AND WEIR FLOW


  EGPRS      EGLWC       H3        QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                   AREA
     837.32    815.89      0.00     3128.      251.      116.      161.      807.30    809.70


 3470 ENCROACHMENT STATIONS=      300.0     430 0  TYPE=      1  TARGET=      130.000
  ELENCL=    810.00  ELENCR= 100000.00
   1106.00    15.28   815.88      0.00     0 00   815.95     0 07     0.05     0.00   810.70
     3380.     393.    2232.      755.     310.     938.     421       83.       8.    809.80
```

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     0.21      1.26      2.38      1.79     0.020     0.020     0.020     0.000    800.60    154.77
  0.000057      28.       28.       28.         2         0         6      0.00    275.23    430.00
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 1278.000
 3280 CROSS SECTION   1278.00 EXTENDED      5.46 FEET


 3470 ENCROACHMENT STATIONS=      375.0      590.0  TYPE=      1  TARGET=      215.000
   1278.00     12.76    815.86      0.00      0.00    816.01      0.15      0.02      0.04    811.00
     3380       168.     3100.      111.      224.      973.      164.       89.        9.    808.00
      0.22      0.75      3.19      0.68     0.100     0.040     0.100     0.000    803.10    375.00
  0.000425      172.      172.      172.         2         0         0      0.00    215.00    590.00
0
 *SECNO 1448.000
 3280 CROSS SECTION   1448 00 EXTENDED      4.61 FEET


 3470 ENCROACHMENT STATIONS=      420.0      550 0  TYPE=      1  TARGET=      130.000
   1448.00     11.92    815.92      0.00      0.00    816.13      0.22      0.09      0.04    811.90
     3380.       30.     3318.       32.       39.      877.       38.       94.        9.    808.90
      0 24      0.78      3.78      0.85     0.100     0.040     0.100     0.000    804.00    420.00
  0.000687      170.      170.      170         1         0         0      0.00    130.00    550.00
0
1
   8 FEB 89    13:36:44                                                                          PAGE    64


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
 *SECNO 1618.000
 3280 CROSS SECTION   1618.00 EXTENDED      2.35 FEET


 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=      588.0      630.0  TYPE=      1  TARGET=      42.000
             CHESAPEAKE AND OHIO RAILROAD
   1618 00     10.55    815.65      0.00      0.00    816.68      1.02      0.14      0.40    807.70
     2650.        0.     2650.        0.        0.      326.        0.       96.       10.  100000.00
      0 24      0.00      8.12      0.00     0 000     0.020     0.000     0.000    805.10    588.00
  0.001064      151.      170.      191.         2         0         0      0.00     42.00    630.00
0

 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       1.63       2.90      42 00      24.00       3.60     127.00       0.00     805.10     805.10

 *SECNO 1664.000
 3280 CROSS SECTION   1664.00 EXTENDED      5.93 FEET


 3301 HV CHANGED MORE THAN HVINS

 PRESSURE AND WEIR FLOW


  EGPRS      EGLWC       H3        Q'EIR      QPR        B.RE     TRAPEZOID      ELLC      ELTRD
```

						AREA			
826.67	816.73	0.00	1010.	1646.	127.	122.	811.10	819.50	

3470 ENCROACHMENT STATIONS= 588.0 630.0 TYPE= 1 TARGET= 42.000

1664.00	14.12	819.42	0.00	0.00	819.91	0.48	3.23	0.00	807.90
2650.	0	2650.	0.	0.	476.	0.	97.	10.	100000.00
0.24	0.00	5.56	0.00	0.000	0.020	0.000	0.000	805.30	588.00
0.000357	46.	46.	46.	2	0	6	0.00	42.00	630.00

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
*SECNO 1803.000

3470 ENCROACHMENT STATIONS= 140.0 420.0 TYPE= 1 TARGET= -140.000

1803.00	14.42	820.02	0.00	0.00	820.07	0 05	0.04	0.13	808.40
2650.	1551.	1098.	1.	1475.	437.	9.	101.	10.	818.90
0.27	1.05	2.51	0.15	0.100	0.040	0.100	0.000	805.60	140.00
0.000233	139.	139.	139	2	0	0	0.00	195.83	335.83

0
*SECNO 2053.000

3470 ENCROACHMENT STATIONS= 200 0 420.0 TYPE= 1 TARGET= -200.000

2053.00	13.85	820.05	0.00	0.00	820 18	0.12	0 07	0.04	809.00
2650.	1180.	1470	0.	799.	413	2.	107.	11.	819.50
0.29	1.48	3.56	0.14	0.100	0.040	0.100	0.000	806.20	200.00
0.000504	151.	250.	276.	2	0	0	0.00	127.78	327.78

0
CCHV= 0.300 CEHV= 0 500
*SECNO 2305.000

3470 ENCROACHMENT STATIONS= 675.0 724.0 TYPE= 1 TARGET= 49.000
ELENCL= 830 20 ELENCR= 830.20
EIGHT MILE ROAD

2305.00	11.56	820.06	0.00	0.00	820.51	0.45	0.17	0.16	809.60
2650.	0.	2650.	0.	0.	494.	0.	111.	11.	830.20
0.30	0 00	5.37	0.00	0.000	0.031	0.000	0.000	808.50	675.00
0.001250	153.	252.	278.	2	0	0	0.00	49.00	724.00

0

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	3.38	3.00	0 00	49.00	13.00	276.00	0.00	808.50	808 50

*SECNO 2560.000
PRESSURE FLOW

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
    824.90     820.56       0 00          0.      2650        276.       328        817.60     830.20


 3470 ENCROACHMENT STATIONS=      675 0      724.0  TYPE=      1  TARGET=       49.000
  ELENCL=     830.20  ELENCR=     830.20
   2560.00     15.28    824.68      0.00      0.00    824.90      0.23      4.39      0.00    809.60
     2650.        0.     2650.        0.        0.      693.        0.      114.       11.    830.20
      0.32      0.00      3.83      0.00     0.000     0 031     0.000     0.000    809.40    675.00
  0 000452      255.      255.      255.         2         0         0      0.00     49.00    724.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 2693.000

 3470 ENCROACHMENT STATIONS=      345.0      660.0  TYPE=      1  TARGET=      315.000
   2693.00     16.26    824.96      0.00      0.00    824.97      0.01      0.01      0.06    810.40
     2650.      345.      280.     2025.     1258.      319.     2042       121.       12.    810.50
      0.36      0 27      0.88      0.99     0.100     0.040     0.030     0.000    808.70    345.00
  0.000015      133.      133       133.         2         0         0      0.00    315.00    660.00
0
 *SECNO 3093.000
 3280 CROSS SECTION   3093.00 EXTENDED       0.27 FEET

   3093 00     15 37    824.97      0.00      0 00    824.98      0.01      0.01      0.00    811.30
     2650.      493.      238.     1918.     2615       301.     2580.      160.       17.    811.40
      0.53      0.19      0.79      0.74     0 100     0.040     0.030     0.000    809 60      0.00
  0.000013      300.      400.      425.         2         0         0      0.00    940 55    940.55
0
 *SECNO 3500.000

 3470 ENCROACHMENT STATIONS=       53.5      898.5  TYPE=      2  TARGET=      845.000
   3500 00     14.48    824.98      0.00    815.98    824.99      0.01      0.01      0.00    812.20
     2650.      441.      264      1944      2018.      283.     2177.      202.       25.    812.30
      0.68      0.22      0.93      0.89     0.100     0.040     0.030     0.000    810.50     53.50
  0.000020      300.      407       425.         0         0         0      0.00    845.00    898.50
0
1
   8 FEB 89     13:36:44                                                                          PAGE    67


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
 *SECNO 3703.000

 3470 ENCROACHMENT STATIONS=      480.0     1220.0  TYPE=      2  TARGET=      740.000
             NOVI ROAD
   3703.00     14.08    824.98      0.00    816 11    824.99      0.01      0.00      0.00    820.90
     2650.      985.     1464.      201.     1109.     1480.      405.      219.       28.    821.50
      0.74      0.89      0 99      0.50     0.015     0.020     0.015     0.000    810.90    480.00
  0.000012      161.      203.      261.         0         0         0      0.00    740.00   1220.00
0

 SPECIAL BRIDGE

 5070, VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
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SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.67      2.90      0.00     51.00      4.00    378.00      0.00    810.90    810.90

*SECNO 3755.000
PRESSURE AND WEIR FLOW


 EGPRS      EGLWC       H3        QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                  AREA
    825.02    825.01      0.00     2161.      486.      378.      484.      821.20    818.00


3470 ENCROACHMENT STATIONS=      493.0    1208.0  TYPE=      2  TARGET=      715.000
  3755.00    14.11   825.01      0.00   816.11   825 02      0.01      0.03      0.00   814.90
    2650.    1343.     698.      609.    1533.     595.      828.      223        29.   817.00
     0.76     0.88     1.17      0.74    0.015    0.020     0.015     0.000    810.90   493.00
 0.000010      52.      52.       52.        1        0         6      0.00    715.00  1208.00
0
CCHV=   0.300 CEHV=   0.500
*SECNO 3788.000
3280 CROSS SECTION   3788.00 EXTENDED      1.11 FEET


3470 ENCROACHMENT STATIONS=       30.0     745.0  TYPE=      2  TARGET=      715.000
  3788.00    13.10   825.00      0.00   816.34   825.03      0 03      0.00      0.01   815.60
    2650.    1109.     973.      568     1696.     495.      916.      225.       30.   814.67
     0.76     0.65     1.97      0.62    0.070    0.040     0.070     0.000    811.90    30.00
 0.000109      33.      33.       33.        0        0         0      0.00    670.00   700.00
0
1
  8 FEB 89    13:36:44                                                                    PAGE   68


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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
*SECNO 3814.000

3470 ENCROACHMENT STATIONS=      435.0    1045.0  TYPE=      2  TARGET=      610.000
            CHESAPEAKE AND OHIO RAILROAD
  3814 00    13.01   825.01      0.00   816.72   825.03      0.02      0.00      0.00   813.70
    2650.    1375.     588       687.    1263.     396.      617.      227.       30.   815.60
     0.77     1.09     1.49      1.11    0.015    0.020     0.015     0.000    812.00   435.00
 0.000015      26.      26.       26.        0        0         0      0.00    501.35   936.35
0

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      1.52      2 90      0.00     33.20      0.00    245.00      0.00    812.00    812.00

*SECNO 3821.000
PRESSURE AND WEIR FLOW


 EGPRS      EGLWC       H3        QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                  AREA
    827.77    825.03      0.00     1352      1305       245.      282.      820.50    822.60
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 3470 ENCROACHMENT STATIONS=      440.0     1040.0  TYPE=      2  TARGET=      600.000
   3821.00     13.66    825.66      0.00    817.55    825.68      0.02      0.65      0.00    813.70
      2650.     1401.      533.      716.     1435.      418.      741       227.       30.     815.60
      0.77      0.98      1.27      0.97     0.015     0.020     0.015     0.000    812.00    440.00
  0.000011        7.        7.         7         1         0         4      0.00    507.93    947.93
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 3835.000

 3470 ENCROACHMENT STATIONS=      546.5     1141.5  TYPE=      2  TARGET=      595.000
             OLD NOVI ROAD
   3835.00     13.67    825.67      0.00    817.56    825 68      0.01      0.00      0.00    812.80
      2650     1376.      418.      856.     1580.      284.     1055.      228.       30.     814.30
      0 78      0.87      1.47      0.81     0.020     0.020     0.020     0.000    812.00    546.50
  0 000013       14.       14.       14.         0         0         0      0.00    595.00   1141.50
0
1
   8 FEB 89    13.36:44                                                                    PAGE    69

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


 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       1.56       2.80       0.00      22.00       0.00      238.00      0.00      812.00     812.00

 *SECNO 3864.000

 6070, LOW FLOW BY NORMAL BRIDGE

 EGPRS=    828.668  EGLWC=    825 680  ELLC=    823.700  PCWSE=    825.665  ELTRD=    823.600

 3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD=  823.60 MAX ELLC=  823.70


 3470 ENCROACHMENT STATIONS=      554 0     1134.0  TYPE=      2  TARGET=      580.000
   3864.00     13.54    825.54      0.00    818.87    825.81      0.28      0.00      0.13    812.80
      2650.      798      1283.      569.      297       237.      216.      229.       31.     814.30
      0.78      2.69      5.41      2.63     0.020     0.020     0.020     0.000    812.00    554.00
  0.000760       29.       29.       29.         2         0         0  -2044.71    580.00   1134.00
0
 CCHV=    0.300 CEHV=    0 500
 *SECNO 4068.000

 3470 ENCROACHMENT STATIONS=        0.0      480.0  TYPE=      1  TARGET=      479.999
   4068.00     13.34    825 94      0.00    820.96    825.96      0.03      0.08      0.07    816.20
      3380.     1565.      640.     1175      1477.      275.     1438.      238.       33.     816.50
      0.83      1.06      2.32      0.82     0 100     0.050     0.100     0 000    812.60     21.52
  0.000245       204.      204.      204.         2         0         0      0.00    429.21    450.73
0
 *SECNO 4525.000

 3470 ENCROACHMENT STATIONS=        0.0      480.0  TYPE=      1  TARGET=      479.999
   4525.00     12 27    826.07      0.00    821.22    826.11      0.04      0.14      0 01    817.40
      3380      1608.      684      1088.     1311.      252      1173.      269.       38.     817 70
      0 91      1.23      2.72      0.93     0.100     0.050     0.100     0.000    813.80     23.93
  0.000377       485.      457.      417.         2         0         0      0.00    420.82    444.76
0
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CCHV=    0.300 CEHV=    0.500
*SECNO 4984.000
1
  8 FEB 89     13:36:44                                                                                    PAGE    70

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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      630.0  TYPE=      1  TARGET=      629.999
            FOOTBRIDGE
  4984.00     11.36    826.26      0.00    821.79    826.36      0.10      0 22      0.03    820.70
    3380.     1257.      934.     1189.     1010.      211.     1099.      296.       42.    820.50
     0.98      1.25      4 43      1 08     0.100     0.030     0.100     0.000    814 90     85.78
 0.000645      487.      459.      418.         2         0         0      0.00    458.81    544.60
0

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       1.73       2.80       0.00       5.00       0.00      40.00       1 70     814.90     814.90

*SECNO 4996.000
PRESSURE AND WEIR FLOW


 EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                       AREA
   1018.07     826.36      0.00      3297.        95.        40.        57.       819.40     819.60


3470 ENCROACHMENT STATIONS=        0.0      630.0  TYPE=      1  TARGET=      629.999
  4996.00     11.41    826.31      0.00    821.80    826.41      0.10      0.05      0.00    820.70
    3380.     1257.      930.     1193.     1019.      212.     1114.      296.       42.    820.50
     0.98      1.23      4.39      1.07     0.100     0.030     0.100     0.000    814.90     85.63
 0.000626       12.       12.       12.         2         0         9      0.00    460.29    545.92
0
CCHV=    0.300 CEHV=    0.500
*SECNO 5058.000
3280 CROSS SECTION    5058.00 EXTENDED       1 00 FEET


3470 ENCROACHMENT STATIONS=        0 0      600.0  TYPE=      1  TARGET=      599.999
  5058.00     11 70    826.40      0.00    822.42    826.46      0.06      0 04      0.01    819.40
    3380.     1212.      791.     1377.      920.      242.     1079.      299.       43.    820.30
     0 99      1.32      3.27      1.28     0.100     0.050     0.100     0.000    814.70    109.93
 0.000718       62        62.       62.         2         0         0      0.00    432.29    542.22
0
1
  8 FEB 89     13:36:44                                                                                    PAGE    71

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 6108.000
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 3470 ENCROACHMENT STATIONS=        0.0     1100.0  TYPE=      1  TARGET=     1099.999
              CONFLUENCE WITH THORNTON CREEK
    6108.00      8.99    827.09      0 00    824 23    827.13      0.03      0.66      0.01    820.70
      3060.      1599.       314      1147.     1253.       104.     1075.       343.        53     822.00
       1.15       1.28      3.02      1.07     0.100     0.050     0.100     0.000    818.10    424.15
   0.000893       680.      1050.      900.         2         0         0      0.00    627.66   1051.82
0
 *SECND 7195.000

 3470 ENCROACHMENT STATIONS=        0.0     1100 0  TYPE=      1  TARGET=     1099.999
    7195.00      7.76    828.16      0.00    826.41    828.24      0.08      1.09      0.02    823.00
      3060.      1663.       405.      992.      914.        89.      689.       378.        62.     824.30
       1.26       1.82      4 55      1.44     0.100     0.050     0.100     0.000    820.40    449.30
   0.002486       825.      1087.      600.         2         0         0      0.00    562.44   1011.75
0
 *SECND 8283.000

 3470 ENCROACHMENT STATIONS=        0 0      900.0  TYPE=      1  TARGET=      899.999
    8283.00      7.07    829.47      0.00    827 90    829.63      0.16      1.35      0.04    825.10
      3060       1749.       709.      602.     1555.       110.      598.       413         73     826.00
       1.36       1 12      6.45      1.01     0.100     0.025     0.100     0.000    822.40    175.05
   0.001187       825.      1088.      600.         2         0         0      0.00    724.94    900.00
0
 *SECND 8935.000

 3470 ENCROACHMENT STATIONS=      175.0     1175.0  TYPE=      1  TARGET=     1000.000
    8935.00      6.95    830.15      0.00    828.71    830.28      0.12      0.64      0.01    825.90
      3060       1528        638.      894.     1501.       108.     1087.       445.        85     826.80
       1.44       1.02      5 91      0.82     0.100     0.025     0.100     0.000    823.20    175.41
   0.001020        548       652.      577.         2         0         0      0 00    999.59   1175.00
0
 *SECND 8940.000

 3470 ENCROACHMENT STATIONS=      175.0     1175.0  TYPE=      1  TARGET=     1000.000
    8940.00      6.95    830.15      0.00    828.93    830.29      0.15      0.00      0.01    825.20
      3060.      1301.      1000.      759.     1513.       189.     1085.       445.        85.     826.20
       1.44       0 86      5.29      0.70     0.100     0.025     0.100     0.000    823.20    175.41
   0.000705         5.         5.         5.         1         0         0      0.00    999.59   1175.00
0
1
    8 FEB 89     13:36:44                                                                    PAGE    72


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


 *SECND 9310.000

 3470 ENCROACHMENT STATIONS=      175.0      975.0  TYPE=      1  TARGET=      800.000
    9310 00      6 62    830.42      0.00    829.16    830.68      0.26      0.33      0.06    825.80
      3060.      1382.      1165.      512.     1353.       179.      587.       466.        92.     826.80
       1.47       1.02      6.51      0.87     0.100     0.025     0.100     0.000    823.80    176.47
   0.001148       370.       370.      370.         2         0         0      0.00    798.53    975.00
0
 *SECND 9375.000
 3280 CROSS SECTION    9375.00 EXTENDED       0.99 FEET


 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
```

3470 ENCROACHMENT STATIONS= 150.0 925.0 TYPE= 1 TARGET= 775.000

9375.00	6.79	830.69	830.69	829.05	831.64	0.95	0.11	0.34	828.90
3060	544.	2146.	370.	490.	231.	425.	468.	93.	828.90
1.47	1.11	9.31	0.87	0.100	0.025	0.100	0.000	823 90	150.00
0.002908	65.	65.	65.	20	8	0	0.00	775 00	925.00

0

*SECNO 9435.000

3265 DIVIDED FLOW

3280 CROSS SECTION 9435.00 EXTENDED 1.27 FEET

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 200.0 950.0 TYPE= 1 TARGET= 750.000
LOCAL ACCESS BRIDGE

9435.00	8.57	832.57	832.57	828.93	833.54	0.98	0.13	0.01	825.00
3060.	413.	1883.	764.	294.	187.	919.	470.	94.	826.00
1.48	1.40	10.07	0.83	0.100	0.025	0.100	0.000	824.00	200.00
0.001775	60.	60.	60.	20	13	0	0.00	745 30	950.00

0
1

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

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	1.63	2.80	0.00	15.00	0.00	205.00	3.00	824 00	824.00

*SECNO 9447.000
6870 D.S. ENERGY OF 833.54 HIGHER THAN COMPUTED ENERGY OF 832.94

3265 DIVIDED FLOW

3280 CROSS SECTION 9447.00 EXTENDED 1.35 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
838.21	833.54	0.00	2292.	783.	205.	230.	830.60	832.05

3470 ENCROACHMENT STATIONS= 200.0 950.0 TYPE= 1 TARGET= 750.000

9447 00	8.64	832.64	0.00	828.71	833.54	0.90	0.00	0.00	825.00
3060.	411.	1845.	804.	301.	189.	971	470.	95.	826.00
1.48	1.36	9.77	0.83	0.100	0.025	0.100	0.000	824.00	200.00
0.001650	12.	12.	12.	3	0	5	0.00	746.18	950.00

0
*SECNO 9935.000

9935.00	9.01	833 81	0.00	832.48	834.23	0.42	0.54	0 14	828.40
3060.	46	2104	910.	57.	338.	1158.	487	102.	830 80

```
      1.51       0.80       6.23       0.79      0.100      0.025      0 100      0.000     824.80     270.91
   0.000804       488.       488.       488.          2          0          0       0.00     560.70     831.61
0
 *SECNO 10198.000
  10198.00       9.07     834.27       0.00     832.61     834.46       0.19       0.16       0.07     830.20
     3060.        400.       1610.      1050.       583.       333       1663.       500.        107.      830.20
      1.53       0.69       4.84       0.63      0.100      0.025      0.100      0.000     825.20      62.39
   0.000481       263.       263.       263.          2          0          0       0.00     954.10    1016.49
0
1
    8 FEB 89     13:36:44                                                                                  PAGE    74


     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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
 *SECNO 10218.000
             NINE MILE ROAD
  10218.00       9 19     834.49       0.00     832.76     834.51       0 02       0.00       0.05     827.30
     3060.        745.       457.      1858        685.       230.      1876.       501.        107.      827.30
      1.54       1.09       1.99       0.99      0.025      0.024      0.025      0.000     825.30      55.13
   0.000066        20.        20.        20.          2          0          0       0.00    1017.61    1072.74
0

 SPECIAL BRIDGE

 5227 DOWNSTREAM ELEV IS     830.99 , NOT     834.49 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

 SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      1.25       2.03       2.80       0.00      27 00       3.00       96.00      0.00      825.40     825.30

 *SECNO 10278.000
 PRESSURE AND WEIR FLOW

  EGPRS       EGLWC        H3         QWEIR      QPR        BAREA    TRAPEZOID      ELLC       ELTRD
                                                                        AREA
     866.52     836.22       0.00       2890.       164.       96.        94.       829.30     831.30


  10278.00       9.26     834.56       0.00     832.81     834.58       0.02       0.07       0.00     827.30
     3060.        745.       447.      1868.       702.       232.      1929.       505.        108.      827.30
      1 55       1 06       1 93       0.97      0.025      0.024      0.025      0.000     825.30      52.87
   0.000061         60         60.        60.          2          0          8       0.00    1037 36    1090.24
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 10925.000

 3470 ENCROACHMENT STATIONS=       192.0       702.0  TYPE=       1  TARGET=       510.000
  10925.00       7.78     834.58       0.00     832.87     834.68       0.10       0.06       0.04     831.00
     3060.        521.       523.      2015.       482.       133.       877.       521.        114.      831.00
      1.59       1.08       3.92       2.30      0.100      0.040      0.050      0.000     826.80     200.58
   0.001087        241.       647.       321.          0          0          0       0.00     427.17     627.75
0
 *SECNO 11600.000
  11600.00       8.03     835.41       0.00     833.81     835.53       0.12       0.84       0.01     833.68
     3060.        305.       738.      2018.       367.       175.       878.       544.        121.      833.68
      1.67       0 83       4.22       2 30      0.100      0.040      0.050      0.000     827.38     183.51
   0.001439        675.       675.       675.          2          0          0       0.00     569.32     752.83
0
1
    8 FEB 89     13:36:44                                                                                  PAGE    75
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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 11685.000

11685.00	8.03	835.53	0.00	833.98	835.65	0.12	0.12	0.00	833.80
3060.	305	738.	2017.	366.	175	878.	547.	122.	833.80
1 67	0 83	4.22	2.30	0.100	0.040	0.050	0.000	827.50	183.55
0.001441	85.	85.	85	1	0	0	0.00	569.24	752.79

0

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	1.63	2.90	0.00	24 00	0.00	127.00	0.00	827.50	827.50

*SECNO 11690.000

6070, LOW FLOW BY NORMAL BRIDGE

EGPRS= 850.224 EGLWC= 835.652 ELLC= 833.800 PCWSE= 835.530 ELTRD= 833.200

3370 NORMAL BRIDGE, NRD= 8 MIN ELTRD= 833.20 MAX ELLC= 833.80

11690.00	8.01	835.51	0.00	833.95	835.70	0.19	0.02	0.03	833.80
3060.	236.	765.	2059.	263.	145.	743.	547.	123.	833.80
1.67	0.90	5.29	2.77	0.100	0.040	0.050	0.000	827.50	183.57
0.011356	5.	5.	5.	1	0	0	-267.91	569.19	752.76

0

*SECNO 11716.000

11716.00	8.09	835.69	0.00	834.19	835.80	0.12	0.08	0.02	833.90
3060.	311.	728.	2021.	378.	176.	896.	547.	123.	833.90
1.68	0.82	4.13	2.26	0.100	0.040	0.050	0.000	827.60	182.44
0.001358	26	26.	26.	0	0	0	0.00	571.62	754.05

0

*SECNO 11721.000

3280 CROSS SECTION 11721.00 EXTENDED 1.68 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL, CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

11721.00	6.58	839.58	839 58	836.84	840.36	0.78	0.01	0 33	838.00
3060	733.	1710.	617.	329.	184.	277.	548.	123.	838.00
1 68	2.23	9.28	2.23	0.030	0.015	0.030	0.000	833 00	0.00
0.001071	5.	5.	5.	20	14	0	0.00	400.00	400.00

0

1

THIS RUN EXECUTED 8 FEB 89 13:37:51

****
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 LEF

WALLED LAKE BRANCH DS

SUMMARY PRINTOUT TABLE 1

SECNO	CWSEL	STCHL	STCHR	STENCR
1 000	804.95	00	417.00	417.00
1.000	805.95	00	417.00	417.00
1.000	806.30	00	417.00	417.00
1.000	807.15	00	417.00	417.00
40.000	804.93	00	417.00	417 00
40.000	805.90	00	417 00	417 00
40.000	806.23	00	417.00	417.00
40.000	807.01	00	417.00	417 00
80.000	806.36	00	417.00	457 00
80.000	809.37	00	417.00	457.00
80.000	811.35	00	417.00	457.00
80.000	815.72	00	417.00	457.00
314.000	806.66	00	417.00	550.00
314.000	809.74	00	417.00	550.00
314.000	811.74	00	417.00	550.00
314.000	815.78	00	417.00	550.00
725.000	806.66	00	362.00	462.00
725 000	809.75	00	362.00	462.00
725.000	811.75	00	362.00	462.00
725.000	815.79	00	362.00	462.00
1078.000	807.18	00	362.00	437.00
1078.000	809.89	00	362.00	437.00
1078.000	811.81	00	362.00	437.00
1078.000	815 83	00	362.00	437.00
1106.000	809.35	00	362.00	430.00
1106.000	810.48	00	362.00	430.00
1106.000	811.79	00	362.00	430.00
1106.000	815.88	00	362.00	430 00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ROUGE
WALLED LAKE BRANCH
DOWNSTREAM MEADOWBROOK LAKE

4) DOCUMENT TYPE: SUMMARY & ENCROACHED 2

1

8 FEB 89 13:36:44

PAGE 77

	SECNO	CWSEL	I	STCHL	STCHR	STENCR
	1278.000	809.44		00	542.00	590.00
	1278.000	810.66		00	542.00	590.00
	1278.000	811.85		00	542 00	590.00
	1278.000	815.86		00	542.00	590.00
	1448.000	810.35		00	542.00	550.00
	1448.000	811.30		00	542.00	550.00
	1448.000	812.21		00	542.00	550.00
	1448.000	815.92		00	542 00	550.00
	1618.000	810 48		00	630 00	630.00
*	1618.000	811 36		00	630.00	630 00
*	1618.000	811.77		00	630.00	630 00

	1618.000	815.65	0.00	816.68	42.00	0.00	2650.00	0.00	42.00	588.00	588.00	630.00	630.00
*	1664.000	812.48	0 00	813 19	36.40	0.00	1315.00	0.00	42.00	588.00	588.00	630.00	630.00
*	1664.000	817.09	0.00	817.51	42.00	0.00	1980.00	0.00	42.00	588.00	588.00	630.00	630.00
*	1664.000	818.40	0.00	818 81	42.00	0 00	2230.00	0.00	42.00	588.00	588.00	630.00	630.00
	1664.000	819.42	0.00	819.91	42.00	0.00	2650.00	0 00	42.00	588.00	588.00	630.00	630.00
	1803.000	813.45	0.00	813.54	175.32	730.71	584.29	0.00	-140.00	140.00	278.00	320.00	420.00
	1803 000	817.63	0.00	817.67	179.04	1157.91	822.09	0.00	-140.00	140.00	278.00	320.00	420.00
	1803.000	818.91	0.00	818.96	180.21	1310.92	919.08	0.00	-140.00	140.00	278.00	320.00	420.00
	1803.000	820.02	0.00	820.07	195.83	1550.58	1098.05	1.37	-140.00	140.00	278.00	320.00	420.00
	2053.000	813 71	0 00	813.95	113.69	543.06	771.94	0.00	-200.00	200.00	278.00	320.00	420.01
	2053.000	817.67	0.00	817.80	118.62	878.19	1101.80	0.00	-200.00	200 00	278.00	320.00	420.01
	2053.000	818.95	0.00	819.06	119.58	994.76	1235.24	0.00	-200.00	200.00	278.00	320 00	420.01
	2053.000	820.05	0.00	820.18	127.78	1179.80	1469.90	0.30	-200.00	200.00	278.00	320.00	420.01
	2305.000	814 28	0.00	814.88	49.00	0.00	1315.00	0.00	49.00	675.00	675.00	724.00	724.00
	2305.000	817.75	0.00	818.17	49 00	0.00	1980.00	0.00	49.00	675.00	675.00	724.00	724.00
	2305.000	818.98	0.00	819.38	49.00	0.00	2230.00	0.00	49.00	675.00	675.00	724.00	724.00
	2305.000	820.06	0.00	820.51	49.00	0.00	2650.00	0.00	49.00	675.00	675 00	724.00	724 00
	2560.000	814.28	0.00	815 08	49.00	0.00	1315.00	0.00	49.00	675.00	675.00	724.00	724.00
	2560.000	820.17	0.00	820 45	49.00	0.00	1980.00	0.00	49.00	675.00	675.00	724.00	724.00
	2560.000	822.17	0.00	822.41	49.00	0.00	2230.00	0.00	49.00	675.00	675.00	724.00	724.00
	2560.000	824.68	0.00	824.90	49.00	0.00	2650.00	0.00	49.00	675.00	675.00	724.00	724.00
	2693.000	815.36	0.00	815.43	232.85	113.48	305.00	896.53	315.00	345.00	466.00	486.00	660.00
	2693.000	820.52	0.00	820.54	315.00	230.75	256.30	1492.95	315.00	345.00	466.00	486.00	660 00
	2693.000	822.47	0.00	822.48	315.00	276.57	258.97	1694.46	315.00	345.00	466.00	486.00	660.00
	2693.000	824.96	0.00	824.97	315.00	345.50	279.96	2024.54	315.00	345.00	466.00	486.00	660 00
	3093.000	815.56	0.00	815.67	222.46	109.34	360.63	845.02	0.00	0.00	466.00	486.00	0.00
	3093.000	820.53	0.00	820.56	450.51	226.18	272.17	1481.64	0.00	0.00	466.00	486.00	0.00
	3093.000	822.48	0.00	822.49	801.39	332.99	259.81	1637.20	0.00	0.00	466.00	486.00	0.00
	3093.000	824.97	0.00	824.98	940.55	493.22	238.29	1918.48	0 00	0.00	466.00	486.00	0.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	3500.000	815.98	0.00	816.29	140.40	136.49	538.70	639.81	150.00	401.00	466.00	486.00	551.00
	3500.000	820.56	4.58	820.59	333.27	208.95	293 21	1477.85	715.00	118.50	466.00	486.00	833.50
	3500.000	822.49	6.51	822.51	648.74	279.91	283.52	1666.57	845.00	53.50	466.00	486.00	898.50
	3500.000	824.98	9.00	824.99	845.00	441.32	264.33	1944.35	845.00	53.50	466.00	486.00	898.50
	3703.000	816.11	0.00	817.43	48 13	0.00	1315.00	0.00	51.00	824.50	750.00	950.00	875 50
	3703.000	820.52	4.41	820.69	171.16	0.00	1980.00	0.00	610.00	545.00	750.00	950.00	1155.00
	3703.000	822.49	6.38	822.53	511.53	492.30	1727.11	10.60	740.00	480.00	750.00	950.00	1220 00
	3703.000	824.98	8.87	824 99	740.00	984.85	1464.10	201.05	740.00	480.00	750.00	950.00	1220.00
	3755.000	816.11	0.00	817 44	47 62	0.00	1315.00	0.00	51.00	825.00	825.00	876.00	876.00
	3755.000	820.50	4.39	820.69	170.25	369.00	1384.95	226.05	585.00	558.00	825.00	876.00	1143.00
	3755 000	822.52	6.41	822.57	499.57	865.81	990.34	373.85	715.00	493.00	825.00	876.00	1208.00
	3755 000	825.01	8.90	825.02	715.00	1343 14	697.82	609.03	715.00	493.00	825.00	876.00	1208.00
*	3788.000	816.34	0.00	817.91	45 00	1 52	1308.07	5 41	45.00	365.00	366.45	408.55	410.00
	3788.000	820.46	4.11	820.77	408.87	163 83	1518.86	297.31	480.00	70.00	366.45	408.55	550.00
	3788.000	822.51	6.16	822.59	509.80	665.36	1179.56	385.07	715.00	30.00	366.45	408.55	745.00
	3788.000	825.00	8.66	825.03	670.00	1108.79	973.30	567.91	715 00	30.00	366.45	408.55	745.00
*	3814.000	816.72	0.00	818.57	33.00	0.00	1315.00	0.00	33.00	723.50	723.40	756.60	756.50
	3814.000	820.56	3.85	820.80	137.37	469.84	1085.62	424.55	0.00	0.00	723.40	756.60	0.00
	381·.000	822.52	5.81	822.59	380.67	846.40	841 22	542.38	560.00	460.00	723.40	756.60	1020 00

	3814.000	825.01	8.29	825.03	501.35	1374.53	588.37	687.10	610.00	435.00	723.40	756.60	1045.00
	3821.000	817.55	0.00	818.78	33.00	0.00	1315.00	0.00	33.00	723.50	723.40	756.60	756.50
	3821.000	822.02	4.47	822.11	334.22	648.40	844.07	487.52	480.00	500.00	723.40	756.60	980.00
	3821.000	824.23	6 67	824.25	441.40	1063.63	585.79	580.57	550 00	465.00	723.40	756.60	1015.00
	3821.000	825.66	8.11	825.68	507.93	1401.08	532.87	716.05	600.00	440.00	723.40	756.60	1040.00
*	3835.000	817.56	0.00	819 98	22.00	0 00	1315.00	0 00	22.00	833.00	833.00	855.00	855.00
	3835.000	822.03	4.46	822.11	367.44	747.09	635.62	597.29	510.00	589.00	833.00	855.00	1099.00
	3835.000	824.23	6.66	824.25	529.89	1091.35	461.20	677.45	545.00	571.50	833.00	855.00	1116.50
	3835.000	825.67	8.10	825.68	595.00	1376.08	417.98	855.94	595.00	546.50	833.00	855 00	1141.50
	3864.000	818.87	0.00	820.37	22.00	0.00	1315.00	0.00	22.00	833.00	833.00	855.00	855.00
	3864.000	821.72	2.84	822.43	362.55	0.00	1476.22	503.77	520.00	584.00	833.00	855.00	1104 00
	3864.000	823.94	5.06	824.55	454.31	22.00	1622.21	585.79	530.00	579.00	833.00	855.00	1109 00
	3864.000	825.54	6.66	825.81	580.00	798.25	1283.19	568.56	580 00	554.00	833.00	855.00	1134.00
	4068.000	820.96	0.00	820.99	294.42	676.79	367.76	270.45	480.00	0.00	178 00	200.00	480.00
	4068.000	822.72	1.76	822.75	403.94	998 08	473.23	508.69	480.00	0 00	178.00	200.00	480.00
	4068.000	824.78	3.83	824.80	420.16	1134.53	484.56	760.91	480.00	0.00	178.00	200 00	480.00
	4068.000	825.94	4.98	825 96	429.21	1564.91	639.94	1175.15	480.00	0.00	178.00	200.00	480.00
	4525.000	821 22	0.00	821.27	265.89	676.47	408.43	230.11	480.00	0.00	178.00	200.00	480 00
	4525.000	822.92	1.70	822.97	314.66	1013.06	514.83	452.11	480.00	0.00	178.00	200.00	480.00
	4525.000	824 89	3.67	824.92	411.58	1169.17	524.93	685.90	480.00	0.00	178.00	200.00	480.00
	4525.000	826 07	4.85	826.11	420.82	1607.57	684.21	1088.22	480.00	0.00	178 00	200.00	480.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	GLOB	GCH	GROB	PERENC	STENCL	STCHL	STCHR	STENCR
4984.000	821.79	0.00	822.24	329.29	395.26	708.94	210.80	630.00	0.00	257.50	282.50	630.00
4984 000	823.30	1.51	823.51	378 67	712.71	769.35	497.94	630.00	0.00	257.50	282.50	630.00
4984.000	825.06	3.27	825.15	426.40	884 47	731.78	763.75	630.00	0.00	257.50	282.50	630.00
4984.000	826.26	4.47	826.36	458.81	1257.41	933.59	1189.00	630.00	0.00	257.50	282.50	630.00
4996.000	821.80	0.00	822.24	329.90	397.00	705.21	212.79	630.00	0 00	257.50	282.50	630.00
4996.000	823.30	1.50	823.51	378.69	712.73	769.25	498.03	630.00	0 00	257.50	282.50	630.00
4996.000	825.10	3.30	825.19	427.45	884.64	728.90	766.46	630.00	0.00	257.50	282.50	630.00
4996.000	826.31	4.51	826.41	460.29	1257.23	929.61	1193.15	630.00	0.00	257.50	282.50	630.00
5058.000	822.42	0.00	822.51	302.84	360.43	502.03	452.54	600.00	0.00	274.00	300.00	600.00
5058.000	823.56	1.15	823.65	321.62	630.17	624.67	725.16	600.00	0.00	274.00	300.00	600.00
5058.000	825.19	2.78	825.24	390.76	829.43	623.40	927.17	600.00	0.00	274.00	300.00	600.00
5058.000	826.40	3.99	826.46	432.29	1211.61	791.24	1377.15	600.00	0.00	274.00	300.00	600.00
6108.000	824.23	0.00	824.30	461.88	677.82	263.61	253.57	1100.00	0 00	710.00	722.00	1100.00
6108.000	825.03	0 80	825.09	511.54	998.90	296.62	499.48	1100.00	0.00	710.00	722 00	1100.00
6108 000	825.94	1.71	825.98	567.74	1170.66	280.27	709.06	1100.00	0.00	710.00	722.00	1100.00
6108.000	827.09	2.86	827.13	627 66	1599.13	314.12	1146.75	1100.00	0.00	710.00	722.00	1100.00
7195.000	826.41	0.00	826.49	454.44	678.71	277.61	238.68	1100.00	0.00	710.00	722.00	1100.00
7195.000	826.97	0.56	827 06	489 43	1008.74	333.68	452.58	1100.00	0.00	710.00	722.00	1100.00
7195 000	827.30	0.89	827.39	509.39	1203.22	360.81	595.98	1100.00	0.00	710.00	722.00	1100.00
7195.000	828 16	1.74	828.24	562.44	1662 51	405.06	992.43	1100.00	0.00	710.00	722.00	1100.00
8283.000	827.90	0.00	828.08	711.25	590.58	448.99	155.43	900.00	0.00	658.00	675.00	900.00
8283.000	828.47	0.57	828.64	721.76	961.91	544.02	289.07	900.00	0.00	658.00	675.00	900.00
8283.000	828.77	0.87	828 94	722.75	1188.64	594.73	376.64	900.00	0.00	658.00	675.00	900.00
8283.000	829.47	1.57	829 63	724.94	1748 72	709.21	602.07	900 00	0.00	658.00	675.00	900.00
8935.000	828 71	0.00	829 06	400.00	467.89	569.79	157.32	400.00	375.00	658.00	675.00	775.00
8935.000	829.29	0.59	829.69	400.00	796.70	727 12	271.17	400 00	375.00	658.00	675.00	775.00
8935.000	829 49	0.78	829.63	997.48	1076.46	555.53	528.02	1000 00	175.00	658.00	675.00	1175.00

	8935.000	830.15	1.45	830.28	999 59	1527.91	638.15	893.94	1000.00	175.00	658.00	675.00	1175.00
	8940.000	828.93	0.00	829.11	400.00	369.50	691.71	133.80	400.00	375 00	654.00	684.00	775.00
	8940.000	829.47	0.54	829.73	400.00	624.81	948.53	221.66	400.00	375.00	654.00	684.00	775.00
	8940.000	829.49	0.56	829.63	997.50	887.97	832.11	439.92	1000.00	175.00	654.00	684.00	1175.00
	8940.000	830.15	1.22	830.29	999.59	1300.96	1000.34	758.71	1000.00	175.00	654.00	684.00	1175.00
	9310.000	829.16	0.00	829.58	200.00	193.19	861.62	140.19	200.00	575.00	654.00	684.00	775.00
	9310.000	829.76	0.60	830.38	200 00	319.98	1217.74	257.28	200.00	575.00	654.00	684.00	775.00
	9310.000	829.76	0.60	830.02	796.45	903.99	963.77	292.24	800 00	175.00	654.00	684.00	975.00
	9310.000	830.42	1.26	830 68	798.53	1382.46	1165.40	512 13	800.00	175.00	654.00	684.00	975.00
	9375.000	829.05	0.00	829.95	84.75	0.20	1194.53	0 27	175.00	400.00	465.00	510.00	575.00
*	9375.000	829.55	0.50	831.04	175.00	11.37	1767.42	16.20	175.00	400.00	465.00	510.00	575.00
*	9375.000	830.20	1.15	831.06	717.25	287.37	1729.11	143.52	775.00	150.00	465.00	510.00	925.00
*	9375.000	830.69	1.64	831.64	775.00	543.97	2146.14	369.88	775.00	150.00	465.00	510.00	925.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	9435.000	828.93	0.00	830.52	75.87	75.07	1102 41	17.52	750.00	200.00	288.50	311.20	950.00
*	9435.000	829.97	1.05	832.04	90.29	178.27	1576.17	40.56	750.00	200.00	288.50	311.20	950.00
*	9435.000	830.53	1.61	832.83	98 01	252.97	1849 50	57.53	750 00	200.00	288.50	311.20	950 00
*	9435.000	832.57	3.64	833.54	745.30	413.37	1882.69	763.94	750 00	200.00	288.50	311.20	950.00
*	9447.000	828 71	0.00	831.39	72.81	0.00	1195.00	0.00	750.00	200.00	288.50	311 20	950.00
*	9447.000	832.49	3.72	833.05	743.81	0.45	1051.16	743.39	750.00	200.00	288.50	311.20	950.00
	9447.000	830 42	1.70	832.83	96.53	245.81	1858.30	55.88	750.00	200.00	288.50	311.20	950.00
	9447.000	832.64	3.93	833.54	746.18	411.04	1845.12	803.84	750 00	200.00	288.50	311.20	950 00
	9935.000	832.48	0.00	832.65	485.64	14.27	998.41	182.32	0.00	0.00	292.00	338.00	0.00
	9935 000	833.48	1.00	833.66	541.79	25.66	1292.03	477.31	0.00	0.00	292.00	338.00	0.00
	9935.000	833 76	1.28	833.98	557.84	32.13	1495.52	632.35	0.00	0.00	292.00	338.00	0.00
	9935.000	833.81	1.34	834.23	560.70	45.83	2104.31	909.86	0.00	0 00	292.00	338.00	0.00
	10198.000	832.61	0.00	832.75	769.08	104.86	889.95	200.20	0.00	0.00	285.00	330.00	0.00
	10198.000	833.65	1.04	833.77	878 93	210.64	1060.98	523.38	0.00	0.00	285.00	330.00	0 00
	10198.000	833.98	1.36	834.10	912.66	269.77	1197.88	692.35	0.00	0.00	285.00	330.00	0.00
	10198.000	834.27	1.65	834.46	954.10	400.07	1610.07	1049.86	0.00	0.00	285.00	330.00	0.00
	10218.000	832 76	0.00	832.79	783.75	291.10	361.86	542.04	0.00	0.00	294.00	321.00	0.00
	10218.000	833.78	1.02	833.80	892.15	436.40	340.32	1018.28	0.00	0.00	294.00	321.00	0.00
	10218.000	834.12	1.35	834.13	926.74	526.00	363.67	1270.33	0.00	0.00	294.00	321.00	0.00
	10218.000	834.49	1.73	834.51	1017.61	745.14	456.90	1857.96	0.00	0.00	294.00	321 00	0.00
	10278.000	832.81	0.00	832.83	788.41	290.81	353.02	551.18	0.00	0.00	294.00	321.00	0.00
	10278.000	833.83	1.03	833.85	898.19	436.54	333 00	1025.46	0.00	0.00	294.00	321.00	0.00
	10278.000	834.17	1.36	834.19	933.37	526.15	356.03	1277.82	0.00	0.00	294.00	321.00	0.00
*	10278.000	834.56	1.75	834.58	1037.36	744.96	447.37	1867.67	0.00	0.00	294.00	321.00	0.00
	10925.000	832.87	0.00	832.93	399.03	159 28	322.91	712.81	510.00	192.00	352.00	372.00	702.00
	10925.000	833.85	0.99	833.91	415.16	286 11	358.17	1150.71	510.00	192.00	352.00	372.00	702.00
	10925.000	834.19	1.32	834.25	420.70	356.50	399.16	1404.34	510.00	192.00	352.00	372.00	702.00
	10925.000	834.58	1.71	834.68	427.17	521.42	523.20	2015.38	510.00	192 00	352.00	372.00	702.00
	11600.000	833.81	0.00	833.94	465.50	22 19	503.03	669.78	0.00	0.00	400.00	430.00	0.00
	11600 000	834.52	0.71	834.62	528.57	101 97	564.92	1128.11	0.00	0.00	400.00	430.00	0 00
	11600.000	834.85	1.04	834.96	545 61	161.16	608.31	1390.53	0.00	0.00	400.00	430.00	0.00
	11600.000	835.41	1 60	835.53	569.32	304.80	737.62	2017.58	0.00	0.00	400.00	430.00	0.00
	11685.000	833.98	0.00	834.10	470.07	25.53	491 01	678.45	0.00	0.00	400.00	430.00	0.00
	11685.000	834.64	0.66	834.75	529.03	102.44	563.89	1128.67	0.00	0.00	400.00	430.00	0 00
	11685.000	834.97	0.98	835.07	545.50	160 88	608.78	1390.33	0.00	0.00	400.00	430.00	0 00

11685.000	835 53	1.55	835.65	569.24	304.60	737.93	2017.48	0.00	0.00	400.00	430.00	0.00
11690.000	833.95	0.00	834.17	466.62	38.24	623.03	533.73	0.00	0.00	400.00	430.00	0.00
11690.000	834.57	0.62	834.86	522 34	71.91	757.99	965.10	0.00	0.00	400.00	430.00	0.00
11690.000	834.94	0.99	835.13	544.33	92.61	656.44	1410 95	0.00	0.00	400.00	430.00	0.00
11690.000	835.51	1.57	835.70	569.19	235.96	764.87	2059.17	0.00	0.00	400.00	430.00	0 00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
11716.000	834.19	0.00	834.29	479.25	32.34	468.47	694.19	0.00	0 00	400.00	430.00	0.00
11716.000	834.90	0.71	834.99	538.37	117.73	534.15	1143.12	0.00	0 00	400.00	430.00	0.00
11716.000	835.14	0.95	835.23	548.21	167.78	596.98	1395.24	0.00	0.00	400.00	430.00	0.00
11716.000	835.69	1.50	835.80	571.62	311 22	727.83	2020.96	0.00	0.00	400.00	430.00	0.00
* 11721.000	836.84	0.00	838.76	28.00	0.00	1195.00	0.00	0.00	0.00	202.00	230.00	0.00
* 11721 000	838.95	2.11	839.60	400.00	286.26	1267.98	240.76	0.00	0.00	202.00	230.00	0.00
* 11721 000	839.16	2.32	839.84	400.00	410.10	1405.04	344.86	0.00	0.00	202.00	230 00	0.00
* 11721 000	839.58	2.74	840.36	400.00	733 39	1710.04	616.57	0.00	0.00	202.00	230.00	0.00

WALLED LAKE BRANCH DS

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
1.000	0 00	0.00	0 00	796.80	1315.00	804.95	0 00	805.17	10.83	4.00	405.38	399.53
1.000	0 00	0.00	0.00	796.80	1980.00	805.95	0.00	806.34	16 39	5.27	465.38	489.15
1.000	0.00	0.00	0.00	796.80	2380.00	806.30	0.00	806.81	20.80	6.07	486.38	521 85
1.000	0.00	0.00	0.00	796.80	3380.00	807.15	0 00	808.00	31.32	7.84	537.38	603.93
40.000	39.00	0.00	0.00	796.80	1315.00	804.93	0.00	805.24	3.93	4.50	292.13	663.37
40.000	39.00	0.00	0.00	796.80	1980.00	805.90	0.00	806.46	6.21	6.00	330.06	794.31
40.000	39.00	0.00	0.00	796 80	2380.00	806.23	0.00	806.98	8.03	6.94	342.87	839.87
40.000	39.00	0.00	0.00	796.80	3380.00	807.01	0.00	808.28	12.64	9.05	373.38	950.87
80.000	40.00	813.50	804.00	796 80	1315.00	806.36	0.00	806.58	1.61	3.78	348.05	1037.33
80.000	40.00	813.50	804.00	796.80	1980.00	809.37	0.00	809.65	1.38	4.25	465.44	1683.86
80.000	40.00	813.50	804.00	796.80	2380.00	811.35	0 00	811.65	1.20	4.39	542.66	2174.74
80.000	40 00	813.50	804.00	796.80	3380.00	815.72	0.00	815.78	0.25	2.39	2032.80	6792 38
314.000	234.00	0.00	0.00	797 70	1315.00	806.66	0.00	806.68	1.12	1.51	1841.70	1241 86
314.000	234.00	0.00	0.00	797.70	1980 00	809 74	0.00	809.76	0.74	1.51	2833 71	2304.18
314.000	234 00	0.00	0.00	797.70	2380.00	811.74	0.00	811.75	0.55	1.45	3634.68	3200.44
314.000	234.00	0.00	0.00	797.70	3380 00	815.78	0.00	815.80	0.38	1.44	5272.22	5454.20
725.000	411.00	0.00	0.00	799.30	1315.00	806.66	0.00	806.98	26.97	4.59	286.49	253.22
725 000	411.00	0 00	0.00	799.30	1980.00	809.75	0.00	809.92	8.15	3.32	728.77	693 45
725.000	411.00	0.00	0.00	799.30	2380.00	811.75	0.00	811.86	3.93	2.78	1128.44	1200.98
725.000	411.00	0.00	0.00	799.30	3380.00	815.79	0.00	815.86	1.76	2.41	1937.02	2547.08
1078.000	353 00	0.00	0.00	800.60	1315.00	807.18	0.00	807.69	12.17	5.72	230.07	377.02
1078.000	353.00	0 00	0.00	800.60	1980.00	809.89	0.00	810 18	4 37	4.34	472 58	947.12
1078.000	353.00	0.00	0.00	800.60	2380.00	811.81	0.00	811.97	1.67	3.28	823.92	1840.78
1078.000	353.00	0.00	0.00	800.60	3380 00	815.83	0.00	815 89	0.41	2.24	1816.13	5282 01
1106.000	28.00	809.70	807.30	800.60	1315.00	809.35	0.00	809.60	3.65	4.07	323.31	687.87
1106.000	28.00	809.70	807.30	800.60	1980.00	810.48	0.00	810.91	6 03	4.74	454.62	806 05

1106.000	28.00	809.70	807.30	800.60	2380.00	811.79	0.00	812.01	3.25	3.88	689.76	1320.28
1106.000	28.00	809.70	807.30	800.60	3380.00	815.88	0.00	815.95	0.57	2.38	1669.43	4477.56
1278.000	172.00	0.00	0.00	803.10	1315.00	809.44	0.00	809.83	53.99	5.03	263.00	178.96
1278.000	172.00	0.00	0.00	803.10	1980.00	810.66	0.00	811.05	35.22	5.06	396.59	333.64
1278.000	172.00	0.00	0.00	803.10	2380.00	811.85	0.00	812.17	19.55	4.52	548.36	538.23
1278.000	172.00	0.00	0.00	803.10	3380.00	815.86	0.00	816.01	4.25	3.19	1360.63	1639.19
1448.000	170.00	0.00	0.00	804.00	1315.00	810.35	0.00	810.74	53.36	5.01	264.01	180.01
1448.000	170.00	0.00	0.00	804.00	1980.00	811.30	0.00	811.76	44.49	5.46	366.87	296.84
1448.000	170.00	0.00	0.00	804.00	2380.00	812.21	0.00	812.62	29.40	5.11	474.81	438.92
1448.000	170.00	0.00	0.00	804.00	3380.00	815.92	0.00	816.13	6.87	3.78	953.74	1289.45

	SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	1618.000	170.00	0.00	0.00	805.10	1315.00	810.48	0.00	812.04	34.00	10.03	131.07	225.54
*	1618.000	170.00	0.00	0.00	805.10	1980.00	811.36	811.36	813.71	43.53	12.31	160.90	300.11
*	1618.000	170.00	0.00	0.00	805.10	2230.00	811.77	811.77	814.28	43.14	12.72	175.36	339.53
	1618.000	170.00	0.00	0.00	805.10	2650.00	815.65	0.00	816.68	10.64	8.12	326.26	812.23
*	1664.000	46.00	819.50	811.10	805.30	1315.00	812.48	0.00	813.19	11.33	6.80	193.51	390.66
*	1664.000	46.00	819.50	811.10	805.30	1980.00	817.09	0.00	817.51	3.86	5.24	378.17	1007.86
*	1664.000	46.00	819.50	811.10	805.30	2230.00	818.40	0.00	818.81	3.31	5.15	433.20	1225.81
	1664.000	46.00	819.50	811.10	805.30	2650.00	819.42	0.00	819.91	3.57	5.56	476.30	1403.02
	1803.000	139.00	0.00	0.00	805.60	1315.00	813.45	0.00	813.54	11.72	3.40	740.38	384.12
	1803.000	139.00	0.00	0.00	805.60	1980.00	817.63	0.00	817.67	2.97	2.44	1480.56	1149.20
	1803.000	139.00	0.00	0.00	805.60	2230.00	818.91	0.00	818.96	2.38	2.36	1711.86	1446.49
	1803.000	139.00	0.00	0.00	805.60	2650.00	820.02	0.00	820.07	2.33	2.51	1920.34	1736.27
	2053.000	250.00	0.00	0.00	806.20	1315.00	813.71	0.00	813.95	24.93	4.84	463.26	263.36
	2053.000	250.00	0.00	0.00	806.20	1980.00	817.67	0.00	817.80	6.58	3.51	927.41	771.85
	2053.000	250.00	0.00	0.00	806.20	2230.00	818.95	0.00	819.06	5.19	3.37	1079.14	979.33
	2053.000	250.00	0.00	0.00	806.20	2650.00	820.05	0.00	820.18	5.04	3.56	1213.63	1180.45
	2305.000	252.00	0.00	0.00	808.50	1315.00	814.28	0.00	814.88	43.98	6.26	210.09	198.29
	2305.000	252.00	0.00	0.00	808.50	1980.00	817.75	0.00	818.17	15.51	5.21	380.16	502.68
	2305.000	252.00	0.00	0.00	808.50	2230.00	818.98	0.00	819.38	12.51	5.06	440.71	630.61
	2305.000	252.00	0.00	0.00	808.50	2650.00	820.06	0.00	820.51	12.50	5.37	493.75	749.51
	2560.000	255.00	830.20	817.60	809.40	1315.00	814.28	0.00	815.08	67.58	7.18	183.08	159.96
	2560.000	255.00	830.20	817.60	809.40	1980.00	820.17	0.00	820.45	7.93	4.19	472.16	703.27
	2560.000	255.00	830.20	817.60	809.40	2230.00	822.17	0.00	822.41	5.70	3.91	569.96	933.85
	2560.000	255.00	830.20	817.60	809.40	2650.00	824.68	0.00	824.90	4.52	3.83	692.70	1246.82
	2693.000	133.00	0.00	0.00	808.70	1315.00	815.36	0.00	815.43	3.82	2.40	743.11	672.39
	2693.000	133.00	0.00	0.00	808.70	1980.00	820.52	0.00	820.54	0.37	1.11	2219.72	3247.06
	2693.000	133.00	0.00	0.00	808.70	2230.00	822.47	0.00	822.48	0.23	0.96	2834.03	4698.96
	2693.000	133.00	0.00	0.00	808.70	2650.00	824.96	0.00	824.97	0.15	0.88	3618.77	6856.30
	3093.000	400.00	0.00	0.00	809.60	1315.00	815.56	0.00	815.67	7.91	3.20	583.17	467.63
	3093.000	400.00	0.00	0.00	809.60	1980.00	820.53	0.00	820.56	0.55	1.28	2036.04	2675.90
	3093.000	400.00	0.00	0.00	809.60	2230.00	822.48	0.00	822.49	0.28	1.03	3267.39	4179.07
	3093.000	400.00	0.00	0.00	809.60	2650.00	824.97	0.00	824.98	0.13	0.79	5496.37	7322.44
	3500.000	407.00	0.00	0.00	810.50	1315.00	815.98	0.00	816.29	23.77	5.22	364.06	269.73
	3500.000	407.00	0.00	0.00	810.50	1980.00	820.56	0.00	820.59	0.85	1.51	1671.80	2149.33
	3500.000	407.00	0.00	0.00	810.50	2230.00	822.49	0.00	822.51	0.43	1.21	2530.91	3387.83
	3500.000	407.00	0.00	0.00	810.50	2650.00	824.98	0.00	824.99	0.20	0.93	4478.90	5960.46
	3703.000	203.00	0.00	0.00	810.90	1315.00	816.11	0.00	817.43	38.14	9.20	142.89	212.92
	3703.000	203.00	0.00	0.00	810.90	1980.00	820.52	0.00	820.69	3.78	3.31	598.66	1018.72

3703.000	203.00	0.00	0.00	810 90	2230.00	822.49	0.00	822 53	0.68	1.76	1442 43	2712 00
3703.000	203.00	0.00	0.00	810.90	2650.00	824.98	0.00	824.99	0.12	0.99	2993.86	7517 60

1
8 FEB 89 13:36:44 PAGE 84

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	3755.000	52.00	818.00	821.20	810.90	1315.00	816.11	0.00	817.44	38 32	9 25	142.18	212.43
	3755.000	52.00	818.00	821.20	810.90	1980.00	820.50	0.00	820.69	1 95	3.80	595.55	1416 93
	3755.000	52.00	818.00	821.20	810.90	2230.00	822.52	0.00	822.57	0.44	2.12	1434.91	3376.45
	3755.000	52.00	818.00	821.20	810.90	2650.00	825.01	0.00	825.02	0 10	1.17	2955 80	8503.90
*	3788.000	33.00	0.00	0.00	811.90	1315.00	816.34	816.34	817.91	168.89	10.05	133 36	101.19
	3788.000	33.00	0.00	0.00	811.90	1980.00	820.46	0.00	820.77	13.56	5.01	639 03	537.77
	3788.000	33.00	0.00	0 00	811.90	2230.00	822.51	0.00	822.59	3.54	3.03	1616.07	1185.15
	3788 000	33 00	0 00	0.00	811.90	2650.00	825.00	0.00	825.03	1.09	1.97	3106.88	2539 73
*	3814.000	26.00	0.00	0.00	812.00	1315.00	816.72	816 72	818.57	47.19	10.93	120.27	191.42
	3814.000	26.00	0.00	0.00	812.00	1980.00	820.56	0.00	820.80	2.47	4.37	530.60	1258 58
	3814.000	26.00	0.00	0.00	812.00	2230.00	822.52	0.00	822.59	0.69	2.68	1124.44	2692.52
	3814.000	26.00	0.00	0.00	812.00	2650.00	825.01	0.00	825.03	0.15	1.49	2275.72	6756.14
	3821.000	7.00	822.60	820 50	812.00	1315.00	817.55	0 00	818.78	25.13	8.90	147.80	262.33
	3821 000	7.00	822.60	820.50	812.00	1980.00	822.02	0.00	822.11	0.83	2.84	914.19	2177.69
	3821.000	7.00	822.60	820.50	812.00	2230.00	824.23	0.00	824.25	0.19	1.58	1817.57	5102.67
	3821.000	7.00	822.60	820.50	812 00	2650.00	825.66	0.00	825.68	0.11	1.27	2594.19	8166.83
*	3835.000	14.00	0.00	0.00	812.00	1315.00	817.56	817.56	819.98	53.54	12.48	105 37	179 72
	3835.000	14.00	0.00	0.00	812.00	1980.00	822.03	0.00	822.11	0.93	3.12	1003.40	2058.66
	3835.000	14.00	0.00	0.00	812 00	2230.00	824 23	0.00	824.25	0 24	1.83	1971.29	4562 25
	3835 000	14.00	0 00	0.00	812.00	2650.00	825.67	0.00	825.68	0.13	1.47	2918.88	7283.33
	3864.000	29.00	823.60	823.70	812.00	1315.00	818.87	0.00	820.37	26.77	9.81	134.08	254.16
	3864.000	29.00	823.60	823.70	812.00	1980.00	821.72	818.30	822.43	8.75	7.50	321.72	669.39
	3864.000	29.00	823.60	823.70	812.00	2230.00	823.94	818.50	824.55	12.14	6.84	390 46	639.95
	3864.000	29.00	823.60	823.70	812.00	2650.00	825.54	0.00	825.81	7.60	5.41	750.30	961.39
	4068 000	204.00	0.00	0.00	812.60	1315.00	820 96	0.00	820.99	4.38	2.22	1262.71	628.01
	4068.000	204.00	0 00	0.00	812.60	1980.00	822 72	0.00	822.75	3.61	2 31	1848 76	1042.26
	4068.000	204.00	0.00	0.00	812.60	2380.00	824.78	0.00	824.80	1.94	1.94	2699.84	1709.11
	4068.000	204.00	0.00	0 00	812.60	3380.00	825.94	0.00	825.96	2.45	2.32	3189.66	2159 14
	4525.000	457.00	0.00	0.00	813.80	1315 00	821.22	0.00	821.27	8.41	2.81	1000.33	453 37
	4525.000	457.00	0.00	0.00	813.80	1980.00	822.92	0.00	822.97	6.22	2.82	1496.24	793.66
	4525.000	457.00	0.00	0.00	813.80	2380.00	824.89	0.00	824.92	3.19	2.32	2245.72	1333.23
	4525.000	457.00	0.00	0.00	813.80	3380 00	826.07	0.00	826.11	3.77	2.72	2735.64	1740.50
	4984.000	459.00	0.00	0.00	814.90	1315.00	821.79	0.00	822.24	46.21	7.17	546.50	193.45
	4984.000	459.00	0.00	0.00	814 90	1980.00	823.30	0.00	823.51	18.49	5.63	1082.52	460.50
	4984.000	459.00	0 00	0.00	814.90	2380.00	825.06	0.00	825.15	6.60	4.05	1790.88	926.45
	4984.000	459.00	0.00	0.00	814.90	3380.00	826.26	0.00	826.36	6.45	4.43	2319.67	1330 77
	4996.000	12.00	819.60	819.40	814.90	1315.00	821.80	0.00	822.24	45.02	7.10	552.53	195.78
	4996.000	12.00	819.60	819 40	814.90	1980.00	823.30	0.00	823.51	18.47	5.63	1082.82	460.68
	4996.000	12.00	819.60	819 40	814.90	2380.00	825.10	0.00	825.19	6.43	4.01	1807.33	938 39
	4996.000	12 00	819.60	819.40	814.90	3380.00	826.31	0.00	826 41	6.26	4.39	2344.70	1350.90

1
8 FEB 89 13:36 44 PAGE 85

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
5058.000	62.00	0.00	0.00	814.70	1315 00	822.42	0.00	822.51	18.58	3.62	815.71	305.04

5058.000	62.00	0.00	0.00	814.70	1980.00	823.56	0.00	823.65	15 05	3.71	1172.84	510 30
5058 000	62.00	0.00	0.00	814.70	2380.00	825.19	0.00	825.24	7.10	2.96	1743.20	893.41
5058.000	62.00	0 00	0.00	814.70	3380.00	826 40	0.00	826.46	7.18	3.27	2241.81	1261.00
6108.000	1050.00	0.00	0.00	818.10	1195.00	824.23	0.00	824.30	23.98	3.79	860.80	244.01
6108.000	1050.00	0.00	0.00	818.10	1795.00	825 03	0.00	825.09	19.71	3.75	1250.93	404.27
6108.000	1050.00	0.00	0.00	818.10	2160.00	825.94	0.00	825.98	11.45	3.11	1740.49	638.23
6108.000	1050 00	0.00	0.00	818.10	3060.00	827.09	0.00	827.13	8.93	3.02	2431.39	1024 07
7195.000	1087.00	0.00	0.00	820.40	1195.00	826.41	0.00	826 49	28.52	4.08	805.79	293.76
7195.000	1087.00	0.00	0.00	820.40	1795.00	826.97	0.00	827.06	30.03	4.46	1072.30	327.55
7195.000	1087.00	0.00	0.00	820.40	2160 00	827.30	0.00	827.39	29.69	4.58	1233.22	396.44
7195.000	1087.00	0.00	0.00	820.40	3060.00	828.16	0.00	828.24	24.86	4 55	1692.18	613.78
8283.000	1088.00	0 00	0.00	822.40	1195.00	827.90	0.00	828.08	12.06	5.40	1125.46	344.15
8283.000	1088.00	0.00	0.00	822.40	1795.00	828.47	0.00	828.64	12.29	5.86	1533.91	512.10
8283.000	1088.00	0.00	0.00	822.40	2160.00	828.77	0.00	828.94	12.20	6.06	1758.98	618.32
8283.000	1088.00	0.00	0.00	822.40	3060.00	829.47	0.00	829 63	11.87	6.45	2262.77	888.00
8935.000	652.00	0.00	0.00	823.20	1195.00	828.71	0.00	829.06	19.21	6.83	743.18	272 66
8935.000	652.00	0.00	0.00	823.20	1795.00	829.29	0.00	829.69	21.46	7.78	978.19	387.45
8935.000	652.00	0.00	0.00	823.20	2160.00	829.49	0.00	829.63	11 18	5.74	2029.01	645.95
8935.000	652 00	0.00	0.00	823.20	3060.00	830.15	0.00	830.28	10.20	5.91	2695.24	958 33
8940 000	5.00	0 00	0.00	823.20	1195.00	828.93	0 00	829.11	6.91	4.54	925.68	454.63
8940.000	5.00	0.00	0.00	823.20	1795.00	829.47	0.00	829.73	9.28	5.62	1141.87	589.37
8940.000	5.00	0.00	0.00	823.20	2160.00	829.49	0.00	829.63	7.06	4.92	2127.36	813.02
8940.000	5.00	0.00	0.00	823.20	3060.00	830.15	0.00	830.29	7 05	5 29	2787.16	1152.32
9310.000	370.00	0.00	0.00	823.80	1195.00	829.16	0.00	829.58	13 78	6.09	505.47	321.88
9310.000	370.00	0 00	0.00	823.80	1795.00	829.76	0.00	830.38	18.47	7.64	625.42	417 69
9310.000	370.00	0.00	0.00	823.80	2160 00	829 76	0.00	830.02	11.59	6.05	1594.79	634 54
9310.000	370.00	0.00	0.00	823.80	3060.00	830.42	0.00	830.68	11.48	6.51	2119.38	903.15
9375 000	65.00	0.00	0.00	823.90	1195.00	829.05	828.24	829.95	32.51	7.61	159.98	209.58
* 9375 000	65.00	0 00	0.00	823.90	1795.00	829.55	829 55	831.04	45.66	9.86	230.29	265.65
* 9375.000	65.00	0.00	0 00	823.90	2160.00	830.20	830.20	831.06	26.35	8.29	774.33	420 78
* 9375.000	65.00	0.00	0.00	823.90	3060.00	830.69	830.69	831.64	29.08	9.31	1145.18	567.48
9435.000	60 00	0.00	0.00	824.00	1195.00	828.93	828.81	830.52	42.38	10.55	178.76	183 57
* 9435.000	60.00	0.00	0.00	824.00	1795.00	829.97	829.97	832 04	43.88	12.31	265.29	270.97
* 9435.000	60.00	0.00	0.00	824.00	2160.00	830.53	830.53	832.83	44.13	13.14	317.78	325.14
* 9435.000	60.00	0.00	0.00	824.00	3060 00	832.57	832.57	833.54	17.75	10.07	1400.22	726.37
* 9447.000	12.00	832.05	830.60	824.00	1195.00	828.71	828.71	831.39	120 62	13.14	90.95	108.81
* 9447.000	12.00	832 05	830 60	824.00	1795.00	832.43	832.43	833.05	89.41	8.17	620.17	189.83
9447.000	12.00	832.05	830 60	824.00	2160.00	830.42	0.00	832.83	47.21	13.43	307.40	314 36
9447.000	12.00	832.05	830.60	824.00	3060.00	832.64	0.00	833.54	16.50	9.77	1460.99	753.43

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
9935.000	488.00	0.00	0.00	824 80	1195.00	832.48	0.00	832.65	3.54	3.62	852.15	634.94
9935.000	488.00	0.00	0.00	824.80	1795.00	833.48	0.00	833.66	3.54	4.01	1367.68	953.86
9935.000	488.00	0.00	0 00	824.80	2160.00	833.76	0.00	833.98	4.15	4.46	1524.20	1059.72
9935.000	488.00	0.00	0.00	824 80	3060.00	833.81	0.00	834 23	8.04	6.23	1552.65	1079.39
10198 000	263.00	0.00	0.00	825.20	1195.00	832.61	0.00	832.75	3.41	3.44	1165.11	647.03
10198.000	263 00	0.00	0.00	825.20	1795.00	833.65	0.00	833.77	2 79	3 47	2022.19	1075.59
10198.000	263.00	0.00	0.00	825.20	2160.00	833.98	0.00	834.10	3 04	3.74	2313.61	1239.40
10198.000	263.00	0.00	0.00	825.20	3060.00	834.27	0.00	834.46	4.81	4.84	2579.32	1395.05
10218.000	20.00	0.00	0.00	825.30	1195.00	832.76	0.00	832.79	0.88	1.97	1270 09	1274.48

	10218.000	20.00	0.00	0.00	825.30	1795.00	833 78	0.00	833.80	0.49	1.61	2125.54	2569 80
	10218.000	20.00	0.00	0.00	825.30	2160.00	834.12	0.00	834.13	0.48	1.65	2428.91	3102 60
	10218 000	20.00	0.00	0.00	825.30	3060.00	834.49	0 00	834.51	0.66	1.99	2791.54	3771 12
	10278.000	60.00	831.30	829.30	825.30	1195.00	832.81	0.00	832.83	0.82	1.91	1306.14	1321.15
	10278 000	60.00	831.30	829 30	825.30	1795.00	833.83	0.00	833.85	0 46	1.57	2177.69	2659.05
	10278.000	60.00	831.30	829 30	825.30	2160 00	834.17	0.00	834 19	0.45	1.61	2488.36	3210.71
*	10278.000	60.00	831.30	829.30	825 30	3060.00	834.56	0.00	834.58	0.61	1.93	2863.46	3904.32
	10925.000	647.00	0.00	0.00	826.80	1195.00	832.87	0.00	832.93	11.20	3.26	782.21	357.10
	10925.000	647.00	0.00	0.00	826.80	1795.00	833.85	0.00	833.91	7.52	3.02	1183.66	654.74
	10925.000	647.00	0.00	0.00	826.80	2160.00	834.19	0.00	834.25	7.76	3.18	1325.23	775.54
	10925.000	647.00	0.00	0.00	826.80	3060.00	834.58	0.00	834.68	10.87	3.92	1492.93	928.17
	11600 000	675.00	0.00	0.00	827.38	1195.00	833.81	0.00	833.94	19.39	3.96	581.58	271.38
	11600.000	675.00	0.00	0.00	827.38	1795.00	834.52	0.00	834.62	14.63	3.81	932.23	469.31
	11600.000	675 00	0.00	0.00	827.38	2160.00	834.85	0.00	834.96	13.66	3.85	1110.60	584.42
	11600.000	675.00	0.00	0.00	827.38	3060 00	835.41	0.00	835.53	14.39	4.22	1419.90	806.78
	11685.000	85.00	0 00	0.00	827.50	1195 00	833.98	0.00	834.10	17.75	3.82	605.50	283.64
	11685.000	85.00	0.00	0.00	827.50	1795.00	834.64	0.00	834.75	14.52	3.80	934.98	471.00
	11685.000	85.00	0.00	0.00	827.50	2160 00	834 97	0.00	835.07	13.70	3.85	1109.26	583 52
	11685.000	85.00	0.00	0.00	827.50	3060 00	835.53	0.00	835.65	14.41	4.22	1418.94	806.05
	11690.000	5.00	833.20	833.80	827.50	1195.00	833 95	0.00	834.17	77.31	5.07	507.36	135 91
	11690 000	5.00	833.20	833.80	827.50	1795 00	834.57	0.00	834.86	114.43	6.16	676.48	167 80
	11690.000	5 00	833.20	833.80	827.50	2160.00	834.94	0.00	835.13	128.41	5.16	829 07	190 62
	11690.000	5.00	833.20	833.80	827.50	3060.00	835.51	0.00	835.70	113.56	5.29	1150.30	287.15
	11716.000	26.00	0.00	0 00	827.60	1195.00	834.19	0.00	834.29	14.93	3.56	654.24	309.27
	11716.000	26.00	0.00	0.00	827.60	1795.00	834.90	0.00	834.99	11.74	3.49	1018.76	523.77
	11716.000	26.00	0.00	0 00	827.60	2160.00	835.14	0.00	835.23	12.66	3.73	1143.84	607.01
	11716.000	26.00	0.00	0.00	827 60	3060 00	835.69	0.00	835 80	13.58	4.13	1450.61	830 26
*	11721.000	5.00	0.00	0.00	833.00	1195.00	836.84	836.84	838.76	28.98	11.12	107.45	222.00
*	11721.000	5.00	0.00	0.00	833.00	1795.00	838.95	838.95	839.60	8.22	7.61	538.90	626.03
*	11721.000	5.00	0.00	0.00	833.00	2160.00	839.16	839.16	839.84	9.00	8.15	622.12	719.92
*	11721.000	5.00	0 00	0.00	833.00	3060.00	839.58	839.58	840.36	10.71	7.28	789.67	935.11

WALLED LAKE BRANCH DS

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.000	1315.00	804 95	0 00	0.00	0.00	60.00	0.00
1.000	1980.00	805.95	1.00	0.00	0.00	60.00	0.00
1.000	2380.00	806.30	0.35	0.00	0.00	60.00	0.00
1.000	3380.00	807.15	0.85	0.00	0.00	60 00	0.00
40.000	1315.00	804.93	0.00	-0.02	0 00	39 00	39.00
40 000	1980 00	805.90	0.97	-0.05	0.00	39 00	39.00
40.000	2380.00	806.23	0.33	-0.07	0.00	39.00	39.00
40.000	3380.00	807.01	0.78	-0.14	0 00	39.00	39.00
80.000	1315.00	806.36	0.00	1.43	0.00	39.00	40.00
80.000	1980.00	809.37	3 01	3.47	0.00	39.00	40.00
80 000	2380.00	811.35	1.98	5.12	0.00	39.00	40.00
80.000	3380.00	815.72	4.37	8.71	0.00	119.00	40.00
314.000	1315.00	806.66	0.00	0.30	0.00	284.87	234.00

	314.000	1980.00	809.74	3.08	0 37	0.00	382.14	234.00
	314 000	2380 00	811.74	2.00	0.39	0.00	405.00	234.00
	314.000	3380.00	815.78	4.04	0.07	0.00	405.00	234.00
	725.000	1315.00	806.66	0 00	0.00	0.00	76 59	411.00
	725.000	1980.00	809.75	3.10	0.01	0.00	200.00	411.00
	725.000	2380.00	811.75	2.00	0.01	0.00	200.00	411.00
	725.000	3380.00	815.79	4 04	0.00	0.00	200.00	411.00
	1078.000	1315.00	807.18	0.00	0.52	0.00	68.92	353.00
	1078 000	1980.00	809.89	2.71	0.14	0.00	170.36	353.00
	1078.000	2380.00	811.81	1.92	0.06	0.00	205.93	353.00
	1078.000	3380.00	815.83	4.02	0.04	0.00	281.51	353.00
	1106.000	1315.00	809.35	0.00	2.16	0.00	62.71	28.00
	1106.000	1980.00	810.48	1.13	0.59	0.00	156.40	28.00
	1106.000	2380.00	811.79	1.31	-0.02	0.00	198.40	28.00
	1106.000	3380.00	815.88	4.08	0.05	0.00	275.23	28.00
	1278.000	1315.00	809.44	0.00	0.09	0.00	104.41	172.00
	1278.000	1980.00	810.66	1.22	0.18	0.00	114 41	172 00
	1278 000	2380.00	811.85	1.20	0.06	0.00	148.08	172.00
	1278.000	3380.00	815 86	4.01	-0 02	0.00	215.00	172.00
	1448.000	1315.00	810.35	0.00	0.92	0.00	104.49	170.00
	1448.000	1980.00	811.30	0.94	0.64	0.00	112.26	170.00
	1448.000	2380.00	812.21	0.92	0.36	0.00	127.76	170.00
	1448.000	3380.00	815.92	3.70	0.05	0.00	130.00	170.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1618.000	1315.00	810.48	0.00	0.13	0.00	32.60	170.00
*	1618.000	1980.00	811.36	0.88	0.07	0.00	34.80	170.00
*	1618.000	2230 00	811.77	0.41	-0.44	0.00	35.52	170.00
	1618 000	2650.00	815.65	3.88	-0.26	0.00	42.00	170.00
*	1664.000	1315.00	812.48	0.00	2.00	0.00	36 40	46.00
*	1664.000	1980.00	817.09	4.61	5.73	0.00	42.00	46.00
*	1664.000	2230.00	818.40	1 31	6.63	0.00	42 00	46.00
	1664 000	2650.00	819.42	1.03	3.77	0.00	42.00	46.00
	1803.000	1315.00	813.45	0 00	0.97	0.00	175.32	139.00
	1803.000	1980.00	817.63	4.18	0.54	0.00	179.04	139.00
	1803.000	2230.00	818.91	1.29	0.52	0.00	180.21	139.00
	1803.000	2650.00	820.02	1.11	0.60	0.00	195.83	139.00
	2053.000	1315.00	813.71	0 00	0 26	0.00	113.69	250.00
	2053.000	1980.00	817.67	3.96	0.05	0.00	118.62	250.00
	2053.000	2230 00	818.95	1.27	0.03	0.00	119.58	250.00
	2053.000	2650.00	820.05	1.10	0.03	0.00	127.78	250.00
	2305.000	1315 00	814.28	0.00	0.56	0.00	49.00	252.00
	2305.000	1980.00	817.75	3.47	0.07	0.00	49.00	252.00
	2305 000	2230.00	818.98	1.24	0.03	0.00	49.00	252.00
	2305 000	2650 00	820.06	1.08	0.01	0.00	49.00	252.00
	2560 000	1315.00	814.28	0 00	0 00	0.00	49.00	255.00
	2560 000	1980.00	820.17	5.90	2.43	0.00	49.00	255.00
	2560.000	2230.00	822.17	2.00	3.19	0.00	49.00	255.00
	2560.000	2650.00	824.68	2.51	4.61	0.00	49.00	255.00
	2693.000	1315.00	815.36	0.00	1.09	0.00	232 85	133.00

2693.000	1980.00	820.52	5.15	0.34	0.00	315.00	133.00
2693.000	2230.00	822.47	1.95	0.30	0.00	315.00	133.00
2693.000	2650.00	824.96	2.49	0.28	0.00	315.00	133.00
3093.000	1315.00	815 56	0.00	0.20	0.00	222.46	400.00
3093.000	1980.00	820.53	4 97	0.02	0.00	450.51	400.00
3093.000	2230 00	822.48	1.95	0.01	0.00	801.39	400.00
3093.000	2650.00	824.97	2.49	0.01	0.00	940.55	400.00
3500.000	1315.00	815.98	0.00	0.42	0.00	140.40	407.00
3500.000	1980.00	820.56	4.58	0.02	4.58	333.27	407.00
3500.000	2230.00	822.49	1.93	0 01	6.51	648.74	407.00
3500.000	2650.00	824.98	2.49	0.00	9.00	845.00	407.00
3703.000	1315.00	816.11	0.00	0 14	0.00	48.13	203.00
3703.000	1980.00	820.52	4.41	-0.03	4.41	171.16	203.00
3703.000	2230 00	822.49	1 97	0.00	6.38	511.53	203.00
3703.000	2650.00	824.98	2.49	0.00	8.87	740.00	203.00

1

8 FEB 89 13:36:44 PAGE 89

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	3755 000	1315.00	816.11	0.00	0.00	0.00	47.62	52.00
	3755.000	1980.00	820.50	4.39	-0.02	4.39	170.25	52.00
	3755 000	2230.00	822.52	2.02	0.03	6.41	499.57	52.00
	3755 000	2650 00	825.01	2.49	0 03	8 90	715.00	52.00
*	3788 000	1315.00	816.34	0.00	0.23	0.00	45.00	33.00
	3788 000	1980.00	820.46	4.11	-0.05	4.11	408.87	33.00
	3788.000	2230.00	822.51	2.05	-0.01	6.16	509 80	33.00
	3788.000	2650.00	825.00	2.50	-0.01	8.66	670.00	33.00
*	3814.000	1315.00	816.72	0.00	0.37	0.00	33.00	26.00
	3814.000	1980.00	820.56	3 85	0.11	3.85	137.37	26.00
	3814.000	2230.00	822.52	1.96	0.02	5.81	380.67	26.00
	3814.000	2650.00	825.01	2.49	0.01	8.29	501.35	26.00
	3821.000	1315.00	817.55	0.00	0.84	0.00	33.00	7.00
	3821.000	1980 00	822.02	4.47	1.46	4.47	334.22	7.00
	3821.000	2230.00	824.23	2.20	1.70	6.67	441.40	7.00
	3821 000	2650.00	825.66	1.44	0.65	8 11	507.93	7.00
*	3835 000	1315.00	817.56	0.00	0.01	0.00	22.00	14.00
	3835.000	1980.00	822.03	4.46	0.01	4.46	367.44	14.00
	3835.000	2230.00	824.23	2.20	0.00	6 66	529 89	14.00
	3835.000	2650.00	825.67	1.44	0.00	8.10	595.00	14.00
	3864.000	1315 00	818.87	0.00	1.31	0.00	22.00	29.00
	3864 000	1980.00	821.72	2.84	-0.31	2.84	362.55	29.00
	3864.000	2230.00	823.94	2.22	-0.29	5 06	454.31	29 00
	3864.000	2650.00	825.54	1.60	-0.13	6.66	580.00	29.00
	4068 000	1315.00	820.96	0.00	2.08	0.00	294.42	204.00
	4068 000	1980 00	822.72	1.76	1.00	1.76	403.94	204.00
	4068.000	2380.00	824.78	2 07	0.85	3.83	420.16	204.00
	4068 000	3380.00	825.94	1.15	0.40	4.98	429.21	204.00
	4525.000	1315.00	821.22	0.00	0.26	0.00	265.89	457.00
	4525.000	1980 00	822.92	1 70	0.21	1.70	314.66	457.00
	4525 000	2380.00	824.89	1.97	0.11	3.67	411.58	457.00
	4525 000	3380.00	826.07	1.18	0.13	4.85	420.82	457.00
	4984.000	1315 00	821 79	0 00	0.57	0.00	329.29	459.00

4984.000	1980.00	823.30	1.51	0.38	1.51	378.67	459.00
4984.000	2380.00	825.06	1.76	0.17	3 27	426.40	459.00
4984.000	3380 00	826.26	1 19	0.19	4.47	458.81	459.00
4996.000	1315.00	821.80	0.00	0.01	0.00	329.90	12.00
4996.000	1980.00	823.30	1.50	0.00	1.50	378.69	12.00
4996.000	2380.00	825.10	1.80	0.04	3.30	427.45	12 00
4996.000	3380.00	826 31	1.21	0.05	4.51	460.29	12.00

1

8 FEB 89 13:36:44 PAGE 90

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	5058.000	1315.00	822.42	0.00	0.61	0.00	302.84	62.00
	5058.000	1980.00	823.56	1.15	0.26	1.15	321.62	62.00
	5058.000	2380.00	825.19	1.63	0 09	2.78	390.76	62.00
	5058.000	3380.00	826.40	1.21	0.09	3.99	432.29	62.00
	6108.000	1195.00	824.23	0.00	1.81	0.00	461.88	1050.00
	6108.000	1795.00	825.03	0.80	1.47	0.80	511.54	1050.00
	6108.000	2160.00	825.94	0.91	0.75	1.71	567.74	1050.00
	6108.000	3060.00	827.09	1.15	0.69	2.86	627.66	1050.00
	7195.000	1195.00	826.41	0.00	2.18	0.00	454 44	1087.00
	7195.000	1795.00	826.97	0.56	1.94	0.56	489 43	1087.00
	7195 000	2160.00	827 30	0.33	1.36	0.89	509.39	1087.00
	7195.000	3060.00	828.16	0.85	1.06	1.74	562.44	1087.00
	8283.000	1195.00	827.90	0.00	1.49	0.00	711.25	1088.00
	8283.000	1795.00	828.47	0.57	1.50	0.57	721.76	1088.00
	8283.000	2160.00	828.77	0.30	1.47	0.87	722.75	1088 00
	8283.000	3060.00	829 47	0.70	1.31	1 57	724.94	1088 00
	8935.000	1195.00	828.71	0.00	0.81	0.00	400.00	652.00
	8935.000	1795.00	829.29	0.59	0.83	0.59	400.00	652 00
	8935.000	2160.00	829.49	0.19	0 71	0.78	997.48	652.00
	8935.000	3060 00	830.15	0.67	0.69	1.45	999.59	652.00
	8940.000	1195.00	828.93	0 00	0.22	0.00	400.00	5 00
	8940.000	1795.00	829.47	0.54	0.17	0.54	400.00	5.00
	8940.000	2160.00	829.49	0 02	0.00	0.56	997.50	5 00
	8940.000	3060.00	830.15	0.66	-0.01	1.22	999.59	5.00
	9310.000	1195.00	829.16	0.00	0.23	0.00	200.00	370.00
	9310.000	1795.00	829.76	0.60	0.29	0.60	200.00	370.00
	9310.000	2160.00	829.76	0.00	0.27	0.60	796.45	370.00
	9310.000	3060 00	830.42	0.66	0.27	1.26	798.53	370.00
	9375.000	1195.00	829.05	0.00	-0.11	0.00	84.75	65.00
*	9375.000	1795.00	829.55	0.50	-0.21	0.50	175.00	65 00
*	9375.000	2160 00	830.20	0.65	0.44	1.15	717.25	65.00
*	9375.000	3060.00	830.69	0.49	0.27	1.64	775.00	65.00
	9435.000	1195.00	828 93	0.00	-0.13	0.00	75.87	60.00
*	9435.000	1795 00	829.97	1.05	0.42	1.05	90.29	60.00
*	9435.000	2160.00	830.53	0.56	0.33	1.61	98.01	60.00
*	9435 000	3060.00	832 57	2.04	1.88	3.64	745.30	60.00
*	9447.000	1195.00	828.71	0 00	-0.22	0.00	72.81	12.00
*	9447.000	1795 00	832 43	3.72	2.46	3.72	743.81	12 00
	9447.000	2160.00	830 42	-2.01	-0.12	1 70	96.53	12.00
	9447.000	3060.00	832.64	2.23	0.07	3.93	746.18	12.00

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	9935.000	1195 00	832. 48	0. 00	3. 77	0. 00	485. 64	488. 00
	9935. 000	1795. 00	833. 48	1. 00	1. 05	1. 00	541. 79	488. 00
	9935. 000	2160 00	833. 76	0 28	3. 35	1. 28	557. 84	488. 00
	9935. 000	3060. 00	833. 81	0. 05	1. 17	1. 34	560. 70	488. 00
	10198. 000	1195. 00	832. 61	0. 00	0. 13	0. 00	769. 08	263. 00
	10198 000	1795. 00	833. 65	1. 04	0. 17	1. 04	878. 93	263. 00
	10198. 000	2160. 00	833. 98	0. 32	0 21	1. 36	912. 66	263. 00
	10198. 000	3060. 00	834. 27	0 29	0. 45	1. 65	954. 10	263. 00
	10218 000	1195. 00	832. 76	0. 00	0. 15	0 00	783. 75	20. 00
	10218. 000	1795. 00	833. 78	1. 02	0. 13	1. 02	892. 15	20. 00
	10218. 000	2160. 00	834. 12	0. 33	0. 14	1. 35	926. 74	20. 00
	10218 000	3060. 00	834. 49	0. 38	0. 23	1. 73	1017. 61	20. 00
	10278. 000	1195. 00	832. 81	0. 00	0. 05	0. 00	788. 41	60 00
	10278 000	1795. 00	833. 83	1. 03	0. 05	1. 03	898. 19	60. 00
	10278. 000	2160. 00	834. 17	0. 34	0. 06	1. 36	933. 37	60. 00
*	10278. 000	3060. 00	834. 56	0. 39	0. 07	1. 75	1037. 36	60. 00
	10925. 000	1195. 00	832. 87	0. 00	0. 06	0 00	399. 03	647. 00
	10925 000	1795 00	833. 85	0. 99	0. 02	0. 99	415. 16	647. 00
	10925. 000	2160. 00	834. 19	0. 34	0. 02	1. 32	420. 70	647. 00
	10925 000	3060. 00	834. 58	0. 39	0. 02	1. 71	427. 17	647. 00
	11600 000	1195. 00	833. 81	0. 00	0. 95	0. 00	465 50	675. 00
	11600. 000	1795. 00	834. 52	0. 71	0. 66	0. 71	528 57	675. 00
	11600. 000	2160. 00	834. 85	0. 33	0. 66	1. 04	545. 61	675. 00
	11600. 000	3060. 00	835. 41	0. 56	0. 83	1. 60	569. 32	675. 00
	11685. 000	1195. 00	833. 98	0. 00	0. 17	0. 00	470. 07	85. 00
	11685. 000	1795. 00	834 64	0. 66	0. 12	0. 66	529. 03	85. 00
	11685. 000	2160. 00	834. 97	0. 32	0. 12	0. 98	545. 50	85. 00
	11685. 000	3060. 00	835. 53	0. 56	0. 12	1. 55	569. 24	85. 00
	11690. 000	1195. 00	833. 95	0. 00	-0. 04	0. 00	466. 62	5. 00
	11690. 000	1795. 00	834. 57	0. 62	-0. 08	0. 62	522. 34	5. 00
	11690. 000	2160. 00	834. 94	0. 37	-0. 03	0. 99	544. 33	5. 00
	11690 000	3060. 00	835. 51	0. 57	-0. 02	1. 57	569. 19	5. 00
	11716. 000	1195. 00	834. 19	0. 00	0. 24	0. 00	479. 25	26. 00
	11716 000	1795 00	834. 90	0. 71	0. 33	0. 71	538. 37	26. 00
	11716. 000	2160 00	835. 14	0. 24	0. 20	0. 95	548. 21	26. 00
	11716. 000	3060. 00	835. 69	0. 55	0. 17	1. 50	571. 62	26. 00
*	11721 000	1195. 00	836. 84	0. 00	2. 65	0. 00	28. 00	5. 00
*	11721. 000	1795. 00	838. 95	2. 11	4. 05	2. 11	400. 00	5. 00
*	11721 000	2160. 00	839. 16	0. 21	4. 02	2. 32	400. 00	5. 00
*	11721. 000	3060. 00	839. 58	0. 42	3. 89	2. 74	400. 00	5. 00

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 1618. 000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1618. 000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

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 CAUTION  SECNO=   1618.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=   1618.000  PROFILE= 3  MINIMUM SPECIFIC ENERGY

 CAUTION  SECNO=   1664.000  PROFILE= 1  HYDRAULIC JUMP D.S.
 CAUTION  SECNO=   1664.000  PROFILE= 2  HYDRAULIC JUMP D.S.
 CAUTION  SECNO=   1664.000  PROFILE= 3  HYDRAULIC JUMP D S.

 CAUTION  SECNO=   3788.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=   3788.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY

 CAUTION  SECNO=   3814.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=   3814.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY

 CAUTION  SECNO=   3835.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=   3835.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=   3835.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION  SECNO=   9375.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=   9375.000  PROFILE= 2  MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=   9375 000  PROFILE= 3  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=   9375.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=   9375.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=   9375.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=   9375.000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=   9375.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION  SECNO=   9435.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=   9435.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=   9435.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=   9435.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=   9435.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=   9435.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=   9435.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=   9435 000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=   9435 000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION  SECNO=   9447.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=   9447.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=   9447.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=   9447.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=   9447.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

 CAUTION  SECNO=  10278.000  PROFILE= 4  HYDRAULIC JUMP D.S.

 CAUTION  SECNO=  11721.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  11721.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  11721.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=  11721.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  11721.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
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  8 FEB 89    13:36:44                                                    PAGE   93


 CAUTION  SECNO=  11721.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=  11721.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  11721 000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  11721 000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=  11721.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=  11721 000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=  11721 000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

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  8 FEB 89    13.38.11                                                    PAGE    1
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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ROUGE
WALLED LAKE BRANCH
DOWNSTREAM MEADOWBROOK LAKE

4) DOWNSTREAM TYPE: 100 YR ENCROACHED

00BREAK00

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3280 CROSS SECTION  11721.00 EXTENDED      1.26 FEET


3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
 11721.00      6 16   839.16   839.16     0.00   839.84     0.69     0.01     0.29   838.00
    2160.      410.    1405.     345.     244.     172.     205.      388      105.    838.00
     1.52      1.68     8.15     1 68    0.030    0.015    0.030    0.000   833.00     0.00
 0.000900        5.       5.       5.       20       14        0     0.00   400.00   400.00
0
1
 13 FEB 89    12:51:30                                                                    PAGE   25



                                                                  THIS RUN EXECUTED 13 FEB 89   12:51:58
 ***************************************************
   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        CITY OF NOVI
 T2        100 YEAR FLOOD - ENCROACHED
 T3        WALLED LAKE BRANCH DS OF MEADOWBROOK LAKE

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         3.        0.        0.   0.000000     0.00      0 0        0     806.400    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

1
 13 FEB 89    12.51:30                                                                    PAGE   26


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
 *SECNO 1.000

 3470 ENCROACHMENT STATIONS=     357 0     417.0  TYPE=     1  TARGET=      60.000
     1.00      9.60   806.40     0.00   806.30   806.90     0.50     0.00     0.00   799.80
    2380.      282.    2098.        0      143.     350.       0.       0.        0  100000.00
     0.00      1.97     6.00     0.00    0.100    0.040    0.000    0.000   796.80   357.00
 0.002007        0.       0.       0.        0        0        0     0.00    60.00   417.00
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 40 000

 3470 ENCROACHMENT STATIONS=     378 0     417.0  TYPE=     1  TARGET=      39.000
            CHESAPEAKE AND OHIO RAILROAD
    40.00      9.53   806.33     0.00   806.23   807.06     0.73     0.04     0.12   799.80
```

```
    2380.        0.     2380.        0.        0.      347.        0.        0.        0.  100000.00
     0.00      0.00      6.86      0.00     0.000     0.020     0.000     0.000    796.80    378.00
  0.000777       21.       39.       61.         2         0         0      0.00     39.00    417.00
0

 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       1.50       2.90       0.00      19 50       0.00     156 00       0.00     796.80     796.80

 *SECNO 80.000
 PRESSURE FLOW


  EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                         AREA
     811.75     807.06       0.00         0.      2380.       156.       140        804.00     813.50


 3470 ENCROACHMENT STATIONS=      378.0      417.0  TYPE=      1  TARGET=       39.000
     80 00     14.66    811.46      0.00    811 35    811.75      0 29      4.69      0.00    799.80
     2380.        0.     2380.        0.        0.      547.        0.        1.        0.  100000.00
      0.00      0.00      4.35      0.00     0.000     0.020     0.000     0.000    796 80    378.00
  0.000212       40.       40.       40.         2         0         0      0.00     39.00    417.00
0
1
  13 FEB 89     12:51:30                                                                          PAGE    27


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
 *SECNO 314.000
  2800 NAT Q1=    3202.62  WSEL=     811.75  ENC Q1=    3202.62  WSEL=     811.85  RATIO=  0.0000
  NAT Q1=    3250   RATIOS LOB,CH,ROB=  0.4946  0.3185  0.1870  WSEL=     811.85

 3470 ENCROACHMENT STATIONS=      173.1      502.2  TYPE=      4  TARGET=        0.014
    314.00     14.14    811.84      0.00    811.75    811.86      0.01      0.02      0.08    800.70
     2380.     1177.      769.      434.     2146.      527.      821.       12.        1.     799.60
      0.08      0.55      1.46      0 53     0.100     0.040     0 100     0.000    797.70    173 06
  0.000055      234.      234.      234.         2         0         0      0.00    329.15    502.21
0
 *SECNO 725.000
  2800 NAT Q1=    1202 24  WSEL=     811.75  ENC Q1=    1202.24  WSEL=     811.85  RATIO=  0.0000
  NAT Q1=    1492.   RATIOS LOB,CH,ROB=  0 0106  0.7503  0.2392  WSEL=     811.85
 3280 CROSS SECTION     725 00 EXTENDED       0.85 FEET


 3470 ENCROACHMENT STATIONS=      262.0      433 3  TYPE=      4  TARGET=        0.194
    725.00     12 55    811.85      0.00    811.75    811.97      0 12      0.06      0.05    809.40
     2380.        0.     2215.      165.        0.      777.      249.       41.        4.     808.50
      0.13      0.00      2 85      0.66     0.000     0.040     0.100     0.000    799.30    262.00
  0.000405      790.      411.      332.         2         0         0      0.00    171.33    433.33
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 1078.000
  2800 NAT Q1=    1762.54  WSEL=     811.81  ENC Q1=    1762.54  WSEL=     811.91  RATIO=  0.0000
  NAT Q1=    2545.   RATIOS LOB,CH,ROB=  0 0043  0.6582  0 3375  WSEL=     811.91

 3470 ENCROACHMENT STATIONS=      262.0      396 3  TYPE=      4  TARGET=        0.308
```

OLD NOV1 ROAD

1078.00	11.31	811.91	0.00	811.81	812.09	0.18	0.09	0.03	810.70
2380.	0.	2261.	119.	0.	653.	74.	48.	5.	809.80
0.16	0.00	3.46	1.61	0 000	0.020	0.020	0.000	800.60	262.00
0.000185	678.	353.	286	2	0	0	0.00	134.27	396.27

0
1

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

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	1.63	2.80	0.00	24 00	0.00	116.00	0.00	800.60	800.60

*SECNO 1106.000
2800 NAT Q1= 1774.33 WSEL= 811.83 ENC Q1= 1774.33 WSEL= 811.93 RATIO= 0.0000
NAT Q1= 2568. RATIOS LOB,CH,ROB= 0.0044 0.6560 0.3395 WSEL= 811.93
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 262.0 396.7 TYPE= 4 TARGET= 0.309

1106.00	11.33	811.93	0.00	811.83	812.11	0.18	0.01	0.00	810 70
2380.	0.	2259.	121.	0.	655.	75.	49.	5.	809.80
0.16	0.00	3.45	1.61	0.000	0 020	0.020	0.000	800.60	262.00
0.000183	28.	28.	28.	0	0	6	0.00	134 69	396.69

0
CCHV= 0.300 CEHV= 0 500
*SECNO 1278.000
3280 CROSS SECTION 1278 00 EXTENDED 1 54 FEET

3470 ENCROACHMENT STATIONS= 425.0 545.0 TYPE= 1 TARGET= 120.000

1278.00	8.84	811.94	0.00	811.83	812.25	0.30	0.07	0.06	811.00
2380.	2.	2370.	8.	4.	534.	9.	51.	6.	808.00
0.17	0.53	4 44	0.88	0.100	0.040	0.100	0.000	803.10	425.00
0.001835	172.	172.	172.	2	0	0	0.00	120.00	545.00

0
*SECNO 1448.000
2800 NAT Q1= 435.93 WSEL= 812 20 ENC Q1= 451.75 WSEL= 812.30 RATIO= -0.0363
NAT Q1= 458. RATIOS LOB,CH,ROB= 0.0003 0.9874 0.0123 WSEL= 812.30
3280 CROSS SECTION 1448.00 EXTENDED 0.99 FEET

3470 ENCROACHMENT STATIONS= 430.0 542.0 TYPE= 4 TARGET= 0.013

1448.00	8.29	812.29	0.00	812.20	812.68	0.40	0.39	0.05	811.90
2380	0	2380.	0.	0.	472.	0.	53.	6.	808.90
0.18	0 00	5.05	0.00	0 000	0.040	0.000	0.000	804.00	430.00
0.002925	170.	170.	170.	2	0	0	0.00	112.00	542.00

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
*SECNO 1618.000
 2800 NAT Q1=    339.53  WSEL=    811 77  ENC Q1=    374.67  WSEL=    811.87  RATIO= -0.1035
 NAT Q1=    519.  RATIOS LOB,CH,ROB=  0.2782  0.7218  0.0000  WSEL=    811.87

3301 HV CHANGED MORE THAN HVINS


3470 ENCROACHMENT STATIONS=     588.0     630.0  TYPE=     4  TARGET=       0.278
            CHESAPEAKE AND OHIO RAILROAD
  1618.00     6.75   811.85   811.77   811.77   814.28     2.43     0.58     1.02   807.70
    2230.       0.    2230.       0.       0.     178.       0.      54.        7    815.50
     0.19     0.00    12.52     0.00    0.000    0.020    0.000    0.000   805.10   588.00
 0.004124     151.     170.     191.        6       15        0     0.00    35.65   623.65
0

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
5227 DOWNSTREAM ELEV IS    809.88 ,NOT    811.85 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.63      2.90     42.00     24 00      3.60    127.00      0.00    805.10    805.10

*SECNO 1664.000
 2800 NAT Q1=   1225.81  WSEL=    818.40  ENC Q1=   1478.03  WSEL=    818.50  RATIO= -0.2058
 NAT Q1=   3847.  RATIOS LOB,CH,ROB=  0.4713  0 3842  0.1445  WSEL=    818 50
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION   1664.00 EXTENDED      4 97 FEET


3470 ENCROACHMENT STATIONS=     588.0     630.0  TYPE=     4  TARGET=       0.616
  1664.00    13.17   818.47     0.00   818.40   818.88     0.41     0 04     0.61   807.90
    2230.       0.    2230.       0.       0.     436.       0.      55.        7.    815.70
     0.19     0.00     5.11     0.00    0.000    0.020    0.000    0.000   805.30   588.00
 0 000324      46.      46.      46.        0        0        4     0.00    42 00   630.00
0
CCHV=   0.300 CEHV=   0 500
*SECNO 1803.000
 2800 NAT Q1=   1446.49  WSEL=    818.91  ENC Q1=   1446.49  WSEL=    819.01  RATIO=  0.0000
 NAT Q1=   2044.  RATIOS LOB,CH,ROB=  0.7030  0.2970  0.0000  WSEL=    819.01

3470 ENCROACHMENT STATIONS=     143.4     320.0  TYPE=     4  TARGET=       0.292
1
 13 FEB 89    12:51:30                                                                    PAGE   30


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


  1803.00    13.38   818.98     0.00   818.91   819.03     0.05     0.04     0.11   808.40
    2230.    1297.     933.       0.    1299.     393.       0.      58.        7.    818.90
     0.21     1.00     2.37     0.00    0.100    0.040    0.000    0.000   805.60   143.44
 0.000239     139.     139.     139.        2        0        0     0.00   176.58   320.03
0
*SECNO 2053.000
 2800 NAT Q1=    979.33  WSEL=    818.95  ENC Q1=    979.33  WSEL=    819.05  RATIO=  0.0000
 NAT Q1=   1839.  RATIOS LOB,CH,ROB=  0.6999  0.3001  0.0000  WSEL=    819.05

3470 ENCROACHMENT STATIONS=     205.3     320 0  TYPE=     4  TARGET=       0.467
  2053.00    12 81   819.01     0.00   818.95   819.13     0.12     0.07     0.04   809.00
    2230.     958.    1272        0.     670.     369.       0.      64.        8.    819.50
```

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     0.24      [illegible]      3.44      0.00     0.100     0.040     0.000     0.000    806.20    205.29
  0.000537      151.      250.      276          1         0         0      0.00    114.34    319.64
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 2305.000
  2800 NAT Q1=    630.60  WSEL=    818.98  ENC Q1=    757.78  WSEL=    819.08  RATIO= -0.2017
  NAT Q1=   1337.  RATIOS LOB,CH,ROB=  0.1920  0.5669  0.2411  WSEL=    819.08

 3470 ENCROACHMENT STATIONS=     675.0     724.0  TYPE=     4  TARGET=       0.433
             EIGHT MILE ROAD
   2305.00     10 56   819.06      0.00   818.98   819.45      0.39      0.18      0.14    809.60
     2230.        0.     2230.        0.       0.     444.        0.       67.        8.    809.60
      0.25      0.00     5.02      0.00    0.000    0.031     0.000     0.000    808.50    675.00
  0.001219      153.      252.      278.        2         0         0      0.00     49 00    724.00
0

 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      3.38      3.00      0.00     49.00     13.00    276.00      0.00    808.50    808.50

 *SECNO 2560.000
  2800 NAT Q1=    933.83  WSEL=    822.17  ENC Q1=   1177.80  WSEL=    822.27  RATIO= -0.2613
  NAT Q1=   2432.  RATIOS LOB,CH,ROB=  0.2286  0.4843  0.2871  WSEL=    822.27
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=     675.0     724.0  TYPE=     4  TARGET=       0.516
   2560.00     12.84   822.24      0.00   822.17   822.48      0 23      0.20      0.05    809.60
     2230.        0.     2230.        0.       0.     574.        0        70.        8.    809.60
      0 27      0 00     3.89      0.00    0.000    0.031     0.000     0.000    809.40    675.00
  0.000559      255.      255.      255.        0         0         0      0 00     49.00    724.00
0
1
  13 FEB 89    12:51:30                                                                    PAGE   31


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
 *SECNO 2693 000
  2800 NAT Q1=   4698.95  WSEL=    822.47  ENC Q1=   4698.95  WSEL=    822.57  RATIO=  0.0000
  NAT Q1=   5251.  RATIOS LOB,CH,ROB=  0 1676  0.1052  0 7272  WSEL=    822.57

 3470 ENCROACHMENT STATIONS=     338.6     643.6  TYPE=     4  TARGET=       0.105
   2693.00     13.84   822.54      0.00   822.47   822.55      0.02      0.01      0 07    810.40
     2230.      286.      262.     1681.     991.     270.     1556.       75.        9.    810.50
      0 31      0.29     0.97      1.08    0.100    0.040     0.030     0.000    808.70    338.63
  0.000023      133.      133.      133.        2         0         0      0.00    304.92    643 55
0
 *SECNO 3093.000
  2800 NAT Q1=   4179.07  WSEL=    822.48  ENC Q1=   4179.07  WSEL=    822.58  RATIO=  0.0000
  NAT Q1=   4277.  RATIOS LOB,CH,ROB=  0.1514  0.1154  0.7332  WSEL=    822.58

 3470 ENCROACHMENT STATIONS=     107.3     655.2  TYPE=     4  TARGET=       0.023
   3093.00     12 95   822.55      0.00   822.48   822.56      0.02      0 01      0.00    811.30
     2230.      318.      264.     1649     1303.     253.     1456.      100.       12.    811.40
      0.42      0.24     1.04      1.13    0.100    0.040     0.030     0.000    809.60    107.30
  0.000029      300.      400.      425.        0         0         0      0.00    547.89    655.19
0
 *SECNO 3500.000
  2800 NAT Q1=   3387.69  WSEL=    822.49  ENC Q1=   3387.69  WSEL=    822.59  RATIO=  0.0000
```

NAT Q1= 3483 RATIOS LOB, CH, ROB= 0.1319 0.1255 0.7426 WSEL= 822.59

3470 ENCROACHMENT STATIONS= 195.1 637.9 TYPE= 4 TARGET= 0.027

3500.00	12.06	822.56	0.00	822.49	822.58	0.02	0.01	0.00	812.20
2230.	271.	288.	1671.	851.	235.	1253.	123.	16.	812.30
0 51	0.32	1 23	1.33	0.100	0.040	0.030	0.000	810.50	195.13
0.000044	300.	407.	425.	0	0	0	0.00	442.80	637.93

0

CCHV= 0.200 CEHV= 0.500

*SECNO 3703.000

2800 NAT Q1= 2712.00 WSEL= 822.49 ENC Q1= 2712.00 WSEL= 822.59 RATIO= 0.0000

NAT Q1= 4975. RATIOS LOB, CH, ROB= 0.5609 0.4358 0.0033 WSEL= 822.59

3280 CROSS SECTION 3703.00 EXTENDED 4.07 FEET

3470 ENCROACHMENT STATIONS= 530.5 950.0 TYPE= 4 TARGET= 0.455

NOVI ROAD

1

13 FEB 89 12:51:30 PAGE 32

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
3703.00	11.66	822.56	0.00	822.49	822.60	0.04	0.01	0.01	820.90
2230.	442.	1788.	0.	375.	997.	0.	132.	18.	821.50
0.55	1.18	1.79	0.00	0.015	0.020	0.000	0.000	810.90	530.51
0.000070	161.	203.	261	0	0	0	0.00	419.49	950.00

0

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	1.67	2.90	0.00	51.00	4.00	378.00	0 00	810.90	810.90

*SECNO 3755.000

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
822.63	822.62	0.00	1593.	637.	378.	484.	821.20	818.00

3470 ENCROACHMENT STATIONS= 493.0 1006.0 TYPE= 1 TARGET= 513.000

3755.00	11.69	822.59	0.00	822.52	822.63	0.04	0.03	0.00	814.90
2230.	880.	973.	376.	728.	471.	271.	134.	19.	817.00
0.56	1.21	2.07	1.39	0.015	0.020	0.015	0.000	810.90	493.00
0.000041	52.	52.	52.	2	0	7	0.00	502 45	995.45

0

CCHV= 0 300 CEHV= 0.500

*SECNO 3788.000

2800 NAT Q1= 1208.08 WSEL= 822.51 ENC Q1= 1208.08 WSEL= 822.61 RATIO= 0.0000

NAT Q1= 1249. RATIOS LOB, CH, ROB= 0.3192 0.5105 0.1703 WSEL= 822.61

3280 CROSS SECTION 3788.00 EXTENDED 2.17 FEET

3470 ENCROACHMENT STATIONS= 25 1 470 0 TYPE= 4 TARGET= 0.033

3788.00	10.67	822.57	0.00	822.51	822.66	0.08	0.00	0.02	815.60
2230.	692.	1183.	355	888.	392.	303.	135	19.	814.67
0.56	0 78	3.02	1.17	0 070	0.040	0.070	0.000	811.90	25 08

```
  0.000349      33.       33.       33.         2         0         0      0.00    444.94    470.02
0
1
  13 FEB 89     12:51:30                                                                                    PAGE    33

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
 *SECNO 3814.000
  2800 NAT Q1=    2688.63  WSEL=     822.52  ENC Q1=    2688.63  WSEL=     822.62  RATIO=  0.0000
  NAT Q1=    2841.   RATIOS LOB,CH,ROB=  0.3942  0.3639  0.2419  WSEL=     822.62

 3470 ENCROACHMENT STATIONS=      495.9      796.3  TYPE=      4  TARGET=        0.054
             CHESAPEAKE AND OHIO RAILROAD
   3814.00     10.58    822.58      0.00    822.52    822.66      0.08      0.00      0.00    813.70
     2230.      858.      864.      508.      498.      315.      212.      136.       19.     815.60
      0.57      1.72      2.74      2.39     0.015     0.020     0.015     0.000    812.00    495.92
  0.000071       26.       26.       26.         0         0         0      0.00    300.42    796.34
0

 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       1.52       2.90       0.00      33 20      0.00     245.00      0.00     812.00     812.00

 *SECNO 3821.000
  2800 NAT Q1=    5098.26  WSEL=     824.22  ENC Q1=    5098 26  WSEL=     824.32  RATIO=  0.0000
  NAT Q1=    5536.   RATIOS LOB,CH,ROB=  0.5056  0.2457  0.2487  WSEL=     824.32
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
 3280 CROSS SECTION    3821.00 EXTENDED       1.18 FEET


 3470 ENCROACHMENT STATIONS=      456.0      812.4  TYPE=      4  TARGET=        0.079
   3821.00     12.28    824.28      0.00    824.22    824.31      0.03      0.00      0.02    813.70
     2230.     1122.      598.      510.      998.      372.      356       136.       19.     815.60
      0.57      1.12      1.61      1.43     0.015     0.020     0.015     0.000    812.00    456.00
  0.000020        7.        7.        7.         0         0         3      0 00    356.45    812.45
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 3835.000
  2800 NAT Q1=    4555.81  WSEL=     824.23  ENC Q1=    4555.81  WSEL=     824.33  RATIO=  0.0000
  NAT Q1=    5262.   RATIOS LOB,CH,ROB=  0.5406  0.1819  0.2775  WSEL=     824.33

 3470 ENCROACHMENT STATIONS=      542 8      915.8  TYPE=      4  TARGET=        0.134
             OLD NOVI ROAD
   3835.00     12 28    824.28      0.00    824.23    824.31      0.03      0.00      0.00    812.80
     2230.     1214.      472.      545.     1197.      253.      411.      137.       19.     814.30
      0.57      1.01      1.86      1.33     0.020     0.020     0.020     0.000    812.00    542.81
  0.000025       14.       14.       14.         0         0         0      0.00    373.01    915.83
0
1
  13 FEB 89     12:51:30                                                                                    PAGE    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
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 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB   XK          XKOR       CQFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00        1.56       2.80       0.00       22 00      0.00       238.00     0.00       812.00     812.00

 *SECNO 3864.000

 6070,LOW FLOW BY NORMAL BRIDGE

 EGPRS=    826.410  EGLWC=    824.310  ELLC=    823.700  PCWSE=    824.284  ELTRD=    823.600

 3301 HV CHANGED MORE THAN HVINS


 3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  823.60 MAX ELLC=  823.70


 3470 ENCROACHMENT STATIONS=      625.0     1065.0  TYPE=       1  TARGET=      440.000
    3864.00     11.99    823.99    818.50    823.93    824.61      0.62      0.00      0.29    812.80
       2230.       14.      1628.      588.       12.       237.      132.      137.       20.     814.30
       0.57      1.13      6.87      4.46     0.020     0.020     0.020     0 000    812.00    625.00
   0.001223        29       29.       29.         4        12         0 -1303.18    406.38   1031.38
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 4068 000
  2800 NAT Q1=    1708 26  WSEL=     824.78  ENC Q1=    1708.26  WSEL=     824.88  RATIO=  0.0000
  NAT Q1=    1791.   RATIOS LOB,CH,ROB=  0.4634  0.1971  0.3394  WSEL=     824.88

 3265 DIVIDED FLOW


 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=       41 3      512.6  TYPE=       4  TARGET=        0.046
    4068.00     12.24    824.84      0.00    824.78    824.86      0.02      0.08      0.18    816.20
       2380.     1110.       489.      781.      1241.       251.     1189.      145.       22.     816.50
       0.63      0.89      1.95      0.66     0.100     0.050     0.100     0.000    812.60     41.32
   0 000194       204.      204.      204.         2         0         0      0.00    417.66    512.58
0
1
  13 FEB 89     12:51:30                                                                    PAGE    35


     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 4525.000
  2800 NAT Q1=    1332.52  WSEL=     824.89  ENC Q1=    1332.52  WSEL=     824.99  RATIO=  0.0000
  NAT Q1=    1384.   RATIOS LOB,CH,ROB=  0.4832  0.2159  0.3008  WSEL=     824.99

 3470 ENCROACHMENT STATIONS=       40 9      419.8  TYPE=       4  TARGET=        0 037
    4525.00     11.15    824.95      0.00    824.89    824.98      0.03      0.11      0.01    817.40
       2380.     1157.       532.      691.      1095.       227.      873.      170.       26.     817.70
       0.73      1.06      2.34      0.79     0.100     0.050     0.100     0.000    813.80     40.86
   0.000321       485.      457.      417.         0         0         0      0.00    378.96    419.82
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 4984.000
  2800 NAT Q1=     925.83  WSEL=     825.06  ENC Q1=     925.83  WSEL=     825.16  RATIO=  0.0000
  NAT Q1=     957.   RATIOS LOB,CH,ROB=  0.3718  0.3044  0.3238  WSEL=     825.16
```

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3470 ENCROACHMENT STATIONS=      102.1      455.2  TYPE=      4  TARGET=        0 033
            FOOTBRIDGE
  4984.00     10.23    825.13      0.00    825 06    825.22      0.09      0.21      0.03    820.70
    2380.      883.      747.      750.      785.      182.      741.      190.       29.     820.50
     0.79      1.12      4.10      1.01     0.100     0.030     0.100     0.000    814.90    102.14
 0.000668      487.      459.      418.         2         0         0      0.00    353.07    455.22
0

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       1.73       2.80       0.00       5 00       0.00      40.00       1.70     814.90     814.90

*SECNO 4996.000
 2800 NAT Q1=     937.75  WSEL=     825.10  ENC Q1=     937.75  WSEL=     825.20  RATIO=  0.0000
 NAT Q1=     969.  RATIOS LOB,CH,ROB=  0.3719  0.3033  0.3249  WSEL=     825.20
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      102.1      456.2  TYPE=      4  TARGET=        0.032
  4996.00     10.26    825 16      0.00    825.10    825.26      0.09      0.01      0 00    820.70
    2380.      883.      744.      753.      791.      183.      750.      191.       30.     820.50
     0 79      1.12      4.06      1.00     0.100     0.030     0.100     0.000    814.90    102.06
 0 000651       12.       12.       12.         0         0         9      0.00    354.15    456.21
0
CCHV=   0.300 CEHV=   0 500
1
 13 FEB 89    12:51:30                                                                          PAGE   36


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 5058.000
 2800 NAT Q1=     892.74  WSEL=     825.19  ENC Q1=     892.74  WSEL=     825.29  RATIO=  0.0000
 NAT Q1=     922.  RATIOS LOB,CH,ROB=  0.3489  0.2590  0.3921  WSEL=     825.29

3470 ENCROACHMENT STATIONS=      143.4      436 9  TYPE=      4  TARGET=        0.032
  5058.00     10 56    825.26      0.00    825.19    825.31      0.05      0.04      0.01    819.40
    2380.      814       639.      926.      682.      212.      746.      193.       30.     820.30
     0.80      1.19      3.01      1.24     0.100     0.050     0.100     0.000    814.70    143.39
 0.000727       62.       62.       62.         2         0         0      0.00    293.53    436.91
0
*SECNO 6108.000
 2800 NAT Q1=     637.94  WSEL=     825 94  ENC Q1=     637.94  WSEL=     826.04  RATIO=  0.0000
 NAT Q1=     667.  RATIOS LOB,CH,ROB=  0.5404  0.1269  0.3327  WSEL=     826.04

3470 ENCROACHMENT STATIONS=      498.1      929.9  TYPE=      4  TARGET=        0.044
            CONFLUENCE WITH THORNTON CREEK
  6108.00      7.92    826.02      0.00    825.94    826.06      0.04      0 75      0.00    820.70
    2160.     1173.      287.      700.      891.       91.      644       224.       37.     822.00
     0.96      1.32      3.16      1.09     0.100     0.050     0 100     0 000    818.10    498.10
 0.001159      680.     1050.      900.         1         0         0      0.00    431.80    929.90
0
*SECNO 7195.000

3470 ENCROACHMENT STATIONS=      460.0      985.0  TYPE=      1  TARGET=      525.000
  7195.00      6.96    827.36      0.00    827.30    827.44      0.08      1.36      0.02    823.00
    2160.     1201.      354.      604.      712.       79.      471.      249.       44.     824.30
     1.07      1.69      4.46      1.28     0.100     0.050     0.100     0 000    820.40    465.49
 0.002779      825.     1087.      600.         2         0         0      0.00    513.02    978.51
0
```

*SECNO 8283.000

3470 ENCROACHMENT STATIONS= 175.0 875.0 TYPE= 1 TARGET= 700.000

8283.00	6.38	828.78	0.00	828.78	828.95	0.17	1.47	0.04	825.10
2160.	1196.	596.	368.	1226.	98.	422.	275.	55.	826.00
1.16	0.98	6.06	0.87	0.100	0.025	0.100	0.000	822.40	177 21
0.001215	825.	1088.	600.	2	0	0	0.00	697.79	875.00

0

*SECNO 8935.000

1

13 FEB 89 12:51:30 PAGE 37

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 375.0 775.0 TYPE= 1 TARGET= 400.000

8935.00	6.41	829.61	0.00	829.60	830 02	0.42	0.95	0.12	825.90
2160.	1002.	815.	342.	743.	99.	261.	294.	62.	826.80
1.21	1.35	8.26	1.31	0.100	0.025	0.100	0.000	823.20	375.00
0.002246	548.	652.	577.	2	0	0	0.00	400.00	775.00

0

*SECNO 8940.000

3470 ENCROACHMENT STATIONS= 175.0 1175.0 TYPE= 1 TARGET= 1000.000

8940 00	6.84	830.04	0.00	830.04	830 13	0.08	0.00	0.10	825.20
2160.	915.	723.	522.	1461.	186.	1032	294.	62.	826.20
1.21	0.63	3.89	0.51	0.100	0.025	0.100	0.000	823.20	175.75
0.000391	5	5.	5.	3	0	0	0.00	999.24	1175.00

0

*SECNO 9310.000

3470 ENCROACHMENT STATIONS= 175.0 975.0 TYPE= 1 TARGET= 800.000

9310.00	6.40	830.20	0.00	830.20	830.36	0.16	0.19	0.04	825.80
2160.	956.	864.	340	1248.	172.	523.	313.	70.	826.80
1.25	0.77	5.01	0.65	0 100	0.025	0.100	0.000	823 80	177.16
0 000714	370.	370.	370.	2	0	0	0.00	797.83	975.00

0

*SECNO 9375.000

3280 CROSS SECTION 9375.00 EXTENDED 0.48 FEET

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 150.0 925.0 TYPE= 1 TARGET= 775.000

9375.00	6.28	830.18	830.18	830.19	831.06	0.88	0.08	0.36	828.90
2160.	283.	1738.	139.	330.	208.	223.	315.	71.	828.90
1.25	0.86	8.36	0.62	0.100	0.025	0.100	0.000	823.90	150.00
0.002698	65.	65.	65.	4	5	0	0.00	714.11	864.11

0

1

13 FEB 89 12:51:30 PAGE 38

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 9435.000

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL, CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 200.0 950.0 TYPE= 1 TARGET= 750.000

LOCAL ACCESS BRIDGE									
9435.00	6.53	830.53	830.53	830.53	832.83	2.30	0.20	0.71	825.00
2160.	253.	1850.	58.	146	141.	31.	316.	71.	826.00
1.25	1.73	13.14	1.87	0.100	0 025	0.100	0.000	824.00	200.00
0.004415	60.	60.	60.	20	11	0	0.00	98.01	324.79

0

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	1.63	2.80	0.00	15.00	0.00	205.00	3.00	824.00	824.00

*SECNO 9447.000
6870 D.S ENERGY OF 832.83 HIGHER THAN COMPUTED ENERGY OF 831.94

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
833.34	832.83	0.00	645.	1529.	205.	230.	830.60	832.05

3470 ENCROACHMENT STATIONS= 292.0 740.9 TYPE= 4 TARGET= 0.032

9447.00	6.42	830.42	0.00	830.42	832.83	2.42	0.00	0.00	825.00
2160.	246.	1858	56.	140.	138.	29.	316.	71.	826 00
1.25	1.76	13.43	1.90	0.100	0.025	0.100	0.000	824.00	200.00
0.004715	12.	12.	12.	16	0	0	0 00	96.56	324.48

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 9935.000
2800 NAT Q1= 1059.46 WSEL= 833.76 ENC Q1= 1059.46 WSEL= 833.86 RATIO= 0.0000
NAT Q1= 1094. RATIOS LOB, CH, ROB= 0.0151 0.6842 0.3008 WSEL= 833.86

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 292.0 740.9 TYPE= 4 TARGET= 0.032

9935.00	9.01	833.81	0.00	833.76	834.03	0.22	0.53	0.66	828.40
2160.	0.	1503	657.	0.	337.	1063.	326.	74.	830.80

```
     1.29      0.00      4.46      0.62     0.000     0.025     0.100     0.000    824.80    292.00
  0.000476      488       489.      488.       3         0         0       0.00    448.91    740.91
0
 *SECNO 10198.000
  2800 NAT Q1=    1239.08  WSEL=     833.97  ENC Q1=    1239.08  WSEL=     834.07  RATIO=  0.0000
  NAT Q1=    1290.   RATIOS LOB,CH,ROB=  0.1269  0.5448  0.3283  WSEL=     834.07

 3470 ENCROACHMENT STATIONS=      165.0      848.9  TYPE=      4  TARGET=        0.039
  10198.00      8.82    834.02      0.00    833.97    834.15      0.13      0.10      0.03    830.20
     2160.      240.      1235.      685.      405.      322.      1362.      336.       78.     830.20
      1.32      0.59      3.84      0.50     0.100     0.025     0.100     0.000    825.20    164.99
  0.000317      263.      263.      263.       2         0         0       0.00    683 90    848.89
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 10218.000
  2800 NAT Q1=    3101.71  WSEL=     834.12  ENC Q1=    3101.71  WSEL=     834.22  RATIO=  0.0000
  NAT Q1=    3272.   RATIOS LOB,CH,ROB=  0 2436  0.1629  0.5935  WSEL=     834.22

 3470 ENCROACHMENT STATIONS=      153.1      865 8  TYPE=      4  TARGET=        0.052
             NINE MILE ROAD
  10218.00      8 87    834.17      0.00    834.12    834.19      0.02      0 00      0.03    827 30
     2160.      496.      376.      1288.      502.      222.      1525.      337.       78.     827.30
      1.33      0.99      1.70      0.84     0.025     0.024     0.025     0.000    825.30    153.12
  0 000051       20.       20.       20.       2         0         0       0.00    712.69    865.81
0
1
  13 FEB 89    12:51:30                                                                    PAGE    40


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
    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
      1 25        2.03       2.80       0.00       27.00      3.00       96.00      0.00       825.40     825.30

 *SECNO 10278.000
  2800 NAT Q1=    3209.82  WSEL=     834.17  ENC Q1=    3209.82  WSEL=     834.27  RATIO=  0.0000
  NAT Q1=    3371.   RATIOS LOB,CH,ROB=  0.2436  0.1599  0 5965  WSEL=     834.27
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=      149.0      872 3  TYPE=      4  TARGET=        0.048
  10278.00      8.93    834.23      0.00    834.17    834.25      0.02      0.00      0.00    827.30
     2160       499.      367.      1294.      519.      223.      1569.      341.       79.     827.30
      1.35      0.96      1.65      0 82      0.025     0.024     0.025     0.000    825.30    149.03
  0.000047       60.       60        60.        0         0         7       0 00    723.22    872.26
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 10925.000
  2800 NAT Q1=     775.35  WSEL=     834.19  ENC Q1=     775.35  WSEL=     834.29  RATIO=  0.0000
  NAT Q1=     812.   RATIOS LOB,CH,ROB=  0.1665  0.1811  0.6525  WSEL=     834.29

 3470 ENCROACHMENT STATIONS=      232.3      594.1  TYPE=      4  TARGET=        0.046
  10925.00      7.45    834.25      0.00    834.19    834.32      0.07      0.04      0.03    831.00
     2160.      324.      413.      1423.      368.      127.      751.      354.       83.     831.00
      1.40      0.88      3.26      1 89      0.100     0.040     0.050     0.000    826.80    232.31
  0.000805      241.      647.      321.       2         0         0       0.00    361.82    594.13
0
 *SECNO 11600.000
  2800 NAT Q1=     584.34  WSEL=     834.85  ENC Q1=     584.34  WSEL=     834.95  RATIO=  0.0000
  NAT Q1=     622.   RATIOS LOB,CH,ROB=  0.0797  0.2730  0.6473  WSEL=     834.95
```

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 3470 ENCROACHMENT STATIONS=      301.3      693.0  TYPE=      4  TARGET=        0.061
  11600.00      7.55    834.93      0.00    834.85    835.04      0.12      0.70      0.02    833.68
     2160.       112.      632.     1416.      152.      160.      675.      371.       89.     833.68
     1.47      0.73      3.94      2.10     0.100     0.040     0 050     0.000    827.38    301 31
  0.001405       675.      675.      675.         0         0         0      0.00    391.64    692.95
0
 *SECNO 11685.000
  2800 NAT Q1=     583.44  WSEL=     834.97  ENC Q1=     583.44  WSEL=     835.07  RATIO=   0.0000
  NAT Q1=     621.   RATIOS LOB,CH,ROB=   0.0795   0.2733   0.6472  WSEL=     835.07
1
  13 FEB 89     12:51:30                                                                  PAGE    41

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=      300.9      693 2  TYPE=      4  TARGET=        0.060
  11685.00      7.55    835.05      0.00    834.97    835.16      0 12      0 12      0.00    833.80
     2160.       112.      632.     1416.      152.      160.      673.      373.       90.     833.80
     1 48      0.73      3.95      2.10     0.100     0.040     0.050     0.000    827.50    300.90
  0.001413        85        85.       85.         0         0         0      0.00    392.27    693.16
0
 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        1.63        2.90        0.00        24.00       0.00        127.00      0.00        827.50      827.50

 *SECNO 11690.000

 6070,LOW FLOW BY NORMAL BRIDGE

 EGPRS=    842.370  EGLWC=    835.156  ELLC=    833.800  PCWSE=    835.048  ELTRD=    833 200
  2800 NAT Q1=     190.59  WSEL=     834.94  ENC Q1=     190.59  WSEL=     835.04  RATIO=   0.0000
  NAT Q1=     206.   RATIOS LOB,CH,ROB=   0.0494   0.2927   0 6578  WSEL=     835.04
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=      387.9      633.2  TYPE=      4  TARGET=        0.073
  11690.00      7.52    835.02      0.00    834 94    835.21      0.19      0.01      0.04    833.80
     2160.        11       759.     1389.       15.      160.      537.      373.       90.     833.80
     1.48      0.73      4.76      2.59     0.100     0.040     0.050     0.000    827 50    387.86
  0.002061         5         5.        5.         0         0         0      0.00    245.37    633.23
0
 *SECNO 11716.000
  2800 NAT Q1=     606.95  WSEL=     835 14  ENC Q1=     606.95  WSEL=     835.24  RATIO=   0.0000
  NAT Q1=     648   RATIOS LOB,CH,ROB=   0.0828   0.2677   0.6494  WSEL=     835.24

 3470 ENCROACHMENT STATIONS=      300.0      693.2  TYPE=      4  TARGET=        0.063
  11716.00      7.56    835.16      0.00    835.14    835.28      0 11      0.04      0.02    833.90
     2160       115.      628.     1417.      156.      161.      680.      374.       90.     833.90
     1.48      0.73      3.90      2.08     0.100     0.040     0.050     0.000    827.60    299.99
  0.001372        26.       26.       26         2         0         0      0.00    393.24    693.23
0
 *SECNO 11721.000
  2800 NAT Q1=     719.92  WSEL=     839.16  ENC Q1=     719.92  WSEL=     839.26  RATIO=   0.0000
  NAT Q1=     768.   RATIOS LOB,CH,ROB=   0.2031   0.6262   0.1708  WSEL=     839.26
1
  13 FEB 89     12.51·30                                                                  PAGE    42
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1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ROUGE
WALLED LAKE BRANCH
DOWNSTREAM
MEADOWBROOK LAKE

4) DOCUMENT TYPE: SUMMARY



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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
**************************************************

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

   WALLED LAKE BRANCH DS

SUMMARY PRINTOUT TABLE  110
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	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	1.000	806 30	0.00	806.89	60.00	300.55	2249 45	0.00	60.00	357.00	378.00	417.00	417 00
	1.000	806.40	0.10	806.97	60.00	301.86	2248.14	0.00	60.00	357.00	378.00	417.00	417 00
	40.000	806.22	0.00	807.08	39.00	0.00	2550.00	0.00	39.00	378.00	378.00	417.00	417.00
	40.000	806.32	0.10	807.16	39.00	0.00	2550.00	0.00	39.00	378.00	378.00	417.00	417.00
	80.000	812.13	0.00	812.44	39.00	0.00	2550.00	0.00	39.00	378.00	378.00	417.00	417.00
	80.000	812.24	0.11	812 54	39.00	0.00	2550.00	0 00	39.00	378.00	378.00	417.00	417.00
	314.000	812.54	0.00	812.55	405.00	1265.18	796.52	488.30	405.00	145.00	378.00	417.00	550.00
	314.000	812.64	0.10	812.65	348.57	1268.05	806.16	475.79	0.02	164.53	378.00	417.00	513.10
	725.000	812.55	0.00	812.64	200.00	0 00	2247.53	302.47	200.00	262.00	262.00	362.00	462.00
	725.000	812.64	0 10	812.75	173.06	0.00	2335.71	214.29	0.23	262.00	262.00	362.00	435.06
	1078.000	812.59	0.00	812.73	201.55	42.13	2273 12	234.74	437.00	0.00	262.00	362.00	437.00
	1078.000	812.69	0.10	812.84	145.51	0.00	2322.75	227.25	0.36	262.00	262.00	362.00	407.52
	1106.000	812.60	0.00	812.74	201.68	42.58	2272.16	235.26	430.00	0.00	262.00	362.00	430.00
	1106.000	812.70	0.10	812.84	145.64	0.00	2321.61	228.39	0.36	262.00	262.00	362.00	407.64
	1278.000	812.59	0 00	812.85	174.98	20.70	2513.47	15.83	215.00	375.00	430.00	542.00	590.00
	1278.000	812.69	0.10	812.96	112.00	0.00	2550.00	0.00	0.04	430.00	430.00	542.00	542.00
	1448.000	812.83	0.00	813.18	128.84	4.40	2532.51	13.09	130.00	420.00	430.00	542.00	550.00
	1448.000	812.94	0.11	813.28	112.00	0.00	2550.00	0.00	0.02	430.00	430.00	542.00	542.00
	1618.000	812 42	0.00	814.45	36.65	0.00	2270.00	0.00	42.00	588.00	588.00	630.00	630.00
	1618.000	812.57	0 15	814.49	36 90	0.00	2270.00	0.00	0.32	588.00	588.00	630.00	630.00
*	1664.000	818.61	0.00	819.02	42.00	0.00	2270.00	0.00	42.00	588.00	588.00	630.00	630.00
*	1664.000	818.76	0.15	819.16	42.00	0 00	2270.00	0.00	0.63	588.00	588.00	630.00	630.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	1803.000	819.13	0.00	819.17	183.18	1333.32	936 66	0.02	280.00	140.00	278.00	320.00	420.00
	1803.000	819.26	0.13	819.30	176.67	1322.18	947 82	0.00	0.29	143.34	278.00	320.00	320.01
	2053.000	819.16	0.00	819.27	119.74	1013.34	1256.66	0.00	220.00	200.00	278.00	320.00	420.00
	2053.000	819.29	0.13	819.40	114.59	976.06	1293.94	0.00	0.47	205.26	278.00	320.00	320.00
	2305.000	819.19	0.00	819.58	49.00	0.00	2270.00	0.00	49.00	675.00	675.00	724.00	724.00
	2305.000	819.32	0.14	819.70	49.00	0.00	2270.00	0.00	0.44	675.00	675.00	724.00	724.00
	2560.000	822.50	0.00	822.74	49.00	0.00	2270.00	0.00	49.00	675.00	675.00	724.00	724.00

2560.000	822.64	0.14	822.87	49.00	0.00	2270.00	0 00	0.52	675.00	675.00	724.00	724.00
2693.000	822.80	0.00	822.81	315.00	283.81	259.77	1726 43	315.00	345.00	466.00	486.00	660.00
2693.000	822 92	0.13	822.94	299.49	287.09	262.39	1720.53	0.12	347.23	466.00	486.00	646.71
3093.000	822.81	0 00	822.82	843.19	354.10	255.99	1659.91	0.00	0.00	466.00	486.00	0.00
3093.000	822.93	0.13	822.95	654.03	341 50	258.81	1669.69	0.02	88.71	466.00	486.00	762.07
3500.000	822.82	0 00	822.84	690.37	299.67	280.84	1689.49	763.00	54.00	466.00	486.00	817.00
3500.000	822.94	0.13	822 96	483.98	293.15	284.38	1692.48	0.03	156.24	466.00	486.00	640.22
3703.000	822.82	0.00	822.85	525.00	579 60	1670.83	19.57	525.00	480.00	750.00	950.00	1005.00
3703.000	822.94	0.13	822.98	433.17	555.35	1714.65	0.00	0.46	516.83	750.00	950.00	950.00
3755 000	822.85	0.00	822.89	513.00	945.69	931.33	392.98	513.00	493.00	825.00	876.00	1006 00
3755.000	822 98	0 13	823.01	543.92	1367.99	902.01	0.00	0.42	332.08	825.00	876.00	876.00
3788.000	822.84	0.00	822.90	554 09	765 72	1112.81	391.47	0.00	0.00	366.45	408.55	0.00
3788.000	822.96	0.12	823.03	455.22	775.41	1125.28	369 31	0.03	21.64	366.45	408.55	476.86
3814.000	822.85	0.00	822.91	393.00	918.21	791.42	560.37	393.00	460.00	723.40	756.60	853.00
3814.000	822.96	0.12	823.03	318.42	949 15	802.46	518.39	0.06	481.41	723.40	756.60	799.83
3821.000	824.47	0.00	824.49	450.74	1102.17	571.16	596.67	451.00	465.00	723.40	756.60	916.00
3821 000	824.59	0.12	824.61	361.60	1176 68	576 88	516.44	0.08	452.84	723.40	756.60	814.43
3835.000	824.47	0 00	824.49	545.00	1121 31	450.68	698.01	545.00	572.00	833.00	855.00	1117.00
3835.000	824.59	0.12	824.61	377.37	1256.88	456.52	556.59	0.15	542.20	833.00	855.00	919 57
3864.000	824.19	0.00	824.78	506.22	69.80	1616.48	583.72	530.00	579.00	833.00	855.00	1109.00
3864.000	824.29	0.11	824.91	428.50	41.56	1637.23	591.21	430.00	629.00	833.00	855.00	1059.00
4068.000	825.01	0.00	825.03	421.94	1208.27	511.31	830.43	480.00	0.00	178.00	200.00	480.00
4068.000	825.15	0.14	825.17	423.30	1175.26	513.34	861 40	0.05	41.57	178.00	200.00	516.14
4525.000	825.12	0.00	825.15	413.40	1244.60	552.44	752.96	480.00	0.00	178.00	200.00	480.00
4525.000	825.25	0.13	825.28	381.73	1226.89	556.80	766.31	0.04	40.85	178.00	200.00	422.58
4984.000	825.30	0.00	825.39	432.74	948.57	765.98	835.45	630.00	0.00	257.50	282.50	630.00
4984.000	825.42	0.13	825.52	359.45	947.25	777.17	825.58	0.03	101.64	257.50	282.50	461.09

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
4996.000	825.34	0 00	825.43	433.89	948.69	762 86	838.44	630.00	0.00	257.50	282.50	630 00
4996.000	825.47	0.13	825.56	360.58	947.31	773.97	828.72	0.03	101.55	257.50	282.50	462.13
5058.000	825.43	0.00	825.48	382.06	895.30	652.70	1002.00	600.00	0.00	274.00	300.00	600.00
5058.000	825 55	0.12	825 61	300.56	878.04	665.70	1006.26	0.03	142.88	274.00	300.00	443.45
6108.000	826.17	0.00	826.21	581.14	1270.12	290.79	799 09	1100.00	0.00	710.00	722.00	1100.00
6108.000	826.29	0.12	826.33	442.61	1269.66	296.18	794.16	0.04	495.35	710.00	722.00	937.95
7195.000	827.49	0.00	827.57	520.85	1307.60	372.74	679.66	525.00	460.00	710.00	722.00	985.00
7195.000	827.56	0.07	827.64	523.52	1304.59	365.07	690.34	525.00	460.00	710.00	722.00	985.00
8283.000	828.94	0.00	829.10	698.27	1321.26	624.78	413.96	700.00	175.00	658.00	675.00	875.00
8283.000	828.95	0.01	829.11	698.30	1322.31	622.90	414.79	700.00	175.00	658.00	675.00	875.00
8935.000	829 76	0.00	830.19	400.00	1116.11	862.37	381.52	400.00	375.00	658.00	675.00	775.00
8935.000	829 78	0.01	830.26	478.43	751 30	903.53	705.16	0.50	498.20	658.00	675.00	976.63
8940.000	830.22	0 00	830.30	999.79	1005 60	760.57	593 84	1000.00	175.00	654.00	684.00	1175.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	8940.000	830.30	0.08	830.39	971.28	751 80	784.25	823.95	0.21	318.37	654.00	684.00	1289.65
	9310.000	830.37	0.00	830.53	798.39	1062.05	907.54	390.41	800.00	175.00	654.00	684.00	975.00
	9310.000	830.46	0.09	830.61	798 66	1069 83	891.17	399.00	800.00	175.00	654.00	684.00	975.00
*	9375.000	830.42	0.00	831.20	775.00	364.72	1782.90	212.38	775.00	150.00	465.00	510.00	925.00
*	9375.000	830.45	0.03	831.22	725.00	356.76	1780.23	223.00	725.00	175.00	465.00	510.00	900.00
*	9435 000	832.03	0.00	833.02	739 47	329.61	1662.81	367.58	750.00	200.00	288.50	311.20	950.00
*	9435.000	831.98	-0.05	833.03	738.98	330.31	1681.84	347.84	750.00	200.00	288.50	311.20	950.00
	9447 000	832.16	0.00	833 02	740.94	327.24	1607.12	425.64	750.00	200.00	288.50	311.20	950.00
	9447.000	832.16	0.00	833.03	740 95	327.21	1606.48	426.32	750.00	200.00	288.50	311.20	950.00
	9935.000	833.31	0.00	833 66	532.46	32.90	1738 44	588.66	0.00	0.00	292.00	338.00	0.00
	9935.000	833.34	0.03	833.71	430.71	0 00	1764.90	595.10	0.03	292.00	292.00	338.00	722.71
	10198.000	833.67	0.00	833 86	880.58	277.87	1390.45	691.69	0.00	0.00	285.00	330.00	0.00
	10198.000	833.71	0.04	833.92	655.03	240.94	1439.48	679.58	0.04	176.63	285.00	330.00	831.65
	10218.000	833 89	0.00	833.91	903.49	574.10	429.69	1356.21	0.00	0.00	294.00	321.00	0 00
	10218.000	833.95	0 06	833.97	694.97	540.17	444.47	1375.36	0.05	159.99	294.00	321.00	854 96
	10278.000	833.95	0 00	833.98	909 91	574.28	420.25	1365.47	0.00	0.00	294.00	321.00	0.00
	10278.000	834.01	0.06	834.04	699.59	540.73	434.62	1384.65	0.05	158.18	294.00	321.00	857.77
	10925.000	833.98	0 00	834.07	417.28	381.60	456.72	1521.69	510.00	192.00	352.00	372.00	702 00
	10925.000	834.04	0.06	834.14	356.37	343.01	473.37	1543.62	0.05	235.32	352.00	372.00	591.69
	11600.000	834 87	0 00	834.99	546.34	178.14	661.10	1520.77	0.00	0.00	400.00	430.00	0.00
	11600.000	834.95	0.08	835.09	391.56	123.82	685.64	1550.54	0.06	301 30	400.00	430.00	692.86

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
11685.000	835.01	0.00	835 13	547.25	180.66	656.77	1522.56	0.00	0.00	400.00	430.00	0.00
11685.000	835.09	0.09	835.23	394.28	128.15	681.02	1550.83	0.06	299.68	400.00	430.00	693.96
11690.000	834.98	0.00	835.19	545.93	107.04	707.07	1545.88	0.00	0.00	400.00	430.00	0.00
11690.000	835.06	0.09	835 28	248.07	15.29	820.75	1523.95	0.07	385.55	400.00	430.00	633.63
11721.000	835.22	0.00	835.32	552.27	194.23	633.94	1531.82	0.00	0.00	400.00	430.00	0 00
11721.000	835.25	0.03	835.37	406.47	143.48	664.08	1552.43	0.05	290.81	400.00	430.00	697.28

WALLED LAKE BRANCH DS

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
1 000	0.00	0.00	0 00	796.80	2550.00	806.30	0.00	806.89	23.88	6.51	486.38	521 85
1.000	0.00	0.00	0.00	796.80	2550.00	806.40	0.00	806.97	23.03	6.43	492.38	531.31
40.000	39.00	0.00	0.00	796.80	2550.00	806.22	0.00	807.08	9.25	7.45	342.42	838.25
40.000	39 00	0.00	0.00	796.80	2550.00	806.32	0.00	807.16	8 95	7.36	346.35	852.37
80.000	40.00	813.50	804.00	796.80	2550.00	812.13	0.00	812.44	2.14	4.45	573.14	1745.16
80 000	40 00	813.50	804.00	796 80	2550.00	812.24	0.00	812.54	2.09	4.42	577.24	1762.47

	314.000	234.00	0.00	0.00	797.70	2550.00	812.54	0.00	812.55	0.50	1.44	3957.35	3601.12
	314.000	234.00	0.00	0.00	797.70	2550.00	812.64	0.00	812.65	0.50	1.45	3829.30	3599.49
	725.000	411.00	0.00	0.00	799.30	2550.00	812.55	0.00	812.64	3.16	2.65	1287.46	1434.45
	725.000	411 00	0.00	0.00	799.30	2550.00	812.64	0.00	812.75	3.29	2.73	1169.72	1405 47
	1078.000	353.00	0.00	0.00	800.60	2550.00	812.59	0.00	812.73	1.32	3.15	913.04	2215.99
	1078.000	353.00	0.00	0.00	800.60	2550.00	812.69	0.00	812.84	1.36	3.18	864.87	2190.15
	1106.000	28 00	809.70	807.30	800.60	2550.00	812.60	0.00	812.74	1.32	3.15	914.58	2220.85
	1106.000	28.00	999999.00	0.00	800 60	2550.00	812.70	0.00	812.84	1.35	3.17	866.34	2194.87
	1278.000	172.00	0.00	0.00	803.10	2550.00	812.59	0.00	812.85	13.49	4.14	668.96	694.16
	1278.000	172.00	0.00	0 00	803.10	2550.00	812.69	0.00	812.96	14.03	4.13	618.12	680.91
	1448.000	170.00	0.00	0.00	804.00	2550.00	812.83	0.00	813.18	21.12	4.75	554.09	554.91
	1448.000	170.00	0 00	0.00	804.00	2550.00	812.94	0.00	813.28	20.98	4.68	545.43	556.74
	1618.000	170.00	0.00	0.00	805.10	2270.00	812.42	0.00	814.45	31.29	11.42	198.76	405.81
	1618.000	170.00	0.00	0.00	805.10	2270.00	812.57	0.00	814.49	29.02	11.12	204.11	421.35
*	1664.000	46.00	819.50	811.10	805.30	2270.00	818.61	0.00	819.02	3.23	5.13	442.21	1262.41
*	1664.000	46 00	999999.00	0.00	805.30	2270.00	818.76	0.00	819.16	3.11	5.06	448.30	1287.26
	1803 000	139.00	0.00	0.00	805.60	2270.00	819.13	0.00	819.17	2.29	2.35	1750.18	1499.89
	1803.000	139.00	0.00	0 00	805 60	2270.00	819.26	0.00	819.30	2.26	2.34	1741.25	1508.53
	2053.000	250.00	0.00	0.00	806.20	2270.00	819.16	0 00	819.27	5.00	3.35	1104.15	1015.17
	2053.000	250 00	0.00	0.00	806.20	2270.00	819.29	0.00	819.40	5.07	3.40	1070.81	1008.07
	2305.000	252.00	0.00	0.00	808.50	2270.00	819.19	0.00	819.58	12.10	5.04	450.70	652 54
	2305.000	252.00	0.00	0.00	808.50	2270 00	819.32	0.00	819.70	11.57	4.96	457.35	667.25
	2560.000	255.00	830 20	817 60	809.40	2270.00	822.50	0.00	822.74	5.43	3.87	586.26	974.01
	2560.000	255.00	999999.00	0.00	809.40	2270.00	822.64	0.00	822.87	5.25	3.83	592.92	990.51
	2693.000	133.00	0.00	0.00	808.70	2270.00	822.80	0.00	822.81	0.21	0.94	2936.94	4963.24
	2693.000	133 00	0.00	0.00	808.70	2270.00	822.92	0.00	822.94	0.21	0.94	2912.59	4989.92

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
3093.000	400.00	0.00	0.00	809.60	2270.00	822 81	0.00	822.82	0.25	0.99	3536.46	4506.57
3093.000	400.00	0.00	0.00	809.60	2270.00	822.93	0.00	822.95	0.25	0.99	3343.02	4529.87
3500.000	407.00	0.00	0.00	810.50	2270.00	822.82	0.00	822.84	0.39	1.17	2749.27	3645.32
3500.000	407.00	0.00	0.00	810.50	2270.00	822.94	0.00	822.96	0.38	1.17	2584.03	3665.08
3703.000	203.00	0.00	0.00	810.90	2270.00	822.82	0.00	822.85	0.51	1.59	1610.91	3175.06
3703.000	203.00	0.00	0 00	810.90	2270.00	822.94	0.00	822.98	0.50	1.60	1559.83	3202.74
3755.000	52 00	818.00	821.20	810.90	2270.00	822 85	0.00	822.89	0.34	1.92	1600.44	3874.58
3755.000	52 00	999999.00	0.00	810.90	2270.00	822.98	0.00	823.01	0.36	1.84	1686.02	3804.45
3788.000	33 00	0.00	0.00	811.90	2270.00	822.84	0.00	822.90	2.81	2.76	1859.73	1355.30
3788.000	33.00	0.00	0.00	811.90	2270.00	822.96	0.00	823.03	2.75	2.75	1787.64	1370.04
3814.000	26.00	0.00	0.00	812.00	2270.00	822.85	0.00	822.91	0.54	2.44	1249.98	3082.13
3814.000	26.00	0 00	0 00	812 00	2270.00	822.96	0.00	823.03	0 53	2.44	1177.61	3104.53
3821 000	7.00	822 60	820.50	812.00	2270.00	824 47	0.00	824.49	0.17	1.51	1925.90	5522.17
3821 000	7.00	999999.00	0 00	812.00	2270.00	824.59	0 00	824.61	0.17	1 51	1852.36	5562 03

3835.000	14.00	0.00	0 00	812.00	2270.00	824.47	0.00	824.49	0.21	1.75	2101.54	4921 53
3835.000	14.00	0 00	0 00	812.00	2270 00	824.59	0.00	824.61	0.21	1.76	1994.10	4940.25
3864.000	29.00	823.60	823.70	812.00	2270.00	824.19	818.54	824.78	12.06	6.82	414.81	653.74
3864.000	29.00	823.60	823.70	812.00	2270.00	824.29	818.54	824.91	12.37	6.91	395.96	645.45
4068.000	204.00	0.00	0 00	812.60	2550.00	825.01	0.00	825.03	2.02	2.00	2795.74	1793.75
4068.000	204.00	0.00	0 00	812.60	2550.00	825.15	0.00	825.17	1.96	1.99	2816.60	1821.64
4525.000	457 00	0.00	0.00	813.80	2550.00	825.12	0.00	825.15	3.28	2.39	2341.24	1408.71
4525.000	457.00	0.00	0.00	813.80	2550.00	825.25	0.00	825.28	3.19	2.38	2319.96	1428.30
4984.000	459.00	0 00	0.00	814.90	2550.00	825.30	0.00	825.39	6.50	4.11	1891.29	999.96
4984.000	459.00	0.00	0.00	814.90	2550.00	825.42	0.00	825.52	6.33	4.10	1830.89	1013 42
4996.000	12.00	819.60	819.40	814.90	2550.00	825.34	0.00	825.43	6.33	4.07	1909.61	1013.54
4996.000	12.00	999999.00	0.00	814.90	2550.00	825.47	0.00	825.56	6.16	4.06	1849.15	1027.06
5058.000	62.00	0.00	0.00	814.70	2550.00	825.43	0.00	825.48	7.07	3.01	1831.32	959.14
5058.000	62.00	0.00	0.00	814.70	2550.00	825.55	0.00	825.61	7.00	3.02	1748.46	963.72
6108 000	1050.00	0.00	0.00	818.10	2360.00	826.17	0.00	826.21	11.15	3.13	1872.28	706.70
6108.000	1050.00	0.00	0.00	818.10	2360.00	826.29	0.00	826.33	11.01	3.14	1765.50	711.37
7195 000	1087.00	0.00	0.00	820.40	2360.00	827.49	0.00	827.57	28.88	4.60	1328.56	439.18
7195.000	1087.00	0.00	0.00	820.40	2360.00	827.56	0.00	827.64	26.75	4.46	1365.65	456.29
8283.000	1088.00	0.00	0.00	822.40	2360.00	828.94	0.00	829.10	12.26	6.19	1851.63	673.87
8283.000	1088.00	0.00	0 00	822.40	2360.00	828.95	0.00	829.11	12.11	6.16	1859.71	678.10

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	8935 000	652 00	0.00	0 00	823.20	2360.00	829.76	0.00	830.19	22.96	8.50	1166.31	492.48
	8935 000	652.00	0.00	0.00	823.20	2360.00	829.78	0.00	830.26	24.97	8.88	1163.03	472.33
	8940.000	5.00	0.00	0.00	823.20	2360.00	830.22	0.00	830.30	3.94	3.98	2853.18	1189.37
	8940.000	5.00	0 00	0.00	823.20	2360.00	830.30	0.00	830.39	4.01	4.05	2795.11	1178.06
	9310.000	370.00	0.00	0.00	823.80	2360.00	830.37	0.00	830.53	7.14	5.11	2083.39	883.23
	9310.000	370.00	0.00	0.00	823.80	2360.00	830.46	0.00	830.61	6.56	4.94	2151.65	921.19
*	9375.000	65.00	0.00	0.00	823.90	2360.00	830.42	830.42	831.20	24.09	8.17	933.20	480.80
*	9375.000	65.00	0.00	0.00	823.90	2360.00	830.45	830 45	831.22	23.47	8.10	929.91	487.12
*	9435.000	60.00	0.00	0.00	824.00	2360.00	832.03	832.03	833.02	17.33	9.51	1001.30	566.83
*	9435.000	60.00	0.00	0.00	824.00	2360.00	831.98	831.98	833.03	18.09	9.68	967.62	554.90
	9447.000	12.00	832.05	830.60	824.00	2360.00	832.16	0.00	833.02	15.28	9.04	1101.24	603.71
	9447.000	12.00	832.05	830 60	824.00	2360.00	832.16	0.00	833.03	15.26	9.03	1102.42	604.16
	9935.000	488.00	0.00	0.00	824.80	2360.00	833.31	0.00	833.66	6.94	5.53	1279.14	895 79
	9935.000	488.00	0.00	0.00	824.80	2360.00	833.34	0.00	833 71	8.10	5.60	1151.53	829.17
	10198.000	263.00	0.00	0.00	825.20	2360.00	833 67	0.00	833.86	4.75	4.54	2036.17	1083.27
	10198.000	263.00	0.00	0 00	825.20	2360.00	833.71	0.00	833.92	4.99	4.67	1815.78	1056.59
	10218.000	20.00	0.00	0 00	825.30	2360.00	833.89	0.00	833.91	0.74	2.01	2223.73	2738.68
	10218.000	20.00	0.00	0.00	825.30	2360.00	833.95	0.00	833.97	0.78	2.06	2053.76	2679.80
	10278.000	60.00	831 30	829.30	825.30	2360.00	833.95	0.00	833.98	0.69	1.95	2279.84	2836.75
	10278.000	60.00	999999.00	0.00	825.30	2360.00	834.01	0.00	834.04	0.72	2.00	2106.45	2776.00

10925.000	627.00	0.00	0.00	826.80	2360.00	833.98	0.00	834.07	11.37	3.77	1237.57	699.84
10925.000	627.00	0.00	0 00	826.80	2360.00	834.04	0.00	834.14	11.82	3.87	1158.18	686.49
11600.000	675.00	0.00	0.00	827.38	2360.00	834.87	0.00	834.99	15.96	4.17	1119.94	590.74
11600.000	675.00	0.00	0.00	827.38	2360.00	834.95	0.00	835.09	16.26	4.25	997.83	585.26
11685.000	85.00	0.00	0.00	827.50	2360.00	835.01	0.00	835.13	15.54	4.12	1131.53	598.60
11685.000	85.00	0.00	0.00	827.50	2360.00	835.09	0.00	835.23	15.91	4.21	1008.42	591.75
11690 000	5.00	833.20	833.80	827.50	2360.00	834.98	0.00	835.19	144.67	5.51	849.40	196.21
11690.000	5 00	999999.00	0.00	827.50	2360.00	835.06	0.00	835.28	23.45	5.10	726.64	487.35
11721.000	31.00	0.00	0.00	827.60	2360.00	835.22	0.00	835.32	13.46	3.89	1196.14	643.22
11721.000	31.00	0.00	0.00	827.60	2360.00	835.25	0.00	835.37	14.58	4.06	1054.97	617 98

WALLED LAKE BRANCH DS

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1.000	2550 00	806.30	0.00	0.00	0.00	60.00	0.00
	1.000	2550.00	806.40	0.10	0.00	0.10	60.00	0.00
	40.000	2550.00	806.22	0 00	-0.08	0.00	39.00	39.00
	40 000	2550 00	806.32	0.10	-0.08	0.10	39.00	39.00
	80.000	2550.00	812.13	0.00	5.92	0.00	39.00	40.00
	80.000	2550.00	812 24	0.11	5.92	0.11	39.00	40.00
	314 000	2550.00	812.54	0.00	0.40	0.00	405.00	234.00
	314.000	2550.00	812.64	0 10	0.40	0.10	348.57	234.00
	725.000	2550.00	812.55	0.00	0.01	0.00	200.00	411.00
	725.000	2550.00	812.64	0 10	0.00	0.10	173.06	411.00
	1078.000	2550.00	812.59	0.00	0.05	0.00	201.55	353.00
	1078.000	2550 00	812.69	0.10	0.05	0.10	145.51	353.00
	1106.000	2550.00	812.60	0.00	0.01	0.00	201.68	28.00
	1106.000	2550.00	812.70	0.10	0.01	0.10	145.64	28.00
	1278.000	2550.00	812.59	0.00	-0.01	0.00	174.98	172.00
	1278.000	2550.00	812.69	0.10	0.00	0.10	112.00	172 00
	1448.000	2550.00	812.83	0.00	0 24	0.00	128.84	170.00
	1448.000	2550.00	812.94	0 11	0.25	0.11	112.00	170.00
	1618.000	2270.00	812.42	0.00	-0.41	0.00	36.65	170.00
	1618.000	2270.00	812.57	0.15	-0.38	0.15	36 90	170.00
*	1664.000	2270.00	818.61	0.00	6 19	0.00	42.00	46.00
*	1664.000	2270.00	818 76	0.15	6.19	0.15	42.00	46.00
	1803.000	2270.00	819.13	0.00	0.51	0.00	183 18	139.00
	1803.000	2270.00	819.26	0.13	0 50	0 13	176.67	139.00
	2053.000	2270.00	819.16	0.00	0.03	0.00	119.74	250.00
	2053.000	2270.00	819 29	0.13	0 03	0.13	114.59	250.00

2305 000	2270. 00	819. 19	0. 00	0. 03	0. 00	49. 00	252. 00
2305. 000	2270. 00	819. 32	0 14	0. 04	0. 14	49. 00	252. 00
2560. 000	2270. 00	822. 50	0. 00	3. 32	0. 00	49. 00	255. 00
2560. 000	2270. 00	822. 64	0. 14	3. 32	0. 14	49. 00	255. 00
2693. 000	2270. 00	822. 80	0. 00	0. 29	0. 00	315. 00	133. 00
2693. 000	2270 00	822. 92	0. 13	0. 28	0. 13	299. 49	133. 00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
3093 000	2270. 00	822. 81	0. 00	0 01	0. 00	843. 19	400. 00
3093. 000	2270. 00	822 93	0. 13	0. 01	0. 13	654. 03	400. 00
3500. 000	2270. 00	822. 82	0. 00	0. 01	0. 00	690. 37	407. 00
3500. 000	2270. 00	822. 94	0. 13	0. 01	0. 13	483. 98	407. 00
3703. 000	2270. 00	822. 82	0. 00	0. 00	0. 00	525. 00	203. 00
3703. 000	2270. 00	822. 94	0. 13	0. 00	0 13	433. 17	203. 00
3755. 000	2270. 00	822. 85	0. 00	0. 03	0. 00	513. 00	52. 00
3755. 000	2270. 00	822. 98	0. 13	0. 03	0. 13	543. 92	52. 00
3788. 000	2270. 00	822. 84	0. 00	-0. 01	0. 00	554. 09	33. 00
3788. 000	2270. 00	822 96	0. 12	-0. 01	0. 12	455 22	33. 00
3814. 000	2270. 00	822. 85	0. 00	0. 01	0 00	393. 00	26 00
3814 000	2270. 00	822. 96	0. 12	0. 00	0. 12	318. 42	26. 00
3821. 000	2270 00	824. 47	0 00	1. 62	0. 00	450. 74	7. 00
3821. 000	2270. 00	824. 59	0. 12	1. 62	0. 12	361. 60	7. 00
3835. 000	2270. 00	824 47	0. 00	0. 00	0. 00	545. 00	14. 00
3835. 000	2270 00	824. 59	0. 12	0. 00	0 12	377. 37	14. 00
3864. 000	2270. 00	824. 19	0. 00	-0. 28	0. 00	506. 22	29. 00
3864. 000	2270. 00	824. 29	0. 11	-0. 29	0. 11	428. 50	29. 00
4068. 000	2550. 00	825. 01	0. 00	0. 82	0. 00	421. 94	204. 00
4068. 000	2550. 00	825. 15	0. 14	0. 85	0. 14	423. 30	204 00
4525. 000	2550. 00	825. 12	0. 00	0. 11	0. 00	413. 40	457. 00
4525. 000	2550. 00	825. 25	0. 13	0. 11	0. 13	381. 73	457. 00
4984. 000	2550. 00	825. 30	0 00	0. 18	0. 00	432. 74	459. 00
4984. 000	2550. 00	825. 42	0. 13	0. 17	0. 13	359 45	459. 00
4996. 000	2550. 00	825. 34	0. 00	0. 04	0. 00	433. 89	12. 00
4996. 000	2550. 00	825. 47	0. 13	0. 04	0. 13	360. 58	12. 00
5058. 000	2550. 00	825. 43	0. 00	0. 09	0. 00	382. 06	62. 00
5058. 000	2550. 00	825. 55	0. 12	0. 09	0. 12	300. 56	62 00
6108. 000	2360. 00	826. 17	0. 00	0. 74	0 00	581. 14	1050. 00
6108. 000	2360. 00	826. 29	0. 12	0. 73	0. 12	442. 61	1050. 00
7195. 000	2360. 00	827. 49	0. 00	1. 32	0. 00	520. 85	1087. 00
7195. 000	2360 00	827 56	0 07	1. 27	0. 07	523. 52	1087. 00
8283 000	2360. 00	828 94	0. 00	1. 45	0. 00	698. 27	1088. 00
8283. 000	2360 00	828. 95	0. 01	1. 39	0 01	698. 30	1088. 00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	8935.000	2360.00	829.76	0.00	0.83	0.00	400.00	652.00
	8935.000	2360.00	829.78	0.01	0.83	0.01	478.43	652.00
	8940.000	2360.00	830.22	0.00	0.45	0.00	999.79	5.00
	8940.000	2360.00	830.30	0.08	0.52	0.08	971.28	5.00
	9310.000	2360.00	830.37	0.00	0.15	0.00	798.39	370.00
	9310.000	2360.00	830.46	0.09	0.16	0.09	798.66	370.00
*	9375.000	2360.00	830.42	0.00	0.05	0.00	775.00	65.00
*	9375.000	2360.00	830.45	0.03	0 00	0.03	725.00	65.00
*	9435.000	2360.00	832.03	0.00	1.61	0.00	739.47	60.00
*	9435.000	2360.00	831.98	-0.05	1.53	-0.05	738.98	60.00
	9447.000	2360.00	832.16	0.00	0.13	0.00	740.94	12.00
	9447.000	2360.00	832.16	0.00	0.18	0.00	740.95	12.00
	9935.000	2360.00	833.31	0.00	1.16	0.00	532.46	488.00
	9935.000	2360.00	833.34	0.03	1.18	0 03	430.71	488.00
	10198.000	2360.00	833.67	0.00	0.36	0.00	880 58	263.00
	10198.000	2360.00	833.71	0.04	0.37	0.04	655.03	263.00
	10218.000	2360.00	833.89	0.00	0.22	0.00	903.49	20.00
	10218.000	2360.00	833.95	0.06	0.24	0.06	694.97	20.00
	10278.000	2360.00	833.95	0.00	0.06	0.00	909 91	60.00
	10278.000	2360.00	834.01	0.06	0.06	0.06	699.59	60.00
	10925.000	2360.00	833.98	0 00	0.03	0.00	417.28	627.00
	10925 000	2360.00	834.04	0 06	0 03	0.06	356.37	627.00
	11600.000	2360.00	834.87	0.00	0.89	0 00	546.34	675.00
	11600.000	2360.00	834.95	0.08	0.91	0.08	391.56	675.00
	11685.000	2360.00	835.01	0.00	0.14	0.00	547.25	85.00
	11685.000	2360.00	835.09	0 09	0.14	0.09	394.28	85.00
	11690.000	2360.00	834.98	0.00	-0 03	0.00	545.93	5.00
	11690.000	2360.00	835.06	0.09	-0.03	0 09	248.07	5.00
	11721.000	2360.00	835.22	0.00	0.24	0.00	552.27	31.00
	11721 000	2360.00	835.25	0.03	0.18	0.03	406.47	31.00

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 1664.000 PROFILE= 1 HYDRAULIC JUMP D S.
CAUTION SECNO= 1664 000 PROFILE= 2 HYDRAULIC JUMP D. S.

CAUTION SECNO= 9375.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9375 000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9375.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

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CAUTION  SECNO=  9375.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  9375.000  PROFILE= 2  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=  9435.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  9435 000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  9435.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  9435.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  9435.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  9435 000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

1
 18 MAR 88    16:35:58                                                    PAGE   53
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FLOODWAY DATA, WALLED LAKE BRANCH DS
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
1.000	60.	492.	5.2	806.4	806.3	0.1
40.000	39.	346	7.4	806.3	806.2	0 1
80.000	39.	577	4.4	812.2	812 1	0.1
314.000	349.	3829.	0.7	812.6	812.5	0.1
725.000	173.	1170.	2.2	812.6	812 5	0.1
1078.000	146.	865.	2.9	812 7	812.6	0.1
1106.000	146.	866.	2.9	812.7	812.6	0.1
1278.000	112.	618.	4.1	812.7	812.6	0.1
1448 000	112.	545.	4.7	812.9	812.8	0 1
1618.000	37.	204.	11.1	812 5	812.4	0.1
1664.000	42.	448.	5.1	818.7	818.6	0.1
1803.000	177.	1741.	1.3	819.2	819.1	0.1
2053.000	115.	1071.	2.1	819.3	819.2	0 1
2305.000	49.	457.	5.0	819.3	819.2	0.1
2560.000	49.	593.	3.8	822.6	822.5	0.1
2693.000	299	2913.	0.8	822.9	822.8	0.1
3093.000	673.	3343	0.7	822.9	822.8	0.1
3500.000	484.	2584.	0.9	822.9	822.8	0 1
3703.000	433.	1560.	1.5	822.9	822.8	0.1
3755.000	544.	1686.	1.3	822.9	822.8	0.1
3788.000	455.	1788	1.3	822.9	822.8	0.1
3814.000	318.	1178.	1.9	822.9	822.8	0 1
3821 000	362.	1852.	1.2	824.6	824.5	0.1
3835.000	377.	1994.	1.1	824.6	824.5	0.1
3864.000	430.	396.	5.7	824.3	824.2	0.1
4068.000	475.	2817.	0.9	825.1	825 0	0.1
4525.000	382	2320.	1.1	825.2	825.1	0.1
4984.000	359.	1831.	1.4	825.4	825.3	0.1
4996.000	361.	1849.	1 4	825.4	825 3	0.1
5058 000	301.	1748.	1.5	825.5	825.4	0.1
6108.000	443.	1766.	1 3	826.3	826.2	0.1
7195 000	524.	1366.	1.7	827.6	827.5	0.1
8283.000	698.	1860.	1 3	828.9	828.9	0.0
8935.000	478.	1163.	2.0	829 8	829.8	0.0
8940.000	971.	2795	0 8	830.3	830.2	0.1
9310.000	799.	2152.	1.1	830 5	830.4	0 1
9375.000	725.	930.	2.5	830.4	830 4	0.0
9435.000	750.	968.	2.4	832.0	832.0	0.0
9447.000	750	1102.	2.1	832.2	832.2	0.0
9935.000	431.	1152.	2.0	833.3	833 3	0.0
10198 000	655.	1816.	1.3	833.7	833.7	0.0
10218 000	695.	2054.	1.1	834.0	833.9	0.1

FLOODWAY DATA, WALLED LAKE BRANCH DS
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
10278.000	700.	2106.	1.1	834.1	834.0	0.1
10925 000	356.	1158.	2.0	834.1	834.0	0.1
11600.000	392.	998.	2.4	835.0	834.9	0.1
11685 000	394	1008.	2.3	835.1	835.0	0.1
11690.000	248.	727.	3.2	835.1	835.0	0.1
11721.000	406.	1055.	2.2	835.2	835.2	0.0

THIS RUN EXECUTED 18 MAR 88 16:36:19

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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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ER

   UNEXPECTED END OF FILE ABORT IN SUBROUTINE  H2MAIN
===> LI WLBENDUT 3000
===>
===>
===>
===> CO WLBENDUT :6
===> BYE
===> *SIGNOFF
```

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ROUGE
WALLED LAKE BRANCH
DOWNSTREAM MEADOWBROOK LAKE

4) DOWNMENT TYPE: SUMMARY - 1984

00BREAK00

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

3280 CROSS SECTION 11721.00 EXTENDED 1.38 FEET

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS=		29.5	370.5	TYPE=	4	TARGET=	0.063		
11721.00	6.28	839.28	839.28	839.16	839.98	0.70	0.01	0.29	838.00
2160.	400.	1435.	325.	228.	176.	185.	374	90.	838.00
1.48	1.76	8.16	1.76	0.030	0 015	0.030	0.000	833.00	29.47
0.000881	5	5.	5.	20	10	0	0 00	341.02	370.49

0
1

THIS RUN EXECUTED 13 FEB 89 12:52:20

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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
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

WALLED LAKE BRANCH DS

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
1.000	806.30	0.00	806.81	60.00	280.51	2099.48	0.00	60.00	357.00	378.00	417.00	417.00
1.000	806.40	0.10	806.90	60.00	281.73	2098.27	0.00	60.00	357.00	378 00	417.00	417.00
40.000	806.23	0.00	806.98	39 00	0.00	2380.00	0.00	39.00	378.00	378.00	417.00	417 00
40.000	806.33	0.10	807.06	39.00	0.00	2380.00	0.00	39.00	378.00	378.00	417.00	417.00
80.000	811.35	0.00	811.65	39.00	0.00	2380.00	0.00	39.00	378.00	378.00	417.00	417.00
80.000	811.46	0.11	811.75	39.00	0.00	2380.00	0.00	39 00	378.00	378.00	417.00	417.00
314.000	811 75	0.00	811.76	405.00	1175.92	759.65	444.43	405.00	145.00	378.00	417.00	550.00
314.000	811.84	0.10	811.86	329.15	1176.90	769 39	433.71	0.01	173.06	378.00	417.00	502.21
725.000	811.75	0.00	811.86	200.00	0.00	2136.31	243.69	200.00	262.00	262.00	362.00	462.00
725.000	811.85	0.10	811.97	171.33	0.00	2214.78	165 22	0.19	262.00	262.00	362.00	433.33
1078.000	811.81	0.00	811.98	180.92	11.68	2205.14	163.18	437.00	0.00	262.00	362.00	437.00
1078.000	811.91	0.10	812.09	134.27	0.00	2261.30	118.70	0.31	262.00	262.00	362.00	396.27
1106.000	811.83	0.00	812.00	181.53	12.22	2202.87	164.91	430.00	0.00	262.00	362.00	430.00
1106.000	811.93	0.10	812 11	134.69	0.00	2258.56	121.44	0.31	262.00	262.00	362.00	396.69

1278.000	811.83	0.00	812.15	147.70	4.46	2363.71	11 83	215.00	375.00	430.00	542.00	590.00
1278.000	811.94	0.11	812.25	120.00	2.29	2369.58	8.13	120.00	425.00	430.00	542.00	545.00
1448.000	812.20	0.00	812.60	127.73	0 35	2369.92	9.73	130.00	420.00	430.00	542.00	550.00
1448.000	812.29	0.09	812.68	112.00	0.00	2380.00	0.00	0.01	430.00	430.00	542.00	542.00
* 1618.000	811.77	0.00	814.28	35.52	0.00	2230.00	0.00	42.00	588.00	588.00	630.00	630.00
1618.000	811.85	0.08	814 28	35.65	0.00	2230.00	0.00	0.28	588.00	588.00	630.00	630.00
* 1664.000	818.40	0.00	818.81	42.00	0.00	2230 00	0.00	42.00	588.00	588.00	630.00	630.00
* 1664.000	818.47	0.08	818.88	42.00	0.00	2230.00	0.00	0 62	588.00	588.00	630.00	630.00

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13 FEB 89 12 51:30 PAGE 44

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
1803.000	818.91	0 00	818.96	180.21	1310.92	919.08	0.00	280.00	140.00	278.00	320.00	420.00
1803.000	818 98	0.07	819.03	176.58	1297.13	932.87	0.00	0.29	143.44	278.00	320.00	320.03
2053.000	818.95	0.00	819.06	119.58	994.76	1235.24	0.00	220.00	200.00	278.00	320.00	420.00
2053.000	819.01	0.06	819.13	114.34	957.62	1272.38	0.00	0.47	205.29	278.00	320.00	320.00
2305.000	818.98	0.00	819.38	49.00	0.00	2230.00	0.00	49.00	675.00	675.00	724.00	724.00
2305.000	819.06	0.07	819 45	49.00	0.00	2230.00	0.00	0.43	675.00	675.00	724.00	724.00
2560.000	822.17	0.00	822 41	49.00	0.00	2230 00	0.00	49.00	675.00	675.00	724.00	724.00
2560.000	822.24	0.07	822.48	49.00	0.00	2230.00	0.00	0.52	675.00	675.00	724.00	724.00
2693.000	822.47	0.00	822.48	315.00	276.57	258.97	1694.46	315.00	345.00	466.00	486.00	660.00
2693.000	822 54	0.07	822 55	304.92	286.48	262.42	1681.10	0.11	338.63	466.00	486.00	643.55
3093.000	822.48	0.00	822.49	801.39	332.99	259.81	1637.20	0.00	0.00	466.00	486.00	0.00
3093.000	822.55	0.07	822.56	547 89	317.87	263.59	1648.55	0.02	107.30	466.00	486.00	655.19
3500.000	822.49	0.00	822.51	648.24	279.82	283.54	1666.64	763.00	54 00	466.00	486.00	817.00
3500.000	822.56	0.07	822.58	442.80	270.52	288.41	1671.07	0.03	195.13	466.00	486.00	637.93
3703.000	822.49	0.00	822.53	511.53	492.30	1727.11	10.60	525.00	480.00	750.00	950.00	1005.00
3703.000	822.56	0.07	822.60	419.49	441.89	1788.11	0.00	0.45	530.51	750.00	950.00	950.00
3755.000	822.52	0.00	822.57	499.57	865.81	990.34	373.85	513 00	493.00	825.00	876.00	1006.00
3755.000	822.59	0.07	822.63	502.45	880 05	973.50	376.45	513.00	493.00	825.00	876.00	1006.00
3788.000	822.51	0.00	822.59	539.84	694.69	1157.39	377.93	0.00	0.00	366.45	408.55	0.00
3788.000	822.57	0.07	822.66	444.94	692.07	1183.15	354.78	0.03	25.08	366.45	408.55	470.02
3814.000	822 52	0 00	822 59	380.54	845.78	841.93	542 28	393.00	460.00	723.40	756.60	853.00
3814.000	822.58	0.06	822.66	300.42	858.05	864.20	507.76	0.05	495.92	723.40	756.60	796.34
3821.000	824.22	0.00	824.25	441.30	1063.42	586.07	580.51	451.00	465.00	723.40	756.60	916.00
3821.000	824.28	0.06	824.31	356.45	1122.19	597.63	510.18	0.08	456.00	723.40	756.60	812.45
3835.000	824.23	0.00	824 25	529 35	1090.51	461.68	677.81	545.00	572.00	833.00	855.00	1117.00
3835.000	824 28	0.06	824.31	373.01	1213.79	471.52	544.70	0.13	542.81	833.00	855.00	915.83
3864.000	823.93	0.00	824.54	453 73	21.61	1622.50	585.89	530.00	579.00	833.00	855.00	1109.00
3864.000	823.99	0.06	824.61	406 38	13.93	1628.14	587.93	440 00	625.00	833.00	855.00	1065.00
4068.000	824.78	0.00	824.80	420.14	1134.60	484.64	760.76	480.00	0.00	178.00	200.00	480.00
4068.000	824.84	0.06	824.86	417.66	1109.55	489.33	781 12	0.05	41.32	178.00	200.00	512 58
4525.000	824.89	0.00	824.92	411.57	1169.24	525.03	685.74	480.00	0.00	178.00	200.00	480.00
4525 000	824.95	0.06	824.98	378.96	1157.21	532 16	690.63	0.04	40.86	178.00	200.00	419.82

4984.000	825.06	0.00	825.15	426.35	884.46	731.93	763.61	630.00	0.00	257.50	282.50	630.00
4984.000	825.13	0 06	825.22	353.07	882.83	746 69	750.48	0.03	102.14	257.50	282.50	455.22

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13 FEB 89 12:51:30 PAGE 45

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
4996.000	825.10	0.00	825 19	427.39	884.63	729.06	766.31	630.00	0.00	257 50	282.50	630.00
4996.000	825.16	0.06	825.26	354.15	882.96	743.69	753.35	0.03	102.06	257.50	282.50	456.21
5058.000	825.19	0.00	825.24	380.42	829.50	623.60	926.90	600.00	0.00	274.00	300.00	600.00
5058.000	825.26	0.06	825.31	293.53	814.29	639.30	926.41	0.03	143.39	274.00	300.00	436.91
6108.000	825.94	0.00	825.98	567.68	1170.70	280.34	708.96	1100.00	0.00	710.00	722.00	1100.00
6108.000	826.02	0.08	826.06	431.80	1172.74	287.35	699.91	0.04	498.10	710.00	722 00	929 90
7195.000	827.30	0.00	827.39	509.38	1203.22	360 82	595.96	525.00	460.00	710.00	722.00	985.00
7195.000	827.36	0.06	827.44	513.02	1201.19	354.33	604.48	525.00	460.00	710.00	722.00	985.00
8283.000	828.78	0.00	828.94	697.76	1195.14	596.98	367.88	700.00	175.00	658.00	675.00	875.00
8283.000	828.78	0.01	828.95	697.79	1195.90	595.64	368.46	700 00	175.00	658.00	675.00	875.00
8935.000	829.60	0.00	830.02	400.00	1002.15	815 67	342.17	400.00	375.00	658.00	675.00	775.00
8935.000	829.61	0.00	830.02	400.00	1002.39	815.35	342.26	400.00	375.00	658.00	675.00	775.00
8940 000	830 04	0.00	830.13	999.24	914.64	723.48	521.88	1000.00	175.00	654.00	684.00	1175.00
8940.000	830.04	0.00	830.13	999.24	914.67	723.31	522.01	1000 00	175.00	654.00	684.00	1175.00
9310.000	830.20	0.00	830.36	797.83	955.89	863.86	340.25	800.00	175.00	654.00	684.00	975.00
9310.000	830.20	0.00	830.36	797.83	955 98	863.68	340.34	800.00	175.00	654.00	684.00	975 00
* 9375.000	830.19	0.00	831.06	714.18	283.12	1737.68	139.21	775.00	150 00	465.00	510.00	925.00
* 9375.000	830.18	0.00	831.06	714.11	283.02	1737.87	139.11	775.00	150.00	465.00	510.00	925.00
* 9435.000	830.53	0.00	832.83	98.01	252.94	1849.54	57.52	750.00	200.00	288.50	311.20	950.00
* 9435.000	830.53	0.00	832.83	98.01	252 94	1849.54	57.52	750.00	200.00	288.50	311.20	950.00
9447.000	830.42	0.00	832.83	96.56	245.94	1858.15	55.91	750.00	200.00	288.50	311.20	950.00
9447.000	830.42	0.00	832.83	96.56	245.95	1858.14	55.91	750.00	200.00	288.50	311.20	950.00
9935.000	833.76	0.00	833.98	557.80	32.13	1495.65	632.21	0.00	0.00	292.00	338.00	0 00
9935.000	833.81	0.05	834.03	448.91	0.00	1502.87	657.13	0.03	292.00	292.00	338.00	740.91
10198.000	833.97	0.00	834.10	912.60	269.74	1198.02	692.24	0.00	0.00	285.00	330.00	0.00
10198.000	834.02	0.05	834.15	683.90	239.82	1235.11	685.07	0.04	164.99	285.00	330.00	848.89
10218.000	834.12	0.00	834.13	926.69	526.00	363.74	1270.26	0.00	0.00	294.00	321.00	0.00
10218.000	834.17	0.06	834.19	712.69	496.50	375.66	1287.84	0.05	153 12	294.00	321.00	865.81
10278.000	834.17	0.00	834.19	933.31	526.15	356 09	1277.76	0.00	0.00	294.00	321.00	0 00
10278.000	834.23	0.06	834.25	723.22	499.03	367.09	1293.88	0.05	149.03	294.00	321.00	872.26
10925.000	834.19	0.00	834.25	420.69	356.49	399.20	1404.31	510.00	192.00	352.00	372.00	702.00
10925.000	834 25	0.06	834.32	361.82	324.45	412.79	1422.77	0.05	232.31	352.00	372.00	594.14
11600.000	834.85	0.00	834.96	545.60	161.13	608 36	1390.51	0.00	0.00	400.00	430.00	0.00
11600.000	834 93	0.08	835.04	391.64	111.73	631.85	1416.42	0.06	301.31	400.00	430.00	692 95

1
13 FEB 89 12:51:30 PAGE 46

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR

	11685.000	834.47	0.00	835.07	545.50	160.86	608.82	1390.32	0.00	0.00	400.00	430.00	0.00
	11685.000	835.05	0.08	835.16	392.27	111.95	632.42	1415.63	0.06	300.90	400.00	430.00	693.16
	11690.000	834.94	0.00	835.13	544.32	92.58	656.49	1410.93	0.00	0.00	400.00	430.00	0.00
	11690.000	835.02	0.08	835.21	245.37	11.21	759.33	1389.46	0.07	387.86	400.00	430.00	633.23
	11716.000	835.14	0.00	835.23	548.20	167.77	597.01	1395.23	0.00	0.00	400.00	430.00	0.00
	11716.000	835.16	0.03	835.28	393.24	114.63	628.01	1417.36	0.06	299.99	400.00	430.00	693.23
*	11721.000	839.16	0.00	839.84	400.00	410.09	1405.04	344.86	0.00	0.00	202.00	230.00	0.00
*	11721.000	839.28	0.12	839.98	341.02	400.35	1434.62	325.03	0.06	29.47	202.00	230.00	370.49

WALLED LAKE BRANCH DS

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	1.000	0.00	0.00	0.00	796.80	2380.00	806.30	0.00	806.81	20.80	6.07	486.38	521.85
	1.000	0.00	0.00	0.00	796.80	2380.00	806.40	0.00	806.90	20.07	6.00	492.38	531.31
	40.000	39.00	0.00	0.00	796.80	2380.00	806.23	0.00	806.98	8.03	6.94	342.86	839.86
	40.000	39.00	0.00	0.00	796.80	2380.00	806.33	0.00	807.06	7.77	6.86	346.79	853.96
	80.000	40.00	813.50	804.00	796.80	2380.00	811.35	0.00	811.65	2.16	4.39	542.64	1617.68
	80.000	40.00	813.50	804.00	796.80	2380.00	811.46	0.00	811.75	2.12	4.35	546.75	1634.72
	314.000	234.00	0.00	0.00	797.70	2380.00	811.75	0.00	811.76	0.55	1.45	3636.49	3202.62
	314.000	234.00	0.00	0.00	797.70	2380.00	811.84	0.00	811.86	0.55	1.46	3494.09	3200.96
	725.000	411.00	0.00	0.00	799.30	2380.00	811.75	0.00	811.86	3.92	2.78	1129.33	1202.24
	725.000	411.00	0.00	0.00	799.30	2380.00	811.85	0.00	811.97	4.05	2.85	1025.97	1182.96
	1078.000	353.00	0.00	0.00	800.60	2380.00	811.81	0.00	811.98	1.82	3.43	763.84	1762.54
	1078.000	353.00	0.00	0.00	800.60	2380.00	811.91	0.00	812.09	1.85	3.46	726.83	1748.94
	1106.000	28.00	809.70	807.30	800.60	2380.00	811.83	0.00	812.00	1.80	3.41	767.80	1774.33
	1106.000	28.00	999999.00	0.00	800.60	2380.00	811.93	0.00	812.11	1.83	3.45	730.66	1760.44
	1278.000	172.00	0.00	0.00	803.10	2380.00	811.83	0.00	812.15	19.70	4.53	546.82	536.19
	1278.000	172.00	0.00	0.00	803.10	2380.00	811.94	0.00	812.25	18.35	4.44	547.54	555.57
	1448.000	170.00	0.00	0.00	804.00	2380.00	812.20	0.00	812.60	29.81	5.13	472.67	435.93
	1448.000	170.00	0.00	0.00	804.00	2380.00	812.29	0.00	812.68	29.25	5.05	471.58	440.10
*	1618.000	170.00	0.00	0.00	805.10	2230.00	811.77	811.77	814.28	43.14	12.72	175.36	339.53
	1618.000	170.00	0.00	0.00	805.10	2230.00	811.85	811.77	814.28	41.24	12.52	178.14	347.23
*	1664.000	46.00	819.50	811.10	805.30	2230.00	818.40	0.00	818.81	3.31	5.15	433.20	1225.81
*	1664.000	46.00	999999.00	0.00	805.30	2230.00	818.47	0.00	818.88	3.24	5.11	436.35	1238.55
	1803.000	139.00	0.00	0.00	805.60	2230.00	818.91	0.00	818.96	2.38	2.36	1711.86	1446.49
	1803.000	139.00	0.00	0.00	805.60	2230.00	818.98	0.00	819.03	2.39	2.37	1691.77	1442.18
	2053.000	250.00	0.00	0.00	806.20	2230.00	818.95	0.00	819.06	5.19	3.37	1079.14	979.33
	2053.000	250.00	0.00	0.00	806.20	2230.00	819.01	0.00	819.13	5.37	3.44	1039.30	962.22
	2305.000	252.00	0.00	0.00	808.50	2230.00	818.98	0.00	819.38	12.51	5.06	440.70	630.60
	2305.000	252.00	0.00	0.00	808.50	2230.00	819.06	0.00	819.45	12.19	5.02	444.38	638.61
	2560.000	255.00	830.20	817.60	809.40	2230.00	822.17	0.00	822.41	5.70	3.91	569.94	933.83

2560.000	255.00	999999.00	0.00	809.40	2230.00	822.24	0.00	822.48	5.59	3.89	573.62	942.81
2693.000	133.00	0.00	0.00	808.70	2230.00	822.47	0.00	822.48	0.23	0.96	2834.03	4692.95
2693.000	133.00	0.00	0.00	808.70	2230 00	822.54	0.00	822.55	0.23	0.97	2817.03	4677.30

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
3093.000	400.00	0.00	0.00	809.60	2230.00	822.48	0.00	822.49	0.28	1.03	3267.39	4179.07
3093 000	400.00	0.00	0.00	809.60	2230.00	822.55	0 00	822.56	0.29	1.04	3011.62	4156.70
3500.000	407.00	0.00	0.00	810.50	2230.00	822.49	0.00	822.51	0.43	1.21	2530.00	3387.69
3500.000	407.00	0.00	0.00	810.50	2230.00	822.56	0.00	822.58	0.44	1 23	2338.39	3364.99
3703.000	203.00	0.00	0.00	810 90	2230.00	822.49	0.00	822 53	0.68	1.76	1442.43	2712.00
3703 000	203.00	0.00	0.00	810.90	2230.00	822.56	0.00	822.60	0.70	1.79	1372 02	2671.11
3755.000	52.00	818.00	821.20	810.90	2230.00	822.52	0.00	822.57	0.44	2.12	1434.91	3376.45
3755.000	52.00	818.00	821.20	810.90	2230.00	822.59	0.00	822.63	0.41	2 07	1469.62	3478.23
3788.000	33.00	0.00	0.00	811.90	2230.00	822.51	0.00	822.59	3.41	2.97	1680.55	1208 08
3788.000	33.00	0.00	0.00	811.90	2230.00	822.57	0.00	822.66	3.49	3.02	1583.13	1194 22
3814.000	26.00	0 00	0.00	812.00	2230.00	822.52	0.00	822.59	0.69	2.69	1123.15	2688 63
3814.000	26.00	0.00	0.00	812.00	2230.00	822.58	0.00	822.66	0.71	2.74	1025.20	2649 97
3821.000	7.00	822.60	820.50	812.00	2230.00	824 22	0.00	824.25	0.19	1.58	1816.42	5098 26
3821.000	7.00	999999.00	0.00	812.00	2230.00	824.28	0.00	824.31	0.20	1.61	1725.34	5043.00
3835.000	14.00	0.00	0.00	812.00	2230.00	824.23	0.00	824.25	0 24	1.83	1968.42	4555.81
3835.000	14.00	0.00	0.00	812.00	2230.00	824.28	0.00	824.31	0.25	1.86	1861.34	4498.09
3864.000	29.00	823.60	823.70	812.00	2230.00	823.93	818.50	824.54	12.15	6.84	390.21	639.83
3864.000	29.00	823.60	823.70	812.00	2230.00	823 99	818.50	824.61	12.23	6.87	381.33	637.62
4068.000	204.00	0.00	0.00	812.60	2380.00	824.78	0.00	824.80	1.94	1.94	2698.86	1708.26
4068.000	204.00	0.00	0.00	812.60	2380.00	824.84	0.00	824.86	1.94	1.95	2681.35	1707.83
4525.000	457.00	0.00	0.00	813.80	2380.00	824.89	0.00	824.92	3.19	2.32	2244.81	1332.52
4525.000	457.00	0.00	0.00	813.80	2380.00	824.95	0.00	824.98	3.21	2.34	2195 39	1329.10
4984.000	459.00	0.00	0.00	814.90	2380.00	825.06	0.00	825.15	6.61	4.05	1790.02	925.83
4984.000	459.00	0.00	0 00	814.90	2380.00	825.13	0.00	825.22	6.68	4.10	1707.88	920.94
[illegible]000	12.00	819.60	819 40	814 90	2380.00	825.10	0.00	825.19	6.44	4.01	1806.45	937.75
[illegible]6.000	12.00	999999.00	0.00	814.90	2380.00	825.16	0.00	825.26	6.51	4.06	1724.28	932.78
5058.000	62.00	0.00	0.00	814.70	2380.00	825.19	0.00	825.24	7.11	2.96	1740.41	892.74
5058.000	62.00	0.00	0.00	814.70	2380.00	825 26	0.00	825.31	7.27	3.01	1640.16	882.46
6108.000	1050.00	0.00	0.00	818.10	2160.00	825.94	0.00	825.98	11.46	3.11	1739.92	637.94
6108.000	1050.00	0.00	0.00	818.10	2160.00	826.02	0.00	826.06	11.59	3.16	1626.79	634.41
7195.000	1087 00	0.00	0.00	820.40	2160.00	827.30	0.00	827.39	29.69	4.58	1233.16	396.41
7195.000	1087.00	0.00	0.00	820.40	2160.00	827.36	0.00	827.44	27.79	4.46	1263 16	409.71
8283.000	1088 00	0.00	0.00	822.40	2160.00	828.78	0.00	828.94	12.26	6.08	1740.17	616.81
8283.000	1088.00	0.00	0.00	822.40	2160.00	828.78	0.00	828.95	12.15	6.06	1745.80	619.64

1

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	8935.000	652.00	0.00	0.00	823.20	2160.00	829.60	0.00	830.02	22.50	8.26	1102.13	455.39
	8935.000	652.00	0.00	0.00	823.20	2160.00	829.61	0.00	830.02	22.46	8.26	1102.86	455.81
	8940.000	5.00	0.00	0.00	823.20	2160.00	830.04	0.00	830.13	3.91	3.89	2678.45	1092.50
	8940.000	5.00	0.00	0.00	823.20	2160.00	830.04	0.00	830.13	3.91	3.89	2679.47	1093.06
	9310.000	370.00	0.00	0.00	823.80	2160.00	830.20	0.00	830.36	7.15	5.01	1943.28	807.72
	9310.000	370.00	0.00	0.00	823.80	2160.00	830.20	0.00	830.36	7.14	5.01	1943.97	808.08
*	9375.000	65.00	0.00	0.00	823.90	2160.00	830.19	830.19	831.06	26.97	8.36	761.15	415.94
*	9375.000	65.00	0.00	0.00	823.90	2160.00	830.18	830.18	831.06	26.98	8.36	760.85	415.83
*	9435.000	60.00	0.00	0.00	824.00	2160.00	830.53	830.53	832.83	44.15	13.14	317.74	325.09
*	9435.000	60.00	0.00	0.00	824.00	2160.00	830.53	830.53	832.83	44.15	13.14	317.74	325.09
	9447.000	12.00	832.05	830.60	824.00	2160.00	830.42	0.00	832.83	47.15	13.43	307.58	314.56
	9447.000	12.00	832.05	830.60	824.00	2160.00	830.42	0.00	832.83	47.15	13.43	307.59	314.56
	9935.000	488.00	0.00	0.00	824.80	2160.00	833.76	0.00	833.98	4.16	4.46	1523.82	1059.46
	9935.000	488.00	0.00	0.00	824.80	2160.00	833.81	0.00	834.03	4.76	4.46	1399.99	990.27
	10198.000	263.00	0.00	0.00	825.20	2160.00	833.97	0.00	834.10	3.04	3.74	2313.05	1239.08
	10198.000	263.00	0.00	0.00	825.20	2160.00	834.02	0.00	834.15	3.17	3.84	2089.59	1214.01
	10218.000	20.00	0.00	0.00	825.30	2160.00	834.12	0.00	834.13	0.48	1.65	2428.42	3101.71
	10218.000	20.00	0.00	0.00	825.30	2160.00	834.17	0.00	834.19	0.51	1.70	2248.45	3038.95
	10278.000	60.00	831.30	829.30	825.30	2160.00	834.17	0.00	834.19	0.45	1.61	2487.87	3209.82
	10278.000	60.00	999999.00	0.00	825.30	2160.00	834.23	0.00	834.25	0.47	1.65	2310.96	3145.63
	10925.000	647.00	0.00	0.00	826.80	2160.00	834.19	0.00	834.25	7.76	3.18	1325.02	775.35
	10925.000	647.00	0.00	0.00	826.80	2160.00	834.25	0.00	834.32	8.05	3.26	1246.11	761.24
	11600.000	675.00	0.00	0.00	827.38	2160.00	834.85	0.00	834.96	13.66	3.85	1110.47	584.34
	11600.000	675.00	0.00	0.00	827.38	2160.00	834.93	0.00	835.04	14.05	3.94	987.14	576.28
	11685.000	85.00	0.00	0.00	827.50	2160.00	834.97	0.00	835.07	13.71	3.85	1109.15	583.44
	11685.000	85.00	0.00	0.00	827.50	2160.00	835.05	0.00	835.16	14.13	3.95	986.00	574.70
	11690.000	5.00	833.20	833.80	827.50	2160.00	834.94	0.00	835.13	128.45	5.16	828.96	190.59
	11690.000	5.00	999999.00	0.00	827.50	2160.00	835.02	0.00	835.21	20.61	4.76	712.15	475.81
	11716.000	26.00	0.00	0.00	827.60	2160.00	835.14	0.00	835.23	12.66	3.73	1143.76	606.95
	11716.000	26.00	0.00	0.00	827.60	2160.00	835.16	0.00	835.28	13.72	3.90	997.51	583.21
*	11721.000	5.00	0.00	0.00	833.00	2160.00	839.16	839.16	839.84	9.00	8.15	622.12	719.92
*	11721.000	5.00	0.00	0.00	833.00	2160.00	839.28	839.28	839.98	8.81	8.16	588.40	727.63

WALLED LAKE BRANCH DS

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.000	2380.00	806.30	0.00	0.00	0.00	60.00	0.00
1.000	2380.00	806.40	0.10	0.00	0.10	60.00	0.00
40.000	2380.00	806.23	0.00	-0.07	0.00	39.00	39.00
40.000	2380.00	806.33	0.10	-0.07	0.10	39.00	39.00

	80.000	2380.00	811.35	0.00	5.12	0.00	39.00	40.00
	80.000	2380.00	811.46	0.11	5.13	0.11	39.00	40.00
	314.000	2380 00	811.75	0.00	0.39	0.00	405.00	234.00
	314.000	2380.00	811.84	0.10	0.39	0.10	329.15	234.00
	725.000	2380.00	811.75	0.00	0.01	0.00	200.00	411.00
	725.000	2380.00	811.85	0.10	0.01	0.10	171.33	411.00
	1078.000	2380.00	811.81	0.00	0.06	0.00	180.92	353.00
	1078.000	2380.00	811.91	0.10	0.06	0.10	134.27	353.00
	1106.000	2380.00	811.83	0.00	0.02	0.00	181.53	28.00
	1106.000	2380.00	811.93	0.10	0.02	0.10	134.69	28.00
	1278.000	2380.00	811.83	0.00	0.00	0.00	147.70	172.00
	1278.000	2380.00	811 94	0.11	0.01	0.11	120.00	172.00
	1448.000	2380.00	812.20	0.00	0.36	0.00	127.73	170.00
	1448.000	2380.00	812.29	0.09	0.34	0.09	112.00	170.00
*	1618.000	2230.00	811 77	0.00	-0.42	0.00	35.52	170.00
	1618.000	2230.00	811.85	0.08	-0.44	0.08	35.65	170.00
*	1664.000	2230.00	818.40	0.00	6.63	0.00	42.00	46.00
*	1664.000	2230.00	818.47	0.08	6.63	0.08	42.00	46.00
	1803.000	2230.00	818.91	0.00	0.52	0.00	180.21	139.00
	1803.000	2230.00	818.98	0 07	0.51	0.07	176.58	139.00
	2053.000	2230.00	818.95	0.00	0.03	0.00	119.58	250.00
	2053 000	2230.00	819.01	0.06	0.03	0.06	114.34	250.00
	2305.000	2230.00	818.98	0.00	0.03	0.00	49.00	252.00
	2305.000	2230.00	819.06	0.07	0.04	0.07	49.00	252.00
	2560.000	2230.00	822.17	0.00	3.19	0.00	49 00	255.00
	2560.000	2230.00	822.24	0.07	3.19	0.07	49.00	255.00
	2693.000	2230.00	822.47	0.00	0.30	0.00	315.00	133.00
	2693.000	2230.00	822.54	0.07	0 29	0.07	304.92	133.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
3093.000	2230.00	822.48	0.00	0.01	0.00	801.39	400.00
3093.000	2230.00	822 55	0.07	0.01	0.07	547.89	400.00
3500 000	2230.00	822.49	0.00	0.01	0.00	648.24	407.00
3500.000	2230.00	822.56	0.07	0.01	0.07	442.80	407.00
3703.000	2230.00	822.49	0.00	0.00	0.00	511.53	203.00
3703.000	2230.00	822.56	0.07	0.00	0.07	419.49	203.00
3755.000	2230.00	822.52	0.00	0.03	0.00	499 57	52.00
3755.000	2230 00	822.59	0.07	0.03	0.07	502.45	52.00
3788.000	2230.00	822.51	0.00	-0.01	0.00	539.84	33.00
3788.000	2230.00	822.57	0.07	-0.02	0.07	444.94	33.00
3814.000	2230.00	822.52	0.00	0.01	0.00	380.54	26 00
3814 000	2230.00	822.58	0.06	0.00	0.06	300.42	26.00

3821.000	2230.00	824.22	0.00	1.70	0.00	441.30	7.00
3821.000	2230.00	824.28	0.06	1.70	0.06	356.45	7.00
3835.000	2230.00	824.23	0.00	0.00	0.00	529.35	14.00
3835.000	2230.00	824.28	0.06	0.00	0.06	373.01	14.00
3864.000	2230.00	823.93	0.00	-0.29	0.00	453.73	29.00
3864.000	2230.00	823.99	0.06	-0.29	0.06	406.38	29.00
4068.000	2380.00	824.78	0.00	0.85	0.00	420.14	204.00
4068.000	2380.00	824.84	0.06	0.85	0.06	417.66	204.00
4525.000	2380.00	824.89	0.00	0.11	0.00	411.57	457.00
4525.000	2380.00	824.95	0.06	0.11	0.06	378.96	457.00
4984.000	2380.00	825.06	0.00	0.17	0.00	426.35	459.00
4984.000	2380.00	825.13	0.06	0.17	0.06	353.07	459.00
4996.000	2380.00	825.10	0.00	0.04	0.00	427.39	12.00
4996.000	2380.00	825.16	0.06	0.04	0.06	354.15	12.00
5058.000	2380.00	825.19	0.00	0.09	0.00	380.42	62.00
5058.000	2380.00	825.26	0.06	0.09	0.06	293.53	62.00
6108.000	2160.00	825.94	0.00	0.75	0.00	567.68	1050.00
6108.000	2160.00	826.02	0.08	0.76	0.08	431.80	1050.00
7195.000	2160.00	827.30	0.00	1.36	0.00	509.38	1087.00
7195.000	2160.00	827.36	0.06	1.34	0.06	513.02	1087.00
8283.000	2160.00	828.78	0.00	1.47	0.00	697.76	1088.00
8283.000	2160.00	828.78	0.01	1.42	0.01	697.79	1088.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	8935.000	2160.00	829.60	0.00	0.83	0.00	400.00	652.00
	8935.000	2160.00	829.61	0.00	0.82	0.00	400.00	652.00
	8940.000	2160.00	830.04	0.00	0.44	0.00	999.24	5.00
	8940.000	2160.00	830.04	0.00	0.44	0.00	999.24	5.00
	9310.000	2160.00	830.20	0.00	0.15	0.00	797.83	370.00
	9310.000	2160.00	830.20	0.00	0.15	0.00	797.83	370.00
*	9375.000	2160.00	830.19	0.00	-0.01	0.00	714.18	65.00
*	9375.000	2160.00	830.18	0.00	-0.01	0.00	714.11	65.00
*	9435.000	2160.00	830.53	0.00	0.35	0.00	98.01	60.00
*	9435.000	2160.00	830.53	0.00	0.35	0.00	98.01	60.00
	9447.000	2160.00	830.42	0.00	-0.11	0.00	96.56	12.00
	9447.000	2160.00	830.42	0.00	-0.11	0.00	96.56	12.00
	9935.000	2160.00	833.76	0.00	3.34	0.00	557.80	488.00
	9935.000	2160.00	833.81	0.05	3.39	0.05	448.91	488.00
	10198.000	2160.00	833.97	0.00	0.21	0.00	912.60	263.00
	10198.000	2160.00	834.02	0.05	0.21	0.05	683.90	263.00
	10218.000	2160.00	834.12	0.00	0.14	0.00	926.69	20.00
	10218.000	2160.00	834.17	0.06	0.15	0.06	712.69	20.00

10278.000	2160.00	834.17	0.00	0.06	0.00	933.31	60.00
10278.000	2160.00	834.23	0.06	0.06	0.06	723.22	60.00
10925.000	2160.00	834.19	0.00	0.02	0.00	420.69	647.00
10925.000	2160.00	834.25	0.06	0.02	0.06	361.82	647.00
11600.000	2160.00	834.85	0.00	0.66	0.00	545.60	675.00
11600.000	2160.00	834.93	0.08	0.68	0.08	391.64	675.00
11685.000	2160.00	834.97	0.00	0.12	0.00	545.50	85.00
11685.000	2160.00	835.05	0.08	0.12	0.08	392.27	85.00
11690.000	2160.00	834.94	0.00	-0.03	0.00	544.32	5.00
11690.000	2160.00	835.02	0.08	-0.03	0.08	245.37	5.00
11716.000	2160.00	835.14	0.00	0.20	0.00	548.20	26.00
11716.000	2160.00	835.16	0.03	0.14	0.03	393 24	26.00
* 11721.000	2160.00	839.16	0.00	4 02	0.00	400.00	5.00
* 11721.000	2160.00	839.28	0.12	4.11	0.12	341.02	5.00

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 1618.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 1618.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 1664.000 PROFILE= 1 HYDRAULIC JUMP D.S.
CAUTION SECNO= 1664.000 PROFILE= 2 HYDRAULIC JUMP D S.

CAUTION SECNO= 9375.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9375.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9375.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9375.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 9435.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9435.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9435.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 9435.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9435.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9435.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 11721.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 11721 000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 11721.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 11721.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 11721 000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 11721.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

FLOODWAY DATA, WALLED LAKE BRANCH DS
PROFILE NO. 2

------- FLOODWAY ------- WATER SURFACE ELEVATION

STATION	WIDTH	SECTION AREA	MEAN VELOCITY	WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
1.000	60.	492.	4.8	806.4	806.3	0.1
40.000	39.	347.	6.9	806.3	806.2	0.1
80.000	39.	547	4 4	811.5	811.4	0.1
314.000	329.	3494.	0.7	811.8	811.7	0.1
725.000	171.	1026.	2.3	811.9	811 8	0.1
1078 000	134.	727.	3.3	811.9	811.8	0.1
1106.000	135.	731.	3.3	811.9	811.8	0.1
1278.000	120.	548.	4.3	811.9	811.8	0.1
1448.000	112.	472	5.0	812.3	812.2	0.1
1618.000	36.	178	12.5	811.9	811.8	0.1
1664.000	42.	436.	5.1	818 5	818.4	0 1
1803.000	177.	1692.	1.3	819.0	818.9	0.1
2053.000	114.	1039.	2.1	819 0	818.9	0.1
2305.000	49.	444.	5.0	819.1	819.0	0.1
2560.000	49.	574.	3.9	822.3	822.2	0.1
2693.000	305.	2817.	0.8	822.6	822.5	0.1
3093 000	548.	3012.	0.7	822.6	822.5	0.1
3500.000	443.	2338.	1.0	822.6	822.5	0.1
3703.000	419.	1372.	1.6	822 6	822.5	0.1
3755.000	502.	1470.	1.5	822.6	822.5	0.1
3788.000	445.	1583.	1.4	822.6	822.5	0.1
3814.000	300.	1025.	2.2	822.6	822.5	0.1
3821.000	356.	1725.	1.3	824 3	824.2	0.1
3835.000	373.	1861.	1.2	824.3	824.2	0 1
3864.000	406.	381.	5.8	824.0	823.9	0.1
4068.000	471.	2681.	0.9	824 9	824.8	0.1
4525 000	379.	2195.	1.1	825.0	824.9	0 1
4984.000	353.	1708.	1.4	825.2	825.1	0.1
4996 000	354.	1724.	1.4	825.2	825.1	0.1
5058.000	294.	1640.	1.5	825 3	825.2	0.1
6108 000	432	1627.	1.3	826.0	825.9	0.1
7195.000	513.	1263.	1.7	827.4	827.3	0.1
8283.000	698.	1746.	1.2	828.8	828.8	0.0
8935.000	400	1103.	2.0	829.6	829.6	0.0
8940.000	999.	2679.	0.8	830.0	830 0	0.0
9310.000	798.	1944.	1.1	830 2	830.2	0.0
9375.000	714.	761.	2.8	830 2	830.2	0.0
9435.000	125.	318.	6.8	830.5	830.5	0.0
9447.000	124.	308	7.0	830.4	830.4	0.0
9935.000	449	1400.	1.5	833.9	833.8	0.1
10198.000	684.	2090	1.0	834.0	834.0	0.0
10218.000	713	2248	1.0	834.2	834.1	0.1

1

FLOODWAY DATA, WALLED LAKE BRANCH DS
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
10278.000	723.	2311.	0.9	834.3	834.2	0.1
10925.000	362.	1246.	1.7	834.3	834.2	0.1
11600.000	392.	987.	2.2	835 0	834.9	0.1
11685.000	392	986.	2 2	835.1	835.0	0.1
11690 000	245	712.	3.0	835.0	834.9	0.1
11716 000	393.	998.	2.2	835.1	835 1	0.0

11721.000	34..	568	3 7	839.5	839.2	0.1

THIS RUN EXECUTED 13 FEB 89 12:52:36

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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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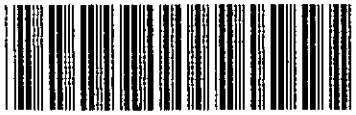
ER

UNEXPECTED END OF FILE ABORT IN SUBROUTINE H2MAIN



1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ROUGE
WALLED LAKE BRANCH

4) DOCUMENT TYPE: STATION LOCATIONS



WATERCOURSE: Trib. "B" Walled Lake Branch

100-year

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
	Starting elev. from Walled Lake			
0	Confluence of trib "B" & Walled Lake	888.06	888.06	205
50	50' U/S of confluence	888.06	888.07	205
100	100' U/S of confluence	888.06	888.07	205
150	51' D/S of Novi road	888.07	888.09	205
200	1' D/S of Novi road	888.09	888.25	205
201	D/S face of Novi road			205
283	U/S face of Novi road			205
284	1' U/S of Novi road-X5	893.42	893.42	205
834	551' U/S of Novi road	893.47	893.49	205
1184	901' U/S of Novi road	893.95	893.97	205
1534	1251' U/S of Novi road	895.28	895.33	205
2059	1776' U/S of Novi road	902.13	902.23	205
2646	2163' U/S of Novi road	905.44	905.65	205
3034	2551' U/S of Novi road	908.72	908.83	205
3784	3301' U/S of Novi road	915.83	915.95	205
4859	4376' U/S of Novi road	921.68	921.74	205
5196	4713' U/S of Novi road	922.17	922.20	205
5534	5051' U/S of Novi road	922.27	922.27	205
6209	5726' U/S of Novi road	922.32	922.33	205
6316	746' D/S of Taft road	922.34	922.34	205
6422	639' D/S of Taft road	922.39	922.40	205
6528	533' D/S of Taft road	922.67	922.72	205
6634	427' D/S of Taft road	923.43	923.47	205
6740	321' D/S of Taft road	924.07	924.12	205
6846	215' D/S of Taft road	924.74	924.79	205
6952	108' D/S of Taft road	925.44	925.50	205
7059	1' D/S of Taft road	926.15	926.20	205
7060	D/S face of Taft road			205
7100	U/S face of Taft road			205
7101	1' U/S of Taft road-X5	928.70	928.70	205

100-year

WATERCOURSE: Patnales South
[redacted] City of ~~/TOWNSHIP~~: Novi (consists of old twp)
COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
1	39' D/S of C & O railroad	806.3	806.8	1840
39	1' D/S of C & O railroad	805.75	807.65	1840
40	D/S face of C & O railroad			1840
80	U/S face of C & O railroad			1840
81	1' U/S of C & O railroad-X5 card	807.72	808.97	1840
314	234 U/S of C & O railroad	809.37	809.39	1840
725	353' D/S of Old Novi road	809.37	809.54	1840
1077	1' D/S of Old Novi road	809.74	810.01	1840
1078	D/S face of Old Novi road			1840
1106	U/S face of Old Novi road			1840
1107	1' U/S of Old Novi road-X5 card	811.24	811.38	1840
1278	172' U/S of Old Novi road	811.36	811.60	1840
1448	342' U/S of Old Novi road	811.68	812.00	1840
1617	1' D/S of C & O, relocated Eight Mile	812.07	812.87	1840
1618	D/S face of C & O, relocated Eight Mile			1840
1664	U/S face of C & O, relocated Eight Mile			1840
1665	1' U/S of C & O, relocated Eight Mile-X5	817.27	817.39	1840
1803	140' U/S of C & O, relocated Eight Mile	817.41	817.46	1840
2053	252' D/S of Relocated Eight Mile	817.46	817.56	1840
2303	2' D/S of Relocated Eight Mile	817.57	817.84	1840
2305	D/S face of relocated Eight Mile			1840
2560	U/S face of relocated Eight Mile			1840
2562	2' U/S of relocated Eight Mile-X5	819.8	819.93	1840
2693	133' U/S of relocated Eight Mile	819.95	819.97	1840
3093	533' U/S of relocated Eight Mile	819.97	820.00	1840
3500	610' D/S of relocated Novi road	820.00	820.03	1840
3702	1' D/S of relocated Novi road	819.83	820.32	1840
3703	D/S face of relocated Novi road			1840
3755	U/S face of relocated Novi road			1840
3756	1' U/S of relocated Novi road-X5	820.02	820.47	1840
3788	26' D/S of C & O railroad @ Novi road	820.00	820.65	1840
3813	1' D/S of C & O railroad @ Novi road	819.90	820.93	1840
3814	D/S face of C & O railroad @ Novi road			1840
3821	U/S face of C & O railroad @ Novi road			1840
3822	1' U/S of C & O railroad @ Novi road-X5	819.93	820.95	1840
3834	13' U/S of C & O railroad @ Novi road	819.25	821.84	1840
3835	D/S face of Old Novi road			1840
3864	U/S face of Old Novi road			1840
3865	1' U/S of Old Novi road-X5	820.10	822.12	1840
4068	204' U/S of Old Novi road	822.88	822.91	1840
4525	661' U/S of Old Novi road	823.05	823.09	1840
4983	1' D/S of foot bridge-Old Novi road	823.44	823.51	1840
4984	D/S face of foot bridge-Old Novi road	823.47	823.52	1840
4996	U/S face of foot bridge-Old Novi road	823.50	823.55	1840
4997	1' U/S of foot bridge-Old Novi road	823.49	823.56	1840
5058	62' U/S of foot bridge-Old Novi road	823.58	823.65	1840
6108	1112' U/S of foot bridge-Old Novi road	824.90	824.95	1640
7195	1199' U/S of foot bridge-Old Novi road	826.83	826.91	1640
8283	2239' D/S of 2nd. foot bridge	828.51	828.55	1640
10521	1' D/S of 2nd. foot bridge	833.02	833.19	1640
10522	D/S face of 2nd. foot bridge	833.06	833.21	1640
10537	U/S foce of 2nd. foot bridge	833.17	833.29	1640
10538	1' U/S of 2nd. foot bridge	833.16	833.30	1640

100-year

WATERCOURSE: Patnales South

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
10596	75' U/S of 2nd. foot bridge	833.39	833.46	1640
10827	1' D/S of Nine Mile road	833.77	833.92	1640
10828	D/S face of Nine Mile road	833.93	833.96	1640
10873	U/S foce of Nine Mile road	833.94	833.96	1640
10874	1' U/S of Nine Mile road	833.92	833.98	1640
11500	627' U/S of Nine Mile road	834.20	834.23	1640
12172	1302' U/S of Nine Mile road	834.61	834.69	1640
12204	1335' U/S of Nine Mile road	834.65	834.73	1640
12205	D/S face of pedestrian foot bridge			1640
12210	U/S face of pedestrian foot bridge			1640
12211	1' U/S of pedestrian foot bridge-X5	835.04	835.10	1640
12241	31' U/S of pedestrain foot bridge	835.06	835.12	1640

100-year

WATERCOURSE: Patnales Drain North

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
	Starts @ U/S end of Meadow-brook Lake- rating curve			
14131	105' D/S of Meadowbrook road	838.29	838.75	880
14235	1' D/S of Meadowbrook road	838.99	839.21	880
14236	D/S face of Meadowbrook road			880
14276	U/S face of Meadowbrook road			880
14277	1' U/S of Meadowbrook road-X5	839.16	839.36	880
14669	393' U/S of Meadowbrook road	839.84	839.92	880
15341	970' D/S of confluence-Bishop creek	840.65	840.78	880
16311	Confluence of Bishop creek	842.08	842.14	640
16657	346' U/S of confluence of Bishop Creek	842.51	842.69	640
17300	1' D/S of Willowbrook Drive	843.43	843.48	640
17301	D/S face of Willowbrook Drive			640
17341	U/S face of Willowbrook Drive			640
17342	1' U/S of Willowbrook Drive	843.71	843.75	640
17437	96' U/S of Willowbrook Drive	843.75	843.79	640
17701	360' U/S of Willowbrook Drive	843.77	844.08	640
18455	68' D/S of Cranbrook Drive	846.55	846.73	640
18522	1' D/S of Cranbrook Drive	846.69	846.91	640
18523	D/S face of Cranbrook Drive	846.63	846.96	640
18598	U/S face of Cranbrook Drive	846.68	847.04	640
18599	1' U/S of Cranbrook Drive	846.85	847.08	640
18713	115' U/S of Cranbrook Drive	847.22	847.30	640
18916	318' U/S of Cranbrook Drive	847.50	847.62	640
19031	433' U/S of Cranbrook Drive	847.75	847.93	640
19529	1' D/S of Ten Mile Road	848.82	848.89	640
19530	D/S face of Ten Mile Road			640
19572	U/S face of Ten Mile road			640
19573	1' U/S of Ten Mile road-X5	851.85	851.85	640
19596	24' U/S of Ten Mile road	851.84	851.87	640
19699	1' D/S of North Ten Mile road	851.86	851.89	640
19700	D/S face of North Ten Mile road			640
19792	U/S face of North Ten Mile road			640
19793	1' U/S of North Ten Mile road	852.71	852.75	640
20000	208' U/S of Norht Ten Mile road	852.79	852.85	640
20446	654' U/S of North Ten Mile road	853.02	853.06	640
20686	832' D/S of Grand River Ave.	853.11	853.15	640
21517	1' D/S of Grand River Ave.	853.09	854.64	640
21518	D/S face of Grand River Ave.			640
21614	U/S face of Grand River Ave.			640
21615	1' U/S of Grand River Ave.-X5	857.77	857.77	640
21995	381' U/S of Grand River Ave.	857.77	857.77	395
22657	1' D/S of Drive Culverts @ Grand River	857.78	857.80	395
22658	D/S face of Drive culverts @ Grand River			395
22708	U/S face of Drive culverts @ Grand River			395
22709	1' U/S of Drive culverts @ Grand River-X5	858.45	858.46	395
23055	1' D/S of 2nd. Drive culverts	858.46	858.46	395
23056	D/S face of 2nd. Drive culverts			395
23106	U/S face of 2nd. Drive culverts			395
23107	1' U/S of 2nd. Drive culverts-X5	858.48	858.48	395
23192	86' U/S of 2nd. Drive culverts	858.48	858.48	395
23200	94' U/S of 2nd. Drive culverts	858.48	858.48	395

100-year

WATERCOURSE: Patnales Drain North

[redacted] TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
23208	102' U/S of 2nd. Drive culverts	858.48	858.48	395
23788	682' U/S of 2nd. Drive culverts	858.49	858.51	395
24188	1' D/S of culverts @ I-96 exit ramp	858.49	858.66	395
24189	D/S face of culverts @ I-96 exit ramp			395
24333	U/S face of culverts @ I-96 exit ramp			395
24334	1' U/S of culverts @ I-96 exit ramp-X5	860.87	860.87	395

100-year

WATERCOURSE: Thornton Creek
CITY/TOWNSHIP: Novi
COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
0	Confluence of Thornton Cr. & Patnales Dr.	825.63	825.81	367
177	177' U/S of confluence	826.99	827.02	367
354	354' U/S of confluence	827.67	827.73	367
531	320' D/S of C & O railroad	828.75	828.86	367
674	1' D/S of C & O railroad	829.96	830.76	367
675	D/S face of C & O railroad	829.96	830.77	367
685	U/S face of C & O railroad	830.08	830.82	367
686	1' U/S of C & O railroad	830.15	830.84	367
1130	445' U/S of C & O railroad	832.84	832.87	367
1345	660' U/S of C & O railroad	833.54	833.63	367
1560	875' U/S of C & O railroad	834.87	834.95	367
1760	1075' U/S of C & O railroad	835.61	835.73	550
1960	1275' U/S of C & O railroad	836.46	836.63	550
2160	336' D/S of Pedestrian Br. S. of Nine Mile	837.63	838.60	550
2328	168' D/S of Pedestrian Br. S. of Nine Mile	839.78	840.78	550
2495	1' D/S of Pedestrian Br. S. of Nine Mile	840.70	840.78	550
2496	D/S face of Pedestrian Br. S. of Nine Mile	840.67	840.81	550
2502	U/S face of Pedestrian Br. S. of Nine Mile	840.68	840.82	550
2503	1' U/S of Pedestrian Br. S. of Nine Mile	840.77	840.84	550
2560	58' U/S of Pedestrian Br. S. of Nine Mile	840.82	840.89	550
2600	98' U/S of Pedestrian Br. S. of Nine Mile	840.84	840.95	550
2639	1' D/S of Nine Mile E. of Novi road	840.66	841.34	550
2640	D/S face of Nine Mile E. of Novi road			550
2692	U/S face of Nine Mile E. of Novi road			550
2693	1' U/S of Nine Mile E. of Novi Rd.-X5	841.88	842.13	550
2700	8' U/S of Nine Mile E. of Novi rd.	841.84	842.24	550
2760	68' U/S of Nine Mile E. of Novi rd.	842.35	842.80	550
2820	128' U/S of Nine Mile E. of Novi rd.	842.93	843.39	550
2880	212' D/S of Novi rd. N. of Nine Mile	843.53	843.99	550
3091	1' D/S of Novi rd. N. of Nine Mile	845.53	846.20	550
3092	D/S face of Novi rd. N. of Nine Mile	845.77	846.25	550
3178	U/S face of Nine Mile N. of Nine Mile	846.14	846.65	550
3179	1' U/S of Novi rd. N. of Nine Mile	846.08	846.73	550
3309	131' U/S of Novi rd. N. of Nine Mile	847.21	847.28	550
3532	354' U/S of Novi rd. N. of Nine Mile	847.65	848.50	550
3755	577' U/S of Novi rd. N. of Nine Mile	850.34	850.56	550
3978	800' U/S of Novi rd. N. of Nine MIle	851.51	851.82	550
4227	1049' U/S of Novi rd. N. of Nine Mile	853.08	853.45	550
4476	1298' U/S of Novi rd. N. of Nine Mile	854.81	855.16	550
4725	455' D/S of Culverts N. of Nine Mile	856.47	856.80	550
4979	201' D/S of Culverts N. of Nine Mile	857.55	857.61	550
5179	1' D/S of Culverts N. of Nine Mile	858.02	858.07	550
5180	D/S face of culverts N. of Nine Mile @ E. of Center			550
5194	U/S face of culverts N. of Nine Mile @ E. of Center			550
5195	1' U/S of culverts N. of Nine Mile @ E. of Center-X5	859.42	859.43	550
5295	101' U/S of culverts N. of Nine Mile @ E. of Center	859.43	859.54	330

WATERCOURSE: Thornton Creek
CITY/TOWNSHIP: Novi
COUNTY: Oakland

100-year

STATION	LOCATION	CWSEL	EG	Q
5395	201' U/S of culverts N. of Nine Mile @ E. of Center	860.37	860.57	330
5526	332' U/S of culverts N. of Nine Mile @ E. of Center	862.53	862.85	330
5657	463' D/S of Nine Mile E. of Center St.	864.49	864.68	330
5788	332' D/S of Nine Mile E. of Center St.	866.04	866.29	330
5919	221' D/S of Nine Mile E, of Center St.	867.76	867.95	330
6139	1' D/S of Nine Mile E. of Center St.	870.22	870.32	330
6140	D/S face of Nine Mile E. of Center St.			330
6160	U/S face of Nine Mile E. of Center St.			330
6275	115' U/S of Nine Mile E. of Center St.-X5	872.62	872.68	330
6390	230' U/S of Nine Mile E. of Center St.	873.09	873.14	330
6391	D/S face of Center St.			330
6482	U/S face of Center St.			330
6483	1' U/S of Center St.-X5	874.87	874.90	330
6543	61' U/S of Center St.	874.89	874.93	330
6743	261' U/S of Center St.	875.08	875.19	330
6945	463' U/S of Center St.	876.73	877.02	330
7147	665' U/S of Center St.	879.71	879.89	330
7362	880' U/S of Center St.	881.63	881.83	330
7577	320' D/S of Connemara Drive	883.66	883.85	330
7896	1' D/S of Connemara Drive	885.18	885.25	330
7897	D/S face of Connemara Drive			330
7962	U/S face of Connemara Drive			330
7963	1' U/S of Connemara Drive	888.99	888.99	330
8043	81' U/S of Connemara Drive	888.99	889.00	330
8405	262' U/S of Connemara Drive	889.04	889.08	330
8465	322' U/S of Connemara Drive	889.13	889.20	330
8525	382' U/S of Connemara Drive	889.31	889.44	330
8587	444' U/S of Connemara Drive	889.68	889.84	330
9091	321' D/S of Taft road	892.44	892.55	330
9411	1' D/S of Taft road	894.19	894.61	330
9412	D/S face of Taft road			330
9430	U/S face of Taft road			330
9431	1' U/S of Taft road-X5	897.47	897.49	330
9581	151' U/S of Taft road	897.53	897.61	330
10280	850' U/S of Taft road	899.17	899.25	330
11079	1' D/S of Nine Mile rd. W. of Taft rd.	903.11	903.14	330
11080	D/S face of Nine Mile rd. W. of Taft rd.			330
11120	U/S face of Nine Mile rd. W. of Taft rd.			330
11121	1' U/S of Nine Mile rd. W. of Taft rd.-X5	906.91	906.91	330
11795	675' U/S of Nine Mile rd. W. of Taft rd.	906.96	906.98	330
11895	775' U/S of Nine Mile rd. W. of Taft rd.	907.30	907.33	330
11995	875' U/S of Nine Mile rd. W. of Taft rd.	907.75	907.78	330
12095	975' U/S of Nine Mile rd. W. of Taft rd.	908.24	908.28	330
12195	1075' U/S of Nine Mile rd. W. of Taft rd.	908.70	908.73	280
12595	1475' U/S of Nine Mile rd. W. of Taft rd.	911.13	911.27	280
13155	2035' U/S of Nine Mile rd. W. of Taft rd.	915.78	915.94	280
13620	2300' U/S of Nine Mile rd. W. of Taft rd.	918.00	918.05	280
14029	2909' U/S of Nine Mile rd. W. of Taft rd.	920.25	920.40	280
14634	3514' U/S of Nine Mile rd. W. of Taft rd.	924.54	924.56	182
15238	4118' U/S of Nine Mile rd. W. of Taft rd.	928.73	928.79	182

100-year

WATERCOURSE: Thornton Creek
CITY/TOWNSHIP: Novi
COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
15988	2545' D/S of Ten Mile E. of Beck rd.	934.32	934.38	182
16738	1795' D/S of Ten Mile E. of Beck rd.	940.35	940.60	182
17638	895' D/S of Ten Mile E. of Beck rd.	950.54	950.69	182
18038	495' D/S of Ten Mile E. of Beck rd.	954.34	954.70	182
18240	273' D/S of Ten Mile E. of Beck rd.	956.62	956.71	182
18512	1' D/S of Ten Mile E. of Beck rd.	959.08	959.29	182
18513	D/S face of Ten Mile E. of Beck rd.			182
18557	U/S face of Ten Mile E. of Beck rd.			182
18558	1' U/S of Ten Mile E. of Beck rd. -X5	961.52	961.52	182

100-year

WATERCOURSE: Novi-Lyon Drain

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
0	50' D/S of Johns road	938.29	938.58	565
20	30' D/S of Johns road	938.35	938.64	565
49	1' D/S of Johns road	938.40	938.75	565
50	D/S face of Johns road			565
109	U/S face of Johns road			565
110	1' U/S of Johns road-X5	939.70	939.72	565
409	300' U/S of Johns road	939.71	939.90	565
809	700' U/S of Johns road	940.95	941.17	565
959	150' D/S of farm field X-ing	941.87	942.05	565
1060	50' D/S of farm field X-ing	942.40	942.56	565
1109	1' D/S of farm field X-ing	942.66	942.87	565
1110	D/S face of farm field X-ing			565
1140	U/S face of farm field X-ing			565
1141	1' U/S of farm field X-ing-X5	944.38	944.43	565
1600	460' U/S of farm field X-ing	944.92	944.96	565
2060	920' U/S of farm field X-ing	945.45	945.51	565
2560	101' D/S of Napier road	946.62	946.80	565
2660	1' D/S of Napier road	947.03	947.11	565
2661	D/S face of Napier road			565
2737	U/S face of Napier road			565
2738	1' U/S of Napier road-X5	949.00	949.04	565
3250	513' U/S of Napier road	949.28	949.36	565
3675	938' U/S of Napier road	949.90	950.05	565
3948	50' D/S of farm field X-ing	950.61	950.80	565
3997	1' D/S of farm field X-ing	950.84	950.92	565
3998	D/S face of farm field X-ing			565
4023	U/S face of farm field X-ing			565
4024	1' U/S of farm field X-ing-X5	951.37	951.43	565
4450	427' U/S of farm field X-ing	951.80	951.84	565
4748	201' D/S of Old Wooden Bridge	952.19	952.31	565
4948	1' D/S of Old Wooden Bridge	952.73	952.86	565
4949	D/S face of Old Wooden Bridge	952.87	952.90	565
4966	U/S face of Old Wooden Bridge	952.88	952.91	565
4967	1' U/S of Old Wooden Bridge	952.82	951.96	565
4980	14' U/S of Old Wooden Bridge	952.85	952.98	565
4981	D/S face of farm field X-ing	952.94	953.0	565
5011	U/S face of farm field X-ing	952.96	953.02	565
5012	1' U/S of farm field X-ing	952.94	953.04	565
5261	250' U/S of farm field X-ing	953.07	953.08	255
5280	1' D/S of Stul farm bridge	953.08	953.08	255
5281	D/Sface of Stul farm bridge	953.08	953.08	255
5295	U/S face of Stul farm bridge	953.08	953.08	255
5296	1' U/S of Stul farm bridge	953.08	953.09	255
5751	456' U/S of Stul farm bridge	953.11	953.11	255
6251	956' U/S of Stul farm bridge	953.13	953.13	255
6700	1105' U/S of Stul farm bridge	953.16	953.16	195
7076	1481' U/S of Stul farm bridge	953.21	953.21	195
7326	1731' U/S of Stul farm bridge	953.28	953.29	195
7626	2016' U/S of Stul farm bridge	953.38	953.28	195
8026	3086' D/S of Ten Mile road	953.49	953.49	135
8301	2811' D/S of Ten Mile road	953.53	953.54	135
8501	2611' D/S of Ten Mile road	953.58	953.60	135
8801	2311' D/S of Ten Mile road	953.82	953.92	135

100-year

WATERCOURSE: Novi-Lyon Drain

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
9101	1986' D/S of Ten Mile road	954.31	954.33	135
9376	1686' D/S of Ten Mile road	954.43	954.44	135
9626	1436' D/S of Ten Mile road	954.48	954.48	73
10001	1061' D/S of Ten Mile road	954.49	954.49	73
10301	761' D/S of Ten Mile road	954.49	954.49	73
10626	436' D/S of Ten Mile road	954.50	954.50	73
11026	36' D/S of Ten Mile road	954.51	954.55	73
11061	1' D/S of Ten Mile road	954.56	954.57	73
11062	D/S face of Ten Mile road			73
11130	U/S face of Ten Mile road			73
11131	1' U/S of Ten Mile road-X5	956.23	956.24	73

100-year

WATERCOURSE: Tributary "C" Novi-Lyon Drain

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
0	600' U/S of confluence Novi-Lyon Dr.	953.07	953.15	395
520	520' U/S of confluence Novi-Lyon Dr.	954.35	954.41	395
855	875' U/S of confluence Novi-Lyon Dr.	954.69	954.71	395
2080	451' D/S of Wixon road	954.79	954.79	395
2480	51' D/S of Wixon road	954.80	954.80	395
2530	1' D/S of Wixon road	954.80	954.80	395
2531	D/S face of Wixon road	954.80	954.80	395
2568	U/S face of Wixon road	954.80	954.80	395
2569	1' U/S of Wixon road	954.80	954.81	395
3119	551' U/S of Wixon road	954.75	954.93	395
3519	951' U/S of Wixon road	955.91	956.04	395
3759	1191' U/S of Wixon road	956.11	956.11	305
4839	2311' U/S of Wixon road	956.17	956.18	305
5229	2661' U/S of Wixon road	956.23	956.24	305
5489	2921 U/S of Wixon road	956.27	956.27	305
5659	3091' U/S of Wixon road	956.28	956.29	305
5959	471' D/S of farm field crossing	956.32	956.33	305
6109	321' D/S of farm field crossing	956.36	956.37	305
6209	221' D/S of farm field crossing	956.43	956.49	305
6309	121' D/S of farm field crossing	956.94	957.11	305
6429	1' D/S of farm field crossing	957.48	957.50	305
6430	D/S face of farm field crossing 1400' D/S of 11 mile			305
6446	U/S face of farm field crossing 1400' D/S of 11 mile			305
6447	1' U/S of farm field crossing-X5	957.53	957.59	305
7437	31' D/S of farm field crossing 350' D/S of 11 mile	958.11	958.13	305
7467	1' D/S of farm field crossing 350' D/S of 11 mile	958.13	958.14	305
7468	D/S face of farm field crossing 350' D/S of 11 mile	958.13	958.14	305
7484	U/S face of farm crossing 350' D/S of 11 mile	958.14	958.15	305
7485	1' U/S of farm crossing 350' D/S of 11 mile	958.14	958.15	305
7810	36' D/S of 11 mile road	958.14	958.61	305
7845	1' D/S of 11 mile road	958.75	958.88	305
7846	D/S face of 11 mile road			305
7883	U/S face of 11 mile road			305
7884	1' U/S of 11 mile road	960.80	960.81	305
8334	451' U/S of 11 mile road	960.84	960.84	113
8359	1' D/S of farm culverts	960.84	960.84	113
8360	D/S face of farm culverts	960.84	960.84	113
8377	U/S face of farm culverts	960.84	960.84	113
8378	1' U/S of farm culverts	960.84	960.84	113
8708	21' D/S of lawn culverts	960.85	960.85	113
8728	1' D/S of lawn culverts	960.85	960.85	113
8729	D/S face of lawn culverts	960.85	960.85	113
8747	U/S face of lawn culverts	960.85	960.85	113
8748	1' U/S of lawn culverts	960.85	960.85	113
8883	41' D/S of driveway culverts	960.85	960.85	113
8923	1' D/S of driveway culverts	960.85	960.85	113
8924	D/S face of driveway culverts	960.85	960.85	113

100-year

WATERCOURSE: Tributary "C" Novi-Lyon Drain

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
8955	U/S face of driveway culverts	960.85	960.85	113
8956	1' U/S of driveway culverts	960.85	960.85	113
9191	41' D/S of farm lane crossing	960.85	960.85	113
9231	1' D/S of farm lane crossing	960.86	960.86	113
9232	D/S face of farm lane crossing	960.86	960.86	113
9264	U/S face of farm lane crossing	960.86	960.86	113
9265	1' U/S of farm lane crossing	960.86	960.86	113
9550	286' U/S of farm lane crossing	960.90	960.92	113
9580	1' D/S of farm lane culverts	960.93	960.93	113
9581	D/S face of farm lane culverts	960.93	960.93	113
9597	U/S face of farm lane culverts	960.93	960.93	113
9598	1' U/S of farm lane culverts	960.93	960.93	113
10233	41' D/S of Beck road Bridge	960.99	960.99	113
10273	1' D/S of Beck road Bridge	960.99	960.99	113
10274	D/S face of Beck road Bridge			113
10323	U/S face of Beck road Bridge			113
10324	1' U/S of Beck road Bridge-X5	961.01	961.01	113

100-year

WATERCOURSE: Walled Lake Branch

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
	Starting elevation from stage discharge curve @ dan on Meadowbrook lake			
0	Meadbrook lake confluence	838.29	838.30	1080
62	62' U/S of confluence	838.29	838.33	1080
125	126' U/S of confluence	838.28	838.43	1080
187	64' D/S of Chattman Drive	838.40	838.56	1080
250	1' D/S of Chattman Drive	838.59	838.70	1080
251	D/S face of Chattman Drive	838.58	838.71	1080
292	U/S face of Chattman Drive	838.74	838.83	1080
293	1' U/S of Chattman Drive	838.76	838.83	1080
503A	211' U/S of Chattman Drive	839.13	839.20	1080
601	309' U/S of Chattman Drive	839.29	839.49	1080
699	407' U/S of Chattman Drive	839.64	839.89	1080
797	506' U/S of Chattman Drive	840.02	840.32	1080
895	605' U/S of Chattman Drive	840.46	840.83	1080
993	704' U/S of Chattman Drive	840.95	841.39	1080
1080	803' U/S of Chattman Drive	841.58	841.86	1080
1385	1097' U/S of Chattman Drive	842.64	842.96	1080
1678	2301' D/S of footbridge 350' SE of C & O	843.82	844.16	1080
2253	1726' D/S of footbridge 350' SE of C & O	845.59	845.72	1080
2828	1151' D/S of footbridge 350' SE of C & O	846.73	846.87	1080
3978	1' D/S of footbridge 350' SE of C & O	850.01	850.33	1080
3979	D/S face of footbridge 350' SE of C & O	850.28	850.40	1080
3985	U/S face of footbridge 350' SE of C & O	850.35	850.46	1080
3986	601' D/S of C & O railroad	850.30	850.53	1080
4586	1' D/S of C & O railroad	853.17	854.26	1080
4587	D/S face of C & O railroad	852.89	854.57	1080
4613	U/S face of C & O railroad	853.21	854.75	1080
4614	1' U/S of C & O railroad	854.15	854.97	1080
5238	625' U/S of C & O railroad	855.50	855.51	1080
5544	931' U/S of C & O railroad	855.58	855.63	1080
5697	1084' U/S of C & O railroad	855.76	855.88	1080
5850	1237' U/S of C & O railroad	856.27	856.51	1080
6156	confl. with trib "A" 1543' U/S of C & O	857.52	857.56	1010
6463	307' U/S of confluence with trib. "A"	858.55	858.66	1010
6813	201' D/S of C & O 233' S. of 10 Mile	861.65	862.12	1010
6913	101' D/S of C & O 233' S. of 10 Mile	862.57	863.09	1010
7013	1' D/S of C & O 233' S. of 10 Mile	863.23	864.79	1010
7014	D/S face of C & O 233' S. of 10 Mile	863.08	864.94	1010
7024	U/S face of C & O 233' S. of 10 Mile	863.55	865.12	1010
7025	1' U/S of C & O 233' S. of 10 Mile	864.13	865.26	1010
7045	21' U/S of C & O 233' S. of 10 Mile	865.43	865.60	1010
7175	151' U/S of C & O 233' S. of 10 Mile	865.66	865.82	1010
7225	51' D/S of Ten Mile road	865.65	866.08	1010
7275	1' D/S of Ten Mile road	865.24	867.32	1010
7276	D/S face of Ten Mile road	865.77	867.45	1010
7324	U/S face of Ten Mile road	866.26	867.85	1010
7325	1' U/S of Ten Mile road	866.34	867.88	1010
7338	14' U/S of Ten Mile road	868.14	868.32	1010
7416	92' U/S of Ten Mile road	868.37	868.40	1010
7875	551' U/S of Ten Mile road	868.51	868.68	1010
8625	1301' U/S of Ten Mile road	870.63	870.74	1010

100-year

WATERCOURSE: Walled Lake Branch
CITY/TOWNSHIP: Novi
COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
8975	51' D/S of C & O N. of 10 Mile	872.11	873.21	1010
9025	1' D/S of C & O N. of 10 Mile	872.70	874.48	1010
9026	D/S face of C & O N. of 10 Mile	873.26	874.62	1010
9036	U/S face of C & O N. of 10 Mile	873.40	874.69	1010
9037	1' U/S of C & O N. of 10 Mile	873.36	874.75	1010
9050	14' U/S of C & O N. of 10 Mile	874.77	875.13	1010
9362	326' U/S of C & O N. of 10 Mile	875.75	876.20	1010
9481	445' U/S of C & O N. of 10 Mile	876.26	877.00	1010
9600	564' U/S of C & O N. of 10 Mile	877.27	878.36	1010
9719	683' U/S of C & O N. of 10 Mile	878.75	880.00	1010
9837	801' U/S of C & O N. of 10 Mile	880.75	881.52	1010
10069	1033' U/S of C & O N. of 10 Mile	882.73	883.05	1010
10300	1713' D/S of Novi road	883.68	884.00	1010
10531	1482' D/S of Novi road	884.59	884.87	1010
10762	1251' D/S of Novi road	885.44	885.73	1010
11387	626' D/S of Novi road	888.06	888.36	1010
12012	1' D/S of Novi road	890.83	891.20	930
12013	D/S face of Novi road			930
12093	U/S face of Novi road			930
12094	1' U/S of Novi road-X5	893.37	893.39	930
12269	176' U/S of Novi road	893.40	893.65	930
12444	251' D/S of C & O railroad	894.46	895.00	930
12669	26' D/S of C & O railroad	896.90	897.75	930
	East Branch of Island			
12694	1' D/S of C & O railroad	898.02	898:04	308
12695	D/S face of C & O railroad	898.02	898.04	308
12705	U/S face of C & O railroad	898.03	898.04	308
12706	1' U/S of C & O railroad	898.03	898.05	308
12956	251' U/S of C & O railroad	898.07	898.16	308
13156	51' D/S of Flint Street	898.45	898.70	308
13206	1' D/S of Flint Street	898.45	899.57	308
13207	D/S face of Flint Street			308
13279	U/S face of Flint Street			308
13280	1' U/S of Flint Street-X5	900.90	900.94	308
13287	8' U/S of Flint Street	900.92	900.95	308
13480	51' D/S of footbridge NE of Flint STreet	900.99	901.16	308
13530	1' D/S of footbridge NE of Flint Street	901.09	901.35	308
13531	D/S face of footbridge NE of Flint Street			308
13556	U/S face of footbridge NE of Flint Street			308
13557	1' U/S of footbridge NE of Flint Street-X5	902.10	902.26	308
13572	16' U/S of footbridge NE of Flint Street	902.36	902.52	308
13672	116' U/S of footbridge NE of Flint Street	902.58	902.60	308
13857	241' U/S of footbridge NE of Flint Street	902.62	902.67	308
13987	371' U/S of footbridge NE of Flint Street	902.72	902.89	308
14157	51' D/S of Flint St. S. of G. R. Ave.	903.18	903.35	308
14207	1' D/S of Flint St. S. of G. R. Ave.	902.93	904.29	308
14208	D/S face of Flint St. S. of G. R. Ave.			308
14306	U/S face of Flint ST. S. of G. R. Ave.			308
14307	1' U/S of Flint St. S. of G. R. Ave.-X5	905.07	905.16	308
14407	1' D/S of Grand River Ave.	905.17	905.24	308
14408	D/S face of Grand River Ave.			308
14474	U/S face of Grand River Ave.			308
14475	1' U/S of Grand River Ave.-X5	905.75	905.78	308

WATERCOURSE: Walled Lake Branch

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

100-year

STATION	LOCATION	CWSEL	EG	Q
14490	1' D/S of footbridge N. Grand River	905.74	905.79	308
14491	D/S face of footbridge N. Grand River	905.77	905.80	308
14493	U/S face of footbridge N. Grand River	905.78	905.80	308
14494	1' U/S of footbridge N. Grand River	905.76	905.82	308
14694	201' U/S of footbridge N. Grand River	905.90	905.96	308
15494	1001' U/S of footbridge N. Grand River	907.31	907.73	308
16544	51' D/S of culverts-Paragon Steel	909.81	909.88	308
16594	1' D/S of culverts-Paragon Steel	909.80	910.04	308
16595	D/S face of culverts-Paragon Steel			308
17065	U/S face of culverts-Paragon Steel			308
17066	1' U/S of culverts-Paragon Steel-X5	915.27	915.31	308
17391	1' D/S of Railroad Spur-Paragon Steel	915.32	915.32	308
17392	D/S face of Railroad Spur-Paragon Steel	915.32	915.32	308
17447	U/S face of Railroad Spur-Paragon Steel	915.32	915.33	308
17448	1' U/S of Railroad Spur-Paragon Steel Island Confluence	915.33	915.33	308
17508	1' D/S of C & O W. Paragon Steel	915.26	915.40	850
17509	D/S face of C & O W. Paragon Steel	915.20	915.47	850
17535	U/S face of C & O W. Paragon Steel	915.33	915.56	850
17536	1' U/S of C & O W. Paragon Steel	915.47	915.59	850
17711	1' D/S of culverts 200' W. of C & O	915.73	915.77	850
17712	D/S face of culverts 200' W. of C & O	915.73	915.77	850
17732	U/S face of culverts 200' W. of C & O	915.76	915.80	850
17733	1' U/S of culverts 200' W. of C & O	915.76	915.81	850
18370	751' D/S of Canzano Const. culverts	916.49	916.68	850
19758	1' D/S of Canzano Const. culverts	921.42	921.47	850
19759	D/S face of Canzano Const. culverts	921.34	921.56	850
19947	U/S face of Canzano Const. culverts	921.80	921.92	850
19948	1' U/S of Canzano Const. culverts	921.93	921.95	850
20023	1' D/S of I-96 bridge	921.43	922.55	740
20024	D/S face of I-96 bridge			740
20180	U/S face of I-96 bridge			740
20181	1' U/S of I-96 bridge	923.98	923.98	740
20331	151' U/S of I-96 bridge	923.98	924.00	740
21381	1' D/S of Driveway E. of Taft road	924.12	924.16	740
21382	D/S face of Driveway E. of Taft road	924.12	924.16	740
21394	U/S face of Driveway E. of Taft road	924.13	924.16	740
21395	1' U/S of Driveway E. of Taft road	924.13	924.16	740
21420	1' D/S of Garage Street	924.12	924.18	740
21421	D/S face of Garage Street	924.09	924.21	740
21441	U/S face of Garage Street	924.11	924.22	740
21442	1' U/S of Garage Street	924.19	924.24	740
21892	451' U/S of Garage Street	924.31	924.31	740
22392	51' D/S of C & O, 600' SE of 12 Mile	924.02	925.02	740
22442	1' D/S of C & O, 600' SE of 12 Mile	924.76	927.55	740
22443	D/S face of C & O, 600' SE of 12 Mile			740
22468	U/S face of C & O, 600' SE of 12 Mile			740
22469	1' U/S of C & O, 600' SE of 12 Mile-X5	927.55	927.55	740
22718	251' U/S of C & O, 600' SE of 12 Mile	927.49	927.64	740
23143	26' D/S of 12 Mile road	928.42	928.93	740
23168	1' D/S of 12 Mile road	927.54	930.31	740
23169	D/S face of 12 Mile road	929.05	930.67	740

100-year

WATERCOURSE: Walled Lake Branch

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
23219	U/S face of 12 Mile road	929.61	931.00	740
23220	1' U/S of 12 Mile road	929.57	931.06	740
23245	26' U/S of 12 Mile road	931.37	931.51	660
23545	326' U/S of 12 Mile road	931.61	931.78	660
24445	1226' U/S of 12 Mile road	932.08	932.09	660
25445	2226' U/S of 12 Mile road	932.16	932.17	660
27220	4001' U/S of 12 Mile road	932.31	932.33	660
28270	5051' U/S of 12 Mile road	932.48	932.48	280
29245	6026' U/S of 12 Mile road	932.49	932.49	280
30045	6426' U/S of 12 Mile road	932.49	932.50	280
30445	6826' U/S of 12 Mile road	932.52	932.54	280
30845	7226' U/S of 12 Mile road	932.84	933.03	280

100-year

WATERCOURSE: Trib. "A" Walled Lake Branch

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
	Starting elev. from Walled Lake			
0	Confluence of trib "A" & Walled Lake	855.69	857.54	205
100	100' U/S of confluence	858.01	858.07	205
200	200' U/S of confluence	859.19	859.25	205
300	300' U/S of confluence	860.45	860.51	205
775	1276' D/S of Orchard Service road	871.70	871.86	205
2050	1' D/S of Orchard Service road	882.37	882.40	205
2051	D/S face of Orchard Service road	882.38	882.40	205
2071	U/S face of Orchard Service road	882.39	882.41	205
2072	1' U/S of Orchard Service road	882.39	882.41	205
2897	1' D/S of Novi road	886.91	887.03	205
2898	D/S face of Novi road			205
2968	U/S face of Novi road			205
2969	1' U/S of Novi road-X5	892.81	892.81	205
3519	551' U/S of Novi road	892.81	892.81	205
4569	1601' U/S of Novi road	892.82	892.82	205
5369	1' D/S of Ten Mile road	892.83	892.83	205
5370	D/S face of Ten Mile road	892.83	892.83	205
5424	U/S face of Ten Mile road	892.83	892.83	205
5425	1' U/S of Ten Mile road	892.83	892.83	205

100-year

WATERCOURSE: Bishop Creek

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
	Starting elev. from Patnales Dr.			
0	300' U/S of confluence	842.10	842.12	330
475	775' U/S of confluence	842.39	842.46	330
950	1250' U/S of confluence	843.04	843.13	330
1081	920' D/S of Ten Mile road	843.32	843.52	330
1212	789' D/S of Ten Mile road	844.00	844.28	330
1475	526' D/S of Ten Mile road	845.84	846.12	330
1737	264' D/S of Ten Mile road	847.50	847.72	330
2000	1' D/S of Ten Mile road	849.12	849.44	330
2001	D/S face of Ten Mile road			330
2038.8	U/S face of Ten Mile road			330
2039.8	1' U/S of Ten Mile road-X5	851.68	851.69	330
2440	401' U/S of Ten Mile road	853.43	853.72	330
3178	801' U/S of Ten Mile road	856.16	856.69	330
3515	1138' U/S of Ten Mile road	859.94	860.29	330
3853	1476' U/S of Ten Mile road	862.97	863.23	330
4190	2201' U/S of Ten Mile road	865.85	865.95	330
4915	2926' U/S of Ten Mile road	868.88	869.08	330
5640	451' D/S of Grand Tiver Ave.	870.41	870.47	215
5790	301' D/S of Grand River Ave.	870.55	870.58	215
5940	276' D/S of Grand River Ave.	870.62	870.63	215
5965	151' D/S of Grand River Ave.	870.62	870.64	215
6090	21' D/S of Grand River Ave	870.66	870.78	215
6240	1' D/S of Grand River Ave.	870.30	871.33	215
6241	D/S face of Grand River Ave.	870.26	870.38	215
6305	U/S face of Grand River Ave.	870.63	871.60	215
6306	1' U/S of Grand River Ave.	870.77	871.64	215
6311	6' U/S of Grand River Ave.	871.81	871.89	215
6450	145' U/S of Grand River Ave.	871.92	871.92	215
6900	595' U/S of Grand River Ave.	871.93	871.93	215
7403	101' D/S of Meadowbrook road	871.91	871.98	215
7503	1' D/S of Meadowbrook road	872.44	872.57	215
7504	D/S face of Meadowbrook road			215
7534	U/S face of Meadowbrook road			215
7535	1' U/S of Meadowbrook road-X5	876.32	876.32	215
7735	201' U/S of Meadowbrook road	876.33	876.38	215
8185	1' D/S of Driveway culverts	876.90	877.02	215
8186	D/S face of Driveway culverts			215
8202	U/S face of Driveway culverts			215
8203	1' U/S of Driveway culverts-X5	878.35	878.37	215
8475	276' D/S of Eleven Mile road	878.44	878.45	137
8750	1' D/S of Eleven Mile road	878.47	878.47	137
8751	D/S face of Eleven Mile road	878.46	878.48	137
8791	U/S face of Eleven Mile road	878.48	878.49	137
8792	1' U/S of Eleven Mile road	878.49	878.49	137
8807	1' D/S of field culvert	878.49	878.49	137
8808	D/S face of field culvert	878.49	878.49	137
8824	U/S face of field culvert	878.49	878.49	137
8825	1' U/S of field culvert	878.49	878.49	137
9225	1' D/S of field culvert	878.49	878.52	137
9226	D/S face of field culvert	878.51	878.53	137
9249	U/S face of field culvert	878.51	878.53	137

100-year

WATERCOURSE: Bishop Creek

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
9253	D/S face of field culvert	878.53	878.53	137
9269	U/S face of field culvert	878.53	878.54	137
9270	1' U/S of field culvert	878.52	878.55	137
9375	101' U/S of field culvert	878.58	878.64	137
9475	201' U/S of field culvert	878.77	878.85	137
9575	301' U/S of field culvert	879.15	879.48	137
9675	201' D/S of Driveway culvert	880.20	880.37	137
9775	101' D/S of Driveway culvert	880.77	880.94	137
9875	1' D/S of Driveway culvert	881.28	881.46	137
9876	D/S face of Driveway culvert			137
9893	U/S face of Driveway culvert			137
9894	1' U/S of Driveway culvert-X5	882.50	882.51	137
9950	57' U/S of Driveway culvert	882.49	882.56	137
10000	107' U/S of Driveway culvert	882.60	882.76	137
10100	207' U/S of Driveway culvert	883.30	883.59	137
10200	307' U/S of Driveway culvert	884.49	884.78	137
10350	457' U/S of Driveway culvert	886.13	886.33	137
10450	201' D/S of Dirt Drive	887.15	887.40	137
10550	101' D/S of Dirt Drive	888.33	888.58	137
10600	51' D/S of Dirt Drive	888.91	889.15	137
10650	1' D/S of Dirt Drive	889.49	889.74	137
10651	D/S face of Dirt Drive			137
10681	U/S face of Dirt Drive			137
10682	1' U/S of Dirt Drive-X5	892.10	892.12	137
10755	74' U/S of Dirt Drive	892.12	892.15	137
10795	23' D/S of Sugden Const. culverts	892.16	892.16	137
11025	1' D/S of Sugden Const. culverts	892.05	892.32	137
11026	D/S face of Sugden Const. culverts	891.96	892.42	137
11416	U/S face of Sugden Const. culverts	892.92	893.50	137
11417	1' U/S of Sugden Const. culverts	893.28	893.58	137
11425	93' D/S of Sugden Const. Driveway	893.61	893.72	137
11485	33' D/S of Sugden Const. Driveway	893.65	893.72	137
11517	1' D/S of Sugden Const. Driveway	893.60	893.88	137
11518	D/S face of Sugden Const. Driveway			137
11554	U/S face of Sugden Const. Driveway			137
11555	1' U/S of Sugden Const. Driveway-X5	894.40	894.44	137
11563	9' U/S of Sugden Const. Driveway	894.40	894.44	137
11755	201' U/S of Sugden Const. Driveway	894.50	894.54	137
11955	401 U/S of Sugden Const. Driveway	894.61	894.67	137
12155	601' U/S of Sugden Const. Driveway	894.75	894.81	137
12442	888' U/S of Sugden Const. Driveway	894.99	895.05	137

K+E 10 X 10 TO THE INCH • 10 X 15 INCHES
KEUFFEL & ESSER CO MADE IN U.S.A.

47 0780

Red have been built
Green proposed

600
500
400
300
200
100
0

37
38
39
40
41
105
106
107
108

Set back

Chatman Drive

0
100
200
300
400

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI CITY

3) WATERCOURSE: MIDDLE - ROUGE
WALLED LAKE DR.

4) DOCUMENT TYPE: ~~DOC~~ SUMMARY — 3

00BREAK00

11.01	2.00	6.14	0.00	0.070	0.050	0.000	0.000	901.80	58.61
0.012199	95.	95.	95.	2	0	0	0.00	30.96	89.57

0
*SECNO 2285.000
3280 CROSS SECTION 2285.00 EXTENDED 0.62 FEET

1
10 FEB 89 8:47:32 PAGE 184

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 905.60 ELREA= 907.80

2285.00	4.32	907.52	0.00	907.13	907.83	0.31	0.99	0.07	905.60
310.	97.	213.	0.	51.	41.	0.	706.	200.	907.80
11.01	1.89	5 24	0.00	0 070	0.050	0.000	0.000	903.20	0.00
0.008948	95.	95.	95.	3	0	0	0.00	82.20	82.20

0
1
10 FEB 89 8:47:32 PAGE 185

THIS RUN EXECUTED 10 FEB 89 8:48:55

****
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

WALLED LAKE BRANCH

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
0.000	836.96	0.00	836.99	449.18	331.19	373.81	0.00	0.00	0.00	783.00	885.00	0.00
0 000	839.05	0.00	839.06	762.87	744.49	280.51	0.00	0.00	0.00	783.00	885.00	0 00
0.000	839 29	0.00	839 30	800.28	901.21	313.79	0.00	0.00	0.00	783.00	885 00	0.00
0.000	839.61	0.00	839.62	860.36	1296.92	408.08	0.00	0 00	0.00	783 00	885.00	0.00
62.000	836.94	0.00	837 11	171.90	66.35	638.65	0 00	0.00	0.00	789.50	87/.20	0.00
62.000	839.05	0.00	839.06	811.21	692.20	332.80	0.00	0.00	0.00	789.50	877.20	0 00
62.000	839.29	0.00	839.30	853.87	859.25	355.75	0.00	0.00	0.00	789.50	877.20	0 00
62.000	839 61	0.00	839.63	856.49	1264.43	440.57	0 00	0.00	0.00	789.50	877.20	0.00
125.000	837.06	0 00	837.39	104.54	37.39	667.61	0.00	0.00	0.00	796.00	869.50	0.00
125.000	839.06	0.00	839.08	847.20	617.50	407.50	0.00	0.00	0.00	796.00	869.50	0 00
125.000	839 30	0.00	839.32	849.18	803.34	411.66	0.00	0.00	0.00	796.00	869.50	0 00
125.000	839 62	0.00	839.64	851.84	1224.60	480.40	0.00	0.00	0.00	796.00	869.50	0 00
187.000	837.34	0.00	837 70	108.83	90.38	614.62	0.00	0.00	0.00	802.50	861.70	0.00
187.000	839.07	0.00	839.10	684.48	651.28	373.72	0.00	0 00	0.00	802.50	861.70	0.00
187.000	839.31	0.00	839.34	712.8·	836.73	378.27	0 00	0.00	0.00	802.50	861.70	0.00

	187.000	839.63	0.00	839.67	739.35	1266.08	438.92	0.00	0.00	0.00	802.50	861.70	0 00
*	251.000	837.40	0.00	839.67	13.00	0.00	705.00	0.00	0.00	0.00	827.00	840.00	0.00
	251.000	839.09	0.00	839.13	531.76	775.41	201.52	48.08	0.00	0.00	827.00	840.00	0.00
	251.000	839.33	0.00	839.37	555.69	958.10	205.49	51.41	0.00	0.00	827.00	840.00	0.00
	251.000	839.65	0.00	839.70	597.18	1401.67	239.55	63.78	0.00	0.00	827.00	840.00	0.00
*	292.000	839.66	0.00	839.67	564.56	656.41	48 59	0.00	0.00	0.00	827.00	840.00	0.00
*	292.000	839.15	0.00	839.19	484.19	924.06	100.94	0.00	0.00	0.00	827.00	840.00	0.00
*	292.000	839.39	0.00	839.43	523.53	1114.70	100 30	0.00	0.00	0.00	827.00	840.00	0.00
*	292.000	839.73	0.00	839.78	571.55	1592.01	112.99	0.00	0.00	0.00	827.00	840.00	0.00
	503.000	839.69	0.00	839.80	430.00	129.12	426.31	149.57	430 00	750.00	1000.00	1030.00	1180.00
	503.000	839.35	0.00	839.75	430.00	127.00	708.68	189.32	430.00	750.00	1000.00	1030.00	1180.00
	503.000	839.56	0 00	839.95	430 00	195.47	773.63	245.90	430.00	750.00	1000.00	1030.00	1180.00
	503 000	839 90	0.00	840.36	430.00	365.41	956.05	383.54	430.00	750.00	1000.00	1030.00	1180.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
601.000	839 80	0.00	839 95	513.16	161.61	421.72	121.67	625.00	555.00	900.00	927.00	1180.00
601 000	839.87	0.00	840.14	513.56	248.88	595.18	180.94	625.00	555.00	900.00	927.00	1180.00
601.000	840.08	0 00	840.34	514.99	347.83	638.08	229 09	625.00	555.00	900.00	927.00	1180.00
601.000	840 54	0.00	840.78	518.04	607.78	745.09	352.13	625.00	555.00	900.00	927.00	1180.00
699.000	840.07	0.00	840.10	748.09	363.22	258.22	83.57	750.00	335.00	942.50	972.50	1085.00
699.000	840.34	0.00	840.38	748.09	575.56	322.69	126.75	750.00	335.00	942.50	972.50	1085.00
699.000	840.54	0.00	840.58	748.10	712.86	348.60	153.54	750.00	335.00	942.50	972.50	1085.00
699.000	840.97	0.00	841.02	748.11	1072.60	409.30	223.10	750.00	335.00	942.50	972.50	1085 00
797.000	840.17	0 00	840.26	704.14	253.24	351.28	100.49	-427.00	427.00	942 50	972.50	1250.01
797 000	840 47	0.00	840.57	707.18	441.32	420 58	163.10	-427 00	427.00	942.50	972 50	1250.01
797.000	840.66	0.00	840.76	709.21	566.36	445.13	203 51	-427.00	427.00	942.50	972.50	1250.01
797.000	841 11	0.00	841.19	714.20	892.07	503 22	309.71	-427.00	427.00	942.50	972.50	1250.01
895.000	840.39	0.00	840.55	648.53	240.92	374.65	89.42	-368.00	368.00	848.25	875.25	1125.01
895.000	840.72	0.00	840.86	651.59	440.98	432.53	151.50	-368.00	368.00	848.25	875.25	1125.01
895.000	840.91	0.00	841.04	653.32	567.93	456.59	190.48	-368.00	368.00	848.25	875.25	1125.01
895.000	841 33	0.00	841 45	657.50	900.03	511.73	293.24	-368 00	368.00	848.25	875.25	1125 01
993.000	840.67	0.00	841.02	497.77	80.45	541.41	83 14	-414.00	414.00	885.00	915.00	1200 00
993.000	840.99	0.00	841 37	656.60	209.88	666.43	148.70	-414.00	414.00	885.00	915.00	1200.00
993.000	841 17	0.00	841.53	660.02	308.07	715.14	191.79	-414 00	414.00	885.00	915.00	1200 00
993.000	841.58	0.00	841 89	667.90	585.22	812.52	307.26	-414.00	414.00	885.00	915.00	1200.00
1091.000	841.08	0.00	841.43	498.69	79.44	539.94	85.62	-443.00	443.00	885.00	915.00	1200.01
1091.000	841.50	0.00	841.79	643.08	236.51	626.89	161.61	-443.00	443.00	885.00	915.00	1200.01
1091.000	841.64	0.00	841 95	645.76	323.48	688.41	203.10	-443.00	443.00	885.00	915 00	1200.01
1091.000	841.97	0.00	842.29	652.02	570.02	819.95	315.03	-443.00	443.00	885.00	915.00	1200.01
1385.000	842.26	0.00	842.53	406.33	111.51	500.82	92.66	-498 00	498.00	827.50	857.50	1150.00
1385.000	842.58	0.00	842.90	488.10	227.63	632.72	164.65	-498.00	498.00	827.50	857.50	1150.00
1385.000	842.77	0.00	843.09	501.86	306.07	692.96	215.97	-498.00	498.00	827.50	857.50	1150.00
1385.000	843.16	0.00	843.49	556.78	519.69	830.55	354.76	-498.00	498.00	827.50	857.50	1150.00
1678 000	843 32	0.00	843.64	313.51	116.10	511.56	77.34	500.00	400.00	770.00	800.00	900.00
1678 000	843.75	0.00	844.09	351.73	254.27	639.23	131.49	500 00	400.00	770.00	800.00	900.00
1678.000	843.95	0.00	844.30	367.71	339.59	708.48	166.93	500.00	400.00	770.00	800.00	900.00
1678.000	844.38	0.00	844 76	388.99	563.04	870.87	271.09	500.00	400.00	770.00	800.00	900.00
2253 000	845.68	0.00	845.88	222.45	148.70	505.62	50.68	0 00	0.00	483.00	520.00	0.00
2253.000	846.12	0.00	846.37	228.74	292.31	656.40	76.29	0.00	0.00	483.00	520.00	0.00
2253.000	846.35	0.00	846 61	231.93	383.49	740.07	91.44	0.00	0.00	483.00	520.00	0.00

2253.000	846.86	0.00	847.17	238.96	629.90	944.52	130.58	0.00	0 00	483.00	520.00	0.00
3404.000	849 70	0.00	849.90	180.00	243.98	411.22	49.80	180.00	280.00	389.00	411.00	460.00
3404.000	850.25	0.00	850.48	180.00	401.10	521.14	102.76	180.00	280.00	389.00	411.00	460.00
3404.000	850.54	0.00	850.78	180.00	495.85	582.80	136.35	180.00	280.00	389.00	411.00	460.00
3404.000	851 19	0.00	851.47	180.00	743.54	734.26	227.20	180.00	280.00	389.00	411.00	460.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	GLOB	GCH	GROB	PERENC	STENCL	STCHL	STCHR	STENCR
3410.000	849.90	0.00	849.97	180.00	425.03	184 81	95.16	180.00	280.00	389.00	411.00	460.00
3410.000	850.25	0.00	850.48	180.00	401.07	521.18	102.74	180.00	280.00	389.00	411.00	460.00
3410 000	850 54	0.00	850.78	180.00	495.87	582.77	136.36	180.00	280 00	389.00	411.00	460.00
3410.000	851.19	0.00	851 47	180.00	743 69	733.98	227.32	180.00	280.00	389.00	411.00	460.00
4011.000	852.60	0.00	853.16	20.00	0.00	705.00	0.00	0.00	0.00	180.00	200.00	0.00
4011.000	852.85	0.00	853.94	20.00	0.00	1025.00	0.00	0.00	0.00	180.00	200.00	0 00
4011.000	853.23	0.00	854.58	20 00	0.00	1215.00	0.00	0.00	0.00	180.00	200.00	0.00
4011.000	854.00	0.00	856.13	20.00	0.00	1705 00	0.00	0.00	0.00	180.00	200.00	0.00
4012 000	852.53	0.00	853.24	20 00	0.00	705.00	0.00	0.00	0.00	290 00	310 00	0 00
4012 000	852.68	0.00	854.12	20 00	0.00	1025.00	0.00	0.00	0.00	290.00	310.00	0.00
4012 000	852 95	0.00	854.88	20.00	0.00	1215.00	0.00	0.00	0.00	290.00	310.00	0.00
4012 000	853.28	0.00	856.87	20.00	0.00	1705.00	0.00	0.00	0.00	290.00	310.00	0.00
4038.000	852 61	0.00	853.30	20.00	0.00	705.00	0.00	0.00	0.00	290.00	310.00	0.00
4038.000	852.86	0 00	854.25	20.00	0.00	1025.00	0.00	0.00	0.00	290.00	310.00	0.00
4038.000	853.21	0.00	855.06	20.00	0.00	1215.00	0.00	0.00	0.00	290.00	310.00	0.00
4038.000	854.00	0.00	857.26	20.00	0.00	1705.00	0.00	0.00	0.00	290.00	310.00	0 00
4039 000	852.84	0.00	853.35	20.00	0.00	705.00	0.00	0.00	0.00	180.00	200.00	0 00
4039.000	853.53	0.00	854.41	20.00	0.00	1025 00	0.00	0.00	0.00	180 00	200.00	0.00
4039.000	854.32	0.00	855.32	20.00	0.00	1215.00	0.00	0.00	0.00	180.00	200.00	0.00
4039.000	856.79	0.00	857.90	20.00	0.00	1705.00	0.00	0.00	0.00	180.00	200 00	0.00
4663.000	853 91	0.00	853.93	383.90	428.99	202.88	73.13	0.00	0.00	400.00	425.00	0.00
4663.000	855.02	0.00	855.04	396.55	669.59	245.58	109.83	0.00	0.00	400.00	425.00	0.00
4663.000	855.88	0.00	855.89	406.23	818.51	263.92	132.57	0.00	0.00	400.00	425.00	0.00
4663.000	858.38	0.00	858.38	431.14	1203.32	308.01	193.67	0.00	0.00	400.00	425.00	0.00
4969.000	854.06	0.00	854.22	341.06	280.59	364.40	60.01	0.00	0.00	400.00	425.00	0.00
4969.000	855.13	0 00	855.20	375.80	570.96	351.37	102 67	0.00	0.00	400.00	425.00	0 00
4969.000	855.96	0.00	856.00	385.10	746.17	342.32	126.52	0.00	0.00	400.00	425.00	0.00
4969.000	858.41	0.00	858.42	412.71	1165.62	351.35	188.03	0.00	0.00	400.00	425.00	0.00
5122.000	854.80	0.00	855.07	324.52	238.68	412.04	54.28	0.00	0.00	400.00	425.00	0.00
5122 000	855.42	0.00	855.60	368.15	482.95	445.98	96.07	0.00	0.00	400.00	425.00	0.00
5122 000	856.11	0.00	856.20	375.84	677.29	415.97	121.74	0.00	0.00	400.00	425.00	0.00
5122.000	858.45	0.00	858.47	402.12	1135.48	384.84	184.68	0.00	0.00	400.00	425.00	0.00
5275.000	855.82	0.00	856.07	310.00	247.59	402.35	55.06	310.00	150.00	400.00	425 00	460.00
5275.000	856.16	0.00	856.42	310.00	442.53	495 32	87.15	310.00	150.00	400.00	425.00	460.00
5275.000	856 50	0.00	856.72	310.00	592.54	514.31	108.15	310.00	150.00	400.00	425.00	460.00
5275.000	858.52	0.00	858.58	310.00	1067.80	475.23	161.97	310.00	150 00	400.00	425.00	460 00
5581.000	857.06	0.00	857.09	280.75	378.22	60.66	266.12	300.00	80.00	258.00	266.00	380.00
5581.000	857.50	0.00	857.54	294.87	552.84	83.30	388.87	300.00	80.00	258.00	266.00	380.00
5581.000	857.71	0.00	857.76	298.15	658.85	96.13	460 02	300.00	80.00	258.00	266.00	380.00
5581.000	858.89	0.00	858.93	300.00	943.96	120.38	640.65	300.00	80.00	258.00	266 00	380.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	5888.000	858.05	0.00	858.13	245.00	339.27	66.40	229.33	245.00	120.00	258.00	266.00	365.00
	5888.000	858 52	0.00	858.61	245.00	496.94	86.01	342.05	245.00	120.00	258.00	266.00	365.00
	5888 000	858 76	0.00	858.86	245.00	600.19	99.33	415.48	245.00	120.00	258.00	266.00	365 00
	5888.000	859.53	0.00	859.63	245.00	848.40	128.10	593.49	245.00	120.00	258.00	266.00	365 00
	6238.000	861.01	0.00	861.32	70.00	297.99	316.03	20.98	70.00	360.00	400.00	415.00	430.00
	6238.000	861.48	0.00	861.95	70.00	435.92	445.52	43.56	70.00	360.00	400.00	415.00	430 00
	6238.000	861.76	0.00	862.34	70.00	526.03	528.40	60.56	70.00	360.00	400.00	415.00	430.00
	6238.000	862.15	0.00	863.07	70.00	741.05	730.18	98.76	70.00	360.00	400.00	415.00	430.00
	6338.000	861.74	0.00	862.09	45.00	274.92	360.08	0.00	45.00	370.00	400.00	415.00	415.00
	6338.000	862.43	0.00	862.93	45.00	414.43	510.57	0.00	45.00	370.00	400.00	415.00	415.00
	6338.000	862.83	0.00	863 43	45.00	507.61	607.39	0.00	45.00	370.00	400.00	415.00	415.00
	6338.000	863.67	0.00	864.51	45.00	734.18	835.82	0.00	45.00	370.00	400.00	415.00	415.00
	6438.000	862.34	0.00	863.25	20.00	0.00	635 00	0.00	0.00	0.00	395.00	415.00	0.00
	6438.000	863.08	0.00	864.47	20.00	0.00	925.00	0.00	0.00	0.00	395.00	415.00	0.00
	6438.000	863.49	0.00	865.21	20.00	0 00	1115.00	0.00	0.00	0.00	395.00	415.00	0.00
	6438.000	864.30	0.00	866.87	20.00	0.00	1570.00	0.00	0.00	0.00	395.00	415.00	0 00
	6439.000	862.26	0.00	863.33	18.71	0.00	635.00	0.00	0.00	0.00	390.00	410.00	0.00
	6439.000	862.95	0.00	864.62	18.87	0.00	925.00	0.00	0.00	0.00	390.00	410.00	0.00
	6439.000	863.32	0.00	865.40	18.95	0.00	1115.00	0.00	0.00	0.00	390.00	410.00	0.00
*	6439.000	864.20	0.00	867.19	19.15	0.00	1570.00	0.00	0 00	0.00	390.00	410.00	0.00
	6449.000	862.40	0.00	863.40	18.74	0.00	635.00	0.00	0.00	0.00	390.00	410.00	0.00
	6449.000	863.28	0.00	864.74	18.94	0.00	925.00	0.00	0.00	0.00	390.00	410.00	0.00
	6449.000	863.93	0 00	865.59	19.09	0.00	1115 00	0.00	0.00	0.00	390.00	410.00	0 00
	6449.000	865.69	0.00	867.59	19.48	0.00	1570.00	0.00	0.00	0.00	390.00	410.00	0.00
	6450.000	862.84	0.00	863.51	20.00	0.00	635.00	0.00	0.00	0.00	395.00	415.00	0.00
	6450.000	863.97	0.00	864.90	20.00	0.00	925.00	0.00	0.00	0.00	395.00	415.00	0 00
	6450.000	864.69	0.00	865.77	20.00	0.00	1115.00	0.00	0.00	0.00	395.00	415.00	0.00
	6450.000	866.41	0.00	867.76	20 00	0.00	1570.00	0.00	0.00	0.00	395.00	415.00	0.00
	6470.000	863.56	0.00	863.72	60.00	147.73	419.41	67 86	60.00	375.00	395.00	415.00	435 00
	6470.000	864.99	0.00	865.18	60.00	211.27	591.68	122.05	60.00	375.00	395.00	415.00	435.00
	6470.000	865 87	0.00	866 09	60.00	251.60	704.78	158.62	60.00	375.00	395.00	415.00	435.00
	6470.000	867.88	0.00	868.14	60 00	344.82	978.74	246.44	60.00	375.00	395.00	415.00	435.00
	6600.000	863.83	0.00	864.01	53.81	0.00	468.85	166.15	125.00	0.00	58.00	100.00	125.00
	6600.000	865 23	0.00	865.44	57.46	0.00	672.18	252.82	125.00	0.00	58.00	100.00	125 00
	6600.000	866.11	0.00	866.32	59.77	0.00	808.35	306.65	125.00	0.00	58.00	100.00	125.00
	6600.000	868.13	0.00	868.36	65.05	0.00	1144 98	425.02	125.00	0.00	58.00	100.00	125.00
	6650.000	863.89	0.00	864.33	28.55	0.00	635.00	0.00	100.00	0.00	58.00	100.00	100 00
	6650.000	865.25	0.00	865.77	32.10	0.00	925.00	0.00	100.00	0.00	58.00	100.00	100.00
	6650.000	866.11	0.00	866.65	34.34	0.00	1115.00	0.00	100.00	0.00	58.00	100.00	100.00
	6650.000	868.10	0 00	868.65	39.54	0 00	1570 00	0.00	100.00	0.00	58.00	100.00	100.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	6700.000	864.00	0.00	865.24	13.00	0.00	635.00	0.00	13.00	87 50	87.50	100.50	100 50
	6700.000	865.14	0.00	866.94	13.00	0.00	925.00	0.00	13.00	87.50	87.50	100.50	100 50
	6700.000	865.84	0.00	867.98	13.00	0.00	1115.00	0.00	13.00	87.50	87.50	100 50	100.50
	6700.000	867.42	0.00	870 29	13.00	0.00	1570.00	0.00	13.00	87.50	87.50	100.50	100.50
	6701.000	864.28	0.00	865.31	13.00	0.00	635.00	0.00	0.00	0.00	93.50	106.50	0.00
	6701.000	865 55	0.00	867.05	13.00	0.00	925.00	0.00	0.00	0.00	93.50	106.50	0.00

	6701.000	866.12	0.00	868.06	13.00	0.00	1115.00	0.00	0.00	0.00	93.50	106.50	0.00
	6701.000	866.96	0.00	870 81	13.00	0.00	1570.00	0.00	0.00	0.00	93.50	106.50	0.00
	6749.000	864.61	0.00	865.54	13.00	0.00	635.00	0.00	0.00	0.00	93.50	106.50	0.00
	6749.000	866.08	0.00	867.42	13.00	0.00	925.00	0.00	0.00	0.00	93.50	106.50	0.00
	6749.000	866.68	0.00	868.62	13.00	0 00	1115.00	0.00	0.00	0.00	93.50	106.50	0.00
	6749.000	868.08	0.00	871.93	13.00	0.00	1570 00	0.00	0.00	0.00	93.50	106.50	0 00
	6750.000	864.57	0.00	865.60	13.00	0.00	640 00	0.00	0.00	0.00	87.50	100.50	0.00
	6750.000	866.00	0.00	867.52	13.00	0 00	960.00	0.00	0.00	0.00	87.50	100.50	0.00
	6750.000	867.25	0.00	868.76	13.00	0.00	1115.00	0.00	0.00	0.00	87.50	100.50	0.00
	6750.000	871.22	0 00	872.66	13.00	0.00	1585.00	0.00	0.00	0.00	87.50	100.50	0.00
	6763.000	865.74	0.00	865.89	40.00	69.27	505.66	65.06	40.00	170.00	180.00	200.00	210 00
	6763.000	867.73	0.00	867.94	40.00	103.13	758.17	98.69	40.00	170.00	180.00	200 00	210.00
	6763.000	868.94	0.00	869.17	40.00	118.33	882.62	114.04	40.00	170.00	180.00	200.00	210.00
	6763.000	872.78	0.00	873.03	40.00	159.64	1269.48	155.88	40.00	170.00	180.00	200.00	210.00
	6841.000	865.95	0.00	865.97	168.85	302.74	251.58	85.68	200.00	40.00	180.00	200.00	240.00
	6841.000	868 01	0.00	868.03	190.53	498.11	325 04	136.85	200.00	40.00	180.00	200.00	240.00
	6841.000	869.23	0.00	869.26	200.00	598.59	352.67	163.74	200.00	40.00	180.00	200.00	240.00
	6841.000	873.10	0.00	873.12	200.00	908.73	431 78	244.49	200.00	40.00	180.00	200.00	240.00
*	7300.000	866.29	0.00	867.02	110.17	121.66	469.74	48.60	0.00	0.00	180.00	200.00	0.00
	7300.000	868.15	0.00	868.35	148.94	372.76	471.93	115.31	0.00	0.00	180.00	200.00	0.00
	7300.000	869.34	0.00	869.46	161.53	500.96	469 22	144.82	0.00	0.00	180.00	200.00	0.00
	7300.000	873.15	0.00	873 19	201.61	846.99	506.60	231.41	0.00	0.00	180.00	200.00	0.00
	8050.000	870.22	0.00	870.29	224.14	346.47	293 53	0.00	0.00	0.00	275.00	300.00	0.00
	8050.000	870.56	0.00	870.67	228.69	558.61	401.39	0.00	0.00	0 00	275.00	300.00	0.00
	8050.000	870.87	0.00	870.98	233.17	684.44	430.56	0.00	0.00	0.00	275.00	300 00	0.00
	8050.000	873.52	0.00	873.56	252.77	1181.12	403.83	0.05	0.00	0.00	275.00	300.00	0.00
	8400.000	871.30	0.00	872.06	42.55	0.03	635 45	4.52	44.00	165.00	170.00	200.00	209.00
	8400.000	872.03	0.00	873.07	44.00	5.20	934.13	20.67	44.00	165.00	170.00	200.00	209.00
	8400 000	872.24	0.00	873.49	44.00	7 92	1079.27	27.81	44.00	165.00	170.00	200 00	209.00
	8400.000	873.50	0.00	874.84	44.00	24.50	1495 74	64.76	44.00	165.00	170.00	200.00	209.00
	8450.000	871.91	0.00	872.92	19.00	0.00	640 00	0.00	19.00	178.00	170.00	200.00	197.00
	8450.000	872 61	0.00	874.28	19.00	0.00	960.00	0.00	19.00	178 00	170.00	200.00	197.00
	8450.000	872 87	0.00	874 90	19.00	0.00	1115.00	0.00	19.00	178.00	170.00	200 00	197.00
*	8450.000	873.73	0.00	876.74	19.00	0.00	1585.00	0.00	19.00	178.00	170.00	200.00	197.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
8451 000	872.14	0.00	872.98	19.00	0.00	640.00	0.00	0.00	0.00	490.50	509.50	0.00
8451 000	873.11	0.00	874.40	19.00	0.00	960.00	0.00	0.00	0.00	490.50	509.50	0.00
8451 000	873.62	0.00	875.08	19.00	0.00	1115 00	0.00	0.00	0.00	490.50	509.50	0.00
8451.000	875.31	0.00	877.11	19.00	0.00	1585.00	0.00	0.00	0.00	490.50	509.50	0.00
8461.000	872 20	0.00	873.02	19.00	0.00	640.00	0.00	0.00	0.00	490.50	509.50	0.00
8461.000	873.24	0.00	874.47	19.00	0.00	960.00	0.00	0.00	0.00	490.50	509.50	0.00
8461.000	873.75	0.00	875.15	19.00	0.00	1115.00	0.00	0.00	0.00	490.50	509.50	0.00
8461.000	875 44	0.00	877 18	19.00	0.00	1585.00	0.00	0.00	0.00	490.50	509.50	0.00
8462.000	872.17	0.00	873.07	19.00	0.00	640.00	0.00	19.00	178.00	170.00	200.00	197.00
8462.000	873.20	0.00	874.53	19.00	0.00	960.00	0.00	19.00	178.00	170.00	200.00	197 00
8462.000	873.70	0.00	875.21	19.00	0.00	1115.00	0.00	19.00	178.00	170.00	200 00	197.00
8462.000	875.40	0.00	877.24	19.00	0.00	1585.00	0.00	19.00	178.00	170.00	200.00	197.00
8475.000	873.00	0.00	873.32	45 00	6.59	611.25	22.16	45.00	165.00	170 00	200.00	210 00
8475.000	874.52	0.00	874.89	45.00	17.50	892.73	49.77	45.00	165.00	170.00	200.00	210.00

8475.000	875.22	0 00	875.61	45.00	22.67	1029.21	63.12	45.00	165.00	170.00	200.00	210.00
8475.000	877.28	0.00	877.72	45.00	37.25	1445 71	102.04	45.00	165.00	170.00	200.00	210.00
8787.000	874.15	0.00	874 48	28.68	0.00	640 00	0.00	-75.00	75.00	100.00	150.00	200.00
8787 000	875.55	0.00	875.99	32.63	0.00	960.00	0.00	-75.00	75.00	100.00	150.00	200.00
8787.000	876.19	0.00	876.66	34.44	0.00	1115.00	0.00	-75.00	75.00	100.00	150.00	200 00
8787 000	878.09	0.00	878.62	39.79	0.00	1585.00	0.00	-75.00	75.00	100.00	150.00	200.00
8906.000	874.64	0.00	875.25	24.66	0.00	640.00	0.00	-95.00	95.00	125.00	166 70	225.00
8906.000	876.06	0.00	876.79	28.79	0.00	960.00	0.00	-95.00	95.00	125 00	166.70	225.00
8906.000	876.69	0.00	877.46	30.38	0.00	1115.00	0.00	-95.00	95.00	125.00	166.70	225.00
8906.000	878 52	0.00	879.34	34.95	0.00	1585.00	0.00	-95.00	95.00	125.00	166.70	225.00
9025.000	875.75	0.00	876 65	22.31	0.00	640.00	0.00	-114.00	114.00	150.00	183.50	250 00
9025.000	877.09	0.00	878.16	25.13	0.00	960.00	0.00	-114.00	114.00	150.00	183.50	250.00
9025.000	877 65	0.00	878.79	28.02	0.23	1114.76	0.00	-114.00	114.00	150.00	183.50	250.00
9025.000	879.27	0.00	880.52	37.21	17.64	1567.36	0 00	-114.00	114.00	150.00	183.50	250.00
9144.000	877.33	0.00	878.33	24.52	7.90	632.10	0.00	-121.00	121.00	175.00	200.20	275.00
9144.000	878.57	0.00	879.80	29.68	38.85	921.15	0.00	-121.00	121.00	175.00	200.20	275.00
9144.000	879.09	0.00	880.40	31.77	59.32	1055.68	0.00	-121.00	121.00	175.00	200.20	275.00
9144.000	880.55	0.00	881.86	62.17	199.04	1385.95	0.00	-121.00	121.00	175.00	200.20	275.00
9262.000	879 01	0.00	879.97	32.86	116.27	523.73	0.00	-139.00	139.00	200.00	217.00	300.00
9262.000	880.54	0.00	881.34	59 05	284.81	675.18	0.00	-139.00	139.00	200.00	217.00	300.00
9262.000	881.18	0.00	881.90	62.17	384.41	730.59	0.00	-139.00	139.00	200.00	217.00	300.00
9262.000	882.51	0.00	883.21	68.75	675 17	909.83	0.00	-139.00	139.00	200.00	217.00	300.00
9494 000	881 48	0.00	881.77	64.42	224.20	415.80	0.00	-158.00	158.00	228.00	245.20	395 00
9494.000	882 59	0.00	882.91	80.71	410.36	549.63	0.00	-158.00	158.00	228.00	245.20	395.00
9494.000	883.04	0.00	883.37	85.45	506.41	608.59	0.00	-158.00	158.00	228.00	245.20	395.00
9494.000	884.24	0 00	884.59	87.08	814.26	770.74	0.00	-158.00	158.00	228.00	245.20	395.00

SECND	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
9725.000	882.47	0.00	882.79	55.95	215.63	424.37	0.00	-203.00	203.00	256.00	273.50	490.00
9725.000	883.57	0.00	883.94	71.38	379.17	580.83	0.00	-203.00	203.00	256.00	273.50	490.00
9725.000	884.01	0.00	884 40	74.51	458.62	655.89	0 49	-203.00	203.00	256.00	273.50	490.00
9725.000	885.16	0.00	885 62	80.87	704.08	870.19	10.73	-203.00	203.00	256.00	273.50	490.00
9956.000	883 51	0.00	883.73	73.99	256.94	381.27	1.79	-226.00	226.00	284.00	301.70	585.00
9956.000	884.59	0.00	884.85	84.05	422.29	523.77	13.94	-226.00	226.00	284 00	301.70	585.00
9956.000	885.03	0.00	885.31	99.35	501.96	589.42	23.63	-226.00	226.00	284.00	301.70	585.00
9956.000	886.19	0.00	886.50	138.01	733.57	764.66	86.78	-226.00	226.00	284.00	301.70	585.00
10187.000	884.25	0.00	884.31	232.17	401.30	227.57	11.13	0.00	0.00	312.00	330.00	0.00
10187.000	885 27	0.00	885.32	275.03	649.31	274.94	35.75	0.00	0.00	312.00	330.00	0.00
10187.000	885.71	0.00	885.76	292.99	765.20	297.16	52.64	0.00	0.00	312.00	330.00	0.00
10187.000	886.85	0.00	886.90	340.53	1105.15	361.15	118.70	0.00	0.00	312.00	330.00	0.00
10812.000	886.08	0.00	886.29	205.68	335 85	298.32	5.84	0.00	0.00	312.00	330.00	0.00
10812.000	886.63	0.00	886.84	218.12	574.31	372.17	13.52	0.00	0.00	312.00	330.00	0.00
10812.000	886.91	0.00	887.11	230.58	695.97	400.11	18.92	0.00	0.00	312.00	330.00	0.00
10812.000	887 77	0.00	887.94	266.69	1062.10	470.91	51 99	0.00	0.00	312.00	330.00	0.00
11438.000	890.19	0.00	890.45	115.60	220.30	216.11	83.60	240.00	165.00	195.70	204.30	405.00
11438.000	890.76	0.00	891 05	190.06	291.46	278.67	204.88	240.00	165.00	195.70	204.30	405.00
11438.000	890.96	0.00	891.28	214.86	329.03	310.19	275.79	240.00	165.00	195.70	204.30	405.00
11438.000	891.35	0.00	891.74	240.00	423.08	387.36	494.56	240 00	165.00	195.70	204.30	405.00
11518.000	892 41	0.00	892.43	200.00	125.80	119.74	274.47	200.00	175.00	195.70	204 30	375.00
11518.000	892.72	0.00	892.76	200.00	176.22	167 01	431.78	200.00	175.00	195.70	204.30	375 00

11518.000	892.85	0.00	892.90	200.00	203.40	192.47	519.13	200.00	175 00	195.70	204.30	375.00
11518.000	893.13	0.00	893.22	200.00	276.03	260.30	768.67	200.00	175.00	195.70	204.30	375.00
11694.000	892.56	0.00	892.70	92.33	2.79	292.95	224 26	-37.00	37.00	75.00	92.00	275.00
11694.000	892.97	0 00	893.20	102.88	10.81	415.59	348.60	-37.00	37.00	75.00	92.00	275.00
11694.000	893.15	0.00	893.44	107.58	17.30	480.41	417 29	-37.00	37.00	75.00	92.00	275.00
11694 000	893.61	0.00	894.04	114.29	46.76	649.53	608.70	-37 00	37.00	75.00	92.00	275 00
11869.000	893.34	0.00	893.84	68.11	0.00	360.19	159.81	-37.00	37 00	75.00	92.00	275.01
11869 000	894.07	0.00	894.59	77.01	0.10	472.41	302.49	-37.00	37.00	75.00	92.00	275.01
11869.000	894.39	0.00	894.94	85.30	1.72	533.71	379.57	-37 00	37.00	75.00	92.00	275.01
11869.000	895.14	0.00	895.77	104.82	20.77	693.70	590.53	-37.00	37.00	75.00	92.00	275.01
12094.000	895.76	0.00	896.44	62.22	58.71	386.02	75.27	0.00	0.00	55.00	65.00	0 00
12094.000	896.53	0.00	897.33	73.84	138.00	507 90	129.09	0.00	0.00	55.00	65.00	0.00
12094.000	896.87	0.00	897.71	75.74	189.56	566.31	159.13	0.00	0.00	55.00	65.00	0.00
12094 000	897.67	0.00	898.63	80.24	340.77	716 28	247.95	0.00	0.00	55.00	65.00	0.00
12120.000	896.58	0.00	896.68	72.85	2.62	457.31	0.08	130.00	530.00	554.50	585.50	660.00
12120.000	897.48	0.00	897 61	130.00	25.15	631.92	37 93	130.00	530.00	554.50	585.50	660.00
12120.000	897.87	0.00	898.02	130.00	40.30	704.09	75.62	130.00	530.00	554.50	585.50	660.00
12120.000	898.82	0.00	898.98	130.00	84.80	876.21	198.99	130.00	530.00	554.50	585.50	660 00

	SECND	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	12130 000	896.58	0.00	896.68	72.85	2.62	457.31	0.08	130.00	530.00	554.50	585.50	660.00
	12130.000	897.47	0.00	897.61	130.00	25.05	632.30	37.65	130.00	530.00	554.50	585.50	660 00
	12130.000	897.87	0.00	898.02	130.00	40.05	705.08	74.87	130.00	530.00	554.50	585.50	660.00
	12130.000	898.82	0.00	898.98	130.00	84.80	876.18	199.02	130.00	530.00	554.50	585.50	660.00
	12381.000	897.02	0.00	897.38	34.23	0.00	460.00	0.00	0.00	0 00	100.00	170.00	0.00
	12381.000	897.95	0.00	898.40	38.05	0.00	695.00	0.00	0.00	0.00	100.00	170.00	0.00
	12381.000	898.34	0 00	898.84	39.64	0.00	820.00	0.00	0.00	0.00	100.00	170.00	0 00
	12381.000	899.24	0.00	899.88	43.35	0.00	1160.00	0.00	0.00	0.00	100.00	170.00	0.00
	12581 000	898.67	0.00	899.13	32.97	0.00	460.00	0.00	0.00	0.00	100.00	170.00	0.00
	12581.000	899.53	0.00	900.11	36.48	0.00	695.00	0 00	0.00	0.00	100.00	170.00	0.00
	12581.000	899.92	0.00	900.55	38.11	0.00	820.00	0.00	0.00	0.00	100.00	170.00	0.00
	12581.000	900.86	0.00	901.61	41.93	0.00	1160.00	0.00	0.00	0.00	100.00	170.00	0 00
*	12632.000	898.38	0.00	900.96	7.00	0 00	460 00	0.00	0.00	0.00	211.50	218.50	0.00
*	12632.000	900.03	0 00	900.27	45.53	188.66	247.46	258.88	0.00	0 00	211.50	218.50	0 00
	12632.000	900 63	0.00	900.88	47.99	224.42	282.45	313.13	0.00	0.00	211.50	218.50	0.00
	12632.000	901.64	0.00	901.98	52.11	321.95	379.69	458.36	0.00	0.00	211.50	218.50	0.00
	12704.000	900.54	0.00	902.10	7.00	0.00	460.00	0.00	150 00	150.00	211.50	218.50	300 00
	12704.000	907 63	0.00	907.66	146 13	206.85	177.63	310.52	150.00	150.00	211.50	218.50	300.00
	12704.000	908 00	0.00	908.03	150.00	246.10	203.47	370.42	150 00	150.00	211.50	218.50	300.00
	12704 000	908 49	0.00	908.53	150.00	352.87	276.36	530.76	150.00	150.00	211.50	218.50	300.00
	12712.000	902.46	0.00	902.55	25.00	0.00	460.00	0.00	25.00	122.00	100.00	170.00	147 00
	12712 000	907.64	5.18	907.66	165.00	1.64	681.89	11.47	165.00	70.00	100.00	170.00	235.00
	12712 000	908.01	0.37	908.03	165.00	4.67	793.84	21.49	165.00	70.00	100.00	170.00	235.00
	12712.000	908.50	0.49	908.54	165.00	12.71	1101.06	46.23	165.00	70.00	100 00	170.00	235.00
	12905.000	902.65	0.00	902.81	37.34	0.00	454.01	5.99	0.00	0.00	100.00	150.00	0.00
	12905.000	907.65	5.01	907.70	91.27	0.00	600.66	94.34	0.00	0.00	100.00	150.00	0 00
	12905.000	908.02	0.37	908.08	92.12	0.00	696.06	123.94	0.00	0 00	100.00	150.00	0.00
	12905.000	908.52	0.50	908.62	93.26	0.00	961.57	198.43	0.00	0.00	100.00	150.00	0.00
	12955 000	902.68	0.00	903.01	16.00	2.55	457 45	0.00	16.00	130.00	130.70	146.00	146.00
	12955.000	907.6	4.97	907.73	90.77	105 90	455.77	133.33	0.00	0.00	130.70	146 00	0.00

12955.000	908.03	0.37	908.12	91.62	127.60	522.22	170.17	0 00	0.00	130.70	146.00	0.00
12955.000	908.53	0.50	908.68	92.77	185.11	710.19	264.69	0.00	0 00	130.70	146.00	0.00
* 12956.000	902.03	0.00	903.68	15.30	0.00	460.00	0.00	95.00	80.00	92.70	108.00	175.00
12956.000	907.45	5.42	907.94	77.63	35.38	469.02	190.60	95.00	80.00	92.70	108.00	175.00
12956.000	907.86	0.41	908.28	90.60	52.76	482.98	284.26	95.00	80.00	92.70	108.00	175.00
12956.000	908.37	0.50	908.84	95.00	92.31	562.00	505.69	95.00	80.00	92.70	108.00	175.00
* 12981.000	904.80	0.00	906.45	15.30	0.00	460.00	0.00	95.00	80.00	92.70	108.00	175.00
12981.000	908.26	3.46	908.45	95.00	53.20	351.45	290.35	95.00	80.00	92.70	108.00	175.00
12981.000	908.53	0.27	908.73	95.00	68.48	374.33	377.20	95.00	80.00	92.70	108.00	175.00
12981.000	909.05	0.52	909.31	95.00	107.26	451.31	601.43	95.00	80.00	92.70	108.00	175.00

1
10 FEB 89 8:47:32 PAGE 193

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
12982.000	906.88	0.00	906.93	50.00	64.91	326.10	68.99	50.00	115.00	130.70	146.00	165.00
12982.000	908.43	1.55	908.49	91.60	108.10	442.91	143.99	0.00	0.00	130.70	146.00	0.00
12982.000	908.69	0 26	908 77	92.20	129.30	511.82	178 88	0.00	0.00	130.70	146.00	0.00
12982.000	909 22	0 53	909.36	93.43	187.58	694.61	277.80	0.00	0.00	130.70	146.00	0.00
12997.000	906.90	0.00	906.94	59.79	0.00	420.83	39.17	0.00	0.00	100.00	150.00	0 00
12997.000	908.45	1.55	908.50	91.48	0.00	598.20	96.80	0.00	0.00	100.00	150.00	0.00
12997.000	908.72	0.27	908.78	92.09	0.00	696 61	123.39	0.00	0.00	100.00	150.00	0.00
12997.000	909.28	0.56	909.38	93 37	0.00	959 79	200.21	0.00	0.00	100.00	150.00	0.00
13097.000	906.92	0.00	906.97	56.60	0.00	426.04	33 96	0.00	0.00	100.00	150.00	0 00
13097.000	908.48	1.55	908.54	90.33	0.00	612.66	82 34	0.00	0.00	100.00	150.00	0.00
13097.000	908.76	0.28	908.83	90.97	0.00	713.44	106.56	0.00	0.00	100 00	150 00	0 00
13097.000	909.33	0.58	909.45	92 29	0.00	981.44	178.56	0.00	0.00	100.00	150.00	0.00
13157.000	906.98	0.00	906.99	198.93	228.18	231 29	0.53	210.00	325.00	400.00	443.00	535.00
13157.000	908.55	1.57	908.56	210 00	334.34	329.65	31.02	210.00	325.00	400.00	443.00	535.00
13157.000	908.85	0 29	908.85	210.00	391.06	384.18	44.76	210.00	325.00	400.00	443.00	535.00
13157.000	909 47	0.63	909.49	210.00	542.80	529.76	87.44	210.00	325.00	400.00	443.00	535.00
13282.000	906.99	0.00	907.00	82.99	160.88	299.12	0.00	460.00	360.00	400.00	443.00	820.00
13282.000	908.56	1.57	908.57	460.00	227.98	420.27	46.74	460.00	360.00	400.00	443.00	820.00
13282.000	908.85	0 30	908.87	460.00	257.81	475.06	87.13	460.00	360 00	400.00	443.00	820.00
13282.000	909.48	0.63	909.51	460.00	330.47	609.01	220.52	460.00	360.00	400.00	443.00	820.00
13412.000	907.01	0.00	907.01	289.78	326.16	133.84	0.00	510.00	250.00	500.00	540.00	760.00
13412.000	908 58	1.57	908.58	486.79	486.38	175.53	33.09	510.00	250.00	500.00	540.00	760.00
13412.000	908.88	0.30	908.88	494 84	568 39	201.28	50.34	510.00	250.00	500.00	540.00	760.00
13412.000	909.52	0.64	909.52	510.00	786.35	268.47	105.18	510.00	250.00	500.00	540.00	760.00
13582.000	907 01	0.00	907.02	223.74	222.16	237.84	0.00	425.00	315.00	500.00	540.00	740.00
13582.000	908 58	1.57	908.59	407.94	381.37	286.91	26.73	425.00	315 00	500.00	540.00	740.00
13582.000	908 88	0.30	908.89	416.05	449 47	323.03	47.51	425.00	315.00	500.00	540.00	740.00
13582.000	909.53	0.64	909.54	425.00	628 59	414.94	116.47	425.00	315.00	500.00	540 00	740.00
13632.000	906.96	0.00	907.11	184.09	218.13	241.74	0.13	0.00	0.00	221.50	228.50	0.00
13632.000	908.58	1.62	908.61	374.49	453.81	185.34	55.85	0.00	0.00	221.50	228.50	0.00
13632.000	908 88	0.30	908.91	382.97	538.76	194.56	86.67	0 00	0.00	221.50	228.50	0.00
13632.000	909.52	0.65	909.56	400.85	761.63	221.37	177.01	0.00	0.00	221.50	228.50	0.00
13732.000	907.09	0.00	907.19	202.28	306.22	152.88	0.90	0.00	0.00	221 50	228.50	0.00
13732.000	908 62	1.53	908.64	375 65	544.84	80.22	69.94	0.00	0.00	221.50	228.50	0.00
13732.000	908.92	0 30	908.94	383.94	630.57	85.35	104.08	0.00	0.00	221.50	228.50	0.00
13732.000	909.57	0.65	909.60	401.92	767.19	211.49	181.32	0.00	0.00	221.50	228.50	0.00
13833.000	907.15	0.00	907.21	188.11	138.48	262.68	58 84	241.00	639.00	739.00	751.00	880.00
13833.000	908.61	1.46	908.67	241.00	239.49	329.49	126 02	241 00	639.00	739.00	751.00	880.00

13833.000	908.90	0 29	908.97	241.00	286.15	375.02	158.83	241.00	639.00	739.00	751.00	880 00
13833.000	909.55	0.64	909.64	241.00	412.98	493.37	253.64	241.00	639.00	739.00	751.00	880 00

1

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	13899.000	907.15	0.00	907 21	187.88	138.26	263 03	58.71	200.00	639.00	739.00	751.00	839.00
	13899.000	908.61	1.46	908.67	200.00	241.58	332.46	120.96	200.00	639.00	739.00	751.00	839.00
	13899 000	908.90	0.29	908.97	200.00	289.91	380.13	149.97	200.00	639.00	739.00	751.00	839.00
	13899.000	909.54	0.64	909.64	200.00	422 58	505.33	232.10	200.00	639.00	739.00	751.00	839.00
	13916.000	907.20	0.00	907.22	169.27	0.00	440.62	19.38	175.00	492.50	192.50	615.50	667.50
	13916.000	908.66	1.46	908.68	175.00	0.00	630.80	64.20	175.00	492.50	192.50	615.50	667.50
	13916.000	908.97	0.30	908.99	175.00	0 00	737.70	82.30	175.00	492.50	192.50	615.50	667.50
	13916.000	909.64	0.67	909.67	175.00	0.00	1026.46	133.54	175.00	492.50	192.50	615.50	667.50
	13918.000	907.20	0.00	907.23	169.22	119.43	321.94	18.63	175.00	492.50	584.50	615.50	667.50
	13918.000	908.67	1.47	908.70	175.00	239.69	386.57	68.73	175.00	492.50	584.50	615.50	667 50
	13918.000	908.97	0.30	909.00	175.00	291.84	439.08	89.08	175.00	492.50	584.50	615.50	667.50
	13918.000	909.64	0.67	909.68	175.00	435.65	577.19	147.16	175.00	492.50	584.50	615.50	667.50
	14119.000	907.27	0.00	907.31	259.15	194.04	205.91	60.05	0.00	0.00	315.00	328.00	0 00
	14119.000	908.73	1.45	908.75	300.12	395.72	219.14	80.14	0.00	0.00	315.00	328.00	0.00
	14119.000	909.04	0.31	909.06	308.87	484.09	243.13	92.78	0 00	0.00	315.00	328 00	0 00
	14119.000	909.73	0.69	909.76	355.12	726.50	302.24	131.25	0.00	0 00	315.00	328.00	0.00
	14919.000	907.97	0.00	908.11	102.84	0 00	276.34	183.66	0.00	0.00	800.00	830.00	0.00
	14919.000	909.15	1.18	909.25	159.99	0.03	356.95	338.01	0.00	0.00	800.00	830.00	0 00
	14919.000	909.49	0.34	909.60	316.24	6.90	405.99	407.11	0.00	0.00	800.00	830.00	0.00
	14919.000	910 24	0.75	910.34	376.93	75.16	497.10	587.74	0.00	0.00	800.00	830.00	0.00
	15969.000	910 26	0.00	910.38	35.06	0.00	460.00	0.00	0.00	0.00	200.00	240.00	0.00
	15969.000	911.26	1.01	911.45	37.27	0.00	695.00	0.00	0.00	0.00	200.00	240.00	0.00
	15969.000	911.68	0.41	911 90	42.08	0.02	819.98	0 00	0.00	0.00	200.00	240.00	0.00
	15969.000	912.48	0.80	912.82	73.88	6.93	1153.07	0.00	0.00	0.00	200.00	240.00	0.00
	16020.000	910.43	0.00	910.48	98.79	151.08	169.03	139.89	175.00	175.00	211.70	226.30	350.00
	16020.000	911.52	1.09	911.58	109.09	234.64	233.39	226.97	175.00	175.00	211.70	226.30	350.00
	16020.000	911 97	0.46	912.04	113.41	277.23	266.86	275.91	175.00	175.00	211.70	226.30	350.00
	16020.000	912.91	0.94	913 00	122.30	389.20	356.78	414.01	175.00	175.00	211.70	226.30	350 00
	16490.000	912.86	0.00	912.88	121.78	150.98	148.60	160.42	225.00	175.00	211.70	226.30	400.00
	16490.000	913.15	0.29	913.19	124.55	227.46	220.60	246.94	225 00	175.00	211.70	226.30	400 00
	16490.000	913.26	0.11	913.30	128.53	267.53	258.15	294.32	225.00	175.00	211.70	226.30	400.00
*	16490.000	913 47	0.21	913.55	141.14	374.95	358 37	426.68	225.00	175.00	211.70	226.30	400.00
	16816 000	912.84	0.00	912.98	60.00	20.47	408.78	30.75	60 00	270.00	292.70	307.30	330.00
	16816.000	913.10	0.27	913.39	60.00	32.76	614.29	47.96	60.00	270.00	292.70	307.30	330.00
	16816.000	913.19	0.09	913.58	60 00	39.32	723.54	57.14	60.00	270.00	292.70	307.30	330.00
	16816.000	913.33	0.14	914 09	60.00	57.14	1020.78	82 08	60.00	270.00	292.70	307.30	330.00
	16871.000	912.84	0.00	912.98	60.00	20.47	408.78	30.75	60.00	270.00	292.70	307.30	330.00
	16871.000	913.10	0.26	913.39	60.00	32.75	614.29	47.96	60.00	270.00	292 70	307.30	330 00
	16871.000	913.19	0.09	913.58	60.00	39.31	723.55	57.13	60.00	270.00	292.70	307.30	330.00
	16871.000	913.33	0.14	914.09	60.00	57.11	1020.83	82.06	60.00	270.00	292.70	307.30	330.00

1

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	16934.000	912.79	0.00	913.05	50.66	0.15	527.40	2.46	-570.00	570.00	730.00	770.00	831.00

16934.000	913.00	0.21	913.55	60.17	1 53	812.67	5.80	-570.00	570.00	730.00	770.00	831.00
16934.000	913.07	0.07	913.77	63.20	2.60	939.85	7.55	-570.00	570.00	730.00	770.00	831.00
16934.000	913.18	0.11	914.35	68.69	5.90	1251.79	12.30	-570.00	570.00	730.00	770.00	831.00
16960.000	912.81	0.00	913.13	51.04	0.00	526.47	3.53	-570.00	570.00	730.00	770.00	831.01
16960.000	913.03	0.22	913.72	61.38	0 00	811.28	8.72	-570.00	570.00	730.00	770.00	831.01
16960.000	914.20	1.18	914 53	126.59	43.31	875.82	30.87	-570.00	570.00	730.00	770.00	831.01
16960.000	914 73	0.53	915.14	147.44	97.87	1110.17	61.97	-570.00	570.00	730.00	770.00	831.01
17137.000	913.55	0.00	913.63	133.94	292.37	87.40	150.22	210.00	99.00	198.00	202.00	309.00
17137.000	914.39	0.84	914.48	146.01	483.56	112.90	223.54	210.00	99.00	198.00	202.00	309.00
17137.000	914.79	0.40	914 88	150.45	571.99	121.45	256.56	210.00	99.00	198.00	202.00	309 00
17137.000	915.42	0.63	915.52	157.22	779.79	147.65	342.56	210.00	99.00	198.00	202.00	309.00
17157.000	913.60	0.00	913.68	135.60	293.29	86.54	150.17	210.00	99.00	198.00	202.00	309.00
17157.000	914 43	0.82	914.51	146.52	484.92	111.88	223.21	210.00	99.00	198.00	202.00	309.00
17157.000	914.83	0.40	914.91	150.87	572.89	120.67	256.44	210.00	99.00	198.00	202.00	309.00
17157.000	915.45	0.62	915.55	157.59	780.39	146.95	342.66	210.00	99.00	198.00	202.00	309.00
17795.000	915.64	0.00	915.79	107.94	233.93	296 06	0.00	0.00	0.00	170.00	200.00	0.00
17795.000	916.43	0 79	916.61	131.66	378.28	440.93	0.79	0.00	0.00	170.00	200.00	0.00
17795.000	916.73	0.30	916.92	141.25	446 01	501.65	2.34	0.00	0.00	170.00	200.00	0.00
17795.000	917.37	0.64	917.58	163.07	629.85	630.46	9.69	0.00	0.00	170.00	200.00	0.00
18433.000	918.47	0.00	918.78	78.69	64.46	416.35	49.19	0.00	0.00	275.00	297.00	0.00
18433.000	919.28	0 81	919.67	94.06	130.64	596.70	92.67	0.00	0.00	275.00	297.00	0.00
18433.000	919.58	0.30	920.01	99.59	163.26	673.14	113.60	0.00	0.00	275.00	297.00	0.00
18433.000	920.18	0.61	920.71	110.82	248.65	853.76	167.58	0.00	0.00	275.00	297.00	0.00
19184.000	920.24	0.00	920.75	25 73	0 00	440.00	0.00	145.00	83.00	200.00	240.00	228.00
19184.000	921.06	0.83	921.65	145.00	48.93	631.07	0.00	145.00	83.00	200.00	240.00	228.00
19184.000	921.35	0.29	921.95	145.00	86.29	703.71	0.00	145.00	83.00	200.00	240.00	228.00
19184.000	921.98	0.63	922.61	145.00	190.18	869 82	0.00	145.00	83.00	200.00	240.00	228.00
19372.000	920.73	0.00	920 99	28.00	0.00	440.00	0.00	50.00	178.00	200 00	240.00	228.00
19372.000	921.18	0.45	921.65	50.00	18.14	661.86	0.00	50.00	178 00	200.00	240.00	228.00
19372.000	921.39	0.21	921.95	50.00	25.03	764.97	0.00	50.00	178.00	200.00	240.00	228.00
19372.000	921.77	0.38	922.61	50 00	43.00	1017.00	0.00	50.00	178.00	200.00	240.00	228.00
19448.000	920.70	0.00	921.17	10.00	0.00	440.00	0.00	0 00	0.00	603.00	613.00	0.00
19448.000	921.02	0.32	922.06	10.00	0.00	680.00	0.00	0.00	0.00	603.00	613.00	0.00
19448.000	921.13	0.11	922.50	10.00	0.00	790.00	0.00	0.00	0.00	603.00	613.00	0.00
19448.000	921.19	0.05	923.62	10.00	0.00	1060.00	0.00	0.00	0.00	603.00	613 00	0.00
19449.000	920.69	0.00	921.19	10.00	0.00	440.00	0.00	0.00	0 00	295.00	305.00	0.00
19449.000	920.99	0.30	922.10	10.00	0.00	680.00	0.00	0 00	0.00	295.00	305.00	0.00
19449.000	921.09	0.10	922.55	10.00	0.00	790.00	0.00	0.00	0.00	295.00	305.00	0.00
19449.000	921.10	0.01	923 73	10.00	0.00	1060.00	0.00	0 00	0.00	295.00	305.00	0.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
19605.000	921.02	0.00	921.49	10.00	0.00	440.00	0.00	0.00	0.00	295.00	305.00	0.00
19605.000	921.95	0.93	922.87	10.00	0.00	680.00	0.00	0.00	0.00	295.00	305.00	0.00
19605.000	922.33	0.38	923.57	10.00	0 00	790 00	0.00	0.00	0.00	295.00	305.00	0.00
19605.000	923.32	0.99	925.55	10.00	0.00	1060.00	0.00	0.00	0.00	295.00	305.00	0.00
19606 000	921.07	0.00	921.50	10.00	0.00	440.00	0.00	0.00	0.00	603.00	613.00	0.00
19606 000	922.09	1.02	922.90	10.00	0.00	680.00	0.00	0.00	0.00	603.00	613.00	0.00
19606 000	922.67	0.59	923.65	10.00	0.00	790.00	0.00	0.00	0.00	603.00	613.00	0.00
19606.000	924.62	1.95	925.85	10.00	0.00	1060.00	0.00	0.00	0.00	603.00	613.00	0.00
19756.000	921.71	0.00	921.75	275.27	152.37	268.67	18.95	310.00	385.00	600 00	623.00	695.00

19756.000	923.22	1.51	923.25	310.00	315.44	292.59	71.96	310.00	385.00	600.00	623.00	695.00
19756.000	924.00	0.78	924.02	310.00	394.65	296.14	99.21	310.00	385.00	600.00	623.00	695.00
19756.000	926.25	2.25	926.26	310.00	590.06	304.86	165.09	310.00	385.00	600.00	623.00	695 00
20807.000	922.30	0.00	922.35	123.12	25.00	49.43	365.57	165.00	245.00	307.80	312.20	410.00
20807.000	923 54	1.24	923.59	155.82	49.22	54.84	575.94	165.00	245.00	307.80	312.20	410.00
20807.000	924.23	0.69	924.27	165.00	71 77	55.64	662.59	165.00	245.00	307.80	312.20	410 00
20807.000	926.35	2.12	926.38	165.00	148.79	56.38	854.84	165.00	245.00	307.80	312.20	410.00
20819.000	922.33	0.00	922.37	123.87	25.02	48.97	366.01	165.00	245.00	307.80	312.20	410.00
20819.000	923.57	1.24	923.61	156.59	49.63	54.50	575.87	165.00	245.00	307.80	312.20	410.00
20819.000	924.26	0.69	924.30	165.00	72.59	55.30	662.11	165.00	245.00	307.80	312.20	410.00
20819.000	926.39	2.13	926.42	165.00	149.58	56.14	854.29	165.00	245.00	307.80	312.20	410.00
20846.000	922.34	0.00	922.41	94.09	17.65	89.18	333.17	140.00	270.00	331.00	339.00	410.00
20846.000	923.57	1.23	923.64	126.62	42.09	106.34	531.57	140.00	270.00	331.00	339.00	410.00
20846.000	924.26	0.69	924.32	140.00	66.74	110.53	612.73	140.00	270.00	331.00	339.00	410.00
20846.000	926.39	2.12	926.43	140.00	161.68	116.07	782.26	140.00	270.00	331.00	339.00	410 00
20866.000	922.47	0.00	922.54	97.49	18.08	86.31	335.60	140.00	270.00	331.00	339.00	410 00
20866.000	923.61	1.14	923.68	127.42	42.65	105.78	531.57	140.00	270.00	331.00	339.00	410.00
20866.000	924.30	0.69	924.36	140.00	67.61	110.08	612.31	140.00	270.00	331.00	339.00	410.00
20866.000	926.42	2.12	926 46	140.00	162.39	115.79	781.83	140.00	270.00	331.00	339.00	410.00
21317.000	922.71	0.00	922 73	236.79	89 29	41.02	309.69	0.00	0.00	262.00	270.00	0.00
21317.000	923.80	1.08	923.81	272.92	161.76	47.82	470.42	0.00	0.00	262.00	270.00	0.00
21317.000	924.45	0.65	924.46	294.53	198.12	49.31	542.57	0.00	0.00	262.00	270.00	0 00
21317 000	926.50	2.05	926.51	363.08	292.44	50.77	716.80	0.00	0.00	262.00	270.00	0 00
21817.000	922.70	0.00	923.64	29.18	73.54	335.25	31.21	35.00	790.00	800.00	811.00	825.00
21817.000	923.43	0.73	924.77	31.64	118.74	493.58	67.67	35.00	790.00	800.00	811.00	825.00
21817.000	924.04	0.61	925 29	33.70	139.19	553 54	97.27	35.00	790.00	800.00	811.00	825.00
21817.000	926.18	2.13	927.00	35.00	177.19	668 80	214.00	35.00	790.00	800.00	811.00	825.00
21867.000	923.27	0.00	925.12	10.00	0.00	440.00	0.00	0.00	0.00	801.00	811.00	0.00
* 21867.000	924.45	1.18	927.09	10.00	0.00	680.00	0.00	0.00	0.00	801.00	811.00	0 00
* 21867.000	925.02	0.57	927.92	10.00	0.00	790.00	0.00	0.00	0 00	801.00	811.00	0.00
* 21867.000	926.25	1.23	929.80	10.00	0.00	1060.00	0.00	0.00	0.00	801.00	811.00	0.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	GLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
21868.000	924.28	0.00	925.36	10.00	0.00	440.00	0.00	0.00	0 00	795.00	805.00	0.00
* 21868.000	925.97	1.69	927.45	10.00	0.00	680.00	0.00	0.00	0.00	795.00	805.00	0.00
* 21868.000	926.63	0.66	928.29	10.00	0.00	790.00	0.00	0.00	0.00	795.00	805.00	0.00
21868.000	928.07	1.45	930.23	10.00	0.00	1060.00	0.00	0.00	0.00	795.00	805.00	0.00
21892.000	924.49	0.00	925.49	10.00	0.00	440.00	0.00	0.00	0.00	795.00	805.00	0.00
21892.000	926.23	1.74	927.61	10.00	0.00	680.00	0 00	0.00	0.00	795.00	805.00	0.00
21892.000	926.92	0.69	928.47	10.00	0.00	790.00	0.00	0.00	0.00	795.00	805.00	0 00
21892.000	928.33	1.40	930.48	10.00	0.00	1060.00	0.00	0 00	0.00	795.00	805.00	0.00
21893.000	924.44	0.00	925 55	10.00	0.00	440.00	0.00	10.00	801.00	801.00	811.00	811.00
21893.000	926.19	1.74	927.67	10.00	0.00	680.00	0.00	10.00	801.00	801.00	811.00	811.00
21893.000	926.87	0.69	928.53	10.00	0.00	790.00	0.00	10.00	801.00	801.00	811.00	811.00
21893.000	928.50	1.63	930.53	10.00	0.00	1060.00	0.00	10.00	801.00	801.00	811.00	811.00
22143.000	926.58	0 00	926.68	115.33	118.08	305.58	16.34	200.00	60.00	200.00	220.00	260.00
22143.000	928.49	1.91	928.55	164.36	275.96	363.74	40.31	200.00	60.00	200.00	220.00	260.00
22143 000	929.32	0 83	929.37	197.58	354 46	380.10	55.45	200.00	60.00	200.00	220.00	260.00
22143.000	931.31	1.99	931.34	200.00	543.47	412.25	104.28	200.00	60.00	200.00	220.00	260.00
22568.000	927.33	0.00	927.63	25.00	22.56	417.44	0.00	25.00	195 00	200.00	220.00	220.00

22568.000	928.83	1.50	929.23	25.00	38 51	641.49	0.00	25.00	195.00	200.00	220.00	220.00
22568.000	929.54	0.71	929.97	25.00	45.76	744 24	0.00	25.00	195.00	200.00	220.00	220.00
22568.000	931.33	1.79	931.82	25.00	63.09	996.91	0.00	25.00	195.00	200.00	220.00	220.00
22593.000	927.03	0.00	928.22	10.00	0.00	440.00	0 00	260.00	0.00	205 00	215.00	260.00
22593.000	928.27	1.24	930.10	10.00	0.00	680.00	0.00	260.00	0.00	205.00	215.00	260 00
22593.000	928.88	0.61	930.93	10.00	0.00	790.00	0 00	260.00	0.00	205.00	215.00	260.00
22593.000	930.50	1.62	932.92	10.00	0.00	1060.00	0.00	260.00	0.00	205.00	215.00	260 00
22594.000	928.42	0.00	928.54	10.00	0.00	185.00	0.00	300 00	750.00	995.00	1005.00	1050.00
22594.000	930.43	2.00	930.60	10.00	0.00	290 00	0.00	300.00	750.00	995.00	1005.00	1050.00
22594.000	931.29	0.87	931.49	10.00	0.00	340.00	0.00	300 00	750.00	995.00	1005.00	1050.00
22594.000	933.22	1.93	933.55	10.00	0.00	460.00	0.00	300.00	750.00	995.00	1005.00	1050.00
22644.000	928.45	0.00	928 57	10.00	0.00	185.00	0.00	300.00	750.00	995.00	1005.00	1050.00
22644.000	930.46	2.01	930.63	10.00	0.00	290.00	0.00	300.00	750.00	995.00	1005 00	1050.00
22644.000	931.32	0.87	931.52	10.00	0.00	340.00	0.00	300.00	750.00	995.00	1005.00	1050.00
22644.000	933.30	1.97	933.63	10.00	0.00	460.00	0.00	300.00	750.00	995.00	1005.00	1050.00
22645 000	928.44	0.00	928.57	10.00	0.00	185.00	0.00	260.00	0.00	205.00	215.00	260.00
22645.000	930.45	2.01	930 64	10.00	0.00	290.00	0.00	260.00	0.00	205.00	215.00	260.00
22645.000	931.32	0.87	931.53	10.00	0.00	340.00	0.00	260.00	0.00	205.00	215.00	260.00
22645.000	933.40	2.07	933.65	10.00	0.00	460.00	0.00	260.00	0.00	205.00	215.00	260 00
22670.000	928.57	0.00	928.61	30.79	0 00	185.00	0.00	0.00	0.00	151.00	187.00	0.00
22670.000	930.65	2.08	930.69	54.77	0.83	287.93	1.23	0.00	0.00	151.00	187.00	0.00
22670.000	931.55	0.90	931.59	72.69	5.55	330.62	3.83	0.00	0.00	151.00	187.00	0 00
22670.000	933.70	2.14	933.72	97.36	39.19	405.15	15.66	0.00	0.00	151.00	187.00	0 00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
22970.000	928.70	0.00	928.76	27.29	0.00	185.00	0.00	0.00	0.00	151.00	187 00	0.00
22970.000	930.73	2.03	930.78	41.59	0.01	289.67	0.32	0.00	0.00	151.00	187.00	0.00
22970.000	931 61	0.88	931.66	59.12	1.74	336.32	1.94	0.00	0.00	151.00	187.00	0.00
22970.000	933.73	2.12	933.76	90.27	28.10	419.41	12.49	0.00	0.00	151 00	187 00	0.00
23870.000	929.02	0.00	929.04	122.06	53.29	98 24	33.47	0.00	0.00	262.00	281.00	0.00
23870.000	930.90	1.88	930.91	221.38	105.02	115.11	69.87	0.00	0.00	262.00	281.00	0.00
23870.000	931.75	0.84	931.75	285.30	126.58	118.33	95 09	0.00	0.00	262.00	281 00	0.00
23870.000	933.81	2.06	933.81	399 81	177 13	117.25	165.62	0.00	0.00	262.00	281.00	0 00
24870.000	929.42	0.00	929.44	526.38	14.85	148.61	21.54	0.00	0.00	409.00	595.00	0 00
24870.000	930.96	1.54	930.96	626.65	80.43	157.30	52.27	0.00	0.00	409.00	595.00	0 00
24870.000	931.78	0.82	931.78	656.25	101.59	173.06	65.35	0.00	0.00	409.00	595.00	0.00
24870.000	933.82	2.04	933.82	728.34	146.69	214.01	99.30	0.00	0.00	409.00	595.00	0 00
26645.000	930.79	0.00	930.80	251.16	0 00	93.19	91.81	0.00	0.00	231.00	274.00	0 00
26645.000	931.11	0.32	931.13	266.61	0.00	128.80	161.20	0.00	0.00	231.00	274.00	0 00
26645.000	931.84	0.73	931 85	295.86	0.05	125.33	214.62	0.00	0.00	231.00	274.00	0.00
26645.000	933.83	1.99	933.83	399.55	9.21	134.43	316.36	0.00	0.00	231.00	274.00	0.00
27695.000	931.18	0.00	931.19	566.81	54.48	37.84	92.68	0.00	0.00	360.75	375.00	0 00
27695.000	931.52	0.34	931 53	611.59	99.65	45.21	145.15	0.00	0.00	360.75	375.00	0.00
27695.000	932.02	0.49	932.02	635.75	127.97	39.97	172.06	0.00	0.00	360.75	375.00	0.00
27695.000	933.86	1.85	933.86	743.72	187.22	32.36	240 42	0.00	0.00	360.75	375.00	0 00
28670.000	931.20	0.00	931.20	874.99	0.50	173.55	10.95	900.00	600.00	610.00	1250.00	1500.00
28670.000	931.55	0.35	931.55	883.39	0.92	268.15	20.93	900 00	600.00	610.00	1250.00	1500.00
28670.000	932.03	0.48	932.03	895.13	1.24	309 29	29.48	900.00	600.00	610.00	1250.00	1500.00
28670.000	933.87	1.83	933.87	900.00	1.98	402.83	55.19	900.00	600.00	610.00	1250.00	1500.00
29070.000	931.20	0.00	931.20	700.00	4.09	174.87	6.05	700.00	400.00	539 70	1037.50	1100.00

29070.000	931.55	0.35	931.55	700.00	11.04	268.08	10.88	700.00	400.00	539.70	1037.50	1100.00
29070.000	932.04	0.48	932.04	700.00	18.59	307.20	14.21	700.00	400.00	539.70	1037.50	1100.00
29070.000	933.87	1.83	933.87	700.00	39.43	398.11	22.46	700 00	400.00	539.70	1037.50	1100.00
29470.000	931.23	0.00	931.23	326.52	0.08	183.78	1.15	500.00	450.00	469.50	825.00	950.00
29470.000	931.58	0.35	931.59	462.60	1.85	281.15	7.00	500.00	450.00	469.50	825.00	950.00
29470.000	932.05	0.47	932.05	500.00	3.98	318.42	17.60	500.00	450.00	469.50	825.00	950.00
29470.000	933.87	1.82	933.87	500.00	8.43	402.06	49.51	500.00	450.00	469.50	825.00	950.00
29870 000	931.49	0.00	931 53	113.67	0.00	185.00	0.00	300.00	350.00	399.20	612.50	650.00
29870.000	931.85	0.36	931.90	171.35	0.55	288.69	0.76	300.00	350.00	399.20	612.50	650.00
29870.000	932.16	0.31	932.20	234.06	4.66	330 17	5.16	300.00	350.00	399.20	612.50	650.00
29870.000	933.88	1.72	933.89	300.00	32.82	400 20	26.98	300.00	350.00	399.20	612.50	650.00
30270.000	932.47	0.00	932.62	63.18	1.30	183 50	0.20	0 00	0.00	329.00	400.00	0.00
30270.000	932 87	0.40	933.06	124.92	10.28	273.29	6.42	0.00	0.00	329.00	400.00	0.00
30270.000	933 00	0.13	933.21	154.68	16.85	310.42	12.73	0.00	0.00	329.00	400.00	0.00
30270.000	933 97	0.97	934.01	535.67	64.37	280.45	115.19	0.00	0.00	329.00	400.00	0.00

1

10 FEB 89 8:47:32 PAGE 199

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	-12094.000	895.76	0.00	895.77	67.59	10.23	51.38	88.39	0.00	0.00	55.00	65.00	0.00
	-12094.000	896.53	0.78	896 55	82.00	23.03	69.81	127.16	0.00	0.00	55.00	65.00	0.00
	-12094.000	896.87	0.34	896.89	84.17	30.48	75.04	139.48	0.00	0.00	55.00	65.00	0.00
	-12094.000	897.67	0.80	897.69	84.68	51.99	87.94	170.07	0.00	0.00	55.00	65.00	0.00
	120 000	895.74	0.00	895.89	47.66	17.68	132.32	0.00	0.00	0.00	63.00	95.00	0.00
	120.000	896.54	0.80	896.65	73.86	56.28	163.72	0.00	0.00	0.00	63.00	95.00	0.00
	120.000	896.89	0.35	896.97	85.03	75.86	169.13	0.00	0 00	0.00	63.00	95.00	0.00
	120 000	897.70	0.81	897.75	88.44	133.77	176.23	0.00	0 00	0.00	63.00	95.00	0.00
	620.000	898.64	0.00	898.92	27.60	0.35	149.65	0.00	0.00	0.00	200.00	222.00	0 00
	620.000	898 96	0.32	899.39	57.09	8.58	211.42	0.00	0.00	0.00	200.00	222.00	0 00
	620.000	898.95	-0.01	899.49	56.60	9.31	235.69	0.00	0.00	0.00	200.00	222.00	0.00
*	620.000	899.18	0.22	899.79	77.88	28.86	281.14	0.00	0.00	0.00	200.00	222.00	0.00
	2000.000	903.73	0.00	903.82	20.96	0.00	150.00	0.00	0.00	0.00	83.00	110.00	0.00
	2000.000	904.61	0.88	904.72	30.35	1.19	218 81	0.00	0.00	0.00	83.00	110.00	0 00
	2000.000	904.91	0.30	905.02	34.08	2.98	242 02	0.00	0.00	0.00	83.00	110.00	0.00
	2000.000	905.47	0.56	905.60	40.98	9.66	300.34	0 00	0.00	0.00	83.00	110.00	0 00
	2095.000	903.97	0.00	904.21	16.48	0.00	150 00	0.00	0 00	0.00	78.00	100.90	0.00
	2095.000	904.82	0.85	905.09	23.41	0.73	219 27	0.00	0.00	0.00	78.00	100 90	0.00
	2095.000	905.10	0.28	905.37	27.45	2.65	242.35	0.00	0.00	0.00	78.00	100.90	0.00
	2095 000	905 66	0.56	905.94	34.39	11.95	298.05	0.00	0.00	0.00	78.00	100.90	0.00
	2190.000	904.85	0.00	905.34	13.88	0.00	150.00	0.00	0.00	0.00	73.00	91.90	0.00
	2190.000	905.52	0.67	906.07	21.84	2.04	217 96	0.00	0.00	0.00	73.00	91.90	0 00
	2190.000	905.73	0.22	906.28	25.05	5.14	239.86	0.00	0.00	0.00	73.00	91.90	0.00
	2190.000	906.21	0.48	906.77	30.96	18.37	291.63	0.00	0.00	0.00	73.00	91.90	0.00
	2285.000	906 43	0.00	906.86	24.25	8.68	141.32	0.00	0.00	0 00	68.00	82.80	0 00
	2285.000	906 96	0.53	907 40	54.01	31.23	188.77	0.00	0.00	0.00	68.00	82 80	0.00
	2285.000	907.13	0.17	907.54	81.63	46.10	198.90	0.00	0.00	0.00	68.00	82.80	0.00
	2285.000	907.52	0.39	907.83	82.20	96.70	213.30	0.00	0.00	0.00	68.00	82.80	0.00

1

WALLED LAKE BRANCH

SUMMARY PRINTOUT TABLE 150

	SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	0.000	0.00	0.00	0.00	833 50	705.00	836.96	0.00	836.99	3.87	1.53	539.48	358.30
	0.000	0.00	0.00	0.00	833.50	1025.00	839.05	0.00	839.06	0.41	0 67	1654.36	1603.87
	0.000	0.00	0.00	0 00	833.50	1215.00	839.29	0.00	839.30	0.44	0.71	1841.93	1832.06
	0.000	0.00	0.00	0.00	833.50	1705.00	839.61	0.00	839.62	0.61	0.87	2110.66	2174.99
	62.000	62.00	0.00	0.00	833.20	705.00	836.94	0.00	837.11	23.53	3.44	228.21	145 34
	62.000	62.00	0.00	0.00	833.20	1025.00	839.05	0.00	839.06	0.97	0.98	1332.95	1042.54
	62.000	62.00	0.00	0 00	833.20	1215.00	839.29	0.00	839.30	0.94	0.99	1536 20	1253.86
	62.000	62.00	0.00	0.00	833.20	1705.00	839.61	0.00	839.63	1.17	1.15	1810.79	1575.06
	125.000	63.00	0.00	0.00	833.00	705.00	837.06	0.00	837.39	47.60	4.71	160.74	102.19
	125.000	63.00	0.00	0.00	833.00	1025.00	839.06	0.00	839.08	2.72	1.54	964.34	621.04
	125.000	63.00	0.00	0.00	833.00	1215.00	839.30	0.00	839.32	2.33	1.47	1168.19	796.28
	125.000	63.00	0.00	0.00	833.00	1705.00	839.62	0.00	839.64	2.53	1.60	1442.27	1071 36
	187.000	62.00	0.00	0.00	832.10	705.00	837.34	0.00	837.70	46.15	5.07	157.71	103 77
	187.000	62.00	0.00	0.00	832.10	1025.00	839.07	0.00	839.10	4.31	1.86	755.12	493.53
	187.000	62.00	0.00	0.00	832 10	1215.00	839.31	0.00	839.34	3.73	1.78	923.00	629 20
	187.000	62.00	0.00	0.00	832.10	1705.00	839.63	0.00	839.67	4.03	1.91	1158.04	849.27
*	251.000	64.00	0.00	0.00	832.50	705.00	837.40	837.40	839.67	145.05	12.09	58.29	58 54
	251 000	64.00	0.00	0.00	832.50	1025.00	839.09	0.00	839.13	4.08	2.51	710.40	507.38
	251.000	64.00	0.00	0.00	832.50	1215.00	839.33	0.00	839.37	3.75	2.47	838.34	627.75
	251.000	64.00	0.00	0.00	832.50	1705 00	839.65	0.00	839.70	4.32	2.74	1024.40	820.56
*	292.000	41.00	838.40	837.60	833.60	705.00	839.66	0.00	839.67	1.20	0.72	891.20	644.26
*	292.000	41.00	838.40	837.60	833.60	1025.00	839.15	0.00	839.19	6.98	1 67	620.60	388.11
*	292 000	41 00	838.40	837.60	833.60	1215.00	839.39	0.00	839.43	5.96	1.58	741.51	497.60
*	292 000	41 00	838.40	837.60	833.60	1705.00	839.73	0.00	839.78	6.25	1.66	926.97	681 73
	503.000	211.00	0.00	0.00	834.70	705.00	839.69	0.00	839.80	12.17	3.35	589.17	202.10
	503.000	211.00	0 00	0 00	834.70	1025.00	839.35	0.00	839 75	44.31	6.05	444.30	153.99
	503.000	211.00	0.00	0.00	834.70	1215.00	839.56	0 00	839.95	44.60	6 28	531.48	181.93
	503.000	211.00	0.00	0.00	834.70	1705.00	839.90	0.00	840.36	52.10	7.16	679.44	236.22
	601.000	98 00	0.00	0.00	835.08	705.00	839.80	0.00	839.95	18.39	3.93	547.93	164 42
	601.000	98.00	0.00	0 00	835.08	1025.00	839 87	0 00	840.14	34.85	5.46	578.57	173 64
	601.000	98.00	0.00	0.00	835.08	1215.00	840.08	0.00	840.34	33.72	5.56	688.53	209.24
	601.000	98.00	0.00	0.00	835.08	1705.00	840 54	0.00	840.78	32.66	5 86	925.44	298.32
	699.000	98.00	0.00	0.00	835.47	705.00	840.07	0.00	840.10	9.64	2.35	932.10	227 10
	699.000	98.00	0.00	0.00	835.47	1025.00	840 34	0.00	840.38	12.23	2.75	1137.89	293 10
	699.000	98.00	0 00	0 00	835.47	1215.00	840.54	0.00	840.58	12.45	2.84	1282.10	344 40
	699.000	98.00	0.00	0.00	835.47	1705.00	840.97	0.00	841.02	12.85	3.03	1610.46	475.60

1

	SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	797.000	98.00	0.00	0.00	835.85	705.00	840.17	0.00	840.26	22.28	3.44	625.78	149.35
	797.000	98.00	0.00	0.00	835 85	1025.00	840.47	0.00	840.57	25.15	3.81	833.59	204.37
	797.000	98.00	0.00	0.00	835.85	1215.00	840.66	0.00	840.76	24.30	3.85	971.86	246.48
	797.000	98.00	0.00	0.00	835.85	1705.00	841.11	0.00	841.19	22.79	3.93	1286.61	357.12
	895.000	98 00	0.00	0.00	836.23	705.00	840 39	0.00	840.55	37.31	4.27	486.75	115.42
	895.000	98 00	0.00	0.00	836.23	1025.00	840.72	0.00	840.86	37.75	4.50	699.99	166.82
	895 000	98.00	0.00	0.00	836.23	1215 00	840.91	0.00	841.04	36.39	4.53	821.31	201.42
	895.000	98 00	0.00	0.00	836 23	1705.00	841.33	0.00	841.45	33.66	4.59	1100.06	293.90
	993.000	98.00	0.00	0.00	836.62	705 00	840.67	840.11	841.02	44.26	5.43	303.35	105.98
	993.000	98.00	0.00	0 00	836.62	1025.00	840.99	840.90	841.37	49 36	6.10	489.89	145.89
	993.000	98.00	0.00	0.00	836 62	1215.00	841.17	0.00	841.53	48.53	6.24	606.35	174.41
	993.000	98.00	0.00	0 00	836.62	1705.00	841.58	0.00	841.89	44 66	6.41	87/.41	255.14
	1091.000	98 00	0 00	0.00	837.00	705.00	841.08	840.44	841.43	42.83	5 37	306.93	107 73

1091.000	98.00	0.00	0.00	837.00	1025.00	841.50	0.00	841.79	38.62	5.53	562.92	164.95
1091.000	98.00	0.00	0.00	837.00	1215.00	841.64	0.00	841.95	41.21	5.85	653.79	189.26
1091.000	98.00	0.00	0.00	837.00	1705.00	841.97	0.00	842.29	44 69	6.43	867.42	255.05
1385.000	294.00	0.00	0.00	838.10	705 00	842.26	0.00	842.53	35.56	4.93	347.38	118 23
1385.000	294.00	0.00	0.00	838.10	1025.00	842.58	0.00	842.90	41.77	5.68	495.40	158.60
1385.000	294.00	0.00	0.00	838.10	1215.00	842.77	0.00	843.09	42.64	5.92	586.51	186.07
1385.000	294.00	0 00	0.00	838.10	1705.00	843.16	0.00	843.49	44.54	6.45	797.91	255.48
1678.000	293.00	0.00	0.00	839.30	705.00	843.32	0.00	843.64	43.66	5.28	319.09	106.69
1678.000	293.00	0 00	0.00	839.30	1025.00	843.75	0.00	844.09	44.85	5.82	462 78	153.04
1678 000	293 00	0.00	0.00	839.30	1215.00	843.95	0.00	844.30	45.97	6.11	536.44	179.19
1678.000	293.00	0.00	0 00	839.30	1705.00	844 38	0.00	844.76	49.03	6.77	697.47	243.49
2253.000	575.00	0.00	0.00	841.70	705.00	845.68	0.00	845.88	43.54	4.24	304.75	106.85
2253.000	575.00	0.00	0 00	841.70	1025.00	846.12	0.00	846.37	47.40	4.83	406 56	148.87
2253.000	575.00	0.00	0.00	841.70	1215.00	846.35	0.00	846.61	49.25	5.13	459.34	173.13
2253.000	575.00	0.00	0.00	841.70	1705.00	846.86	0.00	847.17	53.47	5.79	578.25	233.16
3404.000	1151.00	0.00	0.00	844.60	705.00	849.70	0.00	849.90	41 08	4.56	323.26	110.00
3404.000	1151.00	0.00	0.00	844.60	1025.00	850.25	0.00	850.48	43.34	5.10	422.35	155 70
3404.000	1151.00	0.00	0.00	844.60	1215.00	850.54	0.00	850.78	44 45	5.37	473.68	182.25
3404.000	1151.00	0.00	0.00	844.60	1705.00	851.19	0.00	851.47	46.72	5.98	590.57	249.45
3410.000	6.00	847.70	848.30	844.60	705 00	849.90	0.00	849.97	87.51	2.71	332.35	75.36
3410.000	6.00	847.70	848 30	844.60	1025.00	850.25	0.00	850.48	43.36	5.10	422.27	155.66
3410.000	6.00	847.70	848.30	844.60	1215.00	850.54	0.00	850.78	44.43	5.37	473.72	182 27
3410.000	6.00	847.70	848.30	844.60	1705.00	851.19	0.00	851.47	46.61	5.97	591.04	249 74
4011.000	601.00	0.00	0.00	845.90	705.00	852.60	0.00	853.16	39.72	6.00	117.46	111.86
4011.000	601.00	0.00	0.00	845.90	1025.00	852 85	0.00	853.94	73.27	8.38	122.36	119.75
4011.000	601.00	0.00	0.00	845.90	1215.00	853.23	0.00	854 58	84.41	9.36	129.87	132.24
4011 000	601.00	0.00	0 00	845.90	1705.00	854.00	0.00	856.13	114.06	11.73	145 40	159 65

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
4012 000	1 00	861.80	854.50	845.90	705.00	852 53	0.00	853.24	22.25	6.73	104.77	149.47
4012.000	1.00	861.80	854.50	845 90	1025.00	852.68	0.00	854.12	45.50	9.64	106.30	151.96
4012.000	1.00	861.80	854.50	845.90	1215.00	852.95	0.00	854.88	60.45	11.15	109.01	156.27
4012.000	1.00	861.80	854.50	845.90	1705.00	853 28	852.16	856.87	111.99	15.20	112.16	161.12
4038.000	26 00	861.80	854.50	845.90	705.00	852.61	0.00	853.30	21.84	6.67	105.62	150.86
4038.000	26.00	861.80	854.50	845.90	1025.00	852.86	0.00	854.25	43.82	9.48	108.11	154.84
4038.000	26.00	861.80	854.50	845.90	1215 00	853.21	0.00	855.06	57.57	10.90	111.51	160.13
4038.000	26.00	861.80	854.50	845.90	1705.00	854.00	852.16	857.26	105.92	14.47	117.82	165 66
4039.000	1 00	0.00	0.00	845.90	705.00	852.84	0.00	853 35	34.84	5.77	122 17	119 44
4039.000	1 00	0.00	0.00	845.90	1025.00	853.53	0.00	854.41	51.56	7.54	135.96	142.75
4039.000	1.00	0.00	0.00	845.90	1215.00	854.32	0.00	855.32	50.14	8.00	151.83	171.58
4039.000	1.00	0.00	0.00	845.90	1705.00	856.79	0.00	857.90	38.67	8.48	201.13	274.17
4663.000	624.00	0.00	0.00	848.20	705.00	853.91	0.00	853 93	3.41	1.59	1067.25	381.91
4663.000	624.00	0.00	0.00	848.20	1025.00	855.02	0.00	855.04	2.57	1.58	1504.82	638.91
4663.000	624.00	0.00	0.00	848.20	1215.00	855.88	0.00	855.89	1.93	1.49	1849.68	874.31
4663.000	624.00	0.00	0.00	848.20	1705.00	858.38	0.00	858.38	0.96	1.29	2896.04	1738.08
4969.000	306.00	0.00	0.00	850.15	705.00	854 06	0.00	854.22	46.39	4.40	403.08	103.51
4969.000	306.00	0.00	0.00	850.15	1025.00	855.13	0.00	855.20	16.97	3.21	794.05	248 84
4969.000	306.00	0.00	0.00	850.15	1215.00	855 96	0.00	856.00	9.06	2.63	1108.11	403 74
4969.000	306.00	0.00	0.00	850.15	1705.00	858.41	0.00	858.42	2.64	1.84	2084.89	1049.59
5122 000	153 00	0.00	0.00	851.12	705.00	854.80	0.00	855.07	75.89	5.36	324.55	80.93
5122.000	153 00	0.00	0.00	851.12	1025.00	855.42	0.00	855.60	47.90	4.82	541.73	148.10
5122.000	153 00	0.00	0.00	851.12	1215.00	856.11	0.00	856.20	23.70	3.80	795.70	249.57
5122 000	153 00	0.00	0.00	851 12	1705.00	858.45	0 00	858.47	4 90	2.29	1702 23	770 39

	5275.000	153.00	0.00	0.00	852.10	705.00	855.82	0.00	856.07	69.33	5.17	334.32	84.67
	5275.000	153.00	0.00	0.00	852.10	1025 00	856 16	0.00	856.42	74.08	5.73	441.04	119.09
	5275.000	153.00	0.00	0.00	852.10	1215 00	856.50	0.00	856.72	58.24	5.41	547.59	159.21
	5275.000	153.00	0 00	0.00	852.10	1705.00	858.52	0.00	858.58	12.06	3.27	1171.64	490 92
	5581.000	306.00	0.00	0 00	854 05	705.00	857.06	0.00	857.09	22.71	2.72	573.02	147.94
	5581.000	306.00	0.00	0.00	854.05	1025.00	857.50	0.00	857.54	26.24	3.23	699.80	200.09
	5581.000	306.00	0.00	0.00	854.05	1215.00	857.71	0.00	857.76	28.25	3.50	762.97	228.60
	5581.000	306.00	0.00	0.00	854.05	1705 00	858.89	0.00	858.93	16.57	3.26	1116.57	418 90
	5888.000	307.00	0.00	0.00	856.00	635.00	858.05	0.00	858.13	112.10	4.56	317.09	59 97
	5888.000	307.00	0.00	0.00	856.00	925.00	858.52	0.00	858.61	87.74	4.70	431.72	98.75
	5888.000	307.00	0.00	0.00	856.00	1115.00	858.76	0.00	858.86	82.99	4.90	492 57	122.39
	5888.000	307.00	0.00	0.00	856.00	1570.00	859.53	0 00	859.63	57.28	4.85	680.22	207.45
	6238.000	350 00	0.00	0.00	856.40	635.00	861.01	0 00	861.32	76.78	5.83	187.58	72.47
	6238.000	350.00	0.00	0.00	856.40	925 00	861.48	0.00	861.95	101.25	7.26	220.71	91.93
	6238.000	350.00	0.00	0 00	856.40	1115.00	861.76	0.00	862.34	113.81	8.06	240.63	104.51
	6238.000	350.00	0.00	0.00	856.40	1570.00	862.15	0.00	863 07	163.28	10.22	268 04	122.87

1

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	6338.000	100.00	0.00	0.00	856.60	635.00	861.74	0.00	862.09	72.79	5.79	164.94	74.43
	6338 000	100.00	0.00	0.00	856.60	925.00	862.43	0.00	862.93	92.23	7.04	195.90	96.32
	6338.000	100.00	0.00	0.00	856.60	1115.00	862.83	0.00	863.43	102.77	7.73	214.08	109.99
	6338.000	100.00	0 00	0.00	856.60	1570.00	863.67	0.00	864.51	125.62	9.17	251.82	140.08
	6438.000	100.00	0.00	0.00	857.00	635.00	862.34	0.00	863.25	107.95	7.66	82.86	61.12
	6438.000	100.00	0.00	0.00	857.00	925.00	863.08	0.00	864.47	131.83	9.46	97.80	80.56
	6438.000	100.00	0.00	0.00	857.00	1115.00	863.49	0.00	865.21	146.51	10.52	105.99	92.12
	6438.000	100.00	0.00	0.00	857.00	1570.00	864.30	0.00	866.87	180.64	12.85	122 22	116 81
	6439.000	1.00	871 00	868.00	857.00	635.00	862.26	0.00	863.33	48.52	8.31	76.38	91.16
	6439.000	1.00	871.00	868.00	857.00	925.00	862.95	0.00	864.62	65.44	10.35	89.41	114.35
	6439.000	1.00	871.00	868.00	857.00	1115.00	863.32	0.00	865.40	76 89	11.57	96.33	127.16
*	6439.000	1.00	871.00	868.00	857.00	1570.00	864.20	864.20	867.19	97.32	13.89	112.99	159 15
	6449.000	10.00	871.00	868 00	857.00	635.00	862.40	0.00	863.40	44.20	8.05	78.88	95 51
	6449.000	10.00	871.00	868.00	857.00	925.00	863.28	0.00	864.74	54.34	9.69	95.43	125.48
	6449.000	10.00	871.00	868.00	857.00	1115.00	863.93	0.00	865.59	55.79	10.33	107.93	149 27
	6449.000	10.00	871.00	868.00	857.00	1570.00	865.69	0.00	867.59	51.88	11.06	141.93	217.78
	6450.000	1.00	0 00	0.00	857.00	635.00	862.84	0.00	863 51	62.71	6.55	96.98	80.19
	6450.000	1.00	0.00	0.00	857.00	925.00	863 97	0.00	864.90	66.56	7.75	119.39	113.38
	6450.000	1.00	0.00	0.00	857.00	1115.00	864.69	0.00	865.77	66.00	8.33	133.88	137.25
	6450.000	1.00	0.00	0 00	857.00	1570.00	866.41	0.00	867.76	61.00	9.33	168.33	201.01
	6470.000	20.00	0.00	0.00	857.06	635.00	863.56	0.00	863.72	17.79	3.80	264.05	150 53
	6470.000	20.00	0.00	0.00	857.06	925 00	864.99	0.00	865.18	16.54	4.27	348.98	227.45
	6470.000	20.00	0.00	0.00	857.06	1115.00	865 87	0.00	866.09	15.72	4.51	402.13	281.25
	6470.000	20.00	0.00	0.00	857.06	1570.00	867.88	0.00	868.14	14.13	4.98	522.83	417.67
	6600.000	130.00	0.00	0.00	857.48	635.00	863 83	0.00	864.01	26.39	3.85	218.89	123.62
	6600 000	130.00	0.00	0.00	857.48	925.00	865.23	0.00	865.44	23.33	4.08	296.71	191.49
	6600.000	130.00	0 00	0.00	857.48	1115.00	866.11	0.00	866 32	21.29	4.16	348.56	241.66
	6600.000	130.00	0.00	0.00	857.48	1570 00	868.13	0.00	868.36	17.28	4.24	474.70	377.64
	6650.000	50.00	0.00	0.00	857.64	635.00	863.89	0.00	864 33	60.48	5.34	118.97	81 65
	6650.000	50.00	0.00	0.00	857.64	925.00	865.25	0.00	865.77	57.47	5.77	160.24	122.02
	6650.000	50.00	0.00	0.00	857.64	1115.00	866.11	0.00	866.65	53.88	5.91	188.68	151.90
	6650.000	50 00	0.00	0.00	857.64	1570.00	868.10	0.00	868.65	44.42	5.99	262.18	235.57
	6700.000	50.00	0.00	0.00	857.80	635 00	864.00	0.00	865 24	205.87	8.95	70.98	44.26
	6700 000	50.00	0.00	0.00	857.80	925 00	865.14	0 00	866 94	262.25	10.77	85.88	57.12

	6700.000	50.00	0.00	0 00	857.80	1115.00	865.84	0.00	867.98	292.83	11.75	94.93	65.16
	6700.000	50.00	0.00	0.00	857.80	1570.00	867.42	0.00	870.29	349.83	13.59	115.51	83.94
	6701.000	1.00	874.00	866 00	857.80	635.00	864.28	0.00	865.31	44.45	8.16	77.82	95.25
	6701.000	1.00	874.00	866.00	857.80	925.00	865.55	0.00	867.05	56.70	9.82	94.23	122.84
	6701.000	1.00	874.00	866.00	857.80	1115.00	866.12	0.00	868.06	117.41	11.18	99.78	102.90
	6701.000	1.00	874.00	866.00	857.80	1570.00	866.96	865.89	870.81	232.78	15.74	99.78	102.90

1

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	6749.000	48 00	874.00	866.00	857.80	635.00	864.61	0.00	865.54	38.45	7.73	82.14	102.40
	6749.000	48.00	874.00	866.00	857.80	925.00	866.08	0.00	867.42	80.80	9.27	99.78	102.90
	6749.000	48.00	874.00	866.00	857.80	1115.00	866.68	0.00	868.62	117.41	11.18	99.78	102.90
	6749.000	48 00	874.00	866.00	857.80	1570 00	868.08	865.89	871.93	232.78	15.74	99.78	102.90
	6750.000	1.00	0.00	0.00	857.80	640.00	864.57	0.00	865.60	72.74	8 17	78.35	75.04
	6750.000	1.00	0.00	0.00	857.80	960.00	866.00	0.00	867.52	80.45	9.90	96.95	107.03
	6750.000	1.00	0.00	0.00	857.80	1115 00	867.25	0.00	868.76	64.60	9.84	113.28	138.72
	6750.000	1.00	0 00	0.00	857.80	1585.00	871.22	0.00	872.66	37.43	9.62	164.78	259.07
	6763.000	13.00	0.00	0.00	857.92	640.00	865.74	0.00	865.89	10.34	3.51	260.67	199.07
	6763.000	13.00	0.00	0.00	857 92	960.00	867.73	0.00	867 94	10.31	4.13	340.17	299.02
	6763 000	13.00	0.00	0.00	857.92	1115.00	868 94	0 00	869.17	9.23	4.24	388.74	366 95
	6763 000	13.00	0.00	0.00	857.92	1585.00	872 78	0.00	873.03	6.70	4.46	542 44	612.54
	6841 000	78.00	0.00	0 00	858.61	640.00	865.95	0.00	865.97	3.22	1.87	698.71	356.65
	6841.000	78.00	0.00	0.00	858.61	960.00	868 01	0.00	868.03	2.21	1.85	1068.50	646.47
	6841 000	78.00	0.00	0.00	858.61	1115.00	869.23	0 00	869.26	1.68	1 76	1308.57	859.95
	6841.000	78.00	0.00	0 00	858.61	1585.00	873.10	0.00	873.12	0.85	1.56	2082.85	1722.99
*	7300.000	459.00	0.00	0 00	862.70	640.00	866.29	866.29	867.02	170.57	7.91	147.63	49.00
	7300.000	459.00	0.00	0.00	862.70	960.00	868.15	0.00	868.35	34.07	4.89	398.57	164.48
	7300.000	459.00	0.00	0.00	862.70	1115.00	869.34	0.00	869.46	16.11	3.90	584.06	277.78
	7300.000	459.00	0.00	0.00	862.70	1585.00	873.15	0.00	873.19	3.67	2.58	1274.68	827.00
	8050.000	750.00	0.00	0.00	863.90	640.00	870.22	0.00	870 29	17.76	3.04	463.50	151.87
	8050.000	750.00	0.00	0.00	863.90	960.00	870.56	0.00	870 67	26.87	3.88	538.19	185.20
	8050.000	750.00	0.00	0.00	863.90	1115.00	870.87	0.00	870.98	25.44	3.91	612.94	221.07
	8050.000	750.00	0.00	0.00	863.90	1585.00	873 52	0.00	873.56	6.33	2.40	1254 84	630.15
	8400.000	350.00	0.00	0.00	866.52	640.00	871.30	0.00	872.06	137.73	7.03	94.87	54 53
	8400.000	350.00	0.00	0.00	866.52	960.00	872.03	0.00	873.07	143.04	8.30	127.43	80.27
	8400.000	350.00	0.00	0.00	866.52	1115.00	872.24	0 00	873.49	160.79	9.10	136.17	87.93
	8400 000	350.00	0.00	0.00	866 52	1585 00	873.50	0.00	874.84	122.99	9.57	191.48	142.92
	8450 000	50.00	0.00	0.00	866.90	640.00	871.91	0.00	872 92	158.35	8.07	79.33	50.86
	8450.000	50 00	0.00	0.00	866.90	960.00	872.61	0 00	874.28	228.46	10.36	92.64	63.51
	8450.000	50.00	0.00	0.00	866.90	1115.00	872.87	0.00	874.90	266.06	11.43	97.57	68.36
*	8450.000	50.00	0.00	0.00	866.90	1585 00	873.73	873.73	876.74	349.38	13.93	113.80	84.80
	8451.000	1.00	879.10	875.90	866.90	640.00	872.14	0.00	872.98	38.85	7.36	86.90	102.67
	8451.000	1.00	879.10	875.90	866.90	960.00	873.11	0.00	874.40	50.56	9.12	105.22	135 02
	8451.000	1.00	879.10	875.90	866 90	1115.00	873.62	0.00	875.08	53.09	9.70	115.00	153.03
	8451.000	1 00	879.10	875.90	866 90	1585.00	875.31	0.00	877.11	54.35	10.78	147.05	215.00
	8461.000	10.00	879.10	875 90	866.90	640.00	872.20	0.00	873.02	37.42	7.27	88.04	104.63
	8461.000	10.00	879.10	875.90	866.90	960.00	873.24	0.00	874.47	47.10	8.90	107 89	139.88
	8461.000	10.00	879.10	875.90	866.90	1115.00	873.75	0.00	875.15	50.12	9.50	117.38	157.49
	8461.000	10.00	879.10	875.90	866.90	1585.00	875.44	0.00	877.18	51.95	10.60	149.51	219.91

1

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	8462.000	1.00	0.00	0.00	866.90	640.00	872.17	0.00	873.07	133.06	7 59	84.27	55 48
	8462.000	1.00	0.00	0.00	866.90	960.00	873.20	0.00	874.53	165.92	9.25	103.75	74.53

8462.000	1.00	0.00	0.00	866.90	1115.00	873.70	0.00	875.21	174.56	9.83	113.41	84.39
8462.000	1.00	0.00	0.00	866.90	1585.00	875.40	0.00	877.24	178.13	10.89	145.57	118.76
8475.000	13.00	0.00	0.00	866.86	640.00	873.00	0.00	873.32	36 99	4.67	156.13	105.23
8475.000	13.00	0.00	0.00	866.86	960.00	874.52	0.00	874.89	29.17	5.06	224.47	177.74
8475.000	13.00	0.00	0.00	866.86	1115 00	875.22	0.00	875 61	26.64	5.21	256.04	216 03
8475.000	13.00	0.00	0.00	866.86	1585.00	877.28	0.00	877.72	21.24	5.57	348.63	343.93
8787.000	312.00	0.00	0.00	866.00	640.00	874.15	0.00	874.48	36.96	4.64	137.98	105.27
8787.000	312.00	0.00	0.00	866.00	960.00	875.55	0.00	875.99	40.29	5.30	180.99	151 24
8787.000	312 00	0.00	0.00	866.00	1115.00	876.19	0.00	876 66	40.26	5.50	202.56	175.73
8787.000	312.00	0.00	0.00	866.00	1585.00	878.09	0.00	878.62	36.70	5.80	273.06	261.67
8906.000	119.00	0.00	0.00	867.68	640.00	874.64	0.00	875 25	82 77	6.28	101 92	70.35
8906.000	119.00	0.00	0.00	867.68	960.00	876.06	0.00	876.79	80 40	6.87	139.82	107.07
8906.000	119.00	0.00	0.00	867.68	1115.00	876.69	0.00	877.46	77.20	7.04	158.49	126.90
8906.000	119.00	0.00	0.00	867.68	1585.00	878.52	0 00	879.34	65.83	7.27	218.15	195.36
9025.000	119.00	0.00	0.00	869.35	640.00	875.75	0.00	876.65	138.76	7.62	84.02	54.33
9025.000	119 00	0.00	0.00	869.35	960.00	877.09	0.00	878.16	129.27	8.30	115.71	84.44
9025.000	119.00	0.00	0.00	869.35	1115.00	877.65	0.00	878.79	123.58	8.57	130.53	100.30
9025 000	119.00	0.00	0.00	869.35	1585.00	879.27	0.00	880.52	103.67	9.02	183.69	155.67
9144.000	119.00	0.00	0.00	871.03	640.00	877.33	0.00	878.33	134.95	8.05	83.73	55.09
9144.000	119.00	0.00	0.00	871.03	960.00	878.57	0.00	879.80	133.63	9.05	117.40	83 05
9144.000	119.00	0.00	0.00	871.03	1115.00	879.09	0.00	880.40	133.11	9.44	133.22	96.64
9144.000	119.00	0.00	0 00	871.03	1585.00	880.55	0.00	881.86	115.98	9.77	213.89	147.17
9262.000	118.00	0.00	0.00	872.70	640.00	879.01	0.00	879.97	141.85	8.52	92.28	53.74
9262.000	118.00	0.00	0.00	872.70	960.00	880.54	0.00	881.34	107 71	8.31	175.21	92.50
9262.000	118.00	0.00	0.00	872.70	1115.00	881.18	0.00	881.90	95.08	8.13	213.68	114.35
9262.000	118.00	0.00	0.00	872.70	1585.00	882.51	0.00	883.21	86.32	8.34	301.22	170.60
9494.000	232.00	0.00	0.00	874.28	640.00	881.48	0.00	881.77	44.02	5.17	192.00	96.46
9494.000	232.00	0.00	0.00	874.28	960.00	882.59	0.00	882.91	44.69	5.64	274 58	143.61
9494.000	232.00	0.00	0.00	874.28	1115.00	883 04	0.00	883.37	44.79	5.82	312 01	166.61
9494 000	232.00	0.00	0.00	874.28	1585.00	884.24	0.00	884.59	44.25	6.19	416 29	238.27
9725 000	231.00	0.00	0 00	875.85	640.00	882.47	0.00	882.79	49.28	5.33	179.19	91.17
9725.000	231.00	0.00	0.00	875.85	960.00	883.57	0.00	883.94	49.89	5.90	249.11	135.91
9725.000	231.00	0.00	0.00	875.85	1115.00	884.01	0.00	884.40	49.65	6.19	280.79	158.24
9725.000	231.00	0.00	0.00	875.85	1585.00	885.16	0.00	885.62	48.98	6.90	370.47	226.48
9956.000	231.00	0.00	0.00	877.43	640.00	883.51	0.00	883.73	37.04	4.65	223.28	105.16
9956.000	231.00	0.00	0.00	877.43	960.00	884.59	0.00	884.85	34.81	5.18	308.72	162 71
9956.000	231.00	0.00	0.00	877.43	1115.00	885.03	0.00	885.31	34.50	5.42	348.40	189.84
9956.000	231.00	0.00	0.00	877.43	1585.00	886 19	0.00	886.50	32.40	5.90	488.38	278 46

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
10187.000	231.00	0.00	0.00	879.00	640.00	884.25	0.00	884.31	18.78	3.10	473.41	147.67
10187.000	231.00	0.00	0.00	879.00	960.00	885.27	0.00	885.32	12.97	3.00	733.71	266.60
10187 000	231.00	0.00	0.00	879.00	1115.00	885.71	0.00	885.76	11.54	2.98	856.92	328.26
10187.000	231.00	0.00	0.00	879.00	1585.00	886.85	0.00	886.90	9.09	3.00	1220.71	525.79
10812.000	625 00	0.00	0.00	881.70	640.00	886.08	0.00	886.29	71.15	5.16	287.13	75 88
10812.000	625.00	0.00	0 00	881.70	960.00	886.63	0.00	886.84	65.94	5.51	401.52	118.22
10812 000	625.00	0 00	0.00	881.70	1115.00	886.91	0.00	887.11	59.81	5.51	465.07	144 18
10812 000	625 00	0.00	0.00	881.70	1585 00	887.77	0.00	887.94	43.51	5.34	679 12	240.28
11438.000	626.00	0.00	0.00	884.40	520.00	890.19	0.00	890.45	69.02	5.36	171.87	62.59
11438.000	626.00	0.00	0.00	884.40	775.00	890.76	0.00	891.05	78.02	6.16	260 12	87.74
11438.000	626 00	0.00	0 00	884.40	915.00	890.96	0 00	891.28	85.44	6.61	300.29	98.99
11438.000	626.00	0.00	0.00	884.40	1305.00	891.35	0.00	891.74	105.65	7.70	392.83	126.96

11518.000	80.00	894.30	887.30	884.40	520.00	892.41	0.00	892.43	5.81	2.02	581.47	215.78
11518.000	80.00	894.30	887.30	884.40	775.00	892.72	0.00	892.76	9 74	2.69	644.30	248.30
11518.000	80.00	894.30	887.30	884.40	915.00	892.85	0.00	892.90	12.23	3.05	668.88	261.63
11518.000	80.00	894.30	887.30	884.40	1305.00	893.13	0.00	893.22	19.67	3.96	726.60	294.22
11694.000	176.00	0.00	0 00	886.40	520.00	892.56	0.00	892.70	26.99	3.84	233.61	100.10
11694.000	176.00	0.00	0.00	886.40	775.00	892.97	0.00	893.20	40.56	4.99	273.70	121.68
11694.000	176.00	0.00	0.00	886.40	915.00	893.15	0.00	893.44	47.97	5.56	292.96	132.12
11694.000	176 00	0.00	0.00	886.40	1305.00	893.61	0.00	894.04	65.66	6.89	344.69	161.05
11869.000	175.00	0.00	0.00	888.50	520.00	893.34	0.00	893.84	118.40	6.66	130.64	47.79
11869.000	175.00	0.00	0.00	888.50	775.00	894.07	0.00	894.59	112.90	7.14	183.11	72.94
11869.000	175.00	0.00	0.00	888.50	915.00	894 39	0.00	894.94	110.47	7.45	209.31	87.06
11869.000	175.00	0.00	0.00	888.50	1305.00	895.14	0 00	895.77	107.40	8.20	281.54	125.92
12094.000	225.00	0.00	0.00	890.20	520.00	895.76	0.00	896.44	88 69	7.58	123.51	55 21
12094.000	225.00	0.00	0.00	890.20	775.00	896.53	0.00	897.33	95.74	8.66	177.44	79.20
12094.000	225.00	0.00	0.00	890.20	915.00	896.87	0.00	897.71	98.71	9.13	202.77	92.10
12094.000	225.00	0.00	0.00	890.20	1305.00	897.67	0.00	898.63	105.32	10.23	265.28	127.16
12120.000	26.00	0.00	0.00	890.50	460.00	896.58	0.00	896.68	10.89	2.61	184.05	139.40
12120.000	26.00	0.00	0.00	890.50	695.00	897.48	0.00	897.61	12.71	3.11	292.08	194.97
12120.000	26.00	0.00	0.00	890.50	820.00	897.87	0.00	898.02	12.94	3.27	344.32	227.98
12120.000	26.00	0.00	0.00	890.50	1160.00	898.82	0.00	898.98	13.13	3.58	466.45	320 08
12130.000	10.00	894.00	893.30	890.50	460.00	896.58	0.00	896.68	10 89	2.61	184.05	139.40
12130.000	10.00	894.00	893.30	890.50	695.00	897.47	0.00	897.61	12.75	3.11	291.52	194.64
12130.000	10.00	894.00	893.30	890.50	820.00	897.87	0.00	898.02	13.03	3.27	343.04	227 13
12130 000	10.00	894 00	893.30	890.50	1160.00	898.82	0.00	898.98	13.13	3.58	466 49	320.12
12381.000	251.00	0.00	0.00	892.94	460.00	897.02	0.00	897.38	72.70	4.85	94.80	53 95
12381.000	251.00	0.00	0.00	892.94	695.00	897.95	0.00	898.40	70.11	5.41	128.39	83.00
12381.000	251.00	0.00	0.00	892.94	820.00	898.34	0.00	898.84	71.40	5.71	143.49	97.04
12381.000	251 00	0.00	0.00	892 94	1160.00	899 24	0.00	899.88	74.62	6.41	181.07	134 28

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	SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	12581.000	200.00	0.00	0.00	894.90	460.00	898.67	0.00	899.13	101.23	5.45	84.47	45 72
	12581.000	200.00	0.00	0.00	894.90	695.00	899.53	0.00	900.11	97.66	6.09	114.19	70.33
	12581 000	200.00	0.00	0.00	894.90	820.00	899 92	0.00	900.55	96.41	6.36	128.95	83 51
	12581.000	200 00	0.00	0.00	894.90	1160.00	900.86	0.00	901.61	94.56	6.98	166.30	119 29
*	12632.000	51 00	0.00	0.00	893.20	460.00	898.38	898.38	900.96	213.68	12.87	35.74	31.47
*	12632.000	51.00	0.00	0.00	893.20	695 00	900.03	900.03	900.27	24.30	5.23	204.71	140.98
	12632.000	51.00	0.00	0.00	893.20	820.00	900 63	0.00	900.88	23.84	5.49	232.77	167.93
	12632.000	51.00	0.00	0.00	893.20	1160.00	901.64	0.00	901.98	28.12	6.49	283.07	218.77
	12704.000	72.00	907.20	900.90	893.90	460 00	900.54	0.00	902.10	92 38	10.01	45.96	47.86
	12704.000	72.00	907.20	900.90	893.90	695.00	907 63	0.00	907.66	1.20	1.86	675.76	634 73
	12704.000	72 00	907.20	900.90	893.90	820.00	908 00	0.00	908.03	1.44	2.07	730.49	683.26
	12704.000	72.00	907.20	900 90	893.90	1160.00	908.49	0 00	908.53	2.37	2.72	803.68	753 38
	12712.000	8.00	0.00	0.00	893.93	460.00	902.46	0.00	902.55	7.72	2.39	192.31	165.59
	12712.000	8.00	0.00	0 00	893.93	695.00	907.64	0.00	907.66	0.86	1.11	688 28	750.02
	12712.000	8.00	0.00	0.00	893.93	820 00	908.01	0.00	908.03	1.02	1.24	748.71	813.81
	12712.000	8.00	0.00	0.00	893.93	1160.00	908.50	0.00	908 54	1.64	1.64	829.56	905.61
	12905.000	193 00	0 00	0.00	894.78	460.00	902.65	0.00	902.81	18.37	3.27	145 69	107.31
	12905.000	193.00	0.00	0.00	894.78	695.00	907.65	0.00	907.70	3.12	1.90	433.24	393.47
	12905.000	193.00	0 00	0.00	894.78	820.00	908.02	0.00	908.08	3.67	2.09	467.24	428.02
	12905.000	193.00	0 00	0.00	894.78	1160.00	908 52	0 00	908 62	5 90	2.72	513.51	477.75
	12955.000	50.00	0.00	0.00	895.00	460.00	902.68	0.00	903.01	31.10	4.59	102.67	82 48
	12955.000	50.00	0.00	0.00	895.00	695.00	907.66	0.00	907.73	3.50	2.59	413.96	371.70
	12955.000	50.00	0.00	0.00	895.00	820.00	908.03	0.00	908.12	4.13	2.88	447.79	403.55

	12955.000	50 00	0.00	0.00	895.00	1160.00	908.53	0.00	908.68	6.65	3.75	494.06	449.79
*	12956 000	1.00	905.50	900.80	895.00	460.00	902.03	899.36	903.68	1107.57	10.30	44 64	13.82
	12956.000	1.00	905.50	900.80	895.00	695.00	907 45	0.00	907.94	314.71	6.29	135.61	39.18
	12956.000	1.00	905.50	900.80	895.00	820.00	907.86	0.00	908.28	255.39	5.98	169.87	51 31
	12956.000	1.00	905 50	900.80	895.00	1160.00	908.37	0.00	908.84	255.04	6.35	217.57	72.64
*	12981.000	25.00	905.50	901.20	895.40	460.00	904 80	899.75	906.45	1107.57	10.30	44.64	13 82
	12981.000	25.00	905.50	901.20	895.40	695.00	908.26	0.00	908.45	106.42	4.05	206.96	67.37
	12981.000	25.00	905.50	901 20	895.40	820.00	908 53	0.00	908.73	103.02	4.11	233 25	80.74
	12981 000	25.00	905.50	901.20	895.40	1160.00	909.05	0.00	909.31	113.50	4.56	282.28	108.88
	12982.000	1.00	0.00	0.00	895.40	460.00	906.88	0.00	906.93	2.57	2.07	313 88	286.82
	12982 000	1.00	0.00	0.00	895.40	695.00	908 43	0.00	908.49	2.98	2.44	447.01	402.80
	12982.000	1.00	0.00	0.00	895.40	820 00	908 69	0.00	908.77	3.69	2.76	471.23	426.61
	12982.000	1.00	0.00	0.00	895.40	1160.00	909.22	0 00	909.36	5.89	3.59	520.87	477.86
	12997.000	15 00	0.00	0.00	895.48	460.00	906.90	0.00	906.94	2.67	1.62	318.64	281.40
	12997.000	15.00	0.00	0.00	895.48	695.00	908.45	0.00	908.50	2.98	1.86	442.03	402.59
	12997.000	15.00	0.00	0.00	895.48	820 00	908.72	0.00	908 78	3.67	2.10	466 83	427.95
	12997.000	15.00	0.00	0 00	895.48	1160.00	909.28	0.00	909.38	5.75	2.70	518 42	483.55

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
13097.000	100.00	0.00	0.00	896.01	460.00	906.92	0.00	906.97	3.38	1.77	289.28	250.10
13097.000	100.00	0.00	0.00	896.01	695.00	908 48	0.00	908.54	3.75	2.04	396.56	358 69
13097.000	100 00	0.00	0.00	896.01	820.00	908.76	0.00	908.83	4.60	2.29	421.69	382.52
13097 000	100.00	0.00	0.00	896.01	1160.00	909.33	0.00	909.45	7.07	2 92	474.63	436.11
13157.000	60.00	0.00	0.00	896.31	460.00	906.98	0.00	906.99	0.42	0.71	828.95	707.95
13157.000	60 00	0.00	0.00	896.31	695.00	908 55	0.00	908.56	0.46	0.84	1158.32	1028 56
13157.000	60.00	0.00	0.00	896.31	820.00	908.85	0.00	908.85	0.56	0.95	1220.11	1097.96
13157.000	60.00	0.00	0.00	896.31	1160.00	909.47	0.00	909.49	0.85	1.23	1352.14	1254 69
13282.000	125.00	0.00	0.00	897.00	460.00	906.99	0.00	907.00	0.97	1.01	544.50	468 12
13282.000	125.00	0.00	0.00	897.00	695.00	908.56	0.00	908.57	0.96	1.16	944.93	708.05
13282.000	125.00	0.00	0 00	897 00	820.00	908.85	0.00	908.87	1.10	1.27	1080.90	782 79
13282.000	125.00	0.00	0.00	897.00	1160.00	909.48	0.00	909.51	1.43	1.51	1372.11	970.88
13412.000	130.00	0.00	0.00	897.41	460.00	907.01	0.00	907.01	0.38	0.56	1154.38	744.66
13412.000	130.00	0.00	0.00	897.41	695.00	908.58	0.00	908.58	0.30	0.58	1850.68	1261.03
13412.000	130.00	0.00	0.00	897.41	820.00	908.88	0.00	908.88	0.35	0.64	1996.89	1384.04
13412.000	130.00	0.00	0.00	897.41	1160.00	909.52	0.00	909.52	0.48	0.79	2318.45	1672 51
13582.000	170.00	0.00	0.00	897.94	460 00	907.01	0.00	907.02	1.56	1.09	642.83	368.22
13582.000	170.00	0.00	0.00	897.94	695.00	908.58	0.00	908.59	1.03	1.02	1139.48	686 17
13582.000	170.00	0.00	0.00	897.94	820.00	908 88	0.00	908.89	1.13	1.10	1263.18	770.95
13582.000	170.00	0.00	0.00	897.94	1160.00	909.53	0.00	909 54	1.41	1.30	1535.59	977.01
13632 000	50 00	0.00	0.00	898.10	460.00	906.96	0.00	907.11	5.19	4.26	293.11	201.94
13632.000	50 00	0.00	0.00	898.10	695 00	908.58	0.00	908.61	1.96	2.72	760.48	496.84
13632.000	50.00	0.00	0.00	898.10	820.00	908.88	0.00	908.91	1.95	2.77	876.08	587.87
13632.000	50 00	0.00	0.00	898.10	1160.00	909.52	0.00	909.56	2.05	2.96	1128.41	810.69
13732.000	100.00	904.60	905.50	898.50	460.00	907.09	0.00	907.19	7.75	3.96	301.32	165.29
13732.000	100.00	904.60	905.50	898.50	695.00	908.62	0.00	908.64	2.68	2 00	747.83	424.24
13732.000	100.00	904.60	905.50	898.50	820.00	908.92	0.00	908.94	2.57	2.02	861.22	511.93
13732.000	100.00	904.60	905.50	898.50	1160.00	909.57	0.00	909.60	2.01	2.93	1141.03	818 96
13833.000	101.00	0.00	0.00	898.20	460.00	907.15	0.00	907.21	0 39	2.56	589.98	733.87
13833.000	101.00	0.00	0.00	898.20	695.00	908.61	0.00	908.67	0.37	2.75	911.70	1148.05
13833.000	101.00	0.00	0.00	898.20	820.00	908.90	0.00	908.97	0.43	3 04	982.61	1249.03
13833.000	101.00	0.00	0.00	898.20	1160.00	909.55	0.00	909.64	0.61	3.76	1137.34	1485.66
13899.000	66.00	904.90	903.20	898.20	460.00	907.15	0.00	907.21	0.40	2.57	588.03	731 41

	13899.000	66.00	904.90	903.20	898.20	695.00	908.61	0.00	908.67	0.37	2.77	876.57	1137 47
	13899.000	66.00	904.90	903.20	898.20	820.00	908.90	0.00	908.97	0.44	3.08	935.17	1231.68
	13899.000	66.00	904.90	903.20	898.20	1160.00	909.54	0 00	909.64	0.64	3.86	1062.67	1448.87
	13916.000	17.00	0.00	0.00	899.10	460.00	907.20	0.00	907.22	3.30	1.13	437.69	253 37
	13916.000	17.00	0.00	0 00	899.10	695.00	908.66	0.00	908.68	1.94	1.11	692.46	499 59
	13916.000	17.00	0.00	0 00	899.10	820.00	908.97	0.00	908.99	2.15	1.22	745.65	559.58
	13916.000	17.00	0.00	0.00	899.10	1160.00	909.64	0.00	909.67	2.74	1.49	862.72	701.00

1

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	13918.000	2.00	904.40	904.10	899.10	460.00	907.20	0 00	907.23	3.06	1.65	437.31	262.88
	13918.000	2.00	904.40	904.10	899.10	695.00	908.67	0 00	908.70	2.20	1.60	693.62	468 76
	13918.000	2.00	904.40	904.10	899.10	820.00	908.97	0.00	909.00	2.50	1.75	746.79	519 03
	13918.000	2.00	904.40	904.10	899.10	1160.00	909.64	0.00	909.68	3.31	2.13	863.47	637.41
	14119.000	201.00	0.00	0.00	898.80	460.00	907.27	0.00	907.31	4 38	2.09	568.88	219.88
	14119.000	201.00	0.00	0.00	898.80	695.00	908.73	0.00	908.75	2.76	1.86	975.44	418 02
	14119.000	201.00	0.00	0.00	898.80	820.00	909.04	0.00	909.06	3.04	2 00	1070.08	470.27
	14119.000	201.00	0 00	0.00	898.80	1160.00	909.73	0.00	909.76	3.69	2.31	1301.74	603 59
	14919.000	800.00	0.00	0.00	903.60	460.00	907.97	0.00	908.11	40.20	3.66	206.80	72.55
	14919.000	800.00	0.00	0.00	903 60	695.00	909.15	0.00	909.25	24.49	3.28	346.14	140.43
	14919.000	800.00	0.00	0.00	903.60	820.00	909.49	0.00	909.60	23.49	3.42	430.09	169 18
	14919.000	800.00	0.00	0 00	903.60	1160.00	910.24	0.00	910.34	19.82	3.52	689.10	260.57
	15969.000	1050.00	0.00	0.00	904.17	460.00	910.26	0.00	910.38	13.44	2.82	163.17	125.46
	15969.000	1050.00	0.00	0.00	904.17	695.00	911.26	0 00	911.45	17.45	3.49	199.06	166 39
	15969.000	1050.00	0.00	0.00	904 17	820.00	911.68	0.00	911.90	19.52	3.82	214.97	185.58
	15969.000	1050.00	0.00	0.00	904.17	1160.00	912.48	0.00	912.82	25.70	4.69	261.28	228.83
	16020.000	51.00	0.00	0.00	904.20	460.00	910.43	0.00	910.48	18.34	2.58	299.76	107.40
	16020.000	51.00	0.00	0 00	904.20	695.00	911.52	0.00	911.58	16.96	2.86	413.01	168.77
	16020.000	51.00	0.00	0 00	904.20	820.00	911.97	0.00	912.04	17.05	3.03	463.98	198.61
	16020.000	51 00	0.00	0.00	904.20	1160 00	912.91	0.00	913.00	18.81	3.50	574.86	267.48
	16490.000	470.00	911.30	908.40	904.40	460.00	912.86	0.00	912.88	3.20	1.45	556.81	257.06
	16490.000	470.00	911.30	908.40	904.40	695.00	913.15	0.00	913.19	6.18	2.07	592.00	279.63
	16490.000	470.00	911.30	908.40	904.40	820.00	913.26	0.00	913.30	8.06	2.39	605.39	288.80
*	16490.000	470.00	911.30	908.40	904.40	1160.00	913.47	0.00	913.55	14.13	3.22	634.31	308.64
	16816.000	326.00	0.00	0.00	903.00	460.00	912.84	0.00	912.98	0 64	3.15	309.21	576.10
	16816 000	326.00	0.00	0.00	903.00	695.00	913.10	0.00	913.39	1.31	4.60	325 12	608.32
	16816.000	326.00	0.00	0.00	903.00	820.00	913 19	0.00	913.58	1.76	5.36	330 29	618.93
	16816.000	326.00	0.00	0.00	903.00	1160.00	913.33	0.00	914.09	3.32	7.45	338.72	636.41
	16871 000	55.00	911.80	908.60	903.00	460.00	912.84	0.00	912.98	0.64	3.15	309.20	576 09
	16871 000	55.00	911.80	908.60	903.00	695.00	913.10	0.00	913.39	1.31	4.60	325.10	608.27
	16871.000	55.00	911.80	908.60	903.00	820.00	913.19	0.00	913.58	1.76	5 36	330.25	618.85
	16871 000	55.00	911.80	908.60	903.00	1160.00	913.33	0.00	914.09	3.33	7.46	338.55	636.07
	16934.000	63.00	0.00	0.00	906.90	530.00	912.79	0.00	913.05	13.98	4.11	132.44	141.73
	16934.000	63.00	0.00	0.00	906.90	820.00	913.00	0.00	913.55	27.76	5 97	144.13	155.64
	16934.000	63.00	0.00	0.00	906.90	950.00	913.07	0.00	913.77	35.13	6.78	148.27	160.27
	16934.000	63.00	0 00	0.00	906.90	1270.00	913.18	912.64	914.35	56 91	8.76	155.71	168.35
	16960.000	26.00	911.00	911.40	906.90	530.00	912.81	0.00	913.13	27.55	4.59	118.19	100.98
	16960.000	26.00	911.00	911.40	906.90	820.00	913.03	0.00	913.72	55.72	6.71	126.24	109.85
	16960.000	26.00	911.00	911.40	906.90	950.00	914.20	0.00	914.53	13.29	4.79	253.31	260.57
	16960.000	26.00	911.00	911.40	906.90	1270.00	914 73	0.00	915.14	14.80	5.44	326.18	330.13

1

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	17137.000	177.00	0.00	0.00	908.20	530 00	913.55	0.00	913.63	26.23	4.32	330.23	103.49

17137.000	177.00	0.00	0.00	908.20	820.00	914.39	0.00	914.48	26.36	4.80	447.45	159.70
17137.000	177.00	0.00	0.00	908.20	950.00	914.79	0.00	914.88	24.37	4.82	508.27	192.43
17137.000	177.00	0.00	0.00	908.20	1270.00	915.42	0.00	915.52	26.26	5.33	604.59	247.84
17157.000	20.00	911.70	910.20	908.20	530.00	913.60	0.00	913.68	24.84	4.24	337.33	106.34
17157.000	20.00	911.70	910.20	908.20	820.00	914.43	0.00	914.51	25.21	4.72	454.33	163.31
17157.000	20.00	911.70	910.20	908.20	950.00	914.83	0.00	914.91	23.57	4.76	514.10	195.67
17157.000	20.00	911.70	910.20	908.20	1270.00	915.45	0.00	915.55	25.57	5.28	610.10	251.13
17795.000	638.00	0.00	0.00	911.15	530.00	915.64	0.00	915.79	46.61	3.84	226.77	77.63
17795.000	638.00	0.00	0.00	911.15	820.00	916.43	0.00	916.61	44.67	4.39	320.68	122.69
17795.000	638.00	0.00	0.00	911.15	950.00	916.73	0.00	916.92	43.57	4.58	361.18	143.93
17795.000	638.00	0.00	0.00	911.15	1270.00	917.37	0.00	917.58	40.18	4.90	458.43	200.36
18433.000	638.00	0.00	0.00	914.10	530.00	918.47	0.00	918.78	45.94	4.92	170.48	78.20
18433.000	638.00	0.00	0.00	914.10	820.00	919.28	0.00	919.67	49.66	5.81	241.09	116.37
18433.000	638.00	0.00	0.00	914.10	950.00	919.58	0.00	920.01	51.56	6.17	269.52	132.30
18433.000	638.00	0.00	0.00	914.10	1270.00	920.18	0.00	920.71	56.77	6.98	332.39	168.56
19184.000	751.00	0.00	0.00	913.30	440.00	920.24	0.00	920.75	14.33	5.76	76.40	116.25
19184.000	751.00	0.00	0.00	913.30	680.00	921.06	919.96	921.65	13.71	6.37	178.67	183.66
19184.000	751.00	0.00	0.00	913.30	790.00	921.35	0.00	921.95	13.19	6.56	221.17	217.51
19184.000	751.00	0.00	0.00	913.30	1060.00	921.98	0.00	922.61	12.37	6.97	312.43	301.35
19372.000	188.00	921.40	918.40	912.70	440.00	920.73	0.00	920.99	5.26	4.13	106.59	191.81
19372.000	188.00	921.40	918.40	912.70	680.00	921.18	0.00	921.65	8.28	5.55	146.28	236.29
19372.000	188.00	921.40	918.40	912.70	790.00	921.39	0.00	921.95	9.52	6.12	156.54	256.08
19372.000	188.00	921.40	918.40	912.70	1060.00	921.77	0.00	922.61	12.89	7.48	175.94	295.21
19448.000	76.00	0.00	0.00	912.10	440.00	920.70	0.00	921.17	22.61	5.52	79.76	92.53
19448.000	76.00	0.00	0.00	912.10	680.00	921.02	0.00	922.06	47.35	8.20	82.97	98.83
19448.000	76.00	0.00	0.00	912.10	790.00	921.13	0.00	922.50	61.02	9.39	84.13	101.13
19448.000	76.00	0.00	0.00	912.10	1060.00	921.19	0.00	923.62	107.64	12.52	84.65	102.17
19449.000	1.00	926.40	921.80	912.10	440.00	920.69	0.00	921.19	19.37	5.68	77.43	99.98
19449.000	1.00	926.40	921.80	912.10	680.00	920.99	0.00	922.10	42.08	8.46	80.40	104.83
19449.000	1.00	926.40	921.80	912.10	790.00	921.09	0.00	922.55	54.98	9.70	81.44	106.54
19449.000	1.00	926.40	921.80	912.10	1060.00	921.10	0.00	923.73	98.72	13.00	81.52	106.68
19605.000	156.00	926.40	921.80	912.10	440.00	921.02	0.00	921.49	17.46	5.45	80.69	105.31
19605.000	156.00	926.40	921.80	912.10	680.00	921.95	0.00	922.87	49.76	7.68	88.50	96.40
19605.000	156.00	926.40	921.80	912.10	790.00	922.33	0.00	923.57	67.16	8.93	88.50	96.40
19605.000	156.00	926.40	921.80	912.10	1060.00	923.32	0.00	925.55	120.91	11.98	88.50	96.40
19606.000	1.00	0.00	0.00	912.10	440.00	921.07	0.00	921.50	19.47	5.27	83.43	99.73
19606.000	1.00	0.00	0.00	912.10	680.00	922.09	0.00	922.90	31.64	7.26	93.63	120.88
19606.000	1.00	0.00	0.00	912.10	790.00	922.67	0.00	923.65	34.85	7.94	99.52	133.81
19606.000	1.00	0.00	0.00	912.10	1060.00	924.62	0.00	925.85	34.66	8.91	118.92	180.05

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
19756.000	150.00	0.00	0.00	914.66	440.00	921.71	0.00	921.75	5.48	2.08	447.19	187.94
19756.000	150.00	0.00	0.00	914.66	680.00	923.22	0.00	923.25	2.94	1.78	910.54	396.51
19756.000	150.00	0.00	0.00	914.66	790.00	924.00	0.00	924.02	2.13	1.63	1152.13	541.00
19756.000	150.00	0.00	0.00	914.66	1060.00	926.25	0.00	926.26	0.98	1.30	1849.53	1070.15
20807.000	1051.00	0.00	0.00	916.60	440.00	922.30	0.00	922.35	6.94	2.17	257.23	167.06
20807.000	1051.00	0.00	0.00	916.60	680.00	923.54	0.00	923.59	4.16	1.94	430.49	333.25
20807.000	1051.00	0.00	0.00	916.60	790.00	924.23	0.00	924.27	3.05	1.78	542.51	452.39
20807.000	1051.00	0.00	0.00	916.60	1060.00	926.35	0.00	926.38	1.31	1.39	891.49	925.28
20819.000	12.00	920.70	919.60	916.60	440.00	922.33	0.00	922.37	6.68	2.14	260.72	170.18
20819.000	12.00	920.70	919.60	916.60	680.00	923.57	0.00	923.61	4.05	1.92	435.08	337.90
20819.000	12.00	920.70	919.60	916.60	790.00	924.26	0.00	924.30	2.96	1.76	548.13	458.81
20819.000	12.00	920.70	919.60	916.60	1060.00	926.39	0.00	926.42	1.28	1.38	898.80	936.68

	20846.000	27.00	0.00	0.00	916.80	440.00	922.34	0.00	922.41	10.22	2.43	211.70	137.64
	20846.000	27.00	0.00	0.00	916.80	680.00	923.57	0.00	923.64	6.55	2.29	348.11	265.69
	20846.000	27.00	0.00	0.00	916.80	790 00	924.26	0.00	924.32	4.87	2.12	441.35	358.02
	20846.000	27.00	0.00	0.00	916.80	1060.00	926.39	0 00	926.43	2.10	1.68	738.25	732.24
	20866.000	20.00	920.90	920.40	916.80	440.00	922.47	0.00	922.54	8.72	2.29	224.08	148.97
	20866.000	20.00	920.90	920.40	916 80	680.00	923.61	0.00	923.68	6.37	2.26	351.98	269.42
	20866.000	20.00	920.90	920.40	916.80	790.00	924.30	0.00	924.36	4.76	2.11	445.10	361.98
	20866.000	20.00	920.90	920.40	916.80	1060.00	926.42	0.00	926.46	2.06	1.67	742.27	738.08
	21317.000	451.00	0.00	0.00	918.00	440.00	922.71	0.00	922.73	3.13	1.24	467.85	248 57
	21317.000	451.00	0.00	0.00	918.00	680 00	923.80	0.00	923.81	1.96	1.15	744.01	485.99
	21317.000	451.00	0.00	0.00	918.00	790.00	924.45	0.00	924.46	1.41	1.05	927.96	665.79
	21317 000	451.00	0.00	0.00	918.00	1060.00	926.50	0.00	926.51	0.55	0.80	1603.97	1432.57
	21817.000	500.00	0.00	0 00	918.90	440.00	922 70	0.00	923.64	182.92	8.70	72.16	32.53
	21817.000	500.00	0.00	0.00	918.90	680.00	923.43	0.00	924.77	211.94	10.62	94.18	46.71
	21817.000	500.00	0.00	0.00	918.90	790 00	924.04	0.00	925.29	170.42	10.41	114.01	60.52
	21817.000	500.00	0.00	0.00	918.90	1060 00	926.18	0.00	927.00	73.47	8.72	188 51	123.67
	21867.000	50.00	0.00	0.00	919.00	440.00	923.27	0.00	925.12	230.49	10.90	40.37	28.98
*	21867.000	50.00	0.00	0.00	919.00	680.00	924.45	924.45	927.09	234 29	13.04	52.16	44.43
*	21867.000	50 00	0.00	0.00	919.00	790.00	925.02	925.02	927.92	223.72	13.65	57.87	52.82
*	21867.000	50 00	0.00	0.00	919.00	1060.00	926.25	926.25	929.80	212.05	15.11	70.15	72.79
	21868.000	1.00	931.20	928.00	919.00	440.00	924.28	0.00	925.36	47.17	8.32	52.86	64 07
*	21868.000	1 00	931.20	928.00	919.00	680.00	925.97	924 22	927.45	54.85	9.76	69.70	91 82
*	21868.000	1.00	931.20	928.00	919.00	790.00	926.63	924.79	928.29	58.90	10.36	76.26	102 94
	21868.000	1.00	931.20	928.00	919.00	1060 00	928.07	0.00	930.23	105.25	11.78	90.00	103 32
	21892 000	24.00	931.20	928.00	919.00	440.00	924.49	0.00	925.49	42.65	8.01	54.91	67 38
	21892 000	24 00	931.20	928.00	919.00	680.00	926.23	0.00	927.61	49.88	9.40	72.34	96.28
	21892.000	24.00	931.20	928.00	919.00	790.00	926.92	0.00	928.47	53.51	9.97	79.21	108.00
	21892.000	24.00	931.20	928.00	919.00	1060.00	928.33	0.00	930.48	105.25	11.78	90.00	103.32

1

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	21893.000	1 00	0.00	0.00	919.00	440.00	924.44	0.00	925.55	220.27	8.45	52.07	29.65
	21893.000	1 00	0.00	0.00	919.00	680.00	926.19	0 00	927.67	249.81	9.78	69.50	43 02
	21893.000	1.00	0.00	0.00	919.00	790.00	926.87	0.00	928.53	265.98	10.34	76.37	48 44
	21893.000	1.00	0.00	0.00	919 00	1060.00	928.50	0.00	930.53	296.67	11.44	92.69	61.54
	22143.000	250 00	0.00	0.00	920.64	440.00	926.58	0.00	926.68	13.19	3.06	269.46	121.14
	22143.000	250 00	0.00	0.00	920.64	680.00	928 49	0.00	928.55	6.34	2.64	537.91	270.16
	22143.000	250.00	0.00	0.00	920.64	790.00	929.32	0.00	929.37	4.74	2.46	687.04	362.98
	22143.000	250 00	0 00	0.00	920.64	1060.00	931.31	0.00	931.34	2.60	2.12	1084.27	657.47
	22568 000	425.00	0.00	0.00	921.74	440.00	927.33	0.00	927.63	37.04	4.50	108.66	72.29
	22568 000	425.00	0.00	0.00	921.74	680.00	928.83	0 00	929.23	37.26	5.22	146.23	111.39
	22568.000	425.00	0.00	0.00	921.74	790.00	929.54	0.00	929.97	36.22	5.43	163.87	131.27
	22568.000	425.00	0.00	0.00	921.74	1060.00	931.33	0.00	931.82	32 73	5.77	208.68	185.27
	22593.000	25.00	0.00	0.00	921.80	440 00	927.03	0.00	928.22	104.73	8.76	50.22	42.99
	22593.000	25 00	0.00	0.00	921.80	680.00	928 27	0.00	930.10	119.93	10.86	62.62	62 09
	22593 000	25.00	0.00	0 00	921.80	790 00	928.88	0.00	930.93	118.90	11.50	68.69	72.45
	22593.000	25 00	0.00	0.00	921 80	1060.00	930.50	0.00	932.92	105.64	12.49	84.90	103.13
	22594.000	1.00	930.00	931.80	921.80	185.00	928.42	0.00	928.54	4.63	2.79	66.21	85 97
	22594.000	1.00	930.00	931.80	921 80	290.00	930.43	0.00	930.60	5.83	3.36	86.25	120 13
	22594.000	1.00	930.00	931.80	921.80	340.00	931.29	0.00	931.49	6.32	3.58	94.91	135.23
	22594.000	1.00	930.00	931.80	921.80	460.00	933.22	0.00	933.55	14.94	4.60	100.00	119.01
	22644.000	50.00	930.00	931.80	921.80	185.00	928.45	0.00	928 57	4 59	2.78	66.46	86.38
	22644.000	50 00	930.00	931.80	921 80	290.00	930.46	0.00	930.63	5.77	3.35	86.57	120 68

22644.000	50.00	930.00	931.80	921.80	340.00	931.32	0.00	931.52	6.27	3.57	95.25	135 83
22644.000	50.00	930.00	931.80	921.80	460.00	933.30	0.00	933.63	14.94	4.60	100.00	119 01
22645.000	1.00	0.00	0.00	921.80	185.00	928.44	0.00	928.57	5.18	2.87	64.37	81.27
22645.000	1.00	0.00	0.00	921.80	290.00	930.45	0.00	930.64	5.14	3.43	84.48	127.85
22645.000	1.00	0.00	0.00	921.80	340.00	931.32	0.00	931.53	5.10	3 65	93.16	150 51
22645.000	1.00	0.00	0.00	921.80	460.00	933.40	0.00	933.65	4.79	4.04	113.87	210.29
22670.000	25.00	0.00	0.00	921.86	185.00	928 57	0.00	928.61	3.85	1.61	115.10	94.31
22670.000	25.00	0.00	0.00	921.86	290.00	930 65	0.00	930.69	2.23	1 54	197.12	194.20
22670.000	25.00	0.00	0.00	921.86	340.00	931.55	0.00	931.59	1.73	1.50	254.55	258.73
22670.000	25.00	0.00	0 00	921.86	460.00	933.70	0.00	933.72	0.95	1.36	439.49	471 67
22970.000	300 00	0.00	0.00	922.60	185.00	928.70	0.00	928.76	5.74	1 89	97.65	77.24
22970.000	300.00	0.00	0.00	922.60	290.00	930.73	0.00	930.78	3.55	1.77	165.19	153.84
22970.000	300.00	0.00	0.00	922.60	340.00	931.61	0.00	931.66	2.65	1.72	209 59	208.78
22970.000	300.00	0.00	0.00	922.60	460.00	933.73	0.00	933.76	1.38	1.54	372.92	392.21
23870.000	900.00	0.00	0.00	923 80	185.00	929.02	0.00	929.04	1.82	1.25	271.43	136.96
23870.000	900.00	0.00	0.00	923.80	290 00	930.90	0.00	930.91	0.72	1.01	552.12	342.26
23870.000	900.00	0.00	0.00	923 80	340.00	931.75	0.00	931.75	0.49	0.91	772.75	485.67
23870.000	900.00	0.00	0.00	923.80	460 00	933.81	0.00	933.81	0.20	0.69	1486.77	1026.26

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
24870.000	1000.00	0.00	0.00	927.00	185.00	929 42	0.00	929.44	14.75	1.15	226.00	48.16
24870.000	1000.00	0.00	0.00	927.00	290.00	930.96	0.00	930.96	0.36	0.38	1142.32	485.35
24870.000	1000.00	0.00	0 00	927.00	340.00	931.78	0.00	931.78	0.15	0.30	1666.94	869.67
24870 000	1000.00	0.00	0.00	927.00	460.00	933.82	0.00	933.82	0.04	0.23	3077.19	2229.87
26645.000	1775.00	0.00	0.00	927.40	185.00	930.79	0.00	930.80	4.88	1.26	270.24	83.72
26645.000	1775 00	0.00	0.00	927.40	290 00	931.11	0.00	931.13	5 89	1.49	352.79	119.53
26645.000	1775.00	0.00	0.00	927.40	340.00	931.84	0.00	931.85	2 23	1.07	555.27	227 66
26645.000	1775.00	0.00	0.00	927.40	460.00	933.83	0.00	933.83	0.41	0.66	1251.00	720.13
27695.000	1050.00	0.00	0.00	927.60	185.00	931.18	0.00	931.19	2.74	1.06	479.16	111.84
27695.000	1050.00	0.00	0.00	927.60	290.00	931.52	0.00	931.53	2.56	1.12	678.70	181.23
27695.000	1050.00	0.00	0.00	927.60	340.00	932.02	0.00	932.02	1.17	0.84	987.08	313.91
27695.000	1050 00	0.00	0.00	927.60	460.00	933.86	0.00	933.86	0.18	0.44	2240 36	1090.05
28670.000	975.00	0.00	0.00	928.20	185.00	931 20	0.00	931.20	0.05	0.13	1566.02	857 85
28670.000	975.00	0.00	0.00	928.20	290.00	931.55	0.00	931.55	0.07	0.17	1871 11	1125.81
28670.000	975.00	0.00	0.00	928.20	340.00	932.03	0.00	932.03	0 05	0.17	2302.98	1551 21
28670 000	975.00	0.00	0.00	928.20	460.00	933.87	0.00	933.87	0.02	0.13	3953.12	3637 96
29070.000	400.00	0.00	0.00	928.65	185.00	931.20	0.00	931.20	0.24	0.24	857.77	374 85
29070.000	400.00	0.00	0.00	928 65	290.00	931.55	0.00	931.55	0.28	0.30	1101.55	545.45
29070.000	400.00	0.00	0.00	928.65	340.00	932.04	0.00	932.04	0.17	0.27	1439.83	825.42
29070 000	400.00	0.00	0.00	928.65	460.00	933.87	0.00	933.87	0.04	0.19	2724.21	2284.09
29470 000	400.00	0.00	0.00	929.10	185.00	931 23	0.00	931.23	3.82	0.71	268.07	94.71
29470.000	400.00	0.00	0.00	929 10	290.00	931.58	0.00	931.59	4.03	0.76	404.33	144.52
29470.000	400.00	0 00	0.00	929.10	340.00	932.05	0.00	932.05	1.48	0.59	635.45	279.61
29470.000	400.00	0.00	0.00	929.10	460.00	933.87	0.00	933.87	0.17	0.34	1549.77	1125.60
29870.000	400.00	0.00	0.00	929.55	185.00	931.49	0.00	931.53	16.97	1.57	118.06	44 91
29870 000	400.00	0.00	0.00	929.55	290.00	931.85	0.00	931.90	17.28	1.78	167.41	69.76
29870.000	400.00	0.00	0.00	929.55	340 00	932 16	0.00	932.20	12.67	1.60	231.52	95.53
29870.000	400.00	0.00	0.00	929.55	460.00	933.88	0.00	933.89	1.08	0.73	723.96	442.07
30270.000	400.00	0.00	0.00	930.00	185 00	932 47	0.00	932.62	43.89	3.13	62.12	27 93
30270.000	400.00	0.00	0.00	930.00	290.00	932 87	0.00	933.06	49.30	3.64	97.38	41.30
30270.000	400.00	0.00	0.00	930.00	340.00	933.00	0.00	933 21	53.99	3.84	114.66	46.27
30270.000	400.00	0.00	0.00	930.00	460 00	933.97	0.00	934 01	12.46	2.05	398.66	130.31

-12094.000	0.00	0.00	0.00	890.20	150.00	895.76	0.00	895.77	1.57	1.01	215.18	119 64
-12094.000	0.00	0.00	0.00	890.20	220.00	896.53	0.00	896.55	1.81	1.19	271.65	163 59
-12094.000	0.00	0 00	0.00	890.20	245.00	896.87	0.00	896.89	1.73	1.21	300.11	186.14
-12094.000	0 00	0.00	0.00	890.20	310 00	897 67	0.00	897.69	1.59	1.26	367.76	246.08
120.000	120 00	0.00	0.00	891.50	150.00	895.74	0.00	895.89	43.35	3.24	58.35	22.78
120.000	120.00	0.00	0.00	891.50	220.00	896.54	0.00	896.65	28.32	2.91	107.36	41.34
120.000	120.00	0.00	0 00	891.50	245.00	896.89	0.00	896.97	21.76	2.66	134.69	52.52
120.000	120.00	0.00	0.00	891.50	310.00	897.70	0.00	897.75	11.76	2.13	204.09	90.40

1

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	620.000	500.00	0.00	0.00	893.40	150.00	898.64	0.00	898 92	85.91	4.28	36.02	16.18
	620.000	500.00	0.00	0.00	893.40	220.00	898.96	897.61	899.39	121.92	5 37	49.17	19.92
	620.000	500.00	0.00	0.00	893.40	245 00	898.95	897.96	899.49	152.39	6.00	48.87	19.85
*	620.000	500.00	0.00	0 00	893.40	310.00	899.18	899.18	899.79	171.08	6.60	63 99	23.70
	2000.000	1380 00	0.00	0.00	899.00	150.00	903.73	0.00	903.82	18.96	2.44	61.54	34.45
	2000.000	1380 00	0.00	0.00	899.00	220.00	904.61	0.00	904.72	18 25	2.70	83.58	51.50
	2000.000	1380.00	0.00	0.00	899.00	245 00	904.91	0.00	905.02	17.57	2.75	93.17	58.44
	2000.000	1380.00	0.00	0.00	899.00	310.00	905.47	0.00	905.60	17.98	2.97	113.89	73.12
	2095.000	95.00	0.00	0.00	900.40	150 00	903 97	0.00	904.21	70.66	4.00	37.48	17.84
	2095.000	95.00	0.00	0.00	900.40	220.00	904.82	0.00	905.09	58.44	4.17	53.63	28.78
	2095.000	95.00	0.00	0.00	900.40	245.00	905.10	0.00	905.37	53.44	4.18	60.86	33.51
	2095.000	95.00	0.00	0.00	900.40	310.00	905.66	0.00	905.94	48.54	4.32	78 25	44.50
	2190.000	95.00	0 00	0.00	901.80	150.00	904.85	0.00	905.34	175.39	5.64	26.59	11.33
	2190.000	95.00	0.00	0.00	901.80	220.00	905.52	0.00	906.07	148 58	5.98	38 14	18.05
	2190.000	95.00	0 00	0.00	901.80	245.00	905.73	0.00	906.28	138.74	6.02	43.24	20.80
	2190.000	95.00	0.00	0.00	901.80	310.00	906.21	0.00	906.77	121.99	6.14	56 72	28.07
	2285 000	95 00	0.00	0.00	903.20	150.00	906.43	0.00	906.86	142.52	5.42	31.19	12 56
	2285 000	95.00	0.00	0.00	903.20	220.00	906.96	906.55	907.40	127 94	5.72	48 28	19.45
	2285.000	95.00	0.00	0.00	903.20	245.00	907.13	906 74	907.54	117.77	5.64	60.29	22.58
	2285.000	95.00	0.00	0 00	903.20	310 00	907 52	0.00	907.83	89.48	5.24	91.95	32.77

1

WALLED LAKE BRANCH

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
0.000	705.00	836.96	0.00	0.00	0 00	449.18	0.00
0.000	1025.00	839.05	2.09	0.00	0.00	762.87	0.00
0.000	1215.00	839.29	0.24	0.00	0.00	800.28	0.00
0.000	1705.00	839.61	0.32	0.00	0.00	860 36	0.00
62.000	705.00	836.94	0.00	-0.02	0.00	171.90	62.00
62.000	1025.00	839.05	2.11	0.00	0.00	811.21	62.00
62.000	1215 00	839.29	0.24	0.00	0.00	853.87	62 00
62.000	1705.00	839.61	0.32	0.00	0.00	856.49	62.00
125.000	705.00	837.06	0.00	0.12	0.00	104.54	63.00
125.000	1025.00	839.06	1.99	0.00	0.00	847.20	63.00
125.000	1215.00	839.30	0.24	0.00	0.00	849.18	63.00
125.000	1705.00	839.62	0.32	0.01	0.00	851.84	63.00
187.000	705.00	837.34	0.00	0.28	0.00	108.83	62 00
187.000	1025.00	839.07	1.73	0.02	0.00	684.48	62.00
187 000	1215.00	839.31	0.24	0.01	0.00	712.84	62.00
187.000	1705.00	839.63	0.32	0.01	0.00	739.35	62.00

*	251.000	705.00	837.40	0.00	0.07	0.00	13.00	64.00
	251.000	1025.00	839.09	1.69	0.02	0 00	531.76	64.00
	251.000	1215.00	839.33	0.23	0.02	0.00	555.69	64.00
	251.000	1705.00	839.65	0.32	0.02	0.00	597.18	64.00
*	292.000	705 00	839.66	0.00	2.26	0.00	564.56	41.00
*	292.000	1025.00	839.15	-0.52	0.06	0.00	484.19	41.00
*	292.000	1215 00	839.39	0.24	0.06	0.00	523.53	41.00
*	292.000	1705.00	839.73	0.34	0.07	0.00	571.55	41.00
	503 000	705.00	839.69	0.00	0.03	0.00	430.00	211.00
	503.000	1025.00	839.35	-0.34	0.20	0 00	430 00	211.00
	503 000	1215.00	839.56	0.20	0.17	0 00	430.00	211.00
	503.000	1705 00	839.90	0.34	0.17	0 00	430.00	211.00
	601.000	705.00	839.80	0.00	0.11	0.00	513.16	98.00
	601.000	1025.00	839.87	0.06	0.51	0.00	513.56	98.00
	601 000	1215.00	840.08	0.21	0.52	0.00	514.99	98.00
	601.000	1705.00	840.54	0.46	0.64	0.00	518.04	98.00
	699.000	705.00	840.07	0.00	0.26	0.00	748.09	98.00
	699.000	1025.00	840.34	0 28	0.48	0.00	748.09	98.00
	699.000	1215.00	840.54	0.19	0.46	0.00	748.10	98.00
	699.000	1705.00	840.97	0.44	0.44	0.00	748.11	98.00

1

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
797.000	705.00	840.17	0.00	0 10	0.00	704.14	98.00
797.000	1025.00	840.47	0.30	0.13	0.00	707.18	98.00
797.000	1215.00	840.66	0.20	0.13	0.00	709.21	98.00
797.000	1705.00	841.11	0.44	0.13	0.00	714.20	98.00
895.000	705.00	840.39	0.00	0.23	0.00	648.53	98.00
895.000	1025.00	840.72	0.33	0.25	0.00	651.59	98.00
895.000	1215.00	840.91	0.19	0.24	0.00	653.32	98.00
895.000	1705.00	841.33	0.43	0.23	0 00	657.50	98.00
993.000	705.00	840.67	0.00	0.27	0.00	497.77	98.00
993 000	1025.00	840.99	0.33	0.27	0.00	656.60	98.00
993.000	1215.00	841.17	0.18	0.26	0.00	660.02	98.00
993.000	1705.00	841.58	0.41	0.24	0.00	667.90	98.00
1091.000	705.00	841.08	0.00	0.41	0.00	498.69	98.00
1091.000	1025.00	841.50	0 42	0 51	0.00	643.08	98.00
1091.000	1215.00	841.64	0.14	0.47	0.00	645.76	98 00
1091.000	1705.00	841.97	0.33	0.40	0.00	652.02	98.00
1385.000	705.00	842.26	0.00	1.17	0.00	406.33	294.00
1385.000	1025.00	842.58	0.32	1.08	0.00	488.10	294.00
1385 000	1215.00	842.77	0.19	1.13	0.00	501.86	294.00
1385 000	1705.00	843.16	0.39	1.18	0 00	556.78	294.00
1678.000	705.00	843.32	0.00	1.06	0 00	313.51	293.00
1678.000	1025.00	843.75	0.43	1.17	0.00	351 73	293.00
1678.000	1215.00	843.95	0.20	1.18	0.00	367.71	293.00
1678.000	1705.00	844.38	0.43	1.22	0.00	388.99	293.00
2253.000	705.00	845.68	0.00	2.36	0.00	222.45	575.00
2253.000	1025.00	846.12	0.45	2.37	0.00	228.74	575.00
2253 000	1215.00	846.35	0.23	2.40	0.00	231 93	575.00
2253.000	1705.00	846.86	0.50	2 48	0.00	238.96	575.00
3404 000	705.00	849.70	0.00	4.02	0.00	180.00	1151.00
3404.000	1025.00	850.25	0.55	4.13	0.00	180.00	1151.00
3404.000	1215.00	850 54	0.29	4.19	0.00	180.00	1151.00

3404.000	1705.00	851.19	0.65	4.33	0.00	180.00	1151.00
3410.000	705.00	849.90	0.00	0.19	0.00	180.00	6.00
3410.000	1025.00	850.25	0.36	0.00	0.00	180.00	6.00
3410.000	1215.00	850.54	0.29	0.00	0.00	180.00	6.00
3410 000	1705.00	851 19	0.65	0.00	0 00	180.00	6.00
4011 000	705.00	852.60	0.00	2.71	0.00	20.00	601.00
4011.000	1025.00	852.85	0.25	2.60	0.00	20 00	601.00
4011.000	1215.00	853.23	0.37	2 69	0.00	20.00	601.00
4011.000	1705.00	854.00	0.77	2.81	0.00	20.00	601.00

1

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
4012.000	705.00	852.53	0.00	-0.07	0.00	20.00	1.00
4012.000	1025.00	852.68	0 15	-0.17	0.00	20.00	1.00
4012.000	1215.00	852.95	0.27	-0.28	0.00	20.00	1.00
4012.000	1705.00	853.28	0.34	-0.72	0.00	20.00	1.00
4038.000	705.00	852.61	0.00	0.07	0.00	20.00	26.00
4038.000	1025.00	852.86	0.25	0.18	0.00	20.00	26.00
4038.000	1215.00	853.21	0.35	0.26	0 00	20.00	26.00
4038.000	1705.00	854.00	0.79	0.72	0 00	20.00	26.00
4039 000	705.00	852.84	0 00	0.23	0.00	20.00	1.00
4039.000	1025.00	853.53	0.69	0.67	0.00	20.00	1.00
4039.000	1215.00	854 32	0 79	1.11	0 00	20.00	1.00
4039.000	1705.00	856.79	2.46	2 78	0.00	20.00	1.00
4663.000	705.00	853.91	0.00	1.08	0.00	383.90	624.00
4663.000	1025.00	855.02	1.11	1.49	0.00	396.55	624.00
4663.000	1215 00	855.88	0.86	1.56	0.00	406.23	624.00
4663 000	1705.00	858.38	2.49	1.59	0.00	431.14	624.00
4969.000	705.00	854.06	0.00	0.14	0.00	341.06	306.00
4969 000	1025.00	855.13	1.07	0.11	0.00	375.80	306.00
4969.000	1215.00	855.96	0.83	0.08	0.00	385.10	306.00
4969.000	1705.00	858.41	2.45	0.03	0.00	412.71	306.00
5122.000	705.00	854.80	0.00	0.74	0 00	324.52	153.00
5122.000	1025.00	855.42	0 62	0.29	0.00	368.15	153.00
5122.000	1215.00	856.11	0.68	0.15	0.00	375.84	153.00
5122.000	1705.00	858.45	2 34	0.04	0.00	402.12	153.00
5275.000	705.00	855.82	0 00	1.03	0.00	310.00	153.00
5275.000	1025.00	856.16	0.33	0.73	0.00	310.00	153.00
5275.000	1215 00	856.50	0 35	0.40	0.00	310.00	153.00
5275.000	1705 00	858.52	2.01	0.07	0.00	310.00	153.00
5581.000	705.00	857.06	0.00	1.23	0.00	280.75	306.00
5581.000	1025.00	857.50	0.44	1.34	0.00	294 87	306.00
5581.000	1215.00	857.71	0.21	1.21	0.00	298.15	306.00
5581.000	1705.00	858.89	1.18	0.37	0.00	300.00	306.00
5888.000	635 00	858.05	0.00	0.99	0.00	245.00	307.00
5888 000	925.00	858.52	0 47	1.02	0.00	245.00	307.00
5888.000	1115.00	858.76	0.25	1.05	0.00	245.00	307.00
5888.000	1570.00	859.53	0.77	0.64	0.00	245.00	307.00
6238.000	635.00	861.01	0.00	2.96	0.00	70.00	350.00
6238.000	925 00	861.48	0.47	2.96	0.00	70.00	350.00
6238.000	1115.00	861 76	0 28	3.00	0 00	70.00	350.00
6238.000	1570.00	862.15	0.39	2.63	0.00	70.00	350.00

1

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	6338.000	635.00	861.74	0.00	0.73	0 00	45.00	100.00
	6338.000	925.00	862.43	0.69	0.95	0.00	45.00	100.00
	6338.000	1115.00	862.83	0.40	1.07	0.00	45.00	100.00
	6338 000	1570.00	863.67	0.84	1.51	0.00	45.00	100.00
	6438.000	635.00	862.34	0.00	0.59	0.00	20.00	100.00
	6438.000	925 00	863.08	0.75	0.65	0.00	20.00	100.00
	6438.000	1115.00	863.49	0.41	0.66	0.00	20.00	100.00
	6438.000	1570.00	864.30	0.81	0.64	0.00	20.00	100.00
	6439.000	635.00	862.26	0.00	-0.07	0.00	18.71	1.00
	6439 000	925.00	862.95	0.69	-0.13	0.00	18.87	1.00
	6439.000	1115.00	863.32	0.37	-0.17	0.00	18.95	1.00
*	6439.000	1570.00	864.20	0.88	-0 11	0.00	19 15	1.00
	6449 000	635.00	862 40	0.00	0.13	0.00	18.74	10.00
	6449.000	925.00	863.28	0.88	0.32	0.00	18.94	10.00
	6449.000	1115.00	863.93	0.66	0.62	0.00	19.09	10.00
	6449.000	1570.00	865.69	1.76	1.50	0.00	19.48	10.00
	6450.000	635.00	862.84	0.00	0.45	0.00	20.00	1.00
	6450.000	925.00	863.97	1.13	0.69	0.00	20.00	1.00
	6450.000	1115.00	864.69	0.73	0.76	0 00	20.00	1.00
	6450.000	1570.00	866.41	1.72	0 72	0.00	20.00	1.00
	6470 000	635.00	863.56	0.00	0.72	0.00	60.00	20.00
	6470.000	925.00	864.99	1.42	1.02	0.00	60.00	20.00
	6470.000	1115.00	865.87	0.89	1.18	0.00	60.00	20.00
	6470.000	1570.00	867.88	2.01	1.47	0.00	60.00	20.00
	6600.000	635.00	863.83	0 00	0.27	0.00	53.81	130.00
	6600.000	925.00	865.23	1.40	0.25	0.00	57.46	130.00
	6600.000	1115.00	866.11	0.88	0.24	0.00	59.77	130.00
	6600.000	1570.00	868.13	2.02	0.25	0.00	65.05	130.00
	6650.000	635.00	863.89	0.00	0.06	0.00	28.55	50.00
	6650.000	925.00	865.25	1.36	0.02	0.00	32.10	50.00
	6650.000	1115.00	866.11	0 86	0.00	0.00	34.34	50.00
	6650.000	1570.00	868.10	1.99	-0.04	0.00	39.54	50.00
	6700.000	635.00	864.00	0.00	0.11	0.00	13.00	50.00
	6700.000	925.00	865.14	1.14	-0.11	0.00	13.00	50.00
	6700.000	1115.00	865.84	0 69	-0.27	0.00	13.00	50.00
	6700.000	1570.00	867.42	1.59	-0.67	0.00	13.00	50.00
	6701.000	635.00	864.28	0.00	0.28	0.00	13.00	1.00
	6701.000	925.00	865.55	1.27	0.41	0.00	13.00	1.00
	6701.000	1115.00	866.12	0.57	0.28	0.00	13.00	1.00
	6701 000	1570 00	866.96	0.85	-0.46	0.00	13.00	1.00

1

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	6749.000	635.00	864.61	0.00	0.34	0.00	13.00	48.00
	6749.000	925.00	866.08	1.47	0.53	0.00	13.00	48.00
	6749 000	1115.00	866.68	0.60	0.56	0.00	13.00	48.00
	6749.000	1570.00	868.08	1.40	1.12	0.00	13.00	48 00
	6750.000	640 00	864.57	0.00	-0.05	0.00	13.00	1.00
	6750.000	960.00	866.00	1 43	-0.09	0.00	13.00	1.00
	6750.000	1115.00	867.25	1.26	0.57	0.00	13.00	1.00
	6750 000	1585.00	871.22	3.97	3.14	0.00	13.00	1.00
	6763.000	640.00	865 74	0.00	1.17	0.00	40.00	13.00

	6763.000	960.00	867.73	1.99	1.73	0.00	40.00	13.00
	6763.000	1115.00	868.94	1.21	1.69	0.00	40.00	13.00
	6763.000	1585.00	872.78	3.84	1.56	0.00	40.00	13.00
	6841.000	640.00	865.95	0.00	0.21	0.00	168.85	78.00
	6841.000	960.00	868.01	2.06	0.28	0.00	190.53	78.00
	6841.000	1115.00	869.23	1.23	0.29	0.00	200.00	78.00
	6841.000	1585.00	873.10	3.87	0.32	0.00	200.00	78.00
*	7300.000	640.00	866.29	0.00	0.34	0.00	110.17	459.00
	7300.000	960.00	868.15	1.86	0.14	0.00	148.94	459.00
	7300.000	1115.00	869.34	1.20	0.11	0.00	161.53	459.00
	7300.000	1585.00	873.15	3.80	0.05	0.00	201.61	459.00
	8050.000	640.00	870.22	0.00	3.93	0.00	224.14	750.00
	8050.000	960.00	870.56	0.34	2.41	0.00	228.69	750.00
	8050.000	1115.00	870.87	0.32	1.53	0.00	233.17	750.00
	8050.000	1585.00	873.52	2.65	0.37	0.00	252.77	750.00
	8400.000	640.00	871.30	0.00	1.08	0.00	42.55	350.00
	8400.000	960.00	872.03	0.74	1.48	0.00	44.00	350.00
	8400.000	1115.00	872.24	0.21	1.37	0.00	44.00	350.00
	8400.000	1585.00	873.50	1.25	-0.02	0.00	44.00	350.00
	8450.000	640.00	871.91	0.00	0.61	0.00	19.00	50.00
	8450.000	960.00	872.61	0.70	0.58	0.00	19.00	50.00
	8450.000	1115.00	872.87	0.26	0.63	0.00	19.00	50.00
*	8450.000	1585.00	873.73	0.86	0.23	0.00	19.00	50.00
	8451.000	640.00	872.14	0.00	0.23	0.00	19.00	1.00
	8451.000	960.00	873.11	0.97	0.50	0.00	19.00	1.00
	8451.000	1115.00	873.62	0.51	0.75	0.00	19.00	1.00
	8451.000	1585.00	875.31	1.69	1.58	0.00	19.00	1.00
	8461.000	640.00	872.20	0.00	0.07	0.00	19.00	10.00
	8461.000	960.00	873.24	1.04	0.13	0.00	19.00	10.00
	8461.000	1115.00	873.75	0.51	0.13	0.00	19.00	10.00
	8461.000	1585.00	875.44	1.69	0.13	0.00	19.00	10.00

1

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
8462.000	640.00	872.17	0.00	-0.03	0.00	19.00	1.00
8462.000	960.00	873.20	1.03	-0.04	0.00	19.00	1.00
8462.000	1115.00	873.70	0.51	-0.04	0.00	19.00	1.00
8462.000	1585.00	875.40	1.69	-0.04	0.00	19.00	1.00
8475.000	640.00	873.00	0.00	0.83	0.00	45.00	13.00
8475.000	960.00	874.52	1.52	1.32	0.00	45.00	13.00
8475.000	1115.00	875.22	0.70	1.51	0.00	45.00	13.00
8475.000	1585.00	877.28	2.06	1.88	0.00	45.00	13.00
8787.000	640.00	874.15	0.00	1.15	0.00	28.68	312.00
8787.000	960.00	875.55	1.40	1.03	0.00	32.63	312.00
8787.000	1115.00	876.19	0.64	0.97	0.00	34.44	312.00
8787.000	1585.00	878.09	1.90	0.82	0.00	39.79	312.00
8906.000	640.00	874.64	0.00	0.49	0.00	24.66	119.00
8906.000	960.00	876.06	1.42	0.51	0.00	28.79	119.00
8906.000	1115.00	876.69	0.63	0.50	0.00	30.38	119.00
8906.000	1585.00	878.52	1.83	0.42	0.00	34.95	119.00
9025.000	640.00	875.75	0.00	1.11	0.00	22.31	119.00
9025.000	960.00	877.09	1.34	1.03	0.00	25.13	119.00
9025.000	1115.00	877.65	0.56	0.96	0.00	28.02	119.00
9025.000	1585.00	879.27	1.62	0.75	0.00	37.21	119.00

9144.000	640.00	877.33	0.00	1.58	0.00	24.52	119.00
9144 000	960.00	878 57	1.24	1.49	0.00	29.68	119.00
9144 000	1115.00	879.09	0.51	1.44	0.00	31.77	119.00
9144.000	1585.00	880.55	1.46	1.27	0.00	62.17	119 00
9262.000	640.00	879.01	0.00	1.67	0.00	32.86	118.00
9262.000	960 00	880.54	1.53	1.97	0.00	59.05	118.00
9262.000	1115.00	881.18	0.64	2.09	0.00	62.17	118.00
9262.000	1585 00	882.51	1.34	1.97	0.00	68.75	118.00
9494.000	640.00	881.48	0.00	2.47	0.00	64.42	232.00
9494.000	960 00	882.59	1.11	2.05	0.00	80.71	232.00
9494.000	1115.00	883.04	0.45	1.86	0 00	85.45	232.00
9494.000	1585.00	884.24	1.20	1.73	0.00	87.08	232.00
9725.000	640.00	882.47	0.00	0.99	0.00	55.95	231.00
9725.000	960.00	883 57	1.10	0.98	0.00	71.38	231.00
9725.000	1115 00	884.01	0.43	0.97	0.00	74 51	231.00
9725.000	1585.00	885.16	1.15	0.92	0.00	80.87	231.00
9956.000	640.00	883.51	0.00	1.04	0.00	73.99	231.00
9956.000	960.00	884.59	1.08	1.02	0.00	84.05	231.00
9956.000	1115 00	885.03	0.44	1.02	0 00	99.35	231.00
9956.000	1585.00	886.19	1.17	1.04	0.00	138.01	231.00

1

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
10187.000	640.00	884.25	0.00	0.74	0.00	232 17	231.00
10187.000	960.00	885.27	1.03	0 68	0.00	275.03	231.00
10187.000	1115.00	885.71	0.43	0.68	0.00	292 99	231 00
10187.000	1585.00	886.85	1.15	0.66	0.00	340.53	231.00
10812.000	640.00	886.08	0.00	1.83	0.00	205 68	625.00
10812.000	960.00	886.63	0.55	1.35	0.00	218.12	625.00
10812.000	1115.00	886.91	0.28	1.20	0.00	230.58	625.00
10812.000	1585.00	887.77	0 86	0.92	0 00	266.69	625.00
11438.000	520 00	890 19	0.00	4.11	0.00	115.60	626.00
11438.000	775.00	890.76	0.57	4.13	0.00	190.06	626.00
11438 000	915.00	890.96	0.20	4.05	0.00	214.86	626.00
11438.000	1305.00	891.35	0.39	3.58	0.00	240.00	626.00
11518 000	520.00	892.41	0.00	2.22	0.00	200.00	80.00
11518 000	775.00	892.72	0.31	1.96	0.00	200.00	80.00
11518.000	915 00	892.85	0.12	1.89	0 00	200.00	80.00
11518.000	1305.00	893.13	0.29	1.78	0.00	200.00	80.00
11694.000	520.00	892.56	0.00	0.15	0.00	92.33	176.00
11694.000	775.00	892.97	0.41	0.25	0.00	102.88	176.00
11694.000	915.00	893.15	0.18	0.31	0.00	107.58	176.00
11694.000	1305.00	893.61	0.46	0.48	0.00	114.29	176.00
11869.000	520.00	893.34	0.00	0.78	0.00	68.11	175 00
11869.000	775.00	894.07	0.73	1 10	0.00	77.01	175.00
11869.000	915.00	894.39	0.32	1.24	0.00	85.30	175.00
11869.000	1305.00	895.14	0.75	1.53	0.00	104.82	175.00
12094.000	520.00	895.76	0.00	2.42	0.00	62.22	225 00
12094.000	775.00	896.53	0.78	2.47	0.00	73.84	225.00
12094.000	915.00	896.87	0.34	2.49	0.00	75.74	225.00
12094 000	1305.00	897.67	0.80	2.54	0.00	80.24	225.00
12120.000	460.00	896.58	0.00	0.82	0.00	72.85	26.00
12120.000	695 00	897.48	0.90	0.94	0.00	130.00	26.00

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ROUGE
WALLED LAKE BRANCH

4) DOCUMENT TYPE: SUMMARY 1984

00BREAK00

THIS RUN EXECUTED 08/27/91 15:37:40

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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 1.1
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

WALLED LAKE BRANCH

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
.000	839.29	.00	839.30	800.28	901.21	313.79	.00	.00	.00	783.00	885.00	.00
.000	839.39	.10	839.40	794.45	891.40	323.60	.00	.05	46.72	783.00	885.00	885.00

62.000	839.29	.00	839.30	853.87	859.24	355.76	.00	.00	.00	789.50	877.20	.00
62.000	839.39	.10	839.40	813.44	848.46	366.54	.00	.07	53.65	789.50	877.20	877.20
125.000	839.30	.00	839.32	849.18	803.33	411.67	.00	.00	.00	796.00	869.50	.00
125.000	839.40	.10	839.42	811.70	788.96	426.04	.00	.09	49.85	796.00	869.50	869.50
187.000	839.31	.00	839.34	712.84	836.72	378.28	.00	.00	.00	802.50	861.70	.00
187.000	839.41	.10	839.44	688.21	823.82	391.18	.00	.09	43.24	802.50	861.70	861.70
251.000	839.33	.00	839.37	555.69	958.10	205.49	51.41	.00	.00	827.00	840.00	.00
251.000	839.43	.10	839.47	532.17	1043.40	171.60	.00	.08	32.65	827.00	840.00	840.00
* 292.000	839.39	.00	839.43	523.53	1114.70	100.30	.00	.00	.00	793.50	806.50	.00
* 292.000	839.39	.09	839.44	430.09	1104.98	110.02	.00	.09	103.96	793.50	806.50	806.50
503.000	839.56	.00	839.95	430.00	195.49	773.61	245.91	430.00	750.00	1000.00	1030.00	1180.00
503.000	839.62	.06	839.99	420.00	205.79	761.35	247.86	420.00	755.00	1000.00	1030.00	1175.00
601.000	840.08	.00	840.34	514.98	347.83	638.08	229.08	625.00	555.00	900.00	927.00	1180.00
601.000	840.12	.04	840.39	427.13	561.48	653.52	.00	.64	499.87	900.00	927.00	927.00
699.000	840.54	.00	840.58	748.10	712.85	348.60	153.54	750.00	335.00	942.50	972.50	1085.00
699.000	840.63	.09	840.67	677.92	868.66	346.34	.00	.30	292.68	942.50	972.50	972.50
797.000	840.66	.00	840.76	709.20	566.35	445.14	203.51	823.00	427.00	942.50	972.50	1250.00
797.000	840.76	.10	840.85	608.10	623.94	450.21	140.84	610.00	427.00	942.50	972.50	1037.00
895.000	840.91	.00	841.04	653.32	567.94	456.58	190.48	882.00	368.00	848.25	875.25	1250.00
895.000	841.02	.11	841.14	542.31	761.38	453.62	.00	.35	331.23	848.25	875.25	875.25

SECNO	CWSEL	DIFKWS	EG	TOPWID	GLOB	GCH	GROB	PERENC	STENCL	STCHL	STCHR	STENCR
993.000	841.17	.00	841.53	660.02	308.08	715.13	191.79	836.00	414.00	885.00	915.00	1250.00
993.000	841.29	.12	841.67	497.12	347.15	743.12	124.73	.14	455.19	885.00	915.00	952.31
1091.000	841.64	.00	841.95	645.76	323.48	688.42	203.10	757.00	443.00	885.00	915.00	1200.00
1091.000	841.77	.13	842.09	500.27	387.23	707.12	120.65	.15	450.68	885.00	915.00	950.96
1385.000	842.77	.00	843.09	501.85	306.07	692.97	215.96	702.00	498.00	827.50	857.50	1200.00
1385.000	842.88	.11	843.22	303.25	345.32	721.42	148.26	.14	597.45	827.50	857.50	900.70
1678.000	843.95	.00	844.30	367.72	339.60	708.46	166.93	500.00	400.00	770.00	800.00	900.00
1678.000	844.07	.11	844.44	233.35	325.30	736.93	152.76	.13	607.95	770.00	800.00	841.30
2253.000	846.35	.00	846.61	231.93	383.48	740.08	91.44	.00	.00	483.00	520.00	.00
2253.000	846.43	.08	846.69	200.00	379.55	742.39	93.06	200.00	340.00	483.00	520.00	540.00
3404.000	850.54	.00	850.78	180.00	495.85	582.79	136.35	180.00	280.00	389.00	411.00	460.00
3404.000	850.52	-.02	850.77	180.00	494.74	584.72	135.54	180.00	280.00	389.00	411.00	460.00
3410.000	850.54	.00	850.78	180.00	495.86	582.77	136.36	180.00	280.00	389.00	411.00	460.00
3410.000	850.52	-.02	850.77	180.00	494.76	584.68	135.56	180.00	280.00	389.00	411.00	460.00
4011.000	853.23	.00	854.58	20.00	.00	1215.00	.00	.00	.00	180.00	200.00	.00
4011.000	853.24	.01	854.59	20.00	.00	1215.00	.00	.00	.00	180.00	200.00	.00
4012.000	852.95	.00	854.88	20.00	.00	1215.00	.00	.00	.00	290.00	310.00	.00
4012.000	852.96	.01	854.89	20.00	.00	1215.00	.00	.00	.00	290.00	310.00	.00
4038.000	853.21	.00	855.06	20.00	.00	1215.00	.00	.00	.00	290.00	310.00	.00
4038.000	853.22	.01	855.06	20.00	.00	1215.00	.00	.00	.00	290.00	310.00	.00

4039.000	854.32	.00	855.32	20.00	.00	1215.00	.00	.00	.00	180.00	200.00	.00
4039.000	854.33	.01	855.32	20.00	.00	1215.00	.00	.00	.00	180.00	200.00	.00
4663.000	855.88	.00	855.89	406.23	818.51	263.92	132.57	.00	.00	400.00	425.00	.00
4663.000	855.90	.02	855.91	364.12	825.88	272.06	117.06	.03	100.61	400.00	425.00	464.73
4969.000	855.96	.00	856.00	385.10	746.17	342.31	126.52	.00	.00	400.00	425.00	.00
4969.000	855.98	.02	856.02	333.73	754.37	357.62	103.01	.05	122.73	400.00	425.00	456.46
5122.000	856.11	.00	856.20	375.85	677.30	415.96	121.74	.00	.00	400.00	425.00	.00
5122.000	856.14	.03	856.24	302.29	686.16	438.65	90.19	.06	147.62	400.00	425.00	449.91
5275.000	856.50	.00	856.72	310.00	592.56	514.29	108.16	310.00	150.00	400.00	425.00	460.00
5275.000	856.56	.06	856.81	260.71	604.39	543.19	67.42	.09	180.27	400.00	425.00	440.98
5581.000	857.71	.00	857.76	298.15	658.65	96.13	460.02	300.00	80.00	258.00	266.00	380.00
5581.000	857.82	.11	857.87	231.43	657.90	100.30	456.79	.05	127.85	258.00	266.00	359.28
5888.000	858.76	.00	858.86	245.00	600.19	99.33	415.48	245.00	120.00	258.00	266.00	365.00
5888.000	858.84	.08	858.94	225.00	613.44	102.66	398.90	225.00	130.00	258.00	266.00	355.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
6238.000	861.76	.00	862.34	70.00	526.03	528.41	60.56	70.00	360.00	400.00	415.00	430.00
6238.000	861.77	.00	862.34	70.00	526.04	528.28	60.68	70.00	360.00	400.00	415.00	430.00
6338.000	862.83	.00	863.43	45.00	507.61	607.39	.00	45.00	370.00	400.00	415.00	415.00
6338.000	862.83	.00	863.43	45.00	507.63	607.37	.00	45.00	370.00	400.00	415.00	415.00
6438.000	863.49	.00	865.21	20.00	.00	1115.00	.00	.00	.00	395.00	415.00	.00
6438.000	863.49	.00	865.21	20.00	.00	1115.00	.00	.00	.00	395.00	415.00	.00
6439.000	863.32	.00	865.40	18.95	.00	1115.00	.00	.00	.00	390.00	410.00	.00
6439.000	863.32	.00	865.40	18.95	.00	1115.00	.00	.00	.00	390.00	410.00	.00
6449.000	863.93	.00	865.59	19.09	.00	1115.00	.00	.00	.00	390.00	410.00	.00
6449.000	863.93	.00	865.59	19.09	.00	1115.00	.00	.00	.00	390.00	410.00	.00
6450.000	864.69	.00	865.77	20.00	.00	1115.00	.00	.00	.00	395.00	415.00	.00
6450.000	864.69	.00	865.77	20.00	.00	1115.00	.00	.00	.00	395.00	415.00	.00
6470.000	865.87	.00	866.09	60.00	251.60	704.79	158.62	60.00	375.00	395.00	415.00	435.00
6470.000	865.89	.01	866.10	47.94	425.96	689.04	.00	.87	367.06	395.00	415.00	415.00
6600.000	866.03	.00	866.56	34.56	.00	1115.00	.00	125.00	.00	58.00	100.00	125.00
6600.000	866.13	.10	866.64	34.82	.00	1115.00	.00	.59	58.00	58.00	100.00	100.00
6650.000	866.28	.00	866.79	34.78	.00	1115.00	.00	100.00	.00	58.00	100.00	100.00
6650.000	866.40	.12	866.88	35.08	.00	1115.00	.00	.59	58.00	58.00	100.00	100.00
6700.000	866.00	.00	868.05	13.00	.00	1115.00	.00	13.00	87.50	87.50	100.50	100.50
6700.000	866.11	.11	868.10	13.00	.00	1115.00	.00	.71	87.50	87.50	100.50	100.50
6701.000	866.16	.00	868.10	13.00	.00	1115.00	.00	.00	.00	93.50	106.50	.00
6701.000	866.19	.03	868.13	13.00	.00	1115.00	.00	.00	.00	93.50	106.50	.00
6749.000	866.72	.00	868.66	13.00	.00	1115.00	.00	.00	.00	93.50	106.50	.00
6749.000	866.76	.03	868.70	13.00	.00	1115.00	.00	.00	.00	93.50	106.50	.00
6750.000	867.33	.00	868.81	13.00	.00	1115.00	.00	.00	.00	87.50	100.50	.00
6750.000	867.40	.07	868.85	13.00	.00	1115.00	.00	.00	87.50	87.50	100.50	100.50

6763.000	868.99	.00	869.21	40.00	118.27	882.71	114.01	40.00	170.00	180.00	200.00	210.00
6763.000	869.04	.05	869.26	34.07	233.93	881.07	.00	.62	165.93	180.00	200.00	200.00
6841.000	869.28	.00	869.30	200.00	599.24	351.86	163.90	200.00	40.00	180.00	200.00	240.00
6841.000	869.33	.06	869.35	163.67	601.06	359.23	154.71	.02	64.79	180.00	200.00	228.46
7300.000	869.38	.00	869.50	161.95	502.67	467.23	145.10	.00	.00	180.00	200.00	.00
7300.000	869.44	.06	869.56	134.72	499.69	478.19	137.12	.04	86.78	180.00	200.00	221.49
8050.000	870.88	.00	870.99	233.26	685.10	429.90	.00	.00	.00	275.00	300.00	.00
8050.000	870.96	.08	871.07	196.42	672.90	442.10	.00	.05	99.81	275.00	300.00	300.00

1

08/27/91 15:30:39 PAGE 112

SECNO	CHSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
8400.000	872.24	.00	873.49	44.00	7.89	1079.35	27.75	44.00	165.00	170.00	200.00	209.00
8400.000	872.32	.08	873.51	44.00	8.66	1077.09	29.25	44.00	165.00	170.00	200.00	209.00
8450.000	872.87	.00	874.90	19.00	.00	1115.00	.00	19.00	178.00	170.00	200.00	197.00
8450.000	872.88	.01	874.90	19.00	.00	1115.00	.00	19.00	178.00	170.00	200.00	197.00
8451.000	873.62	.00	875.08	19.00	.00	1115.00	.00	.00	.00	490.50	509.50	.00
8451.000	873.62	.00	875.08	19.00	.00	1115.00	.00	.00	.00	490.50	509.50	.00
8461.000	873.75	.00	875.15	19.00	.00	1115.00	.00	.00	.00	490.50	509.50	.00
8461.000	873.75	.00	875.15	19.00	.00	1115.00	.00	.00	.00	490.50	509.50	.00
8462.000	873.70	.00	875.21	19.00	.00	1115.00	.00	19.00	178.00	170.00	200.00	197.00
8462.000	873.71	.00	875.21	19.00	.00	1115.00	.00	19.00	178.00	170.00	200.00	197.00
8475.000	875.22	.00	875.61	45.00	22.67	1029.21	63.12	45.00	165.00	170.00	200.00	210.00
8475.000	875.17	-.05	875.61	37.59	.00	1064.56	50.44	.46	170.00	170.00	200.00	207.59
8787.000	876.19	.00	876.66	34.44	.00	1115.00	.00	125.00	75.00	100.00	150.00	200.00
8787.000	876.29	.10	876.74	34.71	.00	1115.00	.00	.00	100.00	100.00	150.00	150.00
8906.000	876.69	.00	877.46	30.38	.00	1115.00	.00	130.00	95.00	125.00	166.70	225.00
8906.000	876.76	.07	877.51	30.55	.00	1115.00	.00	.00	125.00	125.00	166.70	166.70
9025.000	877.65	.00	878.79	28.02	.23	1114.76	.00	136.00	114.00	150.00	183.50	250.00
9025.000	877.69	.04	878.82	25.98	.00	1115.00	.00	.00	150.00	150.00	183.50	183.50
9144.000	879.09	.00	880.40	31.77	59.32	1055.68	.00	154.00	121.00	175.00	200.20	275.00
9144.000	879.10	.02	880.51	24.20	32.51	1082.49	.00	.03	170.61	175.00	200.20	200.20
9262.000	881.18	.00	881.90	62.17	384.41	730.59	.00	161.00	139.00	200.00	217.00	300.00
9262.000	881.30	.13	882.04	50.70	369.95	745.05	.00	.03	163.27	200.00	217.00	217.00
9494.000	883.04	.00	883.37	85.45	506.41	608.59	.00	237.00	158.00	228.00	245.20	395.00
9494.000	883.16	.12	883.50	61.90	494.23	620.77	.00	.06	182.26	228.00	245.20	245.20
9725.000	884.01	.00	884.40	74.51	458.62	655.89	.49	287.00	203.00	256.00	273.50	490.00
9725.000	884.11	.10	884.49	68.23	459.29	654.96	.75	70.00	210.00	256.00	273.50	280.90
9956.000	885.03	.00	885.31	99.35	501.96	589.41	23.63	359.00	226.00	284.00	301.70	585.00
9956.000	885.14	.11	885.41	65.67	531.74	583.26	.00	.74	236.03	284.00	301.70	301.70
10187.000	885.71	.00	885.76	292.99	765.20	297.16	52.64	.00	.00	312.00	330.00	.00
10187.000	885.81	.10	885.86	219.49	775.93	306.62	32.45	.04	107.61	312.00	330.00	342.81
10812.000	886.91	.00	887.11	230.58	695.98	400.11	18.92	.00	.00	312.00	330.00	.00
10812.000	887.03	.12	887.22	185.50	719.28	395.72	.00	.06	119.82	312.00	330.00	330.00

11438.000	890.96	.00	891.26	214.87	329.02	310.18	275.80	240.00	165.00	195.70	204.30	405.00
11438.000	891.02	.06	891.32	224.27	324.08	304.13	286.79	240.00	165.00	195.70	204.30	405.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
11518.000	892.85	.00	892.90	200.00	203.40	192.47	519.13	200.00	175.00	195.70	204.30	375.00
11518.000	892.85	.00	892.90	200.00	203.27	192.33	519.40	200.00	175.00	195.70	204.30	375.00
11694.000	893.15	.00	893.44	107.58	17.30	480.41	417.29	238.00	37.00	75.00	92.00	275.00
11694.000	893.15	.00	893.47	72.10	6.07	498.86	410.07	.05	70.47	75.00	92.00	142.57
11869.000	894.39	.00	894.94	85.31	1.72	533.70	379.57	238.00	37.00	75.00	92.00	275.00
11869.000	894.47	.08	895.06	54.96	.00	550.80	364.20	.05	75.00	75.00	92.00	129.96
12094.000	896.87	.00	897.71	75.74	189.56	566.31	159.13	.00	.00	55.00	65.00	.00
12094.000	896.98	.11	897.86	59.55	185.83	581.71	147.46	.04	18.64	55.00	65.00	78.19
12120.000	897.87	.00	898.02	130.00	40.30	704.08	75.62	130.00	530.00	554.50	585.50	660.00
12120.000	898.02	.15	898.17	82.44	105.76	714.24	.00	.75	503.06	554.50	585.50	585.50
12130.000	897.87	.00	898.02	130.00	40.05	705.07	74.88	130.00	530.00	554.50	585.50	660.00
12130.000	897.87	.00	898.03	81.16	93.89	726.11	.00	.75	504.34	554.50	585.50	585.50
12381.000	898.34	.00	898.84	39.64	.00	820.00	.00	.00	.00	100.00	170.00	.00
12381.000	898.38	.04	898.87	39.83	.00	820.00	.00	.00	100.00	100.00	170.00	170.00
12581.000	899.92	.00	900.55	38.11	.00	820.00	.00	.00	.00	100.00	170.00	.00
12581.000	899.93	.00	900.55	38.13	.00	820.00	.00	.00	100.00	100.00	170.00	170.00
12632.000	900.63	.00	900.88	47.99	224.41	282.45	313.13	.00	.00	211.50	218.50	.00
12632.000	900.61	-.02	900.88	38.02	222.80	289.06	308.14	.03	198.56	211.50	218.50	236.58
12704.000	908.00	.00	908.03	150.00	246.10	203.47	370.42	150.00	150.00	211.50	218.50	300.00
12704.000	908.00	.00	908.03	150.00	246.09	203.50	370.41	150.00	150.00	211.50	218.50	300.00
12712.000	908.01	.00	908.03	165.00	4.67	793.84	21.49	165.00	70.00	100.00	170.00	235.00
12712.000	908.00	.00	908.03	100.51	.00	808.73	11.27	.03	100.00	100.00	170.00	200.51
12905.000	908.02	.00	908.08	92.12	.00	696.05	123.95	.00	.00	100.00	150.00	.00
12905.000	908.02	.00	908.08	65.70	.00	709.55	110.45	.02	100.00	100.00	150.00	173.61
12955.000	908.03	.00	908.12	91.62	127.60	522.22	170.18	.00	.00	130.70	146.00	.00
12955.000	908.02	.00	908.12	66.32	126.01	529.08	164.91	.02	115.09	130.70	146.00	181.41
12956.000	907.86	.00	908.28	90.61	52.77	482.94	284.29	95.00	80.00	92.70	108.00	175.00
12956.000	907.79	-.07	908.36	48.80	27.76	518.45	273.79	.06	89.51	92.70	108.00	138.31
12981.000	908.53	.00	908.73	95.00	68.47	374.35	377.18	95.00	80.00	92.70	108.00	175.00
12981.000	908.65	.12	908.87	78.39	18.58	384.66	416.75	.10	90.29	92.70	108.00	168.68
12982.000	908.69	.00	908.77	92.20	129.29	511.82	178.88	.00	.00	130.70	146.00	.00
12982.000	908.83	.14	908.91	70.34	127.92	514.64	177.44	.02	114.78	130.70	146.00	185.12
12997.000	908.72	.00	908.78	92.09	.00	696.61	123.39	.00	.00	100.00	150.00	.00
12997.000	908.86	.14	908.93	69.24	.00	704.79	115.21	.02	100.00	100.00	150.00	176.82

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR

13097.000	908.76	.00	908.83	90.97	.00	713.44	106.56	.00	.00	100.00	150.00	.00
13097.000	908.90	.14	908.97	59.92	.00	723.59	96.41	.02	100.00	100.00	150.00	168.62
13157.000	908.85	.00	908.85	210.00	391.06	384.18	44.76	210.00	325.00	400.00	443.00	535.00
13157.000	908.99	.14	909.00	210.00	389.38	381.91	48.71	210.00	325.00	400.00	443.00	535.00
13282.000	908.85	.00	908.87	460.00	257.81	475.06	87.13	460.00	360.00	400.00	443.00	820.00
13282.000	908.99	.14	909.01	150.29	310.37	484.29	25.35	.69	353.01	400.00	443.00	503.30
13412.000	908.88	.00	908.88	494.84	568.39	201.28	50.33	510.00	250.00	500.00	540.00	760.00
13412.000	909.02	.14	909.02	301.00	618.98	201.02	.00	.27	239.00	500.00	540.00	540.00
13582.000	908.88	.00	908.89	416.05	449.47	323.03	47.50	425.00	315.00	500.00	540.00	740.00
13582.000	909.03	.14	909.04	228.31	495.89	324.11	.00	.51	311.69	500.00	540.00	540.00
13632.000	908.88	.00	908.91	382.96	538.76	194.57	86.67	.00	.00	221.50	228.50	.00
13632.000	909.02	.14	909.06	327.12	547.11	194.10	78.79	.05	4.86	221.50	228.50	331.98
13732.000	908.92	.00	908.94	383.94	630.57	85.35	104.08	.00	.00	221.50	228.50	.00
13732.000	908.92	.00	908.98	261.59	569.69	226.25	24.06	.18	19.42	221.50	228.50	281.01
13833.000	908.90	.00	908.97	241.00	286.15	375.03	158.83	241.00	639.00	739.00	751.00	880.00
13833.000	908.96	.05	909.00	183.80	519.10	300.90	.00	.44	567.20	739.00	751.00	751.00
13899.000	908.90	.00	908.97	200.00	289.91	380.13	149.96	200.00	639.00	739.00	751.00	839.00
13899.000	908.90	.00	908.94	178.84	511.98	308.02	.00	.44	572.16	739.00	751.00	751.00
13916.000	908.97	.00	908.99	175.00	.00	737.70	82.30	175.00	492.50	192.50	615.50	667.50
13916.000	908.93	-.04	908.95	175.00	.00	738.50	81.50	175.00	492.50	192.50	615.50	667.50
13918.000	908.97	.00	909.00	175.00	291.83	439.08	89.08	175.00	492.50	584.50	615.50	667.50
13918.000	908.93	-.04	908.96	175.00	290.72	441.19	88.08	175.00	492.50	584.50	615.50	667.50
14119.000	909.04	.00	909.06	308.87	484.08	243.14	92.78	.00	.00	315.00	328.00	.00
14119.000	909.00	-.04	909.02	239.70	486.10	254.52	79.39	.04	103.76	315.00	328.00	343.46
14919.000	909.49	.00	909.60	316.25	6.90	405.99	407.11	.00	.00	800.00	830.00	.00
14919.000	909.50	.01	909.62	199.76	.00	425.12	394.88	.06	800.00	800.00	830.00	999.77
15969.000	911.68	.00	911.90	42.07	.02	819.98	.00	.00	.00	200.00	240.00	.00
15969.000	911.76	.08	911.98	38.22	.00	820.00	.00	.00	200.00	200.00	240.00	240.00
16020.000	911.97	.00	912.04	113.41	277.23	266.86	275.91	175.00	175.00	211.70	226.30	350.00
16020.000	912.04	.07	912.11	114.08	277.19	265.66	277.15	175.00	175.00	211.70	226.30	350.00
16490.000	913.26	.00	913.30	128.52	267.52	258.15	294.32	225.00	175.00	211.70	226.30	400.00
16490.000	913.26	.00	913.30	128.70	267.49	258.08	294.43	225.00	175.00	211.70	226.30	400.00
16816.000	913.19	.00	913.58	60.00	39.32	723.54	57.14	60.00	270.00	292.70	307.30	330.00
16816.000	913.19	.00	913.59	60.00	39.34	723.50	57.16	60.00	270.00	292.70	307.30	330.00

SECNO	CWSEL	DIFFWS	EG	TOPWID	BLOB	BCH	BROB	PERENC	STENCL	STCHL	STCHR	STENCR
16871.000	913.19	.00	913.58	60.00	39.31	723.55	57.13	60.00	270.00	292.70	307.30	330.00
16871.000	913.19	.00	913.59	60.00	39.34	723.51	57.15	60.00	270.00	292.70	307.30	330.00
16934.000	913.07	.00	913.77	63.20	2.60	939.85	7.55	261.00	570.00	730.00	770.00	831.00
16934.000	913.06	-.01	913.79	37.41	.00	950.00	.00	.01	730.00	730.00	770.00	770.00
16960.000	914.20	.00	914.53	126.59	43.30	875.83	30.87	261.00	570.00	730.00	770.00	831.00
16960.000	914.20	.00	914.58	71.31	27.61	910.50	11.89	.04	715.25	730.00	770.00	786.56

17137.000	914.79	.00	914.86	150.45	571.99	121.45	256.56	210.00	99.00	198.00	202.00	309.00
17137.000	914.85	.06	914.94	109.44	583.53	125.24	241.23	.05	118.93	198.00	202.00	228.37
17157.000	914.83	.00	914.91	150.87	572.90	120.67	256.43	210.00	99.00	198.00	202.00	309.00
17157.000	914.83	.00	914.93	110.49	583.60	125.22	241.17	.05	117.99	198.00	202.00	228.49
17795.000	916.73	.00	916.92	141.25	446.01	501.65	2.34	.00	.00	170.00	200.00	.00
17795.000	916.82	.10	917.04	78.24	430.52	519.48	.00	.05	121.76	170.00	200.00	200.00
18433.000	919.58	.00	920.01	99.58	163.26	673.14	113.60	.00	.00	275.00	297.00	.00
18433.000	919.69	.12	920.15	58.19	154.94	694.55	100.52	.04	252.12	275.00	297.00	310.31
19184.000	921.35	.00	921.95	145.00	86.29	703.71	.00	145.00	83.00	200.00	240.00	228.00
19184.000	921.42	.06	921.98	145.00	92.17	697.83	.00	145.00	83.00	200.00	240.00	228.00
19372.000	921.39	.00	921.95	50.00	25.03	764.97	.00	50.00	178.00	200.00	240.00	228.00
19372.000	921.43	.04	921.98	50.00	25.75	764.24	.00	50.00	178.00	200.00	240.00	228.00
19448.000	921.13	.00	922.50	10.00	.00	790.00	.00	.00	.00	603.00	613.00	.00
19448.000	921.21	.07	922.55	10.00	.00	790.00	.00	.00	603.00	603.00	613.00	613.00
19449.000	921.09	.00	922.55	10.00	.00	790.00	.00	.00	.00	295.00	305.00	.00
19449.000	921.17	.08	922.60	10.00	.00	790.00	.00	.00	295.00	295.00	305.00	305.00
19605.000	922.33	.00	923.57	10.00	.00	790.00	.00	.00	.00	295.00	305.00	.00
19605.000	922.36	.03	923.60	10.00	.00	790.00	.00	.00	.00	295.00	305.00	.00
19606.000	922.67	.00	923.65	10.00	.00	790.00	.00	.00	.00	603.00	613.00	.00
19606.000	922.71	.04	923.68	10.00	.00	790.00	.00	.00	603.00	603.00	613.00	613.00
19756.000	924.00	.00	924.02	310.00	394.64	296.15	99.21	310.00	385.00	600.00	623.00	695.00
19756.000	924.05	.05	924.07	275.94	402.66	305.12	82.23	.08	395.78	600.00	623.00	671.72
20807.000	924.23	.00	924.27	165.00	71.77	55.64	662.59	165.00	245.00	307.80	312.20	410.00
20807.000	924.28	.05	924.33	115.38	12.33	57.08	720.59	.14	305.38	307.80	312.20	420.76
20819.000	924.26	.00	924.30	165.00	72.59	55.30	662.11	165.00	245.00	307.80	312.20	410.00
20819.000	924.26	.00	924.31	115.63	12.42	57.20	720.38	.15	305.34	307.80	312.20	420.97
20846.000	924.26	.00	924.32	140.00	66.73	110.54	612.73	140.00	270.00	331.00	339.00	410.00
20846.000	924.26	.00	924.33	84.51	.00	86.46	703.54	.27	331.00	331.00	339.00	415.51

1

	SECNO	CWSEL	DIFFWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	20866.000	924.30	.00	924.36	140.00	67.61	110.08	612.31	140.00	270.00	331.00	339.00	410.00
	20866.000	924.30	.00	924.37	84.30	.00	86.04	703.96	.27	331.00	331.00	339.00	415.31
	21317.000	924.45	.00	924.46	294.53	198.12	49.31	542.57	.00	.00	262.00	270.00	.00
	21317.000	924.46	.02	924.48	217.73	189.93	51.27	548.80	.04	171.66	262.00	270.00	389.40
	21817.000	924.04	.00	925.29	33.70	139.19	553.54	97.27	35.00	790.00	800.00	811.00	825.00
	21817.000	924.07	.03	925.33	29.00	139.94	555.55	94.50	29.60	790.00	800.00	811.00	819.00
*	21867.000	925.02	.00	927.92	10.00	.00	790.00	.00	.00	.00	801.00	811.00	.00
*	21867.000	925.02	.00	927.92	10.00	.00	790.00	.00	.06	.00	801.00	811.00	.00
*	21868.000	926.63	.00	928.29	10.00	.00	790.00	.00	.00	.00	795.00	805.00	.00
*	21868.000	926.63	.00	928.29	10.00	.00	790.00	.00	.00	.00	795.00	805.00	.00
	21892.000	926.92	.00	928.47	10.00	.00	790.00	.00	.00	.00	795.00	805.00	.00
	21892.000	926.92	.00	928.47	10.00	.00	790.00	.00	.00	.00	795.00	805.00	.00

21893.000	926.87	.00	928.53	10.00	.00	790.00	.00	10.00	801.00	801.00	811.00	811.00
21893.000	926.87	.00	928.53	10.00	.00	790.00	.00	.93	801.00	801.00	811.00	811.00
22143.000	929.32	.00	929.37	197.58	354.46	380.10	55.45	200.00	60.00	200.00	220.00	260.00
22143.000	929.36	.04	929.43	100.00	307.05	422.26	60.68	100.00	140.00	200.00	220.00	240.00
22568.000	929.54	.00	929.97	25.00	45.76	744.24	.00	25.00	195.00	200.00	220.00	220.00
22568.000	929.65	.12	930.07	25.00	45.89	744.11	.00	25.00	195.00	200.00	220.00	220.00
22593.000	928.88	.00	930.93	10.00	.00	790.00	.00	260.00	.00	205.00	215.00	260.00
22593.000	929.02	.14	930.99	10.00	.00	790.00	.00	260.00	.00	205.00	215.00	260.00
22594.000	929.33	.00	931.04	10.00	.00	790.00	.00	300.00	750.00	995.00	1005.00	1050.00
22594.000	929.42	.08	931.09	10.00	.00	790.00	.00	300.00	750.00	995.00	1005.00	1050.00
22644.000	929.92	.00	931.39	10.00	.00	790.00	.00	300.00	750.00	995.00	1005.00	1050.00
22644.000	929.98	.05	931.42	10.00	.00	790.00	.00	300.00	750.00	995.00	1005.00	1050.00
22645.000	929.88	.00	931.44	10.00	.00	790.00	.00	260.00	.00	205.00	215.00	260.00
22645.000	929.93	.05	931.48	10.00	.00	790.00	.00	260.00	.00	205.00	215.00	260.00
22670.000	931.89	.00	931.92	78.27	8.75	326.30	4.95	.00	.00	151.00	187.00	.00
22670.000	931.92	.02	931.95	44.32	4.77	335.02	.21	.03	143.20	151.00	187.00	187.52
22970.000	931.94	.00	931.98	65.70	3.33	333.88	2.80	.00	.00	151.00	187.00	.00
22970.000	931.97	.03	932.01	36.00	.00	340.00	.00	.02	151.00	151.00	187.00	187.00
23870.000	932.06	.00	932.06	300.46	127.11	112.75	100.14	.00	.00	262.00	281.00	.00
23870.000	932.09	.03	932.09	197.62	125.38	116.22	98.40	.04	189.20	262.00	281.00	386.82
24870.000	932.08	.00	932.08	667.08	103.29	170.14	66.58	.00	.00	409.00	595.00	.00
24870.000	932.12	.04	932.12	554.76	99.81	178.99	61.21	.05	173.29	409.00	595.00	728.05

SECND	CWSEL	DIFYWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
26645.000	932.12	.00	932.13	310.61	.32	119.95	219.73	.00	.00	231.00	274.00	.00
26645.000	932.16	.04	932.17	231.14	.00	126.87	213.13	.07	231.00	231.00	274.00	462.14
27695.000	932.24	.00	932.24	646.60	130.79	36.34	172.87	.00	.00	360.75	375.00	.00
27695.000	932.29	.05	932.29	511.48	127.58	38.82	173.60	.08	126.09	360.75	375.00	637.57
28670.000	932.25	.00	932.25	900.00	1.29	307.38	31.34	900.00	600.00	610.00	1250.00	1500.00
28670.000	932.30	.05	932.30	745.20	15.98	324.02	.00	.17	504.81	610.00	1250.00	1250.00
29070.000	932.25	.00	932.25	700.00	20.61	304.70	14.70	700.00	400.00	539.70	1037.50	1100.00
29070.000	932.30	.05	932.30	570.53	7.89	323.76	8.35	.15	497.17	539.70	1037.50	1067.70
29470.000	932.26	.00	932.27	500.00	4.50	314.07	21.43	500.00	450.00	469.50	825.00	950.00
29470.000	932.31	.05	932.32	355.50	.00	340.00	.00	.13	469.50	469.50	825.00	825.00
29870.000	932.33	.00	932.36	255.24	7.94	323.87	8.19	300.00	350.00	399.20	612.50	650.00
29870.000	932.39	.05	932.42	171.76	.00	340.00	.00	.07	399.20	399.20	612.50	612.50
30270.000	932.97	.00	933.19	146.99	15.92	312.46	11.62	.00	.00	329.00	400.00	.00
30270.000	933.03	.05	933.28	52.58	4.22	334.88	.90	.09	325.41	329.00	400.00	401.28
-12094.000	896.87	.00	896.89	84.17	30.48	75.04	139.48	.00	.00	55.00	65.00	.00
-12094.000	896.98	.11	896.99	64.23	28.30	75.51	141.19	.04	34.96	55.00	65.00	99.20
120.000	896.89	.00	896.97	85.03	75.87	169.13	.00	.00	.00	63.00	95.00	.00
120.000	896.99	.10	897.08	77.35	67.65	177.35	.00	.07	8.23	63.00	95.00	95.00

	620.000	898.95	.00	899.49	56.60	9.31	235.69	.00	.00	.00	200.00	222.00	.00
	620.000	899.06	.10	899.62	14.60	.00	245.00	.00	.06	200.00	200.00	222.00	222.00
	2000.000	904.91	.00	905.02	34.08	2.98	242.02	.00	.00	.00	83.00	110.00	.00
	2000.000	905.02	.11	905.13	23.77	.00	245.00	.00	.02	83.00	83.00	110.00	110.00
	2095.000	905.10	.00	905.37	27.45	2.65	242.35	.00	.00	.00	78.00	100.90	.00
	2095.000	905.21	.11	905.47	19.47	.00	245.00	.00	.01	78.00	78.00	100.90	100.90
	2190.000	905.73	.00	906.28	25.05	5.14	239.86	.00	.00	.00	73.00	91.90	.00
	2190.000	905.82	.09	906.37	15.89	.00	245.00	.00	.03	73.00	73.00	91.90	91.90
	2285.000	907.13	.00	907.54	81.63	46.14	196.86	.00	.00	.00	68.00	82.80	.00
	2285.000	907.17	.05	907.65	23.50	34.25	210.75	.00	.09	58.24	68.00	82.80	82.80

WALLED LAKE BRANCH

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	ES	10K*S	VCH	AREA	.01Y
	.000	.00	.00	.00	833.50	1215.00	839.29	.00	839.30	.44	.71	1841.92	1832.04
	.000	.00	.00	.00	833.50	1215.00	839.39	.00	839.40	.44	.72	1826.51	1831.33
	62.000	62.00	.00	.00	833.20	1215.00	839.29	.00	839.30	.94	.99	1536.20	1253.85
	62.000	62.00	.00	.00	833.20	1215.00	839.39	.00	839.40	.93	1.00	1523.86	1257.94
	125.000	63.00	.00	.00	833.00	1215.00	839.30	.00	839.32	2.33	1.47	1168.15	796.25
	125.000	63.00	.00	.00	833.00	1215.00	839.40	.00	839.42	2.31	1.49	1169.77	798.59
	187.000	62.00	.00	.00	832.10	1215.00	839.31	.00	839.34	3.73	1.78	922.98	629.18
	187.000	62.00	.00	.00	832.10	1215.00	839.41	.00	839.44	3.71	1.79	928.74	631.21
	251.000	64.00	.00	.00	832.50	1215.00	839.33	.00	839.37	3.75	2.47	838.34	627.75
	251.000	64.00	.00	.00	832.50	1215.00	839.43	.00	839.47	4.07	2.03	825.06	601.96
*	292.000	41.00	838.40	837.60	833.60	1215.00	839.39	.00	839.43	5.96	1.58	741.50	497.60
*	292.000	41.00	999999.00	.00	833.60	1215.00	839.39	.00	839.44	7.17	1.73	654.31	453.66
	503.000	211.00	.00	.00	834.70	1215.00	839.56	.00	839.95	44.60	6.28	531.52	181.94
	503.000	211.00	.00	.00	834.70	1215.00	839.62	.00	839.99	41.10	6.09	547.85	189.51
	601.000	98.00	.00	.00	835.08	1215.00	840.08	.00	840.34	33.72	5.56	688.52	209.24
	601.000	98.00	.00	.00	835.08	1215.00	840.12	.00	840.39	40.55	5.64	611.24	190.79
	699.000	98.00	.00	.00	835.47	1215.00	840.54	.00	840.58	12.45	2.84	1282.09	344.39
	699.000	98.00	.00	.00	835.47	1215.00	840.63	.00	840.67	13.04	2.76	1230.74	336.42
	797.000	98.00	.00	.00	835.85	1215.00	840.66	.00	840.76	24.30	3.85	971.81	246.47
	797.000	98.00	.00	.00	835.85	1215.00	840.76	.00	840.85	23.12	3.80	935.73	252.69
	895.000	98.00	.00	.00	836.23	1215.00	840.91	.00	841.04	36.39	4.53	821.33	201.42
	895.000	98.00	.00	.00	836.23	1215.00	841.02	.00	841.14	37.36	4.38	774.05	198.77
	993.000	98.00	.00	.00	836.62	1215.00	841.17	.00	841.53	48.53	6.24	606.37	174.41
	993.000	98.00	.00	.00	836.62	1215.00	841.29	.00	841.67	47.20	6.29	549.25	176.85
	1091.000	98.00	.00	.00	837.00	1215.00	841.64	.00	841.95	41.22	5.85	653.78	189.25
	1091.000	98.00	.00	.00	837.00	1215.00	841.77	.00	842.09	38.91	5.82	607.79	194.79
	[illegible]	[illegible]	[illegible]	[illegible]	838.10	1215.00	842.77	.00	842.89	42.44	5.92	584.50	186.04

1385.000	294.00	.00	.00	838.10	1215.00	842.88	.00	843.22	41.97	5.99	509.32	187.54
1678.000	293.00	.00	.00	839.30	1215.00	843.95	.00	844.30	45.97	6.11	536.46	179.20
1678.000	293.00	.00	.00	839.30	1215.00	844.07	.00	844.44	45.28	6.18	457.63	180.56
2253.000	575.00	.00	.00	841.70	1215.00	846.35	.00	846.61	49.26	5.13	459.32	173.12
2253.000	575.00	.00	.00	841.70	1215.00	846.43	.00	846.69	46.27	5.04	451.47	176.62

1

08/27/91 15:30:39 PAGE 119

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K$S	VCH	AREA	.01K
3404.000	1151.00	.00	.00	844.60	1215.00	850.54	.00	850.78	44.44	5.37	473.69	182.25
3404.000	1151.00	.00	.00	844.60	1215.00	850.52	.00	850.77	45.26	5.41	470.59	180.60
3410.000	6.00	847.70	848.30	844.60	1215.00	850.54	.00	850.78	44.43	5.37	473.72	182.27
3410.000	6.00	847.70	848.30	844.60	1215.00	850.52	.00	850.77	45.25	5.41	470.65	180.63
4011.000	601.00	.00	.00	845.90	1215.00	853.23	.00	854.58	84.41	9.36	129.87	132.25
4011.000	601.00	.00	.00	845.90	1215.00	853.24	.00	854.59	83.84	9.34	130.13	132.69
4012.000	1.00	861.80	854.50	845.90	1215.00	852.95	.00	854.88	60.45	11.15	109.01	156.27
4012.000	1.00	861.80	854.50	845.90	1215.00	852.96	.00	854.89	60.30	11.13	109.14	156.46
4038.000	26.00	861.80	854.50	845.90	1215.00	853.21	.00	855.06	57.57	10.90	111.51	160.13
4038.000	26.00	861.80	854.50	845.90	1215.00	853.22	.00	855.06	57.46	10.89	111.61	160.28
4039.000	1.00	.00	.00	845.90	1215.00	854.32	.00	855.32	50.14	8.00	151.83	171.58
4039.000	1.00	.00	.00	845.90	1215.00	854.33	.00	855.32	49.92	7.99	152.03	171.96
4663.000	624.00	.00	.00	848.20	1215.00	855.88	.00	855.89	1.93	1.49	1849.70	874.32
4663.000	624.00	.00	.00	848.20	1215.00	855.90	.00	855.91	2.04	1.53	1775.91	851.34
4969.000	306.00	.00	.00	850.15	1215.00	855.96	.00	856.00	9.06	2.63	1108.16	403.76
4969.000	306.00	.00	.00	850.15	1215.00	855.98	.00	856.02	9.75	2.74	1036.03	389.03
5122.000	153.00	.00	.00	851.12	1215.00	856.11	.00	856.20	23.70	3.80	795.72	249.58
5122.000	153.00	.00	.00	851.12	1215.00	856.14	.00	856.24	25.74	3.97	720.87	239.46
5275.000	153.00	.00	.00	852.10	1215.00	856.50	.00	856.72	58.23	5.41	547.62	159.22
5275.000	153.00	.00	.00	852.10	1215.00	856.56	.00	856.81	61.76	5.63	500.49	154.61
5581.000	306.00	.00	.00	854.05	1215.00	857.71	.00	857.76	28.25	3.50	762.95	228.59
5581.000	306.00	.00	.00	854.05	1215.00	857.82	.00	857.87	27.78	3.54	709.82	230.54
5888.000	307.00	.00	.00	856.00	1115.00	858.76	.00	858.86	82.99	4.90	492.57	122.39
5888.000	307.00	.00	.00	856.00	1115.00	858.84	.00	858.94	79.81	4.90	484.28	124.81
6238.000	350.00	.00	.00	856.40	1115.00	861.76	.00	862.34	113.82	8.06	240.62	104.51
6238.000	350.00	.00	.00	856.40	1115.00	861.77	.00	862.34	113.38	8.05	240.93	104.71
6338.000	100.00	.00	.00	856.60	1115.00	862.83	.00	863.43	102.77	7.73	214.08	109.99
6338.000	100.00	.00	.00	856.60	1115.00	862.83	.00	863.43	102.69	7.73	214.13	110.03
6438.000	100.00	.00	.00	857.00	1115.00	863.49	.00	865.21	146.49	10.52	106.00	92.12
6438.000	100.00	.00	.00	857.00	1115.00	863.49	.00	865.21	146.46	10.52	106.00	92.13
6439.000	1.00	871.00	868.00	857.00	1115.00	863.32	.00	865.40	76.88	11.57	96.34	127.17
6439.000	1.00	871.00	868.00	857.00	1115.00	863.32	.00	865.40	76.87	11.57	96.34	127.17
6449.000	10.00	871.00	868.00	857.00	1115.00	863.93	.00	865.59	55.86	10.33	107.89	149.19
6449.000	10.00	871.00	868.00	857.00	1115.00	863.93	.00	865.59	55.77	10.33	107.95	149.31

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K#S	VCH	AREA	.01K
6450.000	1.00	.00	.00	857.00	1115.00	864.69	.00	865.77	66.01	8.33	133.88	137.24
6450.000	1.00	.00	.00	857.00	1115.00	864.69	.00	865.77	65.99	8.33	133.89	137.26
6470.000	20.00	.00	.00	857.06	1115.00	865.87	.00	866.09	15.72	4.51	402.12	281.24
6470.000	20.00	.00	.00	856.66	1115.00	865.89	.00	866.10	20.41	4.40	356.22	246.80
6600.000	130.00	.00	.00	857.48	1115.00	866.03	.00	866.56	42.18	5.82	191.59	171.69
6600.000	130.00	.00	.00	857.48	1115.00	866.13	.00	866.64	49.32	5.72	195.03	158.77
6650.000	50.00	.00	.00	857.64	1115.00	866.28	.00	866.79	49.67	5.73	194.51	158.21
6650.000	50.00	.00	.00	857.64	1115.00	866.40	.00	866.88	47.02	5.62	198.55	162.61
6700.000	50.00	.00	.00	857.80	1115.00	866.00	.00	868.05	276.20	11.49	97.08	67.09
6700.000	50.00	.00	.00	857.80	1115.00	866.11	.00	868.10	265.94	11.32	98.51	68.37
6701.000	1.00	874.00	866.00	857.80	1115.00	866.16	.00	868.10	117.41	11.18	99.78	102.90
6701.000	1.00	874.00	866.00	857.80	1115.00	866.19	.00	868.13	117.41	11.18	99.78	102.90
6749.000	48.00	874.00	866.00	857.80	1115.00	866.72	.00	868.66	117.41	11.18	99.78	102.90
6749.000	48.00	874.00	866.00	857.80	1115.00	866.76	.00	868.70	117.41	11.18	99.78	102.90
6750.000	1.00	.00	.00	857.80	1115.00	867.33	.00	868.81	62.77	9.76	114.26	140.74
6750.000	1.00	.00	.00	857.80	1115.00	867.40	.00	868.85	108.76	9.69	115.12	106.92
6763.000	13.00	.00	.00	857.92	1115.00	868.99	.00	869.21	9.10	4.23	390.52	369.52
6763.000	13.00	.00	.00	857.92	1115.00	869.04	.00	869.26	14.74	4.20	339.64	290.46
6841.000	78.00	.00	.00	858.61	1115.00	869.28	.00	869.30	1.65	1.75	1317.02	868.02
6841.000	78.00	.00	.00	858.61	1115.00	869.33	.00	869.35	1.69	1.78	1250.98	858.84
7300.000	459.00	.00	.00	862.70	1115.00	869.38	.00	869.50	15.63	3.85	590.47	282.03
7300.000	459.00	.00	.00	862.70	1115.00	869.44	.00	869.56	15.88	3.91	562.58	279.84
8050.000	750.00	.00	.00	863.90	1115.00	870.88	.00	870.99	25.26	3.90	614.50	221.84
8050.000	750.00	.00	.00	863.90	1115.00	870.96	.00	871.07	25.57	3.95	578.43	220.52
8400.000	350.00	.00	.00	866.52	1115.00	872.24	.00	873.49	161.19	9.11	136.05	87.82
8400.000	350.00	.00	.00	866.52	1115.00	872.32	.00	873.51	149.78	8.90	139.70	91.11
8450.000	50.00	.00	.00	866.90	1115.00	872.87	.00	874.90	266.10	11.43	97.56	68.35
8450.000	50.00	.00	.00	866.90	1115.00	872.88	.00	874.90	264.17	11.40	97.82	68.60
8451.000	1.00	879.10	875.90	866.90	1115.00	873.62	.00	875.08	53.08	9.70	115.01	153.04
8451.000	1.00	879.10	875.90	866.90	1115.00	873.62	.00	875.08	53.11	9.70	114.98	153.00
8461.000	10.00	879.10	875.90	866.90	1115.00	873.75	.00	875.15	50.13	9.50	117.38	157.49
8461.000	10.00	879.10	875.90	866.90	1115.00	873.75	.00	875.15	50.11	9.50	117.39	157.51
8462.000	1.00	.00	.00	866.90	1115.00	873.70	.00	875.21	174.57	9.83	113.41	84.39
8462.000	1.00	.00	.00	866.90	1115.00	873.71	.00	875.21	174.51	9.83	113.42	84.40

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K#S	VCH	AREA	.01K
8475.000	13.00	.00	.00	866.86	1115.00	875.22	.00	875.61	26.64	5.21	256.03	216.02
8475.000	13.00	.00	.00	866.86	1115.00	875.17	.00	875.61	33.74	5.43	226.68	191.96
8787.000	312.00	.00	.00	866.60	1115.00	874.49	.00	876.44	40.24	5.50	202.54	175.37

8787.000	312.00	.00	.00	866.00	1115.00	876.29	.00	876.74	38.58	5.42	205.82	179.52
8906.000	119.00	.00	.00	867.68	1115.00	876.69	.00	877.46	77.20	7.04	158.49	126.90
8906.000	119.00	.00	.00	867.68	1115.00	876.76	.00	877.51	74.28	6.94	160.74	129.37
9025.000	119.00	.00	.00	869.35	1115.00	877.65	.00	878.79	123.57	8.57	130.53	100.30
9025.000	119.00	.00	.00	869.35	1115.00	877.69	.00	878.82	122.72	8.50	131.25	100.65
9144.000	119.00	.00	.00	871.03	1115.00	879.09	.00	880.40	133.11	9.44	133.22	96.64
9144.000	119.00	.00	.00	871.03	1115.00	879.10	.00	880.51	138.88	9.65	124.58	94.61
9262.000	118.00	.00	.00	872.70	1115.00	881.18	.00	881.90	95.09	8.13	213.68	114.34
9262.000	118.00	.00	.00	872.70	1115.00	881.30	.00	882.04	93.80	8.13	205.27	115.13
9494.000	232.00	.00	.00	874.28	1115.00	883.04	.00	883.37	44.79	5.82	312.01	166.61
9494.000	232.00	.00	.00	874.28	1115.00	883.16	.00	883.50	44.25	5.82	295.07	167.61
9725.000	231.00	.00	.00	875.85	1115.00	884.01	.00	884.40	49.65	6.19	280.79	158.24
9725.000	231.00	.00	.00	875.85	1115.00	884.11	.00	884.49	46.86	6.08	282.47	162.88
9956.000	231.00	.00	.00	877.43	1115.00	885.03	.00	885.31	34.49	5.42	348.41	189.85
9956.000	231.00	.00	.00	822.33	1115.00	885.14	.00	885.41	37.38	5.26	326.75	182.38
10187.000	231.00	.00	.00	879.00	1115.00	885.71	.00	885.76	11.54	2.98	856.91	328.26
10187.000	231.00	.00	.00	879.00	1115.00	885.81	.00	885.86	11.55	3.02	798.37	328.07
10812.000	625.00	.00	.00	881.70	1115.00	886.91	.00	887.11	59.81	5.51	465.07	144.18
10812.000	625.00	.00	.00	881.70	1115.00	887.03	.00	887.22	61.71	5.29	439.18	141.94
11438.000	626.00	.00	.00	884.40	915.00	890.96	.00	891.28	85.44	6.61	300.30	98.99
11438.000	626.00	.00	.00	884.40	915.00	891.02	.00	891.32	79.08	6.40	313.97	102.89
11518.000	80.00	894.30	887.30	884.40	915.00	892.85	.00	892.90	12.23	3.05	668.88	261.63
11518.000	80.00	894.30	887.30	884.40	915.00	892.85	.00	892.90	12.19	3.04	669.63	262.04
11694.000	176.00	.00	.00	886.40	915.00	893.15	.00	893.44	47.97	5.56	292.95	132.11
11694.000	176.00	.00	.00	886.40	915.00	893.15	.00	893.47	51.91	5.78	265.14	126.99
11869.000	175.00	.00	.00	888.50	915.00	894.39	.00	894.94	110.46	7.45	209.32	87.06
11869.000	175.00	.00	.00	888.50	915.00	894.47	.00	895.06	114.83	7.54	186.81	85.39
12094.000	225.00	.00	.00	890.20	915.00	896.87	.00	897.71	98.71	9.13	202.77	92.10
12094.000	225.00	.00	.00	890.20	915.00	896.98	.00	897.86	98.28	9.22	187.81	92.30
12129.000	26.00	.00	.00	890.50	820.00	897.87	.00	898.02	12.94	3.27	344.33	227.99
12120.000	26.00	.00	.00	890.50	820.00	898.02	.00	898.17	13.09	3.25	314.23	226.65

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01Y
12130.000	10.00	894.00	893.30	890.50	820.00	897.87	.00	898.02	13.03	3.27	343.05	227.13
12130.000	10.00	999999.00	.00	890.50	820.00	897.87	.00	898.03	14.45	3.37	299.61	215.69
12381.000	251.00	.00	.00	892.94	820.00	898.34	.00	898.84	71.39	5.71	143.49	97.05
12381.000	251.00	.00	.00	892.94	820.00	898.38	.00	898.87	68.93	5.64	145.30	98.77
12581.000	200.00	.00	.00	894.90	820.00	899.92	.00	900.55	96.42	6.36	128.95	83.51
12581.000	200.00	.00	.00	894.90	820.00	899.93	.00	900.55	95.93	6.35	129.19	83.72
12632.000	51.00	.00	.00	893.20	820.00	900.63	.00	900.88	23.84	5.49	232.77	167.93
12632.000	51.00	.00	.00	893.20	820.00	900.61	.00	900.88	25.21	5.63	219.82	163.31
12704.000	72.00	897.50	896.80	893.80	820.00	900.66	.00	900.93	1.88	2.07	330.48	193.25

12704.000	72.00	907.20	900.90	893.90	820.00	908.00	.00	908.03	1.44	2.07	730.24	683.03
12712.000	6.00	.00	.00	893.93	820.00	908.01	.00	908.03	1.02	1.24	748.71	813.81
12712.000	8.00	.00	.00	893.93	820.00	908.00	.00	908.03	1.08	1.27	680.07	788.45
12905.000	193.00	.00	.00	894.78	820.00	908.02	.00	908.08	3.67	2.09	467.24	428.02
12905.000	193.00	.00	.00	894.78	820.00	908.02	.00	908.08	3.83	2.14	433.69	419.06
12955.000	50.00	.00	.00	895.00	820.00	908.03	.00	908.12	4.13	2.88	447.80	403.56
12955.000	50.00	.00	.00	895.00	820.00	908.02	.00	908.12	4.24	2.91	420.32	398.21
12956.000	1.00	905.50	900.80	895.00	820.00	907.86	.00	908.28	255.32	5.97	169.90	51.32
12956.000	1.00	905.50	900.80	895.00	820.00	907.79	.00	908.36	308.13	6.50	138.38	46.71
12981.000	25.00	905.50	901.20	895.40	820.00	908.53	.00	908.73	103.04	4.11	233.24	80.78
12981.000	25.00	905.50	901.20	895.40	820.00	908.65	.00	908.87	101.71	4.14	222.84	81.31
12982.000	1.00	.00	.00	895.40	820.00	908.69	.00	908.77	3.69	2.76	471.22	426.60
12982.000	1.00	.00	.00	895.40	820.00	908.83	.00	908.91	3.59	2.74	453.49	432.68
12997.000	15.00	.00	.00	895.48	820.00	908.72	.00	908.78	3.67	2.10	466.83	427.95
12997.000	15.00	.00	.00	895.48	820.00	908.86	.00	908.93	3.57	2.08	448.97	433.73
13097.000	100.00	.00	.00	896.01	820.00	908.76	.00	908.83	4.60	2.29	421.68	382.51
13097.000	100.00	.00	.00	896.01	820.00	908.90	.00	908.97	4.48	2.28	403.29	387.33
13157.000	60.00	.00	.00	896.31	820.00	908.85	.00	908.85	.56	.95	1220.11	1097.96
13157.000	60.00	.00	.00	896.31	820.00	908.99	.00	909.00	.52	.93	1250.24	1132.74
13282.000	125.00	.00	.00	897.00	820.00	908.85	.00	908.87	1.10	1.27	1080.91	782.79
13282.000	125.00	.00	.00	897.00	820.00	908.99	.00	909.01	1.08	1.27	853.89	788.85
13412.000	130.00	.00	.00	897.41	820.00	908.88	.00	908.88	.35	.64	1996.84	1384.00
13412.000	130.00	.00	.00	897.41	820.00	909.02	.00	909.02	.35	.63	1806.45	1389.02
13582.000	170.00	.00	.00	897.94	820.00	908.88	.00	908.89	1.13	1.10	1263.15	770.93
13582.000	170.00	.00	.00	897.94	820.00	909.03	.00	909.04	1.12	1.08	1123.62	776.52

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K#S	VCH	AREA	.01K
13632.000	50.00	.00	.00	898.10	820.00	908.88	.00	908.91	1.95	2.77	876.06	587.86
13632.000	50.00	.00	.00	898.10	820.00	909.02	.00	909.06	1.85	2.72	857.09	603.09
13732.000	100.00	904.60	905.50	898.50	820.00	908.92	.00	908.94	2.57	2.02	861.19	511.91
13732.000	100.00	999999.00	.00	898.50	820.00	908.92	.00	908.98	2.85	3.34	670.06	485.80
13833.000	101.00	.00	.00	898.20	820.00	908.90	.00	908.97	.43	3.04	982.61	1249.02
13833.000	101.00	.00	.00	898.20	820.00	908.96	.00	909.00	.62	2.42	919.01	1040.20
13899.000	66.00	904.90	903.20	898.20	820.00	908.90	.00	908.97	.44	3.08	935.14	1231.64
13899.000	66.00	999999.00	.00	898.20	820.00	908.90	.00	908.94	.66	2.50	887.88	1008.59
13916.000	17.00	.00	.00	899.10	820.00	908.97	.00	908.99	2.15	1.22	745.61	559.54
13916.000	17.00	.00	.00	899.10	820.00	908.93	.00	908.95	2.21	1.23	738.77	551.66
13918.000	2.00	904.40	904.10	899.10	820.00	908.97	.00	909.00	2.50	1.75	746.78	519.02
13918.000	2.00	904.40	904.10	899.10	820.00	908.93	.00	908.96	2.56	1.77	739.82	512.31
14119.000	201.00	.00	.00	898.80	820.00	909.04	.00	909.06	3.04	2.00	1070.05	470.26
14119.000	201.00	.00	.00	898.80	820.00	909.00	.00	909.02	3.38	2.10	968.99	446.33
14819.000	820.00	.00	.00	903.60	820.00	909.48	.00	909.49	27.49	3.47	430.10	117.18

14919.000	800.00	.00	.00	903.60	820.00	909.50	.00	909.62	25.94	3.57	389.11	161.01
15969.000	1050.00	.00	.00	904.17	820.00	911.68	.00	911.90	19.53	3.82	214.97	185.57
15969.000	1050.00	.00	.00	904.17	820.00	911.76	.00	911.98	18.78	3.76	217.94	189.21
16020.000	51.00	.00	.00	904.20	820.00	911.97	.00	912.04	17.05	3.03	463.98	198.60
16020.000	51.00	.00	.00	904.20	820.00	912.04	.00	912.11	16.26	2.98	471.93	203.37
16490.000	470.00	911.30	908.40	904.40	820.00	913.26	.00	913.30	8.06	2.39	605.38	288.80
16490.000	470.00	911.30	908.40	904.40	820.00	913.26	.00	913.30	8.05	2.39	605.77	289.08
16816.000	326.00	.00	.00	903.00	820.00	913.19	.00	913.58	1.76	5.36	330.28	618.92
16816.000	326.00	.00	.00	903.00	820.00	913.19	.00	913.59	1.75	5.36	330.47	619.30
16871.000	55.00	911.80	908.60	903.00	820.00	913.19	.00	913.58	1.76	5.36	330.25	618.85
16871.000	55.00	911.80	908.60	903.00	820.00	913.19	.00	913.59	1.75	5.36	330.43	619.23
16934.000	63.00	.00	.00	906.90	950.00	913.07	.00	913.77	35.13	6.78	148.27	160.27
16934.000	63.00	.00	.00	906.90	950.00	913.06	.00	913.79	36.79	6.87	138.34	156.81
16960.000	26.00	911.00	911.40	906.90	950.00	914.20	.00	914.53	13.29	4.79	253.30	260.56
16960.000	26.00	999999.00	.00	906.90	950.00	914.20	.00	914.58	14.41	4.98	213.50	250.22
17137.000	177.00	.00	.00	908.20	950.00	914.79	.00	914.88	24.37	4.82	508.26	192.43
17137.000	177.00	.00	.00	908.20	950.00	914.85	.00	914.94	25.15	4.93	462.66	189.45
17157.000	20.00	911.70	910.20	908.20	950.00	914.83	.00	914.91	23.57	4.76	514.11	195.67
17157.000	20.00	999999.00	.00	908.20	950.00	914.83	.00	914.93	25.39	4.94	462.82	188.55

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
17795.000	638.00	.00	.00	911.15	950.00	916.73	.00	916.92	43.56	4.58	361.19	143.93
17795.000	638.00	.00	.00	911.15	950.00	916.82	.00	917.04	44.59	4.62	296.43	142.27
18433.000	638.00	.00	.00	914.10	950.00	919.58	.00	920.01	51.57	6.17	269.51	132.30
18433.000	638.00	.00	.00	914.10	950.00	919.69	.00	920.15	50.90	6.22	230.41	133.15
19184.000	751.00	.00	.00	913.30	790.00	921.35	.00	921.95	13.19	6.56	221.17	217.51
19184.000	751.00	.00	.00	913.30	790.00	921.42	.00	921.98	12.33	6.40	229.98	224.96
19372.000	188.00	921.40	918.40	912.70	790.00	921.39	.00	921.95	9.52	6.11	156.54	256.09
19372.000	188.00	921.40	918.40	912.70	790.00	921.43	.00	921.98	9.24	6.06	158.47	259.87
19448.000	76.00	.00	.00	912.10	790.00	921.13	.00	922.50	61.02	9.39	84.13	101.13
19448.000	76.00	.00	.00	912.10	790.00	921.21	.00	922.55	130.18	9.31	84.88	69.24
19449.000	1.00	926.40	921.80	912.10	790.00	921.09	.00	922.55	54.98	9.70	81.44	106.54
19449.000	1.00	926.40	921.80	912.10	790.00	921.17	.00	922.60	53.72	9.61	82.19	107.78
19605.000	156.00	926.40	921.80	912.10	790.00	922.33	.00	923.57	67.16	8.93	88.50	96.40
19605.000	156.00	926.40	921.80	912.10	790.00	922.36	.00	923.60	67.16	8.93	88.50	96.40
19606.000	1.00	.00	.00	912.10	790.00	922.67	.00	923.65	34.85	7.94	99.52	133.81
19606.000	1.00	.00	.00	912.10	790.00	922.71	.00	923.68	83.67	7.90	99.98	86.37
19756.000	150.00	.00	.00	914.66	790.00	924.00	.00	924.02	2.13	1.63	1152.07	540.96
19756.000	150.00	.00	.00	914.66	790.00	924.05	.00	924.07	2.22	1.67	1087.72	529.95
20807.000	1051.00	.00	.00	916.60	790.00	924.23	.00	924.27	3.05	1.78	342.50	452.38
20807.000	1051.00	.00	.00	916.60	790.00	924.28	.00	924.33	3.13	1.81	476.29	446.57
21018.000	12.00	920.70	918.40	914.40	790.00	924.24	.00	924.30	2.87	1.74	548.11	459.79

20819.000	12.00	999999.00	.00	916.60	790.00	924.26	.00	924.31	3.17	1.82	474.71	443.54
20846.000	27.00	.00	.00	916.80	790.00	924.26	.00	924.32	4.87	2.12	441.34	358.00
20846.000	27.00	.00	.00	916.80	790.00	924.26	.00	924.33	5.44	1.66	366.90	338.64
20866.000	20.00	920.90	920.40	916.80	790.00	924.30	.00	924.36	4.76	2.11	445.10	361.97
20866.000	20.00	999999.00	.00	916.80	790.00	924.30	.00	924.37	5.32	1.65	369.04	342.65
21317.000	451.00	.00	.00	918.00	790.00	924.45	.00	924.46	1.41	1.05	927.93	665.76
21317.000	451.00	.00	.00	918.00	790.00	924.46	.00	924.48	1.51	1.09	843.55	643.70
21817.000	500.00	.00	.00	918.90	790.00	924.04	.00	925.29	170.43	10.41	114.01	60.51
21817.000	500.00	.00	.00	918.90	790.00	924.07	.00	925.33	168.00	10.38	111.67	60.95
* 21867.000	50.00	.00	.00	919.00	790.00	925.02	925.02	927.92	223.73	13.65	57.87	52.82
* 21867.000	50.00	.00	.00	919.00	790.00	925.02	925.02	927.92	223.92	13.66	57.85	52.79
* 21868.000	1.00	931.20	928.00	919.00	790.00	926.63	924.79	928.29	58.90	10.36	76.26	102.94
* 21868.000	1.00	931.20	928.00	919.00	790.00	926.63	924.79	928.29	58.88	10.36	76.27	102.96

1

SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K#S	VCH	AREA	.01k
21892.000	24.00	931.20	928.00	919.00	790.00	926.92	.00	928.47	53.51	9.97	79.21	107.99
21892.000	24.00	931.20	928.00	919.00	790.00	926.92	.00	928.47	53.50	9.97	79.22	108.01
21893.000	1.00	.00	.00	919.00	790.00	926.87	.00	928.53	265.98	10.34	76.37	48.44
21893.000	1.00	.00	.00	919.00	790.00	926.87	.00	928.53	265.75	10.34	76.40	48.46
22143.000	250.00	.00	.00	920.64	790.00	929.32	.00	929.37	4.74	2.46	687.03	362.97
22143.000	250.00	.00	.00	920.64	790.00	929.36	.00	929.43	5.74	2.72	534.96	329.72
22568.000	425.00	.00	.00	921.74	790.00	929.54	.00	929.97	36.22	5.43	163.87	131.27
22568.000	425.00	.00	.00	921.74	790.00	929.65	.00	930.07	34.44	5.34	166.76	134.61
22593.000	25.00	.00	.00	921.80	790.00	928.88	.00	930.93	118.90	11.50	68.69	72.45
22593.000	25.00	.00	.00	921.80	790.00	929.02	.00	930.99	111.10	11.27	70.10	74.95
22594.000	1.00	930.00	931.80	921.80	790.00	929.33	.00	931.04	60.80	10.49	75.30	101.32
22594.000	1.00	930.00	931.80	921.80	790.00	929.42	.00	931.09	59.07	10.37	76.17	102.79
22644.000	50.00	930.00	931.80	921.80	790.00	929.92	.00	931.39	50.23	9.72	81.24	111.47
22644.000	50.00	930.00	931.80	921.80	790.00	929.98	.00	931.42	49.41	9.66	81.77	112.38
22645.000	1.00	.00	.00	921.80	790.00	929.88	.00	931.44	48.34	10.04	78.71	113.63
22645.000	1.00	.00	.00	921.80	790.00	929.93	.00	931.48	47.25	9.97	79.24	114.92
22670.000	25.00	.00	.00	921.86	340.00	931.89	.00	931.92	1.40	1.40	280.87	287.50
22670.000	25.00	.00	.00	921.86	340.00	931.92	.00	931.95	1.46	1.44	248.87	281.85
22970.000	300.00	.00	.00	922.60	340.00	931.94	.00	931.98	2.15	1.61	230.22	232.09
22970.000	300.00	.00	.00	922.60	340.00	931.97	.00	932.01	2.43	1.63	208.46	218.04
23870.000	900.00	.00	.00	923.80	340.00	932.06	.00	932.06	.38	.83	862.62	548.21
23870.000	900.00	.00	.00	923.80	340.00	932.09	.00	932.09	.40	.85	778.19	536.81
24870.000	1000.00	.00	.00	927.00	340.00	932.08	.00	932.08	.11	.27	1864.87	1033.71
24870.000	1000.00	.00	.00	927.00	340.00	932.12	.00	932.12	.12	.28	1720.75	1000.26
26645.000	1775.00	.00	.00	927.40	340.00	932.12	.00	932.13	1.46	.93	641.97	281.01
26645.000	1775.00	.00	.00	927.40	340.00	932.16	.00	932.17	1.60	.97	577.47	269.19
27495.000	[illegible]	.00	.00	927.60	340.00	932.[illegible]	.00	932.24	.78	.72	1125.75	[illegible]

27695.000	1050.00	.00	.00	927.60	340.00	932.29	.00	932.29	.86	.76	1021.99	367.13
28670.000	975.00	.00	.00	928.20	340.00	932.25	.00	932.25	.04	.15	2498.51	1760.31
28670.000	975.00	.00	.00	928.20	340.00	932.30	.00	932.30	.04	.16	2264.10	1710.61
29070.000	400.00	.00	.00	928.65	340.00	932.25	.09	932.25	.12	.24	1596.56	971.01
29070.000	400.00	.00	.00	928.65	340.00	932.30	.00	932.30	.13	.25	1422.71	940.97
29470.000	400.00	.00	.00	929.10	340.00	932.26	.00	932.27	.92	.51	743.36	354.28
29470.000	400.00	.00	.00	929.10	340.00	932.31	.00	932.32	.97	.53	635.73	346.11

1
08/27/91 15:30:39 PAGE 126

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
29870.000	400.00	.00	.00	929.55	340.00	932.33	.00	932.36	9.00	1.38	273.62	113.31
29870.000	400.00	.00	.00	929.55	340.00	932.39	.00	932.42	9.05	1.40	243.11	113.02
30270.000	400.00	.00	.00	930.00	340.00	932.97	.00	933.19	56.45	3.92	111.08	45.25
30270.000	400.00	.00	.00	930.00	340.00	933.03	.00	933.28	59.72	4.05	86.74	44.00
-12094.000	.00	.00	.00	890.20	245.00	896.87	.00	896.89	1.73	1.21	300.12	186.14
-12094.000	.00	.00	.00	890.20	245.00	896.98	.00	896.99	1.66	1.20	292.49	190.38
120.000	120.00	.00	.00	891.50	245.00	896.89	.00	896.97	21.76	2.66	134.69	52.52
120.000	120.00	.00	.00	891.50	245.00	896.99	.00	897.08	21.83	2.69	127.69	52.44
620.000	500.00	.00	.00	893.40	245.00	898.95	897.96	899.49	152.40	6.00	48.87	19.85
620.000	500.00	.00	.00	893.40	245.00	899.06	.00	899.62	153.10	6.00	40.81	19.80
2000.000	1380.00	.00	.00	899.00	245.00	904.91	.00	905.02	17.57	2.75	93.17	58.44
2000.000	1380.00	.00	.00	899.00	245.00	905.02	.00	905.13	17.44	2.71	90.51	58.66
2095.000	95.00	.00	.00	900.40	245.00	905.10	.00	905.37	53.43	4.18	60.86	33.52
2095.000	95.00	.00	.00	900.40	245.00	905.21	.00	905.47	51.65	4.08	60.06	34.09
2190.000	95.00	.00	.00	901.80	245.00	905.73	.00	906.28	138.74	6.02	43.24	20.80
2190.000	95.00	.00	.00	901.80	245.00	905.82	.00	906.37	138.86	5.94	41.22	20.79
2285.000	95.00	.00	.00	903.20	245.00	907.13	906.69	907.54	117.66	5.63	60.33	22.59
2285.000	95.00	.00	.00	903.20	245.00	907.17	.00	907.65	126.39	5.87	48.19	21.79

1
08/27/91 15:30:39 PAGE 127

WALLED LAKE BRANCH

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
.000	1215.00	839.29	.00	.00	.00	800.28	.00
.000	1215.00	839.39	.10	.00	.10	794.45	.00
62.000	1215.00	839.29	.00	.00	.00	853.87	62.00
62.000	1215.00	839.39	.10	.00	.10	813.44	62.00
125.000	1215.00	839.30	.00	.00	.00	849.18	63.00
125.000	1215.00	839.40	.10	.00	.10	811.70	63.00
187.000	1215.00	839.31	.00	.01	.00	712.84	62.00
187.000	1215.00	839.41	.10	.01	.10	658.31	62.00

	251.000	1215.00	839.33	.00	.02	.00	555.69	64.00
	251.000	1215.00	839.43	.10	.02	.10	532.17	64.00
*	292.000	1215.00	839.39	.00	.06	.00	523.53	41.00
*	292.000	1215.00	839.39	.00	-.04	.00	430.09	41.00
	503.000	1215.00	839.56	.00	.17	.00	430.00	211.00
	503.000	1215.00	839.62	.06	.23	.06	420.00	211.00
	601.000	1215.00	840.08	.00	.52	.00	514.98	98.00
	601.000	1215.00	840.12	.04	.50	.04	427.13	98.00
	699.000	1215.00	840.54	.00	.46	.00	748.10	98.00
	699.000	1215.00	840.63	.09	.51	.09	677.92	98.00
	797.000	1215.00	840.66	.00	.13	.00	709.20	98.00
	797.000	1215.00	840.76	.10	.13	.10	608.10	98.00
	895.000	1215.00	840.91	.00	.24	.00	653.32	98.00
	895.000	1215.00	841.02	.11	.26	.11	542.31	98.00
	993.000	1215.00	841.17	.00	.26	.00	660.02	98.00
	993.000	1215.00	841.29	.12	.27	.12	497.12	98.00
	1091.000	1215.00	841.64	.00	.47	.00	645.76	98.00
	1091.000	1215.00	841.77	.13	.49	.13	500.27	98.00
	1385.000	1215.00	842.77	.00	1.13	.00	501.85	294.00
	1385.000	1215.00	842.88	.11	1.11	.11	303.25	294.00
	1678.000	1215.00	843.95	.00	1.18	.00	367.72	293.00
	1678.000	1215.00	844.07	.11	1.18	.11	233.35	293.00
	2253.000	1215.00	846.35	.00	2.40	.00	231.93	575.00
	2253.000	1215.00	846.43	.08	2.37	.08	200.00	575.00

1

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
3404.000	1215.00	850.54	.00	4.19	.00	180.00	1151.00
3404.000	1215.00	850.52	-.02	4.09	-.02	180.00	1151.00
3410.000	1215.00	850.54	.00	.00	.00	180.00	6.00
3410.000	1215.00	850.52	-.02	.00	-.02	180.00	6.00
4011.000	1215.00	853.23	.00	2.69	.00	20.00	601.00
4011.000	1215.00	853.24	.01	2.72	.01	20.00	601.00
4012.000	1215.00	852.95	.00	-.28	.00	20.00	1.00
4012.000	1215.00	852.96	.01	-.28	.01	20.00	1.00
4038.000	1215.00	853.21	.00	.26	.00	20.00	26.00
4038.000	1215.00	853.22	.01	.26	.01	20.00	26.00
4039.000	1215.00	854.32	.00	1.11	.00	20.00	1.00
4039.000	1215.00	854.33	.01	1.11	.01	20.00	1.00
4663.000	1215.00	855.88	.00	1.56	.00	406.23	624.00
4663.000	1215.00	855.90	.02	1.57	.02	364.12	624.00
4969.000	1215.00	855.96	.00	.08	.00	385.10	306.00
4969.000	1215.00	855.98	.02	.08	.02	333.33	306.00

5122.000	1215.00	856.11	.00	.15	.00	375.85	153.00
5122.000	1215.00	856.14	.03	.16	.03	302.29	153.00
5275.000	1215.00	856.50	.00	.40	.00	310.00	153.00
5275.000	1215.00	856.56	.06	.43	.06	260.71	153.00
5581.000	1215.00	857.71	.00	1.21	.00	298.15	306.00
5581.000	1215.00	857.82	.11	1.25	.11	231.43	306.00
5888.000	1115.00	858.76	.00	1.05	.00	245.00	307.00
5888.000	1115.00	858.84	.08	1.02	.08	225.00	307.00
6238.000	1115.00	861.76	.00	3.00	.00	70.00	350.00
6238.000	1115.00	861.77	.00	2.92	.00	70.00	350.00
6338.000	1115.00	862.83	.00	1.07	.00	45.00	100.00
6338.000	1115.00	862.83	.00	1.06	.00	45.00	100.00
6438.000	1115.00	863.49	.00	.66	.00	20.00	100.00
6438.000	1115.00	863.49	.00	.66	.00	20.00	100.00
6439.000	1115.00	863.32	.00	-.17	.00	18.95	1.00
6439.000	1115.00	863.32	.00	-.17	.00	18.95	1.00
6449.000	1115.00	863.93	.00	.61	.00	19.09	10.00
6449.000	1115.00	863.93	.00	.62	.00	19.09	10.00

1

SECNO	B	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
6450.000	1115.00	864.69	.00	.76	.00	20.00	1.00
6450.000	1115.00	864.69	.00	.76	.00	20.00	1.00
6470.000	1115.00	865.87	.00	1.18	.00	60.00	20.00
6470.000	1115.00	865.89	.01	1.19	.01	47.94	20.00
6600.000	1115.00	866.03	.00	.16	.00	34.56	130.00
6600.000	1115.00	866.13	.10	.25	.10	34.82	130.00
6650.000	1115.00	866.28	.00	.25	.00	34.78	50.00
6650.000	1115.00	866.40	.12	.26	.12	35.08	50.00
6700.000	1115.00	866.00	.00	-.28	.00	13.00	50.00
6700.000	1115.00	866.11	.11	-.28	.11	13.00	50.00
6701.000	1115.00	866.16	.00	.16	.00	13.00	1.00
6701.000	1115.00	866.19	.03	.08	.03	13.00	1.00
6749.000	1115.00	866.72	.00	.56	.00	13.00	48.00
6749.000	1115.00	866.76	.03	.56	.03	13.00	48.00
6750.000	1115.00	867.33	.00	.61	.00	13.00	1.00
6750.000	1115.00	867.40	.07	.64	.07	13.00	1.00
6763.000	1115.00	868.99	.00	1.65	.00	40.00	13.00
6763.000	1115.00	869.04	.05	1.64	.05	34.07	13.00
6841.000	1115.00	869.28	.00	.29	.00	200.00	78.00
6841.000	1115.00	869.33	.06	.30	.06	163.67	78.00
7300.000	1115.00	869.38	.00	.11	.00	161.95	459.00
7301.000	1115.00	869.44	.06	.11	.06	134.72	459.00

8050.000	1115.00	870.88	.00	1.50	.00	233.26	750.00
8050.000	1115.00	870.96	.08	1.52	.08	196.42	750.00
8400.000	1115.00	872.24	.00	1.36	.00	44.00	350.00
8400.000	1115.00	872.32	.08	1.37	.08	44.00	350.00
8450.000	1115.00	872.87	.00	.63	.00	19.00	50.00
8450.000	1115.00	872.88	.01	.56	.01	19.00	50.00
8451.000	1115.00	873.62	.00	.75	.00	19.00	1.00
8451.000	1115.00	873.62	.00	.73	.00	19.00	1.00
8461.000	1115.00	873.75	.00	.13	.00	19.00	10.00
8461.000	1115.00	873.75	.00	.13	.00	19.00	10.00
8462.000	1115.00	873.70	.00	-.04	.00	19.00	1.00
8462.000	1115.00	873.71	.00	-.04	.00	19.00	1.00

1

SECNO	B	CWSEL	DIFWSP	DIFWSX	DIFXWS	TOPWID	XLCH
8475.000	1115.00	875.22	.00	1.51	.00	45.00	13.00
8475.000	1115.00	875.17	-.05	1.47	-.05	37.59	13.00
8787.000	1115.00	876.19	.00	.97	.00	34.44	312.00
8787.000	1115.00	876.29	.10	1.12	.10	34.71	312.00
8906.000	1115.00	876.69	.00	.50	.00	30.38	119.00
8906.000	1115.00	876.76	.07	.47	.07	30.55	119.00
9025.000	1115.00	877.65	.00	.96	.00	28.02	119.00
9025.000	1115.00	877.69	.04	.93	.04	25.98	119.00
9144.000	1115.00	879.09	.00	1.44	.00	31.77	119.00
9144.000	1115.00	879.10	.02	1.41	.02	24.20	119.00
9262.000	1115.00	881.18	.00	2.09	.00	62.17	118.00
9262.000	1115.00	881.30	.13	2.20	.13	50.70	118.00
9494.000	1115.00	883.04	.00	1.86	.00	85.45	232.00
9494.000	1115.00	883.16	.12	1.86	.12	61.90	232.00
9725.000	1115.00	884.01	.00	.97	.00	74.51	231.00
9725.000	1115.00	884.11	.10	.95	.10	68.23	231.00
9956.000	1115.00	885.03	.00	1.02	.00	99.35	231.00
9956.000	1115.00	885.14	.11	1.03	.11	65.67	231.00
10187.000	1115.00	885.71	.00	.68	.00	292.99	231.00
10187.000	1115.00	885.81	.10	.67	.10	219.49	231.00
10812.000	1115.00	886.91	.00	1.20	.00	230.58	625.00
10812.000	1115.00	887.03	.12	1.22	.12	185.50	625.00
11438.000	915.00	890.96	.00	4.05	.00	214.87	626.00
11438.000	915.00	891.02	.06	3.99	.06	224.27	626.00
11518.000	915.00	892.85	.00	1.89	.00	200.00	80.00
11518.000	915.00	892.85	.00	1.83	.00	200.00	80.00
11694.000	915.00	893.15	.00	.31	.00	107.58	176.00

11869.000	915.00	894.39	.00	1.24	.00	85.31	175.00
11869.000	915.00	894.47	.08	1.32	.08	54.96	175.00
12094.000	915.00	896.87	.00	2.49	.00	75.74	225.00
12094.000	915.00	896.98	.11	2.51	.11	59.55	225.00
12120.000	820.00	897.87	.00	1.00	.00	130.00	26.00
12120.000	820.00	898.02	.15	1.04	.15	82.44	26.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
12130.000	820.00	897.87	.00	.00	.00	130.00	10.00
12130.000	820.00	897.87	.00	-.15	.00	81.16	10.00
12381.000	820.00	898.34	.00	.46	.00	39.64	251.00
12381.000	820.00	898.38	.04	.51	.04	39.83	251.00
12581.000	820.00	899.92	.00	1.59	.00	38.11	200.00
12581.000	820.00	899.93	.00	1.55	.00	38.13	200.00
12632.000	820.00	900.63	.00	.71	.00	47.99	51.00
12632.000	820.00	900.61	-.02	.68	-.02	38.02	51.00
12704.000	820.00	908.00	.00	7.37	.00	150.00	72.00
12704.000	820.00	908.00	.00	7.39	.00	150.00	72.00
12712.000	820.00	908.01	.00	.01	.00	165.00	8.00
12712.000	820.00	908.00	.00	.00	.00	100.51	8.00
12905.000	820.00	908.02	.00	.02	.00	92.12	193.00
12905.000	820.00	908.02	.00	.02	.00	65.70	193.00
12955.000	820.00	908.03	.00	.00	.00	91.62	50.00
12955.000	820.00	908.02	.00	.01	.00	66.32	50.00
12956.000	820.00	907.86	.00	-.16	.00	90.61	1.00
12956.000	820.00	907.79	-.07	-.24	-.07	48.80	1.00
12981.000	820.00	908.53	.00	.67	.00	95.00	25.00
12981.000	820.00	908.65	.12	.86	.12	78.39	25.00
12982.000	820.00	908.69	.00	.16	.00	92.20	1.00
12982.000	820.00	908.83	.14	.18	.14	70.34	1.00
12997.000	820.00	908.72	.00	.03	.00	92.09	15.00
12997.000	820.00	908.86	.14	.03	.14	69.24	15.00
13097.000	820.00	908.76	.00	.03	.00	90.97	100.00
13097.000	820.00	908.90	.14	.03	.14	59.92	100.00
13157.000	820.00	908.85	.00	.09	.00	210.00	60.00
13157.000	820.00	908.99	.14	.09	.14	210.00	60.00
13282.000	820.00	908.85	.00	.01	.00	460.00	125.00
13282.000	820.00	908.99	.14	.00	.14	150.29	125.00
13412.000	820.00	908.88	.00	.03	.00	494.84	130.00
13412.000	820.00	909.02	.14	.03	.14	301.00	130.00
13582.000	820.00	908.88	.00	.01	.00	416.05	170.00
13582.000	820.00	909.02	.14	.01	.14	228.31	170.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
13632.000	820.00	908.88	.00	-.01	.00	382.96	50.00
13632.000	820.00	909.02	.14	-.01	.14	327.12	50.00
13732.000	820.00	908.92	.00	.04	.00	383.94	100.00
13732.000	820.00	908.92	.00	-.10	.00	261.59	100.00
13833.000	820.00	908.90	.00	-.02	.00	241.00	101.00
13833.000	820.00	908.96	.05	.04	.05	183.80	101.00
13899.000	820.00	908.90	.00	.00	.00	200.00	66.00
13899.000	820.00	908.90	.00	-.06	.00	178.84	66.00
13916.000	820.00	908.97	.00	.07	.00	175.00	17.00
13916.000	820.00	908.93	-.04	.03	-.04	175.00	17.00
13918.000	820.00	908.97	.00	.01	.00	175.00	2.00
13918.000	820.00	908.93	-.04	.01	-.04	175.00	2.00
14119.000	820.00	909.04	.00	.06	.00	308.87	201.00
14119.000	820.00	909.00	-.04	.06	-.04	239.70	201.00
14919.000	820.00	909.49	.00	.45	.00	316.25	800.00
14919.000	820.00	909.50	.01	.51	.01	199.76	800.00
15969.000	820.00	911.68	.00	2.18	.00	42.07	1050.00
15969.000	820.00	911.76	.08	2.25	.08	38.22	1050.00
16020.000	820.00	911.97	.00	.30	.00	113.41	51.00
16020.000	820.00	912.04	.07	.29	.07	114.08	51.00
16490.000	820.00	913.26	.00	1.29	.00	128.52	470.00
16490.000	820.00	913.26	.00	1.22	.00	128.70	470.00
16816.000	820.00	913.19	.00	-.07	.00	60.00	326.00
16816.000	820.00	913.19	.00	-.07	.00	60.00	326.00
16871.000	820.00	913.19	.00	.00	.00	60.00	55.00
16871.000	820.00	913.19	.00	.00	.00	60.00	55.00
16934.000	950.00	913.07	.00	-.12	.00	63.20	63.00
16934.000	950.00	913.06	-.01	-.14	-.01	37.41	63.00
16960.000	950.00	914.20	.00	1.14	.00	126.59	26.00
16960.000	950.00	914.20	.00	1.15	.00	71.31	26.00
17137.000	950.00	914.79	.00	.59	.00	150.45	177.00
17137.000	950.00	914.85	.06	.64	.06	109.44	177.00
17157.000	950.00	914.83	.00	.04	.00	150.87	20.00
17157.000	950.00	914.83	.00	-.02	.00	110.49	20.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
17795.000	950.00	916.73	.00	1.90	.00	141.25	638.00
17795.000	950.00	916.82	.10	1.99	.10	78.28	638.00

18433.000	950.00	919.58	.00	2.85	.00	99.58	638.00
18433.000	950.00	919.69	.12	2.87	.12	58.19	638.00
19184.000	790.00	921.35	.00	1.78	.06	145.00	751.00
19184.000	790.00	921.42	.06	1.72	.06	145.00	751.00
19372.000	790.00	921.39	.00	.03	.00	50.00	188.00
19372.000	790.00	921.43	.04	.01	.04	50.00	188.00
19448.000	790.00	921.13	.00	-.25	.00	10.00	76.00
19448.000	790.00	921.21	.07	-.22	.07	10.00	76.00
19449.000	790.00	921.09	.00	-.04	.00	10.00	1.00
19449.000	790.00	921.17	.08	-.04	.08	10.00	1.00
19605.000	790.00	922.33	.00	1.24	.00	10.00	156.00
19605.000	790.00	922.36	.03	1.19	.03	10.00	156.00
19606.000	790.00	922.67	.00	.34	.00	10.00	1.00
19606.000	790.00	922.71	.04	.36	.04	10.00	1.00
19756.000	790.00	924.00	.00	1.33	.00	310.00	150.00
19756.000	790.00	924.05	.05	1.33	.05	275.94	150.00
20807.000	790.00	924.23	.00	.23	.00	165.00	1051.00
20807.000	790.00	924.28	.05	.23	.05	115.38	1051.00
20819.000	790.00	924.26	.00	.03	.00	165.00	12.00
20819.000	790.00	924.26	.00	-.02	.00	115.63	12.00
20846.000	790.00	924.26	.00	.00	.00	140.00	27.00
20846.000	790.00	924.26	.00	.00	.00	84.51	27.00
20866.000	790.00	924.30	.00	.04	.00	140.00	20.00
20866.000	790.00	924.30	.00	.04	.00	84.30	20.00
21317.000	790.00	924.45	.00	.15	.00	294.53	451.00
21317.000	790.00	924.46	.02	.17	.02	217.73	451.00
21817.000	790.00	924.04	.00	-.40	.00	33.70	500.00
21817.000	790.00	924.07	.03	-.39	.03	29.00	500.00
* 21867.000	790.00	925.02	.00	.98	.00	10.00	50.00
* 21867.000	790.00	925.02	.00	.95	.00	10.00	50.00
* 21868.000	790.00	926.63	.00	1.61	.00	10.00	1.00
* 21868.000	790.00	926.63	.00	1.61	.00	10.00	1.00

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SECND	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
21892.000	790.00	926.92	.00	.29	.00	10.00	24.00
21892.000	790.00	926.92	.00	.29	.00	10.00	24.00
21893.000	790.00	926.87	.00	-.05	.00	10.00	1.00
21893.000	790.00	926.87	.00	-.05	.00	10.00	1.00
22143.000	790.00	929.32	.00	2.45	.00	197.58	250.00
22143.000	790.00	929.36	.04	2.49	.04	100.00	250.00
22568.000	790.00	929.54	.00	.22	.00	25.00	425.00
22568.000	790.00	929.65	.12	.29	.12	25.00	425.00

22593.000	790.00	928.88	.00	-.66	.00	10.00	25.00
22593.000	790.00	929.02	.14	-.63	.14	10.00	25.00
22594.000	790.00	929.33	.00	.46	.00	10.00	1.00
22594.000	790.00	929.42	.08	.40	.08	10.00	1.00
22644.000	790.00	929.92	.00	.59	.00	10.00	50.00
22644.000	790.00	929.98	.05	.56	.05	10.00	50.00
22645.000	790.00	929.88	.00	-.04	.00	10.00	1.00
22645.000	790.00	929.93	.05	-.04	.05	10.00	1.00
22670.000	340.00	931.89	.00	2.02	.00	78.27	25.00
22670.000	340.00	931.92	.02	1.99	.02	44.32	25.00
22970.000	340.00	931.94	.00	.05	.00	65.70	300.00
22970.000	340.00	931.97	.03	.05	.03	36.00	300.00
23870.000	340.00	932.06	.00	.11	.00	300.46	900.00
23870.000	340.00	932.09	.03	.12	.03	197.62	900.00
24870.000	340.00	932.08	.00	.02	.00	667.08	1000.00
24870.000	340.00	932.12	.04	.03	.04	554.76	1000.00
26645.000	340.00	932.12	.00	.04	.00	310.61	1775.00
26645.000	340.00	932.16	.04	.05	.04	231.14	1775.00
27695.000	340.00	932.24	.00	.12	.00	646.60	1050.00
27695.000	340.00	932.29	.05	.13	.05	511.48	1050.00
28670.000	340.00	932.25	.00	.01	.00	900.00	975.00
28670.000	340.00	932.30	.05	.01	.05	745.20	975.00
29070.000	340.00	932.25	.00	.00	.00	700.00	400.00
29070.000	340.00	932.30	.05	.00	.05	570.53	400.00
29470.000	340.00	932.26	.00	.01	.00	500.00	400.00
29470.000	340.00	932.31	.05	.01	.05	355.50	400.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
29870.000	340.00	932.33	.00	.07	.00	255.24	400.00
29870.000	340.00	932.39	.05	.07	.05	171.76	400.00
30270.000	340.00	932.97	.00	.64	.00	148.99	400.00
30270.000	340.00	933.03	.05	.64	.05	52.58	400.00
-12094.000	245.00	896.87	.00	-36.10	.00	84.17	.00
-12094.000	245.00	896.98	.11	-36.05	.11	64.23	.00
120.000	245.00	896.89	.00	.02	.00	85.03	120.00
120.000	245.00	896.99	.10	.01	.10	77.35	120.00
620.000	245.00	898.95	.00	2.06	.00	56.60	500.00
620.000	245.00	899.06	.10	2.06	.10	14.60	500.00
2000.000	245.00	904.91	.00	5.95	.00	34.08	1380.00
2000.000	245.00	905.02	.11	5.96	.11	23.77	1380.00
2095.000	245.00	905.10	.00	.19	.00	27.45	95.00
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

2190.000	245.00	905.73	.00	.63	.00	25.05	95.00
2190.000	245.00	905.82	.09	.61	.09	15.89	95.00
2285.000	245.00	907.13	.00	1.40	.00	81.63	95.00
2285.000	245.00	907.17	.05	1.35	.05	23.50	95.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 292.000 PROFILE= 1 HYDRAULIC JUMP D.S.
CAUTION SECNO= 292.000 PROFILE= 2 HYDRAULIC JUMP D.S.

CAUTION SECNO= 21867.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 21867.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 21867.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 21867.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 21867.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 21868.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 21868.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

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FLOODWAY DATA. WALLED LAKE BRANCH
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.000	825.	1827.	.7	839.4	839.3	.1
62.000	813.	1524.	.8	839.4	839.3	.1
125.000	812.	1170.	1.0	839.4	839.3	.1
187.000	813.	929.	1.3	839.4	839.3	.1
251.000	807.	825.	1.5	839.4	839.3	.1
292.000	703.	654.	1.9	839.4	839.4	.0
503.000	420.	548.	2.2	839.7	839.6	.1
601.000	427.	611.	2.0	840.1	840.1	.0
699.000	680.	1231.	1.0	840.6	840.5	.1
797.000	616.	936.	1.3	840.8	840.7	.1
895.000	544.	774.	1.6	841.0	840.9	.1
993.000	497.	549.	2.2	841.3	841.2	.1
1091.000	500.	608.	2.0	841.7	841.6	.1
1385.000	303.	509.	2.4	842.9	842.8	.1
1678.000	233.	458.	2.7	844.1	844.0	.1
2253.000	200.	451.	2.7	846.5	846.4	.1
3404.000	180.	471.	2.6	850.5	850.5	.0
3410.000	180.	471.	2.6	850.5	850.5	.0
4011.000	20.	130.	9.3	853.2	853.2	.0
4012.000	20.	109.	11.1	852.9	852.9	.0
4038.000	20.	112.	10.9	853.2	853.2	.0
4039.000	20.	152.	8.0	854.3	854.3	.0
4663.000	364.	1776.	.7	855.9	855.9	.0
[illegible]	334.	1076.	1.2	856.0	856.0	.0

5122.000	302.	721.	1.7	856.1	856.1	.0
5275.000	261.	500.	2.4	856.6	856.5	.1
5581.000	231.	710.	1.7	857.8	857.7	.1
5888.000	225.	484.	2.3	858.9	858.8	.1
6238.000	70.	241.	4.6	861.8	861.8	.0
6338.000	45.	214.	5.2	862.8	862.8	.0
6438.000	20.	106.	10.5	863.5	863.5	.0
6439.000	19.	96.	11.6	863.3	863.3	.0
6449.000	19.	108.	10.3	863.9	863.9	.0
6450.000	20.	134.	8.3	864.7	864.7	.0
6470.000	48.	356.	3.1	865.9	865.9	.0
6600.000	35.	195.	5.7	866.1	866.0	.1
6650.000	35.	199.	5.6	866.4	866.3	.1
6700.000	13.	99.	11.3	866.1	866.0	.1
6701.000	13.	100.	11.2	866.2	866.2	.0
6749.000	13.	100.	11.2	866.7	866.7	.0
6750.000	13.	115.	9.7	867.4	867.3	.1
6763.000	34.	340.	3.3	869.1	869.0	.1

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FLOODWAY DATA. WALLED LAKE BRANCH
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
6841.000	164.	1250.	.9	869.4	869.3	.1
7300.000	135.	563.	2.0	869.5	869.4	.1
8050.000	196.	578.	1.9	871.0	870.9	.1
8400.000	44.	140.	8.0	872.3	872.2	.1
8450.000	19.	98.	11.4	872.9	872.9	.0
8451.000	19.	115.	9.7	873.6	873.6	.0
8461.000	19.	117.	9.5	873.7	873.7	.0
8462.000	19.	113.	9.8	873.7	873.7	.0
8475.000	38.	227.	4.9	875.2	875.2	.0
8787.000	35.	206.	5.4	876.3	876.2	.1
8906.000	31.	161.	6.9	876.8	876.7	.1
9025.000	26.	131.	8.5	877.7	877.7	.0
9144.000	24.	125.	9.0	879.1	879.1	.0
9262.000	51.	205.	5.4	881.3	881.2	.1
9494.000	62.	295.	3.8	883.1	883.0	.1
9725.000	68.	282.	3.9	884.1	884.0	.1
9956.000	66.	327.	3.4	885.1	885.0	.1
10187.000	235.	798.	1.4	885.8	885.7	.1
10812.000	210.	439.	2.5	887.0	886.9	.1
11438.000	224.	314.	2.9	891.1	891.0	.1
11518.000	200.	670.	1.4	892.8	892.8	.0
11694.000	72.	265.	3.5	893.2	893.2	.0
11869.000	55.	187.	4.9	894.5	894.4	.1
12094.000	60.	188.	4.9	897.0	896.9	.1
12120.000	82.	314.	2.6	898.0	897.9	.1
12130.000	81.	300.	2.7	897.9	897.9	.0
12381.000	40.	145.	5.6	898.3	898.3	.0
12581.000	38.	129.	6.3	899.9	899.9	.0
12632.000	38.	220.	3.7	900.6	900.6	.0
12704.000	150.	730.	1.1	908.0	908.0	.0
12712.000	101.	680.	1.2	908.0	908.0	.0
12905.000	66.	434.	1.9	908.0	908.0	.0
12955.000	66.	420.	2.0	908.0	908.0	.0
12956.000	49.	139.	5.9	907.9	907.9	.0

12981.000	78.	223.	3.7	908.6	908.5	.1
12982.000	70.	453.	1.8	908.8	908.7	.1
12997.000	69.	449.	1.8	908.8	908.7	.1
13097.000	60.	403.	2.0	908.9	908.8	.1
13157.000	210.	1250.	.7	908.9	908.8	.1
13282.000	150.	854.	1.0	909.0	908.9	.1
13412.000	301.	1806.	.5	909.0	908.9	.1
13582.000	228.	1124.	.7	909.0	908.9	.1

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FLOODWAY DATA. WALLED LAKE BRANCH
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
13632.000	327.	857.	1.0	909.0	908.9	.1
13732.000	262.	670.	1.2	908.9	908.9	.0
13833.000	184.	919.	.9	909.0	908.9	.1
13899.000	179.	888.	.9	908.9	908.9	.0
13916.000	175.	739.	1.1	909.0	909.0	.0
13918.000	175.	740.	1.1	909.0	909.0	.0
14119.000	240.	969.	.8	909.0	909.0	.0
14919.000	200.	389.	2.1	909.5	909.5	.0
15969.000	38.	218.	3.8	911.8	911.7	.1
16020.000	114.	472.	1.7	912.1	912.0	.1
16490.000	129.	606.	1.4	913.3	913.3	.0
16816.000	60.	330.	2.5	913.2	913.2	.0
16871.000	60.	330.	2.5	913.2	913.2	.0
16934.000	37.	138.	6.9	913.1	913.1	.0
16960.000	71.	214.	4.4	914.2	914.2	.0
17137.000	109.	463.	2.1	914.9	914.8	.1
17157.000	110.	463.	2.1	914.8	914.8	.0
17795.000	78.	296.	3.2	916.8	916.7	.1
18433.000	56.	230.	4.1	919.7	919.6	.1
19184.000	145.	230.	3.4	921.5	921.4	.1
19372.000	50.	158.	5.0	921.4	921.4	.0
19448.000	10.	85.	9.3	921.2	921.1	.1
19449.000	10.	82.	9.6	921.2	921.1	.1
19605.000	10.	88.	8.9	922.3	922.3	.0
19606.000	10.	100.	7.9	922.7	922.7	.0
19756.000	276.	1088.	.7	924.0	924.0	.0
20807.000	115.	476.	1.7	924.3	924.2	.1
20819.000	116.	475.	1.7	924.3	924.3	.0
20846.000	85.	367.	2.2	924.3	924.3	.0
20866.000	84.	369.	2.1	924.3	924.3	.0
21317.000	218.	844.	.9	924.4	924.4	.0
21817.000	29.	112.	7.1	924.0	924.0	.0
21867.000	10.	58.	13.7	925.0	925.0	.0
21868.000	10.	76.	10.4	926.6	926.6	.0
21892.000	10.	79.	10.0	926.9	926.9	.0
21893.000	10.	76.	10.3	926.9	926.9	.0
22143.000	100.	535.	1.5	929.3	929.3	.0
22568.000	25.	167.	4.7	929.6	929.5	.1
22593.000	10.	70.	11.3	929.0	928.9	.1
22594.000	10.	76.	10.4	929.4	929.3	.1
22644.000	10.	82.	9.7	930.0	929.9	.1
22645.000	10.	79.	10.0	930.0	929.9	.1

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FLOODWAY DATA. WALLED LAKE BRANCH
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
22670.000	44.	249.	1.4	931.9	931.9	.0
22970.000	36.	208.	1.6	931.9	931.9	.0
23870.000	198.	778.	.4	932.1	932.1	.0
24870.000	555.	1721.	.2	932.1	932.1	.0
26645.000	231.	577.	.6	932.1	932.1	.0
27695.000	511.	1022.	.3	932.3	932.2	.1
28670.000	745.	2264.	.2	932.4	932.3	.1
29070.000	571.	1423.	.2	932.4	932.3	.1
29470.000	356.	636.	.5	932.4	932.3	.1
29870.000	213.	243.	1.4	932.4	932.3	.1
30270.000	76.	87.	3.9	933.1	933.0	.1
-12094.000	64.	292.	.8	897.0	896.9	.1
120.000	77.	128.	1.9	897.0	896.9	.1
620.000	15.	41.	6.0	899.1	899.0	.1
2000.000	24.	91.	2.7	905.0	904.9	.1
2095.000	19.	60.	4.1	905.2	905.1	.1
2190.000	16.	41.	5.9	905.8	905.7	.1
2285.000	23.	48.	5.1	907.1	907.1	.0

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THIS RUN EXECUTED 08/27/91 15:40:45

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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 1.1
##################################################

ER


   UNEXPECTED END OF FILE ABORT IN SUBROUTINE  H2MAIN
```

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ROUGE
WALLED LAKE BRANCH

4) DOCUMENT TYPE: 100 YR RUN 3

7.35	0.68	4.17	0.00	0.070	0.050	0.000	0.000	900.40	73.33
0.005844	95.	95.	95.	2	0	0	0.00	23.41	96.74

0

*SECNO 2190.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 905.00 ELREA= 907.40

2190.00	3.72	905.52	0.00	904.85	906.07	0.55	0.84	0.14	905.00
220.	2.	218.	0.	2.	36.	0.	345.	167.	907.40
7.36	1.21	5.98	0.00	0.070	0.050	0.000	0.000	901.80	66.50
0.014858	95.	95.	95.	2	0	0	0.00	21.84	88.34

0

*SECNO 2285.000

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10 FEB 89 8:47:32 PAGE 104

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

3265 DIVIDED FLOW

3280 CROSS SECTION 2285.00 EXTENDED 0.06 FEET

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 905.60 ELREA= 907.80

2285.00	3.76	906.96	906.55	906.43	907.40	0.45	1.31	0.03	905.60
220.	31.	189.	0.	15.	33.	0.	345.	167.	907.80
7.36	2.04	5.72	0.00	0.070	0.050	0.000	0.000	903.20	0.00
0.012794	95.	95.	95.	6	11	0	0.00	54.01	81.23

0

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10 FEB 89 8:47:32 PAGE 105

THIS RUN EXECUTED 10 FEB 89 8:48:23

****
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 CITY OF NOVI
T2 100 YEAR FLOOD
T3 WALLED LAKE BRANCH

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	4.	0.	0.	0.000000	0.00	0 0	0.	839.290	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

1

10 FEB 89 8:47:32 PAGE 106

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 0.300 CEHV= 0.500
*SECNO 0.000

3265 DIVIDED FLOW

MEADOWBROOK LAKE

0.00	5.79	839.29	0.00	839.29	839.30	0.01	0.00	0.00	834.20
1215.	901.	314.	0.	1401.	440.	0.	0.	0.	842.90
0.00	0.64	0 71	0.00	0.030	0.040	0.000	0.000	833.50	13.86
0.000044	0.	0.	0.	0	0	0	0.00	800.28	871.56

0
*SECNO 62.000

62.00	6.09	839.29	0.00	0.00	839.30	0.01	0.00	0.00	836.00
1215.	859.	356.	0.	1178.	359	0.	2.	1.	842.50
0.02	0.73	0.99	0.00	0.030	0.040	0.000	0.000	833.20	12.89
0.000094	62.	62.	62.	0	0	0	0 00	853.87	866.77

0
*SECNO 125 000

125.00	6.30	839 30	0.00	0.00	839.32	0.02	0.01	0.00	837.90
1215.	803.	412	0.	889.	279	0.	4.	2.	842.30
0.04	0.90	1.47	0.00	0 030	0.040	0.000	0.000	833.00	12.08
0.000233	63.	63.	63.	0	0	0	0.00	849.18	861.26

0
*SECNO 187.000

3265 DIVIDED FLOW

187.00	7.21	839.31	0.00	0.00	839.34	0.03	0.02	0.01	839.80
1215.	837.	378.	0.	710.	213.	0	6.	4.	842.00
0.05	1.18	1.78	0.00	0 030	0.040	0.000	0.000	832.10	10.76
0.000373	62.	62.	62.	0	0	0	0.00	712 84	855.81

0
*SECNO 251.000

3265 DIVIDED FLOW

CHATTMAN DRIVE BRIDGE

1

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

251.00	6.83	839.33	0.00	0.00	839.37	0.04	0.02	0.00	833.20
1215.	958.	205.	51.	726.	83.	29.	7.	4.	833.50
0.06	1.32	2.47	1.77	0 030	0.040	0.030	0.000	832.50	9.55
0 000375	64.	64.	64.	0	0	0	0.00	555.69	849.95

0

SPECIAL BRIDGE

5070, VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
5227 DOWNSTREAM ELEV IS 837.73 , NOT 839.33 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.56	2.70	0.00	13.00	1.00	60.00	0.00	832.50	832.50

*SECND 292.000

3265 DIVIDED FLOW

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
849 26	841.41	0.00	1093	124.	60.	61.	837.60	838.40

292 00	5.79	839.39	0.00	0.00	839.43	0.04	0.06	0.00	841.90
1215	1115.	100.	0.	678.	64.	0.	8	5.	841.90
0 07	1.64	1.58	0.00	0.030	0 040	0.000	0.000	833.60	44.03
0.000596	41.	41.	41.	2	0	8	0.00	523.53	840.00

0

*SECND 503.000

3470 ENCROACHMENT STATIONS= 750.0 1180.0 TYPE= 1 TARGET= 430.000

503.00	4.86	839.56	0.00	0.00	839.95	0.40	0.35	0.18	837.80
1215.	195.	774.	246.	212.	123.	196.	12.	8.	836.00
0 09	0.92	6.28	1.25	0.100	0.040	0.100	0.000	834.70	750.00
0.004460	321.	211.	211.	2	0	0	0.00	430.00	1180.00

0

*SECND 601.000

3470 ENCROACHMENT STATIONS= 555.0 1180.0 TYPE= 1 TARGET= 625.000

1

SECND	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
601.00	5.00	840 08	0.00	0.00	840.34	0.26	0 34	0.04	838.18
1215.	348.	638.	229.	374.	115.	200.	13.	9.	836 38
0.09	0.93	5.56	1 14	0.100	0.040	0.100	0.000	835 08	555.00
0.003372	96.	98.	54.	4	0	0	0.00	514.99	1069.99

0

*SECND 699.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 335.0 1085.0 TYPE= 1 TARGET= 750.000

699.00	5.07	840.54	0.00	0.00	840.58	0.04	0.17	0.07	838.37
1215.	713.	349	154.	966.	123.	193.	15.	10.	836.87
0.11	0.74	2.84	0.79	0.100	0.040	0.100	0.000	835.47	335.00
0.001245	96.	98.	54	2	0	0	0.00	748.10	1085.00

0

*SECND 797.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 427.0 1250.0 TYPE= 1 TARGET= -427.000

797.00	4.81	840.66	0.00	0.00	840.76	0.09	0.15	0.03	838.75
1215.	566.	445.	204.	642.	116.	214.	18.	12.	837.25
0.12	0 88	3 85	0.95	0.100	0.040	0.100	0.000	835.85	427.00

```
  0.002430      96.      98.      55.        2        0        0     0.00   709.21  1138.11
0
 *SECNO 895 000

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=      368.0     1125.0  TYPE=      1  TARGET=     -368.000
    895.00      4.68   840.91      0.00      0 00   841.04      0.13      0 26      0.02   839.13
     1215.      568.     457.      190.      548.     101.      172        19.       13.    837.63
      0.13      1.04     4.53      1.11     0.100    0.040     0.100     0.000    836.23   368.00
  0.003639      95.      98.       54         2        0        0      0.00    653.32  1023.04
0
1
  10 FEB 89      8:47:32                                                                          PAGE  109


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 993 000

 3470 ENCROACHMENT STATIONS=      414.0     1200 0  TYPE=      1  TARGET=     -414.000
    993.00      4.55   841.17      0.00      0.00   841.53      0 36      0.38      0 12   839.52
     1215.      308.     715.      192.      332.     115.      160.       21.       15.    838.22
      0.14      0.93     6.24      1.20     0.100    0.040     0.100     0.000    836.62   426.82
  0.004853      96.      98.       54.        1        0        0      0 00    660.02  1086.84
0
 *SECNO 1091.000

 3470 ENCROACHMENT STATIONS=      443.0     1200.0  TYPE=      1  TARGET=     -443.000
   1091.00      4.64   841.64      0.00      0.00   841.95      0.31      0.40      0.02   839.90
     1215.      323.     688.      203.      359.     118.      178.       22.       16.    838.60
      0.15      0 90     5.85      1.14     0.100    0.040     0.100     0.000    837.00   443.00
  0 004121      96.      98        54.        3        0        0      0.00    645.76  1088.76
0
 *SECNO 1385.000

 3470 ENCROACHMENT STATIONS=      498.0     1150.0  TYPE=      1  TARGET=     -498.000
   1385.00      4.67   842.77      0.00      0.00   843.09      0.32      1.13      0 01   841.00
     1215       306.     693.      216.      284.     117.      186.       26.       19.    839.90
      0 17      1.08     5.92      1.16     0.100    0.040     0.100     0.000    838.10   551.57
  0.004264      288.     294.      163.        1        0        0      0.00    501 86  1053.43
0
 *SECNO 1678.000

 3470 ENCROACHMENT STATIONS=      400.0      900.0  TYPE=      1  TARGET=      500.000
   1678.00      4.65   843.95      0.00      0.00   844.30      0.35      1.20      0.01   842.10
     1215       340.     708.      167.      285.     116.      135.       29.       21.    841.30
      0.19      1.19     6.11      1.23     0.100    0.040     0.100     0.000    839.30   532.29
  0.004597      287.     293.      162.        2        0        0      0.00    367.71   900.00
0
 *SECNO 2253.000
   2253.00      4.65   846.35      0 00      0.00   846.61      0.26      2.29      0 03   844.20
     1215.      383.     740.       91.      265.     144.       50.       33.       24.    843.70
      0.22      1.45     5.13      1.84     0.100    0.050     0.100     0.000    841 70   310 54
  0.004925      375.     575       250.        3        0        0      0.00    231.93   542.47
0
1
  10 FEB 89      8:47.32                                                                          PAGE  110


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELFV
```

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 3404.000

3470 ENCROACHMENT STATIONS= 280.0 460.0 TYPE= 1 TARGET= 180.000
FOOTBRIDGE 350 FT. SE OF C&O RAILROAD BRIDGE

3404.00	5.94	850.54	0.00	0.00	850.78	0.24	4.16	0.01	848.00
1215.	496.	583.	136.	273.	109	92.	41.	27.	848.30
0.29	1.82	5.37	1.48	0.100	0.050	0.100	0.000	844.60	280.00
0 004445	576.	1151.	576.	4	0	0	0.00	180.00	460.00

0

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	1.83	2.90	0.00	10 00	0.00	56.80	2.40	844.60	844.60

*SECNO 3410.000
PRESS FLOW BECAUSE EGLWC OF 850.78 EXCEEDS 1.5 DEPTH
6870 D S. ENERGY OF 850.78 HIGHER THAN COMPUTED ENERGY OF 850.60
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
863.54	850.78	0.00	1128.	85.	57.	70.	848.30	847.70

3470 ENCROACHMENT STATIONS= 280.0 460.0 TYPE= 1 TARGET= 180.000

3410.00	5.94	850.54	0.00	0 00	850.78	0.24	0.00	0.00	848.00
1215.	496.	583.	136.	273.	109.	92.	41.	27.	848.30
0 29	1.82	5.37	1.48	0.100	0.050	0.100	0.000	844.60	280.00
0.004443	6.	6.	6.	2	0	7	0.00	180.00	460.00

0

*SECNO 4011.000

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 861.80 ELREA= 861.80

4011.00	7.33	853.23	0.00	0.00	854.58	1.36	3.25	0.56	847.30
1215.	0.	1215.	0.	0.	130.	0.	45.	28.	848.50
0.31	0.00	9.36	0.00	0.000	0.050	0.000	0.000	845.90	180.00
0.008441	376.	601	401.	2	0	0	0.00	20.00	200.00

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 4012.000

3301 HV CHANGED MORE THAN HVINS

```
 3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD=  861.80 MAX ELLC=  854.50

          C&O RR BRIDGE 1900 FT. SOUTH OF TEN MILE ROAD
   4012.00      7.05    852 95      0.00      0.00    854.88      1.93      0 01      0.28    864.20
     1215.        0.     1215.        0.        0.      109.        0.       45.       28.     864.20
      0.31      0.00     11.15      0.00     0.000     0.021     0.000     0.000    845.90    290.00
  0.006045         1.        1.        1.         2         0         0    -24 78     20.00    310.00
0
 *SECNO 4038.000

 3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD=  861.80 MAX ELLC=  854.50

   4038.00      7 31    853.21      0.00      0.00    855.06      1.84      0.15      0.03    864.20
     1215.        0.     1215.        0.        0.      112.        0.       45.       28.     864.20
      0.31      0.00     10.90      0.00     0 000     0.021     0 000     0.000    845.90    290.00
  0.005757        26.       26.       26.         2         0         0    -27.55     20.00    310.00
0
 *SECNO 4039.000

 3301 HV CHANGED MORE THAN HVINS


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       861 80 ELREA=       861.80

   4039 00      8.42    854.32      0.00      0.00    855.32      0.99      0.01      0.25    847.30
     1215.        0.     1215        0.        0.      152.        0.       45.       28.     848.50
      0 31      0.00      8 00      0.00     0 000     0.050     0.000     0.000    845.90    180.00
  0.005014         1         i.        1.         4         0         0      0.00     20.00    200.00
0
 *SECNO 4663.000

 3301 HV CHANGED MORE THAN HVINS

   4663.00      7.68    855.88      0.00      0.00    855.89      0.01      0.28      0.29    850.70
     1215.      819.      264.       133      1440.      177       233.       54.       30.     850.10
      0.50      0.57      1.49      0.57     0 100     0.050     0.100     0.000    848.20     73.46
  0.000193       325.      624.      650.         3         0         0      0.00    406.23    479.70
0
1
  10 FEB 89     8:47:32                                                                    PAGE  112


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 4969.000
   4969.00      5.81    855.96      0.00      0.00    856.00      0.04      0.09      0.01    852.65
     1215       746.      342.       127       842.      130.      136.       62.       32.     852.05
      0.55      0.89      2.63      0.93     0.100     0.050     0.100     0.000    850.15     88.16
  0.000906       225.      306       256.         2         0         0      0.00    385.10    473.27
0
 *SECNO 5122.000
   5122.00      4.99    856.11      0.00      0.00    856.20      0.09      0.17      0.03    853 62
     1215.      677.      416.       122       588       110.       98.       65.       33.     853.02
      0.57      1.15      3.80      1.24     0.100     0.050     0.100     0.000    851.12     94.60
  0 002370       112.      153.      128          2         0         0      0.00    375.84    470 45
0
 *SECNO 5275.000

 3470 ENCROACHMENT STATIONS=       150.0       460.0  TYPE=       1  TARGET=       310.000
   5275.00      4.40    856.50      0.00      0 00    856.72      0.21      0.46      0.06    854.60
     1215.      593.      514.       108.      388.       95.       65.       67.       34.     854.00
      0.58      1.53      5.41      1.67     0.100     0.050     0.100     0.000    852 10    150.00
```

```
  0.005824      113.      153.      128.         2         0         0      0.00    310.00    460.00
0
 *SECNO 5581.000

 3470 ENCROACHMENT STATIONS=       80.0      380.0  TYPE=      1  TARGET=      300.000
          U.S. OF CONFLUENCE WITH TRIB. "A"
   5581.00      3.66    857.71      0.00      0.00    857.76      0 05      0.99      0.05    854.85
     1215.       659.       96.       460       439.       27.       297.       70.       36     854.75
     0.62      1.50      3.50      1.55     0.100     0.050     0.100     0.000    854.05     80.00
  0.002825       225.      306.      256.         2         0         0      0.00    298.15    378.15
0
 *SECNO 5888.000

 3470 ENCROACHMENT STATIONS=      120.0      365.0  TYPE=      1  TARGET=      245.000
   5888.00      2.76    858.76      0.00      0.00    858.86      0 10      1.07      0.03    856.80
     1115.       600.       99.       415.       277.       20.       195.       74.       37.     856.70
     0.65      2.17      4.90      2.13     0.100     0.050     0.100     0.000    856.00    120.00
  0.008299       225.      307.      257.         2         0         0      0.00    245.00    365.00
0
1
  10 FEB 89      8:47:32                                                                          PAGE  113


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         GLOB      QCH       QROB      ALOB      ACH       AROB      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 6238.000

 3470 ENCROACHMENT STATIONS=      360.0      430.0  TYPE=      1  TARGET=       70.000
   6238.00      5.36    861.76      0.00      0.00    862.34      0.57      3.24      0.24    858.20
     1115       526.      528.       61.      148.       66.       27.       77.       39.     859.70
     0.66      3.56      8.06      2.21     0.100     0.050     0.100     0.000    856.40    360.00
  0.011381       300.      350.      400.         3         0         0      0.00     70.00    430.00
0
 *SECNO 6338.000

 3470 ENCROACHMENT STATIONS=      370.0      415.0  TYPE=      1  TARGET=       45.000
   6338.00      6.23    862.83      0.00      0.00    863.43      0.60      1.08      0.01    858.40
     1115.       508.      607.        0.      136.       79.        0.       77        39.  100000.00
     0.67      3.75      7.73      0.00     0 100     0.050     0.000     0.000    856 60    370.00
  0.010277       100.      100.      100.         2         0         0      0 00     45.00    415.00
0
 *SECNO 6438 000
 3280 CROSS SECTION    6438.00 EXTENDED       5.89 FEET


 3301 HV CHANGED MORE THAN HVINS


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       871.00 ELREA=       871.00

   6438.00      6 49    863.49      0.00      0.00    865.21      1.72      1.22      0.56    858.80
     1115         0.      1115.       0.        0.      106.        0.       77        39      860.30
     0.67      0.00     10.52      0.00     0.000     0.050     0 000     0.000    857.00    395.00
  0.014651       100.      100.      100.         2         0         0      0.00     20.00    415.00
0
 *SECNO 6439.000

 3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD=  871.00 MAX ELLC=  868.00

          C&O RR BRIDGE 233 FT.  SOUTH OF TEN MILE ROAD
   6439.00      6.32    863.32      0 00      0.00    865.40      2.08      0.01      0.18    872.60
     1115.        0.      1115.       0.        0.       96.        0.       77.       39.     872.60
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      0.67      0.00     11.57      0.00     0.000     0.026     0.000     0.000   857.00   390.44
  0.007689       1.        1.         1         2         0         0      0.00    18.95   409.39
0
1
  10 FEB 89     8:47:32                                                                    PAGE  114

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 6449.000

 3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  871.00 MAX ELLC=  868.00

   6449 00     6.93   863.93      0.00      0.00   865.59      1.66      0.07      0.13   872.60
     1115        0.     1115.       0.        0.     108.        0.       77.       39.    872.60
      0.67     0.00     10.33      0.00     0.000     0.026     0 000     0.000   857.00   390.38
  0.005579       10.       10.       10.         6         0         0      0.00    19.09   409.47
0
 *SECNO 6450.000
 3280 CROSS SECTION   6450 00 EXTENDED      8.09 FEET


 3301 HV CHANGED MORE THAN HVINS


 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      871.00 ELREA=      871.00

   6450.00     7.69   864.69      0.00      0.00   865.77      1.08      0.01      0.17   858.80
     1115.       0.     1115.       0.        0.     134.        0.       77.       39.    860 30
      0.67     0.00      8.33      0.00     0.000     0.050     0.000     0.000   857.00   395.00
  0.006600       1.        1         1.        3         0         0      0.00    20.00   415.00
0
 *SECNO 6470.000
 3280 CROSS SECTION   6470 00 EXTENDED      9.21 FEET


 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=      375 0      435.0  TYPE=      1  TARGET=      60.000
   6470.00     8.81   865.87      0.00      0.00   866.09      0.22      0.06      0.26   858.86
     1115       252.     705.      159.      142.     156.      104.       78.       39.    860.36
      0.67     1.77      4.51      1.53     0.100     0.050     0.100     0.000   857.06   375 00
  0.001572       20        20.       20.       3         0         0      0.00    60.00   435.00
0
 *SECNO 6600 000

 3470 ENCROACHMENT STATIONS=        0.0      125.0  TYPE=      1  TARGET=     124.999
   6600 00     8 63   866.11      0.00      0.00   866.32      0.21      0.24      0.00   868.88
     1115.       0.      808      307.        0     194.      154.       79.       39.    859.98
      0.68     0.00      4.16      1.99     0.000     0.050     0.100     0.000   857 48    65.23
  0 002129      130.      130.      130.        2         0         0      0.00    59.77   125.00
0
1
  10 FEB 89     8:47:32                                                                    PAGE  115

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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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 *SECNO 6650.000

 3470 ENCROACHMENT STATIONS=        0.0      100.0  TYPE=      1  TARGET=       99.999
   6650.00      8 47    866.11      0.00      0.00    866.65      0 54       0.16       0.17    869.04
     1115.         0.     1115.        0.        0.      189.        0.        79.        39.  100000.00
      0.69      0.00      5.91      0.00     0.000     0.050     0.000     0.000    857.64     65.66
  0.005388        50.       50.       50.         2         0         0      0.00     34.34    100.00
0
 *SECNO 6700.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=        87.5      100.5  TYPE=      1  TARGET=       13.000
   6700.00      8.04    865 84      0.00      0.00    867.98      2.14       0.53       0.80    858.08
     1115.         0.     1115.        0         0.        95.        0.        79.        39.   99999.00
      0.69      0.00     11.75      0.00     0.000     0.050     0.000     0.000    857.80     87.50
  0.029283        50.       50.       50.         2         0         0      0 00     13.00    100.50
0
 *SECNO 6701.000

 3370 NORMAL BRIDGE,NRD=   6 MIN ELTRD=   874.00 MAX ELLC=   866.00

          TEN MILE BRIDGE
   6701.00      8.32    866.12      0.00      0.00    868.06      1.94       0.02       0.06    874.60
     1115.         0      1115.        0.        0.      100.        0.        79.        39.     874.60
      0.69      0.00     11.18      0.00     0.000     0.026     0.000     0 000    857.80     93.50
  0.011741         1.        1.        1.         4         0         0     -1 85     13.00    106.50
0
 *SECNO 6749.000

 3370 NORMAL BRIDGE,NRD=   6 MIN ELTRD=   874.00 MAX ELLC=   866.00

   6749.00      8.88    866.68      0.00      0.00    868.62      1.94       0.56       0.00    874 60
     1115.         0.     1115.        0.        0.      100.        0.        79.        39.     874.60
      0 69      0.00     11.18      0.00     0.000     0.026     0.000     0.000    857.80     93.50
  0.011741        48.       48.       48.         2         0         0     -9.18     13.00    106.50
0
1
  10 FEB 89     8.47:32                                                                    PAGE  116

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 6750.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      875.00 ELREA=      875.00

   6750 00      9.45    867.25      0.00      0.00    868.76      1.50       0 01       0.13    858.08
     1115         0.     1115.        0.        0.      113.        0.        79.        39.     860.10
      0.69      0.00      9.84      0.00     0 000     0.050     0.000     0.000    857.80     87.50
  0.006460         1.        1.        1.         3         0         0      0.00     13.00    100.50
0
 *SECNO 6763.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=       170.0      210.0  TYPE=      1  TARGET=       40.000
   6763.00     11.02    868.94      0 00      0.00    869 17      0.23       0.03       0.38    859.62
     1115        118       883.      114.       92.       208.       89.        79.        39.     859 72
```

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      0.69      1.29      4.24      1.28     0.100     0.050     0.100     0.000    857.92    170.00
   0.000923       13.       13.       13         3         0         0      0.00     40.00    210.00
0
 *SECNO 6841.000

 3470 ENCROACHMENT STATIONS=      40.0     240.0  TYPE=      1  TARGET=     200.000
   6841.00     10.62    869.23      0.00      0.00    869.26      0.02      0.03      0.06    860.31
     1115.       599.      353.      164.      866.      200.      243.       81.       39.     860.41
      0.71      0.69      1.76      0.68     0.100     0.050     0.100     0.000    858.61     40.00
   0.000168       78.       78        78.        0         0         0      0.00    200.00    240.00
0
 *SECNO 7300.000
   7300.00      6.64    869.34      0.00      0.00    869.46      0.12      0.16      0.05    864.40
     1115.       501.      469.      145.      362.      120.      102.       90.       41.     864.50
      0.76      1.38      3.90      1.43     0.100     0.050     0.100     0.000    862.70     68.42
   0.001611       384.      459.      384.         2         0         0      0.00    161.53    229.96
0
 *SECNO 8050.000
   8050.00      6.97    870.87      0.00      0.00    870.98      0.11      1.52      0.00    868.30
     1115.       684.      431.        0.      503.      110.        0.      100.       44.     878.70
      0.85      1.36      3.91      0.00     0.100     0.050     0.000     0.000    863.90     63.03
   0.002544       775.      750.      700.         3         0         0      0.00    233.17    296.20
0
1
  10 FEB 89     8:47:32                                                                    PAGE  117

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 8400.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     165.0     209.0  TYPE=      1  TARGET=      44.000
   8400.00      5.72    872.24      0.00      0.00    873.49      1.25      1.94      0.57    871.22
     1115.         8.     1079.        28.         5.       119.        13.       103.       46.     870.72
      0.86      1.64      9.10      2.17     0.100     0.050     0.100     0.000    866.52    165.00
   0.016079       425.      350.      250.         3         0         0      0.00     44.00    209.00
0
 *SECNO 8450.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     178.0     197.0  TYPE=      1  TARGET=      19.000
   8450.00      5.97    872.87      0.00      0.00    874.90      2.03      1.02      0.39100000.00
     1115.         0.     1115.        0.        0.        98.        0.       104.       46.  100000.00
      0.86      0.00     11.43      0.00     0.000     0.050     0.000     0.000    866.90    178.00
   0.026606        50.       50.       50.         2         0         0      0.00     19.00    197.00
0
 *SECNO 8451.000

 3301 HV CHANGED MORE THAN HVINS


 3370 NORMAL BRIDGE, NRD= 15 MIN ELTRD=  879.10 MAX ELLC=  875.90

          C&O RR BRIDGE 1300 FT. NORTH OF TEN MILE ROAD
   8451.00      6.72    873.62      0.00      0.00    875.08      1.46      0.01      0.17    880.60
     1115.         0.     1115         0.        0.       115         0.       104.       46.     880.60
      0.86      0.00      9.70      0.00     0.000     0.027     0.000     0.000    866.90    490.50
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  0.005309        1.          1          1.          5          0          0       0.00      19.00     509.50
0
 *SECNO 8461.000

 3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  879.10 MAX ELLC=  875.90

   8461.00      6.85    873.75       0.00       0.00    875.15       1.40       0.05       0.02    880.60
     1115.         0.     1115.         0.         0.      117.         0.        104.        46.     880.60
      0.86      0.00      9.50       0.00      0.000     0.027      0.000      0.000    866.90     490.50
  0.005012        10.        10.        10.          2          0          0       0.00      19.00     509.50
0
1
  10 FEB 89      8:47:32                                                                                PAGE  118


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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 8462.000

 3470 ENCROACHMENT STATIONS=      178.0      197.0  TYPE=       1  TARGET=       19.000
   8462.00      6.80    873.70       0.00       0.00    875.21       1.50       0.01       0.05100000.70
     1115.         0     1115.         0.         0.      113.         0.        104.        46.  100000.70
      0.86      0.00      9.83       0.00      0.000     0.050      0.000      0.000    866.90     178.00
  0.017456         1.         1.         1.          2          0          0       0.00      19.00     197.00
0
 *SECNO 8475.000
 3280 CROSS SECTION    8475 00 EXTENDED       0.46 FEET


 3301 HV CHANGED MORE THAN HVINS

 3470 ENCROACHMENT STATIONS=      165.0      210.0  TYPE=       1  TARGET=       45 000
   8475.00      8.36    875.22       0.00       0.00    875.61       0.39       0.07       0.33    871.56
     1115.        23.     1029.        63.        18.      198.        40.       104.        46.     871.06
      0.86      1.26      5.21       1.56      0.100     0.050      0.100      0.000    866.86     165.00
  0.002664        13.        13.        13.          3          0          0      0 00      45.00     210.00
0
 *SECNO 8787.000

 3470 ENCROACHMENT STATIONS=       75.0      200.0  TYPE=       1  TARGET=      -75.000
   8787 00     10.19    876.19       0.00       0.00    876.66       0.47       1.01       0.04    880.30
     1115.         0.     1115.         0.         0.      203.         0.        105.        46.     883.00
      0 88      0 00      5.50       0.00      0.000     0.050      0 000      0.000    866 00     105.47
  0.004026       312.       312.       337.          3          0          0       0.00      34.44     139.92
0
 *SECNO 8906.000

 3470 ENCROACHMENT STATIONS=       95.0      225.0  TYPE=       1  TARGET=      -95.000
   8906.00      9 01    876.69       0.00       0.00    877.46       0.77       0.65       0.15    878.68
     1115.         0.     1115.         0.         0.      158.         0.        106.        46.     883.48
      0.88      0.00      7.04       0.00      0.000     0.050      0.000      0.000    867.68     127.22
  0.007720       119.       119        119.          2          0          0       0.00      30.38     157.60
0
 *SECNO 9025.000
1
  10 FEB 89      8:47:32                                                                                PAGE  119


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         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=      114.0      250.0  TYPE=      1  TARGET=     -114.000
   9025.00      8.30    877.65      0.00      0.00    878.79      1.14      1.15      0.19    877.25
     1115.        0.      1115.        0.        0.      130.        0.      106.       46.     884.05
      0.89      0.56      8.57      0.00     0.100     0.050     0.000     0.000    869.35    147.91
  0 012358      119.      119.      119.         2         0         0      0.00     28.02    175.93
0
 *SECNO 9144.000

 3470 ENCROACHMENT STATIONS=      121.0      275.0  TYPE=      1  TARGET=     -121.000
   9144.00      8 06    879.09      0.00      0.00    880.40      1.32      1.53      0.09    875.73
     1115.        59.      1056.        0.       21.      112.        0.      107.       46.     884.63
      0.89      2.78      9 44      0.00     0.100     0.050     0.000     0 000    871.03    163.03
  0.013311      119.      119.      119.         2         0         0      0.00     31.77    194.80
0
 *SECNO 9262.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=      139.0      300.0  TYPE=      1  TARGET=     -139.000
   9262 00      8.48    881.18      0.00      0.00    881.90      0.72      1.32      0.18    874.50
     1115.      384.       731.        0.      124.       90.        0.      107.       46.     885.50
      0.89      3.11      8 13      0.00     0 100     0.050     0.000     0.000    872.70    151.71
  0.009508      118.      118.      118.         3         0         0      0.00     62.17    213.88
0
 *SECNO 9494.000

 3470 ENCROACHMENT STATIONS=      158.0      395.0  TYPE=      1  TARGET=     -158.000
   9494.00      8.76    883 04      0.00      0.00    883.37      0 33      1.35      0.12    876.18
     1115.      506.       609.        0.      207.      105.        0.      108.       47.     884.38
      0 91      2.44      5.82      0.00     0.100     0.050     0.000     0.000    874.28    158.60
  0.004479      188.      232.      219.         2         0         0      0.00     85.45    244.05
0
 *SECNO 9725.000

 3470 ENCROACHMENT STATIONS=      203 0      490.0  TYPE=      1  TARGET=     -203.000
   9725.00      8.16    884.01      0.00      0 00    884.40      0.39      1.00      0.03    878.15
     1115       459       656.        0.      174.      106.        1.      110       47.     883.45
      0.92      2.64      6.19      0.44     0.100     0.050     0.100     0.000    875.85    203.00
  0 004965      187       231.      218.         3         0         0      0.00     74.51    277.51
0
1
  10 FEB 89     8:47:32                                                                    PAGE  120


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 9956.000

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=      226.0      585.0  TYPE=      1  TARGET=     -226.000
   9956.00      7.60    885.03      0.00      0.00    885.31      0.28      0.87      0.03    880.13
     1115.      502.       589.       24.      218.      109.       22       111.       48.     882.53
      0.94      2.30      5 42      1.09     0.100     0.050     0.100     0.000    877.43    228.10
  0 003450      188.      231.      219.         1         0         0      0.00     99.35    395.87
0
```

```
*SECNO 10187.000

3265 DIVIDED FLOW

 10187.00      6.71    885.71      0.00      0.00    885.76      0.05      0.38      0.07    882.40
    1115.      765.      297.       53.      681.       100       77.      114.       48.    882.00
     0.97      1.12      2.98      0.69     0.100     0.050     0.100     0.000    879.00     80.18
 0.001154      187.      231.      219.         2         0         0      0.00    292.99    464.71
0
*SECNO 10812.000

3265 DIVIDED FLOW

         D.S  OF CONFLUENCE WITH TRIB.  "B"
 10812.00      5.21    886.91      0 00      0.00    887.11      0.20      1.28      0.08    885.10
    1115       696.      400.       19.      376.       73.       16.      122.       52.    884.70
     1.02      1.85      5.51      1.16     0.100     0.050     0.100     0 000    881.70     94.63
 0.005981      550.      625.      575.         2         0         0      0.00    230.58    435.94
0
CCHV=    0 500 CEHV=    1.000
*SECNO 11438.000

3470 ENCROACHMENT STATIONS=      165.0      405.0  TYPE=      1  TARGET=      240 000
         NOVI ROAD BRIDGE
 11438.00      6.56    890.96      0.00      0.00    891.28      0.32      4.05      0.12    887.40
     915.      329.      310.      276.       90.       47.      163.      127.       55.    887.40
     1 06      3.66      6.61      1.69     0.100     0.050     0.100     0 000    884 40    165.00
 0.008544      551.      626.      576.         3         0         0      0.00    214.86    379.86
0
1
 10 FEB 89      8:47:32                                                                          PAGE  121


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


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       3.07       2.90       0.00       8.60       0.00      40.00       0 00     884.40     884.40

*SECNO 11518.000
PRESSURE AND WEIR FLOW


 EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                       AREA
    915 90     891.30       0.00       661.       255.        40.        25.       887.30     894.30


3470 ENCROACHMENT STATIONS=      175.0      375.0  TYPE=      1  TARGET=      200.000
 11518.00      8.45    892.85      0.00      0.00    892 90      0.05      1.62      0.00    887.40
     915.      203.      192.      519.      120.       63.      485.      128.       55     887.40
     1.08      1.69      3.05      1.07     0.100     0.050     0.100     0.000    884.40    175.00
 0.001223       80.        80       80.         2         0         9      0.00    200.00    375.00
0
CCHV=    0.300 CEHV=    0.500
*SECNO 11694.000

3470 ENCROACHMENT STATIONS=       37.0      275.0  TYPE=      1  TARGET=      -37.000
```

```
 11694.00      6.75    893 15      0 00      0.00    893.44      0.29      0.43      0.12    891.80
     915.       17.      480.      417.       22.       86.      185.      131.       56.     888.30
     1.09      0.79      5.56      2.26     0.100     0.050     0.100     0.000    886 40     42 82
 0.004797      138.      176.      226.         2         0         0      0.00    107.58    150.40
0
 *SECNO 11869.000

 3470 ENCROACHMENT STATIONS=       37.0      275.0  TYPE=      1  TARGET=      -37.000
 11869.00      5.89    894.39      0.00      0.00    894.94      0 55      1.37      0.13    893.90
     915.        2.      534.      380.        3.       72.      135.      132.       56.     890.40
     1.10      0.61      7.45      2.81     0.100     0.050     0.100     0.000    888.50     63.41
 0.011047      138.      175.      225.         3         0         0      0.00     85.30    148 72
0
 *SECNO 12094.000
          DOWNSTREAM ISLAND CONFLUENCE
1
 10 FEB 89      8:47:32                                                                          PAGE  122


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


 12094.00      6 67    896.87      0.00      0.00    897.71      0.84      2.63      0.14    893.10
     915.      190.      566.      159.       80.       62.       61.      133.       57.     890.80
     1.11      2.36      9.13      2.63     0.100     0.050     0.100     0.000    890.20     14.76
 0.009871      200.      225.      325.         2         0         0      0.00     75.74     90.50
0
 *SECNO 12120.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=      530 0      660.0  TYPE=      1  TARGET=      130.000
          C&O RR BRIDGE 600 FT.  NW OF NOVI ROAD AND RR CROSSING
 12120.00      7.37    897.87      0.00      0.00    898.02      0.14      0.10      0.21    896.30
     820.       40.      704.       76.       40.      216.       89.      133.       57.     896.50
     1.11      1.01      3.27      0.85     0.070     0.050     0.070     0.000    890.50    530.00
 0.001294        2.       26.      101.         2         0         0      0.00    130.00    660.00
0

 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       1.77       3.00       0.00      31 00       0.00      70.40       0.00     890.50     890.50

 *SECNO 12130.000
 6870 D.S.  ENERGY OF  898.02 HIGHER THAN COMPUTED ENERGY OF  897.90
 PRESSURE AND WEIR FLOW


  EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                         AREA
     901.60     898.02       0.00       747.        73.        70.        87.       893.30     894 00


 3470 ENCROACHMENT STATIONS=      530.0      660 0  TYPE=      1  TARGET=      130.000
 12130.00      7 37    897 87      0.00      0.00    898.02      0.14      0.00      0 00    896.30
     820.       40.      705.       75.       40.      215.       88.      133        57.     896.50
     1.11      1.01      3.27      0.85     0.070     0.050     0.070     0.000    890.50    530.00
 0.001303       10.       10.       10.         2         0         6      0.00    130.00    660.00
0
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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 12381.000									
12381.00	5.40	898.34	0.00	0.00	898.84	0.51	0.65	0.18	905.74
820	0.	820.	0.	0.	143.	0.	135.	57.	905.74
1.13	0.00	5.71	0.00	0 000	0.050	0.000	0.000	892.94	113.03
0.007140	201.	251.	301.	2	0	0	0.00	39.64	152.67
0									
*SECNO 12581.000									
12581 00	5.02	899.92	0.00	0.00	900.55	0.63	1.65	0.06	907.70
820.	0.	820.	0.	0.	129.	0.	135.	58.	907.70
1.13	0.00	6.36	0.00	0 000	0.050	0.000	0.000	894.90	113.69
0 009641	200.	200.	200.	2	0	0	0.00	38.11	151.80
0									
*SECNO 12632.000									
FLINT STREET BRIDGE									
12632.00	7.43	900.63	0.00	0.00	900.88	0.25	0.22	0.11	893.33
820.	224.	282.	313.	77.	51.	104	136.	58.	893.38
1 14	2.90	5.49	3.01	0.070	0.050	0.070	0.000	893.20	194 45
0.002384	51.	51.	51.	2	0	0	0.00	47.99	242.44
0									

SPECIAL BRIDGE

SB	XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1 72	2.70	0.00	5.60	0.00	39.00	0.00	893.90	893.20	

*SECNO 12704.000
3280 CROSS SECTION 12704.00 EXTENDED 0.40 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
912.44	905 27	0.00	177.	649.	39.	39.	900.90	907.20

3470 ENCROACHMENT STATIONS= 150 0 300.0 TYPE= 1 TARGET= 150.000

12704.00	14.10	908.00	0.00	0.00	908 03	0.03	7.14	0.00	894.03
820.	246.	203.	370.	256.	98.	377.	136.	58.	894.08
1 15	0.96	2.07	0.98	0.070	0.050	0.070	0.000	893.90	150.00
0.000144	72.	72.	72.	2	0	5	0.00	150.00	300.00

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 12712.000									
3280 CROSS SECTION 12712.00 EXTENDED 0.38 FEET									

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 3470 ENCROACHMENT STATIONS=       70.0      235.0  TYPE=      1  TARGET=      165.000
  12712.00     14.08    908.01      0.00    907.64    908.03      0.02      0.00      0.00    906.73
      820.        5.       794.       21.       25.       639.       85.       137.       58.     906.73
      1.16      0.19      1.24      0.25     0.070     0.050     0.070     0.000    893.93     70.00
  0.000102         8.        8.        8.         0         0         0      0.00    165.00    235.00
0
 *SECNO 12905.000
 3280 CROSS SECTION  12905.00 EXTENDED       0.95 FEET

  12905.00     13.24    908.02      0.00    907.65    908.08      0.06      0.03      0.02    911.48
      820.        0.       696.      124.        0.       332.      135.       139.       58.     900.78
      1.18      0.00      2.09      0.92     0.000     0.050     0.070     0.000    894.78    107.89
  0 000367       193.      193.      193.         0         0         0      0.00     92.12    200.00
0
 *SECNO 12955.000
 3280 CROSS SECTION  12955.00 EXTENDED       0.73 FEET

  12955.00     13 03    908.03      0.00    907.66    908.12      0.09      0 02      0.01    898.27
      820.       128.       522      170.      109.       182.      157.       140.       58.     898.51
      1.19      1.17      2.88      1 08     0.070     0.050     0.070     0.000    895.00    108.38
  0 000413        50.       50.       50.         0         0         0      0.00     91.62    200.00
0
 *SECNO 12956.000

 3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  905.50 MAX ELLC=  900.80


 3470 ENCROACHMENT STATIONS=       80.0      175.0  TYPE=      1  TARGET=       95.000
          FOOT BRIDGE NE OFF FLINT STREET
  12956.00     12.86    907.86      0.00    907 45    908.28      0.42      0.00      0.16    905.50
      820.       53.       483.      284.       14.        81.       75.       140.       58.     905.50
      1.19      3.75      5.98      3.79     0.070     0.050     0.070     0.000    895.00     80.79
  0.025539         1.        1         1.         2         0         0    -90.29     90.60    171.39
0
1
  10 FEB 89      8:47:32                                                                  PAGE  125

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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 12981.000

 3370 NORMAL BRIDGE,NRD= 20 MIN ELTRD=  905 50 MAX ELLC=  901.20


 3470 ENCROACHMENT STATIONS=       80.0      175.0  TYPE=      i  TARGET=       95.000
  12981.00     13.13    908.53      0.00    908.26    908.73      0 20      0.39      0.06    905.50
      820.       68.       374.      377.       23         91.       120.      140.       59.     905.50
      1.19      3.04      4 11      3.15     0.070     0.050     0.070     0.000    895.40     80.00
  0.010302        25.       25.       25.         2         0         0    -84.15     95.00    175.00
0
 *SECNO 12982.000
 3280 CROSS SECTION  12982.00 EXTENDED       0.99 FEET

  12982.00     13.29    908 69      0.00    908.43    908 77      0 08      0.00      0.04    898.67
      820.       129.       512      179.      115.       185.      171.      140.       59.     898.91
      1.19      1.13      2.76      1.05     0.070     0.050     0.070     0.000    895.40    107.80
  0.000369         1.        1.        1          2         0         0      0.00     92.20    200.00
0
 *SECNO 12997.000
 3280 CROSS SECTION  12997.00 EXTENDED       0.94 FEET
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  12997.00     13.24    908.72      0.00    908.45    908.78      0.06      0.01      0.01    912.18
      820         0.      697.      123.       0.       332.      135.      140.       59.     901.48
     1.19      0.00      2.10      0.92     0.000     0.050     0.070     0 000    895.48    107.91
 0.000367       15.       15.       15.         2         0         0      0.00     92.09    200.00
0
 *SECNO 13097.000
 3280 CROSS SECTION   13097.00 EXTENDED       0.45 FEET

  13097.00     12.75    908.76      0.00    908.48    908.83      0.07      0.04      0.01    912.71
      820.        0.      713.      107.       0.       312.      110.      141.       59.     902.01
     1.21      0.00      2 29      0 97     0 000     0.050     0.070     0.000    896.01    109.03
 0.000460       100.      100.      100         0         0         0      0.00     90.97    200.00
0
 *SECNO 13157.000
 3280 CROSS SECTION   13157.00 EXTENDED       0.04 FEET

1
  10 FEB 89      8:47:32                                                                  PAGE  126

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
    Q          GLOB       QCH        QROB       ALOB       ACH        AROB       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=      325.0      535.0  TYPE=      1  TARGET=      210.000
  13157.00     12.54    908.85      0 00    908 55    908.85      0.01      0.01      0.02    899.71
      820.      391.      384.       45.      635.      404.      181.      142.       59.     906.31
     1.23      0.62      0.95      0.25     0.070     0.050     0.070     0.000    896.31    325.00
 0.000056       60.       60.       60.         2         0         0      0.00    210.00    535.00
0
 *SECNO 13282.000

 3470 ENCROACHMENT STATIONS=      360.0      820.0  TYPE=      1  TARGET=      460.000
  13282 00     11.85    908.85      0.00    908.56    908.87      0.02      0.01      0.00    900.40
      820.      258.      475.       87       324.      375.      382.      145.       60.     907.00
     1.26      0.80      1.27      0.23     0.070     0.050     0.070     0.000    897.00    360.00
 0.000110       125.      125.      125.         2         0         0      0.00    460.00    820.00
0
 *SECNO 13412.000

 3470 ENCROACHMENT STATIONS=      250.0      760.0  TYPE=      1  TARGET=      510.000
  13412.00     11.47    908.88      0.00    908.58    908.88      0.00      0.01      0.00    906.11
      820.      568.      201.       50.     1383.      314.      301.      150.       61.     907.11
     1.34      0.41      0.64      0.17     0.070     0.050     0.070     0.000    897.41    250.00
 0.000035       130.      130.      130.         1         0         0      0.00    494.84    744.84
0
 *SECNO 13582.000

 3470 ENCROACHMENT STATIONS=      315.0      740.0  TYPE=      1  TARGET=      425.000
  13582.00     10.94    908.88      0.00    908 58    908.89      0.01      0.01      0.00    906.64
      820.      449.      323.       48.      770.      293.      200.      156.       63.     907.64
     1.41      0.58      1.10      0.24     0.070     0.050     0.070     0.000    897.94    315.00
 0.000113       170.      170       170.         0         0         0      0.00    416.05    731.05
0
 *SECNO 13632.000
 3280 CROSS SECTION   13632.00 EXTENDED       3.69 FEET

          FLINT STREET BRIDGE SOUTH OF GRAND RIVER AVENUE
  13632.00     10.78    908.88      0.00    908.58    908.91      0.04      0.01      0.01    908.40
      820.      539       195.       87.      621.       70.      185.      158        64.     908.40
     1.42      0.87      2.77      0.47     0.050     0.015     0.050     0.000    898.10      0.00
 0.000195       50.       50.       50.         0         0         0      0.00    382.97    382.97
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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

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	1.80	2.70	0.00	5 60	0.00	39.00	0.00	898.10	898.10

*SECNO 13732.000

6070, LOW FLOW BY NORMAL BRIDGE

EGPRS= 921.234 EGLWC= 908.914 ELLC= 905.500 PCWSE= 908.877 ELTRD= 904 600
3280 CROSS SECTION 13732.00 EXTENDED 3.72 FEET

3370 NORMAL BRIDGE, NRD= 10 MIN ELTRD= 904 60 MAX ELLC= 905.50

13732 00	10.42	908.92	0.00	908.62	908.94	0.02	0.02	0.01	908.40
820.	631.	85.	104.	629.	42.	190.	160.	64.	908.40
1.44	1.00	2.02	0.55	0.050	0.015	0.050	0.000	898.50	0.00
0.000257	100.	100.	100.	2	0	0	-25.50	383.94	383 94

0
*SECNO 13833.000

3470 ENCROACHMENT STATIONS= 639.0 880.0 TYPE= 1 TARGET= 241.000
GRAND RIVER AVENUE BRIDGE

13833.00	10 70	908.90	0.00	908.61	908.97	0.07	0.01	0.02	899.80
820.	286.	375.	159.	502	123.	357.	161.	65.	898.50
1.46	0.57	3.04	0.44	0.050	0.015	0.050	0.000	898 20	639.00
0.000043	51.	101.	151.	2	0	0	0.00	241.00	880.00

0

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	1.82	2.80	0.00	11.00	1.00	39.30	0.00	898.20	898.20

*SECNO 13899.000
6870 D.S. ENERGY OF 908 97 HIGHER THAN COMPUTED ENERGY OF 908.93
PRESSURE AND WEIR 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

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD

```
    921.21     908.97       0.00       781         38.         39.         50.        903.20     904 90


 3470 ENCROACHMENT STATIONS=      639.0      839 0  TYPE=      1  TARGET=      200.000
  13899.00     10 70    908.90      0.00    908.61    908.97      0.07      0.00      0.00    899.80
      820.      290.      380.      150.      501.      123.      310.      163.       66.     898.50
      1.47      0.58      3.08      0.48     0 050     0.015     0.050     0.000    898.20    639.00
  0.000044       66.       66.       66.         2         0         6      0.00    200.00    839.00
0
 *SECNO 13916.000

 3470 ENCROACHMENT STATIONS=      492.5      667.5  TYPE=      1  TARGET=      175.000
          FOOTBRIDGE 15 FT.  NORTH OF GRAND RIVER AVENUE
  13916 00      9.87    908 97      0.00    908.66    908.99      0.02      0.00      0.01100000.00
      820.        0.      738.       82.        0.      606.      140.      163.       66.     905.10
      1 47      0.00      1.22      0.59     0.000     0.050     0.070     0.000    899.10    492.50
  0.000215       17.       17.       17.         2         0         0      0.00    175.00    667.50
0

 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       1.57       2.80       0.00      31.00       0.00     108.60       0.00     899.10     899.10

 *SECNO 13918.000
 PRESSURE AND WEIR FLOW


  EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC       ELTRD
                                                                         AREA
    910.36     908.99       0.00       687.       133.       109.       155.       904.10     904.40


 3470 ENCROACHMENT STATIONS=      492.5      667.5  TYPE=      1  TARGET=      175.000
  13918.00      9.87    908.97      0.00    908.67    909.00      0.03      0.02      0.00    904.10
      820.      292.      439.       89.      356       251.      140.      163.       66.     905.10
      1.47      0.82      1.75      0.64     0.070     0.050     0.070     0.000    899.10    492.50
  0 000250        2.        2.        2.         2         0         6      0.00    175.00    667.50
0
1
  10 FEB 89      8:47:32                                                                                PAGE  129


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
 *SECNO 14119.000
  14119.00     10.24    909.04      0.00    908.73    909.06      0.02      0.06      0.00    903.70
      820.      484.      243.       93.      815.      122.      133.      167.       67.     900.60
      1.53      0.59      2.00      0.70     0.100     0.050     0.100     0.000    898.80     50.86
  0.000304      201.      201.      201.         1         0         0      0.00    308.87    359.73
0
 *SECNO 14919.000

 3265 DIVIDED FLOW

  14919.00      5.89    909.49      0.00    909.15    909.60      0.11      0.50      0.04    909.10
      820.        7.      406.      407.       25.      119.      286.      181.       72.     909.10
      1.61      0.28      3.42      1.42     0.100     0.050     0.100     0.000    903.60    692.76
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 0.002349      850.      800.      600.         2         0         0      0.00    316.24   1010.13
0
 *SECNO 15969.000
 15969.00      7.51    911.68      0.00    911.26    911.90      0.23      2 24      0.06    911.57
     820.        0.      820.        0.         0      215.        0.      189.       77.     913.07
     1.69      0.09      3.82      0 00     0.100     0.050     0.000     0.000    904.17    196.04
 0.001952     1050.     1050.     1050.         2         0         0      0.00     42.08    238.11
0
 *SECNO 16020.000

 3470 ENCROACHMENT STATIONS=      175.0      350.0  TYPE=      1  TARGET=      175.000
          CULVERTS UNDER PARAGON STEEL
 16020.00      7.77    911.97      0.00    911.52    912.04      0 07      0.09      0.05    906.00
     820.      277.      267.      276.       172        88.      204.      189.       77.     905.40
     1.70      1.62      3 03      1.35     0.100     0.050     0.100     0.000    904.20    175.00
 0.001705       51.       51.       51.         2         0         0      0.00    113.41    288.41
0

 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       4.52       2.80     120.00      14.60       3 40      35.00       0.00     904 20     904.20

 *SECNO 16490 000
1
 10 FEB 89      8:47:32                                                                                  PAGE  130


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
    950.50     912.04      0.00       673.       152.        35.        47.       908.40     911.30


 3470 ENCROACHMENT STATIONS=      175.0      400.0  TYPE=      1  TARGET=      225.000
 16490.00      8.86    913.26      0.00    913.15    913.30      0.04      1.26      0 00    906.20
     820.      268.      258.      294.       213.       108.      285.      195.       78.     905.60
     1.78      1.26      2.39      1.03     0.100     0.050     0.100     0.000    904.40    175.00
 0 000806      470.      470.      470.         2         0         9      0.00    128.53    303.53
0
 *SECNO 16816.000
 3280 CROSS SECTION  16816 00 EXTENDED       2.39 FEET


 3470 ENCROACHMENT STATIONS=      270.0      330.0  TYPE=      1  TARGET=       60.000
          RAILROAD SPUR FOR PARAGON STEEL
 16816.00     10.19    913.19      0.00    913.10    913.58      0.39      0.11      0.18    907.73
     820.       39.      724.       57.        90.       135.      106.      198.       79.     903.69
     1.80      0 44      5 36      0.54     0.100     0 015     0.100     0.000    903.00    270.00
 0.000176      326.      326.      326.         2         0         0      0.00     60.00    330.00
0

 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
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0.00	1.85	2.80	60.00	12.60	1.40	35.00	0.00	903.00	903.00

*SECNO 16871.000
6870 D.S. ENERGY OF 913.58 HIGHER THAN COMPUTED ENERGY OF 913.25
3280 CROSS SECTION 16871.00 EXTENDED 2.39 FEET

PRESSURE AND WEIR FLOW

1
10 FEB 89 8:47:32 PAGE 131

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 AREA	ELLC	ELTRD
928.96	913.58	0.00	772	51.	35.	63.	908.60	911.80

3470 ENCROACHMENT STATIONS= 270.0 330.0 TYPE= 1 TARGET= 60.000

16871.00	10 19	913.19	0.00	913.10	913.58	0.39	0.00	0.00	907.73
820.	39.	724.	57.	90.	135.	106.	199.	79.	903.69
1 80	0.44	5.36	0.54	0.100	0.015	0.100	0.000	903.00	270.00
0.000176	55.	55.	55.	2	0	8	0.00	60.00	330.00

0
*SECNO 16934.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 570.0 831.0 TYPE= 1 TARGET= -570.000
C&O RR BRIDGE WEST OF PARAGON STEEL

16934.00	6.17	913.07	0.00	913.00	913.77	0.71	0.03	0.16	912.60
950.	3.	940.	8.	4.	139.	6.	199.	79.	914 20
1.81	0.67	6.78	1.32	0.050	0.030	0.050	0.000	906.90	713.31
0.003513	63.	63.	63.	2	0	0	0.00	63.20	791.84

0

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	1.90	3.00	0.00	29.00	0.00	99.20	0.00	906.90	906.90

*SECNO 16960.000
PRESS FLOW BECAUSE EGLWC OF 913.77 EXCEEDS 1 5 DEPTH
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
915 77	913.77	0.00	245.	700.	99.	131.	911.40	911 00

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10 FEB 89 8:47:32 PAGE 132

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	CROB	ALOB	ACH	AROB	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=      570.0      831.0  TYPE=      1  TARGET=     -570.000
  16960.00      7.30    914.20      0.00    913 03    914.53      0.33      0.76      0.00    912.60
      950.       43.      876.       31.       46.      183.       24.      199.       79.     914.20
      1.81      0.94      4 79      1.27     0.050     0.030     0.050     0.000    906.90    672.54
  0.001329       26.       26.       26.         2         0         3      0.00    126.59    799.13
0
 *SECNO 17137.000

 3470 ENCROACHMENT STATIONS=       99.0      309.0  TYPE=      1  TARGET=      210.000
          CULVERTS 200 FT.  WEST OF C&O RR BRIDGE,WEST OF PARAGON STEEL
  17137.00      6.59    914.79      0.00    914.39    914.88      0.09      0.27      0.07    908.95
      950.      572.      121.      257.      343.       25.      140       200.       79.     908.31
      1.83      1 67      4.82      1.83     0.100     0.050     0.100     0.000    908.20     99.00
  0.002437      127.      177.      127.         2         0         0      0.00    150.45    249.45
0

 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       2.34       2.70       0.00       4.20       0.20       6.30       0.00     908.20     908.20

 *SECNO 17157.000
 PRESSURE AND WEIR FLOW


  EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                         AREA
    1741.01     914.88      0.00       942.        12.         6.         8.       910.20     911.70


 3470 ENCROACHMENT STATIONS=       99.0      309.0  TYPE=      1  TARGET=      210.000
  17157.00      6.63    914.83      0.00    914 43    914.91      0.08      0.04      0.00    908.95
      950.      573.      121.      256.      347.       25.      142.      201.       79.     908.31
      1.83      1.65      4 76      1.81     0.100     0.050     0.100     0.000    908.20     99.00
  0.002357       20.       20.       20.         2         0        12      0.00    150.87    249.87
0
 *SECNO 17795.000
  17795 00      5.58    916.73      0.00    916.43    916.92      0.20      1.95      0 06    911.85
      950.      446.      502.        2.      248.      109.        4.      207.       81.     915.85
      1.88      1.80      4.58      0.56     0.100     0.050     0 100     0.000    911.15     68.22
  0.004357      601.      638.      676.         2         0         0      0.00    141.25    209.47
0
1
  10 FEB 89      8:47:32                                                                          PAGE  133


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 18433 000
  18433 00      5.48    919.58      0 00    919.28    920.01      0.43      2.97      0.12    915.60
      950.      163       673.      114.       97.      109.       64.      211.       83.     915.20
      1.92      1.69      6.17      1.79     0.100     0.050     0.100     0.000    914 10    226.40
  0.005156      600       638       675.         2         0         0      0.00     99.59    325.99
0
 *SECNO 19184.000
```

3470 ENCROACHMENT STATIONS= 83.0 228.0 TYPE= 1 TARGET= 145.000
CULVERTS SOUTH OF I-96 UNDER CANZAND CONSTRUCTUIN PROPERTY

19184.00	8.05	921.35	0.00	921.06	921.95	0.60	1.86	0.08	920.60
790.	86.	704.	0.	114.	107.	0.	215.	85.	99999.30
1.96	0.76	6.56	0.00	0.070	0.015	0.000	0.000	913.30	83.00
0.001319	751.	751.	751.	4	0	0	0.00	145.00	228.00

0

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	1.91	3.00	0.00	6.00	0.00	28 40	0.00	913.30	913.30

*SECNO 19372.000
6870 D.S. ENERGY OF 921.95 HIGHER THAN COMPUTED ENERGY OF 921.66
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
944.30	921.93	0.00	699	91.	28.	31.	918.40	921.40

3470 ENCROACHMENT STATIONS= 178.0 228.0 TYPE= 1 TARGET= 50.000

19372.00	8 69	921.39	0 00	921.18	921.95	0.56	0.00	0.00	920 00
790.	25.	765.	0.	31.	125.	0.	216.	86.	100000.00
1.96	0.80	6.12	0.00	0.070	0.015	0.000	0.000	912.70	178.00
0 000952	100.	188.	300.	2	0	8	0.00	50.00	228.00

0
*SECNO 19448.000

1
10 FEB 89 8:47:32 PAGE 134

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

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 925.40 ELREA= 925.40

19448.00	9.03	921.13	0.00	921.02	922.50	1.37	0.15	0.40	913.80
790.	0.	790.	0	0.	84.	0.	216.	86.	912.89
1.97	0.00	9.39	0.00	0.000	0.050	0.000	0.000	912.10	603.00
0.006102	76.	76.	76.	2	0	0	0.00	10.00	613.00

0
*SECNO 19449.000

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 926.40 MAX ELLC= 921.80

I-96 BRIDGE

19449 00	8.99	921.09	0.00	920.99	922.55	1.46	0.01	0.05	928.90
790.	0.	790.	0.	0.	81.	0.	216.	86.	928.90
1.97	0.00	9 70	0 00	0.000	0.024	0.000	0.000	912.10	295.00
0 005498	1.	1.	1.	2	0	0	0 00	10.00	305.00

0
*SECNO 19605.000

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 926.40 MAX ELLC= 921.80

19605.00	10.23	922.33	0.00	921.95	923.57	1.24	0.95	0.07	928.90
790.	0.	790.	0.	0.	88.	0.	217.	86.	928.90
1.97	0.00	8.93	0.00	0.000	0.024	0.000	0.000	912.10	295.00
0.006716	156.	156	156.	2	0	0	-5.30	10.00	305.00

0

*SECNO 19606.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 926.40 ELREA= 926.40

19606.00	10.57	922.67	0.00	922.09	923 65	0.98	0.00	0.08	913.80
790.	0.	790.	0.	0.	100.	0.	217.	86.	912.89
1.97	0.00	7.94	0.00	0.000	0 050	0.000	0 000	912 10	603.00
0.003485	1.	1.	1.	2	0	0	0.00	10.00	613.00

0

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 19756.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 385.0 695.0 TYPE= 1 TARGET= 310.000

19756.00	9.34	924.00	0.00	923.22	924.02	0.02	0.08	0.29	917.36
790.	395.	296.	99.	749	182.	221.	219.	86.	919.86
2.02	0.53	1.63	0.45	0.100	0.050	0 100	0.000	914.66	385.00
0.000213	150.	150.	150	2	0	0	0.00	310.00	695.00

0

*SECNO 20807.000

3470 ENCROACHMENT STATIONS= 245.0 410 0 TYPE= 1 TARGET= 165.000

DRIVEWAY BRIDGE EAST TAFT ROAD

20807.00	7 63	924.23	0.00	923.54	924.27	0.04	0.24	0.01	917.92
790.	72.	56.	663.	113.	31.	398.	237	91.	917.41
2.18	0.63	1.78	1.66	0.070	0.050	0.040	0.000	916.60	245.00
0.000305	926.	1051	901.	3	0	0	0.00	165.00	410.00

0

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	1.60	2.70	0 00	5.25	0.00	10.80	0.00	916.60	916.60

*SECNO 20819.000

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1057.17	924 27	0.00	777.	19.	11.	16.	919.60	920.70

3470 ENCROACHMENT STATIONS= 245.0 410.0 TYPE= 1 TARGET= 165.000

20819 00	7.66	924.26	0.00	923.57	924.30	0.04	0.03	0.00	917.92
790.	73.	55.	662.	115.	31.	401.	237	91.	917.41

```
     2.18      0.63      1.76      1.65     0.070     0.050     0.040     0.000    916.60    245.00
  0.000296      12.       12.       12.         2         0         9      0.00    165.00    410.00
0
1
  10 FEB 89      8:47:32                                                                          PAGE  136

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 20846.000

 3470 ENCROACHMENT STATIONS=     270.0     410.0  TYPE=      1  TARGET=     140.000
          GARAGE BRIDGE EAST OF TAFT ROAD
  20846.00      7.46    924 26      0.00    923.57    924.32      0.06      0.01      0 01    919.20
      790.       67.       111.      613.       93.       52.      296.      237.       91.     918.27
      2.19      0.72      2.12      2.07     0.070     0.050     0.040     0.000    916.80    270.00
  0.000487       27.       27.       27.         0         0         0      0.00    140.00    410.00
0
 SPECIAL BRIDGE

 5070, VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB   XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      1.00       2.59       3.00       0.00       8.00       0.00       28.40      0.00     916.80     916.80

 *SECNO 20866.000
 PRESSURE AND WEIR FLOW


  EGPRS       EGLWC       H3        QWEIR      QPR        BAREA    TRAPEZOID      ELLC       ELTRD
                                                                      AREA
     955.38     924.32       0.00       744.        44.        28.        29.     920.40     920.90



 3470 ENCROACHMENT STATIONS=     270.0     410.0  TYPE=      1  TARGET=     140.000
  20866.00      7.50    924.30      0 00    923.61    924.36      0.06      0.04      0.00    919.20
      790.       68.       110.      612.       95.       52.      298.      238.       91.     918.27
      2.19      0.71      2 11      2.06     0.070     0.050     0.040     0.000    916.80    270.00
  0.000476       20.       20.       20.         2         0         9      0 00    140.00    410.00
0
 *SECNO 21317.000
  21317.00      6.45    924.45      0.00    923.80    924.46      0.01      0.09      0.01    919.70
      790.      198.        49.      543.       364.       47.      517.      243.       93.     919.50
      2.30      0 54      1.05      1.05     0.070     0.050     0.040     0.000    918.00    131.95
  0.000141       351.      451.      351         2         0         0      0.00    294.53    426.48
0
 *SECNO 21817.000

 3301 HV CHANGED MORE THAN HVINS

1
  10 FEB 89      8:47:32                                                                          PAGE  137

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=      790.0      825.0  TYPE=      1  TARGET=      35.000
  21817.00      5.14    924.04      0.00    923.43    925.29      1.25      0.21      0.62    920.40
      790.       139.      554.       97.       37.       53.       24.       248.       95.     920.30
      2.31      3.75     10.41      4.09     0.100     0.050     0.070     0.000    918.90    790.00
  0.017042       425.      500.       425.         3         0         0      0.00     33.70    823.70
0
 *SECNO 21867.000

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      933.10 ELREA=      933.10

  21867.00      6.02    925.02    925.02    924.45    927.92      2.89      0.97      0.82    919.60
      790         0.       790.        0.        0.       58.        0.       249.       95.     920.40
      2.31      0.00     13.65      0.00     0.000     0.050     0.000     0.000    919.00    801.00
  0.022372        50.       50.        50.        20         8         0      0.00     10.00    811.00
0
 *SECNO 21868.000

 3301 HV CHANGED MORE THAN HVINS


 3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  931.20 MAX ELLC=  928.00

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
          C&O RR BRIDGE 600 FT. SE OF 12 MILE ROAD
  21868.00      7.63    926.63    924.79    925.97    928.29      1.67      0.01      0.37    934.00
      790.         0.       790.        0.        0.       76.        0.       249.       95.     934.00
      2.31      0.00     10.36      0.00     0.000     0.023     0.000     0.000    919.00    795.00
  0.005890          1.        1.         1.        25        16         0      0.00     10.00    805.00
0
 *SECNO 21892.000

 3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  931.20 MAX ELLC=  928.00

1
  10 FEB 89     8:47:32                                                                  PAGE  138


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


  21892.00      7.92    926.92      0.00    926.23    928.47      1.54      0.13      0.04    934.00
      790.         0.       790.        0.        0.       79.        0.       249.       95.     934.00
      2.32      0.00      9.97      0.00     0.000     0.023     0.000     0.000    919.00    795.00
  0.005351        24.       24.        24.         2         0         0      0.00     10.00    805.00
0
 *SECNO 21893.000

 3470 ENCROACHMENT STATIONS=      801.0      811.0  TYPE=      1  TARGET=      10.000
  21893.00      7.87    926.87      0.00    926.19    928.53      1.66      0.01      0.06    919.60
      790.         0.       790.        0.        0.       76.        0.       249.       95.   99997.60
      2.32      0.00     10.34      0.00     0.000     0.050     0.000     0.000    919.00    801.00
  0.026598          1.        1.         1.         2         0         0      0.00     10.00    811.00
0
 *SECNO 22143.000

 3301 HV CHANGED MORE THAN HVINS
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 3470 ENCROACHMENT STATIONS=       60.0      260.0  TYPE=      1  TARGET=      200.000
  22143.00      8.68    929.32      0.00    928.49    929.37      0.05      0.35      0.48    922.94
      790.       354       380.       55.      448.      155.       84.       251.       95.    923.44
      2.36      0.79      2 46      0.66     0.100     0.050     0.100     0.000    920.64     62.42
  0.000474       205.      250.      196.         3         0         0      0 00    197.58    260.00
0
 *SECNO 22568.000

 3470 ENCROACHMENT STATIONS=      195.0      220.0  TYPE=      1  TARGET=       25.000
  22568 00      7.80    929.54      0.00    928.83    929.97      0.43      0.41      0.19    924.04
      790.       46.       744.       0.       27.      137.        0.       254.       96.  100000.00
      2.38      1.70      5.43      0.00     0.100     0.050     0 000     0.000    921.74    195.00
  0.003622       345.      425.      329.         3         0         0      0.00     25.00    220.00
0
 *SECNO 22593.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=        0.0      260.0  TYPE=      1  TARGET=      259.999
1
  10 FEB 89     8:47:32                                                                  PAGE  139

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=      950.00 ELREA=      950.00
  22593.00      7.08    928.88      0.00    928.27    930.93      2.05      0.15      0.81    922.66
      790.         0.      790.        0.        0.       69.         0.      254.       96.     922.60
      2.38      0 00     11.50      0.00     0.000     0.050     0.000     0.000    921.80    205.00
  0.011890        25        25.       25.         3         0         0      0.00     10.00    215 00
0
 *SECNO 22594.000

 3301 HV CHANGED MORE THAN HVINS


 3370 NORMAL BRIDGE, NRD= 19 MIN ELTRD=  930.00 MAX ELLC=  931 80


 3470 ENCROACHMENT STATIONS=      750.0     1050.0  TYPE=      1  TARGET=      300.000
          12 MILE ROAD
  22594.00      9.49    931.29      0.00    930.43    931.49      0.20      0.00      0.56    934.90
      340.         0       340.        0.         0        95.         0.      254.       96.     934.90
      2.38      0.00      3.58      0.00     0.000     0.023     0.000     0.000    921.80    995.00
  0.000632          1         1.        1.         3         0         0      0.00     10.00   1005.00
0
 *SECNO 22644.000

 3370 NORMAL BRIDGE, NRD= 19 MIN ELTRD=  930.00 MAX ELLC=  931.80


 3470 ENCROACHMENT STATIONS=      750.0     1050.0  TYPE=      1  TARGET=      300.000
  22644.00      9.52    931 32      0.00    930.46    931.52      0.20      0.03      0.00    934.90
      340.         0.        340       0.         0.        95.         0.      254.       96.     934.90
      2.38      0.00      3.57      0.00     0.000     0.023     0.000     0.000    921.80    995.00
  0.000627        50.       50.       50.         2         0         0      0.00     10.00   1005.00
0
 *SECNO 22645.000
```

3470 ENCROACHMENT STATIONS= 0.0 260.0 TYPE= 1 TARGET= 259 999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 950 00 ELREA= 950.00

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
22645.00	9.52	931.32	0.00	930.45	931.53	0.21	0.00	0.00	922.66
340.	0.	340.	0.	0.	93.	0.	254.	96.	922.60
2.38	0.00	3 65	0.00	0.000	0.040	0.000	0.000	921.80	205.00
0.000510	1.	1.	1.	0	0	0	0.00	10.00	215.00
0									
*SECNO 22670.000									
22670.00	9.69	931.55	0.00	930.65	931.59	0.03	0.01	0.05	929.86
340.	6.	331.	4	22	220.	12.	254.	96.	929.16
2.39	0.25	1.50	0.31	0.070	0.040	0.070	0.000	921.86	124.68
0.000173	25.	25.	25.	2	0	0	0.00	72.69	197.37
0									
*SECNO 22970.000									
22970.00	9.01	931 61	0.00	930.73	931.66	0.05	0.06	0.01	930.60
340.	2.	336.	2.	8.	195.	6.	256.	97.	929.90
2.44	0.22	1.72	0.31	0.070	0.040	0.070	0.000	922.60	135.29
0.000265	375.	300.	300.	2	0	0	0.00	59.12	194.41
0									
*SECNO 23870.000									
23870.00	7.95	931.75	0.00	930.90	931.75	0.01	0.09	0.01	926.60
340.	127.	118.	95.	340.	131.	302.	266.	100.	926.70
2.90	0.37	0 91	0.31	0.070	0.040	0.070	0.000	923.80	150.41
0.000049	850.	900.	950.	2	0	0	0.00	285.30	435.71
0									
*SECNO 24870.000									
24870 00	4 78	931.78	0.00	930.96	931.78	0.00	0.03	0.00	929.10
340.	102.	173.	65.	668.	568.	431.	295.	111.	928.90
4.13	0.15	0.30	0.15	0.070	0.040	0.070	0.000	927.00	132.82
0.000015	1050.	1000.	1000.	2	0	0	0.00	656.25	789.07
0									
*SECNO 26645.000									
26645.00	4.44	931.84	0.00	931.11	931.85	0.01	0.07	0.00	931.60
340.	0.	125	215.	1.	117.	438.	339.	130.	930.10
4.80	0.08	1.07	0.49	0.070	0.040	0.070	0.000	927.40	225.78
0.000223	1825.	1775.	1625.	0	0	0	0.00	295.86	521.64
0									
*SECNO 27695.000									
27695.00	4.42	932.02	0.00	931.52	932.02	0.00	0.17	0.00	930.40
340.	128	40.	172	418	48.	522	357.	141.	930.70
5.57	0.31	0.84	0.33	0.070	0.040	0.070	0.000	927.60	83.18
0.000117	775.	1050.	1150.	2	0	0	0.00	635.75	718.94
0									

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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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*SECNO 28670.000

3470 ENCROACHMENT STATIONS=      600.0     1500.0  TYPE=      1  TARGET=      900.000
 28670.00      3 83    932.03     0.00    931.55    932.03     0.00      0.01      0.00    930.10
     340.        1.      309.      29.       19.     1863.      421.      394.      158.     929.30
     7.30      0.06      0.17     0.07     0.070     0.040    0.070     0.000    928.20    600.00
 0.000005     1225.      975.     825         2         0        0      0.00    895.13   1495.13
0
*SECNO 29070.000

3470 ENCROACHMENT STATIONS=      400.0     1100.0  TYPE=      1  TARGET=      700.000
 29070.00      3.39    932.04     0.00    931.55    932.04     0.00      0.00      0.00    930.55
     340.       19       307.      14.      180.     1149.      111.      411.      165      929.95
     7.74      0.10      0.27     0.13     0 070     0.040    0.070     0.000    928.65    400.00
 0.000017      382.      400.     406.         2         0        0      0.00    700.00   1100.00
0
*SECNO 29470.000

3470 ENCROACHMENT STATIONS=      450.0      950.0  TYPE=      1  TARGET=      500.000
 29470.00      2.95    932.05     0.00    931.58    932.05     0.01      0.02      0.00    931.10
     340.        4.      318.      18.       17.      536.       82.      420.      171.     930.80
     7.94      0.23      0.59     0.21     0.070     0.040    0.070     0.000    929.10    450.00
 0.000148      382.      400.     406.         0         0        0      0.00    500 00    950.00
0
*SECNO 29870.000

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      350.0      650.0  TYPE=      1  TARGET=      300.000
 29870.00      2.61    932.16     0.00    931.85    932.20     0.04      0.13      0.02    931.65
     340.        5.      330.       5.       12.      206.       13.      424.      174      931.55
     8 01      0 38      1.60     0.39     0.070     0.040    0.070     0.000    929.55    356.99
 0.001267      382.      400.     406.         2         0        0      0.00    234.06    650.00
0
*SECNO 30270.000

3265 DIVIDED FLOW

1
 10 FEB 89      8:47:32                                                                    PAGE  142


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


 30270.00      3.00    933.00     0.00    932.87    933.21     0 21      0.92      0.09    932.10
     340.       17       310.      13.       17        81.       17.      426.      176.     932.30
     8 04      0.99      3.84     0.75     0.070     0.040    0.070     0.000    930.00    288.49
 0.005399      382.      400.     406.         3         0        0      0.00    154.68    467.30
0
*SECNO -12094.000
START TRIB COMP
 -12094.000 12094.000    896.874
-12094 00      6.67    896.87     0.00    896.53    896.89     0.01      0.00      0.00    893.10
     245.       30.       75.     139.       68.       62.      170.      426.      176.     890.80
     8.04      0.45      1.21     0.82     0.070     0.050    0.070     0.000    890.20     14.96
 0.000173        0.        0.       0.         0         0        0      0.00     84.17     99.14
0
*SECNO 120.000

3265 DIVIDED FLOW
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 3280 CROSS SECTION     120.00 EXTENDED       1.99 FEET

    120.00      5.39    896.89      0.00    896.54    896.97      0.08      0.05      0.03    894.20
      245.        76.      169.        0.      71.       64.        0.       427.       176.     899.30
      8.05      1.07      2.66      0.00     0.070     0.050     0.000     0.000    891.50      0.00
  0.002176       120.      120.      120.         0         0         0      0.00     85.03     85.18
0
 *SECNO 620.000

 3265 DIVIDED FLOW

    620.00      5.55    898.95    897.96    898.96    899.49      0.54      2.29      0.23    898.50
      245.        9.      236.        0.      10.       39.        0.       428.       177.     903.50
      8.08      0.97      6.00      0.00     0.070     0.050     0.000     0.000    893.40     99.06
  0.015239       500.      500.      500.         8        14         0      0.00     56.60    214.42
0
 *SECNO 2000.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       903.90 ELREA=       906.60

   2000.00      5.91    904.91      0.00    904.61    905.02      0.12      5.41      0.13    903.90
      245.        3.      242.        0.       5.       88.        0.       430.       179.     906.60
      8.22      0.56      2.75      0.00     0.070     0.050     0.000     0.000    899.00     72.47
  0.001757      1380.     1380.     1380.         5         0         0      0.00     34.08    106.55
0
1
  10 FEB 89      8:47.32                                                                  PAGE  143

    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
    Q          GLOB       QCH        QROB       ALOB       ACH        AROB       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 2095.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       904.40 ELREA=       907.00

   2095.00      4.70    905.10      0.00    904.82    905.37      0.27      0.27      0.08    904.40
      245.         3      242.        0.       3.       58.        0.       430.       179.     907.00
      8 22      0.92      4.18      0.00     0.070     0.050     0.000     0.000    900.40     69.83
  0.005344        95.       95.       95.         2         0         0      0.00     27.45     97 28
0
 *SECNO 2190.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       905.00 ELREA=       907.40

   2190.00      3.93    905.73      0.00    905.52    906.28      0.55      0.77      0.14    905.00
      245.        5.      240.        0.       3.       40.        0.       430.       179.     907.40
      8.23      1.51      6.02      0.00     0.070     0.050     0.000     0.000    901.80     63.71
  0.013874        95.       95.       95.         2         0         0      0.00     25.05     88.76
0
 *SECNO 2285.000
 3280 CROSS SECTION    2285.00 EXTENDED       0.23 FEET

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       905.60 ELREA=       907 80

   2285.00      3 93    907.13    906.74    906.96    907.54      0.41      1.21      0.04    905.60
      245.        46.      199.        0.       25.       35.        0.       430.       179.     907 80
      8.23      1.84      5.64      0.00     0.070     0.050     0.000     0.000    903.20      0.00
  0.011777        95.       95.       95.         6        12         0      0.00     81.63     81.63
0
1
  10 FEB 89      8:47:32                                                                  PAGE  144
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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ROUGE
WALLED LAKE BRANCH
TRIB A

4) DOCUMENT TYPE: 100 YR

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
**********************************************


T1      CITY OF NOVI    JOB NO. 5555-46-1     STREAM 05
T2      100 YEAR FLOOD
T3      TRIB  A  WALLED LAKE BR.

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10.       4.        -0.       -0. -0.000000    -0.00     -1.0      -0.    857.520   -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    -1.000    -0.000    -0.000    -0.000

CCHV=    .300 CEHV=    .500
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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      3.47    857.52    855.69    857.52    857.54      .02      0.00      0.00    857.65
      205.       0.      205.       0.        0.      177.       0.        0.        0.    858.25
     0.00      0.00      1.16      0.00      .100      .100      .100     0.000    854.05     25.72
     .002935     -0.       -0.       -0.         0        13         1      0.00    101.90    127.62

   100.00      2.71    858.01    856.94      0.00    858.07      .06       .51       .02    858.90
      205.       0.      205.       0.        0.      108.       0.        0.        0.    859.50
      .01      0.00      1.90      0.00      .100      .100      .100      .099    855.30     29.94
     .010934    100.      100.      100.         2         5         1      0.00     79.63    109.56

   200.00      2.64    859.19    858.19      0.00    859.25      .06      1.18       .00    860.15
      205.       0.      205.       0.        0.      102.       0.        1.        0.    860.75
      .03      0.00      2.01      0.00      .100      .100      .100      .099    856.55     30.36
     .012719    100.      100.      100.         3         5         1      0.00     77.40    107.76

   300.00      2.65    860.45    859.44      0.00    860.51      .06      1.26       .00    861.40
      205.       0.      205.       0.        0.      103.       0.        1.        1.    862.00
      .04      0.00      1.99      0.00      .100      .100      .100      .099    857.80     30.30
     .012448    100.      100.      100.         2         5         1      0.00     77.72    108.01

                ORCHARD SERVICE ROAD

   775.00      1.60    871.70    871.42      0.00    871.86      .16     11.30       .05    876.40
      205.       0.      205.       0.        0.       64.       0.        2.        1.    873.00
      .08      0.00      3.19      0.00      .100      .100      .100      .099    870.10    135.65
     .062372    475.      475.      485.         4        15         1      0.00     80.42    216.07
```

3470 ENCROACHMENT STATIONS= 250.0 650.0 TYPE= 1 TARGET= -250.000

2050.00	5.17	882.37	880.90	0.00	882.40	.03	10.51	.04	877.60
205.	79.	23.	103.	69.	10.	92.	5.	4.	877.60
.35	1.15	2.34	1.12	.100	.100	.100	.102	877.20	399.35
.003218	1200.	1275.	1150.	8	14	1	0.00	118.78	518.14

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	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

NORMAL BRIDGE.NRD=10 MIN ELTRD= 879.80 MAX ELLC= 879.20

3470 ENCROACHMENT STATIONS= 250.0 650.0 TYPE= 1 TARGET= -250.000

ORCHARD SERVICE ROAD

2051.00	5.18	882.38	881.02	0.00	882.40	.03	.00	.00	879.80
205.	83.	10.	112.	64.	8.	87.	5.	4.	879.80
.35	1.29	1.17	1.29	.030	.024	.030	.102	877.20	398.96
.000486	1.	1.	1.	2	9	1	-1.60	119.19	518.15

NORMAL BRIDGE.NRD=10 MIN ELTRD= 879.80 MAX ELLC= 879.20

3470 ENCROACHMENT STATIONS= 250.0 650.0 TYPE= 1 TARGET= -250.000

2071.00	5.19	882.39	881.02	0.00	882.41	.03	.01	.00	879.80
205.	93.	10.	112.	65.	8.	87.	5.	4.	879.80
.36	1.28	1.16	1.28	.030	.024	.030	.101	877.20	398.77
.000476	20.	20.	20.	2	9	1	-1.60	119.65	518.42

3470 ENCROACHMENT STATIONS= 250.0 650.0 TYPE= 1 TARGET= -250.000

2072.00	5.19	882.39	880.95	0.00	882.41	.03	.00	.00	877.60
205.	79.	23.	103.	69.	10.	92.	5.	4.	877.60
.36	1.14	2.33	1.11	.100	.100	.100	.101	877.20	399.19
.003173	1.	1.	1.	0	6	1	0.00	119.17	518.36

3470 ENCROACHMENT STATIONS= 500.0 1250.0 TYPE= 1 TARGET= -500.000

2897.00	3.21	886.91	886.38	0.00	887.03	.11	4.57	.04	883.70
205.	119.	42.	44.	51.	10.	27.	7.	6.	884.40
.43	2.32	4.16	1.60	.100	.100	.100	.105	883.70	848.95
.019304	700.	825.	675.	3	13	1	0.00	91.44	940.40

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	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

NORMAL BRIDGE,NRD=16 MIN ELTRD= 892.39 MAX ELLC= 887.20

NOVI ROAD

2898.00	9.13	892.83	892.83	0.00	892.93	.10	.01	0.00	892.49
205.	104.	30.	71.	40.	11.	29.	7.	6.	892.40
.43	2.57	2.72	2.45	.020	.024	.020	.105	883.70	640.24
.006079	1.	1.	1.	0	14	1	-18.79	275.20	915.45

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=16 MIN ELTRD= 892.39 MAX ELLC= 887.20

2968.00	9.36	893.06	892.83	0.00	893.09	.03	.13	.02	892.39
205.	113.	13.	79.	83.	12.	58.	7.	6.	892.40
.45	1.35	1.11	1.36	.020	.024	.020	.103	883.70	582.68
.000930	70.	70.	70.	3	14	1	-18.79	358.35	941.03

WATER EL=XS CARD= 892.810

2969.00	9.11	892.81	886.38	0.00	892.81	.00	.00	.01	883.70
205.	136.	3.	66.	2412.	30.	1036.	7.	6.	884.40
.45	.06	.10	.06	.100	.100	.100	.103	883.70	67.50
.000003	1.	1.	1.	0	17	1	0.00	1115.15	1182.65

3280 CROSS SECTION 3519.00 EXTENDED 6.61 FEET

3470 ENCROACHMENT STATIONS= 450.0 750.0 TYPE= 1 TARGET= 300.000

3519.00	7.61	892.81	886.30	0.00	892.81	.00	.00	.00	888.20
205.	22.	115.	69.	192.	690.	581.	38.	15.	896.20
1.54	.11	.17	.12	.100	.100	.100	.102	885.20	450.00
.000010	420.	550.	750.	2	18	1	0.00	300.00	750.00

3470 ENCROACHMENT STATIONS= 250.0 900.0 TYPE= 1 TARGET= -250.000

4569.00	5.52	892.82	888.26	0.00	892.82	.00	.01	.00	887.80
205.	152.	3.	49.	1409.	26.	518.	80.	25.	887.80
4.34	.11	.12	.10	.100	.100	.100	.101	887.30	250.00
.000008	1075.	1050.	1050.	0	10	1	0.00	528.51	778.51

3470 ENCROACHMENT STATIONS= 375.0 725.0 TYPE= 1 TARGET= 350.000

5369.00	4.83	892.83	890.81	0.00	892.83	.00	.01	.00	888.00
205.	142.	1.	62.	1048.	10.	521.	108.	32.	888.10
5.81	.14	.13	.12	.100	.100	.100	.103	888.00	375.00
.000010	625.	800.	850.	0	29	1	0.00	350.00	725.00

NORMAL BRIDGE,NRD=14 MIN ELTRD= 890.80 MAX ELLC= 890.00

5370.00	4.83	892.83	891.54	0.00	892.83	.01	.00	.00	890.80
205.	138.	2.	64.	235.	7.	121.	108.	32.	890.80

5.81	.59	.31	.53	.020	.024	.020	.103	888.00	383.59
.000044	1.	1.	1.	0	15	1	-2.00	345.70	729.59

NORMAL BRIDGE.NRD=14 MIN ELTRD= 890.80 MAX ELLC= 890.00

5424.00	4.83	892.83	891.54	0.00	892.83	.01	.00	.00	890.80
205.	138.	2.	64.	236.	7.	121.	109.	33.	890.80
5.83	.59	.31	.53	.020	.024	.020	.102	888.00	383.79
.000044	54.	54.	54.	0	15	1	-2.00	345.94	729.72

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	WCH	QROB	ALOB	ACH	AROB	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= 375.0 725.0 TYPE= 1 TARGET= 350.000

5425.00	4.83	892.83	890.80	0.00	892.83	.00	.00	.00	888.00
205.	142.	1.	62.	1049.	10.	521.	109.	33.	888.10
5.83	.14	.13	.12	.100	.100	.100	.102	888.00	375.00
.000010	1.	1.	1.	0	25	1	0.00	350.00	725.00

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ROUGE, WALLED LAKE BRANCH TRIB A

4) DOCUMENT TYPE: SUMMARY

00BREAK00

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

TRIB A WALLED LAKE BR.

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRITS	HV	HL	OLOSS	TOPWID
0.00	0.00	0.00	0.00	854.05	117.00	856.92	2.87	855.36	.01	0.00	0.00	84.28
0.00	0.00	0.00	0.00	854.05	177.00	857.35	3.30	855.59	.02	0.00	0.00	96.90
0.00	0.00	0.00	0.00	854.05	205.00	857.52	3.47	855.69	.02	0.00	0.00	101.90
0.00	0.00	0.00	0.00	854.05	290.00	858.15	4.10	855.93	.02	0.00	0.00	119.09
100.00	100.00	0.00	0.00	855.30	117.00	857.41	2.11	856.61	.05	.51	.02	61.96
100.00	100.00	0.00	0.00	855.30	177.00	857.84	2.54	856.85	.05	.51	.02	74.64
100.00	100.00	0.00	0.00	855.30	205.00	858.01	2.71	856.94	.06	.51	.02	79.63
100.00	100.00	0.00	0.00	855.30	290.00	858.54	3.24	857.19	.06	.40	.02	95.08
200.00	100.00	0.00	0.00	856.55	117.00	859.71	2.16	857.86	.05	1.29	.00	63.10
200.00	100.00	0.00	0.00	856.55	177.00	859.05	2.50	858.10	.06	1.21	.00	73.30
200.00	100.00	0.00	0.00	856.55	205.00	859.19	2.64	858.19	.06	1.18	.00	77.40
200.00	100.00	0.00	0.00	856.55	290.00	859.56	3.01	858.43	.07	1.03	.01	88.20
300.00	100.00	0.00	0.00	857.80	117.00	859.94	2.14	859.11	.05	1.24	.00	62.99
300.00	100.00	0.00	0.00	857.80	177.00	860.30	2.50	859.35	.06	1.26	.00	73.56
300.00	100.00	0.00	0.00	857.80	205.00	860.45	2.65	859.44	.06	1.26	.00	77.72
300.00	100.00	0.00	0.00	857.80	290.00	860.81	3.01	859.68	.07	1.26	.00	88.54
775.00	475.00	0.00	0.00	870.10	117.00	871.38	1.28	871.15	.12	11.48	.04	64.51
775.00	475.00	0.00	0.00	870.10	177.00	871.61	1.51	871.34	.15	11.35	.05	75.89
775.00	475.00	0.00	0.00	870.10	205.00	871.70	1.60	871.42	.16	11.30	.05	80.42
775.00	475.00	0.00	0.00	870.10	290.00	871.93	1.83	871.62	.18	11.17	.06	92.16
2050.00	1275.00	0.00	0.00	877.20	117.00	881.78	4.58	880.34	.02	10.27	.03	91.37
2050.00	1275.00	0.00	0.00	877.20	177.00	882.21	5.01	880.77	.03	10.44	.04	111.22
2050.00	1275.00	0.00	0.00	877.20	205.00	882.37	5.17	880.90	.03	10.51	.04	118.78
2050.00	1275.00	0.00	0.00	877.20	290.00	882.80	5.60	881.21	.03	10.67	.05	137.92
2051.00	1.00	879.80	879.20	877.20	117.00	881.78	4.58	880.78	.02	.00	.00	92.13
2051.00	1.00	879.80	879.20	877.20	177.00	882.21	5.01	880.99	.02	.00	.00	111.73
2051.00	1.00	879.80	879.20	877.20	205.00	882.38	5.18	881.02	.03	.00	.00	119.19
2051.00	1.00	879.80	879.20	877.20	290.00	882.80	5.60	881.22	.03	.00	.00	138.39
2071.00	20.00	879.80	879.20	877.20	117.00	881.80	4.60	880.78	.02	.01	.00	92.70
2071.00	20.00	879.80	879.20	877.20	177.00	882.22	5.02	880.99	.02	.01	.00	112.21
2071.00	20.00	879.80	879.20	877.20	205.00	882.39	5.19	881.02	.03	.01	.00	119.65
2071.00	20.00	879.80	879.20	877.20	290.00	882.81	5.61	881.22	.03	.01	.00	138.81
2072.00	1.00	0.00	0.00	877.20	117.00	881.80	4.60	880.35	.02	.00	.00	92.09
2072.00	1.00	0.00	0.00	877.20	177.00	882.22	5.02	880.77	.03	.00	.00	111.69
2072.00	1.00	0.00	0.00	877.20	205.00	882.39	5.19	880.95	.03	.00	.00	119.17
2072.00	1.00	0.00	0.00	877.20	290.00	882.81	5.61	881.14	.03	.00	.00	138.42
2897.00	825.00	0.00	0.00	883.70	117.00	886.41	2.71	886.01	.12	4.67	.05	64.11
2897.00	825.00	0.00	0.00	883.70	177.00	886.77	3.07	886.27	.11	4.59	.04	84.01
2897.00	825.00	0.00	0.00	883.70	205.00	886.91	3.21	886.38	.11	4.57	.04	91.44
2897.00	825.00	0.00	0.00	883.70	290.00	887.26	3.56	886.66	.11	4.49	.04	110.33

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRIWS	HV	HL	OLOSS	TOPWID
2898.00	1.00	892.39	887.20	883.70	117.00	886.87	3.17	886.87	2.49	.03	0.00	3.40
2898.00	1.00	892.39	887.20	883.70	177.00	887.20	3.50	887.20	5.26	.04	0.00	3.40
2898.00	1.00	892.39	887.20	883.70	205.00	892.83	9.13	892.83	.10	.01	0.00	275.20
2898.00	1.00	892.39	887.20	883.70	290.00	892.89	9.19	892.89	.13	.01	0.00	297.86
2968.00	70.00	892.39	887.20	883.70	117.00	891.59	7.89	886.87	2.30	4.47	.06	3.40
2968.00	70.00	892.39	887.20	883.70	177.00	894.03	10.33	887.20	.00	.00	1.58	713.50
2968.00	70.00	892.39	887.20	883.70	205.00	893.06	9.36	892.83	.03	.13	.02	358.35
2968.00	70.00	892.39	887.20	883.70	290.00	893.16	9.46	892.89	.04	.14	.03	395.82
2969.00	1.00	0.00	0.00	883.70	117.00	892.56	8.86	886.01	.00	.00	.69	1098.87
2969.00	1.00	0.00	0.00	883.70	177.00	892.75	9.05	886.30	.00	.00	.00	1111.24
2969.00	1.00	0.00	0.00	883.70	205.00	892.81	9.11	886.38	.00	.00	.01	1115.15
2969.00	1.00	0.00	0.00	883.70	290.00	892.94	9.24	886.63	.00	.00	.01	1123.61
3519.00	550.00	0.00	0.00	885.20	117.00	892.56	7.36	886.10	.00	.00	.00	300.00
3519.00	550.00	0.00	0.00	885.20	177.00	892.75	7.55	886.25	.00	.00	.00	300.00
3519.00	550.00	0.00	0.00	885.20	205.00	892.81	7.61	886.30	.00	.00	.00	300.00
3519.00	550.00	0.00	0.00	885.20	290.00	892.94	7.74	886.44	.00	.00	.00	300.00
4569.00	1050.00	0.00	0.00	887.30	117.00	892.56	5.26	888.12	.00	.00	.00	522.27
4569.00	1050.00	0.00	0.00	887.30	177.00	892.76	5.46	888.22	.00	.01	.00	527.04
4569.00	1050.00	0.00	0.00	887.30	205.00	892.82	5.52	888.26	.00	.01	.00	528.51
4569.00	1050.00	0.00	0.00	887.30	290.00	892.96	5.66	888.35	.00	.02	.00	531.86
5369.00	800.00	0.00	0.00	888.00	117.00	892.57	4.57	890.82	.00	.00	.00	350.00
5369.00	800.00	0.00	0.00	888.00	177.00	892.76	4.76	890.81	.00	.00	.00	350.00
5369.00	800.00	0.00	0.00	888.00	205.00	892.83	4.83	890.81	.00	.01	.00	350.00
5369.00	800.00	0.00	0.00	888.00	290.00	892.97	4.97	890.81	.00	.01	.00	350.00
5370.00	1.00	890.80	890.00	888.00	117.00	892.57	4.57	891.36	.00	.00	.00	302.53
5370.00	1.00	890.80	890.00	888.00	177.00	892.76	4.76	891.51	.00	.00	.00	335.67
5370.00	1.00	890.80	890.00	888.00	205.00	892.83	4.83	891.54	.01	.00	.00	345.70
5370.00	1.00	890.80	890.00	888.00	290.00	892.97	4.97	891.64	.01	.00	.00	368.87
5424.00	54.00	890.80	890.00	888.00	117.00	892.57	4.57	891.36	.00	.00	.00	302.70
5424.00	54.00	890.80	890.00	888.00	177.00	892.76	4.76	891.51	.00	.00	.00	335.88
5424.00	54.00	890.80	890.00	888.00	205.00	892.83	4.83	891.54	.01	.00	.00	345.94
5424.00	54.00	890.80	890.00	888.00	290.00	892.97	4.97	891.64	.01	.00	.00	369.21
5425.00	1.00	0.00	0.00	888.00	117.00	892.57	4.57	890.87	.00	.00	.00	350.00
5425.00	1.00	0.00	0.00	888.00	177.00	892.77	4.77	890.87	.00	.00	.00	350.00
5425.00	1.00	0.00	0.00	888.00	205.00	892.83	4.83	890.80	.00	.00	.00	350.00
5425.00	1.00	0.00	0.00	888.00	290.00	892.98	4.98	890.86	.00	.00	.00	350.00

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	117.000	856.920	0.000	0.000	0.000	84.278	0.000	-0.000
0.000	177.000	857.350	.430	0.000	0.000	96.905	-12.627	-0.000
0.000	205.000	857.520	.170	0.000	0.000	101.897	-17.619	-0.000
0.000	290.000	858.150	.630	0.000	0.000	119.090	-34.812	-0.000
100.000	117.000	857.410	0.000	.490	0.000	61.964	0.000	100.000
100.000	177.000	857.842	.432	.492	0.000	74.642	-12.678	100.000
100.000	205.000	858.012	.170	.492	0.000	79.629	-17.665	100.000
100.000	290.000	858.538	.526	.388	0.000	95.079	-33.115	100.000
200.000	117.000	858.707	0.000	1.297	0.000	63.095	0.000	100.000
200.000	177.000	859.047	.341	1.205	0.000	73.296	-10.200	100.000
200.000	205.000	859.186	.139	1.174	0.000	77.404	-14.308	100.000
200.000	290.000	859.556	.370	1.018	0.000	88.195	-25.100	100.000

300.000	117.000	859.944	0.000	1.238	0.000	62.992	0.000	100.000
300.000	177.000	860.304	.360	1.257	0.000	73.561	-10.569	100.000
300.000	205.000	860.446	.141	1.260	0.000	77.716	-14.724	100.000
300.000	290.000	860.813	.368	1.257	0.000	88.544	-25.552	100.000
775.000	117.000	871.382	0.000	11.438	0.000	64.517	0.000	475.000
775.000	177.000	871.607	.225	11.303	0.000	75.891	-11.380	475.000
775.000	205.000	871.697	.090	11.251	0.000	80.420	-15.908	475.000
775.000	290.000	871.927	.230	11.114	0.000	92.164	-27.652	475.000
2050.000	117.000	881.780	0.000	10.398	0.000	91.370	0.000	1275.000
2050.000	177.000	882.210	.431	10.603	0.000	111.222	-19.852	1275.000
2050.000	205.000	882.374	.164	10.677	0.000	118.784	-27.414	1275.000
2050.000	290.000	882.797	.422	10.869	0.000	137.922	-46.552	1275.000
2051.000	117.000	881.782	0.000	.003	0.000	92.125	0.000	1.000
2051.000	177.000	882.213	.431	.003	0.000	111.728	-19.603	1.000
2051.000	205.000	882.378	.164	.003	0.000	119.188	-27.063	1.000
2051.000	290.000	882.800	.422	.003	0.000	138.389	-46.264	1.000
2071.000	117.000	881.795	0.000	.013	0.000	92.702	0.000	20.000
2071.000	177.000	882.224	.429	.011	0.000	112.210	-19.508	20.000
2071.000	205.000	882.388	.164	.010	0.000	119.648	-26.946	20.000
2071.000	290.000	882.809	.421	.009	0.000	138.808	-46.106	20.000
2072.000	117.000	881.796	0.000	.001	0.000	92.091	0.000	1.000
2072.000	177.000	882.224	.429	.000	0.000	111.693	-19.602	1.000
2072.000	205.000	882.388	.164	.000	0.000	119.168	-27.077	1.000
2072.000	290.000	882.809	.421	.000	0.000	138.423	-46.332	1.000
2897.000	117.000	886.412	0.000	4.616	0.000	64.105	0.000	825.000
2897.000	177.000	886.767	.356	4.543	0.000	84.009	-19.903	825.000
2897.000	205.000	886.913	.146	4.526	0.000	91.444	-27.339	825.000
2897.000	290.000	887.260	.347	4.451	0.000	110.334	-46.229	825.000
2898.000	117.000	886.872	0.000	.460	0.000	3.400	0.000	1.000
2898.000	177.000	887.200	.328	.433	0.000	3.400	0.000	1.000
2898.000	205.000	892.829	5.629	5.916	0.000	275.202	-271.802	1.000
2898.000	290.000	892.892	.063	5.631	0.000	297.863	-294.463	1.000
2968.000	117.000	891.593	0.000	4.721	0.000	3.400	0.000	70.000
2968.000	177.000	894.035	2.442	6.835	0.000	713.503	-710.103	70.000
2968.000	205.000	893.059	-.976	.229	0.000	358.348	-354.948	70.000
2968.000	290.000	893.163	.104	.271	0.000	395.823	-392.423	70.000
2969.000	117.000	892.560	0.000	.967	0.000	1098.866	0.000	1.000
2969.000	177.000	892.750	.190	-1.285	0.000	1111.239	-12.374	1.000
2969.000	205.000	892.810	.060	-.249	0.000	1115.147	-16.282	1.000
2969.000	290.000	892.940	.130	-.223	0.000	1123.613	-24.748	1.000
3519.000	117.000	892.561	0.000	.001	0.000	299.999	0.000	550.000
3519.000	177.000	892.752	.191	.002	0.000	299.999	-.000	550.000
3519.000	205.000	892.812	.061	.002	0.000	299.999	-.000	550.000
3519.000	290.000	892.944	.132	.004	0.000	299.999	-.000	550.000
4569.000	117.000	892.565	0.000	.004	0.000	522.268	0.000	1050.000
4569.000	177.000	892.759	.195	.007	0.000	527.039	-4.770	1050.000
4569.000	205.000	892.822	.063	.004	0.000	528.509	-6.241	1050.000
4569.000	290.000	892.961	.140	.017	0.000	531.857	-9.589	1050.000
5369.000	117.000	892.567	0.000	.002	0.000	349.999	0.000	800.000
5369.000	177.000	892.764	.197	.005	0.000	349.999	-.000	800.000
5369.000	205.000	892.828	.064	.006	0.000	349.999	-.000	800.000
5369.000	290.000	892.972	.144	.011	0.000	349.999	-.000	800.000

5370.000	117.000	892.566	0.000	-.001	0.000	302.526	0.000	1.000
5370.000	177.000	892.762	.196	-.002	0.000	335.674	-33.148	1.000
5370.000	205.000	892.826	.064	-.002	0.000	345.699	-43.173	1.000
5370.000	290.000	892.969	.143	-.004	0.000	368.866	-66.340	1.000
5424.000	117.000	892.567	0.000	.002	0.000	302.704	0.000	54.000
5424.000	177.000	892.764	.197	.002	0.000	335.878	-33.174	54.000
5424.000	205.000	892.828	.064	.002	0.000	345.935	-43.231	54.000
5424.000	290.000	892.972	.144	.003	0.000	369.210	-66.506	54.000
5425.000	117.000	892.571	0.000	.003	0.000	349.999	0.000	1.000
5425.000	177.000	892.769	.198	.005	0.000	349.999	-.000	1.000
5425.000	205.000	892.834	.065	.006	0.000	349.999	-.000	1.000
5425.000	290.000	892.981	.147	.009	0.000	349.999	-.000	1.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	350.000	30.607	0.000
2	0.000	350.000	32.366	1.759
3	0.000	350.000	32.736	2.129
4	0.000	350.000	33.898	3.290

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ROUGE
WALLED LAKE BRANCH
TRIB B

4) DOCUMENT TYPE: 100YR

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
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T1      CITY OF NOVI    JOB NO. 5555-46-1     STREAM 06
T2      100 YEAR FLOOD
T3      TRIB  B  WALLED LAKE BR.

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      -10.        4.        -0.        -0.  -0.000000      -0.00      -0.0      205.    888.060     -0.000

J2  NPROF      IPLOT      PRFVS      XSECV      XSFCH      EN         ALLDC      IBW        CHNIM      ITRACE

     3.000     -0.000     -1.000     -0.000     -0.000     -0.000     -1.000     -0.000     -0.000     -0.000

CCHV=     .300 CEHV=     .500
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      FG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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       6.36     888.06     883.13     888.06     888.06       .00       0.00       0.00     883.20
      205.       22.       183.         0.       155.       444.         0.         0.         0.     887.90
     0.00        .14        .41        .01        .100       .050       .100     0.000     881.70      36.05
  .000027       -0.        -0.        -0.           0         20          1      0.00     169.87     205.93

    50.00       5.29     888.06     884.20       0.00     888.07       .00        .00        .00     884.27
      205.       17.       188.         0.         95.       340.         0.         1.         0.     888.97
      .03        .18        .55       0.00        .100       .050       .100      .049     882.77      50.11
  .000062        50.        50.        50.           0          5          1      0.00     142.56     192.67

   100.00       4.21     888.06     885.28       0.00     888.07       .01        .00        .00     885.35
      205.       12.       193.         0.         48.       245.         0.         1.         0.     890.05
      .04        .24        .79       0.00        .100       .050       .100      .049     883.85      64.30
  .000171        50.        50.        50.           0          5          1      0.00     119.68     183.98

   150.00       3.15     888.07     886.35       0.00     888.09       .02        .01        .01     886.42
      205.         6.       199.         0.         18.       160.         0.         1.         0.     891.12
      .06        .33       1.24       0.00        .100       .050       .100      .049     884.92      78.30
  .000646        50.        50.        50.           0          5          1      0.00      97.10     175.40

   200.00       2.09     888.09     887.70       0.00     888.25       .16        .09        .07     886.06
      205.       136.        46.        23.         65.         8.         14.        1.         1.     886.25
      .06        2.09       5.68       1.68        .100       .050       .100      .049     886.00      92.24
  .014469        50.        50.        50.           0         18          1      0.00      74.60     166.84


7185 MIN SPECIFIC ENERGY
```

3720 ASSUMED CRITICAL DEPTH

3265 DIVIDED FLOW

3280 CROSS SECTION 201.00 EXTENDED .59 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

NORMAL BRIDGE,NRD=11 MIN ELTRD= 892.64 MAX ELLC= 890.00

MOVI ROAD

201.00	7.23	893.23	893.23	0.00	893.47	.24	.01	0.00	893.37
205.	150.	55.	0.	40.	13.	0.	1.	1.	893.39
.06	3.71	4.38	0.00	.020	.024	.020	.049	886.00	0.00
.009790	1.	1.	1.	0	13	1	-14.62	130.48	152.00

3280 CROSS SECTION 283.00 EXTENDED 1.02 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

NORMAL BRIDGE,NRD=11 MIN ELTRD= 892.64 MAX ELLC= 890.00

283.00	7.65	893.65	893.23	0.00	893.70	.05	.18	.06	893.37
205.	185.	17.	3.	102.	14.	5.	2.	1.	893.39
.07	1.81	1.26	.59	.020	.024	.020	.041	886.00	0.00
.000926	82.	82.	82.	3	13	1	-15.22	193.20	193.20

WATER EL=XS CARD= 893.420

284.00	7.42	893.42	887.71	0.00	893.42	.00	.00	.01	886.06
205.	139.	19.	47.	549.	29.	229.	2.	1.	886.25
.08	.25	.65	.21	.100	.050	.100	.041	886.00	22.11
.000034	1.	1.	1.	0	18	1	0.00	223.08	245.19
834.00	2.87	893.47	892.11	0.00	893.49	.02	.06	.01	890.90
205.	106.	59.	40.	165.	32.	74.	9.	3.	891.00
.24	.64	1.82	.54	.100	.050	.100	.045	890.60	289.22
.001004	675.	550.	350.	2	15	1	0.00	183.11	472.33
1184.00	1.60	893.95	893.09	0.00	893.97	.02	.48	.00	892.55
205.	99.	34.	72.	111.	18.	92.	11.	5.	892.55
.33	.90	1.89	.78	.100	.050	.100	.047	892.35	217.18
.002369	262.	350.	425.	2	11	1	0.00	178.78	395.97
1534.00	1.18	895.28	894.84	0.00	895.33	.04	1.35	.01	894.30
205.	105.	37.	63.	77.	13.	57.	12.	6.	894.30
.39	1.36	2.88	1.10	.100	.050	.100	.049	894.10	220.78

.008540	263.	350.	425.	2	5	1	0.00	172.39	393.17
2059.00	1.74	900.31	899.95	0.00	900.46	.15	5.08	.05	903.87
205.	0.	205.	0.	0.	66.	0.	13.	8.	901.47
.44	0.00	3.12	0.00	.100	.050	.100	.049	898.57	412.18
.011848	471.	525.	507.	4	17	1	0.00	69.25	491.43
2259.00	1.93	902.13	901.58	0.00	902.23	.10	1.76	.01	905.50
205.	0.	205.	0.	0.	79.	0.	14.	8.	903.10
.46	0.00	2.58	0.00	.100	.050	.100	.049	900.20	411.52
.006778	179.	200.	193.	3	5	1	0.00	72.99	484.50
2646.00	2.19	905.44	905.28	0.00	905.65	.20	3.36	.05	906.55
205.	0.	143.	62.	0.	33.	53.	14.	9.	904.65
.49	0.00	4.26	1.18	.030	.050	.100	.050	903.25	302.76
.012226	375.	387.	325.	3	11	1	0.00	116.27	419.04

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
3034.00	2.42	908.72	908.33	0.00	908.83	.11	3.16	.03	909.60
205.	0.	128.	77.	0.	39.	75.	15.	10.	907.70
.53	0.00	3.33	1.02	.030	.050	.100	.050	906.30	302.20
.006403	375.	388.	325.	4	5	1	0.00	125.50	427.70
3784.00	1.43	915.83	915.60	0.00	915.95	.12	7.11	.00	915.20
205.	151.	48.	6.	70.	12.	6.	17.	12.	915.00
.61	2.16	4.12	1.05	.070	.050	.100	.050	914.40	444.78
.016015	750.	750.	700.	4	14	1	0.00	128.64	573.42
4859.00	2.08	921.68	920.94	0.00	921.74	.06	5.77	.02	920.50
205.	10.	152.	43.	13.	70.	64.	20.	15.	920.80
.79	.74	2.16	.67	.070	.050	.100	.050	919.60	177.37
.002501	1175.	1075.	1150.	6	8	1	0.00	140.39	317.76
5196.00	2.55	922.17	920.96	0.00	922.20	.03	.45	.01	920.52
205.	15.	136.	54.	26.	89.	103.	21.	16.	920.82
.86	.56	1.52	.52	.070	.050	.100	.050	919.62	168.20
.000903	350.	337.	256.	4	5	1	0.00	158.24	326.43

3470 ENCROACHMENT STATIONS= 800.0 1565.0 TYPE= 1 TARGET= -800.000

5534.00	2.62	922.27	920.25	0.00	922.27	.00	.06	.01	929.85
205.	0.	205.	0.	0.	466.	0.	24.	18.	933.75
1.07	0.00	.44	0.00	.100	.050	.060	.050	919.65	966.90
.000084	350.	338.	256.	2	18	1	0.00	227.23	1194.12

3470 ENCROACHMENT STATIONS= 800.0 1565.0 TYPE= 1 TARGET= -800.000

6209.00	2.62	922.32	920.30	0.00	922.33	.00	.06	.00	929.90
205.	0.	205.	0.	0.	468.	0.	31.	21.	933.80
1.50	0.00	.44	0.00	.100	.050	.060	.050	919.70	966.81
.000083	700.	675.	513.	2	5	1	0.00	227.41	1194.22

3470 ENCROACHMENT STATIONS=		800.0	1565.0	TYPE=	1	TARGET=	-800.000		
6316.00	1.94	922.34	921.00	0.00	922.34	.01	.01	.00	930.60
205.	0.	205.	0.	0.	317.	0.	32.	22.	934.50
1.54	0.00	.65	0.00	.100	.050	.060	.050	920.40	973.95
.000275	91.	107.	116.	0	5	1	0.00	209.85	1183.80

3470 ENCROACHMENT STATIONS=		800.0	1565.0	TYPE=	1	TARGET=	-800.000		
6422.00	1.29	922.39	921.70	0.00	922.40	.02	.06	.01	931.30
205.	0.	205.	0.	0.	187.	0.	32.	22.	935.20
1.57	0.00	1.10	0.00	.100	.050	.060	.050	921.10	980.65
.001435	90.	106.	115.	2	5	1	0.00	193.32	1173.97

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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=		800.0	1565.0	TYPE=	1	TARGET=	-800.000		
6528.00	.87	922.67	922.40	0.00	922.72	.06	.30	.02	932.00
205.	0.	205.	0.	0.	109.	0.	33.	23.	935.90
1.58	0.00	1.89	0.00	.100	.050	.060	.050	921.80	984.96
.008093	91.	106.	116.	2	5	1	0.00	182.69	1167.65

3470 ENCROACHMENT STATIONS=		800.0	1565.0	TYPE=	1	TARGET=	-800.000		
6634.00	.93	923.43	923.10	0.00	923.47	.05	.75	.00	932.70
205.	0.	205.	0.	0.	118.	0.	33.	23.	936.60
1.60	0.00	1.74	0.00	.100	.050	.060	.050	922.50	984.42
.006180	90.	106.	115.	3	5	1	0.00	184.02	1168.44
6740.00	.87	924.07	923.68	0.00	924.12	.05	.64	.00	930.10
205.	0.	205.	0.	0.	113.	0.	33.	24.	925.00
1.62	0.00	1.81	0.00	.100	.050	.060	.050	923.20	87.43
.005948	91.	106.	116.	2	15	1	0.00	160.76	248.19
6846.00	.84	924.74	924.38	0.00	924.79	.06	.67	.00	930.80
205.	0.	205.	0.	0.	108.	0.	34.	24.	925.70
1.63	0.00	1.90	0.00	.100	.050	.060	.050	923.90	87.87
.006774	90.	106.	115.	2	5	1	0.00	158.60	246.48
6952.00	.84	925.44	925.08	0.00	925.50	.05	.71	.00	931.50
205.	0.	205.	0.	0.	109.	0.	34.	24.	926.40
1.65	0.00	1.87	0.00	.100	.050	.060	.050	924.60	87.76
.006539	91.	106.	116.	2	5	1	0.00	159.18	246.94
7059.00	.85	926.15	925.78	0.00	926.20	.05	.70	.00	932.20
205.	0.	205.	0.	0.	109.	0.	34.	25.	927.10
1.66	0.00	1.88	0.00	.100	.050	.060	.050	925.30	87.80
.006634	91.	107.	116.	0	5	1	0.00	158.95	246.75

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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=18 MIN ELTRD= 927.50 MAX ELLC= 926.30

3470 ENCROACHMENT STATIONS= 800.0 1600.0 TYPE= 1 TARGET= -800.000

TAFT ROAD

7060.00	3.17	928.47	928.47	0.00	928.68	.21	.01	0.00	928.00
205.	175.	3.	27.	46.	1.	10.	34.	25.	928.00
1.66	3.84	2.59	2.71	.030	.024	.030	.050	925.30	1078.36
.020729	1.	1.	1.	0	7	1	-1.80	164.46	1242.82

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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=18 MIN ELTRD= 927.50 MAX ELLC= 926.30

3470 ENCROACHMENT STATIONS= 800.0 1600.0 TYPE= 1 TARGET= -800.000

7100.00	3.56	928.86	928.47	0.00	928.90	.04	.17	.05	928.00
205.	164.	1.	40.	98.	2.	34.	34.	25.	928.00
1.67	1.67	.90	1.18	.030	.024	.030	.050	925.30	1055.10
.001731	40.	40.	40.	3	7	1	-1.80	223.48	1278.58

WATER EL=X5 CARD= 928.700

7101.00	3.40	928.70	925.78	0.00	928.70	.00	.00	.01	932.20
205.	0.	203.	2.	0.	674.	37.	34.	25.	927.10
1.67	0.00	.30	.07	.100	.050	.100	.050	925.30	50.72
.000027	1.	1.	1.	0	20	1	0.00	294.99	345.71

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ~~BRANCH~~ ROUGE
WALLED LAKE BRANCH
TRIB B

4) DOCUMENT TYPE: 100 YR - 1987

00BREAK00

7101.00	3.34	928.64	925.73	0.00	928.64	0.00	0.00	0.01	932.20
175.	0.	173.	2.	0.	659.	34.	31.	24.	927.10
1.78	0.00	0.26	0 06	0.000	0.050	0.100	0.000	925.30	51.59
0.000021	1.	1.	1.	0	14	0	0.00	292.41	344.00

0
1

THIS RUN EXECUTED 15 SEP 87 16:07:21

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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 CITY OF NOVI JOB NO. 5555-46-1 STREAM 06
T2 100 YEAR FLOOD
T3 TRIB B WALLED LAKE BR.
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	4.	0.	0.	0.000000	0.00	0.0	205.	888.060	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	-1.000	0.000	0.000	0.000

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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

CRITICAL DEPTH TO BE CALCULATED AT ALL CROSS SECTIONS

CCHV= 0 300 CEHV= 0.500

*SECNO 0.000									
0.00	6.36	888.06	883.13	888.06	888.06	0.00	0.00	0.00	883.20
205.	22.	183.	0.	155.	444.	0.	0.	0.	887.90
0.00	0.14	0.41	0.01	0.100	0.050	0.100	0.000	881.70	36.05
0.000027	0.	0.	0.	0	20	0	0.00	169.87	205.93
0									
*SECNO 50.000									
50.00	5.29	888.06	884.20	0.00	888.07	0 00	0.00	0.00	884.27
205.	17.	188.	0.	95.	340	0	1.	0.	888.97
0.03	0.18	0.55	0.00	0.100	0.050	0.000	0.000	882.77	50.11
0.000062	50.	50.	50.	0	21	0	0.00	142.56	192.67
0									
*SECNO 100.000									
100.00	4.21	888.06	885.28	0.00	888.07	0.01	0.00	0.00	885.35
205	12.	193.	0.	48.	245.	0.	1.	0.	890.05
0.04	0.24	0.79	0.00	0.100	0.050	0.000	0.000	883.85	64.30
0.000171	50.	50.	50.	0	14	0	0.00	119.68	183.98
0									
*SECNO 150.000									
150.00	3.15	888.07	886.35	0.00	888.09	0.02	0.01	0:01	886.42

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      205.        6.      199.        0.       18.      160.        0.        1.        0.     891.12
      0.06      0.33      1 24      0.00    0.100    0.050     0.000     0.000   884.92     78.30
  0.000646        50       50.       50.        0       22         0      0.00    97.10    175 40
0
 *SECNO 200.000
    200.00      2.09    888.09    887.70     0.00   888.25      0.16      0.09      0.07   886.06
      205.       136.       46.       23      65.       8.       14.        1.        1.   886.25
      0.06      2 09      5.67      1.68    0.100    0.050     0.100     0.000   886.00     92.22
  0.014406       50.       50.       50.        0       11         0      0.00    74.64    166.86
0
 *SECNO 201.000
1
  15 SEP 87     16:07:12                                                                    PAGE    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     CDRAR     TOPWID      ENDST


 3265 DIVIDED FLOW

 3280 CROSS SECTION    201.00 EXTENDED      0.61 FEET


 3370 NORMAL BRIDGE, NRD= 11 MIN ELTRD=  892.64 MAX ELLC=  890.00

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
            NOVI ROAD
    201.00      7 25    893.25    893.25     0.00   893.50      0.24      0.01      0.04   893.37
      205.       140.       65.        0.      43.      13.         0         1.        1.   893.39
      0.06      3.26      5.17      0.00    0.020    0.024     0.000     0.000   886.00      0.00
  0.007153        1.        1.        1.        0       13         0    -14.70   133.48    152.00
0
 *SECNO 283.000
 3280 CROSS SECTION    283.00 EXTENDED      1.02 FEET


 3370 NORMAL BRIDGE, NRD= 11 MIN ELTRD=  892.64 MAX ELLC=  890.00

    283.00.     7.66    893.66    893.25     0.00   893.71      0.05      0.16      0.06   893.37
      205.       180.       22.        3.     102.      14.         6.        2.        1.   893.39
      0.07      1.76      1.59      0.57    0.020    0.024     0.020     0.000   886.00      0.00
  0.000867        82.       82.       82.        2       13         0    -15.22   193.70    193.70
0
 *SECNO 284.000
  WATER EL=X5 CARD=    893.420
    284.00      7.42    893.42    887 70     0.00   893.42      0.00      0.00      0.01   886.06
      205.       139        19.       47.     549.      29.       229.        2.        1.   886.25
      0.08      0.25      0.65      0.21    0.100    0.050     0.100     0.000   886.00     22.11
  0.000034        1.        1.        1.        0       21         0      0 00   223.08    245.19
0
 *SECNO 834.000
    834.00      2.87    893 47    892.11     0.00   893.49      0.02      0.06      0.01   890.90
      205.       106.       59.       40      165.      32.       74.        9.        3.   891.00
      0 24      0 64      1.82      0.54    0.100    0.050     0.100     0.000   890.60    289.22
  0 001004       675.      550.      350.        2       21         0      0.00   183.11    472.33
0
1
  15 SEP 87     16:07:12                                                                    PAGE    18

    SECNO     DEPTH     CWSEL     CRI S     WSELK     EG        HV        HL        OLOSS    BAN K ELEV
```

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 1184.000									
1184.00	1.60	893.95	893.09	0.00	893.97	0.02	0.48	0.00	892.55
205	99.	34.	72.	111.	18.	92.	11.	5.	892.55
0.33	0.90	1.89	0.78	0.100	0.050	0.100	0.000	892.35	217.18
0.002369	262.	350.	425.	2	14	0	0.00	178.78	395.97
0									
*SECNO 1534.000									
1534.00	1.18	895.28	894.84	0.00	895 33	0.04	1.35	0.01	894.30
205.	105	37.	63.	77.	13.	57.	12.	6.	894.30
0.39	1.36	2.88	1.10	0.100	0.050	0.100	0.000	894.10	220.78
0.008532	263.	350.	425.	2	14	0	0.00	172.39	393.17
0									
*SECNO 2059.000									
2059.00	1.74	900.31	899.95	0.00	900 46	0.15	5.08	0.05	903.87
205.	0.	205.	0.	0.	66.	0.	13.	8.	901.47
0.44	0.00	3.12	0.00	0.000	0.050	0.000	0.000	898.57	412.18
0.011862	471.	525.	507.	4	11	0	0.00	69.24	481.43
0									
*SECNO 2259.000									
2259 00	1.93	902.13	901 58	0.00	902 23	0.10	1.76	0.01	905.50
205.	0	205.	0.	0.	79.	0.	14.	8.	903.10
0.46	0.00	2.58	0.00	0.000	0.050	0.000	0.000	900.20	411.52
0.006775	179.	200.	193.	3	15	0	0.00	72.98	484.50
0									
*SECNO 2646.000									
2646 00	2.19	905.44	905.27	0.00	905.65	0.20	3.36	0.05	906.55
205.	0.	143.	62.	0.	33.	53.	14.	9.	904.65
0.49	0.00	4.26	1.18	0.000	0.050	0.100	0.000	903.25	302.76
0.012231	375.	387.	325.	3	8	0	0.00	116.27	419.03
0									
*SECNO 3034.000									
3034.00	2.42	908.72	908 36	0.00	908.83	0.11	3.16	0.03	909.60
205.	0.	128.	77.	0.	39.	75.	15.	10.	907.70
0.53	0.00	3.33	1.02	0.000	0.050	0.100	0.000	906.30	302.20
0.006402	375.	388.	325.	4	10	0	0.00	125.50	427.70
0									
1									

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 3784.000									
3784.00	1.43	915.83	915.60	0.00	915.95	0.12	7.11	0.00	915.20
205	151.	46.	6.	70.	12.	6.	17.	12.	915.00
0.61	2.16	4.12	1.05	0.070	0.050	0.100	0.000	914.40	444.78
0.016017	750.	750.	700.	4	8	0	0.00	128 64	573.42
0									
*SECNO 4859.000									
4859.00	2.08	921.68	920.94	0.00	921.74	0.06	5.77	0.02	920.50
205.	10.	152	43.	13.	70.	64.	20.	15.	920.80
0.79	0.74	2.16	0.67	0.070	0.050	0.100	0.000	919.60	177.37
0.002501	1175.	1075.	1150	6	11	0	0.00	140.39	317.76
0									
*SECNO 5196.000									
5196.00	2.55	922.17	920.96	0 00	922.20	0.03	0.45	0.01	920 52
205.	15.	136.	54.	26.	89.	103.	21.	16.	920.82

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     0.86      0.56      1.52      0.52     0 070     0.050     0.100     0.000    919.62    168.20
  0.000903     350.      337.      256.         4        14         0      0.00    158.23    326.43
0
 *SECNO 5534.000

 3470 ENCROACHMENT STATIONS=      800.0     1565.0  TYPE=      1  TARGET=     -800.000
   5534.00      2.62    922.27    920.25      0.00    922.27      0.00      0 06      0.01    929.85
      205.        0.      205.        0.        0.      466.        0.        24       18.     933.75
      1.07      0.00      0.44      0 00     0.000     0.050     0.000     0.000    919.65    966.90
  0.000084     350.      338.      256.         2        17         0      0.00    227.22   1194.12
0
 *SECNO 6209.000

 3470 ENCROACHMENT STATIONS=      800.0     1565.0  TYPE=      1  TARGET=     -800.000
   6209.00      2.62    922.32    920 30      0.00    922.33      0.00      0.06      0.00    929.90
      205.        0.      205.        0.        0.      468.        0.        31       21.     933.80
      1.50      0.00      0.44      0.00     0.000     0.050     0.000     0.000    919.70    966.81
  0.000083     700.      675.      513.         2        17         0      0.00    227.40   1194.22
0
 *SECNO 6316 000

 3470 ENCROACHMENT STATIONS=      800.0     1565.0  TYPE=      1  TARGET=     -800.000
   6316.00      1 94    922.34    921.00      0.00    922 34      0.01      0.01      0.00    930.60
      205.        0.      205.        0.        0.      317.        0.        32.       22      934.50
      1.54      0.00      0.65      0.00     0.000     0.050     0.000     0 000    920.40    973.95
  0.000275      91.      107.      116.         0        17         0      0.00    209.86   1183.81
0
1
  15 SEP 87     16:07:12                                                                          PAGE    20

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 6422.000
   6422.00      1.29    922.39    921.70      0.00    922.40      0.02      0 06      0.01    931.30
      205.        0.      205.        0.        0.      186.        0.        32.       22.     935.20
      1 57      0.00      1.10      0.00     0.000     0.050     0.000     0.000    921.10    980.65
  0.001436      90       106.      115.         2        17         0      0.00    193.32   1173.97
0
 *SECNO 6528.000

 3470 ENCROACHMENT STATIONS=      800.0     1565.0  TYPE=      1  TARGET=     -800 000
   6528.00      0.87    922.67    922.40      0.00    922.72      0.06      0.30      0.02    932.00
      205.        0.      205.        0.        0.      109.        0.        33.       23.     935.90
      1.58      0 00      1.89      0.00     0.000     0.050     0.000     0.000    921.80    984.96
  0 008094      91.      106.      116.         2        14         0      0.00    182.69   1167.65
0
 *SECNO 6634 000

 3470 ENCROACHMENT STATIONS=      800.0     1565.0  TYPE=      1  TARGET=     -800.000
   6634.00      0.93    923.43    923.10      0.00    923.47      0.05      0.75      0.00    932.70
      205.        0       205.        0.        0.      118.        0.        33.       23.     936.60
      1.60      0.00      1.74      0.00     0.000     0 050     0.000     0.000    922.50    984.42
  0.006177      90       106.      115.         3        19         0      0.00    184.02   1168.44
0
 *SECNO 6740.000
   6740.00      0.87    924.07    923.68      0.00    924.12      0.05      0.64      0.00    930.10
      205.        0.      205.        0.        0.      113.        0         33.       24.     925.00
      1.62      0.00      1.81      0.00     0.000     0.050     0.000     0.000    923.20     87.43
  0.005951      91.      106.      116.         2        11         0      0.00    160.75    248.18
0
 *SECNO 6846.000
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   6846.00      0.84    924.74    924 38      0.00    924.79      0.06      0.67      0.00    930.80
      205.         0.      205.        0.        0.       108.        0.       34.        24.     925.70
      1.63      0.00      1.89      0.00     0.000     0.050     0.000     0.000    923.90     87.87
  0.006773       90.       106.      115.         2        11         0      0.00    158.61    246.48
0
 *SECNO 6952.000
   6952.00      0.84    925.44    925.08      0.00    925.50      0.05      0.71      0.00    931.50
      205.         0.      205.        0.        0.       109.        0.       34.        24.     926.40
      1.65      0.00      1.87      0.00     0.000     0.050     0.000     0.000    924.60     87.76
  0.006539       91.       106.      116.         2        11         0      0.00    159.18    246.94
0
1
  15 SEP 87    16:07:12                                                                          PAGE   21

    SECNO      DEPTH      CWSEL      CRIWS      WSELK       EG         HV         HL        OLOSS    BANK ELEV
    Q          QLOB       QCH        QROB       ALOB        ACH        AROB       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 7059.000
   7059.00      0.84    926.14    925.78      0.00    926.20      0.05      0.70      0.00    932.20
      205.         0.      205.        0.        0.       110.        0.       34.        25.     927.10
      1.66      0.00      1.87      0.00     0.000     0.050     0.000     0.000    925.30     87.75
  0.006536       91.       107.      116.         1        11         0      0.00    159.19    246.94
0
 *SECNO 7060.000

 3370 NORMAL BRIDGE, NRD= 18 MIN ELTRD=  927.50 MAX ELLC=  926.30

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
 3470 ENCROACHMENT STATIONS=      800.0     1600.0  TYPE=      1  TARGET=     -800.000
            TAFT ROAD
   7060.00      3.17    928.47    928.47      0.00    928.68      0.21      0.01      0.08    928.00
      205.       174.        5.       27.       45.         1.       10.       34.        25.     928.00
      1.66      3.82      3.89      2.69     0.030     0.024     0.030     0.000    925.30   1078.40
  0.020617         1         1.        1.         0         7         0     -1.80    164.36   1242.76
0
 *SECNO 7100.000

 3370 NORMAL BRIDGE, NRD= 18 MIN ELTRD=  927.50 MAX ELLC=  926.30

 3470 ENCROACHMENT STATIONS=      800.0     1600.0  TYPE=      1  TARGET=     -800.000
   7100.00      3.56    928.86    928.47      0.00    928.90      0.04      0.17      0.05    928.00
      205.       163.        2.       39.       98.         2.       34.       34.        25.     928.00
      1.67      1.67      1.36      1.18     0.030     0.024     0.030     0.000    925.30   1055.20
  0.001731       40.       40.       40.         3         7         0     -1.80    223.24   1278.44
0
 *SECNO 7101.000
  WATER EL=X5 CARD=    928.700
   7101.00      3.40    928.70    925.78      0.00    928.70      0.00      0.00      0.01    932.20
      205.         0.      203.        2.        0.       674.       37.       34.        25.     927.10
      1.67      0.00      0.30      0.07     0.000     0.050     0.100     0.000    925.30     50.72
  0.000027         1.        1.        1.         0        17         0      0.00    294.99    345.71
0
1
  15 SEP 87    16:07:12                                                                          PAGE   22

                                                                  THIS RUN EXECUTED 15 SEP 87    16:07:24
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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ROUGE—
WALLED LAKE BRANCH—
TRIB B

4) DOCUMENT TYPE: SUMMARY

00BREAK00

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

TRIB B WALLED LAKE BR.

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRITS	HV	HL	OLOSS	TOPWID
0.00	0.00	0.00	0.00	881.70	116.00	886.16	4.46	882.84	.00	0.00	0.00	124.92
0.00	0.00	0.00	0.00	881.70	175.00	887.74	6.04	883.04	.00	0.00	0.00	158.45
0.00	0.00	0.00	0.00	881.70	205.00	888.06	6.36	883.13	.00	0.00	0.00	169.87
0.00	0.00	0.00	0.00	881.70	285.00	888.88	7.18	883.31	.00	0.00	0.00	211.03
50.00	50.00	0.00	0.00	882.77	116.00	886.16	3.39	883.91	.01	.00	.00	102.25
50.00	50.00	0.00	0.00	882.77	175.00	887.74	4.97	884.11	.00	.00	.00	135.76
50.00	50.00	0.00	0.00	882.77	205.00	888.06	5.29	884.20	.00	.00	.00	142.56
50.00	50.00	0.00	0.00	882.77	285.00	888.88	6.11	884.39	.01	.00	.00	159.96
100.00	50.00	0.00	0.00	883.85	116.00	886.17	2.32	884.99	.02	.01	.01	79.43
100.00	50.00	0.00	0.00	883.85	175.00	887.74	3.89	885.19	.01	.00	.00	112.89
100.00	50.00	0.00	0.00	883.85	205.00	888.06	4.21	885.28	.01	.00	.00	119.64
100.00	50.00	0.00	0.00	883.85	285.00	888.88	5.03	885.47	.01	.00	.00	137.09
150.00	50.00	0.00	0.00	884.92	116.00	886.22	1.30	886.06	.17	.13	.08	53.84
150.00	50.00	0.00	0.00	884.92	175.00	887.75	2.83	886.26	.02	.02	.01	90.31
150.00	50.00	0.00	0.00	884.92	205.00	888.07	3.15	886.35	.02	.01	.01	97.10
150.00	50.00	0.00	0.00	884.92	285.00	888.89	3.97	886.54	.02	.01	.01	114.49
200.00	50.00	0.00	0.00	886.00	116.00	887.47	1.47	887.36	.25	1.29	.04	60.99
200.00	50.00	0.00	0.00	886.00	175.00	887.76	1.76	887.62	.24	.11	.11	67.72
200.00	50.00	0.00	0.00	886.00	205.00	888.09	2.09	887.70	.16	.09	.07	74.60
200.00	50.00	0.00	0.00	886.00	285.00	888.91	2.91	887.90	.09	.05	.03	91.87
		893.4				892.6						
201.00	1.00	~~892.64~~	890.00	886.00	~~116.00~~	~~889.58~~	3.58	889.58	1.52	.03	0.00	4.00
201.00	1.00	~~892.64~~	890.00	886.00	~~175.00~~	~~889.78~~	3.78	889.78	3.12	.03	0.00	4.00
201.00	1.00	~~892.64~~	890.00	886.00	~~205.00~~	~~893.23~~	7.23	893.23	.24	.01	0.00	130.48
201.00	1.00	~~892.64~~	890.00	886.00	~~285.00~~	~~893.35~~	7.35	893.35	.26	.01	0.00	148.99
		893.4				892.6						
283.00	82.00	~~892.64~~	890.00	886.00	~~116.00~~	~~892.17~~	6.17	889.58	1.32	2.33	.06	4.00
283.00	82.00	~~892.64~~	890.00	886.00	~~175.00~~	~~893.89~~	7.89	889.78	.02	.07	.93	212.05
283.00	82.00	~~892.64~~	890.00	886.00	~~205.00~~	~~893.65~~	7.65	893.23	.05	.18	.06	193.20
283.00	82.00	~~892.64~~	890.00	886.00	~~285.00~~	~~893.79~~	7.79	893.35	.06	.18	.06	206.05
284.00	1.00	0.00	0.00	886.00	116.00	892.87	6.87	887.36	.00	.00	.39	195.47
284.00	1.00	0.00	0.00	886.00	175.00	893.32	7.32	887.62	.00	.00	.01	218.06
284.00	1.00	0.00	0.00	886.00	205.00	893.42	7.42	887.71	.00	.00	.01	223.08
284.00	1.00	0.00	0.00	886.00	285.00	893.62	7.62	887.90	.00	.00	.02	233.12
834.00	550.00	0.00	0.00	890.60	116.00	892.89	2.29	891.92	.02	.03	.01	159.78
834.00	550.00	0.00	0.00	890.60	175.00	893.36	2.76	892.02	.02	.05	.01	178.62
834.00	550.00	0.00	0.00	890.60	205.00	893.47	2.87	892.11	.02	.06	.01	183.11
834.00	550.00	0.00	0.00	890.60	285.00	893.70	3.10	892.31	.03	.09	.01	192.51
1184.00	350.00	0.00	0.00	892.35	116.00	893.48	1.13	892.92	.02	.58	.00	171.60
1184.00	350.00	0.00	0.00	892.35	175.00	893.82	1.47	893.04	.02	.46	.00	176.75
1184.00	350.00	0.00	0.00	892.35	205.00	893.95	1.60	893.09	.02	.48	.00	178.78
1184.00	350.00	0.00	0.00	892.35	285.00	894.25	1.90	893.19	.02	.55	.00	183.39

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRWS	HV	HL	QLOSS	TOPWID
1534.00	350.00	0.00	0.00	894.10	116.00	895.04	.94	894.67	.03	1.57	.01	168.72
1534.00	350.00	0.00	0.00	894.10	175.00	895.20	1.10	894.79	.04	1.39	.01	171.04
1534.00	350.00	0.00	0.00	894.10	205.00	895.28	1.18	894.84	.04	1.35	.01	172.39
1534.00	350.00	0.00	0.00	894.10	285.00	895.51	1.41	894.94	.05	1.27	.01	175.98
2059.00	525.00	0.00	0.00	898.57	116.00	899.96	1.39	899.65	.11	4.97	.04	59.57
2059.00	525.00	0.00	0.00	898.57	175.00	900.23	1.66	899.86	.13	5.08	.05	67.55
2059.00	525.00	0.00	0.00	898.57	205.00	900.31	1.74	899.95	.15	5.08	.05	69.25
2059.00	525.00	0.00	0.00	898.57	285.00	900.49	1.92	900.14	.20	5.05	.08	72.74
2259.00	200.00	0.00	0.00	900.20	116.00	901.78	1.58	901.28	.07	1.76	.01	66.29
2259.00	200.00	0.00	0.00	900.20	175.00	902.02	1.82	901.49	.09	1.74	.01	70.76
2259.00	200.00	0.00	0.00	900.20	205.00	902.13	1.93	901.58	.10	1.76	.01	72.98
2259.00	200.00	0.00	0.00	900.20	285.00	902.41	2.21	901.78	.12	1.82	.02	78.47
2646.00	387.00	0.00	0.00	903.25	116.00	905.09	1.84	904.98	.20	3.38	.06	101.98
2646.00	387.00	0.00	0.00	903.25	175.00	905.35	2.10	905.23	.20	3.38	.05	112.24
2646.00	387.00	0.00	0.00	903.25	205.00	905.44	2.19	905.28	.20	3.36	.05	116.27
2646.00	387.00	0.00	0.00	903.25	285.00	905.66	2.41	905.44	.22	3.30	.05	125.34
3034.00	388.00	0.00	0.00	906.30	116.00	908.38	2.08	908.05	.09	3.15	.03	111.22
3034.00	388.00	0.00	0.00	906.30	175.00	908.61	2.31	908.23	.11	3.15	.03	121.01
3034.00	388.00	0.00	0.00	906.30	205.00	908.72	2.42	908.33	.11	3.16	.03	125.50
3034.00	388.00	0.00	0.00	906.30	285.00	908.97	2.67	908.51	.13	3.19	.03	136.05
3784.00	750.00	0.00	0.00	914.40	116.00	915.55	1.15	915.41	.10	7.18	.00	107.58
3784.00	750.00	0.00	0.00	914.40	175.00	915.75	1.35	915.54	.11	7.14	.00	122.49
3784.00	750.00	0.00	0.00	914.40	205.00	915.83	1.43	915.60	.12	7.11	.00	128.64
3784.00	750.00	0.00	0.00	914.40	285.00	916.03	1.63	915.74	.13	7.06	.00	142.81
4859.00	1075.00	0.00	0.00	919.60	116.00	921.29	1.69	920.53	.04	5.66	.02	125.97
4859.00	1075.00	0.00	0.00	919.60	175.00	921.56	1.96	920.84	.05	5.73	.02	135.93
4859.00	1075.00	0.00	0.00	919.60	205.00	921.68	2.08	920.94	.06	5.77	.02	140.39
4859.00	1075.00	0.00	0.00	919.60	285.00	921.96	2.36	921.13	.07	5.84	.02	150.88
5196.00	337.00	0.00	0.00	919.62	116.00	921.71	2.09	920.55	.02	.39	.01	141.38
5196.00	337.00	0.00	0.00	919.62	175.00	922.03	2.41	920.86	.02	.44	.01	153.04
5196.00	337.00	0.00	0.00	919.62	205.00	922.17	2.55	920.96	.03	.45	.01	158.24
5196.00	337.00	0.00	0.00	919.62	285.00	922.48	2.86	921.14	.03	.48	.01	169.84
5534.00	338.00	0.00	0.00	919.65	116.00	921.78	2.13	920.14	.00	.05	.00	214.92
5534.00	338.00	0.00	0.00	919.65	175.00	922.12	2.47	920.22	.00	.06	.01	223.54
5534.00	338.00	0.00	0.00	919.65	205.00	922.27	2.62	920.25	.00	.06	.01	227.23
5534.00	338.00	0.00	0.00	919.65	285.00	922.60	2.95	920.34	.00	.08	.01	233.35
6209.00	675.00	0.00	0.00	919.70	116.00	921.82	2.12	920.19	.00	.04	.00	214.76
6209.00	675.00	0.00	0.00	919.70	175.00	922.17	2.47	920.27	.00	.05	.00	223.66
6209.00	675.00	0.00	0.00	919.70	205.00	922.32	2.62	920.30	.00	.06	.00	227.41
6209.00	675.00	0.00	0.00	919.70	285.00	922.66	2.96	920.39	.00	.07	.00	233.73

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	C#SEL	DEPTH	CRIWS	HV	HL	OLOSS	TOPWID
6316.00	107.00	0.00	0.00	920.40	116.00	921.83	1.43	920.89	.00	.01	.00	196.98
6316.00	107.00	0.00	0.00	920.40	175.00	922.18	1.78	920.97	.01	.01	.00	205.93
6316.00	107.00	0.00	0.00	920.40	205.00	922.34	1.94	921.00	.01	.01	.00	209.85
6316.00	107.00	0.00	0.00	920.40	285.00	922.68	2.28	921.09	.01	.02	.00	218.66
6422.00	106.00	0.00	0.00	921.10	116.00	921.90	.80	921.59	.02	.08	.01	180.92
6422.00	106.00	0.00	0.00	921.10	175.00	922.24	1.14	921.67	.02	.06	.01	189.49
6422.00	106.00	0.00	0.00	921.10	205.00	922.39	1.29	921.70	.02	.06	.01	193.32
6422.00	106.00	0.00	0.00	921.10	285.00	922.72	1.62	921.79	.02	.05	.01	202.02
6528.00	106.00	0.00	0.00	921.80	116.00	922.48	.68	922.29	.04	.59	.01	177.87
6528.00	106.00	0.00	0.00	921.80	175.00	922.59	.79	922.37	.05	.37	.02	180.58
6528.00	106.00	0.00	0.00	921.80	205.00	922.67	.87	922.40	.06	.30	.02	182.69
6528.00	106.00	0.00	0.00	921.80	285.00	922.92	1.12	922.49	.05	.21	.02	189.06
6634.00	106.00	0.00	0.00	922.50	116.00	923.24	.74	922.99	.03	.74	.00	179.32
6634.00	106.00	0.00	0.00	922.50	175.00	923.38	.88	923.07	.04	.77	.00	182.83
6634.00	106.00	0.00	0.00	922.50	205.00	923.43	.93	923.10	.05	.75	.00	184.02
6634.00	106.00	0.00	0.00	922.50	285.00	923.54	1.04	923.19	.06	.63	.01	186.96
6740.00	106.00	0.00	0.00	923.20	116.00	923.84	.64	923.53	.03	.60	.00	145.07
6740.00	106.00	0.00	0.00	923.20	175.00	924.00	.80	923.63	.05	.63	.00	155.33
6740.00	106.00	0.00	0.00	923.20	205.00	924.07	.87	923.68	.05	.64	.00	160.76
6740.00	106.00	0.00	0.00	923.20	285.00	924.23	1.03	923.79	.06	.69	.00	172.37
6846.00	106.00	0.00	0.00	923.90	116.00	924.49	.59	924.23	.04	.66	.00	141.96
6846.00	106.00	0.00	0.00	923.90	175.00	924.67	.77	924.33	.05	.67	.00	153.94
6846.00	106.00	0.00	0.00	923.90	205.00	924.74	.84	924.38	.06	.67	.00	158.60
6846.00	106.00	0.00	0.00	923.90	285.00	924.91	1.01	924.49	.07	.68	.00	170.48
6952.00	106.00	0.00	0.00	924.60	116.00	925.21	.61	924.93	.04	.71	.00	143.29
6952.00	106.00	0.00	0.00	924.60	175.00	925.37	.77	925.03	.05	.70	.00	154.06
6952.00	106.00	0.00	0.00	924.60	205.00	925.44	.84	925.09	.05	.71	.00	159.18
6952.00	106.00	0.00	0.00	924.60	285.00	925.61	1.01	925.19	.07	.70	.00	171.17
7059.00	107.00	0.00	0.00	925.30	116.00	925.91	.61	925.63	.04	.70	.00	142.69
7059.00	107.00	0.00	0.00	925.30	175.00	926.07	.77	925.73	.05	.70	.00	154.33
7059.00	107.00	0.00	0.00	925.30	205.00	926.15	.85	925.78	.05	.70	.00	158.95
7059.00	107.00	0.00	0.00	925.30	285.00	926.31	1.01	925.89	.07	.71	.00	170.47
7060.00	1.00	927.50	926.30	925.30	116.00	928.37	3.07	928.37	.12	.01	0.00	150.58
7060.00	1.00	927.50	926.30	925.30	175.00	928.42	3.12	928.42	.20	.01	0.00	157.83
7060.00	1.00	927.50	926.30	925.30	205.00	928.47	3.17	928.47	.21	.01	0.00	164.46
7060.00	1.00	927.50	926.30	925.30	285.00	928.57	3.27	928.57	.24	.01	0.00	180.03
7100.00	40.00	927.50	926.30	925.30	116.00	928.68	3.38	928.37	.03	.15	.03	192.84
7100.00	40.00	927.50	926.30	925.30	175.00	928.80	3.50	928.42	.03	.16	.05	215.72
7100.00	40.00	927.50	926.30	925.30	205.00	928.86	3.56	928.47	.04	.17	.05	223.48
7100.00	40.00	927.50	926.30	925.30	285.00	928.90	3.59	928.57	.05	.17	.06	242.29

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRIWS	HV	HL	OLOSS	TOPWID
7101.00	1.00	0.00	0.00	925.30	116.00	928.52	3.22	925.63	.00	.00	.01	287.24
7101.00	1.00	0.00	0.00	925.30	175.00	928.64	3.34	925.73	.00	.00	.01	292.41
7101.00	1.00	0.00	0.00	925.30	205.00	928.70	3.40	925.78	.00	.00	.01	294.99
7101.00	1.00	0.00	0.00	925.30	285.00	928.83	3.53	925.89	.00	.00	.01	300.59

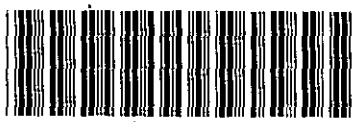
SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	116.000	886.160	0.000	0.000	0.000	124.915	0.000	-0.000
0.000	175.000	887.740	1.580	0.000	0.000	158.447	-33.531	-0.000
0.000	205.000	888.060	.320	0.000	0.000	169.873	-44.958	-0.000
0.000	285.000	888.880	.820	0.000	0.000	211.033	-86.118	-0.000
50.000	116.000	886.162	0.000	.002	0.000	102.252	0.000	50.000
50.000	175.000	887.741	1.579	.001	0.000	135.765	-33.513	50.000
50.000	205.000	888.061	.320	.001	0.000	142.558	-40.306	50.000
50.000	285.000	888.881	.820	.001	0.000	159.962	-57.710	50.000
100.000	116.000	886.170	0.000	.008	0.000	79.432	0.000	50.000
100.000	175.000	887.743	1.574	.002	0.000	112.889	-33.457	50.000
100.000	205.000	888.063	.320	.002	0.000	119.685	-40.253	50.000
100.000	285.000	888.883	.820	.002	0.000	137.090	-57.658	50.000
150.000	116.000	886.220	0.000	.051	0.000	53.836	0.000	50.000
150.000	175.000	887.752	1.532	.009	0.000	90.307	-36.471	50.000
150.000	205.000	888.071	.319	.008	0.000	97.100	-43.264	50.000
150.000	285.000	888.889	.818	.006	0.000	114.494	-60.658	50.000
200.000	116.000	887.473	0.000	1.253	0.000	60.994	0.000	50.000
200.000	175.000	887.756	.283	.004	0.000	67.722	-6.728	50.000
200.000	205.000	888.090	.334	.019	0.000	74.602	-13.608	50.000
200.000	285.000	888.909	.819	.020	0.000	91.873	-30.879	50.000
201.000	116.000	889.575	0.000	2.102	0.000	4.000	0.000	1.000
201.000	175.000	889.781	.206	2.025	0.000	4.000	0.000	1.000
201.000	205.000	893.231	3.450	5.141	0.000	130.482	-126.482	1.000
201.000	285.000	893.351	.120	4.442	0.000	148.989	-144.989	1.000
283.000	116.000	892.168	0.000	2.593	0.000	4.000	0.000	82.000
283.000	175.000	893.888	1.719	4.107	0.000	212.054	-208.054	82.000
283.000	205.000	893.654	-.234	.422	0.000	193.197	-189.197	82.000
283.000	285.000	893.793	.140	.443	0.000	206.048	-202.048	82.000
284.000	116.000	892.870	0.000	.702	0.000	195.473	0.000	1.000
284.000	175.000	893.320	.450	-.568	0.000	218.060	-22.588	1.000
284.000	205.000	893.420	.100	-.234	0.000	223.080	-27.607	1.000
284.000	285.000	893.620	.200	-.173	0.000	233.119	-37.646	1.000
834.000	116.000	892.891	0.000	.021	0.000	159.783	0.000	550.000
834.000	175.000	893.357	.466	.037	0.000	178.618	-18.835	550.000
834.000	205.000	893.468	.110	.048	0.000	183.107	-23.324	550.000
834.000	285.000	893.700	.232	.080	0.000	192.506	-32.723	550.000
1184.000	116.000	893.476	0.000	.585	0.000	171.601	0.000	350.000
1184.000	175.000	893.815	.339	.458	0.000	176.747	-5.147	350.000
1184.000	205.000	893.950	.134	.482	0.000	178.784	-7.184	350.000
1184.000	285.000	894.253	.304	.554	0.000	183.386	-11.785	350.000
1534.000	116.000	895.036	0.000	1.560	0.000	168.720	0.000	350.000
1534.000	175.000	895.195	.159	1.380	0.000	171.039	-2.319	350.000
1534.000	205.000	895.284	.089	1.335	0.000	172.386	-3.667	350.000
1534.000	285.000	895.511	.227	1.258	0.000	175.978	-7.259	350.000

2059.000	116.000	899.963	0.000	4.926	0.000	59.569	0.000	525.000
2059.000	175.000	900.225	.263	5.030	0.000	67.550	-7.981	525.000
2059.000	205.000	900.311	.096	5.027	0.000	69.250	-9.681	525.000
2059.000	285.000	900.486	.175	4.974	0.000	72.739	-13.170	525.000
2259.000	116.000	901.782	0.000	1.820	0.000	66.289	0.000	200.000
2259.000	175.000	902.016	.234	1.791	0.000	70.763	-4.475	200.000
2259.000	205.000	902.131	.115	1.820	0.000	72.976	-6.688	200.000
2259.000	285.000	902.407	.277	1.922	0.000	78.467	-12.179	200.000
2646.000	116.000	905.094	0.000	3.312	0.000	101.985	0.000	387.000
2646.000	175.000	905.346	.251	3.330	0.000	112.238	-10.253	387.000
2646.000	205.000	905.445	.099	3.314	0.000	116.273	-14.288	387.000
2646.000	285.000	905.658	.213	3.250	0.000	125.344	-23.359	387.000
3034.000	116.000	908.378	0.000	3.284	0.000	111.224	0.000	388.000
3034.000	175.000	908.612	.233	3.266	0.000	121.006	-9.782	388.000
3034.000	205.000	908.721	.109	3.276	0.000	125.496	-14.272	388.000
3034.000	285.000	908.972	.251	3.314	0.000	136.053	-24.829	388.000
3784.000	116.000	915.550	0.000	7.172	0.000	107.579	0.000	750.000
3784.000	175.000	915.749	.199	7.137	0.000	122.488	-14.908	750.000
3784.000	205.000	915.832	.083	7.112	0.000	128.640	-21.061	750.000
3784.000	285.000	916.028	.196	7.056	0.000	142.811	-35.232	750.000
4859.000	116.000	921.290	0.000	5.740	0.000	125.965	0.000	1075.000
4859.000	175.000	921.560	.270	5.811	0.000	135.933	-9.968	1075.000
4859.000	205.000	921.684	.124	5.852	0.000	140.385	-14.420	1075.000
4859.000	285.000	921.956	.273	5.928	0.000	150.880	-24.915	1075.000
5196.000	116.000	921.714	0.000	.424	0.000	141.379	0.000	337.000
5196.000	175.000	922.032	.318	.472	0.000	153.042	-11.663	337.000
5196.000	205.000	922.172	.140	.488	0.000	158.238	-16.859	337.000
5196.000	285.000	922.483	.311	.527	0.000	169.839	-28.460	337.000
5534.000	116.000	921.782	0.000	.068	0.000	214.919	0.000	338.000
5534.000	175.000	922.118	.336	.086	0.000	223.536	-8.617	338.000
5534.000	205.000	922.266	.148	.094	0.000	227.228	-12.310	338.000
5534.000	285.000	922.596	.330	.113	0.000	233.346	-18.427	338.000
6209.000	116.000	921.823	0.000	.041	0.000	214.758	0.000	675.000
6209.000	175.000	922.170	.347	.052	0.000	223.660	-8.902	675.000
6209.000	205.000	922.322	.152	.057	0.000	227.407	-12.649	675.000
6209.000	285.000	922.664	.342	.068	0.000	233.731	-18.973	675.000
6316.000	116.000	921.833	0.000	.011	0.000	196.984	0.000	107.000
6316.000	175.000	922.182	.349	.012	0.000	205.930	-8.946	107.000
6316.000	205.000	922.335	.153	.013	0.000	209.852	-12.869	107.000
6316.000	285.000	922.679	.343	.015	0.000	218.656	-21.673	107.000
6422.000	116.000	921.901	0.000	.068	0.000	180.917	0.000	106.000
6422.000	175.000	922.236	.335	.054	0.000	189.494	-8.577	106.000
6422.000	205.000	922.386	.149	.050	0.000	193.324	-12.407	106.000
6422.000	285.000	922.725	.339	.046	0.000	202.016	-21.099	106.000
6528.000	116.000	922.484	0.000	.583	0.000	177.874	0.000	106.000
6528.000	175.000	922.586	.102	.349	0.000	180.581	-2.707	106.000
6528.000	205.000	922.669	.083	.283	0.000	182.693	-4.819	106.000
6528.000	285.000	922.919	.250	.194	0.000	189.056	-11.182	106.000
6634.000	116.000	923.239	0.000	.755	0.000	179.321	0.000	106.000
6634.000	175.000	923.375	.137	.790	0.000	182.826	-3.506	106.000
6634.000	205.000	923.426	.051	.757	0.000	184.019	-4.698	106.000
6634.000	285.000	923.538	.112	.619	0.000	186.960	-7.639	106.000

6740.000	116.000	923.[illegible]	0.000	.597	0.000	145.067	0.000	106.000
6740.000	175.000	923.997	.162	.621	0.000	155.335	-10.268	106.000
6740.000	205.000	924.066	.070	.641	0.000	160.760	-15.693	106.000
6740.000	285.000	924.232	.165	.694	0.000	172.370	-27.304	106.000
6846.000	116.000	924.494	0.000	.659	0.000	141.964	0.000	106.000
6846.000	175.000	924.668	.174	.671	0.000	153.940	-11.976	106.000
6846.000	205.000	924.736	.068	.670	0.000	158.605	-16.640	106.000
6846.000	285.000	924.907	.171	.675	0.000	170.482	-28.518	106.000
6952.000	116.000	925.211	0.000	.717	0.000	143.288	0.000	106.000
6952.000	175.000	925.370	.159	.702	0.000	154.061	-10.772	106.000
6952.000	205.000	925.443	.073	.707	0.000	159.183	-15.894	106.000
6952.000	285.000	925.608	.164	.701	0.000	171.168	-27.880	106.000
7059.000	116.000	925.909	0.000	.698	0.000	142.689	0.000	107.000
7059.000	175.000	926.070	.161	.700	0.000	154.334	-11.645	107.000
7059.000	205.000	926.148	.078	.704	0.000	158.947	-16.258	107.000
7059.000	285.000	926.312	.165	.705	0.000	170.466	-27.777	107.000
7060.000	116.000	928.375	0.000	2.466	0.000	150.582	0.000	1.000
7060.000	175.000	928.423	.049	2.354	0.000	157.831	-7.249	1.000
7060.000	205.000	928.468	.044	2.320	0.000	164.460	-13.878	1.000
7060.000	285.000	928.572	.104	2.260	0.000	180.033	-29.451	1.000
7100.000	116.000	928.653	0.000	.278	0.000	192.844	0.000	40.000
7100.000	175.000	928.803	.151	.380	0.000	215.718	-22.874	40.000
7100.000	205.000	928.859	.056	.391	0.000	223.480	-30.636	40.000
7100.000	285.000	928.989	.129	.416	0.000	242.291	-49.447	40.000
7101.000	116.000	928.520	0.000	-.133	0.000	287.238	0.000	1.000
7101.000	175.000	928.640	.120	-.163	0.000	292.406	-5.168	1.000
7101.000	205.000	928.700	.060	-.159	0.000	294.990	-7.752	1.000
7101.000	285.000	928.830	.130	-.159	0.000	300.588	-13.350	1.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	0.000	22.283	0.000
2	0.000	0.000	24.192	1.909
3	0.000	0.000	24.937	2.654
4	0.000	0.000	26.408	4.125

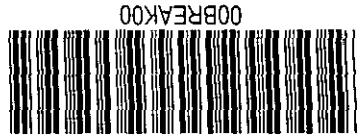


1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MIDDLE ROUGE
WALLED LAKE BRANCH
TRIB B

4) DOCUMENT TYPE: SUMMARY 1987



	CWSEL	DEPTH	CRIWS	HV	HL	OLOSS	TOPWID
	886.160	4.46	882.84	0.00	0.00	0.00	124.92
	887.740	6.04	883.04	0.00	0.00	0.00	158.45
	888 060	6.36	883.13	0.00	0.00	0.00	169.87
	888.880	7.18	883.31	0.00	0.00	0.00	211.03
	886.162	3.39	883.91	0.01	0.00	0.00	102.25
	887.741	4.97	884.11	0.00	0.00	0.00	135.76
	888.061	5 29	884.20	0.00	0.00	0.00	142.56
	888.881	6.11	884.38	0.01	0.00	0.00	159.96
	886.170	2.32	884 99	0.02	0.01	0.01	79.43
	887.743	3.89	885.19	0.01	0.00	0.00	112.88
	888.063	4.21	885.28	0.01	0.00	0.00	119.68
	888.883	5.03	885.46	0.01	0.00	0.00	137.08
	886.220	1.30	886.06	0.17	0.13	0.08	53.84
	887.752	2.83	886.26	0.02	0.02	0.01	90.31
	888 071	3.15	886.35	0.02	0.01	0.01	97.10
	888.889	3.97	886.53	0.02	0.01	0.01	114.48
	887.473	1.47	887.36	0.25	1.29	0.04	61.00
	887.753	1.75	887.63	0.25	0.11	0.11	67 46
	888.090	2.09	887.70	0.16	0.09	0.07	74.64
	888 909	2.91	887.90	0.09	0.05	0.03	91.88
*	889.202	3.20	889.20	1.77	0.03	0.76	4.00
*	889.767	3.77	889.77	3.13	0.03	1.44	4.00
*	893.250	7.25	893.25	0.24	0.01	0.04	133.48
*	893.379	7.38	893.38	0.24	0.01	0.08	152.00
	891.681	5.68	889.20	1.32	1.90	0.13	4.00
	893.880	7.88	889.77	0.02	0.07	0.93	211.57
	893.665	7.66	893.25	0.05	0.16	0.06	193.70
	893.781	7.78	893.38	0.06	0.17	0.05	204.97

SUMMARY
TRIB B
NALLEY LAKE BR.

1
15 SEP 87 16.07:12

	CWSEL	DEPTH	CRIWS	HV	HL	OLOSS	TOPWID
*	892.870	6.87	887.37	0.00	0.00	0.39	195.47
*	893.320	7.32	887.63	0.00	0.00	0.01	218.06
*	893.420	7.42	887.70	0.00	0.00	0.01	223.08
*	893.620	7.62	887.91	0.00	0.00	0.02	233.12
	892.891	2.29	891.82	0.02	0.03	0 01	159.84
	893.357	2.76	892.03	0.02	0.05	0.01	178.62
	893.468	2.87	892.11	0.02	0.06	0.01	183.11
	893.699	3.10	892.31	0.03	0.09	0.01	192.51
	893.476	1.13	892.92	0.02	0.58	0.00	171.59
	893.815	1.47	893.04	0.02	0.46	0.00	176.75
	893.950	1.60	893.09	0.02	0.48	0.00	178.78
	894.253	1.90	893.19	0.02	0.55	0.00	183.39
	895.037	0.94	894.67	0.03	1.57	0.01	168.73
	895.195	1.10	894.78	0.04	1.39	0.01	171.04
	895.284	1.18	894.84	0 04	1.35	0.01	172.39
	895.511	1.41	894.94	0.05	1.27	0.01	175.98
	899.961	1.39	899.66	0.11	4.97	0.04	59.52
	900 225	1.65	899.86	0.13	5.08	0.05	67.55
	900.311	1.74	899.95	0.15	5.08	0 05	69.24

900.486	1.92	900.15	0.20	5.05	0.08	72.74
901.782	1.58	901.28	0.07	1.76	0.01	66.30
902.016	1.82	901.49	0.09	1.74	0.01	70.76
902.131	1.93	901.58	0.10	1.76	0 01	72.98
902.408	2.21	901.77	0.12	1.82	0.02	78.46
905.094	1.84	904.99	0.20	3.38	0.06	101.96
905.345	2.10	905.19	0.20	3.38	0.05	112.24
905.444	2.19	905 27	0.20	3.36	0.05	116.27
905.660	2.41	905.46	0.22	3.30	0.05	125.33
908.378	2.08	908 05	0.09	3.15	0.03	111.25
908.612	2.31	908.28	0.11	3.15	0.03	121.00
908.721	2.42	908.36	0.11	3.16	0.03	125.50
908.973	2.67	908.54	0.12	3.19	0.03	136.07
915.550	1.15	915.43	0.10	7.18	0.00	107 54
915.749	1.35	915.54	0.11	7.14	0.00	122 49
915.831	1.43	915.60	0.12	7.11	0.00	128.64
916.027	1.63	915.74	0.13	7.06	0.00	142.78
921.291	1.69	920.54	0.04	5.66	0.02	125.98
921.559	1.96	920.84	0.05	5.73	0.02	135.93
921.683	2.08	920.94	0.06	5.77	0.02	140.39
921.956	2.36	921.12	0.07	5.84	0.02	150.89

CWSEL	DEPTH	CRIWS	HV	HL	OLOSS	TOPWID
921.714	2.09	920.55	0.02	0.39	0.01	141.38
922.031	2.41	920.86	0.02	0.44	0.01	153 02
922.172	2.55	920.96	0.03	0.45	0.01	158.23
922.483	2.86	921.15	0.03	0.48	0.01	169.84
921.782	2.13	920.14	0.00	0.05	0.00	214.92
922.117	2.47	920.22	0.00	0.06	0.01	223.52
922.266	2.62	920.25	0.00	0.06	0.01	227.22
922.596	2.95	920.34	0.00	0.08	0.01	233.35
921.823	2.12	920.19	0.00	0.04	0.00	214.76
922.169	2.47	920.27	0.00	0.05	0.00	223.65
922.322	2.62	920.30	0.00	0.06	0.00	227.40
922.664	2.96	920.39	0.00	0.07	0.00	233.73
921.833	1.43	920.89	0.00	0.01	0.00	196.99
922.182	1.78	920.97	0.01	0.01	0.00	205.92
922.335	1.94	921.00	0.01	0.01	0.00	209.86
922.679	2.28	921.09	0.01	0.02	0.00	218.67
921.901	0.80	921.59	0.02	0.08	0.01	180.91
922.236	1.14	921.67	0.02	0.06	0.01	189.48
922 385	1.29	921.70	0.02	0.06	0.01	193.32
922.725	1.62	921.79	0.02	0.05	0.01	202.02
922.484	0.68	922.29	0.04	0.59	0.01	177.87
922.586	0.79	922.37	0.05	0.37	0.02	180.57
922.669	0.87	922.40	0.06	0.30	0.02	182.69
922.919	1.12	922.49	0.05	0.21	0.02	189.06
923 239	0.74	922.99	0.03	0.74	0.00	179 32
923.376	0.88	923.07	0.04	0.77	0.00	182.83
923.426	0.93	923.10	0.05	0.75	0.00	184.02

923.538	1.04	923.19	0.06	0.63	0.01	186.96
923.835	0.64	923.53	0.03	0.60	0.00	145.06
923.997	0.80	923.63	0.05	0.62	0.00	155.34
924.066	0.87	923.68	0.05	0.64	0.00	160 75
924.232	1.03	923.79	0.06	0.69	0.00	172.37
924.493	0.59	924.23	0.04	0.66	0.00	142 00
924.668	0.77	924.33	0.05	0.67	0.00	153.92
924.736	0.84	924.38	0.06	0.67	0.00	158 61
924.907	1.01	924.49	0.07	0.68	0.00	170.49
925.209	0.61	924.93	0.04	0.71	0.00	143.28
925.370	0.77	925.03	0.05	0.70	0.00	154.08
925.443	0.84	925.08	0.05	0.71	0.00	159.18
925.608	1.01	925.19	0.07	0.70	0.00	171.16

	CWSEL	DEPTH	CRIWS	HV	HL	OLOSS	TOPWID
	925.913	0.61	925.63	0.04	0.70	0.00	142.48
	926.069	0.77	925.73	0.05	0.70	0.00	154.36
	926.143	0.84	925.78	0 05	0.70	0.00	159 19
	926.308	1.01	925.89	0.07	0.70	0.00	170.75
*	928.375	3.07	928.37	0.12	0.01	0.04	150.54
*	928.424	3.12	928.42	0.20	0.01	0.08	157.97
*	928 467	3.17	928.47	0.21	0.01	0.08	164.36
*	928.571	3.27	928.57	0.24	0.01	0.09	179.86
	928.652	3 35	928.37	0.03	0.15	0.03	192.61
	928.801	3.50	928.42	0.03	0.16	0.05	215.29
	928.858	3.56	928.47	0.04	0.17	0.05	223.24
	928.987	3.69	928 57	0.05	0.17	0.06	242.06
*	928.520	3.22	925.63	0.00	0.00	0.01	287.24
*	928.640	3 34	925.73	0.00	0.00	0.01	292.41
*	928.700	3.40	925.78	0.00	0.00	0.01	294.99
*	928.830	3.53	925.89	0.00	0.00	0.01	300.59

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 886.160 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 886.160 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 886.160 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 886.160 PROFILE= 2 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 886.160 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 886.160 PROFILE= 3 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 886.160 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 886 160 PROFILE= 4 MINIMUM SPECIFIC ENERGY

NOTE SECNO= 886.160 PROFILE= 1 WSEL BASED ON X5 CARD
NOTE SECNO= 886.160 PROFILE= 2 WSEL BASED ON X5 CARD
NOTE SECNO= 886 160 PROFILE= 3 WSEL BASED ON X5 CARD
NOTE SECNO= 886 160 PROFILE= 4 WSEL BASED ON X5 CARD

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CAUTION  SECNO=   886.160  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   886.160  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   886.160  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   886.160  PROFILE= 2  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   886.160  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   886.160  PROFILE= 3  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   886.160  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   886.160  PROFILE= 4  MINIMUM SPECIFIC ENERGY

NOTE     SECNO=   886.160  PROFILE= 1  WSEL BASED ON X5 CARD
NOTE     SECNO=   886.160  PROFILE= 2  WSEL BASED ON X5 CARD
NOTE     SECNO=   886.160  PROFILE= 3  WSEL BASED ON X5 CARD
NOTE     SECNO=   886.160  PROFILE= 4  WSEL BASED ON X5 CARD

1
 15 SEP 87    16:07:31                                                    PAGE    1


                                                  THIS RUN EXECUTED 15 SEP 87    16:07:31

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


ER


   UNEXPECTED END OF FILE ABORT IN SUBROUTINE  H2MAIN
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1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MUNRO CREEK

4) DOCUMENT TYPE: 100 YR



0.003586	91	106.	115.	2	0	0	0.00	151.43	240.79

0

*SECNO 7060.000
3685 20 TRIALS ATTEMPTED WSEL, CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 800.0 1600.0 TYPE= 1 TARGET= -800.000

TAFT ROAD

7060.00	3.20	928.50	928.50	0.00	928.62	0.12	0.80	0.03	928.00
170	136.	12.	22.	50.	3.	11.	26.	24	928.00
1.90	2.73	3.84	1.92	0.030	0.024	0.030	0.000	925.30	1076.26
0.009426	92.	108	117.	20	26	0	0.00	169.80	1246.06

0

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	6 14	2.70	0.00	1.00	0.00	0.78	0.00	925.30	925.30

*SECNO 7100 000
6870 D.S ENERGY OF 928.62 HIGHER THAN COMPUTED ENERGY OF 928.53
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
5457.39	928.62	0.00	169.	0.	1	1.	926.30	927.50

3470 ENCROACHMENT STATIONS= 800.0 1600.0 TYPE= 1 TARGET= -800 000

7100.00	3.22	929 52	0.00	0 00	928.62	0.10	0.00	0.00	928.00
170.	136.	11	23.	53.	3.	12.	26.	24	928.00
1.90	2 59	3 56	1.82	0.030	0.024	0.030	0.000	925.30	1074.99
0 008026	40.	40.	40.	0	0	13	0.00	173.02	1248.01

0

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THIS RUN EXECUTED 13 JAN 88 16:27:50

****
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 CITY OF NOVI JOB NO. 5555-46-1 STREAM 06
T2 100 YEAR FLOOD
T3 MUNRO CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	SEL	FQ
	-10.	4.	0.	0.	0.000000	0.00	0.0	0.	887.730	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

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 0.300 CEHV= 0.500

*SECNO 0.000									
0.00	6.03	887.73	0.00	887.73	887.73	0.00	0.00	0.00	883.20
190.	19.	171.	0.	135.	411.	0.	0.	0.	887.90
0.00	0.14	0.42	0.00	0.100	0.050	0.000	0.000	881.70	40.39
0.000030	0.	0.	0.	0	0	0	0.00	158.23	198.63
0									
*SECNO 50.000									
50.00	4.96	887.73	0.00	0.00	887.74	0.00	0.00	0.00	884.27
190.	14	176	0.	79.	310.	0.	1.	0.	888.97
0.03	0.18	0.57	0.00	0.100	0.050	0.000	0.000	882.77	54.45
0.000071	50.	50	50.	0	0	0	0.00	135.56	190.01
0									
*SECNO 100.000									
100.00	3.88	887 73	0.00	0.00	887.74	0.01	0.01	0.00	885 35
190.	9	181.	0.	37.	217.	0	1.	0.	890 05
0.04	0.24	0.83	0.00	0.100	0.050	0.000	0.000	883.85	68.64
0.000212	50.	50.	50.	0	0	0	0.00	112.68	181.32
0									
*SECNO 150.000									
150.00	2 82	887.74	0.00	0.00	887.77	0.03	0.02	0.01	886.42
190.	4.	186.	0.	11.	136.	0.	1.	0.	891.12
0.05	0.34	1.37	0.00	0.100	0.050	0 000	0.000	884.92	82.62
0.000932	50.	50.	50.	0	0	0	0.00	90.13	172.75
0									

CCHV= 0.500 CEHV= 1.000

*SECNO 201.000

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

NOVI ROAD

201.00	3.00	889.00	889 00	0 00	889.31	0 31	0.10	0.28	888.70
190.	131.	58.	1	34.	10.	1.	1	1.	888.70
0.06	3.87	5.61	1.57	0.020	0 024	0.020	0.000	886.00	88.19
0 005693	51	51.	51.	2	9	0	0.00	67.29	155.48

0

1

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

SPECIAL BRIDGE

5070, VARIABLE ELCHU OR ELCHD ON CARD 53 NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	3.27	2 80	0.00	4.00	0.00	12.60	0.00	886 00	886.00

*SECNO 283.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
900 54	894.29	0.00	59.	121.	13.	16	890.00	892.64

3470 ENCROACHMENT STATIONS= 148.0 152.0 TYPE= 1 TARGET= 4.000
ELENCL= 892.64 ELENCR= 892.64

283.00	7.68	893.68	0.00	0.00	893.70	0.02	4.40	0.00	888.70
190	78.	45.	67.	68.	29.	62.	1.	1.	892.64
0.08	1.15	1 56	1.08	0 020	0.024	0.020	0.000	886.00	66.04
0.000280	82.	82	82.	2	0	8	0.00	169.86	235.89

0
CCHV= 0 300 CEHV= 0.500
*SECNO 834.000

834.00	3.29	893 89	0.00	0 00	893.90	0.01	0.19	0.00	890.90
190.	102.	49.	40.	213.	37.	102.	5.	3.	891.00
0.30	0.48	1.30	0.39	0.100	0.050	0.100	0.000	890.60	282.47
0.000422	675.	550.	350.	3	0	0	0.00	200.09	482.57

0
*SECNO 1184.000

1184.00	1.76	894.11	0.00	0.00	894.12	0.01	0.23	0.00	892.55
190.	91.	31	69.	125.	20.	106.	7.	4.	892.55
0.41	0.73	1.54	0.65	0.100	0.050	0.100	0.000	892.35	215.75
0 001361	262.	350.	425.	2	0	0	0.00	181.33	397.08

0
*SECNO 1534.000

1534.00	1.02	895.12	894.82	0.00	895.18	0.06	1.03	0.02	894.30
190.	100.	36.	54	65.	11	45.	8.	6.	894.30
0 47	1 54	3.26	1.18	0.100	0.050	0.100	0.000	894.10	222.06
0.013345	263	350.	425.	11	18	0	0 00	170.11	392 17

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 2059.000

2059.00	1.80	900 37	899.91	0.00	900.48	0.11	5.28	0.03	903.87
190.	0.	190.	0.	0.	70.	0.	9.	7.	901 47
0.52	0.00	2 70	0.00	0.000	0.050	0.000	0.000	898.57	411.95
0.008306	471.	525.	507.	14	11	0	0.00	70.54	482.50

0
*SECNO 2259.000

2259.00	1.81	902.01	0.00	0.00	902.13	0 11	1.64	0.00	905.50
190.	0	190.	0.	0.	71.	0.	10.	8.	903.10
0.54	0 00	2.68	0.00	0.000	0.050	0.000	0.000	900.20	411.92
0.008104	179	200.	193.	4	0	0	0.00	70.70	482.63

0
*SECNO 2646.000

2646.00	2.19	905.44	0.00	0.00	905.61	0.17	3.46	0.03	906.55

190.	0	122	58.	0.	34.	53.	10.	6.	904.69
0.57	0.00	3.94	1.09	0.000	0.050	0.100	0.000	903.25	302.76
0.010429	375	387.	325.	4	0	0	0.00	116.37	419.12

0

*SECNO 3034.000

3034.00	2.33	908.63	0.00	0.00	908.75	0.12	3.12	0.02	909.60
190.	0.	124.	66.	0.	37	66.	11.	9.	907.70
0.61	0.00	3.39	1.00	0.000	0.050	0.100	0.000	906.30	302.43
0.007059	375	388.	325.	4	0	0	0 00	121.78	424.21

0

*SECNO 3784.000

3784.00	1.43	915.83	0.00	0.00	915.93	0.10	7.18	0.01	915.20
190.	140.	45.	5.	69.	12.	6.	13.	11.	915.00
0.70	2.02	3.86	0 98	0.070	0.050	0.100	0.000	914.40	445.16
0.014122	750.	750.	700.	4	0	0	0.00	128.15	573.32

0

*SECNO 4859.000

4859.00	1.99	921 59	0.00	0.00	921.65	0.06	5.70	0.01	920.50
190.	8.	144.	38.	12.	67.	58.	16.	15.	920.80
0.87	0.73	2.14	0.65	0.070	0.050	0.100	0.000	919.60	178.82
0.002590	1175.	1075.	1150.	5	0	0	0.00	137 56	316.38

0

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 5196.000

5196.00	2.47	922.09	0.00	0.00	922.12	0.02	0 46	0.01	920.52
190	13.	128.	49.	24.	86.	96.	17.	16.	920.82
0.95	0.54	1 49	0.51	0.070	0.050	0.100	0.000	919.62	169.76
0.000907	350	337.	256.	4	0	0	0.00	155.20	324.96

0

*SECNO 5534.000

3470 ENCROACHMENT STATIONS= 800.0 1565.0 TYPE= 1 TARGET= -800.000

5534.00	2.53	922.18	0.00	0.00	922.19	0.00	0 06	0.01	929.85
190.	0.	190.	0.	0.	447.	0.	19.	17.	933.75
1 16	0.00	0.43	0.00	0.000	0.050	0.000	0.000	919 65	967.74
0.000082	350.	338.	256.	2	0	0	0.00	225.18	1192.92

0

*SECNO 6209.000

3470 ENCROACHMENT STATIONS= 800.0 1565 0 TYPE= 1 TARGET= -800.000

6209.00	2.54	922.24	0 00	0.00	922.24	0.00	0.06	0.00	929.90
190.	0.	190	0.	0.	449.	0.	26.	21.	933 80
1.61	0.00	0.42	0.00	0.000	0.050	0.000	0.000	919 70	967.65
0.000081	700.	675.	513.	2	0	0	0.00	225.40	1193.05

0

*SECNO 6316.000

3470 ENCROACHMENT STATIONS= 800.0 1565.0 TYPE= 1 TARGET= -800.000

6316.00	1.85	922.25	0.00	0.00	922.26	0 01	0.01	0.00	930 60
190.	0.	190.	0.	0.	299.	0.	27.	21.	934.50
1.65	0 00	0.64	0.00	0.000	0.050	0.000	0.000	920.40	974.83
0.000282	91.	107.	116	0	0	0	0.00	207.69	1182.52

0

*SECNO 6422 000

6422.00	1 20	922.30	0.00	0 00	922.32	0.02	0.06	0.01	931.30
190.	0.	190.	0.	0.	171.	0.	28.	22.	935.20
1.68	0 00	1.11	0 00	0.000	0.050	0.000	0.000	921.10	981.50

0.001629	90	106.	115	2	0	0	0.00	191.23	1172.73

0
*SECNO 6528.000
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	GLOB	QCH	QROB	ALOB	ACH	AROB	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= 800.0 1565.0 TYPE= 1 TARGET= -800.000

6528.00	0.82	922.62	0.00	0.00	922.68	0.06	0.34	0.02	932.00
190.	0.	190.	0.	0.	101.	0.	28.	22.	935.90
1.70	0.00	1.89	0.00	0.000	0.050	0.000	0.000	921.80	985.40
0.008852	91.	106	116.	2	0	0	0.00	181.59	1166.99

0
*SECNO 6634.000

3470 ENCROACHMENT STATIONS= 800.0 1565.0 TYPE= 1 TARGET= -800.000

6634.00	0.91	923.41	0.00	0.00	923.45	0.04	0.77	0.00	932.70
190.	0.	190.	0	0.	114.	0.	28.	23.	936.60
1.71	0.00	1.67	0.00	0.000	0.050	0.000	0.000	922.50	984.67
0.006015	90.	106.	115.	3	0	0	0.00	183.39	1168.07

0
*SECNO 6740.000

6740.00	0.84	924.04	0.00	0.00	924.09	0.05	0.64	0.00	930.10
190.	0.	190	0.	0.	107.	0.	29.	23.	925.00
1.73	0.00	1.77	0.00	0.000	0.050	0.000	0.000	923.20	87.96
0.005976	91.	106.	116	1	0	0	0.00	158.17	246.14

0
*SECNO 6846.000

6846.00	0.81	924.71	0.00	0.00	924.76	0.05	0.67	0.00	930.80
190.	0.	190.	0.	0.	103.	0.	29.	23.	925.70
1.75	0.00	1.84	0.00	0.000	0.050	0.000	0.000	923.90	88.32
0.006661	90.	106	115.	2	0	0	0.00	156.44	244.76

0
*SECNO 6952.000

6952.00	0.81	925.41	0.00	0.00	925.46	0.05	0.70	0.00	931.50
190	0.	190.	0.	0.	104.	0.	29	24.	926.40
1.76	0.00	1.83	0.00	0.000	0.050	0.000	0.000	924.60	88.28
0.006570	91	106.	116	2	0	0	0.00	156.66	244.93

0
*SECNO 7060.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	GLOB	QCH	QROB	ALOB	ACH	AROB	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= 800.0 1600.0 TYPE= 1 TARGET= -800.000
TAFT ROAD

7060.00	3.15	928.45	928.45	0.00	928.66	0.21	1.08	0.08	928.00
195.	155.	17.	23.	43.	3.	9.	29.	24.	928.00
1.77	3.60	5.44	2.54	0.030	0.024	0.030	0.000	925.30	1079.53

```
 0.019380      92.      108      117.       20       24        0      0.00    161.48   1241.02
0

 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      6.14      2.70      0.00      1.00      0.00      0.78      0.00    925.30    925 30

 *SECNO 7100.000
 6870 D.S  ENERGY OF  928.66 HIGHER THAN COMPUTED ENERGY OF  928 48
 PRESSURE AND WEIR FLOW


  EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC     ELTRD
                                                                  AREA
   6887.30    928.66      0.00      195.        0.        1.        1.      926.30    927.50


 3470 ENCROACHMENT STATIONS=      800 0     1600.0  TYPE=      1  TARGET=     -800.000
   7100.00      3.18    928.48     0.00      0.00    928.66     0.18      0.00      0.00    928.00
      195       156.       15.      24.       46.        3.      10.       29.       24.    928.00
      1.77      3.35      4.89     2.36     0.030     0.024    0.030     0.000    925.30   1077.93
  0 015488       40.       40       40         0         0        0      0.00    165.55   1243.48
0
1
  13 JAN 88    16:27:44                                                                          PAGE   24


                                                                  THIS RUN EXECUTED 13 JAN 88   16:27:52
 ************************************************
   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 CITY OF NOVI JOB NO.  5555-46-1 STREAM 06
 T2 500 YEAR FLOOD
 T3 MUNRO CREEK

 J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      -10.        5.        0.        0.   0.000000     0.00      0.0        0.    888.440    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

1
  13 JAN 88    16:27:44                                                                          PAGE   25

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 4

 CCHV=   0.300 CEHV=   0.500
 *SECNO 0.000
```



1) COUNTY: OAKLAND

2) STUDY NAME: NONI CITY

3) WATERCOURSE: MUNRO CREEK

4) DOCUMENT TYPE: 100 YR ~~RUNS~~
NATURAL & ENCROACHED
+ SUMMARY



THIS RUN EXECUTED 08/27/91 16:05:30

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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
  IBM-PC-XT VERSION 1.1
**************************************************

C
T1 CITY OF NOVI JOB NO. 555-46-1 STREAM 06
T2 100 YEAR FLOOD
T3 MUNRO CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        4.        0.        0.   .000000       .00        .0        0.   887.730      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000      .000    -1.000      .000      .000      .000      .000      .000      .000      .000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    110.000   150.000   200.000      .000      .000      .000      .000      .000      .000      .000


NC       .100      .100      .050      .300      .500      .000      .000      .000      .000      .000
QT      5.000   110.000   160.000   190.000   290.000   190.000      .000      .000      .000      .000
ET       .000      .000      .000      .000      .000     1.400      .000      .000      .000      .000
X1       .000     7.000   100.000   200.000      .000      .000      .000      .000    -4.900      .000
GR    895.700      .000   888.100   100.000   886.600   150.000   892.800   200.000   895.500   300.000
GR    897.500   400.000   897.800   500.000      .000      .000      .000      .000      .000      .000

X1     50.000      .000      .000      .000     50.000     50.000     50.000      .000     1.070      .000

X1    100.000      .000      .000      .000     50.000     50.000     50.000      .000     1.080      .000

X1    150.000      .000      .000      .000     50.000     50.000     50.000      .000     1.070      .000

NC       .020      .020      .024      .500     1.000      .000      .000      .000      .000      .000
ET       .000      .000      .000      .000      .000     7.100     88.000   156.000      .000      .000
          NOVI ROAD
X1    201.000    13.000   148.000   152.000    51.000    51.000    51.000      .000      .000      .000
GR    895.700      .000   888.100   100.000   888.700   148.000   887.300   148.000   886.200   149.000
GR    886.000   150.000   886.200   151.000   887.300   152.000   888.700   152.000   892.800   200.000
GR    895.250   300.000   896.970   400.000   898.680   500.000      .000      .000      .000      .000

SB       .000     3.270     2.800      .000     4.000      .000    12.600      .000      .000      .000
X1    283.000      .000      .000      .000    82.000    82.000    82.000      .000      .000      .000
X2       .000      .000     1.000   890.000   892.640      .000      .000      .000      .000      .000
BT     11.000      .000   895.700   895.700   100.000   893.060   888.100   148.000   893.370   888.700
BT    149.000   893.370   889.800   150.000   893.380   890.000   151.000   893.390   889.800   152.000
BT    893.390   888.700   200.000   893.700   892.800  3000.000   895.250   895.250   400.000   896.970
BT    896.970   500.000   898.680   898.680      .000      .000      .000      .000      .000      .000
```

NC	.100	.100	.050	.300	.500	.000	.000	.000	.000	.000
ET	.000	.000	.000	.000	.000	7.100	290.000	473.000	.000	.000
X1	834.000	10.000	400.000	412.000	675.000	350.000	550.000	.000	.000	.000
GR	900.700	.000	899.200	100.000	899.000	200.000	892.800	300.000	890.900	400.000
GR	890.600	406.000	891.000	412.000	894.600	500.000	899.800	600.000	901.600	700.000
ET	.000	.000	.000	.000	.000	1.400	.000	.000	.000	.000
X1	1184.000	14.000	300.000	312.000	262.000	425.000	350.000	.000	-1.750	.000
GR	903.700	.000	903.000	100.000	900.900	185.000	897.700	200.000	894.200	230.000
GR	894.300	300.000	894.100	304.000	894.200	308.000	894.300	312.000	894.800	390.000
GR	896.300	400.000	900.100	500.000	902.100	600.000	906.100	700.000	.000	.000
ET	.000	.000	.000	.000	.000	7.100	222.000	393.000	.000	.000
X1	1534.000	.000	.000	.000	263.000	425.000	350.000	.000	1.750	.000
ET	.000	.000	.000	.000	.000	1.400	.000	.000	.000	.000
X1	2059.000	13.000	400.000	500.000	471.000	507.000	525.000	.000	-1.630	.000
GR	910.200	.000	909.000	100.000	908.600	200.000	907.500	300.000	905.500	400.000
GR	901.700	413.000	900.900	436.000	900.300	444.000	900.200	452.000	900.600	460.000
GR	903.100	500.000	906.100	600.000	911.500	700.000	.000	.000	.000	.000
X1	2259.000	.000	.000	.000	179.000	193.000	200.000	.000	1.630	.000
NC	.030	.100	.050	.000	.000	.000	.000	.000	.000	.000
X1	2646.000	11.000	300.000	325.000	375.000	325.000	387.000	.000	-3.050	.000
GR	917.300	.000	915.100	90.000	914.800	200.000	909.600	300.000	906.400	308.000
GR	906.300	312.000	907.700	325.000	908.000	400.000	910.600	500.000	913.100	600.000
GR	916.400	700.000	.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	.000	.000	.000	7.100	302.000	425.000	.000	.000
X1	3034.000	.000	.000	.000	375.000	325.000	388.000	.000	3.050	.000
NC	.070	.100	.050	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	.000	.000	.000	7.100	445.000	573.000	.000	.000
X1	3784.000	16.000	550.000	560.000	750.000	700.000	750.000	.000	.000	.000
GR	929.800	.000	923.800	100.000	923.800	200.000	919.700	300.000	916.600	400.000
GR	914.900	500.000	914.500	503.000	914.800	506.000	915.200	550.000	914.400	552.000
GR	914.500	555.000	915.000	560.000	917.500	600.000	922.100	700.000	922.800	800.000
GR	926.000	900.000	1300.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	.000	.000	.000	7.100	178.000	317.000	.000	.000
X1	4859.000	9.000	200.000	240.000	1175.000	1150.000	1075.000	.000	.000	.000
GR	928.900	.000	925.700	100.000	920.500	200.000	919.600	212.000	919.700	230.000
GR	920.800	240.000	920.700	300.000	926.200	400.000	932.800	475.000	.000	.000
ET	.000	.000	.000	.000	.000	1.400	.000	.000	.000	.000
X1	5196.000	.000	.000	.000	350.000	256.000	337.000	.000	.020	.000

NC	.100	.060	.050	.000	.000	.000	.000	.000	.000	.000
ET	.000	.000	.000	7.100	.000	.000	800.000	1565.000	.000	.000
X1	5534.000	25.000	900.000	1300.000	350.000	256.000	338.000	.000	-.050	.000
GR	941.600	.000	935.500	100.000	934.100	200.000	930.600	300.000	924.800	400.000
GR	922.600	457.000	923.300	500.000	925.200	600.000	931.500	700.000	936.400	800.000
GR	929.900	900.000	924.300	950.000	922.300	967.000	919.700	994.000	919.800	1040.000
GR	920.200	1085.000	919.900	1120.000	920.200	1162.000	922.300	1194.000	922.900	1200.000
GR	933.800	1300.000	932.300	1400.000	933.000	1447.000	929.200	1500.000	931.600	1565.000
ET	.000	.000	.000	7.100	.000	.000	800.000	1565.000	.000	.000
X1	6209.000	.000	.000	.000	700.000	513.000	675.000	.000	.050	.000

```
ET      .000      .000      .000     7.100      .000      .000    800.000   1565.000      .000      .000
X1   6316.000      .000      .000      .000    91.000    116.000    107.000      .000      .700      .000

X1   6422.000      .000      .000      .000    90.000    115.000    106.000      .000      .700      .000

ET      .000      .000      .000     7.100      .000      .000    800.000   1565.000      .000      .000
X1   6528.000      .000      .000      .000    91.000    116.000    106.000      .000      .700      .000

ET      .000      .000      .000     7.100      .000      .000    800.000   1565.000      .000      .000
X1   6634.000      .000      .000      .000    90.000    115.000    106.000      .000      .700      .000

X1   6740.000     6.000      .000   300.000    91.000    116.000    106.000      .000    -2.300      .000
GR    932.400      .000   925.500   100.000   925.500    200.000    927.300   300.000   930.800   400.000
GR    936.200   500.000      .000      .000      .000       .000       .000      .000      .000      .000

X1   6846.000      .000      .000      .000    90.000    115.000    106.000      .000      .700      .000

X1   6952.000      .000      .000      .000    91.000    116.000    106.000      .000      .700      .000

NC      .030      .030      .024      .000      .000       .000       .000      .000      .000      .000
QT     5.000   110.000   170.000   195.000   260.000    195.000       .000      .000      .000      .000
ET      .000      .000      .000     7.100      .000       .000    800.000   1600.000      .000      .000
          TAFT ROAD
X1   7060.000    20.000  1199.500  1200.500    92.000    117.000    108.000      .000      .000      .000
GR    937.500      .000   933.800   100.000   930.800    200.000    928.800   300.000   927.800   400.000
GR    927.500   600.000   929.100   700.000   931.500    800.000    931.000   900.000   929.800  1000.000
GR    928.100  1100.000   928.000  1199.500   925.500   1199.500    925.300  1200.000   925.500  1200.500
GR    928.000  1200.500   929.100  1300.000   931.600   1400.000    934.900  1500.000   937.700  1600.000

SB      .000     6.140     2.700      .000     1.000       .000       .780      .000      .000      .000
ET      .000      .000      .000     7.100      .000       .000    800.000   1600.000      .000      .000
X1   7100.000      .000      .000      .000    40.000     40.000     40.000      .000      .000      .000
X2      .000      .000     1.000   926.300   927.500       .000       .000      .000      .000      .000
BT     18.000      .000   937.500      .000   100.000    933.800       .000   200.000   930.800      .000
BT    300.000   928.800      .000   400.000   927.800       .000   600.000   927.500      .000   700.000
BT    929.100      .000   800.000   931.500      .000    900.000    931.000      .000  1000.000   929.800
BT      .000  1100.000   928.100      .000  1199.500    928.000    926.100  1200.000   928.000   926.300
BT   1200.500   928.000   926.100  1300.000   929.100       .000  1400.000   931.600      .000  1500.000
BT    934.900      .000  1600.000   937.700      .000       .000       .000      .000      .000      .000
EJ      .000      .000      .000      .000      .000       .000       .000      .000      .000      .000
*PROF 1
1
 08/27/91    16:05:29                                                                    PAGE    4

   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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=    .300 CEHV=    .500
 *SECNO  .000
      .00     6.03   887.73      .00   887.73   887.73      .00      .00      .00   883.20
     190.      19.     171.       0.     135.     411.       0.       0.       0.   887.90
      .00      .14      .42      .00     .100     .050     .100     .000   881.70    40.39
   .000030       0.       0.       0.        0        0        0      .00   158.23   198.63
0
 *SECND 50.000
     50.00     4.96   887.73      .00      .00   887.74      .00      .00      .00   884.27
     190.      14.     176.       0.      79.     310.       0.       1.       0.   888.97
      .03      .18      .57      .00     .100     .050     .100     .000   882.77    54.45
   .000071      50.      50.      50.        0        0        0      .00   135.56   190.01
0
 *SEC  100.000
```

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   100.00     3.88   887.73      .00      .00   887.74      .01      .01      .00   885.35
    190.       9.    181.        0.      37.    217.        0.       1.        0.   890.05
     .04      .24     .83       .00     .100    .050     .100     .000   883.85    68.64
  .000212     50.     50.       50.        0       0        0      .00   112.68   181.32
0
 #SECNO 150.000
   150.00     2.82   887.74      .00      .00   887.77      .03      .02      .01   886.42
    190.       4.    186.        0.      11.    136.        0.       1.        0.   891.12
     .05      .34    1.37       .00     .100    .050     .100     .000   884.92    82.62
  .000932     50.     50.       50.        0       0        0      .00    90.13   172.75
0
 CCHV=    .500 CEHV=   1.000
 #SECNO 201.000
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
          NOVI ROAD
   201.00     3.00   889.00   889.00      .00   889.31      .31      .10      .28   888.70
    190.      131.     58.        1.      34.     10.        1.       1.        1.   888.70
     .06      3.87    5.61      1.57     .020    .024     .020     .000   886.00    88.19
  .005693     51.     51.       51.        2       9        0      .00    67.29   155.48
0
1
  08/27/91    16:05:29                                                                PAGE    5


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



 SPECIAL BRIDGE

 5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      3.27      2.80       .00      4.00       .00     12.60       .00    886.00    886.00

 #SECNO 283.000
 1857 BT CARD,STA DONT INCREASE
       .00    895.70    895.70    100.00    893.06    888.10    148.00    893.37    888.70    149.00    893.37    889.80
    150.00    893.38    890.00    151.00    893.39    889.80    152.00    893.39    888.70    200.00    893.70    892.80
   3000.00    895.25    895.25    400.00    896.97    896.97    500.00    898.68    898.68
       .00    895.70    895.70    100.00    893.06    888.10    148.00    893.37    888.70    149.00    893.37    889.80
    150.00    893.38    890.00    151.00    893.39    889.80    152.00    893.39    888.70    200.00    893.70    892.80
   3000.00    895.25    895.25    400.00    896.97    896.97    500.00    898.68    898.68    500.00  10898.68    898.68

 6070.LOW FLOW BY NORMAL BRIDGE

 EGPRS=      .000  EGLWC=   889.307  ELLC=   890.000  PCWSE=   888.997  ELTRD=   892.640

 4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF   890.000 EGLC=   893.531 EGC=   893.938 WSEL=   893.686

 3301 HV CHANGED MORE THAN HVINS


 3370 NORMAL BRIDGE.NRD= 11 MIN ELTRD=  892.64 MAX ELLC=  890.00

   283.00     4.09   890.09   889.79      .00   893.62     3.53     1.09     3.22   888.70
    190.       0.    190.        0.       0.     13.        0.       1.       1.   888.70
     .06      .00   15.08       .00     .020    .024     .020     .000   886.00    73.82
  .060732     82.     82.       82.        6      16        0  -120.53    94.46   168.27
0
 CCHV=    .300 CEHV=    .500
 #SECNO 834.000
```

3301 HV CHANGED MORE THAN HVINS

834.00	4.30	894.90	.00	.00	894.90	.00	.22	1.06	890.90
190.	104.	39.	47.	340.	49.	186.	5.	3.	891.00
.45	.31	.79	.25	.100	.050	.100	.000	890.60	266.14
.000107	675.	550.	350.	5	0	0	.00	239.62	505.76

0

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 1184.000

1184.00	2.60	894.95	.00	.00	894.96	.00	.05	.00	892.55
190.	87.	28.	75.	199.	30.	182.	9.	5.	892.55
.64	.44	.94	.41	.100	.050	.100	.000	892.35	208.54
.000293	262.	350.	425.	4	0	0	.00	202.07	410.61

0

*SECNO 1534.000

1534.00	1.11	895.21	.00	.00	895.26	.04	.28	.02	894.30
190.	98.	35.	57.	72.	12.	53.	11.	6.	894.30
.70	1.36	2.87	1.08	.100	.050	.100	.000	894.10	221.27
.009110	263.	350.	425.	2	0	0	.00	171.52	392.79

0

*SECNO 2059.000

2059.00	1.71	900.28	.00	.00	900.42	.14	5.11	.05	903.87
190.	0.	190.	0.	0.	64.	0.	12.	7.	901.47
.74	.00	2.98	.00	.100	.050	.100	.000	898.57	412.28
.011164	471.	525.	507.	4	0	0	.00	68.69	480.97

0

*SECNO 2259.000

2259.00	1.87	902.07	.00	.00	902.17	.10	1.74	.01	905.50
190.	0.	190.	0.	0.	75.	0.	12.	8.	903.10
.77	.00	2.54	.00	.100	.050	.100	.000	900.20	411.74
.006946	179.	200.	193.	3	0	0	.00	71.74	483.48

0

*SECNO 2646.000

2646.00	2.15	905.40	.00	.00	905.60	.20	3.39	.05	906.55
190.	0.	135.	55.	0.	33.	49.	13.	8.	904.65
.80	.00	4.15	1.12	.030	.050	.100	.000	903.25	302.87
.011979	375.	387.	325.	3	0	0	.00	114.55	417.42

0

*SECNO 3034.000

3034.00	2.36	908.66	.00	.00	908.78	.11	3.15	.03	909.60
190.	0.	122.	68.	0.	37.	69.	14.	9.	907.70
.84	.00	3.27	.98	.030	.050	.100	.000	906.30	302.34
.006434	375.	388.	325.	4	0	0	.00	123.14	425.48

0

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 3784.000

3784.00	1.40	915.80	.00	.00	915.91	.11	7.14	.00	915.20
15	17	41	5	22	11	5	15	11	915.60

```
      .92     2.11     4.04     1.02     .070     .050     .100     .000   914.40   446.97
   .016015    750.     750.     700.        4        0        0      .00   125.86   572.83
0
 #SECNO 4859.000
  4859.00     2.02   921.62      .00      .00   921.67      .05     5.74      .02   920.50
     190.       9.     143.       38.      12.      68.      60.      18.      15.   920.80
     1.10      .72     2.10      .64     .070     .050     .100     .000   919.60   178.50
   .002483   1175.    1075.    1150.        7        0        0      .00   138.19   316.69
0
 #SECNO 5196.000
  5196.00     2.48   922.10      .00      .00   922.12      .02      .44      .01   920.52
     190.       13.    128.       49.      24.      86.      97.      20.      16.   920.82
     1.17      .54     1.48      .50     .070     .050     .100     .000   919.62   169.58
   .000891    350.     337.     256.        4        0        0      .00   155.54   325.12
0
 #SECNO 5534.000

 3470 ENCROACHMENT STATIONS=     800.0    1565.0  TYPE=     1  TARGET=     765.000
  5534.00     2.54   922.19      .00      .00   922.19      .00      .06      .01   929.85
     190.       0.     190.       0.       0.     448.       0.      22.      17.   933.75
     1.39      .00      .42      .00     .100     .050     .060     .000   919.65   967.66
   .000081    350.     338.     256.        2        0        0      .00   225.38  1193.04
0
 #SECNO 6209.000

 3470 ENCROACHMENT STATIONS=     800.0    1565.0  TYPE=     1  TARGET=     765.000
  6209.00     2.54   922.24      .00      .00   922.25      .00      .05      .00   929.90
     190.       0.     190.       0.       0.     450.       0.      29.      21.   933.80
     1.83      .00      .42      .00     .100     .050     .060     .000   919.70   967.58
   .000080    700.     675.     513.        2        0        0      .00   225.58  1193.15
0
 #SECNO 6316.000

 3470 ENCROACHMENT STATIONS=     800.0    1565.0  TYPE=     1  TARGET=     765.000
  6316.00     1.86   922.26      .00      .00   922.26      .01      .01      .00   930.60
     190.       0.     190.       0.       0.     300.       0.      30.      21.   934.50
     1.88      .00      .63      .00     .100     .050     .060     .000   920.40   974.76
   .000278     91.      107.     116.        0        0        0      .00   207.86  1182.62
0
1
  08/27/91    16:05:29                                                                PAGE    8


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 6422.000
  6422.00     1.21   922.31      .00      .00   922.33      .02      .06      .01   931.30
     190.       0.     190.       0.       0.     172.       0.      30.      22.   935.20
     1.91      .00     1.11      .00     .100     .050     .060     .000   921.10   981.44
   .001596     90.      106.     115.        2        0        0      .00   191.38  1172.81
0
 #SECNO 6528.000

 3470 ENCROACHMENT STATIONS=     800.0    1565.0  TYPE=     1  TARGET=     765.000
  6528.00      .82   922.62      .00      .00   922.68      .06      .33      .02   932.00
     190.       0.     190.       0.       0.     101.       0.      31.      22.   935.90
     1.92      .00     1.88      .00     .100     .050     .060     .000   921.80   985.40
   .008822     91.      106.     116.        2        0        0      .00   181.61  1167.00
0
 #SECNO 6634.000

 3470 ENCROACHMENT STATI  S=     800.0    1565.0  TYPE=     1  TARGET=     765.000
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  6634.00      .91   923.41      .00      .00   923.45      .04      .77      .00   932.70
     190.       0.     190.       0.       0.     113.       0.      31.      23.   936.60
    1.94      .00     1.67      .00     .100     .050     .060     .000   922.50   984.68
  .006018      90.     106.     115.        3        0        0      .00   183.39  1168.06
0
 *SECND 6740.000
  6740.00      .84   924.04      .00      .00   924.09      .05      .64      .00   930.10
     190.       0.     190.       0.       0.     107.       0.      31.      23.   925.00
    1.96      .00     1.77      .00     .100     .050     .060     .000   923.20    87.97
  .005986      91.     106.     116.        1        0        0      .00   158.15   246.12
0
 *SECND 6846.000
  6846.00      .81   924.71      .00      .00   924.76      .05      .67      .00   930.80
     190.       0.     190.       0.       0.     103.       0.      32.      24.   925.70
    1.97      .00     1.84      .00     .100     .050     .060     .000   923.90    88.32
  .006654      90.     106.     115.        2        0        0      .00   156.46   244.78
0
 *SECND 6952.000
  6952.00      .81   925.41      .00      .00   925.46      .05      .70      .00   931.50
     190.       0.     190.       0.       0.     104.       0.      32.      24.   926.40
    1.99      .00     1.83      .00     .100     .050     .060     .000   924.60    88.28
  .006573      91.     106.     116.        2        0        0      .00   156.65   244.93
0
1
  08/27/91    16:05:29                                                                PAGE    9


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


 *SECND 7060.000
 3685 20 TRIALS ATTEMPTED WSEL.CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     800.0    1600.0  TYPE=     1  TARGET=     800.000
           TAFT ROAD
  7060.00     3.15   928.45   928.45      .00   928.66      .21     1.08      .08   928.00
     195.      155.       17.      23.      43.        3.       9.      32.      24.   928.00
     2.00     3.60     5.44     2.54     .030     .024     .030     .000   925.30  1079.52
  .019354       92.     108.     117.       20       24        0      .00   161.51  1241.03
0

 SPECIAL BRIDGE

 5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      6.14      2.70       .00      1.00       .00       .78       .00   925.30    925.30

 *SECND 7100.000
 6670 D.S. ENERGY OF  928.66 HIGHER THAN COMPUTED ENERGY OF  928.48
 PRESSURE AND WEIR FLOW


  EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                 AREA
    6887.30   928.66       .00      195.        0.        1.        1.      926.30    927.50



 3470 ENCROACHMENT STATIONS=     800.0    1600.0  TYPE=     1  TARGET=     800.000
  7100.00     3.18   928.48      .00      .00   928.66      .18      .00      .00   928.00
     195.      151.       15.      24.      46.        3.      10.      32.      24.   928.00
```

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     2.00     3.35     4.89     2.36     .030     .024     .030     .000   925.30  1077.92
   .015472     40.      40.      40.        0        0        0      .00   165.57  1243.49
0
1
 08/27/91    16:05:29                                                                    PAGE   10



                                                                  THIS RUN EXECUTED 08/27/91   16:05:51
 ************************************************
  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 1.1
 ************************************************


 T1 CITY OF NOVI JOB NO. 5555-46-1 STREAM 06
 T2 100 YEAR FLOOD - ENCROACHED
 T3 MUNRO CREEK

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        6.        0.        0.   .000000       .00        .0        0.   887.830      .000

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN       ALLDC     IBW       CHNIM     ITRACE

     15.000      .000    -1.000      .000      .000      .000      .000      .000      .000      .000

1
 08/27/91    16:05:29                                                                    PAGE   11


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       QLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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=    .300 CEHV=    .500
 *SECNO  .000
  2800 NAT Q1=    349.53  WSEL=    887.73  ENC Q1=    349.53  WSEL=    887.83  RATIO=   .0000
  NAT Q1=    363.  RATIOS LOB,CH,ROB=   .1010   .8990   .0000  WSEL=    887.83

 3470 ENCROACHMENT STATIONS=      82.5     200.0  TYPE=     4  TARGET=        .036
      .00     6.13   887.83      .00   887.73   887.83      .00      .00      .00   883.20
     190.      12.     178.       0.      69.     421.       0.       0.       0.   887.90
      .00      .18      .42      .00     .100     .050     .100     .000   881.70    82.53
   .000030       0.       0.       0.        0        0        0      .00   116.91   199.44
0
 *SECNO 50.000
  2800 NAT Q1=    226.28  WSEL=    887.73  ENC Q1=    226.28  WSEL=    887.83  RATIO=   .0000
  NAT Q1=    237.  RATIOS LOB,CH,ROB=   .0768   .9232   .0000  WSEL=    887.83

 3470 ENCROACHMENT STATIONS=      91.6     200.0  TYPE=     4  TARGET=        .043
    50.00     5.06   887.83      .00   887.73   887.84      .01      .00      .00   884.27
     190.       6.     184.       0.      27.     319.       0.       0.       0.   888.97
      .02      .22      .58      .00     .100     .050     .100     .000   882.77    91.61
   .000071      50.      50.      50.        0        0        0      .00    99.21   190.83
0
 *SECNO 100.000
  2800 NAT Q1=    130.52  WSEL=    887.73  ENC Q1=    131.32  WSEL=    887.83  RATIO=  -.0061
  NAT Q1=    13[illegible]  RATIOS LOB,CH,ROB=   .0503   .9497   .0000  [illegible]  887.83
```

3470 ENCROACHMENT STATIONS= 100.0 200.0 TYPE= 4 TARGET= .050

100.00	3.98	887.83	.00	887.73	887.84	.01	.01	.00	885.35
190.	0.	190.	0.	0.	226.	0.	1.	0.	890.05
.04	.00	.84	.00	.100	.050	.100	.000	883.85	100.00
.000217	50.	50.	50.	0	0	0	.00	62.16	182.16

0

*SECNO 150.000

2800 NAT QI= 62.25 WSEL= 887.74 ENC QI= 66.21 WSEL= 887.84 RATIO= -.0636

NAT QI= 68. RATIOS LOB,CH,ROB= .0233 .9767 .0000 WSEL= 887.84

3470 ENCROACHMENT STATIONS= 100.0 200.0 TYPE= 4 TARGET= .023

150.00	2.92	887.84	.00	887.74	887.87	.03	.02	.01	886.42
190.	0.	190.	0.	0.	144.	0.	1.	0.	891.12
.05	.00	1.32	.00	.100	.050	.100	.000	884.92	100.00
.000835	50.	50.	50.	1	0	0	.00	73.64	173.64

0

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= .500 CEHV= 1.000

*SECNO 201.000

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 88.0 156.0 TYPE= 1 TARGET= 68.000

NOVI ROAD

201.00	3.00	889.00	889.00	889.00	889.31	.31	.09	.28	888.70
190.	132.	58.	1.	34.	10.	1.	1.	0.	888.70
.05	3.86	5.60	1.57	.020	.024	.020	.000	886.00	88.17
.005656	51.	51.	51.	2	9	0	.00	67.33	155.50

0

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	3.27	2.80	.00	4.00	.00	12.60	.00	886.00	886.00

*SECNO 203.000

1857 BT CARD.STA DONT INCREASE

.00	895.70	895.70	100.00	893.06	888.10	148.00	893.37	888.70	149.00	893.37	889.80
150.00	893.38	890.00	151.00	893.39	889.80	152.00	893.39	888.70	200.00	893.70	892.80
3000.00	895.25	895.25	400.00	896.97	896.97	500.00	898.68	898.68			
.00	895.70	895.70	100.00	893.06	888.10	148.00	893.37	888.70	149.00	893.37	889.80
150.00	893.38	890.00	151.00	893.39	889.80	152.00	893.39	888.70	200.00	893.70	892.80
3000.00	895.25	895.25	400.00	896.97	896.97	500.00	898.68	898.68	500.00	10898.68	898.68

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 889.307 ELLC= 890.000 PCWSE= 888.999 ELTRD= 892.640

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF 890.000 EGLC= 893.531 EGC= 893.938 WSEL= 893.686

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 11 MIN ELTRD= 892.64 MAX ELLC= 890.00

```
   203.00     4.09   890.09   889.79   890.09   893.62     3.53     1.09     3.22   888.70
    190.       0.     190.       0.       0.      13.       0.       1.       1.   888.70
     .06      .00    15.08      .00      .020     .024     .020     .000   886.00    73.87
  .060732     82.      82.      82.        6       16        0  -120.17    94.36   168.23
0
1
 08/27/91    16:05:29                                                                PAGE   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


 CCHV=    .300 CEHV=    .500
 #SECNO 834.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     290.0     473.0  TYPE=     1  TARGET=     183.000
   834.00     4.30   894.90      .00   894.90   894.90      .00      .22     1.06   890.90
    190.      103.      39.      47.     323.      49.     162.       5.       2.   891.00
     .43      .32       .80      .29     .100     .050     .100     .000   890.60   290.00
  .000109     675.     550.     350.       5        0        0      .00   183.00   473.00
0
 #SECNO 1184.000
  2800 NAT Q1=    111.08  WSEL=    894.95  ENC Q1=    111.08  WSEL=    895.05  RATIO=   .0000
  NAT Q1=    120.  RATIOS LOB,CH,ROB=   .4579   .1469   .3952  WSEL=    895.05

 3470 ENCROACHMENT STATIONS=     228.5     387.7  TYPE=     4  TARGET=        .071
  1184.00     2.61   894.96      .00   894.95   894.96      .01      .06      .00   892.55
    190.       86.      30.      73.     176.      30.     164.       8.       4.   892.55
     .60      .49      1.00      .45     .100     .050     .100     .000   892.35   228.45
  .000334     262.     350.     425.        0        0        0      .00   159.25   387.70
0
 #SECNO 1534.000

 3470 ENCROACHMENT STATIONS=     222.0     393.0  TYPE=     1  TARGET=     171.000
  1534.00     1.15   895.25      .00   895.21   895.29      .04      .31      .02   894.30
    190.       98.      35.      58.      75.      13.      55.      10.       5.   894.30
     .66      1.31      2.75     1.04     .100     .050     .100     .000   894.10   222.00
  .008029     263.     350.     425.        2        0        0      .00   171.00   393.00
0
 #SECNO 2059.000
  2800 NAT Q1=     17.98  WSEL=    900.28  ENC Q1=     20.98  WSEL=    900.38  RATIO=  -.1668
  NAT Q1=     21.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    900.38

 3470 ENCROACHMENT STATIONS=     400.0     500.0  TYPE=     4  TARGET=        .000
  2059.00     1.68   900.25      .00   900.28   900.40      .15     5.06      .05   903.87
    190.       0.      190.       0.       0.      61.       0.      11.       6.   901.47
     .71      .00      3.11      .00     .100     .050     .100     .000   898.57   412.41
  .012644     471.     525.     507.        3        0        0      .00    67.95   480.36
0
1
 08/27/91    16:05:29                                                                PAGE   14

   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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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 2800 NAT Q1=     22.80  WSEL=    902.07  ENC Q1=     26.09  WSEL=    902.17  RATIO=  -.1443
 NAT Q1=     26.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    902.17

3470 ENCROACHMENT STATIONS=     400.0     500.0  TYPE=     4  TARGET=        .000
  2259.00     1.89   902.09      .00   902.07   902.19      .10     1.77      .02   905.59
     190.       0.     190.       0.       0.      76.       0.      12.       7.    903.10
      .73      .00     2.49      .00     .100     .050     .100     .000   900.20   411.67
   .066559     179.     200.     193.        3        0        0      .00    72.14   483.81
0
 #SECNO 2646.000
 2800 NAT Q1=     17.36  WSEL=    905.40  ENC Q1=     17.36  WSEL=    905.50  RATIO=   .0000
 NAT Q1=     20.  RATIOS LOB,CH,ROB=   .0000   .6755   .3245  WSEL=    905.50

3470 ENCROACHMENT STATIONS=     300.0     363.1  TYPE=     4  TARGET=        .143
  2646.00     2.21   905.46      .00   905.40   905.71      .25     3.45      .08   906.55
     190.       0.     151.      39.       0.      34.      28.      12.       7.    904.65
      .76      .00     4.47     1.38     .030     .050     .100     .000   903.25   302.72
   .013318     375.     387.     325.        4        0        0      .00    60.33   363.05
0
 #SECNO 3034.000

3470 ENCROACHMENT STATIONS=     302.0     425.0  TYPE=     1  TARGET=     123.000
  3034.00     2.41   908.71      .00   908.66   908.81      .10     3.05      .05100000.00
     190.       0.     119.      71.       0.      38.      74.      13.       8.    907.70
      .80      .00     3.10      .95     .030     .050     .100     .000   906.30   302.22
   .005605     375.     388.     325.        5        0        0      .00   122.78   425.00
0
 #SECNO 3784.000

3470 ENCROACHMENT STATIONS=     445.0     573.0  TYPE=     1  TARGET=     128.000
  3784.00     1.35   915.75      .00   915.80   915.88      .13     7.06      .02   915.20
     190.     138.      47.       5.      61.      11.       5.      14.      10.    915.00
      .87     2.26     4.35     1.09     .070     .050     .100     .000   914.40   449.82
   .019694     750.     750.     700.        4        0        0      .00   122.23   572.05
0
 #SECNO 4859.000

3470 ENCROACHMENT STATIONS=     178.0     317.0  TYPE=     1  TARGET=     139.000
1
 08/27/91    16:05:29                                                              PAGE   15


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


  4859.00     2.04   921.64      .00   921.62   921.70      .05     5.79      .02   920.50
     190.       9.     142.      39.      13.      69.      62.      17.      13.    920.80
     1.06      .71     2.06      .64     .070     .050     .100     .000   919.60   178.01
   .002329    1175.    1075.    1150.        7        0        0      .00   138.99   317.00
0
 #SECNO 5196.000
 2800 NAT Q1=     63.65  WSEL=    922.10  ENC Q1=     63.65  WSEL=    922.20  RATIO=   .0000
 NAT Q1=     70.  RATIOS LOB,CH,ROB=   .0732   .6608   .2660  WSEL=    922.20

3470 ENCROACHMENT STATIONS=     195.0     298.5  TYPE=     4  TARGET=        .089
  5196.00     2.52   922.14      .00   922.10   922.17      .03      .47      .01   920.52
     190.       6.     139.      45.       7.      88.      80.      18.      14.    920.82
     1.13      .74     1.58      .57     .070     .050     .100     .000   919.62   194.97
   .001000     350.     337.     256.        1        0        0      .00   103.51   298.49
0
 #SECNO 5534.000
 2800 NAT Q1=    210.71  WSEL=    922.19  ENC Q1=    227.78  WSEL=    922.29  RATIO=  -.0810
 NAT Q1=    228.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    922.29
```

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 3470 ENCROACHMENT STATIONS=     900.0    1300.0  TYPE=     4  TARGET=        .000
   5534.00     2.58   922.23      .00   922.19   922.24      .00      .06      .01   929.85
      190.       0.     190.       0.       0.     459.       0.      21.      16.    933.75
      1.35      .00      .41      .00     .100     .050     .060     .000   919.65   967.16
   .000076     350.     338.     256.        2        0        0      .00   226.61  1193.77
0
 $SECND 6209.000
  2800 NAT Q1=    211.95  WSEL=    922.24  ENC Q1=    228.57  WSEL=    922.34  RATIO=  -.0784
  NAT Q1=    229.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    922.34

 3470 ENCROACHMENT STATIONS=     900.0    1300.0  TYPE=     4  TARGET=        .000
   6209.00     2.59   922.29      .00   922.24   922.29      .00      .05      .00   929.90
      190.       0.     190.       0.       0.     458.       0.      28.      19.    933.80
      1.80      .00      .41      .00     .100     .050     .060     .000   919.70   967.20
   .000076     700.     675.     513.        0        0        0      .00   226.50  1193.70
0
 $SECND 6316.000
  2800 NAT Q1=    114.05  WSEL=    922.26  ENC Q1=    127.09  WSEL=    922.36  RATIO=  -.1144
  NAT Q1=    127.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    922.36
1
  08/27/91    16:05:29                                                                PAGE   16


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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    1300.0  TYPE=     4  TARGET=        .000
   6316.00     1.90   922.30      .00   922.26   922.30      .01      .01      .00   930.60
      190.       0.     190.       0.       0.     311.       0.      29.      20.    934.50
      1.85      .00      .61      .00     .100     .050     .060     .000   920.40   974.25
   .000250      91.      107.     116.        0        0        0      .00   209.11  1183.36
0
 $SECND 6422.000
  2800 NAT Q1=     47.56  WSEL=    922.31  ENC Q1=     56.26  WSEL=    922.41  RATIO=  -.1829
  NAT Q1=     56.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    922.41

 3470 ENCROACHMENT STATIONS=     900.0    1300.0  TYPE=     4  TARGET=        .000
   6422.00     1.24   922.34      .00   922.31   922.36      .02      .05      .01   931.30
      190.       0.     190.       0.       0.     179.       0.      29.      20.    935.20
      1.87      .00     1.06      .00     .100     .050     .060     .000   921.10   981.07
   .001413      90.      106.     115.        2        0        0      .00   192.28  1173.35
0
 $SECND 6528.000
  2800 NAT Q1=     20.23  WSEL=    922.62  ENC Q1=     26.22  WSEL=    922.72  RATIO=  -.2961
  NAT Q1=     26.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    922.72

 3470 ENCROACHMENT STATIONS=     900.0    1300.0  TYPE=     4  TARGET=        .000
   6528.00      .83   922.63      .00   922.62   922.69      .05      .30      .02   932.00
      190.       0.     190.       0.       0.     101.       0.      30.      21.    935.90
      1.89      .00     1.88      .00     .100     .050     .060     .000   921.80   985.38
   .008713      91.      106.     116.        2        0        0      .00   181.66  1167.04
0
 $SECND 6634.000
  2800 NAT Q1=     24.49  WSEL=    923.41  ENC Q1=     31.70  WSEL=    923.51  RATIO=  -.2945
  NAT Q1=     32.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    923.51

 3470 ENCROACHMENT STATIONS=     900.0    1300.0  TYPE=     4  TARGET=        .000
   6634.00      .90   923.40      .00   923.41   923.45      .04      .76      .00   932.70
      190.       0.     190.       0.       0.     114.       0.      30.      21.    936.60
      1.91      .00     1.67      .00     .100     .050     .060     .000   922.50   984.66
      .074      90.      107.     115.        2        0        0      .00   183.82  1169.69
```

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0
 *SECNO 6740.000
1
  08/27/91    16:05:29                                                                                    PAGE   17


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


  2800 NAT Q1=     24.56  WSEL=    924.04  ENC Q1=     30.67  WSEL=    924.14  RATIO=  -.2487
  NAT Q1=     31.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    924.14
   6740.00      .83   924.03      .00   924.04   924.08      .05      .63      .00   930.10
      190.       0.     190.       0.       0.     108.       0.      30.      21.   925.00
      1.92      .00     1.76      .00     .100     .050     .060     .000   923.20    87.91
   .005887      91.     106.     116.        2        0        0      .00   158.42   246.33
0
 *SECNO 6846.000
  2800 NAT Q1=     23.29  WSEL=    924.71  ENC Q1=     28.72  WSEL=    924.81  RATIO=  -.2329
  NAT Q1=     29.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    924.81
   6846.00      .79   924.70      .00   924.71   924.75      .05      .67      .00   930.80
      190.       0.     190.       0.       0.     103.       0.      31.      22.   925.70
      1.94      .00     1.85      .00     .100     .050     .060     .000   923.90    88.37
   .006754      90.     106.     115.        2        0        0      .00   156.22   244.59
0
 *SECNO 6952.000
  2800 NAT Q1=     23.44  WSEL=    925.41  ENC Q1=     28.81  WSEL=    925.51  RATIO=  -.2291
  NAT Q1=     29.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    925.51
   6952.00      .81   925.41      .00   925.41   925.46      .05      .71      .00   931.50
      190.       0.     190.       0.       0.     103.       0.      31.      22.   926.40
      1.96      .00     1.84      .00     .100     .050     .060     .000   924.60    88.32
   .006654      91.     106.     116.        3        0        0      .00   156.46   244.78
0
 *SECNO 7060.000
  2800 NAT Q1=     14.02  WSEL=    928.45  ENC Q1=     14.02  WSEL=    928.55  RATIO=   .0000
  NAT Q1=    122.  RATIOS LOB,CH,ROB=   .9663   .0103   .0233  WSEL=    928.55
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=    1119.5    1200.5  TYPE=     4  TARGET=        .885
           TAFT ROAD
   7060.00     3.26   928.56   928.56   928.45   928.86      .30     1.05      .12   928.00
      195.     179.      16.       0.      42.       3.       0.      31.      22.   928.00
      1.96     4.31     5.10      .00     .030     .024     .030     .000   925.30  1119.48
   .018252      92.     108.     117.       20       24        0      .00    81.02  1200.50
0
1
  08/27/91    16:05:29                                                                                    PAGE   18


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



 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .00      6.14      2.70       .00      1.00       .00       .78       .00    925.30    925.30
```

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*SECNO 7100.000
6870 D.S. ENERGY OF  928.86 HIGHER THAN COMPUTED ENERGY OF  928.58
 2800 NAT Q1=     15.68  WSEL=    928.48  ENC Q1=     15.68  WSEL=    928.58  RATIO=   .0000
 NAT Q1=    131.  RATIOS LOB.CH.ROB=   .9650   .0098   .0253  WSEL=    928.58
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=    1117.7    1200.5  TYPE=     4  TARGET=        .880
  7100.00     3.29   928.59      .00   928.48   928.85      .26      .65      .01   928.00
     195.     180.      15.       0.      45.       3.       0.      31.      22.    928.00
     1.97     4.01     4.58      .00     .030     .024     .030     .000   925.30  1117.73
  .014634      40.      40.      40.        0        0       13      .00    82.77  1200.50
0
1
 08/27/91    16:05:29                                                                    PAGE   19


                                                                  THIS RUN EXECUTED 08/27/91   16:06:08
 ************************************************
  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 1.1
 ************************************************


NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST


 CREEK

SUMMARY PRINTOUT TABLE  110
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	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	.000	887.73	.00	887.73	158.23	18.77	171.23	.00	.00	.00	100.00	200.00	.00
	.000	887.83	.10	887.83	116.91	12.50	177.50	.00	.04	82.53	100.00	200.00	200.00
	50.000	887.73	.00	887.74	135.56	14.15	175.85	.00	.00	.00	100.00	200.00	.00
	50.000	887.83	.10	887.84	99.21	6.10	183.90	.00	.04	91.61	100.00	200.00	200.00
	100.000	887.73	.00	887.74	112.68	9.07	180.93	.00	.00	.00	100.00	200.00	.00
	100.000	887.83	.10	887.84	82.16	.00	190.00	.00	.05	100.00	100.00	200.00	200.00
	150.000	887.74	.00	887.77	90.13	3.94	186.06	.00	.00	.00	100.00	200.00	.00
	150.000	887.84	.10	887.87	73.64	.00	190.00	.00	.02	100.00	100.00	200.00	200.00
*	201.000	889.00	.00	889.31	67.29	131.43	57.76	.81	.00	.00	148.00	152.00	.00
*	201.000	889.00	.00	889.31	67.33	131.55	57.63	.82	68.00	88.00	148.00	152.00	156.00
	283.000	890.09	.00	893.62	94.46	.00	190.00	.00	.00	.00	148.00	152.00	.00
	283.000	890.09	.00	893.62	94.36	.00	190.00	.00	.00	.00	148.00	152.00	.00
	834.000	894.90	.00	894.90	239.62	104.27	39.12	46.61	.00	.00	400.00	412.00	.00
	834.000	894.90	.00	894.90	183.00	103.21	39.46	47.33	183.00	290.00	400.00	412.00	473.00
	1184.000	894.95	.00	894.96	202.07	87.29	28.14	74.57	.00	.00	300.00	312.00	.00
	1184.000	894.96	.00	894.96	159.25	86.30	30.23	73.46	.07	228.45	300.00	312.00	387.70
	1534.000	895.21	.00	895.26	171.52	98.11	35.08	56.82	.00	.00	300.00	312.00	.00
	1534.000	895.25	.03	895.29	171.00	97.59	34.68	57.73	171.00	222.00	300.00	312.00	393.00
	2059.000	900.28	.00	900.42	68.69	.00	190.00	.00	.00	.00	400.00	500.00	.00
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

2259.000	902.07	.00	902.17	71.74	.00	190.00	.00	.00	.00	400.00	500.00	.00
2259.000	902.09	.02	902.19	72.14	.00	190.00	.00	.00	400.00	400.00	500.00	500.00

1

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
2646.000	905.40	.00	905.60	114.55	.00	135.14	54.86	.00	.00	300.00	325.00	.00
2646.000	905.46	.06	905.71	60.33	.00	151.37	38.63	.14	300.00	300.00	325.00	363.05
3034.000	908.66	.00	908.78	123.14	.00	121.94	68.06	.00	.00	300.00	325.00	.00
3034.000	908.71	.05	908.81	122.78	.00	119.14	70.86	123.00	302.00	300.00	325.00	425.00
3784.000	915.80	.00	915.91	125.86	139.09	45.67	5.25	.00	.00	550.00	560.00	.00
3784.000	915.75	-.05	915.88	122.23	138.00	47.07	4.93	128.00	445.00	550.00	560.00	573.00
4859.000	921.62	.00	921.67	138.19	8.62	142.93	38.45	.00	.00	200.00	240.00	.00
4859.000	921.64	.03	921.70	138.99	8.87	141.93	39.20	139.00	178.00	200.00	240.00	317.00
5196.000	922.10	.00	922.12	155.54	13.03	128.06	48.92	.00	.00	200.00	240.00	.00
5196.000	922.14	.04	922.17	103.51	5.55	139.11	45.34	.09	194.97	200.00	240.00	298.49
5534.000	922.19	.00	922.19	225.38	.00	190.00	.00	765.00	800.00	900.00	1300.00	1565.00
5534.000	922.23	.04	922.24	226.61	.00	190.00	.00	.00	900.00	900.00	1300.00	1300.00
6209.000	922.24	.00	922.25	225.58	.00	190.00	.00	765.00	800.00	900.00	1300.00	1565.00
6209.000	922.29	.04	922.29	226.50	.00	190.00	.00	.00	900.00	900.00	1300.00	1300.00
6316.000	922.26	.00	922.26	207.86	.00	190.00	.00	765.00	800.00	900.00	1300.00	1565.00
6316.000	922.30	.04	922.30	209.11	.00	190.00	.00	.00	900.00	900.00	1300.00	1300.00
6422.000	922.31	.00	922.33	191.38	.00	190.00	.00	.00	.00	900.00	1300.00	.00
6422.000	922.34	.04	922.36	192.28	.00	190.00	.00	.00	900.00	900.00	1300.00	1300.00
6528.000	922.62	.00	922.68	181.61	.00	190.00	.00	765.00	800.00	900.00	1300.00	1565.00
6528.000	922.63	.01	922.69	181.66	.00	190.00	.00	.00	900.00	900.00	1300.00	1300.00
6634.000	923.41	.00	923.45	183.39	.00	190.00	.00	765.00	800.00	900.00	1300.00	1565.00
6634.000	923.40	.00	923.45	183.42	.00	190.00	.00	.00	900.00	900.00	1300.00	1300.00
6740.000	924.04	.00	924.09	158.15	.00	190.00	.00	.00	.00	.00	300.00	.00
6740.000	924.03	-.01	924.08	158.42	.00	190.00	.00	.00	.00	.00	300.00	300.00
6846.000	924.71	.00	924.76	156.46	.00	190.00	.00	.00	.00	.00	300.00	.00
6846.000	924.70	-.01	924.75	156.22	.00	190.00	.00	.00	.00	.00	300.00	300.00
6952.000	925.41	.00	925.46	156.65	.00	190.00	.00	.00	.00	.00	300.00	.00
6952.000	925.41	.00	925.46	156.46	.00	190.00	.00	.00	.00	.00	300.00	300.00
* 7060.000	928.45	.00	928.66	161.51	155.35	16.57	23.08	800.00	800.00	1199.50	1200.50	1600.00
* 7060.000	928.56	.11	928.86	81.02	178.89	16.11	.00	.88	1119.48	1199.50	1200.50	1200.50
7100.000	928.48	.00	928.66	165.57	155.81	15.04	24.15	800.00	800.00	1199.50	1200.50	1600.00
7100.000	928.59	.11	928.85	82.77	180.37	14.63	.00	.88	1117.73	1199.50	1200.50	1200.50

1

CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K#S	VCH	AREA	.01K
	.000	.00	.00	.00	881.70	190.00	887.73	.00	887.73	.30	.42	545.63	349.53
	.000	.00	.00	.00	881.70	190.00	887.83	.00	887.83	.39	.42	489.82	348.93
	50.000	50.00	.00	.00	882.77	190.00	887.73	.00	887.74	.71	.57	388.66	226.28
	50.000	50.00	.00	.00	882.77	190.00	887.83	.00	887.84	.71	.58	346.16	225.73
	100.000	50.00	.00	.00	883.85	190.00	887.73	.00	887.74	2.12	.83	254.87	130.52
	100.000	50.00	.00	.00	883.85	190.00	887.83	.00	887.84	2.17	.84	225.99	128.99
	150.000	50.00	.00	.00	884.92	190.00	887.74	.00	887.77	9.32	1.37	147.12	62.25
	150.000	50.00	.00	.00	884.92	190.00	887.84	.00	887.87	8.35	1.32	143.75	65.76
*	201.000	51.00	.00	.00	886.00	190.00	889.00	889.00	889.31	56.93	5.61	44.79	25.18
*	201.000	51.00	.00	.00	886.00	190.00	889.00	889.00	889.31	56.56	5.60	44.89	25.26
	283.000	82.00	892.64	890.00	886.00	190.00	890.09	889.79	893.62	607.32	15.08	12.60	7.71
	283.000	82.00	892.64	890.00	886.00	190.00	890.09	889.79	893.62	607.32	15.08	12.60	7.71
	834.000	550.00	.00	.00	890.60	190.00	894.90	.00	894.90	1.07	.79	575.56	183.53
	834.000	550.00	.00	.00	890.60	190.00	894.90	.00	894.90	1.09	.80	533.91	181.88
	1184.000	350.00	.00	.00	892.35	190.00	894.95	.00	894.96	2.93	.94	410.25	111.08
	1184.000	350.00	.00	.00	892.35	190.00	894.96	.00	894.96	3.34	1.00	370.27	103.92
	1534.000	350.00	.00	.00	894.10	190.00	895.21	.00	895.26	91.10	2.87	137.17	19.91
	1534.000	350.00	.00	.00	894.10	190.00	895.25	.00	895.29	80.29	2.75	142.65	21.20
	2059.000	525.00	.00	.00	898.57	190.00	900.28	.00	900.42	111.64	2.98	63.70	17.98
	2059.000	525.00	.00	.00	898.57	190.00	900.25	.00	900.40	126.44	3.11	61.10	16.90
	2259.000	200.00	.00	.00	900.20	190.00	902.07	.00	902.17	69.46	2.54	74.74	22.80
	2259.000	200.00	.00	.00	900.20	190.00	902.09	.00	902.19	65.59	2.49	76.21	23.46
	2646.000	387.00	.00	.00	903.25	190.00	905.40	.00	905.60	119.79	4.15	81.73	17.36
	2646.000	387.00	.00	.00	903.25	190.00	905.46	.00	905.71	133.18	4.47	61.84	16.46
	3034.000	388.00	.00	.00	906.30	190.00	908.66	.00	908.78	64.34	3.27	106.64	23.69
	3034.000	388.00	.00	.00	906.30	190.00	908.71	.00	908.81	56.05	3.10	112.72	25.38
	3784.000	750.00	.00	.00	914.40	190.00	915.80	.00	915.91	160.15	4.04	82.79	15.01
	3784.000	750.00	.00	.00	914.40	190.00	915.75	.00	915.88	196.94	4.35	76.37	13.54
	4859.000	1075.00	.00	.00	919.60	190.00	921.62	.00	921.67	24.83	2.10	139.66	38.13
	4859.000	1075.00	.00	.00	919.60	190.00	921.64	.00	921.70	23.29	2.06	143.22	39.37
	5196.000	337.00	.00	.00	919.62	190.00	922.10	.00	922.12	8.91	1.48	207.79	63.65
	5196.000	337.00	.00	.00	919.62	190.00	922.14	.00	922.17	10.00	1.58	174.95	60.07

1

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K#S	VCH	AREA	.01K
	5534.000	338.00	.00	.00	919.65	190.00	922.19	.00	922.19	.81	.42	448.43	210.71
	5534.000	338.00	.00	.00	919.65	190.00	922.23	.00	922.24	.76	.41	459.31	218.51
	6209.000	675.00	.00	.00	919.70	190.00	922.24	.00	922.25	.80	.42	450.16	211.95
	6209.000	675.00	.00	.00	919.70	190.00	922.29	.00	922.29	.76	.41	458.32	217.79
	6316.000	107.00	.00	.00	920.40	190.00	922.26	.00	922.26	2.78	.63	300.36	114.05
	6316.000	107.00	.00	.00	920.40	190.00	922.30	.00	922.30	2.50	.61	310.50	120.06

	6422.000	106.00	.00	.00	921.10	190.00	922.31	.00	922.33	15.96	1.11	171.92	47.56
	6422.000	106.00	.00	.00	921.10	190.00	922.34	.00	922.36	14.13	1.06	178.68	50.55
	6528.000	106.00	.00	.00	921.80	190.00	922.62	.00	922.68	88.22	1.88	100.80	20.23
	6528.000	106.00	.00	.00	921.80	190.00	922.63	.00	922.69	87.13	1.88	101.19	20.35
	6634.000	106.00	.00	.00	922.50	190.00	923.41	.00	923.45	60.18	1.67	113.50	24.49
	6634.000	106.00	.00	.00	922.50	190.00	923.40	.00	923.45	59.74	1.67	113.76	24.58
	6740.000	106.00	.00	.00	923.20	190.00	924.04	.00	924.09	59.86	1.77	107.14	24.56
	6740.000	106.00	.00	.00	923.20	190.00	924.03	.00	924.08	58.87	1.76	107.75	24.76
	6846.000	106.00	.00	.00	923.90	190.00	924.71	.00	924.76	66.54	1.84	103.35	23.29
	6846.000	106.00	.00	.00	923.90	190.00	924.70	.00	924.75	67.54	1.85	102.82	23.12
	6952.000	106.00	.00	.00	924.60	190.00	925.41	.00	925.46	65.73	1.83	103.78	23.44
	6952.000	106.00	.00	.00	924.60	190.00	925.41	.00	925.46	66.54	1.84	103.35	23.29
*	7060.000	108.00	.00	.00	925.30	195.00	928.45	928.45	928.66	193.54	5.44	55.30	14.02
*	7060.000	108.00	.00	.00	925.30	195.00	928.56	928.56	928.86	182.52	5.10	44.71	14.43
	7100.000	40.00	927.50	926.30	925.30	195.00	928.48	.00	928.66	154.72	4.89	59.75	15.68
	7100.000	40.00	999999.00	.00	925.30	195.00	928.59	.00	928.85	146.34	4.58	48.20	16.12

CREEK

SUMMARY PRINTOUT TABLE 150

	SECND	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	.000	190.00	887.73	.00	.00	.00	158.23	.00
	.000	190.00	887.83	.10	.00	.10	116.91	.00
	50.000	190.00	887.73	.00	.00	.00	135.56	50.00
	50.000	190.00	887.83	.10	.00	.10	99.21	50.00
	100.000	190.00	887.73	.00	.00	.00	112.68	50.00
	100.000	190.00	887.83	.10	.00	.10	82.16	50.00
	150.000	190.00	887.74	.00	.01	.00	90.13	50.00
	150.000	190.00	887.84	.10	.01	.10	73.64	50.00
*	201.000	190.00	889.00	.00	1.25	.00	67.29	51.00
*	201.000	190.00	889.00	.00	1.15	.00	67.33	51.00
	283.000	190.00	890.09	.00	1.09	.00	94.46	82.00
	283.000	190.00	890.09	.00	1.09	.00	94.36	82.00
	834.000	190.00	894.90	.00	4.81	.00	239.62	550.00
	834.000	190.00	894.90	.00	4.81	.00	183.00	550.00
	1184.000	190.00	894.95	.00	.05	.00	202.07	350.00
	1184.000	190.00	894.96	.00	.06	.00	159.25	350.00
	1534.000	190.00	895.21	.00	.26	.00	171.52	350.00
	1534.000	190.00	895.25	.03	.29	.03	171.00	350.00
	2059.000	190.00	900.28	.00	5.07	.00	68.69	525.00
	2059.000	190.00	900.25	-.03	5.00	-.03	67.95	525.00
	2252.000	190.00	902.07	.00	1.79	.00	71.74	200.00

2259.000	190.00	902.09	.02	1.84	.02	72.14	200.00
2646.000	190.00	905.40	.00	3.34	.00	114.55	387.00
2646.000	190.00	905.46	.06	3.37	.06	60.33	387.00
3034.000	190.00	908.66	.00	3.26	.00	123.14	388.00
3034.000	190.00	908.71	.05	3.25	.05	122.78	388.00
3784.000	190.00	915.80	.00	7.14	.00	125.86	750.00
3784.000	190.00	915.75	-.05	7.04	-.05	122.23	750.00
4859.000	190.00	921.62	.00	5.82	.00	138.19	1075.00
4859.000	190.00	921.64	.03	5.89	.03	138.99	1075.00
5196.000	190.00	922.10	.00	.48	.00	155.54	337.00
5196.000	190.00	922.14	.04	.49	.04	103.51	337.00

1

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
5534.000	190.00	922.19	.00	.09	.00	225.38	338.00
5534.000	190.00	922.23	.04	.10	.04	226.61	338.00
6209.000	190.00	922.24	.00	.05	.00	225.58	675.00
6209.000	190.00	922.29	.04	.05	.04	226.50	675.00
6316.000	190.00	922.26	.00	.01	.00	207.86	107.00
6316.000	190.00	922.30	.04	.01	.04	209.11	107.00
6422.000	190.00	922.31	.00	.05	.00	191.38	106.00
6422.000	190.00	922.34	.04	.05	.04	192.28	106.00
6528.000	190.00	922.62	.00	.32	.00	181.61	106.00
6528.000	190.00	922.63	.01	.29	.01	181.66	106.00
6634.000	190.00	923.41	.00	.78	.00	183.39	106.00
6634.000	190.00	923.40	.00	.77	.00	183.42	106.00
6740.000	190.00	924.04	.00	.63	.00	158.15	106.00
6740.000	190.00	924.03	-.01	.63	-.01	158.42	106.00
6846.000	190.00	924.71	.00	.67	.00	156.46	106.00
6846.000	190.00	924.70	-.01	.67	-.01	156.22	106.00
6952.000	190.00	925.41	.00	.70	.00	156.65	106.00
6952.000	190.00	925.41	.00	.71	.00	156.46	106.00
* 7060.000	195.00	928.45	.00	3.04	.00	161.51	108.00
* 7060.000	195.00	928.56	.11	3.15	.11	81.02	108.00
7100.000	195.00	928.48	.00	.03	.00	165.57	40.00
7100.000	195.00	928.59	.11	.03	.11	82.77	40.00

1

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= [illegible] PROFILE= 1 CRITICAL DEPTH ASSUMED

```
CAUTION  SECNO=   201.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=   201.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=   201.000  PROFILE= 2  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=  7060.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  7060.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  7060.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  7060.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  7060.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  7060.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

1
 08/27/91    16:05:29                                                    PAGE   26
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FLOODWAY DATA, CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.000	117.	490.	.4	887.8	887.7	.1
50.000	99.	346.	.5	887.8	887.7	.1
100.000	82.	226.	.8	887.8	887.7	.1
150.000	74.	144.	1.3	887.8	887.7	.1
201.000	67.	45.	4.2	889.0	889.0	.0
283.000	94.	13.	15.1	890.1	890.1	.0
834.000	183.	534.	.4	894.9	894.9	.0
1184.000	159.	370.	.5	895.0	895.0	.0
1534.000	171.	143.	1.3	895.2	895.2	.0
2059.000	68.	61.	3.1	900.3	900.3	.0
2259.000	72.	76.	2.5	902.1	902.1	.0
2646.000	60.	62.	3.1	905.5	905.4	.1
3034.000	123.	113.	1.7	908.7	908.7	.0
3784.000	122.	76.	2.5	915.8	915.8	.0
4859.000	139.	143.	1.3	921.6	921.6	.0
5196.000	104.	175.	1.1	922.1	922.1	.0
5534.000	227.	459.	.4	922.2	922.2	.0
6209.000	226.	458.	.4	922.2	922.2	.0
6316.000	209.	311.	.6	922.3	922.3	.0
6422.000	192.	179.	1.1	922.3	922.3	.0
6528.000	182.	101.	1.9	922.6	922.6	.0
6634.000	183.	114.	1.7	923.4	923.4	.0
6740.000	158.	108.	1.8	924.0	924.0	.0
6846.000	156.	103.	1.8	924.7	924.7	.0
6952.000	156.	103.	1.8	925.4	925.4	.0
7060.000	81.	45.	4.4	928.5	928.4	.1
7100.000	83.	48.	4.0	928.6	928.5	.1

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1
 08/27/91    16:06:14                                                    PAGE    1

                                                THIS RUN EXECUTED 08/27/91   16:06:14

**************************************************
 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 1.1
**************************************************
```

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI CITY

3) WATERCOURSE: MUNRO CREEK

4) DOCUMENT TYPE: SUMMARY

00BREAK00

250.	208.	24.	37.	60.	3.	15.	38.	26.	928. 00
1. 50	3. 49	4. 53	2. 45	0. 030	0. 024	0. 030	0. 000	925. 30	1071. 68
0. 012674	40.	40.	40	0	0	14	0. 00	181. 42	1253. 10

0
1

THIS RUN EXECUTED 13 JAN 88 16:27:54

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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
**************************************************
```

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CREEK

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	0. 000	886. 73	0. 00	886. 73	137. 01	8. 37	101. 63	0. 00	0. 00	0. 00	100. 00	200. 00	0. 00
	0. 000	887. 41	0. 00	887. 41	151. 44	14. 68	145. 32	0. 00	0. 00	0. 00	100. 00	200. 00	0. 00
	0. 000	887. 73	0. 00	887. 73	158. 23	18. 77	171. 23	0. 00	0. 00	0. 00	100. 00	200. 00	0. 00
	0. 000	888. 44	0. 00	888. 44	188. 95	32. 23	257. 56	0. 21	0. 00	0. 00	100. 00	200. 00	0. 00
	50. 000	886. 73	0. 00	886. 73	114. 33	5. 47	104. 53	0. 00	0. 00	0. 00	100. 00	200. 00	0. 00
	50. 000	887. 41	0. 00	887. 42	128. 76	10. 68	149. 32	0. 00	0. 00	0. 00	100. 00	200. 00	0. 00
	50. 000	887. 73	0. 00	887. 74	135. 56	14. 15	175. 85	0. 00	0. 00	0. 00	100. 00	200. 00	0. 00
	50. 000	888. 44	0. 00	888. 45	150. 64	26. 37	263. 63	0. 00	0. 00	0. 00	100. 00	200. 00	0. 00
	100. 000	886. 73	0. 00	886. 74	91. 45	2. 45	107. 55	0. 00	0. 00	0. 00	100. 00	200. 00	0. 00
	100. 000	887. 41	0. 00	887. 42	105. 89	6. 33	153. 67	0. 00	0. 00	0. 00	100. 00	200. 00	0. 00
	100. 000	887. 73	0. 00	887. 74	112. 68	9. 07	180. 93	0. 00	0. 00	0. 00	100. 00	200. 00	0. 00
	100. 000	888. 44	0. 00	888. 46	127. 77	19. 02	270. 98	0. 00	0. 00	0. 00	100. 00	200. 00	0. 00
	150. 000	886. 75	0. 00	886. 79	68. 94	0. 16	109. 84	0. 00	0. 00	0. 00	100. 00	200. 00	0. 00
	150. 000	887. 43	0. 00	887. 46	83. 34	2. 12	157. 88	0. 00	0. 00	0. 00	100. 00	200. 00	0. 00
	150. 000	887. 74	0. 00	887. 77	90. 13	3. 94	186. 06	0. 00	0. 00	0. 00	100. 00	200. 00	0. 00
	150. 000	888. 45	0. 00	888. 49	105. 24	11. 24	278. 76	0. 00	0. 00	0. 00	100. 00	200. 00	0. 00
*	201. 000	888. 81	0. 00	889. 03	62. 51	63. 31	46. 69	0. 00	0. 00	0. 00	148. 00	152. 00	0. 00
*	201. 000	888. 93	0. 00	889. 21	65. 67	105. 60	53. 99	0. 41	0. 00	0. 00	148. 00	152. 00	0. 00
*	201. 000	889. 00	0. 00	889. 31	67. 29	131. 43	57. 76	0. 81	0. 00	0. 00	148. 00	152. 00	0. 00
*	201. 000	889. 19	0. 00	889. 60	71. 98	218. 82	68. 03	3. 15	0. 00	0. 00	148. 00	152. 00	0. 00
	283. 000	892. 34	0. 00	892. 68	4. 00	0. 00	110. 00	0. 00	4. 00	148. 00	148. 00	152. 00	152. 00
	283. 000	893. 55	0. 00	893. 58	160. 59	62. 57	44. 87	52. 57	4. 00	148. 00	148. 00	152. 00	152. 00
	283. 000	893. 68	0. 00	893. 70	169. 86	77. 76	45. 26	66. 98	4. 00	148. 00	148. 00	152. 00	152. 00
	283. 000	893. 95	0. 00	893. 98	189. 87	126. 23	50. 59	113. 18	4. 00	148. 00	148. 00	152. 00	152. 00
	834. 000	893. 27	0. 00	893. 28	175. 24	55. 27	33. 70	21. 02	0. 00	0. 00	400. 00	412. 00	0. 00
	834. 000	893. 75	0. 00	893. 76	194. 76	84. 93	42. 27	32. 80	0. 00	0. 00	400. 00	412. 00	0. 00
	834. 000	893. 89	0. 00	893. 90	200. 09	101. 80	48. 52	39. 68	0. 00	0. 00	400. 00	412. 00	0. 00
	834. 000	894. 21	0. 00	894. 22	213. 04	157. 98	68. 79	63. 23	0. 00	0. 00	400. 00	412. 00	0. 00

1

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
1184.000	893.54	0.00	893.55	172.55	56.07	19.89	34.04	0.00	0.00	300.00	312.00	0.00
1184.000	893.96	0.00	893.97	179 05	77.33	26.41	56.27	0.00	0.00	300.00	312.00	0.00
1184.000	894.11	0.00	894 12	181.33	90.76	30.67	68.58	0.00	0.00	300.00	312.00	0.00
1184.000	894.50	0.00	894.52	187.22	135.60	44.76	109.65	0.00	0.00	300.00	312.00	0.00
1534.000	894.95	0.00	894.98	167.42	61.22	22.81	25.97	0.00	0.00	300.00	312.00	0.00
1534 000	895.02	0.00	895.07	168.48	86.92	31.97	41.12	0.00	0.00	300.00	312.00	0.00
1534 000	895.12	0.00	895 18	170.11	100.16	36.24	53.60	0.00	0.00	300.00	312.00	0.00
1534.000	895.46	0.00	895.52	175 29	143.86	50.13	96.01	0.00	0.00	300.00	312.00	0.00
2059.000	900 02	0.00	900.11	62.30	0.00	110.00	0.00	0.00	0.00	400.00	500.00	0.00
2059.000	900.30	0.00	900.40	69.05	0.00	160.00	0.00	0.00	0.00	400.00	500.00	0 00
2059.000	900.37	0.00	900.48	70.54	0.00	190.00	0.00	0.00	0.00	400.00	500.00	0.00
2059.000	900.56	0.00	900.75	74.17	0.00	290.00	0.00	0.00	0.00	400.00	500.00	0.00
2259.000	901 71	0.00	901.79	64.88	0.00	110 00	0.00	0.00	0.00	400.00	500.00	0 00
2259.000	901.89	0.00	901.99	68.25	0.00	160.00	0.00	0.00	0.00	400.00	500.00	0.00
2259.000	902.01	0.00	902.13	70.70	0.00	190.00	0.00	0.00	0.00	400.00	500.00	0 00
2259.000	902.39	0.00	902.52	78.23	0.00	290.00	0.00	0.00	0.00	400.00	500.00	0 00
2646.000	905.11	0.00	905.27	102.66	0.00	92.95	17.05	0.00	0.00	300.00	325.00	0.00
2646.000	905.35	0.00	905.51	112.46	0.00	117.01	42.99	0.00	0 00	300.00	325.00	0.00
2646 000	905.44	0.00	905 61	116.37	0.00	132.03	57.97	0.00	0.00	300 00	325.00	0.00
2646.000	905.70	0.00	905.91	126.67	0.00	179.27	110.73	0.00	0.00	300.00	325.00	0.00
3034.000	908 31	0.00	908.41	108.74	0.00	84.75	25.25	0.00	0.00	300.00	325.00	0.00
3034.000	908.51	0.00	908 63	116.85	0.00	110.52	49.48	0.00	0.00	300.00	325.00	0 00
3034.000	908 63	0.00	908.75	121.78	0.00	123.79	66.21	0.00	0.00	300 00	325.00	0 00
3034.000	908.98	0 00	909.10	136.14	0.00	164.02	125 98	0.00	0.00	300.00	325.00	0.00
3784.000	915.56	0.00	915.65	108.25	76.64	31.26	2 10	0.00	0.00	550.00	560.00	0.00
3784.000	915.74	0.00	915.84	122.21	116.20	39.65	4.15	0.00	0.00	550.00	560.00	0.00
3784 000	915.83	0.00	915.93	128.15	139.72	44.84	5.45	0.00	0.00	550.00	560.00	0.00
3784.000	916.04	0.00	916.17	144.51	218.64	61.00	10.36	0.00	0.00	550.00	560.00	0.00
4859.000	921 24	0.00	921.29	124.13	2.85	92.89	14.26	0.00	0.00	200.00	240.00	0 00
4859 000	921.47	0.00	921.52	132.69	6.04	125.49	28.46	0.00	0.00	200.00	240.00	0 00
4859.000	921.59	0.00	921.65	137.56	8.45	143.58	37.97	0.00	0.00	200.00	240.00	0.00
4859.000	921.96	0.00	922 03	151.21	18.24	200 36	71.40	0.00	0.00	200.00	240.00	0.00
5196.000	921.68	0.00	921.69	139.88	5 24	81.75	23.00	0.00	0.00	200.00	240.00	0.00
5196 000	921.95	0.00	921 97	150.00	9 81	111.35	38.84	0.00	0.00	200.00	240.00	0.00
5196.000	922.09	0 00	922.12	155.20	12.94	128 30	48.75	0.00	0.00	200.00	240.00	0.00
5196 000	922.50	0 00	922 53	170.33	25.27	181.33	83.40	0 00	0.00	200 00	240.00	0.00
5534.000	921.74	0.00	921.74	213.88	0.00	110.00	0.00	-800.00	800.00	900.00	1300.00	1565.00
5534 000	922.03	0.00	922 04	221.37	0.00	160.00	0.00	-800.00	800.00	900.00	1300.00	1565 00
5534.000	922.18	0.00	922.19	225.18	0.00	190.00	0.00	-800.00	800.00	900.00	1300.00	1565.00
5534.000	922.61	0.00	922.62	233.62	0.00	290.00	0.00	-800.00	800.00	900.00	1300.00	1565.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
6209.000	921.78	0.00	921.78	213.69	0.00	110.00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6209.000	922.08	0.00	922 09	221.44	0.00	160 00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6209.000	922.24	0 00	922 24	225.40	0.00	190 00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6209.000	922.68	0 00	922.68	234.03	0.00	290.00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6316.000	921.79	0.00	921.80	195.92	0.00	110.00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6316.000	922.10	0.00	922.10	209.71	0.00	160 00	0.00	-800.00	800.00	900.00	1300.00	1565.01

6316.000	922.25	0.00	922.26	207.64	0.00	190.00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6316.000	922.70	0.00	922.70	219.08	0.00	290.00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6422.000	921.86	0.00	921.89	179.91	0.00	110.00	0.00	0.00	0.00	900.00	1300.00	0.00
6422.000	922.15	0.00	922.17	187.35	0.00	160.00	0.00	0.00	0.00	900.00	1300.00	0.00
6422.000	922.30	0.00	922.32	191.23	0.00	190.00	0.00	0.00	0.00	900.00	1300.00	0.00
6422.000	922.74	0.00	922.76	202.43	0.00	290.00	0.00	0.00	0.00	900.00	1300.00	0.00
6528.000	922.47	0.00	922.51	177.84	0.00	110.00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6528.000	922.55	0.00	922.60	179.65	0.00	160.00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6528.000	922.62	0.00	922.68	181.59	0.00	190.00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6528.000	922.93	0.00	922.99	189.42	0.00	290.00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6634.000	923.22	0.00	923.24	178.71	0.00	110.00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6634.000	923.35	0.00	923.38	182.14	0.00	160.00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6634.000	923.41	0.00	923.45	183.39	0.00	190.00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6634.000	923.55	0.00	923.61	187.16	0.00	290.00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6740.000	923.82	0.00	923.85	144.10	0.00	110.00	0.00	0.00	0.00	0.00	300.00	0.00
6740.000	923.96	0.00	924.00	152.71	0.00	160.00	0.00	0.00	0.00	0.00	300.00	0.00
6740.000	924.04	0.00	924.09	158.17	0.00	190.00	0.00	0.00	0.00	0.00	300.00	0.00
6740.000	924.24	0.00	924.31	173.02	0.00	290.00	0.00	0.00	0.00	0.00	300.00	0.00
6846.000	924.47	0.00	924.51	140.51	0.00	110.00	0.00	0.00	0.00	0.00	300.00	0.00
6846.000	924.63	0.00	924.68	151.23	0.00	160.00	0.00	0.00	0.00	0.00	300.00	0.00
6846.000	924.71	0.00	924.76	156.44	0.00	190.00	0.00	0.00	0.00	0.00	300.00	0.00
6846.000	924.92	0.00	924.99	171.17	0.00	290.00	0.00	0.00	0.00	0.00	300.00	0.00
6952.000	925.20	0.00	925.24	141.94	0.00	110.00	0.00	0.00	0.00	0.00	300.00	0.00
6952.000	925.33	0.00	925.38	151.43	0.00	160.00	0.00	0.00	0.00	0.00	300.00	0.00
6952.000	925.41	0.00	925.46	156.66	0.00	190.00	0.00	0.00	0.00	0.00	300.00	0.00
6952.000	925.62	0.00	925.68	171.81	0.00	290.00	0.00	0.00	0.00	0.00	300.00	0.00
* 7060.000	928.35	0.00	928.49	146.25	85.11	14.31	10.58	-800.00	800.00	1199.50	1200.50	1600.00
* 7060.000	928.50	0.00	928.62	169.80	136.08	11.92	22.00	-800.00	800.00	1199.50	1200.50	1600.00
* 7060.000	928.45	0.00	928.66	161.48	155.34	16.58	23.07	-800.00	800.00	1199.50	1200.50	1600.00
* 7060.000	928.55	0.00	928.76	176.60	208.30	15.81	35.89	-800.00	800.00	1199.50	1200.50	1600.00
7100.000	928.37	0.00	928.49	148.84	85.77	13.21	11.01	-800.00	800.00	1199.50	1200.50	1600.01
7100.000	928.52	0.00	928.62	173.02	136.17	11.13	22.70	-800.00	800.00	1199.50	1200.50	1600.01
7100.000	928.48	0.00	928.66	165.55	155.81	15.05	24.14	-800.00	800.00	1199.50	1200.50	1600.01
7100.000	928.58	0.00	928.76	181.42	208.18	14.40	37.42	-800.00	800.00	1199.50	1200.50	1600.01

CREEK

SUMMARY PRINTOUT TABLE 150

SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
0.000	0.00	0.00	0.00	881.70	110.00	886.73	0.00	886.73	0.22	0.32	398.00	233.31
0.000	0.00	0.00	0.00	881.70	160.00	887.41	0.00	887.41	0.27	0.38	496.07	309.54
0.000	0.00	0.00	0.00	881.70	190.00	887.73	0.00	887.73	0.30	0.42	545.62	349.53
0.000	0.00	0.00	0.00	881.70	290.00	888.44	0.00	888.44	0.40	0.53	667.54	458.22
50.000	50.00	0.00	0.00	882.77	110.00	886.73	0.00	886.73	0.65	0.47	263.67	136.49
50.000	50.00	0.00	0.00	882.77	160.00	887.41	0.00	887.42	0.67	0.53	346.35	194.93
50.000	50.00	0.00	0.00	882.77	190.00	887.73	0.00	887.74	0.71	0.57	388.66	226.28
50.000	50.00	0.00	0.00	882.77	290.00	888.44	0.00	888.45	0.90	0.70	490.33	304.96
100.000	50.00	0.00	0.00	883.85	110.00	886.73	0.00	886.74	2.82	0.77	152.76	65.55
100.000	50.00	0.00	0.00	883.85	160.00	887.41	0.00	887.42	2.22	0.80	219.88	107.29

	100.000	50.00	0.00	0.00	883.85	290.00	888 44	0.00	888.46	2.32	0.98	340.36	190.57
	150 000	50.00	0.00	0.00	884 92	110.00	886.75	0.00	886.79	29.08	1.64	67.71	20.40
	150.000	50.00	0.00	0.00	884.92	160.00	887 43	0.00	887.46	11.82	1.40	119.37	46.53
	150.000	50.00	0.00	0.00	884 92	190.00	887.74	0.00	887.77	9.32	1.37	147.12	62.25
	150.000	50 00	0.00	0.00	884.92	290.00	888.45	0.00	888.49	7.60	1.47	216.65	105.20
*	201.000	51.00	0.00	0.00	886.00	110.00	888.81	888.81	889.03	48.20	4.90	32.30	15.84
*	201.000	51.00	0.00	0.00	886 00	160.00	888.93	888.93	889.21	54.19	5.38	40.44	21.74
*	201.000	51.00	0.00	0.00	886.00	190.00	889.00	889.00	889.31	56.93	5.61	44.79	25.18
*	201.000	51.00	0.00	0.00	886.00	290.00	889.19	889.19	889.60	62.39	6.16	57.91	36.72
	283.000	82.00	893.06	890.00	886.00	110.00	892.34	0.00	892.68	31.06	4.66	23.63	19.74
	283.000	82.00	892.64	890.00	886.00	160.00	893.55	0.00	893.58	2.91	1.57	137.55	93.74
	283.000	82.00	892 64	890.00	886.00	190.00	893.68	0.00	893.70	2.80	1.56	158.38	113.63
	283.000	82.00	892.64	890.00	886.00	290.00	893.95	0.00	893.98	3.09	1.68	207.36	164.98
	834.000	550 00	0.00	0.00	890.60	110.00	893.27	0 00	893.28	4.23	1.12	237.44	53 51
	834.000	550 00	0.00	0.00	890.60	160.00	893.75	0.00	893.76	3.70	1.18	326.43	83.22
	834 000	550.00	0.00	0.00	890.60	190.00	893.89	0.00	893.90	4.22	1.30	352.39	92.52
	834.000	550 00	0.00	0.00	890.60	290.00	894.21	0.00	894.22	6.12	1.67	418.33	117.21
	1184.000	350.00	0.00	0.00	892.35	110.00	893.54	0.00	893.55	23.64	1.53	148.82	22.63
	1184.000	350.00	0.00	0.00	892.35	160.00	893.96	0.00	893.97	13.82	1.45	223.77	43.05
	1184.000	350.00	0.00	0 00	892.35	190.00	894.11	0.00	894.12	13.61	1.54	250.73	51.51
	1184.000	350.00	0.00	0.00	892.35	290.00	894 50	0.00	894.52	14.44	1.82	321.94	76.32
	1534.000	350 00	0.00	0 00	894 10	110.00	894.95	0.00	894.98	107.17	2.54	91.55	10.63
	1534.000	350.00	0.00	0 00	894.10	160.00	895.02	894.75	895.07	156.40	3.25	103.29	12.79
	1534.000	350.00	0.00	0.00	894.10	190.00	895.12	894 82	895.18	133.45	3.26	121.42	16.45
	1534.000	350.00	0.00	0.00	894.10	290 00	895.46	0.00	895.52	90.16	3.30	180.04	30.54

SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.OiK
2059.000	525.00	0 00	0.00	898.57	110.00	900.02	0.00	900.11	94.30	2.37	46.41	11.33
2059.000	525.00	0.00	0.00	898.57	160.00	900 30	0.00	900 40	74.56	2.46	64 99	18 53
2059 000	525.00	0.00	0.00	898.57	190.00	900.37	899.91	900.48	83.06	2.70	70.36	20.85
2059.000	525.00	0.00	0.00	898.57	290.00	900.56	0.00	900.75	115.19	3.46	83.88	27.02
2259.000	200.00	0 00	0.00	900.20	110.00	901.71	0.00	901.79	74.54	2.17	50.63	12 74
2259.000	200.00	0.00	0.00	900.20	160.00	901.89	0.00	901.99	85.15	2.57	62.16	17.34
2259.000	200.00	0.00	0.00	900.20	190.00	902 01	0.00	902.13	81.04	2.68	70.95	21.11
2259.000	200.00	0.00	0.00	900.20	290.00	902 39	0.00	902.52	69.31	2.91	99.81	34.83
2646.000	387.00	0.00	0.00	903.25	110.00	905.11	0.00	905.27	111.04	3.54	50.19	10 44
2646.000	387 00	0.00	0.00	903.25	160.00	905.35	0.00	905.51	100.19	3.72	75.92	15.98
2646.000	387.00	0 00	0.00	903.25	190.00	905.44	0.00	905.61	104.29	3.94	86.85	18.61
2646.000	387.00	0.00	0.00	903.25	290.00	905.70	0.00	905.91	118.74	4.57	117.42	26.61
3034 000	388.00	0.00	0.00	906.30	110.00	908.31	0.00	908.41	64.38	2.88	65.89	13.71
3034.000	388.00	0 00	0.00	906.30	160.00	908.51	0.00	908.63	71.34	3.27	88.22	18.94
3034.000	388.00	0.00	0.00	906.30	190 00	908.63	0.00	908.75	70.59	3.39	102 58	22.61
3034.000	388.00	0.00	0.00	906.30	290.00	908.98	0.00	909.10	67.20	3.68	147.80	35 38
3784.000	750.00	0.00	0.00	914.40	110.00	915 56	915.40	915.65	163.28	3.49	54.84	8.61
3784 000	750.00	0.00	0.00	914.40	160 00	915.74	915.52	915.84	139.82	3.66	76.34	13.53
3784 000	750 00	0.00	0.00	914.40	190.00	915.83	0.00	915.93	141 22	3.86	86.29	15 99
3784.000	750.00	0.00	0.00	914.40	290.00	916.04	0.00	916.17	147 17	4.42	116 08	23.90
4859.000	1075.00	0.00	0 00	919.60	110.00	921.24	0 00	921.29	24.15	1.76	90.38	22.39
4859 000	1075.00	0.00	0.00	919.60	160.00	921.47	0.00	921.52	25.88	2.02	119.78	31.45

4859.000	1075.00	0.00	0.00	919.60	190.00	921.59	0.00	921.63	25.90	2.14	137.36	37.33
4859.000	1075.00	0.00	0.00	919.60	290.00	921.96	0.00	922.03	26.20	2.45	190.05	56.65
5196.000	337.00	0.00	0.00	919.62	110.00	921.68	0.00	921.69	7.44	1.17	145.97	40.33
5196.000	337.00	0.00	0.00	919.62	160.00	921.95	0.00	921.97	8.54	1.38	185.14	54.76
5196.000	337.00	0.00	0.00	919.62	190.00	922.09	0.00	922.12	9.07	1.49	206.36	63.08
5196.000	337.00	0.00	0.00	919.62	290.00	922.50	0.00	922.53	10.21	1.77	272.20	90.77
5534.000	338.00	0.00	0.00	919.65	110.00	921.74	0.00	921.74	0.58	0.31	349.84	144.27
5534.000	338.00	0.00	0.00	919.65	160.00	922.03	0.00	922.04	0.74	0.39	413.49	186.29
5534.000	338.00	0.00	0.00	919.65	190.00	922.18	0.00	922.19	0.82	0.43	446.71	209.49
5534.000	338.00	0.00	0.00	919.65	290.00	922.61	0.00	922.62	1.04	0.53	545.19	284.88
6209.000	675.00	0.00	0.00	919.70	110.00	921.78	0.00	921.78	0.59	0.32	348.28	143.28
6209.000	675.00	0.00	0.00	919.70	160.00	922.08	0.00	922.09	0.73	0.39	414.12	186.72
6209.000	675.00	0.00	0.00	919.70	190.00	922.24	0.00	922.24	0.81	0.42	448.62	210.85
6209.000	675.00	0.00	0.00	919.70	290.00	922.68	0.00	922.68	1.01	0.53	550.30	289.02
6316.000	107.00	0.00	0.00	920.40	110.00	921.79	0.00	921.80	3.01	0.53	206.24	63.41
6316.000	107.00	0.00	0.00	920.40	160.00	922.10	0.00	922.10	2.84	0.60	267.03	95.02
6316.000	107.00	0.00	0.00	920.40	190.00	922.25	0.00	922.26	2.82	0.64	298.97	113.23
6316.000	107.00	0.00	0.00	920.40	290.00	922.70	0.00	922.70	2.81	0.74	393.82	172.95

	SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	6422.000	106.00	0.00	0.00	921.10	110.00	921.86	0.00	921.89	44.44	1.24	88.87	16.50
	6422.000	106.00	0.00	0.00	921.10	160.00	922.15	0.00	922.17	20.72	1.13	142.18	35.15
	6422.000	106.00	0.00	0.00	921.10	190.00	922.30	0.00	922.32	16.29	1.11	170.82	47.07
	6422.000	106.00	0.00	0.00	921.10	290.00	922.74	0.00	922.76	10.51	1.13	256.88	89.45
	6528.000	106.00	0.00	0.00	921.80	110.00	922.47	0.00	922.51	79.20	1.48	74.38	12.36
	6528.000	106.00	0.00	0.00	921.80	160.00	922.55	0.00	922.60	100.63	1.84	87.02	15.95
	6528.000	106.00	0.00	0.00	921.80	190.00	922.62	0.00	922.68	88.52	1.89	100.70	20.20
	6528.000	106.00	0.00	0.00	921.80	290.00	922.93	0.00	922.99	49.24	1.84	157.38	41.33
	6634.000	106.00	0.00	0.00	922.50	110.00	923.22	0.00	923.24	61.32	1.37	80.47	14.05
	6634.000	106.00	0.00	0.00	922.50	160.00	923.35	0.00	923.38	55.52	1.53	104.60	21.47
	6634.000	106.00	0.00	0.00	922.50	190.00	923.41	0.00	923.45	60.15	1.67	113.52	24.50
	6634.000	106.00	0.00	0.00	922.50	290.00	923.55	0.00	923.61	70.34	2.06	140.74	34.58
	6740.000	106.00	0.00	0.00	923.20	110.00	923.82	0.00	923.85	53.67	1.43	76.84	15.02
	6740.000	106.00	0.00	0.00	923.20	160.00	923.96	0.00	924.00	60.33	1.68	95.07	20.60
	6740.000	106.00	0.00	0.00	923.20	190.00	924.04	0.00	924.09	59.76	1.77	107.20	24.58
	6740.000	106.00	0.00	0.00	923.20	290.00	924.24	0.00	924.31	61.03	2.04	142.31	37.12
	6846.000	106.00	0.00	0.00	923.90	110.00	924.47	0.00	924.51	72.36	1.58	69.55	12.93
	6846.000	106.00	0.00	0.00	923.90	160.00	924.63	0.00	924.68	66.78	1.74	91.86	19.58
	6846.000	106.00	0.00	0.00	923.90	190.00	924.71	0.00	924.76	66.61	1.84	103.31	23.28
	6846.000	106.00	0.00	0.00	923.90	290.00	924.92	0.00	924.99	67.05	2.11	137.75	35.42
	6952.000	106.00	0.00	0.00	924.60	110.00	925.20	0.00	925.24	64.04	1.52	72.44	13.75
	6952.000	106.00	0.00	0.00	924.60	160.00	925.33	0.00	925.38	65.86	1.73	92.30	19.72
	6952.000	106.00	0.00	0.00	924.60	190.00	925.41	0.00	925.46	65.70	1.83	103.79	23.44
	6952.000	106.00	0.00	0.00	924.60	290.00	925.62	0.00	925.68	64.88	2.08	139.33	36.00
*	7060.000	108.00	0.00	0.00	925.30	110.00	928.35	928.35	928.49	161.76	4.86	39.57	8.65
*	7060.000	108.00	0.00	0.00	925.30	170.00	928.50	928.50	928.62	94.26	3.84	64.50	17.51
*	7060.000	108.00	0.00	0.00	925.30	195.00	928.45	928.45	928.66	193.80	5.44	55.27	14.01
*	7060.000	108.00	0.00	0.00	925.30	260.00	928.55	928.55	928.76	158.04	5.02	72.40	20.68
	7100.000	40.00	927.50	926.30	925.30	110.00	928.37	0.00	928.49	135.08	4.46	42.13	9.46
	7100.000	40.00	927.50	926.30	925.30	170.00	928.52	0.00	928.62	80.26	3.56	68.20	18.98

7100.000	40.00	927.50	926.30	925.30	195.00	928.48	0.00	928.66	154.84	4.87	97.73	13.87
7100.000	40.00	927.50	926.30	925.30	260.00	928.58	0.00	928.76	126.74	4.53	78.17	23.10

CREEK

SUMMARY PRINTOUT TABLE 150

	SECND	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	0.000	110.00	886.73	0.00	0.00	0.00	137.01	0.00
	0.000	160.00	887.41	0.68	0.00	0.00	151.44	0.00
	0.000	190.00	887.73	0.32	0.00	0.00	158.23	0.00
	0.000	290.00	888.44	0.71	0.00	0.00	188.95	0.00
	50.000	110.00	886.73	0.00	0.00	0.00	114.33	50.00
	50.000	160.00	887.41	0.68	0.00	0.00	128.76	50.00
	50.000	190.00	887.73	0.32	0.00	0.00	135.56	50.00
	50.000	290.00	888.44	0.71	0.00	0.00	150.64	50.00
	100.000	110.00	886.73	0.00	0.00	0.00	91.45	50.00
	100.000	160.00	887.41	0.68	0.00	0.00	105.89	50.00
	100.000	190.00	887.73	0.32	0.00	0.00	112.68	50.00
	100.000	290.00	888.44	0.71	0.00	0.00	127.77	50.00
	150.000	110.00	886.75	0.00	0.02	0.00	68.94	50.00
	150.000	160.00	887.43	0.67	0.01	0.00	83.34	50.00
	150.000	190.00	887.74	0.32	0.01	0.00	90.13	50.00
	150.000	290.00	888.45	0.71	0.01	0.00	105.24	50.00
*	201.000	110.00	888.81	0.00	2.05	0.00	62.51	51.00
*	201.000	160.00	888.93	0.13	1.51	0.00	65.67	51.00
*	201.000	190.00	889.00	0.07	1.25	0.00	67.29	51.00
*	201.000	290.00	889.19	0.19	0.73	0.00	71.98	51.00
	283.000	110.00	892.34	0.00	3.53	0.00	4.00	82.00
	283.000	160.00	893.55	1.21	4.62	0.00	160.59	82.00
	283.000	190.00	893.68	0.13	4.68	0.00	169.86	82.00
	283.000	290.00	893.95	0.27	4.77	0.00	189.87	82.00
	834.000	110.00	893.27	0.00	0.93	0.00	175.24	550.00
	834.000	160.00	893.75	0.48	0.20	0.00	194.76	550.00
	834.000	190.00	893.89	0.13	0.21	0.00	200.09	550.00
	834.000	290.00	894.21	0.32	0.25	0.00	213.04	550.00
	1184.000	110.00	893.54	0.00	0.27	0.00	172.55	350.00
	1184.000	160.00	893.96	0.42	0.21	0.00	179.05	350.00
	1184.000	190.00	894.11	0.15	0.23	0.00	181.33	350.00
	1184.000	290.00	894.50	0.39	0.29	0.00	187.22	350.00
	1534.000	110.00	894.95	0.00	1.41	0.00	167.42	350.00
	1534.000	160.00	895.02	0.07	1.05	0.00	168.48	350.00
	1534.000	190.00	895.12	0.11	1.01	0.00	170.11	350.00
	1534.000	290.00	895.46	0.34	0.97	0.00	175.29	350.00

	SECND	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	2059.000	110.00	900.02	0.00	5.07	0.00	62.30	525.00

2059.000	160.00	900.30	0.28	5.28	0.00	67.05	525.00
2059.000	190.00	900.37	0.07	5.25	0.00	70.54	525.00
2059.000	290.00	900.56	0.19	5.10	0.00	74.17	525.00
2259.000	110.00	901.71	0.00	1.69	0.00	64.88	200.00
2259.000	160.00	901.89	0.18	1.59	0.00	68.25	200.00
2259.000	190.00	902.01	0.13	1.64	0.00	70.70	200.00
2259.000	290.00	902.39	0.38	1.83	0.00	78.23	200.00
2646.000	110.00	905.11	0.00	3.40	0.00	102.66	387.00
2646.000	160.00	905.35	0.24	3.46	0.00	112.46	387.00
2646.000	190.00	905.44	0.09	3.43	0.00	116.37	387.00
2646.000	290.00	905.70	0.25	3.30	0.00	126.67	387.00
3034.000	110.00	908.31	0.00	3.20	0.00	108.74	388.00
3034.000	160.00	908.51	0.20	3.16	0.00	116.85	388.00
3034.000	190.00	908.63	0.12	3.19	0.00	121.78	388.00
3034.000	290.00	908.98	0.35	3.28	0.00	136.14	388.00
3784.000	110.00	915.56	0.00	7.24	0.00	108.25	750.00
3784.000	160.00	915.74	0.19	7.23	0.00	122.21	750.00
3784.000	190.00	915.83	0.09	7.20	0.00	128.15	750.00
3784.000	290.00	916.04	0.21	7.07	0.00	144.51	750.00
4859.000	110.00	921.24	0.00	5.69	0.00	124.13	1075.00
4859.000	160.00	921.47	0.23	5.73	0.00	132.69	1075.00
4859.000	190.00	921.59	0.12	5.76	0.00	137.56	1075.00
4859.000	290.00	921.96	0.37	5.92	0.00	151.21	1075.00
5196.000	110.00	921.68	0.00	0.43	0.00	139.88	337.00
5196.000	160.00	921.95	0.28	0.48	0.00	150.00	337.00
5196.000	190.00	922.09	0.14	0.50	0.00	155.20	337.00
5196.000	290.00	922.50	0.41	0.53	0.00	170.33	337.00
5534.000	110.00	921.74	0.00	0.07	0.00	213.88	338.00
5534.000	160.00	922.03	0.29	0.08	0.00	221.37	338.00
5534.000	190.00	922.18	0.15	0.09	0.00	225.18	338.00
5534.000	290.00	922.61	0.43	0.11	0.00	233.62	338.00
6209.000	110.00	921.78	0.00	0.04	0.00	213.69	675.00
6209.000	160.00	922.08	0.30	0.05	0.00	221.44	675.00
6209.000	190.00	922.24	0.15	0.06	0.00	225.40	675.00
6209.000	290.00	922.68	0.44	0.07	0.00	234.03	675.00
6316.000	110.00	921.79	0.00	0.01	0.00	195.92	107.00
6316.000	160.00	922.10	0.30	0.01	0.00	203.71	107.00
6316.000	190.00	922.25	0.16	0.01	0.00	207.69	107.00
6316.000	290.00	922.70	0.44	0.01	0.00	219.08	107.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
6422.000	110.00	921.86	0.00	0.07	0.00	179.91	106.00
6422.000	160.00	922.15	0.29	0.06	0.00	187.35	106.00
6422.000	190.00	922.30	0.15	0.05	0.00	191.23	106.00
6422.000	290.00	922.74	0.44	0.05	0.00	202.43	106.00
6528.000	110.00	922.47	0.00	0.61	0.00	177.84	106.00
6528.000	160.00	922.55	0.08	0.40	0.00	179.65	106.00
6528.000	190.00	922.62	0.07	0.32	0.00	181.59	106.00
6528.000	290.00	922.93	0.31	0.19	0.00	189.42	106.00
6634.000	110.00	923.22	0.00	0.74	0.00	178.71	106.00

	6634.000	180.00	923.35	0.13	3.80	0.00	182.14	106.00
	6634.000	190.00	923.41	0.06	0.78	0.00	183.39	106.00
	6634 000	290.00	923.55	0.14	0.61	0.00	187 16	106.00
	6740.000	110.00	923 82	0.00	0.61	0.00	144.10	106.00
	6740.000	160.00	923.96	0.14	0.61	0.00	152 71	106.00
	6740.000	190.00	924.04	0.08	0.63	0.00	158.17	106.00
	6740.000	290.00	924.24	0 20	0.70	0.00	173.02	106.00
	6846.000	110.00	924.47	0 00	0.65	0.00	140.51	106.00
	6846.000	160.00	924.63	0.15	0.67	0.00	151.23	106.00
	6846.000	190.00	924.71	0.08	0.67	0.00	156.44	106.00
	6846.000	290.00	924.92	0.21	0.68	0.00	171.17	106.00
	6952.000	110.00	925 20	0.00	0.72	0.00	141.94	106.00
	6952.000	160 00	925.33	0.13	0.70	0.00	151.43	106 00
	6952.000	190.00	925 41	0.08	0 70	0.00	156.66	106.00
	6952.000	290 00	925.62	0.21	0.70	0.00	171.81	106.00
*	7060.000	110.00	928.35	0.00	3.15	0.00	146.25	108.00
*	7060.000	170.00	928.50	0.16	3.17	0.00	169.80	108.00
*	7060.000	195.00	928.45	-0.06	3.04	0.00	161.48	108.00
*	7060.000	260.00	928.55	0 10	2.93	0.00	176.60	108.00
	7100.000	110 00	928.37	0.00	0.02	0.00	148 84	40.00
	7100.000	170.00	928.52	0.15	0.01	0.00	173.02	40.00
	7100.000	195.00	928.48	-0.04	0.03	0.00	165.55	40 00
	7100.000	260.00	928.58	0.10	0.03	0.00	181.42	40.00

1

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 201.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 201.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 201 000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 201.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 201.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 201.000 PROFILE= 3 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 201.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 201.000 PROFILE= 4 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 7060.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7060.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 7060.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 7060.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7060.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 7060.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 7060.000 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7060.000 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 7060 000 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 7060.000 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7060.000 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 7060 000 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

1

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: MUNRO CREEK - TRIB B

4) DOCUMENT TYPE: 100YR BOUNDARY

00BREAK00

```
*****************************************************************
*  WATER SURFACE PROFILES                                       *
*  VERSION OF NOVEMBER 1976                                     *
*  UPDATED MAY 1984                                             *
*                                                               *
*  RUN DATE  14 JAN 88 TIME   10.27:29                          *
*****************************************************************
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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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"Trib B"

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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
```

1

14 JAN 88 10 27:30 PAGE 1

THIS RUN EXECUTED 14 JAN 88 10:27:30

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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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C
T1 CITY OF NOVI JOB NO. 555-46-1 STREAM 06
T2 100 YEAR FLOOD
T3 MUNRO CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        4.        0         0   0.000000      0.00      0.0       0.    887.730    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

    110.000   150 000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000


NC      0 100      0.100      0.050      0.300      0.500      0.000      0.000      0.000      0.000      0.000
QT      5 000    110.000    160.000    190.000    290 000    190.000      0.000      0.000      0.000      0.000
ET      0 000      0 000      0.000      0.000      0 000      1.400      0.000      0.000      0.000      0.000
X1      0 000      7.000    100.000    200.000      0.000      0.000      0 000      0.000     -4.900      0 000
GR    895.700      0.000    888.100    100.000    886.600    150.000    892.800    200 000    895.500    300 000
GR    897.500    400.000    897.800    500.000      0.000      0.000      0.000      0.000      0.000      0.000

X1     50 000      0.000      0 000      0 000     50 000     50.000     50.000      0 000      1.070      0.000

X1    100.000      0.000      0.000      0.000     50 000     50.000     50.000      0.000      1.080      0.000
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X1	-50.000	0.000	0.000	0.000	50.000	50.000	50.000	0.000	1.970	0.000
NC	0.020	0.020	0.024	0.500	1.000	0.000	0.000	0.000	0.000	0.000
	NOVI ROAD									
X1	201.000	13.000	148.000	152.000	51.000	51.000	51.000	0.000	0.000	0.000
GR	895.700	0.000	888.100	100.000	888.700	148.000	887.300	148.000	886.200	149.000
GR	886.000	150.000	886.200	151.000	887.300	152.000	888.700	152.000	892.800	200.000
GR	895.250	300.000	896.970	400.000	898.680	500.000	0.000	0.000	0.000	0.000
SB	0.000	3.270	2.800	0.000	4.000	0.000	12.600	0.000	0.000	0.000
X1	280.000	0.000	0.000	0.000	82.000	82.000	82.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	890.000	892.640	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	148.000	892.640	152.000	892.640	0.000	0.000	0.000
BT	14.000	0.000	895.700	895.700	100.000	893.060	888.100	148.000	893.370	888.700
BT	149.000	893.370	889.800	150.000	893.380	890.000	151.000	893.390	889.800	152.000
BT	893.390	888.700	200.000	893.700	892.800	300.000	895.250	895.250	400.000	896.970
BT	896.970	500.000	898.680	898.680	0.000	0.000	0.000	0.000	0.000	0.000

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14 JAN 88 10:27.30 PAGE 2

NC	0.100	0.100	0.050	0.300	0.500	0.000	0.000	0.000	0.000	0.000
X1	834.000	10.000	400.000	412.000	675.000	350.000	550.000	0.000	0.000	0.000
GR	900.700	0.000	899.200	100.000	899.000	200.000	892.800	300.000	890.900	400.000
GR	890.600	406.000	891.000	412.000	894.600	500.000	899.800	600.000	901.600	700.000
X1	1194.000	14.000	300.000	312.000	262.000	425.000	350.000	0.000	-1.750	0.000
GR	903.700	0.000	903.000	100.000	900.900	185.000	897.700	200.000	894.200	230.000
GR	894.300	300.000	894.100	304.000	894.200	308.000	894.300	312.000	894.800	390.000
GR	896.300	400.000	900.100	500.000	902.100	600.000	906.100	700.000	0.000	0.000
X1	1534.000	0.000	0.000	0.000	263.000	425.000	350.000	0.000	1.750	0.000
X1	2059.000	13.000	400.000	500.000	471.000	507.000	525.000	0.000	-1.630	0.000
GR	910.200	0.000	909.000	100.000	908.600	200.000	907.500	300.000	905.500	400.000
GR	901.700	413.000	900.900	436.000	900.300	444.000	900.200	452.000	900.600	460.000
GR	903.100	500.000	906.100	600.000	911.500	700.000	0.000	0.000	0.000	0.000
X1	2259.000	0.000	0.000	0.000	179.000	193.000	200.000	0.000	1.630	0.000
NC	0.030	0.100	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2646.000	11.000	300.000	325.000	375.000	325.000	387.000	0.000	-3.050	0.000
GR	917.300	0.000	915.100	90.000	914.800	200.000	909.600	300.000	906.400	308.000
GR	906.300	312.000	907.700	325.000	908.000	400.000	910.600	500.000	913.100	400.000
GR	916.400	700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3034.000	0.000	0.000	0.000	375.000	325.000	388.000	0.000	3.050	0.000
NC	0.070	0.100	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3784.000	16.000	550.000	560.000	750.000	700.000	750.000	0.000	0.000	0.000
GR	929.800	0.000	923.800	100.000	923.800	200.000	919.700	300.000	916.600	400.000
GR	914.900	500.000	914.500	503.000	914.800	506.000	915.200	550.000	914.400	552.000
GR	914.500	555.000	915.000	560.000	917.500	600.000	922.100	700.000	922.800	800.000
GR	926.000	900.000	1300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	4859.000	9.000	200.000	240.000	1175.000	1150.000	1075.000	0.000	0.000	0.000
GR	928.900	0.000	925.700	100.000	920.500	200.000	919.600	212.000	919.700	230.000
GR	920.800	240.000	920.700	300.000	926.200	400.000	932.800	475.000	0.000	0.000
X1	5196.000	0.000	0.000	0.000	350.000	256.000	337.000	0.000	0.020	0.000
NC	0.100	0.060	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5534.000	25.000	900.000	1300.000	350.000	256.000	338.000	0.000	-0.050	0.000
X3	0.000	0.000	0.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	941.400	0.000	935.500	100.000	934.100	200.000	930.600	300.000	924.800	400.000

GR	9[illegible]	[illegible]57.000	923.300	500.000	925.200	800.000	[illegible]31.500	700.000	936.400	800.000
GR	929.900	900.000	924.300	950.000	922.300	967.000	919.700	994.000	919.800	1040.000
GR	920.200	1085.000	919.900	1120.000	920.200	1162.000	922.300	1194.000	922.900	1200.000
GR	933.800	1300.000	933.300	1400.000	933.000	1447.000	929.200	1500.000	931.600	1565.000

14 JAN 88 10:27:30 PAGE 3

X1	6209.000	0.000	0.000	0.000	700.000	513.000	675.000	0.000	0.050	0.000
X3	0.000	0.000	0.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6316.000	0.000	0.000	0.000	91.000	116.000	107.000	0.000	0.700	0.000
X3	0.000	0.000	0.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6422.000	0.000	0.000	0.000	90.000	115.000	106.000	0.000	0.700	0.000
X1	6528.000	0.000	0.000	0.000	91.000	116.000	106.000	0.000	0.700	0.000
X3	0.000	0.000	0.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6634.000	0.000	0.000	0.000	90.000	115.000	106.000	0.000	0.700	0.000
X3	0.000	0.000	0.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6740.000	0.000	0.000	300.000	91.000	116.000	106.000	0.000	-2.300	0.000
GR	932.400	0.000	925.500	100.000	925.500	200.000	927.300	300.000	930.800	400.000
GR	936.200	500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6846.000	0.000	0.000	0.000	90.000	115.000	106.000	0.000	0.700	0.000
X1	6952.000	0.000	0.000	0.000	91.000	116.000	106.000	0.000	0.700	0.000
NC	0.030	0.030	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	5.000	110.000	170.000	195.000	260.000	195.000	0.000	0.000	0.000	0.000
		TAFT ROAD								
X1	7060.000	20.000	1199.500	1200.500	92.000	117.000	108.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	937.500	0.000	933.800	100.000	930.800	200.000	928.800	300.000	927.800	400.000
GR	927.500	600.000	929.100	700.000	931.500	800.000	931.000	900.000	929.800	1000.000
GR	928.100	1100.000	928.000	1199.500	925.500	1199.500	925.300	1200.000	925.500	1200.500
GR	928.000	1200.500	929.100	1300.000	931.600	1400.000	934.900	1500.000	937.700	1600.000
SB	0.000	6.140	2.700	0.000	1.000	0.000	0.780	0.000	0.000	0.000
X1	7100.000	0.000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	926.300	927.500	0.000	0.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	800.000	0.000	0.000	0.000	0.000	0.000	0.000
BT	18.000	0.000	937.500	0.000	100.000	933.800	0.000	200.000	930.800	0.000
BT	300.000	928.800	0.000	400.000	927.800	0.000	600.000	927.500	0.000	700.000
BT	929.100	0.000	900.000	931.500	0.000	900.000	931.000	0.000	1000.000	929.800
BT	0.000	1100.000	928.100	0.000	1199.500	928.000	926.100	1200.000	928.000	926.300
BT	1200.500	928.000	926.100	1300.000	929.100	0.000	1400.000	931.600	0.000	1500.000
BT	934.900	0.000	1600.000	937.700	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

14 JAN 88 10:27:30 PAGE 4

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	DLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
*SECNO 0.000

0.00	0.03	887.73	0.00	887.73	887.73	0.00	0.00	0.00	883.20
190.	19.	171.	0.	135.	411.	0.	0.	0.	887.90
0.00	0.14	0.42	0.00	0.100	0.050	0.000	0.000	881.70	40.39
0.000030	0.	0.	0.	0	0	0	0.00	158.23	198.63

0

*SECNO 50.000

50.00	4.96	887.73	0.00	0.00	887.74	0.00	0.00	0.00	884.27
190.	14.	176.	0.	75.	310.	0.	1.	0.	888.97
0.03	0.18	0.57	0.00	0.100	0.050	0.000	0.000	882.77	54.45
0.000071	50.	50.	50.	0	0	0	0.00	135.56	190.01

0

*SECNO 100.000

100.00	3.88	887.73	0.00	0.00	887.74	0.01	0.01	0.00	885.35
190.	9.	131.	0.	37.	217.	0.	1.	0.	890.05
0.04	0.24	0.83	0.00	0.100	0.050	0.000	0.000	883.85	68.64
0.000212	50.	50.	50	0	0	0	0.00	112.68	181.32

0

*SECNO 150.000

150.00	2.82	887.74	0.00	0.00	887.77	0.03	0.02	0.01	886.42
190	4	186.	0	11.	136.	0.	1.	0.	891.12
0.05	0.34	1.37	0.00	0.100	0.050	0.000	0.000	884.92	82.62
0.000932	50	50.	50.	0	0	0	0.00	90.13	172.75

0

CCHV= 0.500 CEHV= 1.000

*SECNO 201.000

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

NOVI ROAD

201.00	3.00	889.00	889.00	0.00	889.31	0.31	0.10	0.28	888.70
190.	131.	58	1.	34.	10.	1.	1.	1.	888.70
0.06	3.87	5.61	1.57	0.020	0.024	0.020	0.000	886.00	88.19
0.005693	51.	51.	51.	2	9	0	0.00	67.29	155.48

0

1

14 JAN 88 10.27:30 PAGE 5

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

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	3.27	2.80	0.00	4.00	0.00	12 60	0.00	886 00	886.00

*SECNO 283 000

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
900 54	894 29	0.00	69.	121.	13.	16.	890.00	892.64

3470 ENCROACHMENT STATIONS= 148.0 152.0 TYPE= 1 TARGET= 4.000

ELENCL= 892.64 ELENCR= 892 64

283.00	7.68	893.68	0.00	0.00	893.70	0.02	4.40	0 00	888.70
190.	72.	45.	67	68.	29.	62.	1.	1.	892.64
0.08	1.15	1 56	1.08	0.020	0.024	0.020	0.000	886.00	66.04
0.000280	32.	32.	32.	2	0	8	0.00	169.86	235.89

als stage may be 2-.3ft high

```
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 834.000
   834.00      3.29    893.89      0.00      0.00    893.90      0.01      0.19      0.00    890.90
      190.       102.       45.       40.      213.       37.      102.       5.        3.     891.00
      0.30      0.48      1.30      0.39      0.400     0.050     0.100     0.000   890.60    282.47
  0.000422      675.      550.      350.         3         0         0      0.00    200.09    482.57
0
 *SECNO 1184.000
  1184.00      1.76    894.11      0.00      0.00    894.12      0.01      0.23      0.00    892.55
      190.       91.       31.       69.      125.       20.      106.       7.        4.     892.55
      0.41      0.73      1.54      0.63      0.100     0.050     0.100     0.000   892.35    215.75
  0.001361      262.      350.      425.         2         0         0      0.00    181.33    397.08
0
 *SECNO 1534.000
  1534.00      1.02    895.42    894.82      0.00    895.18      0.06      1.03      0.02    894.30
      190.       100.       26.       54.       65.       11.       45.       8.        6.     894.30
      0.47      1.54      3.26      1.18      0.100     0.050     0.100     0.000   894.10    222.06
  0.013345      263.      350.      425.        11        18         0      0.00    170.11    392.17
0
1
  14 JAN 88     10:27.30                                                                    PAGE     6

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 2059.000
  2059.00      1.80    900.37    899.91      0.00    900.48      0.11      5.28      0.03    903.87
      190.         0.      150.         0.        0.       70.         0.        9         7.     901.47
      0.52      0.00      2.70      0.00      0.000     0.050     0.000     0.000   898.57    411.95
  0.008306      471.      525.      507.        14        11         0      0.00     70.54    482.50
0
 *SECNO 2259.000
  2259.00      1.81    902.01      0.00      0.00    902.13      0.11      1.64      0.00    905.50
      190.         0.      190.         0.        0.       71.         0.       10         8.     903.10
      0.54      0.00      2.68      0.00      0.000     0.050     0.000     0.000   900.20    411.92
  0.008104      179.      200.      193.         4         0         0      0.00     70.70    482.63
0
 *SECNO 2646.000
  2646.00      2.19    905.44      0.00      0.00    905.61      0.17      3.46      0.03    906.55
      190.         0      132.       58.        0.       34.       53.       10.       8.     904.65
      0.57      0.00      3.94      1.09      0.000     0.050     0.100     0.000   903.25    302.76
  0.010429      375.      367.      325.         4         0         0      0.00    116.37    419.12
0
 *SECNO 3034.000
  3034.00      2.33    908.63      0.00      0.00    908.75      0.12      3.12      0.02    909.60
      190.         0.      124.       66.        0.       37.       66.       11.       9.     907.70
      0.61      0.00      3.39      1.00      0.000     0.050     0.100     0.000   906.30    302.43
  0.007059      375.      388.      325.         4         0         0      0.00    121.78    424.21
0
 *SECNO 3784.000
  3784.00      1.43    915.83      0.00      0.00    915.93      0.10      7.18      0.01    915.20
      190.       140.       45.        5.       69.       12.        6.       13.       11.     915.00
      0.70      2.02      3.86      0.98      0.070     0.050     0.100     0.000   914.40    445.16
  0.014122      750.      750.      700.         4         0         0      0.00    128.15    573.32
0
 *SECNO 4859.000
  4859.00      1.99    921.59      0.00      0.00    921.65      0.06      5.70      0.01    920.50
      190.         8      174.       38.       12.       67.       58.       16.       15.     920.80
      0.87      0.73      2.14      0.65      0.070     0.050     0.100     0.000   919.60    178.82
  0.002590     1175.     1075.     1150.         5         0         0      0.00    137.56    316.38
0
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 5196.000

5196.00	2.47	922.09	0.00	0.00	922.12	0.02	0.46	0.01	920.52
190.	13.	123	49.	24.	86.	96.	17.	16.	920.82
0.95	0.54	1.49	0.51	0.070	0.050	0.100	0.000	919.62	169.76
0.000907	350.	337.	256.	4	0	0	0.00	155.20	324.96

0

*SECNO 5534.000

3470 ENCROACHMENT STATIONS= 800.0 1565.0 TYPE= 1 TARGET= -800.000

5534.00	2.53	922.18	0.00	0.00	922.19	0.00	0.06	0.01	929.85
190.	0.	190.	0.	0.	447.	0.	19.	17.	933.75
1.16	0.00	0.43	0.00	0.000	0.050	0.000	0.000	919.65	967.74
0.000082	350	338.	256.	2	0	0	0.00	225.18	1192.92

0

*SECNO 6209.000

3470 ENCROACHMENT STATIONS= 800.0 1565.0 TYPE= 1 TARGET= -800.000

6209.00	2.54	922.24	0.00	0.00	922.24	0.00	0.06	0.00	929.90
190	0.	190.	0.	0.	449.	0.	26	21.	933.80
1.61	0.00	0.42	0.00	0.000	0.050	0.000	0.000	919.70	967.65
0.000081	700.	675.	513.	2	0	0	0.00	225.40	1193.05

0

*SECNO 6316.000

3470 ENCROACHMENT STATIONS= 800.0 1565.0 TYPE= 1 TARGET= -800.000

6316.00	1.85	922.25	0.00	0.00	922.26	0.01	0.01	0.00	930.60
190	0.	190	0.	0.	299.	0.	27.	21.	934.50
1.65	0.00	0.64	0.00	0.000	0.050	0.000	0.000	920.40	974.83
0.000282	91	107.	116.	0	0	0	0.00	207.69	1182.52

0

*SECNO 6422.000

6422.00	1.20	922.30	0.00	0.00	922.32	0.02	0.06	0.01	931.30
190	0.	190.	0.	0.	171.	0.	28.	22.	935.20
1.68	0.00	1.11	0.00	0.000	0.050	0.000	0.000	921.10	981.50
0.001629	90.	106.	115.	2	0	0	0.00	191.23	1172.73

0

*SECNO 6528.000

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 800.0 1565.0 TYPE= 1 TARGET= -800.000

6528.00	0.82	922.62	0.00	0.00	922.68	0.06	0.34	0.02	932.00
190.	0	190.	0	0.	101.	0.	28.	22.	935.90
1.70	0.00	1.39	0.00	0.000	0.050	0.000	0.000	921.80	985.40
0.008852	91.	106.	116.	2	0	0	0.00	181.59	1166.99

0

*SECNO 6634.000

3470 ENCROACHMENT STATIONS= 800.0 1600.0 TYPE= 1 TARGET= -800.000

5634.00	0.91	923.41	0.00	0.00	923.45	0.04	0.77	0.00	932.70
190.	0.	190.	0.	0.	114.	0.	28.	23.	936.60
1.71	0.00	1.67	0.00	0.000	0.050	0.000	0.000	922.50	984.67
0.006015	90.	106.	115.	3	0	0	0.00	183.39	1168.07

0

*SECNO 6740.000

6740.00	0.84	924.04	0.00	0.00	924.09	0.05	0.64	0.00	930.10
190.	0	190.	0	0.	107.	0.	29.	23.	925.00
1.73	0.00	1.77	0.00	0.000	0.050	0.000	0.000	923.20	87.96
0.005976	91	105	116.	1	0	0	0.00	158.17	246.14

0

*SECNO 6846.000

6846.00	0.81	924.71	0.00	0.00	924.76	0.05	0.67	0.00	930.80
190.	0	190.	0	0.	103.	0.	29	23.	925.70
1.75	0.00	1.84	0.00	0.000	0.050	0.000	0.000	923.90	88.32
0.006661	90.	106.	115	2	0	0	0.00	156.44	244.76

0

*SECNO 6952.000

6952.00	0.81	925.41	0.00	0.00	925.46	0.05	0.70	0.00	931.50
190.	0.	190.	0.	0.	104.	0.	29.	24.	926.40
1.76	0.00	1.83	0.00	0.000	0.050	0.000	0.000	924.60	88.28
0.006570	91	106.	116	2	0	0	0.00	156.66	244.93

0

*SECNO 7060.000

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 800.0 1600.0 TYPE= 1 TARGET= -800.000

TAFT ROAD

7060.00	3.15	928.45	928.45	0.00	928.66	0.21	1.08	0.08	928.00
195.	155	17	23.	43.	3	9.	29.	24.	928.00
1.77	3.60	5.49	2.54	0.030	0.024	0.030	0.000	925.30	1079.53
0.019380	92.	108	117	20	24	0	0.00	161.48	1241.02

0

SPECIAL BRIDGE

3070 VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	6.14	2.70	0.00	1.00	0.00	0.78	0.00	925.30	925.30

*SECNO 7100.000

6870 D.S. ENERGY OF 928.66 HIGHER THAN COMPUTED ENERGY OF 928.48

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
6887.30	928.66	0.00	195.	0.	1.	1.	926.30	927.50

3470 ENCROACHMENT STATIONS= 800.0 1600.0 TYPE= 1 TARGET= -800.000

7100.00	3.18	928.43	0.00	0.00	928.66	0.18	0.00	0.00	928.00

175.	156	15	24	46.	3.	10	29.	24.	928.00
1.77	3.35	4.39	2.36	0.030	0.024	0.030	0.000	925.30	1077.93
0.015488	40.	40	40.	0	0	0	0.00	165.55	1243.48

0
1


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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 CITY OF NOVI JOB NO  5555-46-1 STREAM 06
T2 100 YEAR FLOOD - ENCROACHED
T3 MUNRO CREEK
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	6.	0.	0.	0.000000	0.00	0.0	0.	887.830	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

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
 *SECNO 0.000
  2800 NAT Q1=     349.53  WSEL=     887.73  ENC Q1=     349.53  WSEL=     887.83  RATIO=   0.0000
  NAT Q1=     363   RATIOS LOB,CH,ROB=  0.1010  0.8990  0.0000  WSEL=     887.83

 3470 ENCROACHMENT STATIONS=       82.5      200.0  TYPE=      4  TARGET=        0.036
      0.00      6.13    887.83      0.00    887.73    887.83      0.00      0.00      0.00    883.20
      190.       12.       178.       0.       69.      421.         0         0         0.    887.90
      0.00      0.18      0.42      0.00     0.100     0.050     0.000     0.000    881.70     82.53
  0.000030         0         0.        0         0         0         0      0.00    116.90    199.44
0
 *SECNO 50.000
  2800 NAT Q1=     226.28  WSEL=     887.73  ENC Q1=     226.28  WSEL=     887.83  RATIO=   0.0000
  NAT Q1=     237   RATIOS LOB,CH,ROB=  0.0768  0.9232  0.0000  WSEL=     887.83

 3470 ENCROACHMENT STATIONS=       91.6      200.0  TYPE=      4  TARGET=        0.043
      50.00      5.06    887.83      0.00    887.73    887.84      0.01      0.00      0.00    884.27
      190.       6.        184.       0.       27.      319.         0.        0.        0.    888.97
      0.02      0.22      0.58      0.00     0.100     0.050     0.000     0.000    882.77     91.61
  0.000071       50.       50.       50.         0         0         0      0.00     99.21    190.83
0
 *SECNO 100.000
  2800 NAT Q1=     130.52  WSEL=     887.73  ENC Q1=     131.32  WSEL=     887.83  RATIO=  -0.0062
  NAT Q1=     138   RATIOS LOB,CH,ROB=  0.0503  0.9497  0.0000  WSEL=     887.83
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 3470 ENCROACHMENT STATIONS=      100 0      200.0  TYPE=      4  TARGET=        0.050
    100.00      2.98    887.83      0.00    887.73    887.84      0.01      0.01      0.00    885.35
      190         0       190         0         0.       226.        0.        1.        0      890 05
      0.04      0.00      0.84      0.00     0 000     0.050     0.000     0.000    883.85    100.00
  0.000217        50        50        50.         0         0         0      0.00     82.16    182 16
0
 *SECNO 150.000
  2800 NAT Q1=      62.25  WSEL=     887 74  ENC Q1=      66.21  WSEL=     887.84  RATIO= -0.0636
  NAT Q1=      68.  RATIOS LOB,CH,ROB=  0.0233  0.9767  0.0000  WSEL=     887.84

 3470 ENCROACHMENT STATIONS=      100.0      200.0  TYPE=      4  TARGET=        0.023
    150.00      2.92    887 84      0.00    887.74    887.87      0.03      0.02      0.01    886.42
      190.        0.      190.        0.        0.       144.        0.        1.        0.     891.12
      0.05      0.00      1.32      0.00     0 000     0.050     0.000     0.000    884.92    100.00
  0.000835       50.        50        50.         1         0         0      0.00     73.64    173.64
0
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  14 JAN 88     10 27:30                                                                          PAGE    12


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=    1.000
 *SECNO 201 000
  2800 NAT Q1=      25 18  WSEL=     889 00  ENC Q1=      25.18  WSEL=     889.10  RATIO=  0.0000
  NAT Q1=      31.  RATIOS LOB,CH,ROB=  0.7294  0.2631  0.0075  WSEL=     889.10
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      103.5      152.0  TYPE=      4  TARGET=        0.188
            NOVI ROAD
    201 00      3.08    889.08    839.08    889.00    389.45      0.37      0.09      0.35    888.70
      190.      128.       62.        0.        29        11        0.        1.        0.     888.70
      0 05      4 38      5.83      0.00     0 020     0.024     0.000     0.000    886.00    103.48
  0.006271       51.       51.       51.         2         9         0      0.00     48.52    152.00
0

 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       3.27       2.80       0.00       4 00       0.00       12.60      0.00      886.00     886.00

 *SECNO 283.000
 PRESSURE AND WEIR FLOW


  EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                         AREA
     900.62     895.93      0 00        70        120.        13.        16.       890.00     892.64


 3470 ENCROACHMENT STATIONS=      148.0      152.0  TYPE=      1  TARGET=        4.000
  ELENCL=     892 64  ELENCR=     892.64
    283 00      7.68    893 68      0 00    893.68    893.71      0.02      4.26      0.00    888 70
      190.       78.       45.       67.       68.       29.       62.        1.        1.     892 64
      0.07      1 15      1 55      1.08     0.020     0.024     0.020     0 000    886.00     65.91
  0.000276       82.       82        82.         2         0         8      0.00    170.14    236.05
0
 CCHV=    0 300 CEHV=    0.500
```

*SECNO 834.000
2800 NAT Q1= 92.52 WSEL= 893.39 ENC Q1= 92.52 WSEL= 893.99 RATIO= 0.0000
NAT Q1= 100. RATIOS LOB,CH,ROB= 0.5390 0.2493 0.2117 WSEL= 893.99
1
14 JAN 88 10:27:30 PAGE 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

3470 ENCROACHMENT STATIONS= 311.5 440.5 TYPE= 4 TARGET= 0.074

834.00	3.30	893.90	0.00	893.89	893.91	0.01	0.20	0.00	890.90
190.	102.	52.	36.	191.	37	66.	4.	2.	891.00
0.27	0.54	1.38	0.55	0.100	0.050	0.100	0.000	890.60	311.55
0.000476	675.	550.	350.	2	0	0	0.00	128.96	440.51

0
*SECNO 1184.000
2800 NAT Q1= 51.51 WSEL= 894.11 ENC Q1= 51.51 WSEL= 894.21 RATIO= 0.0000
NAT Q1= 58. RATIOS LOB,CH,ROB= 0.4745 0.1593 0.3662 WSEL= 894.21

3470 ENCROACHMENT STATIONS= 232.0 378.3 TYPE= 4 TARGET= 0.105

1184.00	1.80	894.15	0.00	894.11	894.17	0.02	0.26	0.00	892.55
190.	90.	34.	66.	113.	20.	93.	6.	3.	892.55
0.37	0.80	1.66	0.72	0.100	0.050	0.100	0.000	892.35	232.04
0.001522	262.	350.	425.	1	0	0	0.00	146.27	378.31

0
*SECNO 1534.000
2800 NAT Q1= 16.45 WSEL= 895.12 ENC Q1= 16.45 WSEL= 895.22 RATIO= 0.0000
NAT Q1= 20. RATIOS LOB,CH,ROB= 0.5159 0.1843 0.2998 WSEL= 895.22

3470 ENCROACHMENT STATIONS= 238.5 354.6 TYPE= 4 TARGET= 0.181

1534.00	1.13	895.23	0.00	895.12	895.30	0.07	1.11	0.03	894.30
190.	99	43.	49.	60.	12	34	7.	5.	894.30
0.42	1.64	3.44	1.43	0.100	0.050	0.100	0.000	894.10	238.49
0.012874	263.	350.	425.	3	0	0	0.00	116.11	354.60

0
*SECNO 2059.000
2800 NAT Q1= 20.85 WSEL= 900.37 ENC Q1= 23.90 WSEL= 900.47 RATIO= -0.1463
NAT Q1= 24 RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 900.47

3470 ENCROACHMENT STATIONS= 400.0 500.0 TYPE= 4 TARGET= 0.000

2059.00	1.81	900.38	0.00	900.37	900.49	0.11	5.17	0.02	903.87
190.	0	190	0.	0.	71.	0.	8.	6.	901.47
0.47	0.00	2.69	0.00	0.000	0.050	0.000	0.000	898.57	411.94
0.008217	471.	525.	507	5	0	0	0.00	70.61	482.55

0
*SECNO 2259.000
1
14 JAN 88 10:27:30 PAGE 14

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

2800 NAT Q1= 21.11 WSEL= 902.01 ENC Q1= 24.34 WSEL= 902.11 RATIO= -0.1531
NAT Q1= 24 RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 902.11

3470 ENCROACHMENT STATIONS= 400.0 500.0 TYPE= 4 TARGET= 0.000

2259.00	1.81	902.01	0.00	902.01	902.12	0.11	1.63	0.00	905.50

```
     190.        0       190.        0.        0.       71.        0.        9.        6.     903.10
     0.49      0 00      2.63      0 00     0 000     0.050     0.000     0.000    900.20    411.93
  0.008117     179.      200.      193.         4         0         0      0.00     70.69    482.62
0
 *SECNO 2646 000
  2800 NAT Q1=      18 61  WSEL=     905.44  ENC Q1=      18 61  WSEL=     905.54  RATIO=  0.0000
  NAT Q1=      21   RATIOS LOB,CH,ROB=  0.0000  0.6634  0.3366  WSEL=     905.54

 3470 ENCROACHMENT STATIONS=      300.0      368.1  TYPE=      4  TARGET=        0.131
   2646.00      2 27    905.52      0.00    905.44    905.73      0.21      3.56      0.05    906.55
     190.        0       146        44.        0.       35.       34.        9.        6.     904.65
     0.52      0 00      4.14      1.31     0.000     0.050     0.100     0.000    903.25    302.57
  0.010929     375.      387.      325.         4         0         0      0.00     65.54    368.11
0
 *SECNO 3034.000
  2800 NAT Q1=      22 61  WSEL=     908.63  ENC Q1=      22.61  WSEL=     908.73  RATIO=  0.0000
  NAT Q1=      26.  RATIOS LOB,CH,ROB=  0.0000  0.6232  0 3768  WSEL=     908.73

 3470 ENCROACHMENT STATIONS=      300.0      374 4  TYPE=      4  TARGET=        0.129
   3034 00      2.45    908.75      0.00    908.63    908.89      0.14      3.13      0.02    909.60
     190         0.      135.        55.        0.       39.       47.       10         7.     907.70
     0.56      0.00      2.44      1.16     0.000     0.050     0 100     0.000    906 30    302.12
  0.006699     375.      388       325.         4         0         0      0.00     72.31    374.43
0
 *SECNO 3784.000
  2800 NAT Q1=      15.99  WSEL=     915.83  ENC Q1=      15.99  WSEL=     915.93  RATIO=  0.0000
  NAT Q1=      19.  RATIOS LOB,CH,ROB=  0.7448  0.2232  0.0320  WSEL=     915 93

 3470 ENCROACHMENT STATIONS=      492.0      560.0  TYPE=      4  TARGET=        0.176
   3784 00      1 52    915.92    915.60    915.83    916.05      0.14      7 17      0.00    915.20
     190.       141.       49.        0.        56       13.        0.       11.        8.     915.00
     0.63      2.53      3.95      0.00     0.070     0.050     0.000     0.000    914.40    492.01
  0.015090     750.      750.      700         16        11         0      0.00     67.99    560.00
0
1
  14 JAN 88     10:27:30                                                                    PAGE    15


    SECNO     DEPTH     CUSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 4859.000
  2800 NAT Q1=      37.33  WSEL=     921.59  ENC Q1=      37.33  WSEL=     921.69  RATIO=  0.0000
  NAT Q1=      42   RATIOS LOB,CH,ROB=  0 0492  0.7373  0.2135  WSEL=     921.69

 3470 ENCROACHMENT STATIONS=      200.0      289.5  TYPE=      4  TARGET=        0.108
   4859.00      2 12    921 72      0.00    921.59    921.78      0.06      5.70      0.02    920.50
     190.        0.      156.        34         0.       72.       48.       14        10.     920.80
     0.79      0.00      2.17      0.72     0.000     0.050     0.100     0.000    919.60    200.00
  0.002531     1175      1075      1150.         6         0         0      0.00     89.51    289.51
0
 *SECNO 5196 000
  2800 NAT Q1=      63.08  WSEL=     922 09  ENC Q1=      63.08  WSEL=     922.19  RATIO=  0.0000
  NAT Q1=      69.  RATIOS LOB,CH,ROB=  0.0728  0.6619  0.2652  WSEL=     922.19

 3470 ENCROACHMENT STATIONS=      195.1      298.3  TYPE=      4  TARGET=        0.090
   5196 00      2 59    922 21      0.00    922.09    922.23      0.03      0.45      0.01    920.52
     190.        5.      138.        46.         8        91.       84.       15        11.     920.82
     0 86      0.72      1 52      0.55     0.070     0.050     0.100     0.000    919.62    195.14
  0.000886     350       337       256          2         0         0      0.00    103.16    298.30
0
 *SECNO 5534 000
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 3470 ENCROACHMENT STATIONS=      800.0     1565.0  TYPE=      1  TARGET=     -800.000
   5534.00      2.65    922.30      0.00    922.18    922.30      0.00      0.06      0.01    929.85
      190.        0.      190         0         0.      472.        0.       17.       12.     933.75
      1.09      0.00      0.40      0.00     0.000     0.050     0.000     0.000    919.65    966.64
  0.000069      350.      338       256         2         0         0      0.00    227.78   1194.42
0
 *SECNO 6209.000

 3470 ENCROACHMENT STATIONS=      800.0     1565.0  TYPE=      1  TARGET=     -800.000
   6209.00      2.64    922.34      0.00    922.24    922.34      0.00      0.05      0.00    929.90
      190.        0      190.        0         0.      472.        0.       25.       16.     933.80
      1.56      0.00      0.40      0.00     0.000     0.050     0.000     0.000    919.70    966.64
  0.000069      700.      675.      513.         2         0         0      0.00    227.77   1194.42
0
 *SECNO 6316.000

 3470 ENCROACHMENT STATIONS=      800.0     1565.0  TYPE=      1  TARGET=     -800.000
1
  14 JAN 88     10:27:30                                                                          PAGE    16

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

   6316.00      1.95    922.35      0.00    922.25    922.36      0.01      0.01      0.00    930.60
      190.        0.      190.        0.        0.      320.        0.       26.       16.     934.50
      1.61      0.00      0.59      0.00     0.000     0.050     0.000     0.000    920.40    973.76
  0.000227       91.      107.      116.         0         0         0      0.00    210.33   1184.09
0
 *SECNO 6422.000
  2800 NAT Q1=      47.07  WSEL=     922.30  ENC Q1=      55.75  WSEL=     922.40  RATIO= -0.1842
  NAT Q1=      56.   RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     922.40

 3470 ENCROACHMENT STATIONS=      900.0     1300.0  TYPE=      4  TARGET=        0.000
   6422.00      1.29    922.39      0.00    922.30    922.41      0.02      0.05      0.01    931.30
      190         0.      190.        0.         0      188.        0.       26.       17.     935.20
      1.64      0.00      1.01      0.00     0.000     0.050     0.000     0.000    921.10    980.56
  0.001197       90.      106.      115.         2         0         0      0.00    193.55   1174.11
0
 *SECNO 6528.000

 3470 ENCROACHMENT STATIONS=      800.0     1565.0  TYPE=      1  TARGET=     -800.000
   6528.00      0.84    922.64      0.00    922.62    922.69      0.05      0.26      0.02    932.00
      190.        0      190.        0.        0.      104.        0.       27.       17.     935.90
      1.65      0.00      1.83      0.00     0.000     0.050     0.000     0.000    921.80    985.24
  0.008081       91.      106.      116.         2         0         0      0.00    182.00   1167.24
0
 *SECNO 6634.000

 3470 ENCROACHMENT STATIONS=      800.0     1565.0  TYPE=      1  TARGET=     -800.000
   6634.00      0.90    923.40      0.00    923.41    923.44      0.04      0.74      0.00    932.70
      190         0.      190.        0         0.      113         0.       27.       18      936.60
      1.67      0.00      1.68      0.00     0.000     0.050     0.000     0.000    922.50    984.72
  0.006144       90.      106       115.         3         0         0      0.00    183.29   1168.00
0
 *SECNO 6740.000
  2800 NAT Q1=      24.58  WSEL=     924.04  ENC Q1=      30.66  WSEL=     924.14  RATIO= -0.2477
  NAT Q1=      31   RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     924.14
   6740.00      0.83    924.03      0.00    924.04    924.08      0.05      0.64      0.00    930.10
      190.        0.      190         0.        0.      108.        0.       27.       18      925.00
      1.69      0.00      1.76      0.00     0.000     0.050     0.000     0.000    923.20     87.91
  0.005874       91.      106.      116.         2         0         0      0.00    158.45    246.36
0
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 6846.000
2800 NAT Q1= 23.28 WSEL= 924.71 ENC Q1= 28.71 WSEL= 924.81 RATIO= -0.2330
NAT Q1= 29 RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 924.81

6946.00	0 79	924.69	0.00	924.71	924.75	0.05	0.67	0.00	930.80
190.	0.	190	0	0.	103	0.	27.	18.	925.70
1.70	0.00	1.85	0.00	0.000	0.050	0.000	0.000	923.90	88.37
0.006765	90.	106.	115.	2	0	0	0.00	156.20	244.57

0
*SECNO 6952.000
2800 NAT Q1= 23.44 WSEL= 925.41 ENC Q1= 28.81 WSEL= 925.51 RATIO= -0.2292
NAT Q1= 29 RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 925.51

6952.00	0 81	925.41	0.00	925.41	925.46	0.05	0.71	0.00	931.50
190.	0.	190.	0.	0.	103.	0.	28.	19.	926.40
1.72	0.00	1.84	0.00	0.000	0.050	0.000	0.000	924.60	88.32
0.006650	91.	106.	116.	3	0	0	0.00	156.47	244.78

0
*SECNO 7060.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 800.0 1600.0 TYPE= 1 TARGET= -800.000
TAFT ROAD

7060.00	3 15	928.45	928.45	928.45	928.66	0.21	1.09	0.08	928.00
195.	155	17	23.	43.	3.	9.	28.	19.	928.00
1.73	3.60	5.45	2.54	0.030	0.024	0.030	0.000	925.30	1079.55
0.019420	92.	108	117.	20	24	0	0.00	161.44	1240.99

0

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	6.14	2.70	0.00	1.00	0.00	0.78	0.00	925.30	925.30

*SECNO 7100.000
6870 D.S. ENERGY OF 928.66 HIGHER THAN COMPUTED ENERGY OF 928.47
PRESSURE AND WEIR 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

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
6867.30	930.56	0.00	195.	0.	1.	1.	926.30	927.50



1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: WUNDO CREEK - TRIB B

4) DOCUMENT TYPE: SUMMARY



34.0 ENCRDPCHMENT STATIONS=		300.0	1600.0	TYPE=	1	TARGET=	-800.000		
7100.00	3 18	928.43	0.00	928.43	928.66	0.19	0.00	0.00	928.00
195	156.	15	24.	46.	3.	10.	28.	19.	928.00
1.73	3.36	4.90	2.37	0.030	0.024	0.030	0.000	925.30	1077.95
0.015517	40.	40	40.	0	0	0	0.00	165.51	1243.46

0
1

THIS RUN EXECUTED 14 JAN 88 10:27:38

****
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

CREEK

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	0.000	887.73	0.00	887.73	158.23	18.77	171.23	0.00	0.00	0.00	100.00	200.00	0.00
	0.000	887.83	0.10	887.83	116.90	12.50	177.50	0.00	0.04	82.53	100.00	200.00	200.00
	50.000	887.73	0.00	887.74	135.56	14.15	175.85	0.00	0.00	0.00	100.00	200.00	0.00
	50.000	887.83	0.10	887.84	99.21	6.10	183.90	0.00	0.04	91.61	100.00	200.00	200.00
	100.000	887.73	0.00	887.74	112.68	9.07	180.93	0.00	0.00	0.00	100.00	200.00	0.00
	100.000	887.83	0.10	887.84	82.16	0.00	190.00	0.00	0.05	100.00	100.00	200.00	200.00
	150.000	887.74	0.00	887.77	90.13	3.94	186.06	0.00	0.00	0.00	100.00	200.00	0.00
	150.000	887.84	0.10	887.87	73.64	0.00	190.00	0.00	0.02	100.00	100.00	200.00	200.00
*	201.000	889.00	0.00	889.31	67.29	131.43	57.76	0.81	0.00	0.00	148.00	152.00	0.00
*	201.000	889.08	0.08	889.45	48.52	128.15	61.85	0.00	0.19	103.48	148.00	152.00	152.00
	283.000	893.68	0.00	893.70	169.86	77.76	45.26	66.98	4.00	148.00	148.00	152.00	152.00
	283.000	893.68	0.00	893.71	170.14	77.85	45.05	67.10	4.00	148.00	148.00	152.00	152.00
	834.000	893.89	0.00	893.90	200.09	101.80	48.52	39.68	0.00	0.00	400.00	412.00	0.00
	834.000	893.90	0.01	893.91	128.96	102.21	51.83	35.95	0.07	311.55	400.00	412.00	440.51
	1184.000	894.11	0.00	894.12	181.33	90.76	30.67	68.58	0.00	0.00	300.00	312.00	0.00
	1184.000	894.15	0.04	894.17	146.27	89.87	33.94	66.20	0.10	232.04	300.00	312.00	378.31
	1534.000	895.12	0.00	895.18	170.11	100.16	36.24	53.60	0.00	0.00	300.00	312.00	0.00
	1534.000	895.23	0.11	895.30	116.11	98.65	42.70	48.65	0.18	238.49	300.00	312.00	354.60
	2059.000	900.37	0.00	900.48	70.54	0.00	190.00	0.00	0.00	0.00	400.00	500.00	0.00
	2059.000	900.38	0.01	900.49	70.61	0.00	190.00	0.00	0.00	400.00	400.00	500.00	500.00
	2259.000	902.01	0.00	902.13	70.70	0.00	190.00	0.00	0.00	0.00	400.00	500.00	0.00
	2259.000	902.01	0.00	902.12	70.69	0.00	190.00	0.00	0.00	400.00	400.00	500.00	500.00

1

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
2646.000	905.44	0.00	905 61	116 37	0.00	132.03	57.97	0.00	0.00	300.00	325.00	0.00
2646.000	905.52	0.08	905.73	65.54	0.00	145.68	44.32	0 13	300.00	300.00	325.00	368.11
3034.000	908.63	0.00	908.75	121.78	0.00	123.79	66.21	0.00	0.00	300.00	325.00	0 00
3034.000	908.75	0.12	908.89	72.31	0.00	135.09	54.91	0.13	300.00	300.00	325.00	374.43
3784 000	915.83	0.00	915 93	128.15	139.72	44.84	5.45	0.00	0.00	550.00	560.00	0.00
3784.000	915.92	0.08	916.05	67.99	140.52	49 48	0.00	0.18	492.01	550.00	560.00	560 00
4859.000	921.59	0.00	921.65	137.56	8.45	143 58	37.97	0.00	0.00	200.00	240.00	0.00
4859.000	921.72	0.12	921.78	89.51	0.00	155.83	34.17	0.11	200.00	200.00	240.00	289.52
5196.000	922.09	0.00	922.12	155.20	12.94	128.30	48 75	0.00	0.00	200.00	240.00	0.00
5196 000	922.21	0.12	922.23	103.16	5.42	138.24	46.34	0.09	195.14	200.00	240.00	298.30
5534.000	922.18	0.00	922.19	225.18	0.00	190.00	0.00	-800.00	800.00	900.00	1300 00	1565.00
5534.000	922.30	0.11	922.30	227.78	0.00	190.00	0.00	-800.00	800.00	900.00	1300.00	1565.00
6209.000	922 24	0 00	922 24	225.40	0.00	190.00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6209 000	922.34	0.10	922.34	227.77	0.00	190.00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6316.000	922.25	0.00	922 26	207.69	0.00	190.00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6316.000	922.35	0.10	922.36	210.33	0.00	190.00	0.00	-800.00	800 00	900.00	1300 00	1565.01
6422.000	922.30	0.00	922.32	191 23	0.00	190.00	0.00	0.00	0 00	900.00	1300.00	0.00
6422.000	922.39	0.09	922.41	193 55	0.00	190.00	0.00	0 00	900.00	900.00	1300.00	1300.00
6528 000	922.62	0.00	922.68	181 59	0.00	190.00	0.00	-800.00	800.00	900.00	1300.00	1565 01
6528.000	922.64	0.02	922.69	182.00	0.00	190 00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6634.000	923.41	0.00	923.45	183.39	0.00	190.00	0.00	-800 00	800.00	900.00	1300.00	1565.01
6634.000	923.40	-0.01	923.44	183.29	0.00	190.00	0.00	-800.00	800.00	900.00	1300.00	1565.01
6740.000	924.04	0.00	924.09	158.17	0 00	190.00	0.00	0.00	0.00	0.00	300.00	0.00
6740.000	924.03	-0.01	924.08	158.45	0.00	190.00	0 00	0.00	0.00	0.00	300.00	300 00
6846.000	924.71	0.00	924.76	156 44	0.00	190.00	0.00	0.00	0.00	0.00	300.00	0.00
6846.000	924 69	-0.01	924 75	156.20	0.00	190.00	0.00	0.00	0.00	0.00	300.00	300.00
6952.000	925.41	0.00	925.46	156.66	0.00	190.00	0.00	0.00	0 00	0.00	300.00	0.00
6952.000	925 41	0 00	925.46	156.47	0.00	190.00	0.00	0.00	0.00	0.00	300.00	300.00
* 7060.000	928.45	0.00	928 66	161.48	155.34	16 58	23 07	-800.00	800.00	1199.50	1200.50	1600.00
* 7060.000	928 45	0.00	928.66	161.44	155.34	16.60	23.06	-800.00	800.00	1199.50	1200.50	1600.00
7100 000	928.48	0.00	928.66	165.55	155.81	15.05	24.14	-800 00	800.00	1199.50	1200.50	1600.01
7100.000	928.48	0.00	928.66	165.51	155.80	15.06	24.14	-800.00	800.00	1199.50	1200.50	1600 01

CREEK

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	881.70	190.00	887.73	0.00	887 73	0.30	0.42	545.62	349.53
0.000	0.00	0.00	0 00	881.70	190.00	887.83	0.00	887.83	0.30	0.42	489.80	348.92
50 000	50 00	0.00	0.00	982.77	190.00	887 73	0.00	887.74	0.71	0.57	388.66	226 28

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	50.000	50.00	0.00	0.00	882.77	190.00	887.83	0.00	887.84	0.71	0.56	348.18	225.73
	100.000	50.00	0.00	0.00	883.85	190.00	887.73	0.00	887.74	2.12	0.83	254.87	130.52
	100.000	50.00	0.00	0.00	883.85	190.00	887.83	0.00	887.84	2.17	0.84	225.99	128.99
	150.000	50.00	0.00	0.00	884.92	190.00	887.74	0.00	887.77	9.32	1.37	147.12	62.25
	150.000	50.00	0.00	0.00	884.92	190.00	887.84	0.00	887.87	8.35	1.32	143.75	65.76
*	201.000	51.00	0.00	0.00	886.00	190.00	889.00	889.00	889.31	56.93	5.61	44.79	25.18
*	201.000	51.00	0.00	0.00	886.00	190.00	889.08	889.08	889.45	62.71	5.83	39.85	23.99
	283.000	82.00	892.64	890.00	886.00	190.00	893.68	0.00	893.70	2.80	1.56	158.38	113.63
	283.000	82.00	892.64	890.00	886.00	190.00	893.68	0.00	893.71	2.76	1.55	159.03	114.27
	834.000	550.00	0.00	0.00	890.60	190.00	893.89	0.00	893.90	4.22	1.30	352.39	92.52
	834.000	550.00	0.00	0.00	890.60	190.00	893.90	0.00	893.91	4.76	1.38	294.16	87.07
	1184.000	350.00	0.00	0.00	892.35	190.00	894.11	0.00	894.12	13.61	1.54	250.73	51.51
	1184.000	350.00	0.00	0.00	892.35	190.00	894.15	0.00	894.17	15.22	1.66	225.59	48.70
	1534.000	350.00	0.00	0.00	894.10	190.00	895.12	894.82	895.18	133.45	3.26	121.42	16.45
	1534.000	350.00	0.00	0.00	894.10	190.00	895.23	0.00	895.30	128.74	3.44	106.41	16.75
	2059.000	525.00	0.00	0.00	898.57	190.00	900.37	899.91	900.48	83.06	2.70	70.36	20.85
	2059.000	525.00	0.00	0.00	898.57	190.00	900.38	0.00	900.49	82.17	2.69	70.61	20.96
	2259.000	200.00	0.00	0.00	900.20	190.00	902.01	0.00	902.13	81.04	2.68	70.95	21.11
	2259.000	200.00	0.00	0.00	900.20	190.00	902.01	0.00	902.12	81.17	2.68	70.91	21.09
	2646.000	387.00	0.00	0.00	903.25	190.00	905.44	0.00	905.61	104.29	3.94	86.85	18.61
	2646.000	387.00	0.00	0.00	903.25	190.00	905.52	0.00	905.73	109.29	4.14	69.09	18.17
	3034.000	388.00	0.00	0.00	906.30	190.00	908.63	0.00	908.75	70.59	3.39	102.58	22.61
	3034.000	388.00	0.00	0.00	906.30	190.00	908.75	0.00	908.89	66.99	3.44	86.45	23.21
	3784.000	750.00	0.00	0.00	914.40	190.00	915.83	0.00	915.93	141.22	3.86	86.29	15.99
	3784.000	750.00	0.00	0.00	914.40	190.00	915.92	915.60	916.05	150.90	3.95	68.15	15.47
	4859.000	1075.00	0.00	0.00	919.60	190.00	921.59	0.00	921.65	25.90	2.14	137.36	37.33
	4859.000	1075.00	0.00	0.00	919.60	190.00	921.72	0.00	921.78	25.31	2.17	119.55	37.76
	5196.000	337.00	0.00	0.00	919.62	190.00	922.09	0.00	922.12	9.07	1.49	206.36	63.08
	5196.000	337.00	0.00	0.00	919.62	190.00	922.21	0.00	922.23	8.86	1.52	181.97	63.83

1

14 JAN 88 10:27:30 PAGE 22

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	5534.000	338.00	0.00	0.00	919.65	190.00	922.18	0.00	922.19	0.82	0.43	446.71	209.49
	5534.000	338.00	0.00	0.00	919.65	190.00	922.30	0.00	922.30	0.69	0.40	472.37	228.17
	6209.000	675.00	0.00	0.00	919.70	190.00	922.24	0.00	922.24	0.81	0.42	448.62	210.85
	6209.000	675.00	0.00	0.00	919.70	190.00	922.34	0.00	922.34	0.69	0.40	472.26	228.09
	6316.000	107.00	0.00	0.00	920.40	190.00	922.25	0.00	922.26	2.82	0.64	298.97	113.23
	6316.000	107.00	0.00	0.00	920.40	190.00	922.35	0.00	922.36	2.27	0.59	320.50	126.07
	6422.000	106.00	0.00	0.00	921.10	190.00	922.30	0.00	922.32	16.29	1.11	170.82	47.07
	6422.000	106.00	0.00	0.00	921.10	190.00	922.39	0.00	922.41	11.97	1.01	188.25	54.91
	6528.000	106.00	0.00	0.00	921.80	190.00	922.62	0.00	922.68	88.52	1.89	100.70	20.20
	6528.000	106.00	0.00	0.00	921.80	190.00	922.64	0.00	922.69	80.81	1.83	103.58	21.14
	6634.000	106.00	0.00	0.00	922.50	190.00	923.41	0.00	923.45	60.15	1.67	113.52	24.50

	6834.000	105.00	0.00	0.00	922.50	190.00	923.40	0.00	923.44	61.44	1.68	112.77	24.84
	6740.000	106.00	0.00	0.00	923.20	190.00	924.04	0.00	924.09	59.76	1.77	107.20	24.58
	6740.000	106.00	0.00	0.00	923.20	190.00	924.03	0.00	924.08	58.74	1.76	107.83	24.79
	6846.000	106.00	0.00	0.00	923.90	190.00	924.71	0.00	924.76	66.61	1.84	103.31	23.28
	6846.000	106.00	0.00	0.00	922.90	190.00	924.69	0.00	924.75	67.65	1.85	102.77	23.10
	6952.000	106.00	0.00	0.00	924.60	190.00	925.41	0.00	925.46	65.70	1.83	103.79	23.44
	6952.000	106.00	0.00	0.00	924.60	190.00	925.41	0.00	925.46	66.50	1.84	103.37	23.30
*	7060.000	108.00	0.00	0.00	925.30	195.00	928.45	928.45	928.66	193.80	5.44	55.27	14.01
*	7060.000	108.00	0.00	0.00	925.30	195.00	928.45	928.45	928.66	194.20	5.45	55.23	13.99
	7100.000	40.00	927.50	926.30	925.30	195.00	928.48	0.00	928.66	154.88	4.89	59.73	15.67
	7100.000	40.00	927.50	926.30	925.30	195.00	928.48	0.00	928.66	155.17	4.90	59.69	15.65

CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	0.000	190.00	887.73	0.00	0.00	0.00	158.23	0.00
	0.000	190.00	887.83	0.10	0.00	0.10	116.90	0.00
	50.000	190.00	887.73	0.00	0.00	0.00	135.56	50.00
	50.000	190.00	887.83	0.10	0.00	0.10	99.21	50.00
	100.000	190.00	887.73	0.00	0.00	0.00	112.68	50.00
	100.000	190.00	887.83	0.10	0.00	0.10	82.16	50.00
	150.000	190.00	887.74	0.00	0.01	0.00	90.13	50.00
	150.000	190.00	887.84	0.10	0.01	0.10	73.64	50.00
*	201.000	190.00	889.00	0.00	1.25	0.00	67.29	51.00
*	201.000	190.00	889.08	0.08	1.23	0.08	48.52	51.00
	283.000	190.00	893.68	0.00	4.68	0.00	169.86	82.00
	283.000	190.00	893.68	0.00	4.60	0.00	170.14	82.00
	834.000	190.00	893.89	0.00	0.21	0.00	200.09	550.00
	834.000	190.00	893.90	0.01	0.21	0.01	128.96	550.00
	1184.000	190.00	894.11	0.00	0.23	0.00	181.33	350.00
	1184.000	190.00	894.15	0.04	0.25	0.04	146.27	350.00
	1534.000	190.00	895.12	0.00	1.01	0.00	170.11	350.00
	1534.000	190.00	895.23	0.11	1.08	0.11	116.11	350.00
	2059.000	190.00	900.37	0.00	5.25	0.00	70.54	525.00
	2059.000	190.00	900.38	0.01	5.15	0.01	70.61	525.00
	2259.000	190.00	902.01	0.00	1.64	0.00	70.70	200.00
	2259.000	190.00	902.01	0.00	1.63	0.00	70.69	200.00
	2646.000	190.00	905.44	0.00	3.43	0.00	116.37	387.00
	2646.000	190.00	905.52	0.08	3.51	0.08	65.54	387.00
	3034.000	190.00	908.63	0.00	3.19	0.00	121.78	388.00
	3034.000	190.00	908.75	0.12	3.23	0.12	72.31	388.00

3784.000	190.00	915.33	0.00	7.20	0.00	128.15	750.00
3784.000	190.00	915.92	0.08	7.17	0.08	67.99	750.00
4859.000	190.00	921.59	0.00	5.76	0.00	137.56	1075.00
4859.000	190.00	921.72	0.12	5.80	0.12	89.51	1075.00
5196.000	190.00	922.09	0.00	0.50	0.00	155.20	337.00
5196.000	190.00	922.21	0.12	0.49	0.12	103.16	337.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
5534.000	190.00	922.18	0.00	0.09	0.00	225.18	338.00
5534.000	190.00	922.30	0.11	0.09	0.11	227.78	338.00
6209.000	190.00	922.24	0.00	0.06	0.00	225.40	675.00
6209.000	190.00	922.34	0.10	0.05	0.10	227.77	675.00
6316.000	190.00	922.25	0.00	0.01	0.00	207.69	107.00
6316.000	190.00	922.35	0.10	0.01	0.10	210.33	107.00
6422.000	190.00	922.30	0.00	0.05	0.00	191.23	106.00
6422.000	190.00	922.39	0.09	0.04	0.09	193.55	106.00
6528.000	190.00	922.62	0.00	0.32	0.00	181.59	106.00
6528.000	190.00	922.64	0.02	0.25	0.02	182.00	106.00
6634.000	190.00	923.41	0.00	0.78	0.00	183.39	106.00
6634.000	190.00	923.40	-0.01	0.75	-0.01	183.29	106.00
6740.000	190.00	924.04	0.00	0.63	0.00	158.17	106.00
6740.000	190.00	924.03	-0.01	0.63	-0.01	158.45	106.00
6846.000	190.00	924.71	0.00	0.67	0.00	156.44	106.00
6846.000	190.00	924.69	-0.01	0.66	-0.01	156.20	106.00
6952.000	190.00	925.41	0.00	0.70	0.00	156.66	106.00
6952.000	190.00	925.41	0.00	0.71	0.00	156.47	106.00
* 7060.000	195.00	928.45	0.00	3.04	0.00	161.48	108.00
* 7060.000	195.00	928.45	0.00	3.04	0.00	161.44	108.00
7100.000	195.00	928.48	0.00	0.03	0.00	165.55	40.00
7100.000	195.00	928.48	0.00	0.03	0.00	165.51	40.00

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 201.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 201.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 201.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 201.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 7060.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7060.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 7060.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 7080.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7060.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 7060.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

1
14 JAN 88 10:27:30 PAGE 26

FLOODWAY DATA. CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
0.000	117.	490.	0.4	887.8	887.7	0 1
50.000	99.	346.	0 5	887.8	887.7	0.1
100.000	82.	226.	0.8	887.8	887.7	0.1
150.000	74.	144.	1.3	887 8	887.7	0.1
201.000	49.	40.	4.8	889.1	889 0	0 1
283.000	170.	159.	1.2	893.7	893.7	0.0
834.000	129.	294.	0 6	893 9	893.9	0 0
1184.000	146	226.	0.8	894.1	894.1	0.0
1534.000	116.	105.	1.8	895.2	895 1	0.1
2059.000	71.	71	2.7	900.4	900.4	0.0
2259.000	71.	71	2.7	902.0	902.0	0.0
2646.000	66.	69.	2 8	905.5	905.4	0.1
3034.000	72	86.	2.2	908 7	908.6	0.1
3784.000	68.	68.	2.8	915.9	915.8	0.1
4859.000	90	120.	1.6	921.7	921.6	0.1
5196.000	103	182.	1.0	922 2	922 1	0.1
5534.000	228.	472.	0.4	922.3	922.2	0.1
6209.000	228.	472.	0.4	922.3	922.2	0.1
6316 000	210.	320	0.6	922.4	922.3	0.1
6422.000	194.	138.	1.0	922 4	922.3	0.1
6528.000	182	104.	1.8	922.6	922.6	0.0
6634.000	183.	113.	1.7	923.4	923.4	0 0
6740.000	158.	108.	1.8	924.0	924.0	0.0
6846.000	156.	103.	1 8	924.7	924.7	0.0
6952 000	156.	103.	1.8	925.4	925.4	0.0
7060.000	161.	55.	3.5	928.4	928.4	0 0
7100.000	166	60.	3 3	928.5	928 5	0.0

1
14 JAN 88 10:27:40 PAGE 1

THIS RUN EXECUTED 14 JAN 88 10:27:40

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

ER

1
14 JAN 88 10:27 40 PAGE 2

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: NOVI-LYON DRAIN

4) DOCUMENT TYPE: 100 YR

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
*********************************************
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This WSEL was assumed to be correct since the conv. runs were not provided

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T1      CITY OF NOVI    JOB NO. 5555-46-07
T2      100 YEAR FLOOD
T3      NOVI LYON DRAIN

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
     -10.       4.       -0.       -0. -0.000000     -0.00      -0.0      -0.    938.290    -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=    .300 CEHV=    .500
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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=     588.0     638.0  TYPE=     1  TARGET=      50.000
     0.00     5.29   938.29     0.00   938.29   938.58      .29     0.00     0.00    937.50
     565.       6.     558.       1.      10.     128.       1.       0.       0.    937.20
     0.00      .67     4.36      .82     .100     .040     .100    0.000   933.00    588.00
  .002749      -0.      -0.      -0.        0        0        1     0.00    50.00    638.00

3470 ENCROACHMENT STATIONS=     592.0     633.0  TYPE=     1  TARGET=      41.000
    20.00     5.59   938.35     0.00     0.00   938.64      .28      .05      .00    937.26
     565.       7.     558.       0.       9.     130.       0.       0.       0. 100000.00
      .00      .79     4.29     0.00     .100     .040     .100     .038   932.76    592.00
  .002505      20.      20.      20.        0        0        1     0.00    41.00    633.00

3470 ENCROACHMENT STATIONS=     611.0     635.7  TYPE=     1  TARGET=      24.700
    49.00     6.00   938.40     0.00     0.00   938.75      .36      .08      .04 99999.40
     565.       0.     565.       0.       0.     118.       0.       0.       0.  99999.40
      .00     0.00     4.79     0.00     .100     .040     .100     .038   932.40    611.00
  .002962      29.      29.      29.        2        0        1     0.00    24.70    635.70

NORMAL BRIDGE,NRD=30 MIN ELTRD=  941.10 MAX ELLC=  939.00

3470 ENCROACHMENT STATIONS=     600.1     624.8  TYPE=     1  TARGET=      24.700

              TWIN-TUBES CMP 9.5X6.4 FT MULTI-PLATE PIPE ARCH (JOHNS RD)

    50.00     5.88   938.28     0.00     0.00   938.87      .59      .00      .12    942.10
     565.       0.     565.       0.       0.      92.       0.       0.       0. 100000.00
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     .00      0.00      6.15      0.00      .030      .032      .030      .038    932.40    600.10
 .006496        1.        1.        1.         2         0         1    -32.47     24.70    624.80

NORMAL BRIDGE,NRD=30 MIN ELTRD=   941.10 MAX ELLC=   939.00

  109.00      6.96    938.76      0.00      0.00    939.30       .54       .42       .01    942.10
    565.        0.       565.        0.        0.       96.        0.        0.        0.    942.10
     .01      0.00      5.91      0.00      .030      .032      .030      .034    931.80    600.10
 .007778        59.       59.       59.         3         0         1    -47.95     24.70    624.80

 WATER EL=X5 CARD=   939.700
   SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB       ACH       AROB      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=     456.0     836.0  TYPE=     1  TARGET=     -456.000
  110.00      7.90    939.70      0.00      0.00    939.72       .02       .00       .16    936.30
    565.       198.      309.       58.       505.      225.      204.        0.        0.    936.00
     .01       .39      1.38       .28       .100      .040      .100      .034    931.80    456.00
 .000130        1.        1.        1.         0         0         1      0.00    297.57    753.57

3265 DIVIDED FLOW

  409.00      6.61    939.71      0.00      0.00    939.90       .20       .10       .09    940.10
    565.       23.       542.        0.        45.       150.      0.        4.        1.    941.10
     .03       .51      3.62       .09       .100      .040      .100      .038    933.10     52.10
 .001852       285.      299.      315.         3         0         1      0.00    111.55    212.18

CCHV=     .300 CEHV=     .500

3265 DIVIDED FLOW

  809.00      6.15    940.95      0.00      0.00    941.17       .21      1.25       .01    941.80
    565.       17.       548.        0.        23.       146.      0.        6.        2.    942.80
     .06       .73      3.75      0.00       .100      .070      .100      .054    934.80     76.97
 .006459       380.      400.      420.         3         0         1      0.00     91.27    180.18

3265 DIVIDED FLOW

  959.00      6.37    941.87      0.00      0.00    942.05       .18       .88       .01    942.50
    565.       26.       539.        0.        35.       155.      0.        6.        3.    943.50
     .07       .76      3.47      0.00       .100      .070      .100      .056    935.50     67.97
 .005324       140.      150.      155.         2         0         1      0.00    103.72    180.62

3265 DIVIDED FLOW

 1060.00      6.50    942.40      0.00      0.00    942.56       .16       .50       .01    942.90
    565.       33.       532.        0.        43.       162.      0.        7.        3.    943.90
     .08       .77      3.29       .01       .100      .070      .100      .058    935.90     62.33
 .004709        96.      101.      111.         2         0         1      0.00    111.63    233.04
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3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 185.0 TYPE= 1 TARGET= 184.999

1109.00	6.36	942.66	0.00	0.00	942.87	.21	.29	.03	943.30
565.	30.	535.	0.	34.	142.	0.	7.	3.	944.30
.09	.89	3.77	0.00	.100	.070	.100	.058	936.30	68.48
.007440	49.	49.	49.	1	0	1	0.00	103.02	180.60

3685 20 TRIALS USED WSEL,CWSEL

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

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=20 MIN ELTRD= 941.10 MAX ELLC= 938.80

3470 ENCROACHMENT STATIONS= .0 222.0 TYPE= 1 TARGET= 221.999

30" DIA CMP (FARM FIELD X-ING CULVERT)

1110.00	7.00	943.30	943.30	0.00	943.97	.67	.01	0.00	944.50
565.	552.	13.	0.	83.	5.	0.	7.	3.	944.50
.09	6.65	2.74	0.00	.030	.024	.030	.058	936.30	78.29
.011058	1.	1.	1.	30	12	1	-11.36	71.93	201.20

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=20 MIN ELTRD= 941.10 MAX ELLC= 939.00

3470 ENCROACHMENT STATIONS= .0 222.0 TYPE= 1 TARGET= 221.999

1140.00	7.52	944.02	0.00	0.00	944.25	.23	.14	.13	944.50
565.	559.	6.	0.	144.	5.	0.	7.	3.	944.50
.09	3.88	1.30	0.00	.030	.024	.030	.057	936.50	77.00
.002694	30.	30.	30.	3	0	1	-12.60	103.56	201.20

CCHV= .300 CEHV= .500
WATER EL=X5 CARD= 944.380

3470 ENCROACHMENT STATIONS= .0 185.0 TYPE= 1 TARGET= 184.999

1141.00	7.88	944.38	0.00	0.00	944.43	.05	.00	.05	943.50
565.	135.	430.	0.	171.	216.	0.	7.	3.	944.50

.09	.79	1.99	0.00	.100	.070	.[illegible]	.057	936.[illegible]	[illegible]8.51
.001421	1.	1.	1.	0	0	1	0.00	155.24	183.75

3280 CROSS SECTION 1600.00 EXTENDED 4.11 FEET

1600.00	7.42	944.92	0.00	0.00	944.96	.04	.52	.00	944.00
565.	125.	351.	89.	185.	186.	84.	12.	5.	942.00
.17	.68	1.89	1.06	.100	.070	.100	.061	937.50	91.41
.000949	435.	459.	485.	2	0	1	0.00	168.59	260.00

3280 CROSS SECTION 2060.00 EXTENDED 3.66 FEET

2060.00	6.95	945.45	0.00	0.00	945.51	.06	.54	.01	945.00
565.	97.	379.	89.	137.	170.	73.	16.	6.	943.00
.24	.71	2.23	1.21	.100	.070	.100	.063	938.50	97.78
.001504	435.	460.	485.	0	0	1	0.00	162.22	260.00

CCHV= .300 CEHV= .500

3470 ENCROACHMENT STATIONS= 300.0 450.0 TYPE= 1 TARGET= 150.000

2560.00	6.82	946.62	0.00	0.00	946.80	.18	1.23	.06	945.80
565.	7.	547.	11.	12.	159.	12.	19.	8.	945.60
.28	.56	3.44	.93	.100	.080	.100	.066	939.80	371.73
.004738	600.	500.	400.	2	0	1	0.00	76.05	447.78

3470 ENCROACHMENT STATIONS= 300.0 455.0 TYPE= 1 TARGET= 155.000

2660.00	7.93	947.03	0.00	0.00	947.11	.09	.29	.03	945.10
565.	41.	495.	29.	64.	195.	31.	20.	8.	944.90
.30	.64	2.53	.96	.100	.080	.100	.067	939.10	333.59
.001944	105.	100.	95.	2	0	1	0.00	117.94	451.53

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

NORMAL BRIDGE,NRD=18 MIN ELTRD= 948.70 MAX ELLC= 946.70

3470 ENCROACHMENT STATIONS= 590.0 740.0 TYPE= 1 TARGET= 150.000

7.6X11.8 FT CMP MULTI-PLATE PIPE ARCH (NAPIER RD)

2661.00	7.48	946.58	0.00	0.00	947.57	.99	.00	.45	948.70
565.	0.	565.	0.	0.	71.	0.	20.	8.	948.70
.30	0.00	8.00	0.00	.030	.031	.030	.067	939.10	694.00
.010368	1.	1.	1.	2	0	1	-14.74	12.00	706.00

NORMAL BRIDGE,NRD=18 MIN ELTRD= 948.70 MAX ELLC= 947.10

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3470 ENCROACHMENT STATIONS=      590.0      740.0  TYPE=      1  TARGET=      150.000
  2737.00      7.93    947.43     0.00      0.00    948.41      .98       .84       .00    948.70
    565.         0.      565.       0.        0.       71.       0.       20.        8.     948.70
     .30      0.00      7.96     0.00      .030      .031      .030      .066    939.50    694.00
 .011799        76.       76.       76.         3         0         1    -19.76     12.00    706.00

CHV=     .300 CEHV=     .500
WATER EL=X5 CARD=   949.000

3470 ENCROACHMENT STATIONS=      300.0      465.0  TYPE=      1  TARGET=      165.000
  2738.00      9.50    949.00     0.00      0.00    949.04      .04       .00       .28    945.50
    565.        96.      431.      38.       205.      247.      64.       20.        8.     945.30
     .30       .47      1.74      .59       .100      .060      .100      .066    939.50    300.00
 .000379         1.        1.        1.         0         0         1      0.00    156.86    456.86

  3250.00      7.88    949.28     0.00      0.00    949.36      .08       .31       .02    947.10
    565.        54.      477.      34.       104.      196.      61.       25.       10.     946.80
     .37       .52      2.44      .56       .100      .060      .100      .065    941.40    205.00
 .001084        490.      512.      535.         3         0         1      0.00    176.96    381.97

  3675.00      7.60    949.90     0.00      0.00    950.05      .15       .65       .04    948.00
    565.        43.      493.      29.        63.      149.      38.       28.       12.     947.70
     .40       .69      3.32      .76       .100      .060      .100      .064    942.30    174.06
 .002292        415.      425.      435.         2         0         1      0.00    126.96    301.02

H 3948.00      6.61    950.61     0.00      0.00    950.80      .19       .73       .02    949.70
    565.         9.      547.       9.        18.      153.      14.       29.       12.     949.40
     .43       .50      3.57      .60       .100      .060      .100      .064    944.00    260.50
 .003207        256.      273.      286.         2         0         1      0.00     96.31    356.81

  3997.00      7.84    950.84     0.00      0.00    950.92      .08       .09       .03    948.70
    565.        52.      480.      33.        99.      194.      59.       30.       12.     948.40
     .43       .52      2.47      .57       .100      .060      .100      .064    943.00    206.99
 .001126        49.       49.       49.         2         0         1      0.00    174.08    381.07

3685 20 TRIALS USED WSEL,CWSEL

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

   SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL     OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB       ACH       AROB      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=11 MIN ELTRD=  949.40 MAX ELLC=  946.50

                42" DIA RCP (FARM FIELD X-ING CULVERT)

  3998.00      8.03    951.03   951.03      0.00    951.53      .50       .00       0.00    949.40
    565.       275.      127.      163.       59.       15.       35.       30.       12.     949.40
     .43       4.63      8.34      4.63      .030      .015      .030      .064    943.00    225.42
 .011456         1.        1.        1.        30         9         1    -11.00    119.61    345.03
```

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

ORMAL BRIDGE,NRD=11 MIN ELTRD= 949.40 MAX ELLC= 946.70

4023.00	8.41	951.61	0.00	0.00	951.76	.15	.13	.11	949.40
565.	306.	78.	181.	109.	17.	65.	30.	13.	949.40
.44	2.81	4.53	2.80	.030	.015	.030	.063	943.20	199.59
.002795	25.	25.	25.	3	0	1	-10.32	160.81	360.40

CCHV= .300 CEHV= .500
WATER EL=X5 CARD= 951.370

4024.00	8.17	951.37	0.00	0.00	951.43	.06	.00	.03	948.90
565.	78.	441.	46.	133.	205.	76.	30.	13.	948.60
.44	.58	2.15	.61	.100	.070	.100	.063	943.20	186.92
.001081	1.	1.	1.	0	0	1	0.00	200.66	387.59

3470 ENCROACHMENT STATIONS= 182.0 429.8 TYPE= 1 TARGET= 177.000

4450.00	7.50	951.80	0.00	0.00	951.84	.05	.41	.00	949.30
565.	63.	482.	20.	121.	257.	59.	34.	14.	950.90
.50	.52	1.87	.33	.100	.070	.100	.064	944.30	182.89
.000922	400.	426.	300.	2	0	1	0.00	243.73	426.62

J

3470 ENCROACHMENT STATIONS= 136.0 350.0 TYPE= 1 TARGET= -136.000

4748.00	7.19	952.19	0.00	0.00	952.31	.12	.43	.04	950.00
565.	53.	504.	8.	66.	173.	22.	36.	16.	951.60
.54	.79	2.92	.36	.100	.070	.100	.065	945.00	139.23
.002532	275.	298.	350.	2	0	1	0.00	161.81	301.04

3470 ENCROACHMENT STATIONS= 140.0 300.0 TYPE= 1 TARGET= 160.000

4948.00	7.03	952.73	0.00	0.00	952.86	.14	.55	.01	950.70
565.	46.	515.	3.	57.	167.	12.	37.	17.	952.30
.55	.82	3.09	.29	.100	.070	.100	.065	945.70	143.72
.002961	200.	200.	200.	2	0	1	0.00	146.81	290.53

3280 CROSS SECTION 4949.00 EXTENDED .77 FEET

NORMAL BRIDGE,NRD=15 MIN ELTRD= 949.40 MAX ELLC= 948.00

3470 ENCROACHMENT STATIONS= 418.0 580.0 TYPE= 1 TARGET= 162.000

OLD ABANDONED WOODEN BRIDGE

K

4949.00	7.17	952.87	0.00	0.00	952.90	.03	.00	.03	949.40
565.	249.	85.	232.	184.	86.	169.	37.	17.	949.40
.55	1.35	.98	1.37	.050	.050	.050	.065	945.70	418.00
.000605	1.	1.	1.	2	0	1	-23.94	162.00	580.00

3280 CROSS SECTION 4966.00 EXTENDED .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

ORMAL BRIDGE,NRD=15 MIN ELTRD= 949.30 MAX ELLC= 948.00

470 ENCROACHMENT STATIONS=			417.0	581.0	TYPE=	1	TARGET=	164.000	
4966.00	7.18	952.88	0.00	0.00	952.91	.03	.01	.00	949.50
565.	242.	83.	240.	182.	85.	172.	37.	17.	949.30
.56	1.33	.98	1.39	.050	.050	.050	.065	945.70	417.00
.000609	17.	17.	17.	2	0	1	-23.94	164.00	581.00

CCHV= .300 CEHV= .500

no flow continuity

3470 ENCROACHMENT STATIONS=			137.0	302.0	TYPE=	1	TARGET=	165.000	
4967.00	7.12	952.82	0.00	0.00	952.96	.14	.00	.06	950.70
565.	33.	528.	4.	63.	170.	18.	37.	17.	952.30
.56	.53	3.10	.21	.090	.040	.090	.065	945.70	141.00
.000948	1.	1.	1.	2	0	1	0.00	159.28	300.28

3470 ENCROACHMENT STATIONS=			134.0	303.0	TYPE=	1	TARGET=	169.000	
4980.00	7.25	952.85	0.00	0.00	952.98	.13	.01	.00	950.60
565.	36.	522.	6.	70.	175.	25.	37.	17.	952.20
.56	.52	2.99	.26	.090	.040	.090	.065	945.60	137.74
.000854	13.	13.	13.	1	0	1	0.00	163.95	301.68

3280 CROSS SECTION 4981.00 EXTENDED .84 FEET

NORMAL BRIDGE,NRD=15 MIN ELTRD= 950.50 MAX ELLC= 950.00

3470 ENCROACHMENT STATIONS=			418.0	589.0	TYPE=	1	TARGET=	171.000	

54" DIA RCP (FARM FIELD X-ING CULVERT)

4981.00	7.34	952.94	0.00	0.00	953.00	.06	.00	.02	951.50
565.	172.	60.	333.	105.	23.	160.	37.	17.	951.50
.56	1.65	2.65	2.07	.030	.015	.030	.065	945.60	418.00
.000769	1.	1.	1.	2	0	1	-9.01	171.00	589.00

3280 CROSS SECTION 5011.00 EXTENDED .86 FEET

NORMAL BRIDGE,NRD=15 MIN ELTRD= 950.50 MAX ELLC= 949.90

3470 ENCROACHMENT STATIONS=			418.0	589.0	TYPE=	1	TARGET=	171.000	
5011.00	7.46	952.96	0.00	0.00	953.02	.06	.02	.00	951.50
565.	174.	58.	333.	107.	22.	163.	38.	17.	951.50
.56	1.63	2.58	2.05	.030	.015	.030	.064	945.50	418.00
.000738	30.	30.	30.	0	0	1	-9.47	171.00	589.00

265 DIVIDED FLOW

280 CROSS SECTION 5012.00 EXTENDED .64 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
5012.00	7.44	952.94	0.00	0.00	953.04	.11	.00	.02	950.50
565.	49.	503.	13.	94.	182.	38.	38.	17.	952.10
.56	.52	2.77	.34	.030	.015	.030	.064	945.50	0.00
.000098	1.	1.	1.	2	0	1	0.00	207.21	304.03

3280 CROSS SECTION 5261.00 EXTENDED 1.47 FEET

3470 ENCROACHMENT STATIONS= 510.0 720.0 TYPE= 1 TARGET= 210.000

M

5261.00	6.87	953.07	0.00	0.00	953.08	.01	.01	.03	949.90
255.	89.	134.	33.	278.	144.	153.	40.	18.	949.70
.67	.32	.93	.21	.030	.015	.030	.062	946.20	510.00
.000009	140.	249.	350.	2	0	1	0.00	210.00	720.00

3280 CROSS SECTION 5280.00 EXTENDED 1.48 FEET

3470 ENCROACHMENT STATIONS= 520.0 730.0 TYPE= 1 TARGET= 210.000

5280.00	6.98	953.08	0.00	0.00	953.08	.01	.00	.00	949.80
255.	81.	133.	41.	256.	146.	186.	40.	18.	949.60
.68	.32	.91	.22	.030	.015	.030	.062	946.10	520.00
.000009	19.	19.	19.	0	0	1	0.00	210.00	730.00

NORMAL BRIDGE,NRD=14 MIN ELTRD= 947.80 MAX ELLC= 948.20

3470 ENCROACHMENT STATIONS= 415.0 625.0 TYPE= 1 TARGET= 210.000

6 PCS. OF 4X4" STEEL I-BEAM CROSSING BRIDGE

N

5281.00	6.98	953.08	0.00	0.00	953.08	.00	.00	.00	949.30
255.	72.	22.	161.	251.	59.	446.	40.	18.	949.30
.68	.29	.37	.36	.030	.015	.030	.062	946.10	415.00
.000008	1.	1.	1.	0	0	1	-14.10	210.00	625.00

NORMAL BRIDGE,NRD=14 MIN ELTRD= 947.80 MAX ELLC= 948.20

3470 ENCROACHMENT STATIONS= 415.0 625.0 TYPE= 1 TARGET= 210.000

5295.00	6.98	953.08	0.00	0.00	953.08	.00	.00	.00	949.30
255.	72.	22.	161.	251.	59.	446.	40.	18.	949.30
.69	.29	.37	.36	.030	.015	.030	.062	946.10	415.00
.000008	14.	14.	14.	0	0	1	-14.10	210.00	625.00

CCHV= .300 CEHV= .500

3280 CROSS SECTION 5296.00 EXTENDED 1.4H FEET

3470 ENCROACHMENT STATIONS= 520.0 730.0 TYPE= 1 TARGET= 210.000

5296.00	6.98	953.08	0.00	0.00	953.09	.00	.00	.00	949.80	
255.	95.	112.	48.	256.	146.	186.	40.	18.	949.60	
.69	.37	.76	.26	.100	.070	.100	.062	946.10	520.00	
.000133	1.	1.	1.	0	0	1	0.00	210.00	730.00	

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

3470 ENCROACHMENT STATIONS= 410.0 748.0 TYPE= 1 TARGET= 338.000

5751.00	6.81	953.11	0.00	0.00	953.11	.00	.02	.00	948.90
255.	74.	44.	136.	371.	124.	719.	50.	21.	948.00
1.25	.20	.36	.19	.100	.070	.100	.062	946.30	410.00
.000028	471.	455.	426.	0	0	1	0.00	333.79	743.79

3470 ENCROACHMENT STATIONS= 395.0 715.0 TYPE= 1 TARGET= 320.000

6251.00	6.43	953.13	0.00	0.00	953.13	.00	.02	.00	949.20
255.	99.	56.	100.	472.	124.	401.	63.	25.	949.50
1.76	.21	.45	.25	.100	.070	.100	.063	946.70	395.00
.000053	600.	500.	450.	2	0	1	0.00	320.00	715.00

3470 ENCROACHMENT STATIONS= 624.4 924.0 TYPE= 1 TARGET= 214.000

6700.00	5.59	953.16	0.00	0.00	953.16	.00	.03	.00	951.37
195.	96.	90.	9.	445.	196.	55.	71.	28.	951.57
2.15	.22	.46	.17	.100	.070	.100	.063	947.57	624.40
.000074	449.	449.	449.	0	0	1	0.00	299.60	924.00

CCHV= .300 CEHV= .500

3470 ENCROACHMENT STATIONS= 450.0 690.0 TYPE= 1 TARGET= 240.000

7076.00	4.91	953.21	0.00	0.00	953.21	.01	.05	.00	952.10
195.	88.	94.	13.	217.	117.	48.	76.	30.	952.30
2.32	.41	.81	.27	.100	.080	.100	.064	948.30	456.21
.000391	376.	376.	376.	2	0	1	0.00	233.79	690.00

3470 ENCROACHMENT STATIONS= 693.0 938.0 TYPE= 1 TARGET= 245.000

7326.00	4.88	953.28	0.00	0.00	953.29	.00	.07	.00	952.20
195.	86.	101.	8.	258.	162.	42.	78.	32.	952.40
2.47	.33	.62	.20	.100	.080	.100	.065	948.40	693.00
.000233	250.	250.	250.	1	0	1	0.00	245.00	938.00

3470 ENCROACHMENT STATIONS= 460.0 650.0 TYPE= 1 TARGET= 190.000

7626.00	4.95	953.38	0.00	0.00	953.38	.01	.09	.00	952.23
195.	93.	98.	4.	221.	118.	14.	81.	33.	952.43
2.60	.42	.83	.29	.100	.080	.100	.065	948.43	460.00
.000407	325.	285.	300.	0	0	1	0.00	190.00	650.00

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 470 ENCROACHMENT STATIONS=      345.0      555.0  TYPE=      1  TARGET=      210.000
  8026.00      4.79    953.49      0.00      0.00    953.49       .01       .11       .00    953.20
     135.       34.       100.       1.       159.      146.       4.        84.       35.     953.00
     2.79       .21       .68       .19       .100      .060      .100      .065    948.70    345.00
  .000186      350.      400.      400.         0         0         1       0.00    210.00    555.00


 3470 ENCROACHMENT STATIONS=      405.0      605.0  TYPE=      1  TARGET=      200.000
  8301.00      4.68    953.53      0.00      0.00    953.54       .00       .05       .00    953.35
     135.       11.       92.       32.       67.      141.      103.       86.       36.     953.15
     2.93       .16       .66       .31       .100      .060      .100      .065    948.85    405.00
  .000180      200.      275.      275.         2         0         1       0.00    200.00    605.00


    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


 3470 ENCROACHMENT STATIONS=      475.0      555.0  TYPE=      1  TARGET=       80.000
  8501.00      4.63    953.58      0.00      0.00    953.60       .01       .05       .00    953.45
     135.       1.       133.       1.        7.      138.       4.        87.       37.     953.25
     2.99       .12       .97       .24       .100      .060      .100      .065    948.95    475.00
  .000402      200.      200.      200.         1         0         1       0.00     80.00    555.00


  8801.00      4.72    953.82      0.00      0.00    953.92       .11       .28       .05    950.80
     135.       36.       66.       33.       25.       19.       24.       88.       37.     950.80
     3.02       1.43      3.44      1.38      .100      .060      .100      .065    949.10     39.92
  .004112      300.      300.      300.         2         0         1       0.00     37.07     76.99


 3280 CROSS SECTION   9101.00 EXTENDED       .13 FEET


 3470 ENCROACHMENT STATIONS=       74.0      174.0  TYPE=      1  TARGET=      100.000
  9101.00      5.03    954.31      0.00      0.00    954.33       .02       .38       .03    950.98
     135.       37.       65.       34.       64.       44.       61.       89.       37.     950.98
     3.11       .57       1.47      .55       .100      .060      .100      .065    949.28     79.73
  .000564      325.      325.      300.         2         0         1       0.00     85.71    165.43


 CCHV=    .300 CEHV=    .500

 3470 ENCROACHMENT STATIONS=      318.0      383.0  TYPE=      1  TARGET=       65.000
  9376.00      4.98    954.43      0.00      0.00    954.44       .01       .11       .00    955.55
     135.       0.       134.       1.        0.      140.       6.        90.       38.     953.85
     3.20       0.00      .96       .14       .100      .050      .100      .064    949.45    321.19
  .000256      300.      300.      275.         2         0         1       0.00     61.81    383.00


 3470 ENCROACHMENT STATIONS=      253.0      413.0  TYPE=      1  TARGET=      160.000
  9626.00      4.88    954.48      0.00      0.00    954.48       .00       .04       .00    955.70
     73.        0.       73.        0.        0.      135.       6.        90.       38.     954.00
     3.33       0.00      .54       .05       .100      .050      .100      .064    949.60    321.46
  .000083      300.      250.      250.         2         0         1       0.00     71.02    392.48


 3470 ENCROACHMENT STATIONS=       78.0      500.0  TYPE=      1  TARGET=      422.000
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10001.00	4.59	954.49	0.00	0.00	954.49	.00	.01	.00	950.60
73.	45.	11.	17.	638.	64.	324.	95.	40.	950.60
4.57	.07	.18	.05	.100	.050	.100	.063	949.90	78.00
.000005	370.	375.	370.	2	0	1	0.00	422.00	500.00

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 525.0 TYPE= 1 TARGET= 524.999

10301.00	4.09	954.49	0.00	0.00	954.49	.00	.00	.00	951.10
73.	46.	20.	7.	455.	56.	68.	101.	43.	951.10
5.07	.10	.36	.10	.100	.050	.100	.063	950.40	109.28
.000025	300.	300.	340.	1	0	1	0.00	415.24	525.00

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
10626.00	4.50	954.50	0.00	0.00	954.50	.00	.01	.00	950.90
73.	45.	26.	2.	350.	76.	29.	105.	46.	952.00
5.54	.13	.34	.09	.100	.050	.100	.062	950.00	219.60
.000023	350.	325.	325.	0	0	1	0.00	230.73	450.33
11026.00	3.61	954.51	0.00	0.00	954.55	.04	.03	.02	959.10
73.	0.	73.	0.	0.	45.	0.	108.	47.	957.60
5.61	0.00	1.63	0.00	.100	.050	.100	.062	950.90	207.31
.001199	400.	400.	400.	0	0	1	0.00	21.22	228.53
11061.00	5.06	954.56	0.00	0.00	954.57	.01	.02	.01	957.70
73.	0.	73.	0.	0.	80.	0.	108.	47.	956.20
5.62	0.00	.91	0.00	.100	.050	.100	.062	949.50	205.00
.000248	35.	35.	35.	2	0	1	0.00	27.51	232.51

3301 HV CHANGED MORE THAN HVINS

NORMAL BRIDGE,NRD=11 MIN ELTRD= 960.80 MAX ELLC= 953.50

48" DIA CMP ON 10-MILE ROAD

11062.00	4.81	954.31	0.00	0.00	954.83	.52	.00	.25	960.80
73.	0.	73.	0.	0.	13.	0.	108.	47.	960.80
5.62	0.00	5.79	0.00	.030	.024	.030	.062	949.50	398.00
.012070	1.	1.	1.	2	0	1	-4.93	4.00	402.00

NORMAL BRIDGE,NRD=11 MIN ELTRD= 960.80 MAX ELLC= 953.80

11130.00	5.37	955.17	0.00	0.00	955.69	.52	.86	.00	960.80
73.	0.	73.	0.	0.	13.	0.	108.	47.	960.80
5.62	0.00	5.79	0.00	.030	.024	.030	.062	949.80	398.00
.013204	68.	68.	68.	2	0	1	-7.17	4.00	402.00

WATER EL=XS CARD= 956.230

11131.00	6.43	956.23	0.00	0.00	956.24	.01	.00	.15	958.00
73.	0.	73.	0.	0.	122.	0.	108.	47.	956.50
5.62	0.00	.60	0.00	.030	.024	.030	.062	949.80	202.82
.000018	1.	1.	1.	0	0	1	0.00	33.44	236.26

This CWSEL was computed based on flood routing upstream above the crossing.

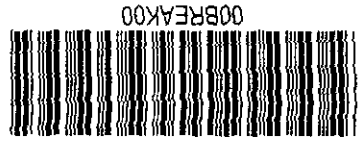


1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: NOVI-LYON DRAIN

4) DOCUMENT TYPE: SUMMARY - MULTIPLE PROFILES



SUMMARY PRINTOUT FOR MULTIPLE PROFILES

NOVI LYON DRAIN

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRIWS	EG	HV	HL	OLOSS
0.00	0.00	0.00	0.00	933.00	320.00	937.29	4.29	0.00	937.48	.19	0.00	0.00
0.00	0.00	0.00	0.00	933.00	505.00	938.07	5.07	0.00	938.34	.27	0.00	0.00
0.00	0.00	0.00	0.00	933.00	565.00	938.29	5.29	0.00	938.58	.29	0.00	0.00
0.00	0.00	0.00	0.00	933.00	800.00	939.10	6.10	0.00	939.47	.37	0.00	0.00
20.00	20.00	0.00	0.00	932.76	320.00	937.37	4.61	0.00	937.54	.17	.05	.01
20.00	20.00	0.00	0.00	932.76	505.00	938.14	5.38	0.00	938.39	.25	.05	.00
20.00	20.00	0.00	0.00	932.76	565.00	938.35	5.59	0.00	938.64	.28	.05	.00
20.00	20.00	0.00	0.00	932.76	800.00	939.15	6.39	0.00	939.53	.38	.05	.01
49.00	29.00	0.00	0.00	932.40	320.00	937.42	5.02	0.00	937.60	.18	.06	.01
49.00	29.00	0.00	0.00	932.40	505.00	938.18	5.78	0.00	938.50	.31	.07	.03
49.00	29.00	0.00	0.00	932.40	565.00	938.40	6.00	0.00	938.75	.36	.08	.04
49.00	29.00	0.00	0.00	932.40	800.00	939.17	6.77	0.00	939.69	.53	.09	.08
50.00	1.00	941.10	939.00	932.40	320.00	937.39	4.99	0.00	937.63	.24	.00	.03
50.00	1.00	941.10	939.00	932.40	505.00	938.10	5.70	0.00	938.59	.49	.00	.09
50.00	1.00	941.10	939.00	932.40	565.00	938.28	5.88	0.00	938.87	.59	.00	.12
50.00	1.00	941.10	939.00	932.40	800.00	938.89	6.49	0.00	939.98	1.08	.01	.28
109.00	59.00	941.10	939.00	931.80	320.00	937.59	5.79	0.00	937.80	.21	.16	.01
109.00	59.00	941.10	939.00	931.80	505.00	938.50	6.70	0.00	938.94	.44	.33	.02
109.00	59.00	941.10	939.00	931.80	565.00	938.76	6.96	0.00	939.30	.54	.42	.01
109.00	59.00	941.10	939.00	931.80	800.00	939.85	8.05	0.00	940.93	1.08	.95	.00
110.00	1.00	0.00	0.00	931.80	320.00	937.80	6.00	0.00	937.83	.03	.00	.05
110.00	1.00	0.00	0.00	931.80	505.00	939.00	7.20	0.00	939.02	.02	.00	.13
110.00	1.00	0.00	0.00	931.80	565.00	939.70	7.90	0.00	939.72	.02	.00	.16
110.00	1.00	0.00	0.00	931.80	800.00	941.80	10.00	0.00	941.81	.01	.00	.32
409.00	299.00	0.00	0.00	933.10	320.00	937.88	4.78	0.00	938.10	.22	.18	.10
409.00	299.00	0.00	0.00	933.10	505.00	939.02	5.92	0.00	939.28	.25	.14	.12
409.00	299.00	0.00	0.00	933.10	565.00	939.71	6.61	0.00	939.90	.20	.10	.09
409.00	299.00	0.00	0.00	933.10	800.00	941.81	8.71	0.00	941.88	.07	.04	.03
809.00	400.00	0.00	0.00	934.80	320.00	939.56	4.76	0.00	939.74	.18	1.63	.01
809.00	400.00	0.00	0.00	934.80	505.00	940.65	5.85	0.00	940.87	.21	1.58	.01
809.00	400.00	0.00	0.00	934.80	565.00	940.95	6.15	0.00	941.17	.21	1.25	.01
809.00	400.00	0.00	0.00	934.80	800.00	942.22	7.42	0.00	942.35	.13	.44	.03
959.00	150.00	0.00	0.00	935.50	320.00	940.51	5.01	0.00	940.66	.15	.91	.01
959.00	150.00	0.00	0.00	935.50	505.00	941.60	6.10	0.00	941.78	.18	.90	.01
959.00	150.00	0.00	0.00	935.50	565.00	941.87	6.37	0.00	942.05	.18	.88	.01
959.00	150.00	0.00	0.00	935.50	800.00	942.79	7.29	0.00	942.95	.15	.58	.01
1060.00	101.00	0.00	0.00	935.90	320.00	941.05	5.15	0.00	941.19	.14	.52	.00
1060.00	101.00	0.00	0.00	935.90	505.00	942.14	6.24	0.00	942.30	.16	.51	.01
1060.00	101.00	0.00	0.00	935.90	565.00	942.40	6.50	0.00	942.56	.16	.50	.01
1060.00	101.00	0.00	0.00	935.90	800.00	943.22	7.32	0.00	943.37	.15	.42	.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRIWS	EG	HV	HL	OLOSS
1109.00	49.00	0.00	0.00	936.30	320.00	941.34	5.04	0.00	941.53	.20	.32	.03
1109.00	49.00	0.00	0.00	936.30	505.00	942.41	6.11	0.00	942.62	.21	.29	.03
1109.00	49.00	0.00	0.00	936.30	565.00	942.66	6.36	0.00	942.87	.21	.29	.03
1109.00	49.00	0.00	0.00	936.30	800.00	943.44	7.14	0.00	943.64	.20	.25	.02
1110.00	1.00	941.10	938.80	936.30	320.00	942.74	6.44	942.74	943.29	.55	.01	0.00
1110.00	1.00	941.10	938.80	936.30	505.00	943.14	6.84	943.14	943.84	.70	.01	0.00
1110.00	1.00	941.10	938.80	936.30	565.00	943.30	7.00	943.30	943.97	.67	.01	0.00
1110.00	1.00	941.10	938.80	936.30	800.00	943.73	7.43	943.73	944.43	.70	.01	0.00
1140.00	30.00	941.10	939.00	936.50	320.00	943.38	6.88	0.00	943.57	.19	.17	.11
1140.00	30.00	941.10	939.00	936.50	505.00	943.92	7.42	0.00	944.13	.21	.15	.15
1140.00	30.00	941.10	939.00	936.50	565.00	944.02	7.52	0.00	944.25	.23	.14	.13
1140.00	30.00	941.10	939.00	936.50	800.00	944.42	7.92	0.00	944.69	.27	.14	.13
1141.00	1.00	0.00	0.00	936.50	320.00	943.88	7.38	0.00	943.91	.03	.00	.05
1141.00	1.00	0.00	0.00	936.50	505.00	944.26	7.76	0.00	944.30	.04	.00	.05
1141.00	1.00	0.00	0.00	936.50	565.00	944.38	7.88	0.00	944.43	.05	.00	.05
1141.00	1.00	0.00	0.00	936.50	800.00	944.73	8.23	0.00	944.80	.07	.00	.06
1600.00	459.00	0.00	0.00	937.50	320.00	944.21	6.71	0.00	944.23	.02	.32	.00
1600.00	459.00	0.00	0.00	937.50	505.00	944.75	7.25	0.00	944.79	.04	.48	.00
1600.00	459.00	0.00	0.00	937.50	565.00	944.92	7.42	0.00	944.96	.04	.52	.00
1600.00	459.00	0.00	0.00	937.50	800.00	945.44	7.94	0.00	945.50	.05	.69	.01
2060.00	460.00	0.00	0.00	938.50	320.00	944.59	6.09	0.00	944.63	.04	.40	.01
2060.00	460.00	0.00	0.00	938.50	505.00	945.26	6.76	0.00	945.32	.05	.52	.01
2060.00	460.00	0.00	0.00	938.50	565.00	945.45	6.95	0.00	945.51	.06	.54	.01
2060.00	460.00	0.00	0.00	938.50	800.00	946.07	7.57	0.00	946.14	.07	.63	.01
2560.00	500.00	0.00	0.00	939.80	320.00	945.54	5.74	0.00	945.64	.10	.98	.03
2560.00	500.00	0.00	0.00	939.80	505.00	946.41	6.61	0.00	946.57	.16	1.20	.05
2560.00	500.00	0.00	0.00	939.80	565.00	946.62	6.82	0.00	946.80	.18	1.23	.06
2560.00	500.00	0.00	0.00	939.80	800.00	947.35	7.55	0.00	947.58	.23	1.36	.08
2660.00	100.00	0.00	0.00	939.10	320.00	946.04	6.94	0.00	946.30	.27	.58	.08
2660.00	100.00	0.00	0.00	939.10	505.00	946.79	7.69	0.00	946.87	.08	.28	.02
2660.00	100.00	0.00	0.00	939.10	565.00	947.03	7.93	0.00	947.11	.09	.29	.03
2660.00	100.00	0.00	0.00	939.10	800.00	947.83	8.73	0.00	947.93	.10	.32	.04
2661.00	1.00	948.70	946.70	939.10	320.00	946.01	6.91	0.00	946.34	.33	.01	.03
2661.00	1.00	948.70	946.70	939.10	505.00	946.43	7.33	0.00	947.24	.80	.00	.36
2661.00	1.00	948.70	946.70	939.10	565.00	946.58	7.48	0.00	947.57	.99	.00	.45
2661.00	1.00	948.70	946.70	939.10	800.00	946.90	7.80	0.00	948.87	1.97	.00	.93
2737.00	76.00	948.70	947.10	939.50	320.00	946.24	6.74	0.00	946.58	.34	.24	.00
2737.00	76.00	948.70	947.10	939.50	505.00	947.09	7.59	0.00	947.87	.79	.63	.01
2737.00	76.00	948.70	947.10	939.50	565.00	947.43	7.93	0.00	948.41	.98	.84	.00
2737.00	76.00	948.70	947.10	939.50	800.00	949.80	10.30	0.00	950.01	.21	.62	.53

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRIWS	EG	HV	HL	OLOSS
2738.00	1.00	0.00	0.00	939.50	320.00	946.23	6.73	0.00	946.52	.29	.00	.02
2738.00	1.00	0.00	0.00	939.50	505.00	948.66	9.16	0.00	948.70	.04	.00	.23
2738.00	1.00	0.00	0.00	939.50	565.00	949.00	9.50	0.00	949.04	.04	.00	.28
2738.00	1.00	0.00	0.00	939.50	800.00	949.56	10.06	0.00	949.61	.05	.00	.05
3250.00	512.00	0.00	0.00	941.40	320.00	947.76	6.36	0.00	947.83	.07	1.25	.06
3250.00	512.00	0.00	0.00	941.40	505.00	948.95	7.55	0.00	949.03	.08	.31	.02
3250.00	512.00	0.00	0.00	941.40	565.00	949.28	7.88	0.00	949.36	.08	.31	.02
3250.00	512.00	0.00	0.00	941.40	800.00	949.93	8.53	0.00	950.03	.09	.39	.02
3675.00	425.00	0.00	0.00	942.30	320.00	948.47	6.17	0.00	948.59	.13	.74	.03
3675.00	425.00	0.00	0.00	942.30	505.00	949.60	7.30	0.00	949.74	.15	.68	.03
3675.00	425.00	0.00	0.00	942.30	565.00	949.90	7.60	0.00	950.05	.15	.65	.04
3675.00	425.00	0.00	0.00	942.30	800.00	950.61	8.31	0.00	950.78	.17	.72	.04
3948.00	273.00	0.00	0.00	944.00	320.00	949.22	5.22	0.00	949.36	.14	.76	.00
3948.00	273.00	0.00	0.00	944.00	505.00	950.33	6.33	0.00	950.51	.18	.75	.02
3948.00	273.00	0.00	0.00	944.00	565.00	950.61	6.61	0.00	950.80	.19	.73	.02
3948.00	273.00	0.00	0.00	944.00	800.00	951.36	7.36	0.00	951.59	.23	.78	.03
3997.00	49.00	0.00	0.00	943.00	320.00	949.40	6.40	0.00	949.47	.07	.09	.02
3997.00	49.00	0.00	0.00	943.00	505.00	950.55	7.55	0.00	950.63	.08	.09	.03
3997.00	49.00	0.00	0.00	943.00	565.00	950.84	7.84	0.00	950.92	.08	.09	.03
3997.00	49.00	0.00	0.00	943.00	800.00	951.64	8.64	0.00	951.73	.09	.09	.04
3998.00	1.00	949.40	946.50	943.00	320.00	950.65	7.65	950.65	951.11	.46	.00	0.00
3998.00	1.00	949.40	946.50	943.00	505.00	950.95	7.95	950.95	951.44	.49	.00	0.00
3998.00	1.00	949.40	946.50	943.00	565.00	951.03	8.03	951.03	951.53	.50	.00	0.00
3998.00	1.00	949.40	946.50	943.00	800.00	951.51	8.51	0.00	951.86	.36	.00	.14
4023.00	25.00	949.40	946.70	943.20	320.00	951.22	8.02	0.00	951.32	.10	.11	.11
4023.00	25.00	949.40	946.70	943.20	505.00	951.53	8.33	0.00	951.67	.14	.12	.10
4023.00	25.00	949.40	946.70	943.20	565.00	951.61	8.41	0.00	951.76	.15	.13	.11
4023.00	25.00	949.40	946.70	943.20	800.00	951.82	8.62	0.00	952.03	.21	.12	.05
4024.00	1.00	0.00	0.00	943.20	320.00	950.87	7.67	0.00	950.90	.03	.00	.02
4024.00	1.00	0.00	0.00	943.20	505.00	951.27	8.07	0.00	951.32	.05	.00	.03
4024.00	1.00	0.00	0.00	943.20	565.00	951.37	8.17	0.00	951.43	.06	.00	.03
4024.00	1.00	0.00	0.00	943.20	800.00	951.84	8.64	0.00	951.92	.08	.00	.04
4450.00	426.00	0.00	0.00	944.30	320.00	951.11	6.81	0.00	951.13	.03	.23	.00
4450.00	426.00	0.00	0.00	944.30	505.00	951.65	7.35	0.00	951.70	.04	.37	.00
4450.00	426.00	0.00	0.00	944.30	565.00	951.80	7.50	0.00	951.84	.05	.41	.00
4450.00	426.00	0.00	0.00	944.30	800.00	952.36	8.06	0.00	952.42	.06	.50	.01
4748.00	298.00	0.00	0.00	945.00	320.00	951.36	6.36	0.00	951.43	.07	.27	.02
4748.00	298.00	0.00	0.00	945.00	505.00	952.02	7.02	0.00	952.12	.11	.40	.03
4748.00	298.00	0.00	0.00	945.00	565.00	952.19	7.19	0.00	952.31	.12	.43	.04
4748.00	298.00	0.00	0.00	945.00	800.00	952.80	7.80	0.00	952.94	.14	.48	.04

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRIWS	EG	HV	HL	OLOSS
4948.00	200.00	0.00	0.00	945.70	320.00	951.75	6.05	0.00	951.83	.09	.39	.01
4948.00	200.00	0.00	0.00	945.70	505.00	952.53	6.83	0.00	952.65	.13	.52	.01
4948.00	200.00	0.00	0.00	945.70	565.00	952.73	7.03	0.00	952.86	.14	.55	.01
4948.00	200.00	0.00	0.00	945.70	800.00	953.37	7.67	0.00	953.52	.15	.58	.01
4949.00	1.00	949.40	948.00	945.70	320.00	951.83	6.13	0.00	951.85	.02	.00	.02
4949.00	1.00	949.40	948.00	945.70	505.00	952.66	6.96	0.00	952.68	.02	.00	.03
4949.00	1.00	949.40	948.00	945.70	565.00	952.87	7.17	0.00	952.90	.03	.00	.03
4949.00	1.00	949.40	948.00	945.70	800.00	953.53	7.83	0.00	953.56	.03	.00	.04
4966.00	17.00	949.30	948.00	945.70	320.00	951.85	6.15	0.00	951.87	.02	.02	.00
4966.00	17.00	949.30	948.00	945.70	505.00	952.67	6.97	0.00	952.70	.02	.01	.00
4966.00	17.00	949.30	948.00	945.70	565.00	952.88	7.18	0.00	952.91	.03	.01	.00
4966.00	17.00	949.30	948.00	945.70	800.00	953.54	7.84	0.00	953.57	.03	.01	.00
4967.00	1.00	0.00	0.00	945.70	320.00	951.82	6.12	0.00	951.90	.08	.00	.03
4967.00	1.00	0.00	0.00	945.70	505.00	952.62	6.92	0.00	952.75	.13	.00	.05
4967.00	1.00	0.00	0.00	945.70	565.00	952.82	7.12	0.00	952.96	.14	.00	.06
4967.00	1.00	0.00	0.00	945.70	800.00	953.47	7.77	0.00	953.64	.17	.00	.07
4980.00	13.00	0.00	0.00	945.60	320.00	951.83	6.23	0.00	951.91	.08	.01	.00
4980.00	13.00	0.00	0.00	945.60	505.00	952.64	7.04	0.00	952.76	.12	.01	.00
4980.00	13.00	0.00	0.00	945.60	565.00	952.85	7.25	0.00	952.98	.13	.01	.00
4980.00	13.00	0.00	0.00	945.60	800.00	953.50	7.90	0.00	953.66	.16	.01	.00
4981.00	1.00	950.50	950.00	945.60	320.00	951.84	6.24	951.84	952.09	.25	.00	0.00
4981.00	1.00	950.50	950.00	945.60	505.00	952.71	7.11	0.00	952.78	.07	.00	.01
4981.00	1.00	950.50	950.00	945.60	565.00	952.94	7.34	0.00	953.00	.06	.00	.02
4981.00	1.00	950.50	950.00	945.60	800.00	953.63	8.03	0.00	953.69	.06	.00	.03
5011.00	30.00	950.50	949.90	945.50	320.00	952.13	6.63	0.00	952.22	.09	.09	.05
5011.00	30.00	950.50	949.90	945.50	505.00	952.74	7.24	0.00	952.81	.07	.03	.00
5011.00	30.00	950.50	949.90	945.50	565.00	952.96	7.46	0.00	953.02	.06	.02	.00
5011.00	30.00	950.50	949.90	945.50	800.00	953.64	8.14	0.00	953.70	.06	.01	.00
5012.00	1.00	0.00	0.00	945.50	320.00	952.18	6.68	0.00	952.23	.06	.00	.01
5012.00	1.00	0.00	0.00	945.50	505.00	952.72	7.22	0.00	952.82	.10	.00	.02
5012.00	1.00	0.00	0.00	945.50	565.00	952.94	7.44	0.00	953.04	.11	.00	.02
5012.00	1.00	0.00	0.00	945.50	800.00	953.61	8.11	0.00	953.73	.12	.00	.03
5261.00	249.00	0.00	0.00	946.20	140.00	952.25	6.05	0.00	952.26	.00	.01	.02
5261.00	249.00	0.00	0.00	946.20	225.00	952.85	6.65	0.00	952.86	.01	.01	.03
5261.00	249.00	0.00	0.00	946.20	255.00	953.07	6.87	0.00	953.08	.01	.01	.03
5261.00	249.00	0.00	0.00	946.20	350.00	953.77	7.57	0.00	953.78	.01	.01	.03
5280.00	19.00	0.00	0.00	946.10	140.00	952.25	6.15	0.00	952.26	.00	.00	.00
5280.00	19.00	0.00	0.00	946.10	225.00	952.85	6.75	0.00	952.86	.01	.00	.00
5280.00	19.00	0.00	0.00	946.10	255.00	953.08	6.98	0.00	953.08	.01	.00	.00
5280.00	19.00	0.00	0.00	946.10	350.00	953.77	7.67	0.00	953.78	.01	.00	.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRIWS	EG	HV	HL	OLOSS
5281.00	1.00	947.80	948.20	946.10	140.00	952.26	6.16	0.00	952.26	.00	.00	.00
5281.00	1.00	947.80	948.20	946.10	225.00	952.86	6.76	0.00	952.86	.00	.00	.00
5281.00	1.00	947.80	948.20	946.10	255.00	953.08	6.98	0.00	953.08	.00	.00	.00
5281.00	1.00	947.80	948.20	946.10	350.00	953.78	7.68	0.00	953.78	.00	.00	.00
5295.00	14.00	947.80	948.20	946.10	140.00	952.26	6.16	0.00	952.26	.00	.00	.00
5295.00	14.00	947.80	948.20	946.10	225.00	952.86	6.76	0.00	952.86	.00	.00	.00
5295.00	14.00	947.80	948.20	946.10	255.00	953.08	6.98	0.00	953.08	.00	.00	.00
5295.00	14.00	947.80	948.20	946.10	350.00	953.78	7.68	0.00	953.78	.00	.00	.00
5296.00	1.00	0.00	0.00	946.10	140.00	952.26	6.16	0.00	952.26	.00	.00	.00
5296.00	1.00	0.00	0.00	946.10	225.00	952.86	6.76	0.00	952.86	.00	.00	.00
5296.00	1.00	0.00	0.00	946.10	255.00	953.08	6.98	0.00	953.09	.00	.00	.00
5296.00	1.00	0.00	0.00	946.10	350.00	953.78	7.68	0.00	953.78	.01	.00	.00
5751.00	455.00	0.00	0.00	946.30	140.00	952.27	5.97	0.00	952.27	.00	.02	.00
5751.00	455.00	0.00	0.00	946.30	225.00	952.89	6.59	0.00	952.89	.00	.02	.00
5751.00	455.00	0.00	0.00	946.30	255.00	953.11	6.81	0.00	953.11	.00	.02	.00
5751.00	455.00	0.00	0.00	946.30	350.00	953.81	7.51	0.00	953.81	.00	.03	.00
6251.00	500.00	0.00	0.00	946.70	140.00	952.29	5.59	0.00	952.29	.00	.01	.00
6251.00	500.00	0.00	0.00	946.70	225.00	952.90	6.20	0.00	952.90	.00	.02	.00
6251.00	500.00	0.00	0.00	946.70	255.00	953.13	6.43	0.00	953.13	.00	.02	.00
6251.00	500.00	0.00	0.00	946.70	350.00	953.83	7.13	0.00	953.83	.00	.02	.00
6700.00	449.00	0.00	0.00	947.57	115.00	952.31	4.74	0.00	952.31	.00	.02	.00
6700.00	449.00	0.00	0.00	947.57	175.00	952.93	5.36	0.00	952.93	.00	.03	.00
6700.00	449.00	0.00	0.00	947.57	195.00	953.16	5.59	0.00	953.16	.00	.03	.00
6700.00	449.00	0.00	0.00	947.57	260.00	953.85	6.28	0.00	953.85	.00	.02	.00
7076.00	376.00	0.00	0.00	948.30	115.00	952.38	4.08	0.00	952.38	.01	.07	.00
7076.00	376.00	0.00	0.00	948.30	175.00	952.99	4.69	0.00	952.99	.01	.06	.00
7076.00	376.00	0.00	0.00	948.30	195.00	953.21	4.91	0.00	953.21	.01	.05	.00
7076.00	376.00	0.00	0.00	948.30	260.00	953.89	5.59	0.00	953.90	.00	.04	.00
7326.00	250.00	0.00	0.00	948.40	115.00	952.50	4.10	0.00	952.50	.00	.11	.00
7326.00	250.00	0.00	0.00	948.40	175.00	953.08	4.68	0.00	953.08	.00	.08	.00
7326.00	250.00	0.00	0.00	948.40	195.00	953.28	4.88	0.00	953.29	.00	.07	.00
7326.00	250.00	0.00	0.00	948.40	260.00	953.94	5.54	0.00	953.95	.00	.05	.00
7626.00	285.00	0.00	0.00	948.43	115.00	952.62	4.19	0.00	952.62	.01	.12	.00
7626.00	285.00	0.00	0.00	948.43	175.00	953.17	4.74	0.00	953.18	.01	.10	.00
7626.00	285.00	0.00	0.00	948.43	195.00	953.38	4.95	0.00	953.38	.01	.09	.00
7626.00	285.00	0.00	0.00	948.43	260.00	954.01	5.58	0.00	954.02	.01	.07	.00
8026.00	400.00	0.00	0.00	948.70	90.00	952.77	4.07	0.00	952.78	.01	.15	.00
8026.00	400.00	0.00	0.00	948.70	125.00	953.30	4.60	0.00	953.30	.01	.12	.00
8026.00	400.00	0.00	0.00	948.70	135.00	953.49	4.79	0.00	953.49	.01	.11	.00
8026.00	400.00	0.00	0.00	948.70	170.00	954.09	5.39	0.00	954.09	.00	.08	.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRIWS	EG	HV	HL	OLOSS
8301.00	275.00	0.00	0.00	948.85	90.00	952.84	3.99	0.00	952.85	.01	.07	.00
8301.00	275.00	0.00	0.00	948.85	125.00	953.36	4.51	0.00	953.36	.01	.06	.00
8301.00	275.00	0.00	0.00	948.85	135.00	953.53	4.68	0.00	953.54	.00	.05	.00
8301.00	275.00	0.00	0.00	948.85	170.00	954.12	5.27	0.00	954.12	.00	.03	.00
8501.00	200.00	0.00	0.00	948.95	90.00	952.90	3.95	0.00	952.91	.01	.06	.00
8501.00	200.00	0.00	0.00	948.95	125.00	953.41	4.46	0.00	953.42	.01	.06	.00
8501.00	200.00	0.00	0.00	948.95	135.00	953.58	4.63	0.00	953.60	.01	.05	.00
8501.00	200.00	0.00	0.00	948.95	170.00	954.15	5.20	0.00	954.17	.01	.04	.01
8801.00	300.00	0.00	0.00	949.10	90.00	953.14	4.04	0.00	953.25	.11	.29	.05
8801.00	300.00	0.00	0.00	949.10	125.00	953.66	4.56	0.00	953.77	.11	.30	.05
8801.00	300.00	0.00	0.00	949.10	135.00	953.82	4.72	0.00	953.92	.11	.28	.05
8801.00	300.00	0.00	0.00	949.10	170.00	954.34	5.24	0.00	954.43	.09	.22	.04
9101.00	325.00	0.00	0.00	949.28	90.00	953.67	4.39	0.00	953.68	.02	.41	.03
9101.00	325.00	0.00	0.00	949.28	125.00	954.17	4.89	0.00	954.19	.02	.40	.03
9101.00	325.00	0.00	0.00	949.28	135.00	954.31	5.03	0.00	954.33	.02	.38	.03
9101.00	325.00	0.00	0.00	949.28	170.00	954.77	5.49	0.00	954.79	.02	.34	.02
9376.00	300.00	0.00	0.00	949.45	90.00	953.78	4.33	0.00	953.79	.01	.11	.00
9376.00	300.00	0.00	0.00	949.45	125.00	954.29	4.84	0.00	954.30	.01	.11	.00
9376.00	300.00	0.00	0.00	949.45	135.00	954.43	4.98	0.00	954.44	.01	.11	.00
9376.00	300.00	0.00	0.00	949.45	170.00	954.88	5.43	0.00	954.89	.02	.10	.00
9626.00	250.00	0.00	0.00	949.60	62.00	953.84	4.24	0.00	953.84	.01	.05	.00
9626.00	250.00	0.00	0.00	949.60	71.00	954.34	4.74	0.00	954.35	.00	.04	.00
9626.00	250.00	0.00	0.00	949.60	73.00	954.48	4.88	0.00	954.48	.00	.04	.00
9626.00	250.00	0.00	0.00	949.60	81.00	954.93	5.33	0.00	954.93	.00	.04	.00
10001.00	375.00	0.00	0.00	949.90	62.00	953.85	3.95	0.00	953.85	.00	.01	.00
10001.00	375.00	0.00	0.00	949.90	71.00	954.35	4.45	0.00	954.35	.00	.01	.00
10001.00	375.00	0.00	0.00	949.90	73.00	954.49	4.59	0.00	954.49	.00	.01	.00
10001.00	375.00	0.00	0.00	949.90	81.00	954.94	5.04	0.00	954.94	.00	.00	.00
10301.00	300.00	0.00	0.00	950.40	62.00	953.86	3.46	0.00	953.86	.00	.01	.00
10301.00	300.00	0.00	0.00	950.40	71.00	954.36	3.96	0.00	954.36	.00	.00	.00
10301.00	300.00	0.00	0.00	950.40	73.00	954.49	4.09	0.00	954.49	.00	.00	.00
10301.00	300.00	0.00	0.00	950.40	81.00	954.94	4.54	0.00	954.94	.00	.00	.00
10626.00	325.00	0.00	0.00	950.00	62.00	953.87	3.87	0.00	953.87	.00	.02	.00
10626.00	325.00	0.00	0.00	950.00	71.00	954.37	4.37	0.00	954.37	.00	.01	.00
10626.00	325.00	0.00	0.00	950.00	73.00	954.50	4.50	0.00	954.50	.00	.01	.00
10626.00	325.00	0.00	0.00	950.00	81.00	954.95	4.95	0.00	954.95	.00	.01	.00
11026.00	400.00	0.00	0.00	950.90	62.00	953.89	2.99	0.00	953.95	.06	.05	.03
11026.00	400.00	0.00	0.00	950.90	71.00	954.38	3.48	0.00	954.42	.04	.03	.02
11026.00	400.00	0.00	0.00	950.90	73.00	954.51	3.61	0.00	954.55	.04	.03	.02
11026.00	400.00	0.00	0.00	950.90	81.00	954.95	4.05	0.00	954.98	.03	.02	.02

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRIWS	EG	HV	HL	OLOSS
11061.00	35.00	0.00	0.00	949.50	62.00	953.97	4.47	0.00	953.99	.01	.02	.01
11061.00	35.00	0.00	0.00	949.50	71.00	954.43	4.93	0.00	954.45	.01	.02	.01
11061.00	35.00	0.00	0.00	949.50	73.00	954.56	5.06	0.00	954.57	.01	.02	.01
11061.00	35.00	0.00	0.00	949.50	81.00	954.99	5.49	0.00	955.00	.01	.01	.01
11062.00	1.00	960.80	953.50	949.50	62.00	953.79	4.29	0.00	954.17	.38	.00	.18
11062.00	1.00	960.80	953.50	949.50	71.00	954.20	4.70	0.00	954.69	.49	.00	.24
11062.00	1.00	960.80	953.50	949.50	73.00	954.31	4.81	0.00	954.83	.52	.00	.25
11062.00	1.00	960.80	953.50	949.50	81.00	954.68	5.18	0.00	955.32	.64	.00	.31
11130.00	68.00	960.80	953.80	949.80	62.00	954.35	4.55	0.00	954.72	.38	.55	.00
11130.00	68.00	960.80	953.80	949.80	71.00	954.99	5.19	0.00	955.48	.49	.79	.00
11130.00	68.00	960.80	953.80	949.80	73.00	955.17	5.37	0.00	955.69	.52	.86	.00
11130.00	68.00	960.80	953.80	949.80	81.00	955.82	6.02	0.00	956.46	.64	1.14	.00
11131.00	1.00	0.00	0.00	949.80	62.00	955.25	5.45	0.00	955.26	.01	.00	.11
11131.00	1.00	0.00	0.00	949.80	71.00	956.01	6.21	0.00	956.02	.01	.00	.15
11131.00	1.00	0.00	0.00	949.80	73.00	956.23	6.43	0.00	956.24	.01	.00	.15
11131.00	1.00	0.00	0.00	949.80	81.00	956.91	7.11	0.00	956.91	.00	.00	.19

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	320.000	937.290	0.000	0.000	0.000	0.000	0.000	-0.000
0.000	505.000	938.070	.780	0.000	0.000	0.000	0.000	-0.000
0.000	565.000	938.290	.220	0.000	0.000	0.000	0.000	-0.000
0.000	800.000	939.100	.810	0.000	0.000	0.000	0.000	-0.000
20.000	320.000	937.370	0.000	.080	0.000	0.000	0.000	20.000
20.000	505.000	938.139	.769	.069	0.000	0.000	0.000	20.000
20.000	565.000	938.353	.214	.063	0.000	0.000	0.000	20.000
20.000	800.000	939.147	.794	.047	0.000	0.000	0.000	20.000
49.000	320.000	937.420	0.000	.050	0.000	0.000	0.000	29.000
49.000	505.000	938.185	.765	.046	0.000	0.000	0.000	29.000
49.000	565.000	938.395	.210	.042	0.000	0.000	0.000	29.000
49.000	800.000	939.165	.770	.018	0.000	0.000	0.000	29.000
50.000	320.000	937.391	0.000	-.029	0.000	0.000	0.000	1.000
50.000	505.000	938.097	.706	-.088	0.000	0.000	0.000	1.000
50.000	565.000	938.283	.186	-.112	0.000	0.000	0.000	1.000
50.000	800.000	938.895	.612	-.270	0.000	0.000	0.000	1.000
109.000	320.000	937.591	0.000	.200	0.000	0.000	0.000	59.000
109.000	505.000	938.497	.905	.400	0.000	0.000	0.000	59.000
109.000	565.000	938.760	.263	.477	0.000	0.000	0.000	59.000
109.000	800.000	939.849	1.089	.954	0.000	0.000	0.000	59.000
110.000	320.000	937.800	0.000	.209	0.000	0.000	0.000	1.000
110.000	505.000	939.000	1.200	.503	0.000	0.000	0.000	1.000
110.000	565.000	939.700	.700	.940	0.000	0.000	0.000	1.000
110.000	800.000	941.800	2.100	1.951	0.000	0.000	0.000	1.000
409.000	320.000	937.883	0.000	.083	0.000	0.000	0.000	299.000
409.000	505.000	939.022	1.140	.022	0.000	0.000	0.000	299.000
409.000	565.000	939.707	.685	.007	0.000	0.000	0.000	299.000
409.000	800.000	941.810	2.103	.010	0.000	0.000	0.000	299.000
809.000	320.000	939.561	0.000	1.678	0.000	0.000	0.000	400.000
809.000	505.000	940.655	1.094	1.632	0.000	0.000	0.000	400.000
809.000	565.000	940.953	.298	1.246	0.000	0.000	0.000	400.000
809.000	800.000	942.217	1.264	.408	0.000	0.000	0.000	400.000

959.000	320.000	940.509	0.000	.948	0.000	0.000	0.000	150.000
959.000	505.000	941.602	1.093	.947	0.000	0.000	0.000	150.000
959.000	565.000	941.873	.271	.919	0.000	0.000	0.000	150.000
959.000	800.000	942.792	.920	.575	0.000	0.000	0.000	150.000
1060.000	320.000	941.048	0.000	.539	0.000	0.000	0.000	101.000
1060.000	505.000	942.138	1.090	.536	0.000	0.000	0.000	101.000
1060.000	565.000	942.402	.264	.529	0.000	0.000	0.000	101.000
1060.000	800.000	943.217	.816	.425	0.000	0.000	0.000	101.000
1109.000	320.000	941.335	0.000	.287	0.000	0.000	0.000	49.000
1109.000	505.000	942.405	1.070	.268	0.000	0.000	0.000	49.000
1109.000	565.000	942.663	.257	.261	0.000	0.000	0.000	49.000
1109.000	800.000	943.444	.782	.227	0.000	0.000	0.000	49.000
1110.000	320.000	942.744	0.000	1.408	0.000	0.000	0.000	1.000
1110.000	505.000	943.139	.396	.734	0.000	0.000	0.000	1.000
1110.000	565.000	943.301	.162	.639	0.000	0.000	0.000	1.000
1110.000	800.000	943.732	.431	.288	0.000	0.000	0.000	1.000
1140.000	320.000	943.378	0.000	.634	0.000	0.000	0.000	30.000
1140.000	505.000	943.918	.541	.779	0.000	0.000	0.000	30.000
1140.000	565.000	944.020	.102	.719	0.000	0.000	0.000	30.000
1140.000	800.000	944.418	.398	.686	0.000	0.000	0.000	30.000
1141.000	320.000	943.880	0.000	.502	0.000	0.000	0.000	1.000
1141.000	505.000	944.260	.380	.342	0.000	0.000	0.000	1.000
1141.000	565.000	944.380	.120	.360	0.000	0.000	0.000	1.000
1141.000	800.000	944.730	.350	.312	0.000	0.000	0.000	1.000
1600.000	320.000	944.205	0.000	.325	0.000	0.000	0.000	459.000
1600.000	505.000	944.754	.549	.494	0.000	0.000	0.000	459.000
1600.000	565.000	944.917	.163	.537	0.000	0.000	0.000	459.000
1600.000	800.000	945.444	.527	.714	0.000	0.000	0.000	459.000
2060.000	320.000	944.592	0.000	.387	0.000	0.000	0.000	460.000
2060.000	505.000	945.265	.672	.511	0.000	0.000	0.000	460.000
2060.000	565.000	945.449	.184	.532	0.000	0.000	0.000	460.000
2060.000	800.000	946.068	.619	.624	0.000	0.000	0.000	460.000
2560.000	320.000	945.538	0.000	.946	0.000	0.000	0.000	500.000
2560.000	505.000	946.410	.872	1.146	0.000	0.000	0.000	500.000
2560.000	565.000	946.620	.209	1.171	0.000	0.000	0.000	500.000
2560.000	800.000	947.351	.732	1.283	0.000	0.000	0.000	500.000
2660.000	320.000	946.036	0.000	.497	0.000	0.000	0.000	100.000
2660.000	505.000	946.790	.754	.380	0.000	0.000	0.000	100.000
2660.000	565.000	947.026	.236	.406	0.000	0.000	0.000	100.000
2660.000	800.000	947.825	.799	.474	0.000	0.000	0.000	100.000
2661.000	320.000	946.008	0.000	-.027	0.000	0.000	0.000	1.000
2661.000	505.000	946.433	.425	-.357	0.000	0.000	0.000	1.000
2661.000	565.000	946.577	.144	-.449	0.000	0.000	0.000	1.000
2661.000	800.000	946.897	.319	-.928	0.000	0.000	0.000	1.000
2737.000	320.000	946.241	0.000	.233	0.000	0.000	0.000	76.000
2737.000	505.000	947.085	.844	.652	0.000	0.000	0.000	76.000
2737.000	565.000	947.430	.345	.853	0.000	0.000	0.000	76.000
2737.000	800.000	949.802	2.372	2.905	0.000	0.000	0.000	76.000
2738.000	320.000	946.230	0.000	-.011	0.000	0.000	0.000	1.000
2738.000	505.000	948.660	2.430	1.575	0.000	0.000	0.000	1.000
2738.000	565.000	949.000	.340	1.570	0.000	0.000	0.000	1.000
2738.000	800.000	949.560	.560	-.242	0.000	0.000	0.000	1.000

3250.000	320.000	947.755	0.000	1.525	0.000	0.000	0.000	512.000
3250.000	505.000	948.953	1.198	.293	0.000	0.000	0.000	512.000
3250.000	565.000	949.285	.332	.285	0.000	0.000	0.000	512.000
3250.000	800.000	949.933	.648	.373	0.000	0.000	0.000	512.000
3675.000	320.000	948.469	0.000	.714	0.000	0.000	0.000	425.000
3675.000	505.000	949.596	1.127	.642	0.000	0.000	0.000	425.000
3675.000	565.000	949.896	.300	.611	0.000	0.000	0.000	425.000
3675.000	800.000	950.614	.718	.681	0.000	0.000	0.000	425.000
3948.000	320.000	949.225	0.000	.756	0.000	0.000	0.000	273.000
3948.000	505.000	950.331	1.106	.736	0.000	0.000	0.000	273.000
3948.000	565.000	950.609	.278	.713	0.000	0.000	0.000	273.000
3948.000	800.000	951.364	.755	.750	0.000	0.000	0.000	273.000
3997.000	320.000	949.400	0.000	.175	0.000	0.000	0.000	49.000
3997.000	505.000	950.552	1.151	.220	0.000	0.000	0.000	49.000
3997.000	565.000	950.839	.288	.231	0.000	0.000	0.000	49.000
3997.000	800.000	951.641	.802	.277	0.000	0.000	0.000	49.000
3998.000	320.000	950.654	0.000	1.254	0.000	0.000	0.000	1.000
3998.000	505.000	950.953	.298	.401	0.000	0.000	0.000	1.000
3998.000	565.000	951.031	.078	.192	0.000	0.000	0.000	1.000
3998.000	800.000	951.507	.476	-.133	0.000	0.000	0.000	1.000
4023.000	320.000	951.219	0.000	.565	0.000	0.000	0.000	25.000
4023.000	505.000	951.527	.308	.574	0.000	0.000	0.000	25.000
4023.000	565.000	951.613	.086	.582	0.000	0.000	0.000	25.000
4023.000	800.000	951.822	.209	.315	0.000	0.000	0.000	25.000
4024.000	320.000	950.870	0.000	-.349	0.000	0.000	0.000	1.000
4024.000	505.000	951.270	.400	-.257	0.000	0.000	0.000	1.000
4024.000	565.000	951.370	.100	-.243	0.000	0.000	0.000	1.000
4024.000	800.000	951.840	.470	.018	0.000	0.000	0.000	1.000
4450.000	320.000	951.107	0.000	.237	0.000	0.000	0.000	426.000
4450.000	505.000	951.653	.547	.383	0.000	0.000	0.000	426.000
4450.000	565.000	951.798	.144	.428	0.000	0.000	0.000	426.000
4450.000	800.000	952.363	.565	.523	0.000	0.000	0.000	426.000
4748.000	320.000	951.360	0.000	.253	0.000	0.000	0.000	298.000
4748.000	505.000	952.015	.655	.362	0.000	0.000	0.000	298.000
4748.000	565.000	952.188	.172	.390	0.000	0.000	0.000	298.000
4748.000	800.000	952.799	.612	.437	0.000	0.000	0.000	298.000
4948.000	320.000	951.746	0.000	.386	0.000	0.000	0.000	200.000
4948.000	505.000	952.528	.782	.513	0.000	0.000	0.000	200.000
4948.000	565.000	952.726	.198	.538	0.000	0.000	0.000	200.000
4948.000	800.000	953.371	.645	.572	0.000	0.000	0.000	200.000
4949.000	320.000	951.831	0.000	.085	0.000	0.000	0.000	1.000
4949.000	505.000	952.660	.829	.132	0.000	0.000	0.000	1.000
4949.000	565.000	952.869	.209	.143	0.000	0.000	0.000	1.000
4949.000	800.000	953.527	.657	.156	0.000	0.000	0.000	1.000
4966.000	320.000	951.846	0.000	.015	0.000	0.000	0.000	17.000
4966.000	505.000	952.671	.825	.011	0.000	0.000	0.000	17.000
4966.000	565.000	952.880	.209	.010	0.000	0.000	0.000	17.000
4966.000	800.000	953.537	.657	.010	0.000	0.000	0.000	17.000
4967.000	320.000	951.816	0.000	-.030	0.000	0.000	0.000	1.000
4967.000	505.000	952.620	.804	-.051	0.000	0.000	0.000	1.000
4967.000	565.000	952.824	.204	-.056	0.000	0.000	0.000	1.000
4967.000	800.000	953.468	.645	-.068	0.000	0.000	0.000	1.000
4980.000	320.000	951.832	0.000	.016	0.000	0.000	0.000	13.000

4980.000	505.000	952.643	.812	.023	0.000	0.000	0.000	13.000
4980.000	565.000	952.850	.207	.026	0.000	0.000	0.000	13.000
4980.000	800.000	953.503	.653	.034	0.000	0.000	0.000	13.000
4981.000	320.000	951.839	0.000	.008	0.000	0.000	0.000	1.000
4981.000	505.000	952.707	.868	.064	0.000	0.000	0.000	1.000
4981.000	565.000	952.935	.228	.085	0.000	0.000	0.000	1.000
4981.000	800.000	953.627	.692	.125	0.000	0.000	0.000	1.000
5011.000	320.000	952.131	0.000	.292	0.000	0.000	0.000	30.000
5011.000	505.000	952.739	.608	.032	0.000	0.000	0.000	30.000
5011.000	565.000	952.960	.221	.025	0.000	0.000	0.000	30.000
5011.000	800.000	953.644	.683	.016	0.000	0.000	0.000	30.000
5012.000	320.000	952.175	0.000	.044	0.000	0.000	0.000	1.000
5012.000	505.000	952.723	.548	-.016	0.000	0.000	0.000	1.000
5012.000	565.000	952.938	.215	-.022	0.000	0.000	0.000	1.000
5012.000	800.000	953.613	.675	-.030	0.000	0.000	0.000	1.000
5261.000	140.000	952.251	0.000	.076	0.000	0.000	0.000	249.000
5261.000	225.000	952.852	.601	.129	0.000	0.000	0.000	249.000
5261.000	255.000	953.075	.223	.137	0.000	0.000	0.000	249.000
5261.000	350.000	953.769	.694	.155	0.000	0.000	0.000	249.000
5280.000	140.000	952.251	0.000	.000	0.000	0.000	0.000	19.000
5280.000	225.000	952.852	.601	.001	0.000	0.000	0.000	19.000
5280.000	255.000	953.075	.223	.001	0.000	0.000	0.000	19.000
5280.000	350.000	953.769	.694	.001	0.000	0.000	0.000	19.000
5281.000	140.000	952.256	0.000	.005	0.000	0.000	0.000	1.000
5281.000	225.000	952.859	.603	.007	0.000	0.000	0.000	1.000
5281.000	255.000	953.083	.223	.007	0.000	0.000	0.000	1.000
5281.000	350.000	953.777	.694	.008	0.000	0.000	0.000	1.000
5295.000	140.000	952.256	0.000	.000	0.000	0.000	0.000	14.000
5295.000	225.000	952.859	.603	.000	0.000	0.000	0.000	14.000
5295.000	255.000	953.083	.223	.000	0.000	0.000	0.000	14.000
5295.000	350.000	953.777	.694	.000	0.000	0.000	0.000	14.000
5296.000	140.000	952.255	0.000	-.001	0.000	0.000	0.000	1.000
5296.000	225.000	952.858	.603	-.002	0.000	0.000	0.000	1.000
5296.000	255.000	953.081	.223	-.002	0.000	0.000	0.000	1.000
5296.000	350.000	953.775	.694	-.002	0.000	0.000	0.000	1.000
5751.000	140.000	952.274	0.000	.019	0.000	0.000	0.000	455.000
5751.000	225.000	952.885	.611	.027	0.000	0.000	0.000	455.000
5751.000	255.000	953.110	.225	.029	0.000	0.000	0.000	455.000
5751.000	350.000	953.806	.696	.031	0.000	0.000	0.000	455.000
6251.000	140.000	952.287	0.000	.013	0.000	0.000	0.000	500.000
6251.000	225.000	952.903	.616	.018	0.000	0.000	0.000	500.000
6251.000	255.000	953.129	.226	.019	0.000	0.000	0.000	500.000
6251.000	350.000	953.826	.698	.020	0.000	0.000	0.000	500.000
6700.000	115.000	952.311	0.000	.024	0.000	0.000	0.000	449.000
6700.000	175.000	952.931	.619	.028	0.000	0.000	0.000	449.000
6700.000	195.000	953.156	.225	.027	0.000	0.000	0.000	449.000
6700.000	260.000	953.851	.695	.025	0.000	0.000	0.000	449.000
7076.000	115.000	952.377	0.000	.065	0.000	0.000	0.000	376.000
7076.000	175.000	952.988	.611	.057	0.000	0.000	0.000	376.000
7076.000	195.000	953.208	.220	.052	0.000	0.000	0.000	376.000
7076.000	260.000	953.891	.683	.039	0.000	0.000	0.000	376.000
7326.000	115.000	952.495	0.000	.119	0.000	0.000	0.000	250.000
7326.000	175.000	953.075	.580	.088	0.000	0.000	0.000	250.000

7326.000	195.000	953.285	.209	.077	0.000	0.000	0.000	250.000
7326.000	260.000	953.944	.659	.053	0.000	0.000	0.000	250.000
7626.000	115.000	952.617	0.000	.122	0.000	0.000	0.000	285.000
7626.000	175.000	953.174	.558	.099	0.000	0.000	0.000	285.000
7626.000	195.000	953.375	.201	.090	0.000	0.000	0.000	285.000
7626.000	260.000	954.010	.635	.066	0.000	0.000	0.000	285.000
8026.000	90.000	952.768	0.000	.152	0.000	0.000	0.000	400.000
8026.000	125.000	953.298	.529	.123	0.000	0.000	0.000	400.000
8026.000	135.000	953.485	.188	.110	0.000	0.000	0.000	400.000
8026.000	170.000	954.089	.603	.078	0.000	0.000	0.000	400.000
8301.000	90.000	952.841	0.000	.072	0.000	0.000	0.000	275.000
8301.000	125.000	953.355	.515	.058	0.000	0.000	0.000	275.000
8301.000	135.000	953.534	.179	.049	0.000	0.000	0.000	275.000
8301.000	170.000	954.120	.586	.032	0.000	0.000	0.000	275.000
8501.000	90.000	952.899	0.000	.058	0.000	0.000	0.000	200.000
8501.000	125.000	953.409	.510	.053	0.000	0.000	0.000	200.000
8501.000	135.000	953.581	.173	.047	0.000	0.000	0.000	200.000
8501.000	170.000	954.153	.571	.033	0.000	0.000	0.000	200.000
8801.000	90.000	953.143	0.000	.244	0.000	0.000	0.000	300.000
8801.000	125.000	953.660	.517	.252	0.000	0.000	0.000	300.000
8801.000	135.000	953.816	.155	.234	0.000	0.000	0.000	300.000
8801.000	170.000	954.338	.523	.185	0.000	0.000	0.000	300.000
9101.000	90.000	953.668	0.000	.524	0.000	0.000	0.000	325.000
9101.000	125.000	954.173	.505	.512	0.000	0.000	0.000	325.000
9101.000	135.000	954.312	.139	.496	0.000	0.000	0.000	325.000
9101.000	170.000	954.772	.460	.434	0.000	0.000	0.000	325.000
9376.000	90.000	953.783	0.000	.115	0.000	0.000	0.000	300.000
9376.000	125.000	954.289	.506	.117	0.000	0.000	0.000	300.000
9376.000	135.000	954.426	.137	.114	0.000	0.000	0.000	300.000
9376.000	170.000	954.878	.452	.107	0.000	0.000	0.000	300.000
9626.000	62.000	953.835	0.000	.052	0.000	0.000	0.000	250.000
9626.000	71.000	954.342	.507	.053	0.000	0.000	0.000	250.000
9626.000	73.000	954.479	.137	.053	0.000	0.000	0.000	250.000
9626.000	81.000	954.931	.452	.052	0.000	0.000	0.000	250.000
10001.000	62.000	953.851	0.000	.015	0.000	0.000	0.000	375.000
10001.000	71.000	954.354	.503	.012	0.000	0.000	0.000	375.000
10001.000	73.000	954.490	.136	.011	0.000	0.000	0.000	375.000
10001.000	81.000	954.939	.450	.009	0.000	0.000	0.000	375.000
10301.000	62.000	953.856	0.000	.005	0.000	0.000	0.000	300.000
10301.000	71.000	954.357	.501	.003	0.000	0.000	0.000	300.000
10301.000	73.000	954.493	.136	.003	0.000	0.000	0.000	300.000
10301.000	81.000	954.941	.449	.002	0.000	0.000	0.000	300.000
10626.000	62.000	953.873	0.000	.017	0.000	0.000	0.000	325.000
10626.000	71.000	954.366	.494	.009	0.000	0.000	0.000	325.000
10626.000	73.000	954.501	.134	.008	0.000	0.000	0.000	325.000
10626.000	81.000	954.946	.446	.005	0.000	0.000	0.000	325.000
11026.000	62.000	953.894	0.000	.022	0.000	0.000	0.000	400.000
11026.000	71.000	954.377	.483	.010	0.000	0.000	0.000	400.000
11026.000	73.000	954.509	.132	.008	0.000	0.000	0.000	400.000
11026.000	81.000	954.950	.441	.004	0.000	0.000	0.000	400.000
11061.000	62.000	953.972	0.000	.077	0.000	0.000	0.000	35.000
11061.000	71.000	954.435	.463	.058	0.000	0.000	0.000	35.000
11061.000	73.000	954.562	.127	.053	0.000	0.000	0.000	35.000

11061.000	81.000	954.992	.430	.042	0.000	0.000	0.000	35.000
11062.000	62.000	953.792	0.000	-.180	0.000	0.000	0.000	1.000
11062.000	71.000	954.196	.404	-.239	0.000	0.000	0.000	1.000
11062.000	73.000	954.309	.113	-.253	0.000	0.000	0.000	1.000
11062.000	81.000	954.678	.369	-.314	0.000	0.000	0.000	1.000
11130.000	62.000	954.346	0.000	.554	0.000	0.000	0.000	68.000
11130.000	71.000	954.989	.643	.793	0.000	0.000	0.000	68.000
11130.000	73.000	955.167	.178	.858	0.000	0.000	0.000	68.000
11130.000	81.000	955.820	.654	1.143	0.000	0.000	0.000	68.000
11131.000	62.000	955.250	0.000	.904	0.000	0.000	0.000	1.000
11131.000	71.000	956.010	.760	1.021	0.000	0.000	0.000	1.000
11131.000	73.000	956.230	.220	1.063	0.000	0.000	0.000	1.000
11131.000	81.000	956.910	.680	1.090	0.000	0.000	0.000	1.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	1.000	0.000	36.765	0.000
2	1.000	0.000	45.087	8.322
3	1.000	0.000	47.154	10.389
4	1.000	0.000	52.713	15.948

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY

3) WATERCOURSE: NOVI-LYON DRAIN, TRIBUTARY C

4) DOCUMENT TYPE: 100 YR

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
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T1      CITY OF NOVI    JOB NO. 5555-46-1    STREAM 08
T2      100 YEAR FLOOD
T3      TRIBUTARY "C"  NOVI-LYON DRAIN

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

    -10.       4.       -0.       -0.  -0.000000    -0.00      -0.0      -0.    953.070   -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    -1.000    -0.000    -0.000    -0.000

CCHV=     .300 CEHV=     .500

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=      300.0      620.0  TYPE=      1  TARGET=      320.000

              600 FT. U/S OF CONFLUENCE WITH NOVI-LYON DRAIN

A     0.00      6.77    953.07    950.33    953.07    953.15       .08      0.00      0.00    957.70
      395.        0.      298.       97.        0.      112.      134.        0.        0.    954.20
      0.00      0.00      2.66       .73      .050      .070      .100     0.000    946.30    309.53
   .003039        0.        0.        0.         0        13         1      0.00    213.71    551.82


3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      300.0      475.0  TYPE=      1  TARGET=      175.000
    520.00      7.20    954.35    951.18      0.00    954.41       .06      1.24       .01    958.55
      395.        0.      275.      120.        0.      125.      151.        3.        2.    955.05
       .08      0.00      2.20       .79      .050      .070      .100      .070    947.15    308.65
   .001934      520.      520.      520.         2         5         1      0.00    148.66    475.00


3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=         .0     1010.0  TYPE=      1  TARGET=     1009.999
B   855.00      6.99    954.69    950.85      0.00    954.71       .01       .29       .01    953.90
      395.       133.      181.       81.      214.      144.      302.        7.        6.    953.80
       .19       .62      1.26       .27      .050      .070      .100      .070    947.70    225.43
   .000480      335.      335.      335.         3        15         1      0.00    773.27   1010.00
```

C

3470 ENCROACHMENT STATIONS= 440.0 1190.0 TYPE= 1 TARGET= 750.000

2080.00	5.59	954.79	951.17	0.00	954.79	.00	.08	.00	951.30
395.	106.	69.	221.	938.	204.	1252.	50.	27.	951.50
2.02	.11	.34	.19	.120	.060	.100	.064	949.20	440.00
.000023	1230.	1225.	1230.	3	14	1	0.00	750.00	1190.00

D

3470 ENCROACHMENT STATIONS= 952.0 1482.0 TYPE= 1 TARGET= 530.000

2480.00	6.00	954.80	951.80	0.00	954.80	.00	.01	.00	951.80
395.	234.	75.	86.	969.	171.	428.	68.	33.	951.40
2.44	.24	.44	.20	.100	.070	.100	.065	948.80	952.00
.000055	415.	400.	405.	2	15	1	0.00	530.00	1482.00

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

3470 ENCROACHMENT STATIONS= 965.0 1470.0 TYPE= 1 TARGET= 505.000

2530.00	7.20	954.80	950.69	0.00	954.80	.00	.00	.00	948.20
395.	251.	15.	129.	1336.	42.	750.	71.	34.	947.80
2.51	.19	.36	.17	.100	.070	.100	.065	947.60	965.00
.000022	50.	50.	50.	0	9	1	0.00	505.00	1470.00

NORMAL BRIDGE.NRD=25 MIN ELTRD= 952.40 MAX ELLC= 951.30

3470 ENCROACHMENT STATIONS= 1000.0 1774.0 TYPE= 1 TARGET= -1000.000

WIXOM ROAD BRIDGE

E

2531.00	7.20	954.80	952.93	0.00	954.80	.00	.00	.00	952.70
395.	285.	11.	99.	649.	30.	279.	71.	34.	952.70
2.51	.44	.35	.35	.030	.024	.030	.065	947.60	1000.00
.000028	1.	1.	1.	0	18	1	-12.00	500.09	1500.09

NORMAL BRIDGE.NRD=25 MIN ELTRD= 952.40 MAX ELLC= 951.20

3470 ENCROACHMENT STATIONS= 1000.0 1773.0 TYPE= 1 TARGET= -1000.000

2568.00	7.30	954.80	952.93	0.00	954.80	.00	.00	.00	952.70
395.	285.	11.	99.	649.	30.	280.	71.	34.	952.70
2.53	.44	.35	.35	.030	.024	.030	.064	947.50	1000.00
.000028	37.	37.	37.	0	18	1	-12.60	500.14	1500.14

3470 ENCROACHMENT STATIONS= 965.0 1470.0 TYPE= 1 TARGET= 505.000

2569.00	7.30	954.80	950.66	0.00	954.81	.00	.00	.00	948.10
395.	247.	20.	128.	1366.	43.	770.	71.	34.	947.70
2.54	.18	.48	.17	.100	.050	.100	.064	947.50	965.00
.000019	1.	1.	1.	0	15	1	0.00	505.00	1470.00

F

3119.00	6.05	954.75	952.97	0.00	954.93	.18	.04	.09	954.00

393.	14.	370.	11.	32.	104.	23.	96.	49.	954.00
2.58	.45	3.56	.45	.100	.050	.100	.062	948.70	28.28
.003325	550.	550.	550.	2	11	1	0.00	184.43	212.71

3280 CROSS SECTION 3519.00 EXTENDED .00 FEET

3519.00	6.31	955.91	953.86	0.00	956.04	.13	1.09	.02	954.90
395.	26.	349.	20.	57.	112.	45.	88.	41.	954.90
2.62	.45	3.11	.45	.100	.050	.100	.060	949.60	0.00
.002289	400.	400.	400.	2	5	1	0.00	234.90	234.90

3470 ENCROACHMENT STATIONS= 530.0 1030.0 TYPE= 1 TARGET= -530.000

3759.00	6.01	956.11	952.82	0.00	956.11	.00	.03	.04	953.10
305.	216.	76.	12.	1054.	161.	106.	92.	42.	953.60
2.86	.21	.47	.11	.100	.050	.100	.060	950.10	530.00
.000036	205.	240.	270.	2	15	1	0.00	419.12	949.12

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

3470 ENCROACHMENT STATIONS= 185.0 495.0 TYPE= 1 TARGET= 310.000

4839.00	5.08	956.17	953.58	0.00	956.18	.01	.06	.00	954.09
305.	114.	146.	39.	392.	150.	148.	113.	50.	953.19
3.29	.31	.97	.27	.100	.045	.100	.059	951.09	185.00
.000150	850.	1120.	1150.	2	11	1	0.00	310.00	495.00

3470 ENCROACHMENT STATIONS= 130.0 490.0 TYPE= 1 TARGET= 360.000

5229.00	4.83	956.23	953.49	0.00	956.24	.01	.06	.00	954.40
305.	126.	145.	34.	409.	140.	123.	118.	53.	953.50
3.44	.31	1.03	.28	.100	.045	.100	.057	951.40	130.00
.000185	350.	350.	300.	2	5	1	0.00	360.00	490.00

3280 CROSS SECTION 5489.00 EXTENDED .27 FEET

3470 ENCROACHMENT STATIONS= 250.0 640.0 TYPE= 1 TARGET= 390.000

5489.00	4.49	956.27	953.17	0.00	956.27	.00	.03	.00	952.00
305.	210.	92.	3.	842.	129.	23.	124.	55.	954.00
3.65	.25	.71	.15	.100	.045	.100	.056	951.78	250.00
.000072	320.	260.	225.	0	11	1	0.00	390.00	640.00

3280 CROSS SECTION 5659.00 EXTENDED .04 FEET

3470 ENCROACHMENT STATIONS= 330.0 640.0 TYPE= 1 TARGET= -330.000

5659.00	4.25	956.28	953.42	0.00	956.29	.00	.02	.00	952.25
305.	204.	98.	3.	688.	122.	19.	128.	57.	954.25
3.77	.30	.81	.15	.100	.045	.100	.056	952.03	330.00
.000102	210.	170.	150.	1	5	1	0.00	410.00	640.00

3280 CROSS SECTION 5959.00 EXTENDED 2.32 FEET

3470 ENCROACHMENT STATIONS= 260.0 520.0 TYPE= 1 TARGET= 260.000

5959.00	3.84	956.32	953.69	0.00	956.33	.00	.04	.00	954.00
305.	78.	144.	83.	251.	220.	200.	134.	59.	953.00
3.93	.31	.66	.41	.100	.070	.100	.056	952.48	260.00
.000180	300.	300.	300.	0	15	1	0.00	260.00	520.00

3470 ENCROACHMENT STATIONS= 185.0 395.0 TYPE= 1 TARGET= 210.000

6109.00	3.66	956.36	954.40	0.00	956.37	.01	.04	.00	954.00
305.	96.	63.	155.	154.	74.	276.	136.	60.	954.00
4.00	.56	.86	.56	.100	.070	.100	.057	952.70	185.00
.000455	150.	150.	150.	2	12	1	0.00	210.00	395.00

3470 ENCROACHMENT STATIONS= 225.0 405.0 TYPE= 1 TARGET= 180.000

6209.00	3.58	956.43	954.97	0.00	956.49	.06	.09	.03	954.00
305.	83.	181.	41.	57.	77.	55.	136.	60.	954.00
4.01	1.46	2.36	.75	.100	.070	.100	.057	952.85	225.00
.003221	150.	100.	50.	2	11	1	0.00	180.00	405.00

3265 DIVIDED FLOW

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

3470 ENCROACHMENT STATIONS= .0 405.0 TYPE= 1 TARGET= 404.999

6309.00	3.94	956.94	956.57	0.00	957.11	.17	.56	.05	957.30
305.	0.	205.	100.	0.	52.	71.	137.	60.	957.20
4.02	0.00	3.92	1.41	.100	.070	.100	.057	953.00	250.93
.014240	150.	100.	50.	3	14	1	0.00	135.96	405.00

3470 ENCROACHMENT STATIONS= 250.0 355.0 TYPE= 1 TARGET= 105.000

6429.00	5.88	957.48	955.48	0.00	957.50	.03	.35	.04	952.00
305.	49.	44.	211.	41.	19.	221.	137.	61.	952.10
4.05	1.22	2.30	.96	.100	.070	.100	.057	951.60	250.00
.001220	120.	120.	120.	3	8	1	0.00	105.00	355.00

NORMAL BRIDGE.NRD=17 MIN ELTRD= 955.50 MAX ELLC= 955.10

3470 ENCROACHMENT STATIONS= 285.0 400.0 TYPE= 1 TARGET= 115.000

FARM FIELD CROSSING 1400 FT. D/S OF ELEVEN MILE ROAD BRIDGE

6430.00	5.77	957.37	957.16	0.00	957.62	.26	.00	.12	956.30
305.	37.	89.	179.	16.	13.	84.	137.	61.	956.30
4.05	2.28	6.74	2.12	.100	.024	.100	.057	951.60	285.00
.018267	1.	1.	1.	2	13	1	-5.22	98.56	383.56

NORMAL BRIDGE.NRD=17 MIN ELTRD= 955.50 MAX ELLC= 955.10

3470 ENCROACHMENT STATIONS=	285.0	400.0	TYPE=	1	TARGET=	115.000				
6446.00	6.14	957.74	957.16	0.00	957.86	.12	.19	.04	956.30	
305.	39.	71.	195.	21.	15.	117.	137.	61.	956.30	
4.05	1.86	4.89	1.66	.100	.024	.100	.057	951.60	285.00	
.008496	16.	16.	15.	2	13	1	-5.22	110.21	395.21	

WATER EL=XS CARD= 957.570

3470 ENCROACHMENT STATIONS=	250.0	355.0	TYPE=	1	TARGET=	105.000				
6447.00	5.97	957.57	955.55	0.00	957.59	.02	.00	.03	952.00	
305.	49.	43.	213.	42.	20.	229.	137.	61.	952.10	
4.05	1.18	2.21	.93	.100	.070	.100	.057	951.60	250.00	
.001100	1.	1.	1.	0	14	1	0.00	105.00	355.00	

3470 ENCROACHMENT STATIONS=	510.0	715.0	TYPE=	1	TARGET=	205.000				
7437.00	4.61	958.11	956.37	0.00	958.13	.01	.53	.00	955.40	
305.	120.	102.	83.	188.	79.	191.	145.	64.	956.40	
4.38	.64	1.29	.44	.070	.050	.100	.057	953.50	510.00	
.000336	1020.	990.	890.	4	13	1	0.00	205.00	715.00	

3470 ENCROACHMENT STATIONS=	518.0	708.0	TYPE=	1	TARGET=	190.000				
7467.00	4.83	958.13	956.21	0.00	958.14	.01	.01	.00	953.30	
305.	174.	25.	106.	236.	16.	221.	146.	64.	953.40	
4.39	.74	1.53	.48	.070	.050	.100	.057	953.30	518.00	
.000331	30.	30.	30.	1	5	1	0.00	190.00	708.00	

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF 956.800 EGLC= 956.956 EGC= 956.981 WSEL= 956.777

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF 956.800 EGLC= 956.956 EGC= 956.979 WSEL= 956.769

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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=21 MIN ELTRD= 955.90 MAX ELLC= 956.80

3470 ENCROACHMENT STATIONS= 605.0 795.0 TYPE= 1 TARGET= 190.000

FARM FIELD CROSSING 350 FT. D/S OF ELEVEN MILE ROAD BRIDGE

7468.00	4.83	958.13	956.80	0.00	958.14	.01	.00	.00	955.90
305.	155.	25.	126.	146.	15.	204.	146.	64.	955.90
4.39	.83	1.61	.62	.070	.024	.100	.057	953.30	605.00
.000607	1.	1.	1.	0	28	1	0.00	190.00	795.00

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF 956.800 EGLC= 956.956 EGC= 956.981 WSEL= 956.777

4575 CRITICAL DEPTH ASSUMED BELOW ELLC OF 956.800 EGLC= 956.956 EGC= 956.979 WSEL= 956.769

NORMAL BRIDGE.NRD=21 MIN ELTRD= 955.90 MAX ELLC= 956.80

3470 ENCROACHMENT STATIONS= 605.0 795.0 TYPE= 1 TARGET= 190.000

7484.00	4.84	958.14	956.80	0.00	958.15	.01	.01	.00	955.90
305.	155.	25.	126.	187.	15.	205.	146.	64.	955.90
4.40	.83	1.60	.61	.070	.024	.100	.057	953.30	605.00
.000600	16.	16.	16.	0	28	1	0.00	190.00	795.00

3470 ENCROACHMENT STATIONS= 518.0 708.0 TYPE= 1 TARGET= 190.000

7485.00	4.84	958.14	956.11	0.00	958.15	.01	.00	.00	953.30
305.	163.	20.	122.	237.	16.	222.	146.	64.	953.40
4.40	.69	1.22	.55	.060	.050	.070	.057	953.30	518.00
.000212	1.	1.	1.	0	16	1	0.00	190.00	708.00

7810.00	3.84	958.14	957.37	0.00	958.61	.47	.23	.23	958.90
305.	0.	305.	0.	0.	55.	0.	148.	65.	958.90
4.42	0.00	5.51	0.00	.060	.050	.070	.056	954.30	401.76
.011924	440.	325.	255.	2	8	1	0.00	23.56	425.32

no flow continuing

3470 ENCROACHMENT STATIONS= 353.0 453.0 TYPE= 1 TARGET= 100.000

7845.00	5.15	958.75	956.84	0.00	958.88	.13	.17	.10	954.00
305.	112.	89.	104.	62.	20.	54.	148.	65.	953.80
4.42	1.80	4.47	1.92	.060	.050	.070	.056	953.60	353.00
.002684	35.	35.	35.	3	8	1	0.00	100.00	453.00

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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=16 MIN ELTRD= 959.80 MAX ELLC= 957.60

3470 ENCROACHMENT STATIONS= 350.0 450.0 TYPE= 1 TARGET= 100.000

ELEVEN MILE ROAD BRIDGE

7846.00	7.03	960.63	960.63	0.00	960.99	.26	.00	0.00	960.00
305.	101.	73.	131.	28.	15.	33.	148.	65.	960.00
4.42	3.61	4.86	4.00	.030	.024	.030	.056	953.60	350.00
.010903	1.	1.	1.	0	8	1	-11.30	100.00	450.00

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

NORMAL BRIDGE,NRD=16 MIN ELTRD= 959.80 MAX ELLC= 957.80

3470 ENCROACHMENT STATIONS= 350.0 450.0 TYPE= 1 TARGET= 100.000

7883.00	7.21	961.01	960.64	0.00	961.12	.11	.19	.04	960.00
305.	120.	45.	141.	46.	17.	51.	148.	65.	960.00
4.42	2.59	2.69	2.76	.030	.024	.030	.056	953.80	350.00
.002873	37.	37.	37.	2	8	1	-10.50	100.00	450.00

WATER EL=XR CARD= 960.800

3470 ENCROACHMENT STATIONS= 353.0 453.0 TYPE= 1 TARGET= 100.000

7884.00	7.00	960.80	956.89	0.00	960.81	.01	.00	.03	954.20
305.	155.	25.	125.	169.	27.	124.	148.	65.	954.00
4.42	.91	.93	1.01	.030	.050	.030	.056	953.30	353.00
.000076	1.	1.	1.	0	14	1	0.00	100.00	453.00

3470 ENCROACHMENT STATIONS= 190.0 350.0 TYPE= 1 TARGET= 160.000

8334.00	5.84	960.84	956.95	0.00	960.84	.00	.02	.00	953.10
113.	29.	32.	51.	107.	93.	176.	152.	67.	959.00
4.89	.28	.34	.29	.030	.040	.030	.055	955.00	190.00
.000013	215.	450.	800.	2	14	1	0.00	160.00	350.00

3470 ENCROACHMENT STATIONS= 190.0 350.0 TYPE= 1 TARGET= 160.000

8359.00	6.24	960.84	956.59	0.00	960.84	.00	.00	.00	955.20
113.	39.	15.	59.	157.	46.	238.	152.	67.	955.10
4.92	.25	.32	.25	.030	.040	.030	.055	954.60	190.00
.000007	25.	25.	25.	0	5	1	0.00	160.00	350.00

NORMAL BRIDGE,NRD=29 MIN ELTRD= 958.90 MAX ELLC= 957.00

3470 ENCROACHMENT STATIONS= 190.0 350.0 TYPE= 1 TARGET= 160.000

FARM CULVERT BR. 1050 FT. W OF BECK RD @ 250 FT. N OF 11 MILE RD

8360.00	6.24	960.84	959.37	0.00	960.84	.00	.00	.00	958.90
113.	28.	8.	77.	71.	20.	157.	152.	67.	958.90
4.92	.39	.41	.49	.030	.015	.030	.055	954.60	190.00
.000048	1.	1.	1.	0	19	1	-20.55	160.00	350.00

NORMAL BRIDGE,NRD=29 MIN ELTRD= 958.90 MAX ELLC= 956.90

3470 ENCROACHMENT STATIONS= 190.0 350.0 TYPE= 1 TARGET= 160.000

8377.00	6.14	960.84	959.37	0.00	960.84	.00	.00	.00	958.90
113.	28.	8.	77.	71.	20.	157.	153.	67.	958.90
4.93	.39	.41	.49	.030	.015	.030	.054	954.70	190.00
.000048	18.	18.	18.	0	18	1	-20.87	160.00	350.00

3470 ENCROACHMENT STATIONS= 190.0 350.0 TYPE= 1 TARGET= 160.000

8378.00	6.14	960.84	956.55	0.00	960.84	.00	.00	.00	955.10
113.	48.	11.	54.	151.	45.	229.	153.	67.	955.20
4.93	.32	.24	.24	.030	.070	.040	.054	954.70	190.00
.000012	1.	1.	1.	0	18	1	0.00	160.00	350.00

3280 CROSS SECTION 8708.00 EXTENDED .35 FEET

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

3470 ENCROACHMENT STATIONS= 11.0 167.0 TYPE= 1 TARGET= -11.000

8708.00	5.25	960.85	957.24	0.00	960.85	.00	.01	.00	958.80
113.	33.	44.	36.	73.	105.	101.	155.	68.	958.50
5.16	.46	.42	.35	.030	.070	.040	.055	955.60	11.00
.000061	230.	330.	430.	0	15	1	0.00	156.00	167.00

3280 CROSS SECTION 8728.00 EXTENDED .35 FEET

3470 ENCROACHMENT STATIONS= 11.0 167.0 TYPE= 1 TARGET= -11.000

8728.00	6.05	960.85	956.46	0.00	960.85	.00	.00	.00	954.80
113.	46.	3.	65.	149.	11.	244.	156.	68.	954.90
5.18	.31	.24	.26	.030	.070	.040	.055	954.80	11.00
.000012	20.	20.	20.	0	5	1	0.00	156.00	167.00

3280 CROSS SECTION 8729.00 EXTENDED .45 FEET

NORMAL BRIDGE.NRD= 7 MIN ELTRD= 957.60 MAX ELLC= 956.60

3470 ENCROACHMENT STATIONS= .0 156.0 TYPE= 1 TARGET= 155.999

LAWN CULVERT 825 FT. W. OF BECK RD. & 250 FT. N. OF 11 MILE RD.

8729.00	6.05	960.85	958.46	0.00	960.85	.00	.00	.00	957.60
113.	42.	2.	68.	115.	8.	179.	156.	68.	957.60
5.18	.37	.27	.38	.030	.024	.030	.055	954.80	.00
.000024	1.	1.	1.	0	10	1	-2.22	156.00	156.00

3280 CROSS SECTION 8747.00 EXTENDED .45 FEET

NORMAL BRIDGE.NRD= 7 MIN ELTRD= 957.60 MAX ELLC= 956.20

3470 ENCROACHMENT STATIONS= .0 156.0 TYPE= 1 TARGET= 155.999

8747.00	6.45	960.85	958.46	0.00	960.85	.00	.00	.00	957.60
113.	42.	2.	69.	115.	8.	179.	156.	68.	957.60
5.19	.37	.25	.38	.030	.024	.030	.055	954.40	.00
.000024	18.	18.	18.	0	10	1	-2.94	156.00	156.00

3280 CROSS SECTION 8748.00 EXTENDED .35 FEET

3470 ENCROACHMENT STATIONS= 11.0 167.0 TYPE= 1 TARGET= -11.000

8748.00	6.45	960.85	956.04	0.00	960.85	.00	.00	.00	954.40
113.	39.	3.	71.	174.	12.	280.	156.	68.	954.50

5.19	.22	.29	.23	.030	.040	.030	.055	954.40	11.00
.000005	1.	1.	1.	0	18	1	0.00	156.00	167.00

3280 CROSS SECTION 8893.00 EXTENDED 1.85 FEET

8883.00	5.05	960.85	956.42	0.00	960.85	.00	.00	.00	955.90
113.	24.	28.	61.	107.	111.	310.	157.	69.	956.70
5.36	.22	.25	.20	.030	.040	.030	.055	954.80	0.00
.000005	145.	135.	125.	0	5	1	0.00	224.53	224.53

3280 CROSS SECTION 8923.00 EXTENDED 1.55 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
8923.00	5.75	960.85	956.73	0.00	960.35	.00	.00	.00	955.10
113.	40.	8.	65.	148.	26.	290.	158.	69.	955.20
5.41	.27	.30	.22	.030	.040	.030	.055	955.10	0.00
.000006	40.	40.	40.	0	5	1	0.00	209.54	209.54

3280 CROSS SECTION 8924.00 EXTENDED 1.85 FEET

NORMAL BRIDGE,NRD=13 MIN ELTRD= 958.80 MAX ELLC= 956.90

DRIVEWAY CULVERTS 625 FT. W OF BECK RD & 50 FT. N OF 11 MILE RD.

8924.00	5.75	960.85	959.16	0.00	960.85	.00	.00	.00	958.80
113.	26.	2.	84.	92.	14.	325.	158.	69.	958.80
5.41	.28	.17	.26	.030	.024	.030	.055	955.10	0.00
.000014	1.	1.	1.	0	15	1	-9.93	257.00	257.00

3280 CROSS SECTION 8955.00 EXTENDED 1.85 FEET

NORMAL BRIDGE,NRD=13 MIN ELTRD= 958.80 MAX ELLC= 957.00

8955.00	5.75	960.85	959.16	0.00	960.85	.00	.00	.00	958.80
113.	26.	3.	84.	92.	14.	325.	158.	69.	958.80
5.44	.28	.18	.26	.030	.024	.030	.055	955.10	0.00
.000014	31.	31.	31.	0	15	1	-9.70	257.00	257.00

3280 CROSS SECTION 8956.00 EXTENDED 1.45 FEET

8956.00	5.65	960.85	956.83	0.00	960.85	.00	.00	.00	955.20
113.	41.	8.	64.	143.	25.	274.	158.	69.	955.30
5.44	.28	.31	.24	.030	.040	.030	.055	955.20	0.00
.000007	1.	1.	1.	0	18	1	0.00	204.56	204.56

3470 ENCROACHMENT STATIONS= .0 370.0 TYPE= 1 TARGET= 369.999

9191.00	5.56	960.86	957.43	1.00	960.86	.00	.00	.00	955.90
113.	58.	36.	19.	152.	75.	54.	160.	70.	959.30
5.60	.38	.48	.34	.030	.050	.030	.055	955.60	155.68
.000045	310.	235.	110.	0	8	1	0.00	214.32	370.00

3470 ENCROACHMENT STATIONS= 142.0 447.0 TYPE= 1 TARGET= -142.000

9231.00	5.36	960.86	957.35	0.00	960.86	.00	.00	.00	955.60
113.	68.	5.	39.	195.	12.	107.	160.	71.	955.60
5.63	.35	.46	.37	.030	.050	.030	.054	955.50	149.73
.000026	40.	40.	40.	0	5	1	0.00	251.55	401.28

SECNO	DEPTH	CVSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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=11 MIN ELTRD= 959.00 MAX ELLC= 957.70

3470 ENCROACHMENT STATIONS= .0 350.0 TYPE= 1 TARGET= 349.999

FARM LANE CROSSING 1050 FT. D/S OF BECK ROAD BRIDGE

9232.00	5.36	960.86	959.64	0.00	960.86	.00	.00	.00	959.00
113.	78.	4.	31.	186.	8.	70.	160.	71.	959.00
5.63	.42	.52	.45	.030	.015	.030	.054	955.50	135.86
.000050	1.	1.	1.	0	18	1	-3.24	214.14	350.00

NORMAL BRIDGE.NRD=11 MIN ELTRD= 959.00 MAX ELLC= 957.50

3470 ENCROACHMENT STATIONS= .0 350.0 TYPE= 1 TARGET= 349.999

9264.00	5.56	960.86	959.63	0.00	960.86	.00	.00	.00	959.00
113.	78.	4.	31.	186.	8.	70.	160.	71.	959.00
5.65	.42	.50	.45	.030	.015	.030	.054	955.30	135.79
.000050	32.	32.	32.	0	18	1	-3.73	214.21	350.00

3470 ENCROACHMENT STATIONS= 142.0 447.0 TYPE= 1 TARGET= -142.000

9265.00	5.56	960.86	957.23	0.00	960.86	.00	.00	.00	955.40
113.	65.	10.	37.	228.	12.	126.	160.	71.	955.40
5.65	.29	.86	.30	.070	.050	.070	.054	955.30	142.00
.000087	1.	1.	1.	0	14	1	0.00	264.01	406.01

3470 ENCROACHMENT STATIONS= 400.0 600.0 TYPE= 1 TARGET= 200.000

9550.00	4.30	960.90	958.14	0.00	960.92	.02	.05	.01	961.60
113.	0.	92.	21.	0.	69.	76.	162.	72.	959.90
5.72	0.00	1.32	.28	.070	.050	.070	.054	956.60	401.14
.000475	335.	285.	280.	2	15	1	0.00	198.86	600.00

3470 ENCROACHMENT STATIONS= 400.0 600.0 TYPE= 1 TARGET= 200.000

9580.00	5.83	960.93	956.69	0.00	960.93	.00	.00	.01	959.10
113.	14.	7.	91.	44.	12.	396.	162.	72.	959.10
5.75	.33	.61	.23	.070	.050	.070	.054	955.10	400.00

.000040 10. 30. 33. 2 8 1 0.00 200.00 600.00

NORMAL BRIDGE.NRD=12 MIN ELTRD= 958.90 MAX ELLC= 957.10

3470 ENCROACHMENT STATIONS= 350.0 550.0 TYPE= 1 TARGET= 200.000

FARM LANE CULVERT 700 FT. D/S OF BECK ROAD BRIDGE

9581.00	5.83	960.93	959.54	0.00	960.93	.00	.00	.00	958.90
113.	4.	3.	106.	10.	7.	292.	162.	72.	958.90
5.75	.43	.37	.36	.030	.015	.030	.054	955.10	350.00
.000030	1.	1.	1.	0	18	1	-4.00	200.00	550.00

NORMAL BRIDGE.NRD=12 MIN ELTRD= 958.90 MAX ELLC= 957.60

3470 ENCROACHMENT STATIONS= 350.0 550.0 TYPE= 1 TARGET= 200.000

9597.00	5.33	960.93	959.56	0.00	960.93	.00	.00	.00	958.90
113.	4.	3.	106.	10.	7.	293.	162.	73.	958.90
5.77	.43	.39	.36	.030	.015	.030	.054	955.60	350.00
.000030	16.	16.	16.	0	18	1	-3.00	200.00	550.00

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

3470 ENCROACHMENT STATIONS= 400.0 600.0 TYPE= 1 TARGET= 200.000

9598.00	5.33	960.93	957.19	0.00	960.93	.00	.00	.00	955.60
113.	17.	9.	87.	38.	11.	303.	162.	73.	955.60
5.77	.44	.83	.29	.070	.050	.070	.054	955.60	400.00
.000083	1.	1.	1.	0	18	1	0.00	200.00	600.00

3470 ENCROACHMENT STATIONS= 335.0 560.0 TYPE= 1 TARGET= 225.000

10233.00	4.19	960.99	958.67	0.00	960.99	.00	.06	.00	958.70
113.	37.	39.	37.	70.	55.	108.	168.	77.	958.80
6.15	.54	.70	.34	.030	.040	.030	.053	956.80	335.00
.000072	410.	635.	910.	1	8	1	0.00	225.00	560.00

3470 ENCROACHMENT STATIONS= 332.0 592.0 TYPE= 1 TARGET= 260.000

10273.00	4.29	960.99	958.55	0.00	960.99	.00	.00	.00	956.70
113.	53.	5.	55.	106.	8.	169.	168.	77.	956.90
6.18	.50	.61	.33	.030	.040	.030	.053	956.70	332.00
.000040	40.	40.	40.	0	5	1	0.00	260.00	592.00

NORMAL BRIDGE.NRD=12 MIN ELTRD= 960.50 MAX ELLC= 958.70

3470 ENCROACHMENT STATIONS= 340.0 600.0 TYPE= 1 TARGET= 260.000

BECK ROAD BRIDGE

10274.00	4.28	960.98	960.77	0.00	961.00	.03	.00	.01	960.50
113.	14.	6.	93.	14.	4.	71.	168.	77.	960.50
6.18	.99	1.50	1.31	.030	.024	.030	.053	956.70	340.00
.002671	1.	1.	1.	0	12	1	-4.00	260.00	600.00

NORMAL BRIDGE.NRD=12 MIN ELTRD= 960.50 MAX ELLC= 958.40

3470 ENCROACHMENT STATIONS= 340.0 600.0 TYPE= 1 TARGET= 260.000

10323.00	4.68	961.08	960.77	0.00	961.09	.02	.08	.00	960.50
113.	17.	4.	92.	20.	4.	90.	168.	77.	960.50
6.19	.83	1.01	1.03	.030	.024	.030	.052	956.40	340.00
.001206	49.	49.	49.	2	15	1	-4.60	260.00	600.00

WATER EL=X5 CARD= 961.010

3470 ENCROACHMENT STATIONS= 332.0 592.0 TYPE= 1 TARGET= 260.000

10324.00	4.61	961.01	958.25	0.00	961.01	.00	.00	.00	956.40
113.	47.	4.	62.	126.	9.	234.	168.	77.	956.60
6.19	.38	.44	.26	.030	.040	.030	.052	956.40	332.00
.000019	1.	1.	1.	0	14	1	0.00	260.00	592.00



1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY OF

3) WATERCOURSE: NOVI-LYON DRAIN TRIBUTARY C

4) DOCUMENT TYPE: SUMMARY - MULTIPLE PROFILES



SUMMARY PRINTOUT FOR MULTIPLE PROFILES

TRIBUTARY "C" NOVI-LYON

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRWS	HV	HL	OLOSS	TOPWID
0.00	0.00	0.00	0.00	946.30	225.00	952.25	5.95	949.41	.09	0.00	0.00	108.21
0.00	0.00	0.00	0.00	946.30	340.00	952.85	6.55	950.08	.09	0.00	0.00	187.69
0.00	0.00	0.00	0.00	946.30	395.00	953.07	6.77	950.33	.08	0.00	0.00	213.71
0.00	0.00	0.00	0.00	946.30	540.00	953.77	7.47	950.94	.05	0.00	0.00	301.03
520.00	520.00	0.00	0.00	947.15	225.00	953.50	6.35	950.27	.05	1.20	.01	125.23
520.00	520.00	0.00	0.00	947.15	340.00	954.13	6.98	950.91	.05	1.23	.01	142.57
520.00	520.00	0.00	0.00	947.15	395.00	954.35	7.20	951.19	.06	1.24	.01	148.66
520.00	520.00	0.00	0.00	947.15	540.00	954.84	7.69	951.80	.06	1.07	.00	161.91
855.00	335.00	0.00	0.00	947.70	225.00	953.94	6.24	950.03	.03	.41	.01	308.00
855.00	335.00	0.00	0.00	947.70	340.00	954.50	6.80	950.60	.02	.32	.01	754.11
855.00	335.00	0.00	0.00	947.70	395.00	954.69	6.99	950.85	.01	.29	.01	773.27
855.00	335.00	0.00	0.00	947.70	540.00	955.13	7.43	951.42	.01	.23	.02	810.22
2080.00	1225.00	0.00	0.00	949.20	225.00	954.04	4.84	950.95	.00	.06	.01	718.19
2080.00	1225.00	0.00	0.00	949.20	340.00	954.59	5.39	951.11	.00	.07	.00	749.53
2080.00	1225.00	0.00	0.00	949.20	395.00	954.79	5.59	951.17	.00	.08	.00	750.00
2080.00	1225.00	0.00	0.00	949.20	540.00	955.23	6.03	951.31	.00	.08	.00	750.00
2480.00	400.00	0.00	0.00	948.80	225.00	954.05	5.25	950.97	.00	.01	.00	512.62
2480.00	400.00	0.00	0.00	948.80	340.00	954.60	5.80	951.77	.00	.01	.00	530.00
2480.00	400.00	0.00	0.00	948.80	395.00	954.80	6.00	951.80	.00	.01	.00	530.00
2480.00	400.00	0.00	0.00	948.80	540.00	955.24	6.44	951.97	.00	.02	.00	530.00
2530.00	50.00	0.00	0.00	947.60	225.00	954.05	6.45	949.93	.00	.00	.00	505.00
2530.00	50.00	0.00	0.00	947.60	340.00	954.61	7.01	950.59	.00	.00	.00	505.00
2530.00	50.00	0.00	0.00	947.60	395.00	954.80	7.20	950.69	.00	.00	.00	505.00
2530.00	50.00	0.00	0.00	947.60	540.00	955.25	7.65	950.80	.00	.00	.00	505.00
2531.00	1.00	952.40	951.30	947.60	225.00	954.05	6.45	952.81	.00	.00	.00	458.34
2531.00	1.00	952.40	951.30	947.60	340.00	954.60	7.00	952.88	.00	.00	.00	489.19
2531.00	1.00	952.40	951.30	947.60	395.00	954.80	7.20	952.93	.00	.00	.00	500.09
2531.00	1.00	952.40	951.30	947.60	540.00	955.25	7.65	953.06	.00	.00	.00	524.82
2568.00	37.00	952.40	951.20	947.50	225.00	954.05	6.55	952.81	.00	.00	.00	458.39
2568.00	37.00	952.40	951.20	947.50	340.00	954.61	7.11	952.87	.00	.00	.00	489.24
2568.00	37.00	952.40	951.20	947.50	395.00	954.80	7.30	952.93	.00	.00	.00	500.14
2568.00	37.00	952.40	951.20	947.50	540.00	955.25	7.75	953.06	.00	.00	.00	524.88
2569.00	1.00	0.00	0.00	947.50	225.00	954.05	6.55	950.43	.00	.00	.00	505.00
2569.00	1.00	0.00	0.00	947.50	340.00	954.61	7.11	950.60	.00	.00	.00	505.00
2569.00	1.00	0.00	0.00	947.50	395.00	954.80	7.30	950.66	.00	.00	.00	505.00
2569.00	1.00	0.00	0.00	947.50	540.00	955.25	7.75	950.77	.00	.00	.00	505.00
3119.00	550.00	0.00	0.00	948.70	225.00	954.01	5.31	952.09	.12	.02	.06	35.90
3119.00	550.00	0.00	0.00	948.70	340.00	954.56	5.86	952.72	.17	.03	.09	145.15
3119.00	550.00	0.00	0.00	948.70	395.00	954.75	6.05	952.97	.18	.04	.09	184.43
3119.00	550.00	0.00	0.00	948.70	540.00	955.21	6.51	953.49	.18	.05	.09	234.90

SECTION NUMBER	CHANNEL LENGTH	MIN FL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRIWS	HV	HL	OLOSS	TOPWID
3519.00	400.00	0.00	0.00	949.60	225.00	955.09	5.49	953.00	.11	1.06	.01	72.05
3519.00	400.00	0.00	0.00	949.60	340.00	955.70	6.10	953.52	.13	1.04	.01	193.06
3519.00	400.00	0.00	0.00	949.60	395.00	955.91	6.31	953.86	.13	1.04	.02	234.90
3519.00	400.00	0.00	0.00	949.60	540.00	956.32	6.72	954.41	.13	1.05	.01	234.90
3759.00	240.00	0.00	0.00	950.10	173.00	955.26	5.16	952.57	.00	.03	.03	391.76
3759.00	240.00	0.00	0.00	950.10	260.00	955.89	5.79	952.74	.00	.03	.04	412.31
3759.00	240.00	0.00	0.00	950.10	305.00	956.11	6.01	952.82	.00	.03	.04	419.12
3759.00	240.00	0.00	0.00	950.10	420.00	956.53	6.43	952.95	.00	.04	.04	432.16
4839.00	1120.00	0.00	0.00	951.09	173.00	955.31	4.22	953.09	.01	.06	.00	286.44
4839.00	1120.00	0.00	0.00	951.09	260.00	955.95	4.86	953.44	.01	.06	.00	310.00
4839.00	1120.00	0.00	0.00	951.09	305.00	956.17	5.08	953.58	.01	.06	.00	310.00
4839.00	1120.00	0.00	0.00	951.09	420.00	956.60	5.51	953.88	.01	.08	.00	310.00
5229.00	350.00	0.00	0.00	951.40	173.00	955.38	3.98	953.40	.01	.07	.00	329.33
5229.00	350.00	0.00	0.00	951.40	260.00	956.01	4.61	953.75	.01	.06	.00	360.00
5229.00	350.00	0.00	0.00	951.40	305.00	956.23	4.83	953.89	.01	.06	.00	360.00
5229.00	350.00	0.00	0.00	951.40	420.00	956.67	5.27	954.18	.01	.06	.00	360.00
5489.00	260.00	0.00	0.00	951.78	173.00	955.42	3.64	952.87	.00	.03	.00	384.86
5489.00	260.00	0.00	0.00	951.78	260.00	956.04	4.26	953.08	.00	.03	.00	390.00
5489.00	260.00	0.00	0.00	951.78	305.00	956.27	4.49	953.17	.00	.03	.00	390.00
5489.00	260.00	0.00	0.00	951.78	420.00	956.71	4.93	953.38	.00	.04	.00	390.00
5659.00	170.00	0.00	0.00	952.03	173.00	955.44	3.41	953.12	.00	.02	.00	302.78
5659.00	170.00	0.00	0.00	952.03	260.00	956.06	4.03	953.33	.00	.02	.00	308.34
5659.00	170.00	0.00	0.00	952.03	305.00	956.28	4.25	953.42	.00	.02	.00	310.00
5659.00	170.00	0.00	0.00	952.03	420.00	956.73	4.70	953.62	.01	.02	.00	310.00
5959.00	300.00	0.00	0.00	952.48	173.00	955.48	3.00	953.40	.00	.04	.00	260.00
5959.00	300.00	0.00	0.00	952.48	260.00	956.10	3.62	953.58	.00	.04	.00	260.00
5959.00	300.00	0.00	0.00	952.48	305.00	956.32	3.84	953.69	.00	.04	.00	260.00
5959.00	300.00	0.00	0.00	952.48	420.00	956.78	4.30	953.94	.01	.05	.00	260.00
6109.00	150.00	0.00	0.00	952.70	173.00	955.52	2.82	954.30	.00	.05	.00	210.00
6109.00	150.00	0.00	0.00	952.70	260.00	956.14	3.44	954.39	.01	.04	.00	210.00
6109.00	150.00	0.00	0.00	952.70	305.00	956.36	3.66	954.40	.01	.04	.00	210.00
6109.00	150.00	0.00	0.00	952.70	420.00	956.82	4.12	954.53	.01	.05	.00	210.00
6209.00	100.00	0.00	0.00	952.85	173.00	955.63	2.78	954.66	.05	.13	.02	70.88
6209.00	100.00	0.00	0.00	952.85	260.00	956.21	3.36	954.86	.06	.10	.03	126.40
6209.00	100.00	0.00	0.00	952.85	305.00	956.43	3.58	954.97	.06	.09	.03	180.00
6209.00	100.00	0.00	0.00	952.85	420.00	956.89	4.04	955.22	.06	.09	.03	180.00
6309.00	100.00	0.00	0.00	953.00	173.00	956.34	3.34	955.71	.26	.81	.10	92.32
6309.00	100.00	0.00	0.00	953.00	260.00	956.76	3.76	956.49	.19	.62	.07	123.07
6309.00	100.00	0.00	0.00	953.00	305.00	956.94	3.94	956.57	.17	.56	.05	135.96
6309.00	100.00	0.00	0.00	953.00	420.00	957.30	4.30	956.84	.14	.46	.04	155.93

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRIWS	HV	HL	OLOSS	TOPWID
6429.00	120.00	0.00	0.00	951.60	173.00	956.92	5.32	954.52	.01	.27	.07	105.00
6429.00	120.00	0.00	0.00	951.60	260.00	957.31	5.71	955.31	.02	.33	.05	105.00
6429.00	120.00	0.00	0.00	951.60	305.00	957.48	5.88	955.48	.03	.35	.04	105.00
6429.00	120.00	0.00	0.00	951.60	420.00	957.84	6.24	955.88	.04	.40	.03	105.00
6430.00	1.00	955.50	955.10	951.60	173.00	956.83	5.23	956.83	.36	.00	0.00	81.79
6430.00	1.00	955.50	955.10	951.60	260.00	957.18	5.58	957.06	.29	.00	.13	92.79
6430.00	1.00	955.50	955.10	951.60	305.00	957.37	5.77	957.16	.26	.00	.12	98.56
6430.00	1.00	955.50	955.10	951.60	420.00	957.75	6.15	957.37	.23	.00	.09	110.43
6446.00	16.00	955.50	955.10	951.60	173.00	957.35	5.75	956.93	.09	.17	.08	97.99
6446.00	16.00	955.50	955.10	951.60	260.00	957.60	6.00	957.06	.11	.20	.05	105.76
6446.00	16.00	955.50	955.10	951.60	305.00	957.74	6.14	957.16	.12	.19	.04	110.21
6446.00	16.00	955.50	955.10	951.60	420.00	958.06	6.46	957.37	.13	.19	.03	115.00
6447.00	1.00	0.00	0.00	951.60	173.00	957.02	5.42	954.53	.01	.00	.02	105.00
6447.00	1.00	0.00	0.00	951.60	260.00	957.40	5.80	955.31	.02	.00	.03	105.00
6447.00	1.00	0.00	0.00	951.60	305.00	957.57	5.97	955.55	.02	.00	.03	105.00
6447.00	1.00	0.00	0.00	951.60	420.00	957.94	6.34	955.85	.03	.00	.03	105.00
7437.00	990.00	0.00	0.00	953.50	173.00	957.45	3.95	955.64	.01	.43	.00	205.00
7437.00	990.00	0.00	0.00	953.50	260.00	957.91	4.41	956.23	.01	.50	.00	205.00
7437.00	990.00	0.00	0.00	953.50	305.00	958.11	4.61	956.37	.01	.53	.00	205.00
7437.00	990.00	0.00	0.00	953.50	420.00	958.57	5.07	956.59	.01	.60	.01	205.00
7467.00	30.00	0.00	0.00	953.30	173.00	957.46	4.16	955.76	.01	.01	.00	190.00
7467.00	30.00	0.00	0.00	953.30	260.00	957.92	4.62	956.08	.01	.01	.00	190.00
7467.00	30.00	0.00	0.00	953.30	305.00	958.13	4.83	956.21	.01	.01	.00	190.00
7467.00	30.00	0.00	0.00	953.30	420.00	958.58	5.28	956.39	.01	.01	.00	190.00
7468.00	1.00	955.90	956.80	953.30	173.00	957.46	4.16	956.58	.01	.00	.00	190.00
7468.00	1.00	955.90	956.80	953.30	260.00	957.92	4.62	956.69	.01	.00	.00	190.00
7468.00	1.00	955.90	956.80	953.30	305.00	958.13	4.83	956.80	.01	.00	.00	190.00
7468.00	1.00	955.90	956.80	953.30	420.00	958.58	5.28	956.80	.01	.00	.00	190.00
7484.00	16.00	955.90	956.80	953.30	173.00	957.47	4.17	956.58	.01	.01	.00	190.00
7484.00	16.00	955.90	956.80	953.30	260.00	957.93	4.63	956.69	.01	.01	.00	190.00
7484.00	16.00	955.90	956.80	953.30	305.00	958.14	4.84	956.80	.01	.01	.00	190.00
7484.00	16.00	955.90	956.80	953.30	420.00	958.59	5.29	956.80	.01	.01	.00	190.00
7485.00	1.00	0.00	0.00	953.30	173.00	957.48	4.18	955.68	.00	.00	.00	190.00
7485.00	1.00	0.00	0.00	953.30	260.00	957.94	4.64	955.99	.01	.00	.00	190.00
7485.00	1.00	0.00	0.00	953.30	305.00	958.14	4.84	956.11	.01	.00	.00	190.00
7485.00	1.00	0.00	0.00	953.30	420.00	958.60	5.30	956.31	.01	.00	.00	190.00
7810.00	325.00	0.00	0.00	954.30	173.00	957.54	3.24	956.63	.26	.19	.13	20.87
7810.00	325.00	0.00	0.00	954.30	260.00	957.95	3.65	957.13	.40	.21	.20	22.74
7810.00	325.00	0.00	0.00	954.30	305.00	958.14	3.84	957.37	.47	.23	.23	23.56
7810.00	325.00	0.00	0.00	954.30	420.00	958.53	4.23	957.88	.66	.25	.32	34.45

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRIWS	HV	HL	OLOSS	TOPWID
7845.00	35.00	0.00	0.00	953.60	173.00	957.85	4.25	956.05	.14	.16	.04	25.44
7845.00	35.00	0.00	0.00	953.60	260.00	958.47	4.87	956.59	.15	.18	.08	100.00
7845.00	35.00	0.00	0.00	953.60	305.00	958.75	5.15	956.84	.13	.17	.10	100.00
7845.00	35.00	0.00	0.00	953.60	420.00	959.40	5.80	957.39	.10	.15	.17	100.00
7846.00	1.00	959.80	957.60	953.60	173.00	957.39	3.79	957.39	3.04	.01	0.00	4.00
7846.00	1.00	959.80	957.60	953.60	260.00	960.50	6.90	960.50	.30	.01	0.00	100.00
7846.00	1.00	959.80	957.60	953.60	305.00	960.63	7.03	960.63	.25	.00	0.00	100.00
7846.00	1.00	959.80	957.60	953.60	420.00	960.74	7.14	960.74	.17	.00	0.00	100.00
7883.00	37.00	959.80	957.80	953.80	173.00	959.68	5.88	957.58	2.93	2.14	.03	4.00
7883.00	37.00	959.80	957.80	953.80	260.00	960.95	7.15	960.51	.09	.18	.06	100.00
7883.00	37.00	959.80	957.80	953.80	305.00	961.01	7.21	960.64	.11	.19	.04	100.00
7883.00	37.00	959.80	957.80	953.80	420.00	961.23	7.43	960.75	.15	.20	.07	100.00
7884.00	1.00	0.00	0.00	953.80	173.00	960.35	6.55	956.15	.01	.00	.88	100.00
7884.00	1.00	0.00	0.00	953.80	260.00	960.67	6.87	956.66	.01	.00	.02	100.00
7884.00	1.00	0.00	0.00	953.80	305.00	960.80	7.00	956.89	.01	.00	.03	100.00
7884.00	1.00	0.00	0.00	953.80	420.00	961.09	7.29	957.40	.02	.00	.04	100.00
8334.00	450.00	0.00	0.00	955.00	64.00	960.37	5.37	956.47	.00	.01	.00	160.00
8334.00	450.00	0.00	0.00	955.00	97.00	960.70	5.70	956.81	.00	.02	.00	160.00
8334.00	450.00	0.00	0.00	955.00	113.00	960.84	5.84	956.95	.00	.02	.00	160.00
8334.00	450.00	0.00	0.00	955.00	157.00	961.14	6.14	957.30	.00	.03	.01	160.00
8359.00	25.00	0.00	0.00	954.60	64.00	960.37	5.77	956.09	.00	.00	.00	160.00
8359.00	25.00	0.00	0.00	954.60	97.00	960.70	6.10	956.44	.00	.00	.00	160.00
8359.00	25.00	0.00	0.00	954.60	113.00	960.84	6.24	956.59	.00	.00	.00	160.00
8359.00	25.00	0.00	0.00	954.60	157.00	961.14	6.54	956.94	.00	.00	.00	160.00
8360.00	1.00	958.90	957.00	954.60	64.00	960.37	5.77	956.85	.00	.00	.00	150.68
8360.00	1.00	958.90	957.00	954.60	97.00	960.70	6.10	959.33	.00	.00	.00	160.00
8360.00	1.00	958.90	957.00	954.60	113.00	960.84	6.24	959.37	.00	.00	.00	160.00
8360.00	1.00	958.90	957.00	954.60	157.00	961.14	6.54	959.43	.00	.00	.00	160.00
8377.00	18.00	958.90	956.90	954.70	64.00	960.37	5.67	956.90	.00	.00	.00	150.69
8377.00	18.00	958.90	956.90	954.70	97.00	960.70	6.00	959.33	.00	.00	.00	160.00
8377.00	18.00	958.90	956.90	954.70	113.00	960.84	6.14	959.37	.00	.00	.00	160.00
8377.00	18.00	958.90	956.90	954.70	157.00	961.14	6.44	959.43	.00	.00	.00	160.00
8378.00	1.00	0.00	0.00	954.70	64.00	960.37	5.67	956.17	.00	.00	.00	160.00
8378.00	1.00	0.00	0.00	954.70	97.00	960.70	6.00	956.51	.00	.00	.00	160.00
8378.00	1.00	0.00	0.00	954.70	113.00	960.84	6.14	956.65	.00	.00	.00	160.00
8378.00	1.00	0.00	0.00	954.70	157.00	961.15	6.45	957.01	.00	.00	.00	160.00
8708.00	330.00	0.00	0.00	955.60	64.00	960.38	4.78	956.87	.00	.01	.00	151.16
8708.00	330.00	0.00	0.00	955.60	97.00	960.71	5.11	957.13	.00	.01	.00	156.00
8708.00	330.00	0.00	0.00	955.60	113.00	960.85	5.25	957.24	.00	.01	.00	156.00
8708.00	330.00	0.00	0.00	955.60	157.00	961.16	5.56	957.52	.00	.01	.00	156.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRTWS	HV	HL	OLOSS	TOPWTD
8728.00	20.00	0.00	0.00	954.80	64.00	960.38	5.58	956.08	.00	.00	.00	156.00
8728.00	20.00	0.00	0.00	954.80	97.00	960.71	5.91	956.34	.00	.00	.00	156.00
8728.00	20.00	0.00	0.00	954.80	113.00	960.85	6.05	956.46	.00	.00	.00	156.00
8728.00	20.00	0.00	0.00	954.80	157.00	961.16	6.36	956.74	.00	.00	.00	156.00
8729.00	1.00	957.60	956.60	954.80	64.00	960.38	5.58	958.29	.00	.00	.00	155.37
8729.00	1.00	957.60	956.60	954.80	97.00	960.71	5.91	958.43	.00	.00	.00	156.00
8729.00	1.00	957.60	956.60	954.80	113.00	960.85	6.05	958.45	.00	.00	.00	156.00
8729.00	1.00	957.60	956.60	954.80	157.00	961.16	6.36	958.64	.00	.00	.00	156.00
8747.00	18.00	957.60	956.20	954.40	64.00	960.38	5.98	958.29	.00	.00	.00	155.38
8747.00	18.00	957.60	956.20	954.40	97.00	960.71	6.31	958.43	.00	.00	.00	156.00
8747.00	18.00	957.60	956.20	954.40	113.00	960.85	6.45	958.46	.00	.00	.00	156.00
8747.00	18.00	957.60	956.20	954.40	157.00	961.16	6.76	958.63	.00	.00	.00	156.00
8748.00	1.00	0.00	0.00	954.40	64.00	960.38	5.98	955.67	.00	.00	.00	156.00
8748.00	1.00	0.00	0.00	954.40	97.00	960.71	6.31	955.93	.00	.00	.00	156.00
8748.00	1.00	0.00	0.00	954.40	113.00	960.85	6.45	956.04	.00	.00	.00	156.00
8748.00	1.00	0.00	0.00	954.40	157.00	961.16	6.76	956.33	.00	.00	.00	156.00
8883.00	135.00	0.00	0.00	954.80	64.00	960.38	5.58	956.02	.00	.00	.00	200.67
8883.00	135.00	0.00	0.00	954.80	97.00	960.71	5.91	956.30	.00	.00	.00	217.68
8883.00	135.00	0.00	0.00	954.80	113.00	960.85	6.05	956.42	.00	.00	.00	224.53
8883.00	135.00	0.00	0.00	954.80	157.00	961.16	6.36	956.72	.00	.00	.00	227.00
8923.00	40.00	0.00	0.00	955.10	64.00	960.38	5.28	956.32	.00	.00	.00	185.68
8923.00	40.00	0.00	0.00	955.10	97.00	960.71	5.61	956.61	.00	.00	.00	202.69
8923.00	40.00	0.00	0.00	955.10	113.00	960.85	5.75	956.73	.00	.00	.00	209.54
8923.00	40.00	0.00	0.00	955.10	157.00	961.16	6.06	957.08	.00	.00	.00	225.02
8924.00	1.00	958.80	956.90	955.10	64.00	960.38	5.28	959.09	.00	.00	.00	257.00
8924.00	1.00	958.80	956.90	955.10	97.00	960.71	5.61	959.14	.00	.00	.00	257.00
8924.00	1.00	958.80	956.90	955.10	113.00	960.85	5.75	959.16	.00	.00	.00	257.00
8924.00	1.00	958.80	956.90	955.10	157.00	961.16	6.06	959.24	.00	.00	.00	257.00
8955.00	31.00	958.80	957.00	955.10	64.00	960.38	5.28	959.09	.00	.00	.00	257.00
8955.00	31.00	958.80	957.00	955.10	97.00	960.71	5.61	959.15	.00	.00	.00	257.00
8955.00	31.00	958.80	957.00	955.10	113.00	960.85	5.75	959.16	.00	.00	.00	257.00
8955.00	31.00	958.80	957.00	955.10	157.00	961.16	6.06	959.24	.00	.00	.00	257.00
8956.00	1.00	0.00	0.00	955.20	64.00	960.38	5.18	956.42	.00	.00	.00	180.69
8956.00	1.00	0.00	0.00	955.20	97.00	960.71	5.51	956.71	.00	.00	.00	197.71
8956.00	1.00	0.00	0.00	955.20	113.00	960.85	5.65	956.83	.00	.00	.00	204.56
8956.00	1.00	0.00	0.00	955.20	157.00	961.16	5.96	957.18	.00	.00	.00	220.04
9191.00	235.00	0.00	0.00	955.60	64.00	960.38	4.78	956.95	.00	.00	.00	186.22
9191.00	235.00	0.00	0.00	955.60	97.00	960.72	5.12	957.29	.00	.00	.00	206.25
9191.00	235.00	0.00	0.00	955.60	113.00	960.85	5.25	957.43	.00	.00	.00	214.32
9191.00	235.00	0.00	0.00	955.60	157.00	961.17	5.57	957.78	.00	.00	.00	232.56

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRIWS	HV	HL	OLOSS	TOPWID
9231.00	40.00	0.00	0.00	955.50	64.00	960.38	4.88	956.87	.00	.00	.00	200.48
9231.00	40.00	0.00	0.00	955.50	97.00	960.72	5.22	957.21	.00	.00	.00	237.96
9231.00	40.00	0.00	0.00	955.50	113.00	960.86	5.36	957.35	.00	.00	.00	251.55
9231.00	40.00	0.00	0.00	955.50	157.00	961.17	5.67	957.71	.00	.00	.00	266.57
9232.00	1.00	959.00	957.70	955.50	64.00	960.38	4.88	959.52	.00	.00	.00	187.60
9232.00	1.00	959.00	957.70	955.50	97.00	960.72	5.22	959.59	.00	.00	.00	206.52
9232.00	1.00	959.00	957.70	955.50	113.00	960.86	5.36	959.64	.00	.00	.00	214.14
9232.00	1.00	959.00	957.70	955.50	157.00	961.17	5.67	959.74	.00	.00	.00	231.37
9264.00	32.00	959.00	957.50	955.30	64.00	960.38	5.08	959.52	.00	.00	.00	187.68
9264.00	32.00	959.00	957.50	955.30	97.00	960.72	5.42	959.58	.00	.00	.00	206.59
9264.00	32.00	959.00	957.50	955.30	113.00	960.86	5.56	959.63	.00	.00	.00	214.21
9264.00	32.00	959.00	957.50	955.30	157.00	961.17	5.87	959.73	.00	.00	.00	231.44
9265.00	1.00	0.00	0.00	955.30	64.00	960.39	5.09	956.73	.00	.00	.00	222.65
9265.00	1.00	0.00	0.00	955.30	97.00	960.72	5.42	957.08	.00	.00	.00	256.83
9265.00	1.00	0.00	0.00	955.30	113.00	960.86	5.56	957.23	.00	.00	.00	264.01
9265.00	1.00	0.00	0.00	955.30	157.00	961.17	5.87	957.59	.00	.00	.00	271.30
9550.00	285.00	0.00	0.00	956.60	64.00	960.42	3.82	957.70	.02	.04	.01	69.93
9550.00	285.00	0.00	0.00	956.60	97.00	960.76	4.16	958.00	.02	.05	.01	198.63
9550.00	285.00	0.00	0.00	956.60	113.00	960.90	4.30	958.14	.02	.05	.01	198.86
9550.00	285.00	0.00	0.00	956.60	157.00	961.22	4.62	958.46	.02	.06	.01	199.37
9580.00	30.00	0.00	0.00	955.10	64.00	960.44	5.34	956.24	.00	.00	.00	200.00
9580.00	30.00	0.00	0.00	955.10	97.00	960.79	5.69	956.56	.00	.00	.01	200.00
9580.00	30.00	0.00	0.00	955.10	113.00	960.93	5.83	956.69	.00	.00	.01	200.00
9580.00	30.00	0.00	0.00	955.10	157.00	961.25	6.15	957.03	.00	.00	.01	200.00
9581.00	1.00	958.90	957.10	955.10	64.00	960.44	5.34	959.42	.00	.00	.00	200.00
9581.00	1.00	958.90	957.10	955.10	97.00	960.79	5.69	959.49	.00	.00	.00	200.00
9581.00	1.00	958.90	957.10	955.10	113.00	960.93	5.83	959.54	.00	.00	.00	200.00
9581.00	1.00	958.90	957.10	955.10	157.00	961.25	6.15	959.64	.00	.00	.00	200.00
9597.00	16.00	958.90	957.60	955.60	64.00	960.44	4.84	959.43	.00	.00	.00	200.00
9597.00	16.00	958.90	957.60	955.60	97.00	960.79	5.19	959.51	.00	.00	.00	200.00
9597.00	16.00	958.90	957.60	955.60	113.00	960.93	5.33	959.56	.00	.00	.00	200.00
9597.00	16.00	958.90	957.60	955.60	157.00	961.25	5.65	959.66	.00	.00	.00	200.00
9598.00	1.00	0.00	0.00	955.60	64.00	960.44	4.84	956.74	.00	.00	.00	199.74
9598.00	1.00	0.00	0.00	955.60	97.00	960.79	5.19	957.06	.00	.00	.00	200.00
9598.00	1.00	0.00	0.00	955.60	113.00	960.93	5.33	957.19	.00	.00	.00	200.00
9598.00	1.00	0.00	0.00	955.60	157.00	961.25	5.65	957.54	.00	.00	.00	200.00
10233.00	635.00	0.00	0.00	956.80	64.00	960.49	3.69	958.21	.01	.05	.00	212.41
10233.00	635.00	0.00	0.00	956.80	97.00	960.84	4.04	958.52	.00	.06	.00	225.00
10233.00	635.00	0.00	0.00	956.80	113.00	960.99	4.19	958.67	.00	.06	.00	225.00
10233.00	635.00	0.00	0.00	956.80	157.00	961.30	4.50	959.02	.00	.06	.00	225.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	CRIWS	HV	HL	OLOSS	TOPWID
10273.00	40.00	0.00	0.00	956.70	64.00	960.50	3.80	958.12	.00	.00	.00	260.00
10273.00	40.00	0.00	0.00	956.70	97.00	960.85	4.15	958.43	.00	.00	.00	260.00
10273.00	40.00	0.00	0.00	956.70	113.00	960.99	4.29	958.55	.00	.00	.00	260.00
10273.00	40.00	0.00	0.00	956.70	157.00	961.31	4.61	958.96	.00	.00	.00	260.00
10274.00	1.00	960.50	958.70	956.70	64.00	960.76	4.06	960.76	.07	.00	0.00	210.44
10274.00	1.00	960.50	958.70	956.70	97.00	960.82	4.12	960.77	.07	.00	.03	240.32
10274.00	1.00	960.50	958.70	956.70	113.00	960.98	4.28	960.77	.03	.00	.01	260.00
10274.00	1.00	960.50	958.70	956.70	157.00	961.30	4.60	960.85	.01	.00	.00	260.00
10323.00	49.00	960.50	958.40	956.40	64.00	960.95	4.55	960.73	.01	.13	.02	257.62
10323.00	49.00	960.50	958.40	956.40	97.00	961.03	4.63	960.79	.01	.14	.02	260.00
10323.00	49.00	960.50	958.40	956.40	113.00	961.08	4.68	960.77	.02	.08	.00	260.00
10323.00	49.00	960.50	958.40	956.40	157.00	961.33	4.93	960.82	.01	.03	.00	260.00
10324.00	1.00	0.00	0.00	956.40	64.00	960.80	4.40	957.81	.00	.00	.00	260.00
10324.00	1.00	0.00	0.00	956.40	97.00	960.89	4.49	958.13	.00	.00	.00	260.00
10324.00	1.00	0.00	0.00	956.40	113.00	961.01	4.61	958.25	.00	.00	.00	260.00
10324.00	1.00	0.00	0.00	956.40	157.00	961.32	4.92	958.66	.00	.00	.00	260.00

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	225.000	952.250	0.000	0.000	0.000	108.214	0.000	0.000
0.000	340.000	952.850	.600	0.000	0.000	187.691	-79.478	0.000
0.000	395.000	953.070	.220	0.000	0.000	213.708	-105.494	0.000
0.000	540.000	953.770	.700	0.000	0.000	301.033	-192.819	0.000
520.000	225.000	953.496	0.000	1.246	0.000	125.227	0.000	520.000
520.000	340.000	954.131	.635	1.281	0.000	142.571	-17.344	520.000
520.000	395.000	954.353	.222	1.283	0.000	148.658	-23.431	520.000
520.000	540.000	954.838	.485	1.068	0.000	161.913	-36.686	520.000
855.000	225.000	953.938	0.000	.443	0.000	308.005	0.000	335.000
855.000	340.000	954.499	.561	.368	0.000	754.108	-446.103	335.000
855.000	395.000	954.694	.195	.341	0.000	773.273	-465.268	335.000
855.000	540.000	955.133	.439	.295	0.000	810.218	-502.214	335.000
2080.000	225.000	954.039	0.000	.100	0.000	718.193	0.000	1225.000
2080.000	340.000	954.591	.553	.092	0.000	749.527	-31.334	1225.000
2080.000	395.000	954.786	.195	.092	0.000	749.999	-31.806	1225.000
2080.000	540.000	955.228	.442	.095	0.000	749.999	-31.806	1225.000
2480.000	225.000	954.049	0.000	.010	0.000	512.620	0.000	400.000
2480.000	340.000	954.604	.555	.012	0.000	529.999	-17.379	400.000
2480.000	395.000	954.800	.196	.013	0.000	529.999	-17.379	400.000
2480.000	540.000	955.244	.445	.017	0.000	529.999	-17.379	400.000
2530.000	225.000	954.050	0.000	.002	0.000	504.999	0.000	50.000
2530.000	340.000	954.606	.556	.002	0.000	504.999	-.000	50.000
2530.000	395.000	954.802	.196	.002	0.000	504.999	-.000	50.000
2530.000	540.000	955.248	.445	.003	0.000	504.999	-.000	50.000
2531.000	225.000	954.049	0.000	-.001	0.000	458.335	0.000	1.000
2531.000	340.000	954.605	.556	-.001	0.000	499.188	-30.852	1.000
2531.000	395.000	954.801	.196	-.001	0.000	500.087	-41.752	1.000
2531.000	540.000	955.246	.445	-.001	0.000	524.521	-66.485	1.000
2568.000	225.000	954.051	0.000	.001	0.000	458.389	0.000	37.000
2568.000	340.000	954.606	.555	.001	0.000	489.236	-30.847	37.000
2568.000	395.000	954.802	.196	.001	0.000	500.138	-41.749	37.000
2568.000	540.000	955.247	.445	.001	0.000	524.978	-66.489	37.000

2569.000	225.000	954.053	0.000	.003	0.000	504.999	0.000	1.000
2569.000	340.000	954.608	.555	.003	0.000	504.999	-.000	1.000
2569.000	395.000	954.805	.196	.003	0.000	504.999	-.000	1.000
2569.000	540.000	955.250	.446	.003	0.000	504.999	-.000	1.000
3119.000	225.000	954.014	0.000	-.039	0.000	35.998	0.000	550.000
3119.000	340.000	954.555	.541	-.053	0.000	145.145	-109.247	550.000
3119.000	395.000	954.750	.195	-.055	0.000	184.433	-148.535	550.000
3119.000	540.000	955.209	.459	-.042	0.000	234.900	-199.002	550.000
3519.000	225.000	955.093	0.000	1.079	0.000	72.051	0.000	400.000
3519.000	340.000	955.699	.606	1.144	0.000	193.062	-121.011	400.000
3519.000	395.000	955.910	.211	1.160	0.000	234.900	-162.849	400.000
3519.000	540.000	956.318	.408	1.109	0.000	234.900	-162.849	400.000
3759.000	173.000	955.257	0.000	.164	0.000	391.761	0.000	240.000
3759.000	260.000	955.895	.638	.196	0.000	412.305	-20.544	240.000
3759.000	305.000	956.113	.218	.203	0.000	419.122	-27.361	240.000
3759.000	420.000	956.530	.417	.212	0.000	432.162	-40.402	240.000
4839.000	173.000	955.310	0.000	.053	0.000	286.436	0.000	1120.000
4839.000	260.000	955.950	.640	.055	0.000	309.999	-23.563	1120.000
4839.000	305.000	956.172	.223	.059	0.000	309.999	-23.563	1120.000
4839.000	420.000	956.604	.432	.074	0.000	309.999	-23.563	1120.000
5229.000	173.000	955.379	0.000	.069	0.000	329.334	0.000	350.000
5229.000	260.000	956.006	.627	.056	0.000	359.999	-30.665	350.000
5229.000	305.000	956.229	.223	.057	0.000	359.999	-30.665	350.000
5229.000	420.000	956.667	.438	.063	0.000	359.999	-30.665	350.000
5489.000	173.000	955.422	0.000	.044	0.000	384.857	0.000	260.000
5489.000	260.000	956.044	.621	.038	0.000	389.999	-5.142	260.000
5489.000	305.000	956.268	.224	.039	0.000	389.999	-5.142	260.000
5489.000	420.000	956.711	.443	.044	0.000	389.999	-5.142	260.000
5659.000	173.000	955.438	0.000	.015	0.000	302.775	0.000	170.000
5659.000	260.000	956.059	.621	.015	0.000	308.343	-5.568	170.000
5659.000	305.000	956.284	.225	.016	0.000	310.000	-7.225	170.000
5659.000	420.000	956.730	.446	.019	0.000	310.000	-7.225	170.000
5959.000	173.000	955.477	0.000	.039	0.000	259.999	0.000	300.000
5959.000	260.000	956.097	.619	.038	0.000	259.999	-.000	300.000
5959.000	305.000	956.324	.227	.040	0.000	259.999	-.000	300.000
5959.000	420.000	956.777	.453	.046	0.000	259.999	-.000	300.000
6109.000	173.000	955.523	0.000	.046	0.000	209.999	0.000	150.000
6109.000	260.000	956.136	.612	.039	0.000	209.999	-.000	150.000
6109.000	305.000	956.364	.228	.040	0.000	209.999	-.000	150.000
6109.000	420.000	956.820	.457	.044	0.000	209.999	-.000	150.000
6209.000	173.000	955.625	0.000	.102	0.000	70.879	0.000	100.000
6209.000	260.000	956.206	.580	.070	0.000	126.404	-55.525	100.000
6209.000	305.000	956.430	.224	.066	0.000	179.999	-109.120	100.000
6209.000	420.000	956.886	.456	.066	0.000	179.999	-109.120	100.000
6309.000	173.000	956.336	0.000	.711	0.000	92.320	0.000	100.000
6309.000	260.000	956.760	.424	.554	0.000	123.067	-30.747	100.000
6309.000	305.000	956.939	.179	.509	0.000	135.958	-43.638	100.000
6309.000	420.000	957.303	.364	.417	0.000	155.928	-63.608	100.000
6429.000	173.000	956.917	0.000	.581	0.000	104.999	0.000	120.000
6429.000	260.000	957.308	.391	.548	0.000	104.999	-.000	120.000
6429.000	305.000	957.478	.170	.539	0.000	104.999	-.000	120.000
6429.000	420.000	957.843	.364	.539	0.000	104.999	-.000	120.000

6430.000	173.000	957.026	0.000	-.091	0.000	81.795	0.000	1.000
6430.000	260.000	957.176	.350	-.132	0.000	92.786	-10.992	1.000
6430.000	305.000	957.365	.189	-.113	0.000	98.563	-16.768	1.000
6430.000	420.000	957.751	.386	-.091	0.000	110.435	-28.640	1.000
6446.000	173.000	957.346	0.000	.520	0.000	97.990	0.000	16.000
6446.000	260.000	957.602	.256	.426	0.000	105.764	-7.773	16.000
6446.000	305.000	957.735	.133	.370	0.000	110.205	-12.215	16.000
6446.000	420.000	958.061	.325	.309	0.000	114.999	-17.009	16.000
6447.000	173.000	957.020	0.000	-.326	0.000	104.999	0.000	1.000
6447.000	260.000	957.400	.380	-.202	0.000	104.999	-.000	1.000
6447.000	305.000	957.570	.170	-.165	0.000	104.999	-.000	1.000
6447.000	420.000	957.940	.370	-.121	0.000	104.999	-.000	1.000
7437.000	173.000	957.451	0.000	.431	0.000	204.999	0.000	990.000
7437.000	260.000	957.910	.459	.510	0.000	204.999	-.000	990.000
7437.000	305.000	958.115	.205	.545	0.000	204.999	-.000	990.000
7437.000	420.000	958.567	.452	.627	0.000	204.999	-.000	990.000
7467.000	173.000	957.463	0.000	.013	0.000	189.999	0.000	30.000
7467.000	260.000	957.923	.460	.013	0.000	189.999	-.000	30.000
7467.000	305.000	958.128	.205	.014	0.000	189.999	-.000	30.000
7467.000	420.000	958.582	.453	.015	0.000	189.999	-.000	30.000
7468.000	173.000	957.462	0.000	-.001	0.000	189.999	0.000	1.000
7468.000	260.000	957.923	.460	-.001	0.000	189.999	-.000	1.000
7468.000	305.000	958.128	.205	-.001	0.000	189.999	-.000	1.000
7468.000	420.000	958.581	.453	-.001	0.000	189.999	-.000	1.000
7484.000	173.000	957.473	0.000	.011	0.000	189.999	0.000	16.000
7484.000	260.000	957.932	.459	.010	0.000	189.999	-.000	16.000
7484.000	305.000	958.137	.205	.010	0.000	189.999	-.000	16.000
7484.000	420.000	958.591	.454	.010	0.000	189.999	-.000	16.000
7485.000	173.000	957.479	0.000	.006	0.000	189.999	0.000	1.000
7485.000	260.000	957.938	.459	.005	0.000	189.999	-.000	1.000
7485.000	305.000	958.143	.205	.005	0.000	189.999	-.000	1.000
7485.000	420.000	958.596	.454	.005	0.000	189.999	-.000	1.000
7810.000	173.000	957.538	0.000	.059	0.000	20.866	0.000	325.000
7810.000	260.000	957.954	.417	.016	0.000	22.744	-1.878	325.000
7810.000	305.000	958.136	.182	-.007	0.000	23.564	-2.697	325.000
7810.000	420.000	958.525	.390	-.071	0.000	34.449	-13.583	325.000
7845.000	173.000	957.852	0.000	.315	0.000	25.437	0.000	35.000
7845.000	260.000	958.465	.613	.511	0.000	99.999	-74.562	35.000
7845.000	305.000	958.754	.289	.618	0.000	99.999	-74.562	35.000
7845.000	420.000	959.397	.643	.871	0.000	99.999	-74.562	35.000
7846.000	173.000	957.386	0.000	-.466	0.000	4.000	0.000	1.000
7846.000	260.000	960.499	3.113	2.034	0.000	99.999	-95.999	1.000
7846.000	305.000	960.631	.132	1.877	0.000	99.999	-95.999	1.000
7846.000	420.000	960.745	.113	1.348	0.000	99.999	-95.999	1.000
7883.000	173.000	959.676	0.000	2.290	0.000	4.000	0.000	37.000
7883.000	260.000	960.951	1.275	.452	0.000	99.999	-95.999	37.000
7883.000	305.000	961.012	.061	.380	0.000	99.999	-95.999	37.000
7883.000	420.000	961.232	.220	.487	0.000	99.999	-95.999	37.000
7884.000	173.000	960.350	0.000	.674	0.000	99.999	0.000	1.000
7884.000	260.000	960.670	.320	-.281	0.000	99.999	-.000	1.000
7884.000	305.000	960.800	.130	-.212	0.000	99.999	-.000	1.000
7884.000	420.000	961.090	.290	-.142	0.000	99.999	-.000	1.000
8334.000	64.000	960.369	0.000	.019	0.000	159.999	0.000	450.000

		960.700		.030				450.000
8334.000	113.000	960.837	.136	.037	0.000	159.999	-.000	450.000
8334.000	157.000	961.144	.307	.054	0.000	159.999	-.000	450.000
8359.000	64.000	960.369	0.000	.000	0.000	159.999	0.000	25.000
8359.000	97.000	960.701	.332	.001	0.000	159.999	-.000	25.000
8359.000	113.000	960.837	.137	.001	0.000	159.999	-.000	25.000
8359.000	157.000	961.145	.308	.001	0.000	159.999	-.000	25.000
8360.000	64.000	960.368	0.000	-.001	0.000	150.675	0.000	1.000
8360.000	97.000	960.700	.331	-.001	0.000	159.999	-9.324	1.000
8360.000	113.000	960.836	.136	-.001	0.000	159.999	-9.324	1.000
8360.000	157.000	961.144	.307	-.001	0.000	159.999	-9.324	1.000
8377.000	64.000	960.369	0.000	.001	0.000	150.690	0.000	18.000
8377.000	97.000	960.701	.332	.001	0.000	159.999	-9.309	18.000
8377.000	113.000	960.837	.136	.001	0.000	159.999	-9.309	18.000
8377.000	157.000	961.144	.307	.001	0.000	159.999	-9.309	18.000
8378.000	64.000	960.371	0.000	.002	0.000	159.999	0.000	1.000
8378.000	97.000	960.703	.332	.003	0.000	159.999	-.000	1.000
8378.000	113.000	960.840	.137	.003	0.000	159.999	-.000	1.000
8378.000	157.000	961.148	.308	.003	0.000	159.999	-.000	1.000
8708.000	64.000	960.376	0.000	.005	0.000	151.164	0.000	330.000
8708.000	97.000	960.710	.334	.006	0.000	155.999	-4.835	330.000
8708.000	113.000	960.847	.137	.007	0.000	155.999	-4.835	330.000
8708.000	157.000	961.157	.310	.009	0.000	155.999	-4.835	330.000
8728.000	64.000	960.378	0.000	.002	0.000	155.999	0.000	20.000
8728.000	97.000	960.712	.334	.002	0.000	155.999	-.000	20.000
8728.000	113.000	960.849	.138	.002	0.000	155.999	-.000	20.000
8728.000	157.000	961.160	.311	.003	0.000	155.999	-.000	20.000
8729.000	64.000	960.377	0.000	-.000	0.000	155.371	0.000	1.000
8729.000	97.000	960.711	.334	-.000	0.000	155.998	-.627	1.000
8729.000	113.000	960.849	.138	-.000	0.000	155.998	-.627	1.000
8729.000	157.000	961.159	.310	-.001	0.000	155.998	-.627	1.000
8747.000	64.000	960.378	0.000	.000	0.000	155.376	0.000	18.000
8747.000	97.000	960.712	.334	.000	0.000	155.998	-.622	18.000
8747.000	113.000	960.849	.138	.000	0.000	155.998	-.622	18.000
8747.000	157.000	961.160	.310	.001	0.000	155.998	-.622	18.000
8748.000	64.000	960.379	0.000	.001	0.000	155.999	0.000	1.000
8748.000	97.000	960.713	.334	.001	0.000	155.999	-.000	1.000
8748.000	113.000	960.851	.138	.002	0.000	155.999	-.000	1.000
8748.000	157.000	961.162	.311	.002	0.000	155.999	-.000	1.000
8883.000	64.000	960.379	0.000	.000	0.000	200.675	0.000	135.000
8883.000	97.000	960.714	.335	.001	0.000	217.681	-17.006	135.000
8883.000	113.000	960.852	.138	.001	0.000	224.530	-23.855	135.000
8883.000	157.000	961.163	.311	.001	0.000	227.000	-26.326	135.000
8923.000	64.000	960.379	0.000	.000	0.000	185.680	0.000	40.000
8923.000	97.000	960.714	.335	.000	0.000	202.689	-17.009	40.000
8923.000	113.000	960.852	.138	.000	0.000	209.540	-23.860	40.000
8923.000	157.000	961.163	.312	.000	0.000	225.021	-39.341	40.000
8924.000	64.000	960.379	0.000	-.000	0.000	257.000	0.000	1.000
8924.000	97.000	960.714	.335	-.000	0.000	257.000	-.000	1.000
8924.000	113.000	960.852	.138	-.000	0.000	257.000	-.000	1.000
8924.000	157.000	961.163	.312	-.000	0.000	257.000	-.000	1.000
8955.000	64.000	960.379	0.000	.000	0.000	257.000	0.000	31.000
8955.000	97.000	960.714	.335	.000	0.000	257.000	-.000	31.000

[illegible]		960.832	.138	.000	0.000			31.000
8955.000	157.000	961.164	.312	.000	0.000	257.000	-.000	31.000
8956.000	64.000	960.380	0.000	.000	0.000	180.694	0.000	1.000
8956.000	97.000	960.714	.335	.000	0.000	197.705	-17.011	1.000
8956.000	113.000	960.852	.138	.000	0.000	204.557	-23.863	1.000
8956.000	157.000	961.164	.312	-.000	0.000	220.041	-39.347	1.000
9191.000	64.000	960.381	0.000	.001	0.000	186.223	0.000	235.000
9191.000	97.000	960.717	.335	.002	0.000	206.251	-20.028	235.000
9191.000	113.000	960.855	.138	.002	0.000	214.321	-28.098	235.000
9191.000	157.000	961.167	.312	.003	0.000	232.563	-46.340	235.000
9231.000	64.000	960.383	0.000	.002	0.000	200.478	0.000	40.000
9231.000	97.000	960.719	.335	.002	0.000	237.959	-37.480	40.000
9231.000	113.000	960.857	.138	.002	0.000	251.547	-51.069	40.000
9231.000	157.000	961.169	.312	.002	0.000	266.571	-66.092	40.000
9232.000	64.000	960.383	0.000	-.000	0.000	187.602	0.000	1.000
9232.000	97.000	960.718	.335	-.000	0.000	206.519	-18.917	1.000
9232.000	113.000	960.857	.138	-.000	0.000	214.141	-26.539	1.000
9232.000	157.000	961.169	.312	-.000	0.000	231.374	-43.772	1.000
9264.000	64.000	960.385	0.000	.002	0.000	187.677	0.000	32.000
9264.000	97.000	960.720	.335	.002	0.000	206.588	-18.911	32.000
9264.000	113.000	960.858	.138	.002	0.000	214.209	-26.532	32.000
9264.000	157.000	961.170	.312	.002	0.000	231.442	-43.765	32.000
9265.000	64.000	960.386	0.000	.001	0.000	222.652	0.000	1.000
9265.000	97.000	960.721	.335	.001	0.000	256.827	-34.175	1.000
9265.000	113.000	960.859	.138	.001	0.000	264.012	-41.360	1.000
9265.000	157.000	961.172	.313	.001	0.000	271.301	-48.650	1.000
9550.000	64.000	960.418	0.000	.032	0.000	69.928	0.000	285.000
9550.000	97.000	960.759	.342	.039	0.000	198.627	-128.699	285.000
9550.000	113.000	960.900	.140	.041	0.000	198.856	-128.928	285.000
9550.000	157.000	961.218	.318	.046	0.000	199.375	-129.447	285.000
9580.000	64.000	960.440	0.000	.023	0.000	199.999	0.000	30.000
9580.000	97.000	960.790	.350	.030	0.000	199.999	-.000	30.000
9580.000	113.000	960.930	.140	.030	0.000	199.999	-.000	30.000
9580.000	157.000	961.246	.316	.028	0.000	199.999	-.000	30.000
9581.000	64.000	960.440	0.000	-.000	0.000	199.999	0.000	1.000
9581.000	97.000	960.790	.350	-.000	0.000	199.999	-.000	1.000
9581.000	113.000	960.929	.140	-.000	0.000	199.999	-.000	1.000
9581.000	157.000	961.245	.316	-.000	0.000	199.999	-.000	1.000
9597.000	64.000	960.441	0.000	.001	0.000	199.999	0.000	16.000
9597.000	97.000	960.790	.349	.000	0.000	199.999	-.000	16.000
9597.000	113.000	960.930	.140	.000	0.000	199.999	-.000	16.000
9597.000	157.000	961.246	.316	.001	0.000	199.999	-.000	16.000
9598.000	64.000	960.440	0.000	-.000	0.000	199.739	0.000	1.000
9598.000	97.000	960.790	.349	-.000	0.000	199.999	-.260	1.000
9598.000	113.000	960.930	.140	-.000	0.000	199.999	-.260	1.000
9598.000	157.000	961.246	.316	-.000	0.000	199.999	-.260	1.000
10233.000	64.000	960.492	0.000	.052	0.000	212.406	0.000	635.000
10233.000	97.000	960.844	.352	.054	0.000	224.999	-12.593	635.000
10233.000	113.000	960.985	.141	.055	0.000	224.999	-12.593	635.000
10233.000	157.000	961.304	.319	.058	0.000	224.999	-12.593	635.000
10273.000	64.000	960.498	0.000	.006	0.000	259.999	0.000	40.000
10273.000	97.000	960.849	.351	.005	0.000	259.999	-.000	40.000
10273.000	113.000	960.989	.140	.004	0.000	259.999	-.000	40.000

10273.000		961.308	.319	.004	0.000			40.000
10274.000	64.000	960.756	0.000	.257	0.000	210.437	0.000	1.000
10274.000	97.000	960.817	.061	-.032	0.000	240.321	-29.884	1.000
10274.000	113.000	960.978	.161	-.011	0.000	259.999	-49.562	1.000
10274.000	157.000	961.303	.325	-.005	0.000	259.999	-49.562	1.000
10323.000	64.000	960.954	0.000	.198	0.000	257.624	0.000	49.000
10323.000	97.000	961.031	.077	.214	0.000	259.999	-2.375	49.000
10323.000	113.000	961.076	.045	.098	0.000	259.999	-2.375	49.000
10323.000	157.000	961.331	.255	.028	0.000	259.999	-2.375	49.000
10324.000	64.000	960.800	0.000	-.154	0.000	259.999	0.000	1.000
10324.000	97.000	960.890	.090	-.141	0.000	259.999	-.000	1.000
10324.000	113.000	961.010	.120	-.066	0.000	259.999	-.000	1.000
10324.000	157.000	961.320	.310	-.011	0.000	259.999	-.000	1.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	260.000	61.901	0.000
2	0.000	260.000	75.495	13.594
3	0.000	260.000	77.125	15.225
4	0.000	260.000	79.468	17.567

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY OF

3) WATERCOURSE: BISHOP CREEK

4) DOCUMENT TYPE: 100 YR

00BREAK00

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1*****************************************************
 *  WATER SURFACE PROFILES                           *
 *  VERSION OF NOVEMBER 1976                         *
 *  UPDATED MAY 1984                                 *
 *                                                   *
 *  RUN DATE  13 FEB 89 TIME   10 24:18              *
 *****************************************************
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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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13 FEB 89 10:24:18 PAGE 1

THIS RUN EXECUTED 13 FEB 89 10:24:18

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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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C
T1      CITY OF NOVI
T2      100 YEAR FLOOD
T3      BISHOP CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        2.        0.        0.   0 000000     0.00      0.0       0.    842.670    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

    110.000   150.000   200 000     0.000     0.000     0.000     0.000     0.000     0.000     0.000


NC      0.100      0.030      0.050      0.300      0.500      0 000      0.000      0.000      0.000      0 000
QT      2.000    310.000    310.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET      0 000      4.100      1.400   1065.000   1215.000      0.000      0.000      0.000      0.000      0.000
                300 FT. U/S OF CONFLUENCE WITH PATNALES
X1      0.000     34.000   1154.000   1180 000      0.000      0.000      0.000      0.000      0.000      0.000
GR    850 500      0.000    847.100     20.000    838.800     55.000    839.100     60.000    842.000     70.000
GR    842 600     80.000    843.000    180.000    840.400    280.000    842.500    380.000    842.200    480.000
GR    842.100    580.000    842 300    680.000    841.700    780.000    841.700    880.000    841.000    980.000
GR    839.700   1080.000    838.600   1154.000    836 600   1164.000    836.600   1168.000    840.900   1180.000
GR    843.200   1220.000    844.100   1280.000    843.400   1345.000    844.900   1380.000    845.500   1480.000
GR    844.600   1580 000    845.400   1680.000    845.300   1780 000    845.300   1980.000    846.100   1980.000
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GR	844.600	2080.000	844.200	2180.000	843.900	2260.000	845.100	2380.000	0.000	0.000
NC	0.030	0.030	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	475.000	20.000	764.000	800.000	475.000	475.000	475.000	0.000	-0.900	0.000
GR	849.100	0.000	847.100	100.000	846.700	200.000	847.400	300.000	847.500	400.000
GR	845.000	500.000	844.600	600.000	845.200	625.000	846.500	700.000	846.500	764.000
GR	840.000	790.000	838.500	791.000	838.400	794.000	838.500	797.000	840.100	800.000
GR	846.000	900.000	844.500	965.000	845.800	1000.000	846.000	1100.000	850.200	1200.000
X1	950.000	0.000	0.000	0.000	475.000	475.000	475.000	0.000	0.900	0.000
X1	1081.000	0.000	0.000	0.000	125.000	125.000	131.000	0.000	0.920	0.000

X1	1212.000	0.000	0.000	0.000	125.000	125.000	131.000	0.000	0.930	0.000
ET	0.000	0.000	4.100	780.000	841.000	0.000	0.000	0.000	0.000	0.000
X1	1475.000	0.000	0.000	0.000	250.000	250.000	263.000	0.000	1.850	0.000
X1	1737.000	26.000	1000.000	1027.000	250.000	250.000	262.000	0.000	-1.850	0.000
GR	855.200	0.000	855.900	100.000	856.000	200.000	856.200	300.000	856.300	400.000
GR	855.600	500.000	854.800	600.000	853.600	700.000	852.100	800.000	851.400	900.000
GR	848.800	1000.000	847.100	1003.000	846.600	1005.900	845.800	1010.000	846.000	1014.100
GR	846.000	1015.000	846.600	1020.000	847.100	1024.000	848.500	1027.000	850.000	1100.000
GR	852.800	1200.000	853.700	1300.000	855.600	1400.000	857.200	1500.000	857.900	1600.000
GR	857.900	1700.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.015	0.015	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000

TEN MILE ROAD BRIDGE

X1	2001.000	0.000	0.000	0.000	251.000	251.000	264.000	0.000	1.850	0.000
SB	0.000	1.980	2.900	0.000	8.200	0.000	19.500	0.000	0.000	0.000
ET	0.000	0.000	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2038.800	0.000	0.000	0.000	37.800	37.800	37.800	0.000	0.000	0.000
X2	0.000	0.000	1.000	848.700	851.100	0.000	0.000	0.000	0.000	0.000
BT	24.000	0.000	855.400	0.000	100.000	855.900	0.000	200.000	856.000	0.000
BT	300.000	856.000	2.000	400.000	856.300	0.000	500.000	855.600	0.000	600.000
BT	854.800	0.000	700.000	853.600	0.000	800.000	852.200	0.000	900.000	851.400
BT	0.000	1000.000	851.100	0.000	1005.900	851.100	0.000	1005.900	851.100	848.700
BT	1010.000	851.100	848.700	1014.100	851.100	848.700	1014.100	851.100	0.000	1015.000
BT	851.100	0.000	1100.000	851.500	0.000	1200.000	852.800	0.000	1300.000	854.800
BT	0.000	1400.000	856.000	0.000	1500.000	857.200	0.000	1600.000	858.300	0.000
BT	1700.000	858.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.030	0.030	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	4.100	578.000	666.000	0.000	0.000	0.000	0.000	0.000
X1	2440.000	90.000	602.500	628.500	351.000	376.000	401.000	0.000	0.150	0.000
GR	856.500	0.000	856.600	20.700	856.800	41.500	857.000	62.300	857.100	83.100
GR	857.200	103.800	857.200	124.600	857.300	145.400	857.300	166.200	857.300	186.900
GR	857.300	207.700	857.200	228.500	857.100	249.300	856.900	270.000	856.700	290.800
GR	856.400	311.600	856.200	332.400	856.000	353.100	855.700	373.900	855.400	394.700
GR	855.000	415.500	854.500	436.200	854.100	457.000	853.600	477.800	853.300	498.600
GR	853.000	519.300	852.600	540.100	852.000	560.900	851.400	581.700	850.800	602.500
GR	850.200	603.300	849.700	604.200	849.200	605.000	848.700	605.900	848.400	606.800
GR	848.000	607.600	847.900	608.500	847.800	609.400	847.600	610.200	847.500	611.100
GR	847.400	612.000	847.400	612.800	847.500	613.700	847.500	614.600	847.600	615.400
GR	847.700	616.300	847.800	617.200	848.000	618.000	848.200	618.900	848.300	619.800
GR	848.500	620.600	848.700	621.500	848.900	622.400	849.100	623.200	849.300	624.100
GR	849.400	625.000	849.700	625.800	850.000	626.700	850.400	627.600	850.700	628.500
GR	851.000	642.200	851.300	656.000	851.600	669.800	852.000	683.600	852.300	697.400
GR	852.700	711.200	853.100	725.000	853.400	738.800	853.600	752.600	853.800	766.400
GR	853.300	780.200	854.100	794.000	854.400	807.300	854.700	821.600	854.900	835.400
GR	855.300	849.200	855.500	863.000	855.600	876.300	856.000	890.600	856.600	904.400

GR	856.600	918.200	856.800	932.000	857.000	945.800	857.200	959.600	857.700	973.400
GR	858.200	987.200	858.700	1001.000	859.200	1014.800	859.700	1028.600	860.200	1042.500

1
13 FEB 89 10:24:18 PAGE 3

ET	0.000	0.000	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2840.000	12.000	205.000	230.000	350.000	375.000	400.000	0.000	0.000	0.000
GR	857.800	0.000	858.400	30.000	858.600	63.000	856.900	130.000	852.800	205.000
GR	849.500	210.000	849.000	214.000	849.300	218.000	853.000	230.000	855.700	330.000
GR	856.800	355.000	862.500	385.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	4.100	172.000	214.000	0.000	0.000	0.000	0.000	0.000
X1	3178.000	90.000	189.500	213.700	288.000	294.000	338.000	0.000	0.000	0.000
GR	862.800	0.000	862.500	6.500	862.300	13.000	862.100	19.600	861.800	26.100
GR	861.400	32.600	861.000	39.200	860.700	45.700	860.300	52.200	860.200	58.800
GR	860.000	65.300	859.800	71.800	859.600	78.400	859.400	84.900	859.300	91.400
GR	859.200	98.000	859.000	104.500	858.900	111.000	858.700	117.600	858.500	124.100
GR	858.200	130.600	857.900	137.200	857.700	143.700	857.400	150.200	857.100	156.800
GR	856.800	163.300	856.500	169.800	856.200	176.400	855.900	182.900	855.700	189.500
GR	855.200	190.300	854.700	191.100	854.300	191.900	853.800	192.700	853.400	193.500
GR	853.000	194.300	852.900	195.100	852.800	195.900	852.700	196.700	852.600	197.500
GR	852.600	198.300	852.600	199.100	852.600	200.000	852.700	200.800	852.800	201.600
GR	852.900	202.400	853.100	203.200	853.400	204.000	853.600	204.800	853.800	205.600
GR	854.100	206.400	854.300	207.200	854.600	208.000	854.800	208.800	855.100	209.700
GR	855.300	210.500	855.600	211.300	855.800	212.100	856.100	212.900	856.400	213.700
GR	856.600	219.200	856.800	224.800	857.000	230.300	857.200	235.900	857.400	241.400
GR	857.600	246.900	857.800	252.500	858.000	258.000	858.200	263.600	858.400	269.100
GR	858.600	274.700	858.800	280.200	859.100	285.700	859.300	291.300	859.400	296.800
GR	859.600	302.400	859.700	307.900	859.900	313.400	860.000	319.000	860.100	324.500
GR	860.300	330.100	860.500	335.600	860.700	341.200	860.900	346.700	861.500	352.200
GR	862.300	357.800	863.000	363.300	863.800	368.900	864.600	374.400	865.300	380.000
NC	0.100	0.100	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	4.100	112.000	213.000	0.000	0.000	0.000	0.000	0.000
X1	3515.000	90.000	174.000	197.500	287.000	294.000	337.000	0.000	0.000	0.000
GR	867.800	0.000	867.200	6.000	866.600	12.000	866.000	18.000	865.300	24.000
GR	864.500	29.900	863.700	36.000	863.000	41.900	862.200	47.900	862.000	53.900
GR	861.700	59.900	861.500	65.900	861.300	71.900	861.100	77.900	861.000	83.900
GR	860.900	89.900	860.800	95.900	860.700	101.900	860.600	107.900	860.500	113.900
GR	860.300	119.900	860.100	125.900	859.900	131.900	859.800	137.900	859.600	143.900
GR	859.400	149.900	859.200	155.900	859.000	161.900	858.800	167.900	858.700	174.000
GR	858.300	174.700	857.900	175.500	857.500	176.300	857.100	177.100	856.800	177.900
GR	856.500	178.600	856.500	179.400	856.400	180.200	856.300	181.000	856.200	181.800
GR	856.200	182.600	856.200	183.300	856.200	184.100	856.300	184.900	856.400	185.700
GR	856.500	186.500	856.700	187.300	856.900	188.000	857.100	188.800	857.300	189.600
GR	857.600	190.400	857.800	191.200	858.100	192.000	858.300	192.700	858.600	193.500
GR	858.800	194.300	859.100	195.100	859.300	195.900	859.600	196.700	859.800	197.500
GR	860.100	203.400	860.400	209.300	860.600	215.200	860.900	221.100	861.200	227.000
GR	861.500	232.900	861.700	238.900	862.000	244.800	862.300	250.700	862.600	256.600
GR	862.800	262.500	863.100	268.400	863.400	274.400	863.700	280.300	863.900	286.200
GR	864.100	292.100	864.200	298.000	864.300	303.900	864.400	309.900	864.500	315.800
GR	864.700	321.700	864.800	327.600	865.000	333.500	865.100	339.400	865.500	345.400
GR	866.100	351.300	866.600	357.200	867.100	363.100	867.700	369.000	868.200	375.000

1
13 FEB 89 10:24:18 PAGE 4

ET	0.000	0.000	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3853.000	90.000	158.500	181.200	288.000	294.000	338.000	0.000	0.000	0.000
GR	872.800	0.000	871.800	5.400	870.800	10.900	869.800	16.300	868.800	21.800
GR	867.600	27.300	866.400	32.700	865.200	38.200	864.000	43.700	863.700	49.100
GR	863.400	54.600	863.100	60.100	862.900	65.500	862.700	71.000	862.600	76.500
GR	862.600	81.900	862.500	87.400	862.500	92.900	862.400	98.300	862.400	103.800

GR	862 300	109. 300	862. 200	114. 700	862. 100	120. 200	862. 100	125. 700	862. 000	131. 100
GR	861. 900	136. 600	861. 800	142. 100	861. 700	147. 500	861. 600	153. 000	861. 600	158. 500
GR	861. 300	159 200	861. 000	160. 000	860. 700	160. 700	860. 400	161. 500	860 200	162. 200
GR	860. 000	163. 000	860. 000	163. 800	859 900	164. 500	859. 900	165. 300	859. 800	166. 000
GR	859. 800	166 800	859. 800	167. 500	859. 800	168. 300	859. 800	169. 100	859. 900	169. 800
GR	860. 100	170. 600	860. 200	171. 300	860. 400	172. 100	860. 600	172. 900	860. 800	173. 600
GR	861. 000	174. 400	861. 300	175. 100	861. 500	175. 900	861. 800	176. 600	862. 000	177. 400
GR	862. 200	178 200	862. 500	178 900	862. 700	179. 700	863. 000	180. 400	863. 200	181 200
GR	863. 600	187. 500	863. 900	193. 800	864. 200	200 100	864. 600	206. 400	864 900	212. 700
GR	865. 300	218 900	865. 600	225. 200	866. 000	231. 500	866. 300	237. 800	866. 700	244. 100
GR	867. 000	250. 400	867. 300	256 700	867. 700	263. 000	868. 000	269. 300	868. 400	275. 600
GR	868. 500	281. 900	868. 600	288. 200	868. 700	294. 400	868. 700	300. 700	868 800	307. 000
GR	869. 000	313. 300	869. 100	319. 600	869. 200	325. 900	869. 300	332. 200	869. 600	338. 500
GR	869. 900	344. 800	870. 100	351. 100	870 400	357. 400	870. 800	363. 700	871. 100	370. 000
X1	4190. 000	11 000	143. 000	165. 000	287. 000	293 000	337. 000	0. 000	0. 000	0. 000
GR	877. 900	0. 000	872. 900	18. 000	865. 700	40. 000	864. 300	65. 000	864. 600	143. 000
GR	863. 700	146. 000	863. 400	153. 000	864. 100	157. 000	866. 700	165. 000	872. 900	265. 000
GR	874 000	365. 000	0. 000	0. 000	0. 000	0. 000	0. 000	0. 000	0. 000	0. 000
X1	4915. 000	90. 000	121. 500	147. 000	475. 000	625. 000	725. 000	0. 000	-0. 300	0. 000
GR	878. 000	0. 000	877. 400	4. 100	876. 800	8. 300	876. 300	12. 500	875. 700	16. 700
GR	875. 000	20. 900	874. 300	25 100	873. 700	29. 300	873. 000	33. 500	872. 800	37. 700
GR	872. 500	41. 800	872. 200	46. 000	871. 800	50. 200	871. 500	54. 400	871. 300	58 600
GR	871. 100	62 800	870. 900	67. 000	870. 700	71. 200	870. 600	75. 400	870. 400	79 600
GR	870. 200	83. 700	870. 000	87 900	869. 800	92. 100	869. 600	96. 300	869. 500	100. 500
GR	869 300	104. 700	869 100	108. 900	868 900	113. 100	868. 700	117. 300	868. 600	121. 500
GR	868. 200	122 300	867. 800	123 100	867. 400	124. 000	867. 000	124. 800	866. 700	125 700
GR	866. 400	126 500	866. 200	127. 400	865. 900	128. 200	865. 600	129. 100	865. 300	129. 900
GR	865. 000	130. 800	864. 700	131. 600	864. 400	132. 500	864. 300	133. 300	864. 300	134. 300
GR	864. 200	135. 000	864. 200	135. 900	864. 200	136. 700	864. 200	137. 600	864. 500	138. 400
GR	864. 700	139. 300	864 900	140 100	865. 200	141. 000	865. 500	141. 800	865. 900	142. 700
GR	866. 400	143. 500	866. 800	144. 400	867. 300	145. 200	867. 700	146. 100	868. 200	147. 000
GR	868. 400	153. 100	868 600	159. 300	868. 800	165. 500	869. 000	171. 700	869. 100	177. 900
GR	869. 300	184. 000	869. 500	190. 200	869. 700	196. 400	870. 700	202. 600	871. 800	208. 800
GR	872. 800	215. 000	873. 900	221. 100	874. 500	227. 300	874. 800	233. 500	875. 100	239. 700
GR	875 200	245. 900	875. 400	252. 100	875. 500	258. 200	875. 600	264. 400	875. 700	270. 600
GR	875. 900	276. 800	876. 000	283 000	876 100	289. 200	876. 200	295. 300	876. 400	301. 500
GR	876. 500	307 700	876. 600	313. 900	876. 700	320. 100	876. 900	326. 300	877. 000	332. 500
X1	5640. 000	10. 000	100. 000	129. 000	475. 000	625. 000	725. 000	0. 000	0. 000	0. 000
GR	878. 100	0. 000	880. 400	30. 000	872. 600	100. 000	865. 300	113. 000	864. 400	118. 000
GR	865. 600	123. 000	869. 800	129. 000	869. 500	175. 000	877. 000	200. 000	880. 100	300. 000

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X1	5790. 000	90. 000	169. 700	196. 700	150. 000	150. 000	150. 000	0. 000	-0 300	0 000
GR	879 100	0. 000	879. 100	5. 800	879. 100	11. 700	879. 100	17. 500	879. 200	23. 400
GR	879. 300	29. 200	879. 300	35. 100	879. 400	40. 900	879. 400	46. 800	879. 400	52. 600
GR	879. 000	58. 500	878. 600	64. 300	878. 200	70. 200	877. 800	76. 000	877. 400	81. 900
GR	877. 000	87. 800	876. 600	93. 600	876. 100	99. 500	875. 600	105. 300	875. 100	111. 200
GR	874. 600	117 000	874. 100	122. 900	873. 600	128. 700	873. 200	134. 600	872. 800	140. 400
GR	872 500	146 300	872 100	152. 100	871. 700	158. 000	871. 400	163. 800	871. 100	169. 700
GR	870. 500	170. 600	870. 000	171. 500	869. 500	172. 400	869. 100	173. 300	968. 700	174. 200
GR	868. 200	175. 100	867. 800	176. 000	867. 400	176. 900	866. 900	177. 800	866. 500	178. 700
GR	866. 100	179. 600	865. 700	180. 500	865 300	181. 400	865. 100	182. 300	865. 000	183. 200
GR	864. 900	184. 100	864. 800	185 000	864 800	185. 900	864. 900	186. 800	865. 100	187. 700
GR	865. 300	188. 600	865. 400	189 500	865. 600	190. 400	865. 900	191. 300	866. 400	192. 200
GR	866 900	193. 100	867. 400	194. 000	867. 900	194. 900	868. 400	195. 800	868 900	196. 700
GR	868. 900	203. 500	869. 000	210. 200	869. 000	217. 000	869. 000	223. 800	869 000	230. 600
GR	869. 000	237. 300	869 100	244. 100	869. 200	250. 900	870. 500	257. 700	871 900	264. 400
GR	873. 400	271. 200	874. 800	278. 000	875. 600	284. 800	875. 900	291. 500	876. 200	298. 300
GR	876 500	305. 100	876. 800	311. 900	877. 000	318. 600	877. 300	325. 400	877. 600	332. 200
GR	877 900	339 000	878. 200	345. 700	878 600	352. 500	878. 900	359. 300	879. 300	366. 100

GR	879.600	372.800	879.500	379.600	880.200	366.400	880.600	393.200	880.900	400.000
X1	5940.000	90.000	239.500	264.500	150.000	150.000	150.000	0.000	-0.500	0.000
GR	880.100	0.000	879.900	8.200	879.700	16.500	879.500	24.700	879.400	33.000
GR	879.200	41.200	879.000	49.500	878.900	57.800	878.700	66.000	878.600	74.300
GR	878 200	82.500	877.800	90 800	877.400	99.100	877.000	107.300	876.600	115.600
GR	876.200	123.800	875.700	132.100	875.100	140.300	874.500	148.600	873.900	156.900
GR	873 300	165.100	872.700	173 400	872.100	181.600	871.500	189.900	871.200	198.200
GR	870.900	206.400	870.600	214.700	870 200	222.900	869.900	231.200	869.600	239.500
GR	869.100	240.300	868.600	241.100	868.200	241.900	867.900	242.800	867.600	243.600
GR	867.200	244.400	866.900	245.300	866.600	246.100	866.300	246.900	866.000	247.800
GR	865.700	248.600	865.400	249.400	865.200	250.300	865.100	251.100	865.100	251.900
GR	865.100	252.800	865.100	253.600	865.100	254.400	865.300	255.300	865.600	256.100
GR	865.700	256.900	865.800	257.800	865.900	258.600	866.100	259.400	866.400	260.300
GR	866.700	261.100	867.100	261 900	867.400	262.800	867.800	263.600	868.100	264.500
GR	868.200	272.300	868.300	280.200	868.400	288.000	868.500	295.900	868.500	303.700
GR	868.600	311.500	868.700	319 400	869.000	327.200	870.000	335.100	871 100	342.900
GR	872.300	350.800	873.400	358.600	874.200	366.500	874.600	374.300	875.000	382.200
GR	875.400	390.000	875.800	397 900	876.200	405.700	876.600	413 600	877.000	421.400
GR	877.400	429.300	877.900	437.100	878.400	445.000	878.900	452.800	879.400	460.700
GR	879.900	468.500	880.300	476.400	880.800	484.200	881.300	492.100	881.800	500.000
X1	5965.000	0.000	0.000	0.000	25.000	25.000	25.000	0.000	0.000	0.000
X1	6090.000	90.000	309.200	332.200	125.000	125.000	125.000	0.000	-0.400	0.000
GR	881.100	0.000	880.600	10.600	880.200	21.300	879.800	31.900	879.500	42.600
GR	879.100	53.300	878.700	63.900	878.300	74.600	878.000	85 300	877 700	95.900
GR	877.300	106.600	876.900	117.300	876.500	127.900	876.100	138.600	875.700	149.200
GR	875 300	159.900	874.700	170.600	874.000	181.200	873.300	191.900	872.600	202.600
GR	871.900	213.200	871.200	223.900	870.900	234.600	869.800	245.200	869.600	255.900
GR	869.300	266.500	869.000	277.200	868.700	287.900	868 400	298 500	868.100	309.200
GR	867.600	310.000	867.200	310.700	866.800	311.500	866.600	312.300	866.400	313.000
GR	866.200	313.800	866.000	314.600	865.800	315.300	865.600	316.100	865.400	316.900
GR	865.200	317.600	865.100	318.400	865.100	319.200	865.100	319.900	865.100	320 700
GR	865.200	321.500	865.300	322.200	865.400	323.000	865.700	323.800	866.000	324.500

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GR	866 100	325.300	866.100	326.100	866.200	326.800	866.300	327.600	866.400	328.400
GR	866.600	329.100	866.800	329.900	866.900	330.700	867.100	331.400	867.300	332.200
GR	867.400	341.100	867.600	350.100	867.700	359.000	867.900	367.900	868.000	376.800
GR	868.100	385.700	868.300	394.700	868.700	403.600	869.500	412.500	870.300	421.400
GR	871.200	430.400	872.000	439.300	872.700	448.200	873.200	457.100	873.800	466.100
GR	874 300	475.000	874.800	483.900	875.300	492.800	875.800	501.800	876.300	510.700
GR	876 900	519.600	877.500	528.500	878.200	537 500	878.800	546.400	879.500	555.300
GR	880.100	564.200	880.700	573.200	881.400	582.100	882.000	591.000	882.700	600.000
X1	6220.000	14.000	384.000	405.000	130.000	130.000	130.000	0.000	0.000	0.000
GR	882 100	5.000	877.500	105.000	874.400	205.000	868.300	305.000	866.700	384.000
GR	865.500	386.000	864.800	392.000	865.500	396.000	866.500	398.000	866.500	405.000
GR	868.000	475.000	869.500	505.000	875.700	605.000	883.600	705.000	0.000	0.000
NC	0.015	0.015	0.013	0.000	0.000	0 000	0.000	0.000	0.000	0.000

GRAND RIVER AVE. BRIDGE

X1	6241.000	0.000	0.000	0.000	21.000	21.000	21.000	0.000	0.000	0.000
SB	0 000	2.000	2.700	0.000	5.000	0.000	28.000	0.000	0.000	0.000
X1	6305.000	0.000	0.000	0.000	64.000	64.000	64.000	0.000	0.000	0.000
X2	0 000	0.000	1.000	870.800	872.400	0.000	0.000	0.000	0.000	0.000
BT	15.000	0.000	883.400	0.000	100.000	880.000	0.000	200.000	876.800	0.000
BT	300.000	873.900	0.000	397.500	872.400	870.800	398.500	872.400	870.800	400.000
BT	872.400	870.800	401 500	872.400	870.800	402.500	872.400	870.800	500.000	872.400
BT	0.000	600.000	873.800	0.000	700.000	875.200	0.000	800.000	876.700	0.000
BT	900.000	878.800	0.000	1000.000	882.200	0.000	0.000	0.000	0.000	0.000

NC	0 100	0.100	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
QT	2.000	400.000	400.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6311.000	0.000	0.000	0 000	6.000	6.000	6.000	0.000	0.000	0.000
X1	6450.000	0.000	0.000	0.000	189.000	140.000	139.000	0.000	0.070	0 000
ET	0.000	4 100	4 100	0.000	500.000	0 000	0.000	0.000	0.000	0.000
X1	6900 000	25.000	345.000	382.000	606.000	455.000	450.000	0.000	0.000	0.000
GR	884.000	0.000	882.900	70.000	878.800	90 000	878.500	100.000	874.700	900.000
GR	869.100	220.000	870 800	240.000	867.500	300.000	867.000	345.000	865.800	350.000
GR	865.100	365.000	865.800	379.000	866.300	382.000	866.600	400.000	875.700	500.000
GR	883.000	575.000	877.300	600.000	867.500	700.000	867.100	720.000	867.200	745.000
GR	868.100	800 000	869.800	830.000	877.300	880.000	882.800	890.000	884.100	900.000
ET	0.000	0.000	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7403.000	12.000	75.000	105.000	425.000	525.000	503.000	0.000	-0.280	0.000
GR	886.400	0.000	884.600	10.000	871.700	37.000	872.000	75.000	870.500	79.000
GR	869.800	81.000	869.900	83.000	870.000	86.000	870.900	105.000	870.900	160.000
GR	877 800	200.000	889.800	250.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.025	0.025	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		MEADOWBROOK ROAD BRIDGE								
X1	7504.000	28.000	998.000	1002.000	176.000	76.000	101.000	0.000	0.600	0.000
GR	886.800	0.000	886.400	100.000	885.100	200.000	884.300	300.000	880.600	400.000
GR	877.200	500.000	876.300	600.000	876 400	700.000	877.500	800.000	876.600	900.000
GR	886.400	919.000	884.600	929.000	871.700	956.000	872.000	994.000	870.500	998.000
GR	870.150	999.000	869.800	1000.000	869.850	1001.000	869.900	1002.000	869.400	1005.000

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GR	870.900	1024.000	870.900	1079.000	874.400	1100.000	877.800	1119.000	889.200	1169.000
GR	883.500	1200.000	890 500	1300.000	891.400	1350.000	0.000	0.000	0.000	0.000
SB	0.000	2 420	2.700	0.000	4.000	0.000	12.600	0.000	0.000	0.000
X1	7535.000	0.000	0 000	0.000	31.000	31.000	31.000	0.000	0.000	0.000
X2	0.000	0.000	1 000	873.000	875.400	0.000	0.000	0.000	0.000	0.000
BT	21.000	0.000	887.400	887.400	100.000	887.000	887.000	200.000	885.700	885.700
BT	300.000	884.900	884.900	400 000	881.200	881.200	500.000	877.800	877.800	600.000
BT	876.900	876.900	700.000	877.000	877.000	800.000	878.100	878.100	900.000	877.200
BT	877.200	998.000	875 400	873.100	999.000	875.400	874.200	1000.000	875.400	874.400
BT	1001.000	875.400	874.200	1002.000	875.400	873.100	1005.000	875.500	870.000	1024.000
BT	876 100	871.500	1169.000	889.800	889.800	1200.000	884.100	884.100	1300 000	891.100
BT	891 100	1350.000	892.000	892.000	0.000	0.000	0.000	0 000	0.000	0.000
NC	0.100	0 100	0.050	0.000	0.000	0.000	0.000	0 000	0.000	0.000
X1	7735.000	12.000	300.000	326.000	200.000	200.000	200.000	0.000	0 000	0.000
GR	885.500	0.000	881.500	100.000	887 800	200.000	879.600	230.000	875.000	300.000
GR	872.200	305.000	871.600	307 000	872.300	309.000	872.700	320.000	873 800	326.000
GR	878.700	400.000	889.900	500.000	0.000	0.000	0.000	0.000	0.000	0 000
NC	0 070	0.070	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		DRIVEWAY CULVERT 600 FT D/S OF ELEVEN MILE ROAD BRIDGE								
X1	8186.000	14 000	174.000	180.000	451 000	451.000	451.000	0.000	0.100	0.000
GR	885.400	0.000	882.900	49.000	879.200	63.000	879.700	75.000	879.700	127.000
GR	874.700	170.000	872.900	172.000	872.400	174.000	872.100	177.000	872.300	180.000
GR	872.300	181.000	874.200	183.000	877.100	240.000	890 000	273.000	0.000	0.000
SB	0.000	2.200	2.600	0.000	4.800	0.000	11 400	0 000	0.000	0 000
X1	8202 000	0.000	0.000	0.000	16.000	16.000	16.000	0 000	-0.300	0.000
X2	0.000	0 000	1.000	874.900	876.800	0.000	0.000	0.000	0.000	0.000
BT	9.000	47 000	890.200	0.000	67.000	881.200	0.000	77.000	881.100	0.000
BT	174.600	876.800	873.700	175.500	876.800	874.700	177.000	876.800	875.200	178.500
BT	876.800	874.700	179.400	876.800	873 700	277.000	886.000	0.000	0.000	0.000
NC	0 100	0 100	0.050	0.000	0 000	0.000	0.000	0.000	0.000	0.000

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X1    8475.000      10.000     143.000     202.000     276.000     276.000     273.000       0.000       0.000       0.000
GR     886.700       0.000     887.300       9.000     885.000      43.000     879.400     143.000     873.800     161.000
GR     873.300     166.000     873.800     171.000     876.000     184.000     885.400     202.000     887.100     243.000

NC       0.025       0.025       0.024       0.000       0.000       0.000       0.000       0.000       0.000       0.000
ET       0 000       4.100       0 000     190.000     400.000       0.000       0.000       0.000       0.000       0.000
                  ELEVEN MILE ROAD BRIDGE
X1    8751.000      15.000     225.500     228.500     276.000     276.000     276.000       0.000      -0.400       0 000
GR     886.600       0.000     882.900      25.000     878.300     125.000     874.700     225.000     874.500     225.500
GR     873.900     227.000     874.100     228.500     874.200     229.000     874.800     231.000     874.000     325.000
GR     877.200     425.000     882.700     525.000     883.800     625.000     885.100     725.000     886.600     325.000

SB       0.000       2.880       2.900       0.000       3.000       0.000       7.100       0.000       0 000       0.000
ET       0 000       4.100       0.000     190.000     400 000       0.000       0.000       0.000       0.000       0.000
X1    8791.000       0.000       0.000       0.000      40.000      40.000      40.000       0.000       0.000       0.000
X2       0.000       0.000       1.000     876.900     877.100       0 000       0.000       0 000       0.000       0.000
BT       9 000      27.000     887.100       0.000     127.000     879.600       0.000     225.500     878.000     875 900
BT     226.000     878.000     876.600     227.000     878.000     876.900     228.000     878.000     876 600     228.500
BT     878.000     875.900     327.000     877.100       0.000     427 000     879.000       0.000       0.000       0.000
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  13 FEB 89     10:24:18                                                                                          PAGE     8


NC       0.040       0.040       0.024       0.000       0.000       0.000       0.000       0.000       0.000       0.000
ET       0 000       4.100       0.000     183.000     423.000       0 000       0.000       0.000       0.000       0 000
                  FIELD CULVERT 15 FT.  U/S OF ELEVEN MILE ROAD BRIDGE
X1    8808.000      15.000     233.200     236.800      17.000      17.000      17.000       0.000       0.000       0.000
GR     885.800       8.000     882.100      33.000     877.500     133.000     873.900     233.000     873.500     233.200
GR     873.100     235 000     873.200     236.200     873.400     237.000     874.000     239.000     873.200     333.000
GR     876.400     433 000     881.900     533.000     883.000     633.000     884.300     733.000     885.800     833.000

SB       0.000       2.350       2.900       0.000       3.600       0.000       9.400       0.000       0.000       0.000
ET       0.000       4 100       0.000     183.000     423.000       0.000       0.000       0.000       0.000       0 000
X1    8824.000       0.000       0.000       0.000      16.000      16.000      16.000       0.000       0.000       0 000
X2       0.000       0.000       1.000     875.300     875 600       0.000       0.000       0.000       0.000       0.000
BT      14.000       0.000     886.900       0 000      35.000     881.600       0.000     135.000     879.600       0.000
BT     233.200     877.000     874.100     233 500     877.000     874.600     234.000     877 000     875 100     235 000
BT     877.000     875.300     236.000     877.000     875.100     236.500     877.000     874.600     236 800     877 000
BT     874.100     335.000     875.600       0.000     435.000     876.300       0.000     535.000     877.900       0.000
BT     635.000     882 600       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000

NC       0.050       0.050       0.013       0.000       0.000       0.000       0.000       0.000       0.000       0.000
                  FIELD CULVERTS 425 FT.  U/S OF ELEVEN MILE ROAD BRIDGE
X1    9226.000      16.000     268.000     272.000     402.000     402.000     402.000       0.000       1.700       0.000
GR     888 600      58.000     877.000     158.000     875.900     258.000     874.000     260.000     872.300     266.000
GR     872.100     268.000     871.900     270.000     872.100     272.000     872.700     278.000     873.900     285 000
GR     876.400     293.000     876 500     358.000     880.900     458.000    8882.300     498.000     883.800     558 000
GR     885.400     588 000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000

SB       0.000       2.310       2.600       0.000       4 000       0.000      10.000       0.000       0.000       0.000
X1    9269.000      16.000     268.200     271.800      43.000      43.000      43.000       0.000       0 900       0.000
X2       0.000       0.000       1.000     876.700     877 000       0.000       0.000       0.000       0.000       0.000
BT      15 000       0.000     888.400       0.000      70.000     882.600       0 000     170.000     877.300       0.000
BT     268.200     877.000     875.500     268.500     877.000     876.000     269.000     877.000     876.500     270.000
BT     877.000     876.700     271.000     877.000     876.500     271.500     877.000     876.000     271.800     877.000
BT     875.500     370.000     878 800       0.000     470.000     883.500       0.000     500.000     883.000       0.000
BT     570.000     884 100       0.000     670.000     886.100       0.000       0.000       0 000       0.000       0.000
GR     888.600      58.000     877.000     158.000     875.900     258.000     874.000     260 000     872.300     266.000
GR     872.100     268.200     871.900     270.000     872.100     271.800     872.700     278.000     873.900     285.000
GR     876.400     293.000     876.500     358.000     880.900     458.000     882.300     498.000     883.800     558.000
GR     885.400     588.000       0.000       0.000       0.000       0.000       0.000       0.000       0.000       0 000

NC       0.040       0.040       0.050       0.000       0.000       0.000       0.000       0.000       0.000       0.000
X1    9375 000      16.000     200.000     235.000     101.000     101.000     106.000       0.000       3.190       0.000
GR     888.600       0 000     877.000     100.000     875 900     200.000     874.000     202.000     872.300     208.000
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GR	872.100	210.200	871.900	212.000	872.100	213.800	872.700	220.000	873.900	227.000
GR	876.400	235.000	876.500	300.000	880.900	400.000	882.300	440.000	883.800	500.000
GR	885.400	530.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9475.000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	0.580	0.000

1
13 FEB 89 10.24:18 PAGE 9

X1	9575.000	12.000	100.000	123.000	100.000	100.000	100.000	0.000	-1.950	0.000
GR	886.000	0.000	882.500	100.000	878.600	110.200	878.500	111.000	878.200	112.000
GR	878.400	113.000	878.400	113.800	881.200	123.000	881.900	200.000	882.600	220.000
GR	885.800	245.000	888.900	300.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9675.000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	0.590	0.000
X1	9775.000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	0.580	0.000
NC	0.030	0.030	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		DRIVEWAY CULVERT 1075 FT. U/S OF ELEVEN MILE ROAD BRIDGE								
X1	9876.000	12.000	198.200	201.800	101.000	101.000	101.000	0.000	-0.200	0.000
GR	886.000	88.000	882.500	188 000	878.600	198.200	878.500	199.000	878.200	200.000
GR	878 400	201.000	878.400	201.800	881.200	211.000	881.900	288.000	882.600	308.000
GR	885.800	333.000	888.900	388.000	0.000	0 000	0.000	0.000	0.000	0.000
SB	0.000	1.300	2.600	0.000	3.500	0.000	9.600	0 000	0.000	0 000
X1	9893.000	0.000	0.000	0.000	17.000	17.000	17.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	881.500	882.000	0.000	0.000	0 000	0.000	0 000
BT	10.000	0.000	892.200	0.000	100.000	884.300	0.000	198.200	882.000	880.400
BT	199.000	882 000	881.200	200.000	882.000	881.500	201.000	882.000	881.200	201.800
BT	882 000	880.400	300.000	882.300	0.000	400.000	889.600	0.000	430.000	894.400
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

NC	0.100	0.100	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	9950.000	12.000	100.000	123 000	51.000	51.000	57.000	0.000	0.380	0.000
GR	886.000	0.000	882.500	100.000	878.600	110.200	878.500	111.000	878.200	112.000
GR	878.400	113.000	878.400	113.800	881.200	123 000	881.900	200.000	882.600	220.000
GR	885.800	245.000	888.900	300.000	0.000	0.000	0.000	0.000	0 000	0.000
X1	10000.000	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.580	0.000
X1	10100.000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	1.160	0.000
X1	10200.000	0 000	0.000	0.000	100.000	100.000	100.000	0.000	1.160	0.000
X1	10350.000	17.000	135.000	165.000	150.000	150.000	150.000	0.000	-3.480	0.000
GR	903 200	0.000	901.200	35.000	899.200	50.000	897.200	80.000	895 200	95.000
GR	893.200	102.000	891.200	125.000	889.400	135.000	886 900	148.800	886.700	150.000
GR	887.100	151.200	891.200	165.000	893.200	170.000	895.200	180.000	897.200	195.000
GR	899.200	205.000	901.200	230.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10450 000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	1.160	0.000
X1	10550.000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	1.160	0.000
X1	10600 000	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.580	0.000

1
13 FEB 89 10:24:18 PAGE 10

NC	0.040	0.040	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		DIRT DRIVE 1850 FT. U/S OF ELEVEN MILE ROAD								
X1	10651 000	17.000	148.800	151 200	51.000	51.000	0.000	0.000	0.000	
GR	903 200	0.000	901 200	35.000	899.200	50.000	897.200	80.000	895.200	95.000

GR	893.200	102.000	891.200	125.000	889.400	135.000	886.900	148.800	886.700	150.000
GR	887.100	151.200	891.200	165.000	893.200	170.000	895.200	180.000	897.200	195.000
GR	899.200	205.000	901.200	230.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	2.440	2.800	0.000	2.500	0.000	4.900	0.000	0.000	0.000
X1	10681.000	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	889.200	891.200	0.000	0.000	0.000	0.000	0.000
BT	18.000	0.000	903.200	0.000	35.000	901.200	0.000	50.000	899.200	0.000
BT	80.000	897.200	0.000	95.000	895.200	0.000	102.000	893.200	0.000	130.000
BT	891.200	0.000	148.800	891.200	888.400	149.200	891 200	889.000	150.000	891.200
BT	889 200	150.800	891.200	889.000	151.200	891.200	888.400	165.000	891.200	0.000
BT	170.000	893.200	0.000	180.000	895.200	0.000	195 000	897.200	0.000	205.000
BT	899.200	0.000	230.000	901.200	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.100	0.100	0 050	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	10755.000	17.000	135.000	165.000	76.000	76.000	74.000	0.000	0.260	0.000
GR	903.200	0.000	901.200	35.000	899.200	50.000	897.200	80.000	895.200	95.000
GR	893.200	102.000	891.200	125.000	899.400	135.000	886.900	148.800	886.700	150.000
GR	887.100	151.200	891.200	165.000	893.200	170.000	895.200	180.000	897.200	195.000
GR	899.200	205.000	901.200	230 000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	154.000	274.000	0.000	0.000	0.000	0.000	0.000
X1	10795.000	18.000	225.000	260.000	40.000	40.000	40.000	0.000	-0.800	0.000
GR	902 100	0.000	900.600	50.000	898.600	65.000	896.600	85.000	894.600	102.000
GR	892.600	115.000	890.600	170.000	888.600	225.000	888.000	245.900	887.900	250.000
GR	888.200	254.100	888.600	260.000	890.600	270.000	892.600	275.000	894.600	285.000
GR	896.600	300 000	898.600	310.000	901.600	400.000	0.000	0.000	0.000	0.000
NC	0 100	0.100	0.013	0 000	0.000	0.000	0.000	0.000	0.000	0.000
QT	2.000	160.000	160.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CULVERTS UNDER SUGDEN CONSTRUCTION

X1	11026.000	18.000	245.900	254.100	236.000	236.000	231.000	0.000	0 000	0.000
GR	902 100	0.000	900.600	50.000	898.600	65.000	896.600	85.000	894.600	102.000
GR	892.600	115.000	890.600	170.000	888.600	225.000	888.000	245.900	887.900	250.000
GR	888.200	254.100	888.600	260.000	890.600	270.000	892.600	275.000	894.600	285.000
GR	896.600	300.000	898.600	310.000	901.600	400.000	0.000	0.000	0.000	0.000
SB	1.250	3.400	3.000	0.000	6.500	0.200	25.100	0.000	889.500	887.900
X1	11416.000	4.000	0.000	61.000	390.000	390 000	390.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	892.000	900.000	0.000	0.000	0.000	0.000	0.000
BT	14.000	50.000	901 900	0.000	150.000	901.400	0.000	245 900	900 000	890.600
BT	246.900	900.000	891.700	247.900	900.000	891.900	248.900	900.000	891.700	249.900
BT	900.000	890.600	250.000	900.000	890.600	250.100	900.000	890.600	251.100	900.000
BT	891.700	252.100	900.000	891.900	253.100	900.000	891.700	254.100	900.000	890.600
BT	350.000	902.700	0.000	0.000	0.000	0.000	0 000	0.000	0.000	0.000
GR	903.000	0.000	889.500	26.000	889.500	35.000	903.000	61.000	0.000	0.000

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NC	0.100	0.100	0.040	0 000	0.000	0.000	0.000	0.000	0.000	0.000
X1	11425.000	0.000	0.000	0.000	9.000	9.000	9.000	0.000	0 000	0.000
X1	11485.000	0.000	0.000	0.000	60.000	60.000	60.000	0.000	0.100	0.000

PRIVATE ROADWAY BRIDGE 100 FT. U/S OF SUGDEN CONSTRUCTION

X1	11517.000	4.000	26.000	35.000	32.000	32.000	32.000	0.000	0.200	0 000
GR	903.000	0.000	889.500	26.000	889.500	35.000	903.000	61.000	0.000	0 000
SB	0.000	1.720	2.800	0.000	8.200	0.200	25.100	0.000	0.000	0.000
X1	11553.000	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	893.700	903.000	0.000	0.000	0.000	0.000	0 000
BT	12.000	0.000	903.000	0.000	26.400	903.000	892.400	27.400	903.000	893 500
BT	28.400	903.000	893.700	29.400	903.000	893.500	30.400	903.000	892.400	30.600
BT	903.000	892.400	31.600	903 000	893.500	32.600	903.000	893.700	33.600	903.000

BT	893.500	34.600	903.000	892.400	61.000	903.000	0.000	0.000	0.000	0.000
X1	11563.000	0.000	0.000	0.000	10.000	10.000	10.000	0.000	0.000	0.000
X1	11755.000	0.000	0.000	0.000	192.000	192.000	192.000	0.000	0.300	0.000
X1	11955 000	0.000	0.000	0.000	200.000	200.000	200.000	0.000	0.300	0.000
ET	0.000	4.100	0.000	35.000	175 000	0.000	0.000	0.000	0.000	0.000
X1	12155.000	22.000	35.000	85.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	899.900	0.000	899.500	10.000	899.200	35.000	892.400	46.000	892.300	47.000
GR	890.800	50.000	890.500	55.000	890.500	60.000	890.900	65.000	892.300	66.000
GR	892.800	67.000	899 700	85.000	899.500	110.000	898.500	135.000	897.500	160.000
GR	899.000	185.000	897.900	210.000	896.000	235.000	894.800	260.000	895.600	285.000
GR	896.800	310.000	897.000	335.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	225 000	265.000	0.000	0.000	0.000	0.000	0.000
X1	12355.000	29.000	225.000	250.000	200.000	200.000	200.000	0.000	0.000	0.000
GR	896.500	0.000	896 600	50.000	896.500	75.000	896.600	100.000	896.600	125.000
GR	896.300	150.000	895.800	175.000	896.000	200.000	894.500	225.000	892.100	229.000
GR	892.400	230.000	890 200	232.000	888.700	235.000	889.800	238.000	889.900	241.000
GR	891.000	244.000	892.400	246.000	892.800	247.000	894.200	250 000	895.300	275.000
GR	896.700	300.000	897.200	325.000	897.700	350.000	897.300	375.000	897.600	400.000
GR	897.900	425.000	897.500	450.000	897.400	475.000	897.500	500.000	0 000	0.000
NC	0.100	0.100	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	233.100	238.900	0.000	0.000	0.000	0.000	0.000
		CULVERT UNDER I-96								
X1	12425.000	34.000	233.100	238.900	70.000	70.000	70.000	0 000	0.000	0.000
GR	896.500	0.000	896 600	50.000	896.500	75.000	896.600	100.000	896 600	125.000
GR	896.300	150.000	895.800	175.000	896.000	200.000	894.500	225.000	892.100	229.000
GR	892.400	230.000	890.200	232.000	891.500	233.100	890.000	233.400	889.000	234.500
GR	888.500	236.000	889.000	237.600	890 300	238.700	891.500	238.900	889.900	241.000
GR	891.000	244.000	892.400	246.000	892.800	247.000	894.200	250.000	895.300	275.000
GR	896.700	300.000	897.200	325.000	897.700	350.000	897.300	375.000	897.600	400.000
GR	897.900	425.000	897.500	450.000	897.400	475.000	897.500	500.000	0.000	0.000

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SB	0.000	2.000	2.800	300.000	5.800	0.000	28.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	250.000	272.000	0.000	0.000	0.000	0.000	0.000
X1	12565.000	31.000	250.000	272.000	140.000	140.000	140.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	896.000	907.600	0.000	0.000	0.000	0.000	0.000
BT	18.000	0.000	907 200	0.000	50.000	907.200	0.000	100.000	907.300	0 000
BT	150.000	907.200	0.000	200.000	907.400	0.000	250.000	907.600	0.000	257.900
BT	907.600	893.000	258.200	907 600	894.000	259.500	907.600	895.600	261.000	907.600
BT	896.000	262.500	907.600	895.600	263.700	907.600	894.000	263.900	907.600	893.000
BT	300.000	907.500	0 000	350.000	907.700	0.000	400.000	907.800	0.000	450.000
BT	907.800	0.000	500.000	908.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	901.300	0 000	901.000	25.000	901.100	50.000	901.500	75.000	901.500	100 000
GR	901.500	125.000	901 200	150.000	900.900	175 000	900.500	200.000	899.400	225.000
GR	895.900	250.000	893.300	254.000	892.400	256.000	893.000	257.900	891.900	258.200
GR	890.400	259.500	890.000	261.000	890.400	262.500	891.900	263.700	893.000	263.900
GR	890 400	265.000	892.400	266.000	892.700	268.000	893.400	272.000	895.300	300.000
GR	896.800	325.000	898.400	350 000	900.400	375.000	900.900	400.000	901.400	425.000
GR	901.600	450 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.100	0.100	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0 000
QT	2.000	25.000	25.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	1.400	0.000	0 000	0.000	0.000	0.000	0.000	0.000
X1	12635.000	25 000	250.000	272.000	70.000	70.000	70.000	0.000	0.000	0.000
GR	901.300	0.000	901.000	25.000	901.100	50.000	901.500	75.000	901.500	100.000
GR	901.500	125.000	901.200	150.000	900.900	175.000	900.500	200.000	899.400	225.000
GR	895.900	250.000	893.300	254.000	892 400	256.000	891.500	260.000	890.400	265.000

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GR     892.400     266.000     892.700     268.000     893.400     272.000     895.300     300 000     896.800     325.000
GR     898.400     350.000     900.400     375.000     900.900     400.000     901.400     425.000     901.600     450.000

                  DAM NORTH OF I-96
X1   13251.000      35.000     300.000     330.000     616.000     616 000     616.000       0.000       0.000       0.000
GR     896.100       0.000     896.800      25.000     896.500      50.000     897.400      75.000     897.900     100.000
GR     897.900     125.000     898.000     150.000     898.800     175.000     897.200     200.000     897.000     225.000
GR     897.400     250.000     897.200     275.000     896.100     300.000     893.100     312.000     893.200     314.000
GR     895.200     335.000     894.800     350.000     894.200     375.000     893.700     407.000     893.300     408.000
GR     893.400     411.000     893.700     415.000     894.700     421.000     895.100     437.000     893.300     445.000
GR     893 200     450.000     892.900     457.000     893.200     458.000     893.300     459.000     894.500     464.000
GR     897.000     475.000     895.500     500.000     895.500     525.000     895.400     550.000     895.700     575.000

SB       0.000       1.000       3.000       8.000       0.010       0.000       0.010       0.000       0.000       0.000
X1   13311.000       9 000       2.500       7 500      60.000      60.000      60.000       0.000       0.000       0.000
X2       0.000       0.000       1.000     892.300     895.400       0.000       0.000       0.000       0.000       0 000
GR     898.900       0.000     898.900       2.500     896.400       3.000     896.400       4.000     895.400       5.000
GR     896.400       6.000     896.400       7.000     898.900       7.500     898 900      10.000       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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  13 FEB 89     10:24.18                                                                                    PAGE    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

  *PROF 1

  CCHV=    0.300 CEHV=    0.500
  *SECNO 0.000

   3470 ENCROACHMENT STATIONS=     1065.0     1215.0  TYPE=      1  TARGET=      150 000
                    300 FT. U/S OF CONFLUENCE WITH PATNALES
        0 00       6 07     842.67       0.00       0.00     842.68       0.01       0.00       0.00     838.60
        310.        147.      145.        18.        304.      122.        27.         0.         0.      840.90
        0.00       0.49       1.19       0.66       0.100     0.050      0.030      0.000     836.60    1065.00
    0.000212          0         0.         0.         0         0          0         0.00     145.78    1210.78
  0
   *SECNO 475.000
      475 00       5.31     842.81       0.00       0.00     842.86       0.04       0.16       0.02     845.60
        310.          0.      113.        197.         0.       77.        111.         3.         1.      839.20
        0.08       0.00       1.47       1.78       0.000     0.050      0.030      0.000     837.50     775.15
    0.000591       475.      475         475.          2         0          0         0.00      86.07     861.22
  0
   *SECNO 950 000
      950.00       4.78     843.18       0.00       0.00     843.26       0.07       0.39       0.01     846.50
        310.          0.      126.        184.         0.       64.         81          5.         2.      840.10
        0.14       0.00       1.96       2.28       0.000     0.050      0 030      0.000     838 40     777.26
    0.001193       475.      475.        475.          2         0          0         0.00      75.01     852.27
  0
   *SECNO 1081.000
     1081.00       4.07     843.39       0.00       0.00     843.55       0.16       0 25       0.04     847.42
        310.          0.      152.        158.         0.       49.         47.         6.         2.      841.02
        0.15       0.00       3.11       3.33       0.000     0.050      0.030      0.000     839.32     780 14
    0.003616       125.      131         125.          2         0          0         0.00      59.97     840.10
  0
   *SECNO 1212 000
     1212.00       3.71     843.96       0.00       0 00     844.21       0.26       0 62       0.05     848 35
        310.          0.      170.        140.         0       42.         34.         6.         3.      841.95
        0.16       0.00       4.04       4.09       0.000     0.050      0.030      0.000     840.25     781.56
    0.006783       125        131.       125.          2         0          0         0.00      52.50     834.06
  0
   *SECNO 1475 000
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1475.00	3.67	845.77	0.00	0.00	846.04	0.27	1.82	0.01	850.20
310.	0.	173.	137.	0.	41.	33.	6.	3.	843.80
0.18	0.00	4.18	4.20	0.000	0.050	0 030	0.000	842.10	781.75
0.007391	250.	263.	250	3	0	0	0.00	51.53	833.28

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 1737.000

1737.00	3.48	847 43	0.00	0 00	847.65	0.22	1.60	0.02	846.95
310.	6.	275.	29.	4.	70.	15.	7	3.	846.65
0.20	1.39	3 95	1.92	0.030	0.050	0.030	0.000	843.95	981.41
0.005233	250.	262.	250.	2	0	0	0.00	83.72	1065.13

0
*SECNO 2001.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
TEN MILE ROAD BRIDGE

2001.00	2.46	848.26	848 26	0.00	849.09	0 83	0 85	0.31	848.80
310.	0	310.	0	0.	42.	0.	7.	4.	848.50
0.21	0.00	7.32	0.00	0 000	0.013	0.000	0.000	845.80	1000.95
0.002170	251.	264.	251.	3	16	0	0 00	25 54	1026.49

0

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	1.98	2.90	0.00	8.20	0.00	19.50	0.00	845 80	845.80

*SECNO 2038.800

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
856.03	849.09	0.00	108.	203.	20	24.	848.70	851.10

2038.80	5.77	851.57	0.00	0.00	851.58	0.01	2.49	0.00	848.80
310.	62.	138.	109.	150.	132.	215.	7.	4.	848.50
0.22	0 42	1.05	0.51	0.015	0.013	0.015	0.000	845 80	874.24
0.000011	38.	38.	38.	0	0	7	0.00	282.20	1156.44

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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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 *SECNO 2440.000
   2440.00      3.92     851.47      0.00      0.00     851.71      0.23      0.02      0.11    850 95
      310         7.        287.       16.         5.       72.         9.       10.         5.     850.85
      0.25      1.44       4.01      1.85     0.030     0.050     0.030     0.000    847.55    584.33
  0.005010       351.       401       376.         3         0         0      0.00     72.78    657.11
0
 *SECNO 2840.000
   2840.00      4.44     853.44      0.00      0.00     853.69      0.25      1.98      0.01    852.80
      310.        6.        299.       5.         4.       73.         4.       11.         6.     853.00
      0.28      1.64       4.09      1.28     0.030     0.050     0 030     0.000    849.00    193.13
  0.004922       350        400.      375.         2         0         0      0.00     53.49    246.62
0
 *SECNO 3178.000
   3178.00      3.40     856.00      0.00      0.00     856.56      0.56      2.71      0.16    855.70
      310.        3.        307.       0.         1.       51.         0.       11.         6.     856.40
      0.29     2 01       6.04      0.00     0.030     0.050     0.000     0.000    852.60    180.75
  0 015491       288.       338.      294.         3         0         0      0.00     31.88    212.63
0
 *SECNO 3515.000
   3515.00      3.71     859.91      0.00      0.00     860.22      0.32      3.59      0.07    858.70
      310.       30.        280.       0.        26.       59.         0.       12.         6.     859.80
      0.31      1.16       4.74      0.19     0.100     0.050     0.100     0.000    856.20    131.60
  0.007874       287.       337.      294.         4         0         0      0.00     68.06    199.66
0
 *SECNO 3853.000
   3853.00      3 08     862.88      0.00      0.00     863.16      0.28      2.92      0.01    861.60
      310.       81.        229.       0.        62.       47.         0.       12.         7.     863.20
      0.34      1 32       4.89      0.00     0.100     0.050     0.000     0.000    859.80     66.09
  0.010105       288.       338.      294.         4         0         0      0.00    114 02    180.12
0
 *SECNO 4190.000
   4190.00      2.42     865.82      0.00      0.00     865.92      0.10      2.71      0.05    864.60
      310.      188.        122.       0.       126        34.         0.       13.         8     866.70
      0.37      1.49       3.63      0.00     0.100     0.050     0.000     0.000    863.40     39.67
  0.007380       287.       337       293.         3         0         0      0.00    122.59    162.26
0
1
  13 FEB 89     10:24.18                                                                    PAGE    16

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS     BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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 4915.000
   4915.00      4.88     868.78      0.00      0.00     868.98      0.19      3.01      0 05    868.30
      310.        1.        302.       7.         3.       84.        12.       15.         9.     867.90
      0.43      0.41       3 58      0.57     0.100     0.050     0.100     0.000    863.90    109.24
  0.003200       475.       725.      625.         3         0         0      0.00     67.64    176.89
0
 *SECNO 5640.000
   5640.00      6.17     870 57      0.00      0.00     870 69      0.12      1.69      0.02    872.60
      310.        0.        284.      26.         0.       98.        44        17        10.     869.80
      0.50      0.00       2.89      0.59     0.000     0 050     0 100     0.000    864.40    103.62
  0.001792       475.       725.      625.         3         0         0      0.00     74.95    178.57
0
 *SECNO 5790.000
   5790.00      6 32     870.82      0.00      0.00     870.87      0.05      0.16      0.02    870.80
      310         0.        230        80         0.       115.       124.       18.        10.     868.60
      0 53      0.00       1.99      0.64     0.000     0.050     0.100     0.000    864.50    169 26
  0.000725       150.       150       150.         2         0         0      0.00     91.42    260.68
0
 *SECNO 5940 000
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5940.00	6.33	870 93	0.00	0.00	870.95	0.02	0.07	0 01	869.10
310.	13.	186.	111.	43.	123.	208.	19.	11.	867.60
0.56	0.30	1.51	0.54	0.100	0.050	0 100	0.000	864.60	191.97
0.000329	150.	150.	150.	2	0	0	0.00	153.07	345.04

0

*SECNO 5965.000

5965.00	6 33	870.93	0.00	0.00	870.96	0.02	0.01	0.00	869.10
310.	13.	185.	111.	44.	124.	209.	19.	11.	867.60
0.57	0.30	1 50	0.53	0.100	0.050	0.100	0.000	864.60	191.60
0.000325	25.	25.	25.	0	0	0	0.00	153.52	345.13

0

*SECNO 6090.000

6090.00	6.28	870.98	0.00	0.00	870.99	0.01	0 03	0.00	867.70
310.	55.	135.	120.	167.	121.	289.	20.	11.	866.90
0.62	0.33	1.12	0.41	0.100	0.050	0.100	0.000	864.70	221.23
0.000161	125.	125.	125	0	0	0	0.00	211.11	432.34

0

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 6220.000

6220.00	6.20	871.00	0.00	0.00	871.01	0.00	0.02	0.00	866.70
310.	104.	95.	112.	337.	110.	349.	22	12.	866.50
0.69	0.31	0 86	0.32	0.100	0.050	0.100	0.000	864.80	260.58
0.000096	130.	130.	130.	0	0	0	0.00	268.77	529.35

0

*SECNO 6241.000

GRAND RIVER AVE. BRIDGE

6241.00	6.20	871.00	0.00	0.00	871.01	0.00	0.00	0.00	866 70
310.	119.	63.	128.	337.	110.	349.	23.	12.	866.50
0.71	0 35	0 57	0 37	0.015	0.013	0.015	0.000	864.80	260.68
0.000003	21.	21.	21.	0	0	0	0.00	268.56	529.25

0

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	2.00	2.70	0.00	5.00	0.00	28.00	0.00	864 80	864.80

*SECNO 6305.000

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
874.81	871.01	0.00	97.	215.	28.	30.	870 80	872.40

6305.00	8.04	872.84	0.00	0.00	872.84	0.00	1.83	0.00	866.70
310.	127.	49.	134.	591.	148.	604	24.	13.	866.50
0.78	0.21	0.33	0.22	0.015	0.013	0 015	0.000	864.80	230.58
0.000001	64.	64.	64.	0	0	5	0.00	328.28	558.86

0

*SECNO 6311.000

6311.00	8.04	872.84	0.00	0.00	872.84	0.00	0.00	0.00	866.70
400.	146.	99.	155.	591.	148.	604.	25.	13.	866.50
0.79	0.25	0.67	0.26	0.100	0.050	0.100	0.000	864.80	230.60
0 000039	6.	6.	6.	0	0	0	0.00	328.25	558.85

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
*SECNO 6450.000									
6450.00	7.97	872.84	0.00	0.00	872 85	0.00	0.01	0.00	866.77
400.	146.	100.	154.	580.	147.	593.	30	14.	866.57
0.91	0.25	0.68	0.26	0.100	0.050	0.100	0.000	864.87	231.71
0.000041	189.	139.	140.	0	0	0	0.00	326.05	557.76
*SECNO 6900.000									
6900.00	7.77	872.87	0.00	0.00	872.87	0.01	0.02	0.00	867.00
400.	156.	210.	34.	559.	268.	115.	43.	17.	866.30
1.17	0.28	0.78	0 30	0.100	0.050	0.100	0.000	865.10	206.56
0.000050	606.	450.	455.	0	0	0	0.00	193.45	400.01
*SECNO 7403.000									
7403.00	3.39	872 91	0.00	0.00	872.97	0.06	0.07	0.03	871.72
400	41.	207.	152.	53.	82.	141.	50.	19.	870.62
1.25	0.77	2.51	1.08	0.100	0.050	0.100	0.000	869.52	33.88
0.001890	425.	503.	525.	2	0	0	0 00	139.40	173 28
*SECNO 7504.000									
MEADOWBROOK ROAD BRIDGE									
7504.00	3.00	873.00	0.00	0.00	873.09	0.09	0 11	0.01	871.10
400	32.	28.	340.	26	10.	141.	50.	19.	870.50
1 26	1.23	2.93	2.42	0.025	0.025	0.025	0.000	870 00	954.53
0.000787	176.	101.	76.	2	0	0	0.00	133.50	1088.02

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	2.42	2.70	0.00	4.00	0.00	12.60	0.00	870.00	870.00

*SECNO 7535 000

3265 DIVIDED FLOW

PRESSURE AND WEIR 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

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
910.87	873.09	0.00	271.	129.	13.	12.	873.00	875.40

7535.00	6.97	876 97	0 00	0.00	876.97	0.00	3.88	0.00	871 10

```
     400.      100.       15.      284.      218.       25.      528.       51.       19.     870.50
     1.27      0 46      0.60      0.54     0.025     0.025     0.025     0.000    870.00    592.09
  0.000009       31        31.       31.         0         0        11      0.00    243.92   1111.02
0
 *SECNO 7735.000
   7735.00      5.32    876.92      0.00      0.00    877.03      0.12      0.01      0.06    875.00
     400.       16.       324       59.       28.      107.       73.       53.       20.     873.80
     1.29      0.59      3.03      0.81     0 100     0.050     0.100     0.000    871.60    270.83
  0 001653      200.      200.      200.         2         0         0      0.00    102.25    373.07
0
 *SECNO 8186.000
                 DRIVEWAY CULVERT 600 FT.  D/S OF ELEVEN MILE ROAD BRIDGE
   8186.00      5.26    877.46      0.00      0.00    877.84      0.38      0.67      0.13    872.50
     400.       59.       208.      133.       47.       31.      111.       55.       21.     872.40
     1.32      1.26      6.74      1.20     0.070     0.024     0.070     0.000    872.20    147.14
  0.001346      451.      451.      451.         2         0         0      0.00     93.52    240.66
0

 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       2.20       2.60       0.00       4.80       0.00       11 40      0.00       872.20     872.20

 *SECNO 8202.000

 3265 DIVIDED FLOW

 PRESSURE AND WEIR FLOW

1
  13 FEB 89     10.24:18                                                                          PAGE    20


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
     919.52     877.84      0.00       322.        82.        11.        13.       874.90     876.80


   8202.00      7.24    879.14      0.00      0.00    879.21      0 07      1.37      0.00    872.20
     400.       75.       146       180.      117        43.      236.       55.       21.     872.10
     1.33      0.64      3 41      0.76     0.070     0 024     0.070     0.000    871.90     62.48
  0.000223       16.       16.       16.         2         0         8      0.00    119.45    245.73
0
 *SECNO 8475.000
   8475.00      5.95    879.25      0.00      0.00    879.33      0.08      0.12      0.01    879 40
     400.        0        400        0.        0.       171.        0.        57       22.     885.40
     1.36      0.00      2.33      0.00     0.000     0.050     0.000     0.000    873.30    143.49
  0.001150      276.      273.      276.         2         0         0      0.00     46.74    190.22
0
 *SECNO 8751.000

 3470 ENCROACHMENT STATIONS=      190.0      400.0  TYPE=      1  TARGET=      210.000
                 ELEVEN MILE ROAD BRIDGE
   8751 00      5.86    879.36      0.00      0.00    879.36      0.00      0.01      0.02    874.10
     400.       54.        7.       339.      158.       17.      859.       61        23.     873.70
     1.56      0.34      0.44      0.39     0.025     0.024     0.025     0.000    873.50    190.00
  0.000005      276       276.      276.         2         0         0      0.00    210.00    400.00
0
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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	2.88	2.90	0.00	3.00	0.00	7.10	0.00	873.50	873.50

*SECNO 8791 000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1021.30	879.36	0.00	392.	8.	7	10.	876.90	877.10

1
13 FEB 89 10:24:18 PAGE 21

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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	400 0	TYPE=	1	TARGET=	210.000	
8791 00	5.91	879.41	0.00	0 00	879.42	0.00	0.05	0.00	874.10
400.	54.	7.	339.	160.	17.	869.	62.	23.	873.70
1.59	0.34	0.43	0 39	0.025	0.024	0.025	0.000	873.50	190.00
0.000005	40.	40.	40.	0	0	11	0.00	210.00	400.00

0
*SECNO 8808.000

3470 ENCROACHMENT STATIONS= 183.0 423.0 TYPE= 1 TARGET= 240.000
FIELD CULVERT 15 FT. U/S OF ELEVEN MILE ROAD BRIDGE

8808.00	6.31	879.41	0 00	0.00	879.42	0.00	0.00	0.00	873.50
400.	0.	0.	400.	0.	0.	1243	62.	23.	100000 00
1.60	0.00	0.00	0.32	0.000	0.000	0.040	0.000	873.10	183.00
0.000009	17.	17.	17.	0	0	0	0.00	240.00	423.00

0

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	2.35	2.90	0.00	3.60	0.00	9.40	0.00	873.10	873.10

*SECNO 8824.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
945.49	879.42	0.00	392.	8.	9.	8.	875.30	875.60

3470 ENCROACHMENT STATIONS= 183.0 423.0 TYPE= 1 TARGET= 240.000

8824 00	6.34	879 44	0.00	0.00	879.44	0.00	0.03	0.00	873.50
400.	43.	357.	0.	233	1016.	0.	63.	23.	100000.00
1.61	0.18	0 35	0.00	0.040	0.024	0.000	0.000	873.10	183.00
0.000004	16	16.	16.	0	0	8	0.00	240.00	423.00

0
*SECNO 9226 000

FIELD CULVERTS 425 FT. U/S OF ELEVEN MILE ROAD BRIDGE

9226.00	5.76	879.36	0.00	0.00	879 53	0.18	0.00	0.09	873.80
400.	120.	131.	148.	166.	23.	176.	70.	25	873.80
1.66	0.72	5.81	0.85	0.050	0.013	0.050	0.000	873.60	152.35
0.000258	402.	402.	402.	2	0	0	0.00	231.91	384.26

0
1

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

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	2.31	2.60	0.00	4 00	0.00	10.00	0.00	873.60	873.60

*SECNO 9269.000
6870 D.S. ENERGY OF 879.53 HIGHER THAN COMPUTED ENERGY OF 879.42
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
936.75	879.53	0.00	387.	13.	10.	12.	876.70	877.00

9269.00	6.68	879.48	0 00	0.00	879.53	0.05	0.00	0.00	873.00
400.	147.	90.	163.	278.	24.	290.	71.	25.	873.00
1.67	0.53	3.79	0.56	0.050	0.013	0.050	0 000	872.80	144 37
0.000090	43.	43.	43.	2	0	10	0.00	260.91	405.29

0
*SECNO 9375.000

9375.00	4.32	879.41	0.00	0.00	879.66	0.25	0.03	0 10	879.09
400.	4.	396.	0.	5	98.	0	71.	26.	879.59
1.68	0.77	4.06	0.00	0.040	0.050	0.000	0.000	875.09	170.94
0.004908	101.	106.	101.	2	0	0	0.00	63.49	234.42

0
*SECNO 9475 000

9475.00	4.24	879.91	0.00	0.00	880.18	0.27	0.51	0.01	879.67
400.	2.	398.	0.	3	95.	0.	72.	26	880.17
1.68	0.67	4.19	0.00	0.040	0.050	0.000	0.000	875.67	177.84
0.005367	100.	100.	100.	2	0	0	0.00	56.34	234.18

0
*SECNO 9575.000

9575.00	4.31	880.56	0 00	0.00	880.71	0.15	0.49	0.04	880.55
400.	0.	216.	184.	0.	60.	79.	72.	26.	879.25
1.69	0.02	3 61	2.32	0.000	0.050	0.040	0.000	876.25	99.65
0.004412	100.	100.	100.	2	0	0	0.00	117.85	217.50

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 9675.000
  9675 00      4.20    881.04      0.00      0.00    881.22      0 18      0.50      0.02    881.14
     400.        0.      229.      171.        0.       57.       70.       72.       26.     879 84
     1.70      0.00      3.99      2.44     0 000     0.050     0.040     0 000    876.84    100.24
 0.005627      100.      100.      100.         0         0         0      0.00    114.30    214.54
0
*SECNO 9775.000
  9775.00      4.19    881.61      0.00      0.00    881.80      0.19      0.58      0.00    881.72
     400.        0.      232.      168.        0.       57.       68.       72.       27.     880.42
     1.71      0.00      4.07      2.47     0.000     0.050     0.040     0.000    877.42    100.29
 0.005877      100.      100.      100.         2         0         0      0.00    113.73    214.02
0
*SECNO 9876.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
                DRIVEWAY CULVERT 1075 FT.  U/S OF ELEVEN MILE ROAD BRIDGE
  9876.00      4.34    882.34    882.34      0.00    882.90      0 56      0.22      0.18    878.40
     400.       50.      144.      206.       20.       15.      107.       73.       27.     878.20
     1.72      2.47      9 62      1.93     0.030     0.013     0.030     0.000    878.00    186.89
 0.001090      101.      101.      101.        20         8         0      0 00    119.35    306.25
0

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       1 30       2.60       0.00       3.50       0.00       9.60       0.00     878.00     878.00

*SECNO 9893.000
PRESSURE AND WEIR FLOW


 EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                       AREA
    917.38    882.90      0.00       339.        61.        10.        12.       881.50    882.00


  9893 00      5.00    883.00      0.00      0.00    883.17      0.17      0.27      0.00    878.40
     400.       49.      104.      246.       34.       17.      179.       73.       27.     878 20
     1 72      1.45      6.04      1.38     0 030     0.013     0.030     0.000    878.00    168.02
 0.000353       17.       17.       17          2         0         9      0.00    144.66    312.68
0
1
 13 FEB 89     10:24:18                                                                          PAGE    24


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 9950.000
  9950.00      4.43    883.01      0.00      0.00    883.25      0.24      0.05      0.04    882.88
     400.        0.      288       112         0.       62.       91.       73.       27      881.58
     1.72      0.20      4.61      1.23     0.100     0.050     0.100     0.000    878.58     96.31
 0.006793       51.       57.       51          2         0         0      0.00    123.91    220.23
0
*SECNO 10000.000
 10000.00      4 21    883 37      0.00      0.00    883.72      0.35      0.41      0.05    883.46
     400.        0.      308.       92.        0.       58.       70.       73        27.     882.16
     1.72      0.00      5.36      1.31     0.000     0.050     0.100     0.000    879.16    100.23
 0.010107       50.       50.       50.         2         0         0      0.00    114.39    214.62
0
*SECNO 10100.000
```

10100.00	4.12	884.44	0.00	0.00	884.85	0.41	1.10	0.03	884.62
400.	0.	318.	82.	0.	55.	62.	73.	28.	883.32
1.73	0.00	5.74	1 33	0.000	0.050	0.100	0.000	880.32	100 48
0.012034	100.	100.	100.	2	0	0	0.00	111.45	211.93

0

*SECNO 10200.000

10200.00	4 15	885.63	0.00	0.00	886.02	0.39	1.17	0.01	885.78
400.	0.	315.	85.	0.	56.	64.	74.	28.	884.48
1.74	0.00	5.62	1.33	0.000	0.050	0.100	0.000	881.48	100.40
0.011387	100.	100.	100.	2	0	0	0.00	112.37	212.77

0

*SECNO 10350.000

10350.00	4.10	887.32	0.00	0.00	887.81	0.49	1.73	0.05	885.92
400	7.	393.	0.	5.	69.	0.	74.	28.	887.72
1.74	1.26	5.68	0.00	0.100	0.050	0.000	0.000	883.22	127.20
0.011713	150.	150.	150.	1	0	0	0.00	36.47	163.67

0

*SECNO 10450.000

10450 00	4.11	888.49	0.00	0.00	888.98	0.49	1.17	0.00	887.08
400	7.	393.	0.	5.	69.	0.	74.	28.	888.88
1.75	1.26	5.68	0.00	0 100	0.050	0.000	0.000	884.38	127.21
0.011751	100.	100.	100.	1	0	0	0.00	36.45	163.66

0

1

13 FEB 89 10:24:18 PAGE 25

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 10550.000

10550 00	4.12	889 66	0.00	0.00	890.15	0.49	1.16	0.00	888.24
400.	7.	393.	0.	6.	70.	0.	74.	28.	890.04
1.75	1.25	5 64	0.00	0.100	0.050	0.000	0.000	885.54	127.10
0.011475	100.	100.	100.	0	0	0	0.00	36.62	163.72

0

*SECNO 10600.000

10600.00	4.11	890.23	0.00	0.00	890.72	0.49	0 57	0.00	888.82
400	7.	393.	0.	6.	70.	0.	75.	28.	890.62
1.76	1 25	5.64	0.00	0.100	0.050	0.000	0.000	886.12	127.11
0.011485	50.	50.	50.	0	0	0	0.00	36.61	163.72

0

*SECNO 10651.000

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

DIRT DRIVE 1850 FT. U/S OF ELEVEN MILE ROAD

10651.00	3.89	890.59	890.59	0.00	891.53	0.94	0.46	0.23	886.90
400.	198.	111.	91.	38	9.	20.	75.	28.	887.10
1.76	5.29	12.37	4.44	0 040	0.024	0.040	0.000	886.70	128 41
0.007195	51.	51.	51	3	11	0	0.00	34.52	162.93

0

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	2.44	2.80	0.00	2.50	0.00	4.90	0 00	886.70	886.70

*SECNO 10681.000

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1143.07	891.53	0.00	360.	40.	5.	6.	889.20	891.20

10681.00	6 37	893.07	0.00	0.00	893.17	0.10	1.64	0.00	886.90
400.	221.	68.	111.	116.	15.	58.	75.	28.	887.10
1.76	1.91	4.55	1.90	0 040	0.024	0.040	0.000	886.70	103.50
0.000494	30.	30	30.	2	0	11	0.00	66.17	169.67

O
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 10755.000

3265 DIVIDED FLOW

10755 00	6 09	893 05	0.00	0.00	893.36	0.31	0.09	0.11	899 66
400.	14.	383.	3.	16.	84.	3.	75.	28.	891.46
1.77	0.88	4.58	0.85	0.100	0.050	0.100	0.000	886.96	106.70
0.004910	76.	74.	76.	2	0	0	0.00	46.92	168.98

O
*SECNO 10795 000

3470 ENCROACHMENT STATIONS= 154.0 274.0 TYPE= 1 TARGET= 120.000

10795.00	6.35	893.45	0.00	0.00	893.47	0.01	0.02	0.09	887.80
400.	139.	236.	25.	310.	210	58.	75.	29.	887.80
1.78	0 45	1.12	0.42	0.100	0 050	0.100	0.000	887 10	154.00
0.000131	40.	40	40.	2	0	0	0.00	120.00	274.00

O
*SECNO 11026.000

CULVERTS UNDER SUGDEN CONSTRUCTION

11026.00	5.57	893.47	0.00	0.00	893.49	0 02	0.02	0.00	888.00
160.	71.	75.	14	426.	45.	80.	78.	29.	888.20
1 85	0 17	1.68	0.17	0.100	0.013	0.100	0.000	887.90	109.37
0.000023	236.	231.	236.	2	0	0	0.00	169.96	279.33

O

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	1.25	3.40	3.00	0.00	6.50	0.20	25.10	0.00	889.50	887 90

*SECNO 11416 000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
895.61	893.56	0 00	0.	160.	25.	16.	892.00	900.00

11416.00	6.09	895 59	0.00	0.00	895.61	0.02	2.12	0.00	903 00
160.	0.	160.	0.	0.	126.	0.	81.	30.	903.00
1.94	0.00	1.27	0.00	0.000	0.013	0.000	0.000	889.50	14.28
0.000023	390.	390.	390.	2	0	0	0.00	32.44	46.72

O

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 11425.000									
11425.00	6.09	895.59	0.00	0.00	895.61	0.02	0.00	0.00	903.00
160.	0.	160	0.	0.	126.	0.	81.	30.	903.00
1.94	0.00	1 27	0.00	0.000	0.040	0.000	0.000	889.50	14.28
0.000214	9.	9.	9.	0	0	0	0.00	32.44	46.72
0									
*SECNO 11485 000									
11485.00	6.00	895.60	0.00	0.00	895.63	0.03	0.01	0.00	903.10
160.	0.	160.	0	0.	123.	0.	82.	30.	903.10
1.95	0.00	1.30	0.00	0.000	0.040	0.000	0.000	889 60	14.46
0.000229	60.	60.	60.	0	0	0	0.00	32.09	46.54
0									
*SECNO 11517.000									
PRIVATE ROADWAY BRIDGE 100 FT. U/S OF SUGDEN CONSTRUCTION									
11517.00	5.89	895.59	0.00	0.00	895.65	0.07	0.01	0.02	889.70
160.	18.	124.	18.	33.	53.	33.	82.	30.	889.70
1.96	0.54	2.33	0.54	0.100	0.040	0.100	0.000	889.70	14.64
0.000369	32.	32.	32.	1	0	0	0.00	31.72	46.36
0									

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	1.72	2.80	0.00	8.20	0.20	25.10	0.00	889.70	889.70

*SECNO 11553.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
896.67	895.65	0.00	0.	160.	25.	32.	893.70	903.00

11553 00	6 93	896.63	0.00	0.00	896.67	0.04	1.02	0.00	889.70
160.	21.	119	21.	46.	62.	46.	82.	30	889.70
1.96	0.44	1.91	0.44	0 100	0.040	0 100	0.000	889.70	12.65
0.000199	36	36.	36.	2	0	0	0.00	35.70	48.35
0									

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 11563.000									
11563.00	6.93	896.63	0.00	0.00	896 68	0.04	0.00	0.00	889.70
160.	21.	119.	21.	46.	62.	46.	82.	30.	889.70
1.97	0.44	1 91	0.44	0.100	0.040	0 100	0.000	889.70	12.65
0.000199	10.	10	10.	0	0	0	0.00	35.71	48.35
0									

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*SECNO 11755.000
 11755.00      6.67    896.67      0.00      0.00    896.72      0.05      0.04      0.00    890.00
     160        20.      120.       20.       43.       60.       43        82.       30.     890.00
     2.00      0.47      2.00      0.47     0.100     0.040     0.100     0.000    890 00     13.15
 0.000231      192.      192.      192.         0         0         0      0.00     34.70     47.85
0
*SECNO 11955.000
 11955.00      6.42    896.72      0.00      0.00    896.77      0.05      0 05      0.00    890.30
     160.       19.      121.       19.       40.       58.       40.       83.       31.     890.30
     2.03      0.49      2.10      0.49     0.100     0.040     0.100     0.000    890.30     13.65
 0.000268      200.      200.      200.         0         0         0      0.00     33.71     47.35
0
*SECNO 12155.000

3470 ENCROACHMENT STATIONS=       35.0      175 0  TYPE=      1  TARGET=      140.000
 12155.00      6.30    896.80      0.00      0.00    896.82      0.02      0.04      0.01    899.20
     160.        0.      160.        0.         0      159.        0.        84.       31.     899.70
     2.09      0.00      1.01      0.00     0.000     0.040     0.000     0.000    890.50     38.88
 0.000123      200.      200.      200.         2         0         0      0.00     38.56     77.44
0
*SECNO 12355.000

3470 ENCROACHMENT STATIONS=      225.0      265.0  TYPE=      1  TARGET=       40.000
 12355.00      8.12    896.82      0.00      0.00    896.84      0.02      0.02      0.00    894.50
     160.        0.      151.        9.         0.     139.       35        85.       31.     894.20
     2.14      0.00      1.09      0.25     0.000     0.040     0.100     0.000    888.70    225.00
 0.000113      200.      200       200.         1         0         0      0.00     40 00    265.00
0
*SECNO 12425.000

3470 ENCROACHMENT STATIONS=      233 1      238 9  TYPE=      1  TARGET=        5.800
                CULVERT UNDER I-96
1
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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

 12425.00      8.24    896.74      0.00      0.00    896.95      0.21      0.01      0.10    891.50
     160.        0.      160         0.         0.       43.        0        85.       31.  100000.00
     2.15      0.00      3.68      0 00     0.000     0.013     0.000     0 000    888.50    233.10
 0.000360       70.       70        70.         2         0         0      0.00      5.80    238.90
0

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       2.00       2.80     300.00       5.80       0.00      28.00       0.00     888.50     888 50

*SECNO 12565.000
PRESSURE FLOW

 EGPRS       EGLWC       H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                      AREA
    897.76     896.79      0.00         0.       160.        28.        44.       896.00     907 60


3470 ENCROACHMENT STATIONS=      250.0      272.0  TYPE=      1  TARGET=       22.000
 12565.00      7.73    897.73      0 00      0.00    897.76      0.03      0.80      0.00    895.90
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      160.        0.      160.        0.        0.      115.        0.       85.       31.  100000.00
      2.17      0.00      1.39      0 00     0.000     0.013     0.000     0.000    890.00    250.00
  0.000031      140.      140.      140.         2         0         0      0.00     22.00    272.00
0
 *SECNO 12635.000
  12635.00      7 37    897.77      0.00      0.00    897.77      0.00      0 00      0.01    895.90
       25.         0       18.        6.       12.      115.      146.       85.       31.     893.40
      2.33      0.02      0.16      0.04     0 100     0.040     0.100     0.000    890.40    236.68
  0.000002        70        70       70.         2         0         0      0.00    103.40    340.08
0
 *SECNO 13251.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION  13251 00 EXTENDED       1.88 FEET

                 DAM NORTH OF I-96
  13251 00      4.87    897.77      0.00      0.00    897.77      0.00      0.00      0.00    896.10
       25.         0.        0.       25.        0.        0.      971.       94.       35.     946.10
      8.97      0.00      0.00      0.03     0.000     0.000     0.100     0.000    892.90      0 00
  0.000001      616.      616.      616.         0         0         0      0.00    477.75    575.00
0
1
  13 FEB 89     10:24:18                                                                          PAGE    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


 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       1.00       3.00       8.00       0.01       0.00       0.01       0.00     892.90     892.90

 *SECNO 13311 000
 PRESSURE AND WEIR FLOW


  EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                         AREA
   97947.46    897.77      0.00        25.         0.         0.         0.       892.30     895.40


  13311.00      2.19    897.59      0 00      0.00    897.85      0.27      0.09      0.00    898.90
       25.         0.        25        0.        0.        6.        0.       95.       36.     898 90
      8.98      0.00      4 15      0.00     0.000     0.040     0.000     0.000    895 40      2.76
  0.015947        60.       60.       60.         3         0        10      0.00      4.47      7.24
0
1
  13 FEB 89     10:24:18                                                                          PAGE    31


                                                                                THIS RUN EXECUTED 13 FEB 89    10:24:52
 ************************************************
   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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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY of

3) WATERCOURSE: BISHOP CREEK

4) DOCUMENT TYPE: 100 YR - ENCROACHED

00BREAK00

```
T1       CITY OF NOVI
T2       100 YEAR FLOOD - ENCROACHED
T3       BISHOP CREEK

J1   ICHECK      INQ         NINV        IDIR        STRT        METRIC      HVINS       Q           WSEL        FQ
       -10.        3.          0.          0.    0.000000        0.00        0.0         0.      842.770     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
1
  13 FEB 89     10:24:18                                                                                    PAGE    32

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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
 *SECNO 0.000
  2800 NAT Q1=     212.81  WSEL=     842.67  ENC Q1=     212.81  WSEL=     842.77  RATIO=   0.0000
  NAT Q1=     407.   RATIOS LOB, CH, ROB=   0.7120   0.2527   0.0354  WSEL=     842.77

 3470 ENCROACHMENT STATIONS=     1061.2     1180.0  TYPE=      4  TARGET=        0.477
                300 FT. U/S OF CONFLUENCE WITH PATNALES
      0.00       6.17    842.77       0.00    842.67    842.78       0.01       0.00       0.00    838.60
       310        163.      147.         0.      323.      125.         0.         0.         0.    840.90
      0.00       0.50     1 18        0.00     0.100     0.050      0.000      0.000    836.60   1061.19
  0.000223         0.        0.         0.         0         0          0       0.00    118.81   1180.00
0
 *SECNO 475.000
  2800 NAT Q1=     127 54  WSEL=     842.81  ENC Q1=     127.54  WSEL=     842.91  RATIO=   0.0000
  NAT Q1=     136.   RATIOS LOB, CH, ROB=   0.0000   0.3571   0.6429  WSEL=     842.91

 3470 ENCROACHMENT STATIONS=      764 0      829.1  TYPE=      4  TARGET=        0.060
     475.00       5.41    842.91       0.00    842.81    842.97       0.06       0.16       0.03    845.60
       310          0.      118.         192.      0.        79.         83          3.         1.    839.20
      0.07       0.00     1.49        2.32     0.000     0.050      0.030      0.000    837 50    774.77
  0.000594        475.      475.        475.         2         0          0       0.00     54.34    829.12
0
 *SECNO 950.000
  2800 NAT Q1=      89.73  WSEL=     843.18  ENC Q1=      89.73  WSEL=     843.28  RATIO=   0.0000
  NAT Q1=      96.   RATIOS LOB, CH, ROB=   0.0000   0.3976   0.6024  WSEL=     843.28

 3470 ENCROACHMENT STATIONS=      764.0      824.1  TYPE=      4  TARGET=        0.068
     950.00       4.87    843.27       0.00    843.18    843.38       0.11       0.39       0.02    846.50
       310.         0.      132.         178.      0.        67.         60.         5.         1.    840.10
      0.12       0.00     1.99        2.98     0.000     0.050      0.030      0.000    838.40    776.87
  0.001194        475.      475.        475.         1         0          0       0.00     47 25    824.11
0
 *SECNO 1081.000
  2800 NAT Q1=      51.56  WSEL=     843.39  ENC Q1=      51.56  WSEL=     843.49  RATIO=   0.0000
  NAT Q1=      56.   RATIOS LOB, CH, ROB=   0.0000   0.4767   0.5233  WSEL=     843.49

 3470 ENCROACHMENT STATIONS=      764.0      817.3  TYPE=      4  TARGET=        0.080
    1081.00       4.14    843.46       0.00    843.39    843.69       0.23       0.25       0.06    847.42
       310.         0.      161.         149.      0.        50.         33.         5.         2.    841.02
      0.13       0.00     3.19        4.45     0.000     0.050      0.030      0.000    839.32    779.83
  0.003738        125.      131.        125.         2         0          . 0        0.00     37.50    817.33
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 1212 000
2800 NAT Q1= 37.64 WSEL= 843.96 ENC Q1= 37.64 WSEL= 844.06 RATIO= 0.0000
NAT Q1= 41. RATIOS LOB,CH,ROB= 0.0000 0.5314 0.4686 WSEL= 844.06

3470 ENCROACHMENT STATIONS= 764.0 814.0 TYPE= 4 TARGET= 0.085

1212.00	3.79	844.04	0.00	843.96	844.39	0.35	0.64	0.06	848.35
310.	0.	181.	129.	0.	44.	24.	5.	2.	841.95
0.13	0.00	4.12	5.49	0.000	0.050	0.030	0.000	840.25	781.21
0.006894	125.	131.	125.	1	0	0	0.00	32.80	814.01

0
*SECNO 1475.000

3470 ENCROACHMENT STATIONS= 780.0 841.0 TYPE= 1 TARGET= 61.000

1475.00	3.76	845.86	0.00	845.77	846.10	0.24	1.68	0.03100000.00	
310.	0.	167.	143.	0.	43.	36.	6.	2.	843.80
0.15	0.00	3.88	3.97	0.000	0.050	0.030	0.000	842.10	781.36
0.006185	250.	263.	250.	3	0	0	0.00	53.55	834.91

0
*SECNO 1737.000

1737.00	3.45	847.40	0.00	847.43	847.63	0.24	1.53	0.00	846.95
310.	5.	279.	26.	4.	68.	13.	6.	2.	846.65
0.17	1.36	4.08	1.93	0.030	0.050	0.030	0.000	843.95	983.05
0.005698	250.	262.	250.	1	0	0	0.00	80.00	1063.05

0
*SECNO 2001.000

3301 HV CHANGED MORE THAN HVINS

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
TEN MILE ROAD BRIDGE

2001.00	2.46	848.26	848.26	848.26	849.09	0.83	0.87	0.30	848.80
310.	0	310.	0.	0.	42.	0.	7.	3.	848.50
0.18	0.00	7.31	0.00	0.000	0.013	0.000	0.000	845.80	1000.95
0.002167	251	264.	251.	3	16	0	0.00	25.54	1026.49

0
1

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

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	1.98	2.90	0.00	8.20	0.00	19.50	0.00	845.80	845.80

*SECNO 2038.800
2800 NAT Q1= 947.67 WSEL= 851.57 ENC Q1= 947.67 WSEL= 851.67 RATIO= 0.0000

```
 NAT Q1=    1007   RATIOS LOB,CH,ROB=  0.2101  0.4330  0.3569  WSEL=    851.67
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=     950.7    1107.3  TYPE=     4  TARGET=       0.059
   2038.80     5.77   851.57     0.00   851.57   851.58     0.01     0.00     0.25   848.80
      310.       58.      146.      106.      105.      131.      180         7.        3.    848.50
      0 19     0 56     1 11     0.59    0.015    0.013    0.015    0.000   845.80   950.67
  0.000012       38.       38.       38.         0         0         7     0.00   156.66  1107.33
0
 *SECNO 2440.000

 3470 ENCROACHMENT STATIONS=     578.0     666.0  TYPE=     1  TARGET=      88.000
   2440.00     3.93   851.48     0.00   851.47   851.71     0 23     0.02     0.11   850.95
      310.       7.      286       17.        5.       72.        9.        9.        4.    850.85
      0.22     1.44     3.99     1.85    0.030    0.050    0.030    0.000   847.55   584.18
  0.004971      351.      401.      376.         3         0         0     0.00    73.13   657.31
0
 *SECNO 2840.000
  2800 NAT Q1=      44 19  WSEL=    853.44  ENC Q1=      44.88  WSEL=    853.54  RATIO= -0.0158
  NAT Q1=     47   RATIOS LOB,CH,ROB=  0.0272  0 9490  0 0238  WSEL=    853.54

 3470 ENCROACHMENT STATIONS=     205.0     230.0  TYPE=     4  TARGET=       0.051
   2840.00     4.50   853.50     0.00   853.44   853.77     0.27     2.04     0.02   852.80
      310.       0.      310.       0.        0.       74.        0.       10.        4.    853.00
      0 25     0.00     4.16     0.00    0 000    0.050    0.000    0.000   849.00   205.00
  0.005269      350.      400.      375.         1         0         0     0.00    25.00   230.00
0
 *SECNO 3178.000

 3470 ENCROACHMENT STATIONS=     172.0     214.0  TYPE=     1  TARGET=      42.000
   3178.00     3.49   856.09     0.00   856.00   856.60     0.51     2.71     0.12   855.70
      310.       5.      305.       0.        2.       53.        0.       10.        4.    856.40
      0.27     2.27     5.78     0.00    0.030    0.050    0.000    0.000   852.60   178.97
  0.013682      288.      338.      294.         2         0         0     0.00    33.88   212.85
0
1
  13 FEB 89    10:24.18                                                          PAGE    35

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 3515.000

 3470 ENCROACHMENT STATIONS=     112.0     213.0  TYPE=     1  TARGET=     101.000
   3515.00     3.66   859.86     0.00   859.91   860.20     0.33     3.55     0.05   858.70
      310.       28.      282.       0.       24.       58.        0.       11.        5.    859.80
      0.29     1 18     4.85     0.01    0.100    0.050    0.100    0.000   856.20   133.99
  0.008463      287.      337.      294.         4         0         0     0.00    64.80   198.78
0
 *SECNO 3853.000
  2800 NAT Q1=      30.84  WSEL=    862.88  ENC Q1=      30.84  WSEL=    862.98  RATIO=  0.0000
  NAT Q1=      34.   RATIOS LOB,CH,ROB=  0.2888  0.7112  0.0000  WSEL=    862.98

 3470 ENCROACHMENT STATIONS=     124.7     181.2  TYPE=     4  TARGET=       0.099
   3853 00     3.17   862.97     0.00   862.88   863.29     0.32     3.08     0.00   861.60
      310.       65.      245.       0.       39.       49.        0.       11.        5.    863.20
      0.31     1.67     5.04     0.00    0.100    0.050    0.000    0.000   859 80   124.70
  0.010334      288.      338.      294.         4         0         0     0.00    55.62   180.32
0
 *SECNO 4190.000
  2800 NAT Q1=      36.09  WSEL=    865.82  ENC Q1=      36.09  WSEL=    865.92  RATIO=  0.0000
  NAT Q1=      41.   RATIOS LOB,CH,ROB=  0.6186  0 3814  0.0000  WSEL=    865 92
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 3470 ENCROACHMENT STATIONS=      68.3      165.0  TYPE=      4  TARGET=        0.112
   4190.00      2.53    865.93      0.00    865.82    866.05      0.11      2.70      0.06    864.60
      310.      177.      133.        0.      111.       36.        0.       12.        6.    866.70
      0.34      1.60      3.69      0.00     0.100     0.050     0.000     0.000    863.40     68.25
  0.007106      287.      337.      293.         4         0         0      0.00     94.39    162.65
0
 *SECNO 4915.000
  2800 NAT Q1=      54.80  WSEL=     868.78  ENC Q1=      56.04  WSEL=     868.88  RATIO= -0.0227
  NAT Q1=      58.  RATIOS LOB,CH,ROB=   0.0066   0.9651   0.0284  WSEL=     868.88

 3470 ENCROACHMENT STATIONS=      121.5      147.0  TYPE=      4  TARGET=        0.035
   4915.00      5.01    868.91      0.00    868.78    869.10      0.20      3.01      0.04    868.30
      310.        0.      310.        0.        0.        87         0        14         6.    867.90
      0.39      0.00      3.54      0.00     0.000     0.050     0.000     0.000    863.90    121.50
  0.003233      475.       725      625.         2         0         0      0.00     25.50    147.00
0
1
  13 FEB 89     10:24.18                                                                  PAGE    36


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 5640.000
  2800 NAT Q1=      73.22  WSEL=     870.57  ENC Q1=      73.22  WSEL=     870.67  RATIO=  0.0000
  NAT Q1=      77.  RATIOS LOB,CH,ROB=   0.0000   0.9056   0.0944  WSEL=     870.67

 3470 ENCROACHMENT STATIONS=      100.0      155.9  TYPE=      4  TARGET=        0.047
   5640.00      6.28    870.68      0.00    870.57    870.81      0.12      1.69      0.02    872.60
      310.        0.      294.       16.        0.       101        26.       16.         7.    869.80
      0.47      0.00      2.91      0.60     0.000     0.050     0.100     0.000    864.40    103.41
  0.001767      475.       725.      625.         2         0         0      0.00     52.52    155.93
0
 *SECNO 5790.000
  2800 NAT Q1=     115.11  WSEL=     870.82  ENC Q1=     115.11  WSEL=     870.92  RATIO=  0.0000
  NAT Q1=     121.  RATIOS LOB,CH,ROB=   0.0000   0.7342   0.2657  WSEL=     870.92

 3470 ENCROACHMENT STATIONS=      169.7      244.0  TYPE=      4  TARGET=        0.048
   5790.00      6.44    870.94      0.00    870.82    870.99      0.05      0.16      0.02    870.80
      310.        0.      239.       71.        0.       119.       107.       16.         7.    868.60
      0.49      0.00      2.01      0.67     0.000     0.050     0.100     0.000    864.50    169.70
  0.000716      150.       150      150.         2         0         0      0.00     74.33    244.03
0
 *SECNO 5940.000
  2800 NAT Q1=     170.88  WSEL=     870.93  ENC Q1=     170.88  WSEL=     871.03  RATIO=  0.0000
  NAT Q1=     179.  RATIOS LOB,CH,ROB=   0.0462   0.5908   0.3630  WSEL=     871.03

 3470 ENCROACHMENT STATIONS=      227.6      328.9  TYPE=      4  TARGET=        0.046
   5940.00      6.45    871.05      0.00    870.93    871.07      0.02      0.07      0.01    869.10
      310.        8.      192.      111.       21.       126.       197.       17.         8.    867.60
      0.53      0.37      1.52      0.56     0.100     0.050     0.100     0.000    864.60    227.58
  0.000324      150.       150.      150.         2         0         0      0.00    101.32    328.89
0
 *SECNO 5965.000
  2800 NAT Q1=     171.96  WSEL=     870.93  ENC Q1=     171.96  WSEL=     871.03  RATIO=  0.0000
  NAT Q1=     180.  RATIOS LOB,CH,ROB=   0.0465   0.5901   0.3634  WSEL=     871.03

 3470 ENCROACHMENT STATIONS=      226.6      329.4  TYPE=      4  TARGET=        0.044
   5965.00      6.45    871.05      0.00    870.93    871.08      0.02      0.01      0.00    869.10
      310.        8.      191.      111.       22.       127.       199.       17.         8.    867.60
      0.53      0.36      1.51      0.56     0.100     0.050     0.100     0.000    864.60    226.63
  0.000320       25.        25.       25.         0         0         0      0.00    102.77    329.40
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 6090.000
2800 NAT Q1= 244.39 WSEL= 870.98 ENC Q1= 244.39 WSEL= 871.08 RATIO= 0.0000
NAT Q1= 256. RATIOS LOB,CH,ROB= 0 1821 0.4298 0.3881 WSEL= 871.08

3470 ENCROACHMENT STATIONS= 254.5 409.5 TYPE= 4 TARGET= 0.047

6090.00	6.40	871.10	0.00	870.98	871.11	0.01	0.03	0.00	867.70
310.	52.	140.	119.	143.	124.	273.	19.	8.	866.90
0 58	0.36	1.13	0.44	0.100	0.050	0.100	0.000	864.70	254.50
0.000159	125.	125.	125.	1	0	0	0.00	154.97	409.47

*SECNO 6220.000
2800 NAT Q1= 316.78 WSEL= 871.00 ENC Q1= 316.78 WSEL= 871.10 RATIO= 0.0000
NAT Q1= 330. RATIOS LOB,CH,ROB= 0.3369 0.3010 0.3621 WSEL= 871.10

3470 ENCROACHMENT STATIONS= 296.8 496.9 TYPE= 4 TARGET= 0.041

6220.00	6.32	871.12	0.00	871.00	871.13	0.00	0.02	0.00	866.70
310.	102.	97	111.	307.	112.	327.	21.	9.	866.50
0 65	0 33	0.87	0.34	0.100	0.050	0.100	0.000	864.80	296.80
0.000095	130.	130.	130.	0	0	0	0.00	200.07	496.87

*SECNO 6241.000
2800 NAT Q1= 1833.98 WSEL= 871.00 ENC Q1= 1833.98 WSEL= 871.10 RATIO= 0.0000
NAT Q1= 1923. RATIOS LOB,CH,ROB= 0.3861 0.1989 0.4150 WSEL= 871.10

3470 ENCROACHMENT STATIONS= 296.8 496.9 TYPE= 4 TARGET= 0.046
GRAND RIVER AVE. BRIDGE

6241.00	6.32	871.12	0.00	871.00	871.13	0.00	0.00	0.00	866.70
310	118.	65.	128.	307.	112.	328.	21.	9.	866.50
0.67	0.38	0.57	0.39	0.015	0.013	0.015	0.000	864 80	296.75
0.000003	21.	21.	21.	0	0	0	0.00	200.16	496 92

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	2.00	2.70	0.00	5.00	0.00	28.00	0.00	864.80	864.80

*SECNO 6305.000
2800 NAT Q1= 3833.61 WSEL= 872.84 ENC Q1= 3833.61 WSEL= 872.94 RATIO= 0.0000
NAT Q1= 3964. RATIOS LOB,CH,ROB= 0.4092 0.1580 0.4328 WSEL= 872.94
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 276.7 517.0 TYPE= 4 TARGET= 0.033

6305.00	8.16	872.96	0.00	872.84	872.96	0.00	0.00	0.00	866.70

```
      310.      126.       51.      133.      537.      151.      563.       23.        9.     866.50
      0.74      0.23      0.34      0.24     0.015     0.013     0.015     0.000    864.80    276.75
 0.000001       64.       64.       64.         0         0         5      0.00    240.28    517.03
0
 *SECNO 6311.000
  2800 NAT Q1=     642.17  WSEL=     872.84  ENC Q1=     642.17  WSEL=     872.94  RATIO=   0.0000
  NAT Q1=     663.  RATIOS LOB,CH,ROB=   0.3667   0.2455   0.3879  WSEL=     872.94

 3470 ENCROACHMENT STATIONS=      277.7      515.9  TYPE=      4  TARGET=        0.032
   6311.00      8.16    872.96      0.00    872.84    872.96      0.00      0.00      0.00    866.70
      400.      145.       101       154.      536.      151.      560.       23.        9.     866.50
      0.74      0.27      0.67      0.27     0.100     0.050     0.100     0.000    864.80    277.66
 0.000038         6.        6.        6.         0         0         0      0.00    238.29    515.95
0
 *SECNO 6450.000
  2800 NAT Q1=     627.95  WSEL=     872.84  ENC Q1=     627.95  WSEL=     872.94  RATIO=   0.0000
  NAT Q1=     650.  RATIOS LOB,CH,ROB=   0.3659   0.2469   0.3872  WSEL=     872.94

 3470 ENCROACHMENT STATIONS=      278.8      514.7  TYPE=      4  TARGET=        0.033
   6450.00      8.09    872.96      0.00    872.84    872.97      0.00      0.01      0.00    866.77
      400.      145.       102.      153.      526.      150.      549.       27.       10.     866.57
      0.86      0.28      0.68      0.28     0.100     0.050     0.100     0.000    864.87    278.79
 0.000040       189.      139.      140.         0         0         0      0.00    235.88    514.67
0
 *SECNO 6900.000
   6900.00      7.89    872.99      0.00    872.87    872.99      0.01      0.02      0.00    867.00
      400.      158.       208.       34.      576.      272.      118.       41.       13.     866.30
      1.12      0.27      0.76      0.29     0.100     0.050     0.100     0.000    865.10    206.13
 0.000047       606.      450.      455.         0         0         0      0.00    193.88    400.01
0
 *SECNO 7403.000
  2800 NAT Q1=      92.01  WSEL=     872.91  ENC Q1=      92.01  WSEL=     873.01  RATIO=   0.0000
  NAT Q1=      99.  RATIOS LOB,CH,ROB=   0.1082   0.5104   0.3814  WSEL=     873.01

 3470 ENCROACHMENT STATIONS=       46.2      160.5  TYPE=      4  TARGET=        0.069
   7403.00      3.50    873.02      0.00    872.91    873.09      0.06      0.07      0.03    871.72
      400       32.       217.      151.       41.       86.      133.       47.       14.     870.62
      1.20      0.77      2.53      1.13     0.100     0.050     0.100     0.000    869.52     46.17
 0.001822       425.      503.      525.         2         0         0      0.00    114.30    160.47
0
1
  13 FEB 89    10:24:18                                                                  PAGE    39


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 7504.000
  2800 NAT Q1=     142.59  WSEL=     873.00  ENC Q1=     142.59  WSEL=     873.10  RATIO=   0.0000
  NAT Q1=     158.  RATIOS LOB,CH,ROB=   0.0925   0.0680   0.8395  WSEL=     873.10

 3470 ENCROACHMENT STATIONS=      978.4     1077.1  TYPE=      4  TARGET=        0.099
                  MEADOWBROOK ROAD BRIDGE
   7504.00      3.11    873.11      0.00    873.00    873.21      0.10      0.10      0.02    871.10
      400.       19        30.      351.       14.       10.      139.       48.       14.     870.50
      1.21      1.38      3.00      2.53     0.025     0.025     0.025     0.000    870.00    978.40
 0.000779       176.      101.       76.         2         0         0      0.00     98.68   1077.08
0

 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB   XK         XKOR       COFG       RDLEN      BWC        B'P        BAREA      SS         ELCHU      ELCHD
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     0.00       2.42       2 70       0.00       4.00       0.00      12.60       0.00     870.00     870.00

 *SECNO 7535.000
  2800 NAT Q1=    1339.13  WSEL=     876.97  ENC Q1=    1339.13  WSEL=     877.07  RATIO=   0.0000
  NAT Q1=    1383.   RATIOS LOB,CH,ROB=   0.2532  0.0378  0.7090  WSEL=     877.07
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=      955.3     1097.4  TYPE=      4  TARGET=        0.032
   7535.00      7.07    877.07      0.00    876.97    877.08      0.00      0.00      0.03    871.10
      400.        97        16.       287.       200.        26.       521.        48.        15.     870.50
      1.22      0.49      0.60      0.55     0.025     0.025     0.025     0.000    870.00    955.31
  0.000009        31.       31.       31.         0         0        11      0.00    142.12   1097.44
0
 *SECNO 7735.000
  2800 NAT Q1=      98.40  WSEL=     876.92  ENC Q1=      98.40  WSEL=     877.02  RATIO=   0.0000
  NAT Q1=     104.   RATIOS LOB,CH,ROB=   0.0446  0.8016  0.1538  WSEL=     877.02

 3470 ENCROACHMENT STATIONS=      294.4      346.0  TYPE=      4  TARGET=        0.049
   7735.00      5.42    877.02      0.00    876.92    877.14      0.13      0.01      0.06    875.00
      400.         8.       338.        54.        10.       110.        51.        50.        15.     873.80
      1.24      0.76      3.08      1.06     0.100     0.050     0.100     0.000    871.60    294.40
  0.001657       200.       200       200.         2         0         0      0.00     51.59    345.99
0
 *SECNO 8186.000
  2800 NAT Q1=     109.03  WSEL=     877.46  ENC Q1=     109.03  WSEL=     877.56  RATIO=   0.0000
  NAT Q1=     115.   RATIOS LOB,CH,ROB=   0.1500  0.5074  0.3425  WSEL=     877.56
1
  13 FEB 89     10:24:18                                                                  PAGE    40


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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=      163.0      215.5  TYPE=      4  TARGET=        0.053
                DRIVEWAY CULVERT 600 FT. D/S OF ELEVEN MILE ROAD BRIDGE
   8186.00      5.35    877.55      0.00    877.46    877.96      0.41      0.68      0.14    872.50
      400.        51.       215.      134.        33.        31.        92.        52.        16.     872.40
      1.27      1.54      6.86      1.45     0.070     0.024     0.070     0.000    872.20    162.99
  0.001359       451       451.      451.         2         0         0      0.00     52.53    215.52
0

 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       2.20       2.60       0.00       4.80       0.00      11.40       0.00     872.20     872.20

 *SECNO 8202.000
  2800 NAT Q1=     267.96  WSEL=     879.14  ENC Q1=     267.96  WSEL=     879.24  RATIO=   0.0000
  NAT Q1=     278.   RATIOS LOB,CH,ROB=   0.1893  0.3589  0.4518  WSEL=     879.24
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=      151.6      239.4  TYPE=      4  TARGET=        0.036
   8202.00      7.33    879.23      0.00    879.14    879.31      0.07      0.01      0.10    872.20
      400.        71       149.      180.        92.        43.       234        52        16.     872.10
      1.27      0.77      3.45      0.77     0.070     0.024     0.070     0.000    871.90    151.59
  0.000224        16        16.       16.         0         0         8      0.00     87.81    239.40
0
 *SECNO 8475.000
  2800 NAT Q1=     117.97  WSEL=     879.25  ENC Q1=     122.49  WSEL=     879.35  RATIO=  -0.0383
  NAT Q1=     122    RATIOS LOB,CH,ROB=   0.0000  1.0000  0.0000  WSEL=     879.35
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3470 ENCROACHMENT STATIONS=      143.0      202.0  TYPE=      4  TARGET=        0.000
  8475.00      6.04    879 34      0.00    879.25    879.43      0 08      0.12      0.00    879.40
     400.         0       400.        0         0.      176.        0.        54.       16.     885 40
     1.31      0.00      2.27      0.00     0.000     0.050     0.000     0.000    873.30    143.18
 0.001069      276.      273.      276.         2         0         0      0 00     47.23    190.41
0
 *SECNO 8751.000
  2800 NAT Q1=    1752.89  WSEL=     879.36  ENC Q1=    1752.89  WSEL=     879.46  RATIO=  0.0000
  NAT Q1=    2182.  RATIOS LOB,CH,ROB=  0.2136  0.0153  0 7711  WSEL=     879.46

 3470 ENCROACHMENT STATIONS=      189.3      387.8  TYPE=      4  TARGET=        0.196
                 ELEVEN MILE ROAD BRIDGE
1
  13 FEB 89     10:24:18                                                                                    PAGE    41


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


   8751.00      5 95    879.45      0.00    879.36    879.45      0.00      0.01      0.02    874.10
     400.        57.        8.      336.      163.       17.      830.       57.       17.     873.70
     1.50      0.35      0.44      0 40     0.025     0.024     0.025     0.000    873.50    189.33
 0.000005      276.      276.      276.         2         0         0      0.00    198.48    387 81
0

 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       2.88       2.90       0.00       3.00       0.00       7.10       0.00     873.50     873.50

 *SECNO 8791.000
  2800 NAT Q1=    1784.61  WSEL=     879.41  ENC Q1=    1784 61  WSEL=     879.51  RATIO=  0.0000
  NAT Q1=    2227.  RATIOS LOB,CH,ROB=  0.2150  0.0152  0.7697  WSEL=     879.51
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=      189.0      388.0  TYPE=      4  TARGET=        0.198
  8791.00      6.00    879.50      0.00    879.41    879.51      0.00      0.00      0.00    874:10
     400.        57.        8.      335.      166.       17.      839.       58.       17.     873.70
     1 53      0.34      0.44      0.40     0.025     0.024     0.025     0.000    873.50    189.05
 0.000005       40.       40.       40.         0         0        11      0.00    198.90    387.95
0
 *SECNO 8808.000
  2800 NAT Q1=    1366.89  WSEL=     879 41  ENC Q1=    1366.89  WSEL=     879.51  RATIO=  0 0000
  NAT Q1=    1618.  RATIOS LOB,CH,ROB=  0 0000  0.0000  1.0000  WSEL=     879.51

 3470 ENCROACHMENT STATIONS=      233.2      379 8  TYPE=      4  TARGET=        0.155
                 FIELD CULVERT 15 FT.  U/S OF ELEVEN MILE ROAD BRIDGE
  8808.00      6.40    879.50      0.00    879.41    879.51      0.00      0.00      0.00    873.50
     400.         0.        0.      400.         0         0.      850.       59.       17.  100000.00
     1.54      0.00      0.00      0.47     0.000     0.000     0 040     0.000    873.10    233.20
 0.000016        17        17.       17.         0         0         0      0.00    146.60    379.80
0

 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       2.35       2.90       0.00       3.60       0.00       9.40       0.00     873.10     873.10

 *SECNO 8824.000
1
  13 FEB 89     10:24:18                                                                                    PAGE    42
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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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
945 58	879 54	0.00	392.	8.	9.	8.	875.30	875.60

8824.00	6.43	879.53	0.00	879.44	879.53	0 00	0.02	0.00	873 50
400	0.	0.	400.	0	0.	1583.	59.	17.	885.80
1.56	0.00	0.00	0.25	0.000	0.000	0.040	0 000	873.10	88.90
0.000006	16.	16.	16.	2	0	8	0.00	400.98	489.88

0

*SECNO 9226.000
2800 NAT Q1= 248.88 WSEL= 879.36 ENC Q1= 248.88 WSEL= 879.46 RATIO= 0.0000
NAT Q1= 265. RATIOS LOB,CH,ROB= 0 3084 0.3173 0.3743 WSEL= 879.46

3470 ENCROACHMENT STATIONS= 190.3 349 0 TYPE= 4 TARGET= 0.062
FIELD CULVERTS 425 FT. U/S OF ELEVEN MILE ROAD BRIDGE

9226.00	5.84	879.44	0.00	879.36	879.63	0.19	0 01	0.10	873.80
400.	118	136.	146.	144.	23.	156.	68.	20.	873.80
1.60	0 82	5.92	0.93	0.050	0.013	0.050	0.000	873.60	190.34
0.000263	402.	402.	402.	2	0	0	0.00	158.62	348.96

0

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	2.31	2.60	0.00	4.00	0.00	10.00	0.00	873.60	873.60

*SECNO 9269.000
6870 D.S ENERGY OF 879.63 HIGHER THAN COMPUTED ENERGY OF 879.50
2800 NAT Q1= 422.26 WSEL= 879.48 ENC Q1= 422.26 WSEL= 879.58 RATIO= 0.0000
NAT Q1= 445. RATIOS LOB,CH,ROB= 0.3715 0.2181 0.4104 WSEL= 879.58
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 167.7 364.2 TYPE= 4 TARGET= 0.052

9269.00	6.77	879.57	0.00	879 48	879.62	0 06	0 01	0.04	873.00
400.	146.	92.	162.	260.	24.	261.	68.	20.	873.00
1.61	0.56	3.85	0.62	0.050	0.013	0.050	0.000	872.80	167.67
0.000091	43.	43.	43.	0	0	9	0.00	196.48	364.15

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 9375.000
2800 NAT Q1= 57.09 WSEL= 879.41 ENC Q1= 59.59 WSEL= 879.51 RATIO= -0.0437
NAT Q1= 61. RATIOS LOB,CH,ROB= 0.0173 0 9827 0.0000 WSEL= 879.51

3470 ENCROACHMENT STATIONS= 200.0 235.0 TYPE= 4 TARGET= 0.017

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   9375.00      4.41    879.50      0.00    879.41    879.75      0.24      0.03      0.09    879.09
      400.         0      400.        0.        0.       101.        0.       69.       20.     879.59
      1.61      0.00      3.96      0.00     0.000     0.050     0.000     0.000    875.09    200.00
  0.004606      101.      106.      101.         2         0         0      0.00     34.72    234.72
0
 *SECNO 9475.000
  2800 NAT Q1=      54.60  WSEL=     879.91  ENC Q1=      57.31  WSEL=     880.01  RATIO= -0.0496
  NAT Q1=      58.  RATIOS LOB,CH,ROB=  0.0107  0.9893  0.0000  WSEL=     880.01

 3470 ENCROACHMENT STATIONS=      200.0      235.0  TYPE=      4  TARGET=        0.011
   9475.00      4.31    879.98      0.00    879.91    880.24      0.26      0.49      0.01    879.67
      400         0.      400.        0.        0.       97.        0.       69.       20.     880.17
      1.62      0.00      4.12      0.00     0.000     0.050     0.000     0.000    875.67    200.00
  0.005159      100       100.      100.         0         0         0      0.00     34.36    234.36
0
 *SECNO 9575.000
  2800 NAT Q1=      60.22  WSEL=     880.56  ENC Q1=      60.22  WSEL=     880.66  RATIO=  0.0000
  NAT Q1=      67   RATIOS LOB,CH,ROB=  0.0001  0.5123  0.4875  WSEL=     880.66

 3470 ENCROACHMENT STATIONS=      100.0      177.4  TYPE=      4  TARGET=        0.107
   9575.00      4.34    880.59      0.00    880.56    880.77      0.19      0.51      0.02    880.55
      400.         0.      235.      165.        0.       61.       60.       70.       20.     879.25
      1.63      0.00      3.88      2.77     0.000     0.050     0.040     0.000    876.25    100.00
  0.005032      100.      100.      100.         2         0         0      0.00     77.35    177.35
0
 *SECNO 9675.000
  2800 NAT Q1=      53.32  WSEL=     881.04  ENC Q1=      53.32  WSEL=     881.14  RATIO=  0.0000
  NAT Q1=      59   RATIOS LOB,CH,ROB=  0.0000  0.5433  0.4567  WSEL=     881.14

 3470 ENCROACHMENT STATIONS=      100.0      174.8  TYPE=      4  TARGET=        0.101
   9675.00      4.28    881.12      0.00    881.04    881.33      0.21      0.54      0.01    881.14
      400.         0.      244.      156.        0.       59.       54.       70.       21.     879.84
      1.64      0.00      4.13      2.90     0.000     0.050     0.040     0.000    876.84    100.06
  0.005866      100.      100.      100.         2         0         0      0.00     74.69    174.75
0
1
  13 FEB 89    10:24:18                                                              PAGE    44

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        QLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 9775.000
  2800 NAT Q1=      52.18  WSEL=     881.61  ENC Q1=      52.18  WSEL=     881.71  RATIO=  0.0000
  NAT Q1=      59.  RATIOS LOB,CH,ROB=  0.0000  0.5460  0.4540  WSEL=     881.71

 3470 ENCROACHMENT STATIONS=      100.0      172.1  TYPE=      4  TARGET=        0.111
   9775.00      4.29    881.71      0.00    881.61    881.92      0.22      0.59      0.00    881.72
      400.         0.      246.      154         0.       59.       52.       70.       21.     880.42
      1.64      0.00      4.16      2.95     0.000     0.050     0.040     0.000    877.42    100.04
  0.005938      100.      100       100.         2         0         0      0.00     72.05    172.09
0
 *SECNO 9876.000
  2800 NAT Q1=     121.16  WSEL=     882.34  ENC Q1=     121.16  WSEL=     882.44  RATIO=  0.0000
  NAT Q1=     133.  RATIOS LOB,CH,ROB=  0.1241  0.3404  0.5354  WSEL=     882.44
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      194.2      276.5  TYPE=      4  TARGET=        0.088
                DRIVEWAY CULVERT 1075 FT  U/S OF ELEVEN MILE ROAD BRIDGE
   9876.00      4.37    882.37    882.37    882.34    883.05      0.68      0.23      0.23    878.40
      400.        34.      154.      211.        13.       15.       96.       70.       21.     878.20
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     1.65      2.67     10.26      2.21     0.030     0.013     0.030     0.000    878.00    194.19
  0.001229     101.      101.      101.        20         8         0      0.00     82 35    276.54
0

 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        1.30       2.60       0.00       3.50       0.00       9.60       0.00     878.00     878.00

 *SECNO 9893.000
  2800 NAT Q1=     213.04  WSEL=     883.00  ENC Q1=     213.04  WSEL=     883.10  RATIO=  0.0000
  NAT Q1=     229.  RATIOS LOB,CH,ROB=  0.1240  0.2509  0.6251  WSEL=     883.10
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=      191.3      292.2  TYPE=      4  TARGET=        0.071
   9893.00      5.03    883.03      0.00    883.00    883.22      0.20      0 01      0.14    878.40
      400.       40.      110.      250.       23.       17.      166.       70.       21.     878.20
      1.65      1.76      6.33      1.50     0.030     0.013     0.030     0.000    878.00    191.29
  0.000385       17.       17        17.         0         0         9      0 00    100.96    292.25
0
1
  13 FEB 89     10.24:18                                                                                PAGE    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

 *SECNO 9950.000
  2800 NAT Q1=      48.53  WSEL=     883.01  ENC Q1=      48 53  WSEL=     883.11  RATIO=  0.0000
  NAT Q1=      53.  RATIOS LOB,CH,ROB=  0.0005  0.6994  0.3001  WSEL=     883.11

 3470 ENCROACHMENT STATIONS=      100.0      173.3  TYPE=      4  TARGET=        0.085
   9950.00      4.45    883.03      0.00    883.01    883.33      0.30      0.06      0.05    882.88
      400.        0.      309.       91.        0.       63.       62.       71.       21.     881.58
      1.66      0.00      4 90      1.47     0.000     0.050     0.100     0.000    878.58    100.00
  0.007658       51.       57.       51.         2         0         0      0.00     73.32    173.32
0
 *SECNO 10000.000
  2800 NAT Q1=      39 79  WSEL=     883.37  ENC Q1=      39.79  WSEL=     883.47  RATIO=  0.0000
  NAT Q1=      43.  RATIOS LOB,CH,ROB=  0.0000  0 7467  0.2533  WSEL=     883.47

 3470 ENCROACHMENT STATIONS=      100.0      165 3  TYPE=      4  TARGET=        0.082
  10000 00      4.27    883.43      0.00    883.37    883.83      0.40      0.45      0.05    883.46
      400.        0.      327.       73.        0.       59.       46.       71.       21.     882.16
      1.66      0.00      5 54      1.59     0.000     0.050     0.100     0.000    879.16    100.06
  0.010570       50.       50.       50.         0         0         0      0.00     65.22    165.28
0
 *SECNO 10100.000
  2800 NAT Q1=      36.46  WSEL=     884.44  ENC Q1=      36.46  WSEL=     884.54  RATIO=  0.0000
  NAT Q1=      40.  RATIOS LOB,CH,ROB=  0.0000  0.7689  0.2311  WSEL=     884.54

 3470 ENCROACHMENT STATIONS=      100.0      159 2  TYPE=      4  TARGET=        0.087
  10100.00      4.21    884.53      0.00    884 44    884 99      0.46      1.13      0.03    884.62
      400.        0.      337.       63.        0.       57.       38.       71.       21.     883.32
      1.66      0.00      5.87      1.66     0.000     0.050     0.100     0.000    880.32    100.23
  0.012131      100.      100.      100.         2         0         0      0.00     58.99    159.23
0
 *SECNO 10200 000
  2800 NAT Q1=      37 48  WSEL=     885.63  ENC Q1=      37.48  WSEL=     885.73  RATIO=  0.0000
  NAT Q1=      41.  RATIOS LOB,CH,ROB=  0.0000  0.7594  0.2406  WSEL=     885.73

 3470 ENCROACHMENT STATIONS=      100.0      159.2  TYPE=      4  TARGET=        0.093
```

```
  10200.00      4.26    885.74      0.00    885.63    886.17      0.43      1.17      0.01    885.78
      400.         0.       335.       65.       0.       59.       39.       71.       21.     884.48
      1.67      0.00      5.72      1.65     0.000     0.050     0.100     0.000    881.48    100.12
  0.011356       100.       100       100.         3         0         0      0.00     59.07    159.19
0
i
  13 FEB 89     10:24:18                                                                          PAGE    46


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 10350.000
  2800 NAT Q1=      36.96  WSEL=     887.32  ENC Q1=      38.36  WSEL=     887.42  RATIO= -0.0379
  NAT Q1=      39.   RATIOS LOB,CH,ROB=  0.0192  0.9808  0.0000  WSEL=     887.42

 3470 ENCROACHMENT STATIONS=      135.0      165.0  TYPE=      4  TARGET=         0.019
  10350.00      4.21    887.43      0.00    887.32    887.91      0.48      1.72      0.02    885.92
      400.         0.       400.       0.        0.       72.       0.       71.       22.     887.72
      1.68      0.00      5.56      0.00     0.000     0.050     0.000     0.000    883.22    135.00
  0.011546       150.       150.       150         1         0         0      0.00     28.99    163.99
0
 *SECNO 10450.000
  2800 NAT Q1=      36.90  WSEL=     888.49  ENC Q1=      38.65  WSEL=     888.59  RATIO= -0.0473
  NAT Q1=      39.   RATIOS LOB,CH,ROB=  0.0195  0.9805  0.0000  WSEL=     888.59

 3470 ENCROACHMENT STATIONS=      135.0      165.0  TYPE=      4  TARGET=         0.020
  10450.00      4.20    888.58      0.00    888.49    889.06      0.48      1.15      0.00    887.08
      400.         0.       400.       0.        0.       72.       0.       72.       22.     888.88
      1.68      0.00      5.55      0.00     0.000     0.050     0.000     0.000    884.38    135.00
  0.011508       100.       100.       100.         2         0         0      0.00     29.00    164.00
0
 *SECNO 10550.000
  2800 NAT Q1=      37.34  WSEL=     889.66  ENC Q1=      38.92  WSEL=     889.76  RATIO= -0.0422
  NAT Q1=      40.   RATIOS LOB,CH,ROB=  0.0198  0.9802  0.0000  WSEL=     889.76

 3470 ENCROACHMENT STATIONS=      135.0      165.0  TYPE=      4  TARGET=         0.020
  10550.00      4.20    889.74      0.00    889.66    890.22      0.48      1.15      0.00    888.24
      400.         0.       400.       0.        0.       72.       0.       72.       22.     890.04
      1.69      0.00      5.56      0.00     0.000     0.050     0.000     0.000    885.54    135.00
  0.011584       100.       100.       100.         2         0         0      0.00     28.98    163.98
0
 *SECNO 10600.000
  2800 NAT Q1=      37.33  WSEL=     890.23  ENC Q1=      38.78  WSEL=     890.33  RATIO= -0.0389
  NAT Q1=      40    RATIOS LOB,CH,ROB=  0.0196  0.9804  0.0000  WSEL=     890.33

 3470 ENCROACHMENT STATIONS=      135.0      165.0  TYPE=      4  TARGET=         0.020
  10600.00      4.20    890.32      0.00    890.23    890.80      0.48      0.58      0.00    888.82
      400.         0.       400.       0.        0.       72.       0.       72.       22.     890.62
      1.69      0.00      5.57      0.00     0.000     0.050     0.000     0.000    886.12    135.00
  0.011592        50.        50.        50.         2         0         0      0.00     28.98    163.98
0
1
  13 FEB 89     10:24:18                                                                          PAGE    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


 *SEC.NO 10651.000
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```
 2800 NAT Q1=      47.16  WSEL=     890.59  ENC Q1=      47.16  WSEL=     890.69  RATIO=  0.0000
 NAT Q1=      50.   RATIOS LOB,CH,ROB=  0.4998  0.2712  0.2290  WSEL=     890.69

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      133.7      157.6  TYPE=      4  TARGET=        0.064
                DIRT DRIVE 1850 FT. U/S OF ELEVEN MILE ROAD
  10651.00      3.83    890.53    890.53    890.59    891.67      1.14      0.50      0.33    886.90
      400.       200       117.       84.       34.        9.       16.       72.       22.     887.10
      1.69      5.85     13.19      5.27     0.040     0.024     0.040     0.000    886.70    133.66
  0 008355       51.       51.       51.         2        15         0      0.00     23.93    157.60
0

 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        2.44       2.80       0.00       2.50       0.00       4.90       0.00     886.70     886.70

 *SECNO 10681.000
  2800 NAT Q1=     179.98  WSEL=     893.07  ENC Q1=     179 98  WSEL=     893.17  RATIO=  0.0000
  NAT Q1=     188.   RATIOS LOB,CH,ROB=  0.5542  0.1671  0.2786  WSEL=     893.17
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=      120.0      165.9  TYPE=      4  TARGET=        0.042
  10681.00      6.31    893.01      0.00    893.07    893.13      0.12      0.04      0.31    886.90
      400.       218.       70.       111.       102.       15.       55.       72.       22.     887.10
      1.69      2.14      4.75      2.03     0.040     0.024     0 040     0.000    886.70    119.97
  0.000544       30.       30.       30.         0         0        11      0.00     45.97    165.93
0
 *SECNO 10755.000
  2800 NAT Q1=      57.08  WSEL=     893.05  ENC Q1=      57.08  WSEL=     893.15  RATIO=  0.0000
  NAT Q1=      60.   RATIOS LOB,CH,ROB=  0 0396  0.9528  0.0075  WSEL=     893.15

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=      124.9      165 0  TYPE=      4  TARGET=        0.044
  10755 00      6.03    892.99      0.00    893.05    893.35      0.36      0.10      0.12    899.66
      400.         1.       399.         0.         2.        82.         0.       72.       22.     891.46
      1.70      0.75      4.85      0.00     0.100     0.050     0.000     0.000    886.96    124.86
  0.006062       76.       74.       76.         2         0         0      0.00     24.63    165.00
0
1
 13 FEB 89     10.24:18                                                                    PAGE    48

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 10795.000
  2800 NAT Q1=     349.88  WSEL=     893.45  ENC Q1=     349.88  WSEL=     893.55  RATIO=  0.0000
  NAT Q1=     392.   RATIOS LOB,CH,ROB=  0.3963  0.5411  0.0627  WSEL=     893.55

 3470 ENCROACHMENT STATIONS=      146.1      262.4  TYPE=      4  TARGET=        0.108
  10795 00      6.36    893.46      0.00    893.45    893.47      0.01      0.02      0.11    887.80
      400.       153.       244.         3.       333.       210.        13.       73.       22.     887.80
      1.71      0.46      1.16      0.25     0.100     0.050     0.100     0.000    887.10    146.11
  0.000139       40.       40.       40          2         0         0      0.00    116.28    262.39
0
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*SECNO 11026 000
 2800 NAT Q1=     337.06  WSEL=     893.47  ENC Q1=     337.06  WSEL=     893.57  RATIO=  0.0000
 NAT Q1=     350.   RATIOS LOB,CH,ROB=  0.4457  0.4673  0.0870  WSEL=     893.57

3470 ENCROACHMENT STATIONS=      139.5      268.5  TYPE=      4  TARGET=        0.038
                 CULVERTS UNDER SUGDEN CONSTRUCTION
 11026.00      5 57    893.47      0.00    893.47    893.49      0.02      0.02      0.00    888.00
     160.       71.       78.       11.      392.       45.       64.       75.        23     888.20
     1.78      0.18      1 74      0.18     0.100     0.013     0 100     0.000    887.90    139.49
 0.000024      236.      231.      236.         0         0         0      0.00    128.96    268.46
0

SPECIAL BRIDGE

SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     1 25       3.40       3.00       0.00       6.50       0.20      25.10      0.00      889.50     887.90

*SECNO 11416.000
 PRESS FLOW BECAUSE EGLWC OF     895.71  EXCEEDS 1.5 DEPTH
 2800 NAT Q1=     336.16  WSEL=     895.59  ENC Q1=     347.94  WSEL=     895.69  RATIO= -0.0351
 NAT Q1=     348.   RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     895.69
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
 11416.00      6.09    895.59      0.00    895.59    895.62      0.02      0.01      0.00    903.00
     160.        0.      160.        0.        0.      126.        0.       78.        23.     903 00
     1 87      0 00      1.27      0.00     0.000     0.013     0.000     0.000    889.50     14.27
 0.000023      390.      390.      390.         0         0         0      0.00     32.46     46.73
0
*SECNO 11425.000
 2800 NAT Q1=     109 26  WSEL=     895.59  ENC Q1=     113.10  WSEL=     895.69  RATIO= -0.0352
 NAT Q1=     113.   RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     895.69
 11425.00      6.09    895.59      0.00    895.59    895.62      0.02      0.00      0.00    903.00
     160.        0.      160.        0.        0.      126.        0.       78.        23.     903.00
     1.87      0.00      1.27      0 00     0.000     0.040     0.000     0.000    889.50     14 27
 0.000214        9.        9.        9.         0         0         0      0.00     32.46     46.73
0
1
 13 FEB 89     10:24:18                                                                          PAGE    49


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 11485.000
 2800 NAT Q1=     105.78  WSEL=     895.60  ENC Q1=     109.75  WSEL=     895 70  RATIO= -0.0375
 NAT Q1=     110.   RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     895.70
 11485.00      6 00    895.60      0.00    895.60    895.63      0.03      0.01      0.00    903.10
     160.        0      160.        0.        0       123.        0        78.        23.     903.10
     1 88      0.00      1.30      0.00     0.000     0.040     0.000     0.000    889.60     14.44
 0.000227       60.       60.       60.         0         0         0      0.00     32.13     46.56
0
*SECNO 11517.000
 2800 NAT Q1=      83.27  WSEL=     895.59  ENC Q1=      83.27  WSEL=     895.69  RATIO=  0.0000
 NAT Q1=      86.   RATIOS LOB,CH,ROB=  0.1148  0.7703  0.1148  WSEL=     895.69

3470 ENCROACHMENT STATIONS=       18.7       42.3  TYPE=      4  TARGET=        0.029
                 PRIVATE ROADWAY BRIDGE 100 FT.  U/S OF SUGDEN CONSTRUCTION
 11517.00      5.89    895 59      0.00    895.59    895.66      0.07      0.01      0.02    889.70
     160.       17.      126.       17.       29.       53.       29.       78.        23.     889.70
     1.88      0.58      2.38      0.58     0.100     0.040     0.100     0.000    889.70     18.73
 0.000385       32.       32.       32.         2         0         0      0.00     23.53     42.26
0

SPECIAL BRIDGE
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5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1 72	2.80	0.00	8.20	0.20	25.10	0.00	889 70	889.70

*SECNO 11553.000
PRESS FLOW BECAUSE EGLWC OF 896 77 EXCEEDS 1.5 DEPTH
2800 NAT Q1= 113.32 WSEL= 896.63 ENC Q1= 113.32 WSEL= 896.73 RATIO= 0.0000
NAT Q1= 116. RATIOS LOB,CH,ROB= 0.1297 0.7407 0.1297 WSEL= 896.73
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 17.1 43.9 TYPE= 4 TARGET= 0.027

11553.00	6.93	896.63	0.00	896.63	896.68	0.04	0.01	0.01	889.70
160.	20	121.	20.	41.	62.	41.	79.	23.	889.70
1.89	0.48	1.94	0.48	0.100	0.040	0.100	0.000	889.70	17.09
0.000206	36.	36.	36.	0	0	0	0.00	26.82	43.91

0
*SECNO 11563.000
2800 NAT Q1= 113.41 WSEL= 896.63 ENC Q1= 113.41 WSEL= 896.73 RATIO= 0.0000
NAT Q1= 117. RATIOS LOB,CH,ROB= 0.1297 0.7406 0.1297 WSEL= 896.73
1
13 FEB 89 10:24:18 PAGE 50

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 17.1 43.9 TYPE= 4 TARGET= 0.027

11563.00	6.94	896.64	0.00	896 63	896.68	0.04	0.00	0.00	889.70
160.	20.	121.	20.	41.	62.	41.	79.	23.	889.70
1.89	0.48	1.94	0.48	0.100	0.040	0.100	0.000	889.70	17.07
0 000205	10	10.	10.	0	0	0	0.00	26.86	43.93

0
*SECNO 11755.000
2800 NAT Q1= 105.31 WSEL= 896.67 ENC Q1= 105.31 WSEL= 896.77 RATIO= 0.0000
NAT Q1= 108. RATIOS LOB,CH,ROB= 0.1261 0.7478 0 1261 WSEL= 896.77

3470 ENCROACHMENT STATIONS= 17.6 43.4 TYPE= 4 TARGET= 0.028

11755.00	6.68	896.68	0.00	896.67	896.73	0.05	0.04	0.00	890.00
160.	19.	122	19.	38.	60.	38.	79.	23.	890.00
1.92	0.50	2.03	0.50	0.100	0.040	0.100	0.000	890.00	17.55
0.000238	192.	192.	192.	0	0	0	0.00	25.89	43.44

0
*SECNO 11955.000
2800 NAT Q1= 97.70 WSEL= 896.72 ENC Q1= 97.70 WSEL= 896.82 RATIO= 0.0000
NAT Q1= 101. RATIOS LOB,CH,ROB= 0.1225 0.7549 0.1225 WSEL= 896.82

3470 ENCROACHMENT STATIONS= 18.1 42 9 TYPE= 4 TARGET= 0.030

11955.00	6.42	896 72	0.00	896.72	896.78	0.06	0.05	0.00	890.30
160.	18.	124.	18.	35.	58.	35.	80.	24.	890.30
1.96	0.52	2.14	0.52	0.100	0.040	0.100	0.000	890.30	18.07
0.000278	200.	200.	200.	0	0	0	0.00	24.85	42.93

0
*SECNO 12155.000
2800 NAT Q1= 144 00 WSEL= 896.80 ENC Q1= 148.79 WSEL= 896.90 RATIO= -0.0332
NAT Q1= 168. RATIOS LOB,CH,ROB= 0.0000 0.8875 0 1125 WSEL= 896.90

3470 ENCROACHMENT STATIONS= 35.0 85.0 TYPE= 4 TARGET= 0.112

12155 00	6 31	896.81	0.00	896.80	896.83	0.02	0.04	0.01	899.20
160.	0.	160.	0.	0.	159.	0.	81.	24.	899.70
2 01	0.00	1 00	0.00	0 000	0.040	0.000	0.000	890.50	38.86
0.000123	200.	200	200.	2	0	0	0.00	38.60	77.46

0
*SECNO 12355.000
1
13 FEB 89 10:24:18 PAGE 51

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

2800 NAT Q1= 150.37 WSEL= 896.82 ENC Q1= 153.99 WSEL= 896.92 RATIO= -0.0241
NAT Q1= 191. RATIOS LOB,CH,ROB= 0.1054 0.8063 0.0882 WSEL= 896.92
3280 CROSS SECTION 12355.00 EXTENDED 0.33 FEET

3470 ENCROACHMENT STATIONS= 225.0 250.0 TYPE= 4 TARGET= 0.194

12355.00	8.14	896.84	0.00	896.82	896.86	0.02	0.03	0.00	894.50
160.	0.	160.	0.	0.	139.	0.	81.	24.	894.20
2.06	0.00	1 15	0.00	0.000	0.040	0.000	0 000	888.70	225.00
0.000142	200.	200.	200.	0	0	0	0.00	25.00	250.00

0
*SECNO 12425.000
2800 NAT Q1= 84.38 WSEL= 896.74 ENC Q1= 143.30 WSEL= 896.84 RATIO= -0.6982
NAT Q1= 212. RATIOS LOB,CH,ROB= 0.1395 0.6761 0.1844 WSEL= 896 84
3280 CROSS SECTION 12425 00 EXTENDED 0.26 FEET

3470 ENCROACHMENT STATIONS= 233.1 238.9 TYPE= 4 TARGET= 0.324
CULVERT UNDER I-96

12425.00	8.26	896.76	0.00	896.74	896.97	0.21	0.01	0.09	891.50
160	0.	160.	0.	0.	44.	0.	81.	24.	891.50
2.06	0 00	3.67	0.00	0.000	0.013	0.000	0.000	888.50	233.10
0.000358	70.	70	70.	2	0	0	0.00	5.80	238.90

0
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	2.00	2.80	300.00	5.80	0.00	28.00	0.00	888.50	888.50

*SECNO 12565.000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
897.77	896.80	0.00	0.	160.	28.	44.	896.00	907.60

3470 ENCROACHMENT STATIONS= 250.0 272.0 TYPE= 1 TARGET= 22.000

12565 00	7.74	897 74	0.00	897.73	897.77	0.03	0.80	0.00	895.90
160.	0.	160.	0.	0.	116.	0.	82.	24.	100000.00
2.09	0.00	1.38	0.00	0.000	0.013	0.000	0.000	890.00	250.00
0.000030	140.	140.	140.	2	0	0	0.00	22.00	272.00

0
1
13 FEB 89 10:24:18 PAGE 52

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

```
   SLOPE    XLOB_    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST

 *SECNO 12635.000
  2800 NAT Q1=     164.31  WSEL=     897.77  ENC Q1=     164.31  WSEL=     897.87  RATIO=  0.0000
  NAT Q1=     171.  RATIOS LOB,CH,ROB=  0.0118  0.7273  0.2609  WSEL=     897.87

 3470 ENCROACHMENT STATIONS=      250.0      312.1  TYPE=      4  TARGET=        0.040
  12635.00      7.38    897 78      0.00    897.77    897.78      0.00      0.00      0.01    895.90
       25.        0.        19        6.        0.       116.      122.       82.       24.    893.40
      2.24      0.00      0.16      0.05     0.000     0.040     0.100     0.000    890.40    250.00
  0.000003       70.       70.       70.         2         0         0      0.00     62.07    312.07
0
 *SECNO 13251 000
  2800 NAT Q1=     280.71  WSEL=     897.77  ENC Q1=     280.71  WSEL=     897.87  RATIO=  0.0000
  NAT Q1=     297.  RATIOS LOB,CH,ROB=  0.0000  0.0000  1.0000  WSEL=     897.87
 3280 CROSS SECTION  13251.00 EXTENDED       1.88 FEET


 3470 ENCROACHMENT STATIONS=      300.0      546.7  TYPE=      4  TARGET=        0.056
                 DAM NORTH OF I-96
  13251.00      4.88    897 78      0.00    897.77    897.78      0.00      0.00      0.00    896.10
       25.        0.        0.       25.        0.        0.      752.       89.       26.  100000 00
      7 39      0 00      0.00      0.03     0.000     0.000     0.100     0.000    892.90    300 00
  0.000001      616.      616.      616.         0         0         0      0.00    246.74    546.74
0

 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       1 00       3.00       8 00       0.01       0.00       0.01       0.00     892.90     892.90


 *SECNO 13311.000
  2800 NAT Q1=       1.98  WSEL=     897.59  ENC Q1=       2 19  WSEL=     897.69  RATIO= -0.1056
  NAT Q1=       2.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     897.69
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=        2.5        7.5  TYPE=      4  TARGET=        0.000
  13311.00      2.20    897.60      0.00    897.59    897 86      0.26      0 00      0.13    898.90
       25.        0.       25.        0.        0.        6.        0.       89.       26     898.90
      7.39      0.00      4.11      0.00     0.000     0.040     0 000     0.000    895.40      2.76
  0.015493       60.       60.       60.         0         0        10      0.00      4.48      7 24
0
1
  13 FEB 89    10:24:18                                                                          PAGE   53



                                                                                THIS RUN EXECUTED 13 FEB 89   10:25:15
 ************************************************
   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


 BISHOP CREEK

 SUMMARY PRINTOUT TABLE  110
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1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY OF

3) WATERCOURSE: BISHOP CREEK

4) DOCUMENT TYPE: 100 YR - UPDATED
FLOODWAY
FPR ENCROACHED
RUN



Updated Floodway in Vicinity of 10 Mile Road

THIS RUN EXECUTED 01/08/92 10:15:09

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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 1.1
**************************************************

C
T1      CITY OF NOVI
T2      100 YEAR FLOOD
T3      BISHOP CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        2.        0.        0.   .000000       .00        .0        0.   842.670      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1.000      .000    -1.000      .000      .000      .000      .000      .000      .000      .000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150.000   200.000      .000      .000      .000      .000      .000      .000      .000      .000


NC       .100      .030      .050      .300      .500      .000      .000      .000      .000      .000
QT      2.000   310.000   310.000      .000      .000      .000      .000      .000      .000      .000
ET       .000     4.100     1.400  1065.000  1215.000      .000      .000      .000      .000      .000
                 300 FT. U/S OF CONFLUENCE WITH PATNALES
X1       .000    34.000  1154.000  1180.000      .000      .000      .000      .000      .000      .000
GR    850.500      .000   847.100    20.000   838.800    55.000   839.100    60.000   842.000    70.000
GR    842.600    80.000   843.000   180.000   840.400   280.000   842.500   380.000   842.200   480.000
GR    842.100   580.000   842.300   680.000   841.700   780.000   841.700   880.000   841.000   980.000
GR    839.700  1080.000   838.600  1154.000   836.600  1164.000   836.600  1168.000   840.900  1180.000
GR    843.200  1220.000   844.100  1280.000   843.400  1345.000   844.900  1380.000   845.500  1480.000
GR    844.600  1580.000   845.400  1680.000   845.300  1780.000   845.300  1880.000   846.100  1980.000
GR    844.600  2080.000   844.200  2180.000   843.900  2280.000   845.100  2380.000      .000      .000

NC       .030      .030      .050      .000      .000      .000      .000      .000      .000      .000
X1    475.000    20.000   764.000   800.000   475.000   475.000   475.000      .000     -.900      .000
GR    849.100      .000   847.100   100.000   846.700   200.000   847.400   300.000   847.500   400.000
GR    845.000   500.000   844.600   600.000   845.200   625.000   846.500   700.000   846.500   764.000
GR    840.000   790.000   838.500   791.000   838.400   794.000   838.500   797.000   840.100   800.000
GR    846.000   900.000   844.500   965.000   845.800  1000.000   846.000  1100.000   850.200  1200.000

X1    950.000      .000      .000      .000   475.000   475.000   475.000      .000      .900      .000

X1   1081.000      .000      .000      .000   125.000   125.000   131.000      .000      .920      .000
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X1   1212.000      .000      .000      .000   125.000   125.000   131.000      .000      .930      .000

ET       .030      .100     4.100   780.000   841.600      .000      .000      .000      .000      .000
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X1   1475.000      .000      .000      .000    250.000    250.000    263.000      .000     1.850      .000

X1   1737.000    26.000   1000.000   1027.000    250.000    250.000    262.000      .000    -1.850      .000
GR    855.200      .000    855.900    100.000    856.000    200.000    856.200    300.000   856.300    400.000
GR    855.600   500.000    854.800    600.000    853.600    700.000    852.100    800.000   851.400    900.000
GR    848.800  1000.000    847.100   1003.000    846.600   1005.900    845.800   1010.000   846.000   1014.100
GR    846.000  1015.000    846.600   1020.000    847.100   1024.000    848.500   1027.000   850.000   1100.000
GR    852.800  1200.000    853.700   1300.000    855.600   1400.000    857.200   1500.000   857.900   1600.000
GR    857.900  1700.000      .000      .000       .000      .000       .000      .000      .000      .000

NC      .015      .015      .013      .000       .000      .000       .000      .000      .000      .000
                TEN MILE ROAD BRIDGE
X1   2001.000      .000      .000      .000    251.000    251.000    264.000      .000     1.850      .000

SB      .000     1.980     2.900      .000      8.200      .000     19.500      .000      .000      .000
ET      .000      .000     4.110    950.000   1060.000      .000       .000      .000      .000      .000
X1   2038.800      .000      .000      .000     37.800     37.800     37.800      .000      .000      .000
X2      .000      .000     1.000    848.700    851.100      .000       .000      .000      .000      .000
BT     8.000   800.000    852.200      .000    900.000    851.400      .000   1000.000   851.100      .000
BT   1005.900   851.100    848.700   1014.100    851.100    848.700   1015.000    851.100      .000   1100.000
BT    851.500      .000   1200.000    852.800      .000      .000       .000      .000      .000      .000

NC      .030      .030      .050      .000       .000      .000       .000      .000      .000      .000
ET      .000      .000     4.100    578.000    666.000      .000       .000      .000      .000      .000
X1   2440.000    90.000    602.500    628.500    351.000    376.000    401.000      .000      .150      .000
GR    856.500      .000    856.600     20.700    856.800     41.500    857.000     62.300   857.100     83.100
GR    857.200   103.800    857.200    124.600    857.300    145.400    857.300    166.200   857.300    186.900
GR    857.300   207.700    857.200    228.500    857.100    249.300    856.900    270.000   856.700    290.800
GR    856.400   311.600    856.200    332.400    856.000    353.100    855.700    373.900   855.400    394.700
GR    855.000   415.500    854.500    436.200    854.100    457.000    853.600    477.800   853.300    498.600
GR    853.000   519.300    852.600    540.100    852.000    560.900    851.400    581.700   850.800    602.500
GR    850.200   603.300    849.700    604.200    849.200    605.000    848.700    605.900   848.400    606.800
GR    848.000   607.600    847.900    608.500    847.800    609.400    847.600    610.200   847.500    611.100
GR    847.400   612.000    847.400    612.800    847.500    613.700    847.500    614.600   847.600    615.400
GR    847.700   616.300    847.800    617.200    848.000    618.000    848.200    618.900   848.300    619.800
GR    848.500   620.600    848.700    621.500    848.900    622.400    849.100    623.200   849.300    624.100
GR    849.400   625.000    849.700    625.800    850.000    626.700    850.400    627.600   850.700    628.500
GR    851.000   642.200    851.300    656.000    851.600    669.800    852.000    683.600   852.300    697.400
GR    852.700   711.200    853.100    725.000    853.400    738.800    853.600    752.600   853.800    766.400
GR    853.900   780.200    854.100    794.000    854.400    807.800    854.700    821.600   854.900    835.400
GR    855.200   849.200    855.500    863.000    855.800    876.800    856.000    890.600   856.600    904.400
GR    856.600   918.200    856.800    932.000    857.000    945.800    857.200    959.600   857.700    973.400
GR    858.200   987.200    858.700   1001.000    859.200   1014.800    859.700   1028.600   860.200   1042.500
EJ      .000      .000      .000      .000       .000      .000       .000      .000      .000      .000
1
 01/08/92    10:15:09                                                                                PAGE    3


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       QLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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  .000

3470 ENCROACHMENT STATIONS=    1065.0    1215.0  TYPE=     1  TARGET=     150.000
                300 FT. U/S OF CONFLUENCE WITH PATNALES
     .00     6.07   842.67      .00      .00   842.68      .01      .00      .00   838.60
    310.     147.     145.      18.     304.     122.      27.       0.       0.   840.90
     .00      .49     1.19      .66     .100     .050     .030     .000   836.60  1065.00
  .000212       0.       0.       0.        0        0        0      .00   145.78  1210.78
```

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 #SECNO 475.000
    475.00    5.31   842.81     .00     .00   842.86     .04     .16     .02   845.60
     310.       0.     113.     197.      0.     77.     111.      3.      1.    839.20
      .08      .00     1.47     1.78    .030    .050    .030    .000  837.30  775.15
    .000591   475.    475.     475.       2       0       0     .00   86.07   861.22
0
 #SECNO 950.000
    950.00    4.78   843.18     .00     .00   843.26     .07     .39     .01   846.50
     310.       0.     126.     184.      0.     64.      81.      5.      2.    840.10
      .14      .00     1.96     2.28    .030    .050    .030    .000  838.40  777.26
    .001193   475.    475.     475.       2       0       0     .00   75.01   852.27
0
 #SECNO 1081.000
   1081.00    4.07   843.39     .00     .00   843.55     .16     .25     .04   847.42
     310.       0.     152.     158.      0.     49.      47.      6.      2.    841.02
      .15      .00     3.11     3.33    .030    .050    .030    .000  839.32  780.14
    .003616   125.    131.     125.       2       0       0     .00   59.97   840.10
0
 #SECNO 1212.000
   1212.00    3.71   843.96     .00     .00   844.21     .26     .62     .05   848.35
     310.       0.     170.     140.      0.     42.      34.      6.      3.    841.95
      .16      .00     4.04     4.09    .030    .050    .030    .000  840.25  781.56
    .006782   125.    131.     125.       2       0       0     .00   52.50   834.06
0
 #SECNO 1475.000
   1475.00    3.67   845.77     .00     .00   846.04     .27    1.82     .01   850.20
     310.       0.     173.     137.      0.     41.      33.      6.      3.    843.80
      .18      .00     4.18     4.20    .030    .050    .030    .000  842.10  781.75
    .007392   250.    263.     250.       3       0       0     .00   51.53   833.28
0
1
  01/08/92    10:15:09                                                          PAGE    4


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


 #SECNO 1737.000
   1737.00    3.48   847.43     .00     .00   847.65     .22    1.60     .02   846.95
     310.       6.     275.      29.      4.     70.      15.      7.      3.    846.65
      .20     1.39     3.95     1.92    .030    .050    .030    .000  843.95  981.40
    .005233   250.    262.     250.       2       0       0     .00   83.73  1065.13
0
 #SECNO 2001.000

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
                TEN MILE ROAD BRIDGE
   2001.00    2.46   848.26   848.26     .06   849.09     .83     .85     .31   848.80
     310.       0.     310.       0.      0.     42.       0.      7.      4.    849.50
      .21      .00     7.32      .00    .015    .013    .015    .000  845.80 1000.95
    .002172   251.    264.     251.       3      16       0     .00   25.54  1026.49
0

 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XR        XKOR      COFB      RDLEN     BMC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      1.98      2.90       .00      8.20       .00      19.50      .00    845.80    845.80

 #SECNO 2038.000
```

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
856.03	849.09	.00	108.	203.	20.	24.	848.70	851.10

2038.80	5.77	851.57	.00	.00	851.58	.01	2.49	.00	848.80
310.	62.	138.	109.	150.	132.	215.	7.	4.	848.50
.22	.42	1.05	.51	.015	.013	.015	.000	845.80	874.36
.000011	38.	38.	38.	0	0	7	.00	282.05	1156.41

0
1

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

#SECND 2440.000

2440.00	3.92	851.47	.00	.00	851.71	.23	.02	.11	850.95
310.	7.	287.	16.	5.	72.	9.	10.	5.	850.85
.25	1.43	4.01	1.85	.030	.050	.030	.060	847.55	584.37
.005019	351.	401.	376.	3	0	0	.00	72.70	657.06

0
1

THIS RUN EXECUTED 01/08/92 10:15:21

****
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 1.1
****

T1 CITY OF NOVI
T2 100 YEAR FLOOD - ENCROACHED
T3 BISHOP CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	3.	0.	0.	.000000	.00	.0	0.	842.770	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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=   .300 CEHV=   .500
*SECNO  .000
 2800 NAT Q1=   212.81  WSEL=   842.67  ENC Q1=   212.81  WSEL=   842.77  RATIO=   .0000
 NAT Q1=   407.  RATIOS LOB,CH,ROB=   .7120   .2527   .0354  WSEL=   842.77

3470 ENCROACHMENT STATIONS=   1061.2   1180.0  TYPE=    4  TARGET=       .477
                300 FT. U/S OF CONFLUENCE WITH PATNALES
     .00     6.17   842.77      .00   842.67   842.78      .01      .00      .00   838.60
    310.     162.     147.       0.     323.     125.       0.       0.       0.   840.90
     .00      .50     1.18      .00     .100     .050     .030     .000   836.60  1061.19
  .000223       0.       0.       0.       0        0        0      .00   118.81  1180.00
0
 *SECNO 475.000
 2800 NAT Q1=   127.54  WSEL=   842.81  ENC Q1=   127.54  WSEL=   842.91  RATIO=   .0000
 NAT Q1=   136.  RATIOS LOB,CH,ROB=   .0000   .3571   .6429  WSEL=   842.91

3470 ENCROACHMENT STATIONS=    764.0    829.1  TYPE=    4  TARGET=       .060
   475.00     5.41   842.91      .00   842.81   842.97      .06      .16      .03   845.60
    310.       0.     118.     192.       0.      79.      83.       3.       1.   839.20
     .07      .00     1.49     2.32     .030     .050     .030     .000   837.50   774.77
  .000594     475.     475.     475.        2        0        0      .00    34.34   829.12
0
 *SECNO 950.000
 2800 NAT Q1=    89.74  WSEL=   843.18  ENC Q1=    89.74  WSEL=   843.28  RATIO=   .0000
 NAT Q1=    96.  RATIOS LOB,CH,ROB=   .0000   .3976   .6024  WSEL=   843.28

3470 ENCROACHMENT STATIONS=    764.0    824.1  TYPE=    4  TARGET=       .068
   950.00     4.87   843.27      .00   843.18   843.38      .11      .39      .02   846.50
    310.       0.     132.     178.       0.      67.      60.       5.       1.   840.10
     .12      .00     1.99     2.98     .030     .050     .030     .000   838.40   776.87
  .001194     475.     475.     475.        1        0        0      .00    47.25   824.12
0
 *SECNO 1081.000
 2800 NAT Q1=    51.55  WSEL=   843.39  ENC Q1=    51.55  WSEL=   843.49  RATIO=   .0000
 NAT Q1=    56.  RATIOS LOB,CH,ROB=   .0000   .4767   .5233  WSEL=   843.49

3470 ENCROACHMENT STATIONS=    764.0    817.3  TYPE=    4  TARGET=       .080
  1081.00     4.14   843.46      .00   843.39   843.69      .23      .25      .06   847.42
    310.       0.     161.     149.       0.      50.      33.       5.       2.   841.02
     .13      .00     3.19     4.45     .030     .050     .030     .000   839.32   779.85
  .003737     125.     131.     125.        2        0        0      .00    37.50   817.33
0
1
 01/08/92    10:15:09                                                          PAGE    8
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 1212.000
 2800 NAT Q1=    37.64  WSEL=   843.96  ENC Q1=    37.64  WSEL=   844.06  RATIO=   .0000
 NAT Q1=    41.  RATIOS LOB,CH,ROB=   .0000   .5314   .4686  WSEL=   844.06

3470 ENCROACHMENT STATIONS=    764.0    814.0  TYPE=    4  TARGET=       .085
  1212.00     3.79   844.04      .00   843.96   844.39      .35      .64      .06   848.35
    310.       0.     180.     130.       0.      44.      24.       5.       2.   841.95
     .13      .00     4.12     5.49     .030     .050     .030     .000   840.25   781.21
  .0093     125.     131.     125.        1        0        0      .00    32.81   814.07
```

```
0
 $SECND 1475.000

 3470 ENCROACHMENT STATIONS=     786.0     841.0  TYPE=     1  TARGET=      61.000
   1475.00     3.76   845.86      .00   845.77   846.10      .24     1.68      .03100000.00
      310.       0.      167.      143.       0.      43.      36.       6.       2.    843.80
       .15      .00     3.68     3.97     .030     .050     .030     .000   842.10   781.36
   .006186     250.     263.     250.        3        0        0      .00    53.55   834.91
0
 $SECND 1737.000
   1737.00     3.45   847.40      .00   847.43   847.63      .24     1.53      .00   846.95
      310.       5.      279.      26.       4.      68.      13.       6.       2.    846.65
       .17     1.36     4.08     1.93     .030     .050     .030     .000   843.95   983.05
   .005698     250.     262.     250.        1        0        0      .00    80.00  1063.05
0
 $SECND 2001.000

 3301 HV CHANGED MORE THAN HVINS

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
                TEN MILE ROAD BRIDGE
   2001.00     2.46   848.26   848.26   848.26   849.09      .83      .87      .30   848.80
      310.       0.      310.       0.       0.      42.       0.       7.       3.    848.50
       .18      .00     7.32      .00      .015     .013     .015     .000   845.80  1090.95
   .002168     251.     264.     251.        3       16        0      .00    25.54  1026.49
0
1
  01/08/92    10:15:09                                                                PAGE    9


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



 SPECIAL BRIDGE

 5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  Xk        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      1.93      2.90       .00      8.20       .00     19.50       .00    845.80    845.80

 $SECND 2038.800
     3700.   BRIDGE STENCL=    950.00    STENCR=   1060.00

 3301 HV CHANGED MORE THAN HVINS

 PRESSURE AND WEIR FLOW


  EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                 AREA
     856.03    849.09       .00      106.      205.       20.       24.      848.70    851.10



 3470 ENCROACHMENT STATIONS=     950.0    1060.0  TYPE=     1  TARGET=     110.000
   2038.80     5.84   851.64      .00   851.57   851.66      .02     2.56      .00   848.80
      310.       71.      170.      69.      110.     133.      93.       7.       3.    848.50
       .19       .55     1.28      .74      .015     .013     .015     .000   845.80   750.00
   .000015      38.      38.      38.        1        0        5      .00    110.00  1060.00
0
 $SECND 2440.000
```

3470 ENCROACHMENT STATIONS= 578.0 666.0 TYPE= 1 TARGET= 98.000

2440.00	4.02	851.57	.00	851.47	851.77	.20	.02	.09	850.95
310.	10.	278.	22.	7.	74.	12.	9.	4.	850.85
.22	1.50	3.75	1.88	.030	.050	.030	.000	847.55	580.59
.004189	351.	401.	376.	3	0	0	.00	80.55	661.54

0

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THIS RUN EXECUTED 01/08/92 10:15:29

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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
IBM-PC-XT VERSION 1.1

****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

BISHOP CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CHSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	.000	.00	.00	.00	836.60	310.00	842.67	.00	842.68	2.12	1.19	452.83	212.81
	.000	.00	.00	.00	836.60	310.00	842.77	.00	842.78	2.23	1.18	447.95	207.60
	475.000	475.00	.00	.00	837.50	310.00	842.81	.00	842.86	5.91	1.47	187.40	127.54
	475.000	475.00	.00	.00	837.50	310.00	842.91	.00	842.97	5.94	1.49	162.11	127.22
	950.000	475.00	.00	.00	838.40	310.00	843.18	.00	843.26	11.93	1.96	144.88	89.74
	950.000	475.00	.00	.00	838.40	310.00	843.27	.00	843.38	11.94	1.99	126.16	89.71
	1081.000	131.00	.00	.00	839.32	310.00	843.39	.00	843.55	36.16	3.11	96.42	51.55
	1081.000	131.00	.00	.00	839.32	310.00	843.46	.00	843.69	37.37	3.19	83.94	50.71
	1212.000	131.00	.00	.00	840.25	310.00	843.96	.00	844.21	67.82	4.04	76.37	37.64
	1212.000	131.00	.00	.00	840.25	310.00	844.04	.00	844.39	68.93	4.12	67.37	37.34
	1475.000	263.00	.00	.00	842.10	310.00	845.77	.00	846.04	73.92	4.18	73.96	36.06
	1475.000	263.00	.00	.00	842.10	310.00	845.86	.00	846.10	61.86	3.88	79.03	39.41
	1737.000	262.00	.00	.00	843.95	310.00	847.43	.00	847.65	52.33	3.95	89.06	42.86
	1737.000	262.00	.00	.00	843.95	310.00	847.40	.00	847.63	56.98	4.08	85.56	41.07
*	2001.000	264.00	.00	.00	845.80	310.00	848.26	848.26	849.09	21.72	7.32	42.35	66.52
*	2001.000	264.00	.00	.00	845.80	310.00	848.26	848.26	849.09	21.68	7.32	42.38	66.58
	2038.800	37.80	851.10	848.70	845.80	310.00	851.57	.00	851.58	.11	1.05	496.47	947.13
	2038.800	37.80	851.10	848.70	845.80	310.00	851.64	.00	851.66	.15	1.28	336.14	787.44
	2440.000	401.00	.00	.00	847.55	310.00	851.47	.00	851.71	50.19	4.01	85.16	43.76
	2440.000	401.00	.00	.00	847.55	310.00	851.57	.00	851.77	41.89	3.75	92.61	47.90

1

BISHOP CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	ALCH
	.000	310.00	842.67	.00	.00	.00	145.78	.00
	.000	310.00	842.77	.10	.00	.10	118.81	.00
	475.000	310.00	842.81	.00	.14	.00	86.07	475.00
	475.000	310.00	842.91	.09	.14	.09	54.34	475.00
	950.000	310.00	843.18	.00	.37	.00	75.01	475.00
	950.000	310.00	843.27	.09	.37	.09	47.25	475.00
	1081.000	310.00	843.39	.00	.20	.00	59.97	131.00
	1081.000	310.00	843.46	.08	.19	.08	37.50	131.00
	1212.000	310.00	843.96	.00	.57	.00	52.50	131.00
	1212.000	310.00	844.04	.08	.58	.08	32.81	131.00
	1475.000	310.00	845.77	.00	1.81	.00	51.53	263.00
	1475.000	310.00	845.86	.09	1.82	.09	53.55	263.00
	1737.000	310.00	847.43	.00	1.66	.00	83.73	262.00
	1737.000	310.00	847.40	-.04	1.54	-.04	80.00	262.00
*	2001.000	310.00	848.26	.00	.83	.00	25.54	264.00
*	2001.000	310.00	848.26	.00	.87	.00	25.54	264.00
	2038.800	310.00	851.57	.00	3.31	.00	282.05	37.80
	2038.200	310.00	851.64	.07	3.38	.07	110.00	37.80
	2440.000	310.00	851.47	.00	-.10	.00	72.70	401.00
	2440.000	310.00	851.57	.10	-.07	.10	80.55	401.00

1
01/08/92 10:15:09 PAGE 12

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 2001.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2001.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2001.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2001.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

1
01/08/92 10:15:09 PAGE 13

FLOODWAY DATA, BISHOP CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.000	119.	448.	.7	842.8	842.7	.1
475.00	54	142	1.5	843.9	843.8	.1

950.000	47.	126.	2.5	843.3	843.2	.1
1081.000	37.	84.	3.7	843.5	843.4	.1
1212.000	33.	67.	4.6	844.1	844.0	.1
1475.000	54.	79.	3.9	845.9	845.8	.1
1737.000	80.	86.	3.6	847.4	847.4	.0
2001.000	26.	42.	7.3	848.3	848.3	.0
2038.800	110.	336.	.9	851.7	851.6	.1
2440.000	81.	93.	3.3	851.6	851.5	.1

1

THIS RUN EXECUTED 01/08/92 10:15:31

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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 1.1
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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY OF

3) WATERCOURSE: BISHOP CREEK

4) DOCUMENT TYPE: SUMMARY - ENCROACHED

00BREAK00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	0.000	842 67	0.00	842.68	145.78	147.30	144.60	18.10	150.00	1065.00	1154.00	1180.00	1215.00
	0.000	842.77	0.10	842.78	118.81	163.18	146.82	0.00	0.48	1061.19	1154.00	1180.00	1180.00
	475.000	842.81	0.00	842.86	86.07	0.00	112.81	197.19	0.00	0.00	764.00	800.00	0.00
	475 000	842.91	0.09	842.97	54.34	0.00	117.81	192.19	0.06	764.00	764.00	800.00	829.12
	950 000	843 18	0.00	843.26	75.01	0.00	126.09	183.91	0.00	0.00	764.00	800.00	0.00
	950.000	843.27	0.09	843.38	47 25	0.00	132.19	177.81	0.07	764.00	764.00	800.00	824.12
	1081.000	843.39	0.00	843.55	59.97	0.00	152.11	157.89	0.00	0.00	764.00	800.00	0.00
	1081.000	843.46	0.08	843.69	37.50	0.00	161.13	148.87	0 08	764.00	764.00	800.00	817.33
	1212.000	843.96	0.00	844.21	52.50	0.00	170.11	139.89	0.00	0.00	764.00	800.00	0.00
	1212 000	844.04	0.08	844.39	32.80	0.00	180.52	129.48	0.09	764 00	764.00	800.00	814 02
	1475.000	845 77	0.00	846.04	51 53	0.00	172.76	137.24	0.00	0.00	764.00	800.00	0.00
	1475 000	845.86	0.09	846.10	53.55	0.00	167 31	142.69	61.00	780.00	764.00	800.00	841.00
	1737.000	847 43	0 00	847.65	83.72	6.25	275.10	28.65	0.00	0.00	1000.00	1027.00	0.00
	1737.000	847.40	-0.04	847.63	80 00	5.09	279.17	25.74	0.00	0.00	1000.00	1027.00	0.00
*	2001.000	848.26	0 00	849 09	25.54	0 00	310.00	0.00	0.00	0.00	1000.00	1027.00	0 00
*	2001 000	848.26	0 00	849.09	25.54	0.00	310 00	0.00	0.00	0.00	1000.00	1027.00	0.00
	2038 800	851.57	0.00	851.58	282.20	62.45	138.32	109.24	0.00	0.00	1000.00	1027.00	0.00
	2038 800	851.57	0.00	851.58	156.66	58.38	145.67	105.95	0.06	950.67	1000.00	1027 00	1107.33
	2440.000	851 47	0.00	851.71	72.78	6.83	286.69	16.47	0.00	0.00	602.50	628.50	0.00
	2440.000	851.48	0.00	851.71	73.13	6.96	286.32	16.73	88.00	578.00	602.50	628.50	666.00
	2840.000	853.44	0.00	853.69	53.49	6.31	298.91	4.78	0.00	0.00	205.00	230.00	0.00
	2840.000	853.50	0.06	853.77	25.00	0.00	310.00	0.00	0 05	205.00	205.00	230.00	230.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	3178.000	856.00	0.00	856.56	31.88	2.86	307.14	0.00	0.00	0.00	189.50	213.70	0.00
	3178.000	856.09	0.09	856.60	33.88	5.04	304.96	0.00	42.00	172.00	189.50	213.70	214.00
	3515.000	859.91	0.00	860.22	68.06	29.82	280.16	0.02	0.00	0.00	174.00	197.50	0.00
	3515.000	859.86	-0.04	860.20	64.80	28.10	281.90	0.00	101.00	112.00	174 00	197.50	213.00
	3853.000	862.88	0.00	863.16	114.02	81.45	228.55	0.00	0.00	0.00	158.50	181.20	0.00
	3853.000	862.97	0.09	863 29	55.62	64.70	245.30	0.00	0.10	124.70	158.50	181.20	181 20
	4190.000	865.82	0.00	865.92	122 59	188.22	121.78	0.00	0.00	0.00	143.00	165.00	0 00
	4190.000	865.93	0 12	866.05	94.39	177.27	132.73	0.00	0.11	68.25	143.00	165.00	165.00
	4915.000	868.78	0.00	868 98	67.64	1.37	301.71	6.92	0.00	0.00	121.50	147.00	0.00
	4915.000	868.91	0.12	869.10	25.50	0.00	310.00	0.00	0 03	121.50	121.50	147.00	147.00
	5640.000	870.57	0 00	870.69	74.95	0.00	284.06	25.93	0 00	0.00	100.00	129.00	0.00
	5640.000	870.68	0.12	870.81	52.52	0.00	294 39	15 61	0.05	100.00	100.00	129.00	155 93
	5790.000	870.82	0.00	870.87	91.42	0.00	230.12	79.88	0.00	0.00	169.70	196.70	0.00
	5790.000	870.94	0.12	870.99	74.33	0.00	238.60	71.40	0.05	169.70	169.70	196.70	244.03
	5940 000	870.93	0.00	870.95	153.07	13.03	185.73	111.24	0.00	0.00	239.50	264.50	0.00
	5940.000	871.05	0 12	871.07	101.32	7.53	191.88	110.59	0.05	227.58	239.50	264.50	328.90
	5965.000	870 93	0.00	870.96	153.52	13.20	185.39	111.42	0.00	0.00	239.50	264.50	0 00

5965.000	871.05	0.12	871.08	102.77	8.03	191.16	110.81	0.04	226.63	239.50	264.50	329.40
6090.000	870.98	0.00	870.99	211.11	54.92	135.34	119.73	0.00	0.00	309.20	332.20	0.00
6090.000	871.10	0.12	871.11	154.97	51.59	139.62	118.79	0.05	254.50	309.20	332.20	409.47
6220.000	871.00	0.00	871.01	268.77	103.81	94.50	111.69	0.00	0.00	384.00	405.00	0.00
6220.000	871.12	0.12	871.13	200.07	102.11	97.17	110.72	0.04	296.80	384.00	405.00	496.87
6241.000	871.00	0.00	871.01	268.56	119.14	62.66	128.20	0 00	0.00	384.00	405.00	0.00
6241 000	871.12	0.12	871.13	200.16	117.77	64.56	127.67	0.05	296.75	384.00	405.00	496 92
6305.000	872.84	0.00	872 84	328.28	126.56	49.49	133.95	0.00	0.00	384.00	405.00	0.00
6305.000	872.96	0.12	872.96	240.28	125.99	50.62	133.39	0.03	276.75	384.00	405.00	517.03
6311.000	872.84	0.00	872.84	328.25	146.19	99.09	154.72	0.00	0.00	384.00	405.00	0.00
6311.000	872.96	0.12	872.96	238.29	145.05	101.37	153.57	0.03	277.66	384.00	405.00	515 95
6450.000	872.84	0.00	872.85	326.05	145.85	99.72	154.43	0.00	0.00	384.00	405.00	0.00
6450.000	872.96	0.12	872.97	235.88	144.64	102.16	153.20	0 03	278.79	384.00	405.00	514.67
6900.000	872.87	0.00	872.87	193.45	156.21	209.51	34.28	500.00	0.00	345.00	382.00	500.00
6900.000	872.99	0.12	872.99	193.88	157.93	208.02	34.04	500.00	0.00	345.00	382.00	500 00
7403.000	872.91	0.00	872.97	139.40	41.20	206.64	152.16	0.00	0.00	75.00	105.00	0.00
7403.000	873.02	0.11	873.09	114.30	31.68	217.22	151.09	0.07	46.17	75.00	105.00	160.47

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
7504.000	873.00	0.00	873.09	133.50	32.17	28.20	339.62	0.00	0.00	998.00	1002.00	0.00
7504.000	873.11	0.11	873.21	98.68	19.22	30.14	350.64	0.10	978.40	998.00	1002.00	1077.08
7535.000	876.97	0.00	876.97	243.92	100.47	15.24	284.29	0.00	0.00	998.00	1002.00	0.00
7535.000	877.07	0.11	877.08	142.12	97.49	15.63	286.88	0.03	955.31	998.00	1002.00	1097.44
7735.000	876.92	0.00	877.03	102 25	16.40	324.11	59.49	0.00	0.00	300.00	326.00	0.00
7735.000	877.02	0.10	877.14	51.59	7.83	337.85	54 32	0.05	294.40	300.00	326.00	345 99
8186.000	877.46	0.00	877.84	93.52	59.25	207.67	133.08	0.00	0.00	174.00	180.00	0.00
8186.000	877.55	0.09	877.96	52.53	51.31	215.08	133.61	0 05	162 99	174.00	180.00	215 52
8202.000	879.14	0.00	879.21	119.45	74.90	145.55	179.55	0.00	0.00	174.00	180.00	0.00
8202 000	879.23	0.09	879.31	87.81	70.84	149.11	180.05	0.04	151.59	174.00	180.00	239.40
8475.000	879.25	0.00	879.33	46.74	0.00	400.00	0.00	0.00	0 00	143.00	202.00	0.00
8475.000	879.34	0.10	879.43	47.23	0.00	400.00	0.00	0.00	143.00	143.00	202.00	202.00
8751.000	879.36	0.00	879.36	210.00	53.95	7.41	338.64	210.00	190.00	225.50	228 50	400.00
8751.000	879.45	0.09	879.45	198.48	56.79	7.64	335.57	0.20	189.33	225.50	228.50	387.81
8791.000	879.41	0.00	879.42	210 00	54.03	7.40	338.57	210 00	190.00	225.50	228.50	400.00
8791.000	879.50	0.09	879.51	198 90	57.18	7.61	335.21	0.20	189.05	225.50	228.50	387.95
8808.000	879 41	0.00	879.42	240.00	0.00	0.00	400.00	240.00	183.00	233.20	8.00	423.00
8808.000	879.50	0.09	879.51	146.60	0.00	0.00	400.00	0.16	233.20	233.20	8.00	379.80
8824 000	879.44	0.00	879.44	240.00	43.04	356.96	0.00	240.00	183.00	233 20	833.01	423.00
8824.000	879.53	0.09	879.53	400.98	0.00	0.00	400.00	0.00	0.00	233.20	8.00	0.00
9226.000	879.36	0.00	879.53	231.91	120.12	131.49	148.39	0.00	0.00	268.00	272.00	0.00
9226 000	879.44	0.08	879.63	158.62	117 81	135.91	146.28	0.06	190 34	268.00	272.00	348.96
9269 000	879 48	0.00	879.53	260.91	146.98	89.72	163.29	0.00	0.00	268.20	271.80	0.00

9269.000	879.57	0.08	879.62	196.48	145.77	92.41	161.82	0.05	167.67	268.20	271.80	364.15
9375.000	879.41	0.00	879.66	63.49	3.56	396.44	0.00	0.00	0.00	200.00	235.00	0.00
9375.000	879.50	0.09	879.75	34.72	0.00	400.00	0.00	0.02	200.00	200.00	235.00	235 00
9475.000	879.91	0.00	880.18	56.34	1.81	398.19	0.00	0 00	0.00	200.00	235.00	0.00
9475.000	879 98	0.06	880.24	34.36	0.00	400.00	0.00	0.01	200.00	200.00	235.00	235.00
9575.000	880 56	0.00	880.71	117.85	0.00	215.76	184.24	0.00	0.00	100.00	123.00	0.00
9575.000	880.59	0.03	880.77	77.35	0.00	234.75	165.25	0.11	100 00	100.00	123.00	177.36
9675 000	881 04	0.00	881 22	114.30	0.00	229.39	170.61	0.00	0.00	100.00	123.00	0.00
9675.000	881 12	0.08	881.33	74.69	0.00	243.74	156.25	0.10	100.00	100.00	123.00	174.75
9775.000	881.61	0.00	881.80	113.73	0.00	231.97	168.03	0.00	0.00	100.00	123.00	0.00
9775.000	881.71	0.09	881.92	72.05	0.00	246.30	153.70	0.11	100.00	100.00	123.00	172.09

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	9876 000	882.34	0.00	882.90	119.35	50.13	143.57	206.30	0.00	0.00	198.20	201.80	0.00
*	9876.000	882.37	0.03	883.05	82.35	34.30	154 33	211.38	0.09	194.19	198.20	201.80	276.54
	9893.000	883.00	0.00	883.17	144.66	49.20	104.46	246.34	0.00	0.00	198.20	201.80	0.00
	9893.000	883.03	0.03	883.22	100.96	40.17	110.16	249.67	0.07	191.29	198.20	201.80	292.25
	9950.000	883.01	0.00	883.25	123.91	0.05	288.04	111.91	0.00	0.00	100.00	123.00	0.00
	9950 000	883 03	0.02	883.33	73.32	0.00	309.32	90.68	0.09	100.00	100.00	123.00	173.32
	10000.000	883.37	0.00	883 72	114.39	0.00	307.97	92.03	0.00	0.00	100.00	123.00	0.00
	10000.000	883.43	0.06	883.83	65.22	0.00	327.03	72.97	0.08	100.00	100.00	123.00	165.29
	10100.000	884 44	0.00	884.85	111.45	0.00	317.83	82.17	0.00	0.00	100.00	123.00	0.00
	10100.000	884.53	0.09	884.99	58.99	0.00	337.13	62.86	0.09	100.00	100.00	123.00	159.23
	10200.000	885.63	0.00	886.02	112.37	0.00	314.68	85.32	0.00	0.00	100.00	123.00	0.00
	10200.000	885.74	0.10	886.17	59.07	0.00	334.83	65 17	0.09	100.00	100.00	123.00	159.19
	10350.000	887 32	0.00	887 81	36.47	6.89	393.11	0.00	0.00	0.00	135.00	165.00	0.00
	10350.000	887.43	0.11	887.91	28.99	0.00	400.00	0.00	0.02	135.00	135.00	165.00	165 00
	10450.000	888.49	0.00	888.98	36.45	6.87	393.13	0.00	0.00	0.00	135.00	165.00	0.00
	10450 000	888.58	0.10	889.06	29.00	0.00	400.00	0.00	0.02	135.00	135.00	165.00	165.00
	10550.000	889.66	0.00	890.15	36.62	7.04	392.96	0.00	0 00	0.00	135.00	165.00	0.00
	10550.000	889.74	0.08	890.22	28.98	0.00	400.00	0.00	0.02	135.00	135.00	165.00	165.00
	10600.000	890.23	0.00	890.72	36.61	7.03	392.97	0.00	0.00	0.00	135.00	165.00	0.00
	10600.000	890.32	0.08	890.80	28.98	0.00	400.00	0.00	0.02	135.00	135.00	165.00	165 00
*	10651.000	890.59	0.00	891.53	34.52	198.35	110.90	90.75	0.00	0.00	148.80	151.20	0 00
*	10651 000	890.53	-0.06	891.67	23.93	199.91	116.51	83.58	0.06	133.66	148.80	151.20	157.60
	10681.000	893.07	0.00	893.17	66.17	220.84	67.94	111 21	0.00	0.00	148.80	151.20	0.00
	10681.000	893 01	-0.06	893.13	45.97	218 33	70.19	111.47	0.04	119.97	148.80	151.20	165.94
	10755.000	893.05	0.00	893 36	46.92	14.14	383.17	2.69	0.00	0.00	135.00	165.00	0 00
	10755.000	892.99	-0.06	893.35	24.63	1.22	398.78	0.00	0.04	124.86	135.00	165.00	165.00
	10795.000	893.45	0.00	893.47	120.00	139.42	235.96	24.62	120.00	154.00	225.00	260.00	274.00
	10795 000	893.46	0.00	893.47	116.28	152.75	244.02	3.23	0.11	146.11	225.00	260.00	262.39
	11026.000	893.47	0.00	893 49	169.96	70.75	75.39	13.86	0.00	0.00	245.90	254.10	0 00

11026.000	893.47	0.00	893.49	128.96	70.52	78.02	11.46	0.04	139.49	245.90	254.10	268.46
11416.000	895.59	0.00	895.61	32.44	0.00	160.00	0.00	0.00	0.00	0.00	61.00	0.00
11416 000	895.59	0 00	895 62	32.46	0.00	160.00	0.00	0.00	0.00	0.00	61 00	61.00
11425.000	895.59	0.00	895.61	32.44	0.00	160.00	0.00	0.00	0.00	0.00	61.00	0.00
11425.000	895.59	0.00	895.62	32.46	0.00	160.00	0.00	0.00	0.00	0.00	61.00	61.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	GLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
11485 000	895.60	0.00	895.63	32.09	0.00	160.00	0.00	0.00	0.00	0.00	61.00	0.00
11485.000	895.60	0.00	895.63	32.13	0.00	160.00	0.00	0.00	0.00	0.00	61.00	61.00
11517.000	895.59	0.00	895.65	31.72	18.16	123.68	18.16	0.00	0.00	26.00	35.00	0.00
11517.000	895.59	0.00	895.66	23.53	16.95	126.10	16.95	0.03	18.73	26.00	35.00	42.27
11553.000	896.63	0.00	896.67	35.70	20.53	118.95	20.53	0.00	0.00	26 00	35.00	0 00
11553.000	896 63	0.00	896.68	26.82	19.58	120.85	19.57	0.03	17.09	26 00	35.00	43.91
11563.000	896.63	0.00	896.68	35.71	20.53	118.94	20.53	0.00	0.00	26.00	35.00	0 00
11563.000	896.64	0.00	896.68	26.86	19.60	120.81	19.59	0.03	17.07	26.00	35.00	43 93
11755.000	896.67	0.00	896.72	34.70	19.95	120.10	19.95	0.00	0.00	26.00	35.00	0.00
11755.000	896.68	0.00	896.73	25.89	18 90	122.21	18.89	0.03	17.55	26.00	35.00	43 45
11955.000	896.72	0.00	896.77	33.71	19 37	121 27	19.37	0 00	0.00	26.00	35.00	0.00
11955 000	896.72	0 01	896.78	24.85	18.14	123 72	18.14	0.03	18.07	26.00	35.00	42 93
12155.000	896.80	0.00	896.82	38 56	0.00	160.00	0.00	140.00	35.00	35.00	85.00	175.00
12155.000	896 81	0.01	896.83	38.60	0.00	160.00	0.00	0.11	35 00	35.00	85.00	85.00
12355.000	896.82	0.00	896.84	40.00	0.00	151.23	8.77	40.00	225.00	225.00	250.00	265.00
12355 000	896.84	0.01	896.86	25.00	0.00	160.00	0.00	0.19	225.00	225.00	250.00	250.00
12425.000	896.74	0.00	896.95	5.80	0.00	160.00	0.00	5.80	233.10	233.10	238 90	238 90
12425 000	896.76	0 01	896.97	5.80	0.00	160.00	0.00	0.32	233.10	233.10	238.90	238.90
12565.000	897.73	0.00	897.76	22.00	0.00	160.00	0.00	22.00	250.00	250.00	272.00	272.00
12565.000	897.74	0.01	897.77	22.00	0.00	160.00	0.00	22.00	250.00	250.00	272.00	272.00
12635.000	897.77	0.00	897 77	103.40	0.27	18 35	6.38	0.00	0.00	250.00	272.00	0 00
12635.000	897.78	0.01	897.78	62.07	0.00	18.79	6.21	0.04	250.00	250.00	272.00	312.08
13251.000	897.77	0.00	897 77	477.75	0.00	0.00	25.00	0.00	0.00	300.00	0.00	0.00
13251.000	897.78	0.01	897 78	246.74	0.00	0.00	25.00	0.06	300.00	300.00	0.00	546.74
13311.000	897 59	0.00	897.85	4.47	0.00	25.00	0.00	0.00	0.00	2.50	7.50	0 00
13311.000	897.60	0 01	897.86	4.48	0.00	25.00	0.00	0.00	2.50	2.50	7.50	7.50

BISHOP CREEK

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	836.60	310.00	842.67	0.00	842.68	2.12	1.19	452.83	212.81
0.000	0.00	0.00	0.00	836.60	310.00	842.77	0.00	842.78	2.23	1.18	447.94	207.59

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	475.000	475.00	0.00	0.00	837.50	310.00	842.81	0.00	842.86	5.91	1.47	187.39	127.54
	475.000	475.00	0.00	0.00	837.50	310.00	842.91	0.00	842.97	5.94	1.49	162.11	127.22
	950.000	475.00	0.00	0.00	838.40	310.00	843.18	0.00	843.26	11.93	1.96	144.88	89.73
	950.000	475.00	0.00	0.00	838.40	310.00	843.27	0.00	843.38	11.94	1.99	126.16	89.70
	1081.000	131.00	0.00	0.00	839.32	310.00	843.39	0.00	843.55	36.16	3.11	96.42	51.56
	1081.000	131.00	0.00	0.00	839.32	310.00	843.46	0.00	843.69	37.38	3.19	83.94	50.71
	1212.000	131.00	0.00	0.00	840.25	310.00	843.96	0.00	844.21	67.83	4.04	76.37	37.64
	1212.000	131.00	0.00	0.00	840.25	310.00	844.04	0.00	844.39	68.94	4.12	67.37	37.34
	1475.000	263.00	0.00	0.00	842.10	310.00	845.77	0.00	846.04	73.91	4.18	73.96	36.06
	1475.000	263.00	0.00	0.00	842.10	310.00	845.86	0.00	846.10	61.85	3.88	79.03	39.42
	1737.000	262.00	0.00	0.00	843.95	310.00	847.43	0.00	847.65	52.33	3.95	89.06	42.85
	1737.000	262.00	0.00	0.00	843.95	310.00	847.40	0.00	847.63	56.98	4.08	85.56	41.07
*	2001.000	264.00	0.00	0.00	845.80	310.00	848.26	848.26	849.09	21.70	7.32	42.36	66.55
*	2001.000	264.00	0.00	0.00	845.80	310.00	848.26	848.26	849.09	21.67	7.31	42.38	66.59
	2038.800	37.80	851.10	848.70	845.80	310.00	851.57	0.00	851.58	0.11	1.05	496.71	947.67
	2038.800	37.80	999999.00	0.00	845.80	310.00	851.57	0.00	851.58	0.12	1.11	416.72	897.08
	2440.000	401.00	0.00	0.00	847.55	310.00	851.47	0.00	851.71	50.10	4.01	85.23	43.80
	2440.000	401.00	0.00	0.00	847.55	310.00	851.48	0.00	851.71	49.71	3.99	85.55	43.97
	2840.000	400.00	0.00	0.00	849.00	310.00	853.44	0.00	853.69	49.22	4.09	80.65	44.19
	2840.000	400.00	0.00	0.00	849.00	310.00	853.50	0.00	853.77	52.69	4.16	74.49	42.71
	3178.000	338.00	0.00	0.00	852.60	310.00	856.00	0.00	856.56	154.91	6.04	52.27	24.91
	3178.000	338.00	0.00	0.00	852.60	310.00	856.09	0.00	856.60	136.82	5.78	54.96	26.50
	3515.000	337.00	0.00	0.00	856.20	310.00	859.91	0.00	860.22	78.74	4.74	84.97	34.93
	3515.000	337.00	0.00	0.00	856.20	310.00	859.86	0.00	860.20	84.63	4.85	82.00	33.70
	3853.000	338.00	0.00	0.00	859.80	310.00	862.88	0.00	863.16	101.05	4.89	108.52	30.84
	3853.000	338.00	0.00	0.00	859.80	310.00	862.97	0.00	863.29	103.34	5.04	87.52	30.50
	4190.000	337.00	0.00	0.00	863.40	310.00	865.82	0.00	865.92	73.80	3.63	159.67	36.09
	4190.000	337.00	0.00	0.00	863.40	310.00	865.93	0.00	866.05	71.06	3.69	146.55	36.78
	4915.000	725.00	0.00	0.00	863.90	310.00	868.78	0.00	868.98	32.00	3.58	99.86	54.80
	4915.000	725.00	0.00	0.00	863.90	310.00	868.91	0.00	869.10	32.33	3.54	87.47	54.52

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	5640.000	725.00	0.00	0.00	864.40	310.00	870.57	0.00	870.69	17.92	2.89	142.60	73.22
	5640.000	725.00	0.00	0.00	864.40	310.00	870.68	0.00	870.81	17.67	2.91	127.43	73.75
	5790.000	150.00	0.00	0.00	864.50	310.00	870.82	0.00	870.87	7.25	1.99	239.63	115.11
	5790.000	150.00	0.00	0.00	864.50	310.00	870.94	0.00	870.99	7.16	2.01	225.39	115.88
	5940.000	150.00	0.00	0.00	864.60	310.00	870.93	0.00	870.95	3.29	1.51	374.21	170.88
	5940.000	150.00	0.00	0.00	864.60	310.00	871.05	0.00	871.07	3.24	1.52	344.04	172.18
	5965.000	25.00	0.00	0.00	864.60	310.00	870.93	0.00	870.96	3.25	1.50	376.23	171.96
	5965.000	25.00	0.00	0.00	864.60	310.00	871.05	0.00	871.08	3.20	1.51	347.41	173.27
	6090.000	125.00	0.00	0.00	864.70	310.00	870.98	0.00	870.99	1.61	1.12	577.42	244.39
	6090.000	125.00	0.00	0.00	864.70	310.00	871.10	0.00	871.11	1.59	1.13	540.44	245.68

6220 000	130 00	0.00	0.00	864.80	310.00	871.00	0.00	871.01	0.96	0.86	796.77	316.78
6220.000	130.00	0.00	0.00	864.80	310.00	871.12	0.00	871 13	0.95	0.87	745.52	318.46
6241.000	21.00	0.00	0.00	864.80	310.00	871 00	0.00	871.01	0.03	0.57	795.09	1833.98
6241.000	21.00	0.00	0.00	864.80	310.00	871.12	0.00	871.13	0.03	0.57	747.26	1848.02
6305.000	64 00	872.40	870 80	864.80	310.00	872.84	0.00	872.84	0.01	0.33	1343.04	3833.61
6305.000	64.00	999999.00	0.00	864.80	310.00	872.96	0.00	872.96	0.01	0.34	1252.64	3854.72
6311.000	6.00	0.00	0 00	864.80	400.00	872.84	0.00	872.84	0.39	0 67	1342 75	642.17
6311.000	6.00	0.00	0.00	864.80	400.00	872.96	0.00	872.96	0.38	0.67	1247.00	645.71
6450.000	139.00	0.00	0.00	864.87	400.00	872.84	0.00	872.85	0.41	0.68	1320.60	627.95
6450.000	139.00	0.00	0.00	864.87	400.00	872.96	0.00	872.97	0.40	0.68	1224.66	631.14
6900.000	450.00	0.00	0.00	865.10	400.00	872.87	0.00	872.87	0.50	0.78	942 29	566.28
6900.000	450.00	0.00	0.00	865.10	400.00	872.99	0.00	872.99	0.47	0.76	965.66	586.28
7403.000	503.00	0 00	0.00	869.52	400.00	872 91	0.00	872.97	18.90	2.51	276.87	92.01
7403.000	503.00	0.00	0.00	869.52	400.00	873 02	0.00	873.09	18.22	2.53	260.13	93.70
7504.000	101.00	0.00	0.00	870.00	400.00	873.00	0.00	873.09	7.87	2.93	176.38	142.59
7504.000	101.00	0.00	0.00	870.00	400.00	873.11	0.00	873 21	7.79	3.00	162.80	143.34
7535.000	31.00	875.40	873.00	870.00	400.00	876.97	0.00	876.97	0.09	0.60	771.71	1339.13
7535.000	31.00	999999.00	0 00	870.00	400.00	877.07	0.00	877.08	0.09	0.60	747.07	1341 06
7735.000	200.00	0.00	0.00	871.60	400.00	876.92	0.00	877.03	16.53	3.03	208.47	98.40
7735.000	200.00	0.00	0.00	871.60	400.00	877.02	0.00	877.14	16.57	3.08	171.13	98.27
8186.000	451.00	0.00	0.00	872.20	400.00	877.46	0.00	877.84	13.46	6.74	188.40	109 03
8186 000	451.00	0.00	0.00	872.20	400.00	877.55	0.00	877.96	13.59	6.86	157.10	108.51
8202 000	16.00	876.80	874.90	871.90	400.00	879.14	0.00	879.21	2.23	3.41	395.73	267.96
8202.000	16.00	999999.00	0.00	871.90	400.00	879.23	0.00	879.31	2 24	3.45	369.19	267.38

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
8475.000	273 00	0.00	0.00	873.30	400.00	879.25	0.00	879.33	11.50	2.33	171.34	117.97
8475.000	273.00	0.00	0.00	873.30	400.00	879.34	0.00	879.43	10.69	2.27	175.86	122.32
8751.000	276.00	0.00	0.00	873.50	400.00	879.36	0.00	879.36	0.05	0.44	1033 94	1752.89
8751.000	276.00	0.00	0.00	873.50	400.00	879.45	0.00	879.45	0.05	0.44	1011.09	1747.00
8791.000	40.00	877.10	876.90	873.50	400.00	879.41	0.00	879.42	0.05	0.43	1045.37	1784.61
8791.000	40.00	999999.00	0.00	873.50	400.00	879.50	0.00	879.51	0.05	0.44	1023 08	1778.72
8808.000	17.00	0.00	0.00	873 10	400.00	879 41	0.00	879.42	0.09	0.00	1242.63	1366.89
8808.000	17.00	0.00	0.00	873.10	400.00	879.50	0.00	879.51	0.16	0.00	850.23	991.70
8824.000	16.00	875.60	875.30	873.10	400.00	879.44	0.00	879.44	0.04	0.35	1249.33	2131.06
8824.000	16.00	875.60	875.30	873.10	400.00	879.53	0.00	879.53	0.06	0.00	1583.31	1626 28
9226.000	402.00	0.00	0.00	873.60	400.00	879.36	0.00	879.53	2.58	5.81	363.97	248.88
9226.000	402.00	0.00	0.00	873.60	400.00	879.44	0.00	879.63	2.63	5.92	322.96	246.85
9269.000	43.00	877.00	876.70	872.80	400.00	879.48	0.00	879.53	0.90	3.79	591.83	422.26
9269.000	43.00	999999.00	0.00	872.80	400.00	879.57	0.00	879.62	0.91	3.85	544.65	418.79
9375.000	106.00	0.00	0.00	875.09	400.00	879.41	0.00	879.66	49.08	4.06	102.37	57.09
9375.000	106.00	0.00	0.00	875.09	00.00	879.50	0.00	879.75	46 06	3.96	100.94	58.94

10000.000	50.00	0.00	0.00	879.16	400.00	883.37	0.00	883.72	101.07	5.36	127.60	39.79
10000.000	50.00	0.00	0.00	879.16	400.00	883.43	0.00	883.83	105.70	5.54	104.87	38.91
10100.000	100.00	0.00	0.00	880.32	400.00	884.44	0.00	884.85	120.34	5.74	116.94	36.46
10100.000	100.00	0.00	0.00	880.32	400.00	884.53	0.00	884.99	121.31	5.87	95.35	36.32

	SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	10200.000	100.00	0.00	0.00	881.48	400.00	885.63	0.00	886.02	113.87	5.62	120.26	37.48
	10200.000	100.00	0.00	0.00	881.48	400.00	885.74	0.00	886.17	113.56	5.72	97.99	37.54
	10350.000	150.00	0.00	0.00	883.22	400.00	887.32	0.00	887.81	117.13	5.68	74.71	36.96
	10350.000	150.00	0.00	0.00	883.22	400.00	887.43	0.00	887.91	115.46	5.56	71.97	37.23
	10450.000	100.00	0.00	0.00	884.38	400.00	888.49	0.00	888.98	117.51	5.68	74.62	36.90
	10450.000	100.00	0.00	0.00	884.38	400.00	888.58	0.00	889.06	115.08	5.55	72.05	37.29
	10550.000	100.00	0.00	0.00	885.54	400.00	889.66	0.00	890.15	114.75	5.64	75.31	37.34
	10550.000	100.00	0.00	0.00	885.54	400.00	889.74	0.00	890.22	115.84	5.56	71.89	37.17
	10600.000	50.00	0.00	0.00	886.12	400.00	890.23	0.00	890.72	114.85	5.64	75.28	37.33
	10600.000	50.00	0.00	0.00	886.12	400.00	890.32	0.00	890.80	115.92	5.57	71.87	37.15
*	10651.000	51.00	0.00	0.00	886.70	400.00	890.59	890.59	891.53	71.95	12.37	66.95	47.16
*	10651.000	51.00	0.00	0.00	886.70	400.00	890.53	890.53	891.67	83.55	13.19	58.88	43.76
	10681.000	30.00	891.20	889.20	886.70	400.00	893.07	0.00	893.17	4.94	4.55	189.06	179.98
	10681.000	30.00	999999.00	0.00	886.70	400.00	893.01	0.00	893.13	5.44	4.75	171.88	171.57
	10755.000	74.00	0.00	0.00	886.96	400.00	893.05	0.00	893.36	49.10	4.58	102.92	57.08
	10755.000	74.00	0.00	0.00	886.96	400.00	892.99	0.00	893.35	60.62	4.85	83.84	51.38
	10795.000	40.00	0.00	0.00	887.10	400.00	893.45	0.00	893.47	1.31	1.12	578.01	349.88
	10795.000	40.00	0.00	0.00	887.10	400.00	893.46	0.00	893.47	1.39	1.16	556.56	338.70
	11026.000	231.00	0.00	0.00	887.90	160.00	893.47	0.00	893.49	0.23	1.68	550.21	337.06
	11026.000	231.00	0.00	0.00	887.90	160.00	893.47	0.00	893.49	0.24	1.74	501.24	326.82
	11416.000	390.00	900.00	892.00	889.50	160.00	895.59	0.00	895.61	0.23	1.27	126.11	336.16
	11416.000	390.00	999999.00	0.00	889.50	160.00	895.59	0.00	895.62	0.23	1.27	126.25	336.69
	11425.000	9.00	0.00	0.00	889.50	160.00	895.59	0.00	895.61	2.14	1.27	126.11	109.26
	11425.000	9.00	0.00	0.00	889.50	160.00	895.59	0.00	895.62	2.14	1.27	126.29	109.46
	11485.000	60.00	0.00	0.00	889.60	160.00	895.60	0.00	895.63	2.29	1.30	123.12	105.78
	11485.000	60.00	0.00	0.00	889.60	160.00	895.60	0.00	895.63	2.27	1.30	123.45	106.16
	11517.000	32.00	0.00	0.00	889.70	160.00	895.59	0.00	895.65	3.69	2.33	120.05	83.27
	11517.000	32.00	0.00	0.00	889.70	160.00	895.59	0.00	895.66	3.85	2.38	111.20	81.52
	11553.000	36.00	903.00	893.70	889.70	160.00	896.63	0.00	896.67	1.99	1.91	154.89	113.32
	11553.000	36.00	999999.00	0.00	889.70	160.00	896.63	0.00	896.68	2.06	1.94	144.73	111.60
	11563.000	10.00	0.00	0.00	889.70	160.00	896.63	0.00	896.68	1.99	1.91	154.99	113.41
	11563.000	10.00	0.00	0.00	889.70	160.00	896.64	0.00	896.68	2.05	1.94	144.88	111.69
	11755.000	192.00	0.00	0.00	890.00	160.00	896.67	0.00	896.72	2.31	2.00	145.75	105.31
	11755.000	192.00	0.00	0.00	890.00	160.00	896.68	0.00	896.73	2.38	2.03	135.81	103.62

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
11955.000	200.00	0.00	0.00	890.30	160.00	896.72	0.00	896.77	2.68	2.10	136.97	97.70
11955.000	200.00	0.00	0.00	890.30	160.00	896.72	0.00	896.78	2 78	2.14	127.03	96.00
12155 000	200.00	0.00	0.00	890.50	160.00	896.80	0.00	896.82	1.23	1.01	159.00	144.00
12155.000	200.00	0.00	0.00	890.50	160.00	896.81	0.00	896.83	1.23	1.00	159.37	144 46
12355.000	200.00	0.00	0.00	888.70	160.00	896.82	0.00	896.84	1.13	1.09	173.81	150.37
12355.000	200.00	0 00	0.00	888.70	160.00	896.84	0.00	896.86	1.42	1.15	139.22	134.45
12425.000	70.00	0.00	0.00	888.50	160.00	896.74	0.00	896.95	3.60	3.68	43.50	84.38
12425.000	70.00	0.00	0.00	888.50	160.00	896.76	0.00	896.97	3.58	3.67	43.60	84.60
12565.000	140.00	907.60	896.00	890.00	160.00	897.73	0.00	897.76	0.31	1.39	115.46	289.62
12565.000	140.00	907.60	896.00	890.00	160.00	897.74	0.00	897.77	0.30	1.38	115.78	290.82
12635.000	70.00	0.00	0.00	890.40	25.00	897.77	0.00	897.77	0.02	0.16	273.68	164.31
12635.000	70.00	0.00	0.00	890.40	25.00	897.78	0.00	897 78	0.03	0.16	237.40	153.46
13251.000	616.00	0.00	0.00	892.90	25.00	897.77	0.00	897.77	0.01	0.00	970 98	280.71
13251.000	616.00	0.00	0.00	892.90	25.00	897.78	0.00	897.78	0.01	0.00	752.25	242.84
13311.000	60.00	895.40	892.30	895.40	25.00	897.59	0.00	897.85	159.47	4.15	6.03	1.98
13311.000	60.00	999999.00	0.00	895.40	25.00	897.60	0.00	897.86	154.93	4.11	6.09	2.01

BISHOP CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	0.000	310.00	842.67	0.00	0.00	0.00	145.78	0.00
	0.000	310.00	842.77	0.10	0.00	0.10	118.81	0.00
	475 000	310.00	842.81	0.00	0.14	0.00	86.07	475.00
	475.000	310.00	842.91	0 09	0.14	0.09	54.34	475.00
	950.000	310.00	843.18	0.00	0.37	0.00	75.01	475.00
	950.000	310.00	843.27	0.09	0.37	0.09	47.25	475.00
	1081.000	310.00	843 39	0.00	0.20	0 00	59.97	131.00
	1081.000	310.00	843.46	0.08	0.19	0.08	37.50	131.00
	1212.000	310.00	843.96	0 00	0.57	0.00	52.50	131.00
	1212.000	310.00	844.04	0.08	0.58	0.08	32.80	131.00
	1475.000	310.00	845.77	0.00	1.81	0.00	51.53	263.00
	1475.000	310.00	845 86	0.09	1.82	0.09	53.55	263.00
	1737.000	310.00	847.43	0.00	1 66	0.00	83.72	262.00
	1737.000	310.00	847.40	-0.04	1.54	-0.04	80.00	262.00
*	2001 000	310.00	848.26	0.00	0.83	0.00	25.54	264.00
*	2001.000	310.00	848.26	0.00	0.87	0.00	25.54	264.00
	2038.800	310.00	851.57	0.00	3.31	0.00	282.20	37.80

2038.800	310.00	851.57	0.00	3.31	0.00	156.66	37.80
2440.000	310.00	851.47	0.00	-0.10	0.00	72.78	401.00
2440.000	310.00	851.48	0.00	-0.09	0.00	73.13	401.00
2840 000	310.00	853.44	0.00	1.97	0.00	53.49	400.00
2840.000	310.00	853.50	0 06	2.02	0.06	25.00	400.00
3178.000	310.00	856.00	0.00	2.56	0.00	31.88	338.00
3178.000	310.00	856.09	0.09	2.59	0.09	33.88	338.00
3515.000	310.00	859.91	0.00	3.91	0.00	68.06	337.00
3515.000	310 00	859 86	-0.04	3.78	-0.04	64.80	337.00
3853.000	310 00	862.88	0.00	2.97	0 00	114.02	338.00
3853.000	310 00	862.97	0.09	3.10	0.09	55.62	338.00
4190.000	310.00	865.82	0 00	2.94	0.00	122.59	337.00
4190.000	310.00	865.93	0.12	2.97	0.12	94.39	337.00
4915.000	310.00	868.78	0.00	2.97	0 00	67.64	725.00
4915.000	310.00	868.91	0.12	2.97	0.12	25.50	725.00

1

13 FEB 89 10:24:18 PAGE 64

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
5640.000	310 00	870.57	0.00	1.78	0.00	74.95	725.00
5640.000	310 00	870.68	0.12	1 78	0.12	52.52	725.00
5790.000	310.00	870.82	0.00	0.26	0.00	91.42	150.00
5790.000	310 00	870.94	0.12	0.26	0.12	74.33	150.00
5940.000	310.00	870.93	0.00	0.10	0.00	153.07	150.00
5940.000	310.00	871.05	0.12	0.10	0.12	101.32	150.00
5965.000	310.00	870.93	0 00	0.01	0.00	153.52	25.00
5965.000	310.00	871.05	0.12	0.01	0.12	102.77	25.00
6090.000	310.00	870.98	0.00	0.04	0.00	211.11	125.00
6090.000	310.00	871.10	0.12	0.04	0.12	154.97	125.00
6220.000	310.00	871.00	0.00	0.02	0.00	268.77	130 00
6220.000	310.00	871.12	0.12	0.02	0.12	200.07	130.00
6241 000	310.00	871.00	0.00	0.00	0.00	268.56	21.00
6241.000	310 00	871.12	0.12	0.00	0.12	200.16	21.00
6305.000	310.00	872.84	0 00	1.84	0.00	328.28	64.00
6305.000	310.00	872.96	0.12	1.84	0.12	240.28	64 00
6311.000	400.00	872.84	0.00	0.00	0 00	328.25	6.00
6311.000	400.00	872.96	0.12	0.00	0.12	238.29	6.00
6450.000	400.00	872.84	0.00	0.01	0.00	326.05	139.00
6450.000	400 00	872.96	0 12	0.01	0.12	235.88	139.00
6900.000	400.00	872.87	0.00	0.02	0.00	193.45	450.00
6900.000	400.00	872.99	0.12	0.02	0.12	193.88	450.00
7403.000	400.00	872.91	0.00	0.05	0.00	139.40	503.00
7403 000	400.00	873.02	0.11	0 04	0.11	114.30	503.00
7504.000	400 00	873.00	0.00	0.09	0.00	133.50	101.00

7504.000	400.00	873.11	0.11	0.08	0 11	98.68	101.00
7535 000	400.00	876.97	0.00	3 96	0.00	243.92	31.00
7535.000	400.00	877.07	0.11	3.96	0.11	142 12	31.00
7735.000	400 00	876.92	0.00	-0.05	0.00	102.25	200.00
7735.000	400.00	877.02	0.10	-0.05	0.10	51.59	200.00
8186.000	400.00	877.46	0.00	0.54	0.00	93.52	451.00
8186.000	400.00	877.55	0 09	0.53	0.09	52.53	451.00
8202.000	400 00	879.14	0.00	1.68	0.00	119.45	16.00
8202.000	400.00	879.23	0.09	1.68	0.09	87 81	16.00

1

13 FEB 89 10:24:18 PAGE 65

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
8475.000	400.00	879.25	0.00	0.11	0.00	46.74	273.00
8475.000	400.00	879.34	0.10	0.11	0.10	47.23	273.00
8751.000	400.00	879.36	0.00	0.11	0.00	210.00	276.00
8751.000	400.00	879.45	0.09	0.11	0.09	198.48	276.00
8791.000	400.00	879.41	0.00	0.05	0.00	210.00	40.00
8791.000	400.00	879.50	0.09	0 05	0.09	198.90	40.00
8808.000	400.00	879.41	0.00	0.00	0.00	240.00	17.00
8808.000	400 00	879.50	0.09	0.00	0.09	146.60	17.00
8824.000	400.00	879.44	0.00	0.03	0.00	240.00	16.00
8824.000	400.00	879.53	0.09	0.03	0.09	400.98	16.00
9226.000	400 00	879.36	0.00	-0.08	0.00	231.91	402.00
9226.000	400 00	879.44	0.08	-0.09	0 08	158.62	402.00
9269.000	400.00	879.48	0.00	0.13	0.00	260.91	43.00
9269.000	400.00	879.57	0.08	0.13	0 08	196.48	43.00
9375.000	400.00	879.41	0.00	-0.07	0.00	63.49	106.00
9375.000	400.00	879.50	0 09	-0.06	0.09	34.72	106.00
9475.000	400.00	879.91	0.00	0.50	0 00	56.34	100.00
9475 000	400.00	879.98	0.06	0.48	0.06	34.36	100.00
9575.000	400.00	880.56	0.00	0.65	0.00	117.85	100.00
9575.000	400.00	880.59	0.03	0.61	0.03	77.35	100.00
9675.000	400.00	881.04	0 00	0.48	0.00	114.30	100.00
9675.000	400.00	881.12	0.08	0.53	0.08	74.69	100 00
9775.000	400.00	881.61	0.00	0.57	0.00	113.73	100.00
9775.000	400.00	881.71	0 09	0.59	0.09	72.05	100.00
* 9876.000	400.00	882.34	0.00	0.73	0.00	119.35	101.00
* 9876.000	400 00	882.37	0.03	0.66	0.03	82.35	101.00
9893.000	400.00	883.00	0.00	0.66	0.00	144.66	17.00
9893.000	400 00	883.03	0.03	0.66	0.03	100.96	17.00
9950 000	400.00	883.01	0.00	0 01	0.00	123.91	57.00
9950.000	400.00	883.03	0.02	0.01	0.02	73.32	57.00
10000.000	400.00	883.37	0.00	0.36	0.00	114.39	50.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	10000.000	400.00	883.43	0.06	0.40	0.06	65.22	50.00
	10100.000	400.00	884.44	0.00	1.07	0.00	111.45	100.00
	10100.000	400.00	884.53	0.09	1.10	0.09	58.99	100.00

1
13 FEB 89 10:24:18 PAGE 66

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	10200.000	400.00	885.63	0.00	1.20	0.00	112.37	100.00
	10200.000	400.00	885.74	0.10	1.21	0.10	59.07	100.00
	10350.000	400.00	887.32	0.00	1.68	0.00	36.47	150.00
	10350.000	400.00	887.43	0.11	1.69	0.11	28.99	150.00
	10450.000	400.00	888.49	0.00	1.17	0.00	36.45	100.00
	10450.000	400.00	888.58	0.10	1.15	0.10	29.00	100.00
	10550.000	400.00	889.66	0.00	1.17	0.00	36.62	100.00
	10550.000	400.00	889.74	0.08	1.15	0.08	28.98	100.00
	10600.000	400.00	890.23	0.00	0.57	0.00	36.61	50.00
	10600.000	400.00	890.32	0.08	0.58	0.08	28.98	50.00
*	10651.000	400.00	890.59	0.00	0.35	0.00	34.52	51.00
*	10651.000	400.00	890.53	-0.06	0.21	-0.06	23.93	51.00
	10681.000	400.00	893.07	0.00	2.48	0.00	66.17	30.00
	10681.000	400.00	893.01	-0.06	2.48	-0.06	45.97	30.00
	10755.000	400.00	893.05	0.00	-0.02	0.00	46.92	74.00
	10755.000	400.00	892.99	-0.06	-0.03	-0.06	24.63	74.00
	10795.000	400.00	893.45	0.00	0.41	0.00	120.00	40.00
	10795.000	400.00	893.46	0.00	0.47	0.00	116.28	40.00
	11026.000	160.00	893.47	0.00	0.01	0.00	169.96	231.00
	11026.000	160.00	893.47	0.00	0.01	0.00	128.96	231.00
	11416.000	160.00	895.59	0.00	2.12	0.00	32.44	390.00
	11416.000	160.00	895.59	0.00	2.12	0.00	32.46	390.00
	11425.000	160.00	895.59	0.00	0.00	0.00	32.44	9.00
	11425.000	160.00	895.59	0.00	0.00	0.00	32.46	9.00
	11485.000	160.00	895.60	0.00	0.01	0.00	32.09	60.00
	11485.000	160.00	895.60	0.00	0.01	0.00	32.13	60.00
	11517.000	160.00	895.59	0.00	-0.01	0.00	31.72	32.00
	11517.000	160.00	895.59	0.00	-0.01	0.00	23.53	32.00
	11553.000	160.00	896.63	0.00	1.04	0.00	35.70	36.00
	11553.000	160.00	896.63	0.00	1.04	0.00	26.82	36.00
	11563.000	160.00	896.63	0.00	0.00	0.00	35.71	10.00
	11563.000	160.00	896.64	0.00	0.00	0.00	26.86	10.00
	11755.000	160.00	896.67	0.00	0.04	0.00	34.70	192.00
	11755.000	160.00	896.68	0.00	0.04	0.00	25.89	192.00

1
13 FEB 89 10:24:18 PAGE 67

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
11955.000	160.00	896.72	0.00	0.05	0.00	33.71	200.00
11955.000	160.00	896.72	0.01	0.05	0.01	24.85	200.00
12155.000	160 00	896.80	0.00	0.08	0.00	38 56	200.00
12155.000	160.00	896.81	0.01	0.09	0.01	38.60	200.00
12355.000	160.00	896.82	0.00	0.02	0.00	40.00	200.00
12355.000	160.00	896.84	0.01	0.02	0.01	25.00	200 00
12425.000	160.00	896.74	0.00	-0.08	0.00	5.80	70.00
12425 000	160.00	896.76	0 01	-0.08	0.01	5.80	70.00
12565.000	160.00	897.73	0.00	0.98	0.00	22.00	140.00
12565.000	160.00	897.74	0.01	0.98	0.01	22.00	140.00
12635.000	25.00	897.77	0.00	0.04	0.00	103.40	70.00
12635.000	25.00	897.78	0.01	0.04	0.01	62.07	70.00
13251.000	25 00	897.77	0.00	0.00	0.00	477.75	616.00
13251.000	25.00	897.78	0.01	0.00	0.01	246.74	616.00
13311.000	25.00	897.59	0.00	-0.18	0.00	4.47	60.00
13311.000	25.00	897.60	0.01	-0.18	0.01	4.48	60.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION  SECNO=  2001.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  2001.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  2001.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  2001.000  PROFILE= 2  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=  9876.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  9876.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  9876 000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  9876.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  9876.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  9876.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO= 10651.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 10651.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 10651.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 10651.000  PROFILE= 2  MINIMUM SPECIFIC ENERGY
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FLOODWAY DATA, BISHOP CREEK
PROFILE NO 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE

0.000	119.	448.	0.7	842.8	842.7	0.1
475.000	54.	162.	1.9	842.9	842.8	0.1
950.000	47.	126	2.5	843.3	843.2	0.1
1081.000	37.	84.	3.7	843.5	843.4	0.1
1212.000	33.	67.	4.6	844.1	844.0	0.1
1475.000	54.	79.	3.9	845.9	845.8	0.1
1737.000	80.	86.	3.6	847.4	847.4	0.0
2001.000	26.	42.	7.3	848.3	848.3	0.0
2038.800	157.	417.	0.7	851.6	851.6	0.0
2440.000	73.	86.	3.6	851.5	851.5	0.0
2840.000	25.	74.	4.2	853.5	853.4	0.1
3178.000	34.	55.	5.6	856.1	856.0	0.1
3515.000	65.	82.	3.8	859.9	859.9	0.0
3853.000	56.	88.	3.5	863.0	862.9	0.1
4190.000	94.	147.	2.1	865.9	865.8	0.1
4915.000	26.	87.	3.5	868.9	868.8	0.1
5640.000	53.	127.	2.4	870.7	870.6	0.1
5790.000	74.	225.	1.4	870.9	870.8	0.1
5940.000	101.	344.	0.9	871.0	870.9	0.1
5965.000	103.	347.	0.9	871.0	870.9	0.1
6090.000	155.	540.	0.6	871.1	871.0	0.1
6220.000	200.	746.	0.4	871.1	871.0	0.1
6241.000	200.	747.	0.4	871.1	871.0	0.1
6305.000	240.	1253.	0.2	872.9	872.8	0.1
6311.000	238.	1247.	0.3	872.9	872.8	0.1
6450.000	236.	1225.	0.3	872.9	872.8	0.1
6900.000	194.	966.	0.4	873.0	872.9	0.1
7403.000	114.	260.	1.5	873.0	872.9	0.1
7504.000	99.	163.	2.5	873.1	873.0	0.1
7535.000	142.	747.	0.5	877.1	877.0	0.1
7735.000	52	171	2.3	877.0	876.9	0.1
8186.000	53.	157.	2.5	877.6	877.5	0.1
8202.000	88.	369.	1.1	879.2	879.1	0.1
8475.000	47.	176.	2.3	879.3	879.2	0.1
8751.000	198.	1011.	0.4	879.5	879.4	0.1
8791.000	199.	1023.	0.4	879.5	879.4	0.1
8808.000	147.	850	0.5	879.5	879.4	0.1
8824.000	401.	1583.	0.3	879.5	879.4	0.1
9226.000	159	323.	1.2	879.5	879.4	0.1
9269.000	196.	545.	0.7	879.6	879.5	0.1
9375.000	35.	101.	4.0	879.5	879.4	0.1
9475.000	34.	97.	4.1	880.0	879.9	0.1

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FLOODWAY DATA, BISHOP CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
9575.000	77.	120.	3.3	880.6	880.6	0.0
9675.000	75	113.	3.5	881.1	881.0	0.1
9775.000	72.	111.	3.6	881.7	881.6	0.1
9876.000	82	124	3.2	882.3	882.3	0.0
9893.000	101.	206.	1.9	883.0	883.0	0.0
9950.000	73.	125.	3.2	883.0	883.0	0.0
10000.000	65.	105.	3.8	883.5	883.4	0.1
10100.000	59.	95.	4.2	884.5	884.4	0.1
10200.000	59.	98.	4.1	885.7	885.6	0.1
10350.000	29.	72.	5.6	887.4	887.3	0.1

10450 000	29.	72	5.6	888.6	888.5	0.1
10550.000	29.	72.	5.6	889.8	889.7	0.1
10600.000	29.	72.	5.6	890.3	890.2	0.1
10651 000	24.	59.	6.8	890 6	890.6	0.0
10681 000	46.	172.	2.3	893.1	893.1	0.0
10755.000	40.	84.	4.8	893.0	893 0	0.0
10795.000	116.	557.	0.7	893.5	893.5	0.0
11026.000	129.	501.	0.3	893.5	893.5	0 0
11416.000	32.	126.	1.3	895 6	895.6	0.0
11425.000	32.	126.	1.3	895 6	895.6	0.0
11485.000	32	123.	1.3	895.6	895.6	0.0
11517.000	24.	111.	1.4	895 6	895 6	0.0
11553.000	27	145.	1.1	896.6	896.6	0.0
11563 000	27.	145	1.1	896.6	896.6	0.0
11755.000	26.	136.	1.2	896.7	896.7	0.0
11955.000	25.	127.	1.3	896.7	896.7	0.0
12155.000	39.	159.	1.0	896.8	896.8	0.0
12355.000	25.	139.	1.1	896.8	896.8	0.0
12425.000	6.	44.	3.7	896.7	896.7	0.0
12565.000	22.	116.	1.4	897.7	897.7	0.0
12635.000	62.	237.	0.1	897.8	897.8	0.0
13251.000	247.	752.	0.0	897.8	897.8	0.0
13311.000	4.	6.	4.1	897.6	897.6	0.0

1

THIS RUN EXECUTED 13 FEB 89 10:25:30

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

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI CITY

3) WATERCOURSE: INGERSOL CREEK

4) DOCUMENT TYPE: 100 YR

00BREAK00

THIS RUN EXECUTED 08/28/91 08:47:06

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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 1.1
**********************************************

C
T1      CITY OF NOVI   JOB NO.5555-46-04
T2      100 YEAR FLOOD
T3      INGERSOL CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        2.        0.        0.   .000000       .00        .0        0.   839.290      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1.000      .000    -1.000      .000      .000      .000      .000      .000      .000      .000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     110.000   150.000   200.000      .000      .000      .000      .000      .000      .000      .000


NC       .100      .100      .050      .300      .500      .000      .000      .000      .000      .000
QT      2.000   930.000   930.000      .000      .000      .000      .000      .000      .000      .000
ET       .000     4.100     4.100   603.000   713.000      .000      .000      .000      .000      .000
X1  14131.000    33.000   650.000   666.000      .000      .000      .000      .000      .000      .000
GR    844.200      .000   843.200    50.000   837.800   150.000   839.300   250.000   836.900   350.000
GR    837.600   450.000   839.100   550.000   837.800   625.000   837.000   630.000   833.900   650.000
GR    833.400   651.000   833.200   658.000   833.200   666.000   836.600   686.500   837.300   691.000
GR    839.200   750.000   837.400   850.000   835.400   856.000   838.100   877.000   835.600   900.000
GR    837.500   950.000   837.800  1050.000   837.000  1150.000   837.200  1250.000   838.000  1350.000
GR    837.700  1450.000   838.500  1550.000   838.800  1650.000   840.400  1750.000   841.400  1850.000
GR    842.100  1950.000   842.200  2050.000   842.700  2150.000      .000      .000      .000      .000

NC       .015      .015      .020      .300      .500      .000      .000      .000      .000      .000
ET       .000     4.100     4.100   871.300   928.700      .000      .000      .000      .000      .000
            MEADOWBROOK ROAD
X1  14236.000    36.000   871.300   928.700   105.000   105.000   105.000      .000      .200      .000
GR    844.200   242.000   843.200   292.000   837.800   392.000   839.300   492.000   836.900   592.000
GR    837.600   692.000   839.100   792.000   837.800   867.000   837.100   871.300   837.000   872.000
GR    833.900   892.000   833.400   893.000   833.200   900.000   833.200   908.000   836.600   928.700
GR    837.300   933.000   839.200   992.000   837.400  1092.000   835.400  1098.000   837.400  1113.300
GR    838.100  1119.000   835.600  1141.000   836.700  1170.700   837.500  1192.000   837.800  1292.000
GR    837.000  1392.000   837.200  1492.000   838.000  1592.000   837.700  1692.000   838.500  1792.000
GR    838.800  1892.000   840.400  1992.000   841.400  2092.000   842.100  2192.000   842.200  2292.000
GR    842.700  2392.000      .000      .000      .000      .000      .000      .000      .000      .000
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SB       .000     1.560     2.900      .000    57.400      .000   250.000      .000      .000      .000
ET       .000     4.100     4.100   871.300   928.700      .000      .000      .000      .000      .000
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X1	14276.000	.000	.000	.000	40.000	40.000	40.000	.000	.000	.000
X2	.000	.000	1.000	839.600	838.800	.000	.000	.000	.000	.000
BT	26.000	.000	852.500	.000	100.000	850.600	.000	200.000	847.800	.000
BT	300.000	844.700	.000	400.000	842.000	.000	500.000	840.700	.000	600.000
BT	841.100	.000	700.000	841.600	.000	800.000	842.200	.000	850.000	842.200
BT	.000	871.300	842.300	.000	871.300	845.800	839.600	928.700	845.500	839.300
BT	928.700	842.000	.000	950.000	841.800	.000	1000.000	841.100	.000	1080.000
BT	840.000	.000	1100.000	839.800	.000	1200.000	838.800	.000	1300.000	838.800
BT	.000	1400.000	839.100	.000	1500.000	839.500	.000	1600.000	839.700	.000
BT	1700.000	840.100	.000	1800.000	840.300	.000	1900.000	840.700	.000	.000
NC	.100	.100	.050	.300	.500	.000	.000	.000	.000	.000
ET	.000	4.100	1.400	433.000	883.000	.000	.000	.000	.000	.000
X1	14669.000	38.000	629.300	686.700	431.000	251.000	393.000	.000	.600	.000
GR	844.200	.000	843.200	50.000	837.800	150.000	839.300	250.000	836.900	350.000
GR	837.500	433.000	836.600	450.000	839.100	550.000	837.800	625.000	837.100	629.300
GR	837.000	630.000	833.900	650.000	833.400	651.000	833.200	658.000	833.200	666.000
GR	836.600	686.700	837.300	691.000	839.200	750.000	837.400	850.000	835.400	856.000
GR	837.400	871.300	838.100	877.000	837.400	883.000	835.600	900.000	836.700	928.700
GR	837.500	950.000	837.800	1050.000	837.000	1150.000	837.200	1250.000	838.000	1350.000
GR	837.700	1450.000	838.500	1550.000	838.800	1650.000	840.400	1750.000	841.400	1850.000
GR	842.100	1950.000	842.200	2050.000	842.700	2150.000	.000	.000	.000	.000
ET	.000	4.100	.000	.000	860.000	.000	.000	.000	.000	.000
X1	15341.000	32.000	345.000	357.000	710.000	500.000	672.000	.000	.000	.000
GR	850.000	.000	848.500	57.000	846.300	70.000	848.000	125.000	849.300	157.000
GR	847.700	184.000	846.100	208.000	848.100	257.000	847.800	277.000	842.500	315.000
GR	836.600	341.000	834.800	345.000	834.500	348.000	834.700	357.000	836.900	360.000
GR	838.800	407.000	839.000	416.000	842.200	433.000	842.000	457.000	838.200	554.000
GR	840.600	576.000	837.200	604.000	840.000	657.000	841.000	757.000	843.300	857.000
GR	841.900	957.000	842.400	1057.000	843.100	1157.000	843.100	1257.000	840.600	1298.000
GR	843.200	1357.000	843.800	1437.000	.000	.000	.000	.000	.000	.000
NC	.030	.030	.050	.300	.500	.000	.000	.000	.000	.000
QT	2.000	800.000	800.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	.000	100.000	465.000	.000	.000	.000	.000	.000

CONFLUENCE WITH BISHOP CREEK

X1	16311.000	19.000	100.000	140.000	970.000	1050.000	970.000	.000	.000	.000
GR	851.700	.000	851.200	15.000	846.100	50.000	842.900	100.000	835.700	119.000
GR	835.100	124.000	835.800	129.000	839.900	140.000	840.000	200.000	842.700	300.000
GR	842.300	400.000	843.300	500.000	843.300	560.000	843.400	600.000	843.100	700.000
GR	845.300	800.000	845.700	900.000	845.200	1000.000	846.900	1055.000	.000	.000
ET	.000	4.100	.000	100.000	310.000	.000	.000	.000	.000	.000
X1	16657.000	20.000	100.000	140.000	340.000	380.000	346.000	.000	1.300	.000
GR	851.700	.000	851.200	15.000	846.100	50.000	842.900	100.000	835.700	119.000
GR	835.100	124.000	835.800	129.000	839.900	140.000	840.700	200.000	842.700	300.000
GR	842.700	310.000	842.300	400.000	843.300	500.000	843.300	560.000	843.400	600.000
GR	843.100	700.000	845.300	800.000	845.700	900.000	845.200	1000.000	846.900	1055.000

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ET	.000	4.100	.000	.000	400.000	.000	.000	.000	.000	.000
X1	17300.000	24.000	260.200	303.800	660.000	670.000	643.000	.000	.200	.000
GR	853.900	.000	849.700	100.000	844.700	200.000	842.200	260.000	842.100	260.200
GR	841.700	262.000	836.800	273.000	838.500	278.000	838.400	282.000	838.000	285.000
GR	840.000	291.000	840.800	298.200	841.000	300.000	841.000	303.800	841.200	356.500
GR	841.300	400.000	844.100	500.000	844.600	600.000	845.200	700.000	846.300	800.000
GR	846.700	900.000	847.900	1000.000	846.200	1100.000	849.200	1200.000	.000	.000
NC	.015	.015	.020	.300	.500	.000	.000	.000	.000	.000
ET	.000	4.100	.000	.000	510.000	.000	.000	.000	.000	.000

WILLOWBROOK DRIVE

X1	17301.000	22.000	356.500	400.000	1.000	1.000	1.000	.000	.000	.000

BT	16.000	.000	854.100	.000	100.000	852.200	.000	200.000	850.900	.000
BT	300.000	848.600	.000	356.500	847.800	844.700	400.000	846.200	843.500	500.000
BT	842.500	.000	600.000	842.900	.000	700.000	843.300	.000	800.000	843.800
BT	.000	900.000	844.500	.000	1000.000	845.000	.000	1100.000	845.900	.000
BT	1200.000	846.600	.000	1300.000	848.100	.000	1400.000	849.700	.000	.000
GR	854.100	.000	852.200	100.000	850.900	200.000	848.600	300.000	847.800	356.500
GR	843.500	356.500	839.100	375.000	838.600	385.000	839.400	391.000	839.800	392.000
GR	841.500	400.000	846.200	400.000	842.500	500.000	842.900	600.000	843.300	700.000
GR	843.800	800.000	844.500	900.000	845.000	1000.000	845.900	1100.000	846.600	1200.000
GR	848.100	1300.000	849.700	1400.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	.000	.000	510.000	.000	.000	.000	.000	.000
X1	17341.000	.000	.000	.000	40.000	40.000	40.000	.000	.000	.000
X2	.000	.000	.000	.000	.000	.000	1.000	.000	.000	.000
NC	.040	.030	.050	.300	.500	.000	.000	.000	.000	.000
ET	.000	4.100	.000	.000	400.000	.000	.000	.000	.000	.000
X1	17342.000	24.000	260.200	303.800	1.000	1.000	1.000	.000	.200	.000
GR	853.900	.000	849.700	100.000	844.700	200.000	842.200	260.000	842.100	260.200
GR	841.700	262.000	838.800	273.000	838.500	278.000	838.400	282.000	838.800	285.000
GR	840.000	291.000	840.800	298.200	841.000	300.000	841.000	303.800	841.200	356.500
GR	841.300	400.000	844.100	500.000	844.600	600.000	845.200	700.000	846.300	800.000
GR	846.700	900.000	847.900	1000.000	846.200	1100.000	849.200	1200.000	.000	.000
X1	17437.000	23.000	260.000	300.000	95.000	95.000	95.000	.000	-.100	.000
GR	853.900	.000	849.700	100.000	844.700	200.000	843.200	236.000	842.200	260.000
GR	841.700	262.000	838.800	273.000	838.500	278.000	838.400	282.000	838.800	285.000
GR	840.000	291.000	840.800	293.200	841.000	300.000	841.000	308.000	841.300	400.000
GR	844.100	500.000	844.600	600.000	845.200	700.000	846.300	800.000	846.700	900.000
GR	847.900	1000.000	846.200	1100.000	849.200	1200.000	.000	.000	.000	.000
ET	.000	4.100	.000	.000	390.000	.000	.000	.000	.000	.000
X1	17701.000	13.000	258.000	300.000	400.000	150.000	264.000	.000	.000	.000
GR	850.800	.000	847.400	100.000	848.600	200.000	848.000	236.000	847.500	258.000
GR	839.600	280.000	837.700	286.000	839.500	293.000	842.600	300.000	842.700	308.000
GR	844.300	400.000	843.300	445.000	844.900	500.000	.000	.000	.000	.000

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NC	.040	.100	.050	.300	.500	.000	.000	.000	.000	.000
X1	18455.000	18.000	345.000	400.000	570.000	850.000	754.000	.000	-.200	.000
GR	851.300	.000	850.800	100.000	850.200	173.000	850.400	200.000	850.900	300.000
GR	848.800	345.000	844.700	352.500	841.100	360.000	840.400	368.000	840.700	373.000
GR	841.400	376.000	845.600	392.500	847.500	400.000	847.600	405.000	849.200	500.000
GR	851.100	600.000	850.200	700.000	851.800	800.000	.000	.000	.000	.000
ET	.000	4.100	.000	349.000	387.000	.000	.000	.000	.000	.000
X1	18522.000	22.000	349.000	387.000	67.000	67.000	67.000	.000	.000	.000
GR	851.000	.000	850.800	100.000	850.200	173.000	850.400	200.000	850.900	300.000
GR	850.200	330.000	848.800	345.000	846.600	349.000	844.700	352.500	841.100	360.000
GR	840.400	368.000	840.700	373.000	841.400	376.000	844.200	387.000	845.600	392.500
GR	847.500	400.000	847.600	406.000	848.600	462.000	849.200	500.000	851.100	600.000
GR	850.200	700.000	851.800	800.000	.000	.000	.000	.000	.000	.000
NC	.015	.015	.020	.300	.500	.000	.000	.000	.000	.000

CRANBROOKE ROAD

X1	18523.000	20.000	462.000	500.000	1.000	1.000	1.000	.000	.000	.000
BT	13.000	.000	852.600	.000	100.000	852.200	.000	200.000	851.100	.000
BT	300.000	849.600	.000	400.000	849.800	.000	462.000	850.700	847.600	500.000
BT	850.900	847.800	600.000	850.100	.000	700.000	849.200	.000	800.000	850.000
BT	.000	900.000	851.200	.000	1000.000	852.200	.000	1100.000	854.000	.000
GR	852.600	.000	852.200	100.000	851.100	200.000	849.600	300.000	849.800	400.000
GR	850.700	462.000	846.500	462.000	841.400	476.000	840.900	477.000	841.000	480.000
GR	840.500	486.000	841.300	487.000	846.700	500.000	850.900	500.000	850.100	600.000

GR	849.200	700.000	850.000	800.000	851.200	900.000	852.200	1000.000	854.000	1100.000
X1	18598.000	.000	.000	.000	75.000	75.000	75.000	.000	.200	.000
X2	.000	.000	.000	.000	.000	.000	1.000	.000	.000	.000
NC	.030	.030	.050	.300	.500	.000	.000	.000	.000	.000
ET	.000	4.100	.000	349.000	387.000	.000	.000	.000	.000	.000
X1	18599.000	22.000	349.000	387.000	1.000	1.000	1.000	.000	.200	.000
GR	851.300	.000	850.800	100.000	850.200	173.000	850.400	200.000	850.900	300.000
GR	850.200	330.000	848.800	345.000	846.600	349.000	844.700	352.500	841.100	360.000
GR	840.400	368.000	840.700	373.000	841.400	376.000	844.200	387.000	845.600	392.500
GR	847.500	400.000	847.600	406.000	848.600	462.000	849.200	500.000	851.100	600.000
GR	850.200	700.000	851.800	800.000	.000	.000	.000	.000	.000	.000
X1	18713.000	15.000	183.000	225.000	114.000	114.000	114.000	.000	-.600	.000
GR	851.000	.000	850.400	25.000	845.100	35.000	844.900	40.000	844.900	43.000
GR	846.000	52.000	847.500	125.000	848.200	183.000	841.800	200.000	841.600	205.000
GR	842.000	209.000	848.200	225.000	848.000	275.000	850.600	325.000	849.800	425.000
ET	.000	.000	4.100	47.000	240.000	.000	.000	.000	.000	.000
X1	18916.000	15.000	183.000	225.000	203.000	203.000	203.000	.000	.000	.000
GR	851.000	.000	850.400	25.000	845.100	35.000	844.900	40.000	844.900	43.000
GR	846.000	52.000	847.500	125.000	848.200	183.000	841.800	200.000	841.600	205.000
GR	842.000	209.000	848.200	225.000	848.000	275.000	850.600	325.000	849.800	425.000

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ET	.000	.000	1.400	.000	.000	.000	.000	.000	.000	.000
X1	19031.000	17.000	183.000	225.000	115.000	115.000	115.000	.000	.600	.000
GR	851.000	.000	850.400	25.000	845.100	35.000	844.900	40.000	844.900	43.000
GR	846.000	52.000	847.500	125.000	847.700	145.000	848.200	183.000	841.800	200.000
GR	841.600	205.000	842.000	209.000	848.200	225.000	848.000	275.000	850.600	325.000
GR	850.400	402.000	849.800	425.000	.000	.000	.000	.000	.000	.000
NC	.015	.015	.020	.300	.500	.000	.000	.000	.000	.000

TEN MILE ROAD

X1	19680.000	25.000	496.000	504.000	881.000	501.000	649.000	.000	.000	.000
GR	854.900	18.000	852.500	118.000	850.100	218.000	848.100	318.000	850.600	383.000
GR	851.000	418.000	848.100	486.000	845.000	492.000	844.800	496.000	844.600	500.000
GR	844.800	504.000	845.100	510.000	847.600	514.000	850.000	518.000	850.100	522.000
GR	852.700	618.000	852.600	718.000	852.900	818.000	853.000	918.000	853.200	1018.000
GR	853.000	1110.000	852.300	1218.000	853.300	1318.000	854.100	1418.000	855.200	1518.000
SB	.000	1.560	2.600	.000	8.000	.000	46.000	.000	.000	.000
X1	19722.000	.000	.000	.000	42.000	42.000	42.000	.000	.000	.000
X2	.000	.000	1.000	849.300	851.400	.000	.000	.000	.000	.000
BT	16.000	.000	855.800	.000	100.000	854.300	.000	200.000	852.900	.000
BT	300.000	851.700	.000	400.000	851.400	.000	496.000	851.400	849.300	498.000
BT	851.400	849.300	502.000	851.400	849.300	504.000	851.400	849.300	600.000	852.100
BT	.000	700.000	852.500	.000	800.000	853.000	.000	900.000	853.600	.000
BT	1000.000	853.700	.000	1200.000	853.800	.000	1300.000	853.900	.000	.000
NC	.030	.030	.050	.300	.500	.000	.000	.000	.000	.000
ET	.000	4.100	.000	.000	700.000	.000	.000	.000	.000	.000
X1	19746.000	24.000	438.000	518.000	24.000	24.000	24.000	.000	-.900	.000
GR	855.900	.000	854.400	100.000	852.900	200.000	852.800	256.000	851.900	295.000
GR	851.800	300.000	851.800	304.200	851.200	400.000	851.000	438.000	850.900	452.000
GR	846.400	462.000	845.100	472.000	844.900	473.700	844.500	478.000	845.000	482.300
GR	845.100	484.000	853.100	500.000	853.300	518.000	854.200	600.000	853.500	700.000
GR	853.900	800.000	853.100	900.000	854.600	1000.000	855.900	1100.000	.000	.000
NC	.030	.030	.015	.300	.500	.000	.000	.000	.000	.000
ET	.000	4.100	.000	.000	510.000	.000	.000	.000	.000	.000

EET 1 =

X1	19850.000	22.000	473.700	482.300	104.000	104.000	104.000	.000	-.700	.000
GR	855.900	.000	854.400	100.000	852.900	200.000	852.800	256.000	851.900	295.700
GR	851.800	300.000	851.800	304.200	851.200	400.000	850.900	452.000	846.400	462.000
GR	845.100	472.000	844.900	473.700	844.500	478.000	845.000	482.300	845.100	484.000
GR	853.100	500.000	854.200	600.000	853.500	700.000	853.900	800.000	853.100	900.000
GR	854.600	1000.000	855.900	1100.000	.000	.000	.000	.000	.000	.000
SB	.000	1.900	2.800	.000	10.000	.000	55.000	.000	.000	.000
ET	.000	4.100	.000	.000	510.000	.000	.000	.000	.000	.000
X1	19942.000	.000	.000	.000	92.000	92.000	92.000	.000	.000	.000
X2	.000	.000	1.000	850.600	851.000	.000	.000	.000	.000	.000
BT	13.000	180.000	855.800	.000	280.000	854.200	.000	380.000	853.100	.000
BT	474.800	851.400	848.600	476.600	851.400	850.200	480.000	851.400	850.600	483.400
BT	851.400	850.200	485.200	851.400	848.600	580.000	851.000	.000	680.000	852.400
BT	.000	762.000	852.400	.000	880.000	855.800	.000	980.000	855.600	.000

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NC	.100	.100	.050	.300	.500	.000	.000	.000	.000	.000
X1	20150.000	22.000	452.000	500.000	76.000	311.000	208.000	.000	.100	.000
GR	855.900	.000	854.400	100.000	852.900	200.000	852.800	256.000	851.900	295.700
GR	851.800	300.000	851.800	304.200	851.200	400.000	850.900	452.000	846.400	462.000
GR	845.100	472.000	844.900	473.700	844.500	478.000	845.000	482.300	845.100	484.000
GR	853.100	500.000	854.200	600.000	853.500	700.000	853.900	800.000	853.100	900.000
GR	854.600	1000.000	855.900	1100.000	.000	.000	.000	.000	.000	.000
X1	20596.000	13.000	200.000	250.000	446.000	446.000	446.000	.000	.000	.000
GR	856.800	.000	853.700	100.000	851.100	200.000	846.200	214.000	846.100	225.000
GR	846.100	235.000	850.400	250.000	850.400	300.000	853.600	400.000	854.100	500.000
GR	855.500	600.000	856.200	700.000	856.500	800.000	.000	.000	.000	.000
X1	20836.000	14.000	200.000	250.000	240.000	240.000	240.000	.000	-.300	.000
GR	856.800	.000	853.700	100.000	851.100	200.000	846.200	214.000	846.100	225.000
GR	846.100	235.000	850.400	250.000	850.400	300.000	853.600	400.000	853.700	425.000
GR	854.100	500.000	855.500	600.000	856.200	700.000	856.500	800.000	.000	.000
NC	.015	.015	.015	.300	1.000	.000	.000	.000	.000	.000
ET	.000	4.100	6.100	250.000	600.000	290.000	360.000	.000	.000	.000

GRAND RIVER AVENUE

X1	21668.000	22.000	294.700	303.300	871.000	751.000	832.000	.000	.000	.000
GR	859.000	150.000	856.800	240.000	854.300	282.000	847.300	294.700	844.900	299.000
GR	845.500	303.300	846.200	308.000	847.100	318.000	847.600	332.000	851.700	340.000
GR	853.600	440.000	853.700	445.700	853.800	454.200	855.300	540.000	856.100	640.000
GR	856.300	740.000	856.400	840.000	856.300	940.000	856.600	1040.000	857.600	1140.000
GR	856.900	1240.000	857.800	1340.000	.000	.000	.000	.000	.000	.000
SB	.000	1.560	2.600	.000	9.600	.000	46.000	.000	.000	.000
ET	.000	4.100	1.400	250.000	600.000	.000	.000	.000	.000	.000
X1	21765.000	.000	.000	.000	96.000	96.000	96.000	.000	.000	.000
X2	.000	.000	1.000	850.900	857.500	.000	.000	.000	.000	.000
BT	18.000	.000	862.200	.000	100.000	859.700	.000	200.000	858.300	.000
BT	295.200	857.500	849.100	296.800	857.500	850.300	300.000	857.500	850.900	303.200
BT	857.500	850.300	304.800	857.500	849.100	400.000	857.600	.000	500.000	858.100
BT	.000	600.000	858.500	.000	700.000	858.800	.000	800.000	859.200	.000
BT	900.000	859.500	.000	1000.000	859.900	.000	1100.000	860.200	.000	1200.000
BT	860.400	.000	1300.000	860.800	.000	.000	.000	.000	.000	.000
NC	.028	.030	.040	.300	.500	.000	.000	.000	.000	.000
QT	2.000	790.000	790.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	.000	225.000	740.000	.000	.000	.000	.000	.000
X1	22145.000	27.000	290.000	336.000	401.000	271.000	381.000	.000	.000	.000
GR	856.600	.000	856.200	90.000	854.500	120.000	847.800	137.000	847.600	146.000
GR	846.400	151.000	847.700	169.000	853.000	178.000	853.600	190.000	854.700	224.000
GR	854.700	290.000	847.700	308.000	846.300	312.000	847.400	318.000	855.900	334.000

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GR    856.300    390.000    856.300    490.000    857.400    538.000    857.800    618.000    856.300    690.000
GR    856.600    790.000    858.700    890.000    857.900    990.000    858.500   1090.000    859.500   1190.000
GR    859.300   1290.000    860.000   1390.000       .000       .000       .000       .000       .000       .000
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 08/28/91    08:47:05                                                                                    PAGE    7


NC       .025       .025       .015       .300       .500       .000       .000       .000       .000       .000
ET       .000      4.100       .000    135.000    490.000       .000       .000       .000       .000       .000
              DRIVE CULVERT
X1  22808.000     17.000    221.000    232.900    663.000    663.000    663.000       .000       .200       .000
GR    855.300       .000    857.700    100.000    858.400    135.000    856.900    200.000    848.000    221.000
GR    847.200    228.000    847.800    232.900    857.600    257.000    858.300    300.000    857.800    400.000
GR    857.500    500.000    858.400    600.000    857.600    700.000    858.000    800.000    858.200    900.000
GR    859.100   1000.000    858.000   1100.000       .000       .000       .000       .000       .000       .000

SB       .000      2.000      2.800       .000     11.900      3.400     25.000       .000       .000       .000
X1  22858.000       .000       .000       .000     50.000     50.000     50.000       .000      -.200       .000
X2       .000       .000      1.000    851.400    854.800       .000       .000       .000       .000       .000
BT     31.000     20.000    854.800       .000    120.000    857.800       .000    137.000    858.200       .000
BT    220.000    858.600       .000    221.000    858.600    848.800    221.000    858.600    849.600    221.400
BT    858.600    850.400    222.200    858.600    851.200    223.200    858.500    851.400    224.200    858.500
BT    851.200    225.000    858.500    850.400    225.400    858.500    849.600    225.400    858.500    848.800
BT    228.500    858.500    849.000    228.500    858.500    849.800    228.900    858.500    850.600    229.700
BT    858.400    851.400    230.700    858.400    851.600    231.700    858.400    851.400    232.500    858.400
BT    850.600    232.900    858.400    849.800    232.900    858.400    849.000    252.000    858.100       .000
BT    420.000    857.800       .000    520.000    858.500       .000    620.000    858.500       .000    720.000
BT    857.900       .000    820.000    858.100       .000    920.000    858.300       .000   1020.000    859.000
BT       .000   1120.000    858.500       .000       .000       .000       .000       .000       .000       .000

ET       .000      4.100       .000     18.000    418.000       .000       .000       .000       .000       .000
              DRIVE CULVERT
X1  23206.000     17.000    109.000    120.700    348.000    348.000    348.000       .000      -.700       .000
GR    858.400     18.000    856.500     96.000    851.000    109.000    848.600    115.000    847.900    119.000
GR    848.000    120.700    848.300    124.000    856.100    141.000    857.200    196.000    858.000    296.000
GR    857.600    396.000    858.600    496.000    858.700    596.000    858.100    696.000    859.400    796.000
GR    858.000    896.000    860.200    996.000       .000       .000       .000       .000       .000       .000

SB       .000      2.000      2.900       .000     11.300      2.500     29.000       .000       .000       .000
X1  23256.000       .000       .000       .000     50.000     50.000     50.000       .000      -.800       .000
X2       .000       .000      1.000    851.700    857.000       .000       .000       .000       .000       .000
BT     30.000       .000    850.900       .000     33.000    858.300       .000     90.000    857.200       .000
BT    109.100    857.200    849.000    109.100    857.200    849.800    109.500    857.200    850.600    110.300
BT    857.200    851.400    111.300    857.200    851.700    112.300    857.200    851.400    113.100    857.200
BT    850.600    113.500    857.200    849.800    113.500    857.200    849.000    116.000    857.100    848.900
BT    116.000    857.100    849.700    116.400    857.100    850.500    117.200    857.100    851.300    118.200
BT    857.100    851.600    119.200    857.100    851.300    120.000    857.100    850.500    120.400    857.100
BT    849.700    120.400    857.100    848.900    190.000    857.000       .000    290.000    857.700       .000
BT    390.000    857.500       .000    490.000    857.500       .000    590.000    858.800       .000    690.000
BT    858.100       .000    790.000    859.900       .000    890.000    859.600       .000    990.000    859.600
BT       .000       .000       .000       .000       .000       .000       .000       .000       .000       .000

NC       .028       .030       .040       .300       .500       .000       .000       .000       .000       .000
ET       .000      4.100       .000       .000    360.000       .000       .000       .000       .000       .000
X1  23342.000     16.000     95.000    138.000     86.000     86.000     86.000       .000       .000       .000
GR    864.000       .000    863.400     22.000    857.400     51.000    856.600     95.000    847.400    120.000
GR    854.400    138.000    854.700    195.000    857.200    295.000    856.500    395.000    856.600    495.000
GR    856.900    595.000    860.100    695.000    860.500    795.000    860.700    895.000    861.800    995.000
GR    864.400   1095.000       .000       .000       .000       .000       .000       .000       .000       .000
1
 08/28/91    08:47:05                                                                                    PAGE    8

ET       000      4.100       000       000    360.000       000       000       000       000       000
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X1  23350.000     19.000     95.000    138.000      8.000      8.000      8.000       .000       .000       .000
GR    864.000       .000    863.400     22.000    857.400     51.000    856.600     95.000    855.100     99.000
GR    851.100    113.000    851.400    120.000    853.400    133.000    854.400    138.000    854.700    195.000
GR    857.200    295.000    856.500    395.000    856.600    495.000    856.900    595.000    860.100    695.000
GR    860.500    795.000    860.700    895.000    861.800    995.000    864.400   1095.000       .000       .000

ET       .000      4.100       .000       .000    360.000       .000       .000       .000       .000       .000
X1  23358.000     18.000     95.000    138.000      8.000      8.000      8.000       .000       .000       .000
GR    864.000       .000    863.400     22.000    857.400     51.000    856.500     95.000    848.900    113.000
GR    848.500    118.000    848.900    126.000    854.400    138.000    854.700    195.000    857.200    295.000
GR    856.500    395.000    856.600    495.000    856.900    595.000    860.100    695.000    860.500    795.000
GR    860.700    895.000    861.800    995.000    864.400   1095.000       .000       .000       .000       .000

NC       .040       .030       .035       .300       .500       .000       .000       .000       .000       .000
ET       .000      4.100       .000       .000    210.000       .000       .000       .000       .000       .000
X1  23938.000     15.000     47.000    113.000    580.000    580.000    580.000       .000       .000       .000
GR    869.400       .000    859.700     20.000    858.500     47.000    850.000     69.000    849.500     74.000
GR    850.500     79.000    858.000    113.000    858.200    147.000    858.500    247.000    858.400    347.000
GR    858.800    447.000    859.200    547.000    859.500    647.000    860.000    747.000    860.400    847.000

NC       .015       .015       .015       .300       .500       .000       .000       .000       .000       .000
QT      2.000    395.000    395.000       .000       .000       .000       .000       .000       .000       .000
ET       .000      4.100       .000    141.000    155.000       .000       .000       .000       .000       .000
            INTERSTATE 96
X1  24339.000     16.000    141.000    155.000    381.000    541.000    401.000       .000      -.700       .000
GR    863.100     91.000    858.900    103.000    858.400    124.000    851.000    141.000    850.400    149.000
GR    850.800    155.000    858.000    184.000    859.200    224.000    859.200    228.400    859.100    241.200
GR    858.700    324.000    856.800    364.000    856.500    424.000    856.800    524.000    858.500    624.000
GR    860.800    724.000       .000       .000       .000       .000       .000       .000       .000       .000

SB       .000      2.450      2.800       .000     12.800      4.000     32.000       .000       .000       .000
X1  24483.000       .000       .000       .000    144.000    144.000    144.000       .000      -.500       .000
X2       .000       .000      1.000    854.400    860.200       .000       .000       .000       .000       .000
BT     23.000       .000    860.200       .000     48.000    860.500       .000    141.600    861.100    851.700
BT    141.600    861.100    852.500    142.000    861.100    853.300    142.800    861.100    854.100    143.800
BT    861.100    854.400    144.800    861.100    854.100    145.600    861.100    853.300    146.000    861.100
BT    852.500    146.000    861.100    851.700    150.000    861.100    851.700    150.000    861.100    852.500
BT    150.400    861.100    853.300    151.200    861.100    854.100    152.200    861.100    854.400    153.200
BT    861.100    854.100    154.000    861.100    853.300    154.400    861.100    852.500    154.400    861.100
BT    851.700    248.000    861.700       .000    348.000    862.600       .000    448.000    863.600       .000
EJ       .000       .000       .000       .000       .000       .000       .000       .000       .000       .000
1
 08/28/91    08:47:05                                                                                    PAGE    9


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


 #PROF 1

 CCHV=    .300 CEHV=    .500
 #SECNO 14131.000

 3470 ENCROACHMENT STATIONS=     603.0     713.0  TYPE=     1  TARGET=     110.000
  14131.00      6.09   839.29       .00       .00   839.54       .25       .00       .00   833.90
     930.       185.      502.      242.      115.       96.      137.        0.        0.   833.20
      .00       1.62      5.22      1.77      .100      .050      .100      .000   833.20   603.00
   .002843         0.        0.        0.         0         0         0       .00   110.00   713.00
0
 CCHV=    .300 CEHV=    .500
 #SECNO 14236.000

 3470 ENCROACHMENT STATIONS=     871.7     928.7  TYPE=     1  TARGET=      57.000
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          MEADOWBROOK ROAD
 14236.00     6.04   839.44      .00      .00   839.63      .19      .08      .02   837.30
    930.        0.     930.       0.       0.    263.       0.       1.       0. 100000.20
     .01       .00     3.54      .00     .015    .020     .015     .000   833.40   871.30
  .000337     105.     105.     105.        2        0        0      .00    57.40   928.70
0

 SPECIAL BRIDGE

 5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      CDFQ      RDLEN     BHC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      1.56      2.90       .00     57.40       .00    250.00       .00    833.40    833.40

 #SECNO 14276.000

 6070.LOW FLOW BY NORMAL BRIDGE

 EGPRS=   839.774  EGLWC=   839.634  ELLC=   839.600  FCWSE=   839.439  ELTRD=   838.800

 3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  838.80 MAX ELLC=  839.60


 3470 ENCROACHMENT STATIONS=     871.3     928.7  TYPE=     1  TARGET=      57.400
 14276.00     6.06   839.46      .00      .00   839.65      .20      .02      .00   837.30
    930.        0.     930.       0.       0.    261.       0.       1.       0. 100000.00
     .01       .00     3.56      .00     .015    .020     .015     .000   833.40   871.30
  .0005B1      40.      40.      40.        1        0        0    -2.07    57.40   928.70
0
1
 08/28/91    08:47:05                                                                PAGE   10


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=    .300 CEHV=    .500
 #SECNO 14669.000

 3470 ENCROACHMENT STATIONS=     433.0     883.0  TYPE=     1  TARGET=     450.000
 14669.00     6.10   839.90      .00      .00   839.96      .07      .27      .04   837.70
    930.      139.     647.      144.     255.    268.     252.       5.       2.    837.20
     .07       .55     2.43      .57      .100    .050     .100     .000   833.80   433.00
  .000877     431.     393.     251.        2        0        0      .00   450.00   883.00
0
 #SECNO 15341.000

 3265 DIVIDED FLOW

 15341.00     6.18   840.68      .00      .00   840.82      .14      .82      .04   834.80
    930.       80.     342.      508.      57.     73.     461.      15.       7.    834.70
     .14      1.41     4.70     1.10      .100    .050     .100     .000   834.50   323.00
  .002257     710.     672.     500.        2        0        0      .00   336.73   725.36
0
 CCHV=    .300 CEHV=    .500
 #SECNO 16311.000

 3470 ENCROACHMENT STATIONS=     100.0     465.0  TYPE=     1  TARGET=     365.000
           CONFLUENCE WITH BISHOP CREEK
 16311.00     7.01   842.11      .00      .00   842.18      .07     1.34      .02   842.90
    800.        0.     372.      428.       0.    168.     212.      26.      14.    839.90
     .27       .00     2.21     2.02      .030    .050     .030     .000   835.10   102.08
  .000816     970.     970.    1050.        2        0        0      .00   176.15   278.23
0
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 #SECNO 16657.000

 3470 ENCROACHMENT STATIONS=     100.0     310.0  TYPE=     1  TARGET=     210.000
  16657.00     6.17   842.57      .00      .00   842.84      .26      .56      .10   844.20
     800.       0.      610.     190.       0.     137.      66.      28.      15.    841.20
       .30      .00     4.45     2.86     .030     .050     .030     .000   836.40   104.30
   .003993     340.     346.     380.        2        0        0      .00   124.25   228.55
0
 #SECNO 17300.000
  17300.00     5.70   843.90      .00      .00   844.00      .10     1.11      .05   842.30
     800.       34.      384.     382.      27.     171.     137.      32.      17.    841.20
       .37     1.26     2.24     2.79     .030     .050     .030     .000   838.20   223.98
   .000941     660.     643.     670.        2        0        0      .00   132.52   356.50
0
1
  08/28/91    08:47:05                                                                PAGE   11


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=    .300 CEHV=    .500
 #SECNO 17301.000

 3265 DIVIDED FLOW


 3370 NORMAL BRIDGE.NRD= 16 MIN ELTRD=  842.50 MAX ELLC=  844.70

            WILLOWBROOK DRIVE
  17301.00     5.17   843.77      .00      .00   844.13      .36      .00      .13   847.80
     800.       0.      746.      54.       0.     151.      22.      32.      17.    846.20
       .37      .00     4.92     2.46     .015     .020     .015     .000   838.60   356.50
   .001181       1.       1.       1.        2        0        0    -1.37    77.96   500.00
0
 #SECNO 17341.000

 3265 DIVIDED FLOW


 3370 NORMAL BRIDGE.NRD= 16 MIN ELTRD=  842.50 MAX ELLC=  844.70


 3470 ENCROACHMENT STATIONS=        .0     510.0  TYPE=     1  TARGET=     510.000
  17341.00     5.25   843.85      .00      .00   844.18      .34      .05      .01   847.80
     800.       0.      738.      62.       0.     154.      25.      33.      17.    846.20
       .37      .00     4.80     2.54     .015     .020     .015     .000   838.60   356.50
   .001168       40.      40.      40.        2        0        0    -2.19    79.93   500.00
0
 CCHV=    .300 CEHV=    .500
 #SECNO 17342.000
  17342.00     5.58   844.18      .00      .00   844.26      .08      .00      .08   842.30
     800.       36.      367.     397.      38.     180.     152.      33.      17.    841.20
       .37      .93     2.04     2.61     .040     .050     .030     .000   838.60   217.25
   .000727       1.       1.       1.        2        0        0      .00   139.25   356.50
0
 #SECNO 17437.000
  17437.00     5.99   844.29      .00      .00   844.31      .02      .03      .02   842.10
     800.       32.      183.     585.      58.     183.     502.      34.      17.    840.90
       .40      .56     1.00     1.17     .040     .050     .030     .000   838.30   207.46
   .000153       95.      95.      95.        2        0        0      .00   350.35   557.81
0
1
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 17701.000

3301 HV CHANGED MORE THAN HVINS

17701.00	6.42	844.12	.00	.00	844.68	.56	.10	.27	847.50
800.	0.	740.	60.	0.	122.	12.	36.	18.	842.60
.41	.00	6.09	5.09	.040	.050	.030	.000	837.70	267.40
.007845	400.	264.	150.	2	0	0	.00	40.60	308.00

0
CCHV= .300 CEHV= .500
*SECNO 18455.000

18455.00	7.19	847.39	.00	.00	847.58	.19	2.78	.11	848.60
800.	0.	800.	0.	0.	227.	0.	39.	19.	847.30
.47	.00	3.52	.08	.040	.050	.100	.000	840.20	347.22
.002123	570.	754.	850.	2	0	0	.00	57.05	404.27

0
*SECNO 18522.000

3470 ENCROACHMENT STATIONS= 349.0 387.0 TYPE= 1 TARGET= 38.000

18522.00	7.11	847.51	.00	.00	847.76	.25	.15	.03	846.60
800.	0.	800.	0.	0.	201.	0.	39.	19.	100000.00
.47	.00	3.98	.00	.040	.050	.100	.000	840.40	349.00
.002360	67.	67.	67.	2	0	0	.00	38.00	387.00

0
CCHV= .300 CEHV= .500
*SECNO 18523.000

3370 NORMAL BRIDGE.NRD= 13 MIN ELTRD= 849.20 MAX ELLC= 847.80

CRANBROOKE ROAD

18523.00	6.95	847.45	.00	.00	847.81	.36	.00	.06	850.70
800.	0.	800.	0.	0.	167.	0.	39.	19.	850.90
.47	.00	4.80	.00	.015	.020	.015	.000	840.50	462.00
.000668	1.	1.	1.	2	0	0	.00	38.00	500.00

0
*SECNO 18598.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 849.20 MAX ELLC= 848.00

1

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

18598.00	6.79	847.49	.00	.00	847.88	.39	.05	.01	850.90
800.	0.	800.	0.	0.	160.	0.	40.	19.	851.10
.48	.00	4.99	.00	.015	.020	.015	.000	840.70	462.00
.000749	75.	75.	75.	2	0	0	.00	38.00	500.00

0
CCHV= .300 CEHV= .500
*SECNO 18599.000

```
3470 ENCROACHMENT STATIONS=     349.0     387.0  TYPE=     1  TARGET=      38.000
 18599.00     7.07   847.67      .00      .00   847.92      .25      .00      .04   846.80
    800.        0.     800.       0.       0.     200.       0.      40.      19. 100000.20
     .48      .00     4.00      .00     .030     .050     .030     .000   840.60   349.00
   .002409       1.       1.       1.       2        0        0      .00    38.00   387.00
0
 #SECND 18713.000
 18713.00     7.05   848.05      .00      .00   848.09      .05      .11      .06   847.60
    800.      459.     318.      23.     255.     181.      31.      41.      20.   847.60
     .49      1.80     1.76      .74     .030     .050     .030     .000   841.00    28.31
   .000536     114.     114.     114.       2        0        0      .00   259.13   287.43
0
 #SECND 18916.000

 3265 DIVIDED FLOW

 18916.00     6.58   848.18      .00      .00   848.26      .08      .15      .02   848.20
    800.      422.     377.       1.     183.     161.       4.      42.      21.   848.20
     .52      2.31     2.34      .33     .030     .050     .030     .000   841.60    29.19
   .001100     203.     203.     203.       2        0        0      .00   242.66   278.47
0
 #SECND 19031.000

 3265 DIVIDED FLOW

 19031.00     6.12   848.32      .00      .00   848.46      .14      .17      .03   848.80
    800.      356.     444.       0.     122.     143.       0.      43.      21.   848.80
     .53      2.91     3.11      .00     .030     .050     .030     .000   842.20    30.05
   .002126     115.     115.     115.       2        0        0      .00   156.11   223.77
0
1
  08/28/91    08:47:05                                                                PAGE   14


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         GLOB      QCH       QROB      ALOB      ACH       AROB      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=    .300 CEHV=    .500
 #SECND 19680.000

 3265 DIVIDED FLOW

            TEN MILE ROAD
 19680.00     4.53   849.13      .00      .00   849.62      .49      .98      .17   844.80
    800.      320.     218.     262.       85.      35.      38.      47.      24.   844.80
     .57      3.75     6.15     6.87     .015     .020     .015     .000   844.60   266.45
   .000942     881.     649.     501.       2        0        0      .00   133.09   516.55
0

 SPECIAL BRIDGE

 5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK         XYOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
       .00       1.56       2.60        .00       8.00        .00       46.00       .00     844.60     844.60

 #SECND 19722.000
 PRESSURE AND WEIR FLOW


 EGPRS       EGLWC       H3        QWEIR       QPR        BAREA    TRAPEZOID      ELLC       ELTRD
                                                                      AREA
    856.46     849.62        .00       294.       506.        46.        38.      849.30     851.40
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```
 19722.00     7.46   852.06      .00      .00   852.07      .01     2.45      .00   844.80
     800.     610.      64.     126.     831.      59.     158.      48.      24.    844.80
      .58      .73     1.08      .80     .015     .020     .015     .000   844.60   136.12
  .000015      42.      42.      42.        0        0        7      .00   458.44   594.56
0
 CCHV=    .300 CEHV=    .500
 *SECNO 19746.000
 19746.00     8.44   852.04      .00      .00   852.08      .03      .00      .01   850.10
     800.     304.     496.       0.     247.     302.       0.      48.      25.    852.40
      .59     1.23     1.64      .00     .030     .050     .030     .000   843.60   197.07
  .000391      24.      24.      24.        2        0        0      .00   302.62   499.69
0
 CCHV=    .300 CEHV=    .500
 *SECNO 19850.000
            FOOTBRIDGE
1
  08/28/91    08:47:05                                                                    PAGE   15


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


 19850.00     8.21   852.01      .00      .00   852.15      .14      .02      .05   844.20
     800.     383.     313.     104.     348.      69.      71.      49.      25.    844.30
      .60     1.10     4.56     1.46     .030     .015     .030     .000   843.80   259.80
  .000133     104.     104.     104.        2        0        0      .00   239.43   499.23
0

 SPECIAL BRIDGE

 5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .00      1.90      2.80       .00     10.00       .00     55.00       .00    843.80    843.80

 *SECNO 19942.000
 PRESSURE AND WEIR FLOW


  EGPRS      EGLWC       H3       QWEIR      GPR       BAREA   TRAPEZOID      ELLC     ELTRD
                                                                  AREA
    858.26    852.15       .00      596.      206.       55.       68.      850.60    851.00



 3470 ENCROACHMENT STATIONS=        .0     510.0  TYPE=     1  TARGET=     510.000
 19942.00     8.52   852.32      .00      .00   852.43      .10      .27      .00   844.20
     800.     411.     290.      99.     426.      71.      76.      50.      26.    844.30
      .61      .96     4.06     1.30     .030     .015     .030     .000   843.80   191.81
  .000101      92.      92.      92.        2        0        6      .00   308.04   499.85
0
 CCHV=    .300 CEHV=    .500
 *SECNO 20150.000
 20150.00     7.75   852.35      .00      .00   852.48      .13      .04      .01   851.00
     800.      69.     731.       0.     140.     241.       0.      52.      26.    853.20
      .63      .49     3.03      .00     .100     .050     .100     .000   844.60   280.44
  .001245      76.     208.     311.        0        0        0      .00   217.85   498.29
0
 *SECNO 20596.000
 20596.00     6.74   852.84      .00      .00   852.92      .07      .42      .02   851.10
     800.      21.     647.     131.      58.     269.     215.      57.      29.    850.40
      .69      .37     2.41      .61     .100     .050     .100     .000   846.10   133.01
  [illegible]  446     [illegible]  446        2        [illegible]  [illegible]  [illegible]  [illegible]
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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

#SECND 20836.000

20836.00	7.21	853.01	.00	.00	853.06	.05	.14	.01	850.80
800.	33.	613.	154.	94.	292.	278.	60.	30.	850.10
.73	.35	2.10	.55	.100	.050	.100	.000	845.80	114.97
.000492	240.	240.	240.	2	0	0	.00	276.00	390.97

0

CCHV= .300 CEHV= 1.000

#SECND 21668.000

3470 ENCROACHMENT STATIONS= 250.0 600.0 TYPE= 1 TARGET= 350.000

GRAND RIVER AVENUE

21668.00	8.22	853.12	.00	.00	853.21	.08	.11	.03	847.30
800.	46.	186.	568.	31.	64.	261.	69.	34.	845.50
.82	1.49	2.90	2.18	.015	.015	.015	.000	844.90	284.14
.000065	871.	832.	751.	2	0	0	.00	130.67	414.81

0

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XFOR	COFQ	ADLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.56	2.60	.00	9.60	.00	46.00	.00	844.90	844.90

#SECND 21765.000

3280 CROSS SECTION 21765.00 EXTENDED .25 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	HS	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
860.45	853.21	.00	146.	656.	46.	58.	850.90	857.50

3470 ENCROACHMENT STATIONS= 250.0 600.0 TYPE= 1 TARGET= 350.000

21765.00	13.14	858.04	.00	.00	858.05	.00	4.84	.00	847.30
800.	69.	77.	655.	181.	107.	1440.	71.	35.	845.50
.88	.38	.72	.45	.015	.015	.015	.000	844.90	250.00
.000002	96.	96.	96.	0	0	6	.00	350.00	600.00

0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= .300 CEHV= .500

#SECND 22145.000

3470 ENCROACHMENT STATIONS= 225.0 749.0 TYPE= 1 TARGET= 515.000

```
 22145.00    11.74   858.04      .00      .00   858.05      .01      .00      .00   854.20
    790.      200.     347.     243.     234.     354.     529.      82.      37.   855.90
     .99      .85      .98      .46     .028     .040     .030     .000   846.30   225.00
  .000050     401.     381.     271.        1        0        0      .00   515.00   740.00
0
 CCHV=    .300 CEHV=    .500
 #SECND 22808.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION  22808.00 EXTENDED       .02 FEET


 3470 ENCROACHMENT STATIONS=     135.0     490.0  TYPE=     1  TARGET=     355.000
           DRIVE CULVERT
 22808.00    10.62   858.02      .00      .00   858.15      .14      .04      .06   848.20
    790.      162.     459.     169.     131.     122.     138.      93.      43.   848.00
    1.06      1.24     3.76     1.22     .025     .015     .025     .000   847.40   160.28
  .000065     663.     663.     663.        2        0        0      .00   203.32   490.00
0

 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      2.00      2.80       .00     11.90      3.40     25.00       .00    847.40    847.40

 #SECND 22858.000

 3265 DIVIDED FLOW

 3260 CROSS SECTION  22858.00 EXTENDED      2.91 FEET

 PRESSURE AND WEIR FLOW

1
  08/28/91    08:47:05                                                                    PAGE   18


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
     889.03    858.15       .00       724.        73.       25.       34.       851.40    854.80


  22858.00    11.01   858.21      .00      .00   858.28      .07      .12      .00   848.00
     790.      235.     374.     181.     336.     127.     323.      94.      43.   847.80
     1.07      .70     2.95      .56     .025     .015     .025     .000   847.20      .00
   .000038      50.      50.      50.        2        0        8      .00   835.21  1100.00
0
 #SECND 23206.000

 3470 ENCROACHMENT STATIONS=      18.0     418.0  TYPE=     1  TARGET=     400.000
           DRIVE CULVERT
  23206.00    11.06   858.26      .00      .00   858.30      .04      .01      .01   850.30
     790.      118.     297.     376.     185.     116.     556.     100.      48.   847.30
     1.14      .64     2.55      .68     .025     .015     .025     .000   847.20    18.00
   .000033     348.     348.     348.        2        0        0      .00   400.00   418.00
0
```

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	2.00	2.90	.00	11.30	2.50	29.00	.00	847.20	847.20

#SECNO 23256.000
3280 CROSS SECTION 23256.00 EXTENDED 1.43 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
881.30	858.30	.00	745.	44.	29.	40.	851.70	857.00

23256.00	11.92	858.32	.00	.00	858.33	.01	.03	.00	849.50
790.	108.	189.	493.	264.	127.	1497.	102.	49.	846.50
1.16	.41	1.49	.33	.025	.015	.025	.000	846.40	18.00
.000610	50.	50.	50.	0	0	9	.00	961.01	979.01

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= .300 CEHV= .500
#SECNO 23342.000

23342.00	10.92	858.32	.00	.00	858.33	.02	.00	.00	856.60
790.	34.	336.	420.	60.	291.	452.	104.	50.	854.40
1.18	.57	1.15	.93	.028	.040	.030	.000	847.40	46.56
.000082	86.	86.	86.	0	0	0	.00	248.44	295.00

0
#SECNO 23350.000

23350.00	7.21	858.31	.00	.00	858.33	.02	.00	.00	856.60
790.	39.	269.	482.	60.	231.	451.	105.	50.	854.40
1.19	.65	1.16	1.07	.028	.040	.030	.000	851.10	46.57
.000108	8.	8.	8.	0	0	0	.00	248.43	295.00

0
#SECNO 23358.000

23358.00	9.82	858.32	.00	.00	858.33	.02	.00	.00	856.50
790.	35.	351.	404.	62.	306.	451.	105.	50.	854.40
1.19	.56	1.15	.90	.028	.040	.030	.000	848.50	46.57
.000076	8.	8.	8.	0	0	0	.00	248.43	295.00

0
CCHV= .300 CEHV= .500
#SECNO 23938.000

23938.00	8.87	858.37	.00	.00	858.46	.10	.09	.04	858.50
790.	0.	786.	4.	0.	316.	9.	112.	53.	858.00
1.25	.00	2.49	.44	.040	.035	.030	.000	849.50	47.33
.000445	580.	580.	580.	0	0	0	.00	99.67	147.00

0
CCHV= .300 CEHV= .500
#SECNO 24339.000

3470 ENCROACHMENT STATIONS= 141.0 155.0 TYPE= 1 TARGET= 14.000
INTERSTATE 96

24339.00	8.76	858.46	.00	.00	858.63	.17	.13	.04	850.30
395.	0.	395.	0.	0.	119.	0.	114.	53.	99999.30
1.28	.00	3.32	.00	.015	.015	.015	.000	848.70	141.00

.000183	381.	401.	541.	2	0	0	.00	14.00	155.00

0
1

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

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	CDFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	2.45	2.80	.00	12.80	4.00	32.00	.00	849.70	849.70

*SECNO 24483.000

3280 CROSS SECTION 24483.00 EXTENDED .80 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
864.25	858.46	.00	129.	267.	32.	41.	854.40	860.20

24483.00	11.90	861.10	.00	.00	861.10	.00	2.47	.00	849.80
395.	31.	38.	326.	222.	163.	2526.	119.	54.	849.60
1.57	.14	.23	.13	.015	.015	.015	.000	849.20	93.30
.000000	144.	144.	144.	0	0	6	.00	630.70	724.00

0
1

THIS RUN EXECUTED 08/28/91 08:48:00

****
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 1.1
****

T1 CITY OF NOVI JOB NO.5555-46-04
T2 100 YEAR FLOOD - ENCROACHED
T3 INGERSOL CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	3.	0.	0.	.000000	.00	.0	0.	839.390	.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

1

```
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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=    .300 CEHV=    .500
$SECNO 14131.000

3470 ENCROACHMENT STATIONS=     603.0     713.0  TYPE=     1  TARGET=     110.000
 14131.00     6.19   839.39      .00   839.29   839.62      .23      .00      .00   833.90
    930.      189.     497.     245.     120.      98.     141.       0.       0.    833.20
     .00     1.58     5.07     1.73     .100     .050     .100     .000   833.20   807.00
  .002630       0.       0.       0.        0        0        0      .00   110.00   713.00
0
CCHV=    .300 CEHV=    .500
$SECNO 14236.000

3470 ENCROACHMENT STATIONS=     871.3     928.7  TYPE=     1  TARGET=      57.400
           MEADOWBROOK ROAD
 14236.00     6.12   839.52      .00   839.44   839.71      .19      .07      .01   837.30
    930.       0.     930.       0.       0.     267.       0.       1.       0. 100000.20
     .01      .00     3.48      .00     .015     .020     .015     .000   833.40   871.30
  .000319     105.     105.     105.        2        0        0      .00    57.40   928.70
0

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
      .00      1.56      2.90       .00     57.40       .00    250.00       .00    833.40    833.40

$SECNO 14276.000

6070.LOW FLOW BY NORMAL BRIDGE

EGPRS=   839.858  EGLWC=   839.711  ELLC=   839.600  PCWSE=   839.523  ELTRD=   838.800

3370 NORMAL BRIDGE.NRD= 26 MIN ELTRD=  838.80 MAX ELLC=  839.60


3470 ENCROACHMENT STATIONS=     871.3     928.7  TYPE=     1  TARGET=      57.400
 14276.00     6.14   839.54      .00   839.46   839.73      .19      .02      .00   837.30
    930.       0.     930.       0.       0.     263.       0.       1.       0. 100000.00
     .01      .00     3.54      .00     .015     .020     .015     .000   833.40   871.30
  .000703      40.      40.      40.        1        0        0    -5.08    57.40   928.70
0
1
 08/28/91    08:47:05                                                                PAGE   23


   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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=    .300 CEHV=    .500
$SECNO 14669.000
 2800 NAT Q1=    313.96  WSEL=    839.90  ENC Q1=    313.96  WSEL=    840.00  RATIO=   .0000
 NAT Q1=    723.  RATIOS LOB,CH,ROB=   .1889   .3128   .4983  WSEL=    840.00

3470 ENCROACHMENT STATIONS=     629.3     917.6  TYPE=     4  TARGET=        .566
```

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    930.      0.    664.    266.      0.    272.    382.      5.      1.   837.20
     .06     .00    2.44     .70    .100    .050    .100    .000  833.80  629.30
   .000909   431.   393.    251.       2       0       0     .00  288.33  917.63
0
 #SECND 15341.000
  2800 NAT Q1=    195.74  WSEL=    840.68  ENC Q1=    195.74  WSEL=    840.78  RATIO=   .0000
  NAT Q1=    208.  RATIOS LOB,CH,ROB=   .0848   .3563   .5588  WSEL=    840.78

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     338.0     638.6  TYPE=     4  TARGET=        .057
  15341.00     6.28   840.78     .00   840.68   840.93     .15     .82     .04   834.80
     930.      52.    353.    525.      32.     74.    437.     12.      5.   834.70
      .13     1.63    4.77    1.20    .100    .050    .100    .000  834.50  337.99
   .002285    710.    672.    500.       2       0       0     .00  237.83  638.56
0
 CCHV=    .300 CEHV=    .500
 #SECND 16311.000
  2800 NAT Q1=    280.03  WSEL=    842.11  ENC Q1=    280.03  WSEL=    842.21  RATIO=   .0000
  NAT Q1=    298.  RATIOS LOB,CH,ROB=   .0000   .4507   .5493  WSEL=    842.21

 3470 ENCROACHMENT STATIONS=     100.0     221.3  TYPE=     4  TARGET=        .062
           CONFLUENCE WITH BISHOP CREEK
  16311.00     7.11   842.21     .00   842.11   842.29     .08    1.35     .02   842.90
     900.      0.     384.    416.      0.     172.    177.     23.      9.   839.90
      .25     .00    2.24    2.36    .030    .050    .030    .000  835.10  101.82
   .000816    970.   970.    1050.      2       0       0     .00  119.46  221.28
0
 #SECND 16657.000
  2800 NAT Q1=    126.60  WSEL=    842.57  ENC Q1=    126.60  WSEL=    842.67  RATIO=   .0000
  NAT Q1=    136.  RATIOS LOB,CH,ROB=   .0000   .7359   .2641  WSEL=    842.67
1
  08/28/91    08:47:05                                                          PAGE   24


    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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     179.4  TYPE=     4  TARGET=        .071
  16657.00     6.26   842.66     .00   842.57   842.95     .29     .56     .10   844.20
     800.      0.     634.    166.      0.     140.     47.     25.     10.   841.20
      .27     .00    4.52    3.49    .030    .050    .030    .000  836.40  104.05
   .004019    340.   346.    380.       2       0       0     .00   75.36  179.41
0
 #SECND 17300.000
  2800 NAT Q1=    260.84  WSEL=    843.90  ENC Q1=    260.84  WSEL=    844.00  RATIO=   .0000
  NAT Q1=    448.  RATIOS LOB,CH,ROB=   .0279   .2914   .6787  WSEL=    844.00

 3470 ENCROACHMENT STATIONS=     260.2     355.5  TYPE=     4  TARGET=        .418
  17300.00     5.82   844.02     .00   843.90   844.13     .10    1.12     .06   842.30
     800.      0.     395.    405.      0.     177.    141.     29.     11.   841.20
      .35     .00    2.27    2.87    .030    .050    .030    .000  838.20  260.20
   .000944    660.   643.    670.       2       0       0     .00   95.34  355.54
0
 CCHV=    .300 CEHV=    .500
 #SECND 17301.000
  2800 NAT Q1=    232.76  WSEL=    843.77  ENC Q1=    232.76  WSEL=    843.87  RATIO=   .0000
  NAT Q1=    444.  RATIOS LOB,CH,ROB=   .0000   .4846   .5154  WSEL=    843.87

 3265 DIVIDED FLOW
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 3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  842.50 MAX ELLC=  844.70


 3470 ENCROACHMENT STATIONS=     356.5     498.5  TYPE=     4  TARGET=        .476
            WILLOWBROOK DRIVE
  17301.00     5.31   843.91      .00   843.77   844.24      .33      .00      .11   847.80
      800.       0.     736.      64.       0.     156.      25.      29.      11.    846.20
       .35      .00     4.72     2.56     .015     .020     .015     .000   838.60   356.50
   .001177       1.       1.       1.        2        0        0    -3.11    80.25   498.52
0
 #SECNO 17341.000
  2800 NAT Q1=    234.05  WSEL=    843.85  ENC Q1=    234.05  WSEL=    843.95  RATIO=   .0000
  NAT Q1=    476.  RATIOS LOB,CH,ROB=   .0000   .4487   .5513  WSEL=    843.95
1
  08/28/91    08:47:05                                                                PAGE   25


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



 3265 DIVIDED FLOW


 3370 NORMAL BRIDGE,NRD= 16 MIN ELTRD=  842.50 MAX ELLC=  844.70


 3470 ENCROACHMENT STATIONS=     356.5     498.6  TYPE=     4  TARGET=        .509
  17341.00     5.38   843.98      .00   843.85   844.29      .31      .05      .01   847.80
      800.       0.     727.      73.       0.     158.      28.      29.      11.    846.20
       .35      .00     4.61     2.64     .015     .020     .015     .000   838.60   356.50
   .001165      40.      40.      40.        2        0        0    -4.24    82.21   498.62
0
 CCHV=    .300 CEHV=    .500
 #SECNO 17342.000
  2800 NAT Q1=    296.60  WSEL=    844.18  ENC Q1=    296.60  WSEL=    844.28  RATIO=   .0000
  NAT Q1=    525.  RATIOS LOB,CH,ROB=   .0291   .2698   .7011  WSEL=    844.28

 3470 ENCROACHMENT STATIONS=     260.2     356.4  TYPE=     4  TARGET=        .435
  17342.00     5.67   844.27      .00   844.18   844.36      .09      .00      .07   842.30
      860.       0.     376.     424.       0.     184.     156.      29.      11.    841.20
       .35      .00     2.05     2.71     .040     .050     .030     .000   838.60   260.20
   .000754       1.       1.       1.        2        0        0      .00    96.17   356.37
0
 #SECNO 17437.000
  2800 NAT Q1=    646.64  WSEL=    844.29  ENC Q1=    646.64  WSEL=    844.39  RATIO=   .0000
  NAT Q1=    687.  RATIOS LOB,CH,ROB=   .0422   .2228   .7349  WSEL=    844.39

 3470 ENCROACHMENT STATIONS=     252.4     451.9  TYPE=     4  TARGET=        .959
  17437.00     6.08   844.38      .00   844.29   844.41      .02      .03      .02   842.10
      800.      11.     190.     600.      16.     186.     462.      30.      11.    840.90
       .37      .65     1.02     1.30     .040     .050     .030     .000   838.30   252.40
   .000154      95.      95.      95.        2        0        0      .00   199.48   451.88
0
 #SECNO 17701.000
  2800 NAT Q1=     90.32  WSEL=    844.12  ENC Q1=     90.32  WSEL=    844.22  RATIO=   .0000
  NAT Q1=    133.  RATIOS LOB,CH,ROB=   .0000   .6542   .3458  WSEL=    844.22

 3301 HV CHANGED MORE THAN HVINS

1
  08/28/91    08:47:05                                                                PAGE   74
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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=     258.0     304.1  TYPE=     4  TARGET=        .319
 17701.00     6.51   844.21      .00   844.12   844.79      .58      .10      .28   847.50
    800.       0.     768.       32.      0.     124.       7.       32.      12.    842.60
     .38      .00     6.18     4.84     .040     .050     .030     .000   837.70   267.17
  .007928     400.     264.     150.        3        0        0      .00    36.98   304.14
0
 CCHV=    .300 CEHV=    .500
 *SECND 18455.000
  2800 NAT Q1=    173.64  WSEL=    847.39  ENC Q1=    180.02  WSEL=    847.49  RATIO=  -.0367
  NAT Q1=    180.  RATIOS LOB,CH,ROB=   .0000   .9998   .0002  WSEL=    847.49

 3470 ENCROACHMENT STATIONS=     345.0     400.0  TYPE=     4  TARGET=        .000
  18455.00     7.24   847.44      .00   847.39   847.63      .19     2.72      .12   848.60
     800.       0.     800.       0.       0.     230.       0.       35.      13.    847.30
      .44      .00     3.47      .00     .040     .050     .100     .000   840.20   347.12
   .002044     570.     754.     850.        2        0        0      .00    52.88   400.00
0
 *SECND 18522.000
  2800 NAT Q1=    164.68  WSEL=    847.51  ENC Q1=    181.70  WSEL=    847.61  RATIO=  -.1034
  NAT Q1=    187.  RATIOS LOB,CH,ROB=   .0011   .9700   .0290  WSEL=    847.61

 3470 ENCROACHMENT STATIONS=     349.0     387.0  TYPE=     4  TARGET=        .030
  18522.00     7.16   847.56      .00   847.51   847.80      .24      .14      .03   846.60
     800.       0.     800.       0.       0.     203.       0.       35.      13.    844.20
      .45      .00     3.94      .00     .040     .050     .100     .000   840.40   349.00
   .002285      67.      67.      67.        1        0        0      .00    38.00   387.00
0
 CCHV=    .300 CEHV=    .500
 *SECND 18523.000
  2800 NAT Q1=    309.54  WSEL=    847.45  ENC Q1=    320.39  WSEL=    847.55  RATIO=  -.0351
  NAT Q1=    320.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    847.55

 3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  849.20 MAY ELLC=  847.80


 3470 ENCROACHMENT STATIONS=     462.0     500.0  TYPE=     4  TARGET=        .030
             CRANBROOKE ROAD
  18523.00     7.01   847.51      .00   847.45   847.86      .35      .00      .05   850.70
     800.       0.     800.       0.       0.     169.       0.       35.      13.    850.90
      .45      .00     4.75      .00     .015     .020     .015     .000   840.50   462.00
   .000644       1.       1.       1.        2        0        0      .00    38.00   500.00
0
1
  08/28/91    08:47:05                                                          PAGE   27


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


 *SECND 18598.000
  2800 NAT Q1=    292.34  WSEL=    847.49  ENC Q1=    302.99  WSEL=    847.59  RATIO=  -.0364
  NAT Q1=    303.  RATIOS LOB,CH,ROB=   .0000  1.0000   .0000  WSEL=    847.59

 3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  849.20 MAY ELLC=  848.00
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 3470 ENCROACHMENT STATIONS=     462.0     500.0  TYPE=     4  TARGET=        .000
  18598.00      6.84   847.54      .00   847.49   847.92      .38      .05      .01   850.90
      800.        0.     800.        0.       0.     163.        0.      35.      13.    851.10
       .45       .00     4.92       .00     .015     .020     .015     .000   840.70   462.00
    .000718      75.      75.      75.        1        0        0      .00    38.00   500.00
0
 CCHV=    .300 CEHV=    .500
 #SECNO 18599.000
  2800 NAT Q1=    162.98  WSEL=    847.67  ENC Q1=    179.64  WSEL=    847.77  RATIO=  -.1022
  NAT Q1=    197.  RATIOS LOB,CH,ROB=   .0012   .9100   .0887  WSEL=    847.77

 3470 ENCROACHMENT STATIONS=     349.0     387.0  TYPE=     4  TARGET=        .090
  18599.00      7.12   847.72      .00   847.67   847.96      .24      .00      .04   846.80
      800.        0.     800.        0.       0.     201.        0.      35.      13.    844.40
       .45       .00     3.97       .00     .030     .050     .030     .000   840.60   349.00
    .002351        1.       1.       1.        2        0        0      .00    38.00   387.00
0
 #SECNO 18713.000
  2800 NAT Q1=    345.43  WSEL=    848.05  ENC Q1=    345.43  WSEL=    848.15  RATIO=   .0000
  NAT Q1=    372.  RATIOS LOB,CH,ROB=   .5805   .3836   .0359  WSEL=    848.15

 3470 ENCROACHMENT STATIONS=      34.5     226.4  TYPE=     4  TARGET=        .071
  18713.00      7.08   848.08      .00   848.05   848.13      .05      .12      .06   847.60
      800.      468.     331.        0.     256.     182.        1.      36.      13.    847.60
       .47      1.87     1.82       .59     .030     .050     .030     .000   841.00    34.49
    .000567     114.     114.     114.        2        0        0      .00   191.89   226.38
0
 #SECNO 18916.000

 3470 ENCROACHMENT STATIONS=      47.0     240.0  TYPE=     1  TARGET=     193.000
  18916.00      6.63   848.23      .00   848.18   848.34      .11      .18      .03   848.20
      800.      337.     463.        0.     143.     164.        1.      38.      14.    848.20
       .49      2.35     2.83       .32     .030     .050     .030     .000   841.60    47.00
    .001592     203.     203.     203.        2        0        0      .00   193.00   240.00
0
1
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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 19031.000
  2800 NAT Q1=    173.52  WSEL=    848.32  ENC Q1=    173.52  WSEL=    848.42  RATIO=   .0000
  NAT Q1=    187.  RATIOS LOB,CH,ROB=   .4652   .5348   .0000  WSEL=    848.42

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=      37.4     225.0  TYPE=     4  TARGET=        .071
  19031.00      6.23   848.43      .00   848.32   848.57      .14      .21      .02   848.60
      800.      341.     459.        0.     122.     147.        0.      39.      14.    848.80
       .50      2.80     3.12       .00     .030     .050     .030     .000   842.20    37.38
    .002094     115.     115.     115.        0        0        0      .00   157.71   224.05
0
 CCHV=    .300 CEHV=    .500
 #SECNO 19680.000
  2800 NAT Q1=    260.60  WSEL=    849.13  ENC Q1=    260.60  WSEL=    849.23  RATIO=   .0000
  NAT Q1=    280.  RATIOS LOB,CH,ROB=   .4177   .2630   .3193  WSEL=    849.23

 3265 DIVIDED FLOW
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 3470 ENCROACHMENT STATIONS=     305.4     513.0  TYPE=     4  TARGET=        .070
            TEN MILE ROAD
  19680.00     4.62   849.22      .00   849.13   849.74      .52      .98      .19   844.80
      800.      327.      226.      246.       77.      36.      35.      42.      17.   844.80
       .53     4.27     6.26     7.01     .015     .020     .015     .000   844.60   305.43
   .000952      881.      649.      501.        2        0        0      .00    94.87   512.99
0

 SPECIAL BRIDGE

 5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      1.56      2.60       .00      8.00       .00     46.00       .00    844.60    844.60

 #SECNO 19722.000
  2800 NAT Q1=   2084.62  WSEL=    852.06  ENC Q1=   2084.62  WSEL=    852.16  RATIO=   .0000
  NAT Q1=   2195.  RATIOS LOB,CH,ROB=   .7655   .0770   .1575  WSEL=    852.16
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=     205.4     530.6  TYPE=     4  TARGET=        .050
  19722.00     7.54   852.14      .00   852.06   852.15      .01      .00      .15   844.80
      800.      623.       65.      111.      796.       60.      105.      43.      17.   844.80
       .55       .78     1.09     1.06     .015     .020     .015     .000   844.60   205.44
   .000015       42.       42.       42.        0        0        7      .00   325.18   530.62
0
1
  08/28/91    08:47:05                                                                  PAGE   29


    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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=    .300 CEHV=    .500
 #SECNO 19746.000
  2800 NAT Q1=    404.58  WSEL=    852.04  ENC Q1=    404.58  WSEL=    852.14  RATIO=   .0000
  NAT Q1=    432.  RATIOS LOB,CH,ROB=   .4015   .5985   .0000  WSEL=    852.14

 3470 ENCROACHMENT STATIONS=     315.3     518.0  TYPE=     4  TARGET=        .064
  19746.00     8.53   852.13      .00   852.04   852.17      .04      .00      .01   850.10
      800.      288.      512.       0.      207.      308.       0.      43.      17.   852.40
       .55     1.39     1.66      .00     .030     .050     .030     .000   843.60   315.26
   .000393       24.       24.       24.        1        0        0      .00   184.62   499.88
0
 CCHV=    .300 CEHV=    .500
 #SECNO 19850.000
  2800 NAT Q1=    692.78  WSEL=    852.01  ENC Q1=    692.78  WSEL=    852.11  RATIO=   .0000
  NAT Q1=    724.  RATIOS LOB,CH,ROB=   .4898   .3820   .1282  WSEL=    852.11

 3470 ENCROACHMENT STATIONS=     315.1     491.7  TYPE=     4  TARGET=        .044
            FOOTBRIDGE
  19850.00     8.30   852.10      .00   852.01   852.25      .15      .02      .05   844.20
      800.      390.      320.       89.      329.       69.      57.      44.      18.   844.30
       .56     1.19     4.62     1.55     .030     .015     .030     .000   843.80   315.11
   .000135      104.      104.      104.        2        0        0      .00   176.56   491.67
0

 SPECIAL BRIDGE

 5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
       .00      1.90      2.80       .00     10.60       .00     55.00       .00    843.80    843.80
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 *SECNO 19942.000
  2800 NAT Q1=    796.65  WSEL=    852.32  ENC Q1=    796.65  WSEL=    852.42  RATIO=   .0000
  NAT Q1=    854.  RATIOS LOB,CH,ROB=   .5244   .3531   .1225  WSEL=    852.42
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

 3470 ENCROACHMENT STATIONS=     298.9     491.8  TYPE=     4  TARGET=        .045
  19942.00     8.61   852.41      .00   852.32   852.52      .11      .01      .01   844.20
     800.      419.     297.      84.     400.      72.      61.      46.      18.    844.30
       .57     1.05     4.12     1.38     .030     .015     .030     .000   843.80   298.87
   .000102      92.      92.      92.        0        0        6      .00   192.89   491.76
0
1
  08/28/91    08:47:05                                                                PAGE   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


 CCHV=    .300 CEHV=    .500
 *SECNO 20150.000
  2800 NAT Q1=    226.77  WSEL=    852.35  ENC Q1=    226.77  WSEL=    852.45  RATIO=   .0000
  NAT Q1=    237.  RATIOS LOB,CH,ROB=   .0994   .9006   .0000  WSEL=    852.45

 3470 ENCROACHMENT STATIONS=     393.4     500.0  TYPE=     4  TARGET=        .044
  20150.00     7.84   852.44      .00   852.35   852.58      .14      .04      .01   851.00
     800.       45.     755.       0.      74.     245.       0.      47.      18.    853.20
       .59      .61     3.07      .00     .100     .050     .100     .000   844.60   393.39
   .001259       76.     208.     311.        2        0        0      .00   105.08   498.47
0
 *SECNO 20596.000
  2800 NAT Q1=    296.86  WSEL=    852.84  ENC Q1=    296.86  WSEL=    852.94  RATIO=   .0000
  NAT Q1=    310.  RATIOS LOB,CH,ROB=   .0296   .8000   .1704  WSEL=    852.94

 3470 ENCROACHMENT STATIONS=     192.0     321.4  TYPE=     4  TARGET=        .042
  20596.00     6.83   852.93      .00   852.84   853.01      .08      .42      .02   851.10
     800.        7.     668.     125.      14.     273.     174.      51.      20.    850.40
       .65      .51     2.45      .72     .100     .050     .100     .000   846.10   192.03
   .000731      446.     446.     446.        2        0        0      .00   129.41   321.44
0
 *SECNO 20836.000
  2800 NAT Q1=    360.54  WSEL=    853.01  ENC Q1=    360.54  WSEL=    853.11  RATIO=   .0000
  NAT Q1=    375.  RATIOS LOB,CH,ROB=   .0448   .7573   .1980  WSEL=    853.11

 3470 ENCROACHMENT STATIONS=     179.5     330.7  TYPE=     4  TARGET=        .039
  20836.00     7.31   853.11      .00   853.01   853.16      .06      .14      .01   850.80
     800.       21.     630.     149.      42.     297.     228.      54.      26.    850.10
       .69      .50     2.12      .65     .100     .050     .100     .000   845.80   179.49
   .000494      240.     240.     240.        2        0        0      .00   151.25   330.74
0
 CCHV=    .300 CEHV=   1.000
 *SECNO 21668.000

 3470 ENCROACHMENT STATIONS=     290.0     360.0  TYPE=     1  TARGET=      70.000
            GRAND RIVER AVENUE
  21668.00     8.32   853.22      .00   853.12   853.32      .10      .11      .04   847.30
     800.       32.     191.     577.      22.      65.     238.      62.      22.    845.50
       .77     1.48     2.94     2.43     .015     .015     .015     .000   844.90   290.00
   .000065      871.     832.     751.        2        0        0      .00    70.00   360.00
0
1
  08/28/91    08:47:05                                                                PAGE   31
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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

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XF	XKOR	COEG	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.56	2.60	.00	9.60	.00	46.00	.00	844.90	844.90

*SECNO 21765.000
2800 NAT Q1= 5624.60 WSEL= 858.04 ENC Q1= 5624.60 WSEL= 858.14 RATIO= .0000
NAT Q1= 7306. RATIOS LOB,CH,ROB= .0754 .0747 .8499 WSEL= 858.14
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION 21765.00 EXTENDED .34 FEET

3470 ENCROACHMENT STATIONS= 294.7 702.4 TYPE= 4 TARGET= .230

21765.00	13.24	858.14	.00	858.04	858.14	.00	.00	.03	847.50
800.	0.	48.	752.	0.	107.	1679.	64.	23.	845.50
.83	.00	.45	.45	.015	.015	.015	.000	844.90	294.70
.000002	96.	96.	96.	0	0	6	.00	407.74	702.44

0
CCHV= .300 CEHV= .500
*SECNO 22145.000
2800 NAT Q1= 1114.74 WSEL= 858.04 ENC Q1= 1114.74 WSEL= 858.14 RATIO= .0000
NAT Q1= 3008. RATIOS LOB,CH,ROB= .6807 .1661 .1532 WSEL= 858.14
3280 CROSS SECTION 22145.00 EXTENDED 1.54 FEET

3470 ENCROACHMENT STATIONS= 172.5 336.0 TYPE= 4 TARGET= .629

22145.00	11.84	858.14	.00	858.04	858.15	.01	.00	.01	854.20
790.	442.	348.	0.	475.	359.	0.	74.	25.	855.90
.93	.93	.97	.00	.028	.040	.030	.000	846.30	172.48
.000052	401.	381.	271.	0	0	0	.00	163.52	336.00

0
CCHV= .300 CEHV= .500
*SECNO 22808.000
2800 NAT Q1= 978.41 WSEL= 858.02 ENC Q1= 978.41 WSEL= 858.12 RATIO= .0000
NAT Q1= 1117. RATIOS LOB,CH,ROB= .2806 .5170 .2024 WSEL= 858.12

3265 DIVIDED FLOW

3280 CROSS SECTION 22808.00 EXTENDED 2.61 FEET

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 38.1 244.4 TYPE= 4 TARGET= .124
DRIVE CULVERT

22808.00	10.71	858.11	.00	858.02	858.25	.14	.04	.06	848.20
790.	196.	468.	126.	197.	123.	89.	83.	27.	848.00
1.00	1.00	3.80	1.41	.025	.015	.025	.000	847.40	38.08
.000044	443.	443.	443.	2	0	0	60	148.65	244.36

0

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	2.00	2.80	.00	11.90	3.40	25.00	.00	847.40	847.40

*SECND 22858.000
2800 NAT Q1= 1278.50 WSEL= 858.21 ENC Q1= 1278.50 WSEL= 858.31 RATIO= .0000
NAT Q1= 1348. RATIOS LOB,CH,ROB= .3004 .4562 .2435 WSEL= 858.31
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3265 DIVIDED FLOW

3280 CROSS SECTION 22858.00 EXTENDED 3.01 FEET

3470 ENCROACHMENT STATIONS= 11.8 543.9 TYPE= 4 TARGET= .051

22858.00	11.11	858.31	.00	858.21	858.38	.07	.00	.02	848.00
790.	228.	381.	181.	322.	128.	268.	84.	28.	847.80
1.01	.71	2.98	.68	.025	.015	.025	.000	847.20	11.82
.000038	50.	50.	50.	0	0	8	.00	523.26	543.86

0
*SECND 23206.000
2800 NAT Q1= 1381.01 WSEL= 858.26 ENC Q1= 1381.01 WSEL= 858.36 RATIO= .0000
NAT Q1= 1562. RATIOS LOB,CH,ROB= .1496 .3376 .5218 WSEL= 858.36
3280 CROSS SECTION 23206.00 EXTENDED .65 FEET

3470 ENCROACHMENT STATIONS= 91.7 456.9 TYPE= 4 TARGET= .116
DRIVE CULVERT

23206.00	11.15	858.35	.00	858.26	858.40	.04	.01	.01	850.30
790.	73.	302.	415.	80.	118.	625.	90.	31.	847.30
1.08	.91	2.57	.66	.025	.015	.025	.000	847.20	91.65
.000033	348.	348.	348.	2	0	0	.00	365.28	456.93

0
1
08/28/91 08:47:05 PAGE 33

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

SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	2.00	2.90	.00	11.30	2.50	29.00	.00	847.20	847.20

*SECND 23256.000
2800 NAT Q1= 2493.74 WSEL= 858.32 ENC Q1= 2493.74 WSEL= 858.42 RATIO= .0000
NAT Q1= 2626. RATIOS LOB,CH,ROB= .1362 .2302 .6335 WSEL= 858.42
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION 23256.00 EXTENDED 1.51 FEET

3470 ENCROACHMENT STATIONS= 54.9 884.2 TYPE= 4 TARGET= .050

23256.00	12.01	858.41	.00	858.32	858.42	.01	.00	.01	849.50
790.	92.	192.	506.	200.	128.	1467.	91.	32.	846.50
1.10	.46	1.50	.34	.025	.015	.025	.000	846.40	54.88
.000010	50.	50.	50.	0	0	8	.00	828.32	884.20

```
0
 CCHV=    .300 CEHV=    .500
 #SECNO 23342.000
  2800 NAT Q1=    873.30  WSEL=    858.32  ENC Q1=    873.30  WSEL=    858.42  RATIO=   .0000
  NAT Q1=   1289.  RATIOS LOB,CH,ROB=   .0330   .2947   .6723  WSEL=    858.42

 3470 ENCROACHMENT STATIONS=      95.0     297.6  TYPE=     4  TARGET=        .323
  23342.00    11.01   858.41      .00   858.32   858.43      .02      .00      .00   856.60
     790.       0.     339.     451.       0.     296.     470.      94.      33.   854.40
     1.12      .00     1.15      .96     .028     .040     .030     .000   847.40    95.00
   .000084      86.      86.      86.        0        0        0      .00   202.61   297.61
0
 #SECNO 23350.000
  2800 NAT Q1=    760.83  WSEL=    858.31  ENC Q1=    760.83  WSEL=    858.41  RATIO=   .0000
  NAT Q1=   1177.  RATIOS LOB,CH,ROB=   .0361   .2274   .7365  WSEL=    858.41

 3470 ENCROACHMENT STATIONS=      95.0     297.7  TYPE=     4  TARGET=        .353
  23350.00     7.31   858.41      .00   858.31   858.43      .02      .00      .00   856.60
     790.       0.     273.     517.       0.     235.     470.      94.      33.   854.40
     1.12      .00     1.16     1.10     .028     .040     .030     .000   851.10    95.00
   .000110       8.       8.       8.        0        0        0      .00   202.74   297.74
0
1
  08/28/91    08:47:05                                                                PAGE   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


 #SECNO 23358.000
  2800 NAT Q1=    907.35  WSEL=    856.32  ENC Q1=    907.35  WSEL=    858.42  RATIO=   .0000
  NAT Q1=   1328.  RATIOS LOB,CH,ROB=   .0340   .3114   .6546  WSEL=    858.42

 3470 ENCROACHMENT STATIONS=      95.0     296.9  TYPE=     4  TARGET=        .317
  23358.00     9.92   858.42      .00   858.32   858.43      .02      .00      .00   856.50
     790.       0.     355.     435.       0.     310.     469.      94.      33.   854.40
     1.12      .00     1.15      .93     .028     .040     .030     .000   848.50    95.00
   .000078       8.       8.       8.        0        0        0      .00   201.93   296.93
0
 CCHV=    .300 CEHV=    .500
 #SECNO 23938.000
  2800 NAT Q1=    374.62  WSEL=    858.37  ENC Q1=    364.06  WSEL=    858.47  RATIO=  -.0252
  NAT Q1=    389.  RATIOS LOB,CH,ROB=   .0000   .9875   .0125  WSEL=    858.47

 3470 ENCROACHMENT STATIONS=      47.0     113.0  TYPE=     4  TARGET=        .012
  23938.00     8.97   858.47      .00   858.37   858.56      .09      .09      .04   858.50
     790.       0.     790.       0.       0.     322.       0.     101.      35.   858.00
     1.19      .00     2.45      .00     .040     .035     .030     .000   849.50    47.09
   .000427      580.     580.     580.        2        0        0      .00    65.91   113.00
0
 CCHV=    .300 CEHV=    .500
 #SECNO 24339.000
  2800 NAT Q1=    291.80  WSEL=    858.46  ENC Q1=    499.78  WSEL=    858.56  RATIO=  -.7127
  NAT Q1=   2220.  RATIOS LOB,CH,ROB=   .0937   .2251   .6812  WSEL=    858.56

 3470 ENCROACHMENT STATIONS=     141.0     155.0  TYPE=     4  TARGET=        .775
           INTERSTATE 96
  24339.00     8.85   858.55      .00   858.46   858.72      .17      .12      .04   850.30
     395.       0.     395.       0.       0.     120.       0.     104.      35.   850.10
     1.22      .00     3.28      .00     .015     .015     .015     .000   849.70   141.00
   .000177      381.     401.     541.        0        0        0      .00    14.00   155.00
0
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SPECIAL BRIDGE

5070.VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
1
08/28/91 08:47:05 PAGE 35

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

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.06	2.45	2.80	.00	12.80	4.00	32.00	.00	849.70	849.70

*SECNO 24483.000
2800 NAT Q1= 8582.42 WSEL= 861.10 ENC Q1= 8582.42 WSEL= 861.20 RATIO= .0000
NAT Q1= 8866. RATIOS LOB,CH,ROB= .0777 .0947 .8276 WSEL= 861.20
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
3280 CROSS SECTION 24483.00 EXTENDED 1.59 FEET

3470 ENCROACHMENT STATIONS= 114.8 680.5 TYPE= 4 TARGET= .032

24483.00	11.99	861.19	.00	861.10	861.19	.00	.00	.05	849.60	
395.	25.	39.	331.	166.	164.	2489.	108.	36.	849.60	
1.50	.15	.24	.13	.015	.015	.015	.000	849.20	114.82	
.000000	144.	144.	144.	0	0	6	.00	565.68	680.50	

0
1
08/28/91 08:47:05 PAGE 36

THIS RUN EXECUTED 08/28/91 08:48:37

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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 1.1
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

INGERSOL CREEK

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
14131.000	839.29	.00	839.54	110.00	185.49	502.35	242.16	110.00	603.00	650.00	666.00	713.00
14131.000	839.39	.10	839.62	110.00	188.83	496.59	244.58	110.00	603.00	650.00	666.00	713.00
14236.000	839.44	.00	839.63	57.40	.00	930.00	.00	57.40	871.30	871.30	928.70	928.70
14236.000	839.52	.08	839.71	57.40	.00	930.00	.00	57.40	871.30	871.30	928.70	928.70
14276.000	839.46	.00	839.65	57.40	.00	930.00	.00	57.40	871.30	871.30	928.70	928.70
14276.000	839.54	.08	839.73	57.40	.00	930.00	.00	57.40	871.30	871.30	928.70	928.70
14669.000	839.90	.00	839.96	450.00	139.19	646.56	144.25	450.00	433.00	629.30	686.70	883.00
14669.000	840.00	.10	840.07	288.33	.00	664.20	265.80	.57	629.30	629.30	686.70	917.63

15341.000	840.68	.00	840.82	336.73	79.69	342.07	508.24	860.00	.00	345.00	357.00	860.00
15341.000	840.78	.10	840.93	237.83	52.02	353.09	524.88	.06	337.99	345.00	357.00	638.56
16311.000	842.11	.00	842.18	176.15	.00	371.85	428.15	365.00	100.00	100.00	140.00	465.00
16311.000	842.21	.10	842.29	119.46	.00	384.00	416.00	.06	100.00	100.00	140.00	221.28
16657.000	842.57	.00	842.84	124.25	.00	610.14	189.95	210.00	100.00	100.00	140.00	310.00
16657.000	842.66	.09	842.95	75.36	.00	634.40	165.60	.07	100.00	100.00	140.00	179.41
17300.000	843.90	.00	844.00	132.52	34.48	383.68	381.84	400.00	.00	260.20	303.80	400.00
17300.000	844.02	.12	844.13	95.34	.00	394.60	405.40	.42	260.20	260.20	303.80	355.54
17301.000	843.77	.00	844.13	77.96	.00	745.96	54.04	510.00	.00	356.50	400.00	510.00
17301.000	843.91	.14	844.24	80.25	.00	735.95	64.05	.48	356.50	356.50	400.00	498.52
17341.000	843.85	.00	844.18	79.93	.00	737.66	62.34	510.00	.00	356.50	400.00	510.00
17341.000	843.98	.14	844.29	82.21	.00	726.80	73.20	.51	356.50	356.50	400.00	498.62
17342.000	844.18	.00	844.26	139.25	35.80	367.31	396.89	400.00	.00	260.20	303.80	400.00
17342.000	844.27	.09	844.36	96.17	.00	376.41	423.59	.43	260.20	260.20	303.80	356.38

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
17437.000	844.29	.00	844.31	350.35	31.92	182.64	585.45	.00	.00	260.00	300.00	.00
17437.000	844.38	.09	844.41	199.48	10.56	189.61	599.83	.06	252.40	260.00	300.00	451.88
17701.000	844.12	.00	844.68	40.60	.00	739.89	60.10	390.00	.00	258.00	300.00	390.00
17701.000	844.21	.09	844.79	36.98	.00	768.26	31.74	.32	258.00	258.00	300.00	304.14
18455.000	847.39	.00	847.58	57.05	.00	799.98	.02	.00	.00	345.00	400.00	.00
18455.000	847.44	.06	847.63	52.88	.00	800.00	.00	.00	345.00	345.00	400.00	400.00
18522.000	847.51	.00	847.76	38.00	.00	800.00	.00	38.00	349.00	349.00	387.00	387.00
18522.000	847.56	.05	847.80	38.00	.00	800.00	.00	.03	349.00	349.00	387.00	387.00
18523.000	847.45	.00	847.81	38.00	.00	800.00	.00	.00	.00	462.00	500.00	.00
18523.000	847.51	.05	847.86	38.00	.00	800.00	.00	.00	462.00	462.00	500.00	500.00
18598.000	847.49	.00	847.88	38.00	.00	800.00	.00	.00	.00	462.00	500.00	.00
18598.000	847.54	.05	847.92	38.00	.00	800.00	.00	.00	462.00	462.00	500.00	500.00
18599.000	847.67	.00	847.92	38.00	.00	800.00	.00	38.00	349.00	349.00	387.00	387.00
18599.000	847.72	.04	847.96	38.00	.00	800.00	.00	.09	349.00	349.00	387.00	387.00
18713.000	848.05	.00	848.09	259.13	459.11	317.76	23.12	.00	.00	183.00	225.00	.00
18713.000	848.08	.04	848.13	191.89	468.36	331.24	.40	.07	34.49	183.00	225.00	226.38
18916.000	848.18	.00	848.26	242.66	421.90	376.66	1.45	.00	.00	183.00	225.00	.00
18916.000	848.23	.05	848.34	193.00	336.69	463.00	.31	193.00	47.00	183.00	225.00	240.00
19031.000	848.32	.00	848.46	156.11	356.14	443.86	.00	.00	.00	183.00	225.00	.00
19031.000	848.43	.11	848.57	157.71	341.19	458.81	.00	.07	37.38	183.00	225.00	225.00
19680.000	849.13	.00	849.62	133.09	319.76	217.96	262.28	.00	.00	496.00	504.00	.00
19680.000	849.22	.09	849.74	94.87	327.35	226.30	246.35	.07	305.43	496.00	504.00	512.99
19722.000	852.06	.00	852.07	458.44	610.63	63.55	126.42	.00	.00	496.00	504.00	.00
19722.000	852.14	.09	852.15	325.18	623.45	65.13	111.41	.05	205.44	496.00	504.00	530.62
19746.000	852.04	.00	852.08	302.62	304.23	495.77	.00	700.00	.00	438.00	518.00	700.00
19746.000	852.13	.09	852.17	184.62	287.91	512.09	.00	.06	315.26	438.00	518.00	518.00

19850.000	852.01	.00	852.15	239.43	383.04	312.97	103.99	510.00	.00	473.70	482.30	510.00
19850.000	852.10	.08	852.25	176.56	390.34	320.48	89.18	.04	315.11	473.70	482.30	491.67
19942.000	852.32	.00	852.43	308.04	410.61	289.94	99.45	510.00	.00	473.70	482.30	510.00
19942.000	852.41	.08	852.52	192.89	419.47	296.83	83.70	.04	298.87	473.70	482.30	491.76
20150.000	852.35	.00	852.48	217.85	69.02	730.98	.00	.00	.00	452.00	500.00	.00
20150.000	852.44	.08	852.56	105.08	45.49	754.51	.00	.04	393.39	452.00	500.00	500.00
20596.000	852.84	.00	852.92	243.29	21.30	647.46	131.24	.00	.00	200.00	250.00	.00
20596.000	852.93	.09	853.01	129.41	7.06	668.22	124.72	.04	192.03	200.00	250.00	321.44

SECNO	CWSEL	DIFFWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
20836.000	853.01	.00	853.06	276.00	33.13	612.98	153.89	.00	.00	200.00	250.00	.00
20836.000	853.11	.10	853.16	151.25	21.01	630.45	148.54	.04	179.49	200.00	250.00	330.74
21668.000	853.12	.00	853.21	130.67	45.73	186.25	568.02	350.00	250.00	294.70	303.30	600.00
21668.000	853.22	.10	853.32	70.00	32.06	191.29	576.65	70.00	290.00	294.70	303.30	360.00
21765.000	858.04	.00	858.05	350.00	68.53	76.57	654.90	350.00	250.00	294.70	303.30	600.00
21765.000	858.14	.10	858.14	407.74	.00	48.20	751.80	.23	294.70	294.70	303.30	702.44
22145.000	858.04	.00	858.05	515.00	200.16	347.10	242.74	515.00	225.00	290.00	336.00	740.00
22145.000	858.14	.09	858.15	163.52	441.64	348.36	.00	.63	172.48	290.00	336.00	336.00
22808.000	858.02	.00	858.15	203.32	162.11	458.89	169.01	355.00	135.00	221.00	232.90	490.00
22808.000	858.11	.09	858.25	160.65	196.24	467.98	125.77	.12	38.08	221.00	232.90	244.36
22858.000	858.21	.00	858.28	835.21	234.68	374.00	181.32	.00	.00	221.00	232.90	.00
22858.000	858.31	.09	858.38	523.26	227.81	380.93	181.26	.05	11.82	221.00	232.90	543.87
23206.000	858.26	.00	858.30	400.00	117.69	296.66	375.65	400.00	18.00	109.00	120.70	418.00
23206.000	858.35	.10	858.40	365.28	72.77	302.50	414.73	.12	91.65	109.00	120.70	456.93
23256.000	858.32	.00	858.33	961.01	108.28	188.90	492.82	.00	.00	109.00	120.70	.00
23256.000	858.41	.10	858.42	829.32	92.47	191.88	505.64	.05	54.88	109.00	120.70	884.20
23342.000	858.32	.00	858.33	248.44	34.06	335.71	420.23	360.00	.00	95.00	138.00	360.00
23342.000	858.41	.10	858.43	202.61	.00	338.90	451.10	.32	95.00	95.00	138.00	297.61
23350.000	858.31	.00	858.33	248.43	38.95	269.44	491.61	360.00	.00	95.00	138.00	360.00
23350.000	858.41	.10	858.43	202.74	.00	273.23	516.77	.35	95.00	95.00	138.00	297.74
23358.000	858.32	.00	858.33	248.43	34.72	351.45	403.83	360.00	.00	95.00	138.00	360.00
23358.000	858.42	.10	858.43	201.93	.00	355.27	434.73	.32	95.00	95.00	138.00	296.93
23938.000	858.37	.00	858.46	99.67	.00	785.95	4.05	210.00	.00	47.00	113.00	210.00
23938.000	858.47	.10	858.56	65.91	.00	790.00	.00	.01	47.00	47.00	113.00	113.00
24339.000	858.46	.00	858.63	14.00	.00	395.00	.00	14.00	141.00	141.00	155.00	155.00
24339.000	858.55	.09	858.72	14.00	.00	395.00	.00	.77	141.00	141.00	155.00	155.00
24483.000	861.10	.00	861.10	630.70	30.77	38.10	326.13	.00	.00	141.00	155.00	.00
24483.000	861.19	.09	861.19	565.68	25.15	38.68	331.17	.03	114.82	141.00	155.00	680.50

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI CITY OF

3) WATERCOURSE: INGERSOL CREEK

4) DOCUMENT TYPE: '96 WR-2

00BREAK00

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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      CITY OF NOVI   JOB NO.5555-46-04
T2     100 YEAR FLOOD
T3     INGERSOL CREEK

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10.       4.        0.        0.   0.000000     0.00      0.0       0.   839.290    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

1
 13 FEB 89   10:17:50                                                                    PAGE   38

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=   0.300 CEHV=   0.500
*SECNO 14131.000

3470 ENCROACHMENT STATIONS=     603.0     713.0  TYPE=     1  TARGET=     110.000
 14131.00     6.09   839.29     0.00   839.29   839.53     0.24     0.00     0.00   833.90
     920.      184.     497.      240.     115       96.      137.        0        0.   833.20
```

```
     0.00      1.60      5.16      1.75     0.100     0.050     0.100     0.000    833.20    603.00
  0.002782       0.        0.        0.         0         0         0      0.00    110.00    713.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 14236.000

 3470 ENCROACHMENT STATIONS=      850.0     1400.0  TYPE=      1  TARGET=      550.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       843.00 ELREA=       843.00

              MEADOWBROOK ROAD
  14236.00      6.03    839.43      0.00      0.00    839.62      0.19      0.07      0.02    837.30
      920.        0.      920.        0.        0.      262.        0.        1.        0.     836.80
      0.01      0.00      3.51      0.00     0.000     0.020     0.000     0.000    833.40    871.30
  0.000299      105.      105.      105.         2         0         0      0.00     57.40    928.70
0

 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       1.56       2.90       0.00      57 40      0.00     250.00       0.00     833.40     833.40

 *SECNO 14276.000

 6070,LOW FLOW BY NORMAL BRIDGE

 EGPRS=    839.757  EGLWC=    839 621  ELLC=    839.600  PCWSE=    839.429  ELTRD=    838.800

 3370 NORMAL BRIDGE,NRD= 26 MIN ELTRD=  838.80 MAX ELLC=  839.60


 3470 ENCROACHMENT STATIONS=      850.0     1400.0  TYPE=      1  TARGET=      550.000
1
  13 FEB 89     10:17:50                                                                          PAGE    39


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=       843.00 ELREA=       843.00

  14276.00      6.04    839.44      0.00      0.00    839.64      0.19      0.02      0.00    837.30
      920.        0.      920.        0.        0.      261.        0.        1.        0.     836.80
      0.01      0.00      3.53      0.00     0.000     0.020     0.000     0.000    833.40    871.30
  0.000537       40.       40.       40.         1         0         0    -11.62     57.40    928.70
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 14669.000

 3470 ENCROACHMENT STATIONS=      433.0      883.0  TYPE=      1  TARGET=      450.000
  14669.00      6.07    839.87      0.00      0.00    839.94      0.07      0.26      0.04    837.70
      920.      135.      644       141.      250.      265.      247.        5.        2.     837.20
      0.07      0.54      2.43      0 57     0.100     0.050     0.100     0.000    833.80    433.00
  0.000888      431       393.      251.         2         0         0      0.00    450.00    883.00
0
 *SECNO 15341.000

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=        0.0      860.0  TYPE=      1  TARGET=      859.999
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  15341.00      6.16    840.66      0.00      0.00    840.80      0.14      0.83      0.04    834.80
      920.        79.       341.       500.        56.       73.       455         14.         7.     834.70
      0.14      1.40      4.69      1.10     0.100     0.050     0.100     0.000    834.50    323.09
  0.002262       710.      672.       500.         2         0         0      0.00    334.03    723.39
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 16311.000

 3470 ENCROACHMENT STATIONS=      100.0      465.0  TYPE=      1  TARGET=      365.000
           CONFLUENCE WITH BISHOP CREEK
  16311.00      7.00    842.10      0.00      0.00    842.17      0.07      1.35      0.02    842.90
      800.         0.       373.       427.         0.       168.       211.        26.        14.     839.90
      0.27      0.00      2.23      2.03     0.000     0.050     0.030     0.000    835.10    102.11
  0.000828       970.      970.      1050.         2         0         0      0.00    175.70    277.81
0
1
  13 FEB 89     10:17:50                                                                          PAGE    40


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 16657.000

 3470 ENCROACHMENT STATIONS=      100.0      310.0  TYPE=      1  TARGET=      210.000
  16657.00      6.17    842.57      0.00      0.00    842.83      0.27      0.56      0.10    844.20
      800.         0.       611.       189.         0.       137.        66         28.        15.     841.20
      0.30      0.00      4.47      2.86     0.000     0.050     0.030     0.000    836.40    104.31
  0.004023       340       346.      380.         2         0         0      0.00    123.98    228.30
0
 *SECNO 17300.000

 3470 ENCROACHMENT STATIONS=        0.0      400.0  TYPE=      1  TARGET=      399.999
  17300.00      5.49    843.69      0.00      0.00    843.76      0.06      0.87      0.06    842.30
       800        19.       291.       489.        20.       162.       224.        33.        17.     841.20
      0.39      0.95      1.80      2.19     0.030     0.050     0.030     0.000    838.20    228.93
  0.000649       660.      643.       670.         3         0         0      0.00    171.06    400.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 17301.000

 3265 DIVIDED FLOW


 3370 NORMAL BRIDGE, NRD= 16 MIN ELTRD=  842.50 MAX ELLC=  844.70


 3470 ENCROACHMENT STATIONS=        0.0      510.0  TYPE=      1  TARGET=      509.999
           WILLOWBROOK DRIVE
  17301.00      4.93    843.53      0.00      0.00    843.92      0.39      0.00      0.16    847.80
      800.         0.       737.        63.         0       142.        25.        33.        17.     846.20
      0.39      0.00      5.18      2.56     0.000     0.020     0.015     0.000    838.60    356.50
  0.001128         1.        1.        1.         2         0         0     -0.02     81.41    510.00
0
 *SECNO 17341.000

 3265 DIVIDED FLOW


 3370 NORMAL BRIDGE, NRD= 16 MIN ELTRD=  842.50 MAX ELLC=  844.70

1
  13 FEB 89     10:17:50                                                                          PAGE    41
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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      510.0  TYPE=      1  TARGET=      509.999
  17341.00       5.02     843.62       0.00       0.00     843.98       0.36       0.04       0.01     847.80
       800.         0.        727        73.         0.        146.         28.        33.        17.      846.20
      0.39       0.00       4.98       2.64      0.000      0.020      0.015      0.000     838.60     356.50
  0.001101        40.        40.        40.          2          0          0      -0.25      83.70     510.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 17342.000

 3470 ENCROACHMENT STATIONS=        0.0      400.0  TYPE=      1  TARGET=      399.999
  17342.00       5.42     844.02       0.00       0.00     844.07       0.05       0.00       0.09     842.30
       800.         22.       271.       507.         32.       173.       255.        33.        17.      841.20
      0.39       0.69       1.57       1.99      0.040      0.050      0.030      0.000     838.60     221.10
  0.000452         1.          1         1.          2          0          0       0.00     178.90     400.00
0
 *SECNO 17437.000
  17437.00       5.78     844.08       0.00       0.00     844.11       0.02       0.03       0.01     842.10
       800.         28        192.       580.         48.       175.       455.        34.        18.      840.90
      0.41       0.59       1.10       1.27      0.040      0.050      0.030      0.000     838.30     212.19
  0.000195         95.        95.        95.          0          0          0       0.00     306.21     518.40
0
 *SECNO 17701.000

 3470 ENCROACHMENT STATIONS=        0.0      390.0  TYPE=      1  TARGET=      389.999
  17701.00       6.34     844.04       0.00       0.00     844.38       0.34       0.12       0.16     847.50
       800.         0.        602.       198.         0.        119.         63.        36.        19.      842.60
      0.42       0.00       5.06       3.14      0.000      0.050      0.030      0.000     837.70     267.63
  0.005539        400.       264.       150.          2          0          0       0.00     117.61     385.23
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 18455.000
  18455.00       6.84     847.04       0.00       0.00     847.27       0.23       2.85       0.03     848.60
       800.         0.        800.         0.         0.        209.         0.        40.        20.      847.30
      0.48       0.00       3.82       0.00      0.000      0.050      0.000      0.000     840.20     347.85
  0.002675        570.       754.       850.          3          0          0       0.00      51.12     398.97
0
1
  13 FEB 89     10:17.50                                                                          PAGE    42


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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 18522.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       849.20 ELREA=       849.20

  18522.00       6.79     847.19       0.00       0.00     847.47       0.28       0.17       0.03     846.60
       800.         0         800.         0         0.        189.         0.        40.        20.      844.20
      0.48       0.00       4.23       0.00      0.000      0.050      0.000      0.000     840.40     349.00
  0.002542         67.        67.        67.          2          0          0       0.00      38.00     387.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 18523.000
```

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 849.20 MAX ELLC= 847.80

CRANBROOKE ROAD

18523.00	6.62	847.12	0.00	0.00	847.54	0.42	0 00	0.07	850.70
800.	0.	800.	0.	0.	154.	0.	40.	20.	850.90
0.48	0.00	5.20	0.00	0.000	0.020	0 000	0.000	840.50	462.00
0.000852	1.	1.	1.	2	0	0	0.00	38.00	500.00

0

*SECNO 18598 000

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 849.20 MAX ELLC= 848.00

18598.00	6.47	847 17	0.00	0.00	847.62	0.45	0.07	0.02	850.90
800.	0.	800.	0.	0.	148.	0.	40.	20.	851 10
0.49	0.00	5.40	0.00	0.000	0.020	0.000	0.000	840.70	462.00
0.000956	75.	75.	75.	2	0	0	0.00	38.00	500.00

0

CCHV= 0.300 CEHV= 0.500

*SECNO 18599.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 849.20 ELREA= 849.20

18599.00	6.80	847.40	0.00	0.00	847.68	0.28	0.00	0.05	846.80
800.	0.	800.	0	0.	189.	0.	40.	20.	844.40
0.49	0.00	4.22	0.00	0.000	0.050	0.000	0.000	840.60	349.00
0.002519	1.	1.	1.	2	0	0	0.00	38.00	387.00

0

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 18713.000

18713.00	6.82	847.82	0.00	0.00	847.88	0.06	0.14	0.06	847.60
800	444.	344.	11.	220.	171.	18.	41.	21.	847.60
0.50	2.02	2.01	0.62	0.030	0.050	0.030	0.000	841.00	28.73
0.000753	114.	114.	114.	2	0	0	0.00	254.41	283.14

0

*SECNO 18916.000

3265 DIVIDED FLOW

18916.00	6.41	848.01	0.00	0.00	848 11	0.10	0.20	0.02	848.20
800.	399.	401.	0.	158.	154.	0.	43.	22.	848.20
0.52	2 53	2.60	0.02	0.030	0.050	0.030	0.000	841.60	29.52
0 001410	203.	203.	203.	2	0	0	0.00	180.36	275.13

0

*SECNO 19031.000

3265 DIVIDED FLOW

19031.00	5 99	848.19	0.00	0.00	848.36	0 17	0.21	0.03	848.80
800.	334.	466.	0.	108.	137.	0	43.	22.	848.80
0.53	3 10	3.39	0.00	0.030	0.050	0.000	0.000	842.20	30.30
0.002587	115.	115.	115	2	0	0	0.00	142.45	223.42

0

CCHV= 0.300 CEHV= 0.500

*SECNO 19680.000

3265 DIVIDED FLOW

TEN MILE ROAD

19680.00	4.50	849.10	0.00	0.00	849 61	0.51	1.08	0.17	844.80
800.	315.	220.	264.	82.	35.	38.	47.	25.	844.80
0.57	3.86	6.26	7.00	0 015	0 020	0.015	0.000	844.60	268.03
0.000986	881.	649.	501.	2	0	0	0.00	129 89	516.50

0
1

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

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	1.56	2.60	0.00	8.00	0.00	46.00	0 00	844.60	844.60

*SECND 19722.000

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
856.43	849 61	0 00	292.	509.	46.	38.	849.30	851.40

19722.00	7.45	852.05	0.00	0.00	852.06	0.01	2.45	0.00	844.80
800.	610	64.	126	829.	59	158.	47.	25.	844.80
0.59	0.74	1.08	0.80	0.015	0.020	0.015	0.000	844.60	136.24
0.000015	42.	42.	42.	0	0	7	0.00	458.22	594.45

0
CCHV= 0.300 CEHV= 0.500
*SECNO 19746.000

3470 ENCROACHMENT STATIONS= 0 0 700.0 TYPE= 1 TARGET= 699.999

19746 00	8.44	852.04	0.00	0.00	852.08	0.04	0.00	0.01	850.10
800.	304.	496.	0	246	302.	0.	48.	25.	852.40
0.59	1.23	1.64	0.00	0.030	0.050	0.000	0.000	843.60	197.26
0.000393	24.	24.	24.	2	0	0	0.00	302.42	499.68

0
CCHV= 0.300 CEHV= 0 500
*SECNO 19850.000

3470 ENCROACHMENT STATIONS= 0.0 510.0 TYPE= 1 TARGET= 509.999

FOOTBRIDGE

19850.00	8.21	852.01	0.00	0.00	852.15	0.14	0.02	0.05	844.20
800.	383	313.	104.	348.	69.	71.	49.	26.	844.30
0 60	1.10	4 56	1.47	0.030	0 015	0.030	0.000	843.80	259.93
0.000134	104.	104.	104.	2	0	0	0.00	239 29	499.22

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	T 'A	LEFT/RIGHT

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

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	1.90	2.80	0.00	10.00	0.00	55.00	0.00	843.80	843.80

*SECND 19942.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
858.25	852.15	0.00	596.	206.	55.	68.	850.60	851.00

3470 ENCROACHMENT STATIONS= 0.0 510.0 TYPE= 1 TARGET= 509.999

19942.00	8.52	852.32	0.00	0.00	852.43	0.10	0.27	0.00	844.20
800.	411.	290.	99.	425.	71.	76.	50.	26.	844.30
0.61	0.97	4.06	1.30	0.030	0.015	0.030	0.000	843.80	191.87
0.000101	92.	92.	92.	2	0	6	0.00	307.98	499.84

0
CCHV= 0.300 CEHV= 0.500
*SECND 20150.000

20150.00	7.75	852.35	0.00	0.00	852.48	0.13	0.04	0.01	851.00
800	69	731.	0.	140.	241.	0.	52	27.	853.20
0 63	0 49	3.03	0.00	0.100	0.050	0.000	0.000	844.60	280.48
0.001245	76.	208.	311.	0	0	0	0.00	217.81	498.29

0
*SECND 20596.000

20596.00	6.74	852.84	0.00	0.00	852.92	0.07	0.42	0.02	851.10
800.	21.	648.	131.	58.	269.	215.	56.	29	850.40
0.69	0.37	2.41	0.61	0.100	0.050	0.100	0.000	846.10	133.03
0.000727	446.	446.	446.	2	0	0	0.00	243.25	376.28

0
*SECND 20836.000

20836.00	7.21	853.01	0 00	0 00	853.06	0.05	0.14	0.01	850.80
800.	33.	613.	154.	94.	292	278.	60.	31.	850.10
0.73	0.35	2.10	0.55	0.100	0.050	0.100	0.000	845.80	114.99
0 000493	240.	240.	240	2	0	0	0.00	275.96	390.95

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 1 000
*SECND 21668.000

3470 ENCROACHMENT STATIONS= 250.0 600.0 TYPE= 1 TARGET= 350.000
GRAND RIVER AVENUE

21668 00	8.22	853.12	0 00	0 00	853.21	0.08	0.11	0.03	847.30
800.	46.	186.	568.	31	64.	261.	69.	35.	845.50
0.83	1.49	2.90	2.18	0.015	0.015	0.015	0.000	844.90	284.14
0.000065	871.	832.	751.	2	0	0	0.00	130.64	414.78

0

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	1.56	2.60	0.00	9.60	0.00	46.00	0.00	844.90	844.90

*SECNO 21765.000

3280 CROSS SECTION 21765.00 EXTENDED 0.25 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
860 45	855.53	0.00	146.	656.	46.	58.	850.90	857.50

3470 ENCROACHMENT STATIONS= 250.0 600 0 TYPE= 1 TARGET= 350.000

21765.00	13.14	858.04	0.00	0.00	858.05	0.00	4.84	0.00	847.30
800.	69.	77.	655.	181.	107.	1440.	71.	35.	845.50
0.88	0.38	0.72	0.45	0.015	0.015	0.015	0.000	844.90	250.00
0.000002	96.	96.	96.	0	0	6	0.00	350.00	600.00

0

CCHV= 0.300 CEHV= 0.500

*SECNO 22145.000

3470 ENCROACHMENT STATIONS= 225 0 740.0 TYPE= 1 TARGET= 515.000

22145.00	11.74	858.04	0.00	0.00	858.05	0 01	0.00	0.00	854.20
790.	200	347.	243.	234.	354.	529.	81.	38.	855.90
1.00	0.85	0.98	0 46	0.028	0.040	0.030	0.000	846.30	225.00
0.000050	401.	381.	271.	1	0	0	0.00	515.00	740.00

0

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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

*SECNO 22808.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 135.0 490.0 TYPE= 1 TARGET= 355.000
DRIVE CULVERT

22808.00	10.62	858.02	0.00	0.00	858.15	0.14	0.04	0.06	848.20
790	162.	459	169.	131	122.	138.	93.	43.	848.00
1 06	1.24	3.76	1 22	0.025	0.015	0.025	0.000	847.40	160.28
0.000065	663.	663.	663.	2	0	0	0.00	203.34	490.00

0

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	2.00	2.80	0.00	11.90	3.40	25.00	0.00	847.40	847.40

*SECNO 22858.000

3265 DIVIDED FLOW

3280 CROSS SECTION 22858.00 EXTENDED 2.91 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
[illegible]03	858.15	0.00	725.	73.	25.	34.	851.40	854.80

22[illegible]3.00	11.01	858 21	0.00	0.00	858.28	0.07	0.12	0.00	848.00
790.	235.	374.	181.	336.	127.	323.	94.	44.	847.80
1.07	0.70	2.95	0.56	0.025	0.015	0 025	0.000	847.20	0.00
0.000038	50.	50.	50.	2	0	8	0.00	835 22	1100.00

0

*SECNO 23206.000

3470 ENCROACHMENT STATIONS= 0.0 418.0 TYPE= 1 TARGET= 417.999
DRIVE CULVERT

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
23206.00	11.06	858.26	0.00	0.00	858.30	0.04	0.01	0.01	850.30
790.	118.	297.	376.	185.	116.	556.	100	49.	847.30
1 14	0.64	2.55	0.68	0.025	0.015	0.025	0.000	847.20	18.00
0 000033	348.	348.	348.	2	0	0	0.00	400.00	418.00

0

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	2.00	2.90	0.00	11 30	2.50	29.00	0.00	847.20	847.20

*SECNO 23256 000

3280 CROSS SECTION 23256.00 EXTENDED 1.43 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
881.30	858.30	0.00	745.	43.	29.	40.	851.70	857.00

23256.00	11.92	858.32	0.00	0.00	858.33	0.01	0 03	0.00	849.50
790.	108.	189.	493.	264.	127.	1497.	102.	50.	846.50
1.16	0.41	1.49	0.33	0.025	0.015	0.025	0.000	846.40	18.00
0.000010	50.	50.	50.	0	0	9	0.00	961.01	979.01

0

CCHV= 0.300 CEHV= 0.500

*SECNO 23342.000

3470 ENCROACHMENT STATIONS= 0.0 360.0 TYPE= 1 TARGET= 359.999

23342.00	10.92	858.32	0.00	0.00	858.33	0.01	0.00	0.00	856.60
790.	32.	316.	442.	60.	291.	539.	104.	51.	854.40
1.19	0.53	1.09	0.82	0.028	0.040	0.030	0.000	847.40	46.56

```
  0.000073      86.       86.       86.        0         0         0      0.00    313.44    360.00
0
 *SECNO 23350.000

 3470 ENCROACHMENT STATIONS=        0.0      360.0  TYPE=      1  TARGET=      359.999
  23350.00      7.22    858.32      0.00      0.00    858.33      0.01      0.00      0.00    856.60
      790        36.       252       502.       60.      231.       539.      105.       51.     854.40
      1.19      0.61      1.09      0.93     0.028     0.040     0.030     0.000    851.10     46.57
  0.000094        8.         8         8.         0         0         0      0.00    313.43    360 00
0
1
  13 FEB 89     10:17:50                                                                          PAGE    49


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 23358.000

 3470 ENCROACHMENT STATIONS=        0.0      360.0  TYPE=      1  TARGET=      359.999
  23358.00      9 82    858.32      0.00      0.00    858.33      0.01      0.00      0.00    856.50
      790.       33.       332.      425.       62.      306.       539.      105.       51.     854.40
      1.20      0.53      1.08      0.79     0.028     0.040     0.030     0.000    848.50     46.57
  0.000068        8.         8.        8.         0         0         0      0.00    313.43    360.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 23938.000

 3470 ENCROACHMENT STATIONS=        0.0      210.0  TYPE=      1  TARGET=      209.999
  23938 00      8.86    858.36      0.00      0.00    858.45      0.10      0.08      0.04    858.50
      790.        0.       785.        5.        0.      315.        14.      113.       54.     858.00
      1 26      0.00      2.49      0.35     0.000     0.035     0.030     0.000    849.50     47.35
  0.000446      580.      580.      580.         0         0         0      0.00    155 06    202.41
0
 CCHV=    0 300 CEHV=    0.500
 *SECNO 24339.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       860.20 ELREA=       860.20

              INTERSTATE 96
  24339.00      8.70    858.40      0.00      0.00    858.57      0.17      0.08      0.04    850.30
      395         0.       395.        0.        0.      118.         0.      115.       55.     850.10
      1.29      0.00      3.34      0.00     0.000     0.015     0.000     0.000    849.70    141.00
  0.000066      381.      401.      541          2         0         0      0.00     14.00    155.00
0

 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       2.45       2.80       0.00      12.80       4.00      32.00       0.00     849.70     849.70

 *SECNO 24483.000
 3280 CROSS SECTION  24483.00 EXTENDED       1.49 FEET

 PRESSURE AND WEIR FLOW

1
  13 FEB 89     10:17:50                                                                          PAGE    50


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 AREA	ELLC	ELTRD
864.19	858.55	0.00	127.	269.	32.	41.	854.40	860.20

24483.00	11.89	861 09	0.00	0.00	861.09	0.00	2 52	0.00	849.80
395.	31.	38.	326.	222.	163	2523.	120.	56.	849.60
1.58	0.14	0.23	0.13	0.015	0.015	0.015	0.000	849.20	93.32
0.000000	144.	144.	144.	0	0	6	0.00	630.68	724.00

0
1

THIS RUN EXECUTED 13 FEB 89 10.18.17

```
**************************************************
  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      CITY OF NOVI   JOB NO.5555-46-04
T2     500 YEAR FLOOD
T3     INGERSOL CREEK
```

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	5.	0.	0.	0.000000	0.00	0 0	0.	839.610	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

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 4

 CCHV=   0.300 CEHV=   0 500
 *SECNO 14131.000
```

3470 ENCROACHMENT STATIONS=		603.0	713.0	TYPE=	1	TARGET=	110.000		
14131.00	6.41	839.61	0.00	839.61	840.05	0 44	0.00	0.00	833.90
1370.	288	714.	368.	130	101.	152.	0.	0.	833.20
0.00	2.22	7 04	2.43	0 100	0 050	0.100	0.000	833.20	603.00
0.004832	0.	0.	0.	0	0	0	0.00	110.00	713.00

0

```
 CCHV=   0.300 CEHV=   0.500
 *SECNO 14236.000
```

3470 ENCROACHMENT STATIONS=		850.0	1400.0	TYPE=	1	TARGET=	550.000		

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 843.00 ELREA= 843.00

MEADOWBROOK ROAD

14236.00	6.44	839.84	0.00	0.00	840.20	0.36	0.12	0.03	837.30
1370.	0.	1370.	0.	0.	286	0.	1.	0.	836.80
0.01	0.00	4.80	0.00	0.000	0.020	0.000	0.000	833.40	871.30
0.000497	105.	105.	105.	2	0	0	0.00	57.40	928.70

0

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	1.56	2 90	0 00	57.40	0.00	250.00	0.00	833.40	833.40

*SECNO 14276.000

6070, LOW FLOW BY NORMAL BRIDGE

EGPRS= 840.567 EGLWC= 840.197 ELLC= 839.600 PCWSE= 839.840 ELTRD= 838.800

3370 NORMAL BRIDGE, NRD= 26 MIN ELTRD= 838.80 MAX ELLC= 839.60

3470 ENCROACHMENT STATIONS= 850.0 1400.0 TYPE= 1 TARGET= 550.000

1

13 FEB 89 10.17:50 PAGE 53

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 843.00 ELREA= 843.00

14276.00	6.44	839.84	0.00	0.00	840.26	0.42	0 03	0.03	837.30
1370.	0.	1370.	0.	0.	263.	0.	1.	0.	836.80
0.01	0.00	5.20	0.00	0.000	0.020	0.000	0.000	833.40	871.30
0.001726	40	40.	40.	0	0	0	-33.95	57.40	928.70

0

CCHV= 0.300 CEHV= 0.500

*SECNO 14669.000

3470 ENCROACHMENT STATIONS= 433.0 883.0 TYPE= 1 TARGET= 450.000

14669.00	6.93	840.73	0.00	0.00	840.79	0.06	0.42	0.11	837.70
1370.	286.	795.	289.	417.	314.	414.	7.	2.	837.20
0.07	0.68	2.53	0.70	0.100	0.050	0.100	0.000	833.80	433.00
0.000767	431.	393.	251.	2	0	0	0.00	450.00	883.00

0

*SECNO 15341.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 0.0 860.0 TYPE= 1 TARGET= 859.999

15341.00	6.92	841.42	0.00	0.00	841.55	0.13	0.72	0.03	834.80
1370.	109.	400.	862.	74.	82.	715.	20.	8.	834.70
0.14	1.47	4.89	1.21	0.100	0.050	0.100	0.000	834.50	319.76
0.002104	710	672.	500.	2	0	0	0.00	412.62	775.30

0

CCHV= 0.300 CEHV= 0.500

*SECNO 16311.000

3470 ENCROACHMENT STATIONS= 100.0 465.0 TYPE= 1 TARGET= 365.000
CONFLUENCE WITH BISHOP CREEK

16311.00	7.63	842.73	0 00	0.00	842.80	0.07	1.24	0.02	842.90
1110.	0.	425.	685.	0.	192.	338.	37.	17.	839.90
0.28	0.00	2.21	2.03	0.000	0 050	0.030	0.000	835.10	100.44
0.000723	970	970.	1050.	2	0	0	0.00	342.89	443.33

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 16657.000

3470 ENCROACHMENT STATIONS= 100.0 310.0 TYPE= 1 TARGET= 210.000

16657.00	6.73	843.13	0.00	0 00	843.39	0.25	0.49	0.09	844.20
1110.	0.	692.	418.	0.	158.	124.	40.	19.	841.20
0 30	0.00	4.39	3.37	0.000	0.050	0.030	0.000	836 40	102.81
0.003413	340.	346	380.	2	0	0	0.00	153.87	256.68

0
*SECNO 17300.000

3470 ENCROACHMENT STATIONS= 0.0 400.0 TYPE= 1 TARGET= 399.999

17300.00	6.01	844.21	0.00	0.00	844.29	0.08	0.85	0.05	842.30
1110.	48.	369	694.	39.	184.	273.	46.	22.	841.20
0.38	1.21	2.00	2.54	0.030	0.050	0.030	0.000	838.20	216.76
0.000680	660.	643.	670.	2	0	0	0.00	183.24	400.00

0
CCHV= 0.300 CEHV= 0.500
*SECNO 17301.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 16 MIN ELTRD= 842.50 MAX ELLC= 844 70

3470 ENCROACHMENT STATIONS= 0.0 510.0 TYPE= 1 TARGET= 509.999
WILLOWBROOK DRIVE

17301.00	5.41	844.01	0.00	0 00	844.49	0.48	0.00	0.20	847.80
1110.	0.	923.	187.	0.	158.	46.	46.	22.	846.20
0.38	0.00	5.83	4.08	0.000	0.020	0.015	0.000	838.60	356 50
0.001891	1.	1.	1.	2	0	0	-4.74	94.35	510.00

0
*SECNO 17341.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 16 MIN ELTRD= 842.50 MAX ELLC= 844.70

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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      510.0  TYPE=      1  TARGET=      509.999
  17341.00      5.55    844.15      0.00      0.00    844.58      0.43      0.07      0.02    847.80
     1110.        0.       886.      224.        0.       162.       53.       46.       22.     846.20
      0.38      0.00      5.48      4.20     0.000     0.020     0.015     0.000    838.60    356.50
  0.001809       40.       40.       40.         2         0         0     -7.80     98.26    510.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 17342.000

 3470 ENCROACHMENT STATIONS=        0.0      400.0  TYPE=      1  TARGET=      399.999
  17342.00      6.02    844.62      0.00      0.00    844.69      0.07      0.00      0.11    842.30
     1110.        51.       345.      714.       60.       199.      314.       47.       22.     841.20
      0.38      0.85      1.73      2.28     0.040     0.050     0.030     0.000    838.60    206.55
  0.000455        1.        1.         1         2         0         0      0.00    193.45    400.00
0
 *SECNO 17437.000
  17437.00      6.40    844.70      0.00      0.00    844.73      0.02      0.03      0.01    842.10
     1110.        55.       229.      826.       81.       199.      626.       48.       22.     840.90
      0.40      0.68      1.15      1.32     0.040     0.050     0.030     0.000    838.30    197.92
  0.000180       95.       95.       95.         2         0         0      0.00    436.07    633.99
0
 *SECNO 17701.000

 3470 ENCROACHMENT STATIONS=        0.0      390.0  TYPE=      1  TARGET=      389.999
  17701.00      6.97    844.67      0.00      0.00    844.96      0.29      0.10      0.13    847.50
     1110.        0.       652.      458.        0.       140.      119.       51.       24.     842.60
      0.42      0.00      4.66      3.85     0.000     0.050     0.030     0.000    837.70    265.88
  0.004062       400.      264.      150.         2         0         0      0.00    124.12    390.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 18455.000
  18455.00      7.38    847.58      0.00      0.00    847.92      0.34      2.93      0.02    848.60
     1110.        0.      1109.        1.        0.       238.       2.       55.       25.     847.30
      0.46      0.00      4.66      0.26     0.000     0.050     0.100     0.000    840.20    346.86
  0.003549       570.      754.      850.         2         0         0      0.00     69.01    415.87
0
1
   13 FEB 89     10:17:50                                                                  PAGE    56

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 18522.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      849.20 ELREA=      849.20

  18522.00      7.37    847.77      0.00      0.00    848.20      0.43      0.23      0.05    846.60
     1110.        0.      1110.        0.         0       211.        0.       56.       26.     844.20
      0.47      0.00      5.26      0.00     0.000     0.050     0.000     0.000    840.40    349.00
  0.003390        67.       67.       67.         2         0         0      0.00     38.00    387.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 18523.000

 3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD=  849.20 MAX ELLC=  847.80

              CRANBROOKE ROAD
  18523.00      7.17    847.67      0.00      0.00    848.30      0.63      0.00      0.10    850.70
     1110.        0.      1110.        0.         0.       174.        0.       56.       26.     850.90
      0.47      0.00      6.37      0.00     0.000     0.020     0.000     0.000    840.50    462.00
```

0.001617	1.	1.	1.	2	0	0	-0.48	38.00	500.00

0

*SECNO 18598.000

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 849.20 MAX ELLC= 848.00

18598.00	7.06	847.76	0.00	0.00	848.42	0.66	0.10	0.01	850.90
1110.	0.	1110.	0.	0.	171.	0.	56.	26.	851.10
0.47	0.00	6.51	0.00	0.000	0.020	0.000	0.000	840.70	462.00
0.001195	75.	75.	75.	3	0	0	0.00	38.00	500.00

0

CCHV= 0.300 CEHV= 0.500

*SECNO 18599.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 849.20 ELREA= 849.20

18599.00	7.48	848.08	0.00	0.00	848.49	0.41	0.00	0.07	846.80
1110.	0.	1110.	0.	0.	215.	0.	56.	26.	844.40
0.47	0.00	5.16	0.00	0.000	0.050	0.000	0.000	840.60	349.00
0.003165	1.	1.	1.	2	0	0	0.00	38.00	387.00

0

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 18713.000

18713.00	7.66	848.66	0.00	0.00	848.71	0.05	0.11	0.11	847.60
1110	669.	362.	78.	349.	206.	73.	57.	26.	847.60
0.49	1.92	1.75	1.07	0.030	0.050	0.030	0.000	841.00	27.16
0.000448	114.	114.	114.	2	0	0	0.00	272.00	299.16

0

*SECNO 18916.000

18916.00	7.16	848.76	0.00	0.00	848.85	0.08	0.12	0.02	848.20
1110.	646.	423.	41.	273.	186.	39.	60.	27.	848.20
0.51	2.36	2.28	1.06	0.030	0.050	0.030	0.000	841.60	28.08
0.000868	203.	203.	203.	2	0	0	0.00	261.63	289.72

0

*SECNO 19031.000

19031.00	6.67	848.87	0.00	0.00	849.02	0.14	0.14	0.03	848.80
1110.	601	503.	6	199.	165.	9.	61.	28.	848.80
0.52	3.03	3.04	0.65	0.030	0.050	0.030	0.000	842.20	29.01
0.001815	115.	115.	115.	2	0	0	0.00	251.27	280.28

0

CCHV= 0.300 CEHV= 0.500

*SECNO 19680.000

3265 DIVIDED FLOW

TEN MILE ROAD

19680.00	5.03	849.63	0.00	0.00	850.08	0.46	0.91	0.16	844.80
1110.	545.	250.	315.	153	39.	45.	66.	32.	844.80
0.56	3.55	6.35	7.05	0.015	0.020	0.015	0.000	844.60	241.63
0.000873	881.	649.	501.	2	0	0	0.00	183.27	517.38

0

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	1.56	2.60	0.00	8.00	0.00	46.00	0.00	844.60	844.60

*SECNO 19722.000

3265 DIVIDED FLOW

1

13 FEB 89 10:17:50 PAGE 58

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 AREA	ELLC	ELTRD
863.73	850.08	0.00	620.	490.	46.	38.	849.30	851.40

19722.00	7.76	852.36	0.00	0.00	852.38	0.01	2.29	0.00	844.80
1110.	856.	80.	174.	943.	61.	188.	67	32.	844.80
0 58	0.91	1.30	0.93	0.015	0.020	0.015	0.000	844.60	123.36
0.000020	42.	42.	42.	1	0	8	0.00	500.66	1225.14

0
CCHV= 0.300 CEHV= 0.500
*SECNO 19746.000

3470 ENCROACHMENT STATIONS= 0.0 700.0 TYPE= 1 TARGET= 699.999

19746 00	8.75	852.35	0.00	0.00	852.40	0.05	0.00	0.02	850.10
1110.	524.	586.	0.	324.	322.	0.	67.	32.	852.40
0 58	1.62	1.82	0 00	0 030	0.050	0.000	0.000	843.60	176.70
0.000572	24.	24.	24.	2	0	0	0.00	336.76	513.46

0
CCHV= 0.300 CEHV= 0.500
*SECNO 19850.000

3470 ENCROACHMENT STATIONS= 0 0 510 0 TYPE= 1 TARGET= 509.999
FOOTBRIDGE

19850.00	8.50	852.30	0 00	0.00	852.51	0 20	0.03	0.08	844.20
1110.	567.	404.	138.	420.	71.	76.	69.	33.	844.30
0.59	1.35	5.68	1.82	0.030	0.015	0.030	0.000	843.80	193.08
0.000198	104.	104.	104.	2	0	0	0.00	306.73	499.81

0

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	1.90	2.80	0.00	10.00	0 00	55.00	0.00	843.80	843 80

*SECNO 19942.000

1

13 FEB 89 10:17:50 PAGE 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

PRESSURE ND WEIR FLO''

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
864.32	852.51	0.00	907.	204.	55.	68	850.60	851.00

3470 ENCROACHMENT STATIONS= 0.0 510.0 TYPE= 1 TARGET= 509.999

19942.00	8.75	852.55	0.00	0.00	852.71	0.16	0.20	0.00	844.20
1110	597.	379.	134.	492.	73.	81.	70.	34.	844.30
0.60	1.21	5.16	1.65	0.030	0.015	0.030	0.000	843.80	176.63
0.000157	92.	92.	92.	2	0	7	0.00	333.37	510.00

0

CCHV= 0.300 CEHV= 0.500

*SECNO 20150.000

20150.00	7.99	852.59	0.00	0.00	852.80	0.21	0.07	0.02	851.00
1110.	129.	981.	0.	182	252.	0.	72.	35.	853 20
0.61	0 71	3.89	0.00	0.100	0.050	0.000	0.000	844.60	269.91
0.001958	76.	208.	311.	0	0	0	0.00	228 86	498.77

0

*SECNO 20596.000

20596.00	7.21	853.31	0.00	0.00	853.42	0.10	0.59	0.03	851.10
1110.	46.	850.	214.	94.	292.	278.	77.	37.	850 40
0.66	0.49	2.91	0.77	0.100	0 050	0 100	0.000	846.10	114.84
0.000945	446.	446.	446.	2	0	0	0.00	276.22	391.07

0

*SECNO 20836.000

20836.00	7.74	853.54	0.00	0.00	853 61	0.07	0.18	0.01	850.80
1110.	68.	795.	248.	144.	318.	362	81.	39.	850.10
0.70	0.47	2.50	0.68	0.100	0.050	0.100	0.000	845.80	95 56
0.000620	240.	240.	240.	2	0	0	0.00	355.23	450.79

0

CCHV= 0.300 CEHV= 1.000

*SECNO 21668 000

3470 ENCROACHMENT STATIONS= 250.0 600 0 TYPE= 1 TARGET= 350.000

GRAND RIVER AVENUE

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
21668.00	8.78	853.68	0.00	0.00	853.79	0.11	0.14	0.04	847.30
1110.	67.	239.	804.	37.	69.	331.	93.	44.	845.50
0.78	1.80	3.47	2.43	0.015	0.015	0.015	0.000	844.90	283.13
0.000084	871.	832.	751.	2	0	0	0.00	161.36	444.48

0

SPECIAL BRIDGE

5070, VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFG	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.00	1.56	2.60	0.00	9.60	0.00	46.00	0.00	844.90	844.90

*SECNO 21765.000

3280 CROSS SECTION 21765.00 EXTENDED 0.65 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
867.79	857.69	0.00	475.	646.	46.	58.	850.90	857.50

3470 ENCROACHMENT STATIONS= 250.0 600.0 TYPE= 1 TARGET= 350.000

21765.00	13.55	858.45	0.00	0.00	858.45	0.01	4.66	0.00	847.30
1110.	97	100	912.	200.	110.	1560.	96.	44.	845.50
0.83	0.49	0.91	0.58	0.015	0.015	0.015	0.000	844 90	250.00
0.000003	96.	96.	96.	0	0	7	0.00	350.00	600.00

0
CCHV= 0.300 CEHV= 0.500
*SECNO 22145.000

3470 ENCROACHMENT STATIONS= 225.0 740.0 TYPE= 1 TARGET= 515.000

22145.00	12.14	858.44	0.00	0.00	858.46	0.01	0.00	0.00	854.20
1090.	264.	420.	406	260.	373.	692.	107.	47.	855.90
0.92	1.01	1.13	0.59	0.028	0.040	0.030	0.000	846.30	225.00
0.000062	401.	381.	271.	1	0	0	0.00	515.00	740.00

0
CCHV= 0 300 CEHV= 0.500
*SECNO 22808.000
1
13 FEB 89 10:17:50 PAGE 61

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

3265 DIVIDED FLOW

3280 CROSS SECTION 22808.00 EXTENDED 0.20 FEET

3470 ENCROACHMENT STATIONS= 135.0 490.0 TYPE= 1 TARGET= 355.000
DRIVE CULVERT

22808.00	11.00	858.40	0.00	0.00	858.61	0.21	0.05	0.10	848.20
1090.	233.	600.	257.	157.	127.	208.	121.	53.	848.00
0.98	1.48	4.74	1.24	0 025	0.015	0.025	0.000	847.40	143.67
0.000099	663.	663.	663.	2	0	0	0.00	320.18	490.00

0

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
5227 DOWNSTREAM ELEV IS 851 59 ,NOT 858.40 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	2.00	2.80	0.00	11.90	3.40	25.00	0.00	847.40	847.40

*SECNO 22858.000
6870 D.S. ENERGY OF 858 61 HIGHER THAN COMPUTED ENERGY OF 858.56

3265 DIVIDED FLOW

3280 CROSS SECTION 22858.00 EXTENDED 3.22 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID	ELLC	ELTRD

							AREA		
917.44	959.80	0.00	1033.	57.	25.	34.	851.40	854.80	

22858.00	11.32	858.52	0.00	0.00	858.61	0.08	0.00	0.00	848.00
1090.	331.	454.	305.	403.	130.	542.	121.	54.	847.80
0.99	0.82	3.48	0.56	0.025	0.015	0.025	0.000	847.20	0.00
0.000051	50.	50.	50.	2	0	9	0.00	983.34	1100.00

0
1

13 FEB 89 10:17:50 PAGE 62

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 23206.000

3470 ENCROACHMENT STATIONS= 0.0 418.0 TYPE= 1 TARGET= 417.999

DRIVE CULVERT

23206.00	11.37	858.57	0.00	0.00	858.63	0.06	0.02	0.01	850.30
1090.	172.	373.	545.	214.	120	650.	130.	60.	847.30
1.05	0.80	3.11	0.84	0.025	0.015	0.025	0.000	847.20	18.00
0.000047	348.	348.	348.	2	0	0	0.00	400.00	418.00

0

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	2.00	2.90	0.00	11.30	2.50	29.00	0.00	847.20	847.20

*SECNO 23256.000

3280 CROSS SECTION 23256.00 EXTENDED 1.74 FEET

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
902.44	858.63	0.00	1047.	45.	29.	40.	851.70	857.00

23256.00	12.23	858.63	0.00	0.00	858.65	0.01	0.02	0 00	849.50
1090.	146.	229.	715.	293.	130.	1769.	132.	60.	846.50
1.07	0.50	1.76	0.40	0.025	0.015	0.025	0 000	846.40	18.00
0.000013	50	50.	50.	1	0	10	0.00	975.31	993.31

0

CCHV= 0.300 CEHV= 0.500

*SECNO 23342.000

3470 ENCROACHMENT STATIONS= 0 0 360 0 TYPE= 1 TARGET= 359.999

23342 00	11.23	858.63	0.00	0 00	858.65	0.02	0.00	0.00	856.60
1090	55.	404.	631.	76.	305.	610.	135.	62.	854.40
1.09	0.73	1.32	1.03	0.028	0.040	0.030	0.000	847.40	45.02
0.000102	86.	86.	86.	0	0	0	0.00	314.98	360.00

0
1

13 FEB 89 10:17:50 PAGE 63

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 23350 000

 3470 ENCROACHMENT STATIONS=        0.0      360.0  TYPE=      1  TARGET=      359.999
  23350.00      7.53    858 63      0.00      0.00    858.66      0.02      0.00       0.00    856 60
     1090.       61.       323.     706.       76.      245.      609.      135.        62.     854.40
      1.09      0.81       1.32     1.16     0.028     0.040     0.030     0.000     851.10     45.04
  0.000128        8.         8.       8.         0         0         0      0.00     314.96    360.00
0
 *SECNO 23358.000

 3470 ENCROACHMENT STATIONS=        0.0      360.0  TYPE=      1  TARGET=      359.999
  23358.00     10.14    858.64      0.00      0.00    858.66      0.02      0.00       0.00    856.50
     1090.       56.       424.     610.       78.      320.      609.      135.        62.     854.40
      1.09      0.72       1.33     1.00     0.028     0.040     0.030     0.000     848.50     45.04
  0 000095        8.         8.       8.         0         0         0      0.00     314.96    360.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 23938 000

 3470 ENCROACHMENT STATIONS=        0.0      210.0  TYPE=      1  TARGET=      209.999
  23938.00      9.19    858.69      0.00      0.00    858.84      0.15      0.12       0.06    858.50
     1090.        0.      1055.      35.        0.      337.       45.      144.        65.     858.00
      1.15      0.20       3.13     0.78     0.040     0.035     0.030     0.000     849.50     42.61
  0.000649      580.       580.     580.         1         0         0      0.00     167.39    210 00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 24339.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      860.20 ELREA=      860.20

            INTERSTATE 96
  24339.00      9.03    858.73      0 00      0 00    859.04      0.31      0.12       0.08    850.30
      550.        0.       550.        0         0.      123.        0.      147.        66.     850.10
      1.17      0.00       4.48     0.00     0.000     0.015     0.000     0.000     849.70    141.00
  0.000113      381.       401.     541.         2         0         0      0.00      14.00    155.00
0
1
  13 FEB 89     10:17:50                                                                    PAGE    64

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


 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      2.45      2.80      0.00     12.80      4.00     32.00      0.00     849.70    849.70

 *SECNO 24483.000
 3280 CROSS SECTION  24483 00 EXTENDED      1.80 FEET

 PRESSURE AND WEIR FLOW


  EGPRS       EGLWC       H3        QWEIR       QPR       BAREA    TRAPEZOID      ELLC      ELTRD
                                                                      AREA
     869.97    859.01       0.00      282.       268         32        41.      854.40    860.20
```

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI CITY 2

3) WATERCOURSE: INGERSOL CREEK

4) DOCUMENT TYPE: SUMMARY

00BREAK00

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
14131.000	.00	.00	.00	833.20	930.00	839.29	.00	839.54	28.43	5.22	347.63	174.42
14131.000	.00	.00	.00	833.20	930.00	839.39	.00	839.62	26.30	5.07	358.64	181.36
14236.000	105.00	.00	.00	833.40	930.00	839.44	.00	839.63	3.37	3.54	262.61	506.37
14236.000	105.00	.00	.00	833.40	930.00	839.52	.00	839.71	3.19	3.48	267.43	521.03
14276.000	40.00	838.80	839.60	833.40	930.00	839.46	.00	839.65	5.81	3.56	260.99	385.95
14276.000	40.00	838.80	839.60	833.40	930.00	839.54	.00	839.73	7.03	3.54	262.77	350.83
14669.000	393.00	.00	.00	833.80	930.00	839.90	.00	839.96	8.77	2.43	773.07	313.96
14669.000	393.00	.00	.00	833.80	930.00	840.00	.00	840.07	9.09	2.44	653.60	308.52
15341.000	672.00	.00	.00	834.50	930.00	840.68	.00	840.82	22.57	4.70	590.72	195.74
15341.000	672.00	.00	.00	834.50	930.00	840.78	.00	840.93	22.85	4.77	542.54	194.56
16311.000	970.00	.00	.00	835.10	800.00	842.11	.00	842.18	8.16	2.21	380.34	280.03
16311.000	970.00	.00	.00	835.10	800.00	842.21	.00	842.29	8.16	2.24	348.41	280.11
16657.000	346.00	.00	.00	836.40	800.00	842.57	.00	842.84	39.93	4.45	203.45	126.60
16657.000	346.00	.00	.00	836.40	800.00	842.66	.00	842.95	40.19	4.52	187.79	126.20
17300.000	643.00	.00	.00	838.20	800.00	843.90	.00	844.00	9.41	2.24	335.65	260.84
17300.000	643.00	.00	.00	838.20	800.00	844.02	.00	844.13	9.44	2.23	317.70	260.37
17301.000	1.00	842.50	844.70	838.60	800.00	843.77	.00	844.13	11.81	4.92	173.45	232.76
17301.000	1.00	842.50	844.70	838.60	800.00	843.91	.00	844.24	11.77	4.72	180.80	233.18
17341.000	40.00	842.50	844.70	838.60	800.00	843.85	.00	844.18	11.68	4.80	178.39	234.05
17341.000	40.00	842.50	844.70	838.60	800.00	843.98	.00	844.29	11.65	4.61	185.42	234.42
17342.000	1.00	.00	.00	838.60	800.00	844.18	.00	844.26	7.27	2.04	370.12	296.60
17342.000	1.00	.00	.00	838.60	800.00	844.27	.00	844.36	7.54	2.05	339.83	291.25
17437.000	95.00	.00	.00	838.30	800.00	844.29	.00	844.31	1.53	1.00	742.53	646.64
17437.000	95.00	.00	.00	838.30	800.00	844.38	.00	844.41	1.54	1.02	664.67	644.53
17701.000	264.00	.00	.00	837.70	800.00	844.12	.00	844.68	78.45	6.09	133.34	90.32
17701.000	264.00	.00	.00	837.70	800.00	844.21	.00	844.79	79.28	6.18	130.84	89.85
18455.000	754.00	.00	.00	840.20	800.00	847.39	.00	847.58	21.23	3.52	227.58	173.64
18455.000	754.00	.00	.00	840.20	800.00	847.44	.00	847.63	20.44	3.47	230.44	176.97
18522.000	67.00	.00	.00	840.40	800.00	847.51	.00	847.76	23.60	3.98	201.13	164.68
18522.000	67.00	.00	.00	840.40	800.00	847.56	.00	847.80	22.85	3.94	203.30	167.34
18523.000	1.00	849.20	847.80	840.50	800.00	847.45	.00	847.81	6.68	4.80	166.56	309.54
18523.000	1.00	849.20	847.80	840.50	800.00	847.51	.00	847.86	6.44	4.75	168.56	315.24

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
18598.000	75.00	849.20	848.00	840.70	800.00	847.49	.00	847.88	7.49	4.99	160.45	292.34
18598.000	75.00	849.20	848.00	840.70	800.00	847.54	.00	847.92	7.18	4.92	162.64	298.48
18599.000	1.00	.00	.00	840.60	800.00	847.67	.00	847.92	24.09	4.00	199.76	162.98
18599.000	1.00	.00	.00	840.60	800.00	847.72	.00	847.96	23.51	3.97	201.41	165.01
[illegible]	[illegible]	.00	.00	841.00	800.00	848.05	[illegible]	848.18	5.34	1.74	444.84	345.83

18713.000	114.00	.00	.00	841.00	800.00	848.08	.00	848.13	5.67	1.82	432.79	335.85
18916.000	203.00	.00	.00	841.60	800.00	848.18	.00	848.26	11.00	2.34	348.53	241.16
18916.000	203.00	.00	.00	841.60	800.00	848.23	.00	848.34	15.92	2.83	308.00	200.53
19031.000	115.00	.00	.00	842.20	800.00	848.32	.00	848.46	21.26	3.11	265.03	173.52
19031.000	115.00	.00	.00	842.20	800.00	848.43	.00	848.57	20.94	3.12	269.04	174.81
19680.000	649.00	.00	.00	844.60	800.00	849.13	.00	849.62	9.42	6.15	158.88	260.60
19680.000	649.00	.00	.00	844.60	800.00	849.22	.00	849.74	9.52	6.26	147.96	259.30
19722.000	42.00	851.40	849.30	844.60	800.00	852.06	.00	852.07	.15	1.08	1047.40	2084.62
19722.000	42.00	999999.00	.00	844.60	800.00	852.14	.00	852.15	.15	1.09	959.83	2070.10
19746.000	24.00	.00	.00	843.60	800.00	852.04	.00	852.08	3.91	1.64	549.10	404.58
19746.000	24.00	.00	.00	843.60	800.00	852.13	.00	852.17	3.93	1.66	514.90	403.62
19850.000	104.00	.00	.00	843.80	800.00	852.01	.00	852.15	1.33	4.56	488.07	692.78
19850.000	104.00	.00	.00	843.80	800.00	852.10	.00	852.25	1.35	4.62	456.27	688.57
19942.000	92.00	851.00	850.60	843.80	800.00	852.32	.00	852.43	1.01	4.06	573.36	796.65
19942.000	92.00	999999.00	.00	843.80	800.00	852.41	.00	852.52	1.02	4.12	532.76	791.42
20150.000	208.00	.00	.00	844.60	800.00	852.35	.00	852.48	12.45	3.03	381.07	226.77
20150.000	208.00	.00	.00	844.60	800.00	852.44	.00	852.58	12.59	3.07	319.69	225.50
20596.000	446.00	.00	.00	846.10	800.00	852.84	.00	852.92	7.26	2.41	542.14	296.86
20596.000	446.00	.00	.00	846.10	800.00	852.93	.00	853.01	7.31	2.45	460.68	295.94
20836.000	240.00	.00	.00	845.80	800.00	853.01	.00	853.06	4.92	2.10	663.99	360.54
20836.000	240.00	.00	.00	845.80	800.00	853.11	.00	853.16	4.94	2.12	566.20	360.11
21668.000	832.00	.00	.00	844.90	800.00	853.12	.00	853.21	.65	2.90	355.62	994.28
21668.000	832.00	.00	.00	844.90	800.00	853.22	.00	853.32	.65	2.94	324.32	988.87
21765.000	96.00	857.50	850.90	844.90	800.00	858.04	.00	858.05	.02	.72	1728.23	5624.60
21765.000	96.00	999999.00	.00	844.90	800.00	858.14	.00	858.14	.02	.45	1786.38	5398.05
22145.000	381.00	.00	.00	846.30	790.00	858.04	.00	858.05	.50	.98	1117.75	1114.74
22145.000	381.00	.00	.00	846.30	790.00	858.14	.00	858.15	.52	.97	833.39	1099.97
22808.000	663.00	.00	.00	847.40	790.00	858.02	.00	858.15	.65	3.76	391.38	978.41
22808.000	663.00	.00	.00	847.40	790.00	858.11	.00	858.25	.66	3.80	409.40	974.17

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
22858.000	50.00	854.80	851.40	847.20	790.00	858.21	.00	858.28	.38	2.95	785.89	1278.50
22858.000	50.00	999999.00	.00	847.20	790.00	858.31	.00	858.38	.38	2.98	717.86	1273.84
23206.000	348.00	.00	.00	847.20	790.00	858.26	.00	858.30	.33	2.55	857.74	1381.01
23206.000	348.00	.00	.00	847.20	790.00	858.35	.00	858.40	.33	2.57	822.38	1376.17
23256.000	50.00	857.00	851.70	846.40	790.00	858.32	.00	858.33	.10	1.49	1888.08	2493.74
23256.000	50.00	999999.00	.00	846.40	790.00	858.41	.00	858.42	.10	1.50	1794.00	2487.68
23342.000	86.00	.00	.00	847.40	790.00	858.32	.00	858.33	.82	1.15	803.20	873.30
23342.000	86.00	.00	.00	847.40	790.00	858.41	.00	858.43	.84	1.15	765.56	863.04
23350.000	8.00	.00	.00	851.10	790.00	858.31	.00	858.33	1.08	1.16	742.45	760.83
23350.000	8.00	.00	.00	851.10	790.00	858.41	.00	858.43	1.10	1.16	705.03	752.21
23358.000	8.00	.00	.00	849.50	790.00	858.32	.00	858.33	.74	1.15	819.80	807.35

23358.000	8.00	.00	.00	848.50	790.00	858.42	.00	858.43	.78	1.15	778.69	893.02
23938.000	580.00	.00	.00	849.50	790.00	858.37	.00	858.46	4.45	2.49	325.10	374.62
23938.000	580.00	.00	.00	849.50	790.00	858.47	.00	858.56	4.27	2.45	321.99	382.16
24339.000	401.00	.00	.00	849.70	395.00	858.46	.00	858.63	1.83	3.32	118.98	291.80
24339.000	401.00	.00	.00	849.70	395.00	858.55	.00	858.72	1.77	3.28	120.46	296.50
24483.000	144.00	860.20	854.40	849.20	395.00	861.10	.00	861.10	.00	.23	2911.63	8582.42
24483.000	144.00	999999.00	.00	849.20	395.00	861.19	.00	861.19	.00	.24	2819.90	8567.95

1

INGERSOL CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
14131.000	930.00	839.29	.00	.00	.00	110.00	.00
14131.000	930.00	839.39	.10	.00	.10	110.00	.00
14236.000	930.00	839.44	.00	.15	.00	57.40	105.00
14236.000	930.00	839.52	.08	.13	.08	57.40	105.00
14276.000	930.00	839.46	.00	.02	.00	57.40	40.00
14276.000	930.00	839.54	.08	.01	.08	57.40	40.00
14669.000	930.00	839.90	.00	.44	.00	450.00	393.00
14669.000	930.00	840.00	.10	.46	.10	288.33	393.00
15341.000	930.00	840.68	.00	.78	.00	336.73	672.00
15341.000	930.00	840.78	.10	.78	.10	237.83	672.00
16311.000	800.00	842.11	.00	1.43	.00	176.15	970.00
16311.000	800.00	842.21	.10	1.43	.10	119.46	970.00
16657.000	800.00	842.57	.00	.46	.00	124.25	346.00
16657.000	800.00	842.66	.09	.45	.09	75.36	346.00
17300.000	800.00	843.90	.00	1.33	.00	132.52	643.00
17300.000	800.00	844.02	.12	1.36	.12	95.34	643.00
17301.000	800.00	843.77	.00	-.13	.00	77.96	1.00
17301.000	800.00	843.91	.14	-.11	.14	80.25	1.00
17341.000	800.00	843.85	.00	.07	.00	79.93	40.00
17341.000	800.00	843.98	.14	.07	.14	82.21	40.00
17342.000	800.00	844.18	.00	.33	.00	139.25	1.00
17342.000	800.00	844.27	.09	.28	.09	96.17	1.00
17437.000	800.00	844.29	.00	.11	.00	350.35	95.00
17437.000	800.00	844.38	.09	.12	.09	199.48	95.00
17701.000	800.00	844.12	.00	-.17	.00	40.60	264.00
17701.000	800.00	844.21	.09	-.18	.09	36.98	264.00
18455.000	800.00	847.39	.00	3.26	.00	57.05	754.00
18455.000	800.00	847.44	.06	3.23	.06	52.88	754.00
18522.000	800.00	847.51	.00	.12	.00	38.00	67.00
18522.000	800.00	847.56	.05	.12	.05	38.00	67.00

18523.000	800.00	847.45	.00	-.06	.00	38.00	1.00
18523.000	800.00	847.51	.05	-.05	.05	38.00	1.00

1

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
18598.000	800.00	847.49	.00	.04	.00	38.00	75.00
18598.000	800.00	847.54	.05	.04	.05	38.00	75.00
18599.000	800.00	847.67	.00	.18	.00	38.00	1.00
18599.000	800.00	847.72	.04	.17	.04	38.00	1.00
18713.000	800.00	848.05	.00	.37	.00	259.13	114.00
18713.000	800.00	848.08	.04	.37	.04	191.89	114.00
18916.000	800.00	848.18	.00	.13	.00	242.66	203.00
18916.000	800.00	848.23	.05	.15	.05	193.00	203.00
19031.000	800.00	848.32	.00	.14	.00	156.11	115.00
19031.000	800.00	848.43	.11	.19	.11	157.71	115.00
19680.000	800.00	849.13	.00	.81	.00	133.09	649.00
19680.000	800.00	849.22	.09	.79	.09	94.87	649.00
19722.000	800.00	852.06	.00	2.92	.00	458.44	42.00
19722.000	800.00	852.14	.09	2.92	.09	325.18	42.00
19746.000	800.00	852.04	.00	-.01	.00	302.62	24.00
19746.000	800.00	852.13	.09	-.01	.09	184.62	24.00
19850.000	800.00	852.01	.00	-.03	.00	239.43	104.00
19850.000	800.00	852.10	.08	-.03	.08	176.56	104.00
19942.000	800.00	852.32	.00	.31	.00	308.04	92.00
19942.000	800.00	852.41	.08	.31	.08	192.89	92.00
20150.000	800.00	852.35	.00	.03	.00	217.85	208.00
20150.000	800.00	852.44	.08	.03	.08	105.08	208.00
20596.000	800.00	852.84	.00	.49	.00	243.29	446.00
20596.000	800.00	852.93	.09	.50	.09	129.41	446.00
20836.000	800.00	853.01	.00	.17	.00	276.00	240.00
20836.000	800.00	853.11	.10	.17	.10	151.25	240.00
21668.000	800.00	853.12	.00	.11	.00	130.67	832.00
21668.000	800.00	853.22	.10	.11	.10	70.00	832.00
21765.000	800.00	858.04	.00	4.92	.00	350.00	96.00
21765.000	800.00	858.14	.10	4.92	.10	407.74	96.00
22145.000	790.00	858.04	.00	.00	.00	515.00	381.00
22145.000	790.00	858.14	.09	.00	.09	163.52	381.00
22808.000	790.00	858.02	.00	-.03	.00	203.32	663.00
22808.000	790.00	858.11	.09	-.03	.09	160.65	663.00

1

[illegible]	Q	CWS	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH

22858.000	790.00	858.21	.00	.19	.00	835.21	50.00
22858.000	790.00	858.31	.09	.19	.09	523.26	50.00
23206.000	790.00	858.26	.00	.05	.00	400.00	348.00
23206.000	790.00	858.35	.10	.05	.10	365.28	348.00
23256.000	790.00	858.32	.00	.06	.00	961.01	50.00
23256.000	790.00	858.41	.10	.06	.10	829.32	50.00
23342.000	790.00	858.32	.00	.00	.00	248.44	86.00
23342.000	790.00	858.41	.10	.00	.10	202.61	86.00
23350.000	790.00	858.31	.00	.00	.00	248.43	8.00
23350.000	790.00	858.41	.10	.00	.10	202.74	8.00
23358.000	790.00	858.32	.00	.00	.00	248.43	8.00
23358.000	790.00	858.42	.10	.00	.10	201.93	8.00
23938.000	790.00	858.37	.00	.05	.00	99.67	580.00
23938.000	790.00	858.47	.10	.05	.10	65.91	580.00
24339.000	395.00	858.46	.00	.09	.00	14.00	401.00
24339.000	395.00	858.55	.09	.09	.09	14.00	401.00
24483.000	395.00	861.10	.00	2.64	.00	630.70	144.00
24483.000	395.00	861.19	.09	2.64	.09	565.68	144.00

1
08/28/91 08:47:05 PAGE 45

SUMMARY OF ERRORS AND SPECIAL NOTES

1
08/28/91 08:47:05 PAGE 46

FLOODWAY DATA. INGERSOL CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
14131.000	110.	359.	2.6	839.4	839.3	.1
14236.000	57.	267.	3.5	839.5	839.4	.1
14276.000	57.	263.	3.5	839.6	839.5	.1
14669.000	288.	654.	1.4	840.0	839.9	.1
15341.000	301.	543.	1.7	840.8	840.7	.1
16311.000	119.	348.	2.3	842.2	842.1	.1
16657.000	75.	188.	4.3	842.7	842.6	.1
17300.000	95.	318.	2.5	844.0	843.9	.1
17301.000	142.	181.	4.4	843.9	843.8	.1
17341.000	142.	185.	4.3	843.9	843.8	.1
17342.000	96.	340.	2.4	844.3	844.2	.1
17437.000	199.	665.	1.2	844.4	844.3	.1
17701.000	37.	131.	6.1	844.2	844.1	.1
18455.000	53.	230.	3.5	847.5	847.4	.1
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

18523.000	38.	169.	4.7	847.6	847.5	.1
18598.000	38.	163.	4.9	847.6	847.5	.1
18599.000	38.	201.	4.0	847.7	847.7	.0
18713.000	192.	433.	1.8	848.0	848.0	.0
18916.000	193.	308.	2.6	848.3	848.2	.1
19031.000	187.	269.	3.0	848.4	848.3	.1
19680.000	208.	148.	5.4	849.2	849.1	.1
19722.000	325.	960.	.8	852.2	852.1	.1
19746.000	185.	515.	1.6	852.1	852.0	.1
19850.000	177.	456.	1.8	852.1	852.0	.1
19942.000	193.	533.	1.5	852.4	852.3	.1
20150.000	105.	320.	2.5	852.5	852.4	.1
20596.000	129.	461.	1.7	852.9	852.8	.1
20836.000	151.	566.	1.4	853.1	853.0	.1
21668.000	70.	324.	2.5	853.2	853.1	.1
21765.000	408.	1786.	.4	858.1	858.0	.1
22145.000	164.	833.	.9	858.1	858.0	.1
22808.000	206.	409.	1.9	858.1	858.0	.1
22858.000	532.	718.	1.1	858.3	858.2	.1
23206.000	365.	822.	1.0	858.4	858.3	.1
23256.000	829.	1794.	.4	858.4	858.3	.1
23342.000	203.	766.	1.0	858.4	858.3	.1
23350.000	203.	705.	1.1	858.4	858.3	.1
23358.000	202.	779.	1.0	858.4	858.3	.1
23938.000	66.	322.	2.5	858.5	858.4	.1
24339.000	14.	120.	3.3	858.6	858.5	.1
24483.000	566.	2820.	.1	861.2	861.1	.1

1

THIS RUN EXECUTED 08/28/91 08:48:47

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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 1.1
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EJ

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY OF

3) WATERCOURSE: INGERSOL CREEK

4) DOCUMENT TYPE: SUMMARY - 2

00BREAK00

24483 00	12 20	861.40	0.00	0.00	861.40	0.00	2 36	0.00	849.80
550	43.	50.	457.	237	167.	2702.	152.	67.	849.60
1.39	0.18	0.30	0.17	0.015	0.015	0.015	0.000	849.20	92.42
0.000000	144.	144.	144.	0	0	7	0.00	631.58	724.00

0
1

THIS RUN EXECUTED 13 FEB 89 10:18:23

****
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

INGERSOL CREEK

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
14131.000	836.96	0.00	837.35	58.56	48.20	339.57	82.23	110.00	603.00	650.00	666.00	713 00
14131 000	839.05	0.00	839.25	110.00	146.57	428.12	195.32	110.00	603.00	650.00	666.00	713.00
14131.000	839.29	0 00	839.53	110.00	183.50	496.95	239.55	110.00	603.00	650.00	666.00	713.00
14131.000	839.61	0.00	840.05	110.00	288.42	713.98	367.59	110.00	603.00	650.00	666.00	713.00
14236.000	837.39	0.00	837.55	57.40	0.00	470.00	0.00	550.00	850.00	871.30	928.70	1400.00
14236.000	839.18	0.00	839.33	57.40	0.00	770.00	0.00	550.00	850.00	871.30	928.70	1400.00
14236.000	839.43	0.00	839.62	57.40	0.00	920.00	0.00	550.00	850.00	871.30	928.70	1400.00
14236.000	839.84	0.00	840.20	57.40	0.00	1370.00	0.00	550.00	850.00	871.30	928.70	1400.00
14276.000	837.42	0.00	837.58	57.40	0.00	470.00	0.00	550.00	850.00	871.30	928.70	1400.00
14276.000	839.19	0.00	839.34	57.40	0.00	770.00	0.00	550.00	850.00	871.30	928.70	1400.00
14276.000	839 44	0.00	839.64	57.40	0.00	920.00	0.00	550.00	850.00	871.30	928.70	1400.00
14276.000	839.84	0.00	840.26	57.40	0.00	1370.00	0.00	550.00	850.00	871.30	928.70	1400.00
14669.000	837.87	0.00	838.00	121.29	4.97	450.53	14.50	450.00	433.00	629.30	686.70	883.00
14669.000	839.47	0.00	839.54	399.78	87.46	587.23	95.31	450.00	433.00	629.30	686.70	883.00
14669.000	839.87	0.00	839.94	450.00	135.45	643.94	140.60	450.00	433.00	629.30	686.70	883.00
14669.000	840.73	0.00	840.79	450.00	285.80	794.84	289.36	450.00	433.00	629.30	686.70	883.00
15341.000	839.54	0.00	839.69	201.13	43.28	247.81	178.91	860.00	0.00	345.00	357.00	860.00
15341.000	840.34	0.00	840.49	286.37	67.88	315.23	386.89	860.00	0.00	345.00	357.00	860.00
15341.000	840.66	0.00	840.80	334.03	78.99	340.59	500.43	860.00	0.00	345.00	357.00	860.00
15341.000	841.42	0.00	841.55	412.62	108.63	399.74	861.63	860.00	0.00	345.00	357.00	860.00
16311.000	841.11	0.00	841.17	136.47	0.00	279.04	140.96	365.00	100.00	100.00	140.00	465.00
16311.000	841.82	0.00	841.89	164.98	0.00	346 20	333.79	365.00	100.00	100.00	140.00	465.00
16311.000	842.10	0.00	842.17	175.70	0.00	373.16	426 84	365.00	100.00	100.00	140.00	465.00
16311.000	842.73	0.00	842.80	342.89	0.00	425.03	684.97	365.00	100.00	100.00	140.00	465.00
16657 000	841 63	0.00	841.87	65.32	0.00	412.22	7.77	210.00	100.00	100.00	140.00	310.00
16657.000	842 30	0.00	842.58	110.21	0.00	569.33	110.67	210.00	100.00	100.00	140.00	310.00
16657.000	842.57	0.00	842.83	123.98	0.00	611.25	188.75	210.00	100.00	100.00	140.00	310.00
16657 000	843.13	0.00	843.39	153.87	0.00	692 26	417.74	210.00	100.00	100.00	140.00	310.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
17300.000	842.80	0.00	842.84	149.54	0.85	191.41	227.74	400.00	0.00	260.20	303.80	400.00
17300.000	843.46	0.00	843.52	165.46	11.37	259.98	408.65	400.00	0.00	260.20	303.80	400.00
17300.000	843.69	0.00	843.76	171.06	19.36	291.26	489.38	400.00	0.00	260.20	303.80	400.00
17300.000	844.21	0.00	844.29	183.24	47.58	368.91	693.51	400.00	0.00	260.20	303.80	400.00
17301.000	842.70	0.00	842.93	55.58	0.00	418.08	1.92	510.00	0.00	356.50	400.00	510.00
17301.000	843 31	0.00	843.66	74.76	0.00	643.94	36.05	510.00	0.00	356.50	400.00	510.00
17301.000	843 53	0.00	843.92	81.41	0.00	737.27	62.73	510.00	0.00	356.50	400.00	510.00
17301.000	844 01	0.00	844.49	94.35	0.00	923.18	186.82	510.00	0.00	356.50	400.00	510.00
17341.000	842.74	0.00	842.97	56.51	0.00	417.52	2.48	510.00	0.00	356.50	400.00	510 00
17341.000	843.38	0.00	843.71	76.81	0.00	639.14	40.86	510.00	0.00	356.50	400.00	510.00
17341.000	843.62	0.00	843.98	83.70	0.00	726.55	73.45	510.00	0.00	356.50	400.00	510.00
17341.000	844.15	0.00	844.58	98.26	0.00	885.76	224.24	510.00	0.00	356.50	400.00	510.00
17342.000	842.99	0.00	843.03	154.26	1.67	176.20	242.13	400.00	0.00	260.20	303.80	400.00
17342.000	843.75	0.00	843.79	172.40	13.56	241.21	425.23	400.00	0.00	260.20	303.80	400.00
17342.000	844.02	0.00	844.07	178.90	21.97	270.97	507.06	400.00	0.00	260 20	303.80	400.00
17342.000	844.62	0.00	844.69	193.45	51.21	344.67	714.12	400 00	0.00	260.20	303.80	400.00
17437.000	843.05	0.00	843.06	229.07	3.73	131.86	284.40	0.00	0.00	260.00	300.00	0.00
17437.000	843.81	0.00	843.83	274.50	19.05	174.05	486.90	0.00	0.00	260.00	300.00	0.00
17437.000	844.08	0.00	844.11	306.21	28.11	191.74	580.15	0.00	0.00	260.00	300.00	0.00
17437.000	844.70	0.00	844.73	436.07	55 03	228.71	826.26	0.00	0.00	260.00	300.00	0.00
17701.000	843.03	0.00	843.37	56.72	0.00	409.85	10.15	390.00	0.00	258.00	300.00	390 00
17701.000	843.76	0.00	844.12	100.87	0.00	560.66	119.34	390.00	0.00	258.00	300.00	390.00
17701.000	844.04	0.00	844.38	117.61	0.00	602.13	197.87	390.00	0.00	258.00	300.00	390 00
17701.000	844.67	0.00	844.96	124.12	0.00	651.52	458.48	390.00	0.00	258.00	300 00	390.00
18455.000	845.71	0.00	845.84	43.48	0.00	420.00	0.00	0.00	0.00	345.00	400.00	0.00
18455.000	846.72	0.00	846.91	49.31	0.00	680 00	0.00	0.00	0 00	345.00	400.00	0.00
18455.000	847.04	0.00	847.27	51 12	0.00	800.00	0.00	0.00	0.00	345.00	400.00	0.00
18455.000	847.58	0 00	847.92	69.01	0.00	1109.43	0.57	0.00	0.00	345.00	400.00	0.00
18522.000	845.83	0.00	845.98	36 59	0.00	420.00	0.00	0.00	0.00	349.00	387.00	0.00
18522.000	846.85	0.00	847.09	38.00	0.00	680.00	0.00	0.00	0.00	349.00	387.00	0.00
18522.000	847.19	0.00	847.47	38.00	0.00	800.00	0.00	0.00	0.00	349.00	387.00	0.00
18522.000	847.77	0.00	848.20	38.00	0.00	1110.00	0.00	0.00	0.00	349.00	387.00	0.00
18523.000	845.78	0.00	846.03	33.81	0.00	420 00	0.00	0.00	0.00	462.00	500.00	0 00
18523.000	846.79	0.00	847.15	38.00	0.00	680.00	0.00	0.00	0.00	462.00	500.00	0.00
18523.000	847.12	0.00	847.54	38.00	0.00	800.00	0.00	0 00	0.00	462.00	500.00	0 00
18523.000	847.67	0.00	848.30	38.00	0.00	1110.00	0.00	0.00	0.00	462.00	500.00	0.00
18598.000	845.82	0.00	846.10	33.00	0.00	420.00	0.00	0.00	0.00	462.00	500.00	0.00
18598.000	846.84	0.00	847.23	37.86	0.00	680.00	0.00	0.00	0.00	462.00	500.00	0.00
18598.000	847.17	0.00	847.62	38.00	0.00	800.00	0.00	0.00	0.00	462.00	500.00	0 00
18598.000	847.76	0.00	848.42	38.00	0.00	1110.00	0.00	0.00	0.00	462.00	500.00	0.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
18599.000	845.99	0.00	846.14	36.52	0.00	420 00	0.00	0 00	0.00	349.00	387.00	0.00
18599 000	847 05	0.00	847.28	38.00	0.00	680.00	0.00	0.00	0.00	349.00	387.00	0.00
18599.000	847 40	0.00	847.68	38.00	0.00	800.00	0.00	0.00	0.00	349.00	387.00	0.00
18599.000	848.08	0.00	848.49	38.00	0.00	1110.00	0.00	0.00	0.00	349.00	387.00	0.00

	18713.000	846.27	0.00	846.38	97.61	115.46	304.54	0.00	0.00	0.00	183.00	225.00	0.00
	18713.000	847 42	0.00	847.49	185.42	340.82	339.18	0.00	0.00	0.00	183.00	225.00	0 00
	18713.000	847.82	0.00	847.88	254.41	444.33	344.49	11.18	0.00	0.00	183.00	225.00	0.00
	18713.000	848.66	0.00	848.71	272.00	669.30	362.24	78.46	0.00	0.00	183.00	225.00	0.00
	18916.000	846.70	0.00	846.84	88.42	101.59	318.41	0.00	0.00	0.00	183.00	225.00	0.00
	18916.000	847.66	0.00	847.77	147.30	294.09	385.91	0.00	0.00	0.00	183.00	225.00	0 00
	18916.000	848.01	0.00	848.11	180.36	398.97	401.03	0.00	0.00	0.00	183.00	225.00	0.00
	18916.000	848.76	0.00	848.85	261.63	645.62	423.06	41.32	0.00	0 00	183.00	225.00	0.00
	19031.000	847.02	0.00	847.21	72.67	78.76	341.24	0.00	0.00	0.00	183.00	225.00	0.00
	19031.000	847.88	0.00	848.05	120.52	242.46	437.54	0.00	0.00	0.00	183.00	225.00	0.00
	19031.000	848.19	0.00	848.36	142.45	334.13	465 87	0.00	0.00	0.00	183.00	225.00	0.00
	19031.000	848.87	0.00	849.02	251.27	601.11	502.75	6.15	0.00	0.00	183.00	225.00	0 00
	19680.000	848.06	0.00	848.56	28.69	121.87	143.72	154.41	0.00	0.00	496.00	504.00	0.00
	19680.000	848.84	0.00	849.37	103 41	238.93	203.22	237.85	0.00	0.00	496.00	504.00	0.00
	19680.000	849.10	0.00	849.61	129.89	315.30	220.33	264.37	0.00	0.00	496.00	504.00	0.00
	19680.000	849.63	0.00	850.08	183.27	545.04	250.39	314.57	0.00	0 00	496.00	504.00	0.00
*	19722 000	847.90	0.00	848.83	28.12	101.72	169.91	148.37	0 00	0.00	496.00	504.00	0.00
	19722.000	851 88	0.00	851 89	444.42	513.85	57.56	108.58	0.00	0.00	496.00	504.00	0.00
	19722.000	852.05	0.00	852 06	458.22	609.95	63.61	126 44	0.00	0.00	496.00	504.00	0.00
	19722.000	852.36	0.00	852 38	500.66	856.39	79.64	173.98	0.00	0.00	496.00	504.00	0.00
	19746.000	848.97	0.00	849.11	39.23	0 00	420.00	0.00	700.00	0.00	438.00	518.00	700.00
	19746.000	851.87	0.00	851.90	241.97	232.96	447.04	0 00	700.00	0.00	438.00	518.00	700.00
	19746.000	852.04	0.00	852.08	302.42	303.73	496.27	0.00	700.00	0.00	438.00	518.00	700.00
	19746.000	852.35	0.00	852.40	336.76	523.70	586 30	0.00	700.00	0.00	438.00	518.00	700.00
*	19850.000	848.21	0.00	850.32	8.60	0.00	420.00	0.00	510 00	0.00	473.70	482.30	510.00
	19850.000	851.84	0.00	851.96	231.59	312.59	277 01	90.40	510.00	0.00	473.70	482.30	510.00
	19850.000	852.01	0.00	852.15	239.29	382.78	313.19	104.03	510.00	0.00	473.70	482.30	510.00
	19850.000	852.30	0.00	852 51	306.73	567 33	404.27	138.40	510.00	0.00	473.70	482.30	510.00
*	19942.000	849.43	0.00	850.70	8.60	0.00	420.00	0.00	510.00	0.00	473.70	482.30	510.00
	19942.000	852.19	0 00	852.27	292.54	338.62	255.08	86.30	510.00	0.00	473.70	482.30	510.00
	19942.000	852 32	0.00	852.43	307.98	410.53	290.01	99.47	510.00	0.00	473.70	482 30	510.00
	19942.000	852 55	0.00	852.71	333.37	597.23	378.61	134.15	510 00	0.00	473.70	482.30	510.00
	20150.000	851 16	0.00	851.24	71.92	0.19	419.81	0.00	0.00	0.00	452.00	500.00	0.00
	20150.000	852 21	0.00	852.32	211 43	47.21	632.79	0.00	0.00	0.00	452.00	500.00	0.00
	20150.000	852.35	0.00	852.48	217.81	68.94	731.06	0 00	0.00	0.00	452.00	500.00	0.00
	20150 000	852.59	0.00	852.80	228.86	128.77	981.23	0.00	0.00	0.00	452.00	500.00	0.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	GLOB	GCH	GROB	PERENC	STENCL	STCHL	STCHR	STENCR
	20596 000	851 53	0.00	851.59	152.10	0 50	390.52	28.98	0.00	0.00	200.00	250.00	0.00
	20596.000	852.62	0.00	852.68	227.88	13.87	564.44	101.69	0.00	0.00	200.00	250.00	0.00
	20596.000	852.84	0.00	852.92	243.25	21.28	647.50	131.22	0.00	0.00	200 00	250.00	0.00
	20596 000	853.31	0.00	853.42	276.22	46.09	850.19	213.72	0.00	0.00	200.00	250.00	0.00
	20836.000	851 68	0.00	851.72	183.30	2.67	373.81	43.51	0.00	0.00	200.00	250.00	0.00
	20836.000	852.77	0.00	852.81	259.05	22.79	536.09	121.12	0.00	0.00	200.00	250 00	0.00
	20836.000	853.01	0.00	853 06	275.96	33 12	613.02	153.87	0.00	0.00	200.00	250.00	0 00
	20836.000	853.54	0.00	853.61	355.23	67.78	794.61	247.60	0 00	0.00	200.00	250.00	0.00
	21668.000	852.08	0.00	852.98	8.60	0.00	420.00	0.00	350 00	250.00	294.70	303.30	600.00
*	21668 000	853 01	0.00	853.08	124.56	38.37	160.49	481.14	350.00	250.00	294.70	303.30	600.00
	21668.000	853.12	0.00	853 21	130.64	45.73	186.27	568.01	350.00	250.00	294.70	303 30	600.00
	21668.000	853.68	0.00	853 79	161.36	66.54	239.43	804.03	350.00	250 00	294.70	303.30	600 00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	21765.000	853.50	0.00	854.10	8.60	0.00	420.00	0.00	350.00	250.00	294.70	303.30	600.00
	21765.000	857.77	0.00	857.77	350.00	57.13	67.89	554.98	350.00	250.00	294.70	303.30	600.00
	21765.000	858.04	0.00	858.05	350.00	68.53	76.58	654.90	350.00	250.00	294.70	303.30	600.00
	21765.000	858.45	0.00	858.45	350.00	97.49	100.23	912.28	350.00	250.00	294.70	303.30	600.00
	22145.000	854.33	0.00	854.40	59.84	0.22	409.78	0.00	515.00	225.00	290.00	336.00	740.00
	22145.000	857.77	0.00	857.78	508.95	174.31	323.73	171.96	515.00	225.00	290.00	336.00	740.00
	22145.000	858.04	0.00	858.05	515.00	200.16	347.10	242.74	515.00	225.00	290.00	336.00	740.00
	22145.000	858.44	0.00	858.46	515.00	264.27	419.66	406.07	515.00	225.00	290.00	336.00	740.00
	22808.000	854.37	0.00	854.80	11.90	0.00	410.00	0.00	355.00	135.00	221.00	232.90	490.00
	22808.000	857.75	0.00	857.87	92.86	132.68	398.27	139.04	355.00	135.00	221.00	232.90	490.00
	22808.000	858.02	0.00	858.15	203.34	162.11	458.88	169.01	355.00	135.00	221.00	232.90	490.00
	22808.000	858.40	0.00	858.61	320.18	232.91	600.44	256.65	355.00	135.00	221.00	232.90	490.00
	22858.000	856.77	0.00	856.82	115.77	82.55	248.09	79.35	0.00	0.00	221.00	232.90	0.00
	22858.000	858.03	0.00	858.09	623.51	192.91	336.24	140.85	0.00	0.00	221.00	232.90	0.00
	22858.000	858.21	0.00	858.28	835.22	234.68	374.00	181.32	0.00	0.00	221.00	232.90	0.00
*	22858.000	858.52	0.00	858.61	983.34	331.22	453.54	305.24	0.00	0.00	221.00	232.90	0.00
	23206.000	856.78	0.00	856.83	175.58	41.13	223.68	145.18	418.00	0.00	109.00	120.70	418.00
	23206.000	858.07	0.00	858.11	400.00	95.90	266.34	307.76	418.00	0.00	109.00	120.70	418.00
	23206.000	858.26	0.00	858.30	400.00	117.69	296.65	375.66	418.00	0.00	109.00	120.70	418.00
	23206.000	858.57	0.00	858.63	400.00	171.62	373.30	545.08	418.00	0.00	109.00	120.70	418.00
	23256.000	857.14	0.00	857.16	738.81	55.80	165.32	188.89	0.00	0.00	109.00	120.70	0.00
	23256.000	858.13	0.00	858.14	952.69	92.91	173.44	403.65	0.00	0.00	109.00	120.70	0.00
	23256.000	858.32	0.00	858.33	961.01	108.28	188.90	492.82	0.00	0.00	109.00	120.70	0.00
	23256.000	858.63	0.00	858.65	975.31	146.18	229.28	714.54	0.00	0.00	109.00	120.70	0.00
	23342.000	857.15	0.00	857.16	284.96	1.56	230.84	177.61	360.00	0.00	95.00	138.00	360.00
	23342.000	858.13	0.00	858.15	312.56	23.19	281.42	365.38	360.00	0.00	95.00	138.00	360.00
	23342.000	858.32	0.00	858.33	313.44	32.09	316.31	441.59	360.00	0.00	95.00	138.00	360.00
	23342.000	858.63	0.00	858.65	314.98	54.95	403.89	631.16	360.00	0.00	95.00	138.00	360.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	23350.000	857.15	0.00	857.16	286.23	2.00	184.65	223.35	360.00	0.00	95.00	138.00	360.00
	23350.000	858.13	0.00	858.15	312.55	26.63	223.62	419.75	360.00	0.00	95.00	138.00	360.00
	23350.000	858.32	0.00	858.33	313.43	36.44	251.70	501.86	360.00	0.00	95.00	138.00	360.00
	23350.000	858.63	0.00	858.66	314.96	61.36	322.64	706.00	360.00	0.00	95.00	138.00	360.00
	23358.000	857.15	0.00	857.16	287.80	2.08	240.32	167.60	360.00	0.00	95.00	138.00	360.00
	23358.000	858.14	0.00	858.15	312.55	23.91	295.02	351.07	360.00	0.00	95.00	138.00	360.00
	23358.000	858.32	0.00	858.33	313.43	32.83	331.79	425.37	360.00	0.00	95.00	138.00	360.00
	23358.000	858.64	0.00	858.66	314.96	55.71	423.99	610.30	360.00	0.00	95.00	138.00	360.00
	23938.000	857.20	0.00	857.25	59.05	0.00	410.00	0.00	210.00	0.00	47.00	113.00	210.00
	23938.000	858.17	0.00	858.25	95.47	0.00	669.49	0.51	210.00	0.00	47.00	113.00	210.00
	23938.000	858.36	0.00	858.45	155.06	0.00	785.17	4.83	210.00	0.00	47.00	113.00	210.00
	23938.000	858.69	0.00	858.84	167.39	0.09	1054.59	35.33	210.00	0.00	47.00	113.00	210.00
	24339.000	857.23	0.00	857.29	14.00	0.00	200.00	0.00	0.00	0.00	141.00	155.00	0.00
	24339.000	858.21	0.00	858.34	14.00	0.00	330.00	0.00	0.00	0.00	141.00	155.00	0.00
	24339.000	858.40	0.00	858.57	14.00	0.00	395.00	0.00	0.00	0.00	141.00	155.00	0.00
	24339.000	858.73	0.00	859.04	14.00	0.00	550.00	0.00	0.00	0.00	141.00	155.00	0.00
	24483.000	858.68	0.00	858.72	14.00	0.00	200.00	0.00	0.00	0.00	141.00	155.00	0.00
	24483.000	860.87	0.00	860.87	630.05	25.88	33.24	270.88	0.00	0.00	141.00	155.00	0.00
	24483.000	861.09	0.00	861.09	630.68	30.78	38.14	326.08	0.00	0.00	141.00	155.00	0.00
	24483.000	861.40	0.00	861.40	631.58	42.53	50.21	457.26	0.00	0.00	141.00	155.00	0.00

INGERSOL CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
14131.000	0.00	0.00	0.00	833.20	470.00	836.96	0.00	837.35	66.45	5.75	131.86	57.66
14131.000	0.00	0.00	0.00	833.20	770.00	839 05	0.00	839.25	23 65	4.63	321.24	158.34
14131.000	0.00	0.00	0.00	833.20	920.00	839.29	0.00	839.53	27.82	5.16	347.64	174 42
14131.000	0.00	0.00	0.00	833.20	1370.00	839.61	0 00	840.05	48 32	7.04	382.84	197.08
14236 000	105.00	0.00	0.00	833.40	470 00	837.39	0.00	837.55	5.61	3.24	145.05	198.47
14236 000	105.00	0.00	0.00	833.40	770.00	839 18	0.00	839.33	2.54	3.11	247.51	483.60
14236.000	105.00	0.00	0.00	833.40	920.00	839.43	0.00	839.62	2.99	3.51	262.07	531.93
14236.000	105.00	0.00	0.00	833.40	1370 00	839.84	0.00	840.20	4.97	4.80	285.69	614.25
14276.000	40.00	838.80	839.60	833.40	470.00	837.42	0.00	837.58	5.51	3.21	146 56	200.25
14276.000	40.00	838.80	839 60	833.40	770.00	839.19	0.00	839.34	2.78	3.11	247.81	462.21
14276.000	40.00	838.80	839 60	833.40	920.00	839.44	0.00	839.64	5.37	3.53	260.68	397.08
14276.000	40.00	838.80	839.60	833.40	1370.00	839.84	0.00	840 26	17.26	5.20	263.23	329.76
14669.000	393.00	0.00	0.00	833.80	470 00	837.87	0.00	838.00	29.36	3.02	181.93	86.74
14669.000	393.00	0.00	0.00	833.80	770.00	839.47	0.00	839.54	9.98	2 43	588.61	243 77
14669.000	393.00	0.00	0.00	833.80	920.00	839.87	0.00	839.94	8.88	2.43	760.83	308.81
14669.000	393.00	0.00	0.00	833.80	1370.00	840.73	0.00	840.79	7.67	2.53	1145.60	494.73
15341.000	672.00	0.00	0.00	834.50	470.00	839 54	0.00	839.69	23.64	4.18	296.80	96.66
15341.000	672.00	0.00	0.00	834.50	770.00	840.34	0.00	840.49	23 22	4.58	484.91	159.80
15341.000	672.00	0.00	0.00	834.50	920.00	840.66	0.00	840.80	22.62	4.69	584.04	193.42
15341 000	672.00	0.00	0.00	834.50	1370.00	841.42	0.00	841.55	21.04	4.89	870.61	298.67
16311.000	970.00	0.00	0.00	835.10	420.00	841.11	0.00	841.17	9.45	2.12	224.02	136.59
16311.000	970.00	0 00	0.00	835.10	680.00	841.82	0.00	841.89	8.55	2.20	332.34	232.51
16311.000	970.00	0.00	0.00	835.10	800.00	842.10	0.00	842.17	8.28	2 23	378.35	278.00
16311.000	970 00	0.00	0.00	835 10	1110.00	842.73	0.00	842.80	7.23	2.21	530.13	412 90
16657.000	346.00	0.00	0.00	836.40	420.00	841.63	0.00	841.87	40.72	3.94	111.43	65.81
16657.000	346.00	0.00	0.00	836.40	680.00	842.30	0.00	842.58	42.92	4.46	172.18	103.80
16657.000	346.00	0.00	0.00	836.40	800.00	842.57	0.00	842.83	40.23	4.47	202.82	126.13
16657.000	346.00	0.00	0.00	836.40	1110.00	843.13	0.00	843.39	34.13	4.39	281.69	190.01
17300.000	643.00	0.00	0.00	838.20	420.00	842.80	0.00	842.84	7.03	1.55	262.65	158.42
17300 000	643.00	0.00	0.00	838.20	680.00	843 46	0.00	843.52	6.42	1.71	367.11	268.40
17300.000	643.00	0.00	0.00	838 20	800.00	843.69	0.00	843.76	6.49	1.80	406.43	314.02
17300.000	643.00	0.00	0.00	838.20	1110.00	844.21	0.00	844.29	6.80	2.00	496.31	425.68
17301.000	1.00	842.50	844.70	838.60	420.00	842 70	0.00	842.93	7.85	3.89	109.86	149 93
17301.000	1.00	842.50	844.70	838.60	680.00	843.31	0 00	843.66	10.13	4.84	149.88	213.64
17301.000	1.00	842.50	844.70	838.60	800.00	843.53	0.00	843.92	11.28	5.18	166.84	238.24
17301.000	1.00	842.50	844.70	838.60	1110.00	844.01	0.00	844.49	18.91	5.83	204.19	255.25

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
17341.000	40.00	842.50	844.70	838.60	420.00	842.74	0.00	842.97	7 58	3.84	111.52	152 53
17341.000	40 00	842.50	844.70	838.60	680.00	843.38	0.00	843.71	9.40	4.71	154.85	221.75
17341.000	40 00	842 50	844.70	838.60	800.00	843.62	0.00	843 98	11.01	4.98	173.60	241.07

17341.000	40 00	842.50	844.70	838.60	1110.00	844.15	0.00	844.58	18.09	5.48	215.06	260 99
17342.000	1.00	0.00	0.00	838.60	420.00	842.99	0.00	843.03	5.19	1.38	288.91	184.39
17342.000	1.00	0.00	0.00	838.60	680.00	843.75	0.00	843.79	4.53	1.50	412.40	319.43
17342.000	1.00	0.00	0.00	838.60	800.00	844.02	0.00	844.07	4.52	1.57	459.95	376.38
17342.000	1.00	0.00	0.00	838.60	1110 00	844.62	0.00	844 69	4.55	1.73	572.80	520.42
17437.000	95.00	0.00	0.00	838.30	420.00	843.05	0.00	843.06	2.28	0.99	407.01	277.91
17437.000	95.00	0.00	0.00	838.30	680.00	843.81	0.00	843.83	2.00	1.06	598.55	430.28
17437.000	95.00	0.00	0.00	838.30	800.00	844.08	0.00	844.11	1.95	1.10	677.85	572 27
17437.000	95.00	0.00	0.00	838.30	1110.00	844.70	0.00	844 73	1.80	1.15	906.46	828.27
17701.000	264.00	0.00	0.00	837.70	420.00	843.03	0.00	843 37	62.87	4.68	93.88	52.97
17701.000	264.00	0.00	0.00	837.70	680.00	843.76	0 00	844.12	60 23	5.10	151.58	87.62
17701.000	264 00	0.00	0.00	837.70	800.00	844.04	0.00	844.38	55.39	5.06	181.92	107.49
17701.000	264.00	0.00	0 00	837.70	1110.00	844.67	0.00	844.96	40.62	4.66	258.90	174.16
18455 000	754.00	0.00	0.00	840.20	420.00	845.71	0.00	845.84	19.30	2.86	146.86	95.61
18455.000	754.00	0 00	0.00	840.20	680.00	846.72	0.00	846.91	23.86	3 51	193.70	139.21
18455.000	754.00	0.00	0.00	840.20	800.00	847.04	0.00	847 27	26.75	3.82	209.38	154.67
18455.000	754 00	0.00	0.00	840.20	1110.00	847.58	0.00	847.92	35.49	4.66	240 02	186.33
18522.000	67.00	0 00	0.00	840.40	420.00	845.83	0.00	845.98	18.91	3.04	137.97	96.59
18522.000	67.00	0.00	0.00	840.40	680.00	846.85	0.00	847.09	23.14	3.86	176.26	141 35
18522.000	67 00	0.00	0.00	840.40	800.00	847 19	0.00	847.47	25.42	4.23	188.93	158 68
18522.000	67.00	0.00	0.00	840.40	1110.00	847.77	0.00	848.20	33.90	5 26	210.93	190.65
18523 000	1.00	849.20	847.80	840.50	420.00	845.78	0.00	846.03	6.99	4.01	104.71	158.82
18523.000	1 00	849.20	847.80	840.50	680.00	846.79	0.00	847.15	7.98	4.81	141.41	240.70
18523.000	1.00	849.20	847.80	840.50	800.00	847.12	0.00	847.54	8.52	5.20	153 82	274.02
18523.000	1.00	849.20	847.80	840.50	1110.00	847.67	0.00	848.30	16.17	6.37	174.33	276 03
18598.000	75.00	849.20	848 00	840.70	420 00	845.82	0.00	846.10	8.04	4.22	99.45	148.15
18598 000	75.00	849.20	848.00	840 70	680 00	846.84	0.00	847.23	9.05	5.01	135.64	226.04
18598.000	75.00	849.20	848.00	840.70	800.00	847.17	0.00	847.62	9.56	5.40	148.17	258.69
18598.000	75.00	849.20	848.00	840 70	1110 00	847.76	0.00	848.42	11 95	6.51	170 62	321.13
18599.000	1.00	0.00	0.00	840.60	420.00	845.99	0.00	846.14	19.51	3.08	136.57	95 10
18599.000	1.00	0.00	0.00	840.60	680.00	847.05	0.00	847.28	23.25	3.86	176.03	141.04
18599.000	1 00	0.00	0 00	840.60	800.00	847.40	0.00	847.68	25.19	4.22	189.43	159 38
18599.000	1.00	0.00	0.00	840.60	1110.00	848.08	0.00	848.49	31.65	5.16	215.32	197 32
18713.000	114.00	0.00	0 00	841.00	420.00	846.27	0.00	846.38	19.72	2.75	160.11	94 57
18713 000	114.00	0.00	0.00	841.00	680 00	847.42	0.00	847.49	9.98	2.19	314.42	215 21
18713.000	114.00	0.00	0.00	841.00	800.00	847.82	0.00	847.88	7.53	2.01	409.62	291.57
18713.000	114.00	0.00	0.00	841.00	1110.00	848.66	0.00	848.71	4.48	1.75	628.90	524.29

1

13 FEB 89 10:17:50 PAGE 72

SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	01K
18916.000	203.00	0.00	0.00	841.60	420.00	846.70	0.00	846.84	24.86	3.03	144.79	84.24
18916.000	203.00	0.00	0.00	841.60	680.00	847.66	0.00	847.77	16.82	2.75	255.39	165.78
18916.000	203.00	0.00	0.00	841.60	800 00	848.01	0.00	848.11	14.10	2.60	311.85	213.07
18916.000	203.00	0.00	0.00	841.60	1110.00	848.76	0.00	848.85	8.68	2.28	497.86	376.68
19031.000	115.00	0.00	0.00	842.20	420.00	847.02	0.00	847.21	36.79	3.57	122.04	69.25
19031 000	115.00	0.00	0 00	842.20	680.00	847.88	0.00	848.05	29.04	3.48	204.89	126.18
19031.000	115.00	0.00	0.00	842.20	800.00	848.19	0.00	848.36	25.87	3.39	245.24	157.30
19031.000	115.00	0.00	0.00	842.20	1110.00	848.87	0.00	849.02	18.15	3.04	373.17	260.56
19680.000	649.00	0.00	0.00	844.60	420 00	848.06	0.00	848 56	10.30	5.35	74.27	130.85
19680.000	649.00	0.00	0.00	844.60	680.00	848.84	0.00	849.37	10.30	6.14	124.17	211.92
19680.000	649.00	0.00	0.00	844.60	800.00	849.10	0.00	849.61	9.86	6.26	154.73	254.73

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	19680.000	649.00	0.00	0.00	844.60	1110.00	849.63	0.00	850.08	8.73	6.35	237.38	375.65
*	19722.000	42.00	851.40	849.30	844.60	420.00	847.90	847.42	848.83	16.93	6.63	55.32	102.08
	19722.000	42.00	851.40	849.30	844.60	680.00	851.88	0.00	851.89	0.13	1.00	966.89	1877.83
	19722.000	42.00	851.40	849.30	844.60	800.00	852.05	0.00	852.06	0.15	1.08	1046.10	2081.22
	19722.000	42.00	851.40	849.30	844.60	1110.00	852.36	0.00	852.38	0.20	1.30	1192.13	2470.33
	19746.000	24.00	0.00	0.00	843.60	420.00	848.97	0.00	849.11	21.04	3.05	137.81	91.55
	19746.000	24.00	0.00	0.00	843.60	680.00	851.87	0.00	851.90	3.56	1.54	501.03	360.37
	19746.000	24.00	0.00	0.00	843.60	800.00	852.04	0.00	852.08	3.93	1.64	548.23	403.80
	19746.000	24.00	0.00	0.00	843.60	1110.00	852.35	0.00	852.40	5.72	1.82	645.76	464.10
*	19850.000	104.00	0.00	0.00	843.80	420.00	848.21	848.21	850.32	20.77	11.68	35.97	92.16
	19850.000	104.00	0.00	0.00	843.80	680.00	851.84	0.00	851.96	1.12	4.12	448.01	641.87
	19850.000	104.00	0.00	0.00	843.80	800.00	852.01	0.00	852.15	1.34	4.56	487.36	691.87
	19850.000	104.00	0.00	0.00	843.80	1110.00	852.30	0.00	852.51	1.98	5.68	567.49	789.70
*	19942.000	92.00	851.00	850.60	843.80	420.00	849.43	0.00	850.70	8.86	9.04	46.44	141.10
	19942.000	92.00	851.00	850.60	843.80	680.00	852.19	0.00	852.27	0.82	3.63	532.29	748.84
	19942.000	92.00	851.00	850.60	843.80	800.00	852.32	0.00	852.43	1.01	4.06	573.07	796.30
	19942.000	92.00	851.00	850.60	843.80	1110.00	852.55	0.00	852.71	1.57	5.16	646.21	885.52
	20150.000	208.00	0.00	0.00	844.60	420.00	851.16	0.00	851.24	8.78	2.24	190.05	141.72
	20150.000	208.00	0.00	0.00	844.60	680.00	852.21	0.00	852.32	10.12	2.70	351.18	213.77
	20150.000	208.00	0.00	0.00	844.60	800.00	852.35	0.00	852.48	12.45	3.03	380.88	226.69
	20150.000	208.00	0.00	0.00	844.60	1110.00	852.59	0.00	852.80	19.58	3.89	434.40	250.85
	20596.000	446.00	0.00	0.00	846.10	420.00	851.53	0.00	851.59	6.70	1.92	283.54	162.29
	20596.000	446.00	0.00	0.00	846.10	680.00	852.62	0.00	852.68	6.35	2.19	490.08	269.87
	20596.000	446.00	0.00	0.00	846.10	800.00	852.84	0.00	852.92	7.27	2.41	542.02	296.80
	20596.000	446.00	0.00	0.00	846.10	1110.00	853.31	0.00	853.42	9.45	2.91	664.87	361.00
	20836.000	240.00	0.00	0.00	845.80	420.00	851.68	0.00	851.72	4.33	1.66	358.62	201.80
	20836.000	240.00	0.00	0.00	845.80	680.00	852.77	0.00	852.81	4.34	1.92	598.93	326.43
	20836.000	240.00	0.00	0.00	845.80	800.00	853.01	0.00	853.06	4.93	2.10	663.84	360.46
	20836.000	240.00	0.00	0.00	845.80	1110.00	853.54	0.00	853.61	6.20	2.50	824.53	445.61

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	21668.000	832.00	0.00	0.00	844.90	420.00	852.08	0.00	852.98	5.43	7.59	55.31	180.31
*	21668.000	832.00	0.00	0.00	844.90	680.00	853.01	851.41	853.08	0.51	2.54	341.30	956.36
	21668.000	832.00	0.00	0.00	844.90	800.00	853.12	0.00	853.21	0.65	2.90	355.55	994.09
	21668.000	832.00	0.00	0.00	844.90	1110.00	853.68	0.00	853.79	0.84	3.47	436.91	1209.85
	21765.000	96.00	857.50	850.90	844.90	420.00	853.50	0.00	854.10	2.79	6.22	67.56	251.66
	21765.000	96.00	857.50	850.90	844.90	680.00	857.77	0.00	857.77	0.02	0.65	1632.82	5196.70
	21765.000	96.00	857.50	850.90	844.90	800.00	858.04	0.00	858.05	0.02	0.72	1728.21	5624.53
	21765.000	96.00	857.50	850.90	844.90	1110.00	858.45	0.00	858.45	0.03	0.91	1869.69	6290.03
	22145.000	381.00	0.00	0.00	846.30	410.00	854.33	0.00	854.40	5.42	2.20	187.01	176.06
	22145.000	381.00	0.00	0.00	846.30	670.00	857.77	0.00	857.78	0.49	0.95	977.05	954.41
	22145.000	381.00	0.00	0.00	846.30	790.00	858.04	0.00	858.05	0.50	0.98	1117.74	1114.73
	22145.000	381.00	0.00	0.00	846.30	1090.00	858.44	0.00	858.46	0.62	1.13	1325.80	1385.25
	22808.000	663.00	0.00	0.00	847.40	410.00	854.37	0.00	854.80	2.25	5.21	78.72	273.56
	22808.000	663.00	0.00	0.00	847.40	670.00	857.75	0.00	857.87	0.54	3.35	352.38	915.50
	22808.000	663.00	0.00	0.00	847.40	790.00	858.02	0.00	858.15	0.65	3.76	391.39	978.42
	22808.000	663.00	0.00	0.00	847.40	1090.00	858.40	0.00	858.61	0.99	4.74	491.74	1096.78
	22858.000	50.00	854.80	851.40	847.20	410.00	856.77	0.00	856.82	0.27	2.26	343.97	784.59
	22858.000	50.00	854.80	851.40	847.20	670.00	858.03	0.00	858.09	0.33	2.70	652.11	1171.75
	22858.000	50.00	854.80	851.40	847.20	790.00	858.21	0.00	858.28	0.38	2.95	785.90	1278.51

*	22858.000	50.00	854.80	851.40	847.20	1090.00	858.52	0.00	858.61	0.51	3.48	1075.14	1526 11
	23206.000	348.00	0.00	0.00	847.20	410.00	856.78	0.00	856.83	0.32	2.25	338.87	727 72
	23206.000	348.00	0.00	0.00	847.20	670.00	858.07	0.00	858.11	0.28	2.33	782.70	1263.86
	23206.000	348.00	0.00	0.00	847.20	790.00	858.26	0.00	858.30	0.33	2.55	857.76	1381.04
	23206.000	348.00	0.00	0.00	847.20	1090.00	858.57	0.00	858.63	0.47	3.11	983.57	1594.85
	23256.000	50.00	857.00	851 70	846.40	410.00	857.14	0.00	857.16	0.11	1.46	832.74	1221.00
	23256.000	50.00	857.00	851.70	846.40	670.00	858.13	0.00	858.14	0 09	1.39	1712 91	2238.96
	23256.000	50.00	857.00	851 70	846.40	790.00	858.32	0.00	858.33	0.10	1.49	1888.11	2493.78
	23256.000	50.00	857.00	851.70	846.40	1090.00	858.63	0.00	858.65	0.13	1.76	2192.56	2973.45
	23342.000	86.00	0.00	0.00	847.40	410.00	857.15	0.00	857.16	0.73	0.96	528.15	490.19
	23342.000	86.00	0.00	0.00	847.40	670.00	858.13	0.00	858.15	0.63	0.99	833.53	844.20
	23342.000	86.00	0.00	0 00	847.40	790.00	858.32	0.00	858.33	0.73	1.09	890.69	926.85
	23342.000	86.00	0.00	0.00	847.40	1090.00	858.63	0.00	858.65	1.02	1.32	990.82	1081.23
	23350.000	8.00	0.00	0.00	851.10	410.00	857.15	0.00	857.16	1.14	1.02	469.64	383.58
	23350.000	8.00	0.00	0.00	851.10	670.00	858.13	0.00	858.15	0 83	1.00	773.25	734.48
	23350.000	8.00	0.00	0.00	851.10	790.00	858 32	0.00	858.33	0.94	1.09	830.17	814.78
	23350.000	8.00	0.00	0.00	851.10	1090.00	858.63	0.00	858.66	1.28	1.32	929.65	964.69
	23358 000	8 00	0.00	0.00	848.50	410.00	857.15	0.00	857.16	0.64	0.94	546.45	511.25
	23358.000	8 00	0.00	0 00	848.50	670.00	858.14	0.00	858 15	0.58	0.99	850.29	878.35
	23358.000	8.00	0.00	0.00	848.50	790.00	858.32	0.00	858.33	0.68	1.08	907.22	961.47
	23358.000	8.00	0.00	0.00	848.50	1090.00	858.64	0.00	858.66	0.95	1.33	1006.73	1116 21

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	01K
23938.000	580.00	0.00	0.00	849.50	410.00	857.20	0.00	857.25	2.53	1.69	242.41	257.54
23938.000	580.00	0.00	0.00	849.50	670.00	858.17	0.00	858.25	3.66	2.21	305.85	350.17
23938.000	580.00	0.00	0.00	849.50	790.00	858.36	0.00	858.45	4.46	2.49	329.10	374.26
23938.000	580.00	0.00	0.00	849.50	1090.00	858.69	0.00	858.84	6.49	3.13	383.06	427 99
24339.000	401.00	0.00	0.00	849.70	200.00	857 23	0.00	857.29	0.28	1.96	101.85	378 18
24339.000	401 00	0 00	0.00	849.70	330.00	858.21	0.00	858.34	0.50	2.86	115.52	466.53
24339.000	401.00	0.00	0.00	849.70	395.00	858.40	0.00	858.57	0.66	3.34	118.15	484.42
24339.000	401.00	0.00	0.00	849.70	550.00	858.73	0.00	859.04	1.13	4.48	122.80	516.55
24483.000	144.00	860.20	854.40	849.20	200.00	858.68	0.00	858.72	0.13	1.55	129.13	561.70
24483 000	144.00	860.20	854.40	849.20	330.00	860.87	0.00	860.87	0.00	0.21	2768.05	7950.61
24483.000	144.00	860.20	854.40	849.20	395.00	861.09	0.00	861.09	0.00	0.23	2907 28	8562.97
24483.000	144.00	860.20	854.40	849.20	550 00	861.40	0.00	861.40	0.00	0.30	3105.79	9470.55

INGERSOL CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
14131.000	470.00	836.96	0.00	0.00	0.00	58.56	0.00
14131.000	770.00	839.05	2.09	0.00	0.00	110.00	0.00
14131.000	920.00	839 29	0.24	0.00	0.00	110.00	0.00
14131.000	1370.00	839.61	0.32	0.00	0.00	110.00	0.00
14236.000	470.00	837.39	0.00	0.43	0.00	57.40	105.00
14236 000	770.00	839.18	1.79	0.13	0.00	57.40	105.00

14236.000	920.00	839.42	0.25	0.14	0.00	57.40	105.00
14236.000	1370.00	839.84	0.41	0.23	0.00	57.40	105.00
14276.000	470.00	837.42	0.00	0.03	0.00	57.40	40.00
14276.000	770.00	839.19	1.77	0.01	0.00	57.40	40.00
14276.000	920.00	839.44	0.26	0.01	0.00	57.40	40.00
14276.000	1370.00	839.84	0.40	0.00	0.00	57.40	40.00
14669.000	470.00	837.87	0.00	0.45	0.00	121.29	393.00
14669.000	770.00	839.47	1.61	0.29	0.00	399.78	393.00
14669.000	920.00	839.87	0.40	0.43	0.00	450.00	393.00
14669.000	1370.00	840.73	0.86	0.89	0.00	450.00	393.00
15341.000	470.00	839.54	0.00	1.67	0.00	201.13	672.00
15341.000	770.00	840.34	0.80	0.87	0.00	286.37	672.00
15341.000	920.00	840.66	0.32	0.79	0.00	334.03	672.00
15341.000	1370.00	841.42	0.76	0.69	0.00	412.62	672.00
16311.000	420.00	841.11	0.00	1.57	0.00	136.47	970.00
16311.000	680.00	841.82	0.71	1.48	0.00	164.98	970.00
16311.000	800.00	842.10	0.28	1.44	0.00	175.70	970.00
16311.000	1110.00	842.73	0.63	1.31	0.00	342.89	970.00
16657.000	420.00	841.63	0.00	0.52	0.00	65.32	346.00
16657.000	680.00	842.30	0.68	0.48	0.00	110.21	346.00
16657.000	800.00	842.57	0.26	0.46	0.00	123.98	346.00
16657.000	1110.00	843.13	0.57	0.40	0.00	153.87	346.00
17300.000	420.00	842.80	0.00	1.17	0.00	149.54	643.00
17300.000	680.00	843.46	0.66	1.16	0.00	165.46	643.00
17300.000	800.00	843.69	0.23	1.13	0.00	171.06	643.00
17300.000	1110.00	844.21	0.51	1.07	0.00	183.24	643.00
17301.000	420.00	842.70	0.00	-0.10	0.00	55.58	1.00
17301.000	680.00	843.31	0.61	-0.15	0.00	74.76	1.00
17301.000	800.00	843.53	0.22	-0.16	0.00	81.41	1.00
17301.000	1110.00	844.01	0.48	-0.20	0.00	94.35	1.00

1

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
17341.000	420.00	842.74	0.00	0.04	0.00	56.51	40.00
17341.000	680.00	843.38	0.64	0.07	0.00	76.81	40.00
17341.000	800.00	843.62	0.24	0.09	0.00	83.70	40.00
17341.000	1110.00	844.15	0.54	0.15	0.00	98.26	40.00
17342.000	420.00	842.99	0.00	0.25	0.00	154.26	1.00
17342.000	680.00	843.75	0.76	0.37	0.00	172.40	1.00
17342.000	800.00	844.02	0.27	0.40	0.00	178.90	1.00
17342.000	1110.00	844.62	0.61	0.47	0.00	193.45	1.00
17437.000	420.00	843.05	0.00	0.05	0.00	229.07	95.00
17437.000	680.00	843.81	0.76	0.06	0.00	274.50	95.00
17437.000	800.00	844.08	0.28	0.06	0.00	306.21	95.00
17437.000	1110.00	844.70	0.62	0.08	0.00	436.07	95.00
17701.000	420.00	843.03	0.00	-0.01	0.00	56.72	264.00
17701.000	680.00	843.76	0.73	-0.04	0.00	100.87	264.00
17701.000	800.00	844.04	0.28	-0.04	0.00	117.61	264.00
17701.000	1110.00	844.67	0.63	-0.04	0.00	124.12	264.00
18455.000	420.00	845.71	0.00	2.68	0.00	43.48	754.00
18455.000	680.00	846.72	1.00	2.95	0.00	49.31	754.00

18455.000	800.00	847.04	0.32	3.00	0.00	51.12	754.00
18455.000	1110.00	847.58	0.54	2.91	0.00	69.01	754.00
18522.000	420.00	845.83	0.00	0.12	0.00	36.59	67.00
18522.000	680.00	846.85	1.02	0.14	0.00	38.00	67.00
18522.000	800.00	847.19	0.33	0 15	0.00	38.00	67.00
18522.000	1110.00	847.77	0.58	0.19	0.00	38.00	67.00
18523.000	420.00	845.78	0.00	-0.05	0.00	33.81	1.00
18523.000	680.00	846.79	1.01	-0.06	0.00	38.00	1.00
18523 000	800.00	847 12	0.33	-0.07	0.00	38.00	1.00
18523.000	1110.00	847.67	0.55	-0.10	0.00	38.00	1.00
18598.000	420.00	845.82	0.00	0.04	0.00	33.00	75.00
18598.000	680.00	846.84	1.02	0.05	0.00	37.86	75.00
18598.000	800.00	847.17	0.33	0.05	0.00	38.00	75.00
18598.000	1110.00	847.76	0.59	0.09	0.00	38.00	75 00
18599.000	420.00	845.99	0.00	0.17	0.00	36.52	1.00
18599.000	680.00	847.05	1.05	0.21	0.00	38.00	1.00
18599.000	800.00	847.40	0.35	0.23	0.00	38.00	1.00
18599.000	1110.00	848.08	0.68	0.32	0.00	38.00	1.00
18713.000	420.00	846.27	0.00	0.27	0.00	97.61	114.00
18713.000	680.00	847.42	1.15	0.37	0.00	185.42	114.00
18713.000	800.00	847.82	0.40	0.42	0 00	254.41	114.00
18713.000	1110.00	848.66	0.83	0.58	0.00	272.00	114.00

	SECND	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	18916.000	420.00	846.70	0.00	0.44	0.00	88 42	203.00
	18916 000	680.00	847.66	0.96	0.24	0.00	147.30	203.00
	18916.000	800.00	848.01	0.35	0.18	0.00	180.36	203.00
	18916.000	1110.00	848.76	0.76	0.11	0 00	261.63	203.00
	19031 000	420.00	847.02	0 00	0.32	0.00	72.67	115.00
	19031.000	680.00	847.88	0.86	0.22	0.00	120.52	115.00
	19031.000	800.00	848.19	0.31	0.18	0.00	142.45	115 00
	19031.000	1110.00	848.87	0.68	0.11	0.00	251.27	115.00
	19680.000	420.00	848.06	0.00	1.04	0.00	28.69	649.00
	19680.000	680.00	848.84	0.78	0.96	0.00	103.41	649.00
	19680.000	800.00	849.10	0.26	0.91	0.00	129.89	649.00
	19680.000	1110.00	849.63	0.53	0.75	0.00	183.27	649.00
*	19722.000	420.00	847.90	0.00	-0.16	0.00	28.12	42.00
	19722.000	680.00	851.88	3 98	3.04	0.00	444.42	42.00
	19722.000	800.00	852.05	0.17	2.95	0.00	458.22	42.00
	19722.000	1110.00	852.36	0 31	2.74	0.00	500 66	42 00
	19746 000	420.00	848.97	0.00	1.07	0.00	39.23	24.00
	19746.000	680.00	851.87	2.90	-0.01	0.00	241.97	24 00
	19746.000	800.00	852.04	0 17	-0.01	0.00	302.42	24.00
	19746.000	1110.00	852.35	0.31	-0.01	0.00	336.76	24.00
*	19850.000	420.00	848.21	0 00	-0.76	0.00	8.60	104 00
	19850.000	680.00	851.84	3.64	-0.02	0.00	231.59	104.00
	19850.000	800.00	852.01	0.17	-0.03	0.00	239.29	104.00
	19850.000	1110.00	852.30	0.29	-0.05	0.00	306 73	104.00
*	19942.000	420.00	849.43	0.00	1.22	0.00	8.60	92.00
	19942.000	680.00	852.19	2 76	0.34	0.00	292.54	92 00

	19942.000	800.00	852.32	0.13	0.31	0.00	307.98	92.00
	19942.000	1110.00	852.55	0.23	0.25	0.00	333.37	92.00
	20150.000	420.00	851.16	0.00	1.73	0.00	71.92	208.00
	20150.000	680.00	852.21	1.05	0.03	0.00	211.43	208.00
	20150.000	800.00	852.35	0.14	0.03	0.00	217.81	208.00
	20150.000	1110.00	852.59	0.24	0.04	0.00	228.86	208.00
	20596.000	420.00	851.53	0.00	0.37	0.00	152.10	446.00
	20596.000	680.00	852.62	1.09	0.41	0.00	227.88	446.00
	20596.000	800.00	852.84	0.22	0 49	0.00	243.25	446.00
	20596.000	1110.00	853.31	0.47	0.72	0.00	276.22	446.00
	20836.000	420.00	851.68	0 00	0.15	0.00	183.30	240.00
	20836.000	680.00	852.77	1.09	0.15	0.00	259.05	240.00
	20836.000	800.00	853.01	0.24	0.17	0.00	275 96	240.00
	20836.000	1110.00	853.54	0.53	0.22	0 00	355.23	240.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	21668.000	420.00	852.08	0.00	0.40	0.00	8.60	832.00
*	21668.000	680.00	853.01	0.93	0.24	0.00	124.56	832.00
	21668.000	800.00	853.12	0.11	0.11	0.00	130.64	832.00
	21668.000	1110.00	853.68	0.56	0.14	0.00	161.36	832.00
	21765.000	420.00	853.50	0.00	1 42	0.00	8.60	96.00
	21765.000	680.00	857.77	4.27	4.76	0.00	350.00	96.00
	21765.000	800.00	858.04	0.27	4.92	0.00	350.00	96.00
	21765 000	1110.00	858.45	0.40	4.77	0.00	350.00	96.00
	22145.000	410.00	854.33	0.00	0.83	0.00	59.84	381.00
	22145 000	670.00	857.77	3 44	0.00	0.00	508.95	381.00
	22145.000	790.00	858.04	0 27	0.00	0.00	515.00	381.00
	22145 000	1090 00	858.44	0.40	0.00	0.00	515.00	381.00
	22808 000	410.00	854.37	0.00	0.05	0.00	11.90	663.00
	22808.000	670.00	857.75	3.38	-0.02	0.00	92.86	663.00
	22808.000	790.00	858.02	0.26	-0.03	0.00	203.34	663.00
	22808.000	1090.00	858.40	0 38	-0.04	0 00	320.18	663.00
	22858.000	410.00	856.77	0.00	2.39	0.00	115.77	50.00
	22858.000	670.00	858.03	1 26	0.28	0.00	623.51	50.00
	22858.000	790.00	858.21	0.18	0.19	0.00	835 22	50.00
*	22858.000	1090.00	858.52	0.31	0.12	0.00	983.34	50.00
	23206.000	410.00	856.78	0.00	0.02	0.00	175.58	348.00
	23206.000	670.00	858.07	1.29	0.04	0 00	400.00	348.00
	23206.000	790.00	858.26	0 19	0.05	0.00	400.00	348.00
	23206.000	1090.00	858.57	0.31	0.05	0.00	400.00	348.00
	23256.000	410.00	857.14	0.00	0 36	0.00	738.81	50.00
	23256.000	670.00	858.13	0.99	0.07	0.00	952.69	50.00
	23256.000	790.00	858.32	0.18	0.06	0.00	961.01	50.00
	23256.000	1090.00	858.63	0.32	0.06	0.00	975.31	50.00
	23342.000	410.00	857.15	0.00	0.01	0.00	284.96	86.00
	23342.000	670.00	858.13	0 98	0.00	0.00	312.56	86 00
	23342.000	790.00	858.32	0.18	0 00	0.00	313.44	86.00
	23342.000	1090.00	858.63	0.32	0.00	0.00	314.98	86.00
	23350.000	410.00	857.15	0.00	0.00	0 00	286.23	8.00
	23350.000	670 00	858.13	0.98	0.00	0.00	312.55	8.00

23350 000	790. 00	856. 32	0. 18	0. 00	0. 00	313 43	8. 00
23350. 000	1090. 00	858. 63	0. 32	0. 00	0. 00	314. 96	8. 00
23358. 000	410. 00	857. 15	0. 00	0. 00	0. 00	287. 80	8. 00
23358 000	670 00	858. 14	0. 98	0. 00	0. 00	312. 55	8. 00
23358. 000	790 00	858. 32	0. 18	0. 00	0. 00	313. 43	8. 00
23358. 000	1090. 00	858. 64	0. 32	0. 00	0. 00	314. 96	8. 00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
23938. 000	410. 00	857. 20	0. 00	0. 05	0. 00	59. 05	580 00
23938. 000	670. 00	858. 17	0 97	0. 04	0. 00	95. 47	580. 00
23938. 000	790. 00	858 36	0. 19	0. 04	0. 00	155. 06	580. 00
23938. 000	1090. 00	858. 69	0. 33	0. 05	0. 00	167. 39	580. 00
24339. 000	200. 00	857. 23	0. 00	0. 03	0. 00	14 00	401. 00
24339. 000	330 00	858. 21	0. 98	0. 03	0. 00	14. 00	401. 00
24339. 000	395. 00	858. 40	0. 19	0. 04	0. 00	14. 00	401. 00
24339. 000	550. 00	858. 73	0. 33	0. 04	0. 00	14. 00	401. 00
24483. 000	200. 00	858. 68	0. 00	1. 45	0. 00	14. 00	144. 00
24483. 000	330. 00	860. 87	2. 19	2. 66	0. 00	630. 05	144. 00
24483. 000	395. 00	861. 09	0. 22	2. 69	0. 00	630. 68	144. 00
24483. 000	550. 00	861. 40	0. 31	2. 68	0. 00	631. 58	144. 00

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 19722. 000 PROFILE= 1 BRIDGE DECK DEFINITION ERROR

CAUTION SECNO= 19850. 000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 19850. 000 PROFILE= 1 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 19942. 000 PROFILE= 1 BRIDGE DECK DEFINITION ERROR

CAUTION SECNO= 21668. 000 PROFILE= 2 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO= 21668. 000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 22858. 000 PROFILE= 4 HYDRAULIC JUMP D S.

THIS RUN EXECUTED 13 FEB 89 10: 18: 30

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

EJ

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY OF

3) WATERCOURSE: SHAW CREEK

4) DOCUMENT TYPE: 100 YR – ENCROACHED

00BREAK00

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1*****************************************************
 *  WATER SURFACE PROFILES                           *
 *  VERSION OF NOVEMBER 1976                         *
 *  UPDATED MAY 1984                                 *
 *                                                   *
 *  RUN DATE  18 MAR 88 TIME   15:30:06              *
 *****************************************************
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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
```

1

18 MAR 88 15:30:07 PAGE 1

THIS RUN EXECUTED 18 MAR 88 15:30:07

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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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C
T1 CITY OF NOVI JOB NO.  5555-46-1
T2 100 YEAR FLOOD
T3 SHAW CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        2.        0.        0.   0.000000     0.00      0.0       0.    933.320    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

   110.000   150.000   200 000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      0.060      0.060      0.035      0.500      0.300      0.000      0.000      0.000      0.000      0.000
QT      2.000    500.000    500.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      0.000      1 400      0.000      0.000      0.000      0.000      0.000      0.000      0.000
           2380' U/S FROM 12 MILE ROAD
X1   2380.000     20.000     50.000     67.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    937.900      0.000    929.500     20.000    930.000     30.000    930.000     40.000    928.800     50.000
GR    928.900     52.000    928.300     55.000    927.900     60.000    928.900     62.000    928.800     64.000
GR    930.100     67.000    928.300     90.000    928.500     95.000    928.800     96 000    929.700    100.000
GR    931.600    125.000    932.400    175.000    930.800    225.000    935.800    275.000    935.500    300.000

X1   3130.000     18.000    125.000    155.000    750.000    750 000    750.000      0.000      0.000      0.000
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GR	935.400	0.000	935.500	25.000	935.900	50.000	936.800	75.000	933.100	105.000
GR	930 800	115.000	932.400	125.000	930.800	127.000	930.300	130.000	930.000	135.000
GR	929.700	140.000	930.300	145.000	931.000	150.000	932.800	155.000	932.700	175.000
GR	933 200	200.000	933.800	250.000	932.600	300.000	0.000	0.000	0.000	0.000

3380' U/S FROM 12 MILE ROAD

X1	3880.000	23.000	200.000	228.000	750.000	750.000	750.000	0.000	0.000	0.000
GR	934.200	0.000	934.300	25.000	931.900	50.000	934.300	75.000	934.400	100.000
GR	934.800	125.000	935.700	150.000	936.500	175.000	936.000	200.000	931.900	207.000
GR	931.700	208.000	931.600	213.000	931.500	218.000	931.700	223.000	932.800	225.000
GR	935 500	228.000	935.700	250.000	935.500	275.000	935.300	300.000	935.200	325.000
GR	935.500	350.000	936.100	375.000	936.100	400.000	0.000	0.000	0.000	0.000

1

X1	4000.000	23.000	200.000	225 000	120.000	120.000	120.000	0.000	0.000	0.000
GR	934.900	0 000	935.000	25.000	932.700	50.000	935.000	75.000	935.000	100.000
GR	935.400	125.000	936.300	150 000	937.100	175 000	936.500	200.000	932.500	205.000
GR	932.300	206.000	932.200	213.000	932.000	217.000	932.100	219.000	932.200	221.000
GR	933.500	225.000	936.300	250.000	936.100	275.000	935.900	300.000	935.800	325.000
GR	936.100	350.000	936.700	375.000	936.700	400.000	0.000	0.000	0.000	0.000
X1	4250.000	20.000	200 000	225.000	250.000	250.000	250.000	0.000	0.000	0.000
GR	936.300	0.000	936.400	25.000	934.300	50.000	936.300	75.000	936.400	100.000
GR	936.700	125.000	937.600	150.000	938.300	175.000	937.600	200.000	933.600	206.000
GR	933.300	213.000	933 500	219.000	934.900	225.000	937.500	250.000	937.400	275.000
GR	936.800	300.000	937 300	325.000	937.300	350.000	937.900	375.000	937.800	400.000
X1	4700.000	23 000	210.000	230.000	450 000	450 000	450.000	0.000	0.000	0.000
GR	938.400	0.000	938.500	25 000	936.100	50.000	938.500	75.000	938.600	100.000
GR	939.000	125 000	939.900	150.000	940.700	175.000	940.200	200.000	936.100	205.000
GR	934.900	210.000	934.800	215.000	934.700	220.000	934.900	223.000	935.000	225.000
GR	935.700	230.000	937.700	250.000	938.700	275.000	939.500	300.000	939.400	325.000
GR	939.700	350.000	940.300	375.000	940.300	400 000	0.000	0.000	0.000	0.000
X1	5000.000	0.000	0 000	0.000	300.000	300.000	300.000	0.000	1.500	0.000
X1	5244.000	19 000	208.000	221.000	244.000	244.000	244.000	0.000	0.000	0.000
GR	949 200	0.000	942 100	25.000	940.900	50 000	942.000	75.000	941.900	100.000
GR	942.100	125.000	942.600	150.000	943.000	175.000	941.900	200.000	939.800	204.000
GR	937 100	208.000	937.100	212.000	937.200	218.000	937.400	221.000	942.000	277.000
GR	942.500	300.000	942.700	325.000	942.800	350 000	942.700	375.000	0.000	0.000
ET	0.000	4 100	0.000	125.000	225.000	0.000	0.000	0.000	0.000	0.000
X1	6607.000	30 000	200.000	225.000	1364.000	1364.000	1364.000	0.000	-0.900	0.000
GR	949.700	0.000	949.900	25.000	949.800	50.000	949.600	75.000	949 400	100.000
GR	949.400	125.000	949 600	150.000	949.700	175.000	947.900	200.000	945.900	204.000
GR	944 600	205.000	944.100	213.300	943.600	213.400	943.100	213.900	942.900	214.600
GR	943.100	215.300	943.600	215.800	944.100	215.900	945.100	220.000	948.700	225.000
GR	949.400	250.000	949.700	275.000	949.600	300.000	949.400	325.000	949.200	350.000
GR	949.300	375.000	948 600	400.000	948.300	425.000	949 600	450.000	950.000	475.000
ET	0.000	4.100	0.000	110.000	310.000	0.000	0.000	0.000	0.000	0.000
X1	6618.000	30 000	200.000	225.000	9.000	9.000	9.000	0.000	-0.900	0.000
GR	949.700	0.000	949.900	25.000	949.800	50.000	949.600	75.000	949 400	100.000
GR	949.400	125 000	949.600	150.000	949.700	175.000	947.900	200.000	945.900	204.000
GR	944.600	205.000	944.100	213.300	943.600	213.400	943.100	213.900	942.900	214.600
GR	943.100	215.300	943.600	215 800	944 100	215.900	945.100	220.000	948.700	225.000
GR	949.400	250.000	949.700	275.000	949.600	300.000	949.400	325 000	949 200	350.000
GR	949.300	375.000	948.600	400.000	948 300	425.000	949.600	450.000	950.000	475.000
SB	0.000	14.560	2.800	200.000	2.500	0.000	7.070	0.000	944.000	944.900
ET	0.000	4.100	0.000	110.000	310.000	0.000	0.000	0.000	0.000	0.000
X1	6878.000	0 000	0.000	0.000	260.000	260.000	260 000	0.000	0.000	0.000

X2	0.000	0.000	1.000	945.400	951.200	0.000	0.000	0.000	0.000	0.000

1

ET	0.000	4.100	0.000	100.000	320.000	0.000	0.000	0.000	0.000	0.000
X1	6889.000	29.000	200 000	225.000	11.000	11.000	11.000	0.000	0.000	0.000
GR	949.700	0.000	949.900	25.000	949.800	50.000	949.600	75.000	949.400	100.000
GR	949.400	125.000	949.600	150.000	949.700	175.000	947.900	200.000	945.900	204.000
GR	944.600	205.000	945.600	208.000	944.200	208.600	943.600	210.000	944.200	211.400
GR	945 600	212.000	944.600	215.000	945.100	220.000	948.700	225.000	949.400	250.000
GR	949.700	275 000	949.600	300.000	949.400	325.000	949.200	350.000	949.300	375.000
GR	948.600	400.000	948.300	425.000	949.600	450.000	950.000	475.000	0.000	0.000

CULVERT D/S FROM BECK ROAD

X1	6900.000	0.000	0.000	0.000	11.000	11.000	11.000	0.000	0.000	0.000
BT	13.000	200.000	951.200	951.200	200.000	951.200	947.900	204.000	951.200	945.900
BT	205 000	951 200	944.600	208.000	951.200	945.600	208.600	951.200	945.600	210.000
BT	951 200	947.600	211.400	951 200	947.000	212.000	951.200	945 600	215.000	951.200
BT	944.600	220.000	951 200	945.100	225.000	951.200	948.700	225.000	951.200	951.200
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 0.500 CEHV= 0.300

*SECNO 2380.000

2380' U/S FROM 12 MILE ROAD

2380.00	5.42	933.32	0.00	933.32	933.34	0 02	0.00	0.00	928.80
500.	101.	134.	265.	125	80.	391.	0.	0.	930.10
0.00	0.80	1.69	0.68	0.060	0.035	0.060	0.000	927.90	10.90
0.000211	0.	0.	0	0	0	0	0.00	239.30	250.20

0

*SECNO 3130.000

3265 DIVIDED FLOW

3280 CROSS SECTION 3130.00 EXTENDED 0.95 FEET

3130 00	3.85	933.55	0.00	0.00	933.79	0.24	0.38	0.07	932.40
500.	66.	387	47.	36.	89.	55.	7.	4.	932.80
0 06	1.80	4.36	0.86	0.060	0.035	0.060	0.000	929.70	101.34
0.002583	750	750	750.	2	0	0	0.00	167 57	300.00

0

*SECNO 3880.000

3265 DIVIDED FLOW

3280 CROSS SECTION 3880.00 EXTENDED 1.07 FEET

B

3380' U/S FROM 12 MILE ROAD

3880.00	3 77	935.27	0.00	0.00	935.37	0 10	1.52	0.07	936.00
500.	242.	258	0.	177	78.	1.	10.	7.	935.50
0.14	1 37	3.33	0.11	0.060	0.035	0.060	0.000	931.50	0.00
0.001629	750.	750	750.	3	0	0	0.00	187.21	330.68

0

*SECNO 4000.000

3265 DIVIDED FLOW

3280 CROSS SECTION 4000.00 EXTENDED 0.55 FEET

4000.00	3.45	935.45	0.00	0.00	935.66	0.21	0.26	0.03	936.50
500.	170.	307.	22.	110.	68.	17.	11.	7.	933.50
0.15	1.54	4.51	1.32	0 060	0.035	0.060	0.000	932 00	0.00
0.002954	120.	120.	120.	2	0	0	0.00	167.60	242.44

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 4250.000

3265 DIVIDED FLOW

3280 CROSS SECTION 4250.00 EXTENDED 0.07 FEET

4250.00	3.06	936.36	936.11	0.00	936.85	0.49	1.11	0.09	937.60
500.	115.	368.	18.	53.	57.	10	12.	8.	934.90
0.17	2.15	6.45	1.72	0.060	0.035	0.060	0.000	933.30	0.00
0.007353	250.	250.	250.	5	11	0	0.00	120 87	239.12

0
*SECNO 4700.000

3265 DIVIDED FLOW

3280 CROSS SECTION 4700.00 EXTENDED 0.04 FEET

4700.00	3.75	938.45	0.00	0 00	938.68	0.23	1.69	0.13	934.90
500.	113.	324.	63.	75.	70.	42	14	9.	935.70
0.20	1.51	4.65	1.52	0 060	0.035	0.060	0.000	934.70	0 00
0.002277	450.	450.	450.	1	0	0	0.00	124.07	268.41

0
*SECNO 5000.000

3265 DIVIDED FLOW

5000 00	3.09	939.29	0.00	0.00	939.78	0.49	1.03	0.08	936.40
500.	90.	366.	44.	43.	57.	22.	15.	10.	937.20
0.22	2.07	6 43	1.98	0.060	0 035	0.060	0.000	936.20	32.27
0.005699	300.	300.	300.	2	0	0	0.00	85.07	252.54

0
*SECNO 5244.000

5244.00	3.51	940.61	0.00	0.00	941.15	0.54	1 36	0 02	937.10
500.	24.	319.	157.	9.	45.	63.	15.	10.	937.40
0.23	2.57	7.13	2.50	0.060	0.035	0.060	0.000	937.10	202.45
0.005429	244.	244.	244	2	0	0	0.00	57.66	260.11

0
*SECNO 6607.000
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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=      125.0      225.0  TYPE=      1  TARGET=      100.000
  6607.00      5.62    947.62      0.00      0.00    948.19      0.56      7.03      0.01    947.00
     500         2.      498.        0.        3.       82.        0.       18.       12.   99999 10
     0.29      0.79      6.04      0.00     0 060     0.035     0.000     0.000    942.00    191.38
 0.004893     1364.     1364.     1364.         4         0         0      0.00     33 37    224.75
0
*SECNO 6618.000

3470 ENCROACHMENT STATIONS=      110.0      310.0  TYPE=      1  TARGET=      200.000
  6618.00      5.71    947.71      0.00      0.00    948.24      0.53      0.04      0 02    947.00
     500         3.      497.        0.        4.       85.        0.       18.       12.    947.80
     0.29      0.83      5.87      0.00     0.060     0.035     0.000     0.000    942.00    190.12
 0 004489        9.        9.         9         2         0         0      0.00     34.76    224.88
0

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00     14.56      2.80    200.00      2.50      0.00      7.07      0.00    944.00    944.90

*SECNO 6878.000
3280 CROSS SECTION   6878.00 EXTENDED      2.99 FEET

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                AREA
   2078.49    949.79      0.00      473.       31.        7.        3.      945 40    951.20


3470 ENCROACHMENT STATIONS=      110.0      310.0  TYPE=      1  TARGET=      200.000
  6878 00     10.08    952.08      0.00      0 00    952.09      0.01      3.85      0.00    947.00
     500.      145.      225.      131       329       194.      302.       21.       12.    947 80
     0.39      0.44      1.16      0 43     0.060     0.035     0.060     0.000    942 00    110.00
 0.000058      260.      260.      260.         1         0         9      0.00    200.00    310.00
0
1
 18 MAR 88    15:30:07                                                                          PAGE    7

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 6889.000
3280 CROSS SECTION   6889 00 EXTENDED      2.08 FEET


3470 ENCROACHMENT STATIONS=      100.0      320.0  TYPE=      1  TARGET=      220 000
  6889 00      8 48    952.08      0.00      0.00    952.10      0 02      0.00      0 00    947.90
     500.      142.      232.      126.      274.      163.      251.       21.       12.    948.70
     0 39      0.52      1.42      0.50     0.060     0.035     0.060     0.000    943.60    100.00
 0.000116       11.       11.       11.         2         0         0      0.00    220.00    320.00
0
*SECNO 6900.000
3280 CROSS SECTION   6900.00 EXTENDED      2.40 FEET
```

Back

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 951.20 MAX ELLC= 951.20

CULVERT D/S FROM BECK ROAD

6900.00	8.50	952.10	0.00	0.00	952.10	0.00	0.00	0.01	947.90
500.	197.	10.	292.	515.	32.	714.	22.	13.	948.70
0.40	0.38	0.32	0.41	0.060	0.035	0.060	0.000	943.60	0.00
0.000068	11.	11.	11.	2	0	0	-131.20	475.00	475.00

0
1

THIS RUN EXECUTED 18 MAR 88 15:30:11

****
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 CITY OF NOVI JOB NO. 5555-46-1
T2 100 YEAR FLOOD - ENCROACHED
T3 SHAW CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	3.	0.	0.	0.000000	0.00	0.0	0.	933.420	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

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	GLOB	QCH	QROB	ALOB	ACH	AROB	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= 0.500 CEHV= 0 300
*SECNO 2380.000
2800 NAT Q1= 343.89 WSEL= 933 32 ENC Q1= 343.89 WSEL= 933.42 RATIO= 0.0000
NAT Q1= 363. RATIOS LOB, CH, ROB= 0.2002 0.2640 0 5358 WSEL= 933.42

3470 ENCROACHMENT STATIONS= 19.4 225.7 TYPE= 4 TARGET= 0.052
2380' U/S FROM 12 MILE ROAD

2380.00	5.52	933.42	0.00	933.32	933.44	0.02	0.00	0.00	928.80
500.	96.	138.	266.	114.	81.	377.	0.	0	930.10
0.00	0.84	1.70	0.71	0.060	0.035	0.060	0.000	927.90	19.35
0 000208	0.	0.	0.	0	0	0	0.00	206.35	225.70

0
*SECNO 3130 000
2800 NAT Q1= 98.38 WSEL= 933.55 ENC Q1= 98.38 WSEL= 933.65 RATIO= 0.0000
NAT Q1= 107. RATIOS LOB, CH, ROB= 0.1327 0.7547 0.1126 WSEL= 933.65
3280 CROSS SECTION 3130.00 EXTENDED 1.03 FEET

```
 3470 ENCROACHMENT STATIONS=      113.0      205.0  TYPE=      4  TARGET=        0.078
   3130.00      3.93    933.63      0.00    933.55    933.90      0.27      0.38      0.07    932.40
      500.       49.       412.       39.       26.       91.       36         6.         3.     932.80
      0.05      1.92      4.52      1.06     0.060     0.035     0.060     0.000    929.70    112.97
  0.002688       750.      750.      750.         3         0         0      0.00     92.00    204.97
0
 *SECNO 3880.000
  2800 NAT Q1=     123.88  WSEL=     935.27  ENC Q1=     123.88  WSEL=     935.37  RATIO=   0.0000
  NAT Q1=     134.   RATIOS LOB, CH, ROB=   0.4964   0.5018   0.0018  WSEL=     935.37

 3265 DIVIDED FLOW

 3280 CROSS SECTION    3880.00 EXTENDED       1.19 FEET


 3470 ENCROACHMENT STATIONS=       29.7      294.0  TYPE=      4  TARGET=        0.074
              3380' U/S FROM 12 MILE ROAD
   3880.00      3.88    935.38      0.00    935.27    935.49      0.11      1.51      0.08    936.00
      500.      231.      269.        0.      159.      81.         0.        10.        5     935.50
      0.14      1.45      3.33      0.08     0.060     0.035     0.060     0.000    931.50     29.69
  0.001572       750.      750.      750.         1         0         0      0.00    144.09    294.04
0
1
  18 MAR 88    15:30:07                                                                    PAGE    10

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 4000.000
  2800 NAT Q1=      92.00  WSEL=     935.45  ENC Q1=      92.00  WSEL=     935.55  RATIO=   0.0000
  NAT Q1=     100   RATIOS LOB, CH, ROB=   0.3589   0.5941   0.0471  WSEL=     935.55

 3265 DIVIDED FLOW

 3280 CROSS SECTION    4000.00 EXTENDED       0.65 FEET


 3470 ENCROACHMENT STATIONS=       32.7      225.8  TYPE=      4  TARGET=        0.083
   4000.00      3.55    935.55      0.00    935.45    935.78      0.23      0.25      0.04    936.50
      500.      174.      325.        2.      101.      70.         2.        10.        5     933.50
      0.15      1.72      4.61      0.97     0.060     0.035     0.060     0.000    932.00     32.72
  0.002974       120.      120.      120.         2         0         0      0.00    121.11    225.85
0
 *SECNO 4250.000
  2800 NAT Q1=      58.31  WSEL=     936.36  ENC Q1=      58.31  WSEL=     936.46  RATIO=   0.0000
  NAT Q1=      63.   RATIOS LOB, CH, ROB=   0.2456   0.7159   0.0386  WSEL=     936.46

 3265 DIVIDED FLOW

 3280 CROSS SECTION    4250.00 EXTENDED       0.18 FEET


 3470 ENCROACHMENT STATIONS=       42.1      225.0  TYPE=      4  TARGET=        0.080
   4250.00      3.18    936.48      0.00    936.36    936.99      0.52      1.13      0.09    937.60
      500.      115.      385         0.       48        60         0.        11.        6.     934.90
      0.16      2.42      6.46      0.00     0.060     0.035     0.000     0.000    933.30     42.06
  0.007642       250.      250.      250.         2         0         0      0.00     87.81    225.00
0
 *SECNO 4700.000
  2800 NAT Q1=     104.77  WSEL=     938.45  ENC Q1=     104.77  WSEL=     938.55  RATIO=   0.0000
  NAT Q1=     113.   RATIOS LOB, CH, ROB=   0.2354   0.6322   0.1324  WSEL=     938.55
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3265 DIVIDED FLOW

3280 CROSS SECTION   4700.00 EXTENDED      0.17 FEET


3470 ENCROACHMENT STATIONS=      43.8      242 8  TYPE=      4  TARGET=        0.073
  4700.00      3.87    938.57      0.00    938.45    938.82      0.25      1.69      0.14    934.90
     500.       107.      340.       53.       65.       72.       29.       12.        6.    935.70
     0.19      1.64      4.70      1.84     0.060     0.035     0.060     0.000    934.70     43.79
 0 002217      450.      450.      450         1         0         0      0.00     90.06    242.84
0
1
 18 MAR 88    15 30:07                                                                          PAGE   11

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 5000.000
 2800 NAT Q1=      66.23  WSEL=     939.29  ENC Q1=      66.23  WSEL=     939 39  RATIO=  0.0000
 NAT Q1=      71.  RATIOS LOB,CH,ROB=  0.1867  0.7199  0.0935  WSEL=     939.39

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      47.1      236.9  TYPE=      4  TARGET=        0.067
  5000.00      3.18    939.38      0.00    939.29    939.93      0.55      1.02      0.09    936.40
     500        81.      388.       31.       35.       59.       13        13         7.    937.20
     0.21      2.30      6.63      2.49     0.060     0.035     0.060     0.000    936 20     47.10
 0.005856      300.      300.      300.         2         0         0      0 00     55 45    236.86
0
*SECNO 5244.000
 2800 NAT Q1=      67 86  WSEL=     940.61  ENC Q1=      67.86  WSEL=     940.71  RATIO=  0.0000
 NAT Q1=      72.  RATIOS LOB,CH,ROB=  0.0488  0.6306  0.3206  WSEL=     940.71

3470 ENCROACHMENT STATIONS=     206.4      240 3  TYPE=      4  TARGET=        0.058
  5244.00      3.62    940.72      0.00    940.61    941.32      0.60      1 37      0.02    937.10
     500.       10.      335.      155.        5.       46.       49.       14.        7.    937.40
     0.22      1.97      7.27      3.19     0 060     0.035     0.060     0.000    937.10    206.36
 0.005426      244.      244.      244.         2         0         0      0.00     33.89    240.25
0
*SECNO 6607.000
 2800 NAT Q1=      71.48  WSEL=     947.62  ENC Q1=      74.49  WSEL=     947.72  RATIO= -0.0422
 NAT Q1=      75   RATIOS LOB,CH,ROB=  0 0060  0 9887  0.0053  WSEL=     947.72

3470 ENCROACHMENT STATIONS=     200.0      225.0  TYPE=      4  TARGET=        0.011
  6607 00      5.70    947.70      0.00    947.62    948.25      0.54      6.90      0.03    947.00
     500.        0.      500.        0         0.       84.        0.       17.        8.    947.80
     0.28      0.00      5.92      0.00     0.000     0.035     0.000     0.000    942.00    200.00
 0.004732     1364      1364.     1364.         3         0         0      0 00     24.86    224.86
0
*SECNO 6618.000
 2800 NAT Q1=      74.63  WSEL=     947.71  ENC Q1=      77.59  WSEL=     947.81  RATIO= -0.0396
 NAT Q1=      79.  RATIOS LOB,CH,ROB=  0.0078  0.9819  0.0102  WSEL=     947.81

3470 ENCROACHMENT STATIONS=     200.0      225.0  TYPE=      4  TARGET=        0.018
  6618.00      5.78    947.78      0.00    947.71    948.30      0.52      0.04      0.01    947.00
     500.        0.      500.        0.        0.       86.        0.       17.        8.    947.80
     0.28      0.00      5.79      0.00     0.000     0.035     0.000     0.000    942.00    200.00
 0.004423        9.         9         9         2         0         0      0.00     24.97    224.97
0
1
 18 MAR 88    15.30:07                                                                          PAGE   12
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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


 SPECIAL BRIDGE

 SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00      14.56       2.80     200.00       2.50       0.00       7.07       0.00     944 00     944.90

 *SECNO 6878.000
  2800 NAT Q1=     655.99  WSEL=     952.08  ENC Q1=     655.99  WSEL=     952.18  RATIO=  0.0000
  NAT Q1=    1291.  RATIOS LOB,CH,ROB=  0.3164  0.2328  0.4508  WSEL=     952.18
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
 3280 CROSS SECTION   6878.00 EXTENDED       3.35 FEET


 3470 ENCROACHMENT STATIONS=      162 1      349 4  TYPE=      4  TARGET=        0.492
   6878.00     10.15    952.15      0.00    952.08    952.16      0.01      0.05      0.25    947.00
      500.       69.      230.      201.      150.      196.      453.       19.        9.     947.80
      0.37      0 46      1.18      0.44     0.060     0.035     0.060     0.000    942.00    162.06
  0.000059      260.      260.      260.         0         0         9      0.00    187.38    349.43
0
 *SECNO 6889.000
  2800 NAT Q1=     464.35  WSEL=     952.08  ENC Q1=     464.35  WSEL=     952.18  RATIO=  0.0000
  NAT Q1=     847.  RATIOS LOB,CH,ROB=  0.2976  0.2605  0.4418  WSEL=     952.18
 3280 CROSS SECTION   6889.00 EXTENDED       2.45 FEET


 3470 ENCROACHMENT STATIONS=      161.5      360.3  TYPE=      4  TARGET=        0.452
   6889.00      8.55    952.15      0.00    952.08    952.17      0.02      0.00      0.00    947.90
      500.       65.      239.      196.      117.      165.      373.       20         9.     948.70
      0.38      0.56      1.45      0.53     0.060     0.035     0.060     0.000    943.60    161.53
  0.000119       11.       11.       11.         0         0         0      0.00    198.74    360.27
0
 *SECNO 6900.000
  2800 NAT Q1=     608.45  WSEL=     952.10  ENC Q1=     608.45  WSEL=     952.20  RATIO=  0.0000
  NAT Q1=     646.  RATIOS LOB,CH,ROB=  0.3956  0.0219  0.5825  WSEL=     952.20
 3280 CROSS SECTION   6900.00 EXTENDED       2.47 FEET


 3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  951.20 MAX ELLC=  951.20


 3470 ENCROACHMENT STATIONS=       18.1      456.2  TYPE=      4  TARGET=        0.059
             CULVERT D/S FROM BECK ROAD
   6900.00      8.57    952 17      0.00    952.10    952.18      0.00      0.00      0.01    947.90
      500.      194.       11.      294       486.       34.      688.       20.        9.     948.70
      0.39      0.40      0.34      0.43     0.060     0.035     0.060     0.000    943.60     18.06
  0.000070       11.       11.       11.         2         0         0   -131.20    438.10    456.16
0
1
  18 MAR 88     15:30:07                                                                          PAGE    13


                                                                                THIS RUN EXECUTED 18 MAR 88    15:30:13
 ***************************************************
   HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
   ERROR CORR -  01,02,03,04,05,06
   MODIFICATION -  50,51,52,53,54,55,56
```

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: Novi, City of

3) WATERCOURSE: SHAW CREEK

4) DOCUMENT TYPE: 100 Yr. — Run 2

00BREAK00

```
     435.      122.      205.      108.      265.      161.      243.       19.       11.     948.70
     0.41      0.46      1.27      0.45     0.060     0.035     0.060     0.000    943 60    100.00
  0.000095      11.       11.       11.         2         0         0      0.00    220.00    320.00
0
 *SECNO 6900.000
 3280 CROSS SECTION   6900 00 EXTENDED      2.30 FEET


 3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  951.20 MAX ELLC=  951.20

             CULVERT D/S FROM BECK ROAD
   6900 00     8.41    952.01      0.00      0.00    952.01      0.00      0.00      0.01    947.90
     435.      171.        8.      255.       495       30.      689.       20.       11.     948.70
     0.42      0.35      0.28      0.37     0.060     0.035     0.060     0.000    943.60      0.00
  0.000058      11.       11.       11          1         0         0   -131.20    475.00    475.00
0
1
  15 MAR 88    15:07:18                                                                                PAGE   13


                                                                                  THIS RUN EXECUTED 15 MAR 88   15:07:23
 ***************************************************
   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 CITY OF NOVI JOB NO. 5555-46-1
 T2 100 YEAR FLOOD
 T3 SHAW CREEK

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10.        4.        0.         0   0.000000      0.00       0.0        0.    933.320     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

1
  15 MAR 88    15:07:18                                                                                PAGE   14

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=   0.500 CEHV=   0.300
 *SECNO 2380.000
             2380' U/S FROM 12 MILE ROAD
   2380.00     5.42    933.32      0.00    933.32    933.34      0.02      0.00      0.00    928.80
     500.      101.      134.      265.      125.       80.      391.        0.        0.     930.10
     0.00      0.80      1.69      0.68     0.060     0.035     0.060     0.000    927.90     10.90
  0.000211       0.        0.         0         0         0         0      0.00    239.30    250.20
0
 *SECNO 3130.000

 3265 DIVIDED FLOW
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 3280 CROSS SECTION    3130.00 EXTENDED       0.95 FEET

   3130 00       3.85    933.55      0.00      0.00    933.79      0.24      0.38      0.07    932.40
      500.         66       387.       47.       36.       89.       55.        7.        4.     932.80
        0 06      1.80      4.36      0.86     0.060     0.035     0.060     0.000    929.70    101.34
  0.002583       750.      750.      750.         2         0         0      0 00    167.57    300.00
0
 *SECNO 3880.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION    3880.00 EXTENDED       1.07 FEET

             3380' U/S FROM 12 MILE ROAD
   3880.00       3 77    935 27      0.00      0.00    935.37      0.10      1.52      0.07    936.00
      500.        242.      258.        0.       177.       78         1.       10.        7.     935.50
      0.14      1.37      3.33      0.11     0.060     0.035     0.060     0 000    931.50      0.00
  0.001629       750.      750.      750.         3         0         0      0.00    187.21    330.68
0
 *SECNO 4000.000

 3265 DIVIDED FLOW

 3280 CROSS SECTION    4000.00 EXTENDED       0.55 FEET

   4000.00       3.45    935.45      0.00      0.00    935.66      0.21      0.26      0.03    936.50
      500.        170.      307        22.       110.       68        17.       11.        7.     933.50
      0 15      1.54      4.51      1.32     0.060     0.035     0 060     0.000    932.00      0.00
  0.002954       120.      120.      120.         2         0         0      0.00    167.60    242.44
0
1
  15 MAR 88     15:07:18                                                                    PAGE    15

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 4250.000

  3265 DIVIDED FLOW

  3280 CROSS SECTION    4250.00 EXTENDED       0.07 FEET

    4250.00       3 06    936.36    936.11      0.00    936.85      0 49      1.11      0.09    937.60
       500.        115       368.       18.       53.       57.       10.       12.        8.     934.90
       0.17      2.15      6 45      1.72     0.060     0.035     0.060     0.000    933.30      0.00
   0.007353       250.      250.      250.         5        11         0      0.00    120.87    239.12
  0
  *SECNO 4700.000

  3265 DIVIDED FLOW

  3280 CROSS SECTION    4700.00 EXTENDED       0.04 FEET

    4700.00       3.75    938.45      0 00      0.00    938.68      0.23      1 69      0.13    934.90
       500         113       324        63.       75        70.       42.       14.        9.     935.70
       0.20      1.51      4.65      1.52     0.060     0.035     0.060     0.000    934.70      0.00
   0.002277       450.      450.      450.         1         0         0      0.00    124.07    268.41
  0
  *SECNO 5000.000

  3265 DIVIDED FLOW
```

```
  5000.00     3.09   939.29     0.00     0.00   939.78     0.49     1.03     0.08   936.40
     500.      90.     366.      44.      43.       57      22.      15.      10.    937.20
     0.22     2.07     6.43     1.98    0.060    0.035    0.060    0.000   936.20    32.27
 0.005699     300.     300.     300.        2        0        0     0 00    85.07   252.54
0
 *SECNO 5244.000
  5244.00     3.51   940.61     0.00     0.00   941.15     0.54     1.36     0.02   937.10
     500.      24.     319.     157.       9.      45.      63      15.      10.    937.40
     0.23     2.57     7.13     2.50    0 060    0.035    0.060    0.000   937.10   202.45
 0.005429     244.     244.     244.        2        0        0     0.00    57.66   260.11
0
 *SECNO 6607.000
1
 15 MAR 88    15:07:18                                                                    PAGE   16

   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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=     125.0     245.0  TYPE=     1  TARGET=     120.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      947.00 ELREA=      947.80

  6607.00     5 62   947.62     0.00     0.00   948.19     0.56     7.03     0.01   947.00
     500.       2.     498.       0.       3.      82.       0.      18.      12.    947.80
     0.29     0.79     6.04     0.00    0.060    0.035    0.000    0 000   942.00   191.38
 0.004893    1364.    1364.    1364.        4        0        0     0.00    33.37   224.75
0
 *SECNO 6618.000

 3470 ENCROACHMENT STATIONS=     110 0     310.0  TYPE=     1  TARGET=     200.000
  6618.00     5.71   947.71     0.00     0.00   948.24     0.53     0.04     0.02   947.00
     500.       3.     497        0        4.      85.       0.      18.      12.    947.80
     0.29     0.83     5.87     0.00    0.060    0.035    0.000    0.000   942.00   190.12
 0.004489       9.       9.       9.        2        0        0     0.00    34.76   224.88
0

 SPECIAL BRIDGE

 SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00     14.56      2.80    200.00      2.50      0.00      7.07      0.00    944.00    944.90

 *SECNO 6878.000
 3280 CROSS SECTION   6878.00 EXTENDED      2.99 FEET


 3301 HV CHANGED MORE THAN HVINS

 PRESSURE AND WEIR FLOW


  EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC     ELTRD
                                                                 AREA
   2078.49    949.79     0.00      473.       31.        7.        3.      945.40    951.20


 3470 ENCROACHMENT STATIONS=     110.0     310 0  TYPE=     1  TARGET=     200.000
  6878.00    10.08   952.08     0.00     0.00   952.09     0.01     3.85     0.00   947.00
     500.     145.     225.     131.     329.      194      302       21.      12.    947.80
     0.39     0.44     1.16     0.43    0.060    0.035    0.060    0.000   942.00   110.00
 0.000058     260.     260.     260.        1        0        9     0.00   200.00   310.00
```

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 6889.000
3280 CROSS SECTION 6889.00 EXTENDED 2.08 FEET

3470 ENCROACHMENT STATIONS= 100.0 320.0 TYPE= 1 TARGET= 220.000

6889.00	8.48	952.08	0.00	0.00	952.10	0.02	0.00	0 00	947.90
500.	142	232.	126.	274.	163.	251	21.	12.	948.70
0.39	0.52	1.42	0.50	0.060	0.035	0.060	0.000	943.60	100.00
0.000116	11.	11.	11.	2	0	0	0.00	220.00	320.00

*SECNO 6900.000
3280 CROSS SECTION 6900.00 EXTENDED 2.40 FEET

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 951.20 MAX ELLC= 951.20

CULVERT D/S FROM BECK ROAD

6900.00	8.50	952.10	0.00	0.00	952.10	0 00	0.00	0.01	947.90
500.	197.	10.	292.	515.	32.	714.	22.	13.	948.70
0.40	0 38	0 32	0.41	0.060	0.035	0.060	0.000	943.60	0.00
0 000068	11	11.	11.	2	0	0	-131.20	475.00	475.00

THIS RUN EXECUTED 15 MAR 88 15:07:24

****
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 CITY OF NOVI JOB NO. 5555-46-1
T2 500 YEAR FLOOD
T3 SHAW CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	5.	0.	0.	0.000000	0.00	0.0	0.	933.560	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

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, City of

3) WATERCOURSE: SHAW CREEK

4) DOCUMENT TYPE: SUMMARY - ENCROACHED

00BREAK00

****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CREEK

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
2380.000	933.32	0.00	933.34	239.30	100.66	134.43	264.90	0.00	0.00	50.00	67.00	0.00
2380.000	933.42	0.10	933.44	206.35	95.65	138.17	266.18	0.05	19 35	50.00	67.00	225.70
3130.000	933.55	0.00	933.79	167.57	65.53	387.33	47.14	0.00	0.00	125.00	155 00	0.00
3130.000	933.63	0.08	933.90	92.00	48.93	412.29	38.78	0.08	112.97	125.00	155.00	204.97
3880.000	935.27	0.00	935.37	187.21	241.62	258.30	0 08	0.00	0 00	200.00	228.00	0.00
3880 000	935.38	0.11	935.49	144.09	230.73	269.26	0.01	0.07	29.69	200.00	228.00	294.04
4000.000	935.45	0 00	935.66	167.60	170.29	307.25	22.46	0.00	0.00	200.00	225.00	0.00
4000.000	935.55	0.10	935.78	121.11	173.78	324.58	1.64	0.08	32.72	200.00	225.00	225.85
4250.000	936.36	0.00	936.85	120.87	114.52	367.64	17.84	0.00	0.00	200.00	225.00	0.00
4250.000	936.48	0.12	936.99	87.81	115.26	384.74	0.00	0 08	42.06	200.00	225.00	225.00
4700.000	938.45	0.00	938.68	124.07	112.95	323.83	63.22	0.00	0.00	210.00	230.00	0.00
4700.000	938.57	0.12	938.82	90.06	106.96	340.47	52.57	0.07	43.79	210.00	230.00	242.84
5000 000	939.29	0.00	939.78	85.07	89.81	366.36	43.84	0.00	0.00	210.00	230.00	0.00
5000 000	939.38	0.08	939.93	55.45	80.51	388.21	31.28	0.07	47.10	210.00	230.00	236.86
5244.000	940.61	0.00	941.15	57.66	23.88	319 23	156.90	0.00	0.00	208.00	221.00	0.00
5244.000	940.72	0.10	941.32	33.89	9.87	335.21	154.93	0.06	206.36	208.00	221.00	240.25
6607.000	947.62	0.00	948.19	33.37	2.12	497.88	0.00	100.00	125.00	200.00	225.00	225.00
6607.000	947.70	0.08	948.25	24.86	0.00	500.00	0.00	0.01	200.00	200.00	225.00	225.00
6618 000	947.71	0.00	948.24	34.76	2 92	497.08	0.00	200.00	110.00	200.00	225.00	310.00
6618 000	947.78	0.07	948.30	24.97	0.00	500.00	0.00	0.02	200.00	200.00	225.00	225.00
6878.000	952.08	0.00	952 09	200.00	144.92	224.57	130.51	200.00	110.00	200.00	225.00	310 00
6878.000	952.15	0.07	952 16	187.38	69.16	229.94	200.90	0.49	162.06	200.00	225.00	349.43

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
6889 000	952.08	0.00	952.10	220.00	141.95	231.72	126.33	220.00	100.00	200.00	225.00	320.00
6889.000	952.15	0.07	952.17	198.74	65.29	238.82	195.89	0.45	161.53	200.00	225.00	360.27
6900.000	952.10	0.00	952.10	475 00	197.36	10.28	292.36	0.00	0.00	200.00	225.00	0.00
6900 000	952.17	0.07	952.18	438.10	194.44	11.44	294.12	0.06	18.06	200.00	225.00	456.16

CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
2380.000	0.00	0.00	0 00	927.90	500.00	933 32	0.00	933.34	2.11	1.69	595.87	343.89
2380.000	0.00	0.00	0.00	927.90	500.00	933.42	0.00	933.44	2.08	1.70	571.52	346.60
3130.000	750.00	0.00	0.00	929 70	500.00	933.55	0.00	933.79	25.83	4.36	180.34	98.38
3130 000	750.00	0.00	0.00	929.70	500.00	933.63	0.00	933.90	26.88	4.52	153.27	96.44
3880.000	750.00	0.00	0.00	931.50	500.00	935.27	0.00	935.37	16.29	3.33	254.93	123.88
3880.000	750.00	0.00	0.00	931.50	500.00	935.38	0.00	935.49	15.72	3.33	240.13	126.11
4000.000	120.00	0.00	0.00	932.00	500.00	935.45	0.00	935.66	29.54	4.51	195.58	92.00
4000.000	120.00	0.00	0.00	932.00	500.00	935.55	0.00	935.78	29.74	4.61	173.01	91 68
4250.000	250.00	0.00	0.00	933.30	500.00	936.36	936.11	936.85	73 53	6.45	120.66	58.31
4250.000	250.00	0.00	0.00	933.30	500.00	936.48	0.00	936.99	76.42	6.46	107.14	57.20
4700.000	450.00	0.00	0.00	934.70	500.00	938.45	0.00	938.68	22.77	4.65	186.24	104.77
4700.000	450.00	0.00	0.00	934.70	500.00	938.57	0.00	938.82	22.17	4.70	166.05	106.19
5000 000	300.00	0.00	0.00	936.20	500.00	939.29	0.00	939.78	56.99	6.43	122.59	66.23
5000.000	300.00	0.00	0.00	936.20	500.00	939.38	0.00	939.93	58.56	6.63	106.15	65.34
5244.000	244.00	0 00	0.00	937.10	500.00	940.61	0.00	941.15	54.29	7.13	116.87	67.86
5244.000	244.00	0.00	0.00	937.10	500.00	940.72	0.00	941.32	54.26	7.27	99.73	67.88
6607.000	1364.00	0.00	0.00	942.00	500.00	947.62	0.00	948.19	48.93	6.04	85.07	71.48
6607 000	1364.00	0.00	0.00	942.00	500.00	947.70	0.00	948.25	47.32	5.92	84.42	72.68
6618.000	9.00	0.00	0.00	942.00	500.00	947.71	0.00	948.24	44.89	5.87	88.17	74.63
6618 000	9.00	0.00	0.00	942.00	500.00	947.78	0.00	948.30	44.23	5.79	86.40	75.18
6878.000	260.00	951.20	945.40	942.00	500.00	952.08	0.00	952.09	0.58	1.16	825.27	655.99
6878 000	260.00	999999.00	0.00	942.00	500.00	952.15	0.00	952.16	0.59	1.18	798.78	649.57
6889.000	11 00	0.00	0.00	943.60	500.00	952.08	0.00	952.10	1.16	1.42	687.95	464.35
6889.000	11.00	0.00	0.00	943.60	500.00	952.15	0.00	952.17	1.19	1.45	654.99	459.07
6900.000	11.00	951.20	951.20	943.60	500.00	952.10	0.00	952.10	0.68	0.32	1261.64	608.45
6900.000	11.00	951.20	951.20	943.60	500.00	952.17	0.00	952.18	0.70	0.34	1208.31	597.40

1

CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
2380.000	500.00	933 32	0.00	0.00	0 00	239.30	0 00
2380.000	500.00	933.42	0.10	0.00	0.10	206.35	0.00
3130.000	500.00	933.55	0.00	0.23	0.00	167.57	750.00
3130.000	500.00	933.63	0.08	0.21	0.08	92.00	750.00
3880.000	500.00	935.27	0.00	1.72	0.00	187.21	750.00
3880.000	500.00	935.38	0.11	1.76	0.11	144.09	750.00
4000.000	500.00	935.45	0.00	0.18	0.00	167.60	120.00
4000.000	500.00	935.55	0.10	0.17	0.10	121 11	120.00
4250.000	500.00	936.36	0.00	0.91	0.00	120 87	250.00

4250.000	500.00	936.48	0.12	0.93	0.12	87.81	250.00
4700.000	500.00	938.45	0.00	2 09	0.00	124.07	450.00
4700.000	500.00	938.57	0.12	2.09	0.12	90.06	450.00
5000 000	500 00	939 29	0.00	0.85	0.00	85.07	300.00
5000.000	500.00	939.38	0.08	0.81	0.08	55.45	300.00
5244.000	500.00	940 61	0 00	1.32	0.00	57.66	244.00
5244.000	500.00	940.72	0.10	1.34	0.10	33.89	244.00
6607.000	500.00	947.62	0.00	7.01	0.00	33.37	1364.00
6607.000	500.00	947 70	0.08	6.99	0.08	24.86	1364.00
6618.000	500 00	947.71	0.00	0.09	0.00	34 76	9.00
6618.000	500.00	947.78	0.07	0.08	0.07	24.97	9.00
6878.000	500.00	952.08	0.00	4.37	0.00	200.00	260.00
6878.000	500.00	952.15	0.07	4.37	0.07	187.38	260.00
6889.000	500.00	952.08	0.00	0.00	0.00	220 00	11.00
6889.000	500.00	952.15	0.07	0.00	0.07	198.74	11.00
6900.000	500.00	952.10	0.00	0.02	0.00	475.00	11.00
6900.000	500.00	952.17	0.07	0.02	0.07	438.10	11.00

SUMMARY OF ERRORS AND SPECIAL NOTES

FLOODWAY DATA, CREEK
PROFILE NO 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
2380.000	206.	572.	0.9	933.4	933.3	0.1
3130.000	92.	153.	3.3	933.7	933.6	0.1
3880.000	264.	240.	2.1	935.4	935.3	0.1
4000.000	193	173.	2.9	935.6	935.5	0.1
4250.000	183.	107.	4.7	936.5	936.4	0.1
4700.000	199.	166.	3.0	938.5	938.4	0.1
5000.000	190.	106.	4.7	939.4	939.3	0.1
5244.000	34.	100.	5.0	940.7	940.6	0.1
6607.000	25.	84.	5.9	947.7	947.6	0 1
6618.000	25.	86.	5.8	947.8	947.7	0.1
6878.000	187.	799.	0.6	952.2	952.1	0.1
6889.000	199.	655	0.8	952.2	952.1	0.1
6900.000	438.	1208.	0.4	952.2	952.1	0.1

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, City of

3) WATERCOURSE: SHAW CREEK

4) DOCUMENT TYPE: SUMMARY TABLE Run 2

~~MULTIPLE PARTNERS~~

00BREAK00

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
2380.000	932.83	0.00	932.84	233.23	62.18	88.97	148.85	0.00	0.00	50.00	67.00	0.00
2380.000	933.19	0.00	933.21	237.69	88.24	119.86	226.90	0.00	0.00	50.00	67.00	0 00
2380.000	933.32	0.00	933.34	239.30	100 66	134.43	264.90	0.00	0.00	50.00	67.00	0.00
2380.000	933.56	0.00	933.58	242.27	127.11	164.91	347.98	0.00	0.00	50.00	67.00	0.00
3130.000	932.97	0.00	933 16	98.38	33.63	262.68	3.69	0.00	0.00	125.00	155.00	0.00
3130.000	933.39	0.00	933.61	145.80	55.41	350.89	28.70	0.00	0.00	125.00	155.00	0 00
3130.000	933.55	0.00	933.79	167.57	65.53	387.33	47.14	0.00	0.00	125.00	155.00	0.00
3130.000	933.86	0.00	934.11	201.20	86.15	454.25	99.60	0.00	0.00	125.00	155.00	0.00
3880.000	934.63	0.00	934.73	138.85	111.83	188.17	0.00	0.00	0.00	200 00	228.00	0.00
3880.000	935.09	0.00	935.19	159.00	198.33	236.67	0 00	0.00	0.00	200.00	228.00	0.00
3880.000	935.27	0.00	935.37	187 21	241.62	258.30	0.08	0.00	0.00	200.00	228.00	0.00
3880.000	935.58	0.00	935.69	272.86	331.15	300.90	7.95	0.00	0.00	200.00	228.00	0.00
4000.000	934.83	0.00	935.03	81.14	71.72	219.89	8.39	0.00	0.00	200.00	225.00	0.00
4000.000	935.27	0.00	935.49	156.49	133.45	283 81	17.74	0.00	0.00	200.00	225.00	0.00
4000 000	935.45	0.00	935.66	167.60	170.29	307 25	22.46	0.00	0.00	200.00	225.00	0.00
4000.000	935.76	0.00	935.97	179.41	252.58	354 62	32.79	0.00	0.00	200.00	225.00	0 00
4250.000	935.83	0.00	936.22	68.59	49.20	245.67	5.13	0.00	0.00	200.00	225.00	0.00
4250.000	936 22	0.00	936.68	82.48	91.62	330.10	13 27	0.00	0.00	200.00	225.00	0.00
4250.000	936 36	0.00	936.85	120 87	114.52	367.64	17.84	0.00	0.00	200.00	225.00	0.00
4250 000	936.64	0 00	937.15	160.04	180 84	431.25	27.91	0.00	0.00	200.00	225.00	0.00
4700.000	937 76	0.00	937.94	83.15	52.91	221.60	25.48	0.00	0.00	210.00	230.00	0.00
4700.000	938.25	0.00	938.46	105.95	92.58	292.32	50.10	0.00	0.00	210.00	230.00	0.00
4700.000	938.45	0.00	938.68	124.07	112.95	323.83	63.22	0.00	0.00	210.00	230.00	0.00
4700.000	938.76	0.00	939.01	184 45	166 24	382.64	91.11	0.00	0.00	210.00	230.00	0.00
5000.000	938.63	0.00	939.05	62.25	36.76	247.03	16.21	0.00	0.00	210.00	230.00	0.00
5000.000	939.10	0.00	939.57	77.28	71.13	330.56	33.31	0.00	0.00	210.00	230.00	0.00
5000.000	939.29	0.00	939.78	85.07	89.81	366.36	43.84	0.00	0.00	210.00	230.00	0.00
5000.000	939.62	0.00	940.16	100.04	130.44	440.68	68.87	0 00	0.00	210.00	230.00	0.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
5244.000	939.99	0.00	940.36	48.96	12.03	207.68	80.29	0.00	0.00	208.00	221.00	0.00
5244.000	940.43	0.00	940.92	55.08	19.89	284.24	130.86	0.00	0.00	208.00	221.00	0.00
5244.000	940.61	0.00	941.15	57 66	23.88	319.23	156.90	0.00	0.00	208.00	221.00	0.00
5244.000	940.97	0.00	941.61	65 88	32.85	391.01	216.13	0.00	0.00	208.00	221.00	0 00
6607.000	946.55	0.00	946.98	22 37	0.00	300.00	0.00	120.00	125.00	200.00	225.00	245.00
6607.000	947.32	0.00	947.84	28.77	0.36	434.64	0.00	120.00	125.00	200.00	225.00	245.00
6607 000	947 62	0.00	948 19	33.37	2.12	497.88	0.00	120.00	125.00	200.00	225.00	245.00
6607.000	948.16	0.00	948 81	53.73	10.99	627.79	1.22	120.00	125.00	200.00	225.00	245.00
6618.000	946.64	0.00	947.04	22.67	0.00	300.00	0.00	200.00	110 00	200.00	225.00	310.00
6618 000	947.41	0.00	947.90	30.10	0.66	434.34	0.00	200.00	110.00	200.00	225.00	310.00
6618.000	947.71	0.00	948 24	34.76	2.92	497.08	0.00	200.00	110.00	200.00	225.00	310 00
6618.000	948.27	0.00	948.88	59.45	13.41	624.15	2.44	200.00	110.00	200.00	225.00	310.00
6878.000	951.80	0.00	951.81	200.00	84.36	140.01	75.64	200.00	110.00	200.00	225.00	310.00
6878.000	951.99	0.00	952 00	200.00	124.99	197.59	112.42	200.00	110.00	200.00	225.00	310.00
6878.000	952 08	0.00	952.09	200.00	144.92	224 57	130.51	200.00	110.00	200.00	225.00	310.00
6878 000	952.25	0.00	952.26	200.00	188 49	281.36	170.15	200.00	110.00	200.00	225.00	310.00

6889.000	951 80	0.00	951.81	220.00	81 32	146.88	71.80	220.00	100.00	200.00	225.00	320.00
6889.000	951.99	0.00	952.01	220.00	121.83	205.00	108.17	220.00	100.00	200.00	225.00	320.00
6889 000	952 08	0.00	952.10	220.00	141 95	231.72	126.33	220.00	100.00	200.00	225.00	320.00
6889.000	952.24	0.00	952.27	220 00	185.97	287.89	166.14	220.00	100.00	200.00	225.00	320.00
6900 000	951.81	0.00	951 81	230.00	161.69	10.76	127.55	230.00	90.00	200.00	225.00	320.00
6900.000	952.01	0.00	952.01	475.00	171.28	8.32	255.40	0.00	0.00	200.00	225.00	0.00
6900.000	952.10	0.00	952.10	475.00	197.36	10 28	292.36	0.00	0.00	200.00	225.00	0.00
6900.000	952.27	0 00	952.28	475.00	253.58	14.62	371.80	0.00	0.00	200.00	225.00	0 00

CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
2380.000	0.00	0.00	0.00	927.90	300.00	932.83	0.00	932.84	1.34	1.25	480.11	259 29
2380.000	0.00	0.00	0.00	927.90	435.00	933.19	0.00	933.21	1.85	1.55	564.87	320.18
2380.000	0.00	0.00	0.00	927.90	500.00	933.32	0.00	933.34	2.11	1.69	595.87	343 89
2380.000	0.00	0.00	0.00	927.90	640.00	933.56	0.00	933.58	2.69	1.97	653.66	390.01
3130.000	750.00	0.00	0.00	929.70	300.00	932.97	0.00	933.16	24 58	3.67	104.54	60.51
3130 000	750.00	0.00	0.00	929.70	435.00	933.39	0.00	933.61	25.61	4.18	154.71	85.95
3130.000	750.00	0.00	0.00	929.70	500.00	933 55	0.00	933.79	25.83	4.36	180.34	98.38
3130.000	750.00	0.00	0.00	929.70	640.00	933.86	0.00	934.11	25.40	4.62	239.23	126.99
3880.000	750.00	0 00	0.00	931 50	300.00	934.63	0.00	934.73	17.14	3.08	155.45	72.46
3880.000	750.00	0.00	0.00	931.50	435.00	935.09	0.00	935.19	16.36	3.25	225.12	107.53
3880.000	750.00	0.00	0.00	931.50	500.00	935.27	0.00	935.37	16.29	3.33	254.93	123.88
3880.000	750.00	0.00	0.00	931.50	640.00	935.58	0.00	935.69	16.31	3.49	327.90	158.46
4000 000	120.00	0.00	0 00	932.00	300.00	934.83	0.00	935.03	31.78	4.10	110.97	53.22
4000.000	120.00	0 00	0.00	932.00	435.00	935.27	0.00	935.49	30.68	4.44	166.60	78.53
4000.000	120 00	0.00	0.00	932.00	500.00	935.45	0.00	935.66	29.54	4.51	195.58	92 00
4000.000	120.00	0.00	0.00	932.00	640 00	935.76	0 00	935.97	28.61	4.69	249.58	119.65
4250.000	250.00	0.00	0.00	933.30	300.00	935.83	0.00	936.22	69.72	5.49	77.39	35.93
4250.000	250 00	0.00	0.00	933.30	435.00	936.22	0.00	936.68	71.75	6.16	106.93	51.35
4250.000	250 00	0.00	0.00	933.30	500 00	936.36	936.11	936.85	73.53	6.45	120.66	58.31
4250.000	250.00	0.00	0 00	933.30	640.00	936.64	936.57	937.15	73.28	6.82	160.13	74.76
4700.000	450.00	0.00	0 00	934.70	300.00	937.76	0.00	937.94	21.88	3.95	119.16	64.14
4700.000	450.00	0.00	0.00	934.70	435.00	938.25	0.00	938.46	22.40	4.44	164.97	91.92
4700.000	450 00	0.00	0.00	934.70	500.00	938 45	0.00	938 68	22 77	4.65	186.24	104.77
4700.000	450 00	0.00	0.00	934.70	640.00	938.76	0.00	939 01	23.80	5 03	237.52	131.19
5000.000	300.00	0.00	0.00	936.20	300 00	938.63	0.00	939 05	62.79	5.65	74.07	37 86
5000.000	300.00	0.00	0.00	936.20	435.00	939.10	0.00	939.57	58.80	6.23	106.79	56.73
5000.000	300.00	0.00	0.00	936.20	500.00	939.29	0.00	939.78	56.99	6.43	122.59	66.23
5000.000	300.00	0.00	0 00	936.20	640.00	939.62	0.00	940.16	57.94	6.96	152.03	84.08
5244 000	244 00	0 00	0.00	937.10	300 00	939.99	0.00	940.36	44.43	5.65	83.93	45.01
5244.000	244.00	0.00	0.00	937.10	435.00	940.43	0.00	940.92	51.64	6.71	106.55	60.53
5244.000	244.00	0.00	0.00	937.10	500.00	940.61	0.00	941.15	54.29	7.13	116.87	67.86
5244.000	244 00	0.00	0 00	937.10	640.00	940.97	0 00	941.61	58.49	7.91	138.64	83.69
6607.000	1364.00	0.00	0.00	942.00	300.00	946.55	0.00	946.98	52.99	5.27	56.92	41 21
6607.000	1364.00	0 00	0.00	942.00	435 00	947.32	0.00	947.84	49.76	5.79	75.72	61.67
6607.000	1364.00	0.00	0.00	942.00	500.00	947.62	0.00	948.19	48.93	6.04	85.07	71.48
6607.000	1364.00	0.00	0.00	942.00	640.00	948.16	0.00	948.81	47.84	6.56	107.27	92.53

```
   UNEXPECTED END OF FILE ABORT IN SUBROUTINE  H2MAIN
===> LI SHAWOUT 5000
===>
===>
===> CO SHAWOUT :6
===> BYE
===> *SIGNOFF
```

5000.000	300.00	938.63	0.00	0.88	0.00	62.25	300.00
5000.000	435.00	939.10	0.46	0.85	0.00	77.28	300.00
5000.000	500.00	939.29	0.19	0.85	0.00	85.07	300.00
5000.000	640.00	939.62	0.33	0.86	0.00	100.04	300.00
5244.000	300.00	939.99	0.00	1.36	0.00	48.96	244.00
5244.000	435.00	940.43	0.44	1.33	0.00	55.08	244.00
5244.000	500.00	940.61	0.18	1.32	0 00	57.66	244.00
5244.000	640.00	940.97	0.36	1.35	0.00	65.88	244.00
6607.000	300.00	946.55	0.00	6.56	0.00	22.37	1364.00
6607.000	435.00	947.32	0 77	6.89	0.00	28.77	1364.00
6607.000	500.00	947 62	0.30	7.01	0.00	33.37	1364.00
6607.000	640.00	948.16	0.54	7.19	0.00	53.73	1364.00

1
15 MAR 88 15:07:18 PAGE 28

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
6618.000	300.00	946.64	0.00	0.09	0.00	22.67	9.00
6618.000	435.00	947.41	0.77	0.09	0.00	30.10	9.00
6618.000	500.00	947.71	0.30	0.09	0.00	34.76	9.00
6618.000	640 00	948.27	0.56	0.11	0.00	59.45	9.00
6878.000	300.00	951.80	0.00	5.16	0 00	200.00	260.00
6878.000	435.00	951.99	0 19	4.59	0.00	200.00	260 00
6878.000	500.00	952.08	0 09	4.37	0.00	200.00	260.00
6878.000	640.00	952.25	0 16	3.98	0.00	200.00	260.00
6889.000	300 00	951.80	0.00	0.00	0.00	220.00	11.00
6889.000	435.00	951.99	0.19	0.00	0.00	220.00	11.00
6889.000	500 00	952.08	0 09	0.00	0.00	220.00	11.00
6889.000	640 00	952.24	0 16	0.00	0.00	220.00	11.00
6900.000	300 00	951.81	0.00	0 00	0.00	230.00	11.00
6900.000	435.00	952.01	0 20	0.02	0.00	475.00	11.00
6900.000	500.00	952.10	0.09	0.02	0.00	475.00	11.00
6900.000	640.00	952.27	0.17	0.03	0.00	475.00	11.00

1
15 MAR 88 15:07:18 PAGE 29

SUMMARY OF ERRORS AND SPECIAL NOTES

1
15 MAR 88 15:07:28 PAGE 1

THIS RUN EXECUTED 15 MAR 88 15:07:29

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

ER

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
6618.000	9.00	0.00	0.00	942.00	300.00	946.64	0.00	947.04	48.03	5.09	58.94	43.29
6618.000	9.00	0.00	0.00	942.00	435.00	947.41	0.00	947.90	45.58	5.63	78.29	64.43
6618.000	9.00	0.00	0.00	942.00	500.00	947.71	0.00	948.24	44.89	5.87	88.17	74.62
6618.000	9 00	0.00	0.00	942.00	640.00	948.27	0.00	948.88	42.83	6.33	113.79	97.79
6878.000	260 00	951.20	945.40	942.00	300.00	951.80	0.00	951.81	0.26	0.75	769.68	594.08
6878.000	260.00	951.20	945.40	942.00	435.00	951.99	0.00	952.00	0.47	1.03	808.43	636.96
6878.000	260.00	951.20	945 40	942.00	500.00	952 08	0.00	952.09	0.58	1.16	825.27	655.99
6878.000	260 00	951.20	945.40	942.00	640.00	952.25	0.00	952.26	0.85	1.42	858.45	694.23
6889.000	11.00	0.00	0 00	943.60	300.00	951.80	0.00	951.81	0.54	0.94	627.32	409.01
6889.000	11.00	0.00	0 00	943.60	435.00	951.99	0.00	952.01	0.95	1.27	668.82	446.54
6889.000	11.00	0.00	0.00	943.60	500.00	952.08	0.00	952.10	1.16	1.42	687.95	464.35
6889.000	11.00	0.00	0.00	943.60	640.00	952.24	0.00	952.27	1.65	1.72	723.62	498.40
6900.000	11.00	951.20	951.20	943.60	300.00	951.81	0.00	951.81	1.77	0 43	519.85	225.47
6900.000	11.00	951.20	951.20	943.60	435.00	952.01	0.00	952.01	0.58	0.28	1214.21	571.60
6900.000	11 00	951.20	951 20	943.60	500.00	952.10	0.00	952.10	0.68	0.32	1261.64	608.45
6900.000	11 00	951.20	951.20	943.60	640.00	952.27	0.00	952.28	0.90	0.40	1343.35	674 14

CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
2380.000	300.00	932.83	0.00	0.00	0.00	233.23	0.00
2380.000	435.00	933.19	0.36	0.00	0.00	237.69	0.00
2380.000	500.00	933.32	0.13	0.00	0.00	239.30	0.00
2380.000	640 00	933.56	0 24	0.00	0.00	242 27	0.00
3130.000	300 00	932.97	0.00	0.14	0.00	98.38	750.00
3130.000	435.00	933.39	0.42	0.20	0.00	145.80	750.00
3130.000	500.00	933.55	0.16	0.23	0.00	167.57	750.00
3130.000	640.00	933.86	0.31	0.30	0.00	201.20	750.00
3880.000	300.00	934.63	0 00	1.66	0.00	138.85	750.00
3880.000	435.00	935.09	0.46	1 70	0.00	159.00	750.00
3880.000	500.00	935.27	0.18	1 72	0.00	187.21	750.00
3880.000	640.00	935.58	0.31	1.72	0.00	272.86	750.00
4000.000	300.00	934.83	0 00	0.20	0.00	81.14	120 00
4000.000	435.00	935.27	0.44	0.19	0.00	156.49	120.00
4000.000	500.00	935.45	0.18	0.18	0.00	167.60	120.00
4000.000	640.00	935.76	0.31	0.18	0.00	179.41	120.00
4250.000	300.00	935.83	0.00	1.00	0.00	68.59	250.00
4250 000	435.00	936.22	0 39	0.95	0 00	82 48	250.00
4250.000	500.00	936.36	0.14	0.91	0 00	120.87	250.00
4250.000	640.00	936.64	0.28	0.87	0 00	160.04	250.00
4700.000	300 00	937.76	0.00	1.93	0.00	83.15	450.00
4700.000	435.00	938.25	0 49	2.03	0.00	105.95	450.00
4700.000	500.00	938 45	0.20	2.09	0.00	124 07	450.00
4700.000	640.00	938.76	0.32	2.13	0.00	184.45	450.00

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY of

3) WATERCOURSE: THORNTON CREEK

4) DOCUMENT TYPE: 10 YR — FROM CR-0 & NOVI RD.

00BREAK00

THIS RUN EXECUTED 22 SEP 87 11:58:02

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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 CITY OF NOVI JOB NO. 5555-46
T2 .0 YEAR FROM C&O AND NOVI RD
T3 THORNTON CREEK 46-01

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	2.	0	0	0 000000	0.00	0.0	0.	818.760	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

	1 000	8.000	2.000	3.000	10 000	11.000	12.000	0.000	0.000	0.000

QT	4.000	124.000	164.000	183.000	224.000	0.000	0.000	0 000	0.000	0.000
NC	0.100	0.100	0.100	0 300	0 500	0.000	0.000	0.000	0.000	0.000
X1	0.000	6 000	0.000	98.000	0.000	0 000	0.000	0.000	0.000	0.000
GR	826.600	0.000	825.100	7.000	817.800	29.000	817.100	54.000	822.200	70.000
GR	822.900	98 000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	200.000	5 000	0.000	211.000	200.000	200.000	200.000	0.000	-5.200	0.000
X2	0 000	0 000	0.000	0.000	0 000	95.000	0.000	0 000	0.000	0.000
GR	830.900	0 000	828.900	11.000	824.000	24.000	825.600	111.000	826 800	211.000
X1	400.000	0.000	0.000	0 000	200.000	200.000	200.000	0.000	1.700	0.000
X3	0 000	0.000	0 000	0 000	0 000	95.000	0.000	0.000	0.000	0.000
X1	600.000	0.000	0.000	0.000	200 000	200.000	200.000	0.000	1.700	0.000
X3	0.000	0.000	0.000	0.000	0.000	95.000	0.000	0.000	0.000	0.000
X1	810 000	0 000	0.000	0.000	210.000	210.000	210.000	0.000	1.700	0.000
X3	0.000	0.000	0.000	0.000	0.000	95.000	0.000	0.000	0.000	0.000
X1	1000 000	13.000	90.000	190.000	190.000	190.000	190.000	0.000	-2.700	0 000
X3	0 000	0.000	0.000	0.000	0.000	240.000	0.000	0.000	0.000	0.000
GR	834.200	0.000	829.300	39.000	827.700	90.000	828.000	190.000	827.900	290.000
GR	828.300	390.000	828.700	490 000	829.100	590.000	829.900	690.000	830.500	790.000
GR	830.500	847 000	833 400	863.000	834.500	890.000	0.000	0.000	0.000	0.000

X1	1200.000	0.000	0.000	0.000	200.000	200.000	200.000	0.000	1.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	250.000	0.000	0.000	0.000	0.000
X1	1400.000	0.000	0.000	0.000	200.000	200.000	200.000	0.000	1.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	250.000	0.000	0.000	0.000	0.000
X1	1520.000	0.000	0.000	0.000	120.000	120.000	120.000	0.000	0.700	0.000
X3	0.000	0.000	0.000	0.000	0.000	250.000	0.000	0.000	0.000	0.000
X1	1800.000	0.000	0.000	0.000	320.000	250.000	280.000	0.000	1.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	250.000	0.000	0.000	0.000	0.000
X1	2080.000	0.000	0.000	0.000	320.000	250.000	280.000	0.000	1.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	250.000	0.000	0.000	0.000	0.000
MC	0.100	0.100	0.050	0.300	0.500	0.000	0.000	0.000	0.000	0.000
X1	2360.000	15.000	288.000	329.000	320.000	250.000	280.000	0.000	-0.800	0.000
X3	0.000	0.000	0.000	300.000	0.000	0.000	0.000	0.000	0.000	0.000
ER	835.900	0.000	834.600	100.000	833.500	200.000	833.400	288.000	831.900	295.000
AR	831.500	300.000	831.900	312.000	834.100	329.000	835.600	400.000	836.300	500.000
CR	836.900	600.000	836.200	700.000	835.600	800.000	837.000	900.000	837.700	935.000
X1	2640.000	0.000	0.000	0.000	320.000	250.000	280.000	0.000	0.800	0.000
X3	0.000	0.000	0.000	300.000	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	DEPTH	CWSEL	CRTWS	WSELA	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	A_OB	ACH	AROB	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= 0.100 CEHV= 0.500
FSECNO 0.000
0.00 1.66 818.76 0.00 318.76 818.92 0.16 0.00 0.00 826.60
124. 0. 124. 0. 0. 38. 0. 0. 0. 822.90
0.00 0.00 3.22 0.00 0.000 0.100 0.000 0.000 817.10 26.11
0.039191 5. 0. 0. 0 0 0 0.00 33.10 59.21

FSECNO 200.000

3470 ENCROACHMENT STATIONS= 0.0 95.0 TYPE= 1 TARGET= 94.999
200.00 2.05 820.85 0.00 0.00 820.88 0.02 1.91 0.04 99994.80
124. 0. 124. 0. 0. 105. 0. 0. 0. 99994.80
0.05 0.00 1.18 0.00 0.000 0.100 0.000 0.000 818.80 18.55
0.004216 200. 200. 200. 5 0 0 0.00 76.45 95.00

FSECNO 400.000

3470 ENCROACHMENT STATIONS= 0.0 95.0 TYPE= 1 TARGET= 94.999
400.00 1.67 822.17 0.00 0.00 822.22 0.04 1.33 0.01100000.00
124 0. 124. 0. 0. 76. 0. 1. 1. 100000.00
0.08 0.00 1.63 0.00 0.000 0.100 0.000 0.000 820.50 19.56
0.012004 200. 200 200. 5 0 0 0.00 75.44 95.00

FSECNO 600.000

3470 ENCROACHMENT STATIONS= 0.0 95.0 TYPE= 1 TARGET= 94.999
600.00 1.94 824.07 0.00 0.00 824.07 0.03 1.85 0.00100000.00
124 0. 124. 0. 0. 89. 0 1. 1. 100000.00
0.12 0.00 1.40 0.00 0.000 0.100 0.000 0.000 822.20 19.13
0.007831 200 200. 200. 4 0 0 0.00 75.87 95.00

FSECNO 810.000

3470 ENCROACHMENT STATIONS= 0.0 95.0 TYPE= 1 TARGET= 94.999
810.00 1.78 825.68 0.00 0.00 825.72 0.03 1.65 0.00100000.00
124. 0 124 0 0. 85. 0. 2. 1. 100000.00
0.16 0.00 1.46 0.00 0.000 0.100 0.000 0.000 823.90 19.25
0.008417 210 210. 210. 3 0 0 0.00 75.75 95.00

SECNO	DEPTH	CNSEL	CRIWS	WSELK	EG	FV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 1000.000

3470 ENCROACHMENT STATIONS=			0.0	240.0	TYPE=	1	TARGET=	239.999	
1000.00	1.32	826.32	0.00	0.00	826.33	0.01	0.60	0.01	825.00
124.	13.	79.	32.	28.	117.	52.	2.	2.	825.30
0.24	0.46	0.67	0.62	0.100	0.100	0.100	0.000	825.00	47.83
0.001656	190.	190.	190.	4	0	0	0.00	192.17	240.00

SECNO 1200.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
1200.00	0.91	826.91	0.00	0.00	826.93	0.01	0.60	0.00	826.00
124.	10.	79.	35.	13.	76.	39.	3.	3.	826.30
0.30	0.73	1.03	0.91	0.100	0.100	0.100	0.000	826.00	60.84
0.006870	200.	200.	200.	3	0	0	0.00	189.16	250.00

SECNO 1400.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
1400.00	1.01	828.01	0.00	0.00	828.02	0.01	1.09	0.00	827.00
124.	10.	78.	36.	16.	86.	45.	4.	4.	827.30
0.37	0.83	0.95	0.81	0.100	0.100	0.100	0.000	827.00	57.68
0.004450	200.	200.	200.	4	0	0	0.00	192.31	250.00

SECNO 1520.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
1520.00	0.94	828.64	0.00	0.00	828.65	0.01	0.63	0.00	827.70
124.	10.	79.	36.	14.	79.	40.	4.	4.	828.00
0.40	0.71	1.00	0.89	0.100	0.100	0.100	0.000	827.70	60.10
0.006187	120.	120.	120.	2	0	0	0.00	189.90	250.00

SECNO 1800.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
1800.00	1.21	829.61	0.00	0.00	829.82	0.01	1.16	0.00	828.70
124.	11.	77.	36.	20.	96.	50.	5.	5.	829.00
0.50	0.56	0.60	0.73	0.100	0.100	0.100	0.000	828.70	54.71
0.003082	320.	290.	250.	4	0	0	0.00	195.29	250.00

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

*SECND 2630.000

3470 ENCROACHMENT STATIONS= 0.0 250.0 TYPE= 1 TARGET= 249.999

2060.00	1.05	830.75	0.00	0.00	830.76	0.01	0.94	0.00	829.70
124	11	77	36.	18.	90.	47.	6.	7	830.00
0.60	0.60	0.86	0.77	0.100	0.100	0.100	0.000	829.70	56.53
0.003842	320.	230.	250.	3	0	0	0.00	193.47	250.00

CCHV= 0.300 CEHV= 0.500
*SECNO 2360.000

3470 ENCROACHMENT STATIONS= 300.0 935.0 TYPE= 1 TARGET= -300.000

2360.00	1.89	832.59	0.00	0.00	832.88	0.29	1.98	0.14	99999.20
124.	0.	104.	0	0.	29.	0.	6.	7.	833.30
0.61	0.00	4.29	0.00	0.000	0.050	0.000	0.000	830.70	300.00
0.017616	320.	280	250.	3	0	0	0.00	23.54	323.54

*SECNO 2640.000

3470 ENCROACHMENT STATIONS= 300.0 935.0 TYPE= 1 TARGET= -300.000

2640.00	2.89	834.29	0.00	0.00	834.47	0.08	1.53	0.06	100000.00
124	0.	124	0.	0.	56	2	7.	8.	834.10
0.65	0.00	2.21	0.21	0.000	0.050	0.100	0.000	831.50	300.00
0.002615	320	280	250.	3	0	0	0.00	42.91	342.91

THIS RUN EXECUTED 22 SEP 87 11:58:04

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*****************************************************
  HEC2 RELEASE DATED NOV 74 UPDATED MAY  1984
  ERROR CORR -  01 02,03,04,05,06
  MODIFICATION -  50,51,52,53,54 55 56
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T1       CITY OF NOVI   JOB NO. 5555-46
T2       50 YEAR FROM C&O AND NOVI RD
T3       THORNTON CREEK   46-01

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10.       3         0.        0   0.000000     0 00       0.0       0.    819.000    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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SECNO	DEPTH	CUST-L	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 0.300

*SECNO 0.000									
0.00	1.90	819.00	0.00	819.00	819.19	0.19	0.00	0.00	826.60
164.	0.	164.	0.	0	47	0.	0.	0.	822.90
0.00	0.00	3.52	0.00	0.000	0.100	0.000	0.000	817.10	25.38
0.038451	0.	0.	0.	0	0	0	0.00	34.58	59.96

*SECNO 200.000

3470 ENCROACHMENT STATIONS=			0.0	95.0	TYPE=	1	TARGET=	94.999	
200.00	2.31	821.11	0.00	0.00	821.14	0.03	1.90	0.05	99994.80
164	0.	164.	0.	0.	125.	0.	0.	0.	99994.80
0.04	0.00	1.31	0.00	0.000	0.100	0.000	0.000	818.80	17.86
0.004198	200	200	200.	6	0	0	0.00	77.14	95.00

*SECNO 400.000

3470 ENCROACHMENT STATIONS=			0.0	95.0	TYPE=	1	TARGET=	94.999	
400.00	1.89	822.09	0.00	0.00	822.44	0.05	1.29	0.01	100000.00
164	0.	164	0.	0.	93.	0	1.	1.	100000.00
0.07	0.00	1.77	0.00	0.000	0.100	0.000	0.000	820.50	18.99
0.011121	200.	200.	200.	5	0	0	0.00	76.01	95.00

*SECNO 600.000

3470 ENCROACHMENT STATIONS=			0.0	95.0	TYPE=	1	TARGET=	94.999	
600.00	2.04	824.24	0.00	0.00	824.27	0.04	1.83	0.00	100000.00
164	0.	164	0	0.	104.	0	1.	1	100000.00
0.11	0.00	1.58	0.00	0.000	0.100	0.000	0.000	822.20	18.60
0.007678	200.	200	200.	4	0	0	0.00	76.40	95.00

*SECNO 810.000

3470 ENCROACHMENT STATIONS=			0.0	95.0	TYPE=	1	TARGET=	94.999	
810.00	2.01	825.91	0.00	0.00	825.95	0.04	1.67	0.00	100000.00
164	0	164.	0.	0.	101.	0.	2.	1.	100000.00
0.14	0.00	1.62	0.00	0.000	0.100	0.000	0.000	823.90	18.68
0.008247	210.	210.	210.	3	0	0	0.00	76.32	95.00

SECNO	DEPTH	CUSH-L	CRIWE	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 1000.000

3470 ENCROACHMENT STATIONS=			0.0	240.0	TYPE=	1	TARGET=	239.999	
1000.00	1.53	826.53	0.00	0.00	826.54	0.01	0.59	0.01	825.00
164	19.	102	43.	38	139.	63.	3.	2.	825.30
0.22	0.30	0.74	0.68	0.100	0.100	0.100	0.000	825.00	41.07
0.001601	190.	190	190.	4	0	0	0.00	198.93	240.00

*SECNO 1200.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
1200.00	1.08	827.08	0.00	0.00	827.10	0.02	0.55	0.00	826.00
164	14	102	48	19.	93.	49	3.	3	826.30
0.27	0.76	1.09	0.98	0.100	0.100	0.100	0.000	826.00	55.46
0.005892	200	200	200.	3	0	0	0.00	194.54	250.00

*SECNO 1400.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
1400.00	1.14	828.14	0.00	0.00	828.16	0.01	1.06	0.00	827.00
164.	15	101	48.	21	99.	52	4.	4.	827.30
0.33	0.71	1.02	0.93	0.100	0.100	0.100	0.000	827.00	53.67
0.004791	200	200	200	3	0	0	0.00	196.33	250.00

*SECNO 1520.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
1520.00	1.08	828.78	0.00	0.00	828.79	0.02	0.63	0.00	827.70
164.	14.	102	48.	19	93.	49	5.	4	828.00
0.36	0.76	1.09	0.98	0.100	0.100	0.100	0.000	827.70	55.42
0.005863	120	120.	120.	0	0	0	0.00	194.58	250.00

*SECNO 1800.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
1800.00	1.25	829.95	0.00	0.00	829.96	0.01	1.17	0.00	828.70
164.	16	100	49.	25	111.	59	6.	6.	829.00
0.45	0.82	0.90	0.83	0.100	0.100	0.100	0.000	828.70	49.98
0.003219	320	250	250.	3	0	0	0.00	200.02	250.00

SECNO	DEPTH	CNSOL	CRLOB	LSELA	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	CCH	QROB	ALOB	ACH	AROB	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 2080.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
2080.00	1.21	830.91	0.00	0.00	830.92	0.01	0.96	0.00	829.70
164.	13.	100	49.	23.	106.	56.	7.	7.	830.00
0.54	0.65	0.95	0.87	0.100	0.100	0.100	0.000	829.70	51.52
0.003775	320.	280.	250.	3	0	0	0.00	198.48	250.00

*CCHV= 0.300 CEHV= 0.500
*SECNO 2360.000

3470 ENCROACHMENT STATIONS=			300.0	935.0	TYPE=	1	TARGET=	-300.000	
2360.00	2.08	832.78	0.00	0.00	833.16	0.37	2.06	0.18	99999.20
164	0	164	0	0	33.	0.	8.	8	833.30
0.86	0.00	4.91	0.00	0.000	0.050	0.000	0.000	830.70	300.00
0.020672	320	220.	250	3	0	0	0.00	24.97	324.97

*SECNO 2640.000

3470 ENCROACHMENT STATIONS=			300.0	935.0	TYPE=	1	TARGET=	-300.000	
2640.00	3.24	834.74	0.00	0.00	834.83	0.09	1.58	0.09100000.00	
164	0	164	3	0.	66.	10	8.	8.	834.10
0.59	0.00	2.42	0.35	0.000	0.050	0.100	0.000	831.50	300.00
0.002600	320.	280.	250	4	0	0	0.00	59.13	359.13

THIS RUN EXECUTED 22 SEP 87 11.58.05

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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       CITY OF NOVI   JOB NO. 5555-46
T2       100 YEAR FROM C&O AND NOVI RD
T3       THORNTON CREEK   46-01

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
      -10.       4.        0         0    0.000000     0.00      0.0       0.     820.080    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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SECNO	DEPTH	CWSEL	CRITS	WRELX	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 0.300 CEHV= 0.500

*SECNO 0.000

0.00	2.98	820.08	0.00	820.08	820.15	0.07	0.00	0.00	826.60
183.	0.	183	0	0	88.	0.	0.	0.	822.90
0.00	0.00	2.09	0.00	0.000	0.100	0.000	0.000	817.10	22.13
0.007655	0.	0	0.	0	0	0	0.00	41.22	63.35

*SECNO 200.000

3470 ENCROACHMENT STATIONS= 0.0 95.0 TYPE= 1 TARGET= 94.999

200.00	2.43	821.23	0.00	0.00	821.26	0.03	1.10	0.01	99994.80
182	0	180	0.	0	134.	0.	1	0.	99994.80
0.05	0.00	1.37	0.00	0.000	0.100	0.000	0.000	818.80	17.57
0.004212	200.	200.	200.	2	0	0	0.00	77.43	95.00

*SECNO 400.000

3470 ENCROACHMENT STATIONS= 0.0 95.0 TYPE= 1 TARGET= 94.999

400.00	1.99	822.49	0.00	0.00	822.54	0.05	1.27	0.01	100000.00
183	0	183	0.	0	100.	0.	1.	1.	100000.00
0.07	0.00	1.83	0.00	0.000	0.100	0.000	0.000	820.50	18.72
0.010700	200.	200	200	2	0	0	0.00	76.28	95.00

*SECNO 600.000

3470 ENCROACHMENT STATIONS= 0.0 95.0 TYPE= 1 TARGET= 94.999

600.00	2.12	824.32	0.00	0.00	824.36	0.04	1.82	0.00	100000.00
183.	0.	183	0	0	110.	0.	2.	1	100000.00
0.10	0.00	1.66	0.00	0.000	0.100	0.000	0.000	822.20	18.37
0.007387	200.	200.	200.	4	0	0	0.00	76.63	95.00

*SECNO 810.000

3470 ENCROACHMENT STATIONS= 0.0 95.0 TYPE= 1 TARGET= 94.999

810.00	2.10	826.00	0.00	0.00	826.05	0.04	1.68	0.00	100000.00
183	0	183	0	0	109	0	2.	1.	100000.00
0.14	0.00	1.68	0.00	0.000	0.100	0.000	0.000	823.90	18.42
0.008181	210.	210	210.	3	0	0	0.00	76.58	95.00

SECNO	DEPTH	CRSEL	CRTWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 1000.000

3470 ENCROACHMENT STATIONS=			0.0	240.0	TYPE=	1	TARGET=	239.999	
1000.00	1.63	826.63	0.00	0.00	826.64	0.01	0.58	0.01	825.00
183.	22.	13	48	42.	148.	68	3.	2.	825.30
0.21	0.52	0.77	0.71	0.100	0.100	0.100	0.000	825.00	38.78
0.001576	190.	190	190	4	0	0	0.00	201.22	240.00

*SECNO 1200.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
1200.00	1.16	827.16	0.00	0.00	827.18	0.02	0.54	0.00	826.00
183.	16	11E.	54.	21	101.	53.	4.	3.	826.30
0.27	0.77	1.01	1.01	0.100	0.100	0.100	0.000	826.00	53.04
0.005346	200	200.	200	3	0	0	0.00	196.96	250.00

*SECNO 1400.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
1400.00	1.20	828.20	0.00	0.00	828.22	0.02	1.04	0.00	827.00
183	17.	112	54	23	105	56.	5.	4.	827.30
0.32	0.74	1.07	0.98	0.100	0.100	0.100	0.000	827.00	51.87
0.004380	200.	200	200.	3	0	0	0.00	198.13	250.00

*SECNO 1520.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
1520.00	1.14	823.84	0.00	0.00	828.86	0.02	0.64	0.00	827.70
183	16.	113	54	21.	99.	52.	5.	4.	828.00
0.35	0.78	1.13	1.03	0.100	0.100	0.100	0.000	827.70	53.57
0.005689	120.	120	120.	1	0	0	0.00	196.43	250.00

*SECNO 1800.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
1800.00	1.32	830.02	0.00	0.00	830.03	0.01	1.17	0.00	828.70
183.	18.	110	55.	28	117.	63.	6.	6.	829.00
0.44	0.64	0.94	0.86	0.100	0.100	0.100	0.000	828.70	47.80
0.003203	320.	250	250.	3	0	0	0.00	202.20	250.00

SECNO	DEPTH	CWSEL	CRWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 2080.000

3470 ENCROACHMENT STATIONS= 0.0 250.0 TYPE= 1 TARGET= 249.999

2080.00	1.27	830.97	0.00	0.00	830.99	0.01	0.95	0.00	829.70
183	18.	191.	55.	26	113.	61.	8.	7.	830.00
0.52	0.57	0.98	0.90	0.100	0.100	0.100	0.000	829.70	49.23
0.003716	320	280.	250.	2	0	0	0.00	200.77	250.00

QCHV= 0.300 QEHV= 0.500
*SECNO 2360.000

3470 ENCROACHMENT STATIONS= 300.0 935.0 TYPE= 1 TARGET= -300.000

2360.00	2.15	832.85	0.00	0.00	833.28	0.42	2.09	0.20	99999.20
180	0.	183	0.	0.	35.	0.	8.	8.	833.30
0.53	0.00	5.27	0.00	0.000	0.050	0.000	0.000	830.70	300.00
0.022534	320.	280.	250.	3	0	0	0.00	25.48	325.48

*SECNO 2640.000

3470 ENCROACHMENT STATIONS= 300.0 935.0 TYPE= 1 TARGET= -300.000

2640.00	3.39	834.89	0.00	0.00	834.98	0.10	1.61	0.10100000	00
183	0.	177.	6	0.	70.	15.	9.	8.	834.10
0.57	0.00	2.52	0.40	0.000	0.050	0.100	0.000	831.50	300.00
0.002572	320	280	250.	3	0	0	0.00	66.21	366.21

THIS RUN EXECUTED 22 SEP 87 11:58:06

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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 CITY OF NOVI JOB NO 5555-46
T2 500 YEAR FROM C&O AND NOVI RD
T3 THORNTON CREEK 46-01

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10	5	0.	0	0 000000	0 00	0.0	0.	825.120	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

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	CLOSS	BANK ELEV
Q	QLOB	QCH	QROB	PLOB	ACH	AROB	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
*SECNO 0.000
3280 CROSS SECTION 0.00 EXTENDED 2.22 FEET

0.00	8.02	825.12	0.00	625.12	825.12	0.00	0.00	0.00	826.60
224.	0.	224.	0.	0.	432.	0	0.	0.	822.90
0.00	0.00	0.32	0.00	0.000	0.100	0.000	0.000	817.10	6.91
0.000162	0.	0.	0.	0	0	0	0.00	91.09	98.00

*SECNO 200.000
3280 CROSS SECTION 200.00 EXTENDED 3.55 FEET

3470 ENCROACHMENT STATIONS= 0.0 93.0 TYPE= 1 TARGET= 94.999

200.00	5.35	825.15	0.00	0.00	825.15	0.00	0.03	0.00	99994.80
224.	0.	224.	0.	0	461.	0.	2.	0	99994.80
0.11	0.00	0.49	0.00	0.000	0.100	0.000	0.000	818.80	3.01
0.000136	200.	200	200.	0	0	0	0.00	91.99	95.00

*SECNO 400.000
3280 CROSS SECTION 400.00 EXTENDED 1.89 FEET

3470 ENCROACHMENT STATIONS= 0.0 95.0 TYPE= 1 TARGET= 94.999

400.00	4.69	825.17	0.00	0.00	825.20	0.01	0.04	0.00	100000.00
224	0	224	0.	0	315.	0	4.	1.	100000.00
0.19	0.00	0.71	0.00	0.000	0.100	0.000	0.000	820.50	11.57
0.000414	200	200	200.	1	0	0	0.00	83.43	95.00

*SECNO 600.000

3470 ENCROACHMENT STATIONS= 0.0 95.0 TYPE= 1 TARGET= 94.999

600.00	3.14	825.36	0.00	0.00	825.36	0.02	0.16	0.01	100000.00
224	0.	224	0	0	190.	0.	5.	1.	100000.00
0.24	0.00	1.18	0.00	0.000	0.100	0.000	0.000	822.20	15.66
0.002049	200.	200	200.	2	0	0	0.00	79.34	95.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	RV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 800.000

3470 ENCROACHMENT STATIONS=			0.0	95.0	TYPE=	1	TARGET=	94.999	
800.00	2.23	826.18	0.00	0.00	826.18	0.06	0.80	0.02	100000.00
224.	0.	224	0.	0.	118.	0.	6	2.	100000.00
0.27	0.00	1.90	0.00	0.000	0.100	0.000	0.000	823.90	18.11
0.009446	210.	210	210.	2	0	0	0.00	76.89	95.00

*SECNO 1000.000

3470 ENCROACHMENT STATIONS=			0.0	240.0	TYPE=	1	TARGET=	239.999	
1000.00	1.79	826.79	0.00	0.00	826.80	0.01	0.61	0.01	825.00
224	30.	136	58.	51.	164.	76.	7	2.	825.30
0.34	0.59	0.83	0.77	0.100	0.100	0.100	0.000	825.00	37.45
0.001588	190	190	190.	3	0	0	0.00	202.55	240.00

*SECNO 1200.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
1200.00	1.31	827.31	0.00	0.00	827.33	0.02	0.52	0.00	826.00
224	22.	135.	67.	27.	116.	62.	8.	3.	826.30
0.39	0.80	1.17	1.07	0.100	0.100	0.100	0.000	826.00	48.21
0.005037	200	200	200	3	0	0	0.00	201.79	250.00

*SECNO 1400.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
1400.00	1.32	828.32	0.00	0.00	828.34	0.02	1.01	0.00	827.00
224.	22	135	67.	27	116.	63	9.	4.	827.30
0.44	0.79	1.16	1.07	0.100	0.100	0.100	0.000	827.00	48.17
0.005022	200	200	200.	3	0	0	0.00	201.83	250.00

*SECNO 1520.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
1520.00	1.26	826.96	0.00	0.00	828.98	0.02	0.65	0.00	827.70
224.	21	136	67.	25.	111.	60.	9.	5.	828.00
0.47	0.84	1.22	1.12	0.100	0.100	0.100	0.000	827.70	49.69
0.005831	120.	120.	120.	1	0	0	0.00	200.31	250.00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 1600.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
1800.00	1.86	830.16	0.00	0.00	830.17	0.01	1.18	0.00	828.70
224.	23	133.	67.	34.	131.	71.	11	6.	829.00
0.55	0.69	1.02	0.94	0.100	0.100	0.100	0.000	828.70	43.57
0.003304	320	290.	250.	3	0	0	0.00	206.43	250.00

#SECNO 2080.000

3470 ENCROACHMENT STATIONS=			0.0	250.0	TYPE=	1	TARGET=	249.999	
2080.00	1.41	831.13	0.00	0.00	831.13	0.02	0.96	0.00	829.70
224	23.	134	67	32	127.	69.	12	7.	830.00
0.62	0.72	1.06	0.98	0.100	0.100	0.100	0.000	829.70	44.85
0.003692	320	230.	250.	2	0	0	0.00	205.15	250.00

CCRV= 0.300 CEHV= 0.500
#SECNO 2360.000

3470 ENCROACHMENT STATIONS=			300.0	935.0	TYPE=	1	TARGET=	-300.000	
2360.00	2.30	833.00	0.00	0.00	833.51	0.51	2.13	0.25	99999.20
224.	0.	224	0	0	39.	0	13.	8.	833.30
0.64	0.00	5.71	0.00	0.000	0.050	0.000	0.000	830.70	300.00
0.024823	320.	280	250	4	0	0	0.00	26.71	326.71

#SECNO 2640.000

3470 ENCROACHMENT STATIONS=			300.0	935.0	TYPE=	1	TARGET=	-300.000	
2640.00	3.66	835.16	0.00	0.00	835.27	0.11	1.64	0.12	100000.00
224.	0.	211	13.	0	78.	27.	13.	8	834.10
0.67	0.00	2.69	0.49	0.000	0.050	0.100	0.000	831.50	300.00
0.002565	320.	280	250.	4	0	0	0.00	79.41	379.41

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY OF

3) WATERCOURSE: THORNTON CREEK

4) DOCUMENT TYPE: 100 YR. - NATURAL & ENCROACHED

00BREAK00

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1*****************************************************                    ************************************
 *  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  13 FEB 89 TIME   10:33:34              *                    *  (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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1

13 FEB 89 10:33:34 PAGE 1

THIS RUN EXECUTED 13 FEB 89 10:33:34

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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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C
T1      CITY OF NOVI   JOB NO  5555-46-01
T2      100 YEAR FLOOD
T3      THORNTON CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0         2.        0.        0.   0.002400     0.00       0.0       0.    834.880    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

    110.000   150 000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      0.100      0.100      0.050      0.300      0.500      0.000      0.000      0.000      0.000      0.000
QT      2.000    230.000    230.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
ET      0.000      0.000      1.400      0.000      0.000      0.000      0.000      0.000      0.000      0.000
X1   1560.000     15.000    288.000    329.000      0.000      0.000      0.000      0.000      0.000      0.000
GR    835.900      0.000    834.600    100.000    833.500    200.000    833.400    288 000    831.900    295.000
GR    831.500    300.000    831.900    312.000    834.100    329.000    835.600    400.000    836.300    500.000
GR    836.900    600.000    836.200    700.000    835.600    800.000    837.000    900.000    837.700    935.000

X1   1760 000      0.000      0.000      0.000    180.000    243.000    200.000      0.740      0.470      0.000

X1   1960.000      0.000      0.000      0.000    180.000    243 000    200.000      0.650      0.470      0.000
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ET	0.000	0.000	4.100	116.000	144.000	0.000	0.000	0.000	0.000	0.000
X1	2160.000	16.000	125 000	138.000	180.000	244.000	200.000	0.000	0.000	0.000
GR	847 500	0.000	844.400	18.000	844.200	25.000	841.000	95.000	834.500	125.000
GR	832.900	126.000	832.900	131.000	833.300	135.000	835.700	138.000	838.800	165.000
GR	840.300	225.000	842.700	325.000	841.800	425.000	846.100	496.000	845 400	525.000
GR	849.500	545.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2328 000	0.000	0.000	0.000	148.000	238.000	168.000	0.000	1.300	0.000
X1	2495 000	13.000	80 000	157.000	147.000	237.000	167.000	0 000	0.000	0.000
GR	847.800	0.000	844.100	25.000	843.200	80.000	837.800	91.000	836.100	107.000
GR	835.700	117.000	835.500	125.000	835.700	135.000	841.200	157.000	844.500	225.000
GR	845.600	325.000	848.400	425.000	848.700	440.000	0.000	0.000	0.000	0.000

1

13 FEB 89 10:33:34 PAGE 2

NC	0.100	0.100	0.020	0.300	0.500	0.000	0.000	0.000	0.000	0.000
		FOOTBRIDGE								
X1	2496.000	27.000	80.000	157.000	1.000	1.000	1.000	0.000	0.000	0 000
BT	21.000	0.000	847.800	0.000	25.000	844.100	0.000	80.000	843.200	0.000
BT	81.000	842 000	0.000	87.000	841.600	839.900	91.000	840.700	839.900	108.000
BT	840.700	839.900	110.000	840.000	839.900	117.000	840.700	839.900	124.000	840.700
BT	839.900	126.000	840.700	839.900	135.000	840.800	840.000	140.000	840.900	840.100
BT	142 000	840.900	840.100	153.000	841.000	840.200	156.000	841.000	0.000	157.000
BT	841.200	0 000	225.000	844.500	0.000	325.000	845.600	0.000	425.000	848.400
BT	0.000	440.000	848.700	0.000	0.000	0.000	0.000	0 000	0.000	0.000
GR	847.800	0.000	844.100	25.000	843.200	80.000	842.800	81.000	839.900	87.000
GR	837.800	91 000	836.100	108.000	839.900	108.000	839.900	110.000	836.000	110.000
GR	835.700	117.000	835.500	124 000	839.900	124 000	839.900	126.000	835.500	126.000
GR	835.700	135.000	836.800	140.000	840.100	140.000	840.100	142.000	837.300	142.000
GR	840.200	153.000	841 000	156.000	841.200	157.000	844.500	225.000	845.600	325.000
GR	848.400	425.000	848.700	440.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	2502.000	0.000	0.000	0.000	6.000	6.000	6.000	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	0 100	0.100	0.050	0.300	0.500	0.000	0.000	0.000	0.000	0.000
X1	2503.000	13.000	80.000	157.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	847 800	0 000	844.100	25.000	843.200	80.000	837.800	91.000	836 100	107.000
GR	835.700	117.000	835.500	125.000	835.700	135.000	841.200	157.000	844.500	225.000
GR	845.600	325.000	848.400	425.000	848.700	440.000	0 000	0.000	0.000	0.000
X1	2560.000	0 000	0.000	0.000	57.000	57.000	57.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	98.000	139 000	0.000	0.000	0 000	0 000	0.000
X1	2600.000	0.000	0.000	0.000	40.000	40.000	40 000	0.000	0.000	0.000
ET	0 000	4.100	4.100	388.000	409.000	0.000	0 000	0.000	0.000	0.000
X1	2639.000	15.000	388.000	409.000	39.000	39.000	39.000	0.000	0.000	0.000
GR	849.200	0 000	847.700	100.000	846.100	200.000	844.500	300.000	842.200	373.000
GR	836.500	385.000	836.300	388.000	835.500	400.000	836.300	409.000	843.200	426.000
GR	845.900	500.000	845.100	600.000	846.300	660.000	848.500	670.000	848.900	703.000
NC	0 015	0.015	0.032	0.300	0.500	0.000	0.000	0.000	0.000	0.000
		NINE MILE ROAD								
X1	2640.000	19.000	110.000	131 000	1.000	1.000	1.000	0 000	-0.400	0.000
BT	15 000	0.000	846 200	0.000	20.000	845.900	0.000	110.000	845.500	840.100
BT	112 000	845 500	843.100	115.000	845 500	844.100	118.000	845.500	843.100	120.000
BT	845.500	840.100	121.000	845.500	840.100	123.000	845.500	843.100	126.000	845 500
BT	844.100	129 000	845.600	843.100	131.000	845.600	840.100	220.000	846.500	0.000
BT	320 000	848 100	0.000	420.000	849.300	0.000	0.000	0.000	0.000	0.000
GR	846 200	0 000	845.900	20.000	845.500	110.000	838.100	110.000	837.100	112.000
GR	837.100	115.000	837.100	118.000	838.100	120.000	840.100	120.000	840.100	121.000

GR	838.100	121.000	837.100	123.000	837.100	126.000	837.100	129.000	838.100	131.000
GR	845.600	131.000	846.500	220.000	848.100	320.000	849.300	420.000	0 000	0.000

1

13 FEB 89 10:33:34 PAGE 3

X1	2692.000	0.000	0.000	0.000	52.000	52.000	52.000	0.000	0.400	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.100	0.100	0.050	0.300	0.500	0.000	0.000	0.000	0.000	0.000
X1	2693.000	15.000	373.000	426 000	1 000	1.000	1.000	0.000	1.600	0.000
GR	849.200	0.000	847.700	100.000	846 100	200.000	844.500	300.000	842.200	373.000
GR	836.500	385.000	836 300	388.000	835 500	400.000	836 300	409.000	843.200	426.000
GR	845.900	500.000	845.100	600.000	846.300	660.000	848.500	670.000	848.900	703.000
ET	0.000	4.100	4.100	30.000	180.000	0.000	0.000	0.000	0.000	0.000
X1	2700.000	16 000	126.000	140.000	9.000	3.000	7.000	0.000	-2.700	0.000
GR	852.500	0.000	846.800	15.000	845.200	40.000	843.600	126.000	840.800	132 000
GR	839 900	136.000	840.300	138.000	842.000	140.000	843.900	240.000	844.800	297.000
GR	848 700	315.000	848.900	340.000	849.200	386.000	849.200	440.000	849.800	540.000
GR	853.500	640.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0 000	4.100	4.100	30.000	180.000	0.000	0.000	0.000	0.000	0.000
X1	2760.000	0.000	0.000	0.000	74 000	24.000	60.000	0.000	0.600	0.000
ET	0 000	4 100	4 100	30.000	180.000	0.000	0.000	0.000	0.000	0.000
X1	2820.000	0.000	0.000	0.000	74.000	24.000	60.000	0.000	0.600	0.000
ET	0.000	4.100	4.100	30.000	180 000	0.000	0.000	0.000	0.000	0.000
X1	2880 000	0 000	0.000	0.000	75.000	25.000	60.000	0.000	0.600	0.000
ET	0.000	4.100	4.100	174.000	195.000	0.000	0.000	0.000	0 000	0.000
X1	3091.000	20.000	174.000	195.000	281.000	171.000	211.000	0.000	-0.800	0.000
GR	858.300	0.000	847.400	95.000	845.600	159 000	843.200	174.000	841.800	183.000
GR	841.100	186.000	841.800	189.000	844.100	195.000	844.700	295.000	845.400	325.000
GR	848.600	340.000	848.800	395.000	844 600	495.000	845.500	595.000	845.500	695.000
GR	845.100	795.000	842.900	895.000	842.500	995.000	842.800	1095.000	842.200	1195.000
NC	0 015	0.015	0.032	0.300	0.500	0.000	0.000	0.000	0.000	0.000

NOVI ROAD

X1	3092.000	17.000	90.000	111.000	1.000	1 000	1.000	0.000	-0.500	0.000
BT	13 000	0.000	853.900	0.000	90.000	851.400	843.800	92.000	851.400	846.800
BT	95.000	851.300	847.800	98.000	851.200	846.800	100.000	851.200	843.800	101.000
BT	851.100	843.800	103.000	851.100	846.800	106 000	851.100	847.800	109.000	851.000
BT	846 800	111.000	851.000	843.800	200.000	849 700	0.000	300.000	849.100	0.000
GR	853.900	0.000	851.400	90.000	841.800	90.000	840.800	92.000	840.800	95.000
GR	840.800	98.000	841.800	100.000	843 800	100.000	843.800	101.000	841.800	101.000
GR	840.800	103.000	840.800	106.000	840.800	109.000	841.800	111.000	851.000	111.000
GR	849.700	200.000	849.100	300 000	0.000	0.000	0.000	0.000	0.000	0.000
X1	3178.000	0.000	0.000	0.000	86.000	86.000	86.000	0.000	0.500	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.100	0.100	0.050	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	174.000	195.000	0.000	0.000	0.000	0.000	0.000

1

13 FEB 89 10:33:34 PAGE 4

X1	3179.000	20.000	174.000	195.000	1.000	1.000	1.000	0.000	-0.300	0.000
GR	858.300	0.000	847.400	95 000	845.600	159.000	843.200	174.000	841.800	183.000
GR	841 100	186.000	841.800	189.000	844.100	195.000	844.700	295.000	845.400	325.000
GR	848.600	340.000	848.800	395.000	844.600	495.000	845.500	595.000	845.500	695.000
GR	845.100	795.000	842.900	895.000	842.500	995.000	842.800	1095.000	842.200	1195.000

ET	0.000	4.100	4.100	60.000	320.000	0 000	0.000	0.000	0.000	0.000
X1	3309.000	0 000	0.000	0.000	130.000	130.000	130.000	0.000	0.900	0.000
X1	3532 000	10.000	60.000	100.000	213.000	213.000	223.000	0.000	-3.000	0.000
GR	862.600	0.000	858 000	60.000	849.400	81.000	847.000	90.000	846.300	94.000
GR	847.000	96.000	849.000	100.000	852.100	200.000	855.900	280.000	858.900	300.000
X1	3755.000	0.000	0.000	0.000	213.000	213.000	223.000	0.000	1.500	0.000
X1	3978.000	0.000	0.000	0.000	213.000	213.000	223.000	0 000	1.500	0.000
X1	4227.000	0 000	0.000	0.000	148.000	132.000	249.000	0.000	1.700	0.000
X1	4476.000	0.000	0.000	0.000	148.000	132.000	249.000	0.000	1.700	0.000
ET	0.000	4.100	4.100	0.000	200.000	0.000	0.000	0.000	0.000	0.000
X1	4725.000	0.000	0.000	0.000	148.000	132.000	249.000	0.000	1.600	0.000
ET	0.000	4.100	4.100	220.000	332.000	0.000	0.000	0.000	0.000	0.000
X1	4979.000	15.000	264.000	287.000	254.000	254.000	254.000	0.000	-1.400	0.000
GR	866.800	0.000	864.800	70.000	860.000	140.000	854.900	170.000	856.200	264.000
GR	856.300	270.000	854.400	274.000	854.400	278.000	855.800	282.000	855.800	287.000
GR	855 900	370.000	859.000	392.000	860.500	413.000	862.000	470.000	868.300	500.000
ET	0.000	4.100	4.100	264.000	287 000	0.000	0.000	0.000	0.000	0.000
X1	5179 000	0.000	0.000	0.000	200.000	200.000	200.000	0.000	2.000	0.000
NC	0.025	0.025	0.020	0.300	0.500	0.000	0.000	0.000	0.000	0.000
	DRIVEWAY									
X1	5180 000	19.000	288.000	311.000	1.000	1.000	1.000	0 000	-0.200	0.000
BT	15 000	0.000	870.900	0.000	100 000	865.000	0.000	200.000	859.300	0.000
BT	287.000	858.660	0.000	288.000	858.650	858.200	294.000	858.620	858 100	299.000
BT	858.590	858 100	301.000	858.590	857.800	306.000	858.640	857.800	311.000	858.690
BT	857.800	313.000	858.710	0.000	400 000	860.300	0.000	440 000	862.300	0.000
BT	455.000	861 700	0.000	495.000	868.300	0.000	0.000	0.000	0.000	0.000
GR	870.900	0.000	865.000	100.000	859.300	200.000	858.700	287.000	858.700	288.000
GR	855.200	288.000	855 200	294.000	855.200	299.000	858.100	299.000	857.800	301 000
GR	855 300	301.000	855.800	306 000	855.200	311.000	858.700	311.000	858.700	313.000
GR	860 300	400.000	862.300	440.000	861.700	455.000	868.300	495.000	0.000	0.000
X1	5194.000	0.000	0.000	0.000	14.000	14.000	14.000	0 000	0.200	0.000
X2	0.000	0 000	0.000	0 000	0.000	0.000	1.000	0.000	0 000	0.000

NC	0.100	0.100	0.050	0 300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	264.000	287.000	0.000	0.000	0.000	0.000	0.000
X1	5195.000	15.000	264.000	287.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	866.800	0.000	864.800	70.000	860.000	140.000	854.900	170.000	856.200	264.000
GR	856 300	270 000	854.400	274.000	854.400	278.000	855.800	282.000	855.800	287.000
GR	855.900	370 000	859.000	392.000	860.500	413.000	862.000	470.000	868.300	500.000
QT	2.000	160.000	160.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	225.000	325.000	0.000	0.000	0.000	0.000	0 000
X1	5295.000	15.000	264.000	287.000	100.000	100.000	100.000	0.000	2.100	0.000
GR	866.800	0.000	864.800	70.000	860.000	140.000	854.900	170.000	856.200	264.000
GR	856 300	270 000	854.400	274 000	854.400	278.000	855.800	282.000	855.800	287.000
GR	855.900	370.000	859.000	392.000	860.500	413.000	862.000	470.000	868.300	500.000
ET	0 000	4.100	4.100	225.000	325.000	0.000	0.000	0.000	0 000	0.000
X1	5395.000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	1.300	0.000
ET	0 000	0.000	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5526.000	11.000	125.000	132.000	130.000	120.000	131.000	0.000	-5.000	0.000

GR	877.300	0.000	873.300	25.000	865.800	65.000	867.000	93.000	866.000	125.000
GR	864.500	127.000	864.500	129.000	866.100	132.000	867.100	160.000	873.100	225.000
GR	876.400	250.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	5657.000	0.000	0.000	0.000	130.000	120.000	131.000	0.000	1.700	0.000
X1	5788.000	0.000	0.000	0.000	130.000	120.000	131.000	0.000	1.700	0.000
X1	5919.000	0.000	0.000	0.000	130.000	120.000	131.000	0.000	1.600	0.000
NC	0.100	0.100	0.050	0.300	0.500	0.000	0.000	0.000	0.000	0.000
		NINE MILE ROAD								
X1	6140.000	12.000	212.000	215.000	351.000	131.000	221.000	0.000	0.000	0.000
GR	881.900	0.000	876.300	98.000	870.200	142.000	869.900	162.000	867.400	212.000
GR	865.200	213.000	865.800	214.000	867.400	215.000	868.500	240.000	872.000	258.000
GR	877.200	275.000	881.700	351.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	4.000	2.600	0.000	5.000	1.000	3.100	0.000	0.000	0.000
X1	6190.000	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.200	0.000
X2	0.000	0.000	1.000	868.500	871.300	0.000	0.000	0.000	0.000	0.000
BT	14.000	14.000	881.900	0.000	64.000	877.100	0.000	99.000	874.700	0.000
BT	114.000	873.500	0.000	164.000	871.400	0.000	211.000	871.300	868.100	212.000
BT	871.300	868.500	213.000	871.300	868.100	214.000	871.300	868.100	215.000	871.300
BT	868.500	216.000	871.300	868.100	264.000	872.700	0.000	314.000	876.900	0.000
BT	364.000	881.700	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	6275.000	8.000	128.000	141.000	85.000	85.000	85.000	0.000	-0.800	0.000
GR	881.900	0.000	877.100	50.000	874.700	85.000	867.900	128.000	867.900	141.000
GR	878.400	210.000	880.500	260.000	881.700	370.000	0.000	0.000	0.000	0.000

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NC	0.015	0.015	0.024	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	128.000	141.000	0.000	0.000	0.000	0.000	0.000
		CENTER STREET								
X1	6391.000	22.000	128.000	141.000	116.000	116.000	116.000	0.000	-0.300	0.000
GR	881.900	0.000	877.100	50.000	874.700	85.000	873.700	128.000	868.400	128.000
GR	867.900	129.000	867.900	130.000	867.900	131.000	867.900	132.000	868.400	133.000
GR	869.400	133.000	869.400	136.000	868.400	136.000	867.900	137.000	867.900	138.000
GR	867.900	139.000	867.900	140.000	868.400	141.000	873.700	141.000	878.400	210.000
GR	880.500	260.000	881.700	370.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	3.000	2.600	0.000	13.000	3.000	28.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	128.000	141.000	0.000	0.000	0.000	0.000	0.000
X1	6482.000	0.000	0.000	0.000	91.000	91.000	91.000	0.000	0.600	0.000
X2	0.000	0.000	1.000	871.700	874.000	0.000	0.000	0.000	0.000	0.000
BT	14.000	85.000	874.700	0.000	128.000	873.700	869.400	129.000	873.700	870.900
BT	130.000	873.700	871.400	131.000	873.700	871.400	132.000	873.700	870.900	133.000
BT	873.700	869.400	136.000	873.700	869.400	137.000	873.700	870.900	138.000	873.700
BT	871.400	139.000	873.700	871.400	140.000	873.700	870.900	141.000	873.700	869.400
BT	210.000	878.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.100	0.100	0.050	0.300	0.500	0.000	0.000	0.000	0.000	0.000
X1	6543.000	0.000	0.000	0.000	61.000	61.000	61.000	0.000	1.000	0.000
X1	6743.000	10.000	290.000	300.000	200.000	200.000	200.000	0.000	-4.900	0.000
GR	890.000	0.000	884.100	100.000	880.700	200.000	877.500	290.000	877.000	292.000
GR	876.900	296.000	877.600	300.000	879.400	354.000	887.100	400.000	892.000	450.000
ET	0.000	0.000	4.100	257.000	333.000	0.000	0.000	0.000	0.000	0.000
X1	6945.000	0.000	0.000	0.000	190.000	207.000	202.000	0.000	2.400	0.000
ET	0.000	0.000	1.400	0.000	0.000	0.000	0.000	0.000	0.000	0.000
X1	7147.000	0.000	0.000	0.000	190.000	207.000	202.000	0.000	2.500	0.000

X1	7362.000	0.000	0.000	0.000	215.000	215.000	215.000	0.000	2.000	0.000
X1	7577.000	0 000	0.000	0.000	215.000	215.000	215.000	0.000	2.000	0.000
ET	0.000	4.100	0.000	300.000	309.000	0.000	0.000	0.000	0.000	0.000
X1	7896.000	13.000	300.000	309.000	229.000	309.000	319.000	0.000	-1 100	0.000
GR	897.400	0.000	893.500	100.000	889.200	200.000	888.400	206.000	885.500	207.000
GR	884.100	300.000	882.700	303.000	882 700	306.000	883.500	309.000	887.700	400.000
GR	890.900	500 000	893.500	600.000	895.100	700.000	0.000	0.000	0.000	0.000
NC	0.015	0.015	0.032	0.500	1.000	0.000	0.000	0.000	0.000	0.000
	CONNEMARA DRIVE									
X1	7897.000	14.000	296.400	303.600	1.000	1.000	1.000	0.000	-0.300	0.000
BT	12.000	0.000	897.500	0.000	100.000	893.500	0.000	200.000	890.100	0.000
BT	296.400	888 600	884.700	298.000	888.600	886.700	300.000	888.500	887.100	302.000
BT	888.500	886 700	303.600	888.500	884.700	400.000	888.900	0.000	500.000	890.800
BT	0.000	600.000	892.300	0.000	700.000	895.200	0.000	0.000	0.000	0.000
GR	897.500	0.000	893.500	100.000	890.100	200.000	888.600	296.400	882.500	296.400
GR	881.900	298.000	881.900	300 000	881.900	302.000	882.500	303.600	888.500	303.600
GR	888.900	400.000	890.800	500.000	892.300	600.000	895.200	700.000	0.000	0.000

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X1	7962 000	0 000	0.000	0.000	65.000	65.000	65.000	0.000	0.400	0.000
X2	0.000	0.000	0 000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NC	0.030	0 100	0.050	0.500	1.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	300.000	309.000	0.000	0.000	0.000	0.000	0.000
X1	7963 000	13.000	300.000	309.000	1.000	1.000	1.000	0.000	-0.700	0.000
GR	897.400	0.000	893.500	100.000	889.200	200.000	888.400	206.000	885.500	207.000
GR	884.100	300.000	882.700	303.000	882.700	306.000	883.500	309.000	887.700	400.000
GR	890.900	500.000	893.500	600.000	895.100	700.000	0.000	0.000	0.000	0.000
ET	0 000	4.100	0.000	0.000	320.000	0.000	0.000	0.000	0.000	0.000
X1	8043.000	14.000	200.000	210.000	80.000	80.000	80.000	0.000	-4.500	0.000
GR	898.200	0.000	894.400	105.000	891.600	125.000	889.200	185.000	887.800	200.000
GR	887.200	203.000	887.300	205 000	888.300	210.000	888.700	300.000	893.100	316.000
GR	893.800	403.000	893.800	425.000	898.700	445.000	901.200	500.000	0.000	0.000
ET	0 000	4.100	0.000	0.000	320.000	0.000	0.000	0.000	0.000	0.000
X1	8224.000	0.000	0.000	0.000	196.000	163.000	181.000	0.000	1.500	0.000
X1	8405.000	0.000	0.000	0.000	196.000	163.000	181.000	0.000	1.500	0.000
X1	8465.000	0.000	0.000	0 000	65.000	54.000	60.000	0.000	0.500	0.000
X1	8525.000	0.000	0.000	0.000	65.000	54.000	60.000	0.000	0.500	0.000
X1	8587 000	0.000	0.000	0.000	67.000	55.000	62.000	0.000	0.500	0.000
ET	0.000	0.000	4.100	179.000	303.000	0.000	0.000	0.000	0.000	0.000
X1	9091.000	0.000	0 000	0.000	489.000	509.000	504 000	0.000	2.500	0.000
ET	0.000	4 100	4.100	502 500	512.500	0.000	0.000	0.000	0.000	0.000
X1	9411.000	14.000	500.000	515 000	320.000	320.000	320.000	0.000	-0.500	0.000
GR	907.100	0.000	903 500	100.000	899.900	200.000	897.500	225.000	896.600	300.000
GR	895.800	400.000	896.800	470.000	892.600	500.000	891 700	505.000	892.400	515.000
GR	893.900	525.000	900.200	570.000	902.700	600.000	906.600	630.000	0.000	0.000
NC	0.025	0.025	0.020	0.300	0.500	0.000	0.000	0.000	0.000	0.000
	TAFT ROAD									
X1	9412.000	22 000	495.500	504.500	1.000	1.000	1.000	0.000	0.000	0.000
BT	20.000	0.000	905.200	0 000	100.000	901.000	0.000	200.000	898.600	0.000

BT	300.000	897.200	0.000	400.000	897.200	0.000	480.000	899.100	0.000	495.200
BT	899.600	0.000	495.300	900.900	0.000	495.500	900.900	892.100	495.900	900.900
BT	894.000	497 500	900.900	895.500	500.000	900.000	896.300	502.500	900.800	895.800
BT	503.700	900 800	894.400	504.500	900.800	892.800	504.700	900.800	0.000	504.800
BT	899 800	0.000	520.000	900.100	0.000	600.000	903.000	0.000	625.000	904.200
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	905.200	0.000	901.700	100.000	898.600	200.000	897.200	300.000	897.200	400.000
GR	899.100	480 000	899.600	495.200	900.900	495.300	900.900	495.500	892.100	495.500
GR	892.000	495.900	891.800	497.500	891.300	500.000	891.200	502.500	892.400	503.700
GR	892.800	504.500	900.800	504.500	900.800	504.700	899.800	504.800	900.100	520.000
GR	903.000	600.000	904.200	625.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	9430.000	22.000	495.500	504.500	18.000	18.000	18.000	0.000	0.000	0.000
BT	20.000	0.000	905.200	0.000	100.000	901.700	0.000	200.000	898.600	0.000
BT	300.000	897.200	0.000	400.000	897.200	0.000	480.000	899.100	0.000	495.200
BT	899.600	0.000	495.300	900.900	0.000	495.500	900.900	891.800	495.900	900.000
BT	893.800	497.500	900.900	895.800	500.000	900.900	896.400	502.500	900.800	896 000
BT	503.700	900.800	894.600	504.500	900.800	893.400	504.700	900.800	0.000	504.800
BT	899.800	0 000	520.000	900 100	0.000	600.000	903.000	0.000	625.000	704.200
BT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0 000	0.000	0.000
GR	905.200	0.000	901.700	100 000	898.600	200.000	897.200	300.000	897.200	400.000
GR	899 100	480 000	899.600	495.200	900.900	495.300	900 900	495.500	891.800	495.500
GR	891.700	495.900	891.600	497.500	891.700	500.000	892.200	502.500	892.900	503.700
GR	893.400	504.500	900.800	504.500	900.800	504.700	899.800	504.800	900.100	520.000
GR	903.000	600.000	904.200	625.000	0 000	0.000	0.000	0.000	0.000	0.000
NC	0.100	0.100	0.050	0.500	1.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	502.500	512.500	0.000	0.000	0.000	0.000	0.000
X1	9431 000	14.000	500.000	515.000	1.000	1.000	1.000	0.000	-0.100	0.000
GR	907.100	0.000	903.500	100.000	899.900	200.000	897.500	225.000	896.600	300.000
GR	895.800	400.000	896.800	470.000	892.600	500.000	891.700	505.000	892.400	515.000
GR	893.900	525 000	900.200	570.000	902.700	600.000	906.600	630.000	0 000	0.000
X1	9581.000	0.000	0.000	0.000	150.000	150.000	150.000	0.000	0.900	0.000
X1	10280.000	25 000	627.000	630.000	509 000	649.000	699.000	0.000	0.000	0.000
GR	906 000	0.000	904.000	15.000	902.000	35.000	900.000	55.000	898.000	90.000
GR	897.200	115.000	898.000	140.000	900.000	185.000	902.000	198.000	904.000	220.000
GR	906.000	230 000	908.000	270.000	910.000	290.000	916.800	380.000	911.000	430.000
GR	902 100	530.000	898.000	627.000	896.500	628.000	896.500	629.000	898.000	630.000
GR	899.400	730.000	903.400	785.000	908.100	810.000	909.900	830.000	911.700	930.000
NC	0 015	0.015	0.024	0.500	1.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	4.100	760.000	844.000	0.000	0.000	0.000	0.000	0.000

NINE MILE ROAD

X1	11080.000	24.000	800.000	804.000	430.000	900.000	800.000	0.000	-0.100	0.000
GR	914.500	0.000	911.300	100.000	902.900	200.000	901.300	300.000	904.300	400.000
GR	910.700	500 000	912.100	600.000	911.200	650.000	906.500	700.000	902.300	765.000
GR	901.400	772.000	901.500	800.000	901.500	800.500	901.400	801.000	901.400	802.000
GR	901.300	803.000	901.300	803.500	901.200	804.000	902.200	806.000	903 900	900.000
GR	907.800	1000.000	908 000	1100 000	912.400	1200.000	914.000	1215.000	0.000	0.000
SB	0.000	2 880	2.800	84.000	3.000	0.000	7.100	0.000	0.000	0.000
ET	0.000	4.100	1.400	760.000	844.000	0.000	0.000	0.000	0.000	0.000
X1	11120 000	0 000	0.000	0.000	40.000	40.000	40.000	0.000	0.000	0.000
X2	0 000	0 000	1.000	901.500	907.000	0.000	0.000	0.000	0.000	0.000
BT	18.000	0.000	914 400	914.400	100.000	911.200	911.200	200.000	908.200	902.800
BT	300.000	906.400	901.200	400.000	906.100	904.200	500.000	910.600	910.600	600.000
BT	912.000	912.200	700.000	907.500	906 400	800.500	907.000	903.100	801.000	907.000
BT	903.800	802 000	907.000	904.100	803.000	907.000	903.800	803.500	907.000	903.100
BT	804.000	907.000	901.100	900.000	907.000	0.000	1000.000	908.700	0.000	1100.000
BT	911 000	0.000	1200 000	914.100	0.000	0.000	0.000	0.000	0.000	0.000

NC	0.100	0.100	0.050	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	6.100	520.000	760.000	550.000	760.000	0.000	0 000	0.000
X1	11795 000	19.000	700.000	707.000	960.000	570.000	675.000	0.000	-2.000	0.000
GR	922.100	0 000	917 300	100.000	913.400	200 000	908.100	300.000	908 000	400.000
GR	907.800	600.000	907.100	700.000	906.600	701.000	906.700	705.000	908.000	707.000
GR	906.900	800.000	907.900	900.000	909.000	1000.000	910.400	1100.000	912.400	1200.000
GR	914.300	1300.000	915.200	1400.000	916.800	1500.000	920.600	1600.000	0.000	0.000
ET	0.000	4.100	6.100	520.000	760.000	550.000	760.000	0.000	0.000	0 000
X1	11895.000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	0 500	0.000
ET	0.000	4.100	6.100	520.000	760.000	550 000	760.000	0.000	0.000	0 000
X1	11995 000	0.000	0.000	0.000	100 000	100.000	100.000	0.000	0.500	0 000
ET	0.000	4.100	6 100	520.000	760.000	550.000	760.000	0.000	0.000	0.000
X1	12095.000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	0.500	0.000
ET	0.000	4 100	4.100	520.000	760.000	0.000	0.000	0.000	0.000	0.000
X1	12195 000	0.000	0.000	0.000	100.000	100.000	100.000	0.000	0.500	0.000
ET	0.000	4.100	4.100	680.000	775.000	0.000	0.000	0.000	0.000	0.000
X1	12595.000	0.000	0.000	0.000	390.000	350.000	400.000	0.000	2.400	0.000
ET	0.000	4.100	1.400	780.000	840.000	0.000	0.000	0.000	0.000	0 000
X1	13155 000	19.000	800.000	812.000	590.000	530.000	560.000	0.000	-2.800	0.000
GR	927.700	0.000	922.500	100.000	919.900	200.000	921.400	300.000	920 900	400.000
GR	922.500	500.000	919.000	600.000	917.900	700.000	916.600	800.000	915.300	804.000
GR	915.400	807 000	916.900	812.000	916.500	900.000	918.300	1000.000	922.400	1100.000
GR	924.700	1200.000	925.500	1300.000	925.200	1400.000	928.600	1500.000	0.000	0.000
ET	0.000	4.100	0.000	725.000	920.000	0.000	0.000	0.000	0.000	0.000
X1	13620.000	0.000	0.000	0.000	450.000	485.000	465.000	0.000	2.800	0.000
ET	0.000	4.100	0.000	560.000	750.000	0.000	0.000	0.000	0.000	0.000
X1	14029.000	17.000	695.000	704.000	450.000	380.000	409.000	0 000	0.000	0.000
GR	930.100	0.000	928.200	100 000	928.300	200.000	928.500	300.000	928.400	325.000
GR	922.900	400 000	920.600	500 000	919.900	600.000	919.300	695.000	917.800	697.000
GR	917 800	701.000	918.600	704.000	920.200	800.000	922.900	900.000	924.700	1000.000
GR	929.000	1100.000	929.700	1125.000	0.000	0.000	0.000	0 000	0.000	0.000
QT	2 000	160.000	160.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	4.100	0.000	150.000	320.000	0.000	0.000	0.000	0.000	0 000
X1	14634.000	13 000	240.000	243.000	500.000	640.000	605.000	0.000	-4.700	0.000
GR	940.000	0.000	937.800	40.000	932.800	140 000	929 900	195.000	928.200	205.000
GR	927.900	240.000	927.200	241.000	927.300	242.000	927.600	243.000	928.300	340.000
GR	928.400	360.000	935 200	390.000	944.900	440.000	0.000	0.000	0 000	0.000
X1	15238.000	0.000	0.000	0.000	570.000	580.000	604.000	0.000	4 700	0.000

ET	0.000	4.100	0 000	830.000	940.000	0.000	0.000	0.000	0 000	0.000
X1	15988.000	23.000	840.000	847.000	710.000	730.000	750.000	0.000	0.000	0.000
GR	946.000	0.000	944.000	180.000	942 000	315.000	940.000	350 000	938.000	370.000
GR	938.000	405.000	940.000	455.000	938.000	495.000	936.000	525.000	938.000	550.000
GR	940.000	600.000	941.000	632.000	940 000	670.000	938 000	710.000	933.200	740.000
GR	933.400	840.000	931.700	842.000	931.800	845 000	932.300	847.000	933.800	930.000
GR	936.800	940.000	941.800	1040.000	948.700	1140.000	0.000	0.000	0.000	0.000

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ET       0.000      4.100      0.000    370.000    440.000      0.000      0.000      0.000      0.000      0.000
X1   16738.000     11.000    383.000    400.000    700.000    680.000    750.000      0.000      0.000      0.000
GR     952.500      0.000    948.800    100.000    945.900    200.000    944.800    300.000    940.100    383.000
GR     939.000    389.000    938.900    395.000    939.300    400.000    939.900    500.000    948.100    600.000
GR     951.400    700.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

X1   17638.000     11.000    285.000    300.000    870.000    940.000    900.000      0.000      0.000      0.000
GR     964.400      0.000    958.400    100.000    952.800    200.000    949.700    285.000    947.600    292.000
GR     947.600    293.000    949.100    300.000    950.800    400.000    953.800    500.000    959.300    600.000
GR     963.500    700.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

ET       0.000      4.100      0.000    180.000    375.000      0.000      0.000      0.000      0.000      0.000
X1   18038.000      0.000      0.000      0.000    400.000    400.000    400.000      0.000      4.200      0.000

ET       0.000      4.100      0.000    450.000    540.000      0.000      0.000      0.000      0.000      0.000
X1   18240.000     18.000    491.000    496.000    200.000    190.000    202.000      0.000     -2.800      0.000
GR     970.300      0.000    967.800    100.000    966.200    200.000    965.700    300.000    963.100    350.000
GR     960.600    400.000    957.700    486.000    957.000    491.000    957.100    496.000    957.600    500.000
GR     961.700    600.000    961.100    700.000    962.600    765.000    965.600    785.000    966.000    800.000
GR     965.400    900.000    968.300   1000.000    971.200   1100.000      0.000      0.000      0.000      0.000

NC       0.015      0.015      0.013      0.300      0.500      0.000      0.000      0.000      0.000      0.000
                TEN MILE ROAD
X1   18513.000     16.000    399.000    401.400    272.000    272.000    272.000      0.000     -0.600      0.000
GR     968.100      0.000    967.000    100.000    964.200    200.000    961.700    300.000    960.800    399.000
GR     956.600    399.000    956.000    399.400    955.800    400.200    956.000    401.000    956.600    401.400
GR     960.800    401.400    961.200    500.000    962.300    600.000    963.800    700.000    965.900    800.000
GR     968.300    900.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

SB       0.000      1.600      2.600      0.000      2.500      0.000      4.900      0.000      0.000      0.000
X1   18557.000      0.000      0.000      0.000     44.000     44.000     44.000      0.000      0.600      0.000
X2       0.000      0.000      1.000    958.300    960.800      0.000      0.000      0.000      0.000      0.000
BT      14.000      0.000    968.100      0.000    100.000    967.000      0.000    200.000    964.200      0.000
BT     300.000    961.700      0.000    399.000    960.800    957.500    399.400    960.800    958.100    400.200
BT     960.600    958.300    401.000    960.800    958.100    401.400    960.800    957.500    500.000    961.200
BT       0.000    600.000    962.300      0.000    700.000    963.800      0.000    800.000    965.900      0.000
BT     900.000    968.300      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
1
  13 FEB 89     10:33:34                                                                          PAGE    11

     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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
  *SECNO 1560.000
    1560.00      2.79     834.29       0.00     834.88     834.35       0.06       0.00       0.00     833.40
       230.        59.      171.         0.        102         77.          1.          0          0.      834.10
      0.00       0.58       2.21       0.15       0.100      0.050      0.100      0.000     831.50     128.23
   0.002392         0.         0.         0.          0          0          7       0.00     209.74     337.97
0
  *SECNO 1760.000
    1760.00      2.87     834.84       0.00       0.00     834.93       0.09       0.57       0.02     833.87
       230.        64.      166.         0.         85.         60.          1.          1          1.      834.57
      0.02       0.75       2.78       0.23       0.100      0.050      0.100      0.000     831.97      89.47
   0.003612        180        200       243.          2          0          0       0.00     163.45     252.92
0
  *SECNO 1960.000
    1960.00      3.16     835.60       0.00       0.00     835.72       0.12       0.78       0.01     834.34
       230         79.      149.         2.         81         45.          4.          1          1.      835.04
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      0.05      0.98      3.35      0.43      0.100     0.050     0.100     0.000    832.44     45.79
  0.004471       180       200.      243.          2         0         0      0.00    125.27    171.06
0
 *SECNO 2160.000
   2160.00      3.69    836.59      0.00      0.00    836.98      0.39      1.12      0.13    834.50
      230.        13       214.         3.        10.       42.         3.        2.           2     835.70
      0.06      1.31      5.15      0.75      0.100     0.050     0.100     0.000    832.90    115.35
  0.007548       180.      200       244.          2         0         0      0.00     30.40    145.75
0
 *SECNO 2328.000
   2328.00      3.67    837.87      0.00      0.00    838.26      0.39      1.28      0.00    835.80
      230         13.       215.         2.        10.       41          3.        2.           2     837.00
      0.07      1.32      5.20      0.75      0.100     0.050     0.100     0.000    834.20    115.45
  0.007749       148.      168.      238.          2         0         0      0.00     30.11    145.56
0
 *SECNO 2495.000
   2495.00      3.22    838.72      0.00      0.00    838.77      0.05      0.40      0.10    843.20
      230.         0.       230         0.         0.       132.        0.        2.           2.    841.20
      0.09      0.00      1.74      0.00      0.000     0.050     0.000     0.000    835.50     89.12
  0.001167       147.      167.      237.          3         0         0      0.00     57.97    147.09
0
1
  13 FEB 89    10:33:34                                                                  PAGE    12

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
 *SECNO 2496.000

 3265 DIVIDED FLOW


 3370 NORMAL BRIDGE, NRD= 21 MIN ELTRD=  840.00 MAX ELLC=  840.20

              FOOTBRIDGE
   2496.00      3.22    838.72      0.00      0.00    838.78      0.06      0.00      0.01    843.20
      230         0.       230.         0.         0         117.        0.        2.           2     841.20
      0.09      0.00      1.96      0.00      0.000     0.020     0.000     0.000    835.50     89.24
  0.000337         1.        1.        1.          1         0         0      0.00     52.15    147.39
0
 *SECNO 2502.000

 3265 DIVIDED FLOW


 3370 NORMAL BRIDGE, NRD= 21 MIN ELTRD=  840.00 MAX ELLC=  840.20

   2502.00      3.22    838.72      0.00      0.00    838.78      0.06      0.00      0.00    843.20
      230.         0.       230.         0.         0.       117.        0         2.           2.    841.20
      0.09      0.00      1.96      0.00      0.000     0.020     0.000     0.000    835.50     89.25
  0.000338         6         6.        6.          0         0         0      0.00     52.14    147.39
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 2503.000
   2503.00      3.24    838.74      0.00      0.00    838.78      0.05      0.00      0.00    843.20
      230         0.       230.         0.         0.       132.        0.        2.           2.    841.20
      0.09      0.00      1.74      0.00      0.000     0.050     0.000     0.000    835.50     89.11
  0.001161         1.        1.        1.          1         0         0      0.00     58.00    147.11
0
 *SECNO 2560.000
   2560.00      3.30    838.80      0.00      0.00    838.85      0.04      0.06      0.00    843.20
```

```
      230.        0       230        0.        0.      137.        0.        2        2.     841.20
      0.10      0.00      1.68      0.00     0.000     0.050     0.000     0.000    835.50     88.96
  0.001052       57.       57.       57.         2         0         0      0.00     58.45    147.41
0
1
  13 FEB 89     10:33:34                                                                          PAGE    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

 *SECNO 2600.000

 3470 ENCROACHMENT STATIONS=       98.0      139.0  TYPE=      1  TARGET=       41.000
   2600.00      3.34    838.84      0.00      0.00    838.90      0.06      0.04      0.01100000.00
      230.        0       230.        0.        0.      119.        0.        3.        2.  100000.00
      0.11      0.00      1.93      0.00     0.000     0.050     0.000     0.000    835.50     98.00
  0.001163       40.       40.       40.         0         0         0      0.00     41.00    139.00
0
 *SECNO 2639.000

 3470 ENCROACHMENT STATIONS=      388.0      409.0  TYPE=      1  TARGET=       21.000
   2639.00      3.34    838.84      0.00      0.00    839.06      0.21      0.08      0.08    836.30
      230.        0.      230.        0.        0.       62.        0.        3.        2.  100000.00
      0.11      0.00      3.72      0.00     0.000     0.050     0.000     0.000    835.50    388.00
  0.004976       39.       39.       39.         2         0         0      0.00     21.00    409.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 2640.000

 3265 DIVIDED FLOW

 3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  845.50 MAX ELLC=  844.10

              NINE MILE ROAD
   2640.00      1.91    838.61      0.00      0.00    839.31      0.69      0.01      0.24    845.10
      230.        0.      230.        0.         0       34.        0.         3        2.     845.20
      0.11      0.00      6.68      0.00     0.000     0.032     0.000     0.000    836.70    110.00
  0.013249        1.        1.        1.         2         0         0      0.00     20.00    131.00
0
 *SECNO 2692.000

 3265 DIVIDED FLOW

 3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  845.50 MAX ELLC=  844.50

   2692.00      2.31    839.41      0.00      0.00    839.87      0.46      0.50      0.07    845.50
      230.        0       230.        0.        0.       42.        0.        3.        2.     845.60
      0.11      0.00      5.44      0.00     0.000     0.032     0.000     0.000    837.10    110.00
  0.007265       52.       52.       52.         3         0         0      0.00     20.00    131.00
0
1
  13 FEB 89     10:33:34                                                                          PAGE    14

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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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 CCHV=   0.300 CEHV=   0.500
 *SECND 2693.000
   2693.00      2.60    839.70      0.00      0.00    839.95      0.24      0.01      0.06    843.80
      230.        0.      230.        0.        0.        58.       0.        3.        2.     844.80
      0.12      0.00      3.97      0.00     0.000     0.050     0.000     0.000    837.10    381.63
  0.008257         1         1.        1.         3         0         0      0.00     31.80    413.44
0
 *SECND 2700.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=       30.0      180.0  TYPE=       1  TARGET=      150.000
   2700.00      3.21    840.41    840.41      0.00    840.96      0.55      0.08      0.15    840.90
      230.        0.       178       52.        0.       27.       29.        3.        2.     839.30
      0.12      0.00      6.69      1.77     0.000     0.050     0.100     0.000    837.20    127.05
  0.021883         9.        7.        3.        20        11         0      0.00     52.95    180.00
0
 *SECND 2760.000

 3470 ENCROACHMENT STATIONS=       30.0      180.0  TYPE=       1  TARGET=      150.000
   2760.00      3.68    841.48      0.00      0.00    841.72      0.24      0.67      0.09    841.50
      230.        0.       155.       75.        0.       33.       48.        3.        2.     839.90
      0.12      0.00      4.70      1.57     0.000     0.050     0.100     0.000    837.80    126.05
  0.008991        74.       60.       24.         2         0         0      0.00     53.95    180.00
0
 *SECND 2820.000

 3470 ENCROACHMENT STATIONS=       30.0      180.0  TYPE=       1  TARGET=      150.000
   2820.00      3.54    841.94      0.00      0.00    842.24      0.30      0.49      0.03    842.10
      230         0.       161.       69.        0.       31.       42.        3.        2.     840.50
      0.12      0.00      5.17      1.63     0.000     0.050     0.100     0.000    838.40    126.34
  0.011462        74.       60.       24.         3         0         0      0.00     53.66    180.00
0
 *SECND 2880.000

 3470 ENCROACHMENT STATIONS=       30.0      180.0  TYPE=       1  TARGET=      150.000
   2880.00      3.51    842.51      0.00      0.00    842.83      0.32      0.58      0.01    842.70
      230.        0.       162.       68.        0.       31.       41.        3.        2.     841.10
      0.13      0.00      5.27      1.65     0.000     0.050     0.100     0.000    839.00    126.40
  0.012018        75.       60.       25.         2         0         0      0.00     53.60    180.00
0
1
  13 FEB 89    10:33:34                                                                  PAGE    15

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

 *SECND 3091.000
 3280 CROSS SECTION    3091.00 EXTENDED       2.86 FEET

 3470 ENCROACHMENT STATIONS=      174.0      195.0  TYPE=       1  TARGET=       21.000
   3091.00      3.96    844.26      0.00      0.00    844.51      0.25      1.66      0.02    842.40
      230         0.       230.        0.        0.       57.        0.        3         3.   99999.20
      0.14      0.00      4.00      0.00     0.000     0.050     0.000     0.000    840.30    174.00
  0.005834       281.      211.      171.         3         0         0      0.00     21.00    195.00
0
 CCHV=   0.300 CEHV=   0.500
 *SECND 3092.000

 3370 NORMAL BRIDGE,NRD=  13 MIN ELTRD=  849.10 MAX ELLC=  847.80
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```
            NOVI ROAD
   3092.00      4.11    844.41      0.00      0.00    844.55      0.13      0.00      0.03    850.90
      230         0.      230.        0.        0.       78.        0.        3.        3.     850.50
        0 14     0.00     2.94       0.00     0.000     0.032     0.000     0.000    840.30     90.00
  0.001362         1.       1.         1.         2         0         0     -1.12     21.00    111.00
0
 *SECND 3178.000

 3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD=  849.10 MAX ELLC=  848.30

   3178.00      3 73    844.53      0.00      0.00    844.70      0.16      0.13      0 01    851.40
      230.         0.      230.         0        0.       71.        0.        3.        3.     851.00
      0.15      0.00     3.24       0.00     0.000     0.032     0.000     0.000    840.80     90.00
  0.001749        86.      86.        86.         2         0         0     -0.31     21.00    111.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECND 3179.000
 3280 CROSS SECTION    3179.00 EXTENDED       2.56 FEET


 3470 ENCROACHMENT STATIONS=      174.0      195.0  TYPE=      1  TARGET=       21.000
   3179.00      3.66    844.46      0.00      0.00    844.77      0.32      0.00      0.08    842.90
      230.         0.      230.        0.        0.       51.        0.        3.        3.  99999.70
      0.15      0.00     4 50       0.00     0.000     0.050     0.000     0.000    840.80    174.00
  0.008354         1        1.         1.         2         0         0      0.00     21.00    195.00
0
1
  13 FEB 89    10.33:34                                                                    PAGE    16

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


 *SECND 3309.000
 3280 CROSS SECTION    3309 00 EXTENDED       2 64 FEET


 3470 ENCROACHMENT STATIONS=       60.0      320.0  TYPE=      1  TARGET=      260.000
   3309.00      3.74    845.44      0.00      0.00    845.62      0.19      0.81      0.04    843.80
      230          8.      196.       26.        8.       53.       44.        4.        3.     844.70
      0.16      0.90     3 73       0.59     0.100     0.050     0.100     0.000    841.70    163.76
  0.004815       130.     130.       130.         2         0         0      0.00    137.15    300.91
0
 *SECND 3532.000
   3532 00      3.62    846.92      0.00      0.00    847.30      0.38      1.58      0.10    855.00
      230.         0.      218.       12.        0.       43.       13.        4.        3.     846.00
      0.17      0.00     5.08       0.94     0.000     0.050     0.100     0.000    843.30     79.76
  0.011495       213.     223.       213.         1         0         0      0.00     49.49    129.26
0
 *SECND 3755.000
   3755 00      4.06    848.86      0.00      0.00    849.07      0 21      1.73      0.05    856.50
      230.         0.      204.       26.        0.       52.       30.        4         4.     847.50
      0.19      0.00     3.90       0.86     0.000     0.050     0.100     0.000    844.80     78.65
  0.005600       213.     223        213.         2         0         0      0.00     65.31    143.96
0
 *SECND 3978.000
   3978.00      3.92    850.22      0.00      0.00    850.47      0.25      1.38      0.02    858.00
      230.         0      209.       21.        0        49.       24.        5.        4.     849.00
      0.20      0.00     4.23       0.89     0.000     0.050     0.100     0.000    846.30     78.99
  0.006950       213.     223.       213.         3         0         0      0.00     60.41    139.40
0
 *SECND 4227 000
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   4227.00      3 90    851.90      0.00      0.00    852.16      0.26      1.68      0.00    859.70
      230.         0.      209.       21.         0.      49.       23.         5.         4.    850.70
        0 22     0.00      4.28      0.90     0.000     0.050     0.100     0.000    848 00     79.05
  0.007197      148.      249.      132.         3         0         0      0.00     59.63    138.68
0
 *SECNO 4476.000
   4476.00      3.91    853.61      0.00      0.00    853.87      0.26      1.70      0.00    861.40
      230.         0.      209.       21.         0.      49.       24.         5.         4.    852.40
      0.24      0.00      4.26      0.89     0.000     0.050     0.100     0.000    849.70     79.02
  0.007087       148      249.      132.         3         0         0      0.00     59.97    139.00
0
1
  13 FEB 89    10:33:34                                                                  PAGE    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

 *SECNO 4725.000

 3470 ENCROACHMENT STATIONS=        0.0       200.0  TYPE=       1   TARGET=       200.000
   4725.00      3.95    855.25      0.00      0.00    855.50      0.24      1.63      0.00    863.00
      230.         0       208.       22.         0.      50.       25.         6.         5.    854.00
      0.25      0.00      4.15      0.88     0.000     0.050     0.100     0.000    851.30     78.91
  0.006601      148.      249.      132.         3         0         0      0.00     61.56    140.48
0
 *SECNO 4979.000

 3470 ENCROACHMENT STATIONS=      220.0       332.0  TYPE=       1   TARGET=       112 000
   4979.00      3.25    856.25      0.00      0.00    856.28      0.03      0.72      0.06    854.80
      230.         64        97       70.        77       50.       82.         7         5.    854.40
      0.31      0.83      1.93      0.85     0.100     0.050     0.100     0.000    853 00    220.00
  0.001553       254       254.      254.         3         0         0      0.00    112.00    332.00
0
 *SECNO 5179 000

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      264 0       287.0  TYPE=       1   TARGET=        23.000
   5179.00      2.52    857.52    857 52      0 00    858.26      0.75      0.86      0.36    856.80
      230.         0.      230.        0.         0.      33.        0.         7.         5.  100000.00
      0.32      0.00      6.93      0.00     0.000     0.050     0.000     0.000    855.00    264.00
  0.038287      200.      200.      200.        20        19         0      0.00     23.00    287.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 5180.000

 3301 HV CHANGED MORE THAN HVINS


 3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  858.59 MAX ELLC=  858.20

              DRIVEWAY
   5180.00      3 19    858.19      0 00      0.00    858.42      0.23      0.01      0.15    858 50
      230.         0.      230         0.         0.      60.        0.         7.         5     858.50
      0.32      0.00      3.86      0.00     0.000     0.020     0.000     0.000    855.00    288.00
  0.002515        1.         1        1.         3         0         0     -4.89     23.00    311.00
0
1
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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 5194.000

 3370 NORMAL BRIDGE, NRD= 15 MIN ELTRD=  858.59 MAX ELLC=  858.40

   5194.00      3.02    858.22      0.00       0.00    858.46      0.24       0.03       0.00    858.70
      230.        0.       230.        0.         0.       58.        0.         7.         5.     858.70
     0.32       0.00      3.94       0.00      0.000     0.020     0.000      0.000    855.20    288.00
  0.002033       14.       14.        14.          2         0         0      -2.41     23.00    311.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 5195.000

 3470 ENCROACHMENT STATIONS=      264.0      287.0  TYPE=      1  TARGET=       23.000
   5195.00      3.88    858.28      0.00       0.00    858.48      0.20       0.00       0.01    856.20
      230         0.       230.        0.         0.       64.        0.         7.         5.  100000.00
     0 32       0.00      3.57       0.00      0.000     0.050     0.000      0.000    854.40    264.00
  0.004783         1.        1.         1.          2         0         0       0.00     23.00    287.00
0
 *SECNO 5295.000

 3470 ENCROACHMENT STATIONS=      225.0      325 0  TYPE=      1  TARGET=      100.000
   5295.00      2.45    858.95      0.00       0.00    859.01      0.06       0.49       0.04    858.30
      160.       36.       82.        42.        36.       32.       39.         7.         6.     857.90
      0.33       0.99      2 60       1.07      0.100     0.050     0.100      0.000    856.50    225.00
  0.005167        100       100.       100.         2         0         0       0.00    100 00    325.00
0
 *SECNO 5395.000

 3470 ENCROACHMENT STATIONS=      225 0      325.0  TYPE=      1  TARGET=      100.000
   5395.00      2.03    859.83      0.00       0.00    860.02      0.18       0.95       0.06    859.60
      160.       28.       95.        37.        20        22       23.         8.         6.     859.20
      0.34       1.40      4.28       1.60      0.100     0.050     0 100      0.000    857.80    225 00
  0.022601        100.      100.       100.         4         0         0       0.00    100.00    325.00
0
 *SECNO 5526.000
   5526.00      2 63    862.13      0.00       0.00    862.37      0.24       2.33       0.03    861.00
      160.       64.       79.        18.        46.       15.       15.         8.         6.     861.10
      0 35       1.40      5.42       1.19      0.100     0.050     0.100      0.000    859.50     57.89
  0.014772        130.      131.       120.         5         0         0       0.00    102.46    160.36
0
1
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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 5657.000
   5657.00      2.70    863.90      0.00       0.00    864.09      0.19       1.71       0.01    862.70
      160.       66        74.        19.        50.       15.       17.         8.         6.     862.80
      0.37       1.33      4.96       1 15      0.100     0.050     0.100      0.000    861.20     57.53
  0.011844        130       131        120.         4         0         0       0.00    103.55    161.08
0
 *SECNO 5788.000
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   5788.00      2.65    865 55      0.00      0.00    865.77      0.23      1.66      0.02    864.40
      160.       64.       76.       18.       47.       15.       15.        8.        7.     864.50
      0.38      1.38      5.31      1.18     0.100     0.050     0.100     0.000    862.90     57.81
  0.014042      130.      131.      120.         2         0         0      0.00    102.71    160.52
0
 *SECNO 5919.000
   5919 00      2.72    867.22      0.00      0.00    867.40      0.18      1.61      0.01    866.00
      160.       67.       73.       20.       51.       15.       17.        9.        7      866.10
      0.39      1.31      4.84      1.13     0.100     0.050     0.100     0.000    864.50     57.43
  0.011129      130.      131.      120.         2         0         0      0.00    103.86    161.29
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 6140 000
              NINE MILE ROAD
   6140.00      4.30    869 50      0.00      0.00    869.57      0.08      2.14      0.03    867.40
      160.       56        38.       66.       44        10.       41.        9.        8.     867.40
      0.42      1.28      3.73      1.60     0.100     0.050     0.100     0.000    865.20    170.05
  0.006962      351.      221.      131.         4         0         0      0.00     75.08    245.13
0

 SPECIAL BRIDGE

 5070, VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 5227 DOWNSTREAM ELEV IS     867.44 , NOT     869.50 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

 SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
      0.00       4.00       2.60       0.00       5.00       1.00       3.10       0.00     865.20     865.20

 *SECNO 6190.000
 PRESSURE AND WEIR FLOW

1
  13 FEB 89     10:33:34                                                                                  PAGE    20


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
    1034 96     870.57       0 00       140         20.         3.        13.       868.50     871.30


   6190.00      6.78    872.19      0.00      0.00    872.19      0.00      2.61      0.00    867.60
      160.       86.       15.       59.      217.       18       132.        9.        8.     867.60
      0.45      0.40      0 85      0.44     0.100     0.050     0.100     0.000    865.40    129.11
  0.000172       50.       50.       50.         0         0        12      0.00    128.83    257.94
0
 *SECNO 6275.000
   6275.00      5.09    872.19      0.00      0.00    872.21      0.02      0.02      0.01    867.10
      160.       35.       89.       36.       82.       66.       85.       10.        8.     867.10
      0.48      0.42      1.35      0.42     0.100     0.050     0.100     0.000    867.10     95.79
  0.000235       85.       85.       85.         2         0         0      0.00     78.69    174.48
0
 CCHV=    0.300 CEHV=    0 500
 *SECNO 6391.000

 3470 ENCROACHMENT STATIONS=      128.0      141.0  TYPE=      1  TARGET=       13.000
              CENTER STREET
   6391.00      4 58    872.18      0.00      0 00    872.32      0.14      0.05      0.06    873 40
      160.        0       160.        0.         0        54.        0.       10.        8.   99999.70
      0.49      0 00      2 96      0.00     0.000     0.024     0.000     0.000    867.60    128.00
```

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 0.000739      116.      115      115.        2        0        0     0.00    13.00   141.00
0

 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       3.00       2 60       0.00      13.00       3.00      28.00       0.00     867.60     867.60

 *SECNO 6482.000
 PRESSURE FLOW

1
  13 FEB 89     10:33:34                                                                                  PAGE    21

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
     873.70     872.37      0.00         0.       160.        28        41.       871.70     874.00


 3470 ENCROACHMENT STATIONS=      128.0      141.0  TYPE=      1  TARGET=       13.000
   6482.00      5.41    873.61      0.00      0.00    873.70      0.09      1.38      0.00    874.00
      160.        0       160.        0.        0.       65.        0.        10         8.  100000.00
      0 50      0.00      2.47      0.00     0.000     0.024     0.000     0.000    868.20    128.00
  0.000454       91.       91.       91.         2         0         0      0.00     13.00    141.00
0

 CCHV=    0.300 CEHV=    0.500
 *SECNO 6543.000
   6543 00      4.44    873.64      0.00      0.00    873.79      0.15      0.06      0 03    875.00
      160.        0.      160.        0.        0.       52.        0.        10.        8.     875.00
      0.51      0.00      3.06      0.00     0.000     0.050     0.000     0.000    869 20    128.00
  0.003626       61.       61.       61.         0         0         0      0.00     13.00    141.00
0
 *SECNO 6743.000
   6743.00      2.49    874.49      0.00      0.00    874.57      0.08      0.77      0.02    872.60
      160.       45.       73.       42.       50.       23.       48.       11.        8.     872.70
      0.53      0.91      3.22      0.88     0.100     0.050     0.100     0.000    872.00    236.97
  0.004045      200.      200.      200.         2         0         0      0.00    116.59    353.56
0
 *SECNO 6945.000
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
   6945.00      1.80    876.20    876.20      0.00    876.59      0.39      1.64      0.15    875.00
      160        34.       98.       28.       20.       16.       18.       11.        9.     875.10
      0 55      1 66      6.26      1.57     0.100     0.050     0.100     0.000    874.40    256.29
  0.024719      190.      202.      207.         9        19         0      0.00     76.66    332.95
0
 *SECNO 7147.000
   7147.00      2.21    879.11      0.00      0.00    879.25      0.14      2.59      0.07    877.50
      160.       41.       82.       37.       36.       20.       34.       12.        9.     877.60
      0.57      1.14      4.13      1 09     0 100     0.050     0.100     0.000    876.90    244 90
  0.007939      190       202.      207.         4         0         0      0.00    100 22    345 11
0
1
  13 FEB 89     10:33:34                                                                                  PAGE    22
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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 7362.000
   7362 00      2. 11    881.01      0.00      0.00    881. 19     0 18      1.92      0.02    879.50
      160.       40.       85        35.       32.       19.       30.       12.       10.     879 60
      0. 59     1. 24     4. 52     1. 18    0. 100    0. 050    0. 100    0. 000   878. 90   247. 52
  0. 010120      215.      215       215.         3         0         0      0. 00    94. 78   342. 31
0
 *SECNO 7577.000
   7577. 00     2. 16    883. 06     0. 00     0. 00    883 22     0. 16     2. 03     0. 01    881. 50
      160.       41.       83.       36.       34        19.       32.       12.       10.     881. 60
      0. 61     1. 18     4. 29     1 13     0. 100    0. 050    0. 100    0. 000   880. 90   246. 05
  0. 008817      215.      215.      215.         3         0         0      0 00    97. 84   343. 88
0
 *SECNO 7896.000

 3470 ENCROACHMENT STATIONS=      300. 0      309. 0  TYPE=      1  TARGET=        9. 000
   7896. 00     4. 10    885. 70     0. 00     0. 00    886. 05     0. 35     2. 73     0. 10    883. 00
      160.         0.      160.        0.        0.        34.        0.       13.       10.   99998. 90
      0. 63     0. 00     4. 75     0 00     0 000     0. 050    0. 000    0. 000   881. 60   300. 00
  0. 009028      229.      319.      309.         1         0         0      0. 00     9. 00   309. 00
0
 CCHV=    0. 500 CEHV=    1. 000
 *SECNO 7897 000

 3370 NORMAL BRIDGE, NRD= 12 MIN ELTRD=  888. 50 MAX ELLC=  887. 10

            CONNEMARA DRIVE
   7897. 00     4. 11    885. 71     0. 00     0. 00    886. 22     0 51      0. 01     0. 16    888. 30
      160.         0.      160.        0.        0.        28.        0.       13.       10.     888. 20
      0. 63     0. 00     5. 75     0. 00    0. 000    0. 032    0. 000    0. 000   881. 60   296. 40
  0. 006736        1.        1.        1.         0         0         0     -0. 82     7. 20   303. 60
0
 *SECNO 7962. 000

 3370 NORMAL BRIDGE, NRD= 12 MIN ELTRD=  888. 50 MAX ELLC=  887. 50

   7962. 00     4. 16    886 16     0. 00     0. 00    886. 66     0 50      0. 43     0. 00    888. 70
      160.         0.      160       0.        0.        28.        0.       13.       10.     888. 60
      0. 63     0. 00     5. 70     0. 00    0. 000    0. 032    0. 000    0. 000   882. 00   296. 40
  0. 006601       65.       65        65.         2         0         0     -0. 89     7. 20   303 60
0
1
  13 FEB 89     10:33·34                                                                  PAGE    23

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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. 500 CEHV=    1. 000
 *SECNO 7963. 000

 3470 ENCROACHMENT STATIONS=      300 0      309. 0 ' TYPE=      1  TARGET=        9. 000
   7963. 00     4. 49    886. 49     0. 00     0. 00    886. 78     0. 29     0. 01     0. 11    883. 40
      160          0       160.        0.        0.        37.        0.       13        10.   99999. 30
      0. 63     0. 00     4. 31     0. 00    0. 000    0. 050    0. 000    0. 000   882. 00   300. 00
  0. 006951        1.        1         1.         2         0         0      0. 00     9. 00   309. 00
0
 *SECNO 8043. 000
```

```
   8043.00      4 23    886.93      0.00      0.00    886.94      0.00      0.02      0.14    883.30
      160.       66.       23.       70.      106.       38.      278.       13.       11.     883.80
      0.68      0 62      0.61      0.25     0.030     0.050     0.100     0.000    882.70    129.17
  0.000072       80.       80.        80         2         0         0      0 00    180.77    309.94
0
 *SECNO 8224.000

 3470 ENCROACHMENT STATIONS=        0.0      320.0  TYPE=      1  TARGET=      320.000
   8224.00      2.76    886.96      0.00      0.00    886.99      0.02      0.03      0.02    884 80
      160        47.       37.       76.       29.       24.      135.       15.       11.     885.30
      0.72      1.62      1.55      0.56     0.030     0.050     0.100     0.000    884.20    165.90
  0.000885      196.      181.      163.         2         0         0      0.00    138.70    304.60
0
 *SECNO 8405.000
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
   8405.00      1.78    887.48    887.48      0.00    887.74      0.26      0.43      0.24    886.30
      160.       36.       70.       55.        7.       14        43.       15.       12.     886.80
      0.74      4.80      5.04      1.26     0.030     0.050     0.100     0.000    885.70    187.35
  0.019094      196.      181.      163.         2        17         0      0.00    113.67    301.02
0
 *SECNO 8465.000
   8465.00      2.09    888.29      0.00      0.00    888.39      0.09      0.56      0.08    886.80
      160.       38.       53        69.       12.       17.       72.       15.       12.     887.30
      0 74      3.17      3 15      0.96     0.030     0.050     0.100     0.000    886.20    182.72
  0.005711       65.       60.       54.         3         0         0      0 00    119 43    302.15
0
1
  13 FEB 89     10:33:34                                                                          PAGE    24

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 8525.000
   8525.00      1.99    888.69      0.00      0.00    888.81      0.12      0.40      0.03    887.30
      160        36        58.       66.       10.       16.       63.       15.       12.     887.80
      0.75      3.52      3.63      1.05     0.030     0.050     0.100     0.000    886.70    185.09
  0.008218       65.       60        54.         3         0         0      0.00    116.69    301.79
0
 *SECNO 8587.000
   8587 00      1.99    889.19      0.00      0.00    889.32      0.13      0.50      0.00    887.80
      160.       36.       58.       66.       10.       16.       62.       15.       12.     888.30
      0.76      3.54      3.66      1.05     0.030     0 050     0.100     0.000    887.20    185.15
  0 008361       67.       62.       55.         1         0         0      0.00    116.62    301.77
0
 *SECNO 9091 000
   9091.00      2.23    891.93      0.00      0.00    891.99      0.07      2.65      0.03    890.30
      160.       40.       48.       72        15.       18.       85.       17.       14.     890.80
      0.83      2.74      2.65      0 85     0.030     0.050     0.100     0.000    889.70    179.27
  0.003625      489.      504.      509.         6         0         0      0.00    123.38    302.65
0
 *SECNO 9411.000

 3470 ENCROACHMENT STATIONS=      502.5      512.5  TYPE=      1  TARGET=       10.000
   9411 00      2.95    894.15      0.00      0.00    894.70      0.55      2.22      0.48  99999.50
      160.        0.      160.        0.        0.       27.        0.       17.       14.   99999.50
      0.85      0.00      5 94      0.00     0.000     0.050     0.000     0.000    891.20    502.50
  0.018271      320.      320.      320.         2         0         0      0.00     10.00    512.50
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 9412.000
```

```
 3370 NORMAL BRIDGE, NRD= 20 MIN ELTRD=  897.20 MAX ELLC=  896.30

            TAFT ROAD
   9412.00      2 71    893 91    893.81      0.00    894 95      1.04      0.01      0.25    900.90
      160.        0.      160.        0.        0.      20.        0.       17.       14.     900.80
      0.85      0.00      8.20      0.00     0 000     0.020     0.000     0 000   891.20    495.50
  0.006923        1.        1.        1.         4        12         0     -0.66     9.00    504.50
0
1
  13 FEB 89     10:33:34                                                                    PAGE    25

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 9430.000

 3370 NORMAL BRIDGE, NRD= 20 MIN ELTRD=  897.20 MAX ELLC=  896.40

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
   9430.00      2.52    894.12    894.12      0.00    895.29      1.17      0.14      0.06    900.90
      160.        0.      160.        0.        0.      18.        0.       17.       14.     900.80
      0.85      0.00      8 68      0.00     0.000     0.020     0.000     0.000   891.60    495.50
  0 008331       18.       18.       18.         3        12         0     -0.74     9 00    504.50
0
 CCHV=    0 500 CEHV=    1 000
 *SECNO 9431.000

 3301 HV CHANGED MORE THAN HVINS

 3470 ENCROACHMENT STATIONS=      502.5      512.5  TYPE=      1  TARGET=      10.000
   9431 00      3.81    895.41      0.00      0.00    895.73      0.31      0.01      0.43  99999.90
      160.        0      160.        0.        0.      36.        0.       17        14.   99999.90
      0.85      0.00      4.50      0.00     0 000     0.050     0.000     0.000   891.60    502.50
  0.008363        1.        1.        1.         4         0         0      0.00     10.00    512.50
0
 *SECNO 9581.000
   9581.00      3.69    896 19      0.00      0.00    896.26      0.07      0.41      0.12    893.40
      160.       18.       118.      24.       28.      49.       30.       17.       14.     893.20
      0.87      C 67      2.38      0.79      0.100     0.050     0.100     0.000   892 50    480.14
  0.001318      150.      150.      150.         2         0         0      0.00     55 44    535.58
0
 *SECNO 10280.000

 3265 DIVIDED FLOW

  10280.00      1.97    898.47      0.00      0.00    898.62      0.15      2.28      0.09    898.00
      160         126       25         9.       51.       4.        8.       19.       15      898.00
      0.93      2.45      5.67      1.12      0.100     0.050     0.100     0.000   896.50     81.60
  0.038221      509.      699.      649.         2         0         0      0.00    117.85    664.29
0
1
  13 FEB 89     10:33 34                                                                    PAGE    26

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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= 0.500 CEHV= 1.000
*SECND 11080.000

3470 ENCROACHMENT STATIONS=		760.0	844.0	TYPE=	1	TARGET=	84.000		
NINE MILE ROAD									
11080.00	1.14	902.24	902.23	0.00	902.60	0.36	3.77	0.20	901.40
160.	141.	13.	6.	29.	4.	2.	19	16.	901.10
0.96	4.95	3.39	2.96	0.015	0.024	0.015	0.000	901.10	764.31
0.003148	430.	800.	900.	14	11	0	0.00	49.71	814.01

0

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	2.88	2.80	84.00	3.00	0.00	7.10	0.00	901.10	901.10

*SECND 11120.000
1860 XLCEL OF 912.20 EXCEEDS RDEL OF 912.00
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
924.95	902.60	0.00	91.	71.	7.	1.	901.50	907.00

3470 ENCROACHMENT STATIONS=		760.0	844.0	TYPE=	1	TARGET=	84.000		
11120.00	5.59	906.69	0.00	0.00	906.69	0.00	4.09	0.00	901.40
160.	90.	6.	64.	206.	22.	172.	19.	17.	901.10
0.98	0.44	0.29	0.37	0.015	0.024	0.015	0.000	901.10	760.00
0.000002	40.	40.	40	0	0	10	0.00	84.00	844.00

0
CCHV= 0.300 CEHV= 0.500
*SECND 11795.000

3470 ENCROACHMENT STATIONS=		520.0	760.0	TYPE=	1	TARGET=	240.000		
11795.00	2.09	906.69	0.00	0.00	906.70	0.01	0.01	0.00	905.10
160.	112.	20.	29.	193.	13.	53.	25.	20.	906.00
1.32	0.58	1.55	0.54	0.100	0.050	0.100	0.000	904.60	520.00
0.001342	960.	675.	570.	2	0	0	0.00	240.00	760.00

0
1
13 FEB 89 10:33:34 PAGE 27

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

*SECND 11895.000

3470 ENCROACHMENT STATIONS=		520.0	760.0	TYPE=	1	TARGET=	240.000		
11895.00	1.80	906.90	0.00	0.00	906.92	0.02	0.21	0.01	905.60
160.	109.	24.	27.	139.	11.	38.	26.	20.	906.50
1.34	0.79	2.28	0.71	0.100	0.050	0.100	0.000	905.10	520.00
0.003691	100.	100.	100.	2	0	0	0.00	240.00	760.00

0
*SECND 11995.000

3470 ENCROACHMENT STATIONS=		520.0	760.0	TYPE=	1	TARGET=	240.000		
11995.00	1.72	907.32	0.00	0.00	907.35	0.03	0.43	0.00	906.10
160.	108	26	26.	125.	10.	34.	26.	21.	907.00

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     1.37      0.86      2.57      0.77     0.100     0.050     0.100     0.000    905.60    520.00
  0.005023     100.      100.      100.         2         0         0      0.00    240.00    760.00
0
 *SECNO 12095.000

 3470 ENCROACHMENT STATIONS=      520 0      760.0  TYPE=      1  TARGET=      240.000
  12095.00      1 72    907 82     0.00      0.00    907.84     0.03      0.50      0.00    906.60
      160.      108.       26.       26.      126.       10.       34.       27.       21.     907.50
     1.39      0.86      2.55      0.76     0.100     0.050     0.100     0.000    906.10    520.00
  0.004922     100.      100.      100.         1         0         0      0.00    240.00    760.00
0
 *SECNO 12195.000

 3470 ENCROACHMENT STATIONS=      520.0      760.0  TYPE=      1  TARGET=      240.000
  12195.00      1.72    908.32     0.00      0.00    908.35     0.03      0.50      0.00    907.10
      160.      108.       26.       26.      125.       10.       33.       27.       22.     908.00
     1.42      0.87      2.59      0.77     0.100     0.050     0.100     0.000    906.60    520.00
  0.005116     100.      100.      100.         0         0         0      0.00    240 00    760.00
0
 *SECNO 12595 000

 3470 ENCROACHMENT STATIONS=      680.0      775.0  TYPE=      1  TARGET=       95.000
  12595 00      1.86    910.86     0.00      0.00    910.94     0.08      2.57      0.03    909.50
      160.       43.       41.       76.       26.       11.       59.       28.       23.     910.40
     1.47      1.64      3.74      1.29     0.100     0.050     0.100     0.000    909.00    680.00
  0.009390     390.      400.      350.         3         0         0      0.00     95.00    775.00
0
1
  13 FEB 89     10.33:34                                                                          PAGE    28

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 13155.000

 3470 ENCROACHMENT STATIONS=      780.0      840.0  TYPE=      1  TARGET=       60 000
  13155.00      2.62    915 12     0.00      0.00    915.26     0 14      4.29      0.03    913.80
      160.       31.       92.       37.       24.       24.       30.       29.       24.     914.10
     1.53      1.30      3.75      1.23     0.100     0.050     0.100     0.000    912.50    780.00
  0.006435     590.      560.      530.         4         0         0      0.00     60.00    840.00
0
 *SECNO 13620.000

 3470 ENCROACHMENT STATIONS=      725.0      920 0  TYPE=      1  TARGET=      195.000
  13620.00      2.28    917.58     0.00      0.00    917.63     0 04      2.34      0.03    916.60
      160.       22.       54.       84.       38.       21.       97.       31.       26.     916 90
     1.62      0.59      2.61      0.87     0.100     0.050     0.100     0.000    915.30    725.00
  0.003969     450.      465.      485.         5         0         0      0.00    195.00    920.00
0
 *SECNO 14029 000

 3470 ENCROACHMENT STATIONS=      560.0      750.0  TYPE=      1  TARGET=      190.000
  14029 00      2.15    919.95     0.00      0.00    920.09     0.14      2.41      0.05    919.30
      160.       24.       72.       64.       33.       17.       44.       32.       27.     918 60
     1 66      0.73      4.32      1.45     0.100     0.050     0.100     0.000    917.80    593.48
  0.010158     450.      409.      380.         3         0         0      0.00    156.52    750.00
0
 *SECNO 14634.000

 3470 ENCROACHMENT STATIONS=      150.0      320.0  TYPE=      1  TARGET=      170.000
  14634.00      1 85    924.35     0.00      0.00    924.38     0 03      4.26      0.03    923.20
      160.       39.       14.      107.       37.        5.       91.       33.       29.     922.90
```

```
     1.79      1 05      2.81      1 18     0.100     0.050     0.100     0.000    922.50    199.98
  0.005189      500.      605.      640.         5         0         0      0.00    120.02    320.00
0
 *SECNO 15238.000
  15238.00      1.54    928.74      0.00      0.00    928.78      0.04      4.40      0 01    927.90
      160.        31.       15.       114.       25.        4.       85.       35.       31.     927.60
      1.90      1.26      3.72      1.35     0.100     0.050     0.100     0.000    927.20    201.83
  0.012100      570.      604.      580.         4         0         0      0 00    159.67    361.50
0
1
  13 FEB 89     10.33:34                                                                    PAGE    29

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 15988.000

 3470 ENCROACHMENT STATIONS=      830.0      940.0  TYPE=      1   TARGET=      110.000
  15988.00      2.47    934.17      0.00      0.00    934.24      0.06      5 44      0.01    933.40
      160.        7.       48.       105.       8.       15.       93.       37.       33.     932.30
      2.01      0.85      3.25      1.13     0.100     0.050     0.100     0.000    931.70    830.00
  0.005034      710.      750.      730.         4         0         0      0.00    101.23    931.23
0
 *SECNO 16738.000

 3470 ENCROACHMENT STATIONS=      370.0      440.0  TYPE=      1   TARGET=       70.000
  16738.00      1.45    940.35      0.00      0.00    940.55      0.20      6.25      0.07    940.10
      160.        0.       87.       72.       1.       20.       37.       38.       34.     939.30
      2.07      0 52      4.48      1.94     0.100     0.050     0.100     0.000    938.90    378.53
  0.019131      700.      750.      680.         4         0         0      0.00     61.47    440.00
0
 *SECNO 17638.000
  17638.00      2 79    950.39      0.00      0.00    950.55      0.16      9.99      0.01    949.70
      160.        4.      111.       45.       6.       29.       48.       40.       36.     949.10
      2.16      0 61      3.81      0.93     0 100     0.050     0 100     0.000    947 60    266.25
  0.007056      870.      900.      940.         4         0         0      0 00    109.26    375.51
0
 *SECNO 18038.000

 3470 ENCROACHMENT STATIONS=      180.0      375.0  TYPE=      1   TARGET=      195.000
  18038.00      2.50    954.30      0.00      0.00    954.61      0.31      3.99      0.07    953.90
      160.        1.       125       34.       2.       25.       29.       40.       37.     953.30
      2.18      0.62      5.02      1.15     0 100     0.050     0.100     0.000    951 80    274.06
  0.015127      400.      400.      400.         4         0         0      0.00     84 69    358.76
0
 *SECNO 18240.000

 3470 ENCROACHMENT STATIONS=      450.0      540.0  TYPE=      1   TARGET=       90.000
  18240.00      2.29    956.49      0 00      0.00    956.59      0.10      1.92      0.06    954.20
      160.       60.       47.       53.       45        11.       42.       41.       38.     954.30
      2.21      1.34      4.16      1.25     0.100     0.050     0.100     0.000    954.20    450.00
  0.006709      200.      202.      190.         0         0         0      0.00     90.00    540.00
0
1
  13 FEB 89     10:33:34                                                                    PAGE    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
```

CCHV= 0.300 CEHV= 0.500
*SECNO 18513.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

TEN MILE ROAD

18513.00	5.56	960.76	960.76	0.00	960.93	0.16	0.75	0.03	960.20
160.	29.	60.	71.	18.	13.	37.	41.	38.	960.20
2.24	1.64	4.72	1.90	0.015	0.013	0.015	0.000	955.20	336.89
0.001480	272.	272.	272.	20	30	0	0.00	178.07	514.96

0

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	1.60	2.60	0.00	2.50	0.00	4.90	0.00	955.20	955.20

*SECNO 18557.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
987.25	963.85	0.00	134.	26.	5.	8.	958.30	960.80

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF

18557.00	5.57	961.37	0.00	0.00	961.53	0.16	0.00	0.00	960.80
160.	29.	59.	72.	18.	13	38.	41.	39.	960.80
2.24	1.62	4.64	1.89	0.015	0.013	0.015	0.000	955.80	336.20
0.001424	44.	44.	44	20	0	10	0.00	179.33	515.54

0
1

THIS RUN EXECUTED 13 FEB 89 10:34:07

****
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 CITY OF NOVI JOB NO. 5555-46-01
T2 100 YEAR FLOOD - ENCROACHED
T3 THORNTON CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	3.	0.	0.	0.000000	0.00	0.0	0.	834.280	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

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV

```
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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
 *SECNO 1560.000
  2800 NAT Q1=       47 03  WSEL=     834.29  ENC Q1=       47.03  WSEL=     834.39  RATIO=   0.0000
  NAT Q1=       53.   RATIOS LOB, CH, ROB=   0.2806   0.7178   0.0015  WSEL=     834.39

 3470 ENCROACHMENT STATIONS=       222.2      329.0  TYPE=       4  TARGET=         0.114
   1560.00       2.78    834.28       0.00    834.29    834.36       0.08       0.00       0.00    833.40
       230.        40.       190.         0.       55.       77.         0.         0.         0.    834.10
      0.00       0.72       2.47       0.00     0.100     0.050     0.000      0.000    831.50    222.17
  0.003018          0          0         0.         0         0         0       0.00    106 83    329.00
0
 *SECNO 1760.000
  2800 NAT Q1=       38.27  WSEL=     834.84  ENC Q1=       38.27  WSEL=     834.94  RATIO=   0.0000
  NAT Q1=       43.   RATIOS LOB, CH, ROB=   0.3000   0.6973   0.0027  WSEL=     834.94

 3470 ENCROACHMENT STATIONS=       159.4      243.5  TYPE=       4  TARGET=         0.111
   1760.00       2.96    834.93       0.00    834.84    835.03       0.10       0.66       0.01    833.87
       230.        50.       180.         0.       55.       62.         0.         1.         0.    834.57
      0.02       0.91       2.89       0.00     0.100     0.050     0.000      0.000    831.97    159.36
  0.003759        180.       200.       243.         2         0         0       0.00     84.10    243.46
0
 *SECNO 1960.000
  2800 NAT Q1=       34.40  WSEL=     835.60  ENC Q1=       34.40  WSEL=     835.70  RATIO=   0.0000
  NAT Q1=       38.   RATIOS LOB, CH, ROB=   0.3645   0.6262   0.0093  WSEL=     835.70

 3470 ENCROACHMENT STATIONS=        93.7      158.3  TYPE=       4  TARGET=         0.103
   1960.00       3.28    835.72       0.00    835.60    835.85       0.13       0.81       0.01    834.34
       230.        70.       160.         0.       59.       47.         0.         1.         1.    835.04
      0.04       1.19       3.42       0.00     0.100     0.050    0 000      0.000    832.44     93.72
  0.004576        180.       200.       243.         1         0         0       0.00     64.53    158.25
0
 *SECNO 2160 000

 3470 ENCROACHMENT STATIONS=       116 0      144.0  TYPE=       1  TARGET=        28.000
   2160.00       3.79    836.69       0.00    836.59    837.04      0 35       1.08       0.11    834.50
       230.         15       212.         3.       11.       43.         4.         1.          1    835.70
      0.05       1.34       4.95       0.87      0 100     0.050     0.100      0.000    832.90    116.00
  0.006700        180.       200.       244          2         0         0       0.00     28.00    144.00
0
1
  13 FEB 89     10:33:34                                                                    PAGE    33


    SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
    Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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 2328.000
   2328.00       3.67    837.87       0.00    837.87    838.26       0.39       1.20       0.02    835.80
       230.         13       214.         2.       10.       41.          3         2.         1.    837.00
      0.06       1.32       5.19       0.75     0.100     0.050     0.100      0.000    834.20    115.44
  0.007720        148.       168.       238.         2         0         0       0.00     30.15    145.59
0
 *SECNO 2495.000
   2495.00       3.22    838.72       0.00    838.72    838.77       0.05       0.40       0.10    843.20
       230.         0.       230.         0.        0.       132.         0.         2.         1.    841.20
      0.09       0.00       1.74       0.00     0.000     0.050     0.000      0.000    835 50     89.12
```

```
  0.001166      147.      167.      237.         3         0         0      0.00     57.98    147.09
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 2496.000

 3265 DIVIDED FLOW


 3370 NORMAL BRIDGE, NRD= 21 MIN ELTRD=  840.00 MAX ELLC=  840.20

            FOOTBRIDGE
   2496.00      3 22    838.72      0.00    838.72    838.78      0.06      0.00      0.01    843.20
      230.         0.      230.        0.        0.      117.         0         2.        1.     841.20
      0.09      0.00      1.96      0.00     0.000     0.020     0.000     0.000    835.50     89.24
  0.000337         1.        1.        1.         1         0         0      0.00     52.15    147.40
0
 *SECNO 2502.000

 3265 DIVIDED FLOW


 3370 NORMAL BRIDGE, NRD= 21 MIN ELTRD=  840.00 MAX ELLC=  840.20

   2502.00      3.22    838.72      0.00    838.72    838.78      0.06      0.00      0.00    843.20
      230.         0.      230.        0.        0.      117.         0.        2.        1.     841.20
      0.09      0.00      1.96      0.00     0.000     0.020     0.000     0.000    835.50     89 24
  0.000337         6.        6.        6.         0         0         0      0 00     52.15    147.39
0
1
  13 FEB 89    10:33:34                                                                    PAGE    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


 CCHV=    0.300 CEHV=    0.500
 *SECNO 2503.000
   2503.00      3.24    838.74      0.00    838.74    838.78      0.05      0.00      0.00    843.20
      230.         0       230.        0.        0.      132.         0.        2.        1      841.20
      0.09      0.00      1.74      0 00     0.000     0.050     0.000     0.000    835.50     89.11
  0.001159         1         1.        1.         1         0         0      0.00     58.00    147.11
0
 *SECNO 2560.000
   2560.00      3.30    838.80      0.00    838.80    838.85      0.04      0.06      0.00    843.20
      230.         0.      230.        0.        0.      137.         0.        2.        1.     841.20
      0.10      0.00      1.68      0.00     0.000     0.050     0.000     0.000    835.50     88.96
  0.001051        57.       57.       57.         2         0         0      0 00     58.46    147.41
0
 *SECNO 2600 000

 3470 ENCROACHMENT STATIONS=      98.0      139.0  TYPE=      1  TARGET=      41.000
   2600.00      3 34    838.84      0.00    838.84    838.90      0.06      0.04      0.01100000.00
      230.         0.      230.        0.         0      119.         0.        2.        1.  100000.00
      0.11      0 00      1.93      0.00     0.000     0.050     0 000     0.000    835.50     98.00
  0.001162        40.       40.       40.         0         0         0      0.00     41.00    139.00
0
 *SECNO 2639.000

 3470 ENCROACHMENT STATIONS=     388.0      409.0  TYPE=      i  TARGET=      21.000
   2639.00      3.34    838.84      0.00    838.84    839.06      0.21      0.08      0.08    836.30
      230.         0       230.        0.        0.       62.         0.        2.        1.  100000.00
      0.11      0 00      3.72      0.00     0.000     0.050     0.000     0.000    835.50    388.00
  0.004972        39        39.       39.         2         0         0      0.00     21.00    409.00
```

```
0
 CCHV=   0.300 CEHV=   0 500
 *SECNO 2640.000

 3265 DIVIDED FLOW


 3370 NORMAL BRIDGE, NRD= 15 MIN ELTRD=  845.50 MAX ELLC=  844.10

            NINE MILE ROAD
  2640.00     1.91   838.61     0.00   838.61   839.31     0.69     0.01     0.24   845.10
     230        0.      230.       0.       0.      34.       0.       2.       1.    845.20
     0.11     0.00     6.68     0.00    0.000    0.032    0.000    0.000   836.70   110.00
 0.013224       1.       1.       1.        2        0        0     0.00    20.00   131.00
0
1
  13 FEB 89    10:33:34                                                          PAGE    35


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 2692.000

 3265 DIVIDED FLOW


 3370 NORMAL BRIDGE, NRD= 15 MIN ELTRD=  845.50 MAX ELLC=  844.50

  2692.00     2.31   839.41     0.00   839.41   839.87     0.46     0.50     0.07   845.50
     230.       0.      230.       0.       0.      42.       0.       2.       1.    845.60
     0.11     0.00     5.45     0.00    0.000    0.032    0.000    0.000   837.10   110.00
 0.007270       52.      52.      52.        3        0        0     0.00    20.00   131.00
0
 CCHV=   0 300 CEHV=   0 500
 *SECNO 2693.000
  2693.00     2.60   839.70     0.00   839.70   839.95     0.24     0.01     0.06   843.80
     230.       0.      230.       0.       0.      58.       0.       2        1.    844.80
     0.11     0.00     3.97     0.00    0.000    0.050    0.000    0.000   837.10   381.63
 0.008262       1.       1.       1.        3        0        0     0.00    31.80   413.43
0
 *SECNO 2700.000
 3685 20 TRIALS ATTEMPTED WSEL, CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      30.0     180.0  TYPE=     1  TARGET=     150.000
  2700.00     3.21   840.41   840.41   840.41   840.96     0.55     0.08     0.15   840.90
     230        0.      178.      52        0.      27.      29.       2.       1.    839.30
     0.11     0.00     6.69     1.77    0.000    0.050    0.100    0.000   837.20   127.05
 0.021885       9.       7        3.       20       11        0     0.00    52.95   180.00
0
 *SECNO 2760.000

 3470 ENCROACHMENT STATIONS=      30.0     180.0  TYPE=     1  TARGET=     150.000
  2760.00     3.68   841.48     0.00   841.48   841.72     0.24     0.67     0.09   841.50
     230.       0.      155.      75.       0.      33       48.       2.       1.    839.90
     0.12     0.00     4.70     1.57    0.000    0.050    0.100    0.000   837.80   126.05
 0.008991      74.      60.      24.        2        0        0     0.00    53.95   180.00
0
1
  13 FEB 89    10:33.34                                                          PAGE    36
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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 2820.000

3470 ENCROACHMENT STATIONS= 30.0 180.0 TYPE= 1 TARGET= 150.000

2820.00	3.54	841.94	0.00	841.94	842.24	0.30	0.49	0.03	842.10
230.	0.	161	69.	0.	31.	42.	3.	1.	840.50
0.12	0.00	5.17	1.63	0.000	0.050	0.100	0.000	838.40	126.34
0.011462	74.	60.	24.	3	0	0	0.00	53.66	180.00

0

*SECNO 2880.000

3470 ENCROACHMENT STATIONS= 30.0 180.0 TYPE= 1 TARGET= 150.000

2880.00	3.51	842.51	0.00	842.51	842.83	0.32	0.58	0.01	842.70
230.	0.	162.	68.	0.	31.	41	3.	2.	841.10
0.12	0.00	5.27	1.65	0.000	0.050	0 100	0.000	839.00	126.40
0.012018	75.	60.	25.	2	0	0	0.00	53.60	180.00

0

*SECNO 3091.000

3280 CROSS SECTION 3091.00 EXTENDED 2.86 FEET

3470 ENCROACHMENT STATIONS= 174.0 195.0 TYPE= 1 TARGET= 21.000

3091.00	3.96	844.26	0.00	844.26	844.51	0.25	1.66	0.02	842.40
230.	0.	230.	0.	0.	57.	0.	3.	2.	99999.20
0.14	0.00	4.00	0.00	0.000	0.050	0.000	0.000	840 30	174.00
0.005834	281.	211.	171.	3	0	0	0.00	21.00	195.00

0

CCHV= 0.300 CEHV= 0.500

*SECNO 3092.000

3370 NORMAL BRIDGE, NRD= 13 MIN ELTRD= 849.10 MAX ELLC= 847.80

NOVI ROAD

3092.00	4.11	844.41	0.00	844.41	844.55	0.13	0.00	0.03	850.90
230.	0.	230.	0.	0.	78.	0.	3.	2.	850.50
0.14	0.00	2.94	0.00	0.000	0.032	0.000	0.000	840.30	90.00
0.001362	1.	1.	1.	2	0	0	-1.12	21.00	111.00

0

*SECNO 3178 000

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 849 10 MAX ELLC= 848.30

3178.00	3.73	844.53	0.00	844.53	844.70	0.16	0.13	0.01	851.40
230.	0.	230.	0.	0.	71.	0.	3.	2	851 00
0.14	0.00	3.24	0.00	0.000	0.032	0.000	0.000	840.80	90.00
0.001749	86.	86	86.	2	0	0	-0 31	21.00	111.00

0

CCHV= 0 300 CEHV= 0.500

*SECNO 3179.000

3280 CROSS SECTION 3179.00 EXTENDED 2.56 FEET

```
 3470 ENCROACHMENT STATIONS=      174.0      195.0  TYPE=      1  TARGET=       21.000
   3179.00      3.66    844.46      0 00    844.46    844.77      0.32      0.00      0.08    842.90
      230         0.      230.        0.        0.       51.        0.        3.        2.   99999.70
      0.14      0.00      4.50      0.00     0.000     0.050     0.000     0.000    840.80    174 00
  0.008354        1.        1.        1.         2         0         0      0.00     21.00    195.00
0
 *SECNO 3309.000
 3280 CROSS SECTION   3309.00 EXTENDED       2.64 FEET


 3470 ENCROACHMENT STATIONS=       60.0      320.0  TYPE=      1  TARGET=      260.000
   3309.00      3.74    845.44      0.00    845.44    845.62      0.19      0.81      0.04    843.80
      230.        8.      196.       26.        8.       53.       44.        3.        2.    844.70
      0.16      0.90      3.73      0.59     0.100     0.050     0.100     0.000    841.70    163.76
  0.004815      130.      130       130.         2         0         0      0.00    137.15    300.91
0
 *SECNO 3532.000
   3532.00      3.62    846.92      0.00    846.92    847.30      0.38      1.58      0.10    855.00
      230         0.      218.       12.        0.       43.       13.        4.        2.    846.00
      0.17      0.00      5.08      0.94     0.000     0.050     0.100     0.000    843.30     79.76
  0.011495      213.      223.      213.         1         0         0      0 00     49.49    129.26
0
 *SECNO 3755.000
   3755.00      4.06    848.86      0.00    848 86    849.07      0.21      1.73      0.05    856.50
      230.        0.      204.       26.        0.       52.       30.        4.        3     847 50
      0.19      0.00      3.90      0.86     0.000     0.050     0.100     0.000    844.80     78.65
  0.005600      213.      223.      213.         2         0         0      0.00     65.31    143.96
0
1
  13 FEB 89     10.33:34                                                                          PAGE    38


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 3978.000
   3978.00      3.92    850.22      0 00    850.22    850.47      0.25      1.38      0.02    858.00
      230.        0.      209.       21.        0.       49.       24.        4.        3.    849.00
      0 20      0.00      4 23      0.89     0.000     0.050     0.100     0.000    846.30     78.99
  0.006950      213.      223.      213.         3         0         0      0.00     60.41    139.40
0
 *SECNO 4227.000
   4227.00      3.90    851.90      0.00    851.90    852.16      0.26      1.68      0 00    859.70
      230.        0.      209.       21.        0.       49.       23.        5.        3.    850.70
      0.22      0.00      4.28      0.90     0 000     0.050     0.100     0.000    848.00     79.05
  0.007197      148       249.      132.         3         0         0      0.00     59.63    138.68
0
 *SECNO 4476.000
   4476.00      3.91    853.61      0.00    853.61    853.87      0.26      1.70      0.00    861.40
      230.        0.      209.       21.        0.       49.       24.        5.        4.    852.40
      0.23      0.00      4.26      0.89     0.000     0.050     0.100     0.000    849.70     79.02
  0.007087      148.      249.      132.         3         0         0      0 00     59.97    139.00
0
 *SECNO 4725.000

 3470 ENCROACHMENT STATIONS=        0.0      200.0  TYPE=      1  TARGET=      200.000
   4725.00      3.95    855.25      0.00    855.25    855.50      0.24      1.63      0.00    863.00
      230.        0.      208.       22.        0.       50.       25.        6.        4.    854.00
      0.25      0.00      4 15      0.88     0.000     0.050     0.100     0.000    851.30     78.91
  0.006601      148.      249.      132.         3         0         0      0.00     61.56    140.48
0
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 *SECNO 4979.000

 3470 ENCROACHMENT STATIONS=      220.0      332.0  TYPE=      1  TARGET=      112.000
   4979.00      3 25    856.25      0.00    856.25    856.28      0.03      0.72      0.06    854.80
      230.        64.       97.        70        77.       50.       82.        6.        4.     854.40
      0.31      0.83      1.93      0.85     0.100     0.050     0.100     0.000    853.00    220.00
  0.001553       254.      254.      254.         3         0         0      0.00    112 00    332.00
0
 *SECNO 5179.000

 3301 HV CHANGED MORE THAN HVINS

1
  13 FEB 89     10:33:34                                                                    PAGE    39


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       GROB      ALOB      ACH       AROB      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

 3470 ENCROACHMENT STATIONS=      264.0      287.0  TYPE=      1  TARGET=       23.000
   5179 00      2 52    857.52    857.52    857.52    858.26      0.75      0.86      0.36    856.80
      230.        0.       230.        0.        0.        33.       0.        7.        5.  100000.00
      0.31      0.00      6.93      0.00     0.000     0.050     0.000     0.000    855.00    264.00
  0.038287       200.      200.      200.        20        19         0      0.00     23.00    287.00
0
 CCHV=    0.300 CEHV=    0 500
 *SECNO 5180.000

 3301 HV CHANGED MORE THAN HVINS


 3370 NORMAL BRIDGE, NRD= 15 MIN ELTRD=   858.59 MAX ELLC=   858.20

              DRIVEWAY
   5180.00      3.19    858.19      0.00    858.19    858.42      0.23      0.01      0.15    858.50
      230.         0       230.        0.        0.        60.       0.        7.        5.     858.50
      0.31      0.00      3.86      0.00     0.000     0.020     0.000     0.000    855.00    288.00
  0.002515         1.        1.        1.         3         0         0     -4.89     23.00    311.00
0
 *SECNO 5194.000

 3370 NORMAL BRIDGE, NRD= 15 MIN ELTRD=   858.59 MAX ELLC=   858.40

   5194.00      3.02    858.22      0.00    858.22    858 46      0.24      0.03      0.00    858.70
      230.        0.       230.        0.        0.        58.       0.        7.        5.     858.70
      0.31      0.00      3.94      0.00     0.000     0.020     0 000     0.000    855.20    288.00
  0.002033        14.       14.       14         2         0         0     -2.41     23.00    311.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 5195.000

 3470 ENCROACHMENT STATIONS=      264 0      287.0  TYPE=      1  TARGET=       23.000
   5195.00      3.88    858.28      0.00    858.28    858.48      0.20      0.00      0.01    856.20
      230.        0.       230.        0.         0        64.       0.        7.        5.  100000.00
      0.32      0 00      3 57      0.00     0 000     0.050     0.000     0.000    854.40    264.00
  0.004783         1.        1.        1.         2         0         0      0.00     23.00    287.00
0
1
  13 FEB 89     10·33·34                                                                    PAGE    40
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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 5295.000

 3470 ENCROACHMENT STATIONS=      225.0      325.0  TYPE=      1  TARGET=      100.000
   5295.00      2.45    858.95      0.00    858.95    859.01      0.06      0.49      0.04    858.30
      160.       36.       82.       42.       36.       32       39.         7.        5.     857.90
      0.33      0.99      2.60      1.07     0.100     0.050     0.100     0.000    856.50    225.00
  0.005167      100.      100.      100.         2         0         0      0 00    100.00    325.00
0
 *SECNO 5395.000

 3470 ENCROACHMENT STATIONS=      225.0      325.0  TYPE=      1  TARGET=      100.000
   5395 00      2.03    859.83      0.00    859.83    860.02      0 18      0.95      0.06    859.60
      160.       28.       95.       37.       20.       22       23.         7.        5.     859.20
      0.34      1.40      4.28      1.60     0.100     0.050     0.100     0.000    857.80    225.00
  0.022601      100.      100.      100.         4         0         0      0.00    100.00    325.00
0
 *SECNO 5526 000
  2800 NAT Q1=       13.16  WSEL=     862 13  ENC Q1=       13.16  WSEL=     862.23  RATIO=   0.0000
  NAT Q1=      15.   RATIOS LOB,CH,ROB=   0.4221   0.4528   0.1252  WSEL=     862.23

 3470 ENCROACHMENT STATIONS=       67.0      137.3  TYPE=      4  TARGET=        0.150
   5526.00      2.71    862.21      0.00    862.13    862.50      0.30      2.43      0.06    861.00
      160.       64.       87.       9.        43.       15.         5.        7         5.     861.10
      0.35      1 50      5.77      1.70     0.100     0.050     0.100     0.000    859.50     66.98
  0.015923      130.      131.      120.         4         0         0      0.00     70.33    137.31
0
 *SECNO 5657.000
  2800 NAT Q1=       14.70  WSEL=     863.90  ENC Q1=       14.70  WSEL=     864.00  RATIO=   0.0000
  NAT Q1=      17.   RATIOS LOB,CH,ROB=   0.4364   0.4296   0 1341  WSEL=     864.00

 3470 ENCROACHMENT STATIONS=       66.7      138.8  TYPE=      4  TARGET=        0.144
   5657.00      2 83    864.03      0 00    863 90    864.24      0.21      1.71      0.03    862.70
      160.       69.       79.       11.       50.       16.         7.        8.        5.     862.80
      0.36      1.39      4.98      1.53     0.100     0.050     0.100     0.000    861.20     66.67
  0.011040      130.      131.      120.         3         0         0      0.00     72.08    138.75
0
 *SECNO 5788.000
  2800 NAT Q1=       13.50  WSEL=     865.55  ENC Q1=       13.50  WSEL=     865.65  RATIO=   0.0000
  NAT Q1=      16.   RATIOS LOB,CH,ROB=   0.4252   0.4476   0.1272  WSEL=     865.65
1
  13 FEB 89     10:33:34                                                                  PAGE    41


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=       66.9      137.7  TYPE=      4  TARGET=        0.147
   5788.00      2.74    865 64      0 00    865.55    865.91      0.27      1.64      0.03    864.40
      160.       65.       85.       10.       44.       15.         6.        8.        6      864.50
      0.37      1.47      5.56      1.66     0.100     0.050     0.100     0.000    862.90     66.86
  0.014536      130.      131.      120.         3         0         0      0.00     70.85    137.71
0
 *SECNO 5919.000
  2800 NAT Q1=       15.17  WSEL=     867 22  ENC Q1=       15.17  WSEL=     867.32  RATIO=   0.0000
```

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 NAT Q1=      18.   RATIOS LOB,CH,ROB=  0.4401  0.4235  0.1364  WSEL=     867.32

3470 ENCROACHMENT STATIONS=       66.5      139.2  TYPE=      4  TARGET=        0.141
  5919.00      2.84    867.34      0.00    867.22    867.54      0.20      1.61      0.02    866.00
     160        70.       78.       12.       51.       16.        8.        8.        6.     866.10
     0.38      1.37      4.91      1.51     0.100     0.050     0.100     0.000    864.50     66.55
 0.010683      130.      131.      120.         3         0         0      0.00     72.66    139.21
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 6140.000
  2800 NAT Q1=      19.18  WSEL=     869.50  ENC Q1=      19.18  WSEL=     869.60  RATIO=  0.0000
  NAT Q1=      21.   RATIOS LOB,CH,ROB=  0.3600  0.2234  0.4166  WSEL=     869.60

3470 ENCROACHMENT STATIONS=      193 3      237.6  TYPE=      4  TARGET=        0.096
             NINE MILE ROAD
  6140.00      4.40    869.60      0.00    869.50    869.69      0.09      2.12      0.03    867.40
     160.        55        39.       65.       32.       10.       38.        9.        6.     867.40
     0.41      1.70      3.79      1.70     0.100     0.050     0.100     0.000    865.20    193.30
 0.006908      351.      221.      131.         3         0         0      0.00     44.29    237.60
0

 SPECIAL BRIDGE

 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 5227 DOWNSTREAM ELEV IS     867.44 ,NOT     869.60 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)

 SB  XK         XKOR       COFQ       RDLEN      BWC        BWP        BAREA      SS         ELCHU      ELCHD
     0.00       4.00       2.60       0.00       5.00       1.00       3.10       0.00     865.20     865.20

 *SECNO 6190.000
  2800 NAT Q1=     121.88  WSEL=     872.18  ENC Q1=     121.88  WSEL=     872.28  RATIO=  0.0000
  NAT Q1=     128.   RATIOS LOB,CH,ROB=  0.5433  0.0912  0.3655  WSEL=     872.28
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
1
  13 FEB 89     10:33:34                                                                    PAGE    42

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=      143.5      245.2  TYPE=      4  TARGET=        0.048
  6190.00      6.89    872.29      0.00    872.18    872.29      0.00      0.03      0.03    867.60
     160.        88.       15.       57.      210.       18.      120.        9.        6.     867.60
     0 44      0.42      0.86      0.48     0.100     0.050     0.100     0.000    865.40    143.49
 0.000172       50.       50.       50.         0         0        12      0.00    101.73    245.22
0
 *SECNO 6275.000
  2800 NAT Q1=     104 28  WSEL=     872.19  ENC Q1=     104.28  WSEL=     872.29  RATIO=  0.0000
  NAT Q1=     109.   RATIOS LOB,CH,ROB=  0.2186  0.5540  0.2273  WSEL=     872.29

3470 ENCROACHMENT STATIONS=      111.0      158.6  TYPE=      4  TARGET=        0.040
  6275.00      5.20    872.30      0.00    872.19    872.32      0.02      0.02      0.01    867.10
     160.        33.       92.       35.       66.       68.       68        9.        6.     867.10
     0.46      0.51      1.36      0 51     0.100     0.050     0.100     0.000    867.10    111.04
 0.000233       85        85.       85.         0         0         0      0.00     47.61    158.65
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 6391 000
  2800 NAT Q1=      58.07  WSEL=     872.18  ENC Q1=      60.08  WSEL=     872.28  RATIO= -0.0347
  NAT Q1=      60.   RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     872.28

3470 ENCROACHMENT STATIONS=      128.0      141.0  TYPE=      4  TARGET=        0.000
```

CENTER STREET

6391.00	4.69	872.29	0.00	872.18	872.42	0.13	0.04	0.06	873.40
160.	0.	160	0.	0	55.	0.	10	7.	873.40
0.48	0.00	2.89	0.00	0.000	0.024	0.000	0.000	867.60	128.00
0.000706	116.	116.	116.	2	0	0	0.00	13.00	141.00

0

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	3.00	2.60	0.00	13.00	3 00	28.00	0.00	867.60	867.60

*SECNO 6482.000

2800 NAT Q1= 75.09 WSEL= 873.61 ENC Q1= 77.22 WSEL= 873 71 RATIO= -0.0284

NAT Q1= 77. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 873.71

WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 128 0 141.0 TYPE= 4 TARGET= 0.000

1

13 FEB 89 10:33:34 PAGE 43

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
6482.00	5.51	873.71	0.00	873.61	873.80	0.09	0.05	0.01	874.00
160.	0.	160.	0.	0	66.	0.	10.	7.	874.00
0.49	0 00	2.42	0.00	0.000	0.024	0.000	0.000	868.20	128.00
0.000428	91.	91.	91	0	0	0	0.00	13.00	141.00

0

CCHV= 0.300 CEHV= 0.500

*SECNO 6543.000

2800 NAT Q1= 26.57 WSEL= 873.64 ENC Q1= 27.50 WSEL= 873.74 RATIO= -0.0352

NAT Q1= 28. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 873.74

3470 ENCROACHMENT STATIONS= 128 0 141.0 TYPE= 4 TARGET= 0.000

6543.00	4.55	873.75	0.00	873.64	873.88	0.14	0.06	0.02	875 00
160.	0.	160.	0.	0.	54.	0.	10.	7.	875.00
0.49	0.00	2.98	0.00	0.000	0.050	0.000	0.000	869.20	128.00
0.003371	61.	61.	61	2	0	0	0.00	13.00	141.00

0

*SECNO 6743.000

2800 NAT Q1= 25.16 WSEL= 874.49 ENC Q1= 25.16 WSEL= 874.59 RATIO= 0.0000

NAT Q1= 29. RATIOS LOB,CH,ROB= 0.2897 0.4329 0.2774 WSEL= 874.59

3470 ENCROACHMENT STATIONS= 269 4 321.3 TYPE= 4 TARGET= 0 118

6743.00	2.55	874.55	0.00	874.49	874.66	0.10	0.76	0.01	872.60
160.	42.	79.	39.	33.	23.	32.	10.	7	872.70
0.52	1.28	3.39	1.23	0.100	0.050	0.100	0.000	872.00	269.36
0.004302	200.	200.	200.	2	0	0	0.00	51.96	321.33

0

*SECNO 6945.000

7185 MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 257.0 333.0 TYPE= 1 TARGET= 76.000

6945.00	1.83	876.23	876.23	876.20	876.58	0.35	1.65	0.12	875.00
160.	35.	96.	29.	21.	16.	19.	11.	7.	875.10
0.53	1.64	5.98	1.53	0.100	0.050	0.100	0.000	874.40	257.00
0.021932	190.	202.	207.	8	13	0	0.00	76.00	333.00

0

*SECNO 7147.000

```
 2800 NAT Q1=      17.96  WSEL=     879.11  ENC Q1=      17.96  WSEL=     879.21  RATIO=  0.0000
 NAT Q1=      20.  RATIOS LOB,CH,ROB=  0.2681  0 4885  0.2434  WSEL=     879.21
1
 13 FEB 89     10:33:34                                                                    PAGE    44

   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=      272.9      316.4  TYPE=      4  TARGET=        0.119
   7147.00      2.23    879.13      0.00    879.11    879.33      0.19      2.70      0.05    877.50
      160.       37.       90.       33.       23.       20.       21.       11         7.     877.60
      0.55      1.65      4.47      1.59     0.100     0.050     0.100     0.000    876.90    272.91
  0.009122      190.      202.      207.         3         0         0      0.00     43.51    316.42
0
 *SECNO 7362.000
 2800 NAT Q1=      15.90  WSEL=     881.01  ENC Q1=      15.90  WSEL=     881.11  RATIO=  0.0000
 NAT Q1=      18.  RATIOS LOB,CH,ROB=  0.2587  0.5088  0.2325  WSEL=     881.11

 3470 ENCROACHMENT STATIONS=      274.2      315.1  TYPE=      4  TARGET=        0.120
   7362.00      2.24    881.14      0.00    881.01    881.34      0.21      2.01      0 01    879.50
      160.       36.       92.       32.       21.       20.       19.       11.        7.     879.60
      0.56      1.70      4.58      1.64     0.100     0.050     0.100     0.000    878.90    274.16
  0.009566      215.      215.      215.         3         0         0      0.00     40.90    315.06
0
 *SECNO 7577.000
 2800 NAT Q1=      17.04  WSEL=     883.06  ENC Q1=      17.04  WSEL=     883.16  RATIO=  0.0000
 NAT Q1=      19   RATIOS LOB,CH,ROB=  0.2641  0.4971  0.2388  WSEL=     883.16

 3470 ENCROACHMENT STATIONS=      273.5      315 8  TYPE=      4  TARGET=        0.119
   7577.00      2 25    883.15      0.00    883.06    883.34      0.19      2.00      0.00    881.50
      160.       37.       90.       33.       22        20.       20.       11.        8.     881.60
      0.58      1.66      4.48      1.60     0.100     0.050     0.100     0.000    880.90    273.47
  0.009041      215.      215.      215.         3         0         0      0.00     42.34    315.81
0
 *SECNO 7896.000
 2800 NAT Q1=      16.84  WSEL=     885.70  ENC Q1=      24.38  WSEL=     885.80  RATIO= -0.4481
 NAT Q1=      99.  RATIOS LOB,CH,ROB=  0.4835  0.2474  0.2690  WSEL=     885.80

 3470 ENCROACHMENT STATIONS=      300.0      309.0  TYPE=      4  TARGET=        0.753
   7896.00      4.18    885.78      0.00    885.70    886.12      0.34      2.70      0.07    883.00
      160.        0.      160         0.        0.       34.        0.       12.        8.     882.40
      0 60      0.00      4.66      0.00     0.000     0.050     0.000     0.000    881.60    300.00
  0.008560      229.      319.      309.         3         0         0      0 00      9.00    309.00
0
 CCHV=    0.500 CEHV=    1.000
1
 13 FEB 89     10:33:34                                                                    PAGE    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


 *SECNO 7897.000
 2800 NAT Q1=      19.49  WSEL=     885.71  ENC Q1=      19.91  WSEL=     885.81  RATIO= -0.0214
 NAT Q1=      20.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     885.81

 3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  888.50 MAX ELLC=  887.10
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```
 3470 ENCROACHMENT STATIONS=      296.4      303.6  TYPE=      4  TARGET=        0.000
             CONNEMARA DRIVE
   7897.00      4.19    885.79      0.00    885.71    886.29      0.50      0.01      0.16    888.30
      160.        0.      160.        0.        0.       28.        0.       12.        8.     888.20
      0.60      0.00      5.66      0.00     0.000     0.032     0.000     0.000    881.60    296.40
  0.006506        1.        1.        1.         0         0         0     -0.95      7.20    303.60
0
 *SECNO 7962.000
  2800 NAT Q1=      19.69  WSEL=     886.16  ENC Q1=      20.10  WSEL=     886.26  RATIO= -0.0209
  NAT Q1=      20.   RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     886.26

 3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  888.50 MAX ELLC=  887.50


 3470 ENCROACHMENT STATIONS=      296.4      303.6  TYPE=      4  TARGET=        0.000
   7962.00      4.22    886.22      0.00    886.16    886.71      0.49      0.42      0.00    888.70
      160.        0.      160.        0.        0.       28.        0.       12.        8      888.60
      0.60      0.00      5.64      0.00     0.000     0.032     0.000     0.000    882.00    296.40
  0 006460       65.       65.       65.         0         0         0     -0.98      7.20    303.60
0
 CCHV=    0.500 CEHV=    1.000
 *SECNO 7963.000
  2800 NAT Q1=      19.19  WSEL=     886.49  ENC Q1=      28.61  WSEL=     886.59  RATIO= -0.4911
  NAT Q1=     274.   RATIOS LOB,CH,ROB=  0.7670  0.1043  0.1287  WSEL=     886 59

 3470 ENCROACHMENT STATIONS=      300.0      309.0  TYPE=      4  TARGET=        0.896
   7963.00      4.54    886.54      0.00    886.49    886.83      0.28      0 01      0.11    883.40
      160.        0.      160.        0.        0.       38.        0.       12.        8.     882.80
      0.60      0.00      4.25      0.00     0.000     0.050     0.000     0.000    882.00    300.00
  0.006700        1.        1.        1.         2         0         0      0.00      9.00    309.00
0
 *SECNO 8043.000
1
  13 FEB 89     10:33:34                                                                    PAGE    46


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


  2800 NAT Q1=     188.16  WSEL=     886.93  ENC Q1=     188.16  WSEL=     887.03  RATIO=  0.0000
  NAT Q1=     201   RATIOS LOB,CH,ROB=  0.4202  0.1434  0.4364  WSEL=     887.03

 3470 ENCROACHMENT STATIONS=      162.1      297.7  TYPE=      4  TARGET=        0 063
   8043.00      4.28    886 98      0 00    886 93    886.98      0.01      0.02      0.14    883.30
      160.       66.       25.       69        86.       39.      262.       12.        8.     883.80
      0.65      0.76      0.64      0.26     0.030     0.050     0.100     0.000    882.70    162.09
  0.000077       80.       80.       80.         2         0         0      0.00    135.64    297.73
0
 *SECNO 8224.000
  2800 NAT Q1=      53.78  WSEL=     886.96  ENC Q1=      53.78  WSEL=     887.06  RATIO=  0.0000
  NAT Q1=      60.   RATIOS LOB,CH,ROB=  0.3041  0.2201  0.4758  WSEL=     887.06

 3470 ENCROACHMENT STATIONS=      184.8      290.4  TYPE=      4  TARGET=        0.105
   8224.00      2.81    887.01      0.00    886.96    887.04      0.03      0.03      0.03    884.80
      160.       46.       40.       75.       23.       24.      123.       13.        8.     885.30
      0.69      2.01      1.64      0.61     0 030     0.050     0.100     0.000    884.20    184.83
  0.000963      196.      181.      163.         2         0         0      0.00    105.55    290.38
0
 *SECNO 8405.000
  2800 NAT Q1=      11.58  WSEL=     887.48  ENC Q1=      11.58  WSEL=     887.58  RATIO=  0.0000
  NAT Q1=      14.   RATIOS LOB,CH,ROB=  0.2255  0.3956  0.3789  WSEL=     887.58
 7185 MINIMUM SPECIFIC ENERGY
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 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      196.5      265.1  TYPE=      4  TARGET=        0.190
   8405.00      1.87    887.57    887.57    887.48    887.91      0.33      0.46      0.30    886.30
      160.       25.       79.       56.        4.       15.       36.       14.        9.     886.80
      0.70     6.36      5.36      1.56     0.030     0.050     0.100     0.000    885.70    196.50
  0.019809      196.      181.      163.         3        18         0      0.00     68.63    265.13
0
 *SECNO 8465.000
  2800 NAT Q1=      21.17  WSEL=     888.29  ENC Q1=      21.17  WSEL=     889.39  RATIO=   0.0000
  NAT Q1=      25   RATIOS LOB,CH,ROB=   0.2461   0.3105   0.4434  WSEL=     888.39

 3470 ENCROACHMENT STATIONS=      194.0      279.4  TYPE=      4  TARGET=        0.153
   8465.00      2.23    888.43      0.00    888.29    888.54      0.11      0.53      0.11    886.80
      160.       31.       58       71.        8.       18.       68       14.        9.     887.30
      0.70     3.88      3.15      1.04     0.030     0.050     0.100     0.000    886.20    194.01
  0.005131       65.       60.       54.         2         0         0      0.00     85.38    279.39
0
1
  13 FEB 89    10:33:34                                                                  PAGE    47

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        DLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 8525.000
  2800 NAT Q1=      17.65  WSEL=     888.69  ENC Q1=      17.65  WSEL=     888.79  RATIO=   0.0000
  NAT Q1=      21.   RATIOS LOB,CH,ROB=   0.2367   0.3341   0.4292  WSEL=     888.79

 3470 ENCROACHMENT STATIONS=      195.0      276.2  TYPE=      4  TARGET=        0.163
   8525.00      2.10    888.80      0.00    888.69    888.96      0.15      0.37      0.05    887.30
      160.       29.       64.       67.        6.       17.       57.       14.        9.     887.80
      0.71     4.56      3.74      1.19     0.030     0.050     0.100     0.000    886.70    195.00
  0.007969       65.       60        54.         2         0         0      0.00     81.17    276.17
0
 *SECNO 8587.000
  2800 NAT Q1=      17.50  WSEL=     889.19  ENC Q1=      17.50  WSEL=     889.29  RATIO=   0.0000
  NAT Q1=      21.   RATIOS LOB,CH,ROB=   0.2367   0.3342   0.4291  WSEL=     889.29

 3470 ENCROACHMENT STATIONS=      195.1      275.3  TYPE=      4  TARGET=        0.169
   8587.00      2.09    889.29      0.00    889.19    889.45      0.16      0.49      0.01    887.80
      160.       29.       65.       67.        6.       17.       55.       14.        9.     888.30
      0.72     4.65      3.82      1.21     0.030     0.050     0.100     0.000    887.20    195.14
  0.008359       67.       62        55.         2         0         0      0.00     80.16    275.30
0
 *SECNO 9091.000

 3470 ENCROACHMENT STATIONS=      179.0      303.0  TYPE=      1  TARGET=      124.000
   9091.00      2.26    891.96      0.00    891.93    892.02      0.06      2.52      0.05    890.30
      160.       40        48.       72.       15.       19.       87.       15.       10.     890.80
      0.79     2.66      2.56      0.83     0.030     0.050     0.100     0.000    889.70    179.00
  0.003327       489.      504       509.        6         0         0      0.00    123.75    302.75
0
 *SECNO 9411.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=      502.5      512.5  TYPE=      1  TARGET=       10.000
   9411.00      2.89    894.09      0.00    894.15    894.66      0.57      2.13      0.51  99999.50
      160         0.       160.       0.        0.       26.       0.        16.       11.   99999.50
      0.81     0.00      6.08      0.00     0.000     0.050     0.000     0.000    891.20    502.50
  0.019476       320.      320.      320.         2         0         0      0.00     10.00    512.50
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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

 CCHV=   0.300 CEHV=   0.500
 *SECNO 9412.000

 3301 HV CHANGED MORE THAN HVINS


 3370 NORMAL BRIDGE, NRD= 20 MIN ELTRD=  897.20 MAX ELLC=  896.30

             TAFT ROAD
   9412.00     2.62   893.82    893.81    893.91    894.95     1.14      0.01      0.28   900.90
      160.       0.      160        0.        0.       19.       0.       16.       11.    900.80
      0.81     0.00     8.55      0.00     0.000     0.020    0.000     0.000    891.20   495.50
 0.007797       1.       1.        1.         6        12        0     -0.57      9.00   504.50
0
 *SECNO 9430.000

 3370 NORMAL BRIDGE, NRD= 20 MIN ELTRD=  897.20 MAX ELLC=  896.40

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
   9430.00     2.52   894.12    894.12    894.12    895.29     1.17      0.15      0.02   900.90
      160.       0.      160.       0.        0.       18.       0.       16        11.    900.80
      0 81     0.00     8.68      0.00     0.000     0.020    0.000     0.000    891.60   495.50
 0.008331       18       18.       18.         4        12        0     -0.74      9.00   504.50
0
 CCHV=   0.500 CEHV=   1.000
 *SECNO 9431.000

 3301 HV CHANGED MORE THAN HVINS


 3470 ENCROACHMENT STATIONS=     502.5     512.5  TYPE=     1  TARGET=     10.000
   9431.00     3.81   895.41      0.00   895.41    895.73     0.31      0.01      0.43 99999.90
      160.       0.      160.       0.        0.       36.       0.       16.       11.  99999.90
      0.81     0.00     4.50      0.00     0.000     0.050    0.000     0.000    891.60   502.50
 0.008363       1.        1        1.         4         0        0      0.00     10.00   512.50
0
 *SECNO 9581.000
   9581.00     3.69   896.19      0.00   896.19    896.26     0.07      0.41      0.12   893.40
      160.       18.      118.      24.       28.       49.      30.       16.       11.    893 20
      0.83     0.67     2.38      0.79     0.100     0.050    0.100     0.000    892.50   480.14
 0.001318      150.     150.      150.         2         0        0      0.00     55.44   535.58
0
1
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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 10280.000
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```
3265 DIVIDED FLOW

 10280.00      1.97    898.47      0.00    898 47    898.62      0.15      2.28      0.09    898.00
     160.      126.       25.        9.       51.         4         8.       17.       12.     898.00
     0.89      2.45      5.67      1.12     0.100     0.050     0.100     0.000    896.50     81.60
 0.038221      509.      699.       649         2         0         0      0 00    117.85    664.29
0
CCHV=   0.500 CEHV=   1.000
*SECNO 11080 000

3470 ENCROACHMENT STATIONS=      760.0      844.0  TYPE=      1  TARGET=       84.000
            NINE MILE ROAD
 11080.00      1.14    902.24    902.23    902.24    902.60      0 36      3.77      0.20    901.40
     160       141.       13.        6.       29.         4.        2.       18        13.     901.10
     0.92      4.95      3.39      2.96     0.015     0.024     0.015     0.000    901.10    764.31
 0.003148      430       800.      900.        14        11         0      0.00     49.71    814.01
0

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       2.88       2.80      84.00       3.00       0.00       7.10       0.00     901.10     901.10

*SECNO 11120.000
1860 XLCEL OF     912.20 EXCEEDS RDEL OF     912.00
 2800 NAT Q1=    1051.48  WSEL=     906.69  ENC Q1=    1051.48  WSEL=     906.79  RATIO=  0.0000
 NAT Q1=    4552.   RATIOS LOB,CH,ROB=  0.7593  0.0093  0.2314  WSEL=     906.79
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      383.2      804.0  TYPE=      4  TARGET=        0.769
 11120 00      5 59    906.69      0.00    906.69    906.69      0.00      0.00      0.18    901.40
     160.      156.        4.        0.      434.       22.        0.       18.       13.     901.10
     0.95      0.36      0.17      0.00     0.015     0.024     0.000     0.000    901.10    383.20
 0.000003       40.       40.       40.         0         0        10      0.00    162.76    804.00
0
1
 13 FEB 89     10:33:34                                                                          PAGE    50


   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
*SECNO 11795.000

3470 ENCROACHMENT STATIONS=      550.0      760.0  TYPE=      1  TARGET=      210 000
 11795 00      2.09    906.69      0.00    906.69    906.70      0.01      0.01      0.00    905.10
     160.      108.       21.       31.      168        13.       53.       25.       17.     906.00
     1.28      0.64      1 67      0.58     0.100     0 050     0.100     0.000    904.60    550.00
 0.001561      960.      675.      570.         2         0         0      0.00    210.00    760.00
0
*SECNO 11895.000

3470 ENCROACHMENT STATIONS=      550.0      760.0  TYPE=      1  TARGET=      210.000
 11895.00      1.82    906.92      0.00    906.90    906.94      0.02      0.23      0.01    905.60
     160.      106        25.       29.      127.       11.       39.       26.       18.     906.50
     1.30      0.84      2.34      0.74     0.100     0.050     0.100     0.000    905.10    550.00
 0.003817      100.      100.      100.         2         0         0      0.00    210.00    760.00
0
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 *SECNO 11995.000

 3470 ENCROACHMENT STATIONS=      550 0      760.0  TYPE=      1  TARGET=      210.000
  11995.00      1.75    907.35      0.00    907.32    907.38      0.03      0.43      0.00    906.10
       160.       106.       27.       28.       116.       10.       35.       26.       18.     907.00
      1.33      0.91      2.59      0.79     0.100     0 050     0.100     0.000    905 60    550.00
  0.004973       100.       100.       100.         2         0         0      0.00    210.00    760.00
0
 *SECNO 12095.000

 3470 ENCROACHMENT STATIONS=      550.0      760.0  TYPE=      1  TARGET=      210.000
  12095.00      1.75    907.85      0.00    907.82    907 88      0.03      0.50      0.00    906.60
       160.       106.       27.       28.       116.       10.       35.       26.       19.     907.50
      1.35      0.91      2.59      0.79     0.100     0.050     0.100     0.000    906.10    550.00
  0.004988       100.       100.       100.         1         0         0      0.00    210.00    760.00
0
 *SECNO 12195.000

 3470 ENCROACHMENT STATIONS=      520 0      760.0  TYPE=      1  TARGET=      240.000
  12195.00      1.74    908.34      0.00    908.32    908.36      0.02      0.48      0.00    907.10
       160.       109        25.       26.       128        10.       34.       27.       19.     908.00
      1.38      0.84      2.50      0.75     0.100     0.050     0.100     0.000    906.60    520.00
  0 004681       100.       100.       100.         1         0         0      0.00    240.00    760.00
0
1
  13 FEB 89    10:33:34                                                                  PAGE    51

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 12595.000

 3470 ENCROACHMENT STATIONS=      680.0      775 0  TYPE=      1  TARGET=       95.000
  12595.00      1.84    910.84      0.00    910.86    910.92      0.09      2.53      0.03    909.50
       160.        43.       42.       75.       25.       11.       57.       28.       21.     910 40
      1.43      1.69      3.86      1.32     0.100     0.050     0.100     0.000    909.00    680.00
  0.010249       390.       400.       350.         3         0         0      0.00     95.00    775.00
0
 *SECNO 13155.000
  2800 NAT Q1=      19.95  WSEL=     915.12  ENC Q1=      19.95  WSEL=     915.22  RATIO=  0.0000
  NAT Q1=      51.  RATIOS LOB,CH,ROB=  0.1901  0.2435  0.5664  WSEL=     915.22

 3470 ENCROACHMENT STATIONS=      800.0      850.1  TYPE=      4  TARGET=       0.607
  13155.00      2 76    915.26      0.00    915.12    915.40      0 14      4.45      0.03    913.80
       160.         0.       96.       64.         0.       26.       47.       29.       21.     914.10
      1 48      0.00      3.66      1.36     0.000     0.050     0.100     0.000    912.50    800.00
  0.006527       590.       560.       530.         5         0         0      0.00     50.08    850.08
0
 *SECNO 13620.000
  2800 NAT Q1=      25.40  WSEL=     917.58  ENC Q1=      25.40  WSEL=     917 68  RATIO=  0.0000
  NAT Q1=      31.  RATIOS LOB,CH,ROB=  0.1460  0.3040  0.5500  WSEL=     917.68

 3470 ENCROACHMENT STATIONS=      786.3      909 3  TYPE=      4  TARGET=       0.168
  13620.00      2.39    917.69      0.00    917.58    917.74      0.05      2.32      0.03    916.60
       160.        12.       58.       90.       14.       22.       98.       30.       22.     916.90
      1.57      0.88      2.66      0.91     0.100     0.050     0.100     0.000    915.30    786.29
  0.003798       450.       465.       485.         4         0         0      0.00    123.03    909.32
0
 *SECNO 14029.000
  2800 NAT Q1=      15.88  WSEL=     919.95  ENC Q1=      15.88  WSEL=     920.05  RATIO=  0.0000
  NAT Q1=      19.  RATIOS LOB,CH,ROB=  0.1958  0.4089  0.3953  WSEL=     920.05
```

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 3470 ENCROACHMENT STATIONS=      664.6      735.0  TYPE=      4  TARGET=        0.165
  14029.00      2.22    920.02      0.00    919.95    920.19      0.18      2.39      0.06    919.30
      160.        21       79.       60.       19.       17.       36.       31.       23.     918.60
      1.60      1.11      4.56      1.67     0.100     0.050     0.100     0.000    917.80    664.63
  0.010769       450.      409.      380.         2         0         0      0.00     70.41    735.05
0
1
  13 FEB 89     10:33:34                                                                  PAGE    52


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 14634.000
  2800 NAT Q1=      22.21  WSEL=     924.35  ENC Q1=      22.21  WSEL=     924.45  RATIO=  0.0000
  NAT Q1=      30   RATIOS LOB,CH,ROB=  0.2104  0.0699  0.7198  WSEL=     924.45

 3470 ENCROACHMENT STATIONS=      227.7      325.4  TYPE=      4  TARGET=        0.265
  14634.00      1.97    924.47      0.00    924.35    924.51      0.03      4.27      0.04    923.20
      160.        17.       15.      128.       15.        5.      106.       33.       24.     922.90
      1 73      1.12      2.86      1.21     0.100     0.050     0.100     0.000    922.50    227.72
  0.004864       500       605.      640.         4         0         0      0.00     97.68    325.39
0
 *SECNO 15238.000
  2800 NAT Q1=      14.55  WSEL=     928.74  ENC Q1=      14.55  WSEL=     928.84  RATIO=  0.0000
  NAT Q1=      18.   RATIOS LOB,CH,ROB=  0.2007  0.0847  0.7146  WSEL=     928.84

 3470 ENCROACHMENT STATIONS=      223.2      326.2  TYPE=      4  TARGET=        0.188
  15238.00      1.62    928.82      0.00    928.74    928.88      0.06      4.36      0.01    927.90
      160         21.       17.      122.       14.        4.       76.       34.       26.     927.60
      1.82      1.48      4.02      1.60     0.100     0.050     0.100     0.000    927.20    223.19
  0.013082       570.      604.      580          3         0         0      0.00    103.01    326.20
0
 *SECNO 15988.000
  2800 NAT Q1=      22.55  WSEL=     934.17  ENC Q1=      22.55  WSEL=     934.27  RATIO=  0.0000
  NAT Q1=      39.   RATIOS LOB,CH,ROB=  0.3718  0.1869  0.4412  WSEL=     934.27

 3470 ENCROACHMENT STATIONS=      791.3      871.7  TYPE=      4  TARGET=        0.425
  15988.00      2 59    934.29      0.00    934.17    934 36      0.07      5.47      0.01    933.40
      160.        45.       52.       63.       46.       16.       44.       36.       27.     932.30
      1.92      0.98      3.32      1.45     0.100     0.050     0.100     0.000    931.70    791.28
  0.004853       710.      750.      730.         4         0         0      0.00     80.37    871.65
0
 *SECNO 16738.000
  2800 NAT Q1=      11.57  WSEL=     940.35  ENC Q1=      11.57  WSEL=     940.45  RATIO=  0.0000
  NAT Q1=      19.   RATIOS LOB,CH,ROB=  0.0027  0.3858  0.6115  WSEL=     940.45

 3470 ENCROACHMENT STATIONS=      383.0      426.3  TYPE=      4  TARGET=        0.386
  16738.00      1.54    940.44      0.00    940.35    940.69      0.25      6.24      0.09    940.10
      160.         0.       100       60.        0.       21.       28.       37        28.     939.30
      1.97      0.00      4.76      2.14     0.000     0.050     0.100     0.000    938.90    383.00
  0.020011       700.      750.      680.         3         0         0      0.00     43.25    426.25
0
1
  13 FEB 89     10:33:34                                                                  PAGE    53


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 17638.000
  2800 NAT Q1=      19.05  WSEL=     950.39  ENC Q1=      19.05  WSEL=     950.49  RATIO=  0.0000
  NAT Q1=      22.   RATIOS LOB,CH,ROB=  0.0313  0.6645  0.3042  WSEL=     950 49

 3470 ENCROACHMENT STATIONS=      285.0      324.6  TYPE=      4  TARGET=        0.123
  17638.00      2.92    950.52      0.00    950 39    950.70      0.18      9.99      0.02    949.70
      160.         0.      119.       41.       0.       31.       30.       38.       29.     949.10
      2.05      0.00      3.81      1.37     0 000     0.050     0.100     0.000    947.60    285.00
  0.006887      870.      900       940.         6         0         0      0.00     39.61    324.61
0
 *SECNO 18038.000
  2800 NAT Q1=      13.01  WSEL=     954.30  ENC Q1=      13.01  WSEL=     954.40  RATIO=  0.0000
  NAT Q1=      15.   RATIOS LOB,CH,ROB=  0.0135  0.7493  0.2372  WSEL=     954.40

 3470 ENCROACHMENT STATIONS=      285.0      313.2  TYPE=      4  TARGET=        0.130
  18038.00      2.60    954.40      0.00    954.30    954.77      0.36      3.98      0.09    953.90
      160.         0.      137.       23.       0.       26.       13.       39.       29.     953.30
      2.08      0.00      5.19      1.76     0.000     0.050     0.100     0.000    951.80    285.00
  0.015577      400.      400.      400.         3         0         0      0.00     28.15    313.15
0
 *SECNO 18240.000
  2800 NAT Q1=      19.53  WSEL=     956.49  ENC Q1=      19.53  WSEL=     956.59  RATIO=  0.0000
  NAT Q1=      22.   RATIOS LOB,CH,ROB=  0.3744  0.2845  0.3411  WSEL=     956.59

 3470 ENCROACHMENT STATIONS=      466.8      516.6  TYPE=      4  TARGET=        0.096
  18240.00      2.42    956.62      0.00    956.49    956.73     0 11      1.89      0.08    954.20
      160.        58.       50.       52.       37.       12.       33.       39.       30.     954 30
      2.10      1.56      4.22      1.59     0.100     0.050     0 100     0.000    954.20    466.84
  0.006382      200.      202.      190.         3         0         0      0.00     49.74    516.58
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 18513.000
  2800 NAT Q1=      41.59  WSEL=     960.76  ENC Q1=      41.59  WSEL=     960.86  RATIO=  0.0000
  NAT Q1=      56.   RATIOS LOB,CH,ROB=  0 2069  0.2905  0.5026  WSEL=     960.86
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=      388.3      459.3  TYPE=      4  TARGET=        0.255
             TEN MILE ROAD
1
  13 FEB 89     10:33:34                                                                  PAGE    54


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


  18513.00      5.55    960.75    960.75    960 76    961.07      0.32      0.98      0.10    960.20
      160.        16.       75.       69.         5.       13.       25.       39.       30.     960.20
      2.12      2.94      5.91      2 73     0.015     0.013     0 015     0.000    955.20    388.29
  0.002326      272.      272.      272.        20        18         0      0.00     71.04    459.33
0

 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       1.60       2.60       0 00       2.50       0.00       4.90       0 00     955.20     955.20

 *SECNO 18557.000
  2800 NAT Q1=      42.40  WSEL=     961.37  ENC Q1=      42.40  WSEL=     961.47  RATIO=  0.0000
  NAT Q1=      57.   RATIOS LOB,CH,ROB=  0.2085  0.2859  0.5056  WSEL=     961.47
  WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE
```

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY OF

3) WATERCOURSE: THORNTON CREEK

4) DOCUMENT TYPE: REPORT - 1991 REVISIONS

00BREAK00

THORNTON CREEK
FLOOD INSURANCE RATE MAP

NOVI, MICHIGAN
COMMUNITY PANEL NO. 260175-0002B

THORNTON CREEK FLOODPLAIN ANALYSIS

NOVI MICHIGAN

D.N.R. FILE NO. 90-14-1315

REVISED 2-5-91

PREPARED FOR:

THE MICHIGAN DEPARTMENT OF NATURAL RESOURCES
THE LAND AND WATER MANAGEMENT DIVISION
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LANSING, MICHIGAN
48909

PREPARED BY:

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45650 GRAND RIVER AVENUE
NOVI, MICHIGAN
48374
(313) 348-2680

REVISED THORNTON CREEK HYDRAULIC REPORT

INTRODUCTION

In response to your review comments dated December 5, 1990, the following changes have been made to all relevant hydraulic backwater computer models:

NORMAL BRIDGE METHOD:

Both bridges modeled have been modified so that the normal bridge method is used for LOW-FLOW situations. The special bridge variables XK and BWP were both changed from non zero values to zeros so that an accurate bridge loss could be computed.

DIVIDED FLOW ANALYSIS:

The split flow option used to portray the South-West diversion of flow along the railroad tracks was modified so that the energy grade lines for both the split flow model (SPL290.O) and the overland flow model (OVERL.O) were equal. Several iterations were used to determine what slope used in the split flow model would reveal the proper energy grade line. A slope of .004 in the existing SPL290.O model revealed an EGL of 830.00 at section 700. The overland flow model OVERL.O calculated an EGL of 830.00 at section 1730 and hence .004 is used to accurately model the correct existing split flow of 137.74 cubic feet per second.

A proposed split flow was also determined from the model PR290BS.O which includes the proposed bridge and fill. This models starting water surface elevation is taken as 827.04 as opposed to 827.11 for all existing models because of the reduction in BFE at cross section 7635 of the rouge river due to the removal of the 22' Old Novi Road Bridge. We have received a permit from the County to remove this bridge. A slope of .004 in the proposed split flow also reveals consistent energy grade lines.

PROPERTY OWNERSHIP

Fill is proposed on the South side of Thornton Creek in the proximity of sections 332 and 532. Since property is owned by the client on the opposite side of this proposed fill, equal encroachment criteria will not be required here.

Fill was originally proposed in the vicinity of section 8065 on the Rouge River, however, due to wetlands concerns, and local D.N.R. recommendations, we have decided to move the road to the West side of the existing sanitary sewer holding tank. This relocation allows us to entirely eliminate the crossing of wetlands in this area and also eliminates the need for fill in the floodplain at cross sections 8065, 8135, and 8283. However, cross section 7835 still requires minimum fill in the floodplain which will be addressed in the Rouge River analysis under separate cover.

DIVIDED FLOW

Between cross sections 850 and 1250 a series of divided flow messages have been eliminated by adding necessary encroachment information. At XSEC 850 a left bank encroachment was added to reflect the required 1 on 4 expansion of flow through the existing railroad bridge. A right bank encroachment was added to eliminate ineffective flow areas to the right and below the top of the berm in that area. At XSEC 1070 ineffective flow areas to the right and below the berm elevation were also eliminated with encroachment data. XSEC 1250 was modified with both left and right encroachment data to portray the actual conveyance characteristics.

Also, encroachment data was added to correctly model the conveyance of flow within the existing concrete channel. Now all flow is contained within the main channel as it should be.

REVISED RESULTS

SPL340.O

This model consists of existing topography and represents existing conditions with the 1987 restudy 100 year flow rate of 340 cfs. The normal depth split flow option was used to determine how much flow was actually diverting parallel to the railroad tracks to the South-West **before** the Lexington Green Detention Basin is constructed. The split flow calculated is 169.0 cfs, therefore, 171.0 cfs is conveyed through the railroad tracks. Encroachments were made at cross sections 332, 532, 700, and 850 to reflect flow contracting at about a 1 to 1 ratio and expanding at about a 4 to 1 ratio. Also, encroachments were made at sections 850, 1070, and 1250 to eliminate ineffective flow areas to the right and below the right overbank berm elevation. This model represents true **EXISTING CONDITIONS** before completion of the Lexington Green Detention Basin.

SPL290.O

This computer model is identical to the above model except that the 100 year flow rate is calculated with the addition of the Lexington Green Detention Basin and the minor routing methodology changes as described in the hydrology section of the original report. This basin is currently working and will be complete when final erosion prevention measures have been placed. The flow rate resulting from this basin is 290 cfs and the split flow calculated with this flow rate is 137.74 cfs. Therefore, 152.26 cfs is conveyed through the existing railroad tracks. This model represents the effect the addition of the Lexington Green Detention basin has on base flood elevations along with the effects on BFE's due to hydrologic routing methodology changes.

PR290BS.O

This model includes the proposed flow rate of 290 cfs, the bridge, the road, filling, and the proposed split flow along the Railroad tracks. The model, therefore, represents the true PROPOSED CONDITIONS and includes hydrologic changes due to detention and routing methodology changes, along with hydraulic modifications due to a proposed structure and filling. The split flow calculated from this model is 132.02 cfs, hence 157.98 cfs is conveyed through the railroad tracks and the proposed Thornton Creek bridge. Encroachments have been included to portray actual conveyance characteristics.

OVERE.O

This model is for the existing diversion of flow along the railroad tracks. The 137.74 cfs which was calculated from the existing split flow model (SPL290.O) was used to determine the existing 100 year flood boundary for the overland flow portion of Thornton Creek. This areas flood boundary can be seen on site plan #1.

OVERP.O

This model is for the proposed diversion of flow along the railroad tracks. The 132.02 cfs which was calculated from the proposed split flow model (PR290BS.O) was used to determine the proposed 100 year flood boundary for the overland flow portion of Thornton Creek. This areas flood boundary can be seen on site plan #1 also. This reduction in overland flow is a direct consequence of the reduction in starting water surface elevation for the proposed condition due to the lowering of the 100 year base flood elevation at section 7635 from 827.11 to 827.04.

CONCLUSIONS

The two models that illustrate best the impact that the proposed project has on Base Flood Elevations are SPL290.O (existing topography) and PRO290BS.O (proposed). The proposed model was altered to include the proposed road, fill, and bridge. Table A below compares the two models and their respective BFE's.

STATION (#)	SPL290.O (FT.)	PR290BS.O (FT.)	EASEMENT NEEDED (FT.)
122	827.11	827.04	NONE
332	826.99	826.61	NONE
397	N/A	827.85	NONE
457	N/A	828.23	NONE
532	828.28	828.57	0.29
612	829.58	829.52	NONE
630	829.71	829.68	NONE
700	829.99	829.99	NONE
850	830.00	830.00	NONE
1070	831.22	831.22	NONE
1250	832.13	832.13	NONE
1520	832.99	832.99	NONE
1790	834.58	834.58	NONE
2140	835.50	835.50	NONE

TABLE A: PROPOSED (SPL290.0) VS PROPOSED (PR290BR.O) ELEVATIONS

Clearly, a rise in the 100 year base flood elevation occurs at section 532 which is directly upstream of the proposed bridge.

If however, we compare Existing and Proposed conditions or SPL340.O verses PR290BS.O taking into consideration the 100 year flow reduction due to the Lexington Green Detention Basin, then the observed reductions in BFE's are greater then before, see table B below. Also, the increase due to fill at cross section 532 is .14' less when this comparison is used.

STATION (#)	SPL340.O (FT.)	PR290BS.O (FT.)	EASEMENT NEEDED (FT.)
122	827.11	827.04	NONE
332	826.93	826.61	NONE
397	N/A	827.85	NONE
457	N/A	828.23	NONE
532	828.42	828.57	0.15
612	829.68	829.52	NONE
630	829.83	829.68	NONE
700	830.14	829.99	NONE
850	830.16	830.00	NONE
1070	831.35	831.22	NONE
1250	832.28	832.13	NONE
1520	833.22	832.99	NONE
1790	834.83	834.58	NONE
2140	835.75	835.50	NONE

TABLE B: EXISTING (SPL340.0) VS PROPOSED (PR290BR.O) ELEVATIONS

Clearly, a rise in base flood elevation occurs at section 532 which is directly upstream of the proposed bridge. This increase, however, is confined within the boundaries of the owners property line and hence does not effect other property owners in the area.

Since an increase in 100 year base flood elevation is unavoidable due to the proposed construction, and since the City of Novi's floodplain ordinance number 77-80 section 5.02-d.(1) allows no such an increase, we are currently revising the ordinance to be consistent with the State's floodplain regulation guidelines, which allow for floodplain and storm water management practices.

```
**********************************************
* WATER SURFACE PROFILES                     *
* VERSION OF SEPTEMBER 1988                  *
* ERROR: 01                                  *
* UPDATED: 16 FEBRUARY 1989                  *
* RUN DATE     2/ 5/91   TIME    8:51:47     *
**********************************************
```

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**************************************
* U.S. ARMY CORPS OF ENGINEERS       *
* THE HYDROLOGIC ENGINEERING CENTER  *
* 609 SECOND STREET, SUITE D         *
* DAVIS, CALIFORNIA 95616            *
* (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
```

END OF BANNER

THIS RUN EXECUTED 2/ 5/91 8:51:47

****
HEC2 RELEASE DATED SEPT 88

****

SPLIT FLOW BEING PERFORMED

SF 290 C.F.S. 100 YEAR STORM SPLIT FLOW CALCULATIONS

TN SOUTH-WEST DIVERSION OF FLOW ALONG R.R. TRACKS
NS 3 630 850 -1 .1 .0040
NC 0 836.45 10.7 828.78 59.99 828.52 107.6 828.91 154.0 828.96
NC164.18 831.47 192.4 831.66 257.4 832

```
T1      BRENT CANUP PROPERTY SIDEWELL #22-35-101-029 (REV. 1-23-91)
T2      LEX BASIN, EXISTING CONDITION, 100-YEAR FOODPLAIN STUDY (290 C.F.S.)
T3      THORNTON CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0         2         0         0         0         0         0       290    827.11         0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       -1         0         0         0         0         0         0         0         0         0


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150

NC    0.055     0.055     0.045       0.1       0.3
  CROSS SECTION NUMBER 122.0
X1      122        19       567       579         0         0         0
GR    829.0         0     827.5        86     826.0       180     825.6       277     825.2       368
GR    825.8       468     825.8       544     826.4       567     823.7       571     823.6       574
GR    823.9       577     826.2       579     825.6       604     825.3       665     825.8       759
GR    825.7       849     825.5       939     827.6      1027     829.7      1124
  CROSS SECTION NUMBER 332.0 (200 FT. ENCROACHMENT)
X3        0         0       200         0         0         0         0         0         0         0

X1      332        19       520       557       280       155       210
GR    830.2         0     830.0        82     828.6       175     826.8       262     827.4       358
GR    827.2       456     827.5       520     826.8       540     824.3       546     824.2       550
GR    824.8       553     827.5       557     826.8       580     826.3       652     826.3       744
GR    826.4       831     826.3       920     828.2      1016     829.9      1104

NC        0         0         0       0.1       0.3
   CROSS SECTION NUMBER 532 (80 FT. ENCROACHMENT)
X3        0         0        80         0         0         0         0         0         0         0
X1      532        17       210       268       200       200       200         0         0         0
GR  838.47         0    828.48        60    828.66       145     828.7       210     829.2       220
GR    826.2       230     825.9       236     826.2       240     827.3       244     827.5       268
GR   827.05       240    826.96       433    826.78       530     826.9       618    827.88       705
GR   827.68       800       329       890

NC        0         0         0        .3        .5
  BRIDGE DOWNSTREAM SIDE (19.5 FT. ENCROACHMENT WIDTH)
ET                6.1                                           490.25    509.75
X1      612        26    490.25    509.75       365       350       280
X3       10         0         0         0         0         0         0     827.2     827.2         0
GR      829         0       329        50       829       100       829       150       329       200
GR      329       250       829       300       829       350       829       400       829       450
GR      829       480       830    490.25     827.5    496.75     826.4    499.75     827.4    508.75
GR    827.5    509.75       829       550       829       600       829       650       829       700
GR      829       750       829       800       829       850       829       900       829       950
GR      829      1000         0         0         0         0         0         0         0         0
  BRIDGE UPSTREAM SIDE (19.5 FT. ENCROACHMENT WIDTH)
```

SB	0	1.56	2.9	0	19.5	0	125	0	826.6	826.4
ET	6.1					490.25	509.75			
X1	630	0	0	0	16	19	18	0	0	0
X2	0	0	1	833.3	837.2	0	0	0	0	0
X3	10	0	0	0	0	0	0	837.2	837.2	0
BT	25	0	839.6	0	50	839.4	0	100	839.2	0
BT	150	839.0	0	200	838.7	0	250	838.5	0	300
BT	838.3	0	350	838.0	0	400	837.7	0	450	837.4
BT	0	480	837.3	0	490.25	837.2	830	490.25	837.2	833.3
BT	509.75	837.2	833.3	509.75	837.2	827.5	550	836.8	0	600
BT	836.5	0	650	836.4	0	700	836.3	0	750	836.5
BT	0	800	836.1	0	850	836	0	900	835.8	0
BT	950	835.6	0	1000	835.3	0	0	0	0	0

NC	0	0	0	0.1	0.3					
CROSS SECTION 700.00 (160 FT. ENCROACHMENT)										
X3	0	0	0	641.5	0	901.5	0	0	0	0
X1	700	33	703	740	145	315	68			
GR	832.0	0	830	8	828.5	38	828.5	168	828.7	262
GR	828.9	358	829.2	448	827.9	564	828.6	640	829.3	680
GR	828.6	703	826.5	707	826.4	710	826.5	712	827.7	727
GR	828.5	740	828.5	769	828.4	796	826.7	806	826.6	829
GR	828.5	829	828	931	827.7	1032	828	1341	826	1466
GR	826	1511	827	1636	827	2016	826	2031	824	2081
GR	824	2141	826	2460	831	3860				
CROSS SECTION NUMBER 850 (LFT. BANK 1 ON 4 ENCROACH., RT. BANK INEFF FLOW)										
X3	0	0	0	470	0	642	830.5	0	0	0
X1	850	20	597	642	160	250	150			
GR	831.1	0	830.7	75	830.5	147	831.0	237	829.8	347
GR	830.0	451	829.6	507	830.0	582	829.9	597	827.1	603
GR	826.6	612	827.6	620	829.7	628	830.5	642	830.3	665
GR	829.7	711	829.5	766	830.5	804.0	831.4	825	832.4	849.0
CROSS SECTION NUMBER 1070 (INEFFECTIVE FLOW IN RT. BANK UNTIL OVERTOPPED)										
X3	0	0	0	0	0	700	831.1	0	0	0
X1	1070	21	658	700	230	165	200	0	0	0
GR	833.7	0	833.4	83	832.3	167	832.3	259	831.7	305
GR	834.3	476	831.6	575	831.4	640	831.1	658	828.0	662
GR	827.8	670	828.1	676	830.6	682	831.1	700	830.5	722
GR	830.3	781	830.9	829	831.4	876	832.3	907	832.5	934
GR	832.2	1188								
CROSS SECTION NUMBER 1250 (INEFFECTIVE FLOW IN RT. & LFT. BANKS)										
X3	0	0	0	201	0	249	832.5	0	0	0
X1	1250	21	201	249	225	180	190			
GR	839.4	0	839.2	6	836.0	24	835.5	43	832.7	50
GR	832.1	130	835.5	162	833.3	197	833.4	201	829.8	218
GR	829.4	227	828.3	242	832.3	249	831.8	278	832.8	287
GR	832.4	461	831.7	538	832.6	546	832.4	557	832.2	642
GR	832.2	816								

CROSS SECTION OF EXISTING CONCRETE CHANNEL (SECTION 1520)

NC	.03	.03	.03	0	0	0	0	0	0	0
ET		6.1	0	0	0	0	36	0	0	0
X1	1520	4	0	36	220	330	270			
GR	834.99	0	830.99	8	830.99	28	834.99	36		
X1	1790	4	0	36	255	285	270			
GR	835.80	0	831.80	8	831.80	28	835.80	36		
X1	2140	4	0	36	340	340	340			
GR	837.00	0	833.00	8	833.00	28	837.00	36		

```
    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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
0

 CCHV=     .100 CEHV=     .300
 *SECNO 122.000
   122.00     3.51   827.11      .00   827.11   827.11      .00      .00      .00   826.40
     152.      73.       7.      72.     605.      33.     591.       0.       0.   826.20
      .00      .12      .21      .12     .055     .045     .055     .000   823.60   110.44
  .000013       0.       0.       0.        0        0        0      .00   996.03  1006.47
0
 *SECNO 332.000

 3265 DIVIDED FLOW


 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


 3470 ENCROACHMENT STATIONS=      438.5     638.5  TYPE=      2  TARGET=      200.000
   332.00     2.79   826.99      .00   826.99   827.18      .19      .01      .06   827.50
     152.       0.      121.      32.       0.      31.      23.       3.       2.   827.50
      .02      .00     3.88     1.35     .000     .045     .055     .000   824.20   534.64
  .009148      280.     210.     155.        4        0        0      .00    36.27   638.50
0
 CCHV=     .100 CEHV=     .300
 *SECNO 532.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE


 3470 ENCROACHMENT STATIONS=      199.0     279.0  TYPE=      2  TARGET=       80.000
   532.00     2.38   828.28      .00   828.27   828.37      .09     1.18      .01   828.70
     152.       0.      139.      13.       0.      57.       9.       3.       3.   827.50
      .04      .00     2.46     1.44     .000     .045     .055     .000   825.90   223.07
  .004117      200.     200.     200.        3        0        0      .00    55.93   279.00
0
 CCHV=     .300 CEHV=     .500
 *SECNO 612.000
 3280 CROSS SECTION    612.00 EXTENDED       .58 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= 490.3 509.8 TYPE= 1 TARGET= 19.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 837.20 ELREA= 837.20

612.00	3.18	829.56	.00	829.58	829.81	.23	1.37	.07	830.00
152.	0.	152.	0.	0.	40.	0.	4.	3.	100000.00
.06	.00	3.84	.00	.000	.045	.000	.000	826.40	491.35
.005820	365.	280.	350.	2	0	0	.00	18.40	509.75

0

SPECIAL BRIDGE

SB	XK	XFOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.56	2.90	.00	19.50	.00	125.00	.00	826.60	826.40

#SECNO 630.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 829.973 ELLC= 833.300 PCWSE= 829.583 ELTRD= 837.200
3280 CROSS SECTION 630.00 EXTENDED .71 FEET

3370 NORMAL BRIDGE, NRD= 25 MIN ELTRD= 837.20 MAX ELLC= 833.30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 837.20 ELREA= 837.20

630.00	3.31	829.71	.00	829.71	829.92	.20	.10	.01	830.00
152.	0.	152.	0.	0.	42.	0.	4.	3.	827.50
.36	.00	3.60	.00	.000	.045	.000	.000	826.40	490.99
.004877	18.	18.	18.	2	0	0	-58.95	18.76	509.75

0
CCHV= .100 CEHV= .300
#SECNO 700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS= 641.5 801.5 TYPE= 1 TARGET= 160.000

700.00	3.59	829.99	.00	829.99	830.00	.01	.06	.02	828.60
152.	24.	81.	47.	63.	95.	96.	4.	3.	828.50
.11	.38	.85	.49	.055	.345	.055	.000	826.40	641.50
.000194	145.	68.	215.	2	4	0	.00	160.00	801.50

0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 850.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS= 470.0 642.0 TYPE= 1 TARGET= 172.000

850.00	3.40	830.00	.00	829.99	830.20	.20	.15	.06	829.90
290.	19.	271.	0.	26.	72.	0.	5.	4.	830.50
.12	.72	3.75	.00	.055	.045	.000	.000	826.60	470.00
.005344	160.	150.	250.	2	0	0	.00	163.30	633.30

0

*SECNO 1070.000

3470 ENCROACHMENT STATIONS= .0 700.0 TYPE= 1 TARGET= 699.999

1070.00	3.42	831.22	830.10	831.23	831.45	.23	1.24	.01	831.10
290.	0.	279.	11.	1.	71.	18.	6.	5.	831.10
.14	.38	3.91	.58	.055	.045	.055	.000	827.80	650.04
.007292	230.	200.	165.	2	18	0	.00	199.74	849.78

0

*SECNO 1250.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS= 201.0 249.0 TYPE= 1 TARGET= 48.000

1250.00	3.83	832.13	.00	832.14	832.27	.14	.81	.01	833.40
290.	0.	290.	0.	0.	97.	0.	6.	5.	832.50
.15	.00	3.00	.00	.000	.045	.000	.000	828.30	207.04
.002778	225.	190.	180.	2	0	0	.00	41.33	248.37

0

*SECNO 1520.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

1520.00	2.00	832.99	.00	832.99	833.67	.67	1.24	.16	834.99
290.	0.	290.	0.	0.	44.	0.	6.	5.	100000.00
.17	.00	6.59	.00	.000	.030	.000	.000	830.99	4.00
.008981	230.	270.	330.	3	1	0	.00	24.00	28.00

0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 1790.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

1790.00	2.78	834.58	.00	834.58	834.84	.26	1.13	.04	835.80
290.	0.	290.	0.	0.	71.	0.	7.	5.	835.80
.18	.00	4.09	.00	.000	.030	.000	.000	831.80	2.45
.002405	255.	270.	285.	2	0	0	.00	31.09	33.55

#SECNO 2140.000

2140.00	2.50	835.50	.00	835.50	835.83	.34	.98	.02	837.00
290.	0.	290.	0.	0.	62.	0.	7.	5.	837.00
.20	.00	4.65	.00	.000	.030	.000	.000	833.00	3.01
.003485	340.	340.	340.	2	0	0	.00	29.99	32.99

TN SOUTH-WEST DIVERSION OF FLOW ALONG R.R. TRACKS

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
146.6	.94	1.16	.99	257.4	148.4

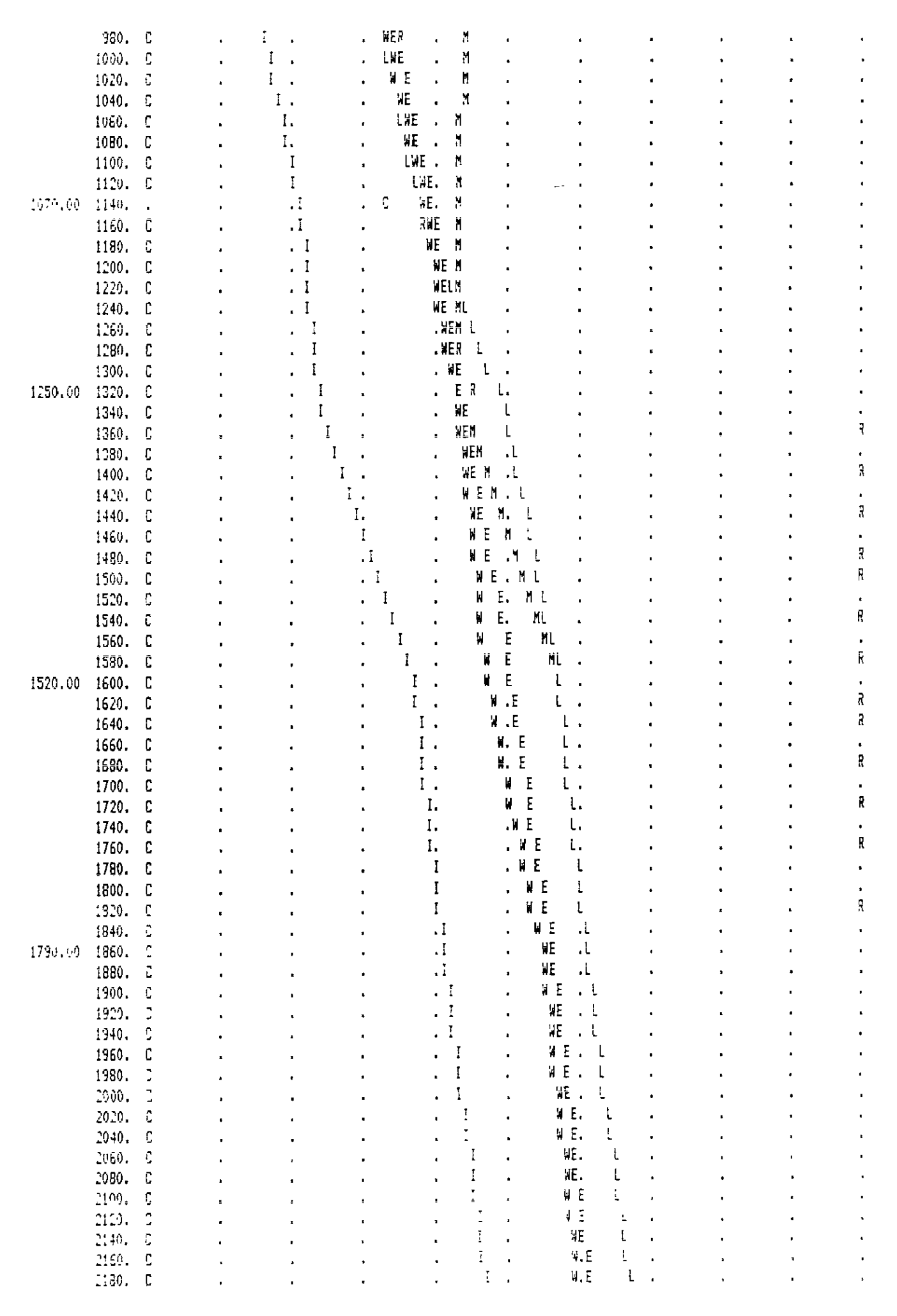
ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
137.71	137.74	.02	137.71	137.74	.02	5	829.714	829.997	630.000	850.000

1

PROFILE FOR STREAM THORNTON CREEK

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

ELEVATION	SECNO	CUMDIS	824.	826.	828.	830.	832.	834.	836.	838.	840.	842.
122.00	0.	I	.	RL	E .	M .	.	.	.	.	.	.
	20.	I	.	RL	WE .	M .	.	.	.	.	.	.
	40.	CI	.	RL	WE .	M .	.	.	.	.	.	.
	60.	CI	.	RL	WE .	M .	.	.	.	.	.	.
	80.	CI	.	RL	WE .	M.	.	.	.	.	.	.
	100.	CI	.	R	WE .	M.	.	.	.	.	.	.
	120.	C I	.		WE .	M	.	.	.	.	.	.
	140.	C I	.		WE .	M	.	.	.	.	.	.
	160.	C I	.		WE .	M	.	.	.	.	.	.
	180.	C I	.		WEL.	.M	.	.	.	.	.	.
	200.	C I	.		WEL.	.M	.	.	.	.	.	.
332.00	220.	C I	.		WE L	. M	.	.	.	.	.	.
	240.	C I	.		E L	.M	.	.	.	.	.	.
	260.	C I	.		WERL	.M	.	.	.	.	.	.
	280.	C I	.		WEL	M	.	.	.	.	.	.
	300.	C I	.		E L	M	.	.	.	.	.	.
	320.	C I	.		WE L	M.	.	.	.	.	.	.
	340.	C I	.		RE L	M.	.	.	.	.	.	.
	360.	C I	.		RWE L	M .	.	.	.	.	.	.
	380.	C I			R WEL	M .	.	.	.	.	.	.
	400.	C .I			R E L	M .	.	.	.	.	.	.
532.00	420.	C . I			R WE L	M .	.	.	.	.	.	.
	440.	C . I			. E L	M .	.	.	.	.	.	.
	460.	C . I			. WEL	M .	.	.	.	.	.	R
	480.	C . I			. E L	.	.	.	.	.	.	.
	500.	C . I			. WEL	.	.	.	.	.	.	R
	520.	C . I			. EL	M .	.	.	.	.	.	.
	540.	C . I			. WEL	.	.	.	.	.	.	R
	560.	C . I			. E L.	.	.	.	.	.	.	.
	580.	C . I			. WEL.	.	.	.	.	.	.	R
	600.	C . I			. WE L	.	.	.	.	.	.	.
	620.	C . I			. MWEL	.	.	.	.	.	.	R
	640.	C . I			. M WEL	.	.	.	.	.	.	.
	660.	C . I			. M WEL	.	.	.	.	.	.	R
	680.	C . I			. M W.EL	.	.	.	.	.	.	R
612.00	700.	C . I			. M WEL	.	.	.	.	.	.	.
630.00	720.	C . I			R M .WE	.	.	.	.	.	.	.
	740.	C . I			.R LWE	.	.	.	.	.	.	.
	760.	C . I			. R L .WEM	.	.	.	.	.	.	.
700.00	780.	C . I			. L . E M	.	.	.	.	.	.	.
	800.	C . I			. L . E M	.	.	.	.	.	.	.
	820.	C . I			. L . E M.	.	.	.	.	.	.	.
	840.	C . I			. LR. E M	.	.	.	.	.	.	.
	860.	C . I			. L R WE .M	.	.	.	.	.	.	.
	880.	C . I			. L.RWE . M	.	.	.	.	.	.	.
	900.	C . I			. L WE . M	.	.	.	.	.	.	.
	920.	C . I			. .LWER . M	.	.	.	.	.	.	.
	940.	C . I			. . WE R . M	.	.	.	.	.	.	.
	960.	C . I			. . LWER . M	.	.	.	.	.	.	.



2140.00 2200. C . . . . I . WE

THIS RUN EXECUTED 2/ 5/91 8:51:55

****
HEC2 RELEASE DATED SEPT 88

****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

THORNTON CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
	122.000	.00	.00	.00	823.60	152.29	827.11	.00	827.11	.13	.21	1228.65	428.21
*	332.000	210.00	.00	.00	824.20	152.29	826.39	.00	827.18	91.48	3.88	54.53	15.92
*	532.000	200.00	.00	.00	825.90	152.29	828.28	.00	828.37	41.17	2.46	65.68	23.73
	612.000	280.00	.00	.00	826.40	152.29	829.58	.00	829.81	58.20	3.84	39.69	13.36
	630.000	18.00	837.20	833.30	926.40	152.29	829.71	.00	829.92	48.77	3.60	42.26	21.81
*	700.000	68.00	.00	.00	826.40	152.29	829.99	.00	830.00	1.94	.85	254.29	109.40
*	850.000	150.00	.00	.00	826.60	290.00	830.00	.00	830.20	53.44	2.75	98.31	39.67
	1070.000	200.00	.00	.00	827.80	290.00	831.22	830.10	831.45	72.92	3.91	90.30	33.96
*	1250.000	190.00	.00	.00	828.30	290.00	832.13	.00	832.27	27.78	3.00	96.63	55.03
*	1520.000	270.00	.00	.00	830.99	290.00	832.99	.00	833.67	99.81	6.59	44.02	30.60
*	1790.000	270.00	.00	.00	831.80	290.00	834.58	.00	834.84	24.05	4.09	70.86	59.13
	2140.000	340.00	.00	.00	833.00	290.00	835.50	.00	835.83	34.85	4.65	62.42	49.12

THORNTON CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	122.000	152.29	827.11	.00	.00	.00	896.03	.00
*	332.000	152.29	826.99	.00	-.12	-.00	86.27	210.00
*	532.000	152.29	828.28	.00	1.29	.01	55.93	200.00
	612.900	152.29	829.58	.00	1.30	.01	18.40	280.00
	630.000	152.29	829.71	.00	.13	.01	18.76	18.00
*	700.000	152.29	829.99	.00	.27	.01	160.00	68.00
*	850.000	290.00	830.90	.00	.01	.01	183.30	150.00
	1070.000	290.00	831.22	.00	1.23	-.01	199.74	200.00
*	1250.000	290.00	832.13	.00	.90	-.01	41.33	180.00
*	1520.000	290.00	832.99	.00	.86	.00	24.00	270.00
*	1790.000	290.00	834.58	.00	1.58	.00	31.09	270.00
	2140.000	290.00	835.50	.00	.92	.00	29.99	340.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 332.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 532.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 700.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 850.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1250.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1520.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1730.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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1*****************************************************
*  WATER SURFACE PROFILES                           *
*  VERSION OF SEPTEMBER 1988                        *
*  ERROR: 01                                        *
*  UPDATED: 16 FEBRUARY 1989                        *
*  RUN DATE     2/ 5/91   TIME    8:53:13           *
*****************************************************
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*****************************************
*  U.S. ARMY CORPS OF ENGINEERS         *
*  THE HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616              *
*  (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
```

END OF BANNER

THIS RUN EXECUTED 2/ 5/91 8:53:13

****
HEC2 RELEASE DATED SEPT 88

****

SPLIT FLOW BEING PERFORMED

SF 340 C.F.S. 100 YEAR STORM SPLIT FLOW CALCULATIONS

TN SOUTH-WEST DIVERSION OF FLOW ALONG R.R. TRACKS
NS 8 630 850 -1 .1 .004
NG 0 836.45 10.7 828.78 59.99 828.62 107.6 828.91 154.0 829.96
NG164.18 831.47 192.4 831.66 257.4 832

T1 BRENT CANUP PROPERTY SIDEWELL #22-35-101-029 (REV. 1-23-91)
T2 EXISTING CONDITION, 100-YEAR FOODPLAIN STUDY (340 C.F.S.)
T3 THORNTON CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	2	0	0	0	0	0	340	827.11	0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	-1	0	0	0	0	0	0	0	0	0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

150

NC	0.055	0.055	0.045	0.1	0.3					
	CROSS SECTION NUMBER 122.0									
X1	122	19	567	579	0	0	0			
GR	829.0	0	827.5	86	826.3	180	825.6	277	825.2	368
GR	825.8	468	825.8	544	826.4	567	823.7	571	823.6	574
GR	823.9	577	826.2	579	825.6	604	825.3	665	825.8	759
GR	825.7	849	825.5	939	827.6	1027	828.7	1124		
	CROSS SECTION NUMBER 332.0 (200 FT. ENCROACHMENT)									
X3	0	0	200	0	0	0	0	0	0	0
X1	332	19	520	557	280	155	210			
GR	830.2	0	830.0	82	828.6	175	826.8	262	827.4	358
GR	827.2	456	827.5	520	826.8	540	824.3	546	824.2	550
GR	824.8	553	827.5	557	826.8	580	826.3	652	826.3	744
GR	826.4	831	826.3	920	828.2	1016	829.9	1104		
NC	0	0	0	0.1	0.3					
	CROSS SECTION NUMBER 532 (80 FT. ENCROACHMENT)									
X3	0	0	80	0	0	0	0	0	0	0
X1	532	17	210	268	200	200	200	0	0	0
GR	838.47	0	828.48	60	828.66	145	828.7	210	829.2	220
GR	826.2	230	825.9	236	826.2	240	827.3	244	827.5	268
GR	827.05	340	826.96	433	826.78	530	826.9	618	827.88	705
GR	827.68	800	829	890						
NC	0	0	0	.3	.5					
	BRIDGE DOWNSTREAM SIDE (19.5 FT. ENCROACHMENT WIDTH)									
ET		6.1				490.25	509.75			
X1	612	26	490.25	509.75	365	350	280			
X3	10	0	0	0	0	0	0	837.2	837.2	0
GR	829	0	829	50	829	100	829	150	829	200
GR	829	250	829	300	829	350	829	400	829	450
GR	829	480	830	490.25	827.5	496.75	826.4	499.75	827.4	508.75
GR	827.5	509.75	829	550	829	600	829	650	829	700
GR	829	750	829	800	829	850	829	900	829	950
GR	829	1000	0	0	0	0	0	0	0	0
	BRIDGE UPSTREAM SIDE (19.5 FT. ENCROACHMENT WIDTH)									

SB	0	1.56	2.9	0	19.5	0	125	0	826.6	826.4
ET	6.1					490.25	509.75			
X1	630	0	0	0	18	18	18	0	0	0
X2	0	0	1	833.3	837.2	0	0	0	0	0
X3	10	0	0	0	0	0	0	837.2	837.2	0
BT	25	0	839.6	0	50	839.4	0	100	839.2	0
BT	150	839.0	0	200	838.7	0	250	838.5	0	300
BT	838.3	0	350	838.0	0	400	837.7	0	450	837.4
BT	0	480	837.3	0	490.25	837.2	830	490.25	837.2	833.3
BT	509.75	837.2	833.3	509.75	837.2	827.5	550	836.8	0	600
BT	836.5	0	650	836.4	0	700	836.3	0	750	836.5
BT	0	800	836.1	0	850	836	0	900	835.8	0
BT	950	835.6	0	1000	835.3	0	0	0	0	0

NC	0	0	0	0.1	0.3					
CROSS SECTION 700.00 (160 FT. ENCROACHMENT)										
X3	0	0	0	641.5	0	801.5	0	0	0	0
X1	700	33	703	740	145	315	68			
GR	832.0	0	830	8	829.5	38	828.5	168	828.7	262
GR	828.9	358	829.2	448	827.9	564	828.6	640	829.3	680
GR	828.6	703	826.5	707	826.4	710	826.5	712	827.7	727
GR	828.5	740	828.5	769	828.4	796	826.7	806	826.6	820
GR	828.5	829	828	931	827.7	1032	828	1341	826	1466
GR	826	1511	827	1636	827	2016	826	2031	824	2081
GR	824	2141	826	2460	831	3860				
CROSS SECTION NUMBER 850 (LFT. BANK 1 ON 4 ENCROACH., RT. BANK INEFF FLOW)										
X3	0	0	0	470	0	642	830.5	0	0	0
X1	950	20	597	642	160	250	150			
GR	831.1	0	830.7	75	830.5	147	831.0	237	829.8	347
GR	830.0	451	829.6	507	830.0	582	829.9	597	827.1	603
GR	826.6	612	827.6	620	829.7	628	830.5	642	830.3	665
GR	829.7	711	829.5	766	830.5	804.0	831.4	825	832.4	849.0
CROSS SECTION NUMBER 1070 (INEFFECTIVE FLOW IN RT. BANK UNTIL OVERTOPPED)										
X3	0	0	0	0	0	700	831.1	0	0	0
X1	1070	21	658	700	230	165	200	0	0	0
GR	833.7	0	833.4	83	832.9	157	832.2	259	831.7	305
GR	834.3	476	831.6	575	831.4	640	831.1	658	828.0	662
GR	827.8	670	828.1	676	830.6	682	831.1	700	830.5	723
GR	830.3	781	830.9	829	831.4	876	832.3	907	832.5	934
GR	832.2	1188								
CROSS SECTION NUMBER 1250 (INEFFECTIVE FLOW IN RT. & LFT. BANKS)										
X3	0	0	0	201	0	249	832.5	0	0	0
X1	1250	21	201	249	225	180	190			
GR	839.4	0	839.2	6	836.0	24	835.5	43	832.7	60
GR	832.1	133	835.5	162	833.6	197	833.4	201	829.8	218
GR	829.4	227	828.3	242	832.5	249	831.8	278	832.8	367
GR	832.4	461	831.7	538	832.6	546	832.4	567	832.2	643
GR	832.2	816								

CROSS SECTION OF EXISTING CONCRETE CHANNEL (SECTION 1520)

NC	.03	.03	.03	0	0	0	0	0	0	0
ET		6.1	0	0	0	0	36	0	0	0
X1	1520	4	0	36	230	350	270			
GR	834.99	0	830.99	8	830.99	28	834.99	36		
X1	1790	4	0	36	255	285	270			
GR	835.80	0	831.80	8	831.80	28	835.80	36		
X1	2140	4	0	36	340	340	340			
GR	837.00	0	833.00	8	833.00	28	837.00	36		

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

#PROF 1
0

CCHV= .100 CEHV= .300
*SECNO 122.000
122.00 3.51 827.11 .00 827.11 827.11 .00 .00 .00 826.40
171. 82. 8. 81. 605. 33. 591. 0. 0. 826.20
.00 .14 .23 .14 .055 .045 .055 .000 823.60 110.44
.000016 0. 0. 0. 0 0 0 .00 896.03 1006.47
0
*SECNO 332.000

3265 DIVIDED FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 438.5 638.5 TYPE= 2 TARGET= 200.000
332.00 2.73 826.93 826.93 826.93 827.23 .30 .01 .09 827.50
171. 0. 142. 29. 0. 30. 20. 3. 2. 827.50
.01 .00 4.77 1.46 .000 .045 .055 .000 824.20 538.36
.013088 280. 210. 155. 5 13 0 .00 82.48 638.50
0
CCHV= .100 CEHV= .300
*SECNO 532.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS= 199.0 279.0 TYPE= 2 TARGET= 80.000
532.00 2.52 828.42 .00 828.41 828.50 .09 1.26 .02 828.70
171. 0. 155. 16. 0. 63. 10. 3. 3. 827.50
.04 .00 2.47 1.50 .000 .045 .055 .000 825.90 222.61
.003674 200. 200. 200. 3 0 0 .00 56.39 279.00
0
CCHV= .200 CEHV= .500
*SECNO 612.000
3280 CROSS SECTION 612.00 EXTENDED .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

3470 ENCROACHMENT STATIONS= 490.3 509.8 TYPE= 1 TARGET= 19.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 837.20 ELREA= 837.20

612.00	3.28	829.68	.00	829.68	829.95	.26	1.35	.09	830.00
171.	0.	171.	0.	0.	42.	0.	4.	3.	100000.00
.06	.00	4.12	.00	.000	.045	.000	.000	826.40	491.10
.006468	365.	280.	350.	2	0	0	.00	18.65	509.75

0

SPECIAL BRIDGE

SS	XR	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.55	[illegible]	.00	19.50	.00	125.00	.00	826.60	826.40

+SECNO 630.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 830.102 ELLC= 833.300 PCWSE= 829.682 ELTRD= 837.200
3280 CROSS SECTION 630.00 EXTENDED .83 FEET

3370 NORMAL BRIDGE, NRD= 25 MIN ELTRD= 837.20 MAX ELLC= 833.30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 837.20 ELREA= 837.20

630.00	3.43	829.83	.00	829.83	830.06	.23	.11	.01	830.00
171.	0.	171.	0.	0.	44.	0.	4.	3.	827.50
.06	.00	3.84	.00	.000	.045	.000	.000	826.40	490.69
.005329	18.	18.	18.	2	0	0	-63.65	19.06	509.75

0
CCHV= .100 CEHV= .300
+SECNO 700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS= 641.5 801.5 TYPE= 1 TARGET= 160.000

700.00	3.74	830.14	.00	830.13	830.14	.01	.06	.02	828.60
171.	29.	88.	54.	72.	101.	105.	4.	3.	828.50
.10	.41	.37	.51	.055	.045	.055	.000	826.40	641.50
.000186	145.	68.	215.	2	0	0	.00	160.00	801.50

0

SECNO	DEPTH	CWSEL	CRIWS	WSELV	EG	HV	HL	CLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 850.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS= 470.0 642.0 TYPE= 1 TARGET= 172.000

850.00	3.56	830.16	.00	830.16	830.35	.19	.15	.05	829.90
340.	47.	293.	0.	46.	78.	0.	5.	4.	830.50
.12	1.02	3.74	.00	.055	.045	.000	.000	826.60	473.00
.005259	160.	150.	250.	2	0	0	.00	166.10	636.10

0

*SECNO 1070.000

3470 ENCROACHMENT STATIONS= .0 700.0 TYPE= 1 TARGET= 699.999

1070.00	3.55	831.35	.00	831.35	831.58	.23	1.22	.01	831.10
340.	1.	308.	31.	2.	75.	37.	5.	5.	831.10
.13	.57	4.05	.35	.055	.045	.055	.000	827.80	643.21
.007146	230.	200.	165.	1	0	0	.00	224.39	867.61

0

*SECNO 1250.000

3280 CROSS SECTION 1250.00 EXTENDED .08 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS= 201.0 249.0 TYPE= 1 TARGET= 48.000

1250.00	3.98	832.28	.00	832.28	832.45	.17	.87	.01	833.40
340.	0.	340.	0.	0.	103.	0.	6.	5.	832.50
.15	.00	3.30	.00	.000	.045	.000	.000	828.30	206.30
.003172	225.	190.	180.	2	0	0	.00	42.32	248.63

0

*SECNO 1520.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

1520.00	2.25	833.22	.00	833.22	833.95	.73	1.33	.17	834.99
340.	0.	340.	0.	0.	50.	0.	7.	6.	100000.00
.16	.00	6.87	.00	.000	.030	.000	.000	830.99	3.54
.008644	230.	270.	330.	3	0	0	.00	24.46	23.00

0

SECNO	DEPTH	CWSEL	CPIWS	WSELK	EG	HV	HL	GLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 1790.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

1790.00	3.03	834.83	.00	834.83	835.11	.29	1.12	.04	835.80
240.	0.	340.	0.	0.	73.	0.	7.	6.	835.80
.18	.00	4.31	.00	.000	.030	.000	.000	831.80	1.95
.002426	255.	270.	285.	3	0	0	.00	32.10	34.05

0

*SECNO 2140.000

2140.00	2.75	835.75	.00	835.75	836.11	.37	.37	.02	837.00
340.	0.	340.	0.	0.	70.	0.	9.	6.	837.00
.29	.00	4.86	.00	.000	.030	.000	.000	833.00	2.51
.003434	340.	340.	340.	2	0	0	.00	30.98	33.49

0

TN SOUTH-WEST DIVERSION OF FLOW ALONG R.R. TRACKS

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
166.1	1.02	1.29	1.11	257.4	149.1

ASO	QCOMP	ERRAC	TASO	TCO	TABER	NITER	DSWS	USWS	DSSNO	USSNO
169.00	168.99	.01	169.00	168.99	.01	6	829.831	830.157	630.000	850.000

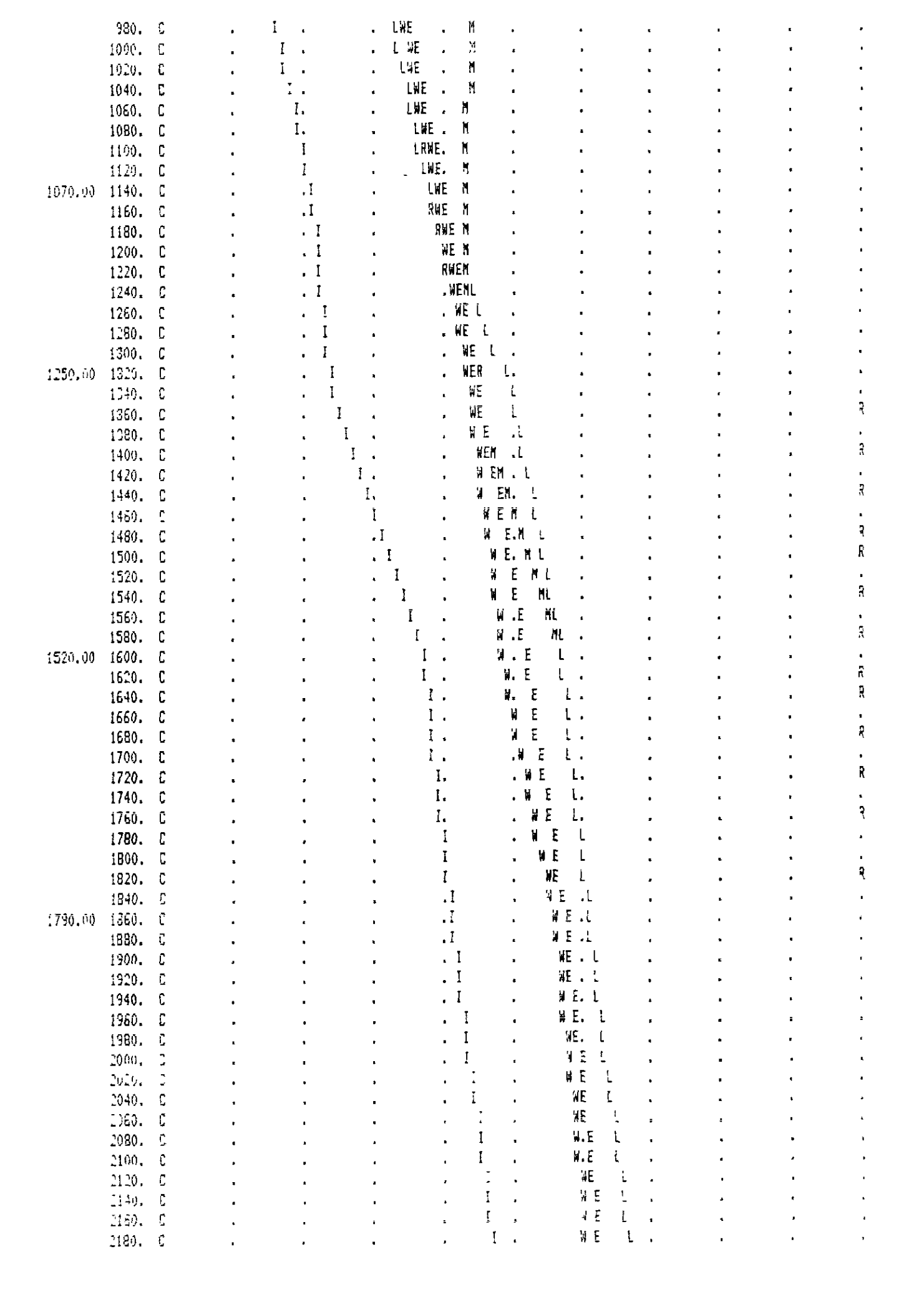
1

PROFILE FOR STREAM THORNTON CREEK

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

```
ELEVATION   824.      826.      828.      830.      832.      834.      836.      838.      840.      842.
   SECND   CUMDIS

  122.00     0.  I         .  RL   E .      M  .         .         .         .         .         .         .         .
            20.  I         .   RL WE .      M  .         .         .         .         .         .         .         .
            40.  CI        .   RL WE .       M .         .         .         .         .         .         .         .
            60.  CI        .    RLWE .       M .         .         .         .         .         .         .         .
            80.  CI        .    RLWE .        M.         .         .         .         .         .         .         .
           100.  CI        .     RWE .        M.         .         .         .         .         .         .         .
           120.  C I       .      WE .         M         .         .         .         .         .         .         .
           140.  C I       .      WE .         M         .         .         .         .         .         .         .
           160.  C I       .      WE .         M         .         .         .         .         .         .         .
           180.  C  I      .      WEL.         .M        .         .         .         .         .         .         .
           200.  C  I      .      WEL.         .M        .         .         .         .         .         .         .
  332.00   220.  .  I      .      WE L         . M       .         .         .         .         .         .         .
           240.  C   I     .      W EL         .M        .         .         .         .         .         .         .
           260.  C    I    .       WERL        .M        .         .         .         .         .         .         .
           280.  C     I   .        WEL        M         .         .         .         .         .         .         .
           300.  C     I   .         WEL       M         .         .         .         .         .         .         .
           320.  C      I  .         WE L     1.         .         .         .         .         .         .         .
           340.  C       I .         RWEL     M.         .         .         .         .         .         .         .
           360.  C        I.         R WEL   M .         .         .         .         .         .         .         .
           380.  C         I         R  EL   M .         .         .         .         .         .         .         .
           400.  C         .I        R  WEL M  .         .         .         .         .         .         .         .
  532.00   420.  C         . I       R   WELM  .         .         .         .         .         .         .         .
           440.  C         . I       .    ELM  .         .         .         .         .         .         .         .
           460.  C         . I       .    WEM  .         .         .         .         .         .         .         R
           480.  C         . I       .    WEL  .         .         .         .         .         .         .         .
           500.  C         . I       .     WE  .         .         .         .         .         .         .         R
           520.  C         . I       .     WEL .         .         .         .         .         .         .         .
           540.  C         .  I      .      WE .         .         .         .         .         .         .         R
           560.  C         .  I      .      WEL.         .         .         .         .         .         .         .
           580.  C         .  I      .      MWE.         .         .         .         .         .         .         R
           600.  C         .  I      .      MWEL         .         .         .         .         .         .         .
           620.  C         .  I      .      M WE         .         .         .         .         .         .         R
           640.  C         .  I      .      M WEL        .         .         .         .         .         .         .
           660.  C         .   I     .      M W.E        .         .         .         .         .         .         R
           680.  C         .   I     .      M  WEL       .         .         .         .         .         .         R
  612.00   700.  C         .   I     .      M  W E       .         .         .         .         .         .         .
  630.00   720.  C         .   I     R      M  .WE       .         .         .         .         .         .         .
           740.  C         .   I     .R        L E       .         .         .         .         .         .         .
           760.  C         .   I     . R     L . WE      .         .         .         .         .         .         .
  700.00   780.  C         .   I     .    L    .  E   M  .         .         .         .         .         .         .
           800.  C         .   I     .     L   .  E    M .         .         .         .         .         .         .
           820.  C         .   I     .      L  .  E     M.         .         .         .         .         .         .
           840.  C         .   I     .       LR.  E      M         .         .         .         .         .         .
           860.  C         .    I    .       L R  E      .M        .         .         .         .         .         .
           880.  C         .    I    .        L.R E      . M       .         .         .         .         .         .
           900.  C         .    I    .         L  WE     .  M                .         .         .         .         .
           920.  C         .    I    .         .L WE     .   M     .         .         .         .         .         .
  850.00   940.  C         .    I    .         . LWER    .   M     .         .         .         .         .         .
           960.  C         .     I   .         . LWER    .   M     .         .         .         .         .         .
```



2140.00 2200. C . . . . I . .W E L

THIS RUN EXECUTED 2/ 5/91 8:53:22

****
HEC2 RELEASE DATED SEPT 88

****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

THORNTON CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10**KS	VCH	AREA	.01K
	122.000	.00	.00	.00	823.60	171.00	827.11	.00	827.11	.16	.23	1228.65	428.21
*	332.000	210.00	.00	.00	824.20	171.00	826.93	826.93	827.23	130.88	4.77	49.45	14.95
*	532.000	200.00	.00	.00	825.90	171.00	828.42	.00	828.50	36.74	2.47	73.35	28.21
	612.000	280.00	.00	.00	826.40	171.00	829.68	.00	829.95	64.68	4.12	41.51	21.26
	630.000	18.00	837.20	833.30	826.40	171.00	829.83	.00	830.06	53.29	3.84	44.48	23.42
*	700.000	68.00	.00	.00	826.40	171.00	830.14	.00	830.14	1.88	.87	277.74	124.78
*	850.000	150.00	.00	.00	826.60	340.00	830.16	.00	830.35	52.59	3.74	124.65	46.88
	1070.000	200.00	.00	.00	827.80	340.00	831.35	.00	831.58	71.46	4.05	114.42	40.22
*	1250.000	190.00	.00	.00	828.30	340.00	832.28	.00	832.45	31.72	3.30	103.16	60.37
*	1520.000	270.00	.00	.00	830.99	340.00	833.22	.00	833.95	86.44	6.87	49.52	36.57
*	1790.000	270.00	.00	.00	831.80	340.00	834.83	.00	835.11	24.26	4.31	78.82	69.40
	2140.000	340.00	.00	.00	833.00	340.00	835.75	.00	836.11	34.34	4.86	69.94	58.42

THORNTON CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	122.000	171.00	827.11	.00	.00	.00	895.03	.00
*	332.000	171.00	826.93	.00	-.18	.00	82.48	210.00
*	532.000	171.00	828.42	.00	1.49	.00	56.39	200.00
	612.000	171.00	829.68	.00	1.27	.00	18.65	280.00
	630.000	171.00	829.83	.00	.15	.00	19.06	18.00
*	700.000	171.00	830.14	.00	.30	.00	160.00	68.00
*	850.000	340.00	830.16	.00	.02	.00	166.10	150.00
	1070.000	340.00	831.35	.00	1.19	.00	224.39	200.00
*	1250.000	340.00	832.28	.00	.94	.00	42.32	190.00
*	1520.000	340.00	833.22	.00	.93	.00	24.46	270.00
*	1790.000	340.00	834.83	.00	1.61	.00	32.10	270.00
	2140.000	340.00	835.75	.00	.92	.00	30.98	340.00

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 332.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 332.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY

WARNING SECNO= 532.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 700.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 850.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1150.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1520.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1790.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

```
1*************************************************************
*  WATER SURFACE PROFILES                                   *
*  VERSION OF SEPTEMBER 1988                                *
*  ERROR: 01                                                *
*  UPDATED: 16 FEBRUARY 1989                                *
*  RUN DATE     2/ 5/91   TIME    9:25:27                   *
*************************************************************
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**********************************
*  U.S. ARMY CORPS OF ENGINEERS  *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D    *
*  DAVIS, CALIFORNIA 95616       *
*  (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
```

END OF BANNER

THIS RUN EXECUTED 2/ 5/91 9:25:27

****
HEC2 RELEASE DATED SEPT 88

****

SPLIT FLOW BEING PERFORMED

SF 290 CFS 100 YEAR STORM SPLIT FLOW ALONG R.R. TRACKS WITH BRIDGE

TN PROPOSED SOUTH-WEST DIVERSION OF FLOW ALONG R.R. TRACKS
NS 8 630 850 -1 .1 .0040
NG 0 836.45 10.7 828.78 59.99 828.62 107.6 828.91 154 828.96
NG164.18 831.47 192.4 831.66 257.4 832

```
T1      BRENT CANUP PROPERTY SIDEWELL #22-35-101-029, (REV. 1-22-91)
T2      PROPOSAL, 290 cfs 100 YEAR, R.R. SPLIT,BRIDGE,ROAD,FILL,
T3      THORNTON CREEK

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

        0         2         0         0         0         0         0       290    827.04         0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

       -1         0         0         0         0         0         0         0         3         3


J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150

NC    0.055     0.055     0.045       0.1       0.3         0         0         0         0         0
  CROSS SECTION NUMBER 122.0 (PROPOSED FILL)
X1      122        18       217       229         0         0         0         0         0         0
GR    826.1         0     826.1        30     825.3        33     825.8       118     825.8       194
GR    826.4       217     823.7       221     823.6       224     823.9       227     826.2       229
GR    825.6       254     825.3       315     825.8       409     825.7       499     825.6       584
GR      829       596       829       740     829.7       774         0         0         0         0
  CROSS SECTION NUMBER 332.0 (PROPOSED FILL) 90 FT. ENCROACHMENT
X3        0         0        90         0         0         0         0         0         0         0

X1      332        16        80       117       140       190       230         0         0         0
GR  829.07         0  829.07        30     827.3        38     827.5        80     826.8       100
GR    824.3       106     824.2       110     824.8       113     827.5       117     826.8       140
GR    826.3       212       827       265       828       330       829       360       829       553
GR    829.9       664         0         0         0         0         0         0         0         0

NC        0         0         0        .3       0.5         0         0         0         0         0
      PROPOSED BRIDGE SECTION DOWNSTREAM SIDE (21 X 4', INV. 925.04)
ET                6.1                                   418       439
X1      397        18       418       439        65        65        65         0         0         0
X3       10         0         0         0         0         0         0     828.1     830.4         0
GR    838.5         0     829.2        40       829        58       828       138     827.1       234
GR    827.6       326     827.7       362     827.7       370     827.8       400     828.1       418
GR    825.4       424     825.2       428     825.8       437     827.6       439     827.7       458
GR    827.6       480     827.3       528     827.4       540         0         0         0         0
      PROPOSED BRIDGE SECTION UPSTREAM SIDE (INVERT ELEV. = 825.04)

SB        0      1.56       2.9         0        21        40        66         0    825.04    825.04
ET                6.1                                   418       439
X1      457         0         0         0        60        60        60         0         0         0
X2        0         0         1     830.4     828.1         0         0         0         0         0
X3       10         0         0         0         0         0         0     828.1     830.4         0
BT       16         0     838.5         0        40     829.2         0        58       829         0
BT      138       329         0       234     827.1         0       326     827.3         0       362
BT    827.7         0       370    830.27         0       400     830.3         0       418     830.4
BT   825.21       418     830.4    828.21       439     830.4    829.21       439     830.4    825.21
BT      480     829.3         .       528     829.3         .       540     827.6         0
```

NC	0	0	0	.1	.3	0	0	0	0	0
	CROSS SECTION NUMBER 532 (PROPOSED FILL), 80' ENCROACHMENT									
X3	0	0	80	0	0	0	0	0	0	0
X1	532	12	210	268	75	75	75	0	0	0
GR	838.47	0	828.48	60	828.65	145	828.7	210	829.2	220
GR	826.2	230	825.9	236	826.2	240	827.3	244	827.5	268
GR	827.42	280	840	343	0	0	0	0	0	0
NC	0	0	0	.3	.5					
	BRIDGE DOWNSTREAM SIDE (BRIDGE ENCROACHMENT)									
ET		6.1				490.25	509.75			
X1	612	26	490.25	509.75	365	350	280	0	0	0
X3	10	0	0	0	0	0	0	837.2	837.2	0
GR	829	0	829	50	829	100	829	150	829	200
GR	829	250	829	300	829	350	829	400	829	450
GR	829	480	830	490.25	827.5	496.75	826.4	499.75	827.4	508.75
GR	827.5	509.75	829	550	829	600	829	650	829	700
GR	829	750	829	800	829	850	829	900	829	950
GR	829	1000	0	0	0	0	0	0	0	0
	BRIDGE UPSTREAM SIDE (BRIDGE ENCROACHMENT)									
SB	0	1.56	2.9	0	19.5	0	125	0	826.6	826.4
ET		6.1				490.25	509.75			
X1	630	0	0	0	18	18	18	0	0	0
X2	0	0	1	833.3	837.2	0	0	0	0	0
X3	10	0	0	0	0	0	0	837.2	837.2	0
BT	25	0	839.6	0	50	839.4	0	100	839.2	0
BT	150	839.0	0	200	838.7	0	250	838.5	0	300
BT	838.3	0	350	838.0	0	400	837.7	0	450	837.4
BT	0	480	837.3	0	490.25	837.2	830	490.25	837.2	833.3
BT	509.75	837.2	833.3	509.75	837.2	827.5	550	836.8	0	600
BT	836.5	0	650	836.4	0	700	836.3	0	750	836.3
BT	0	800	836.1	0	850	836	0	900	835.8	0
BT	950	835.6	0	1000	835.3	0	0	0	0	0
NC	0	0	0	0.1	0.3	0	0	0	0	0
	CROSS SECTION 700 (160 FT. ENCROACHMENT)									
X3	0	0	0	641.5	0	801.5	0	0	0	0
X1	700	34	703	740	145	315	68	0	0	0
GR	832.0	0	830	8	829.5	38	828.5	168	828.7	252
GR	828.3	258	829.2	448	827.9	564	828.6	640	829.3	680
GR	828.6	703	826.5	707	826.4	710	826.5	712	827.7	727
GR	828.5	740	828.5	769	828.4	796	826.7	806	826.6	820
GR	828.5	829	828	931	827.7	1032	828	1341	826	1465
GR	825	1511	827	1636	827	2016	826	2031	824	2081
GR	824	2141	826	2460	831	3860	832	3880		
	CROSS SECTION 850 (LFT. BANK 1 ON 4 ENCROACH., RT. BANK INEFF. FLOW)									
X3	0	0	0	470	0	642	830.5	0	0	0

X1	850	20	597	642	160	250	150	0	0	0
GR	831.1	0	830.7	75	830.5	147	831	237	829.8	347
GR	830	451	829.6	507	830	562	829.9	597	827.1	603
GR	826.6	612	827.6	620	829.7	629	830.5	642	830.3	665
GR	829.7	711	829.5	766	830.5	804	831.4	825	832.4	849
CROSS SECTION 1070 (INEFFECTIVE FLOW IN RT. BANK UNTIL OVERTOPPED)										
X3	0	0	0	0	0	700	831.1	0	0	0
X1	1070	21	658	700	230	165	200	0	0	0
GR	833.7	0	833.4	83	832.9	167	832.3	259	831.7	305
GR	834.3	476	831.6	575	831.4	640	831.1	659	828	662
GR	827.8	670	828.1	676	830.6	682	831.1	700	830.5	723
GR	830.3	781	830.9	829	831.4	876	832.3	907	832.5	934
GR	832.2	1188								
CROSS SECTION 1250 (INEFFECTIVE FLOW IN RT. BANK UNTIL OVERTOPPED)										
X3	0	0	0	201	0	249	832.5	0	0	0
X1	1250	21	201	249	225	180	190	0	0	0
GR	839.4	0	839.2	6	836	24	835.5	43	832.7	60
GR	832.1	133	835.5	162	833.6	197	833.4	201	829.8	218
GR	829.4	227	828.3	242	832.5	249	831.8	278	832.8	367
GR	832.4	461	831.7	538	832.6	546	832.4	567	832.2	643
GR	832.2	816								
EXISTING CONCRETE CHANNEL										
NC	.03	.03	.03	0	0	0	0	0	0	0
ET		6.1	0	0	0	0	36	0	0	0
X1	1520	4	0	36	240	300	270	0	0	0
GR	834.99	0	830.99	8	830.99	28	834.99	36	0	0
X1	1790	4	0	36	255	285	270	0	0	0
GR	835.80	0	831.80	8	831.80	28	835.80	36	0	0
X1	2140	4	0	36	340	340	340	0	0	0
GR	837.00	0	833.00	8	833.00	28	837.00	36	0	0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
0

CCHV= .100 CEHV= .300
*SECNO 122.000
3280 CROSS SECTION 122.00 EXTENDED .94 FEET

122.00	2.44	827.04	.00	827.04	827.04	.00	.00	.00	826.40
159.	51.	11.	98.	275.	32.	503.	0.	0.	826.20
.00	.18	.33	.20	.055	.045	.055	.000	820.60	.00
.000033	0.	0.	0.	0	0	0	.00	589.08	589.08

0
*SECNO 332.000

3301 HV CHANGED MORE THAN HVINS

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS= 53.5 143.5 TYPE= 2 TARGET= 90.000

332.00	2.41	826.61	.00	826.62	827.26	.65	.02	.20	827.50
159.	0.	159.	0.	0.	25.	0.	2.	1.	827.50
.01	.00	6.48	.00	.000	.045	.000	.000	824.20	100.46
.022276	140.	230.	190.	4	0	0	.00	15.22	115.68

0
CCHV= .300 CEHV= .500
*SECNO 397.000
3280 CROSS SECTION 397.00 EXTENDED .44 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS= 418.0 439.0 TYPE= 1 TARGET= 21.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 828.10 ELREA= 830.40

397.00	2.65	827.85	.00	827.83	828.09	.24	.71	.12	828.10
159.	0.	159.	0.	0.	40.	0.	2.	1.	100000.00
.01	.00	2.97	.00	.000	.045	.000	.000	825.20	418.57
.006430	65.	65.	65.	2	0	0	.00	20.43	439.00

0

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
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	1.56	2.90	.00	21.00	.00	66.00	.00	825.34	825.04

*SECNO 457.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 828.199 ELLC= 830.400 PCWSE= 827.847 ELTRD= 828.100
3280 CROSS SECTION 457.00 EXTENDED .84 FEET

3370 NORMAL BRIDGE, NRD= 16 MIN ELTRD= 828.10 MAX ELLC= 830.40

3470 ENCROACHMENT STATIONS= 418.0 439.0 TYPE= 1 TARGET= 21.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 828.10 ELREA= 830.40

457.00	3.03	828.23	.00	828.22	828.40	.17	.29	.02	828.10
159.	0.	159.	0.	0.	48.	0.	2.	1.	100000.00
.02	.00	3.30	.00	.000	.045	.000	.000	825.20	418.00
.003747	60.	60.	60.	2	0	0	.00	21.00	439.00

0
CCHV= .100 CEHV= .300
*SECNO 532.000

3470 ENCROACHMENT STATIONS= 199.0 279.0 TYPE= 2 TARGET= 80.000

532.00	2.67	828.57	.00	828.56	828.63	.06	.22	.01	828.70
159.	0.	144.	16.	0.	69.	12.	2.	1.	827.50
.03	.00	2.07	1.29	.000	.045	.055	.000	825.30	222.14
.002305	75.	75.	75.	2	0	0	.00	56.86	279.00

0
CCHV= .300 CEHV= .500
*SECNO 612.000
3280 CROSS SECTION 612.00 EXTENDED .32 FEET

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 490.3 509.8 TYPE= 1 TARGET= 19.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 837.20 ELREA= 837.20

612.00	3.12	829.52	.00	829.50	829.78	.27	1.05	.10	830.00
159.	0.	159.	0.	0.	39.	0.	2.	2.	100000.00
.05	.00	4.13	.00	.000	.045	.000	.000	826.40	491.51
.006902	365.	280.	350.	2	0	0	.00	18.24	509.75

0

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.00	1.56	2.90	.00	19.50	.00	125.00	.00	826.60	826.40

*SECNO 630.000

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= .000 EGLWC= 829.937 ELLC= 833.300 PCWSE= 829.517 ELTRD= 837.200
3280 CROSS SECTION 630.00 EXTENDED .68 FEET

3370 NORMAL BRIDGE, NRD= 25 MIN ELTRD= 837.20 MAX ELLC= 833.30

3470 ENCROACHMENT STATIONS= 490.3 509.8 TYPE= 1 TARGET= 19.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 837.20 ELREA= 837.20

630.00	3.28	829.68	.00	829.66	829.90	.23	.11	.01	830.00
159.	0.	159.	0.	0.	42.	0.	2.	2.	100000.00
.05	.00	3.84	.00	.000	.045	.000	.000	826.40	491.09
.005619	18.	18.	18.	2	0	0	.00	18.65	509.75

0
CCHV= .100 CEHV= .300
*SECNO 700.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS= 641.5 801.5 TYPE= 1 TARGET= 160.000

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
790.00	3.59	829.99	.00	829.97	829.99	.01	.07	.02	828.60
159.	25.	85.	49.	63.	95.	96.	3.	2.	828.50
.09	.40	.90	.52	.055	.045	.055	.000	826.40	641.50
.000214	145.	68.	315.	2	0	0	.00	160.00	801.50

0
*SECNO 850.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS= 470.0 642.0 TYPE= 1 TARGET= 172.000

850.00	3.40	830.00	.00	829.99	830.20	.20	.15	.06	829.90
290.	19.	271.	0.	27.	72.	0.	4.	3.	830.50
.11	.73	3.74	.00	.055	.045	.000	.000	826.60	470.00
.005302	160.	150.	250.	2	0	0	.00	160.37	633.37

0
*SECNO 1070.000

3470 ENCROACHMENT STATIONS= .0 700.0 TYPE= 1 TARGET= 699.999

1070.00	3.42	831.22	830.10	831.23	831.45	.23	1.24	.01	831.10
290.	0.	279.	11.	1.	71.	18.	4.	3.	831.10
.12	.38	3.92	.58	.055	.045	.055	.000	827.80	650.15
.007330	230.	200.	165.	2	18	0	.00	199.36	849.51

0
*SECNO 1250.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS= 201.0 249.0 TYPE= 1 TARGET= 48.000

1250.00	3.83	832.13	.00	832.13	832.27	.14	.81	.01	830.40
290.	0.	290.	0.	0.	97.	0.	4.	4.	832.50
.14	.00	3.00	.00	.000	.045	.000	.000	828.30	207.03
.002771	225.	190.	180.	2	0	0	.00	41.34	248.37

0
*SECNO 1520.000

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

1520.00	2.00	832.99	.00	832.99	833.67	.67	1.24	.16	834.99
290.	0.	290.	0.	0.	44.	0.	5.	4.	100000.00
.15	.00	6.59	.00	.000	.030	.000	.000	830.99	4.00
.008983	240.	270.	300.	3	0	0	.00	24.00	28.00

0
*SECNO 1790.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

1790.00	2.78	834.58	.00	834.58	834.84	.26	1.13	.04	835.80
290.	0.	290.	0.	0.	71.	0.	5.	4.	835.80
.17	.00	4.09	.00	.000	.030	.000	.000	831.80	2.45
.002405	255.	270.	285.	2	0	0	.00	31.09	33.55

0
*SECNO 2140.000

2140.00	2.50	835.50	.00	835.50	835.83	.34	.98	.02	837.00
290.	0.	290.	0.	0.	62.	0.	6.	5.	837.00
.19	.00	4.65	.00	.000	.030	.000	.000	833.00	3.01
.003485	340.	340.	340.	2	0	0	.00	29.99	32.99

0

TN PROPOSED SOUTH-WEST DIVERSION OF FLOW ALONG R.R. TRACKS

TOTAL AREA	AVG VELOCITY	MAX DEPTH	AVG DEPTH	TOP WIDTH	TOP WIDTH
143.0	.92	1.13	.96	257.4	148.3

ASQ	QCOMP	ERRAC	TASQ	TCQ	TABER	NITER	DSWS	USWS	DSSNO	USSNO
130.50	132.02	1.15	130.50	132.02	1.15	5	629.675	630.001	630.000	850.000

1

PROFILE FOR STREAM THORNTON CREEK

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

```
ELEVATION   824.      826.      828.      830.      832.      834.      836.      838.      840.      842.
   SECNO   CUMDIS

  122.00     0.  I         .  RL  E  .         .         .         .         .         .         .         .         .
             20.  I         .   L  E  .         .         .         .         .         .         .         .         .
             40.  CI        .   RLME  .         .         .         .         .         .         .         .         .
             60.  CI        .    L E  .         .         .         .         .         .         .         .         .
             80.  CI        .    RW EM.         .         .         .         .         .         .         .         .
            100.  CI        .     W E .M        .         .         .         .         .         .         .         .
            120.  C I       .     WLE . M       .         .         .         .         .         .         .         .
            140.  C I       .     WLE .   M     .         .         .         .         .         .         .         .
            160.  C I       .     W E .     M   .         .         .         .         .         .         .         .
            180.  C I       .     W E .      M  .         .         .         .         .         .         .         .
            200.  C  I      .    W  EL.        M.         .         .         .         .         .         .         .
            220.  C  I      .    W  EL.         .M        .         .         .         .         .         .         .
  332.00    240.  C  I      .    W  E L         . M       .         .         .         .         .         .         .
            260.  C    I    .      W  E       M .         .         .         .         .         .         .         R
            280.  C     I   .        W.E  M     .         .         .         .         .         .         .         .
  397.00    300.  C       I .        M.WEL      .         .         .         .         .         .         .         .
            320.  C       I .        M. WE      .         .         .         .         .         .         .         .
            340.  C       I .        M.  E      .         .         .         .         .         .         .         .
  457.00    360.  C       I .        M.  WE     .         .         .         .         .         .         .         .
            380.  C        I.         .  LE     .     M   .         .         .         .         .         .         .
            400.  C         I         .   WE    .         .         .  M      .         .         .         .         .
            420.  C         .I        .   WE    .         .         .         .        M.         .         .         .
  532.00    440.  C         . I       R    EL   .         .         .         .         .         . M       .         .
            460.  C         . I       .    WE   .         .         .         .         .       M .         .         .
            480.  C         . I       .    WE   .         .         .         .         .   M     .         .         R
            500.  C         . I       .     EL  .         .         .         .        M         .         .         .
            520.  C         . I       .     WE  .         .         .         .     M   .         .         .         R
            540.  C         . I       .      EL .         .         .         . M       .         .         .         .
            560.  C         .  I      .      WE .         .         .       M .         .         .         .         R
            580.  C         .  I      .      WEL.         .         .    M    .         .         .         .         .
            600.  C         .  I      .       EL.         .         .M        .         .         .         .         R
            620.  C         .  I      .       WEL         .      M  .         .         .         .         .         .
            640.  C         .  I      .       WEL         .  M      .         .         .         .         .         R
            660.  C         .  I      .        WEL       M.         .         .         .         .         .         .
            680.  C         .   I     .        WEL   M    .         .         .         .         .         .         R
            700.  C         .   I     .        WEML       .         .         .         .         .         .         R
  612.00    720.  C         .   I     .      M  WEL       .         .         .         .         .         .         .
  630.00    740.  C         .   I     .      M  W E       .         .         .         .         .         .         .
            760.  C         .   I     .         LWE       .         .         .         .         .         .         R
            780.  C         .   I     .       L .WE   M   .         .         .         .         .         .         R
  700.00    800.  C         .   I     .    L    . E       . M       .         .         .         .         .         .
            820.  C         .   I     .     L   . E       . M       .         .         .         .         .         .
            840.  C         .   I     .       L  . E       .  M      .         .         .         .         .         .
            860.  C         .   I     .       LR. E       .  M      .         .         .         .         .         .
            880.  C         .    I    .       L R WE      .  M      .         .         .         .         .         .
            900.  C         .    I    .        L.RWE      .  M      .         .         .         .         .         .
            920.  C         .    I    .         L WE      .   M     .         .         .         .         .         .
            940.  C         .    I    .         .LWER     .   M     .         .         .         .         .         .
  350.00    960.  C         .    I    .         . WE R    .   M     .         .         .         .         .         .
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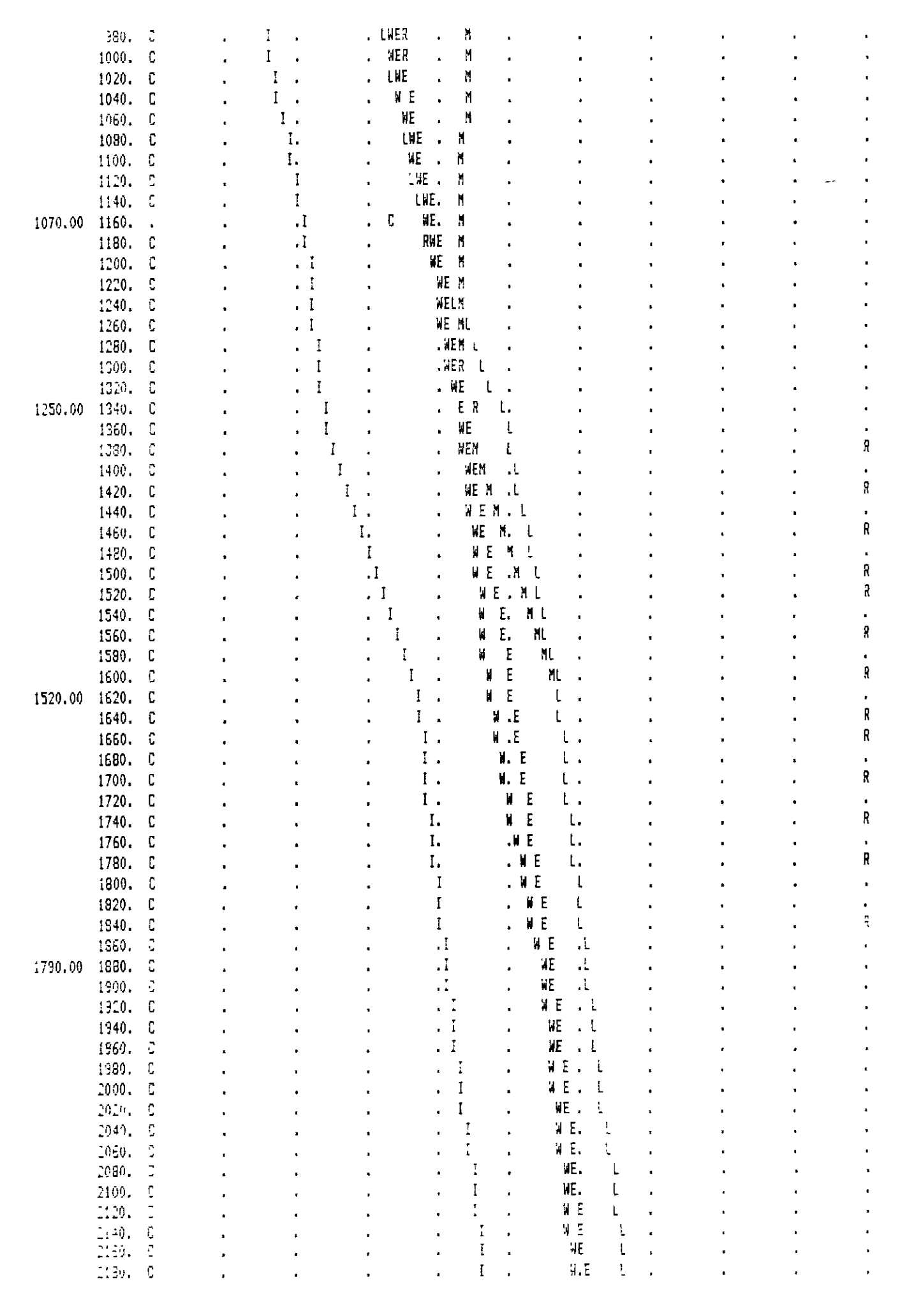

	2200.	C	.	.	.	.	I	.	W.E	L	.	
2140.00	2220.	C	.	.	.	.	I	.	WE	L	.	

THIS RUN EXECUTED 2/ 5/91 9:25:36

****
HEC2 RELEASE DATED SEPT 88

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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

THORNTON CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*VS	VCH	AREA	.01K
	122.000	.00	.00	.00	823.60	159.50	827.04	.00	827.04	.33	.33	810.16	277.67
*	332.000	230.00	.00	.00	824.20	159.50	826.61	.00	827.26	222.76	6.48	24.60	10.69
*	397.000	65.00	.00	.00	825.20	159.50	827.35	.00	828.09	64.30	3.97	40.20	19.89
	457.000	60.00	828.10	830.40	825.20	159.50	828.23	.00	828.40	37.47	3.30	48.36	26.06
	532.000	75.00	.00	.00	825.90	159.50	828.57	.00	828.63	23.05	2.07	81.44	33.22
*	612.000	280.00	.00	.00	826.40	159.50	829.52	.00	829.78	69.02	4.13	38.60	19.20
	630.000	18.00	837.20	833.30	826.40	159.50	829.68	.00	829.90	56.19	3.84	41.53	21.28
*	700.000	68.00	.00	.00	826.40	159.50	829.99	.00	829.99	2.14	.90	253.55	109.00
*	850.000	150.00	.00	.00	826.60	290.00	830.00	.00	830.20	53.02	3.74	98.96	39.83
	1070.000	200.00	.00	.00	827.80	290.00	831.22	830.10	831.45	73.30	3.92	89.94	33.87
*	1250.000	190.00	.00	.00	828.20	290.00	832.10	.00	832.27	27.71	3.00	96.72	55.10
*	1520.000	270.00	.00	.00	830.99	290.00	832.99	.00	833.67	89.83	6.59	44.01	30.50
*	1790.000	270.00	.00	.00	831.80	290.00	834.58	.00	834.94	24.05	4.09	70.86	59.14
	2140.000	340.00	.00	.00	833.00	290.00	835.50	.00	835.83	34.85	4.65	62.42	49.12

THORNTON CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFWS	TOPWID	XLCH
	122.000	159.50	827.04	.00	.00	.00	589.08	.00
*	332.000	159.50	826.61	.00	-.43	-.01	15.22	230.00
*	397.000	159.50	827.85	.00	1.24	.01	20.43	65.00
	457.000	159.50	828.23	.00	.39	.01	21.00	60.00
	532.000	159.50	828.57	.00	.33	.01	56.86	75.00
*	812.000	159.50	829.52	.00	.95	.01	18.24	280.00
	830.000	159.50	829.68	.00	.16	.01	18.65	18.00
*	700.000	159.50	829.99	.00	.31	.01	160.00	68.00
*	850.000	290.00	830.00	.00	.02	.01	163.37	150.00
	1070.000	290.00	831.22	.00	1.22	-.01	199.36	200.00
*	1250.000	290.00	832.13	.00	.91	-.01	41.34	190.00
*	1520.000	290.00	832.99	.00	.86	.00	24.00	270.00
*	1790.000	290.00	834.58	.00	1.58	.00	31.09	270.00
	2140.000	290.00	835.50	.00	.92	.00	29.99	340.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 332.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 397.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 612.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 700.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 850.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1250.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1520.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1790.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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**************************************************
*  WATER SURFACE PROFILES                        *
*  VERSION OF SEPTEMBER 1988                     *
*  ERROR: 01                                     *
*  UPDATED: 16 FEBRUARY 1989                     *
*  RUN DATE     2/ 5/91   TIME   11: 1:27        *
**************************************************
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**************************************
*  U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D        *
*  DAVIS, CALIFORNIA 95616           *
*  (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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END OF BANNER

THIS RUN EXECUTED 2/ 5/91 11: 1:27

****
HEC2 RELEASE DATED SEPT 88

****

T1 BRENT CANUP PROPERTY SIDWELL #22-35-101-029 (REV. 2-4-91)
T2 (SPLIT FLOW-DIVERSION ALONG R.R. TRACKS),100-YEAR FLOODPLAIN (138 cfs)
T3 OVERLAND FLOW (9-19-90, J. WINEKA)

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	0	0	0	0	0	0	137.74	822.5	0

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	-1	0	0	0	0	0	0	0	0	0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

150

NC	.1	.1	.1	.1	.3					
X1	0	11	16	46	0	0	0	0	0	0
GR	826	0	825	4.5	824	9.5	823	12	822	15.8
GR	821	22.13	820.75	26.5	821	32.25	822	46	823	56.7
GR	824	69.11								
X1	200	14	18	26.7	200	200	200	0	0	0
GR	826	0	825	3	824	6	823	9	822	12
GR	821	15	820	18	819.75	22	820	26.7	821	45.2
GR	822	58.67	823	69.16	824	119.67	825	126.6		
X1	400	11	8.68	25.53	200	200	200	0	0	0
X3						132				
GR	829.55	0	827.82	9.68	822.06	25.53	825.44	44.33	825.82	78
GR	826.14	132	825.76	181.8	825.22	200	822.15	208.6	825.49	225.07
GR	824.83	270.6								
X1	680	8	7.7	125.65	280	280	280	0	0	0
GR	831.13	0	829.94	7.7	824.22	26.54	824.97	72.7	825.79	125.65
GR	826.73	179.7	827.6	237	828.34	285				
X1	380	9	10	69	300	300	300	0	0	0
X3						125				
GR	832.72	0	830.2	10	826.82	35	827.01	69	829.43	125
GR	827.69	180	827.77	232	829.8	260	830.27	290		

X1	1310	12	63.93	170.28	330	330	330	0	0	0
GR	834.15	0	831.91	10	829.11	30.36	827.19	63.93	826.78	119
GR	827.23	170.28	827.71	201	827.93	215	828.71	267.7	829.25	309.77
GR	830.25	360	830.75	400						
X1	1510	12	64	164	200	200	200	0	0	0
GR	835.46	0	832.79	10	828.69	17	828.2	64	828.1	113
GR	828.9	164	828.8	223	829.01	270	829.56	311	830.27	352
GR	830.69	380	831.65	401						
X1	1730	8	18.10	116	220	220	220	0	0	0
GR	836.45	0	833.92	7.86	828.78	18.1	828.63	68	828.91	116
GR	828.96	163	831.47	173	831.66	201				

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
0

CCHV= .100 CEHV= .300
*SECNO .000

.00	1.75	822.50	.00	822.50	822.71	.21	.00	.00	822.00
138.	1.	135.	2.	0.	37.	1.	0.	0.	822.00
.00	1.27	3.71	1.30	.100	.100	.100	.000	820.75	13.90
.048568	0.	0.	0.	0	0	0	.00	37.45	51.35

0
*SECNO 200.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

200.00	3.69	823.44	.00	.00	823.45	.01	.72	.02	820.00
138.	15.	38.	85.	18.	31.	86.	0.	0.	820.00
.06	.85	1.21	.89	.100	.100	.100	.000	819.75	7.66
.001215	200.	200.	200.	4	0	0	.00	84.10	91.76

0
*SECNO 400.000

3235 SLOPE TOO STEEP, EXCEEDS .10

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= .0 132.0 TYPE= 1 TARGET= 131.999

400.00	2.22	824.58	824.58	.00	825.15	.57	.82	.17	827.82
138.	0.	46.	92.	0.	8.	15.	1.	1.	822.36
.07	.00	5.97	6.12	.000	.100	.100	.000	822.36	18.67
.150192	200.	200.	200.	29	14	0	.00	20.42	39.09

0
*SECNO 680.000

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
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

690.00	2.39	826.61	.00	.00	826.62	.01	1.41	.06	829.94
138.	0.	131.	6.	0.	168.	20.	1.	1.	825.79
.17	.00	.78	.02	.000	.100	.100	.000	824.22	18.65
.001527	280.	280.	280.	9	0	0	.00	154.38	170.04

0
*SECNO 980.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS= .0 125.0 TYPE= 1 TARGET= 124.999

980.00	1.05	827.87	.00	.00	828.03	.16	1.36	.04	830.30
138.	0.	120.	18.	0.	36.	9.	2.	2.	827.01
.19	.00	3.31	2.06	.000	.100	.100	.000	826.82	27.47
.059276	300.	300.	300.	6	0	0	.00	61.39	88.86

0
*SECNO 1310.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

1310.00	1.97	828.75	.00	.00	828.75	.00	.71	.02	827.19
138.	7.	104.	27.	21.	187.	75.	4.	3.	827.23
.38	.32	.55	.36	.100	.100	.100	.000	826.78	36.64
.000657	330.	330.	330.	7	0	0	.00	234.26	270.90

0
*SECNO 1510.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

1510.00	.97	829.07	.00	.00	829.09	.02	.04	.01	828.20
138.	33.	93.	11.	30.	75.	21.	4.	4.	828.90
.42	1.12	1.25	.52	.100	.100	.100	.000	828.10	16.34
.010506	200.	200.	200.	4	0	0	.00	258.45	274.80

0
*SECNO 1730.000

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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

1730.00	1.36	829.99	.00	.00	830.00	.01	.91	.00	828.78
138.	1.	100.	37.	1.	123.	52.	5.	5.	828.91
.50	.46	.81	.71	.100	.100	.100	.000	828.62	15.68
.002197	220.	220.	220.	3	0	0	.00	151.45	167.12

0

PROFILE FOR STREAM OVERLAND FLOW (9-19-90,

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

```
ELEVATION   820.      822.      824.      826.      828.      830.      832.      834.      836.      838.
   SECNO   CUMDIS

     .00      0.  C    I    .L  WE    .M        .         .         .         .         .         .         .         .
             50.  C   I    L.    WE   . M      .         .         .         .         .         .         .         .
            100.  C  I  L   .     WE  .   M     .         .         .         .         .         .         .         .
            150.  CI  L     .      WE .    M    .         .         .         .         .         .         .         .
  200.00    200.  IL        .        E.     M   .         .         .         .         .         .         .         .
            250.  C  IR     .L        WE    M   .         .         .         .         .         .         .         .
            300.  C      I  .         .W E  M   .         .         .         .         .         .         .         .
            350.  C         I         .  W EM   .L        .         .         .         .         .         .         .
  400.00    400.  .         .  I      .   WM E  .         L         .         .         .         .         .         .
            450.  C         .    IR   .     W EM.         . L       .         .         .         .         .         .
            500.  C         .     I  R.       W E M       .   L     .         .         .         .         .         .
            550.  C         .       I . R       WE   M    .     L   .         .         .         .         .         .
            600.  C         .         I    R    .WE     M .       L .         .         .         .         .         .
            650.  C         .         .I      R .  WE     .M        L         .         .         .         .         .
  680.00    700.  C         .         . I       R   E     .  M      .L        .         .         .         .         .
            750.  C         .         .    I    .R   WE   .    M    .L        .         .         .         .         .
            800.  C         .         .      I  . R   WE  .     M   . L       .         .         .         .         .
            850.  C         .         .        I.  R   WE .       M . L       .         .         .         .         .
            900.  C         .         .         .I  R   WE.        M. L       .         .         .         .         .
            950.  C         .         .         .  I R    E         .ML       .         .         .         .         .
  980.00   1000.  C         .         .         .    IR   .E        .  L      .         .         .         .         .
           1050.  C         .         .         .    IR   .WE       L  M      .         .         .         .         .
           1100.  C         .         .         .    I R  . E     L .  M      .         .         .         .         .
           1150.  C         .         .         .    I R  .  E  L   .   M     .         .         .         .         .
           1200.  C         .         .         .    I R  .  WE     .   M     .         .         .         .         .
           1250.  C         .         .         .    I R  .L  E     .   M     .         .         .         .         .
           1300.  C         .         .         .    I R L.    E    .    M    .         .         .         .         .
 1310.00   1350.  C         .         .         .    I L  .    E    .    M    .         .         .         .         .
           1400.  C         .         .         .      ILR.    E    .     M   .         .         .         .         .
           1450.  C         .         .         .       I L R   E   .      M  .         .         .         .         .
           1500.  C         .         .         .         IL  R E   .       M .         .         .         .         .
 1510.00   1550.  C         .         .         .         . I   RE  .         M         .         .         .         .
           1600.  C         .         .         .         . IL  R E .         M         .         .         .         .
           1650.  C         .         .         .         .  IL R  E.         M         .         .         .         .
           1700.  C         .         .         .         .   I R   E         M         .         .         .         .
 1730.00   1750.  C         .         .         .         .   ILR   .E        M         .         .         .         .
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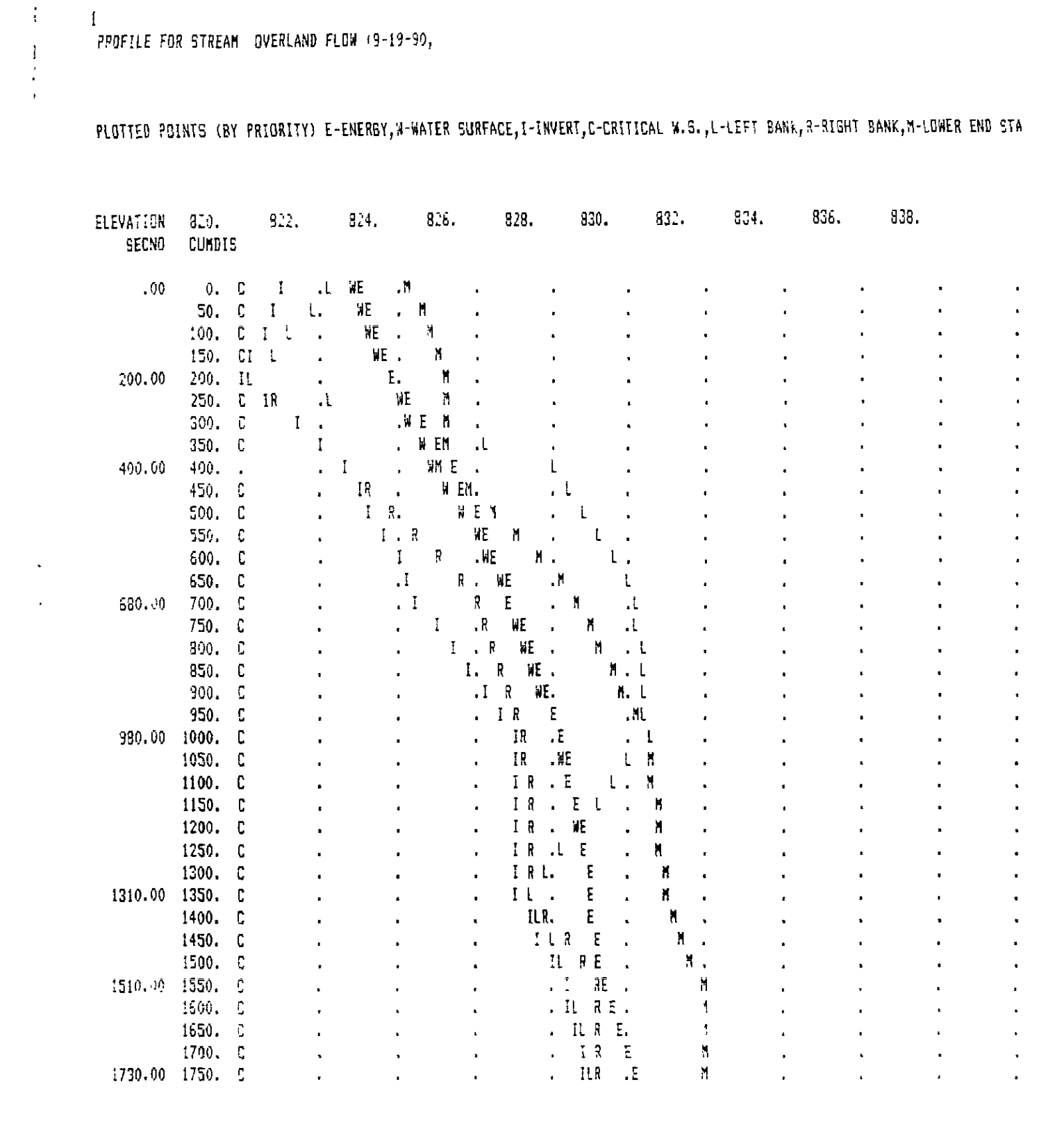

THIS RUN EXECUTED 2/ 5/91 11: 1:29

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HEC2 RELEASE DATED SEPT 88

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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

OVERLAND FLOW (9-19-90,

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	ES	10*KS	VCH	AREA	.01Y
	.000	.00	.00	.00	820.75	137.74	822.50	.00	822.71	485.68	3.71	38.04	6.25
*	200.000	200.00	.00	.00	819.75	137.74	823.44	.00	823.45	12.15	1.21	144.66	39.51
*	400.000	200.00	.00	.00	822.36	137.74	824.58	824.58	825.15	1501.92	5.97	22.68	3.55
*	680.000	280.00	.00	.00	824.22	137.74	826.61	.00	826.62	15.27	.78	187.51	35.25
*	980.000	300.00	.00	.00	826.82	137.74	827.87	.00	828.03	592.76	3.31	44.87	5.66
*	1310.000	330.00	.00	.00	826.78	137.74	828.75	.00	828.75	6.57	.55	283.26	53.76
*	1510.000	200.00	.00	.00	828.10	137.74	829.07	.00	829.09	105.06	1.25	125.64	13.44
*	1730.000	220.00	.00	.00	828.63	137.74	829.99	.00	830.00	21.97	.81	176.65	29.39

OVERLAND FLOW (9-19-90,

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLOC
	.000	137.74	822.50	.00	.00	.00	37.45	.00
*	200.000	137.74	823.44	.00	.94	.00	84.10	200.00
*	400.000	137.74	824.58	.00	1.14	.00	20.42	200.00
*	680.000	137.74	826.61	.00	2.03	.00	154.38	280.00
*	980.000	137.74	827.87	.00	1.26	.00	61.39	300.00
*	1310.000	137.74	828.75	.00	.88	.00	234.26	330.00
*	1510.000	137.74	829.07	.00	.32	.00	258.45	200.00
*	1730.000	137.74	829.99	.00	.92	.00	151.45	220.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 200.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 400.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 400.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 400.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 400.000 PROFILE= 1 SLOPE TOO STEEP

WARNING SECNO= 680.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 980.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1310.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1510.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1730.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

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**************************************************
*  WATER SURFACE PROFILES                        *
*  VERSION OF SEPTEMBER 1988                     *
*  ERROR: 01                                     *
*  UPDATED: 16 FEBRUARY 1989                     *
*  RUN DATE     2/ 5/91   TIME   11: 0:22        *
**************************************************
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**************************************
*  U.S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET, SUITE D        *
*  DAVIS, CALIFORNIA 95616           *
*  (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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END OF BANNER

THIS RUN EXECUTED 2/ 5/91 11: 0:22

****
HEC2 RELEASE DATED SEPT 88

****

T1 BRENT CANUP PROPERTY SIDWELL #22-35-101-029 (REV. 2-4-91)
T2 (SPLIT FLOW-DIVERSION ALONG R.R. TRACKS),100-YEAR FLOODPLAIN (132 cfs)
T3 OVERLAND FLOW (9-19-90, J. WINEKA)

J1	ICHECK	INO	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	0	0	0	0	0	0	132.02	822.5	0
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	-1	0	0	0	0	0	0	0	0	0

J3 VARIABLE CODES FOR SUMMARY PRINTOUT

150

NC	.1	.1	.1	.1	.3					
X1	0	11	18	46	0	0	0	0	0	0
GR	826	0	825	4.5	824	9.5	823	12	822	15.8
GR	821	22.13	820.75	26.5	821	32.25	822	46	823	56.7
GR	824	69.11								
X1	200	14	18	26.7	200	200	200	0	0	0
GR	826	0	825	3	824	6	823	9	822	12
GR	821	15	820	18	819.75	22	820	26.7	821	45.2
GR	822	58.67	823	69.16	824	119.67	825	126.6		
X1	400	11	8.68	25.53	200	200	200	0	0	0
X3						132				
GR	829.55	0	827.82	8.68	822.36	25.53	825.44	44.33	825.32	78
GR	826.14	132	825.70	181.8	825.22	200	822.13	208.6	825.49	225.07
GR	824.83	270.6								
'	680	8	7.7	125.65	280	280	280	0	0	0
	831.13	0	829.94	7.7	824.22	26.54	824.97	72.7	825.79	125.65
	826.73	179.7	827.6	237	828.34	285				
	980	8	10	69	300	300	300	6	0	0
						125				
	832.73	0	830.3	10	826.82	35	827.01	69	828.43	125
	827.69	180	827.77	232	829.8	260	830.27	290		

X1	1310	12	63.93	170.28	330	330	330	0	0	0
GR	834.15	0	831.91	10	829.11	30.36	827.19	63.93	826.78	119
GR	827.23	170.28	827.71	201	827.92	215	828.71	267.7	829.25	309.77
GR	830.25	360	830.75	400						
X1	1510	12	64	164	200	200	200	0	0	0
GR	835.46	0	832.79	10	828.69	17	828.2	64	828.1	110
GR	828.3	164	828.8	223	829.01	270	829.56	311	830.27	352
GR	830.69	380	831.65	401						
X1	1730	8	18.10	116	220	220	220	0	0	0
GR	836.45	0	833.32	7.86	828.78	18.1	828.63	68	828.91	116
GR	828.96	163	831.47	173	831.66	201				

```
    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
    Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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
0

 CCHV=     .100 CEHV=     .300
 *SECNO  .000
       .00     1.75   822.50      .00   822.50   822.69      .19      .00      .00   822.00
      132.       1.     130.       2.       0.      37.       1.       0.       0.   822.00
       .00     1.22     3.55     1.24     .100     .100     .100     .000   820.75    13.90
   .044618       0.       0.       0.        0        0        0      .00    37.45    51.35
0
 *SECNO 200.000

 3302 WARNING:  CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

    200.00     3.65   823.40      .00      .00   823.42      .01      .71      .02   820.00
      132.      14.       36.      81.      17.      31.      92.       0.       0.   820.00
       .06      .83     1.19      .88     .100     .100     .100     .000   819.75     7.91
   .001199     200.     200.     200.        3        0        0      .00    81.33    89.15
0
 *SECNO 400.000

 3235 SLOPE TOO STEEP, EXCEEDS        .10


 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=          .0     132.0  TYPE=      1  TARGET=      131.999
    400.00     2.18   824.54   824.54      .00   825.11      .56      .81      .16   827.82
      132.       0.       44.      88.       0.       7.      15.       1.       1.   822.36
       .07      .00     5.92     6.07     .000     .100     .100     .000   822.36    18.79
   .150923     200.     209.     200.       20       14        0      .00    20.08    38.86

 SECNO 680.000

  01 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

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

680.00	2.35	826.57	.00	.00	826.58	.01	1.42	.06	829.94
132.	0.	126.	6.	0.	164.	18.	1.	1.	825.79
.17	.00	.77	.31	.000	.100	.100	.000	824.22	18.78
.001533	280.	280.	280.	9	0	0	.00	152.03	170.81

0
*SECNO 980.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

3470 ENCROACHMENT STATIONS= .0 125.0 TYPE= 1 TARGET= 124.999

980.00	1.02	827.84	.00	.00	828.00	.16	1.37	.04	830.30
132.	0.	116.	16.	9.	35.	8.	2.	2.	827.01
.20	.00	3.30	2.05	.000	.100	.100	.000	826.82	27.69
.061544	300.	300.	300.	6	0	0	.00	60.45	88.14

0
*SECNO 1310.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

1310.00	1.94	828.72	.00	.00	828.72	.00	.71	.02	827.19
132.	6.	100.	26.	20.	183.	72.	3.	3.	827.23
.38	.32	.55	.36	.100	.100	.100	.000	826.78	37.22
.000652	330.	330.	330.	7	0	0	.00	231.09	268.31

0
*SECNO 1510.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE

1510.00	.94	829.04	.00	.00	829.07	.02	.34	.01	828.20
132.	32.	91.	9.	28.	72.	18.	4.	4.	828.90
.43	1.13	1.27	.49	.100	.100	.100	.000	828.14	16.40
.011488	200.	200.	200.	4	0	0	.00	156.15	172.54

SECNO 1730.000

SECNO	DEPTH	CWSEL	CRIWS	WSELV	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
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

1730.00	1.34	829.97	.00	.00	829.98	.01	.92	.00	828.78
132.	1.	96.	35.	1.	121.	51.	5.	5.	829.91
.51	.45	.79	.69	.100	.100	.100	.000	828.63	15.72
.002130	220.	220.	220.	3	0	0	.00	151.33	167.05

0

1

PROFILE FOR STREAM OVERLAND FLOW (9-19-90,

PLOTTED POINTS (BY PRIORITY) E-ENERGY,W-WATER SURFACE,I-INVERT,C-CRITICAL W.S.,L-LEFT BANK,R-RIGHT BANK,M-LOWER END STA

ELEVATION	820.	822.	824.	826.	828.	830.	832.	834.	836.	838.
SECNO	CUMDIS									
.00	0.	C I .L	WE .M	.	.	.	.	.	.	.
	50.	C I L.	WE . M	.	.	.	.	.	.	.
	100.	C I L .	WE . M	.	.	.	.	.	.	.
	150.	CI L .	E . M	.	.	.	.	.	.	.
200.00	200.	IL .	E . M	.	.	.	.	.	.	.
	250.	C IR .L	E M	.	.	.	.	.	.	.
	300.	C I .	.W E M	.	.	.	.	.	.	.
	350.	C I	. W EM .L	.	.	.	.	.	.	.
400.00	400.	. . I	. WM E .	L	.	.	.	.	.	.
	450.	C . IR	. W EM.	. L	.	.	.	.	.	.
	500.	C .	I R.	WE. M	. L	.	.	.	.	.
	550.	C .	I . R	W.E M	. L	.	.	.	.	.
	600.	C .	I R	.WE M	. L	.	.	.	.	.
	650.	C .	.I	R . E	.M L	.	.	.	.	.
680.00	700.	C .	. I	R E	. M .L	.	.	.	.	.
	750.	C .	. I	.R E	. M .L	.	.	.	.	.
	800.	C .	.	I . R WE	. M . L	.	.	.	.	.
	850.	C .	.	I. R WE	. M . L	.	.	.	.	.
	900.	C .	.	.I R WE.	M. L	.	.	.	.	.
	950.	C .	.	. I R WE	.ML	.	.	.	.	.
980.00	1000.	C .	.	. IR WE	. L	.	.	.	.	.
	1050.	C .	.	. IR .WE	L M	.	.	.	.	.
	1100.	C .	.	. I R . E	L . M	.	.	.	.	.
	1150.	C .	.	. I R . WE L	. M	.	.	.	.	.
	1200.	C .	.	. I R . E	. M	.	.	.	.	.
	1250.	C .	.	. I R .L E	. M	.	.	.	.	.
	1300.	C .	.	. I R L. WE	. M	.	.	.	.	.
1310.00	1350.	C .	.	. I L . E	. M	.	.	.	.	.
	1400.	C .	.	. ILR. E	. M	.	.	.	.	.
	1450.	C .	.	. I L R E	. M	.	.	.	.	.
	1500.	C .	.	. IL R E	. M	.	.	.	.	.
1510.00	1550.	C .	.	. . I WE	. M	.	.	.	.	.
	1600.	C .	.	. . IL R E	. M	.	.	.	.	.
	1650.	C .	.	. . IL R E.	M	.	.	.	.	.
	1700.	C .	.	. . I R E	M	.	.	.	.	.
1730.00	1750.	C .	.	. . ILR .E	M	.	.	.	.	.

THIS RUN EXECUTED 2/ 5/91 11: 0:24

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HEC2 RELEASE DATED SEPT 88

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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

OVERLAND FLOW (9-19-90,

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	ES	10*KS	VCH	AREA	.01K
	.000	.00	.00	.00	820.75	132.02	822.59	.00	822.59	446.18	3.55	38.34	5.25
*	200.000	200.00	.00	.00	819.75	132.02	823.40	.00	823.42	11.99	1.19	140.38	38.13
*	400.000	200.00	.00	.00	822.36	132.02	824.54	824.54	825.11	1509.13	5.82	21.90	3.49
*	680.000	280.00	.00	.00	824.22	132.02	826.57	.00	826.58	15.33	.77	181.58	33.71
*	980.000	300.00	.00	.00	826.82	132.02	827.84	.00	828.00	615.44	3.30	43.00	5.32
*	1310.000	330.00	.00	.00	826.78	132.02	828.72	.00	828.72	6.52	.55	275.54	51.70
*	1510.000	200.00	.00	.00	828.10	132.02	829.04	.00	829.07	114.88	1.27	117.86	12.32
*	1730.000	220.00	.00	.00	828.63	132.02	829.97	.00	829.98	21.33	.79	173.67	28.58

OVERLAND FLOW (9-19-90,

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	.000	132.02	822.50	.00	.00	.00	37.45	.00
*	200.000	132.02	823.40	.00	.90	.00	81.33	200.00
*	400.000	132.02	824.54	.00	1.14	.00	20.08	200.00
*	680.000	132.02	826.57	.00	2.03	.00	152.03	280.00
*	980.000	132.02	827.84	.00	1.27	.00	60.45	300.00
*	1310.000	132.02	828.72	.00	.88	.00	231.09	330.00
*	1510.000	132.02	829.04	.00	.33	.00	256.15	200.00
*	1730.000	132.02	829.97	.00	.93	.00	151.33	220.00

SUMMARY OF ERRORS AND SPECIAL NOTES

WARNING SECNO= 200.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

CAUTION SECNO= 400.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 400.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 400.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 400.000 PROFILE= 1 SLOPE TOO STEEP

WARNING SECNO= 680.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 980.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1310.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1510.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

WARNING SECNO= 1730.000 PROFILE= 1 CONVEYANCE CHANGE OUTSIDE ACCEPTABLE RANGE

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY of

3) WATERCOURSE: THORNTON CREEK

4) DOCUMENT TYPE: ~~DES~~ SUMMARY

00BREAK00

3470 ENCROACHMENT STATIONS=	388.0	460.0	TYPE=	4	TARGET=	0.253			
18557.00	5.56	961.36	961.34	961.37	961.66	0.31	0 10	0.01	960.80
160.	16.	74.	70.	6.	13.	26.	39.	30.	960.80
2.12	2.90	5.81	2.70	0.015	0.013	0.015	0.000	955.80	387.96
0.002239	44.	44.	44.	0	5	0	0.00	72.09	460.05

0
1

THIS RUN EXECUTED 13 FEB 89 10:34.18

****
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

THORNTON CREEK

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
1560.000	834.29	-0.59	834.35	209.74	58.86	171.02	0.13	0.00	0.00	288.00	329.00	0.00
1560.000	834.28	-0.01	834.36	106.83	40.07	189.93	0.00	0.11	222.17	288.00	329.00	329.01
1760.000	834 84	0.00	834.93	163.45	63.67	166.03	0.30	0.00	0.00	213.12	243.46	0.00
1760.000	834.93	0.09	835.03	84.10	49.56	180.44	0.00	0.11	159.36	213.12	243.46	243.46
1960.000	835.60	0.00	835.72	125.27	79.09	149.37	1.54	0.00	0.00	138.53	158.25	0 00
1960.000	835.72	0.11	835.85	64.53	70.27	159.73	0.00	0.10	93.72	138.53	158.25	158.25
2160 000	836.59	0.00	836.98	30 40	13.20	214.21	2.59	0.00	0.00	125.00	138.00	0.00
2160.000	836.69	0.10	837.04	28.00	14.59	212.04	3.36	28.00	116.00	125.00	138.00	144.00
2328.000	837.87	0.00	838.26	30 11	13.00	214.55	2.45	0.00	0.00	125.00	138.00	0.00
2328.000	837.87	0.00	838.26	30.15	13.03	214.50	2.47	0.00	0.00	125.00	138.00	0.00
2495.000	838.72	0.00	838.77	57.97	0.00	230.00	0.00	0.00	0.00	80.00	157.00	0.00
2495.000	838.72	0.00	838.77	57.98	0.00	230.00	0.00	0.00	0.00	80.00	157.00	0.00
2496.000	838.72	0.00	838.78	52.15	0.00	230.00	0.00	0.00	0.00	80.00	157.00	0.00
2496.000	838 72	0.00	838.78	52.15	0.00	230.00	0.00	0.00	0.00	80.00	157.00	0.00
2502.000	838.72	0.00	838.78	52.14	0.00	230.00	0.00	0.00	0.00	80.00	157.00	0.00
2502.000	838.72	0.00	838.78	52.15	0.00	230.00	0.00	0.00	0.00	80.00	157.00	0.00
2503.000	838.74	0.00	838.78	58.00	0.00	230.00	0.00	0.00	0.00	80.00	157.00	0.00
2503 000	838.74	0.00	838.78	58.00	0.00	230.00	0.00	0.00	0.00	80.00	157.00	0.00
2560.000	838.80	0.00	838.85	58.45	0.00	230 00	0.00	0.00	0.00	80.00	157.00	0.00
2560.000	838.80	0.00	838.85	58.46	0.00	230.00	0.00	0.00	0.00	80.00	157.00	0.00
2600.000	838.84	0.00	838.90	41.00	0.00	230.00	0.00	41.00	98.00	80.00	157.00	139 00
2600 000	838.84	0.00	838.90	41.00	0.00	230.00	0.00	41.00	98.00	80.00	157.00	139.00

1

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	2639.000	838.84	0.00	839.06	21.00	0.00	230.00	0.00	21.00	388.00	388.00	409.00	409.00
	2639.000	838.84	0.00	839.06	21.00	0.00	230.00	0.00	21.00	388.00	388.00	409.00	409.00
	2640.000	838.61	0.00	839.31	20.00	0.00	230.00	0.00	0.00	0.00	110.00	131.00	0.00
	2640.000	838.61	0.00	839.31	20.00	0.00	230.00	0.00	0.00	0.00	110.00	131.00	0.00
	2692.000	839.41	0.00	839.87	20.00	0.00	230.00	0.00	0.00	0.00	110.00	131.00	0.00
	2692.000	839.41	0.00	839.87	20.00	0.00	230.00	0.00	0.00	0.00	110.00	131.00	0.00
	2693.000	839.70	0.00	839.95	31.80	0.00	230.00	0.00	0.00	0.00	373.00	426.00	0.00
	2693.000	839.70	0.00	839.95	31.80	0.00	230.00	0.00	0.00	0.00	373.00	426.00	0.00
*	2700.000	840.41	0.00	840.96	52.95	0.00	178.42	51.58	150.00	30.00	126.00	140.00	180.00
*	2700.000	840.41	0.00	840.96	52.95	0.00	178.42	51.58	150.00	30.00	126.00	140.00	180.00
	2760.000	841.48	0.00	841.72	53.95	0.00	154.92	75.08	150.00	30.00	126.00	140.00	180.00
	2760.000	841.48	0.00	841.72	53.95	0.00	154.92	75.08	150.00	30.00	126.00	140.00	180.00
	2820.000	841.94	0.00	842.24	53.66	0.00	160.71	69.29	150.00	30.00	126.00	140.00	180.00
	2820.000	841.94	0.00	842.24	53.66	0.00	160.71	69.29	150.00	30.00	126.00	140.00	180.00
	2880.000	842.51	0.00	842.83	53.60	0.00	161.89	68.11	150.00	30.00	126.00	140.00	180.00
	2880.000	842.51	0.00	842.83	53.60	0.00	161.89	68.11	150.00	30.00	126.00	140.00	180.00
	3091.000	844.26	0.00	844.51	21.00	0.00	230.00	0.00	21.00	174.00	174.00	195.00	195.00
	3091.000	844.26	0.00	844.51	21.00	0.00	230.00	0.00	21.00	174.00	174.00	195.00	195.00
	3092.000	844.41	0.00	844.55	21.00	0.00	230.00	0.00	0.00	0.00	90.00	111.00	0.00
	3092.000	844.41	0.00	844.55	21.00	0.00	230.00	0.00	0.00	0.00	90.00	111.00	0.00
	3178.000	844.53	0.00	844.70	21.00	0.00	230.00	0.00	0.00	0.00	90.00	111.00	0.00
	3178.000	844.53	0.00	844.70	21.00	0.00	230.00	0.00	0.00	0.00	90.00	111.00	0.00
	3179.000	844.46	0.00	844.77	21.00	0.00	230.00	0.00	21.00	174.00	174.00	195.00	195.00
	3179.000	844.46	0.00	844.77	21.00	0.00	230.00	0.00	21.00	174.00	174.00	195.00	195.00
	3309.000	845.44	0.00	845.62	137.15	7.50	196.38	26.11	260.00	60.00	174.00	195.00	320.00
	3309.000	845.44	0.00	845.62	137.15	7.50	196.38	26.11	260.00	60.00	174.00	195.00	320.00
	3532.000	846.92	0.00	847.30	49.49	0.00	217.53	12.47	0.00	0.00	60.00	100.00	0.00
	3532.000	846.92	0.00	847.30	49.49	0.00	217.53	12.47	0.00	0.00	60.00	100.00	0.00
	3755.000	848.86	0.00	849.07	65.31	0.00	204.22	25.78	0.00	0.00	60.00	100.00	0.00
	3755.000	848.86	0.00	849.07	65.31	0.00	204.22	25.78	0.00	0.00	60.00	100.00	0.00
	3978.000	850.22	0.00	850.47	60.41	0.00	208.55	21.45	0.00	0.00	60.00	100.00	0.00
	3978.000	850.22	0.00	850.47	60.41	0.00	208.55	21.45	0.00	0.00	60.00	100.00	0.00
	4227.000	851.90	0.00	852.16	59.63	0.00	209.23	20.77	0.00	0.00	60.00	100.00	0.00
	4227.000	851.90	0.00	852.16	59.63	0.00	209.23	20.77	0.00	0.00	60.00	100.00	0.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	4476.000	853.61	0.00	853.87	59.97	0.00	208.93	21.07	0.00	0.00	60.00	100.00	0.00
	4476.000	853.61	0.00	853.87	59.97	0.00	208.93	21.07	0.00	0.00	60.00	100.00	0.00
	4725.000	855.25	0.00	855.50	61.56	0.00	207.54	22.46	200.00	0.00	60.00	100.00	200.00
	4725.000	855.25	0.00	855.50	61.56	0.00	207.54	22.46	200.00	0.00	60.00	100.00	200.00

	4979.000	856.25	0.00	856.28	112.00	63.71	96.51	69.78	112.00	220.00	264.00	287.00	332.00
	4979.000	856.25	0.00	856.28	112.00	63.71	96.51	69.78	112.00	220.00	264.00	287.00	332.00
*	5179.000	857.52	0.00	858.26	23.00	0.00	230.00	0.00	23.00	264.00	264.00	287.00	287.00
*	5179.000	857.52	0.00	858.26	23.00	0.00	230.00	0.00	23.00	264.00	264.00	287.00	287.00
	5180.000	858.19	0.00	858.42	23.00	0.00	230.00	0.00	0.00	0.00	288.00	311.00	0 00
	5180.000	858.19	0.00	858.42	23.00	0.00	230.00	0.00	0.00	0.00	288.00	311.00	0.00
	5194.000	858.22	0.00	858.46	23.00	0.00	230.00	0.00	0.00	0.00	288.00	311.00	0.00
	5194.000	858.22	0.00	858 46	23.00	0.00	230.00	0.00	0.00	0.00	288.00	311.00	0 00
	5195.000	858.28	0.00	858.48	23.00	0.00	230.00	0.00	23.00	264.00	264.00	287.00	287.00
	5195.000	858.28	0.00	858.48	23.00	0 00	230.00	0.00	23.00	264.00	264.00	287.00	287.00
	5295.000	858.95	0.00	859.01	100.00	35.71	82.38	41.91	100.00	225.00	264.00	287.00	325.00
	5295.000	858.95	0.00	859.01	100.00	35.71	82.38	41.91	100.00	225.00	264.00	287.00	325.00
	5395.000	859.83	0.00	860.02	100 00	27.77	94.85	37.37	100.00	225.00	264.00	287.00	325.00
	5395.000	859 83	0.00	860.02	100.00	27.77	94.85	37.37	100 00	225.00	264.00	287.00	325.00
	5526.000	862.13	0.00	862.37	102.46	63.51	78.79	17.70	0.00	0.00	125 00	132.00	0.00
	5526.000	862.21	0.07	862.50	70.33	64.03	86.82	9.15	0.15	66.98	125.00	132.00	137.31
	5657.000	863.90	0.00	864.09	103 55	66 31	74.38	19.31	0.00	0.00	125.00	132.00	0.00
	5657.000	864.03	0.13	864.24	72.08	69.39	79.18	11.42	0.14	66.67	125.00	132.00	138.75
	5788.000	865.55	0.00	865.77	102.71	64 17	77 75	18.08	0.00	0.00	125.00	132.00	0.00
	5788.000	865.64	0.09	865.91	70.85	65.43	84.78	9.78	0.15	66 86	125.00	132.00	137.71
	5919.000	867.22	0.00	867.40	103.86	67.05	73 20	19.74	0.00	0.00	125.00	132.00	0.00
	5919.000	867 34	0.12	867.54	72.66	69.60	78.34	12.06	0.14	66.55	125.00	132.00	139.21
	6140.000	869.50	0.00	869.57	75.08	56.25	37.65	66.10	0.00	0.00	212.00	215.00	0.00
	6140.000	869.60	0.11	869.69	44.29	55.18	39.42	65.39	0 10	193.30	212.00	215.00	237 60
*	6190.000	872.18	0.00	872.19	128.83	86.46	14.91	58.63	0 00	0.00	212.00	215.00	0.00
*	6190.000	872.29	0.11	872.29	101.73	87.58	15.35	57.07	0.05	143.49	212.00	215.00	245 22
	6275.000	872.19	0.00	872.21	78.69	34.61	89.41	35.98	0.00	0.00	128.00	141.00	0 00
	6275.000	872.30	0.10	872.32	47 61	33.15	92.24	34.60	0.04	111.04	128.00	141.00	158.65
	6391.000	872 18	0.00	872.32	13.00	0.00	160.00	0.00	13.00	128 00	128.00	141.00	141.00
	6391.000	872.29	0.11	872.42	13.00	0.00	160.00	0.00	0.00	128.00	128.00	141.00	141.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
6482.000	873.61	0.00	873.70	13.00	0.00	160.00	0.00	13.00	128.00	128.00	141.00	141.00
6482.000	873.71	0.11	873.80	13.00	0.00	160.00	0.00	0.00	128.00	128.00	141.00	141.00
6543.000	873.64	0.00	873.79	13.00	0.00	160.00	0.00	0.00	0.00	128.00	141.00	0.00
6543.000	873.75	0.11	873.88	13.00	0.00	160.00	0.00	0.00	128.00	128.00	141.00	141.00
6743.000	874.49	0.00	874.57	116.59	45.40	72.72	41.88	0.00	0.00	290.00	300.00	0.00
6743.000	874.55	0.06	874.66	51 96	41.78	78.84	39.38	0.12	269.36	290.00	300.00	321.33
* 6945.000	876.20	0.00	876.59	76.66	33.52	98.13	28.35	0 00	0.00	290.00	300.00	0 00
* 6945.000	876.23	0.03	876.58	76.00	34.90	95.70	29.39	76.00	257.00	290.00	300.00	333.00
7147.000	879.11	0.00	879 25	100.22	41.31	81.57	37.12	0.00	0.00	290.00	300.00	0.00
7147.000	879 13	0.03	879.33	43.51	37.47	89.61	32 91	0.12	272.91	290.00	300.00	316 42

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	7362.000	881.01	0.00	881 19	94.78	39.74	84.94	35.32	0.00	0.00	290.00	300.00	0.00
	7362 000	881.14	0 13	881.34	40.90	36.43	91.85	31.72	0.12	274.16	290.00	300.00	315.06
	7577.000	883.06	0.00	883.22	97.84	40.64	83.01	36.34	0.00	0.00	290.00	300.00	0.00
	7577.000	883.15	0.09	883.34	42.34	37.13	90.34	32.53	0.12	273.47	290.00	300.00	315.81
	7896 000	885.70	0 00	886.05	9.00	0.00	160.00	0 00	9.00	300.00	300.00	309.00	309.00
	7896.000	885.78	0 08	886.12	9.00	0.00	160.00	0.00	0.75	300.00	300.00	309.00	309.00
	7897 000	885.71	0.00	886.22	7.20	0.00	160 00	0.00	0.00	0.00	296.40	303.60	0.00
	7897.000	885.79	0.08	886.29	7 20	0.00	160.00	0.00	0 00	296.40	296.40	303.60	303.60
	7962.000	886.16	0.00	886.66	7.20	0.00	160.00	0.00	0.00	0.00	296.40	303.60	0.00
	7962.000	886.22	0.06	886.71	7.20	0.00	160.00	0.00	0.00	296.40	296.40	303.60	303.60
	7963.000	886.49	0.00	886.78	9.00	0.00	160.00	0.00	9.00	300.00	300.00	309.00	309.00
	7963.000	886.54	0.06	886.83	9.00	0.00	160.00	0.00	0.90	300.00	300.00	309.00	309.00
	8043.000	886.93	0.00	886.94	180.77	66.11	23.48	70.42	320.00	0.00	200.00	210.00	320.00
	8043.000	886.98	0.04	886.98	135.64	66.04	24.70	69.26	0.06	162.09	200.00	210.00	297.73
	8224.000	886.96	0.00	886.99	138.70	47.26	36.70	76.03	320.00	0.00	200.00	210.00	320.00
	8224.000	887.01	0.05	887.04	105.55	45.79	39.55	74.65	0.10	184.83	200.00	210.00	290.38
*	8405.000	887.48	0.00	887.74	113.67	35.86	69.56	54.58	0.00	0.00	200.00	210.00	0.00
*	8405.000	887.57	0.09	887.91	68.63	24.71	79.08	56.21	0.19	196.50	200.00	210.00	265.14
	8465.000	888.29	0.00	888.39	119.43	37.94	53.35	68.71	0.00	0.00	200.00	210.00	0.00
	8465.000	888.43	0.14	888.54	85.38	31.46	57.83	70.71	0.15	194.01	200.00	210.00	279.39
	8525 000	888.69	0.00	888.81	116.69	36.45	57.81	65.74	0.00	0.00	200.00	210.00	0.00
	8525.000	888.80	0.11	888.96	81.17	28.96	63.76	67.28	0.16	195.00	200.00	210.00	276.17
	8587.000	889.19	0.00	889.32	116.62	36.43	58.02	65.55	0.00	0.00	200.00	210.00	0 00
	8587.000	889.29	0.10	889 45	80.16	28.56	64.62	66.82	0.17	195.14	200.00	210.00	275.30

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	9091.000	891.93	0.00	891.99	123.38	39.92	48.43	71.65	0.00	0.00	200.00	210.00	0.00
	9091.000	891.96	0.03	892.02	123.75	40.31	47 57	72.11	124.00	179.00	200.00	210.00	303.00
	9411.000	894.15	0.00	894.70	10.00	0.00	160.00	0.00	10.00	502.50	500.00	515.00	512.50
	9411.000	894.09	-0.06	894.66	10.00	0.00	160.00	0.00	10.00	502.50	500.00	515 00	512.50
	9412.000	893.91	0.00	894.95	9.00	0.00	160.00	0.00	0.00	0.00	495.50	504.50	0.00
	9412.000	893.82	-0.09	894.95	9.00	0.00	160.00	0.00	0.00	0.00	495.50	504.50	0.00
*	9430.000	894.12	0.00	895.29	9.00	0 00	160.00	0.00	0.00	0.00	495.50	504.50	0.00
*	9430.000	894.12	0.00	895.29	9.00	0.00	160.00	0.00	0.00	0.00	495.50	504.50	0.00
	9431.000	895.41	0.00	895.73	10.00	0.00	160.00	0.00	10.00	502.50	500.00	515.00	512.50
	9431.000	895.41	0.00	895.73	10.00	0.00	160 00	0.00	10.00	502.50	500.00	515.00	512.50
	9581.000	896.19	0.00	896.26	55.44	18.45	117.71	23.84	0.00	0.00	500.00	515.00	0.00
	9581.000	896.19	0.00	896.26	55.44	18.45	117 71	23.84	0.00	0.00	500.00	515.00	0 00
	10280.000	898.47	0.00	898.62	117.85	125.59	25.18	9.23	0.00	0.00	627.00	630.00	0.00
	10280 000	898.47	0.00	898.62	117.85	125.59	25.18	9.23	0.00	0 00	627.00	630.00	0.00
	11080.000	902.24	0.00	902.60	49.71	141.32	13.15	5.53	84.00	760.00	800.00	804.00	844.00
	11080.000	902.24	0.00	902.60	49.71	141.32	13.15	5 53	84.00	760.00	800.00	804.00	844.00

11120 000	906.69	0.00	906 69	84.00	89.72	6 27	64.01	84.00	760.00	800.00	804.00	844.00
11120.000	906.69	0.00	906.69	162.76	156.25	3.75	0.00	0.77	383.20	800.00	804.00	804.00
11795 000	906.69	0.00	906.70	240.00	111.60	19.66	28.74	240.00	520.00	700.00	707.00	760.00
11795.000	906.69	0.00	906.70	210.00	107.70	21.23	31.07	210.00	550.00	700.00	707.00	760.00
11895.000	906.90	0.00	906.92	240.00	109.21	24 16	26.62	240.00	520.00	700.00	707.00	760.00
11895.000	906.92	0.02	906.94	210.00	106.22	25.21	28.58	210.00	550.00	700.00	707.00	760.00
11995.000	907.32	0.00	907.35	240.00	108.30	25.90	25 80	240.00	520.00	700.00	707.00	760.00
11995.000	907.35	0.03	907.38	210.00	105.67	26.66	27.68	210.00	550.00	700.00	707.00	760.00
12095 000	907.82	0.00	907 84	240.00	108.36	25.78	25.86	240.00	520.00	700.00	707.00	760.00
12095.000	907.85	0.03	907.88	210.00	105.66	26.67	27.67	210.00	550.00	700.00	707.00	760.00
12195.000	908.32	0.00	908.35	240.00	108.24	26.01	25.74	240.00	520.00	700.00	707 00	760 00
12195.000	908.34	0.02	908.36	240.00	108.52	25.49	26.00	240.00	520.00	700.00	707.00	760 00
12595.000	910.86	0.00	910.94	95.00	42.50	41.46	76 03	95.00	680.00	700.00	707.00	775.00
12595.000	910.84	-0.03	910.92	95.00	42.83	42.03	75.15	95.00	680.00	700.00	707.00	775.00
13155.000	915.12	0.00	915.26	60.00	30.93	91.72	37.35	60.00	780.00	800.00	812.00	840.00
13155.000	915.26	0.14	915.40	50.08	0.00	95.53	64.47	0.61	800.00	800.00	812.00	850.08
13620.000	917 58	0.00	917.63	195.00	22.49	53.64	83.87	195.00	725.00	800.00	812.00	920.00
13620.000	917.69	0.11	917.74	123.03	12.20	57.97	89.84	0.17	786.29	800.00	812 00	909.32

SECNO	CWSEL	DIFKWS	EG	TOPWID	GLOB	GCH	GROB	PERENC	STENCL	STCHL	STCHR	STENCR
14029.000	919.95	0.00	920.09	156.52	24.24	71.69	64.08	190.00	560.00	695.00	704.00	750.00
14029.000	920.02	0.07	920.19	70.41	21.05	78.77	60.18	0.16	664.63	695.00	704.00	735.05
14634 000	924.35	0.00	924.38	120.02	39 01	13.80	107.20	170.00	150.00	240.00	243.00	320.00
14634.000	924.47	0.12	924.51	97.68	16.83	15.09	128.08	0.26	227.72	240.00	243.00	325.39
15238.000	928.74	0.00	928.78	159.67	31.37	14.76	113.86	0.00	0.00	240.00	243.00	0.00
15238.000	928.82	0.08	928.88	103.01	21 00	16.91	122.09	0.19	223.19	240.00	243.00	326.20
15988.000	934.17	0.00	934.24	101.23	6.60	47.90	105.50	110.00	830.00	840.00	847.00	940.00
15988.000	934.29	0.12	934.36	80.37	44.90	51.71	63.39	0.42	791.28	840.00	847.00	871.65
16738.000	940.35	0.00	940.55	61.47	0.29	87.44	72.26	70.00	370.00	383.00	400.00	440.00
16738.000	940.44	0.09	940.69	43.25	0.00	100.20	59.80	0.39	383.00	383.00	400.00	426.25
17638.000	950.39	0.00	950.55	109.26	3.91	111.07	45.02	0.00	0.00	285.00	300.00	0.00
17638.000	950.52	0.14	950.70	39.61	0.00	119.11	40.89	0.12	285.00	285.00	300.00	324.61
18038 000	954.30	0.00	954 61	84.69	1.36	124.88	33 76	195.00	180.00	285.00	300.00	375 00
18038.000	954.40	0.10	954.77	28.15	0.00	137.06	22.94	0.13	285.00	285.00	300.00	313.15
18240.000	956.49	0.00	956.59	90.00	60.37	46.61	53.02	90.00	450.00	491.00	496.00	540.00
18240.000	956.62	0.13	956.73	49.74	58.04	49.97	51.99	0.10	466.84	491.00	496.00	516.58
* 18513.000	960.76	0.00	960.93	178.07	28.75	60.44	70.81	0.00	0.00	399.00	401.40	0.00
* 18513.000	960.75	-0.01	961.07	71.04	15.84	75.47	68.69	0.25	388.29	399.00	401.40	459 33
* 18557.000	961.37	0.00	961.53	179.33	29.05	59.41	71.54	0.00	0.00	399.00	401.40	0.00
18557.000	961.36	-0.01	961.66	72.09	16.29	74.20	69.51	0.25	387.96	399.00	401.40	460.05

THORNTON CREEK

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	1560.000	0.00	0.00	0.00	831.50	230.00	834.29	0.00	834.35	23.92	2.21	180.47	47.03
	1560.000	0.00	0.00	0.00	831.50	230.00	834.28	0.00	834.36	30.18	2.47	132.50	41.87
	1760.000	200.00	0.00	0.00	831.97	230.00	834.84	0.00	834.93	36.12	2.78	146.38	38.27
	1760.000	200.00	0.00	0.00	831.97	230.00	834.93	0.00	835.03	37.59	2.89	116.87	37.51
	1960.000	200.00	0.00	0.00	832.44	230.00	835.60	0.00	835.72	44.71	3.35	129.05	34.40
	1960.000	200.00	0.00	0.00	832.44	230.00	835.72	0.00	835.85	45.76	3.42	105.62	34.00
	2160.000	200.00	0.00	0.00	832.90	230.00	836.59	0.00	836.98	75.48	5.15	55.11	26.47
	2160.000	200.00	0.00	0.00	832.90	230.00	836.69	0.00	837.04	67.00	4.95	57.58	28.10
	2328.000	168.00	0.00	0.00	834.20	230.00	837.87	0.00	838.26	77.49	5.20	54.44	26.13
	2328.000	168.00	0.00	0.00	834.20	230.00	837.87	0.00	838.26	77.20	5.19	54.53	26.18
	2495.000	167.00	0.00	0.00	835.50	230.00	838.72	0.00	838.77	11.67	1.74	131.94	67.32
	2495.000	167.00	0.00	0.00	835.50	230.00	838.72	0.00	838.77	11.66	1.74	131.98	67.35
	2496.000	1.00	840.00	840.20	835.50	230.00	838.72	0.00	838.78	3.37	1.96	117.17	125.24
	2496.000	1.00	840.00	840.20	835.50	230.00	838.72	0.00	838.78	3.37	1.96	117.22	125.31
	2502.000	6.00	840.00	840.20	835.50	230.00	838.72	0.00	838.78	3.38	1.96	117.13	125.19
	2502.000	6.00	840.00	840.20	835.50	230.00	838.72	0.00	838.78	3.37	1.96	117.18	125.26
	2503.000	1.00	0.00	0.00	835.50	230.00	838.74	0.00	838.78	11.61	1.74	132.19	67.51
	2503.000	1.00	0.00	0.00	835.50	230.00	838.74	0.00	838.78	11.59	1.74	132.25	67.55
	2560.000	57.00	0.00	0.00	835.50	230.00	838.80	0.00	838.85	10.52	1.68	136.59	70.91
	2560.000	57.00	0.00	0.00	835.50	230.00	838.80	0.00	838.85	10.51	1.68	136.64	70.95
	2600.000	40.00	0.00	0.00	835.50	230.00	838.84	0.00	838.90	11.63	1.93	118.92	67.43
	2600.000	40.00	0.00	0.00	835.50	230.00	838.84	0.00	838.90	11.62	1.93	118.95	67.46
	2639.000	39.00	0.00	0.00	835.50	230.00	838.84	0.00	839.06	49.76	3.72	61.82	32.61
	2639.000	39.00	0.00	0.00	835.50	230.00	838.84	0.00	839.06	49.72	3.72	61.83	32.62
	2640.000	1.00	845.50	844.10	836.70	230.00	838.61	0.00	839.31	132.49	6.68	34.42	19.98
	2640.000	1.00	845.50	844.10	836.70	230.00	838.61	0.00	839.31	132.24	6.68	34.44	20.00
	2692.000	52.00	845.50	844.50	837.10	230.00	839.41	0.00	839.87	72.65	5.44	42.25	26.98
	2692.000	52.00	845.50	844.50	837.10	230.00	839.41	0.00	839.87	72.70	5.45	42.24	26.97
	2693.000	1.00	0.00	0.00	837.10	230.00	839.70	0.00	839.95	82.57	3.97	57.99	25.31
	2693.000	1.00	0.00	0.00	837.10	230.00	839.70	0.00	839.95	82.62	3.97	57.98	25.30
*	2700.000	7.00	0.00	0.00	837.20	230.00	840.41	840.41	840.96	218.83	6.69	55.83	15.55
*	2700.000	7.00	0.00	0.00	837.20	230.00	840.41	840.41	840.96	218.85	6.69	55.83	15.55

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	2760.000	60.00	0.00	0.00	837.80	230.00	841.48	0.00	841.72	89.91	4.70	80.88	24.26
	2760.000	60.00	0.00	0.00	837.80	230.00	841.48	0.00	841.72	89.91	4.70	80.89	24.26

	2820.000	60.00	0.00	0.00	838.40	230.00	841.94	0.00	842.24	114.62	5.17	73.47	21.48
	2820 000	60.00	0.00	0.00	838.40	230.00	841.94	0.00	842.24	114.62	5.17	73.47	21.48
	2880.000	60.00	0.00	0.00	839.00	230.00	842.51	0.00	842.83	120.18	5.27	72.07	20.98
	2880.000	60.00	0.00	0.00	839.00	230.00	842.51	0.00	842.83	120.18	5.27	72.07	20.98
	3091.000	211.00	0.00	0.00	840.30	230.00	844.26	0.00	844.51	58.34	4.00	57.44	30.11
	3091 000	211.00	0.00	0 00	840.30	230.00	844.26	0.00	844.51	58.34	4.00	57.44	30.11
	3092.000	1.00	849.10	847.80	840.30	230.00	844.41	0.00	844.55	13.62	2.94	78.30	62.32
	3092.000	1.00	849.10	847.80	840.30	230 00	844.41	0.00	844.55	13.62	2.94	78.30	62.32
	3178.000	86.00	849.10	848.30	840.80	230.00	844.53	0.00	844 70	17.49	3.24	71.09	54.99
	3178.000	86.00	849.10	848.30	840 80	230.00	844.53	0.00	844.70	17.49	3 24	71.09	54.99
	3179.000	1.00	0.00	0.00	840.80	230.00	844.46	0.00	844.77	83.54	4.50	51.06	25.16
	3179.000	1.00	0.00	0.00	840.80	230.00	844.46	0.00	844.77	83.54	4.50	51.06	25.16
	3309.000	130.00	0 00	0.00	841.70	230.00	845.44	0.00	845.62	48.15	3.73	105.28	33.14
	3309.000	130.00	0 00	0.00	841.70	230.00	845.44	0.00	845.62	48.15	3.73	105.28	33 14
	3532.000	223.00	0.00	0.00	843.30	230.00	846.92	0.00	847.30	114.95	5.08	56.11	21.45
	3532.000	223.00	0.00	0.00	843.30	230.00	846 92	0.00	847.30	114.95	5.08	56.11	21.45
	3755.000	223.00	0.00	0 00	844.80	230.00	848.86	0.00	849.07	56.00	3.90	82.27	30.73
	3755.000	223.00	0.00	0 00	844.80	230.00	848.86	0.00	849.07	56.00	3.90	82.27	30 73
	3978.000	223.00	0.00	0.00	846.30	230.00	850.22	0.00	850 47	69.50	4.23	73.39	27.59
	3978.000	223.00	0.00	0.00	846.30	230.00	850.22	0 00	850.47	69 50	4.23	73.39	27 59
	4227.000	249.00	0.00	0.00	848.00	230.00	851.90	0.00	852.16	71.97	4.28	72.04	27 11
	4227.000	249.00	0.00	0 00	848.00	230.00	851.90	0.00	852.16	71.97	4.28	72.04	27.11
	4476.000	249.00	0.00	0.00	849.70	230.00	853 61	0.00	853 87	70.87	4.26	72.64	27.32
	4476.000	249.00	0.00	0.00	849.70	230.00	853.61	0.00	853.87	70.87	4.26	72.64	27.32
	4725.000	249.00	0.00	0.00	851.30	230.00	855.25	0.00	855.50	66.01	4.15	75.43	28.31
	4725.000	249.00	0 00	0.00	851.30	230 00	855.25	0.00	855.50	66.01	4.15	75.43	28.31
	4979.000	254.00	0.00	0.00	853.00	230.00	856.25	0.00	856.28	15.53	1.93	209.14	58.36
	4979.000	254.00	0.00	0.00	853.00	230.00	856.25	0.00	856.28	15.53	1.93	209.14	58.36
*	5179.000	200.00	0.00	0.00	855.00	230.00	857.52	857.52	858.26	382.87	6.93	33.18	11.75
*	5179.000	200.00	0.00	0.00	855.00	230.00	857 52	857.52	858.26	382.87	6.93	33.18	11.75
	5180.000	1.00	858.59	858.20	855.00	230.00	858.19	0.00	858.42	25.15	3.86	59.54	45 86
	5180.000	1.00	858.59	858.20	855.00	230.00	858.19	0.00	858.42	25.15	3.86	59.54	45 86

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
5194.000	14.00	858.59	858.40	855.20	230 00	858.22	0.00	858.46	20.33	3.94	58.40	51.01
5194.000	14.00	858 59	858.40	855.20	230.00	858.22	0.00	858.46	20.33	3.94	58.40	51 01
5195.000	1.00	0.00	0.00	854.40	230 00	858.28	0.00	858.48	47.83	3.57	64.50	33 26
5195 000	1.00	0.00	0.00	854.40	230.00	858.28	0.00	858.48	47.83	3.57	64.50	33.26
5295.000	100.00	0.00	0.00	856.50	160.00	858.95	0.00	859.01	51.67	2.60	106.86	22 26
5295.000	100.00	0.00	0.00	856.50	160.00	858.95	0.00	859.01	51.67	2.60	106.86	22.26
5395.000	100.00	0.00	0.00	857.80	160.00	859.83	0.00	860.02	226.01	4.28	65.34	10.64
5395.000	100.00	0.00	0 00	857.80	160 00	859.83	0 00	860.02	226.01	4.28	65.34	10.64

	5526.000	131.00	0.00	0.00	859.50	160.00	862.13	0.00	862.37	147.72	5.42	74.96	13 16
	5526.000	131.00	0.00	0.00	859 50	160.00	862.21	0.00	862.50	159.23	5.77	63.04	12.68
	5657.000	131.00	0.00	0.00	861.20	160.00	863.90	0.00	864.09	118.44	4.96	81.86	14.70
	5657.000	131.00	0.00	0.00	861.20	160 00	864.03	0.00	864.24	110.40	4.98	73.44	15.23
	5788.000	131.00	0.00	0.00	862.90	160.00	865.55	0.00	865.77	140.42	5.31	76.51	13.50
	5788.000	131.00	0.00	0.00	862.90	160.00	865.64	0.00	865.91	145.36	5.56	65.57	13.27
	5919.000	131.00	0.00	0.00	864.50	160.00	867.22	0.00	867.40	111.29	4.84	83.89	15.17
	5919.000	131.00	0.00	0 00	864.50	160.00	867.34	0.00	867.54	106.83	4.91	74.63	15.48
	6140.000	221.00	0.00	0.00	865.20	160.00	869.50	0.00	869.57	69.62	3.73	95.33	19.18
	6140.000	221.00	0.00	0.00	865.20	160.00	869.60	0.00	869.69	69.08	3.79	81.25	19.25
*	6190.000	50.00	871.30	868.50	865.40	160.00	872.18	0.00	872.19	1.72	0.85	366.92	121.88
*	6190.000	50.00	999999.00	0.00	865.40	160.00	872.29	0.00	872.29	1.72	0.86	347.37	121.87
	6275.000	85.00	0.00	0.00	867.10	160.00	872.19	0.00	872.21	2.35	1.35	233.55	104.28
	6275.000	85.00	0.00	0.00	867.10	160.00	872 30	0.00	872.32	2.33	1.36	201.40	104.80
	6391.000	116.00	0.00	0.00	867.60	160.00	872.18	0.00	872.32	7.59	2.96	54.03	58.07
	6391 000	116.00	0.00	0.00	867.60	160.00	872.29	0.00	872.42	7.06	2.89	55.43	60.23
	6482.000	91.00	874.00	871.70	868.20	160 00	873.61	0.00	873.70	4.54	2.47	64.77	75.09
	6482.000	91.00	999999.00	0.00	868.20	160.00	873.71	0.00	873.80	4.28	2.42	66.18	77 38
	6543.000	61.00	0.00	0.00	869.20	160.00	873.64	0.00	873.79	36.26	3.06	52.26	26 57
	6543.000	61.00	0.00	0.00	869.20	160.00	873.75	0.00	873.88	33.71	2.98	53.61	27.56
	6743.000	200.00	0.00	0.00	872.00	160.00	874.49	0.00	874.57	40.45	3.22	120.35	25.16
	6743.000	200.00	0.00	0.00	872.00	160.00	874.55	0.00	874.66	43 02	3.39	87.95	24.39
*	6945.000	202.00	0.00	0.00	874.40	160.00	876.20	876.20	876.59	247.19	6.26	53.98	10.18
*	6945.000	202.00	0.00	0.00	874.40	160.00	876.23	876.23	876.58	219.32	5.98	56.49	10.80
	7147.000	202.00	0.00	0.00	876.90	160.00	879.11	0.00	879.25	79.39	4.13	89.82	17.96
	7147.000	202 00	0.00	0.00	876.90	160.00	879.13	0.00	879.33	91.22	4.47	63 42	16.75

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
7362.000	215.00	0.00	0.00	878.90	160.00	881.01	0.00	881.19	101.20	4.52	80.71	15.90
7362.000	215 00	0.00	0.00	878.90	160.00	881.14	0.00	881.34	95.66	4.58	60.79	16.36
7577.000	215.00	0.00	0.00	880.90	160.00	883.06	0.00	883.22	88 17	4.29	85.77	17.04
7577.000	215 00	0.00	0.00	880.90	160.00	883.15	0.00	883.34	90.41	4.48	62.88	16 83
7896.000	319 00	0.00	0.00	881.60	160.00	885.70	0.00	886.05	90.28	4.75	33.68	16 84
7896.000	319 00	0.00	0.00	881.60	160.00	885.78	0.00	886.12	85.60	4.66	34.35	17.29
7897.000	1.00	888.50	887 10	881.60	160.00	885.71	0.00	886.22	67.36	5.75	27.82	19.49
7897.000	1.00	888.50	887 10	881.60	160 00	885.79	0.00	886.29	65.06	5.66	28.26	19 84
7962.000	65.00	888.50	887.50	882.00	160.00	886.16	0.00	886.66	66.01	5.70	28.08	19.69
7962.000	65 00	888.50	887.50	882.00	160.00	886.22	0.00	886.71	64.60	5.64	28 36	19.91
7963.000	1.00	0.00	0.00	882.00	160.00	886.49	0.00	886.78	69.51	4.31	37.14	19 19
7963.000	1.00	0.00	0.00	882.00	160.00	886.54	0.00	886.83	67.00	4.25	37.66	19.55
8043.000	80.00	0.00	0.00	882.70	160.00	886.93	0.00	886.94	0.72	0.61	422.23	188.16
8043.000	80.00	0.00	0.00	882.70	160.00	886.98	0.00	886.98	0.77	0.64	386.78	182.30

	8224.000	181.00	0.00	0.00	884.20	160.00	886.96	0.00	886.99	8.85	1.55	187.57	53 78
	8224.000	181.00	0.00	0.00	884.20	160.00	887.01	0.00	887.04	9.63	1.64	170.09	51.57
*	8405.000	181.00	0.00	0.00	885.70	160.00	887.48	887.48	887.74	190.94	5.04	64.67	11.58
*	8405.000	181.00	0.00	0.00	885.70	160.00	887.57	887.57	887.91	198.09	5 36	54.59	11.37
	8465.000	60.00	0 00	0.00	886.20	160.00	888.29	0.00	888.39	57.11	3.15	100.73	21.17
	8465.000	60.00	0.00	0.00	886.20	160.00	888.43	0.00	888.54	51.31	3 15	94.36	22 34
	8525.000	60.00	0.00	0.00	886.70	160.00	888.69	0.00	888.81	82.18	3.63	88.93	17.65
	8525.000	60.00	0.00	0.00	886.70	160.00	888.80	0.00	888.96	79.69	3.74	80.03	17.92
	8587.000	62.00	0.00	0.00	887.20	160.00	889.19	0.00	889.32	83.61	3.66	88.37	17.50
	8587.000	62.00	0.00	0 00	887.20	160.00	889.29	0.00	889.45	83.59	3.82	78.40	17.50
	9091.000	504.00	0.00	0.00	889.70	160.00	891.93	0.00	891.99	36.25	2.65	117.46	26.58
	9091.000	504.00	0.00	0.00	889.70	160.00	891.96	0.00	892.02	33.27	2.56	120.88	27.74
	9411 000	320.00	0.00	0 00	891 20	160.00	894.15	0 00	894.70	182.71	5.94	26.93	11.84
	9411 000	320.00	0.00	0.00	891.20	160.00	894.09	0.00	894.66	194.76	6.08	26.34	11.46
	9412.000	1.00	897.20	896.30	891 20	160.00	893.91	893.81	894.95	69.23	8.20	19.52	19.23
	9412.000	1.00	897.20	896.30	891.20	160.00	893.82	893.81	894.95	77.97	8.55	18.70	18.12
*	9430.000	18.00	897.20	896.40	891.60	160.00	894.12	894.12	895.29	83.31	8.68	18.43	17.53
*	9430.000	18.00	897.20	896.40	891.60	160.00	894.12	894.12	895.29	83.31	8.68	18.43	17 53
	9431.000	1.00	0.00	0.00	891.60	160.00	895.41	0.00	895.73	83.63	4.50	35.57	17 50
	9431.000	1.00	0.00	0.00	891.60	160.00	895.41	0.00	895.73	83.63	4.50	35.57	17.50

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
9581.000	150.00	0.00	0 00	892.50	160.00	896.19	0.00	896.26	13.18	2.38	107.23	44 07
9581.000	150.00	0.00	0.00	892.50	160.00	896.19	0.00	896.26	13 18	2.38	107.23	44.07
10280.000	699.00	0.00	0.00	896.50	160.00	898.47	0.00	898.62	382.21	5.67	64.01	8.18
10280.000	699.00	0.00	0.00	896.50	160.00	898.47	0.00	898.62	382.21	5.67	64.01	8.18
11080.000	800.00	0.00	0.00	901.10	160.00	902.24	902.23	902.60	31.48	3.39	34.29	28 52
11080.000	800.00	0.00	0.00	901.10	160.00	902.24	902.23	902.60	31.48	3.39	34.29	28.52
11120.000	40.00	907.00	901.50	901.10	160.00	906.69	0.00	906.69	0.02	0.29	399.06	1051.48
11120.000	40.00	999999.00	0.00	901.10	160.00	906.69	0.00	906.69	0.03	0.17	455.87	984.31
11795.000	675.00	0.00	0.00	904.60	160.00	906.69	0.00	906.70	13.42	1.55	258.84	43 67
11795.000	675 00	0.00	0.00	904.60	160.00	906.69	0.00	906.70	15.61	1.67	234.28	40.49
11895.000	100.00	0.00	0.00	905.10	160.00	906.90	0.00	906.92	36 91	2.28	187.17	26.34
11895.000	100.00	0.00	0.00	905.10	160 00	906.92	0.00	906.94	38.17	2.34	176.18	25.90
11995.000	100.00	0.00	0.00	905.60	160.00	907.32	0.00	907.35	50.23	2.57	169.16	22 58
11995.000	100 00	0.00	0.00	905.60	160.00	907.35	0.00	907.38	49 73	2.59	161.68	22.69
12095.000	100.00	0.00	0.00	906.10	160.00	907.82	0.00	907.84	49 22	2.55	170.30	22.81
12095.000	100.00	0.00	0.00	906.10	160.00	907.85	0.00	907.88	49.88	2.59	161.52	22.65
12195.000	100.00	0.00	0.00	906.60	160.00	908.32	0.00	908.35	51.16	2.59	168.13	22 37
12195.000	100.00	0 00	0.00	906 60	160.00	908.34	0.00	908.36	46.81	2.50	173.15	23 39
12595.000	400 00	0 00	0.00	909.00	160.00	910.86	0.00	910.94	93.90	3.74	95.82	16.51
12595.000	400.00	0.00	0.00	909.00	160.00	910.84	0.00	910.92	102.49	3.86	93.11	15.80

13155.000	560 00	0.00	0.00	912.50	160.00	915.12	0.00	915.26	64.35	3.75	78.79	19.95
13155 000	560.00	0.00	0.00	912 50	160.00	915.26	0.00	915.40	65.27	3.66	73.56	19.80
13620.000	465 00	0.00	0.00	915.30	160.00	917.58	0.00	917.63	39.69	2.61	155.21	25.40
13620.000	465.00	0.00	0.00	915.30	160.00	917.69	0.00	917.74	37 98	2.66	133.80	25.76
14029.000	409.00	0.00	0.00	917.80	160.00	919.95	0.00	920.09	101.58	4.32	93 86	15.88
14029.000	409.00	0.00	0.00	917.80	160.00	920.02	0.00	920.19	107.69	4.56	72.22	15 42
14634.000	605.00	0.00	0.00	922.50	160.00	924.35	0.00	924.38	51.89	2 81	132.77	22.21
14634.000	605.00	0 00	0.00	922.50	160.00	924.47	0.00	924.51	48.64	2.86	125.94	22.94
15238 000	604.00	0.00	0.00	927.20	160.00	928 74	0.00	928.78	121.00	3.72	113.60	14.55
15238.000	604.00	0.00	0.00	927.20	160.00	928.82	0.00	928.88	130.82	4.02	94.84	13.99
15988.000	750.00	0.00	0.00	931.70	160.00	934.17	0.00	934.24	50.34	3.25	115.55	22.55
15988.000	750.00	0.00	0.00	931.70	160.00	934.29	0.00	934.36	48.53	3.32	105.00	22 97
16738.000	750.00	0.00	0.00	938.90	160.00	940.35	0.00	940.55	191.31	4.48	57.39	11.57
16738.000	750.00	0.00	0.00	938.90	160.00	940.44	0.00	940.69	200.11	4.76	49.00	11.31

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
17638.000	900.00	0.00	0.00	947.60	160.00	950.39	0.00	950.55	70.56	3.81	84.04	19.05
17638.000	900.00	0.00	0.00	947.60	160.00	950 52	0.00	950.70	68.87	3.81	61.18	19.28
18038 000	400.00	0.00	0.00	951.80	160.00	954.30	0.00	954.61	151.27	5.02	56.41	13.01
18038.000	400.00	0.00	0.00	951 80	160.00	954.40	0.00	954.77	155.77	5.19	39.42	12.82
18240.000	202.00	0.00	0.00	954 20	160.00	956.49	0.00	956.59	67.09	4.16	98.69	19.53
18240.000	202.00	0.00	0.00	954.20	160.00	956.62	0.00	956.73	63.82	4.22	81.73	20.03
* 18513.000	272.00	0.00	0.00	955.20	160.00	960.76	960.76	960.93	14.80	4.72	67.51	41.59
* 18513.000	272.00	0.00	0.00	955.20	160.00	960.75	960.75	961.07	23.26	5.91	43.31	33.18
* 18557.000	44 00	960.80	958.30	955.80	160.00	961.37	0.00	961.53	14.24	4.64	68.63	42.40
18557.000	44 00	999999.00	0.00	955.80	160.00	961.36	961.34	961.66	22.39	5.81	44.14	33.81

1

THORNTON CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1560.000	230.00	834.29	0.00	0.00	-0.59	209.74	0.00
1560.000	230.00	834.28	-0.01	0.00	-0.01	106.83	0.00
1760 000	230.00	834.84	0.00	0.55	0.00	163.45	200.00
1760.000	230.00	834.93	0.09	0.65	0.09	84.10	200.00
1960.000	230.00	835.60	0.00	0.76	0.00	125.27	200.00
1960.000	230.00	835.72	0.11	0.79	0.11	64.53	200.00
2160.000	230.00	836.59	0.00	0.99	0.00	30.40	200.00
2160.000	230.00	836.69	0.10	0.97	0.10	28.00	200.00
2328.000	230.00	837.87	0.00	1.28	0.00	30.11	168.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	2328.000	230.00	837.87	0.00	1.19	0.00	30.15	168.00
	2495 000	230.00	838.72	0.00	0.85	0.00	57.97	167.00
	2495.000	230.00	838.72	0.00	0.85	0.00	57.98	167.00
	2496.000	230.00	838.72	0.00	-0.01	0.00	52.15	1.00
	2496.000	230.00	838.72	0.00	-0.01	0.00	52.15	1.00
	2502.000	230.00	838.72	0.00	0.00	0.00	52.14	6.00
	2502.000	230.00	838.72	0 00	0.00	0.00	52.15	6.00
	2503.000	230.00	838.74	0.00	0.02	0.00	58.00	1.00
	2503.000	230.00	838.74	0.00	0.02	0.00	58.00	1.00
	2560.000	230.00	838.80	0.00	0 07	0.00	58.45	57.00
	2560.000	230.00	838.80	0.00	0.07	0.00	58.46	57.00
	2600.000	230.00	838.84	0.00	0.04	0.00	41.00	40.00
	2600.000	230 00	838.84	0.00	0.04	0 00	41.00	40.00
	2639.000	230 00	838.84	0.00	0.00	0.00	21.00	39.00
	2639.000	230.00	838.84	0.00	0 00	0.00	21.00	39.00
	2640.000	230.00	838.61	0.00	-0.23	0.00	20.00	1.00
	2640.000	230.00	838.61	0.00	-0.23	0.00	20.00	1.00
	2692.000	230.00	839.41	0.00	0 80	0.00	20.00	52.00
	2692.000	230.00	839.41	0.00	0.80	0.00	20.00	52.00
	2693.000	230.00	839.70	0.00	0.29	0.00	31.80	1.00
	2693.000	230.00	839.70	0.00	0.29	0.00	31.80	1.00
*	2700.000	230.00	840.41	0.00	0.71	0.00	52.95	7.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	2760.000	230.00	841.48	0.00	1.07	0 00	53.95	60.00
	2760.000	230.00	841.48	0.00	1.07	0.00	53.95	60.00
	2820.000	230.00	841.94	0.00	0.46	0.00	53.66	60.00
	2820.000	230.00	841.94	0.00	0.46	0.00	53.66	60.00
	2880.000	230.00	842.51	0.00	0.57	0.00	53.60	60.00
	2880.000	230.00	842.51	0.00	0.57	0.00	53.60	60 00
	3091.000	230.00	844.26	0.00	1.75	0.00	21.00	211 00
	3091.000	230 00	844.26	0.00	1.75	0.00	21.00	211.00
	3092.000	230.00	844.41	0.00	0.15	0.00	21.00	1.00
	3092.000	230.00	844.41	0.00	0.15	0.00	21.00	1.00
	3178.000	230.00	844.53	0.00	0.12	0.00	21.00	86.00
	3178.000	230.00	844.53	0.00	0.12	0.00	21 00	86.00
	3179.000	230.00	844.46	0.00	-0.07	0.00	21.00	1.00
	3179.000	230.00	844.46	0.00	-0.07	0.00	21.00	1 00
	3309.000	230.00	845 44	0.00	0.98	0.00	137.15	130.00
	3309.000	230 00	845 44	0.00	0.98	0.00	137.15	130.00
	3532.000	230.00	846 92	0.00	1.48	0.00	49.49	223 00

	3532.000	230.00	846.92	0.00	1.48	0.00	49.49	223.00
	3755.000	230.00	848.86	0.00	1.94	0.00	65.31	223.00
	3755.000	230.00	848.86	0.00	1.94	0.00	65.31	223.00
	3978.000	230.00	850.22	0.00	1.36	0.00	60.41	223.00
	3978.000	230.00	850.22	0.00	1.36	0.00	60.41	223.00
	4227.000	230.00	851.90	0.00	1.68	0.00	59.63	249.00
	4227.000	230.00	851.90	0.00	1.68	0.00	59.63	249.00
	4476.000	230.00	853.61	0.00	1.71	0.00	59.97	249.00
	4476.000	230.00	853.61	0.00	1.71	0.00	59.97	249.00
	4725.000	230.00	855.25	0.00	1.65	0.00	61.56	249.00
	4725.000	230.00	855.25	0.00	1.65	0.00	61.56	249.00
	4979.000	230.00	856.25	0.00	0.99	0.00	112.00	254.00
	4979.000	230.00	856.25	0.00	0.99	0.00	112.00	254.00
*	5179.000	230.00	857.52	0.00	1.27	0.00	23.00	200.00
*	5179.000	230.00	857.52	0.00	1.27	0.00	23.00	200.00
	5180.000	230.00	858.19	0.00	0.68	0.00	23.00	1.00
	5180.000	230.00	858.19	0.00	0.68	0.00	23.00	1.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	5194.000	230.00	858.22	0.00	0.03	0.00	23.00	14.00
	5195.000	230.00	858.28	0.00	0.06	0.00	23.00	1.00
	5195.000	230.00	858.28	0.00	0.06	0.00	23.00	1.00
	5295.000	160.00	858.95	0.00	0.67	0.00	100.00	100.00
	5295.000	160.00	858.95	0.00	0.67	0.00	100.00	100.00
	5395.000	160.00	859.83	0.00	0.89	0.00	100.00	100.00
	5395.000	160.00	859.83	0.00	0.89	0.00	100.00	100.00
	5526.000	160.00	862.13	0.00	2.30	0.00	102.46	131.00
	5526.000	160.00	862.21	0.07	2.37	0.07	70.33	131.00
	5657.000	160.00	863.90	0.00	1.77	0.00	103.55	131.00
	5657.000	160.00	864.03	0.13	1.83	0.13	72.08	131.00
	5788.000	160.00	865.55	0.00	1.65	0.00	102.71	131.00
	5788.000	160.00	865.64	0.09	1.60	0.09	70.85	131.00
	5919.000	160.00	867.22	0.00	1.67	0.00	103.86	131.00
	5919.000	160.00	867.34	0.12	1.70	0.12	72.66	131.00
	6140.000	160.00	869.50	0.00	2.28	0.00	75.08	221.00
	6140.000	160.00	869.60	0.11	2.26	0.11	44.29	221.00
*	6190.000	160.00	872.18	0.00	2.69	0.00	128.83	50.00
*	6190.000	160.00	872.29	0.11	2.69	0.11	101.73	50.00
	6275.000	160.00	872.19	0.00	0.01	0.00	78.69	85.00
	6275.000	160.00	872.30	0.10	0.01	0.10	47.61	85.00
	6391.000	160.00	872.18	0.00	-0.01	0.00	13.00	116.00

	6391.000	160.00	872.29	0.11	-0.01	0.11	13.00	116.00
	6482.000	160.00	873.61	0 00	1 43	0.00	13.00	91.00
	6482.000	160.00	873.71	0.11	1.43	0.11	13.00	91.00
	6543.000	160.00	873.64	0.00	0.04	0.00	13.00	61.00
	6543.000	160.00	873.75	0.11	0.03	0.11	13.00	61.00
	6743.000	160.00	874.49	0.00	0.85	0.00	116.59	200.00
	6743.000	160.00	874.55	0.06	0.81	0.06	51 96	200.00
*	6945.000	160.00	876.20	0.00	1.71	0.00	76.66	202.00
*	6945.000	160.00	876.23	0.03	1.68	0.03	76.00	202.00
	7147.000	160 00	879.11	0 00	2.91	0.00	100 22	202.00
	7147.000	160.00	879.13	0.03	2.90	0.03	43.51	202.00

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13 FEB 89 10:33:34 PAGE 70

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	7362.000	160.00	881.01	0.00	1.90	0.00	94.78	215.00
	7362.000	160.00	881.14	0.13	2.00	0.13	40.90	215.00
	7577.000	160.00	883.06	0.00	2.05	0.00	97.84	215.00
	7577.000	160.00	883.15	0 09	2.01	0.09	42.34	215.00
	7896.000	160 00	885.70	0.00	2.64	0.00	9 00	319.00
	7896 000	160 00	885.78	0.08	2.63	0.08	9.00	319.00
	7897.000	160.00	885.71	0.00	0.01	0.00	7.20	1.00
	7897.000	160.00	885.79	0.08	0.01	0.08	7.20	1.00
	7962.000	160.00	886.16	0.00	0.45	0.00	7.20	65.00
	7962.000	160.00	886.22	0.06	0.43	0.06	7.20	65.00
	7963.000	160.00	886.49	0.00	0.33	0.00	9.00	1.00
	7963.000	160 00	886.54	0.06	0.33	0.06	9.00	1.00
	8043.000	160.00	886.93	0.00	0.45	0.00	180.77	80.00
	8043.000	160.00	886.98	0.04	0.43	0.04	135.64	80.00
	8224.000	160.00	886.96	0 00	0.03	0.00	138.70	181.00
	8224.000	160.00	887 01	0.05	0.03	0.05	105.55	181.00
*	8405.000	160.00	887.48	0 00	0.52	0.00	113.67	181.00
*	8405.000	160.00	887.57	0.09	0.56	0.09	68.63	181.00
	8465.000	160.00	888.29	0 00	0.81	0.00	119.43	60.00
	8465.000	160.00	888.43	0.14	0.86	0.14	85.38	60.00
	8525.000	160.00	888.69	0.00	0.40	0.00	116.69	60.00
	8525 000	160 00	888.80	0 11	0.37	0.11	81.17	60.00
	8587.000	160 00	889.19	0.00	0.50	0.00	116.62	62.00
	8587.000	160.00	889.29	0.10	0.49	0.10	80.16	62.00
	9091 000	160.00	891.93	0.00	2.74	0.00	123.38	504.00
	9091.000	160.00	891.96	0.03	2.66	0.03	123.75	504.00
	9411.000	160.00	894.15	0.00	2.22	0.00	10.00	320.00
	9411.000	160.00	894.09	-0 06	2.13	-0.06	10.00	320.00
	9412.000	160 00	893.91	0 00	-0.24	0.00	9.00	1.00

9412.000	160.00	893.82	-0.09	-0.27	-0.09	9.00	1.00
* 9430.000	160.00	894.12	0.00	0.21	0.00	9.00	18.00
* 9430.000	160.00	894 12	0.00	0.30	0 00	9.00	18.00
9431 000	160.00	895.41	0.00	1.29	0.00	10.00	1.00
9431.000	160.00	895 41	0.00	1.29	0.00	10.00	1 00

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13 FE3 89 10:33:34 PAGE 71

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
9581.000	160.00	896.19	0.00	0.78	0.00	55.44	150.00
9581.000	160.00	896.19	0.00	0.78	0.00	55.44	150.00
10280.000	160.00	898 47	0.00	2.28	0.00	117.85	699.00
10280.000	160 00	898.47	0.00	2.28	0.00	117.85	699.00
11080.000	160.00	902 24	0.00	3.77	0.00	49.71	800.00
11080 000	160.00	902.24	0.00	3.77	0.00	49.71	800.00
11120.000	160.00	906.69	0.00	4.45	0.00	84.00	40.00
11120.000	160.00	906.69	0.00	4.45	0.00	162.76	40.00
11795 000	160.00	906.69	0.00	0.00	0.00	240.00	675.00
11795.000	160.00	906.69	0.00	0.00	0.00	210.00	675.00
11895.000	160.00	906.90	0.00	0.20	0.00	240.00	100.00
11895.000	160.00	906.92	0.02	0.23	0.02	210.00	100.00
11995.000	160 00	907.32	0.00	0.43	0.00	240.00	100.00
11995.000	160.00	907.35	0 03	0.43	0.03	210.00	100.00
12095.000	160.00	907.82	0.00	0.50	0.00	240 00	100.00
12095.000	160.00	907 85	0.03	0.50	0.03	210.00	100.00
12195.000	160.00	908.32	0.00	0.50	0.00	240.00	100.00
12195.000	160.00	908.34	0.02	0.49	0.02	240.00	100.00
12595.000	160.00	910.86	0.00	2.54	0.00	95.00	400.00
12595.000	160.00	910.84	-0.03	2.50	-0.03	95.00	400.00
13155.000	160.00	915.12	0.00	4.26	0.00	60.00	560.00
13155.000	160.00	915.26	0.14	4.42	0.14	50.08	560.00
13620.000	160.00	917.58	0.00	2.46	0.00	195.00	465.00
13620.000	160 00	917.69	0.11	2.43	0.11	123.03	465.00
14029 000	160.00	919.95	0.00	2.36	0.00	156.52	409 00
14029.000	160.00	920.02	0.07	2.33	0 07	70.41	409.00
14634.000	160.00	924.35	0.00	4.41	0.00	120.02	605.00
14634.000	160.00	924.47	0.12	4.46	0.12	97.68	605.00
15238 000	160.00	928.74	0 00	4.39	0.00	159.67	604.00
15238.000	160 00	928.82	0 08	4.35	0.08	103.01	604.00
15988.000	160.00	934.17	0.00	5.43	0.00	101.23	750.00
15988.000	160.00	934.29	0.12	5.47	0.12	80.37	750.00
16738.000	160.00	940 35	0.00	6.18	0 00	61.47	750.00
16738.000	160.00	940.44	0.09	6.15	0.09	43.25	750 00

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	17638.000	160.00	950.39	0.00	10.04	0.00	109.26	900.00
	17638.000	160.00	950.52	0.14	10.08	0 14	39.61	900.00
	18038.000	160.00	954.30	0.00	3.91	0.00	84.69	400.00
	18038 000	160.00	954.40	0.10	3.88	0.10	28.15	400.00
	18240.000	160.00	956.49	0.00	2.19	0.00	90.00	202.00
	18240.000	160.00	956.62	0.13	2.21	0.13	49.74	202.00
*	18513.000	160.00	960.76	0.00	4.27	0.00	178.07	272.00
*	18513.000	160.00	960.75	-0.01	4.13	-0.01	71.04	272.00
*	18557.000	160.00	961.37	0.00	0.61	0.00	179.33	44.00
	18557.000	160.00	961.36	-0.01	0.61	-0.01	72.09	44.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 2700.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2700.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2700.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2700.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2700 000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2700.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 5179.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 5179 000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 5179 000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 5179.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 5179.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 5179 000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 6190.000 PROFILE= 1 HYDRAULIC JUMP D.S.
CAUTION SECNO= 6190.000 PROFILE= 2 HYDRAULIC JUMP D.S.

CAUTION SECNO= 6945.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 6945.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 6945.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 6945 000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 8405.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 8405.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 8405.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 8405.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 9430.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9430.000 PROFILE= 1 MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 9430 000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 9430.000 PROFILE= 2 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 18513.000 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 18513.000 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 18513.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 18513.000 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 18513.000 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 18513.000 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 18557.000 PROFILE= 1 WSEL ASSUMED BASED ON MIN DIFF
CAUTION SECNO= 18557.000 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL

FLOODWAY DATA, THORNTON CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
1560.000	107.	132.	1.7	834.3	834.3	0.0
1760.000	84.	117.	2.0	834.9	834.8	0.1
1960.000	65.	106.	2.2	835.7	835.6	0.1
2160 000	28.	58.	4.0	836 7	836.6	0.1
2328.000	30.	55.	4.2	837 9	837.9	0.0
2495.000	58.	132.	1.7	838.7	838.7	0.0
2496.000	58.	117.	2.0	838.7	838.7	0.0
2502.000	58	117.	2.0	838.7	838.7	0.0
2503.000	58.	132.	1.7	838.7	838.7	0.0
2560.000	58	137.	1.7	838.8	838.8	0.0
2600.000	41	119.	1.9	838.8	838.8	0.0
2639.000	21.	62.	3.7	838.8	838.8	0.0
2640.000	21.	34.	6.7	838.6	838.6	0.0
2692.000	21.	42.	5.4	839.4	839.4	0.0
2693.000	32.	58.	4.0	839.7	839.7	0.0
2700.000	53.	56.	4.1	840.4	840.4	0.0
2760.000	54.	81.	2.8	841.5	841.5	0.0
2820.000	54.	73.	3 1	841 9	841.9	0.0
2880 000	54.	72.	3.2	842.5	842.5	0 0
3091.000	21	57.	4.0	844.3	844.3	0.0
3092 000	21.	78.	2.9	844.4	844.4	0.0
3178.000	21.	71.	3.2	844.5	844.5	0.0
3179 000	21.	51.	4.5	844 5	844.5	0.0
3309 000	137	105.	2.2	845.4	845.4	0.0
3532.000	49.	56.	4.1	846 9	846.9	0.0
3755.000	65.	82.	2.8	848.9	848.9	0 0
3978.000	60.	73.	3.1	850.2	850.2	0 0
4227.000	60.	72.	3.2	851.9	851.9	0.0
4476 000	60.	73	3.2	853.6	853.6	0.0
4725.000	62.	75.	3.0	855.3	855.3	0 0
4979.000	112.	209.	1.1	856.2	856.2	0.0
5179.000	23.	33.	6.9	857.5	857.5	0.0
5180.000	23.	60.	3.9	858.2	858.2	0.0
5194.000	23.	58.	3.9	858.2	858 2	0.0
5195 000	23	64.	3.6	858 3	858.3	0.0
5295 000	100	107.	1.5	858.9	858.9	0.0
5395.000	100.	65.	2.4	859.8	859.8	0.0
5526.000	70.	63.	2 5	862.2	862.1	0.1
5657.000	72.	73.	2.2	864.0	863 9	0 1
5788 000	71.	66.	2.4	865.6	865.5	0.1
5919 000	73.	75.	2.1	867.3	867 2	0.1
6140.000	44.	81	2.0	869 6	869 5	0.1

FLOODWAY DATA, THORNTON CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
6190.000	102.	347.	0.5	872.3	872.2	0.1
6275.000	48.	201.	0.8	872.3	872.2	0.1
6391.000	13.	55.	2.9	872.3	872.2	0.1
6482.000	13.	66.	2.4	873.7	873.6	0.1
6543.000	13.	54.	3.0	873.7	873.6	0.1
6743.000	52.	88.	1.8	874.6	874.5	0.1
6945.000	76.	56.	2.8	876.2	876.2	0.0
7147.000	44.	63.	2.5	879.1	879.1	0.0
7362.000	41.	61.	2.6	881.1	881.0	0.1
7577.000	42.	63.	2.5	883.2	883.1	0.1
7896.000	9.	34.	4.7	885.8	885.7	0.1
7897.000	7.	28.	5 7	885.8	885.7	0.1
7962.000	7.	28.	5.6	886.3	886.2	0 1
7963.000	9.	38.	4.2	886.6	886.5	0.1
8043 000	136.	387.	0.4	886 9	886.9	0.0
8224.000	106.	170.	0.9	887.0	887 0	0.0
8405.000	69.	55.	2.9	887 6	887.5	0.1
8465.000	85.	94	1.7	888.4	888.3	0.1
8525.000	81	80.	2.0	888.8	888.7	0.1
8587.000	80.	78	2.0	889.3	889.2	0.1
9091.000	124.	121.	1.3	891.9	891.9	0.0
9411.000	10.	26.	6.1	894.1	894.1	0.0
9412 000	9.	19.	8.6	893.9	893 9	0.0
9430.000	9.	18.	8.7	894.1	894.1	0.0
9431.000	10.	36.	4.5	895 4	895.4	0 0
9581.000	55.	107.	1.5	896.2	896.2	0.0
10280.000	583.	64.	2.5	898.5	898.5	0.0
11080 000	50.	34.	4.7	902.2	902.2	0.0
11120 000	421.	456.	0.4	906.7	906.7	0.0
11795 000	210.	234.	0.7	906 7	906.7	0.0
11895 000	210.	176.	0.9	906.9	906.9	0.0
11995 000	210.	162.	1.0	907.3	907.3	0 0
12095.000	210.	162.	1.0	907.8	907.8	0.0
12195.000	240.	173.	0.9	908.3	908.3	0.0
12595.000	95.	93.	1.7	910.9	910.9	0.0
13155.000	50.	74.	2 2	915.2	915.1	0.1
13620 000	123.	134.	1.2	917.7	917.6	0.1
14029.000	70.	72.	2.2	920.0	919 9	0.1
14634.000	98.	126.	1.3	924.5	924.4	0.1
15238 000	103.	95.	1.7	928.8	928.7	0.1
15988 000	80.	105.	1.5	934.3	934.2	0.1
16738.000	43.	49.	3.3	940.5	940.4	0.1

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FLOODWAY DATA, THORNTON CREEK
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
17638.000	40	61	2.6	950.5	950.4	0.1

18C36.000	28	39.	4.1	954.4	954.3	0.1
18240 000	50.	82.	2.0	956.6	956.5	0.1
18513.000	71.	43.	3.7	960.8	960.8	0.0
18557 000	72.	44.	3.6	961 4	961 4	0.0

THIS RUN EXECUTED 13 FEB 89 10.34:30

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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
**************************************************

EJ
```

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI CITY of

3) WATERCOURSE: THORNTON CREEK

4) DOCUMENT TYPE: SUMMARY —
10 YR FROM C&O + NOVI RD

00BREAK00

THIS RUN EXECUTED 22 SEP 87 11:58:07

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**********************************************************
  HEC2 RELEASE DATED NOV 74 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
**********************************************************
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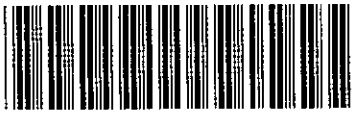
NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

THORNTON CREEK 46-01

SUMMARY PRINTOUT

	CWSEL	DEPTH	CRIWS	EG	HV	HL	OLOSS
	818.760	1.66	0.00	818.92	0.16	0.00	0.00
	819.000	1.90	0.00	819.19	0.19	0.00	0.00
	820.080	2.98	0.00	820.15	0.07	0.00	0.00
	825.120	8.02	0.00	825.12	0.00	0.00	0.00
	820.854	2.05	0.00	820.88	0.02	1.91	0.04
	821.113	2.31	0.00	821.14	0.03	1.90	0.05
	821.229	2.43	0.00	821.26	0.03	1.10	0.01
	825.150	6.35	0.00	825.15	0.00	0.03	0.00
	822.174	1.67	0.00	822.22	0.04	1.33	0.01
	822.390	1.89	0.00	822.44	0.05	1.29	0.01
	822.489	1.99	0.00	822.54	0.05	1.27	0.01
	825.192	4.69	0.00	825.20	0.01	0.04	0.00
	824.056	1.84	0.00	824.07	0.03	1.85	0.00
	824.236	2.04	0.00	824.27	0.04	1.83	0.00
	824.322	2.12	0.00	824.36	0.04	1.82	0.00
	825.343	3.14	0.00	825.36	0.02	0.16	0.01
	825.682	1.78	0.00	825.72	0.03	1.65	0.00
	825.905	2.01	0.00	825.95	0.04	1.67	0.00
	826.002	2.10	0.00	826.05	0.04	1.68	0.00
	826.127	2.23	0.00	826.18	0.06	0.80	0.02
	826.322	1.32	0.00	826.33	0.01	0.60	0.01
	826.534	1.53	0.00	826.54	0.01	0.59	0.01
	826.627	1.63	0.00	826.64	0.01	0.58	0.01
	826.794	1.79	0.00	826.80	0.01	0.61	0.01
	826.916	0.91	0.00	826.93	0.01	0.60	0.00
	827.033	1.08	0.00	827.10	0.02	0.55	0.00
	827.169	1.16	0.00	827.18	0.02	0.54	0.00
	827.310	1.31	0.00	827.33	0.02	0.52	0.00

CHSEL	DEPTH	TRIMS	EN	HV	HL	CLOSS
828.013	1.01	0.00	828.02	0.01	1.09	0.00
828.145	1.14	0.00	828.16	0.01	1.06	0.00
828.300	1.29	0.00	828.32	0.02	1.04	0.00
828.316	1.32	0.00	828.34	0.02	1.01	0.00
828.638	0.94	0.00	828.65	0.01	0.63	0.00
828.777	1.08	0.00	828.79	0.02	0.63	0.00
828.841	1.14	0.00	828.86	0.02	0.64	0.00
828.964	1.26	0.00	828.98	0.02	0.65	0.00
829.809	1.11	0.00	829.82	0.01	1.16	0.00
829.951	1.25	0.00	829.96	0.01	1.17	0.00
830.021	1.32	0.00	830.03	0.01	1.17	0.00
830.155	1.46	0.00	830.17	0.01	1.18	0.00
830.749	1.05	0.00	830.76	0.01	0.94	0.00
830.907	1.21	0.00	830.92	0.01	0.96	0.00
830.972	1.27	0.00	830.99	0.01	0.95	0.00
831.115	1.41	0.00	831.13	0.02	0.96	0.00
832.592	1.89	0.00	832.88	0.29	1.98	0.14
832.783	2.08	0.00	833.16	0.37	2.06	0.18
832.854	2.15	0.00	833.28	0.42	2.09	0.20
825.004	2.30	0.00	833.51	0.51	2.13	0.25
834.391	2.89	0.00	833.47	0.08	1.53	0.06
834.736	3.24	0.00	834.83	0.09	1.58	0.09
834.885	3.39	0.00	834.98	0.10	1.61	0.10
835.164	3.66	0.00	835.27	0.11	1.64	0.12

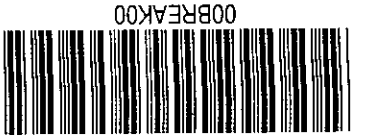


1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY OF

3) WATERCOURSE: THORNTON RIVER

4) DOCUMENT TYPE: 100 YR - 1984 RUN



Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
*SECNO 18513.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
TEN MILE ROAD

18513.00	5.53	960.73	960.73	0.00	960.89	0.16	0.72	0.03	960.20
140.	24.	58.	58.	15.	13.	33.	36.	37.	960.20
2.31	1.53	4.58	1.74	0.015	0.013	0.015	0.000	955.20	340.69
0.001402	272.	272.	272.	20	28	0	0.00	171 14	511.83

0

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	1.60	2.60	0.00	2 50	0 00	4.90	0.00	955.20	955.20

*SECNO 18557.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	HB	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
981.01	963.13	0.00	114.	26.	5.	8.	958.30	960.80

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF

18557.00	5.56	961.36	0.00	0.00	961.49	0.13	0.00	0.00	960.80
140.	20.	54.	61.	17.	13.	36.	36.	37.	960.80
2.32	1.45	4.22	1.68	0.015	0.013	0.015	0.000	955.80	337.70
0.001185	44	44.	44	20	0	10	0.00	176.60	514.30

0
1

THIS RUN EXECUTED 13 FEB 89 10:29:28

****
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 CITY OF NOVI JOB NO. 5555-46-01
T2 100 YEAR FLOOD
T3 THORNTON CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	4.	0.	0.	0.002400	0.00	0.0	0.	834.880	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

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 0.300 CEHV= 0.500

*SECNO 1560 000

1560 00	2.68	834.18	0.00	834.88	834.24	0.05	0.00	0.00	833.40
200	45.	155.	0.	86	73.	0.	0.	0.	834.10
0.00	0.53	2.12	0.09	0.100	0.050	0.100	0.000	831.50	137.93
0.002372	0.	0.	0.	0	0	7	0.00	194 99	332.92

0

*SECNO 1760 000

1760.00	2.76	834.73	0.00	0.00	834.81	0.08	0.56	0.01	833.87
200.	50	150.	0.	72.	56.	0.	1.	1.	834.57
0.03	0.69	2.66	0.17	0 100	0.050	0.100	0.000	831.97	96.85
0.003574	180.	200.	243.	2	0	0	0.00	152.23	249.08

0

*SECNO 1960.000

1960.00	3.05	835.49	0.00	0.00	835.60	0.11	0.77	0.01	834.34
200.	64.	135.	1.	70.	42.	2.	1.	1.	835.04
0.05	0.91	3.20	0 36	0 100	0.050	0.100	0.000	832.44	50.52
0.004395	180.	200.	243.	2	0	0	0.00	117.85	168.37

0

*SECNO 2160.000

2160 00	3.54	836.44	0.00	0.00	836.77	0.33	1.06	0.11	834 50
200.	10.	188.	2.	9.	40.	2.	2.	2.	835.70
0.06	1.19	4.75	0.63	0.100	0.050	0.100	0.000	832.90	116.05
0.006839	180.	200.	244.	2	0	0	0.00	28.40	144.45

0

*SECNO 2328.000

2328.00	3 44	837.64	0.00	0.00	838.00	0.36	1.22	0.01	835.80
200	10.	189.	1.	8.	38.	2.	2.	2.	837.00
0.07	1.22	4.94	0.61	0.100	0.050	0.100	0.000	834.20	116.50
0.007728	148.	168.	238.	2	0	0	0.00	27.09	143.59

0

*SECNO 2495.000

2495.00	2 97	838.47	0.00	0.00	838.52	0.04	0.42	0.09	843.20
200.	0.	200	0.	0.	118.	0.	2.	2.	841.20
0.10	0.00	1 70	0.00	0.000	0.050	0.000	0.000	835.50	89.63
0 001244	147.	167	237.	3	0	0	0.00	56.47	146.10

0

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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

*SECNO 2496 000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 21 MIN ELTRD= 840.00 MAX ELLC= 840.20

```
          FOOTBRIDGE
  2496.00     2.97   838.47     0.00     0.00   838.53     0.06     0.00     0.01   843.20
   200.         0.     200.       0.       0.     105.       0.       2.       2.    841.20
     0.10     0.00     1.91     0.00    0.000    0.020    0.000    0.000   835.50    89.71
 0.000350       1.       1.       1.        0        0        0     0.00    50.76   146.47
0
 *SECNO 2502.000

 3265 DIVIDED FLOW


 3370 NORMAL BRIDGE, NRD= 21 MIN ELTRD=  840.00 MAX ELLC=  840.20

  2502.00     2.97   838.47     0.00     0.00   838.53     0.06     0.00     0.00   843.20
   200          0.     200.       0.       0.     104.       0.       2.       2.    841.20
     0.10     0.00     1.92     0.00    0.000    0.020    0.000    0.000   835.50    89.72
 0.000353       6.       6        6.        0        0        0     0.00    50.73   146.45
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 2503.000
  2503.00     2.99   838.49     0.00     0.00   838.53     0.04     0.00     0.00   843.20
   200.         0      200.       0.       0.     118.       0.       2.       2.    841.20
     0.10     0.00     1.69     0 00    0.000    0.050    0.000    0.000   835.50    89.62
 0.001236       1.       1.       1.        1        0        0     0.00    56.50   146.12
0
 *SECNO 2560.000
  2560.00     3.06   838.56     0.00     0.00   838.60     0.04     0.07     0.00   843.20
   200.         0.     200.       0.       0.     122.       0.       2        2.    841.20
     0.11     0.00     1.63     0.00    0 000    0.050    0.000    0.000   835.50    89.46
 0.001104      57.      57.      57.        2        0        0     0.00    56.98   146.43
0
1
  13 FEB 89     10:28:33                                                          PAGE    56


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 2600.000

 3470 ENCROACHMENT STATIONS=      98.0      139.0  TYPE=      1  TARGET=      41.000
  2600.00     3.10   838.60     0.00     0.00   838.65     0.05     0.05     0.01100000.00
   200.         0.     200.       0.       0.     109.       0.       2.       2. 100000.00
     0.11     0.00     1.83     0.00    0 000    0.050    0.000    0.000   835.50    98.00
 0.001159      40.      40.      40.        0        0        0     0.00    41.00   139.00
0
 *SECNO 2639.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=      845.50 ELREA=      845.50

  2639.00     1.82   838 52     0.00     0.00   838.95     0.42     0.11     0.19   836.70
   200.         0.     200.       0.       0.      38.       0.       2.       2.    836.70
     0.12     0.00     5.23     0.00    0.000    0.050    0.000    0.000   836.70   388.00
 0.013894      39.      39.      39.        2        0        0     0.00    21.00   409.00
0
 CCHV=   0.300 CEHV=   0 500
 *SECNO 2640.000

 3265 DIVIDED FLOW


 3370 NORMAL BRIDGE, NRD= 15 MIN ELTRD=  845.50 MAX ELLC=  844.10
```

NINE MILE ROAD

2640.00	1.71	838.41	0.00	0 00	839.09	0.68	0.01	0.13	845.10
200.	0.	200.	0.	0.	30.	0.	2.	2.	845.20
0.12	0.00	6.62	0.00	0.000	0.032	0.000	0.000	836 70	110.00
0.014776	1	1.	1.	2	0	0	0.00	20.00	131.00

0
*SECNO 2692.000

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 15 MIN ELTRD= 845.50 MAX ELLC= 844.50

2692.00	2.17	839.27	0.00	0 00	839.67	0.40	0.50	0.08	845.50
200.	0.	200.	0	0.	39.	0.	2.	2.	845.60
0.12	0.00	5.07	0.00	0.000	0.032	0.000	0.000	837.10	110.00
0.006709	52.	52.	52.	2	0	0	0.00	20.00	131.00

0
1
13 FEB 89 10:28:33 PAGE 57

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
*SECNO 2693.000

2693.00	2.39	839 49	0.00	0.00	839.73	0.23	0.01	0.05	843.80
200.	0.	200.	0.	0.	51.	0.	2.	2.	844.80
0.12	0.00	3 89	0.00	0.000	0.050	0.000	0.000	837.10	382.07
0.008915	1.	1.	1.	3	0	0	0.00	30.85	412.92

0
*SECNO 2700 000
3685 20 TRIALS ATTEMPTED WSEL, CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 30.0 180.0 TYPE= 1 TARGET= 150.000

2700.00	3.10	840.30	840.30	0.00	840.82	0 52	0.09	0.14	840.90
200.	0.	161.	39.	0.	25	25.	2	2.	839.30
0.12	0.00	6.39	1.56	0.000	0.050	0.100	0.000	837.20	127.29
0.020948	9.	7.	3.	20	11	0	0.00	52.71	180.00

0
*SECNO 2760.000

3470 ENCROACHMENT STATIONS= 30.0 180.0 TYPE= 1 TARGET= 150.000

2760 00	3.53	841.33	0 00	0.00	841.56	0.23	0.66	0.09	841.50
200.	0	140.	60	0.	31.	42.	2.	2.	839.90
0.12	0.00	4.51	1.42	0 000	0.050	0.100	0.000	837.80	126.36
0.008755	74.	60.	24.	2	0	0	0.00	53.64	180.00

0
*SECNO 2820.000

3470 ENCROACHMENT STATIONS= 30.0 180.0 TYPE= 1 TARGET= 150.000

2820.00	3.40	841 80	0.00	0.00	842.09	0.29	0.49	0.03	842.10
200.	0.	146.	54.	0	29.	37.	3.	2.	840.50
0.13	0.00	5.00	1.48	0.000	0.050	0.100	0.000	838.40	126.65
0 011327	74.	60.	24.	3	0	0	0.00	53.35	180.00

0
*SECNO 2880 000

3470 ENCROACHMENT STATIONS= 30.0 180.0 TYPE= 1 TARGET= 150.000

2880.00	3 38	842.38	0.00	0.00	842.68	0.30	0.58	0.01	842.70

```
     200.        0.      147.       53.        0.       29.       36.        3         2.     841.10
     0.13      0.00      5.08      1.49     0.000     0.050     0.100     0.000    839.00    126.70
  0.011800      75.       60.       25.         2         0         0      0.00     53.30    180 00
0
1
  13 FEB 89     10:28:33                                                                                PAGE    58

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 3091.000
 3280 CROSS SECTION   3091 00 EXTENDED      2.61 FEET

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      849.10 ELREA=      849.10

   3091.00      3.71    844.01      0.00      0.00    844.24      0.23      1.54      0.02    842.40
      200.        0.      200.        0.        0.       52.        0.        3.        2.     843.30
      0.14      0 00      3.83      0.00     0.000     0.050     0.000     0.000    840.30    174.00
  0.005161      281.      211.      171.         3         0         0      0.00     21.00    195.00
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 3092.000

 3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  849.10 MAX ELLC=  847.80

             NOVI ROAD
   3092.00      3.86    844 16      0.00      0.00    844.28      0.11      0.00      0.03    850.90
      200.        0.      200         0.        0.       74.        0.        3.        2.     850.50
      0.14      0.00      2.72      0.00     0 000     0.032     0.000     0.000    840.30     90.00
  0.001210        1.        1.        1.         2         0         0     -0.54     21 00    111.00
0
 *SECNO 3178.000

 3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  849.10 MAX ELLC=  848.30

   3178.00      3.46    844.26      0.00      0.00    844.41      0.14      0.12      0.01    851.40
      200.        0.      200         0.        0.       66.        0.        3.        2.     851.00
      0.15      0.00      3.04      0.00     0.000     0.032     0.000     0.000    840.80     90.00
  0.001562       86.       86.       86.         2         0         0      0.00     21.00    111.00
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 3179.000
 3280 CROSS SECTION   3179.00 EXTENDED      2.29 FEET

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      849.10 ELREA=      849.10

   3179.00      3.39    844.19      0.00      0.00    844.49      0.30      0.00      0.08    842.90
      200.        0.      200         0.        0.       45         0.        3         2.     843.80
      0.15      0.00      4.41      0.00     0.000     0.050     0.000     0.000    840.80    174.00
  0.008229        1.        1.        1.         2         0         0      0.00     21.00    195.00
0
1
  13 FEB 89     10.28:33                                                                                PAGE    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
```

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 *SECNO 3309.000
 3280 CROSS SECTION    3309.00 EXTENDED      2.40 FEET


 3470 ENCROACHMENT STATIONS=       60.0      320.0  TYPE=      1  TARGET=      260.000
   3309.00      3.50    845.20      0.00      0.00    845.42      0.22      0.90      0.03    843.80
      200.        6.       185.       10.        6.       48.       21.        3.        3.     844.70
      0.16      0.90      3.87      0.46     0.100     0.050     0.100     0.000    841.70    165.24
  0.005930       130.      130.      130.         3         0         0      0.00    113.50    278.73
0
 *SECNO 3532.000
   3532.00      3.53    846.83      0.00      0.00    847 14      0.32      1.67      0.05    855.00
      200.        0.       191.        9.        0.       41.       11.        4.        3.     846.00
      0.18      0.00      4.62      0.82     0.000     0.050     0.100     0.000    843.30     79.95
  0.009878       213.      223.      213.         1         0         0      0.00     46.83    126.78
0
 *SECNO 3755.000
   3755.00      3.84    848.64      0.00      0.00    848.85      0.21      1.68      0.03    856.50
      200.        0       183.       17.        0.       48.       21.        4.        3.     847.50
      0.19      0.00      3.85      0.79     0.000     0.050     0.100     0.000    844 80     79.19
  0.005953       213.      223.      213.         2         0         0      0.00     57.64    136.83
0
 *SECNO 3978.000
   3978.00      3.75    850 05      0.00      0.00    850.29      0.24      1.43      0.01    858.00
      200.        0.       186.       14.        0.       46.       18.        4.        4.     849.00
      0.21      0.00      4.07      0.80     0.000     0.050     0.100     0.000    846.30     79.43
  0.006945       213.      223.      213.         2         0         0      0.00     54.27    133.70
0
 *SECNO 4227.000
   4227 00      3.74    851.74      0.00      0.00    851.98      0.24      1.69      0.00    859.70
      200.        0.       186.       14.        0.       45.       17        4.        4.     850 70
      0.23      0.00      4.09      0.80     0.000     0 050     0.100     0.000    848.00     79.45
  0.007053       148.      249.      132.         3         0         0      0.00     53.94    133.39
0
 *SECNO 4476.000
   4476.00      3.74    853.44      0.00      0.00    853.68      0.24      1.70      0.00    861.40
      200.        0.       186.       14.        0.       45.       17.        5.        4.     852.40
      0.24      0.00      4.09      0.80     0.000     0.050     0.100     0.000    849.70     79.45
  0 007045       148.      249.      132.         3         0         0      0.00     53.96    133.41
0
1
  13 FEB 89    10:28:33                                                                  PAGE    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


 *SECNO 4725.000

 3470 ENCROACHMENT STATIONS=        0.0      200.0  TYPE=      1  TARGET=      199.999
   4725.00      3.78    855.08      0.00      0.00    855.31      0.23      1.63      0.00    863.00
      200.        0.       185.       15.        0.       46.       19.        5.        4.     854.00
      0.26      0.00      3.98      0.80     0.000     0.050     0.100     0.000    851.30     79.33
  0.006519       148.      249.      132.         3         0         0      0.00     55 65    134.98
0
 *SECNO 4979.000

 3470 ENCROACHMENT STATIONS=       220.0      332.0  TYPE=      1  TARGET=      112.000
   4979.00      3.07    856.07      0 00      0.00    856.10      0.03      0.73      0.06    854.80
      200.       55.        85.       60.       69.       46.       74.        6.        5.     854.40
      0.32      0 78      1.85      0.81     0.100     0.050     0.100     0.000    853.00    220.00
  0 001603       254.      254       254.         3         0         0      0.00    112.00    332.00
```

```
0
 *SECNO 5179.000

 3301 HV CHANGED MORE THAN HVINS

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      859.50 ELREA=      859.50

   5179.00      2.39    857.39    857.39      0.00    858.07      0.68      0.87      0.33    856 80
      200.        0.      200.        0.        0.      30.        0.        6.        5.     856.40
      0.33      0.00      6.62      0.00     0.000     0.050     0.000     0.000    855.00    264.00
  0.035873      200.      200.      200.        20        19         0      0.00     23.00    287.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 5180.000

 3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  858.59 MAX ELLC=  858.20

            DRIVEWAY
   5180.00      3.04    858.04      0.00      0.00    858.22      0.18      0.00      0.15    858.50
      200.        0.      200.        0.        0.      59.        0.        6.         5     858.50
      0.33      0.00      3.42      0.00     0.000     0.020     0.000     0.000    855.00    288.00
  0.001528         1.        1.        1.         3         0         0     -2 57     23.00    311.00
0
1
  13 FEB 89    10:28:33                                                                    PAGE    61

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 5194.000

 3265 DIVIDED FLOW


 3370 NORMAL BRIDGE,NRD= 15 MIN ELTRD=  858.59 MAX ELLC=  858.40

   5194.00      2.86    858.06      0.00      0.00    858.25      0.20      0.02      0.01    858.70
      200.        0.      200         0.        0.      56.        0.        6.         5.     858.70
      0.33      0.00      3.55      0.00     0.000     0.020     0.000     0.000    855.20    288.00
  0.001649       14.       14        14.         2         0         0     -0.52     22.67    311.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 5195.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      859.00 ELREA=      859.00

   5195.00      2.85    858.05      0.00      0.00    858.27      0.22      0.00      0.01    856.20
      200.        0.      200.        0.         0      53.        0.        6          5.     855.80
      0.33      0.00      3.78      0.00     0.000     0.050     0.000     0.000    855.20    264.00
  0.005394         1.        1.        1.         1         0         0      0.00     23.00    287.00
0
 *SECNO 5295 000

 3470 ENCROACHMENT STATIONS=      225.0      325.0  TYPE=      1  TARGET=      100.000
   5295.00      2.34    858.84      0.00      0.00    858.92      0.08      0.61      0.04    858.30
      160.        34.       85.       41.       32.       29.       35.        7.        5.     857.90
      0.34      1.07      2.89      1.17     0.100     0.050     0.100     0.000    856.50    225.00
  0.007095       100.      100.      100.         2         0         0     0 00     100.00    325.00
```

```
0
 *SECNO 5395.000

 3470 ENCROACHMENT STATIONS=      225.0      325.0  TYPE=      1  TARGET=      100.000
   5395.00      2.08    859.88      0.00      0.00    860.04      0.16      1.08      0.04    859.60
      160.        29.        93.       38.       22.       23.       25.        7.        5.     859.20
       0.35      1.34      3.99      1.52     0.100     0.050     0.100     0.000    857.80    225.00
  0.018497       100       100.      100.         3         0         0      0.00    100.00    325.00
0
1
  13 FEB 89     10:28:33                                                                    PAGE    62

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 5526.000
   5526.00      2.59    862.09      0.00      0.00    862.37      0.27      2.27      0.06    861.00
      160.        62.        82.       17.       43.       14        14.        7.        6.     861.10
       0.36      1.44      5.71      1.21     0.100     0.050     0.100     0.000    859.50     58.09
  0.016813       130.      131.      120.         4         0         0      0.00    101 77    159.86
0
 *SECNO 5657.000
   5657.00      2.73    863.93      0.00      0.00    864.10      0.17      1.70      0.03    862.70
      160.        68.        72.       20.       52.       15.       18.        7.        6.     862.80
       0.37      1.29      4.74      1.12     0.100     0.050     0.100     0.000    861.20     57.35
  0.010588       130.      131.      120.         3         0         0      0.00    104.12    161.46
0
 *SECNO 5788.000
   5788.00      2.62    865.52      0.00      0.00    865.77      0.25      1.63      0.04    864.40
      160.        63.        80.       17.       45.       14.       15.        7.        6.     864.50
       0.38      1.41      5.50      1.19     0.100     0.050     0.100     0.000    862.90     57.95
  0.015286       130.      131.      120.         3         0         0      0.00    102.30    160.25
0
 *SECNO 5919.000
   5919.00      2 74    867.24      0.00      0.00    867.41      0.17      1.61      0.02    866.00
      160.        68.        72        20.       53.       15.       18.        8.        7.     866.10
       0.40      1 28      4.70      1.12     0.100     0.050     0 100     0.000    864.50     57.31
  0.010356       130.      131.      120.         2         0         0      0.00    104.23    161.54
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 6140.000
            NINE MILE ROAD
   6140.00      4.28    869.48      0.00      0.00    869.56      0.08      2.12      0.03    867.40
      160.        56.        38.       66.       43.       10.       41.        8.        7.     867.40
       0.43      1.30      3.79      1.62     0.100     0.050     0.100     0.000    865.20    170.45
  0.007253       351.      221.      131.         4         0         0      0.00     74.58    245.03
0

 SPECIAL BRIDGE

1
  13 FEB 89     10:28:33                                                                    PAGE    63

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


 5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED
 5227 DOWNSTREAM ELEV IS     867.44 ,NOT     869.48 HYDRAULIC JUMP OCCURS DOWNSTREAM (IF LOW FLOW CONTROLS)
```

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0 00	4. 00	2. 60	0. 00	5. 00	1. 00	3. 10	0. 00	865 20	865. 20

*SECNO 6190. 000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1034. 94	870. 57	0. 00	140	20.	3.	13.	868. 50	871. 30

6190. 00	6. 78	872. 18	0. 00	0. 00	872. 19	0. 00	2. 63	0. 00	867. 60
160.	86.	15.	59.	217.	18.	132.	8.	7.	867. 60
0. 46	0. 40	0. 85	0. 44	0. 100	0. 050	0. 100	0. 000	865. 40	129 11
0. 000172	50.	50.	50.	0	0	12	0. 00	128. 83	257. 93

0
*SECNO 6275. 000

6275 00	5 09	872. 19	0. 00	0. 00	872. 21	0 02	0. 02	0. 01	867. 10
160.	35.	89.	36.	82.	66.	85.	9.	7.	867. 10
0. 49	0. 42	1. 35	0. 42	0. 100	0. 050	0. 100	0. 000	867. 10	95. 79
0. 000235	85.	85.	85.	2	0	0	0. 00	78. 69	174. 47

0
CCHV= 0. 300 CEHV= 0. 500
*SECNO 6391. 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 873. 40 ELREA= 873. 40

CENTER STREET

6391 00	4. 58	872. 18	0. 00	0. 00	872. 32	0. 14	0 05	0. 06	873. 40
160.	0.	160	0.	0	54.	0.	9.	8.	873. 40
0. 50	0. 00	2. 96	0. 00	0. 000	0. 024	0. 000	0. 000	867. 60	128. 00
0. 000759	116.	116.	116.	2	0	0	0. 00	13. 00	141. 00

0
1

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

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	3. 00	2. 60	0. 00	13. 00	3. 00	28. 00	0. 00	867. 60	867. 60

*SECNO 6482. 000
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
873. 70	872. 37	0. 00	0.	160.	28.	41.	871. 70	874. 00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 874. 00 ELREA= 874. 00

6482. 00	5 41	873. 61	0. 00	0. 00	873. 70	0. 09	1. 38	0. 00	874. 00
160.	0.	160.	0.	0.	65.	0	10.	8.	874. 00

```
      0.51      0.00      2.47      0.00     0.000     0.024     0.000     0.000    868.20    128.00
   0.000454      91.       91.       91.         2         0         0      0 00     13.00    141.00
0
 CCHV=    0 300 CEHV=    0.500
 *SECNO 6543.000
   6543.00      4.44    873.64      0.00      0.00    873.79      0.15      0.06      0.03    875.00
      160.         0.      160.        0.        0.        52.       0.       10.        8.     875.00
      0.51      0.00      3.06      0.00     0.000     0.050     0.000     0.000    869.20    128.00
   0.003627      61.       61        61.         0         0         0      0 00     13.00    141.00
0
 *SECNO 6743.000
   6743.00      2 49    874.49      0.00      0.00    874.57      0.08      0.77      0.02    872.60
      160.        45.       73.       42.       50.       23        48.       10.        8.     872.70
      0.54      0 91      3.22      0.88     0.100     0.050     0.100     0.000    872.00    236.98
   0.004046     200.      200.      200.         2         0         0      0.00     116.58    353.56
0
 *SECNO 6945.000
 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
   6945.00      1.80    876.20    876.20      0.00    876.59      0.39      1.64      0.15    875.00
      160.        34.       98.       28.       20.       16.       18.       10.        8.     875 10
      0.55      1.66      6.26      1.57     0.100     0.050     0.100     0.000    874 40    256.29
   0.024719     190.      202.      207.         9        19         0      0.00     76.66    332 95
0
1
  13 FEB 89     10:28:33                                                                    PAGE    65

     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 7147.000
   7147.00      2.21    879 11      0.00      0.00    879.25      0.14      2.59      0.07    877.50
      160.        41.       82.       37.       36.       20.       34.       11.        9.     877.60
      0.57      1.14      4.13      1.09     0.100     0.050     0.100     0.000    876.90    244.90
   0.007939     190.      202.      207.         4         0         0      0 00    100.22    345.11
0
 *SECNO 7362.000
   7362.00      2.11    881.01      0.00      0.00    881.19      0.18      1.92      0.02    879.50
      160.        40.       85.       35.       32.       19.       30.       11.        9.     879.60
      0.59      1.24      4.52      1.18     0.100     0.050     0.100     0.000    878.90    247.52
   0.010120     215       215.      215.         3         0         0      0.00     94.78    342.31
0
 *SECNO 7577.000
   7577.00      2.16    883.06      0.00      0.00    883.22      0.16      2.03      0.01    881.50
      160.        41        83.       36.       34.       19.       32.       12.       10      881.60
      0.62      1.18      4.29      1.13     0.100     0.050     0.100     0.000    880.90    246.05
   0.008817     215       215.      215.         3         0         0      0.00     97.84    343.88
0
 *SECNO 7896.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=       886.00 ELREA=       886.00

   7896.00      3.70    885.30      0.00      0.00    885.74      0.44      2.37      0.14    883.00
      160.         0.      160.        0.        0.        30.       0.       12.       10.     882.40
      0 63      0 00      5.33      0.00     0.000     0.050     0.000     0.000    881.60    300.00
   0.006865     229.      319.      309.         1         0         0      0.00      9.00    309.00
0
 CCHV=    0.500 CEHV=    1.000
 *SECNO 7897.000

 3370 NORMAL BRIDGE, NRD= 12 MIN ELTRD=  888.50 MAX ELLC=  887.10
```

CONNEMARA DRIVE

7897.00	3.70	885.30	0.00	0.00	885.92	0.62	0.01	0.17	888.30
160.	0.	160.	0.	0.	25.	0.	12.	10.	888.20
0.63	0.00	6.29	0 00	0.000	0.032	0.000	0.000	881.60	296.40
0.008267	1.	1.	1.	0	0	0	-0.29	7.20	303.60

0
1

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

*SECND 7962 000

3370 NORMAL BRIDGE, NRD= 12 MIN ELTRD= 888.50 MAX ELLC= 887.50

7962.00	3.89	885.89	0.00	0.00	886.46	0.56	0.51	0.03	888.70
160	0.	160.	0.	0.	27.	0.	12	10.	888.60
0 64	0.00	6.02	0 00	0.000	0.032	0.000	0.000	882.00	296.40
0.007466	65.	65.	65.	2	0	0	-0.50	7.20	303.60

0
CCHV= 0.500 CEHV= 1.000
*SECND 7963.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 888.50 ELREA= 888.50

7963.00	4.26	886.26	0.00	0.00	886.58	0 32	0.01	0.12	883.40
160.	0.	160.	0.	0.	35.	0.	12.	10.	882.80
0.64	0.00	4.57	0.00	0.000	0.050	0.000	0.000	882.00	300.00
0.004108	1.	1.	1.	3	0	0	0.00	9.00	309.00

0
*SECND 8043.000

3470 ENCROACHMENT STATIONS= 0.0 320.0 TYPE= 1 TARGET= 319.999

8043.00	4.06	886.76	0.00	0.00	886.76	0.00	0.02	0.16	883.30
160.	64.	24.	71.	94.	37.	260.	12.	10.	883.80
0 68	0.68	0.67	0.27	0.030	0.050	0.100	0.000	882.70	133.55
0.000092	80.	80.	80.	2	0	0	0.00	175.76	309.30

0
*SECND 8224.000

3470 ENCROACHMENT STATIONS= 0.0 320.0 TYPE= 1 TARGET= 319.999

8224.00	2.60	886.80	0 00	0.00	886.83	0.03	0.04	0.03	884.80
160.	45.	40.	76.	24.	22.	119	13	11.	885.30
0.72	1.88	1.80	0.63	0.030	0.050	0.100	0.000	884.20	170.03
0.001306	196.	181.	163	2	0	0	0.00	133.97	304.00

0
*SECND 8405.000
7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

8405.00	1.79	887.49	887.49	0.00	887.74	0.25	0.57	0.22	886.30
160.	36.	69.	56.	8.	14.	45.	14.	11.	886.80
0.73	4.69	4.92	1.24	0.030	0.050	0.100	0.000	885 70	187.20
0.017947	196.	181.	163.	3	18	0	0.00	113.87	301.07

0
1

SECND	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	'NR	WTN	ELMIN	SSTA

```
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

 *SECNO 8465.000
   8465.00     2.08   888 28      0.00      0.00   888.38      0.10      0.56      0.07   886.80
      160.       38.      54.       68.       12.      17.       71.       14.       12.    887 30
      0.74     3.20     3.20      0.97     0.030    0.050     0.100     0.000   886.20   182.98
  0.005929       65.      60.       54.         3        0         0      0.00   119.13   302.11
0
 *SECNO 8525.000
   8525.00     1 99   888.69      0.00      0.00   888.81      0 13      0.41      0.03   887.30
      160.       36.      58.       66.       10.      16.       63.       14.       12.    887.80
      0.75     3.52     3.64      1.05     0.030    0.050     0.100     0.000   886.70   185.11
  0.008265       65.      60.       54.         3        0         0      0.00   116.67   301.78
0
 *SECNO 8587.000
   8587.00     1.99   889.19      0.00      0.00   889.32      0.13      0.50      0.00   887.80
      160.       36.      58.       66.       10.      16.       62.       14.       12.    888.30
      0.75     3.54     3.66      1.05     0.030    0.050     0.100     0.000   887.20   185.14
  0.008351       67.      62.       55.         1        0         0      0.00   116.63   301.77
0
 *SECNO 9091.000
   9091.00     2.23   891.93      0.00      0.00   891.99      0 07      2.65      0.03   890.30
      160.       40.      48.       72.       15.      18.       85.       15.       13.    890.80
      0.83     2.74     2.65      0.85     0.030    0.050     0.100     0.000   889.70   179.28
  0.003627      489.     504.      509.         6        0         0      0.00   123.37   302.65
0
 *SECNO 9411.000

 3470 ENCROACHMENT STATIONS=     502.5      512.5  TYPE=       1  TARGET=        10.000
   9411.00     2.95   894.15      0.00      0.00   894.70      0.55      2.22      0.48 99999.50
      160.        0      160.        0.         0      27.        0.       16.       14.  99999.50
      0.84     0.00     5 94      0.00     0.000    0.050     0.000     0.000   891.20   502.50
  0.018260      320.     320.      320.         2        0         0      0.00    10.00   512.50
0
 CCHV=   0.300 CEHV=   0.500
 *SECNO 9412.000

 3370 NORMAL BRIDGE, NRD= 20 MIN ELTRD=  897.20 MAX ELLC=  896.30

              TAFT ROAD
1
  13 FEB 89     10.28:33                                                                PAGE    68

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


   9412.00     2.71   893.91    893 81      0.00   894.95      1.04      0.01      0.25   900.90
      160.        0.      160.       0.         0      20.        0.       16.       14.    900.80
      0.84     0.00     8.20      0 00     0.000    0.020     0.000     0.000   891.20   495.50
  0.006917        1.        1         1.         4       12         0    -0.66      9.00   504.50
0
 *SECNO 9430.000

 3370 NORMAL BRIDGE, NRD= 20 MIN ELTRD=  897.20 MAX ELLC=  896.40

 7185 MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
   9430.00     2.52   894 12    894.12      0.00   895.29      1.17      0.14      0.06   900.90
      160.        0.      160       0.         0.      18.        0         16.       14.    900.80
      0.84     0.00     8.68      0.00     0.000    0.020     0.000     0.000   891.60   495.50
  0.008331       18.      18.       18.         3       12         0    -0.74      9.00   504.50
```

0
CCHV= 0.500 CEHV= 1.000
*SECNO 9431.000

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 502.5 512.5 TYPE= 1 TARGET= 10.000

9431.00	3.81	895.41	0.00	0.00	895.73	0.31	0.01	0.43	99999.90
160.	0.	160.	0.	0	36.	0.	16.	14.	99999.90
0.84	0.00	4.50	0.00	0.000	0.050	0.000	0.000	891.60	502.50
0.008363	1.	1.	1.	4	0	0	0.00	10.00	512.50

0
*SECNO 9581.000

9581.00	3.69	896.19	0.00	0.00	896.26	0.07	0.41	0.12	893.40
160.	18.	118.	24.	28.	49.	30.	16.	14.	893.20
0.86	0.67	2.38	0.79	0.100	0.050	0.100	0.000	892.50	480.14
0.001318	150.	150.	150.	2	0	0	0.00	55.44	535.58

0
*SECNO 10280.000

3265 DIVIDED FLOW

10280.00	1.97	898.47	0.00	0.00	898.62	0 15	2.28	0.09	898.00
160.	126.	25	9.	51.	4.	8.	17.	15.	898.00
0.92	2.45	5.67	1.12	0.100	0.050	0.100	0.000	896.50	81.60
0.038221	509.	699.	649.	2	0	0	0.00	117.85	664.29

0
1
13 FEB 89 10:28:33 PAGE 69

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 0.500 CEHV= 1.000
*SECNO 11080.000

3470 ENCROACHMENT STATIONS= 760.0 844.0 TYPE= 1 TARGET= 84.000
NINE MILE ROAD

11080.00	1.14	902.24	902.23	0.00	902.60	0.36	3.77	0.20	901.40
160.	141.	13.	6.	29.	4.	2.	18.	16.	901.10
0.95	4.95	3.39	2.96	0.015	0.024	0.015	0.000	901.10	764.31
0.003148	430.	800.	900.	14	11	0	0.00	49.71	814.01

0

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	2.88	2.80	84.00	3.00	0.00	7.10	0.00	901.10	901.10

*SECNO 11120.000
1860 XLCEL OF 912.20 EXCEEDS RDEL OF 912.00
PRESSURE AND WEIR FLOW

7185 MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

9430.00	2.52	894 12	894.12	0.00	895.29	1.17	0.14	0.06	900.90
160.	0.	160	0.	0.	18.	0	16.	14.	900.80
0.84	0.00	8.68	0.00	0.000	0.020	0.000	0.000	891.60	495.50
0.008331	18.	18.	18.	3	12	0	-0.74	9.00	504.50

```
 3470 ENCROACHMENT STATIONS=      760.0      844.0  TYPE=      1  TARGET=      84.000
  11120.00      5.59    906.69      0.00       0.00    906.69      0.00       4.09       0.00    901.40
      160.       90.        6.       64.        206.      22.       172.        18.        16.     901.10
      0.98      0.44      0.29      0.37      0.015     0.024     0.015      0.000     901.10    760.00
  0.000002        40        40.       40.          0         0        10       0.00      84.00    844.00
0
 CCHV=    0.300 CEHV=    0.500
 *SECNO 11795.000

 3470 ENCROACHMENT STATIONS=      520.0      760.0  TYPE=      1  TARGET=      240.000
  11795.00      2.09    906.69      0.00       0.00    906.70      0.01       0.01       0.00    905.10
      160.       112       20.       29.        193.      13.        53.        24.        19.     906.00
      1.31      0.58      1.55      0.54      0.100     0.050     0.100      0.000     904.60    520.00
  0.001342       960.       675       570.         2         0         0       0.00     240.00    760.00
0
1
  13 FEB 89     10:28.33                                                                    PAGE    70


    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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 11895.000

 3470 ENCROACHMENT STATIONS=      520.0      760.0  TYPE=      1  TARGET=      240.000
  11895.00      1 80    906.90      0.00       0.00    906.92      0.02       0.21       0.01    905.60
      160.       109       24.       27.        139.      11.        38.        25.        20.     906.50
      1.34      0.79      2.28      0.71      0.100     0.050     0.100      0.000     905.10    520.00
  0.003691       100.       100       100.         2         0         0       0.00     240.00    760.00
0
 *SECNO 11995.000

 3470 ENCROACHMENT STATIONS=      520.0      760.0  TYPE=      1  TARGET=      240.000
  11995.00      1.72    907.32      0.00       0.00    907.35      0.03       0.43       0.00    906.10
      160       108.       26.       26.        125.      10.        34.        25.        20.     907.00
      1.36      0 86      2.57      0 77      0.100     0.050     0.100      0.000     905.60    520.00
  0 005023       100       100.      100.         2         0         0       0.00     240.00    760.00
0
 *SECNO 12095 000

 3470 ENCROACHMENT STATIONS=      520 0      760.0  TYPE=      1  TARGET=      240.000
  12095.00      1.72    907.82      0.00       0.00    907.84      0.03       0.50       0.00    906.60
      160.       108       26.       26.        126.      10.        34.        26.        21.     907.50
      1 39      0 86      2.55      0.76      0 100     0.050     0.100      0.000     906.10    520.00
  0.004922       100.       100.      100.         1         0         0       0.00     240.00    760.00
0
 *SECNO 12195.000

 3470 ENCROACHMENT STATIONS=      520 0      760.0  TYPE=      1  TARGET=      240.000
  12195.00      1 72    908.32      0.00       0.00    908.35      0.03       0.50       0.00    907.10
      160.       108.       26.       26.        125.      10.        33         26.        21.     908.00
      1.41      0.87      2.59      0.77      0.100     0.050     0.100      0.000     906.60    520.00
  0.005116       100.       100.      100.         0         0         0       0.00     240.00    760.00
0
 *SECNO 12595 000

 3[illegible] ENCROACHMENT STATIONS=      680.0      775 0  TYPE=      1  TARGET=      95.000
  12595.00      1.86    910.86      0.00       0.00    910.94      0.08       2.57       0.03    909.50
      160.        43.       41.       76.        26.       11.        59.        27.        23      910.40
      1.47      1.64      3.74      1.29      0.100     0.050     0.100      0.000     909 00    680.00
  0.009390       390.       400       350.         3         0         0       0.00      95.00    775.00
0
1
```

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 13155.000

3470 ENCROACHMENT STATIONS= 780.0 840.0 TYPE= 1 TARGET= 60.000

13155.00	2.62	915.12	0.00	0.00	915.26	0.14	4.29	0.03	913.80
160.	31.	92.	37.	24.	24.	30.	28.	24.	914.10
1.52	1.30	3.75	1.23	0.100	0.050	0.100	0.000	912 50	780.00
0.006435	590.	560.	530.	4	0	0	0.00	60.00	840.00

0
*SECNO 13620.000

3470 ENCROACHMENT STATIONS= 725.0 920.0 TYPE= 1 TARGET= 195.000

13620.00	2.28	917.58	0.00	0.00	917.63	0.04	2.34	0.03	916.60
160.	22.	54.	84.	38	21.	97.	30.	25.	916.90
1.62	0.59	2.61	0.87	0.100	0.050	0.100	0.000	915.30	725.00
0.003969	450.	465.	485.	5	0	0	0.00	195.00	920.00

0
*SECNO 14029.000

3470 ENCROACHMENT STATIONS= 560.0 750.0 TYPE= 1 TARGET= 190.000

14029.00	2.15	919 95	0.00	0.00	920.09	0.14	2.41	0.05	919.30
160	24.	72.	64.	33.	17.	44.	31.	27.	918.60
1.66	0.73	4.32	1.45	0.100	0.050	0.100	0.000	917.80	593.48
0.010158	450.	409.	380.	3	0	0	0 00	156.52	750.00

0
*SECNO 14634.000

3470 ENCROACHMENT STATIONS= 150.0 320 0 TYPE= 1 TARGET= 170.000

14634.00	1.85	924.35	0.00	0.00	924.38	0.03	4.26	0.03	923.20
160.	39.	14.	107.	37.	5.	91	32.	29.	922.90
1.79	1.05	2.81	1.18	0.100	0.050	0.100	0.000	922.50	199.98
0.005189	500.	605.	640.	5	0	0	0.00	120.02	320.00

0
*SECNO 15238.000

15238 00	1.54	928.74	0.00	0.00	928.78	0.04	4.40	0.01	927.90
160.	31.	15	114.	25.	4.	85	34.	31.	927.60
1.89	1.26	3.72	1.35	0.100	0.050	0.100	0.000	927.20	201.83
0.012100	570.	604.	580.	4	0	0	0.00	159.67	361.50

0
1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 15988.000

3470 ENCROACHMENT STATIONS= 830.0 940.0 TYPE= 1 TARGET= 110.000

15[illegible]	2.47	934 17	0.00	0.00	934.24	0.06	5.44	0.01	933.40
[illegible]	7.	48.	105.	8.	15.	93.	36.	33.	932.30
2.01	0.85	3.25	1.13	0.100	0.050	0.100	0.000	931.70	830.00
0.005034	710.	750.	730.	4	0	0	0.00	101.23	931.23

0
*SECNO 16738.000

```
 3470 ENCROACHMENT STATIONS=      370.0      440.0  TYPE=      1  TARGET=       70.000
  16738.00      1.45    940.35      0.00      0.00    940.55      0.20      6.25      0.07    940.10
      160.        0.       87.       72.        1.       20.       37.       37.       34.     939.30
      2.07      0.52      4.48      1.94     0.100     0.050     0.100     0.000    938.90    378.53
  0.019131      700.      750       680.         4         0         0      0.00     61.47    440.00
0
 *SECNO 17638.000
  17638.00      2.79    950.39      0.00      0.00    950.55      0.16      9.99      0.01    949.70
      160.        4.      111.       45.        6.       29.       48.       39.       36.     949.10
      2.15      0.61      3.81      0.93     0.100     0.050     0.100     0.000    947.60    266.25
  0.007056      870.      900.      940.         4         0         0      0.00    109.26    375.51
0
 *SECNO 18038.000

 3470 ENCROACHMENT STATIONS=      180.0      375.0  TYPE=      1  TARGET=      195.000
  18038.00      2.50    954.30      0.00      0.00    954.61      0.31      3.99      0.07    953.90
      160.        1       125.       34.        2.       25.       29.       39.       37.     953.30
      2.18      0.62      5.02      1.15     0.100     0.050     0.100     0.000    951.80    274.06
  0.015127      400.      400.      400.         4         0         0      0.00     84.69    358.76
0
 *SECNO 18240.000

 3470 ENCROACHMENT STATIONS=      450.0      540.0  TYPE=      1  TARGET=       90.000
  18240.00      2.29    956.49      0.00      0.00    956.59      0.10      1.92      0.06    954.20
      160.       60.       47.       53.       45.       11.       42.       40.       37.     954.30
      2.21      1 34      4.16      1.25     0.100     0.050     0.100     0.000    954.20    450.00
  0 006709      200.      202.      190.         0         0         0      0.00     90.00    540.00
0
1
  13 FEB 89     10.28:33                                                                          PAGE    73

    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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
 *SECNO 18513.000
 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED
             TEN MILE ROAD
  18513.00      5.56    960.76    960.76      0.00    960.93      0.16      0.75      0.03    960.20
      160.       29.       60.       71.       18.       13.       37.       40.       38.     960.20
      2.23      1.64      4.72      1.90     0.015     0.013     0.015     0.000    955.20    336.89
  0.001480      272.      272.      272.        20        30         0      0.00    178.07    514.96
0

 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       1.60       2.60       0.00       2.50       0.00       4.90       0.00     955.20     955.20

 *SECNO 18557.000
 PRESSURE AND WEIR FLOW


  EGPRS       EGLWC        H3        QWEIR       QPR        BAREA    TRAPEZOID       ELLC      ELTRD
                                                                         AREA
     987.25     963.85      0.00       134.        26.         5.         8.       958.30     960.80
```

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF

18557.00	5.57	961.37	0.00	0.00	961.53	0.16	0 00	0.00	960.80
160.	29.	59.	72.	18.	13.	38.	40.	38.	960.80
2.24	1.62	4.64	1.89	0.015	0.013	0.015	0.000	955.80	336.20
0.001424	44.	44.	44.	20	0	10	0.00	179.33	515.54

0
1

THIS RUN EXECUTED 13 FEB 89 10:30:04

****
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 CITY OF NOVI JOB NO. 5555-46-01
T2 500 YEAR FLOOD
T3 THORNTON CREEK

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	5.	0.	0	0.002400	0.00	0.0	0.	835.170	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

1

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 4									
CCHV= 0.300 CEHV= 0.500									
*SECNO 1560.000									
1560.00	3.10	834.60	0.00	835.17	834.66	0.06	0.00	0.00	833.40
330	108.	221.	2	156.	90.	6.	0.	0.	834.10
0.00	0.69	2.45	0.29	0 100	0.050	0.100	0.000	831.50	100.04
0 002399	0.	0.	0.	0	0	7	0.00	252.61	352 65
0									
*SECNO 1760 000									
1760.00	3.18	835 15	0.00	0.00	835.25	0.10	0.57	0.02	833.87
330.	114.	214.	2.	127.	69.	6.	1.	1.	834.57
0.02	0.90	3.09	0.39	0.100	0.050	0.100	0.000	831.97	69.44
0.003681	180.	200.	243.	2	0	0	0.00	194.34	263.78
0									
*SECNO 1960 000									
1960.00	3.49	835.93	0.00	0.00	836.07	0.14	0 80	0.02	834.34
330.	133.	191.	5.	113.	51.	9.	2.	2.	835.04
0.04	1.18	3.75	0.59	0.100	0.050	0.100	0.000	832.44	33.67
0.004674	180.	200.	243.	2	0	0	0 00	144.84	178.51
0									
*SECNO 2160.000									
2160.00	4.10	837.00	0.00	0.00	837.57	0.57	1.28	0.22	834.50



1) COUNTY: OAKLAND

2) STUDY NAME: NOVI, CITY of

3) WATERCOURSE: THORNTON CREEK

4) DOCUMENT TYPE: SUMMARY - 1984



SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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
*SECNO 18513.000
3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED
TEN MILE ROAD

18513.00	5.66	960.86	960.86	0.00	961.02	0.17	0 80	0.03	960.20
220.	45.	65.	110.	24.	13.	48.	53.	42.	960.20
2.09	1.89	4.98	2.28	0.015	0 013	0.015	0.000	955.20	326.55
0.001608	272.	272.	272.	20	16	0	0.00	196.97	523.51

0

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	1.60	2.60	0.00	2.50	0.00	4.90	0 00	955.20	955.20

*SECNO 18557.000
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
1010.94	961.02	0.00	193.	27.	5.	8.	958.30	960 80

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3710 WSEL ASSUMED BASED ON MIN DIFF

18557.00	5.66	961.46	0.00	0.00	961 62	0.16	0.00	0.00	960.80
220.	45.	64.	110.	24.	13.	49.	53.	43.	960.80
2.10	1.88	4.94	2.27	0.015	0.013	0.015	0.000	955 80	326.17
0.001577	44.	44.	44.	20	0	11	0.00	197.65	523.82

0
1

****
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

THORNTON CREEK

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
1560 000	833.81	-0.59	833 86	155.05	12.66	110.34	0 00	0.00	0.00	288.00	329.00	0.00

1560.000	834.15	-0.59	834.20	189.93	41.16	148.84	0.00	0.00	0.00	288.00	329.00	0.00
1560.000	834.18	-0.70	834.24	194.99	45.42	154.56	0.01	0.00	0.00	288.00	329.00	0.00
1560.000	834.60	-0.57	834.66	252.61	107.64	220.66	1.70	0.00	0.00	288.00	329.00	0.00
1760.000	834.37	0.00	834.44	120.99	16.52	106.48	0.00	0.00	0.00	213.12	243.46	0.00
1760.000	834.69	0.00	834.77	148.26	45.34	144.62	0.04	0.00	0.00	213.12	243.46	0.00
1760.000	834.73	0.00	834.81	152.23	49.82	150 11	0.07	0.00	0 00	213.12	243.46	0.00
1760.000	835.15	0.00	835.25	194.34	113.82	213.86	2.33	0.00	0.00	213.12	243.46	0.00
1960.000	835.11	0.00	835.20	92.65	27.69	95.31	0.00	0.00	0.00	138.53	158.25	0.00
1960.000	835.44	0.00	835.55	115.04	58 83	130.55	0.62	0.00	0.00	138.53	158.25	0.00
1960.000	835.49	0.00	835.60	117.85	63 72	135.47	0.81	0.00	0.00	138.53	158.25	0.00
1960.000	835.93	0.00	836.07	144.84	133.32	191.34	5.33	0.00	0.00	138.53	158.25	0.00
2160.000	835.95	0.00	836.14	21.83	4.00	118.93	0.07	0.00	0.00	125.00	138.00	0.00
2160.000	836.39	0.00	836.70	27.67	9 38	179.42	1 20	0.00	0.00	125.00	138.00	0.00
2160.000	836.44	0.00	836 77	28.40	10.30	188.19	1.50	0.00	0.00	125.00	138.00	0.00
2160.000	837.00	0.00	837 57	35.81	24.14	297.83	8.02	0.00	0.00	125.00	138.00	0.00
2328.000	836.93	0.00	837.19	18 14	2.61	120.39	0.00	0.00	0.00	125.00	138.00	0.00
2328.000	837.56	0.00	837.91	26.01	8.45	180.78	0.76	0.00	0.00	125.00	138.00	0.00
2328.000	837.64	0.00	838.00	27.09	9.53	189.38	1.09	0.00	0.00	125.00	138.00	0.00
2328.000	838.56	0.00	839.02	39.35	27.45	291.09	11.46	0.00	0.00	125.00	138.00	0.00
2495.000	837.74	0.00	837.78	51.55	0.00	123.00	0.00	0.00	0.00	80.00	157.00	0.00
2495.000	838.39	0.00	838.43	55.95	0.00	190.00	0.00	0.00	0.00	80.00	157.00	0.00
2495.000	838.47	0.00	838.52	56.47	0.00	200.00	0.00	0.00	0.00	80.00	157.00	0.00
2495.000	839.45	0.00	839.51	62.39	0.00	330.00	0.00	0.00	0 00	80.00	157.00	0.00
2496.000	837.73	0.00	837.78	46.09	0.00	123.00	0.00	0.00	0.00	80.00	157.00	0.00
2496 000	838 38	0.00	838.44	50.27	0.00	190.00	0.00	0.00	0.00	80.00	157.00	0.00
2496.000	838.47	0.00	838.53	50.76	0.00	200.00	0.00	0.00	0.00	80.00	157 00	0.00
2496.000	839.45	0.00	839.52	56.32	0.00	330.00	0.00	0.00	0.00	80.00	157.00	0.00

	SECND	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	2502.000	837.73	0.00	837.78	46.04	0.00	123.00	0.00	0 00	0.00	80 00	157.00	0.00
	2502.000	838.38	0.00	838.44	50.24	0.00	190.00	0.00	0.00	0.00	80.00	157 00	0.00
	2502.000	838.47	0.00	838.53	50.73	0.00	200.00	0.00	0.00	0.00	80.00	157.00	0.00
	2502.000	839.45	0.00	839.52	56.31	0.00	330.00	0.00	0.00	0.00	80.00	157.00	0.00
	2503.000	837.75	0.00	837.79	51.62	0.00	123.00	0.00	0 00	0.00	80.00	157.00	0.00
	2503.000	838.40	0.00	838.44	55.97	0.00	190.00	0.00	0.00	0.00	80.00	157 00	0.00
	2503.000	838.49	0.00	838.53	56.50	0.00	200.00	0.00	0.00	0.00	80.00	157.00	0.00
	2503.000	839.47	0.00	839.52	62.42	0.00	330.00	0 00	0.00	0.00	80.00	157.00	0.00
	2560.000	837.84	0.00	837.87	52.65	0.00	123.00	0.00	0.00	0.00	80.00	157.00	0.00
	2560.000	838.47	0 00	838.51	56.46	0.00	190.00	0.00	0.00	0 00	80.00	157.00	0.00
	2560.000	838 56	0.00	838.60	56.98	0.00	200.00	0.00	0.00	0 00	80.00	157.00	0 00
	2560.000	839.53	0.00	839.58	62.83	0.00	330 00	0.00	0.00	0.00	80.00	157.00	0.00
	2600.000	837.89	0.00	837.93	41.00	0.00	123.00	0.00	41.00	98.00	80.00	157.00	139.00
	2600.000	838.51	0.00	838.56	41.00	0.00	190.00	0.00	41.00	98.00	80.00	157.00	139.00
	2600.000	838.60	0.00	838.65	41.00	0.00	200.00	0.00	41.00	98.00	80.00	157.00	139.00
	2600.000	839.56	0.00	839.63	41.00	0.00	330.00	0 00	41.00	98.00	80.00	157.00	139.00
	2639.000	837.82	0.00	838.24	21.00	0.00	123.00	0.00	0.00	0.00	388.00	409.00	0.00
	2639.000	838 44	0.00	838.86	21.00	0.00	190.00	0.00	0.00	0.00	388.00	409.00	0.00
	2639 000	838.52	0.00	838.95	21 00	0.00	200.00	0.00	0.00	0.00	388.00	409.00	0 00
	2639.000	839.44	0.00	839.95	21.00	0 00	330.00	0.00	0.00	0.00	388.00	409.00	0.00
*	2640.000	837.95	0.00	838.48	20.00	0.00	123.00	0 00	0.00	0.00	110.00	131.00	0.00

2640.000	838 32	0.00	839.01	20.00	0.00	190.00	0.00	0.00	0.00	110.00	131.00	0.00
2640.000	838.41	0.00	839 09	20.00	0.00	200.00	0.00	0.00	0.00	110.00	131.00	0.00
2640.000	839.36	0.00	840.06	20.00	0 00	330.00	0.00	0 00	0.00	110.00	131.00	0.00
2692.000	838.78	0.00	839.05	20.00	0.00	123.00	0.00	0.00	0.00	110.00	131.00	0.00
2692.000	839.23	0 00	839.61	20.00	0 00	190.00	0.00	0.00	0.00	110.00	131.00	0.00
2692.000	839.27	0.00	839.67	20.00	0.00	200.00	0.00	0.00	0.00	110.00	131.00	0.00
2692.000	839.93	0.00	840.54	20.00	0.00	330.00	0.00	0.00	0.00	110.00	131.00	0.00
2693.000	838.85	0.00	839.07	27.93	0.00	123.00	0.00	0.00	0.00	373.00	426 00	0.00
2693.000	839.43	0.00	839.66	30.56	0.00	190.00	0.00	0.00	0.00	373.00	426.00	0.00
2693.000	839.49	0.00	839.73	30.85	0.00	200.00	0.00	0.00	0.00	373.00	426.00	0.00
2693.000	840.40	0.00	840.65	34.96	0.00	330.00	0.00	0.00	0.00	373.00	426.00	0.00
* 2700.000	839.81	0.00	840.35	38.74	0.00	116.57	6.43	150.00	30.00	126.00	140.00	180.00
* 2700.000	840.26	0.00	840.77	52.63	0.00	155.66	34.34	150.00	30.00	126.00	140.00	180.00
* 2700.000	840.30	0.00	840.82	52.71	0.00	161.47	38.53	150.00	30.00	126.00	140.00	180.00
* 2700.000	840.72	0.00	841.36	53.62	0.00	231.55	98.44	150.00	30.00	126.00	140.00	180.00
2760.000	840.94	0.00	841.12	52.80	0.00	97.84	25.16	150.00	30 00	126.00	140.00	180.00
2760.000	841.28	0.00	841.51	53.54	0.00	134.90	55.09	150.00	30.00	126.00	140.00	180.00
2760.000	841.33	0.00	841.56	53.64	0.00	139.96	60.04	150.00	30.00	126.00	140.00	180.00
2760.000	841.86	0.00	842.16	73.35	1.62	205.71	122.67	150.00	30.00	126.00	140.00	180 00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
2820.000	841.37	0.00	841.63	52.43	0.00	104.51	18.49	150.00	30.00	126.00	140.00	180.00
2820.000	841.75	0.00	842.03	53.24	0.00	140.72	49.28	150.00	30.00	126.00	140.00	180.00
2820.000	841.80	0.00	842.09	53.35	0.00	145.76	54.23	150.00	30.00	126.00	140.00	180 00
2820.000	842.33	0.00	842.69	66.72	0.59	210.69	118.72	150.00	30.00	126.00	140.00	180.00
2880.000	841.96	0.00	842.22	52.41	0.00	104.93	18.07	150.00	30.00	126.00	140.00	180.00
2880.000	842.33	0.00	842 63	53.20	0.00	141.57	48.43	150.00	30.00	126.00	140.00	180.00
2880.000	842.38	0.00	842 68	53.30	0.00	146.73	53.27	150.00	30.00	126.00	140.00	180 00
2880.000	842.90	0.00	843.27	65.04	0.41	211.98	117.60	150.00	30.00	126.00	140.00	180.00
3091.000	843 48	0.00	843.62	21.00	0.00	123.00	0.00	0.00	0.00	174.00	195.00	0.00
3091.000	843.95	0.00	844.17	21.00	0.00	190.00	0.00	0.00	0.00	174.00	195.00	0.00
3091.000	844.01	0.00	844.24	21.00	0.00	200.00	0.00	0.00	0.00	174.00	195.00	0 00
3091.000	844.67	0.00	845.05	21.00	0.00	330 00	0.00	0.00	0.00	174.00	195.00	0 00
3092.000	843.58	0.00	843.65	21.00	0.00	123.00	0.00	0.00	0.00	90.00	111.00	0.00
3092.000	844.10	0 00	844.20	21 00	0.00	190.00	0.00	0.00	0.00	90.00	111.00	0 00
3092.000	844.16	0.00	844.28	21.00	0.00	200.00	0.00	0.00	0.00	90.00	111.00	0.00
3092.000	844.88	0.00	845.11	21.00	0 00	330.00	0.00	0.00	0.00	90.00	111.00	0.00
3178.000	843.65	0.00	843.73	20.00	0.00	123.00	0.00	0.00	0.00	90.00	111.00	0.00
3178.000	844.19	0 00	844 33	21.00	0.00	190.00	0.00	0.00	0.00	90.00	111.00	0.00
3178.000	844.26	0.00	844.41	21.00	0.00	200.00	0.00	0.00	0.00	90.00	111.00	0 00
3178.000	845 07	0.00	845.33	21.00	0.00	330.00	0.00	0.00	0.00	90.00	111.00	0.00
3179.000	843.58	0.00	843.80	20.43	0.00	123.00	0.00	0.00	0.00	174.00	195.00	0.00
3179.000	844 12	0.00	844.41	21.00	0.00	190.00	0.00	0.00	0.00	174.00	195.00	0.00
3179.000	844.19	0 00	844.49	21.00	0.00	200.00	0.00	0.00	0.00	174.00	195.00	0.00
3179.000	844.98	0.00	845.42	21.00	0.00	330.00	0.00	0.00	0.00	174.00	195.00	0.00
3309.000	844.63	0.00	844.81	26.01	1.44	121.56	0.00	260 00	60 00	174.00	195.00	320.00
3309.000	845.13	0.00	845.35	101 77	4.90	178.49	6.61	260.00	60.00	174.00	195.00	320.00
3309.000	845.20	0.00	845 42	113.50	5.50	184.91	9.58	260 00	60.00	174.00	195.00	320 00
3309.000	846 00	0.00	846.14	159.79	13.61	226.19	90.20	260.00	60.00	174.00	195.00	320.00
3532.000	846.33	0.00	846 56	29.34	0.00	122.26	0.74	0.00	0 00	60.00	100 00	0 00

	3532.000	846.78	0.00	847.08	45.24	0.00	182.25	7.75	0.00	0.00	60.00	100.00	0.00
	3532.000	846 83	0.00	847.14	46.83	0.00	190.87	9.13	0.00	0.00	60.00	100.00	0.00
	3532.000	847.15	0.00	847.72	57.87	0 00	302 36	27.64	0.00	0.00	60.00	100.00	0.00
	3755.000	848.04	0.00	848.21	37.04	0.00	120.63	2.37	0.00	0.00	60.00	100 00	0.00
	3755.000	848.57	0.00	848.78	55 14	0.00	175.98	14.01	0.00	0.00	60.00	100.00	0 00
	3755.000	848.64	0.00	848.85	57.64	0.00	183.42	16 58	0.00	0.00	60.00	100.00	0.00
	3755.000	849.44	0.00	849.66	85.55	0.00	266.88	63.12	0.00	0.00	60.00	100.00	0.00
	3978.000	849.47	0.00	849.66	34.67	0.00	121.23	1.77	0.00	0 00	60.00	100.00	0.00
	3978.000	849.99	0.00	850.23	52.14	0.00	177.99	12.01	0.00	0 00	60.00	100.00	0.00
	3978.000	850.05	0.00	850.29	54.27	0.00	185.86	14.13	0.00	0.00	60.00	100.00	0.00
	3978.000	850.71	0.00	850.99	77.32	0 00	277.45	52.55	0.00	0.00	60.00	100.00	0 00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	4227.000	851.18	0.00	851.37	34.62	0.00	121.24	1.75	0.00	0.00	60 00	100.00	0.00
	4227.000	851.68	0.00	851.91	51.79	0.00	178.23	11.77	0.00	0.00	60 00	100.00	0.00
	4227.000	851.74	0.00	851.98	53.94	0.00	186.10	13.90	0.00	0.00	60.00	100.00	0.00
	4227.000	852.36	0.00	852.66	75.70	0.00	279.55	50.45	0.00	0.00	60.00	100.00	0.00
	4476.000	852.88	0.00	853.07	34.76	0.00	121.21	1.79	0.00	0.00	60.00	100.00	0.00
	4476.000	853.38	0.00	853.61	51.86	0 00	178.18	11.82	0.00	0.00	60.00	100.00	0.00
	4476.000	853 44	0.00	853.68	53 96	0.00	186.09	13.91	0.00	0.00	60.00	100 00	0.00
	4476.000	854.07	0.00	854.37	75.97	0.00	279.19	50.81	0.00	0 00	60.00	100.00	0.00
	4725.000	854.53	0.00	854.70	36.25	0.00	120.84	2.16	200.00	0.00	60.00	100.00	200.00
	4725.000	855.02	0.00	855.25	53.50	0 00	177.09	12.91	200.00	0.00	60.00	100.00	200.00
	4725.000	855.08	0.00	855.31	55.65	0.00	184.88	15.12	200.00	0.00	60.00	100.00	200.00
	4725.000	855.72	0.00	856.00	77.96	0.00	276.61	53.39	200 00	0.00	60.00	100.00	200.00
	4979.000	855.55	0.00	855.57	112.00	30.94	56.75	35.30	112 00	220.00	264.00	287.00	332.00
	4979 000	856.01	0.00	856.04	112.00	51.47	81.62	56.91	112.00	220.00	264.00	287.00	332.00
	4979.000	856.07	0.00	856.10	112.00	54.53	85.34	60.13	112.00	220.00	264.00	287.00	332.00
	4979.000	856.74	0.00	856.78	112.00	94.32	133.80	101.88	112.00	220.00	264.00	287.00	332 00
*	5179.000	857.04	0.00	857 52	23 00	0.00	123 00	0.00	0.00	0.00	264.00	287.00	0.00
*	5179.000	857.34	0.00	858.00	23.00	0.00	190.00	0.00	0.00	0.00	264.00	287.00	0.00
*	5179.000	857.39	0.00	858.07	23.00	0.00	200.00	0.00	0.00	0.00	264.00	287.00	0.00
*	5179.000	857.91	0.00	858.86	23.00	0.00	330.00	0.00	0.00	0.00	264.00	287.00	0.00
	5180.000	857.54	0.00	857.63	21.00	0.00	123.00	0.00	0.00	0.00	288.00	311.00	0.00
	5180.000	857.99	0.00	858.15	23.00	0.00	190.00	0.00	0.00	0 00	288.00	311.00	0.00
	5180.000	858.04	0.00	858.22	23.00	0.00	200.00	0.00	0.00	0.00	288.00	311.00	0.00
	5180.000	858 53	0.00	859.01	32.69	0.00	330.00	0.00	0.00	0.00	288.00	311 00	0.00
	5194.000	857.54	0.00	857.65	21.00	0.00	123.00	0.00	0.00	0.00	288.00	311 00	0.00
	5194.000	858.00	0.00	858.18	22.30	0.00	190.00	0.00	0.00	0.00	288.00	311.00	0.00
	5194.000	858 06	0.00	858.25	22.67	0.00	200.00	0.00	0.00	0.00	288.00	311.00	0.00
	5194.000	858.62	0.00	859.09	23.00	0.00	330.00	0.00	0.00	0.00	288.00	311.00	0 00
	5195.000	857.53	0.00	857.67	23.00	0.00	123.00	0.00	0.00	0.00	264.00	287.00	0.00
	5195 000	857.98	0.00	858 19	23.00	0.00	190.00	0 00	0.00	0.00	264.00	287.00	0.00
	5195.000	858.05	0.00	858.27	23.00	0.00	200.00	0.00	0.00	0.00	264.00	287.00	0.00
	5195.000	858.79	0.00	859.14	23.00	0.00	330.00	0.00	0.00	0.00	264.00	287.00	0.00
	5295.000	858.24	0.00	858.42	89.56	6.55	61.96	11.49	100.00	225.00	264.00	287.00	325.00
	5295.000	858.75	0.00	858.81	100.00	26.52	70.80	32.66	100.00	225.00	264.00	287.00	325 00
	5295.000	858.84	0.00	858.92	100.00	34.27	84.60	41.13	100.00	225.00	264.00	287.00	325.00
	5295.000	859.57	0.00	859.61	100.00	55.93	102.92	61.14	100.00	225.00	264.00	287.00	325.00
	5395.000	859.72	0.00	859.79	100.00	11.89	50.68	17.43	100.00	225.00	264.00	287.00	325.00

	5395.000	859.77	0.00	859.92	100.00	20.82	79.90	29.29	100.00	225.00	264.00	287.00	325.00
	5395.000	859.88	0.00	860.04	100.00	29.05	92.81	38.14	100.00	225.00	264.00	287.00	325.00
	5395 000	860.02	0.00	860.22	100.00	44.08	121.07	54.85	100.00	225.00	264.00	287.00	325 00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	5526.000	861 66	0.00	861.95	68.15	18.79	57.45	3 76	0.00	0 00	125.00	132.00	0.00
	5526.000	862.00	0.00	862.25	98.55	45.60	72.13	12.27	0.00	0.00	125 00	132.00	0 00
	5526.000	862.09	0.00	862.37	101.77	61.72	81.52	16.76	0.00	0.00	125.00	132.00	0.00
	5526.000	862.31	0.00	862.57	105.36	96.51	93.68	29.81	0.00	0.00	125.00	132.00	0.00
	5657.000	863.55	0.00	863.70	84.92	24.28	49.82	5.90	0.00	0.00	125.00	132.00	0.00
	5657.000	863.78	0.00	863.97	101.71	50.07	66.33	13.59	0.00	0.00	125.00	132.00	0 00
	5657.000	863.93	0.00	864.10	104 12	67.64	72.27	20.09	0 00	0.00	125.00	132.00	0.00
	5657.000	864.13	0.00	864.31	107.24	100.96	86.34	32.70	0.00	0.00	125.00	132.00	0 00
	5788.000	865.10	0.00	865.36	71.81	20.06	55.71	4.23	0.00	0.00	125.00	132.00	0 00
	5788 000	865.41	0.00	865.65	98.96	46.18	71.38	12.44	0.00	0.00	125.00	132 00	0.00
	5788.000	865.52	0.00	865.77	102.30	63.05	79.50	17.44	0.00	0.00	125.00	132.00	0 00
	5788.000	865.74	0 00	865.97	105 95	98.01	91.22	30.76	0.00	0.00	125.00	132.00	0.00
	5919.000	866.84	0 00	866 99	84.77	24.24	49.88	5.88	0.00	0.00	125.00	132.00	0 00
	5919.000	867.11	0.00	867.28	102.11	50.79	65.28	13.93	0.00	0.00	125.00	132 00	0.00
	5919.000	867.24	0.00	867.41	104.23	67.88	71.86	20.26	0.00	0.00	125.00	132.00	0.00
	5919.000	867.43	0.00	867.62	107.30	101.08	86.14	32.78	0.00	0.00	125.00	132.00	0 00
	6140.000	868.91	0.00	868.98	60.35	23.47	27.34	29.18	0.00	0.00	212.00	215.00	0 00
	6140 000	869.31	0.00	869.38	70.26	43.48	34.07	52.45	0.00	0.00	212.00	215.00	0.00
	6140.000	869.48	0.00	869.56	74.58	55.98	38.05	65.97	0.00	0.00	212.00	215.00	0.00
	6140.000	869.80	0.00	869.88	82.75	82.73	44.54	92.73	0.00	0.00	212.00	215.00	0.00
	6190.000	871.85	0.00	871.85	124.70	42.17	8.07	29.76	0.00	0.00	212.00	215.00	0.00
*	6190.000	872.08	0.00	872.08	127.48	69.73	12.42	47.85	0.00	0.00	212.00	215.00	0.00
*	6190 000	872.18	0.00	872.19	128.83	86 46	14.91	58.63	0.00	0.00	212.00	215.00	0 00
*	6190.000	872.37	0.00	872.38	130.83	120.09	19.66	80.25	0.00	0.00	212.00	215.00	0 00
	6275.000	871.86	0.00	871.86	74.33	16.64	46.05	17.30	0.00	0.00	128.00	141.00	0.00
	6275.000	872.08	0.00	872.10	77 26	27.77	73.35	28.88	0.00	0.00	128.00	141.00	0 00
	6275.000	872.19	0.00	872.21	78.69	34.60	89.41	35.98	0.00	0.00	128.00	141.00	0.00
	6275.000	872.39	0.00	872.41	81.17	48.57	120.93	50.50	0.00	0.00	128.00	141.00	0.00
	6391.000	871.85	0.00	871.89	13.00	0.00	80.00	0.00	0.00	0.00	128.00	141.00	0.00
	6391.000	872.07	0.00	872 17	13.00	0.00	130.00	0.00	0.00	0.00	128.00	141.00	0.00
	6391.000	872.18	0.00	872.32	13.00	0.00	160.00	0.00	0.00	0.00	128.00	141.00	0.00
	6391.000	872.36	0.00	872.59	13.00	0.00	220.00	0.00	0.00	0.00	128.00	141.00	0.00
	6482.000	872.19	0.00	872.23	13.00	0.00	80.00	0.00	0.00	0.00	128.00	141.00	0.00
	6482.000	873.00	0.00	873.08	13.00	0.00	130 00	0.00	0.00	0.00	128.00	141.00	0.00
	6482.000	873.61	0.00	873.70	13 00	0.00	160.00	0.00	0.00	0.00	128.00	141.00	0.00
	6482.000	874.22	0.00	874.36	25 60	0.57	219.24	0.19	0.00	0.00	128.00	141.00	0.00
	6543.000	872.21	0.00	872.30	13.00	0.00	80.00	0.00	0.00	0.00	128.00	141.00	0.00
	6543.000	873.03	0.00	873.16	13.00	0.00	130.00	0.00	0.00	0.00	128.00	141.00	0.00
	6543.000	873.64	0.00	873.79	13.00	0.00	160.00	0.00	0.00	0.00	128.00	141.00	0.00
	6543.000	874.27	0.00	874.47	13.00	0.00	220.00	0.00	0.00	0 00	128.00	141.00	0.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR

	6743.000	873.46	0.00	873.72	57.04	12.33	58.21	9.46	0 00	0.00	290.00	300.00	0 00
	6743.000	874.08	0.00	874.21	92.77	31.79	70.08	28.13	0.00	0.00	290.00	300.00	0.00
	6743.000	874.49	0.00	874.57	116.58	45.40	72.72	41.88	0.00	0.00	290.00	300.00	0.00
	6743.000	875.08	0.00	875 13	137.02	69.06	78.87	72.08	0.00	0.00	290.00	300.00	0.00
	6945.000	876.09	0.00	876.22	70.96	15.60	51.49	12.91	0.00	0.00	290.00	300.00	0.00
	6945.000	876.17	0.00	876.44	75.30	26.80	80.64	22.55	0.00	0.00	290.00	300.00	0.00
*	6945.000	876.20	0.00	876.59	76.66	33.52	98.13	28.35	0.00	0.00	290.00	300.00	0.00
*	6945.000	876.42	0.00	876 84	89.28	52.28	121.84	45 87	0.00	0.00	290.00	300.00	0.00
	7147.000	878.38	0.00	878.62	59.00	12.83	57.20	9.97	0.00	0 00	290.00	300.00	0.00
	7147.000	878.87	0.00	879.04	86.85	30.24	73.39	26.37	0.00	0.00	290.00	300.00	0 00
	7147.000	879.11	0.00	879.25	100.22	41.31	81.57	37.12	0.00	0.00	290.00	300.00	0.00
	7147.000	879.37	0.00	879.52	115.38	62.05	100.80	57.14	0.00	0.00	290.00	300.00	0.00
	7362.000	880.69	0 00	880.79	75.81	16.60	49.41	13.99	0.00	0.00	290 00	300.00	0.00
	7362.000	880.90	0.00	881.05	88.32	30.64	72.54	26.82	0.00	0.00	290.00	300.00	0.00
	7362.000	881.01	0.00	881.19	94.78	39.74	84.94	35.32	0.00	0.00	290.00	300.00	0.00
	7362.000	881.27	0.00	881.46	109.87	60.27	104.68	55.05	0.00	0.00	290.00	300.00	0.00
	7577.000	882.49	0.00	882.66	65.24	14.33	54.11	11.55	0 00	0.00	290.00	300.00	0.00
	7577.000	882.88	0.00	883.04	87.48	30.41	73.02	26.57	0.00	0.00	290.00	300.00	0.00
	7577 000	883.06	0.00	883.22	97.84	40.64	83.01	36.34	0.00	0.00	290.00	300.00	0.00
	7577.000	883.32	0.00	883.49	112.66	61.19	102.69	56.13	0.00	0.00	290.00	300.00	0.00
	7896.000	884.52	0.00	884.71	9.00	0.00	80.00	0.00	0.00	0.00	300.00	309.00	0.00
	7896.000	885.05	0 00	885.39	9.00	0.00	130.00	0.00	0.00	0.00	300.00	309.00	0.00
	7896.000	885 30	0.00	885.74	9.00	0.00	160.00	0.00	0.00	0.00	300.00	309.00	0.00
	7896.000	885.75	0.00	886.40	9.00	0.00	220.00	0.00	0.00	0.00	300.00	309.00	0.00
	7897.000	884.52	0.00	884.77	7.20	0.00	80.00	0.00	0.00	0.00	296.40	303.60	0 00
	7897.000	885 05	0.00	885.52	7.20	0.00	130.00	0.00	0.00	0.00	296.40	303.60	0.00
	7897.000	885.30	0.00	885.92	7.20	0.00	160.00	0.00	0.00	0.00	296.40	303.60	0.00
	7897.000	885.76	0.00	886.71	7.20	0.00	220.00	0.00	0.00	0.00	296.40	303.60	0.00
	7962.000	884.78	0.00	885.06	7.20	0.00	80.00	0.00	0.00	0.00	296.40	303.60	0.00
	7962.000	885.47	0.00	885.93	7.20	0.00	130.00	0.00	0.00	0.00	296.40	303.60	0.00
	7962.000	885.89	0.00	886.46	7.20	0.00	160.00	0.00	0.00	0.00	296.40	303.60	0.00
	7962.000	886.75	0.00	887.53	7 20	0.00	220.00	0.00	0.00	0.00	296.40	303.60	0.00
	7963 000	884.91	0.00	885.10	9.00	0.00	80.00	0.00	0.00	0.00	300.00	309.00	0.00
	7963 000	885.74	0.00	886.02	9.00	0.00	130.00	0.00	0.00	0.00	300.00	309.00	0.00
	7963.000	886.26	0.00	886.58	9.00	0.00	160.00	0.00	0.00	0.00	300.00	309.00	0.00
	7963.000	887.36	0.00	887.74	9.00	0.00	220.00	0.00	0.00	0.00	300.00	309.00	0.00
	8043.000	885.25	0.00	885.26	132.68	22.18	20.19	37.63	320.00	0.00	200.00	210.00	320 00
	8043.000	886.19	0.00	886.20	159.51	46.38	23.12	60.50	320.00	0.00	200.00	210.00	320 00
	8043.000	886.76	0.00	886.76	175.76	64.09	24.46	71.44	320.00	0.00	200.00	210.00	320 00
	8043.000	887.93	0.00	887.93	194.46	107.68	25.75	86.57	320.00	0.00	200.00	210.00	320.00

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	8224.000	885.73	0.00	885.94	110.13	17.92	46.78	15.30	320.00	0.00	200.00	210.00	320.00
	8224.000	886.26	0.00	886.33	118.63	30.47	44.30	55.23	320.00	0.00	200.00	210.00	320.00
	8224.000	886.80	0.00	886.83	133 97	44.99	39.51	75.50	320.00	0.00	200 00	210.00	320.00
	8224.000	887.94	0.00	887 95	166.70	82.87	36.46	100.67	320.00	0.00	200.00	210.00	320.00
	8405.000	887.47	0.00	887 53	113.44	17.92	35.36	26.72	0.00	0.00	200.00	210.00	0 00
	8405.000	887.47	0.00	887.65	113.54	29.13	57.04	43.83	0.00	0.00	200.00	210.00	0.00
*	8405.000	887.49	0 00	887.74	113.87	35.89	68.59	55.53	0 00	0.00	200.00	210.00	0.00
	8405.000	888 07	0.00	888.16	127.35	57.50	61.22	101.28	0.00	0.00	200.00	210.00	0.00

	8465.000	887.85	0.00	887.97	111.87	17.89	39.95	22.16	0 00	0.00	200.00	210.00	0.00
	8465.000	888.13	0.00	888.23	115.84	29.44	49.25	51.31	0.00	0.00	200.00	210.00	0.00
	8465.000	888.28	0.00	888.38	119.13	37.76	53.79	68.45	0.00	0.00	200.00	210.00	0 00
	8465.000	888.40	0.00	888.54	122.58	54.35	67.83	97.82	0.00	0.00	200.00	210.00	0.00
	8525.000	888.36	0.00	888 47	112.08	17.89	39.27	22.84	0.00	0.00	200.00	210.00	0.00
	8525.000	888.58	0.00	888.70	115.03	29.30	51.66	49.03	0.00	0.00	200.00	210.00	0.00
	8525.000	888.69	0.00	888.81	116.67	36.44	57.88	65.68	0.00	0.00	200.00	210.00	0.00
	8525.000	888.87	0.00	889.01	121.58	53.68	69.45	96.87	0.00	0.00	200.00	210.00	0.00
	8587.000	888.86	0.00	888.97	111.97	17.89	39.63	22.48	0.00	0.00	200.00	210.00	0.00
	8587.000	889.08	0.00	889.20	115.12	29.32	51.37	49.31	0.00	0.00	200.00	210.00	0.00
	8587.000	889.19	0 00	889.32	116.63	36.43	58.01	65.56	0.00	0.00	200.00	210.00	0.00
	8587 000	889.37	0.00	889.52	121.61	53.70	69.40	96.90	0.00	0.00	200.00	210.00	0.00
	9091.000	891.55	0.00	891.60	114.69	18.00	32.47	29.53	0.00	0.00	200.00	210.00	0.00
	9091.000	891.80	0.00	891.86	119.75	30.96	42.98	56.06	0.00	0.00	200.00	210.00	0.00
	9091.000	891.93	0.00	891.99	123.37	39.91	48.44	71.65	0.00	0.00	200.00	210.00	0.00
	9091.000	892.14	0.00	892.22	129.53	58.93	58.71	102.35	0.00	0.00	200.00	210.00	0.00
	9411.000	893 41	0.00	893.67	10.00	0.00	80 00	0.00	10.00	502.50	500.00	515.00	512.50
	9411 000	893.91	0.00	894.35	10.00	0.00	130.00	0.00	10.00	502.50	500.00	515.00	512.50
	9411.000	894.15	0.00	894.70	10.00	0.00	160.00	0.00	10.00	502.50	500.00	515.00	512.50
	9411.000	894 55	0.00	895.34	10.00	0.00	220.00	0.00	10.00	502.50	500.00	515.00	512.50
	9412.000	893.31	0.00	893.79	9.00	0.00	80.00	0.00	0.00	0.00	495.50	504.50	0.00
	9412.000	893.74	0.00	894.54	9.00	0.00	130.00	0.00	0.00	0.00	495.50	504.50	0.00
	9412.000	893.91	0.00	894.95	9.00	0.00	160.00	0.00	0.00	0.00	495.50	504.50	0.00
*	9412 000	894.28	0.00	895.79	9.00	0.00	220.00	0.00	0.00	0.00	495.50	504.50	0.00
*	9430.000	893.34	0.00	894.04	8.91	0.00	80.00	0.00	0.00	0 00	495.50	504.50	0.00
*	9430.000	893.85	0.00	894.84	9.00	0.00	130.00	0.00	0.00	0.00	495.50	504 50	0.00
*	9430.000	894.12	0.00	895.29	9.00	0.00	160.00	0.00	0.00	0.00	495.50	504.50	0.00
*	9430.000	894.59	0.00	896 15	9.00	0 00	220.00	0.00	0.00	0.00	495.50	504.50	0.00
	9431.000	894.10	0.00	894.30	10.00	0.00	80.00	0.00	10.00	502.50	500.00	515.00	512 50
	9431.000	894.94	0.00	895.21	10.00	0.00	130.00	0.00	10.00	502.50	500.00	515.00	512.50
	9431.000	895.41	0.00	895.73	10.00	0.00	160.00	0.00	10.00	502.50	500.00	515.00	512.50
	9431.000	896.39	0.00	896.75	10.00	0.00	220.00	0.00	10.00	502.50	500.00	515.00	512.50

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	9581.000	894.88	0.00	894.95	36.90	4.65	68.90	6.45	0.00	0.00	500 00	515 00	0.00
	9581.000	895.71	0.00	895.78	48.76	12.48	100.89	16.62	0.00	0.00	500.00	515.00	0.00
	9581.000	896.19	0.00	896.26	55.44	18.45	117.71	23.84	0.00	0.00	500.00	515.00	0 00
	9581.000	897.14	0.00	897 20	174.03	37.29	143.01	39.70	0.00	0.00	500.00	515.00	0.00
	10280.000	898.28	0.00	898.37	91.44	62.51	15.68	1.81	0.00	0.00	627.00	630.00	0.00
	10280.000	898.40	0.00	898.53	107.27	102.18	22.26	5.56	0.00	0.00	627.00	630.00	0.00
	10280.000	898.47	0.00	898.62	117.85	125.59	25.18	9.23	0.00	0.00	627.00	630.00	0 00
	10280.000	898 65	0.00	898.81	141.08	170.61	29.21	20.18	0.00	0.00	627.00	630.00	0.00
	11080.000	901.93	0 00	902.16	38.55	70.66	7.24	2.09	84.00	760.00	800.00	804.00	844.00
	11080.000	902 14	0.00	902.46	42.92	115.22	11.02	3.76	84.00	760.00	800.00	804.00	844.00
	11080.000	902.24	0.00	902.60	49.71	141.32	13.15	5.53	84.00	760.00	800.00	804.00	844.00
*	11080.000	902.45	0.00	902 84	64.09	190.38	16.87	12.75	84 00	760.00	800.00	804.00	844.00
	11120.000	906.34	0.00	906.34	84.00	45.25	3.17	31.58	84.00	760.00	800.00	804.00	844 00
	11120.000	906.59	0.00	906.59	84.00	73.08	5.11	51.81	84.00	760.00	800.00	804.00	844.00
	11120.000	906.69	0.00	906 69	84.00	89.72	6.27	64.01	84.00	760.00	800.00	804.00	844.00
	11120.000	906 85	0 00	906 86	84.00	122.93	8.58	88.49	84.00	760.00	800.00	804.00	844.00

11795.000	906.34	0.00	906.34	240.00	54.26	12.73	13.00	240.00	520.00	700.00	707.00	760.00
11795.000	906.59	0.00	906.60	240.00	90.13	17.00	22.87	240.00	520.00	700.00	707.00	760.00
11795.000	906.69	0.00	906.70	240.00	111.60	19.66	28.74	240.00	520.00	700.00	707.00	760.00
11795.000	906.86	0.00	906.87	240.00	154.60	24.91	40.49	240.00	520.00	700.00	707.00	760.00
11895.000	906.54	0.00	906.57	240.00	51.29	18.49	10.22	240.00	520.00	700.00	707.00	760.00
11895.000	906.78	0.00	906.80	240.00	87.56	21.87	20.57	240.00	520.00	700.00	707.00	760.00
11895.000	906.90	0.00	906.92	240.00	109.21	24.16	26.62	240.00	520.00	700.00	707.00	760.00
11895.000	907.08	0.00	907.11	240.00	152.47	28.87	38.66	240.00	520.00	700.00	707.00	760.00
11995.000	907.05	0.00	907.08	240.00	51.36	18.35	10.29	240.00	520.00	700.00	707.00	760.00
11995.000	907.22	0.00	907.25	240.00	86.82	23.29	19.89	240.00	520.00	700.00	707.00	760.00
11995.000	907.32	0.00	907.35	240.00	108.30	25.90	25.80	240.00	520.00	700.00	707.00	760.00
11995.000	907.49	0.00	907.52	240.00	151.49	30.72	37.79	240.00	520.00	700.00	707.00	760.00
12095.000	907.55	0.00	907.58	240.00	51.36	18.35	10.29	240.00	520.00	700.00	707.00	760.00
12095.000	907.73	0.00	907.75	240.00	86.87	23.19	19.93	240.00	520.00	700.00	707.00	760.00
12095.000	907.82	0.00	907.84	240.00	108.36	25.78	25.86	240.00	520.00	700.00	707.00	760.00
12095.000	907.99	0.00	908.02	240.00	151.34	30.99	37.66	240.00	520.00	700.00	707.00	760.00
12195.000	908.05	0.00	908.07	240.00	51.46	18.15	10.38	240.00	520.00	700.00	707.00	760.00
12195.000	908.23	0.00	908.25	240.00	86.92	23.11	19.97	240.00	520.00	700.00	707.00	760.00
12195.000	908.32	0.00	908.35	240.00	108.24	26.01	25.74	240.00	520.00	700.00	707.00	760.00
12195.000	908.49	0.00	908.52	240.00	151.37	30.94	37.69	240.00	520.00	700.00	707.00	760.00
12595.000	910.49	0.00	910.55	95.00	24.12	26.15	29.73	95.00	680.00	700.00	707.00	775.00
12595.000	910.73	0.00	910.81	95.00	35.86	36.06	58.08	95.00	680.00	700.00	707.00	775.00
12595.000	910.86	0.00	910.94	95.00	42.50	41.46	76.03	95.00	680.00	700.00	707.00	775.00
12595.000	911.07	0.00	911.16	95.00	55.80	52.52	111.69	95.00	680.00	700.00	707.00	775.00

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
13155.000	914.60	0.00	914.70	60.00	12.01	55.30	12.69	60.00	780.00	800.00	812.00	840.00
13155.000	914.95	0.00	915.07	60.00	23.79	78.30	27.92	60.00	780.00	800.00	812.00	840.00
13155.000	915.12	0.00	915.26	60.00	30.93	91.72	37.35	60.00	780.00	800.00	812.00	840.00
13155.000	915.45	0.00	915.60	60.00	45.65	117.14	57.21	60.00	780.00	800.00	812.00	840.00
13620.000	917.19	0.00	917.24	166.47	6.44	38.02	35.53	195.00	725.00	800.00	812.00	920.00
13620.000	917.45	0.00	917.50	185.85	15.54	48.40	66.06	195.00	725.00	800.00	812.00	920.00
13620.000	917.58	0.00	917.63	195.00	22.49	53.64	83.87	195.00	725.00	800.00	812.00	920.00
13620.000	917.82	0.00	917.86	195.00	39.93	63.21	116.86	195.00	725.00	800.00	812.00	920.00
14029.000	919.62	0.00	919.74	105.88	3.29	47.21	29.50	190.00	560.00	695.00	704.00	750.00
14029.000	919.85	0.00	919.99	142.29	14.70	63.26	52.03	190.00	560.00	695.00	704.00	750.00
14029.000	919.95	0.00	920.09	156.52	24.24	71.69	64.08	190.00	560.00	695.00	704.00	750.00
14029.000	920.11	0.00	920.26	180.26	49.05	85.17	85.78	190.00	560.00	695.00	704.00	750.00
14634.000	923.99	0.00	924.01	117.84	19.05	9.64	61.31	170.00	150.00	240.00	243.00	320.00
14634.000	924.24	0.00	924.27	119.38	33.08	12.70	94.22	170.00	150.00	240.00	243.00	320.00
14634.000	924.35	0.00	924.38	120.02	39.01	13.80	107.20	170.00	150.00	240.00	243.00	320.00
14634.000	924.59	0.00	924.63	121.44	56.54	17.36	146.09	170.00	150.00	240.00	243.00	320.00
15238.000	928.53	0.00	928.57	157.57	16.34	10.53	63.14	0.00	0.00	240.00	243.00	0.00
15238.000	928.69	0.00	928.73	159.21	27.10	13.50	99.40	0.00	0.00	240.00	243.00	0.00
15238.000	928.74	0.00	928.78	159.67	31.37	14.76	113.86	0.00	0.00	240.00	243.00	0.00
15238.000	928.92	0.00	928.97	161.42	44.73	17.70	157.56	0.00	0.00	240.00	243.00	0.00
15988.000	933.79	0.00	933.84	99.13	2.20	34.59	53.21	110.00	830.00	840.00	847.00	940.00
15988.000	934.06	0.00	934.12	100.87	5.26	44.43	90.31	110.00	830.00	840.00	847.00	940.00
15988.000	934.17	0.00	934.24	101.23	6.60	47.90	105.50	110.00	830.00	840.00	847.00	940.00
15988.000	934.42	0.00	934.49	102.05	10.51	58.95	150.54	110.00	830.00	840.00	847.00	940.00

16738.000	940.05	0.00	940.19	56.74	0.00	52.55	37 45	70 00	370.00	383.00	400.00	440.00
16738.000	940.29	0.00	940.47	60.19	0.12	77.44	62.44	70.00	370.00	383.00	400.00	440.00
16738.000	940.35	0.00	940.55	61.47	0.29	87.44	72.26	70.00	370.00	383.00	400.00	440.00
16738.000	940.60	0.00	940.83	65.78	1.71	116.16	102.13	70.00	370.00	383.00	400.00	440.00
17638.000	949.96	0.00	950.10	72.78	0.30	74 12	15.57	0.00	0.00	285.00	300.00	0.00
17638.000	950.28	0.00	950.43	99.97	2 49	101.65	35.86	0.00	0.00	285.00	300.00	0.00
17638.000	950.39	0.00	950 55	109.26	3.91	111.07	45.02	0.00	0.00	285.00	300.00	0.00
17638.000	950.63	0.00	950.81	130.23	8.99	138.02	72.99	0.00	0.00	285.00	300.00	0.00
18038.000	953.91	0.00	954.16	51.78	0.00	80.66	9.34	195.00	180.00	285.00	300.00	375.00
18038.000	954.21	0.00	954.50	76.91	0.68	113.22	26.10	195.00	180.00	285.00	300.00	375.00
18038.000	954 30	0.00	954.61	84.69	1.36	124.88	33.76	195.00	180 00	285.00	300.00	375.00
18038.000	954.56	0.00	954.88	106.73	4.97	154.61	60.42	195.00	180.00	285.00	300.00	375.00
18240.000	956.06	0.00	956.15	79 44	29.43	33.15	27.42	90.00	450.00	491.00	496.00	540 00
18240.000	956.38	0.00	956.48	88.63	51.69	43.09	45.22	90.00	450.00	491.00	496.00	540.00
18240.000	956.49	0.00	956.59	90.00	60 37	46.61	53.02	90.00	450.00	491.00	496.00	540 00
18240.000	956.74	0.00	956.85	90.00	85.40	56.66	77.94	90.00	450.00	491.00	496.00	540.00

1
13 FEB 89 10:28:33 PAGE 104

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
*	18513.000	958.94	0.00	960.72	2.40	0.00	90.00	0.00	0.00	0.00	399.00	401.40	0.00
*	18513.000	960.73	0.00	960.89	171.14	23.66	58.21	58.14	0.00	0.00	399.00	401.40	0.00
*	18513.000	960.76	0.00	960.93	178.07	28.75	60.44	70.81	0.00	0.00	399.00	401.40	0.00
*	18513.000	960.86	0.00	961.02	196.97	45.20	64.87	109.93	0.00	0.00	399.00	401.40	0.00
*	18557.000	959.54	0.00	961.32	2.40	0.00	90.00	0.00	0.00	0.00	399.00	401.40	0.00
*	18557.000	961.36	0.00	961.49	176.60	24.85	53.96	61.19	0.00	0.00	399.00	401.40	0.00
*	18557.000	961 37	0.00	961.53	179.33	29.05	59.41	71.54	0.00	0.00	399.00	401.40	0.00
*	18557.000	961.46	0.00	961.62	197.65	45.39	64.32	110.30	0.00	0.00	399.00	401.40	0.00

1
THORNTON CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
1560.000	0.00	0.00	0.00	831.50	123.00	833.81	0.00	833.86	24.02	1.90	94.30	25.10
1560.000	0.00	0.00	0.00	831.50	190.00	834.15	0.00	834.20	23.57	2.08	151.83	39.14
1560.000	0.00	0.00	0 00	831.50	200.00	834.18	0.00	834.24	23.72	2.12	158 89	41.07
1560.000	0.00	0.00	0 00	831.50	330.00	834.60	0.00	834.66	23.99	2.45	252.16	67.38
1760.000	200.00	0.00	0.00	831.97	123.00	834.37	0.00	834.44	34.96	2.34	79.88	20.80
1760.000	200.00	0.00	0.00	831.97	190 00	834.69	0.00	834.77	35 59	2.62	123.25	31.85
1760 000	200.00	0.00	0.00	831.97	200.00	834.73	0.00	834.81	35.74	2.66	129.08	33.45
1760.000	200.00	0.00	0.00	831.97	330.00	835.15	0.00	835.25	36.81	3.09	201.95	54.39
1960.000	200.00	0.00	0.00	832.44	123.00	835.11	0.00	835.20	41.62	2.74	74.82	19.07
1960.000	200.00	0.00	0.00	832.44	190.00	835.44	0.00	835.55	43.61	3.15	109.80	28.77
1960.000	200 00	0.00	0 00	832.44	200.00	835.49	0.00	835.60	43.95	3.20	114.71	30.17
1960.000	200.00	0.00	0 00	832.44	330.00	835.93	0.00	836.07	46.74	3.75	173.27	48.27
2160.000	200.00	0.00	0.00	832.90	123.00	835.95	0.00	836 14	49.20	3.58	38.31	17.54
2160.000	200.00	0.00	0.00	832.90	190.00	836.39	0.00	836.70	66.05	4.61	49.15	23.38
2160.000	200.00	0.00	0.00	832.90	200.00	836.44	0.00	836.77	68.39	4.75	50.69	24.18
2160.000	200.00	0.00	0.00	832.90	330.00	837.00	0.00	837.57	97.97	6.36	68.54	33.34
2328.000	168.00	0.00	0.00	834 20	123.00	836.93	0.00	837.19	77.29	4.13	32.09	13.99
2328.000	168.00	0.00	0.00	834.20	190.00	837.56	0.00	837.91	77.23	4.85	45.82	21 62

2328.000	168.00	0.00	0.00	834.20	200.00	837.64	0.00	838.00	77.28	4.94	47.96	22.75
2328.000	168.00	0.00	0.00	834.20	330.00	838.56	0.00	839.02	73.81	5.79	78.54	38.41
2495.000	167 00	0.00	0.00	835.50	123.00	837.74	0.00	837.78	16.55	1.58	77.73	30.24
2495.000	167 00	0.00	0.00	835.50	190.00	838.39	0.00	838.43	12.76	1.68	112.86	53.19
2495.000	167.00	0.00	0.00	835.50	200.00	838.47	0.00	838.52	12 44	1.70	117.75	56.71
2495.000	167.00	0.00	0.00	835 50	330.00	839.45	0.00	839.51	10.19	1.88	175.99	103.38
2496.000	1.00	840.00	840.20	835.50	123.00	837.73	0.00	837.78	4.36	1.79	68.79	58.90
2496 000	1.00	840.00	840.20	835.50	190.00	838.38	0 00	838.44	3.57	1.89	100.27	100.58
2496.000	1.00	840.00	840.20	835.50	200.00	838.47	0.00	838.53	3.50	1 91	104.66	106 86
2496.000	1.00	840.00	840.20	835.50	330.00	839.45	0.00	839.52	3.09	2.10	156.84	187.68
2502.000	6.00	840.00	840 20	835.50	123.00	837.73	0.00	837.78	4.38	1.79	68.65	58.75
2502.000	6.00	840.00	840.20	835.50	190.00	838.38	0.00	838.44	3.59	1.90	100.02	100.23
2502.000	6.00	840.00	840.20	835.50	200.00	838.47	0.00	838.53	3.53	1.92	104.41	106.49
2502.000	6.00	840.00	840.20	835.50	330.00	839.45	0.00	839.52	3.10	2.11	156.76	187.55
2503.000	1.00	0.00	0.00	835.50	123.00	837.75	0.00	837.79	16.38	1.58	78.01	30.39
2503.000	1.00	0.00	0.00	835.50	190.00	838.40	0.00	838.44	12.68	1.68	113.10	53.37
2503.000	1.00	0.00	0.00	835.50	200.00	838.49	0.00	838.53	12.36	1.69	117 99	56.89
2503.000	1.00	0.00	0.00	835.50	330.00	839.47	0.00	839 52	10.14	1.87	176.27	103.62

1

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	2560.000	57 00	0.00	0.00	835.50	123.00	837.84	0.00	837.87	13.59	1.48	83.16	33.36
	2560.000	57.00	0.00	0.00	835.50	190.00	838.47	0.00	838.51	11.26	1.62	117.64	56.63
	2560.000	57.00	0.00	0.00	835.50	200.00	838.56	0.00	838 60	11.04	1.63	122.48	60 19
	2560.000	57.00	0.00	0.00	835.50	330.00	839.53	0.00	839.58	9.44	1.83	180.58	107.38
	2600.000	40.00	0.00	0.00	835.50	123.00	837.89	0.00	837.93	11.83	1.54	79.90	35.77
	2600.000	40.00	0.00	0.00	835.50	190.00	838.51	0.00	838.56	11.59	1.80	105.54	55.81
	2600.000	40.00	0.00	0.00	835.50	200.00	838.60	0.00	838.65	11.59	1.83	109.00	58.74
	2600.000	40.00	0.00	0.00	835.50	330.00	839.56	0 00	839.63	11.92	2.22	148.44	95.57
	2639.000	39.00	0.00	0.00	836.70	123.00	837 82	0.00	838.24	260.66	5.20	23.67	7.62
	2639.000	39.00	0.00	0.00	836.70	190.00	838.44	0.00	838.86	146.17	5.20	36.55	15 72
	2639.000	39.00	0.00	0.00	836.70	200.00	838.52	0.00	838.95	138.94	5.23	38.27	16.97
	2639.000	39.00	0.00	0.00	836.70	330.00	839.44	0.00	839.95	96.56	5.73	57.64	33.58
*	2640 000	1.00	845.50	844.10	836.70	123.00	837.95	837.95	838.48	168.22	5.85	21.02	9.48
	2640.000	1.00	845.50	844.10	836.70	190.00	838.32	838 31	839.01	159.87	6.68	28.44	15.03
	2640.000	1.00	845.50	844.10	836.70	200.00	838.41	0.00	839.09	147.76	6.62	30.21	16 45
	2640.000	1.00	845.50	844.10	836.70	330.00	839.36	0.00	840.06	96.57	6.71	49.18	33 58
	2692.000	52.00	845.50	844.50	837.10	123.00	838.78	0.00	839.05	59.43	4.16	29.60	15.95
	2692.000	52.00	845.50	844.50	837.10	190.00	839.23	0.00	839.61	64.28	4.92	38.65	23.70
	2692.000	52.00	845.50	844.50	837.10	200.00	839.27	0.00	839.67	67.09	5.07	39.45	24 42
	2692.000	52.00	845.50	844.50	837.10	330.00	839.93	0.00	840.54	79.92	6.28	52.56	36.91
	2693.000	1.00	0.00	0.00	837.10	123.00	838.85	0.00	839.07	132.53	3.76	32.70	10 68
	2693.000	1.00	0.00	0.00	837.10	190 00	839.43	0.00	839.66	90.08	3.84	49.53	20.02
	2693.000	1.00	0.00	0 00	837.10	200.00	839.49	0.00	839.73	89.15	3.89	51.44	21.18
	2693.000	1.00	0.00	0.00	837.10	330.00	840.40	0.00	840.65	63.68	4.07	81.05	41.36
*	2700.000	7.00	0.00	0.00	837.20	123.00	839.81	839.81	840.35	236.76	6.02	26.32	7.99
*	2700.000	7.00	0.00	0.00	837.20	190.00	840.26	840.26	840.77	206.01	6.28	48.00	13.24
*	2700.000	7.00	0.00	0.00	837.20	200.00	840.30	840.30	840.82	209.48	6 39	50.04	13.82
*	2700.000	7 00	0.00	0.00	837.20	330.00	840.72	840.72	841.36	242.50	7.50	72.66	21.19
	2760.000	60.00	0.00	0.00	837.80	123.00	840.94	0.00	841.12	72.62	3.79	52.14	14.43
	2760.000	60.00	0.00	0 00	837.80	190.00	841.28	0.00	841.51	86.72	4.45	70 46	20.40
	2760.000	60.00	0.00	0.00	837.80	200 00	841.33	0.00	841.56	87.55	4.51	73.17	21.37
	2760 000	60.00	0.00	0.00	837.80	330.00	841.86	0.00	842.16	96.47	5.37	105.02	33.60

2820.000	60.00	0.00	0.00	838.40	123.00	841.37	0.00	841.63	106.76	4.43	43.10	11.90
2820.000	60.00	0.00	0.00	838.40	190.00	841.75	0.00	842.03	112 89	4.94	63.12	17.88
2820 000	60.00	0.00	0.00	838.40	200.00	841.80	0.00	842.09	113.27	5.00	65.82	18.79
2820.000	60.00	0.00	0.00	838.40	330 00	842.33	0 00	842.69	118.01	5.75	96.38	30.38
2880.000	60 00	0.00	0.00	839.00	123.00	841.96	0.00	842.22	109.34	4.47	42.57	11.76
2880.000	60.00	0.00	0.00	839.00	190 00	842.33	0.00	842.63	117.13	5.01	62.13	17.56
2880.000	60.00	0.00	0.00	839.00	200.00	842.38	0.00	842.68	118.00	5.08	64.70	18.41
2880.000	60.00	0.00	0.00	839 00	330.00	842 90	0.00	843.27	124.33	5.86	94.33	29.60

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
3091.000	211.00	0 00	0.00	840.30	123.00	843.48	0.00	843.62	43.43	3.00	41.05	18.67
3091.000	211.00	0.00	0.00	840.30	190.00	843.95	0.00	844.17	50.55	3.73	50.92	26.72
3091 000	211 00	0.00	0.00	840.30	200.00	844.01	0.00	844.24	51.61	3.83	52.18	27.84
3091.000	211.00	0.00	0.00	840.30	330.00	844.67	0.00	845.05	64.33	5.00	65.96	41.14
3092.000	1.00	849.10	847.80	840.30	123.00	843.58	0.00	843.65	7.10	1.98	61.99	46 17
3092.000	1.00	849.10	847 80	840.30	190.00	844.10	0.00	844.20	11.42	2.63	72.29	56 22
3092.000	1.00	849.10	847 80	840.30	200.00	844.16	0.00	844.28	12.10	2.72	73.56	57.50
3092.000	1.00	849.10	847.80	840.30	330.00	844.88	0.00	845.11	21.80	3.81	86.58	70.68
3178.000	86.00	849.10	848.30	840.80	123.00	843.65	0.00	843.73	10 88	2.32	52.94	37.29
3178.000	86.00	849.10	848.30	840.80	190.00	844.19	0.00	844.33	15.20	2.96	64.21	48.74
3178.000	86.00	849.10	848.30	840.80	200.00	844 26	0.00	844.41	15.62	3.04	65.80	50.61
3178.000	86.00	849.10	848.30	840.80	330.00	845.07	0.00	845.33	25.67	4.07	81.08	65.13
3179.000	1.00	0.00	0.00	840.80	123.00	843 58	0.00	843.80	89.20	3.76	32.71	13.02
3179.000	1.00	0.00	0.00	840.80	190.00	844.12	0 00	844.41	82.81	4.33	43.91	20.88
3179.000	1.00	0 00	0.00	840.80	200.00	844.19	0.00	844.49	82.29	4.41	45.37	22.05
3179.000	1 00	0.00	0.00	840.80	330.00	844.98	0 00	845.42	79.06	5.32	62.01	37.11
3309 000	130.00	0.00	0.00	841.70	123.00	844.63	0.00	844.81	66.46	3.40	37.90	15.09
3309.000	130.00	0 00	0.00	841.70	190.00	845.13	0.00	845.35	61.12	3.85	67.63	24.30
3309.000	130.00	0.00	0.00	841.70	200.00	845.20	0.00	845.42	59.30	3.87	74.93	25.97
3309.000	130.00	0.00	0.00	841.70	330.00	846.00	0.00	846.14	32.36	3.50	190.76	58.01
3532.000	223.00	0.00	0.00	843.30	123.00	846.33	0.00	846.56	90.61	3.87	33.30	12.92
3532.000	223.00	0.00	0.00	843.30	190.00	846.78	0.00	847.08	96.29	4.51	50.31	19.36
3532.000	223.00	0.00	0.00	843.30	200.00	846.83	0.00	847 14	98.78	4.62	52.41	20.12
3532.000	223.00	0.00	0 00	843.30	330.00	847.15	846.90	847.72	160.37	6.33	69.07	26.06
3755.000	223.00	0.00	0.00	844.80	123.00	848.04	0.00	848.21	60.90	3.38	40.58	15.76
3755.000	223.00	0.00	0.00	844.80	190.00	848.57	0.00	848.78	60.23	3.81	64.62	24.48
3755.000	223.00	0.00	0.00	844.80	200.00	848.64	0.00	848.85	59.53	3.85	68.69	25.92
3755.000	223.00	0.00	0.00	844.80	330.00	849.44	0.00	849.66	50.18	4.09	126.28	46.58
3978.000	223.00	0.00	0.00	846.30	123.00	849.47	0.00	849.66	68.88	3.52	38.13	14.82
3978.000	223.00	0.00	0.00	846.30	190.00	849.99	0.00	850.23	69 22	4.01	59.99	22.84
3978.000	223.00	0.00	0 00	846.30	200.00	850 05	0.00	850.29	69.45	4.07	63.26	24.00
3978.000	223.00	0.00	0.00	846.30	330.00	850.71	0.00	850 99	69.60	4.64	106.95	39.56
4227.000	249.00	0.00	0.00	848.00	123.00	851.18	0.00	851.37	69.07	3.53	38.08	14.80
4227.000	249.00	0.00	0.00	848.00	190.00	851.68	0.00	851.91	70.38	4.03	59.46	22.65
4227.000	249 00	0.00	0.00	848.00	200.00	851.74	0.00	851.98	70 53	4.09	62.74	23.81
4227.000	249.00	0.00	0.00	848.00	330.00	852.36	0.00	852.66	74.36	4 75	103.38	38 27
4476.000	249 00	0.00	0.00	849.70	123.00	852.88	0.00	853.07	68.57	3.52	38.22	14.85
4476.000	249.00	0.00	0.00	849.70	190.00	853.38	0.00	853.61	70.15	4.03	59.56	22.69
4476.000	249.00	0 00	0 00	849.70	200.00	853.44	0.00	853.68	70.45	4.09	62.78	23.83
4476.000	249.00	0.00	0.00	849.70	330.00	854.07	0.00	854.37	73.52	4.73	103.98	38.49

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K

	4725.000	249.00	0.00	0.00	851.30	123.00	854.53	0.00	854.70	63.43	3.42	39.75	15.44
	4725 000	249.00	0.00	0.00	851 30	190.00	855.02	0.00	855.25	64.96	3.92	62.06	23.57
	4725.000	249.00	0.00	0.00	851.30	200.00	855.08	0.00	855.31	65.19	3.98	65.44	24.77
	4725.000	249.00	0.00	0.00	851.30	330.00	855.72	0.00	856.00	67.81	4.59	108 39	40.08
	4979.000	254.00	0.00	0.00	853.00	123.00	855.55	0.00	855.57	19.53	1.67	130.92	27.83
	4979.000	254.00	0.00	0.00	853.00	190.00	856.01	0.00	856.04	16.26	1.83	182.83	47.11
	4979.000	254.00	0.00	0.00	853.00	200.00	856.07	0.00	856.10	16.03	1.85	189.69	49.95
	4979.000	254.00	0.00	0.00	853.00	330.00	856.74	0.00	856.78	15.09	2.18	264.51	84.96
*	5179.000	200.00	0.00	0.00	855.00	123 00	857.04	857.04	857.52	381.54	5.55	22.15	6.30
*	5179.000	200.00	0.00	0.00	855.00	190.00	857.34	857.34	858.00	363.30	6.51	29.17	9.97
*	5179.000	200.00	0 00	0.00	855.00	200.00	857.39	857.39	858.07	358.73	6.62	30.20	10 56
*	5179.000	200.00	0.00	0.00	855.00	330.00	857 91	857.91	858.86	317.56	7.80	42.30	18.52
	5180.000	1.00	858.59	858.20	855.00	123.00	857.54	0.00	857.63	5.80	2.46	50.07	51.09
	5180.000	1.00	858.59	858.20	855.00	190.00	857.99	0.00	858.15	14.14	3.28	57.91	50.53
	5180.000	1.00	858.59	858.20	855.00	200.00	858.04	0.00	858.22	15.28	3.42	58.56	51.16
	5180.000	1.00	858.59	858.20	855.00	330.00	858 53	0.00	859.01	53 10	5.54	59.55	45.29
	5194.000	14.00	858.59	858.40	855.20	123.00	857.54	0.00	857.65	7.53	2.69	45.80	44.81
	5194.000	14 00	858.59	858.40	855.20	190.00	858.00	0.00	858.18	10.68	3.42	55.58	58.15
	5194.000	14.00	858.59	858.40	855.20	200 00	858 06	0.00	858.25	16.49	3.55	56.31	49.25
	5194.000	14.00	858.59	858.40	855 20	330.00	858.62	0.00	859.09	64.76	5.53	59.72	41.01
	5195.000	1.00	0.00	0.00	855.20	123.00	857.53	0.00	857.67	47.75	3.00	40.98	17.80
	5195.000	1.00	0.00	0.00	855.20	190.00	857.98	0.00	858.19	53.34	3.69	51.46	26.02
	5195.000	1.00	0.00	0.00	855.20	200.00	858.05	0.00	858.27	53.94	3.78	52.89	27.23
	5195.000	1.00	0.00	0.00	855.20	330.00	858.79	0.00	859.14	57.76	4.72	69.97	43.42
	5295 000	100.00	0.00	0 00	856.50	80.00	858.24	858.18	858.42	186.06	3.86	36.65	5.86
	5295.000	100.00	0.00	0 00	856.50	130.00	858.75	0.00	858.81	65.00	2.62	86.49	16.12
	5295.000	100.00	0.00	0.00	856.50	160.00	858.84	0.00	858.92	70.95	2.89	96.36	19.00
	5295.000	100.00	0.00	0.00	856.50	220.00	859.57	0.00	859 61	23.66	2.25	168.20	45.23
	5395.000	100.00	0.00	0.00	857 80	80.00	859.72	0 00	859.79	99.81	2.61	53.51	8.01
	5395.000	100.00	0.00	0.00	857.80	130.00	859.77	0.00	859.92	204.71	3.88	58.53	9.09
	5395.000	100 00	0.00	0.00	857.80	160.00	859.88	0.00	860.04	184.97	3.99	69.98	11.76
	5395.000	100.00	0.00	0 00	857.80	220.00	860.02	0.00	860.22	207.93	4.60	83.37	15.24
*	5526 000	131.00	0.00	0.00	859.50	80.00	861.66	861.66	861.95	187.24	5.13	32.95	5 85
	5526.000	131.00	0.00	0.00	859.50	130.00	862.00	0.00	862.25	154.49	5.31	61.52	10.46
	5526.000	131.00	0.00	0.00	859.50	160.00	862.09	0 00	862.37	168.13	5.71	71.10	12 34
	5526.000	131.00	0.00	0.00	859.50	220.00	862.31	0.00	862.57	158.54	5.94	93.55	17 47
	5657.000	131.00	0.00	0.00	861.20	80.00	863.55	0.00	863.70	97.01	3.98	47.42	8.12
	5657.000	131.00	0.00	0.00	861.20	130.00	863 78	0.00	863.97	111.63	4.65	70.92	12.30
	5657.000	131.00	0.00	0.00	861.20	160.00	863.93	0.00	864.10	105.88	4.74	85.53	15.55
	5657.000	131 00	0.00	0.00	861.20	220.00	864.13	0.00	864.31	113.82	5.20	105.96	20 62

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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
5788.000	131.00	0.00	0.00	862.90	80.00	865.10	865.06	865.36	161.74	4.85	35.83	6.29
5788.000	131.00	0.00	0.00	862.90	130.00	865.41	0.00	865.65	148.39	5.22	62.65	10.67
5788.000	131.00	0.00	0.00	862.90	160 00	865.52	0.00	865.77	152.86	5.50	73.93	12.94
5788.000	131.00	0.00	0.00	862.90	220.00	865.74	0.00	865.97	142.49	5.69	97.41	18.43
5919 000	131.00	0.00	0.00	864.50	80.00	866.84	0.00	866.99	97.55	3.99	47.28	8.10
5919.000	131.00	0.00	0.00	864.50	130.00	867.11	0.00	867.28	105.02	4.54	72.75	12.69
5919.000	131.00	0.00	0.00	864 50	160.00	867.24	0.00	867.41	103.56	4.70	86.26	15 72
5919.000	131.00	0.00	0.00	864.50	220.00	867.43	0.00	867.62	112.73	5.18	106.33	20.72
6140.000	221.00	0.00	0.00	865.20	80.00	868.91	0.00	868.98	69.48	3.28	55.67	9.60
6140.000	221.00	0.00	0.00	865.20	130.00	869.31	0.00	869.38	69.30	3.58	81.41	15.62
6140.000	221 00	0.00	0.00	865.20	160.00	869 48	0.00	869.56	72.53	3.79	93.84	18 79

	6140.000	221.00	0.00	0.00	865.20	220.00	869.80	0.00	869.88	72.96	4.05	119.41	25 76
	6190 000	50.00	871 30	868.50	865.40	80.00	871.85	0.00	871.85	0.61	0.49	324.56	102.15
*	6190.000	50.00	871.30	868.50	865.40	130.00	872.08	0.00	872.08	1.27	0.72	352.90	115.23
*	6190.000	50.00	871.30	868.50	865.40	160.00	872.18	0.00	872.19	1.72	0.85	366.89	121.87
*	6190 000	50.00	871.30	868.50	865.40	220.00	872.37	0.00	872.38	2.69	1.08	391.47	134.06
	6275.000	85.00	0.00	0.00	867.10	80.00	871.86	0.00	871.86	0.79	0.74	207.66	90.28
	6275.000	85.00	0.00	0 00	867.10	130.00	872.08	0.00	872.10	1.71	1.13	224.89	99 56
	6275 000	85.00	0.00	0.00	867.10	160.00	872.19	0.00	872.21	2 35	1.35	233.53	104.27
	6275.000	85.00	0.00	0.00	867.10	220.00	872.39	0.00	872.41	3.81	1.76	248.91	112.77
	6391.000	116.00	0.00	0.00	867.60	80.00	871.85	0.00	871.89	2.39	1.60	49.86	51.73
	6391.000	116.00	0.00	0.00	867.60	130 00	872.07	0.00	872.17	5.39	2.47	52.67	55.97
	6391.000	116.00	0.00	0.00	867.60	160.00	872.18	0.00	872.32	7.59	2.96	54 03	58.07
	6391.000	116.00	0.00	0.00	867.60	220.00	872.36	0.00	872.59	12.74	3.91	56.33	61.63
	6482.000	91.00	874.00	871.70	868.20	80.00	872.19	0.00	872.23	2.96	1.73	46.34	46.51
	6482.000	91.00	874.00	871.70	868.20	130 00	873.00	0.00	873.08	4.33	2.29	56.87	62 46
	6482 000	91.00	874.00	871 70	868.20	160.00	873.61	0.00	873.70	4.54	2.47	64.78	75.10
	6482.000	91.00	874.00	871.70	868.20	220.00	874.22	0.00	874.36	6.03	3.01	74.12	89.57
	6543.000	61.00	0.00	0.00	869.20	80.00	872.21	0.00	872.30	33.34	2.38	33.55	13.86
	6543.000	61.00	0.00	0.00	869.20	130.00	873.03	0.00	873.16	38.77	2.94	44.25	20.88
	6543.000	61.00	0.00	0.00	869 20	160.00	873.64	0.00	873.79	36.27	3.06	52.26	26.57
	6543.000	61.00	0.00	0.00	869.20	220.00	874.27	0.00	874.47	45.33	3.64	60.42	32.68
	6743.000	200.00	0.00	0.00	872.00	80.00	873.46	873.40	873.72	195.08	4.73	31.42	5.73
	6743.000	200 00	0.00	0.00	872.00	130.00	874.08	0.00	874.21	73.29	3.80	77.46	15.18
	6743 000	200.00	0.00	0.00	872.00	160.00	874.49	0.00	874.57	40.46	3.22	120.34	25 15
	6743 000	200.00	0.00	0.00	872.00	220.00	875.08	0.00	875.13	21.95	2.77	195.14	46.96
	6945.000	202.00	0.00	0.00	874.40	80.00	876.09	0.00	876.22	84.41	3.50	46.74	8 71
	6945 000	202.00	0 00	0.00	874.40	130.00	876.17	876.07	876.44	175.54	5.22	52.20	9.81
*	6945.000	202.00	0.00	0.00	874.40	160.00	876.20	876.20	876.59	247.19	6.26	53.98	10.18
*	6945.000	202.00	0.00	0.00	874.40	220.00	876.42	876.42	876.84	247.37	6.82	72.00	13.99

1

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
7147.000	202.00	0.00	0.00	876.90	80.00	878.38	0.00	878.62	172.18	4.52	33.37	6.10
7147.000	202.00	0.00	0.00	876.90	130.00	878.87	0.00	879.04	97.11	4.21	68.31	13.19
7147.000	202.00	0.00	0.00	876.90	160.00	879.11	0 00	879.25	79.39	4.13	89.82	17.96
7147.000	202.00	0.00	0.00	876.90	220.00	879.37	0.00	879.52	80.16	4.51	117 95	24.57
7362.000	215.00	0.00	0.00	878.90	80.00	880.69	0.00	880.79	64.66	3 18	52.87	9.95
7362.000	215.00	0.00	0.00	878.90	130.00	880.90	0.00	881.05	90.46	4.10	70.52	13.67
7362.000	215.00	0.00	0.00	878.90	160.00	881.01	0.00	881.19	101.20	4.52	80.71	15.90
7362.000	215.00	0.00	0.00	878 90	220.00	881.27	0.00	881.46	99.87	4.89	107.27	22.01
7577.000	215.00	0.00	0.00	880.90	80.00	882.49	0.00	882.66	117.42	3.94	40.04	7 38
7577.000	215.00	0.00	0.00	880.90	130.00	882.88	0.00	883.04	94.16	4.16	69.27	13.40
7577.000	215.00	0.00	0.00	880.90	160.00	883.06	0.00	883.22	88.17	4.29	85.77	17.04
7577.000	215 00	0.00	0 00	880.90	220.00	883.32	0.00	883.49	89 26	4.69	112.61	23.29
7896.000	319.00	0.00	0.00	881.60	80.00	884.52	0.00	884.71	41.84	3.48	22.96	12.37
7896 000	319.00	0.00	0.00	881 60	130.00	885.05	0.00	885.39	58.78	4.68	27.75	16.96
7896.000	319.00	0.00	0.00	881.60	160.00	885.30	0.00	885.74	68.65	5.33	30.00	19.31
7896 000	319.00	0.00	0.00	881.60	220.00	885.75	0.00	886.40	85.55	6.47	34.00	23.79
7897.000	1.00	888.50	887.10	881.60	80.00	884.52	0.00	884.77	37.17	3.98	20.11	13.12
7897 000	1.00	888.50	887.10	881.60	130.00	885.05	0.00	885.52	63.74	5.46	23.81	16.28
7897.000	1 00	888.50	887 10	881.60	160.00	885.30	0.00	885.92	82.67	6.29	25.42	17.60
7897.000	1.00	888.50	887.10	881.60	220.00	885.76	0.00	886.71	124.89	7.84	28.07	19.69
7962.000	65.00	888.50	887.50	882.00	80.00	884.78	0.00	885.06	43.08	4.20	19.05	12.19

	7962.000	65.00	888.50	887.50	882.00	130.00	885.47	0.00	885.93	63.53	5.45	23.84	16.31	
	7962.000	65.00	888.50	887.50	882.00	160.00	885.89	0.00	886.46	74.66	6.02	26.57	18.52	
	7962.000	65.00	888.50	887.50	882.00	220.00	886.75	0.00	887.53	101.03	7.08	31.09	21.89	
	7963.000	1.00	0.00	0.00	882.00	80.00	884.91	0.00	885.10	42.03	3.49	22.93	12.34	
	7963.000	1.00	0.00	0.00	882.00	130.00	885.74	0.00	886.02	43.26	4.27	30.42	19.76	
	7963 000	1.00	0.00	0.00	882.00	160.00	886.26	0.00	886.58	41.08	4.57	35.00	24.96	
	7963.000	1.00	0.00	0.00	882.00	220.00	887.36	0.00	887.74	33.69	4.89	44.97	37.90	
	8043.000	80.00	0.00	0.00	882 70	80.00	885.25	0.00	885.26	3.65	0.94	159.05	41.86	
	8043 000	80.00	0.00	0.00	882.70	130.00	886.19	0.00	886.20	1.44	0.75	295.92	108.43	
	8043.000	80.00	0.00	0.00	882.70	160.00	886.76	0.00	886.76	0.92	0.67	391.03	167.03	
	8043.000	80.00	0.00	0.00	882.70	220 00	887.93	0.00	887.93	0.40	0.53	609.85	346.27	
*	8224.000	181.00	0.00	0.00	884.20	80.00	885.73	885.73	885.94	166.60	4.13	37.04	6 20	
	8224 000	181 00	0.00	0.00	884.20	130.00	886.26	0.00	886.33	41.64	2.66	97.39	20.15	
	8224.000	181.00	0.00	0.00	884.20	160.00	886.80	0.00	886.83	13.06	1.80	165.04	44.27	
	8224.000	181.00	0.00	0.00	884.20	220 00	887.94	0.00	887.95	2.76	1.09	336.86	132.54	
	8405 000	181.00	0.00	0.00	885.70	80.00	887.47	0.00	887.53	51.31	2.59	62.84	11 17	
	8405.000	181.00	0.00	0.00	885 70	130.00	887.47	0.00	887.65	131.22	4.16	63.65	11.35	
*	8405.000	181.00	0.00	0.00	885.70	160.00	887.49	887.49	887.74	179.47	4.92	66.28	11.94	
	8405.000	181.00	0.00	0.00	885.70	220 00	888.07	0.00	888.16	45.40	3.11	134.85	32.65	

1

	SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K	
	8465.000	60.00	0.00	0.00	886.20	80.00	887.85	0.00	887.97	86.56	3.18	50.52	8.60	
	8465 000	60.00	0.00	0.00	886.20	130.00	888.13	0.00	888.23	67.73	3.22	81.99	15 80	
	8465.000	60.00	0.00	0.00	886.20	160.00	888.28	0.00	888 38	59.29	3.20	99.47	20.78	
	8465.000	60.00	0.00	0.00	886.20	220 00	888.40	0.00	888.54	74.84	3.77	114.03	25.43	
	8525 000	60.00	0.00	0.00	886.70	80.00	888.36	0.00	888.47	80.45	3 09	52 15	8 92	
	8525.000	60.00	0.00	0 00	886.70	130.00	888.58	0.00	888.70	84.41	3.50	75.52	14.15	
	8525.000	60.00	0.00	0.00	886.70	160.00	888.69	0.00	888.81	82 65	3.64	88.75	17 60	
	8525.000	60.00	0.00	0.00	886.70	220.00	888.87	0.00	889.01	83.72	3.93	109.79	24 04	
	8587.000	62 00	0.00	0.00	887.20	80.00	888.86	0.00	888.97	83.66	3.14	51.27	8 75	
	8587.000	62.00	0.00	0.00	887.20	130.00	889.08	0.00	889.20	82.27	3.47	76.25	14 33	
	8587.000	62.00	0.00	0.00	887.20	160.00	889.19	0.00	889.32	83.51	3.66	88.41	17.51	
	8587.000	62 00	0.00	0.00	887.20	220.00	889.37	0.00	889.52	83.45	3.93	109.91	24 08	
	9091.000	504.00	0.00	0.00	889.70	80 00	891.55	0.00	891.60	35.17	2.24	72.83	13.49	
	9091.000	504.00	0.00	0 00	889.70	130.00	891.80	0.00	891.86	36.25	2.52	102.08	21.59	
	9091 000	504.00	0.00	0.00	889.70	160 00	891.93	0.00	891.99	36.27	2.65	117.44	26.57	
	9091 000	504.00	0.00	0.00	889.70	220.00	892.14	0.00	892.22	36.80	2.87	144.62	36 27	
	9411.000	320.00	0.00	0.00	891.20	80.00	893.41	0.00	893.67	114.48	4.08	19.62	7.48	
	9411.000	320.00	0.00	0.00	891 20	130.00	893.91	0.00	894.35	156.26	5.28	24.61	10.40	
	9411.000	320.00	0 00	0.00	891.20	160.00	894.15	0.00	894.70	182.60	5.94	26.94	11.84	
	9411.000	320.00	0.00	0.00	891.20	220.00	894.55	0.00	895.34	232.51	7.10	30.97	14.43	
	9412.000	1.00	897.20	896 30	891.20	80.00	893.31	0.00	893.79	40 20	5.51	14.52	12.62	
	9412.000	1.00	897.20	896.30	891.20	130.00	893.74	0.00	894 54	56.61	7.19	18.08	17.28	
	9412.000	1.00	897.20	896.30	891.20	160.00	893.91	893.81	894.95	69.17	8.20	19.52	19.24	
*	9412.000	1.00	897.20	896.30	891.20	220.00	894.28	894 28	895.79	91.02	9.84	22.37	23.06	
*	9430 000	18.00	897.20	896.40	891.60	80.00	893.34	893.34	894 04	71.98	6.71	11.93	9.43	
*	9430.000	18.00	897.20	896.40	891.60	130.00	893.85	893.85	894.84	78.35	8.02	16.21	14.69	
*	9430.000	18.00	897.20	896 40	891.60	160.00	894 12	894.12	895.29	83.31	8.68	18.43	17 53	
*	9430.000	18.00	897.20	896.40	891.60	220.00	894.59	894.59	896.15	98.33	10.01	21.99	22.19	
	9431.000	1.00	0 00	0.00	891.60	80.00	894.10	0.00	894.30	77.18	3.56	22.45	9.11	
	9431.000	1.00	0.00	0.00	891.60	130.00	894.94	0.00	895.21	82.50	4.22	30.80	14.31	
	9431.000	1.00	0.00	0.00	891 60	160.00	895 41	0.00	895.73	83.63	4.50	35.57	17.50	
	9431.000	1.00	0.00	0.00	891.60	220 00	896.39	0.00	896.75	81.75	4 86	45 31	24.33	

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	9581.000	150.00	0.00	0.00	892.50	80.00	894.88	0.00	894.95	23.93	2.30	47.31	16.36
	9581.000	150.00	0.00	0.00	892 50	130.00	895.71	0.00	895.78	16.13	2.38	82.85	32.37
	9581.000	150.00	0.00	0.00	892.50	160.00	896.19	0.00	896.26	13.18	2.38	107.23	44.07
	9581.000	150 00	0.00	0.00	892.50	220.00	897.14	0.00	897.20	8.32	2.24	195.06	76.26
	10280 000	699.00	0.00	0.00	896.50	80.00	898.28	0.00	898.37	237.79	4.07	43.55	5.19
	10280.000	699.00	0.00	0.00	896.50	130.00	898.40	0.00	898.53	357.97	5.29	55.19	6.87
	10280.000	699.00	0.00	0.00	896.50	160.00	898.47	0.00	898.62	382.21	5.67	64.01	8.18
	10280.000	699.00	0.00	0.00	896.50	220.00	898.65	0.00	898.81	356.63	5.89	86.27	11.65
1													
	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	11080.000	800.00	0.00	0.00	901.10	80.00	901.93	0.00	902.16	35.44	2.77	21.07	13.44
	11080 000	800.00	0.00	0.00	901.10	130.00	902.14	0.00	902.46	32.01	3.17	29.57	22.78
	11080.000	800.00	0.00	0.00	901.10	160.00	902.24	902.23	902.60	31.48	3.39	34.29	28.52
*	11080.000	800 00	0.00	0.00	901.10	220.00	902 45	902.45	902.84	27.46	3.59	45.85	41.98
	11120.000	40.00	907.00	901.50	901.10	80.00	906.34	0.00	906.34	0.01	0.16	369.30	928.16
	11120.000	40.00	907.00	901.50	901.10	130.00	906.59	0.00	906.59	0.02	0.24	390 33	1014 69
	11120.000	40.00	907.00	901.50	901.10	160.00	906.69	0.00	906.69	0.02	0.29	399.06	1051.48
	11120.000	40.00	907.00	901.50	901.10	220.00	906.85	0.00	906.86	0.04	0.38	412.82	1110.41
	11795.000	675.00	0.00	0.00	904.60	80.00	906.34	0.00	906.34	11.66	1.25	173.37	23.43
	11795.000	675 00	0.00	0.00	904.60	130.00	906.59	0.00	906.60	12.23	1.42	233.70	37.17
	11795.000	675.00	0.00	0.00	904.60	160.00	906.69	0.00	906.70	13.42	1.55	258.84	43.67
	11795.000	675 00	0.00	0.00	904.60	220.00	906.86	0 00	906.87	16.11	1.80	298.59	54.81
	11895 000	100.00	0.00	0.00	905.10	80.00	906.54	0 00	906.57	51.69	2.26	103.38	11.13
	11895 000	100 00	0.00	0.00	905.10	130.00	906.78	0.00	906 80	39.13	2.23	160.10	20.78
	11895.000	100.00	0.00	0.00	905.10	160.00	906 90	0.00	906.92	36.91	2.28	187.17	26.34
	11895.000	100.00	0.00	0.00	905.10	220.00	907.08	0.00	907.11	35.71	2.42	232.25	36.82
	11995.000	100.00	0.00	0.00	905.60	80.00	907.05	0.00	907.08	50.26	2.24	104.47	11.28
	11995.000	100.00	0.00	0.00	905.60	130.00	907.22	0.00	907.25	50.84	2.47	146.60	18.23
	11995.000	100.00	0.00	0.00	905.60	160.00	907.32	0.00	907.35	50.23	2.57	169.16	22.58
	11995.000	100.00	0.00	0 00	905.60	220.00	907.49	0.00	907.52	48.46	2.72	210.63	31.60
	12095.000	100 00	0.00	0.00	906.10	80.00	907.55	0.00	907.58	50 27	2.24	104.47	11 28
	12095.000	100 00	0.00	0.00	906.10	130.00	907.73	0.00	907.75	49.97	2.45	147.47	18.39
	12095.000	100.00	0.00	0.00	906.10	160.00	907.82	0.00	907 84	49.22	2.55	170.30	22 81
	12095.000	100.00	0 00	0.00	906.10	220.00	907.99	0.00	908.02	50.52	2.76	207.82	30.95
	12195.000	100.00	0 00	0.00	906.60	80.00	908.05	0.00	908.07	48.28	2.20	106.04	11.51
	12195.000	100.00	0.00	0.00	906.60	130.00	908.23	0.00	908.25	49.23	2.44	148.21	18.53
	12195.000	100.00	0.00	0.00	906.60	160.00	908.32	0.00	908.35	51.16	2.59	168.13	22.37
	12195.000	100.00	0.00	0.00	906.60	220.00	908.49	0.00	908.52	50.10	2.75	208.39	31 08
	12595.000	400.00	0.00	0.00	909.00	80.00	910.49	0.00	910.55	90.07	3.07	60 89	8.43
	12595.000	400.00	0.00	0.00	909.00	130.00	910.73	0.00	910.81	94.98	3.55	83.26	13.34
	12595.000	400.00	0.00	0.00	909.00	160.00	910.86	0.00	910.94	93.90	3.74	95.82	16 51
	12595.000	400.00	0.00	0.00	909.00	220.00	911 07	0.00	911.16	100.86	4.20	115.08	21 91
	13155.000	560.00	0.00	0.00	912.50	80.00	914.60	0.00	914.70	61.73	3.02	47.88	10.18
	13155.000	560.00	0 00	0.00	912.50	130.00	914.95	0.00	915.07	62.44	3.49	68 71	16.45
	13155.000	560.00	0.00	0.00	912.50	160.00	915.12	0.00	915.26	64.35	3.75	78 79	19.95
	13155.000	560.00	0.00	0.00	912.50	220 00	915.45	0 00	915.60	64.15	4.13	98.27	27.47
	13620.000	465 00	0.00	0.00	915.30	80.00	917.19	0.00	917.24	47.11	2.40	84.73	11.66
	13620.000	465 00	0.00	0.00	915.30	130.00	917.45	0.00	917.50	42.66	2.56	129.11	19.90
	13620.000	465 00	0.00	0.00	915.30	160.00	917.58	0.00	917.63	39.69	2.61	155.21	25.40
	13620.000	465.00	0.00	0.00	915.30	220.00	917.82	0.00	917.86	36.32	2.72	199 63	36.51
1													
	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K

14029.000	409.00	0.00	0.00	917.80	80.00	919.62	0.00	919.74	83.90	3.45	51.22	8.73
14029.000	409.00	0.00	0.00	917.80	130.00	919.85	0.00	919.99	94.23	4.01	79.75	13.39
14029.000	409.00	0.00	0.00	917.80	160.00	919.95	0.00	920.09	101.58	4.32	93.86	15.88
14029.000	409.00	0.00	0.00	917.80	220.00	920.11	0.00	920.26	107.55	4.70	121.85	21.21
14634.000	605.00	0.00	0.00	922.50	90.00	923.99	0.00	924.01	59.71	2.54	88.62	11.65
14634.000	605.00	0.00	0.00	922.50	140.00	924.24	0.00	924.27	55.37	2.77	119.69	18.81
14634.000	605 00	0.00	0.00	922.50	160.00	924.35	0.00	924.38	51.89	2.81	132.77	22.21
14634.000	605.00	0.00	0.00	922.50	220.00	924.59	0.00	924 63	52.01	3.08	161.85	30.51
15238.000	604.00	0.00	0.00	927.20	90.00	928.53	0.00	928.57	107.43	3.14	81.27	8.68
15238.000	604.00	0.00	0.00	927.20	140.00	928.69	0.00	928.73	113.56	3.52	106.42	13.14
15238.000	604.00	0.00	0.00	927.20	160.00	928.74	0.00	928.78	121.00	3.72	113.60	14 55
15238.000	604.00	0.00	0.00	927.20	220.00	928.92	0.00	928.97	116.43	3.95	140.79	20.39
15988.000	750.00	0.00	0.00	931.70	90.00	933.79	0.00	933 84	51.38	2.87	76.94	12.56
15988.000	750.00	0.00	0.00	931.70	140.00	934.06	0.00	934.12	51.44	3.18	104.85	19.52
15988.000	750.00	0.00	0.00	931.70	160.00	934.17	0.00	934.24	50.34	3.25	115.55	22.55
15988.000	750.00	0.00	0.00	931.70	220.00	934.42	0.00	934.49	52.76	3.58	140.51	30.29
16738.000	750.00	0.00	0 00	938.90	90.00	940.05	0.00	940.19	186.09	3.65	39.69	6.60
16738.000	750.00	0.00	0.00	938.90	140.00	940.29	0.00	940.47	186.28	4.24	53.00	10.26
16738.000	750.00	0.00	0.00	938.90	160.00	940.35	0.00	940 55	191.31	4.48	57.39	11.57
16738.000	750.00	0.00	0.00	938.90	220.00	940.60	0.00	940.83	177 29	4.91	72.94	16.52
17638.000	900.00	0.00	0.00	947.60	90.00	949.96	0.00	950.10	71.21	3.25	45.54	10.67
17638.000	900.00	0.00	0.00	947.60	140.00	950.28	0 00	950.43	71.47	3.69	72.76	16.56
17638.000	900.00	0.00	0.00	947.60	160.00	950.39	0.00	950.55	70.56	3.81	84.04	19.05
17638.000	900.00	0.00	0.00	947.60	220.00	950.63	0.00	950.81	73.55	4.21	113.15	25.65
18038 000	400.00	0.00	0.00	951.80	90.00	953.91	0.00	954.16	150.86	4.21	30.37	7.33
18038.000	400.00	0.00	0.00	951.80	140.00	954.21	0.00	954.50	149.84	4.81	49.11	11.44
18038.000	400.00	0.00	0.00	951.80	160.00	954.30	0.00	954.61	151.27	5.02	56.41	13.01
18038.000	400.00	0.00	0.00	951.80	220 00	954.56	0.00	954.88	143.83	5.38	80.86	18.34
18240.000	202.00	0.00	0.00	954.20	90.00	956.06	0.00	956.15	68.14	3.65	62.41	10.90
18240.000	202.00	0.00	0 00	954.20	140.00	956.38	0.00	956.48	67.22	4.04	89.35	17.08
18240 000	202.00	0.00	0.00	954.20	160.00	956.49	0.00	956.59	67 09	4 16	98.69	19 53
18240 000	202.00	0.00	0.00	954.20	220 00	956.74	0.00	956.85	69.07	4.54	121.75	26.47
* 18513.000	272.00	0.00	0.00	955 20	90 00	958.94	958.94	960.72	95.27	10.69	8.42	9 22
* 18513.000	272 00	0.00	0.00	955.20	140.00	960.73	960.73	960.89	14.02	4.58	61.49	37.38
* 18513.000	272.00	0.00	0.00	955.20	160.00	960.76	960.76	960.93	14.80	4.72	67.51	41.59
* 18513.000	272.00	0.00	0.00	955.20	220.00	960.86	960.86	961 02	16.08	4.98	85.15	54.86
* 18557 000	44 00	960.80	958.30	955.80	90.00	959.54	959.54	961.32	95.03	10.68	8.43	9.23
* 18557 000	44.00	960.80	958.30	955.80	140.00	961.36	0.00	961.49	11.85	4.22	66.21	40.67
* 18557.000	44.00	960.80	958.30	955.80	160.00	961.37	0.00	961.53	14.24	4 64	68 63	42.40
* 18557.000	44.00	960.80	958.30	955.80	220.00	961.46	0.00	961.62	15.77	4.94	85.82	55.39

1
THORNTON CREEK

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1560 000	123.00	833.81	0.00	0.00	-0.59	155.05	0.00
1560.000	190.00	834.15	0.34	0.00	-0.59	189.93	0.00
1560.000	200.00	834.18	0 04	0.00	-0.70	194.99	0.00
1560.000	330.00	834.60	0.42	0.00	-0.57	252.61	0.00
1760.000	123.00	834.37	0.00	0.56	0.00	120.99	200.00
1760.000	190.00	834 69	0.32	0.55	0.00	148.26	200.00

1760.000	200.00	834.73	0.04	0.55	0.00	152.23	200.00
1760.000	330.00	835.15	0.42	0.55	0.00	194.34	200.00
1960.000	123.00	835.11	0.00	0.74	0.00	92.65	200.00
1960.000	190.00	835.44	0.34	0.75	0.00	115.04	200.00
1960.000	200.00	835.49	0.04	0.75	0.00	117.85	200.00
1960.000	330.00	835.93	0.45	0.78	0.00	144.84	200.00
2160.000	123.00	835.95	0.00	0.84	0.00	21.83	200.00
2160.000	190 00	836.39	0.44	0.94	0.00	27.67	200.00
2160.000	200.00	836.44	0.05	0.96	0.00	28.40	200.00
2160.000	330.00	837.00	0.56	1.07	0.00	35.81	200.00
2328 000	123.00	836.93	0.00	0.99	0.00	18.14	168.00
2328.000	190.00	837.56	0.63	1.18	0.00	26.01	168.00
2328.000	200.00	837.64	0.08	1.20	0.00	27.09	168.00
2328.000	330 00	838.56	0.92	1.57	0.00	39.35	168.00
2495 000	123.00	837.74	0 00	0.80	0.00	51.55	167.00
2495.000	190 00	838.39	0.65	0.83	0.00	55 95	167.00
2495 000	200.00	838.47	0.09	0.83	0.00	56.47	167.00
2495.000	330.00	839.45	0.98	0.89	0.00	62.39	167.00
2496.000	123.00	837.73	0.00	0.00	0 00	46.09	1.00
2496.000	190.00	838.38	0.65	-0.01	0.00	50.27	1.00
2496.000	200.00	838 47	0.09	-0.01	0.00	50.76	1.00
2496.000	330.00	839.45	0.98	-0.01	0.00	56.32	1.00
2502.000	123.00	837.73	0.00	0.00	0.00	46.04	6.00
2502.000	190.00	838.38	0.65	0.00	0.00	50.24	6.00
2502.000	200.00	838.47	0.09	0.00	0.00	50.73	6.00
2502.000	330.00	839.45	0.98	0.00	0.00	56.31	6.00
2503.000	123.00	837.75	0.00	0.02	0.00	51.62	1.00
2503.000	190.00	838.40	0.65	0.02	0 00	55.97	1.00
2503.000	200.00	838.49	0.09	0.02	0.00	56.50	1.00
2503 000	330.00	839 47	0 98	0.02	0.00	62.42	1.00

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	2560.000	123.00	837.84	0 00	0.09	0.00	52.65	57.00
	2560 000	190.00	838.47	0.63	0.07	0.00	56.46	57.00
	2560 000	200.00	838.56	0.09	0.07	0.00	56.98	57.00
	2560 000	330 00	839.53	0.97	0.06	0.00	62.83	57.00
	2600.000	123.00	837.89	0.00	0.05	0.00	41.00	40.00
	2600.000	190.00	838.51	0.62	0.04	0.00	41.00	40.00
	2600.000	200 00	838.60	0.08	0.04	0.00	41.00	40.00
	2600.000	330 00	839.56	0.96	0.03	0.00	41.00	40.00
	2639.000	123.00	837.82	0.00	-0.07	0.00	21.00	39.00
	2639.000	190.00	838.44	0.61	-0.07	0.00	21.00	39.00
	2639.000	200.00	838.52	0.08	-0.08	0.00	21.00	39.00
	2639.000	330.00	839.44	0.92	-0.11	0.00	21.00	39.00
*	2640.000	123.00	837.95	0.00	0 13	0.00	20.00	1.00
	2640.000	190.00	838.32	0.37	-0.12	0.00	20.00	1.00
	2640.000	200.00	838.41	0.09	-0.11	0.00	20.00	1.00
	2640.000	330.00	839.36	0.95	-0.09	0 00	20.00	1.00
	2692.000	123.00	838.78	0.00	0.83	0.00	20.00	52.00
	2692.000	190.00	839.23	0.45	0.91	0.00	20.00	52.00
	2692.000	200.00	839.27	0.04	0.86	0.00	20.00	52.00
	2692.000	330.00	839.93	0.66	0.57	0.00	20.00	52.00

	2693.000	123.00	838.85	0.00	0.07	0.00	27.93	1.00
	2693.000	190.00	839.43	0.58	0.20	0.00	30.56	1.00
	2693.000	200.00	839.49	0.06	0.22	0.00	30 85	1.00
	2693.000	330.00	840.40	0.90	0.47	0.00	34.96	1.00
*	2700.000	123.00	839.81	0.00	0.96	0.00	38.74	7.00
*	2700.000	190.00	840.26	0.45	0.83	0.00	52.63	7.00
*	2700.000	200 00	840.30	0.04	0.81	0.00	52.71	7.00
*	2700.000	330.00	840.72	0.43	0.33	0.00	53.62	7.00
	2760 000	123.00	840.94	0.00	1.13	0.00	52.80	60.00
	2760.000	190.00	841.28	0.34	1.02	0.00	53.54	60.00
	2760.000	200.00	841.33	0.05	1.03	0.00	53.64	60.00
	2760.000	330.00	841.86	0.53	1.14	0.00	73 35	60.00
	2820.000	123.00	841.37	0.00	0.43	0.00	52.43	60.00
	2820.000	190.00	841.75	0.38	0.46	0.00	53.24	60.00
	2820.000	200 00	841.80	0.05	0.46	0.00	53.35	60.00
	2820.000	330.00	842.33	0.54	0.47	0.00	66.72	60.00
	2880.000	123.00	841.96	0.00	0 59	0.00	52.41	60.00
	2880 000	190.00	842.33	0.37	0.58	0.00	53.20	60.00
	2880.000	200.00	842.38	0.05	0.58	0.00	53 30	60.00
	2880.000	330.00	842.90	0.53	0.57	0.00	65 04	60.00

1

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
3091.000	123.00	843.48	0.00	1.53	0.00	21.00	211.00
3091.000	190.00	843 95	0.47	1.62	0.00	21.00	211.00
3091.000	200.00	844 01	0.06	1.64	0.00	21.00	211.00
3091.000	330.00	844.67	0.65	1.76	0.00	21.00	211.00
3092.000	123.00	843.58	0.00	0.10	0 00	21.00	1.00
3092.000	190.00	844.10	0.51	0.14	0.00	21 00	1.00
3092.000	200.00	844 16	0.07	0.15	0.00	21.00	1.00
3092.000	330.00	844.88	0.72	0.22	0 00	21 00	1.00
3178.000	123.00	843 65	0.00	0.06	0.00	20.00	86.00
3178.000	190.00	844.19	0.55	0.10	0.00	21.00	86.00
3178.000	200.00	844.26	0.07	0.10	0.00	21.00	86.00
3178 000	330.00	845.07	0.80	0.19	0.00	21.00	86.00
3179.000	123.00	843.58	0.00	-0.07	0.00	20.43	1.00
3179.000	190.00	844.12	0.54	-0.07	0.00	21.00	1.00
3179.000	200.00	844.19	0.07	-0.08	0.00	21.00	1.00
3179.000	330.00	844.98	0.79	-0.09	0.00	21.00	1.00
3309.000	123.00	844.63	0.00	1.05	0.00	26.01	130.00
3309.000	190.00	845.13	0.50	1.02	0.00	101.77	130.00
3309.000	200.00	845.20	0 07	1.01	0.00	113.50	130.00
3309.000	330.00	846.00	0.80	1.02	0.00	159.79	130.00
3532.000	123.00	846.33	0.00	1.69	0.00	29.34	223.00
3532.000	190.00	846.78	0.45	1.64	0.00	45.24	223.00
3532.000	200.00	846.83	0.05	1.62	0.00	46 83	223.00
3532.000	330.00	847.15	0.32	1.14	0.00	57.87	223.00
3755.000	123 00	848.04	0.00	1.71	0.00	37.04	223.00
3755.000	190.00	848 57	0.53	1.79	0.00	55.14	223 00
3755.000	200.00	848.64	0.07	1.81	0.00	57.64	223.00
3755.000	330.00	849.44	0.80	2 29	0.00	85 55	223.00
3978.000	123.00	849.47	0.00	1.43	0.00	34.67	223.00
3978.000	190.00	849.99	0 52	1.42	0.00	52.14	223.00
3978.000	200 00	850.05	0.06	1.41	0 00	54.27	223.00

	3978.000	330.00	850.71	0.65	1.26	0.00	77.32	223.00
	4227.000	123.00	851.18	0.00	1.71	0.00	34.62	249.00
	4227.000	190.00	851.68	0.50	1.69	0.00	51.79	249.00
	4227.000	200.00	851.74	0.06	1.68	0.00	53.94	249.00
	4227.000	330 00	852.36	0.62	1.65	0.00	75.70	249.00
	4476.000	123.00	852 88	0 00	1 70	0.00	34.76	249.00
	4476.000	190.00	853.38	0.49	1.70	0.00	51.86	249.00
	4476.000	200.00	853.44	0.06	1.70	0.00	53.96	249.00
	4476.000	330.00	854.07	0.63	1.71	0.00	75.97	249.00

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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	4725.000	123.00	854.53	0.00	1.64	0.00	36.25	249.00
	4725.000	190.00	855.02	0.50	1.65	0.00	53.50	249.00
	4725.000	200.00	855.08	0.06	1.65	0.00	55.65	249.00
	4725.000	330.00	855.72	0.64	1.65	0.00	77.96	249.00
	4979.000	123.00	855.55	0.00	1.02	0.00	112.00	254.00
	4979.000	190.00	856.01	0.46	0.99	0.00	112.00	254.00
	4979.000	200.00	856.07	0.06	0.99	0.00	112 00	254.00
	4979.000	330.00	856.74	0.67	1.02	0.00	112.00	254.00
*	5179.000	123.00	857.04	0.00	1.49	0.00	23.00	200.00
*	5179.000	190.00	857.34	0 31	1.33	0.00	23.00	200.00
*	5179.000	200.00	857.39	0.04	1.32	0.00	23.00	200 00
*	5179 000	330.00	857.91	0.53	1.17	0.00	23.00	200.00
	5180.000	123.00	857.54	0.00	0.50	0.00	21.00	1.00
	5180.000	190.00	857.99	0.45	0.64	0.00	23.00	1.00
	5180.000	200.00	858.04	0.06	0.65	0.00	23.00	1.00
	5180 000	330.00	858.53	0.49	0.62	0.00	32.69	1.00
	5194.000	123.00	857.54	0.00	0.00	0.00	21.00	14.00
	5194.000	190.00	858.00	0.46	0.01	0.00	22.30	14.00
	5194.000	200.00	858.06	0.06	0.01	0.00	22.67	14.00
	5194.000	330.00	858.62	0.56	0.09	0.00	23.00	14.00
	5195.000	123.00	857.53	0 00	-0.01	0.00	23.00	1.00
	5195.000	190.00	857.98	0.45	-0.01	0.00	23.00	1.00
	5195 000	200.00	858.05	0.06	-0.01	0.00	23 00	1.00
	5195 000	330.00	858.79	0.75	0.17	0.00	23.00	1.00
	5295 000	80.00	858.24	0.00	0.71	0.00	89.56	100.00
	5295.000	130.00	858 75	0.51	0.77	0.00	100.00	100.00
	5295.000	160.00	858.84	0.09	0.79	0.00	100.00	100.00
	5295.000	220.00	859 57	0.73	0.78	0.00	100.00	100.00
	5395.000	80.00	859.72	0.00	1.47	0.00	100.00	100.00
	5395.000	130 00	859.77	0.05	1.02	0.00	100.00	100.00
	5395.000	160.00	859.88	0.11	1.04	0.00	100.00	100.00
	5395.000	220.00	860.02	0.14	0.45	0.00	100.00	100.00
*	5526.000	80.00	861.66	0.00	1.94	0.00	68.15	131.00
	5526 000	130.00	862.00	0.35	2.23	0.00	98.55	131.00
	5526.000	160.00	862.09	0.09	2.21	0.00	101.77	131.00
	5526 000	220 00	862.31	0.22	2.30	0.00	105.36	131.00
	5657.000	80.00	863 55	0.00	1.89	0.00	84.92	131.00
	5657.000	130.00	863.78	0.24	1.78	0.00	101.71	131.00
	5657 000	160 00	863.93	0.15	1.84	0.00	104.12	131.00
	5657.000	220.00	864.13	0.20	1.81	0.00	107 24	131.00

1

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	5788 000	80. 00	865 10	0. 00	1. 55	0. 00	71. 81	131. 00
	5788. 000	130. 00	865. 41	0. 31	1. 63	0 00	98. 96	131. 00
	5788. 000	160. 00	865. 52	0. 11	1. 59	0. 00	102. 30	131. 00
	5788. 000	220. 00	865. 74	0. 22	1. 61	0. 00	105. 95	131. 00
	5919. 000	80. 00	866. 84	0. 00	1. 74	0. 00	84. 77	131. 00
	5919. 000	130. 00	867. 11	0. 27	1. 70	0. 00	102. 11	131. 00
	5919 000	160. 00	867. 24	0. 13	1. 72	0. 00	104. 23	131. 00
	5919. 000	220. 00	867. 43	0 19	1. 69	0. 00	107. 30	131. 00
	6140. 000	80. 00	868. 91	0. 00	2. 08	0 00	60. 35	221. 00
	6140. 000	130. 00	869. 31	0. 39	2. 20	0 00	70. 26	221. 00
	6140. 000	160. 00	869. 48	0. 17	2. 24	0. 00	74. 58	221. 00
	6140. 000	220. 00	869. 80	0. 32	2. 37	0. 00	82. 75	221. 00
	6190. 000	80. 00	871. 85	0. 00	2. 94	0. 00	124. 70	50. 00
*	6190. 000	130. 00	872. 08	0. 22	2. 77	0. 00	127. 48	50. 00
*	6190. 000	160. 00	872. 18	0. 11	2. 71	0. 00	128. 83	50. 00
*	6190. 000	220. 00	872. 37	0. 19	2 57	0. 00	130. 83	50. 00
	6275. 000	80. 00	871. 86	0. 00	0. 00	0 00	74. 33	85. 00
	6275. 000	130. 00	872. 08	0. 23	0. 01	0. 00	77. 26	85. 00
	6275. 000	160. 00	872. 19	0. 11	0. 01	0. 00	78. 69	85. 00
	6275. 000	220. 00	872. 39	0. 19	0. 02	0. 00	81. 17	85. 00
	6391. 000	80. 00	871. 85	0. 00	0. 00	0. 00	13. 00	116. 00
	6391. 000	130. 00	872. 07	0. 22	-0. 01	0. 00	13. 00	116. 00
	6391. 000	160. 00	872. 18	0. 11	-0. 01	0. 00	13. 00	116. 00
	6391. 000	220. 00	872. 36	0. 18	-0. 03	0. 00	13. 00	116. 00
	6482. 000	80. 00	872. 19	0. 00	0. 33	0. 00	13. 00	91. 00
	6482. 000	130. 00	873. 00	0. 81	0. 92	0. 00	13. 00	91. 00
	6482. 000	160. 00	873. 61	0. 61	1. 43	0. 00	13. 00	91. 00
	6482. 000	220 00	874. 22	0. 61	1. 86	0 00	25. 60	91. 00
	6543. 000	80. 00	872. 21	0. 00	0. 02	0. 00	13. 00	61. 00
	6543. 000	130. 00	873. 03	0. 82	0. 03	0. 00	13. 00	61. 00
	6543. 000	160. 00	873. 64	0. 61	0 04	0. 00	13 00	61. 00
	6543. 000	220. 00	874. 27	0. 62	0. 05	0. 00	13. 00	61. 00
	6743. 000	80. 00	873. 46	0. 00	1. 25	0. 00	57. 04	200. 00
	6743. 000	130. 00	874. 08	0. 62	1. 05	0 00	92. 77	200. 00
	6743. 000	160. 00	874. 49	0. 41	0. 85	0. 00	116. 58	200. 00
	6743. 000	220. 00	875. 08	0. 59	0. 81	0. 00	137. 02	200. 00
	6945. 000	80. 00	876. 09	0. 00	2. 64	0 00	70. 96	202. 00
	6945. 000	130. 00	876. 17	0 08	2. 09	0 00	75. 30	202. 00
*	6945. 000	160. 00	876 20	0. 03	1. 71	0. 00	76. 66	202. 00
*	6945. 000	220. 00	876 42	0. 22	1. 34	0. 00	89. 28	202. 00

1

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	7147. 000	80. 00	878. 38	0. 00	2. 29	0. 00	59. 00	202. 00
	7147. 000	130. 00	878. 87	0. 49	2. 70	0. 00	86. 85	202. 00
	7147. 000	160. 00	879. 11	0. 23	2. 91	0. 00	100. 22	202. 00
	7147. 000	220 00	879. 37	0 26	2. 95	0. 00	115. 38	202. 00
	7362. 000	80. 00	880. 69	0. 00	2 31	0. 00	75. 81	215. 00
	7362. 000	130. 00	880. 90	0. 21	2. 03	0. 00	88. 32	215. 00
	7362 000	160. 00	881. 01	0. 11	1. 90	0. 00	94. 78	215. 00
	7362. 000	220. 00	881. 27	0. 26	1. 90	0. 00	109. 87	215. 00
	7577. 000	80. 00	882. 49	0 00	1. 80	0. 00	65. 24	215. 00

	7577.000	130.00	882.88	0.39	1.98	0.00	87.48	215.00
	7577.000	160.00	883.06	0.18	2.05	0.00	97.84	215.00
	7577.000	220.00	883.32	0.25	2.05	0.00	112.66	215 00
	7896.000	80.00	884.52	0.00	2.03	0.00	9.00	319.00
	7896 000	130.00	885.05	0.53	2.17	0.00	9.00	319 00
	7896.000	160.00	885.30	0.25	2.23	0.00	9.00	319.00
	7896.000	220.00	885.75	0.45	2 43	0.00	9.00	319.00
	7897.000	80.00	884.52	0.00	0.00	0.00	7.20	1.00
	7897.000	130 00	885.05	0 53	0.01	0.00	7.20	1.00
	7897.000	160.00	885.30	0.25	0.01	0.00	7.20	1.00
	7897.000	220.00	885.76	0.45	0 01	0 00	7.20	1.00
	7962.000	80.00	884.78	0.00	0.26	0 00	7.20	65.00
	7962.000	130.00	885.47	0.69	0.42	0.00	7.20	65.00
	7962.000	160 00	885.89	0.42	0.59	0.00	7.20	65.00
	7962.000	220.00	886.75	0.86	0.99	0.00	7.20	65.00
	7963.000	80.00	884.91	0.00	0.13	0.00	9.00	1.00
	7963.000	130.00	885.74	0.83	0.27	0 00	9 00	1.00
	7963.000	160.00	886.26	0.52	0.36	0.00	9.00	1.00
	7963.000	220.00	887.36	1.11	0.61	0.00	9.00	1.00
	8043.000	80.00	885.25	0.00	0.34	0 00	132 68	80.00
	8043.000	130.00	886.19	0.94	0.45	0.00	159.51	80.00
	8043.000	160.00	886.76	0.57	0.50	0.00	175.76	80.00
	8043.000	220.00	887.93	1.17	0.56	0.00	194 46	80.00
*	8224.000	80.00	885.73	0.00	0.48	0.00	110.13	181.00
	8224.000	130.00	886.26	0.53	0.07	0.00	118.63	181.00
	8224 000	160.00	886.80	0 54	0.04	0.00	133.97	181.00
	8224.000	220.00	887.94	1.14	0.02	0.00	166 70	181.00
	8405.000	80.00	887.47	0.00	1.73	0.00	113.44	181.00
	8405.000	130.00	887.47	0.01	1 21	0.00	113.54	181.00
*	8405.000	160.00	887.49	0.02	0.70	0.00	113.87	181.00
	8405.000	220.00	888.07	0.57	0.13	0.00	127.35	181.00

1

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
8465 000	80.00	887.85	0.00	0.39	0.00	111.87	60.00
8465 000	130.00	888.13	0.28	0.66	0.00	115.84	60.00
8465.000	160.00	888.28	0.15	0.79	0.00	119.13	60.00
8465.000	220.00	888.40	0.12	0.34	0.00	122.58	60.00
8525 000	80.00	888.36	0.00	0 51	0.00	112.08	60.00
8525.000	130.00	888.58	0.21	0.44	0.00	115.03	60.00
8525.000	160.00	888.69	0.11	0.41	0.00	116.67	60.00
8525.000	220.00	888.87	0.18	0.46	0.00	121.58	60.00
8587.000	80.00	888.86	0.00	0.50	0.00	111.97	62.00
8587.000	130.00	889.08	0.22	0.51	0.00	115.12	62.00
8587.000	160.00	889.19	0.11	0.50	0.00	116.63	62.00
8587.000	220.00	889.37	0.18	0.50	0.00	121.61	62.00
9091.000	80.00	891.55	0.00	2.69	0.00	114 69	504.00
9091.000	130.00	891 80	0.25	2.72	0.00	119 75	504.00
9091.000	160.00	891.93	0.13	2.74	0.00	123.37	504.00
9091.000	220.00	892.14	0.22	2.77	0.00	129.53	504.00
9411.000	80.00	893.41	0.00	1.86	0.00	10.00	320.00
9411 000	130.00	893.91	0.50	2.11	0.00	10.00	320.00
9411.000	160.00	894.15	0.23	2.22	0.00	10.00	320.00
9411.000	220.00	894.55	0.41	2.41	0.00	10 00	320.00

	9412.000	80.00	893.31	0.00	-0.10	0.00	9.00	1.00
	9412.000	130.00	893.74	0.42	-0.18	0.00	9.00	1.00
	9412.000	160.00	893.91	0.17	-0.24	0.00	9.00	1.00
*	9412.000	220.00	894.28	0.37	-0.27	0.00	9.00	1.00
*	9430.000	80.00	893.34	0.00	0.03	0.00	8.91	18.00
*	9430.000	130.00	893.85	0.50	0.11	0.00	9.00	18.00
*	9430.000	160.00	894.12	0.28	0.21	0.00	9.00	18.00
*	9430.000	220.00	894.59	0.47	0.31	0.00	9.00	18.00
	9431.000	80.00	894.10	0.00	0.76	0.00	10.00	1.00
	9431.000	130.00	894.94	0.84	1.09	0.00	10.00	1.00
	9431.000	160.00	895.41	0.48	1.29	0.00	10.00	1.00
	9431.000	220.00	896.39	0.97	1.79	0.00	10.00	1.00
	9581.000	80.00	894.88	0.00	0.78	0.00	36.90	150.00
	9581.000	130.00	895.71	0.83	0.78	0.00	48.76	150.00
	9581.000	160 00	896.19	0.48	0.78	0.00	55.44	150.00
	9581.000	220.00	897.14	0.95	0.76	0.00	174.03	150.00
	10280.000	80.00	898.28	0.00	3.40	0.00	91.44	699.00
	10280.000	130 00	898.40	0 11	2.68	0.00	107.27	699.00
	10280.000	160.00	898.47	0.08	2.28	0.00	117.85	699.00
	10280.000	220.00	898.65	0.18	1.51	0.00	141.08	699.00

1

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	11080.000	80.00	901.93	0.00	3.65	0.00	38.55	800.00
	11080.000	130.00	902.14	0 21	3.75	0.00	42.92	800.00
	11080 000	160.00	902.24	0.10	3.77	0.00	49.71	800.00
*	11080.000	220.00	902.45	0.21	3.80	0.00	64.09	800.00
	11120.000	80.00	906.34	0.00	4.40	0.00	84.00	40.00
	11120.000	130 00	906.59	0.25	4.44	0.00	84.00	40.00
	11120 000	160.00	906.69	0.10	4.45	0.00	84.00	40.00
	11120.000	220.00	906.85	0.16	4.40	0.00	84.00	40.00
	11795.000	80.00	906 34	0.00	0.00	0.00	240.00	675.00
	11795.000	130.00	906.59	0 25	0.00	0.00	240.00	675.00
	11795.000	160 00	906.69	0.10	0.00	0.00	240.00	675.00
	11795.000	220.00	906.86	0 17	0.01	0.00	240.00	675.00
	11895.000	80.00	906.54	0.00	0.21	0.00	240.00	100.00
	11895.000	130.00	906.78	0.24	0.20	0.00	240.00	100.00
	11895.000	160.00	906.90	0 11	0.20	0.00	240.00	100.00
	11895.000	220.00	907.08	0.19	0.23	0.00	240.00	100.00
	11995 000	80.00	907 05	0.00	0.51	0.00	240.00	100.00
	11995.000	130.00	907 22	0.17	0.44	0.00	240.00	100.00
	11995.000	160.00	907.32	0.10	0.43	0.00	240.00	100.00
	11995.000	220.00	907.49	0.17	0.41	0.00	240.00	100.00
	12095.000	80.00	907.55	0.00	0.50	0.00	240.00	100.00
	12095.000	130.00	907.73	0.17	0.50	0.00	240.00	100.00
	12095.000	160.00	907.82	0.09	0.50	0.00	240.00	100.00
	12095 000	220.00	907.99	0.17	0 49	0.00	240.00	100.00
	12195.000	80.00	908.05	0.00	0.49	0.00	240.00	100.00
	12195.000	130.00	908.23	0.18	0.50	0.00	240.00	100.00
	12195.000	160.00	908.32	0.09	0.50	0.00	240.00	100.00
	12195.000	220.00	908 49	0.17	0.50	0.00	240.00	100.00
	12595.000	80.00	910 49	0.00	2.44	0.00	95.00	400.00
	12595.000	130.00	910.73	0.24	2.51	0.00	95.00	400.00

	12595.000	160.00	910.86	0.13	2.54	0.00	95.00	400.00
	12595.000	220.00	911.07	0.20	2.57	0.00	95.00	400.00
	13155.000	80.00	914.60	0.00	4.11	0.00	60.00	560.00
	13155.000	130.00	914.95	0 35	4.22	0.00	60.00	560.00
	13155.000	160.00	915.12	0.17	4.26	0 00	60.00	560.00
	13155.000	220 00	915.45	0.33	4.38	0.00	60.00	560.00
	13620.000	80 00	917.19	0.00	2.59	0.00	166.47	465.00
	13620.000	130.00	917.45	0.26	2.50	0.00	185.85	465.00
	13620.000	160.00	917.58	0.13	2.46	0.00	195.00	465.00
	13620.000	220.00	917.82	0.24	2.37	0.00	195.00	465.00

1

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	14029.000	80.00	919.62	0.00	2.43	0.00	105.88	409.00
	14029.000	130.00	919.85	0.23	2.40	0.00	142.29	409.00
	14029.000	160.00	919.95	0.09	2.36	0.00	156.52	409.00
	14029 000	220.00	920.11	0.17	2.29	0.00	180.26	409.00
	14634.000	90.00	923.99	0.00	4.36	0.00	117.84	605.00
	14634 000	140.00	924.24	0.26	4.39	0.00	119.38	605.00
	14634.000	160.00	924.35	0.11	4.41	0.00	120.02	605.00
	14634.000	220.00	924.59	0.24	4.48	0.00	121.44	605.00
	15238.000	90.00	928.53	0.00	4.55	0.00	157 57	604.00
	15238.000	140.00	928.69	0.16	4.45	0.00	159.21	604.00
	15238.000	160 00	928.74	0.05	4.39	0.00	159.67	604.00
	15238.000	220 00	928.92	0.18	4.32	0.00	161.42	604.00
	15988.000	90.00	933.79	0.00	5 25	0.00	99.13	750.00
	15988.000	140.00	934.06	0.28	5.37	0.00	100.87	750.00
	15988.000	160.00	934.17	0.11	5.43	0.00	101.23	750.00
	15988.000	220.00	934.42	0.24	5.50	0.00	102.05	750.00
	16738.000	90.00	940.05	0.00	6.27	0 00	56.74	750.00
	16738.000	140.00	940.29	0.24	6.23	0.00	60.19	750.00
	16738.000	160.00	940.35	0.06	6 18	0.00	61.47	750.00
	16738.000	220.00	940.60	0.24	6.18	0 00	65.78	750.00
	17638.000	90.00	949.96	0.00	9.91	0.00	72.78	900 00
	17638.000	140.00	950.28	0 31	9.99	0.00	99.97	900 00
	17638.000	160.00	950.39	0.11	10.04	0 00	109.26	900.00
	17638 000	220.00	950.63	0.24	10.03	0.00	130.23	900.00
	18038.000	90.00	953.91	0.00	3.95	0.00	51.78	400.00
	18038.000	140.00	954.21	0 30	3.93	0.00	76.91	400.00
	18038.000	160.00	954.30	0.09	3.91	0.00	84 69	400.00
	18038.000	220.00	954.56	0.26	3.93	0.00	106 73	400.00
	18240.000	90 00	956.06	0.00	2.15	0.00	79.44	202 00
	18240.000	140.00	956.38	0.32	2.17	0.00	88.63	202.00
	18240.000	160.00	956.49	0.11	2.19	0.00	90.00	202 00
	18240.000	220.00	956.74	0 25	2.19	0.00	90.00	202.00
*	18513.000	90 00	958.94	0.00	2.88	0.00	2.40	272.00
*	18513.000	140 00	960.73	1.79	4.35	0.00	171.14	272.00
*	18513.000	160.00	960.76	0.03	4.27	0.00	178.07	272 00
*	18513.000	220.00	960.86	0.09	4.12	0.00	196.97	272.00
*	18557.000	90.00	959.54	0.00	0.60	0.00	2.40	44.00
*	18557.000	140.00	961.36	1.81	0.63	0.00	176.60	44.00
*	18557.000	160 00	961.37	0.01	0.61	0.00	179.33	44.00
*	18557.000	220.00	961.46	0.09	0.60	0.00	197.65	44.00

SUMMARY OF ERRORS AND SPECIAL NOTES

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CAUTION  SECNO=  2640.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  2640.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  2640.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=  2700.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  2700.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  2700.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  2700.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  2700.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  2700.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  2700.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  2700.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  2700.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  2700.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  2700.000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  2700.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=  5179.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  5179.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  5179.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  5179.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  5179.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  5179.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  5179.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  5179.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  5179.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  5179.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  5179.000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  5179.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=  5526.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  5526.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=  6190.000  PROFILE= 2  HYDRAULIC JUMP D S.
CAUTION  SECNO=  6190.000  PROFILE= 3  HYDRAULIC JUMP D.S.
CAUTION  SECNO=  6190.000  PROFILE= 4  HYDRAULIC JUMP D.S.

CAUTION  SECNO=  6945.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  6945.000  PROFILE= 3  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  6945.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  6945.000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  6945.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO=  8224.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  8224.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=  8405.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
1
CAUTION  SECNO=  8405.000  PROFILE= 3  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=  9412.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  9412.000  PROFILE= 4  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO=  9430 000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  9430.000  PROFILE= 1  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  9430 000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  9430.000  PROFILE= 2  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  9430 000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  9430.000  PROFILE= 3  MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  9430.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
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CAUTION  SECNO=  9430.000  PROFILE= 4  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO= 11080.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 11080 000  PROFILE= 4  MINIMUM SPECIFIC ENERGY

CAUTION  SECNO= 18513.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 18513.000  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 18513.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 18513.000  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 18513.000  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 18513.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 18513.000  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 18513.000  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 18513 000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 18513.000  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 18513 000  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO= 18513.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION  SECNO= 18557.000  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO= 18557.000  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 18557.000  PROFILE= 2  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO= 18557.000  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 18557.000  PROFILE= 3  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO= 18557.000  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO= 18557.000  PROFILE= 4  WSEL ASSUMED BASED ON MIN DIFF
CAUTION  SECNO= 18557.000  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL

1
 13 FEB 89    10:31:40                                                                    PAGE    1


                                                                  THIS RUN EXECUTED 13 FEB 89   10:31:40
**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
**************************************************


EJ
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PLIST DATA.02/13/89

DATE	TIME	STAGE (ft)	VEL-1 (ft/s)	VEL-2 (ft/s)	PSTAT	Q/10 (cfs)	TEMP (C)	SAMPLE CODE
FEB 12	615	5.5250	1.4050	0.8990	12.6500	438.9000	1.8320	0.0020
FEB 12	630	5 5250	1.4040	0.8940	11.9900	438.7000	1.8280	0.0020
FEB 12	645	5 5250	1.4070	0.9020	12.6500	439.5000	1.8280	0.0020
FEB 12	700	5.5250	1.4040	0.8980	11.9900	438.8000	1.8270	0.0020
FEB 12	715	5.5250	1.4020	0.8970	12.6500	437 9000	1.8250	0.0020
FEB 12	730	5.5250	1.4020	0.8980	11.9900	438.0000	1.8230	0.0020
FEB 12	745	5.5250	1.4060	0 9020	12.6500	439.2000	1.8240	0.0020
FEB 12	800	5 5250	1.4130	0 9060	12.6500	441.6000	1.8250	0.0020
FEB 12	815	5.5250	1.4080	0.9040	12.6500	439.9000	1.8390	0.0020
FEB 12	830	5 5250	1.4060	0.8970	12.6500	439.4000	1.8700	0.0020
FEB 12	845	5.5250	1.4120	0.9060	11.9800	441.3000	1.9170	0.0020
FEB 12	900	5.5250	1.4110	0 9020	12.6500	441.0000	1.9800	0.0020
FEB 12	915	5.5250	1.4080	0.9030	12.7800	440.1000	2.0470	0.0020
FEB 12	930	5.5250	1.4130	0.9060	14.6500	441.4000	2.1270	0.0020
FEB 12	945	5.5250	1.4120	0.9020	12.2000	441.1000	2.2390	0.0020
FEB 12	1000	5.5250	1 4090	0.9020	12.6500	440.1000	2.3170	0.0020
FEB 12	1015	5.5250	1.4120	0.9030	11.9800	441.1000	2.4050	0.0020
FEB 12	1030	5.5250	1.4100	0.9030	11.9800	440.6000	2.4930	0.0020
FEB 12	1045	5.5250	1.4140	0.9040	13.3100	441.9000	2.5920	0.0020
FEB 12	1100	5.5250	1.4080	0.8990	11.9800	439.8000	2.6820	0.0020
--More--								
FEB 12	1115	5.5250	1 4080	0.9010	12.8700	440.0000	2.7480	0.0020
FEB 12	1130	5.5250	1 4090	0.8980	11.9800	440.1000	2.8170	0.0020
FEB 12	1145	5.5250	1 4070	0.9070	12.6500	439.8000	2.9620	0.0020
FEB 12	1200	5.5250	1.4120	0.9080	11.9800	441.2000	3.0760	0.0020
FEB 12	1215	5.5250	1.4030	0.9040	12.6400	438.4000	3.1510	0.0020
FEB 12	1230	5.5250	1.4080	0.9060	11.9800	440.0000	3.1660	0.0020
FEB 12	1245	5.5250	1.4020	0.9020	12.6400	438.2000	3.2040	0.0020
FEB 12	1300	5.5250	1.4080	0.9060	12.6400	440.0000	3.2350	0.0020
FEB 12	1315	5.5250	1.4030	0.9040	13.3100	438.3000	3.2400	0.0020
FEB 12	1330	5.5250	1.4000	0.9040	12.9400	437.4000	3.2470	0.0020
FEB 12	1345	5.5250	1.3860	0.9070	12.8100	433.0000	3.2530	0.0020
FEB 12	1400	5 5290	1.3850	0 8910	12.6400	433.2000	3.1480	0.0020
FEB 12	1415	5 5400	1.3660	0.8790	11.9800	427.8000	3.0450	0 0020
FEB 12	1430	5.5470	1.3720	0.8880	12.6400	430.0000	2.9790	0.0020
FEB 12	1445	5.5460	1.3640	0.8890	12.5300	427.8000	2.9280	0.0020
FEB 12	1500	5.5470	1 3640	0.8960	12.7100	427.8000	2 8660	0.0020
FEB 12	1515	5.5470	1.3690	0.8900	11.9800	429.2000	2.8240	0.0000
FEB 12	1530	5.5470	1.3680	0.8930	11.9800	428.9000	2.7880	0.0020
FEB 12	1545	5.5470	1 3680	0.8920	13.3100	428.8000	2.7590	0.0020
FEB 12	1600	5.5470	1.3670	0 8920	11.9800	428.5000	2.7200	1019.0000
FEB 12	1615	5.5470	1.3760	0.9010	13.2000	431.5000	2.6690	0.0020
FEB 12	1630	5.5470	1.3810	0.9020	11.9800	432.9000	2.6320	0.0020
FEB 12	1645	5.5470	1.3880	0.9070	12 8700	435.2000	2.5970	0.0020
--More--								
FEB 12	1700	5.5470	1.3910	0.9110	11.9800	436.2000	2.5630	0.0020
FEB 12	1715	5.5460	1.3940	0 9070	12.6400	437.0000	2.5380	0.0020
FEB 12	1730	5.5450	1.3980	0.9050	12.3100	438.3000	2.5080	0.0020
FEB 12	1745	5.5320	1.3960	0.9080	13.3100	436.8000	2 4770	0.0020
FEB 12	1800	5.5320	1.3890	0.9000	11.9800	434.6000	2.4500	0.0020
FEB 12	1815	5.5320	1.3980	0.9060	11 9800	437 3000	2.4250	0.0020
FEB 12	1830	5.5320	1.4010	0.9120	12.6500	438.1000	2.3940	0.0020
FEB 12	1845	5.5300	1.3970	0.9050	12.4800	436.7000	2.3670	0.0020
FEB 12	1900	5.5290	1.3970	0.9020	14.7000	436.9000	2 3340	0 0020
FEB 12	1915	5.5270	1 3890	0.9000	12.9800	434.2000	2.3140	0.0020

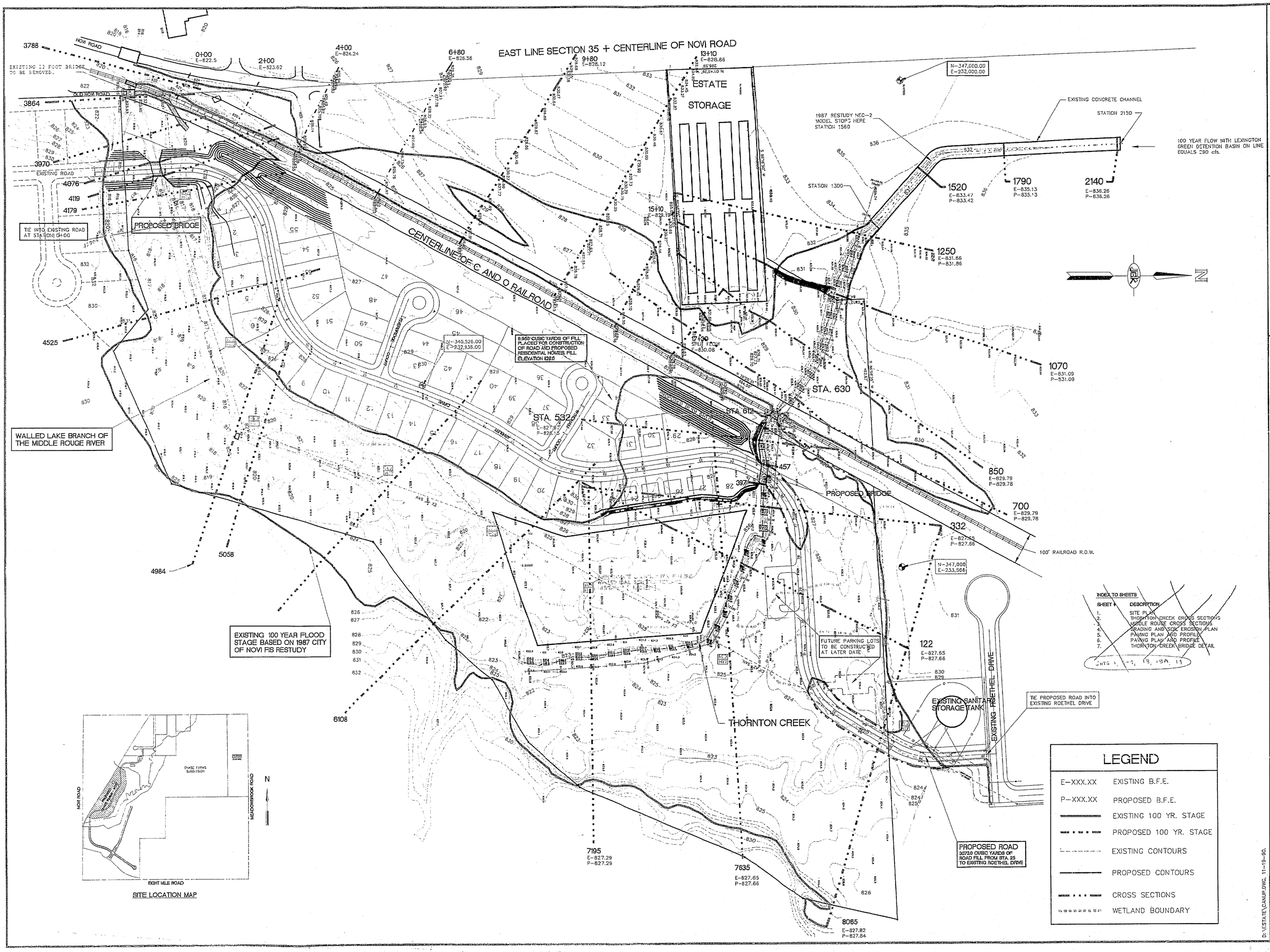
DATE	TIME	STAGE (ft)	VEL-1 (ft/s)	VEL-2 (ft/s)	PSTAT	Q/10 (cfs)	TEMP (C)	SAMPLE CODE
FEB 12	1930	5.5270	1.3990	0.9030	14.7100	437.4000	2.2870	0.0020
FEB 12	1945	5.5300	1 3990	0.9100	12.2000	437.6000	2.2550	0.0020

FEB 12	2000	5.5290	1.3850	0.9010	12.6500	433.0000	2 2290	0.0020
FEB 12	2015	5.5270	1.3970	0.9040	11 9800	436.8000	2.2110	0.0020
FEB 12	2030	5.5300	1.4030	0.9030	13.0900	438.7000	2.1930	0.0020
FEB 12	2045	5.5330	1.3940	0.9090	13.3100	436.1000	2.1800	0.0020
FEB 12	2100	5.5330	1.3910	0.9020	11.9800	435 2000	2.1660	0.0020
FEB 12	2115	5.5320	1.3930	0.9010	12.6500	435.9000	2.1520	0.0020
FEB 12	2130	5.5260	1.3920	0.9040	11.9800	435.1000	2.1380	0.0020
FEB 12	2145	5.5260	1.3920	0.9040	12.6500	435 2000	2.1210	0.0020
--More--								
FEB 12	2200	5.5260	1.3970	0.9000	11.9800	436.7000	2.1080	0.0020
FEB 12	2215	5.5270	1.4040	0.9040	12.9800	438.9000	2 0930	0.0020
FEB 12	2230	5 5340	1.3950	0.9050	11.9800	436.6000	2.0740	0.0020
FEB 12	2245	5.5310	1.3980	0.9060	13.2300	437.3000	2.0580	0.0020
FEB 12	2300	5.5320	1.3910	0.8980	12.6500	435.2000	2.0450	0.0020
FEB 12	2315	5 5280	1.3920	0.9030	11.9800	435.2000	2.0350	0.0020
FEB 12	2330	5.5260	1.4030	0.9110	12.6500	438.6000	2.0220	0.0020
FEB 12	2345	5.5270	1.3950	0.9110	12.5400	436.0000	2.0160	0.0020
FEB 13	0	5.5270	1.3960	0.9090	12.8700	436.5000	2.0070	0.0020
FEB 13	15	5.5300	1.3930	0 9030	11.9800	435.5000	1.9930	0.0020
FEB 13	30	5.5260	1.3850	0.8990	12.9800	432.9000	1.9730	0.0020
FEB 13	45	5.5210	1.4040	0.9090	11.9800	438.4000	1.9640	0 0020
FEB 13	100	5.5210	1.3960	0.9010	12.6500	435.9000	1.9530	0.0020
FEB 13	115	5.5200	1.3880	0.8960	11.9800	433.3000	1.9440	0.0020
FEB 13	130	5 5200	1.3990	0.9020	11.9800	436.9000	1.9260	0.0020
FEB 13	145	5.5210	1.3910	0.8960	12.6500	434.3000	1.9150	0.0020
FEB 13	200	5 5210	1.3890	0.8970	12 2100	433.6000	1.9100	0.0020
FEB 13	215	5.5210	1.3970	0.9040	12.6500	436.4000	1.9050	0 0020
FEB 13	230	5.5210	1 4000	0.8980	11.9800	437.2000	1.8990	0.0020
FEB 13	245	5 5210	1.3990	0.8980	12.6500	436.8000	1.8920	0.0020
FEB 13	300	5.5210	1.3950	0.8980	11.9800	435.7000	1.8870	0.0020
FEB 13	315	5.5210	1.3970	0.9090	13.6500	436.2000	1.8820	0.0030
FEB 13	330	5.5300	1.3210	0.8970	23.6400	413.1000	1.8810	0.0030
--More--								
FEB 13	345	5.5220	1.3520	0.8910	20.8000	422.2000	1.8810	0.0030
FEB 13	400	5.5190	1.3880	0.9060	22.5300	433.4000	1.8760	1363.0000
FEB 13	415	5.5240	1.3720	0.8980	27.2600	428.7000	1.8700	0.0030
FEB 13	430	5.5240	1.2990	0.8890	26.7200	405.8000	1.8640	0.0030
FEB 13	445	5.5240	1.3470	0.9020	30.7700	421.0000	1.8540	0.0030
FEB 13	500	5.5240	1.3870	0.9010	25.9300	433.4000	1.8430	0.0030
FEB 13	515	5.5240	1.3710	0.8930	30.6200	428.4000	1.8360	0.0030
FEB 13	530	5.5240	1.3710	0.9040	31.3100	428.4000	1 8250	0.0030
FEB 13	545	5 5240	1.3550	0.9010	29.7500	423.4000	1.8170	0.0030
FEB 13	600	5.5240	1.2960	0.8970	32.6400	404.8000	1.8110	0.0030

OK, LO
Monthly. 150m connect, 27s CPU, 24s I/O, 17 logins.

THANKS FOR USING THE PRIME 9955 IN MADISON, WISCONSIN (DWIMDN)

!&}E
IDLE


EAST LINE SECTION 35 + CENTERLINE OF NOVI ROAD
NOVI ROAD
OLD NOVI ROAD
EXISTING 12 FOOT BRIDGE TO BE REMOVED.
ESTATE STORAGE
CENTERLINE OF C AND O RAILROAD
PROPOSED BRIDGE
TIE INTO EXISTING ROAD AT STATION 0+00
WALLED LAKE BRANCH OF THE MIDDLE ROUGE RIVER
EXISTING 100 YEAR FLOOD STAGE BASED ON 1987 CITY OF NOVI FIS RESTUDY
6,955 CUBIC YARDS OF FILL PLACED FOR CONSTRUCTION OF ROAD AND PROPOSED RESIDENTIAL HOMES. FILL ELEVATION 829.0
N-345,526.00 E-232,936.00
STA. 532
STA. 612
STA. 630
PROPOSED BRIDGE
N-347,000.00 E-232,000.00
1987 RESTUDY HEC-2 MODEL STOPS HERE STATION 1560
EXISTING CONCRETE CHANNEL
STATION 2150
100 YEAR FLOW WITH LEXINGTON GREEN DETENTION BASIN ON LINE EQUALS 290 cfs.
STATION 1300
100' RAILROAD R.O.W.
N-347,000 E-233,500
FUTURE PARKING LOTS TO BE CONSTRUCTED AT LATER DATE
EXISTING SANITARY STORAGE TANK
EXISTING ROETHEL DRIVE
TIE PROPOSED ROAD INTO EXISTING ROETHEL DRIVE
THORNTON CREEK
PROPOSED ROAD 3073.0 CUBIC YARDS OF ROAD FILL FROM STA. 25 TO EXISTING ROETHEL DRIVE
EXISTING ROAD
EIGHT MILE ROAD
MEADOWBROOK ROAD
SITE LOCATION MAP
N
LEGEND
E-XXX.XX EXISTING B.F.E.
P-XXX.XX PROPOSED B.F.E.
EXISTING 100 YR. STAGE
PROPOSED 100 YR. STAGE
EXISTING CONTOURS
PROPOSED CONTOURS
CROSS SECTIONS
WETLAND BOUNDARY
INDEX TO SHEETS
SHEET # DESCRIPTION
1. SITE PLAN
2. THORNTON CREEK CROSS SECTIONS
3. MIDDLE ROUGE CROSS SECTIONS
4. GRADING AND SOIL EROSION PLAN
5. PAVING PLAN AND PROFILE
6. PAVING PLAN AND PROFILE
7. THORNTON CREEK BRIDGE DETAIL
JCK & ASSOCIATES, INC. CONSULTING ENGINEERS NOVI, MICH. PH. NO. (313) 348-2680
SITE PLAN
THORNTON CREEK FLOODPLAIN STUDY
PART OF SECTION 35, TIN, R.8E CITY OF NOVI OAKLAND COUNTY MICHIGAN
Revisions
Drawn J.A.W.
Designed J.A.W.
Checked C.W.F.
Scale 1"=100'
Date 11-19-90
Job No. N-1815-2
Sht. No. 1.
D:\ESTATE\CANUP.DWG, 11-19-90.

TRIM | FOLD | A | B | C | D | E | F | G | H | J

JOINS PANEL 0007

ZONE A
ZONE AE
ZONE X
ZONE D

CORPORATE LIMITS
Novi Township
NOVI ROAD
TEN MILE ROAD
NINE MILE ROAD
EIGHT MILE ROAD
GRAND RIVER AVENUE
BURTON SQUIRE ROAD
CRANBROOKE ROAD
HAGGERTY
MEADOWBROOK LAKE DAM
Walled Lake Branch
Thornton Creek
Bishop Creek
Ingersol Creek
Footbridge
ORCHARD SERVICE ROAD
CHIPMUNK TER
PHEASANT RUN
PINE CREST
KNOLLWOOD HAMPTON
HAMPTON CT
HILL
QUEENS PTE
QUINCE
ASPEN
BORCHART
SYCAMORE
SILVERY
MEADOWBROOK
LEBOST DR
WILLOW
WILLOWBROOK DRIVE
LONDONDERRY
NI LAN
WEST
CHAPMAN DRIVE
BALCOMBE
ENNISFORE DR
MEADOWBROOK LAKE
PENTON RISE CT
VILLAGE WAY
LAKE FOREST
TREE
SHADOW PINE
BROOK
HEATHERRAE
WINFIELD ROAD
SHERIDAN DRIVE
HEATHERWOODE
CORTES
WOOLSEY
GLYME
HESLIP DRIVE
MAYO
KILRUSH
EMERY
RATHLONE
CONNEMARA DRIVE
BEDFORD
CENTER ST
CUMBERLAND
WESTRIDGE LANE
ASHBURY DRIVE
GLEN HAVEN
CAMBRIDGE
OLD NOVI ROAD
ACCESS ROAD
BUCKINGHAM COURT
MDNR comment #6b
MDNR comment 5a
MDNR comment 6a

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
RM1	836.80	Chiseled cross on top of southwest abutment of CSX railroad bridge over Thornton Creek.
RM2	830.37	Top east end of cross culvert under Ennisfore Drive at northeast corner of intersection with Nine Mile Road.
RM3	830.22	Chiseled cross on centerline of west end of northwest wingwall of Meadowbrook Road bridge over Ingersol Creek.
RM4	846.69	Chiseled square cut in top of sidewalk at northwest corner of Willowbrook Drive bridge over Ingersol Creek.
RM5	853.32	Railroad spike on south side of power pole located about 50 feet northwest of box culvert for Ingersol Creek under Ten Mile Road.
RM6	852.64	Chiseled station "88 + 42" on centerline of north headwall of culvert for Ingersol Creek under Grand River Avenue.
RM7	860.65	Cross on north bolt of fire hydrant flange located at southeast corner of intersection of Lebost Drive and Ten Mile Road.
RM8	862.00	Chiseled square cut on north end of east abutment of CSX railroad bridge over Walled Lake Branch.
RM9	875.23	Railroad spike on south side of powerpole located at northwest corner of Ten Mile Road and CSX railroad crossing.
RM10	887.01	Top of east end of 42-inch corrugated metal culvert for Chapman Creek under Novi Road.
RM11	849.87	Railroad spike on northwest side of powerpole located at southeast corner of intersection of Nine Mile Road and Novi Road.
RM12	874.12	Railroad spike in northwest side of powerpole located at southwest corner of intersection of Nine Mile Road and Center Street.

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 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 flood plain
- ZONE D — Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

Flood 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 Zone.
567 — Base Flood Elevation Line; Elevation in feet*
A — A — Cross Section Line
(EL 19) — Base Flood Elevation in Feet Where Uniform Within Zone*
RM5 — Elevation Reference Mark
M3.0 — Mile Mark

*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 flammable areas outside the Special Flood Hazard Area or all areas subject to flooding, particularly from local drainage sources of small size.

Areas of Special Flood Hazard (100-year flood) include zones, A, AE, A1-A30, AH, AO, AVE, V, VE and V1-V30.

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. Refer to Floodway Data Table where floodway width is shown at 500 inch.

Coastal base flood elevations apply only landward of the shoreline.

This map incorporates approximate boundaries of coastal barriers established under the Coastal Barrier Resources Act (PL 97-348).

Corporate limits shown are current as of the date of this map. The user should contact appropriate community officials to determine if corporate limits have changed subsequent to the issuance of this map.

For adjoining panels, see separately printed Map Index.

MAP REPOSITORY

INITIAL IDENTIFICATION:
JUNE 25, 1974

FLOOD HAZARD BOUNDARY MAP REVISION:
AUGUST 27, 1976

FLOOD INSURANCE RATE MAP EFFECTIVE:
APRIL 3, 1978

FLOOD INSURANCE RATE MAP REVISIONS:
Map revised to change special flood hazard areas, base flood elevations, zone designations, and corporate limits and to add floodways and cross sections.

To determine if flood insurance is available, contact an insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE IN FEET
500 0 500

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
NOVI,
MICHIGAN
OAKLAND COUNTY

PANEL 9 OF 9

COMMUNITY—PANEL NUMBER:
260175 0009 C
MAP REVISED:

PRELIMINARY
Federal Emergency Management Agency

FOLD | FOLD | FOLD | FOLD | FOLD | FOLD | FOLD | FOLD | FOLD | FOLD | TRIM

GREENHORNE & O'MARA E FRAME 88/12 STANDARD MIP

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: CITY NOVI TOWNSHIP

3) WATERCOURSE: BISHOP CREEK

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

00BREAK00

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



Johnson&Anderson,Inc.
CONSULTANTS
P. O. Box 1166 ▫ 2300 Dixie Highway ▫ Pontiac, Mich. 48056

July 14, 1976

RECEIVED
JUL 16 1976
WATER MANAGEMENT

Michigan Dept. of Natural Resources
Bureau of Water Management
Hydrological Survey Division
Mason Building, 8th Floor
Lansing, Michigan 48926

Attention: Mr. Richard S. Watt
Flood Insurance Coordinator

Re: Flood Insurance Study - City of Novi
Bishop Creek Hydraulic Investigation

Ref: J&A File No. 5555-46-1

Gentlemen:

Enclosed you will find the necessary information for a review of the Bishop Creek in the City of Novi. The data provided is the same as on the March 3, 1976, and April 14, 1976, submittals except the culvert methodology has been revised according to our meeting of May 21, 1976, and subsequent phone calls.

We would appreciate a review and approval of this study by August 4, 1976. If you have any questions, please call me.

Thank you for your cooperation.

Sincerely,

William C Rossow

William C. Rossow, P.E.
Project Manager

WCR/dp
encl.
cc: File



HYDRAULIC ANALYSIS

Introduction

The stream that was studied is the Bishop Creek, in the City of Novi, Oakland County, Michigan. The study begins at the confluence of the Bishop Creek with the Patnales Drain and continues for approximately 2.4 river miles until Interstate 96. The 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 approved by the Michigan Department of Natural Resources.

Method of Analysis

The flood profiles were computed by the HEC-2 computer program developed by the U.S. Army Corps of Engineers.[1]

All bridges have been modeled for the requirements of the HEC-2 normal bridge routine, except encroachment method 1 was used in lieu of levees. The bridges were checked, by manual calculations, for the occurrence of pressure flow (inlet or outlet control) and/or weir flow. The tail-water elevations used in conjunction with outlet control were determined by comparing encroached and unencroached valley sections one foot down-stream of the bridges. With the aid of photographs and field trips at the site of the bridges, a judgment was made as to the likelihood of

the downstream section being either a pool with a small velocity (unencroached section) or an expanding section with a high velocity producing an adverse scope (encroached section). If pressure flow and/or weir flow occur, the HEC-2 normal bridge routine was not used and the manually calculated water surface was inputted by use of the "X5" card. (Exception: if the weir is under high submergence, then HEC-2 normal bridge routine was used.[2]) When the "X5" card is used, the HEC-2 hydraulic calculations for the bridge are ignored as these calculations are no longer valid. If pressure and/or weir flow occurs at a bridge, then the upstream encroachments were removed to reflect the presence of a backwater pool.

Weir stage-discharge information was calculated by the computer using the standard equation, $Q = CLH^{3/2}$. The weir is divided along its length into one-foot segments. After being calculated through each setment, flows are summed.

Variables and Coefficients

The roughness factors (Manning's "n") were established by comparing the photographs and descriptions by Chow[3] with photographs and field inspection trips taken in the City of Novi.

There is currently no rational method of evaluating coefficients or contraction and expansion.[4] The coefficients of contraction and expansion used in this study were, respectively, 0.3 and 0.5, as suggested by the example sketched in Exhibit 5 in the HEC-2 Users Manual.[5]

The orifice discharge coefficients for outlet control used in this study were taken from charts published by the Bureau of Public Roads.[6] These coefficients represent the losses due to inlet, outlet and friction. For inlet control, nomographs from the Bureau of Public Roads[7] were used. The weir discharge and submergence coefficients were taken from charts supplied by the Michigan Department of Natural Resources.

Starting Point

The profile computation for Bishop Creek began at the confluence with the Patnales Drain. Starting elevations were taken from the Patnales Drain Study by using the water elevation calculated at the confluence with Bishop Creek for each frequency flood studied.

References

[1]U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profile, User's Manual, 1973.

[2]Ibid., p. 8.

[3]Chow, V. T., Open-Channel Hydraulics, pp. 101-123, McGraw-Hill (1959).

[4]Ibid., p. 267.

[5]U.S. Army Corps of Engineers, p. 2 of Exhibit 5.

[6]Hydraulic Charts for Selection of Highway Culverts, Bureau of Public Roads, Hydraulic Engineering Circular No. 5 (1965).

[7]Ibid.

City of Novi
Bishop Creek
5555-46-03
DCM 1-20-76

Original Cross-Section Location

Cross-Section	SECNO	Location
A	00	300'± u/s of confluence with Patnales
B	950	900'± South of Ten Mile Road
C	2000	50' ± d/s of Ten Mile Road
D	2001	Ten Mile Road Bridge
E	2840	550'± North of Ten Mile Road and 1050'± East of Meadowbrook Road
F	4190	1700'± North of Ten Mile Road and 975'± East of Meadowbrook Road
G	5640	500'± East of Meadowbrook Road and 675'± South of Grand River Avenue
H	6240	50' d/s of Grand River Avenue
I	6241	Grand River Avenue Bridge
J	6900	475'± North of Grand River Avenue and 425'± East of Meadowbrook Road
K	7503	125'± d/s of Meadowbrook Road
L	7504	Meadowbrook Road Bridge
M	7735	100'± West of Meadowbrook Road and 1050'± South of Eleven Mile Road
N	8185	600'± South of Eleven Mile Road and 95'± West of Meadowbrook Road
O	8186	Driveway Culvert 600'± d/s of Eleven Mile Road Bridge
P	8475	300'± South of Eleven Mile Road and 200'± West of Meadowbrook Road
Q	8750	40'± d/s of Eleven Mile Road Bridge
R	8751	Eleven Mile Road Bridge

City of Novi
Bishop Creek
5555-46-03
DMC 1-20-76

Cross-Section	SECNO	Location
S	8808	Field Culvert 15'± u/s of Eleven Mile Road Bridge
T	9225	600'± West of Meadowbrook Road and 200'± North of Eleven Mile Road
U	9226 9253	Field Culverts 425'± u/s of Eleven Mile Road Bridge
V	9875	350'± North of Eleven Mile Road and 1250'± West of Meadowbrook Road and 25' d/s of Driveway Culvert
W	9876	Driveway Culvert 1075'± u/s of Eleven Mile Road Bridge
X	11026	Culverts under Sugden Construction
Y	11425	u/s of Sugden Contruction
Z	11518	Private Roadway Bridge 100'± u/s of Sugden Construction

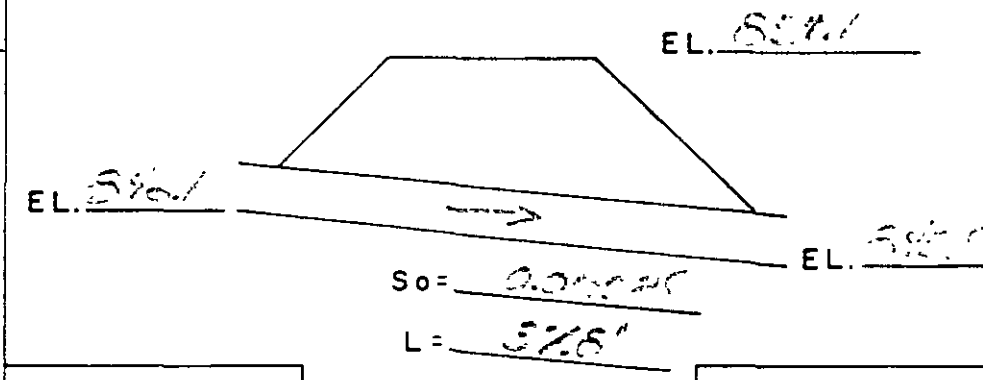
JOB NAME: CITY OF NOVI | JOB NO. 5555 46 01 03

WATERCOURSE: BISHOP CREEK | CULVERT LOCATION: 10 MILE RD.

CULVERT DESCRIPTION: BOX CULVERT | BY [illegible] | DATE 6-25-7[illegible]

[illegible] PARALLEL TO [illegible]

n=	[illegible]	Q_{10}=	[illegible]	TW_{10}=	2.70
A=	[illegible]	Q_{50}=	[illegible]	TW_{50}=	3.17
R=	[illegible]	Q_{100}=	[illegible]	TW_{100}=	3.32
Ke=	0.7	Q_{500}=	450	TW_{500}=	3.60
D=	2.7'				
LSo=	[illegible]				



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
[illegible]	2.05	5.54	2.04	2.70	2.70	2.70	5.64	5.23	–	5.64	WEIR	

CALCULATIONS AND COMMENTS

WEIR

CITY OF NOVI 5555-6-03

BISHOP CREEK

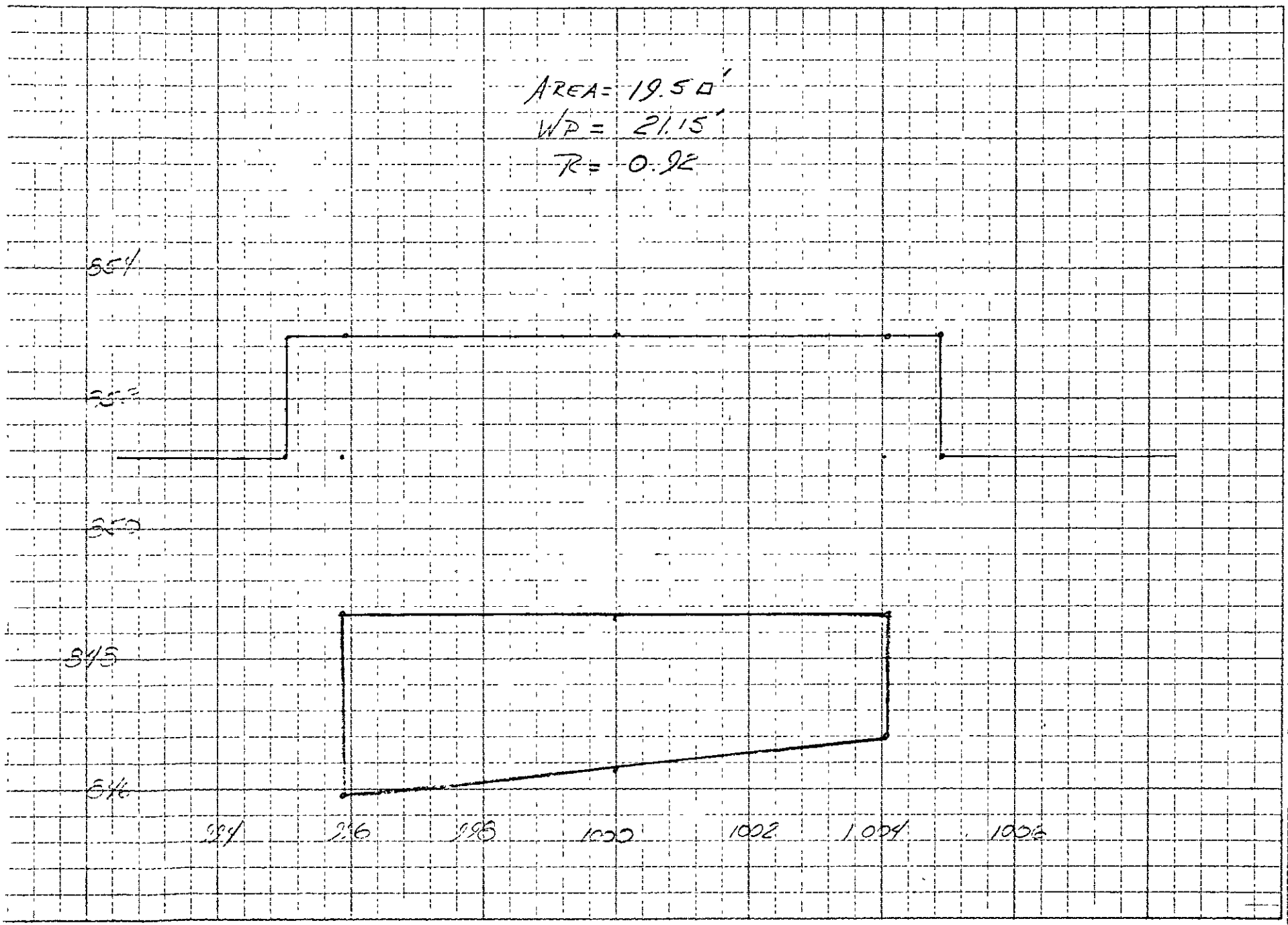
10 MILE ROAD

SEC[4] DOWNSTREAM FACE

AREA = 19.50 ft²

WP = 21.15'

R = 0.92



JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

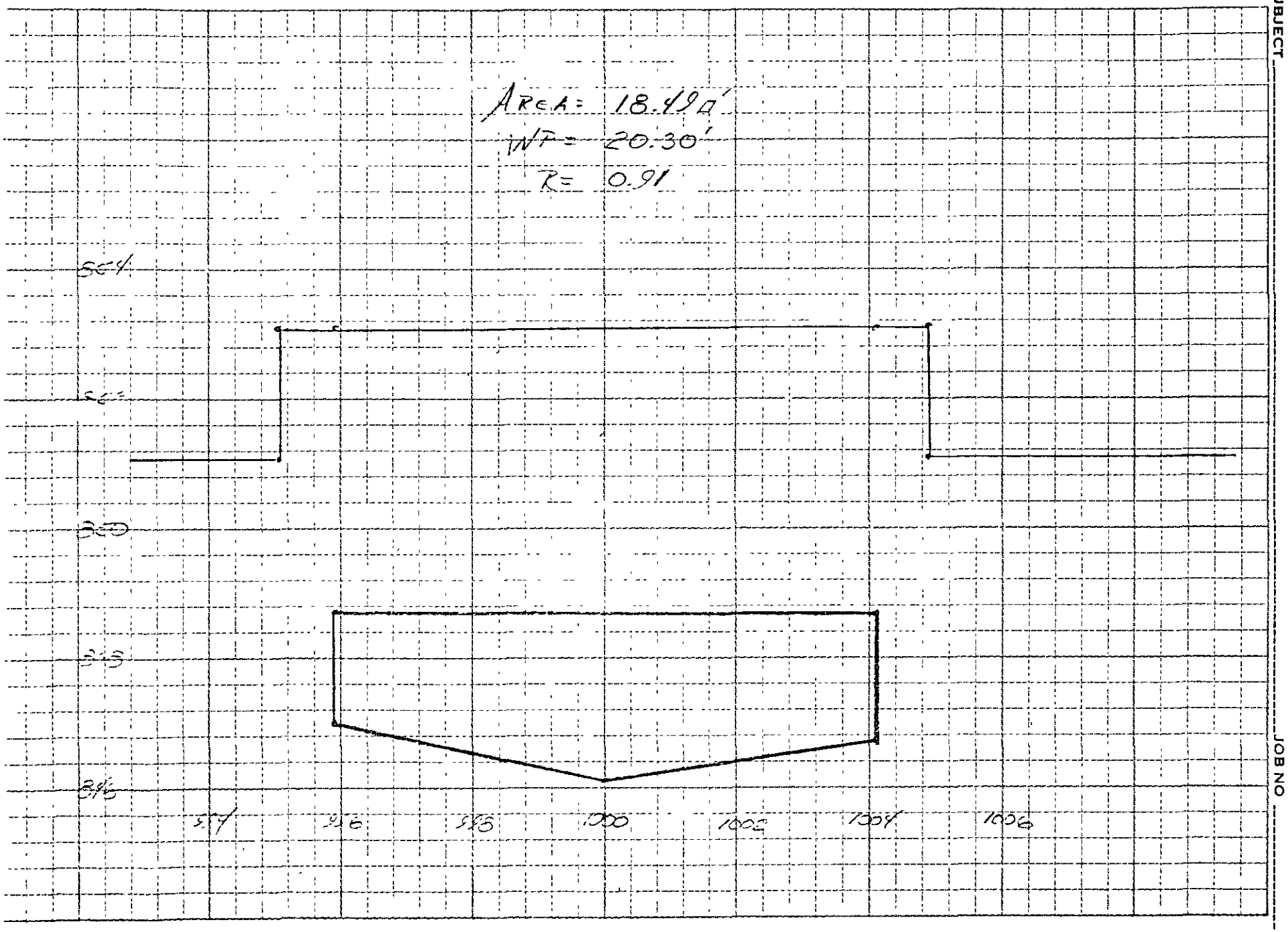
BY DCM DATE 12-16-75 JOB DESCRIPTION SHEET OF

SUBJECT JOB NO

CITY OF NOVI
BISHOP CREEK
10 MILE RD.

5555-03
UPSTREAM FACE
SEC [4]

AREA = 18.49 A'
WP = 20.30'
R = 0.91



JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY _____ DATE _____ JOB DESCRIPTION _____ SHEET _____ OF _____
SUBJECT _____ JOB NO _____

CITY OF NOVI
BISHOP CREEK
10 MILE ROAD
HARD SURFACE
38 FT. BREADTH
NUMBER OF POINTS= 10

STATION	ELEVATION
700.00	853.30
800.00	852.20
900.00	851.40
995.10	851.10
995.10	853.10
1004.90	853.10
1004.90	851.10
1100.00	851.50
1200.00	852.80
1300.00	854.50

WIDTH OF ROADWAY= 38.00
ROAD SURFACE:PAVED

ELEV	CAV	FLOW(CFS)
851.10	0.0	0.0
851.20	2.896	2.11
851.30	2.922	11.61
851.40	2.942	32.27
851.50	2.962	66.72
851.60	2.981	112.39
851.70	2.992	170.64
851.80	3.000	240.45
851.90	3.005	321.87
852.00	3.009	415.08
852.10	3.012	520.36

JOB NAME: CITY OF NOVI	JOB NO.	5555	46	01	03
WATERCOURSE: BISHOP CREEK	WEIR LOCATION: 10 MILE RD.				
WEIR DESCRIPTION: HARD SURFACE 33' BREADTH	BY: LCM	DATE 6-[illegible]			

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD. EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD. EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
186	851.25	848.50	2.75	180						7	851.1	-0-	1.0	7	187
280	851.58	848.[illegible]	2.61	175						103	851.1	-0-	1.0	103	278
330	851.65	848.12	2.56	173						159	851.1	-0-	1.0	159	332
450	851.35	848.[illegible]	2.45	170						281	851.1	-0-	1.0	281	451

CALCULATIONS AND COMMENTS

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46 | 01 | 03

WATERCOURSE: BISHOP CREEK | CULVERT LOCATION: GRAND RIVER AVE.

CULVERT DESCRIPTION: CONCRETE BOX | BY DCM | DATE 7-8-76

n= 0.015 | Q_{10}= 119 | TW_{10}= 4.64

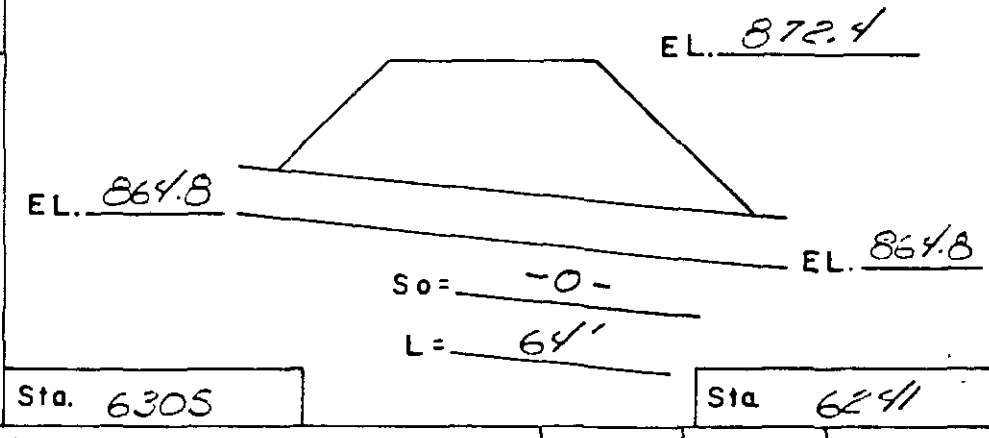
A= 28.0 sq ft | Q_{50}= 183 | TW_{50}= 5.28

R= 1.27 | Q_{100}= 215 | TW_{100}= 5.50

Ke= 0.7 | Q_{500}= 290 | TW_{500}= 5.83

D= 6.0'

LSo= -0-

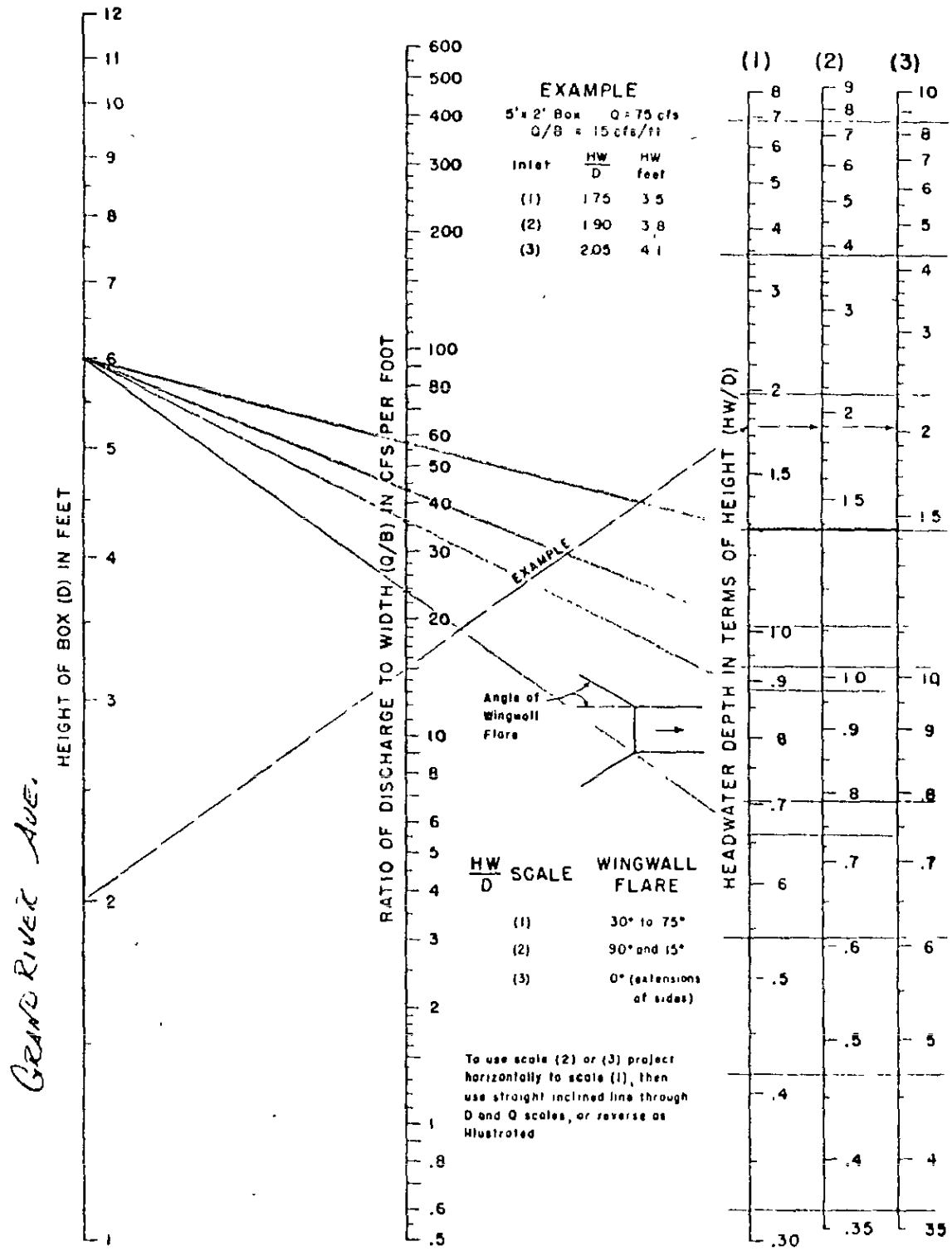


Sta. 6305 | Sta. 6241

Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
119	0.74	4.44	0.56	2.95	4.50	4.64	5.20	6.42	5.23	5.23	870.03	
183	0.97	5.82	1.33	3.85	4.92	5.28	6.61	6.99	6.34	6.34	871.14	
215	1.12	6.72	1.64	4.24	5.12	5.50	7.34	7.37	6.84	6.84	871.64	
290	1.45	8.70	5.34	5.09	5.54	5.83	9.17	8.50	7.69	9.17	n/a	

CALCULATIONS AND COMMENTS

CHART 1



HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

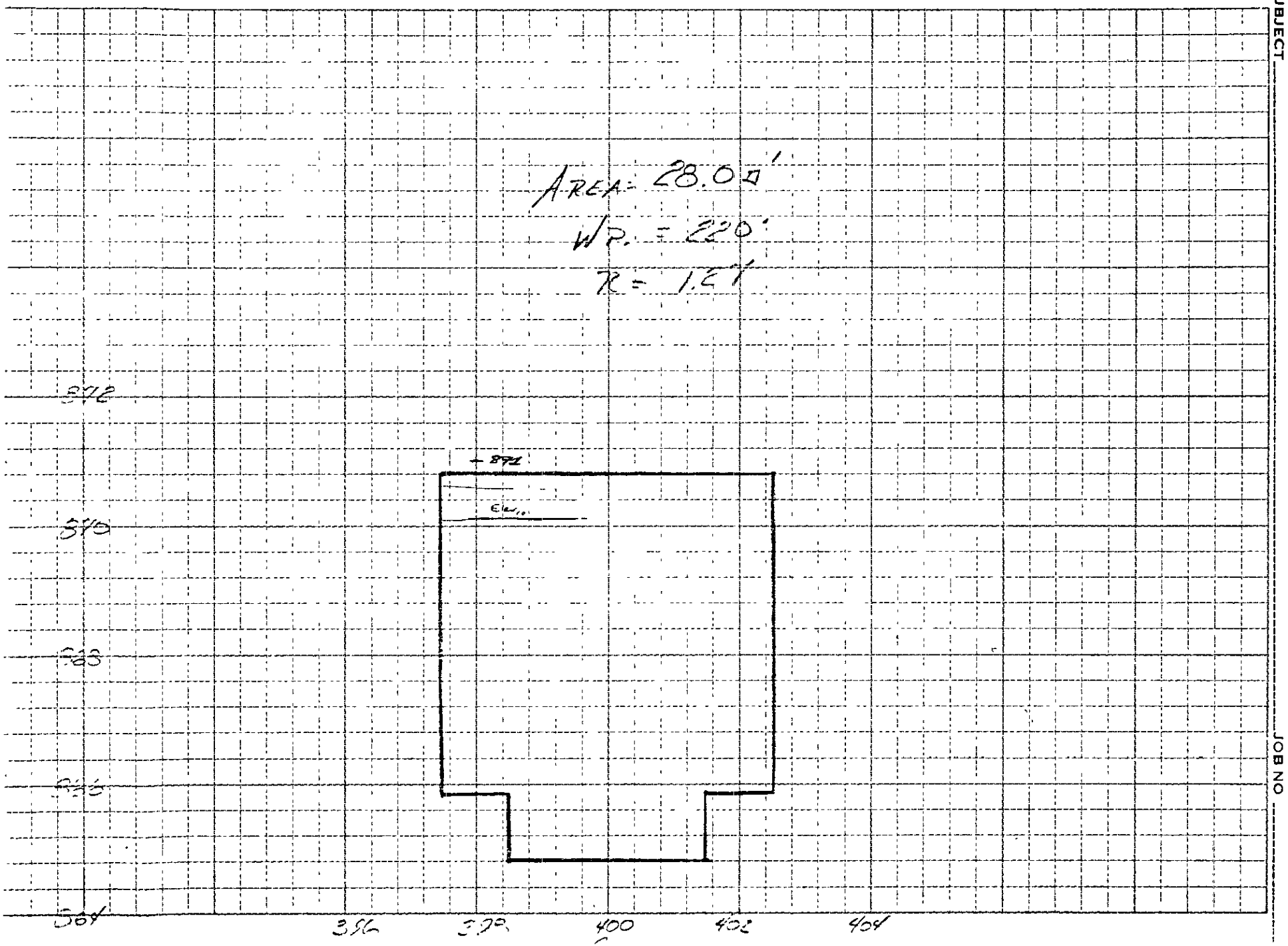
BUREAU OF PUBLIC ROADS JAN 1963

CITY OF NOVI BISHOP CREEK GRAND RIVER AVE. SEC [9]

AREA = 28.0 □'

W.P. = 220'

R = 1.61'



BY _____ DATE _____ JOB DESCRIPTION _____ SHEET _____ OF _____

SUBJECT _____ JOB NO _____

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

CITY OF NOVI JOB NO. 5555-46-03
BISHOP CREEK
GRAND RIVER AVE
HARD SURFACE
64 FT. BREADTH
NUMBER OF POINTS= 12

STATION	ELEVATION
0.0	883.40
100.00	880.00
200.00	876.80
300.00	873.90
397.50	872.40
402.50	872.40
500.00	872.40
600.00	873.80
700.00	875.20
800.00	876.70
900.00	878.80
1000.00	982.20

WIDTH OF ROADWAY= 64.00
ROAD SURFACE:PAVED

ELEVATION	Q
872.40	0.0
872.50	9.98
872.60	30.04
872.70	58.21
872.80	94.31
872.90	138.03
873.00	189.39
873.10	248.69
873.20	315.86
873.30	391.33
873.40	475.26
873.50	567.59
873.60	668.68
873.70	778.58
873.80	897.61
873.90	1025.94
874.00	1163.66
874.10	1310.64
874.20	1466.88
874.30	1632.44
874.40	1807.35
874.50	1991.72
874.60	2185.58
874.70	2389.07
874.80	2602.24
874.90	2825.20
875.00	3058.05

JOB NAME: CITY OF NOVI JOB NO. 5555 46 01

WATERCOURSE: BISHOP CREEK WEIR LOCATION: GRAND RIVER AVE.

WEIR DESCRIPTION: HARD SURFACE 64 FT. BREADTH BY DCM DATE 7-8-76

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Q_T	HW ELEV.	TW ELEV.	H_c (2-3)	$Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	L	AVG. RD.EL.	(6X7)	HW (2-7)	C	$Q_w = CLH_w^{3/2}$	MIN. RD.EL.	$\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	C_s / C_f	(11 X 14)	(5 + 15)
290	872.72	870.63	2.09	229						65	872.4	-0-	1.0	65	294

CALCULATIONS AND COMMENTS

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: BISHOP CREEK | CULVERT LOCATION: MEADOW BROOK ROAD

CULVERT DESCRIPTION: ONE 4.0' CMP | BY DCM | DATE 7-6-76

PROJECTING FROM FILL

n= 0.024 | Q_{10}= 119 | TW_{10}= 1.90

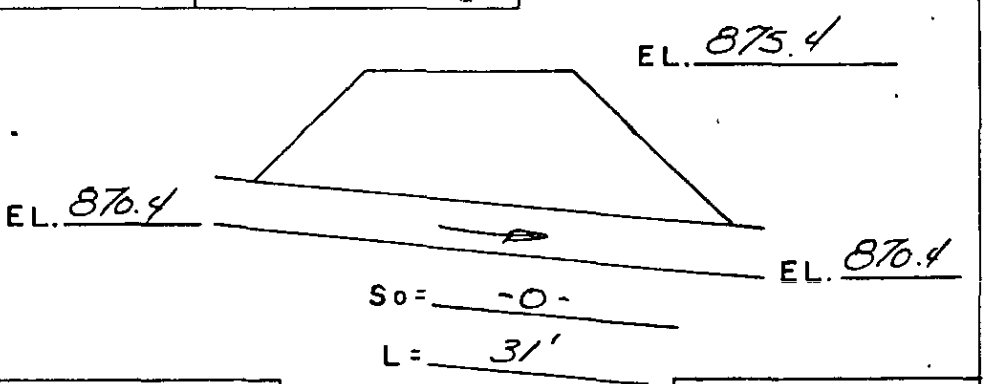
A= 12.57a' | Q_{50}= 183 | TW_{50}=

R= 1.00 | Q_{100}= 215 | TW_{100}=

Ke= 0.9 | Q_{500}= 290 | TW_{500}=

D= 4.0'

LSo= -0-



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
119	1.85	7.40	3.37	3.28	3.64	3.64	7.01	6.64	—	7.40	WEIR	
183												
215												
290												

CALCULATIONS AND COMMENTS

WEIR

CITY OF NOVI JOB NO. 5555-46-03
BISHOP CREEK
MEADOWBROOK ROAD
GRAVEL SUFACE
30 FT. BREADTH
NUMBER OF POINTS= 7

STATION	ELEVATION
800.00	900.00
800.00	877.50
900.00	876.60
998.00	875.40
1002.00	875.40
1100.00	878.00
1200.00	884.10

WIDTH OF ROADWAY= 30.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
875.40	0.0
875.50	0.70
875.60	3.10
875.70	7.78
875.80	15.24
875.90	25.96
876.00	40.35
876.10	58.79
876.20	81.72
876.30	109.35
876.40	142.13
876.50	180.30
876.60	224.19
876.70	274.19
876.80	330.80
876.90	394.44
877.00	465.52
877.10	544.44
877.20	631.47
877.30	726.92
877.40	831.11
877.50	944.38

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: BISHOP CREEK | WEIR LOCATION: HAGGERTY DR. SEC [11]

WEIR DESCRIPTION: GRAVEL RD. 30 FT. BREADTH | BY DCM | DATE 2-28-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD. EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD. EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
				INLET CONTROL											
119	875.8			94						25	873.4	-0-	1.0	25	119
183	876.21			99						84	873.4	-0-	1.0	84	183
215	876.32			100						116	873.4	-0-	1.0	116	216
300	876.52			102						189	873.4	-0-	1.0	189	291

CALCULATIONS AND COMMENTS

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46 | 01 | 03

WATERCOURSE: BISHOP CREEK | CULVERT LOCATION: 600' S. OF NINE RD

CULVERT DESCRIPTION: 53" [illegible]" ARCH PIPE | BY [illegible] | DATE 1-13-10

PROTECTING FROM FILL

n= .024 | Q_{10}= 119 | TW_{10}= 4.02

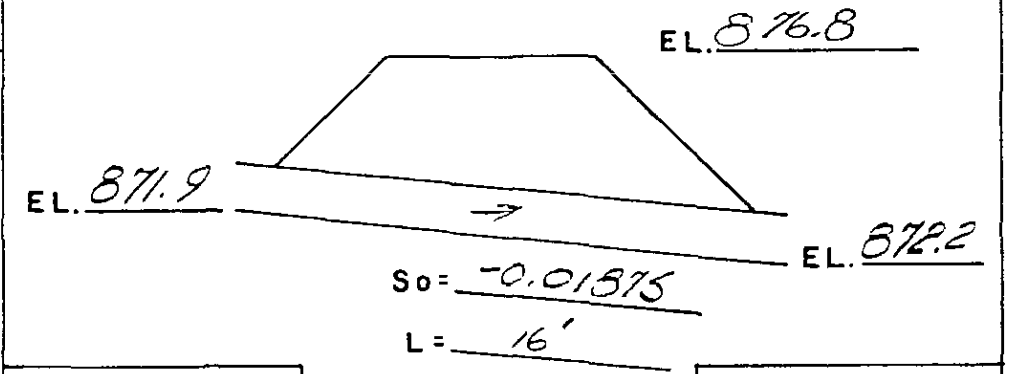
A= [illegible] | Q_{50}= 183 | TW_{50}= 4.50

R= [illegible] | Q_{100}= 215 | TW_{100}= 4.70

Ke= 0.9 | Q_{500}= 290 | TW_{500}= 5.10

D= [illegible]

LSo= -0.3'



Sta. 8202 | Sta. 8186

Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	D+(1+Ke) V²/2g	HW			
119	2.5	7.50	3.73	2.52	2.76	4.02	8.05	6.21	6.25	8.05	WEIR	

CALCULATIONS AND COMMENTS

WEIR

CITY OF NOVI
BISHOP CREEK
DRIVEWAY 600' S. OF 11 MILE & 95' W. OF MEADOWBROOK ROAD
GRAVEL DRIVEWAY
16 FT. BREADTH
NUMBER OF POINTS= 6

STATION	ELEVATION
0.0	890.20
20.00	881.20
30.00	881.10
127.60	876.80
132.40	876.80
230.00	886.00

WIDTH OF ROADWAY= 16.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
876.80	0.0
876.90	0.49
877.00	1.72
877.10	3.75
877.20	6.70
877.30	10.73
877.40	15.92
877.50	22.33
877.60	30.11
877.70	39.30
877.80	50.09
877.90	62.38
878.00	76.40
878.10	92.24
878.20	109.88
878.30	129.35
878.40	150.86
878.50	174.47
878.60	200.08
878.70	227.82
878.80	257.83
878.90	290.16
879.00	324.77
879.10	361.68
879.20	401.18
879.30	441.14
879.40	484.44
879.50	530.54
879.60	579.32
879.70	630.50
879.80	684.50
879.90	741.35
880.00	800.85

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: BISHOP CREEK WEIR LOCATION: 600 'S. OF 11 MILE RD.

WEIR DESCRIPTION: GRAVEL DRIVEWAY 16' BREADTH BY DCM DATE 2-28-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
119	877.74	876.22	1.52	76						43	876.8	-0-	1.0	43	119
183	878.1	876.70	1.49	75						108	876.8	-0-	1.0	108	183
215	876.35	876.90	1.45	74						140	876.3	0.064	1.0	140	214
290	878.6	877.30	1.36	72						217	876.3	0.269	1.0	217	289

CALCULATIONS AND COMMENTS

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46 | 01 | 03

WATERCOURSE: BISHOP CREEK | CULVERT LOCATION: 11 MILE ROAD

CULVERT DESCRIPTION: CMP 3.0' DIA | BY DCM | DATE 1-13-76

PROJECTING FROM FILL

n= 0.024 | Q_{10}= 77 | TW_{10}= 4.28

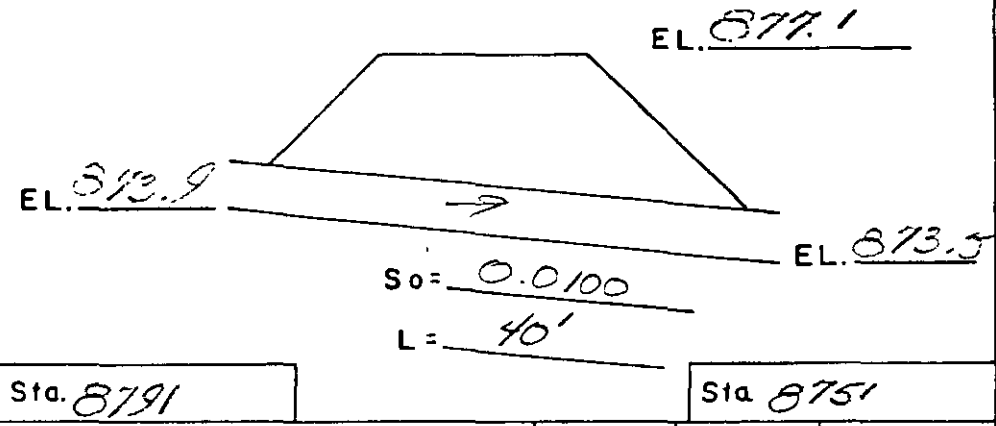
A= 7.10' | Q_{50}= 118 | TW_{50}= ____

R= 0.75 | Q_{100}= 137 | TW_{100}= ____

Ke= 0.9 | Q_{500}= 194 | TW_{500}= ____

D= 3.0'

LSo= 0.8'



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
77											WEIR	

CALCULATIONS AND COMMENTS

WEIR

CITY OF NOVI
BISHOP CREEK
11 MILE ROAD
GRAVEL ROAD
40 FT. BREAD
NUMBER OF POINTS= 7

STATION	ELEVATION
0.0	887.10
100.00	879.60
198.50	878.00
201.50	878.00
300.00	877.10
400.00	879.00
400.00	890.00

WIDTH OF ROADWAY= 40.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
877.10	0.0
877.20	0.52
877.30	2.96
877.40	8.23
877.50	17.05
877.60	30.10
877.70	47.94
877.80	71.11
877.90	100.16
878.00	135.51
878.10	177.71
878.20	226.80
878.30	282.81
878.40	345.94
878.50	416.35
878.60	494.17
878.70	579.62
878.80	672.92
878.90	774.15
879.00	883.53
879.10	1001.01
879.20	1126.34
879.30	1259.38
879.40	1399.96
879.50	1548.95
879.60	1704.80
879.70	1867.25
879.80	2038.42
879.90	2214.28
880.00	2396.26
880.10	2587.28
880.20	2780.91
880.30	2979.81
880.40	3188.68
880.49	3398.09
880.59	3612.33
880.69	3837.72
880.79	4061.70
880.89	4290.14
880.99	4531.29
881.09	4768.95
881.19	5010.88
881.29	5267.36
881.39	5518.12
881.49	5772.97
881.59	6044.47
881.69	6307.96

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46 | 01 | 03

WATERCOURSE: BISHOP CREEK | WEIR LOCATION: 11 MILE ROAD

WEIR DESCRIPTION: GRAVEL ROAD 40' BREADTH | BY LBH | DATE 1-13-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
17	877.84	877.78	0.06	8						83	877.1	0.919	0.83	69	77
118	878.30	878.29	0.01	3						283	877.1	0.992	0.36	102	105
137	878.18	878.17	0.01	3						402	877.1	0.993	0.35	141	144
201	878.34	878.32	0.01	3						703	877.1	0.994	0.34	239	242

CALCULATIONS AND COMMENTS

USING HEC-2

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46 | 01 | 03

WATERCOURSE: BISHOP CREEK | CULVERT LOCATION: NORTH OF 11 MILE RD.

CULVERT DESCRIPTION: 43"x27" ARCH PIPE | BY ZCH | DATE 1-14-76

PROJECTING FROM FILL

n= 0.024 | Q_{10}= 77 | TW_{10}= 4.82

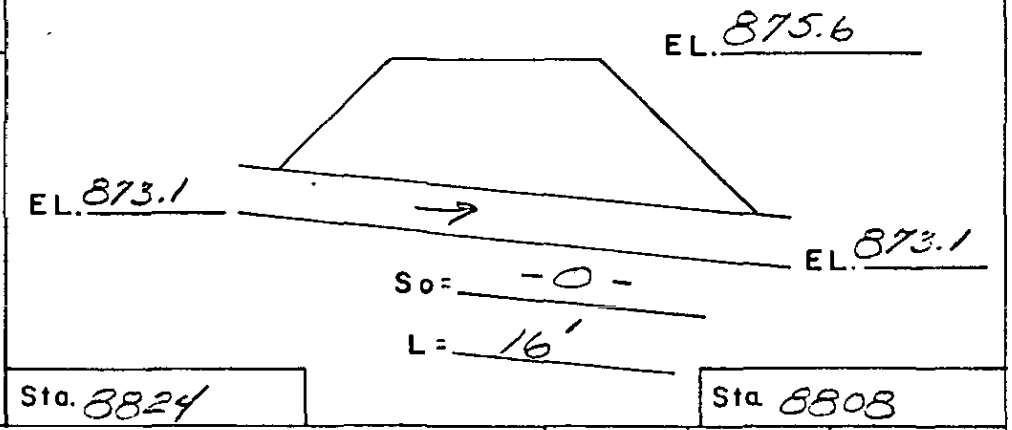
A= 9.40' | Q_{50}= 118 | TW_{50}= 5.22

R= 0.679 | Q_{100}= 137 | TW_{100}= 5.39

Ke= 0.9 | Q_{500}= 194 | TW_{500}= 5.75

D= 2.25'

LSo= -0-



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
77											WEIR	

CALCULATIONS AND COMMENTS

WEIR

CITY OF NOVI
BISHOP CREEK
FIELD CULVERT 40 FT. NORTH OF 11 MILE RD.
GRASS
16 FT. BREADTH
NUMBER OF POINTS= 7

STATION	ELEVATION
185.00	890.00
185.00	878.28
233.20	877.00
236.80	877.00
335.00	875.60
425.00	876.23
425.00	890.00

WIDTH OF ROADWAY= 16.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
875.60	0.0
875.70	0.68
875.80	3.89
875.90	10.81
876.00	22.41
876.10	39.55
876.20	62.99
876.30	93.26
876.40	129.90
876.50	172.56
876.60	221.15
876.70	275.72
876.80	336.20
876.90	402.70
877.00	475.20
877.10	552.91
877.20	638.08
877.30	729.25
877.40	826.31
877.50	929.11
877.60	1032.94
877.70	1146.60
877.80	1265.99
877.90	1390.91
878.00	1514.48
878.10	1644.85
878.20	1780.52
878.30	1917.93
878.40	2061.05
878.50	2208.90
878.60	2361.17
878.70	2519.80
878.80	2683.89
878.90	2852.27
878.99	3024.87
879.09	3201.71
879.19	3382.71
879.29	3567.64
879.39	3756.62
879.49	3949.48
879.59	4146.92
879.69	4348.08
879.79	4552.85
879.89	4761.37
879.99	4973.09
880.09	5188.18
880.19	5406.44

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46 | 01 | 03

WATERCOURSE: BISHOP CREEK | WEIR LOCATION: N. OF 11 MILE ROAD

WEIR DESCRIPTION: GRASS 16' BREADTH | BY DCH | DATE 1-14-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
77	877.93	877.92	0.01	5						1428	875.6	0.996	0 33	471	476
118	878.33	878.32	0.01	5						1961	875.6	0.996	0.33	647	652
137	878.50	878.49	0.01	5						2209	875.6	0.996	0.33	729	734
104	878.56	878.86	0 01	5						2785	875.6	0.997	0.32	891	896

CALCULATIONS AND COMMENTS

USING HEC-2

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46 | 01 | 03

WATERCOURSE: BISHOP CREEK | CULVERT LOCATION: 230' N. OF 11 MILE RD.

CULVERT DESCRIPTION: ONE 4.0' RCP DOWN-STREAM OF AN 43"X27" CMP PROJECTING FROM FILL | BY DCH | DATE 1-14-76

n= 0.0168 | Q_{10}= 77 | TW_{10}= 4.93

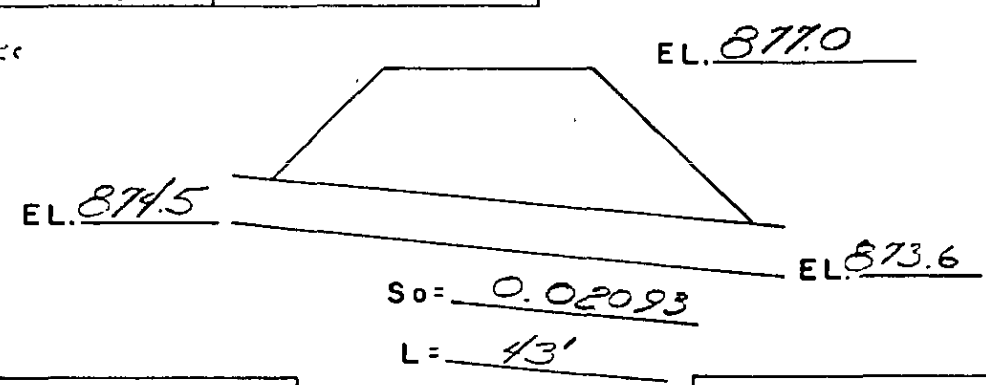
A= 10.04' | Q_{50}= 118 | TW_{50}= 4.72

R= 0.891 | Q_{100}= 137 | TW_{100}= 4.89

Ke= 0.9 | Q_{500}= 194 | TW_{500}= 5.26

D= 2.7'

LSo= 0.9'



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
77											WEIR	

CALCULATIONS AND COMMENTS

WEIR

JOB NAME: CITY OF NOVI JOB NO. 5555 | 46 | 01 | 03

WATERCOURSE: BISHOP CREEK WEIR LOCATION: 230' N. OF 11 MILE RD.

WEIR DESCRIPTION: GRASS 43' BREADTH BY DCH DATE 1-14-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD. EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD. EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
77		877.93									877.0				
118		878.32									877.0				
137		878.49									877.0				
191		878.56									877.0				

CALCULATIONS AND COMMENTS

SUBMERGED USING HEC-2

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46 | 01 | 03

WATERCOURSE: BISHOP CREEK | CULVERT LOCATION: DRIVEWAY 350' N. OF 11 MILE

CULVERT DESCRIPTION: ONE 3.5' RCP | BY DCM | DATE 1-15-76

HEADWALL & SKEWED END U.S.

n= 0.013 | Q_{10}= 77 | TW_{10}= 2.66

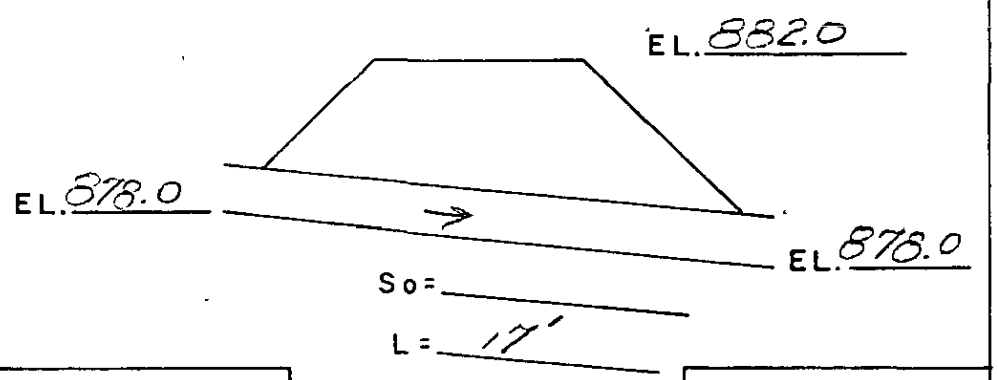
A= 9.620' | Q_{50}= 118 | TW_{50}=

R= 0.875 | Q_{100}= 137 | TW_{100}=

Ke= 0.2 | Q_{500}= 194 | TW_{500}=

D= 3.5'

LSo= -0-



Sta. 98 93 | Sta 98 76

Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	Δ H HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
77	1.13	5.00	1.29	2.68	3.09	3.09	4.38	4.69	—	5.00	WEIR	
118												
137												
194												

CALCULATIONS AND COMMENTS

WEIR

CITY OF NOVI
BISHOP CREEK
DRIVEWAY 350 FT. N. OF 11 MILE ROAD
GRAVEL
17 FT. BREADTH
NUMBER OF POINTS= 7

STATION	ELEVATION
0.0	892.20
100.00	884.30
198.20	882.00
201.80	882.00
300.00	882.30
400.00	889.60
430.00	894.40

WIDTH OF ROADWAY= 17.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
882.00	0.0
882.10	1.47
882.20	7.59
882.30	20.34
882.40	40.37
882.50	66.46
882.60	98.17
882.70	135.27
882.80	177.76
882.90	225.44
883.00	278.40
883.10	336.56
883.20	400.00
883.30	468.85
883.40	542.92
883.50	622.21
883.60	706.84
883.70	796.99
883.80	892.58
883.90	993.41
884.00	1099.63

JOB NAME: CITY OF NOVI JOB NO. 5555

WATERCOURSE: BISHOP CREEK WEIR LOCATION: DRIVEWAY 350' N. OF 11 MILE

WEIR DESCRIPTION: GRAVEL 17' BREADTH BY DCM DATE 1-15-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
				INLET CONTROL											
77	882.20	880.48	—	65						8	882.0	-0-	1.0	8	78
118	882.43	880.93	—	69						48	882.0	-0-	1.0	48	117
137	882.50	881.10	—	70						66	882.0	-0-	1.0	66	136
194	882.64	881.45	—	73						120	882.0	-0-	1.0	120	193

CALCULATIONS AND COMMENTS

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46 | 01 | 03

WATERCOURSE: BISHOP CREEK | CULVERT LOCATION: DIRT DRIVE 425'N. OF 11 MILE

CULVERT DESCRIPTION: ONE 2.5' CMP | BY LCH | DATE 1-15-76

n= 0.024 | Q_{10}= 77 | TW_{10}=

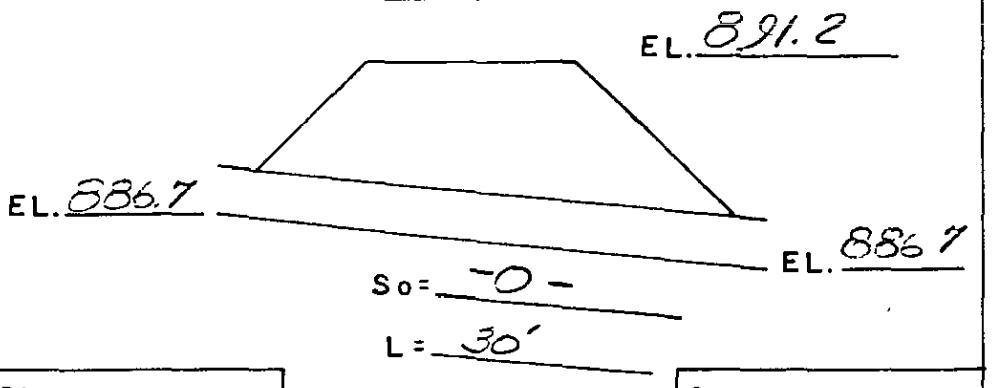
A= 4.91a' | Q_{50}= 113 | TW_{50}=

R= 0.625 | Q_{100}= 137 | TW_{100}=

Ke= 0.5 | Q_{500}= 194 | TW_{500}=

D= 2.5'

LSo= -0-



Sta. 10631 | Sta 10651

Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
77	4.5	11.25	9.32					8.23			WEIR	
118												
137												
194												

CALCULATIONS AND COMMENTS

WEIR

CITY OF NOVI
BISHOP CREEK
DIRT DRIVE 425' N. OF 11 MILE
GRAVEL
30 FT. BREADTH
NUMBER OF POINTS= 14

STATION	ELEVATION
0.0	903.20
35.00	901.20
50.00	899.20
80.00	897.20
95.00	895.20
102.00	893.20
130.00	891.20
148.80	891.20
165.00	891.20
170.00	893.20
180.00	895.20
195.00	897.20
205.00	899.20
230.00	901.20

WIDTH OF ROADWAY= 30.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
891.20	0.0
891.30	2.86
891.40	8.36
891.50	15.79
891.60	25.18
891.70	36.23
891.80	49.08
891.90	63.43
892.00	79.75
892.10	97.37
892.20	116.81
892.30	138.00
892.40	160.60
892.50	185.04
892.60	211.18
892.70	238.56
892.80	268.15
892.90	299.21
893.00	331.67
893.10	366.21
893.20	401.95
893.30	439.92
893.40	479.38
893.50	519.83
893.60	562.89
893.70	606.57
893.80	651.68
893.90	698.72
894.00	746.71

JOB NAME: CITY OF NOVI — JOB NO. 5555 | 46 | 01 | 03

WATERCOURSE: LICHOP CREEK — WEIR LOCATION: DIRT DRIVE 425' N. OF 11 MILE

WEIR DESCRIPTION: GRAVEL 30' BREALTH — BY DCM — DATE 1-16-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
77	891.69	888.96	2.73	42 ✓						35	891.2	-0-	1.0	35	77
118	891.99	889.35	2.64	41 ✓						78	891.2	-0-	1.0	78	119
137	892.10	889.49	2.61	41 ✓						97	891.2	-0-	1.0	97	138
104	892.37	889.84	2.53	40 ✓						154	891.2	-0-	1.0	154	194

CALCULATIONS AND COMMENTS

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: BISHOP CREEK | CULVERT LOCATION: UNDER JUDGEN CONSTR.

CULVERT DESCRIPTION: TWO 4.0' RCP | BY DCM | DATE

PROJECTING FROM HEADWALL SQ. END

n= 0.015 | Q_{10}= 77 | TW_{10}= 3.78

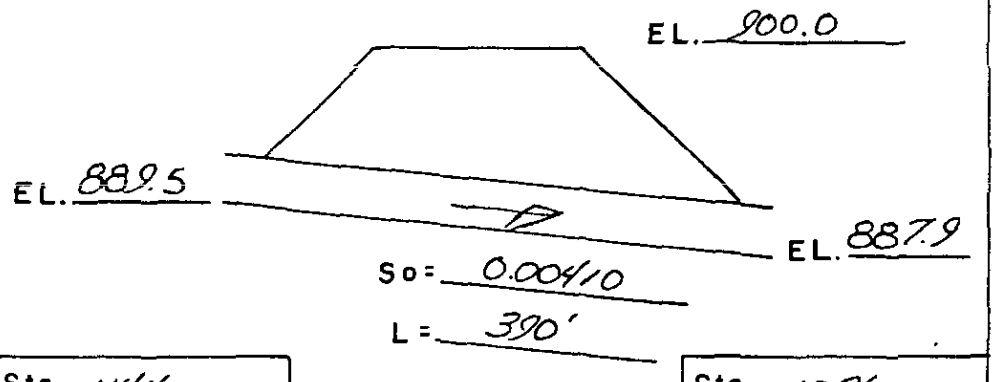
A= 25.130' | Q_{50}= 118 | TW_{50}= 4.06

R= 1.00 | Q_{100}= 137 | TW_{100}= 4.15

Ke= 0.5 | Q_{500}= 194 | TW_{500}= 4.37

D= 4.0'

LSo= 1.6'

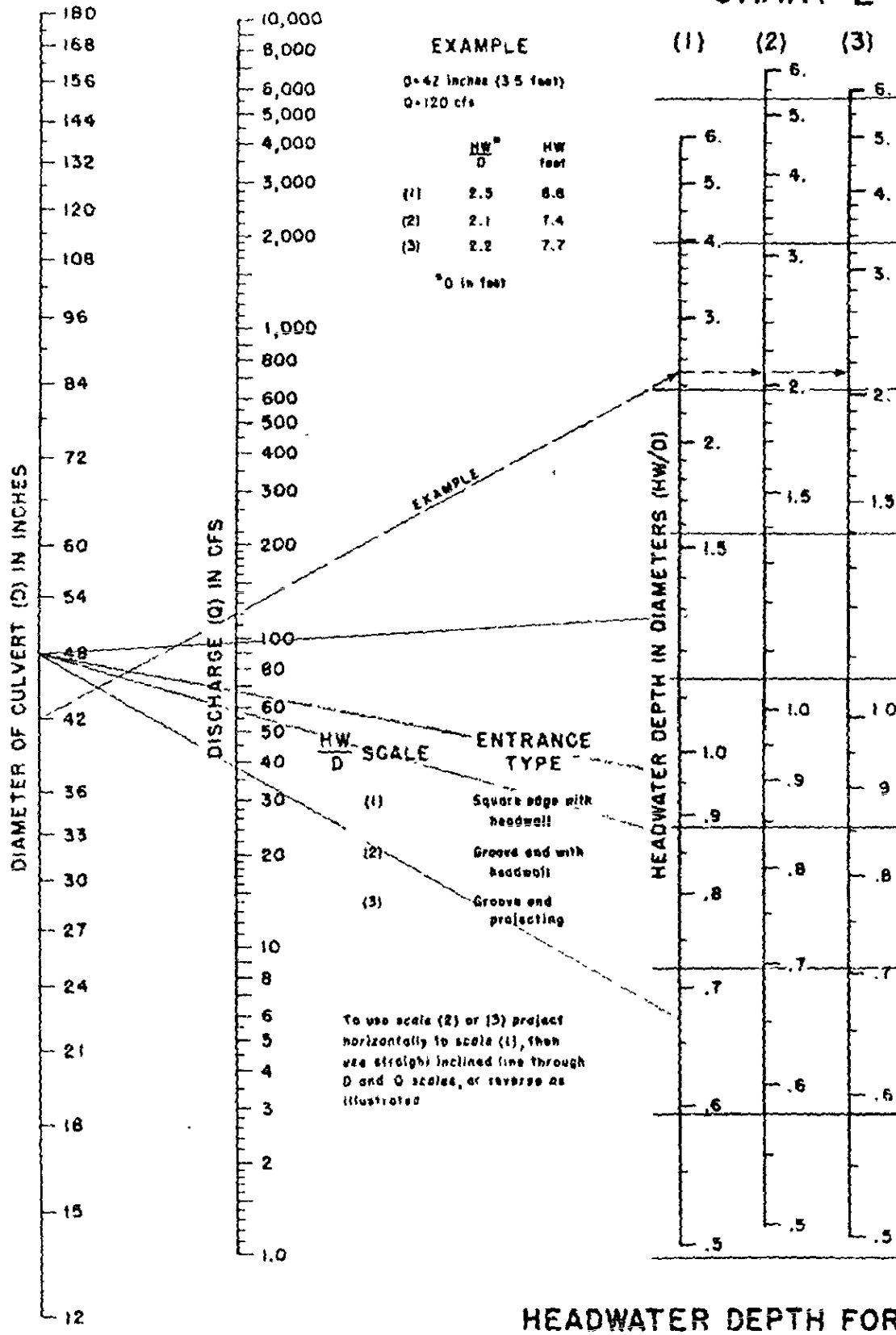


Sta. 11416 | Sta 11026

Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
77	0.67	2.68	1.39	1.84	2.84	3.76	2.77	4.22	2.84	2.84		
118	0.87	3.43	1.39	2.32	3.16	4.05	3.85	4.51	3.68	3.68		
137	0.96	3.84	1.37	2.51	3.26	4.15	4.42	4.69	4.08	4.09		
194	1.28	5.12	3.75	2.85	3.42	4.37	6.52	5.39	5.96	6.52		

CALCULATIONS AND COMMENTS

CHART 2



HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH INLET CONTROL

HEADWATER SCALES 2&3
REVISED MAY 1964

BUREAU OF PUBLIC ROADS JAN 1963

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: BISHOP CREEK CULVERT LOCATION: 100' U/S OF SUDDEN CONSTR.

CULVERT DESCRIPTION: TWO 4.0' RCP BY DCM DATE 7-9-76

SQ. CUT END U/S

n= 0.015 Q_{10}= 77 TW_{10}= 2.70

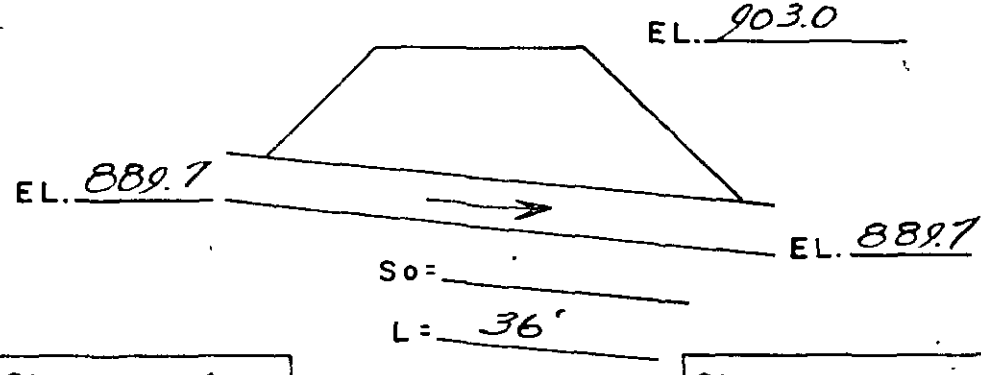
A= 25.13 sq ft Q_{50}= 118 TW_{50}= 3.52

R= 1.00 Q_{100}= 137 TW_{100}= 3.90

Ke= 0.5 Q_{500}= 194 TW_{500}= 6.26

D= 4.0'

LSo= -0-



Sta. 11554 Sta 11518

HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL HW	FINAL HW ELEV.	Δ H HEC-2
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
77	0.67	2.68	0.25	1.54	2.92	2.92	3.17	4.22	3.35	3.35		
118	0.87	3.45	0.59	2.32	3.16	3.52	4.11	4.51	4.54	4.54		
137	0.94	3.84	0.80	2.51	3.26	3.90	4.70	4.69	—	4.70	899.40	
194	1.28	5.12	1.61	2.85	3.42	6.26	7.87	5.39	—	7.87	896.57	

CALCULATIONS AND COMMENTS

100-year

WATERCOURSE: Bishop Creek

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
	Starting elev. from Patnales Dr.			
0	300' U/S of confluence	842.10	842.12	330
475	775' U/S of confluence	842.39	842.46	330
950	1250' U/S of confluence	843.04	843.13	330
1081	920' D/S of Ten Mile road	843.32	843.52	330
1212	789' D/S of Ten Mile road	844.00	844.28	330
1475	526' D/S of Ten Mile road	845.84	846.12	330
1737	264' D/S of Ten Mile road	847.50	847.72	330
2000	1' D/S of Ten Mile road	849.12	849.44	330
2001	D/S face of Ten Mile road			330
2038.8	U/S face of Ten Mile road			330
2039.8	1' U/S of Ten Mile road-X5	851.68	851.69	330
2440	401' U/S of Ten Mile road	853.43	853.72	330
3178	801' U/S of Ten Mile road	856.16	856.69	330
3515	1138' U/S of Ten Mile road	859.94	860.29	330
3853	1476' U/S of Ten Mile road	862.97	863.23	330
4190	2201' U/S of Ten Mile road	865.85	865.95	330
4915	2926' U/S of Ten Mile road	868.88	869.08	330
5640	451' D/S of Grand Tiver Ave.	870.41	870.47	215
5790	301' D/S of Grand River Ave.	870.55	870.58	215
5940	276' D/S of Grand River Ave.	870.62	870.63	215
5965	151' D/S of Grand River Ave.	870.62	870.64	215
6090	21' D/S of Grand River Ave	870.66	870.78	215
6240	1' D/S of Grand River Ave.	870.30	871.33	215
6241	D/S face of Grand River Ave.	870.26	870.38	215
6305	U/S face of Grand River Ave.	870.63	871.60	215
6306	1' U/S of Grand River Ave.	870.77	871.64	215
6311	6' U/S of Grand River Ave.	871.81	871.89	215
6450	145' U/S of Grand River Ave.	871.92	871.92	215
6900	595' U/S of Grand River Ave.	871.93	871.93	215
7403	101' D/S of Meadowbrook road	871.91	871.98	215
7503	1' D/S of Meadowbrook road	872.44	872.57	215
7504	D/S face of Meadowbrook road			215
7534	U/S face of Meadowbrook road			215
7535	1' U/S of Meadowbrook road-X5	876.32	876.32	215
7735	201' U/S of Meadowbrook road	876.33	876.38	215
8185	1' D/S of Driveway culverts	876.90	877.02	215
8186	D/S face of Driveway culverts			215
8202	U/S face of Driveway culverts			215
8203	1' U/S of Driveway culverts-X5	878.35	878.37	215
8475	276' D/S of Eleven Mile road	878.44	878.45	137
8750	1' D/S of Eleven Mile road	878.47	878.47	137
8751	D/S face of Eleven Mile road	878.46	878.48	137
8791	U/S face of Eleven Mile road	878.48	878.49	137
8792	1' U/S of Eleven Mile road	878.49	878.49	137
8807	1' D/S of field culvert	878.49	878.49	137
8808	D/S face of field culvert	878.49	878.49	137
8824	U/S face of field culvert	878.49	878.49	137
8825	1' U/S of field culvert	878.49	878.49	137
9225	1' D/S of field culvert	878.49	878.52	137
9226	D/S face of field culvert	878.51	878.53	137
9249	U/S face of field culvert	878.51	878.53	137

100-year

WATERCOURSE: Bishop Creek
[redacted]/TOWNSHIP: Novi
COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
9253	D/S face of field culvert	878.53	878.53	137
9269	U/S face of field culvert	878.53	878.54	137
9270	1' U/S of field culvert	878.52	878.55	137
9375	101' U/S of field culvert	878.58	878.64	137
9475	201' U/S of field culvert	878.77	878.85	137
9575	301' U/S of field culvert	879.15	879.48	137
9675	201' D/S of Driveway culvert	880.20	880.37	137
9775	101' D/S of Driveway culvert	880.77	880.94	137
9875	1' D/S of Driveway culvert	881.28	881.46	137
9876	D/S face of Driveway culvert			137
9893	U/S face of Driveway culvert			137
9894	1' U/S of Driveway culvert-X5	882.50	882.51	137
9950	57' U/S of Driveway culvert	882.49	882.56	137
10000	107' U/S of Driveway culvert	882.60	882.76	137
10100	207' U/S of Driveway culvert	883.30	883.59	137
10200	307' U/S of Driveway culvert	884.49	884.78	137
10350	457' U/S of Driveway culvert	886.13	886.33	137
10450	201' D/S of Dirt Drive	887.15	887.40	137
10550	101' D/S of Dirt Drive	888.33	888.58	137
10600	51' D/S of Dirt Drive	888.91	889.15	137
10650	1' D/S of Dirt Drive	889.49	889.74	137
10651	D/S face of Dirt Drive			137
10681	U/S face of Dirt Drive			137
10682	1' U/S of Dirt Drive-X5	892.10	892.12	137
10755	74' U/S of Dirt Drive	892.12	892.15	137
10795	23' D/S of Sugden Const. culverts	892.16	892.16	137
11025	1' D/S of Sugden Const. culverts	892.05	892.32	137
11026	D/S face of Sugden Const. culverts	891.96	892.42	137
11416	U/S face of Sugden Const. culverts	892.92	893.50	137
11417	1' U/S of Sugden Const. culverts	893.28	893.58	137
11425	93' D/S of Sugden Const. Driveway	893.61	893.72	137
11485	33' D/S of Sugden Const. Driveway	893.65	893.72	137
11517	1' D/S of Sugden Const. Driveway	893.60	893.88	137
11518	D/S face of Sugden Const. Driveway			137
11554	U/S face of Sugden Const. Driveway			137
11555	1' U/S of Sugden Const. Driveway-X5	894.40	894.44	137
11563	9' U/S of Sugden Const. Driveway	894.40	894.44	137
11755	201' U/S of Sugden Const. Driveway	894.50	894.54	137
11955	401 U/S of Sugden Const. Driveway	894.61	894.67	137
12155	601' U/S of Sugden Const. Driveway	894.75	894.81	137
12442	888' U/S of Sugden Const. Driveway	894.99	895.05	137

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI TOWNSHIP

3) WATERCOURSE: PATNALES DRAIN

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

HYDRAULIC ANALYSIS

Introduction

The stream being investigated is the Patnales Drain in the City of Novi, Oakland County, Michigan. The study limits are from the C & O Railraod Bridge upstream of Northville's Mill Pond to the southbound exit ramp from Interstate 96 to Interstate 275, a distance of approximately 4.6 river miles. The 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 approved by the Michigan Department of Natural Resources.

Method of Analysis

All constrictions (culverts and bridges) in this study have been modeled for low flow conditions according to the requirements of the normal bridge routine of HEC-2. They were then analyzed, after removing the encroachments, by hand calculations for pressure flow (inlet or outlet control) and weir flow or a combination of flows. The correct water surface elevations, if different from those calculated by the normal bridge routine, were then entered into the backwater computations on the upstream side of the constriction by the use of an X-5 card in the HEC-2 program. The two sections that describe the geometry of the bridge were left in place for informational purposes. When an X-5 card is used, the HEC-2 hydraulics for these two sections is ignored.

Because of the requirements of the HEC-2 normal bridge routine, the original field-surveyed cross sections that were taken within two hundred feet downstream of all constrictions have been physically relocated to points that are one foot from the upstream and downstream faces of the constrictions.

In order to more efficiently model the floodway for the contractions and expansions caused by these constrictions, these same sections were placed upstream and downstream of the constrictions at locations that represent the full cross section unaffected by the constriction, as set forth in Exhibit 4 of the HEC-2 Users Manual for the required cross sections using the normal bridge routine.

The guidelines set forth on pages 18 through 21, inclusive, in the Applications of HEC-2 Bridge Routines, The Hydrologic Engineering Center, Training Document No. 6, were used to determine the location of these cross sections. Accordingly, the downstream section was placed at about four (4) times the average length of the side constriction caused by the bridge or culvert abutments. The upstream section was placed a distance equal to the bridge or culvert contraction. These distances have been modified in some cases due to the physical encroachments of buildings, high banks, etc. The coefficients of contraction and expansion used in Exhibit 5 in the HEC-2 Users Manual are 0.3 and 0.5, respectively. These values were used in this study since the example situation in the Users Manual closely approximates typical conditions found on the Patnales Drain.

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 Hydraulics by Ven Te Chow, with photographs and field inspection trips taken in the City of Novi. In general the following values were used:

Description	Manning "n"
Channel Bottoms	
1. Earth, winding and sluggish with grass and some weeds	.03
2. Streams on plain, clean bottom, some pools and shoals	.04
3. Channels not maintained, uncut weeds and brush on sides, clean bottom	.05
Flood Plains	
1. Short grass, no brush	.03
2. Light to medium brush and trees in summer	.07
3. Medium to dense brush in summer	.10

The contraction and expansion coefficients used in the Novi Study were .3 and .5, respectively. Generally, the changes in shape of the stream cross sections were not considered gradual transitions; they more nearly approached the transition section of bridges and culverts. Although this assumption may lead to a higher eddy loss than actually occurs, it should have little effect on profile computations. As stated by Beasley in A Pilot Study Stream-flow Simulation and Flood Profile Determination in Ohio on page 143, ". . . a

sensitivity study . . . has indicated that the HEC-2 is not very sensitive to these [contraction and expansion] coefficients and little time should be spent on their selection."

The orifice discharge coefficients for outlet control used in this study were taken from the Hydraulic Charts for the Selection of Highway Culverts, Hydraulic Engineering Circular No. 5, Bureau of Public Roads. These coefficients represent the addition of the inlet loss, outlet loss and loss due to friction. For inlet control, nomographs from Circular No. 5 (above) were used. If nomographs did not exist for a particular culvert, and the entrance was submerged, then the equation found on page 209 of Design of Small Channel Structures, U.S. Department of Interior, Bureau of Reclamation, was used. This same equation is found on page 288 of Applied Hydraulics in Engineering by Morris and Wiggert. If the entrance was unsubmerged, then either the weir principle was applied or the culvert was made equivalent to a round pipe and solved by the equations found on pages 115 and 116 of Handbook of Concrete Pipe Hydraulics, Portland Cement Association.

The weir discharge coefficients were taken from charts supplied by the Michigan Department of Natural Resources. These coefficients were inserted into a computer program that divides the weir into one-foot segments and computes the flow through each segment by the standard weir formula, $Q = CLH^{3/2}$. For a given upstream water surface elevation, the summation of these segments equals the total flow over the weir. If the weir was submerged, a submergence factor (also supplied by the Michigan DNR) for either a gravel or hard surface was manually applied.

Starting Point

The profile computation began at a point forty feet downstream of the C & O Railroad Bridge, upstream of Northville's Mill Pond. The starting elevations were extrapolated from a rating curve plotted from the information found on page A-95 of Technical Appendix Draft FPI-Middle River Rouge - Northville & Vicinity by the Corps of Engineers, Detroit District, 1970.

Patnales Drain
City of Novi
5555-46-1-04

Original Cross Section Location

Cross Section	SECNO	Location
A	1	40 D.S. R.R. Culvert
B	40	R.R. Culvert U.S. Mill Pond
C	1078	Old Novi Road Bridge
D	1278	200' U.S. Old Novi Road Bridge
E	1618	R.R. Culvert D.S. New Eight Mile Road
F	1803	200' D.S. New Eight Mile Road
G	2305	New Eight Mile Road Bridge
H	2693	140' U.S. Eight Mile Road
I	3703	Relocated Novi Road
J	3788	40' D.S. R.R. and 26' U.S. Novi Road
K	3814	R. R. Bridge
L	3835	Old Novi Road
M	4068	150' U.S. Old Novi Road Bridge
N	4984	Footbridge
O	5058	75' U.S. Footbridge
P	6108	300' D.S. Confluence Thornton Creek
Q	8283	1100' U.S. Confluence Thornton Creek
R	10522	Footbridge
S	10596	75' U.S. Footbridge
T	10828	Nine Mile Road
U	11500	325' U.S. Nine Mile Road
V	12205	Pedestrian Footbridge

Cross-Section	SECNO	Location
W	12241	50 D.S. Spillway
X	12242	Meadowbrook Lake Dam
Y	14131	110' D.S. Meadowbrook Road
Z	14236	Meadowbrook Road
AA	15341	900' U.S. Meadowbrook Road
AB	16311	Confluence Bishop Creek
AC	17300	50' D.S. Willowbrook Road
AD	17301	Willowbrook Road
AE	17701	350' U.S. Willowbrook Road
AF	18522	50' D.S. Cranbrook Road
AG	18523	Cranbrook Road
AH	18916	350' U.S. Cranbrook Road
AI	19529	50' D.S. 10 Mile Road
AJ	19530	10 Mile Road
AK	19699	50' D.S. Walkway Culvert
AL	19700	Walkway Culvert
AM	20446	1100' D.S. Grand River Avenue
AN	21517	50' D.S. Grand River Avenue
AO	21518	Grand River Avenue
AP	21995	390' U.S. Grand River Avenue
AQ	22657	1040' U.S. Grand River Avenue
AR	22658	1080' U.S. Grand River Avenue (Drive Culvert)
AS	23055	1420' U.S. Grand River Avenue
AT	23056	1470' U.S. Grand River Avenue (Drive Culvert)

Patnales Drain
Original Cross-Section Location
555-46-1-04

Cross-Section	SECNO	Location
AU	23208	1590' U.S. Grand River Avenue
AV	23788	2200' U.S. Grand River Avenue
AW	24188	85' D.S. I-96 Exit Rams
AX	24189	I-96 Exit Ramp

JOB NAME: Novi, FIS | JOB NO. 5555 | 46 | 1 | 04

WATERCOURSE: Patnales Drain | CULVERT LOCATION: u/s Mill Pond

CULVERT DESCRIPTION: CFO RR Conc Arch w/wingwalls appr 30° to barrel | BY WCR | DATE 5-24-76

n= 0.020 | Q_{10}= 1040 | TW_{10}= 8.15

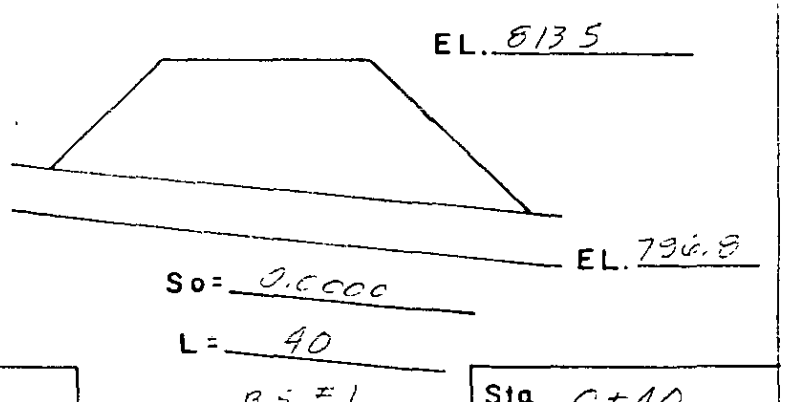
A= 156 | Q_{50}= 1590 | TW_{50}= 9.15

R= 3.15 | Q_{100}= 1840 | TW_{100}= 9.50

Ke= 0.40 | Q_{500}= 2500 | TW_{500}= 10.36

D= 10.9

LSo= 0.0



HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL HW EGL.	FINAL HW ELEV. HGL	ΔH HEC-2
	HW/D	HW E.G.L.	H	dc	(dc+D)/2	ho	HW E.G.L.	$D+(1+Ke)\frac{V^2}{2g}$	HW E.G.L.			
1040		7.37	1.04	5.45	6.18	8.18	9.22	11.87	9.10	9.10	805.20	
1590		9.93	2.42	7.10	9.00	9.15	11.57	13.16	11.15	11.15	806.83	
1840		11.45	3.24	7.44	9.17	9.50	12.74	13.92	12.17	12.17	807.72	
2500		16.53	5.98	9.75	9.84	10.36	16.34	16.48	15.52	16.53	812.21	

CALCULATIONS AND COMMENTS

Inlet Control

$HW = \frac{1^2}{1.29} \times \frac{1}{C^2} \cdot \frac{D}{2}$ C = .0

Outlet Cont. 1

$H = .0233\,l^2$

12.17
796.80
808.97 = EGL

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY WCR DATE 10-7-75 JOB DESCRIPTION CEO RR Conc Arch Culv SHEET 1 OF

SUBJECT Hydraulic Properties JOB NO

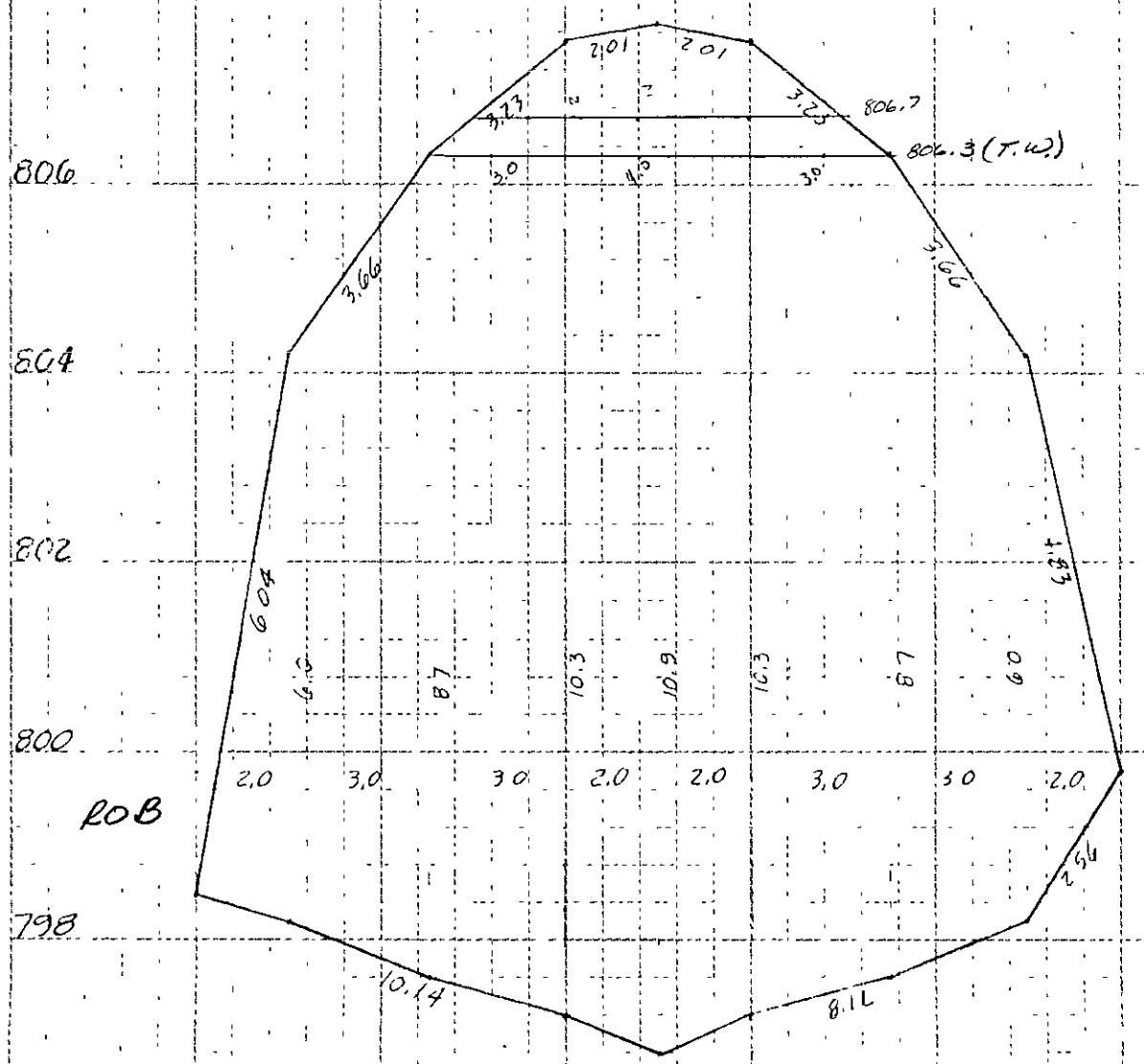
Station 0+40 to Sta 0+80 Pathway Drain
City of Maui 5555-46-04

Scale: Vert. 1"=2'
Horiz. 1"=4'

Area = 156 ft²

W.P. = 50 ft

R = 3.15 ft



JOB NAME: Novi, FIS | JOB NO. 5555 | 46 | 1 | 04

WATERCOURSE: Potnales Drain | CULVERT LOCATION: Old Novi Rd. No of Base Line

CULVERT DESCRIPTION: Conc. Box Culv w/ headwalls parallel to embankment | BY WCR | DATE 5-24-76

n= 0020 | Q_{10}= 1040 | TW_{10}= 6 50

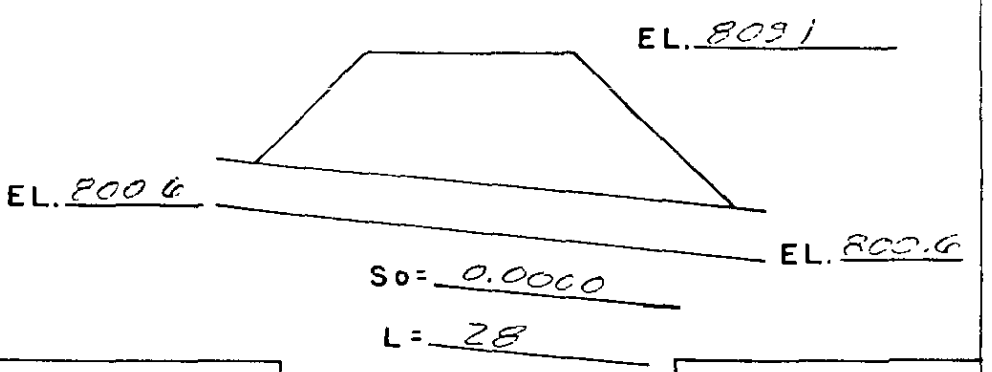
A= 116 | Q_{50}= 1590 | TW_{50}= 8.25

R= 1.99 | Q_{100}= 1840 | TW_{100}= 9 14

Ke= 0.50 | Q_{500}= 2500 | TW_{500}= 13.14

D= 6.70

LSo= 000



Sta. 11+06 | BS. #2 | Sta 10 + 78

HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL HW Elev. E.G.L.	FINAL HW ELEV. W.S.	ΔH HEC-2
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
1040		6 E2								809.14	809.03	
1590		WEIR 11.45								810.93	810.83	
1840		WEIR								811.36	811.24	
2500		WEIR								813.85	813.75	

CALCULATIONS AND COMMENTS

Inlet Control

$HW = \left(\frac{L^2}{2g} \times \frac{1}{C^2}\right) - \frac{D}{2}$ C = .6

809.1 − 800.6 = 8.5 WEIR FLOW BEGINS

JOB NAME: Novi, FIS | JOB NO. 5555 | 46 | 1 | 04

WATERCOURSE: Patnalcs Drain | WEIR LOCATION: Old Novi Rd N.E. of Base Line

WEIR DESCRIPTION: 20' breadth deteriorated asphalt road | BY WCR | DATE 5-24-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
1040	809 14	807 10	2 04	1041							809 1	–	1	0	1041
1590	810 93	806.85	2 08	1052						541	809 1	–	1	541	1593
1847	811 36	809.74	1 62	928						919	809.1	.28	1	919	1847
2500	813 85	813 74	.11	242						4733	809.1	.977	.48	2272	2513

CALCULATIONS AND COMMENTS

$Q_c = 729\,19\ H_c^{1/2}$

CITY OF NOVI
OLD NOVI ROAD NORTH OF OLD EIGHT MILE ROAD (BASE L
PATNALES DRAIN
HARD SURFACED ROAD (DETERIORATED ASPHALT)
20 FT BREADTH
NUMBER OF POINTS= 9

STATION	ELEVATION
112.00	818.40
212.00	812.50
262.00	810.70
300.00	810.20
324.00	810.10
352.00	809.80
412.00	809.70
437.00	809.10
437.00	818.40

WIDTH OF ROADWAY= 20.00
ROAD SURFACE:PAVED

ELEVATION	Q
809.10	0.0
809.20	0.15
809.30	0.87
809.40	2.42
809.50	5.00
809.60	8.79
809.70	13.91
809.80	22.15
809.90	35.88
810.00	57.38
810.10	83.58
810.20	116.04
810.30	155.44
810.40	201.11
810.50	252.77
810.60	310.32
810.70	373.76
810.80	442.90
810.90	517.28
811.00	596.62
811.10	680.77
811.20	769.54
811.30	862.97
811.40	961.47
811.50	1063.20
811.60	1169.94
811.70	1281.03
811.80	1396.43
811.90	1516.14
812.00	1640.11
812.10	1768.34
812.20	1901.07
812.30	2038.12
812.40	2179.48
812.49	2325.15
812.59	2475.07
812.69	2629.16
812.79	2790.02
812.89	2953.87

100-YEAR

811.90	1516.14
812.00	1640.11
812.10	1768.34
812.20	1901.07
812.30	2038.12
812.40	2179.48
812.49	2325.15
812.59	2475.07
812.69	2629.16
812.79	2790.02
812.89	2953.47
812.99	3121.76
813.09	3293.75
813.19	3470.59
813.29	3650.93
813.39	3835.12
813.49	4023.08
813.59	4215.07
813.69	4411.19
813.79	4610.48
813.89	4814.50
813.99	5021.82
814.09	5233.77
814.19	5447.46
814.29	5665.90
814.39	5888.15
814.49	6114.27
814.59	6344.02
814.69	6577.23
814.79	6814.16
814.89	7055.04
814.99	7299.45
815.09	7547.30
815.19	7798.78
815.29	8053.79
815.39	8312.36
815.49	8574.51
815.59	8840.13
815.69	9109.34
815.79	9382.23
815.89	9658.66
815.99	9938.67

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY WCR DATE 10-7-75 JOB DESCRIPTION Old Noni Rd. Conc Box Culv SHEET 1 OF
SUBJECT Hydraulic Properties JOB NO

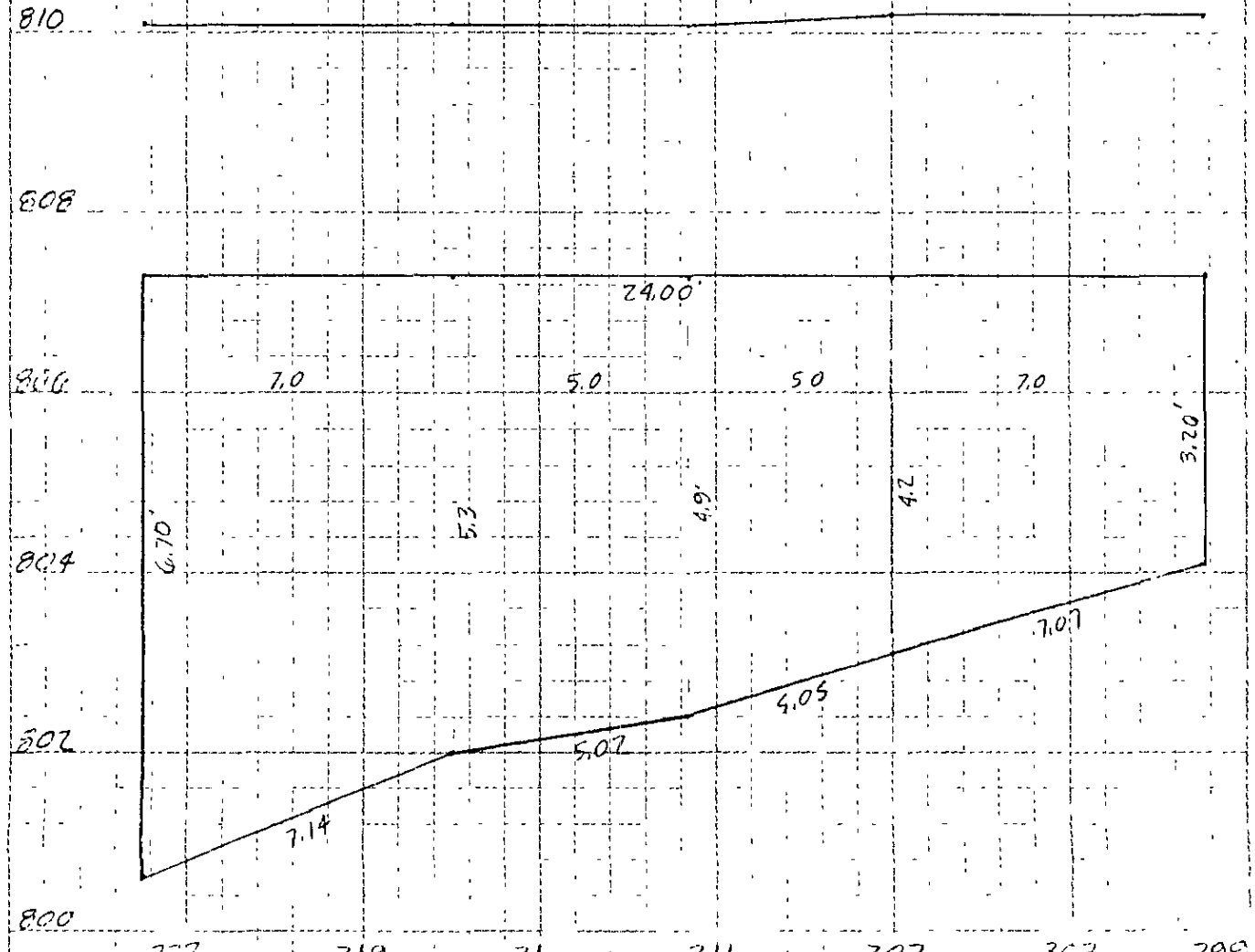
Station 10+78 to Station 11+06 Patnaks Drain
City of Novi 5555-16-04

Scale: Vert. 1" = 2'
Horz. 1" = 4'

Area = 116 ft²

W.P. = 58 ft

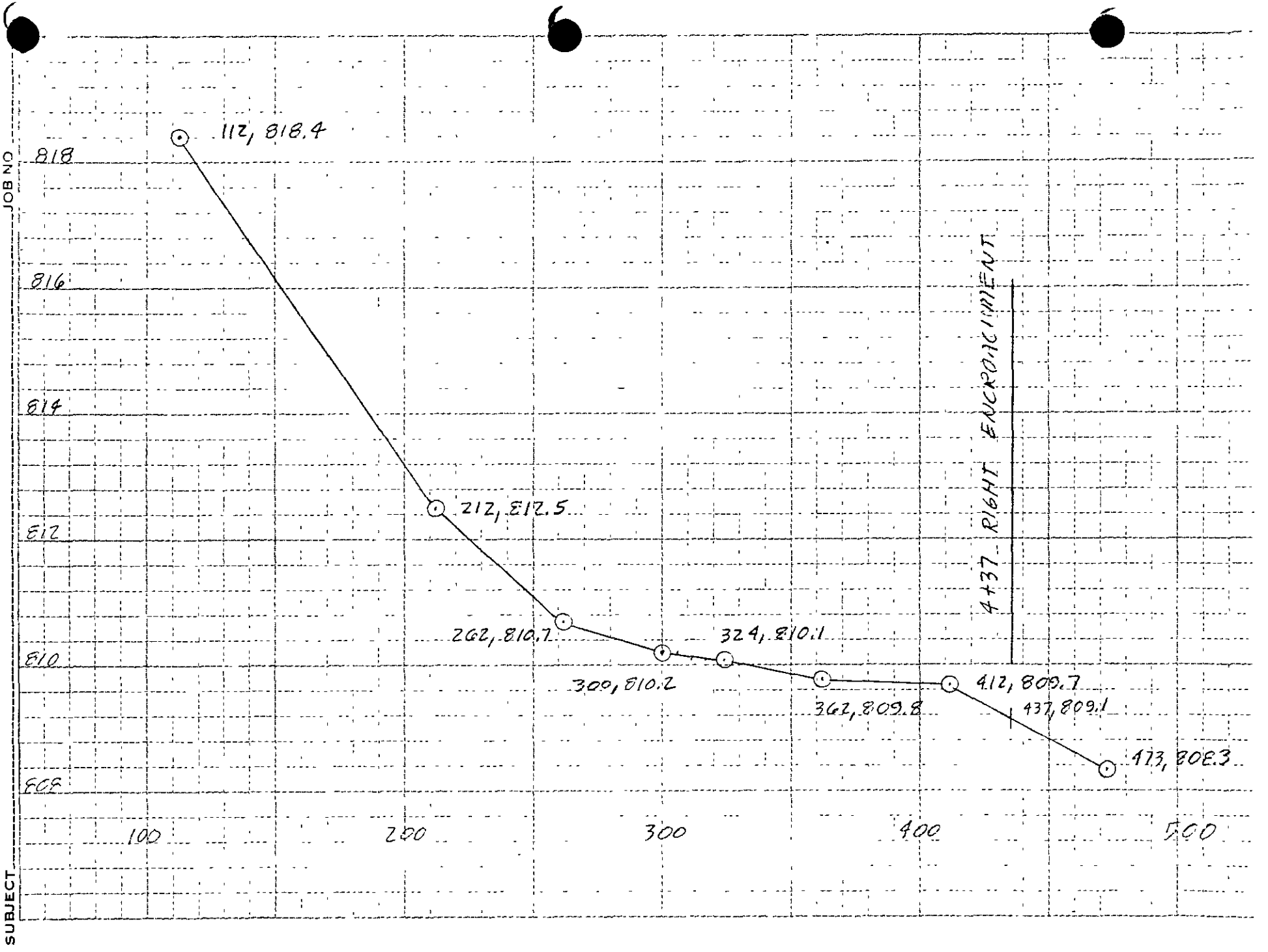
R = 1.99 ft



JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY _____ DATE _____ JOB DESCRIPTION _____ SHEET _____ OF _____

SUBJECT _____ JOB NO _____

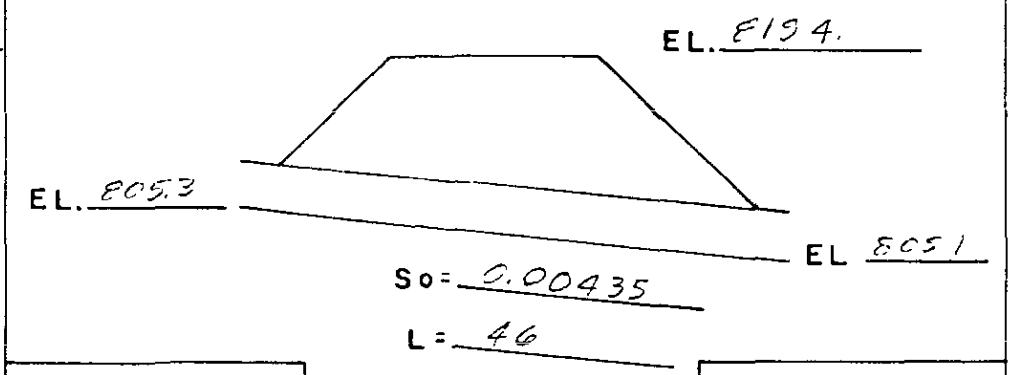


JOB NAME: Novi, FIS | JOB NO. 5555 | 46 | 1 | 04

WATERCOURSE: Potnalos Drain | CULVERT LOCATION: South of Nov E Mile Rd

CULVERT DESCRIPTION: C E O R.R. Conc Box | BY WCR | DATE 5-24-75

Culv w/wingwalls approx 30° to barrel



n= 0.020 | Q_{10}= 1040 | TW_{10}= 5.63

A= 12.7 | Q_{50}= 1590 | TW_{50}= 6.61

R= 1.88 | Q_{100}= 1840 | TW_{100}= 6.97

Ke= 0.40 | Q_{500}= 2500 | TW_{500}= 8.90

D= 6'

LSo= 0.2

So= 0.00435

L= 46

BS = 3

Sta. 16+64 | Sta. 16+18

HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL HW Elev. E.G.L.	FINAL HW ELEV. W.S.	Δ H HEC-2
	HW/D	HW E.G.L.	H	dc	(dc+D)/2	ho W.S.	HW E.G.L.	D+(1+Ke) $\frac{V^2}{2g}$	HW EGL			
1040		5.94	1.70	4.57	5.34	5.63	7.13	7.56	6.93	812.23	811.89	
1590		9.51	3.97	5.89	6.00	6.61	10.38	9.51	9.22	815.68	815.51	
1840		12.10	5.32			6.97	12.09	10.66	10.47	817.39	817.27	
2500		INLET 1976	9.51			8.90	15.51	WEIR FLOW		820.68	820.60	

CALCULATIONS AND COMMENTS

Inlet Control

$HW = \left(\frac{V^2}{2g} \times \frac{1}{C^2}\right) + \frac{D}{2}$ C = .6

Outlet Control

$H = .0253\ V^2$

JOB NAME: Novi, FIS — JOB NO. 5555 | 46 | 1 | 04

WATERCOURSE: Patnales — WEIR LOCATION: South of nov. 8 Mile Rd

WEIR DESCRIPTION: C = O R.R Tracks — BY WCR — DATE 5/19/76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
2500	820.68	814.00	6.68	2063						443	819.4	-	1	443	2506

CALCULATIONS AND COMMENTS

$Q_c = 798.08\ H_c^{1/2}$

CITY OF NOVI
C & O R.R. SOUTH OF RELOCATED EIGHT MILE ROAD
PATNALES DRAIN
R.R. TRACKS
5 FT BREADTH
NUMBER OF POINTS= 5

STATION	ELEVATION
400.00	825.00
400.00	820.00
500.00	819.00
630.00	819.40
630.00	825.00

WIDTH OF ROADWAY= 5.00
ROAD SURFACE:Paved

ELEVATION	Q
819.40	0.0
819.50	1.77
819.60	4.43
819.70	12.20
819.80	24.84
819.90	43.18
820.00	67.58
820.10	98.97
820.20	137.71
820.30	184.54
820.40	239.82
820.50	303.47
820.60	377.42
820.70	459.91
820.80	549.91
820.90	645.55
821.00	749.26
821.10	857.65
821.20	971.42
821.30	1090.30
821.40	1213.96
821.50	1342.04
821.60	1474.49
821.70	1611.11
821.80	1751.80
821.90	1895.42
822.00	2044.89
822.10	2197.15
822.20	2353.12
822.30	2512.71
822.40	2675.83
822.50	2842.42
822.60	3012.39
822.70	3185.68
822.79	3362.23
822.89	3541.98
822.99	3724.87
823.09	3913.84
823.19	4094.44
823.29	4291.59
823.39	4488.48
823.49	4686.14
823.59	4884.74

820.10	98.97
820.20	137.71
820.30	184.54
820.40	239.82
820.50	303.97
820.60	377.42
820.70	459.91
820.80	549.91
820.90	645.55
821.00	749.26
821.10	857.65
821.20	971.42
821.30	1090.30
821.40	1213.96
821.50	1342.04
821.60	1474.49
821.70	1611.11
821.80	1751.80
821.90	1895.42
822.00	2044.89
822.10	2197.15
822.20	2353.12
822.30	2512.71
822.40	2675.83
822.50	2842.42
822.60	3012.39
822.70	3185.68
822.79	3362.23
822.89	3541.98
822.99	3724.87
823.09	3910.84
823.19	4099.84
823.29	4291.69
823.39	4486.48
823.49	4684.18
823.59	4884.74
823.69	5088.12
823.79	5294.27
823.89	5503.19
823.99	5714.78

```
MCDONNELL DOUGLAS AUTOMATION COMPANY -- ST. LOUIS  MESSA
*****************************************************************
*
*                                    //*SETUP CARD
* THE //*SETUP CARD SHOULD BE CONSTRUCTED AS SPECIFIED O
* OSPG DATED 15 SEPTEMBER 1975 OR ON PAGE 5.2.1 OF THE T
* THE GENERAL FORM FOR THE //*SETUP CARD IS...
*
*                //*SETUP FETCH=(VOLSER,LIBLOC,VOLSER,LIBL
*
* ANY OTHER FORM OF THE //*SETUP CARD MAY RESULT IN IMPR
* MESSAGES.
*
*****************************************************************

MCDONNELL DOUGLAS AUTOMATION COMPANY -- ST. LOUIS
    OS/MVT RELEASE  21.7          COMPUTER SYSTEM  SYI
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JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY WCR DATE 10-7-75 JOB DESCRIPTION C & O R.R. Conc. Box Culv SHEET ___ OF ___
SUBJECT Hydraulic Properties JOB NO ___

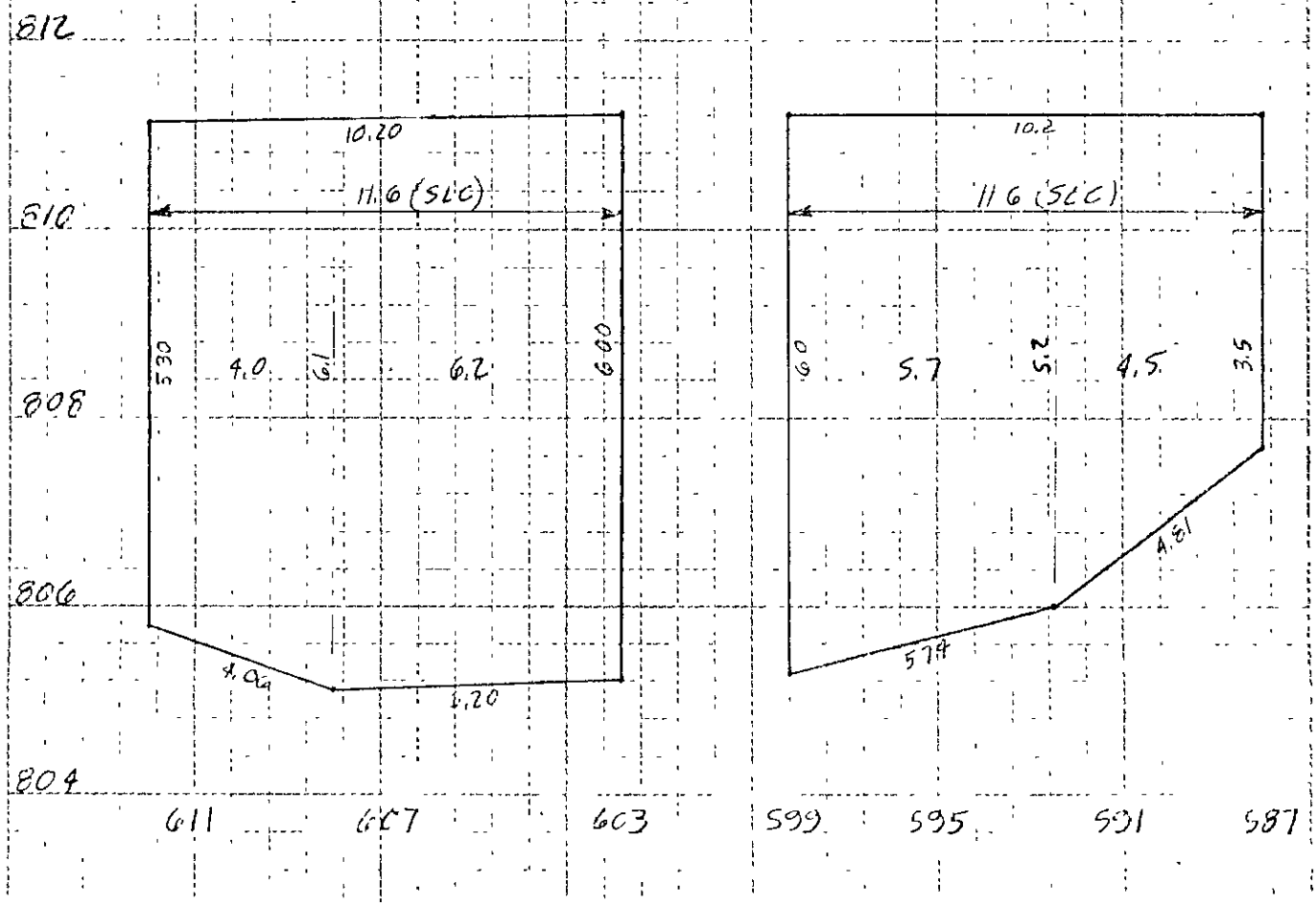
Sta. 16+18 to Sta 16+64 Patnales Drain
City of Novi 5555-46-04

Scale: Vert. 1" = 2'
Horz. 1' = 4'

$$\text{Area} = 112\ ft^2 \times \frac{2 \times 11.6}{2 \times 10.2} = 127\ ft^2$$

$$W.R. = 62\ ft + 4(11.6 - 10.2) = 68\ ft$$

$$R = \cancel{1.81\ ft} = 1.88\ ft$$

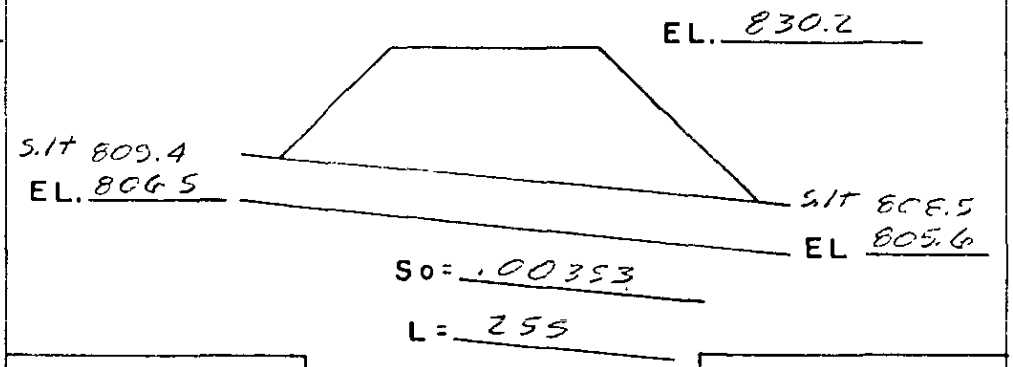


JOB NAME: Novi, FIS | JOB NO. 5555 | 46 | 1 | 04

WATERCOURSE: Pothales Drain | CULVERT LOCATION: New 8 Mile Rd

CULVERT DESCRIPTION: Three 12' Φ CMP: with wingwalls and headwall @ 2.9' silt | BY WCR | DATE 5-24-76

n=	0.03	Q_{10}=	1040	TW_{10}=	5.06
A=	276	Q_{50}=	1590	TW_{50}=	7.54
R=	2.58	Q_{100}=	1840	TW_{100}=	9.07
Ke=	.5	Q_{500}=	2500	TW_{500}=	12.24
D=	9.1				
LSo=	.9				



HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	HW/D	HW	H	dc	(dc+D)/2	ho W.S.	HW EGL.	D+(1+Ke) V²/2g	HW EGL.	Elev EGL		
1040		5.16	.75	3.13	6.12	6.12	5.97	9.43	6.04	815.44	815.25	
1590		5.98	1.75	4.10	6.60	7.54	8.39	9.87	8.33	817.73	817.55	
1840		6.47	2.34	4.50	6.80	9.07	10.51	10.14	10.34	819.91	819.80	
2500		8.09	4.32	5.17	7.14	12.24	15.66	11.01	15.63	825.06	824.99	

CALCULATIONS AND COMMENTS

Inlet Control

$HW = \left(\frac{V^2}{2g} \times \frac{1}{C^2}\right) - \frac{D}{2}$ C = .6

Outlet Control

$H = .0526 V^2$

25.36 @ .0307 = .779

10.28 @ .030 = .308

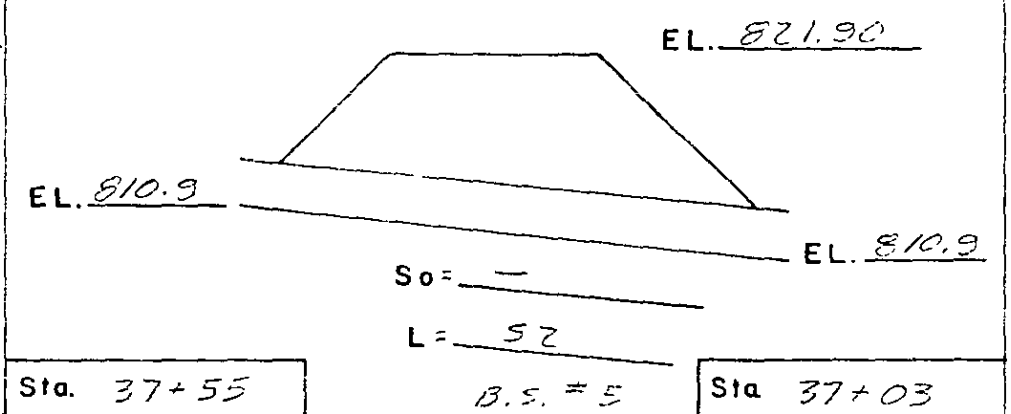
35.64 @ .030 = 1.087

JOB NAME: Novi, FIS | JOB NO. 5555 | 46 | 1 | 04

WATERCOURSE: Patnales Drain | CULVERT LOCATION: Relocated Novi Road

CULVERT DESCRIPTION: Conc. Bridge with headwalls parallel to embankment | BY WCR | DATE 5-26-75

n=	0.02	Q_{10}=	1040	TW_{10}=	5.16
A=	378	Q_{50}=	1590	TW_{50}=	6.94
R=	2.62	Q_{100}=	1840	TW_{100}=	9.07
ke=	.5	Q_{500}=	2500	TW_{500}=	14.19
D=	10.3				
LSo=	—				



HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	HW/D	HW	H	dc	(dc+D)/2	ho	HW E.G.L	D+(1+Ke) V²/2g	HW E.G.L	E.G.L. Elev		
1040		5.48	.20	4.82	7.56	7.56	7.76	10.48	6.61	817.51	817.03	
1590		5.91	.46	5.76	8.03	8.03	8.49	10.71	7.99	818.89	818.26	
1840		6.17	.61	6.3	8.22	9.07	9.68	10.85	9.58	820.48	820.02	
2500		7.04		6.95					14.22	825.12	825.12	

CALCULATIONS AND COMMENTS

Elev. [illegible] - 821.[illegible]

Outlet Control

$H = .0255 V^2$

Inlet Control

[illegible]

JOB NAME: Novi, FIS | JOB NO. 5555 | 46 | 1 | 04

WATERCOURSE: Patriotes Drain | WEIR LOCATION: Relocated [illegible]

WEIR DESCRIPTION: 24' Concrete Breadth | BY [illegible] | DATE [illegible]

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Q_T	HW ELEV.	TW ELEV.	H_c (2-3)	$Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	L	AVG. RD.EL.	(6X7)	HW (2-7)	C	$Q_w = CLH_w^{3/2}$	MIN. RD.EL	$\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	C_s / C_f	(11 X 14)	(5 + 15)
2500	825.15	825.09	.06	575						4755	821.9	.982	.56	2662	3238
2500	825.13	825.09	.04	470						4699	821.9	.988	.49	2302	2773
2500	825.12	825.09	.03	407						4670	821.9	.991	.46	2148	2555

CALCULATIONS AND COMMENTS

$Q_c = 2349\ H_c^{1/2}$

CITY OF NOVI
RELOCATED NOVI RD B.S. #5
PATNALES DRAIN
HARD SURFACED ROAD
24 FT BREADTH
NUMBER OF POINTS= 10

STATION	ELEVATION
650.00	829.00
650.00	821.90
750.00	822.20
800.00	822.50
825.00	822.60
876.00	822.80
900.00	822.90
950.00	822.90
1050.00	823.90
1050.00	824.00

WIDTH OF ROADWAY= 24.00
ROAD SURFACE:PAVED

ELEVATION	
821.90	0.0
822.00	1.22
822.10	7.01
822.20	19.45
822.30	39.56
822.40	66.98
822.50	101.81
822.60	144.56
822.70	196.30
822.80	258.12
822.90	330.45
823.00	414.08
823.10	519.52
823.20	632.99
823.30	757.81
823.40	893.53
823.50	1039.88
823.60	1196.75
823.70	1364.15
823.80	1541.88
823.90	1729.98
824.00	1928.16
824.10	2135.26
824.20	2350.70
824.30	2574.09
824.40	2805.24
824.50	3043.63
824.60	3289.04
824.70	3541.27
824.80	3800.28
824.90	4065.63
825.00	4336.39
825.10	4613.54
825.20	4896.81
825.29	5146.20
825.39	5480.89
825.49	5782.37
825.59	6091.25
825.69	6405.30
825.79	6727.82
825.89	7053.90
825.99	7354.74

822.70	190.38
822.80	254.12
822.90	330.45
823.00	414.08
823.10	519.52
823.20	632.99
823.30	757.81
823.40	893.53
823.50	1039.88
823.60	1196.75
823.70	1364.15
823.80	1541.88
823.90	1729.98
824.00	1928.16
824.10	2135.20
824.20	2350.70
824.30	2574.09
824.40	2805.24
824.50	3043.63
824.60	3289.04
824.70	3541.27
824.80	3800.28
824.90	4065.63
825.00	4336.39
825.10	4613.54
825.20	4895.81
825.29	5176.20
825.39	5460.89
825.49	5742.37
825.59	6021.25
825.69	6305.80
825.79	6727.82
825.89	7053.90
825.99	7384.79
826.09	7722.45
826.19	8065.54
826.29	8413.70
826.39	8768.51
826.49	9127.88
826.59	9494.95
826.69	9864.59
826.79	10240.75
826.89	10621.25
826.99	11007.94
827.09	11394.81
827.19	11789.19
827.29	12185.77
827.39	12590.46
827.49	12997.24
827.59	13409.36
827.69	13825.19
827.79	14246.47
827.89	14669.02
827.99	15096.93
828.09	15528.49
828.19	15963.75
828.29	16404.49
828.39	16848.59
828.49	17295.79
828.59	17747.93
828.69	18201.11
828.79	18659.28
828.89	19120.66

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY WCR DATE 10-8-75 JOB DESCRIPTION Conc. Bridge SHEET ____ OF ____

SUBJECT Hydraulic Properties JOB NO ____

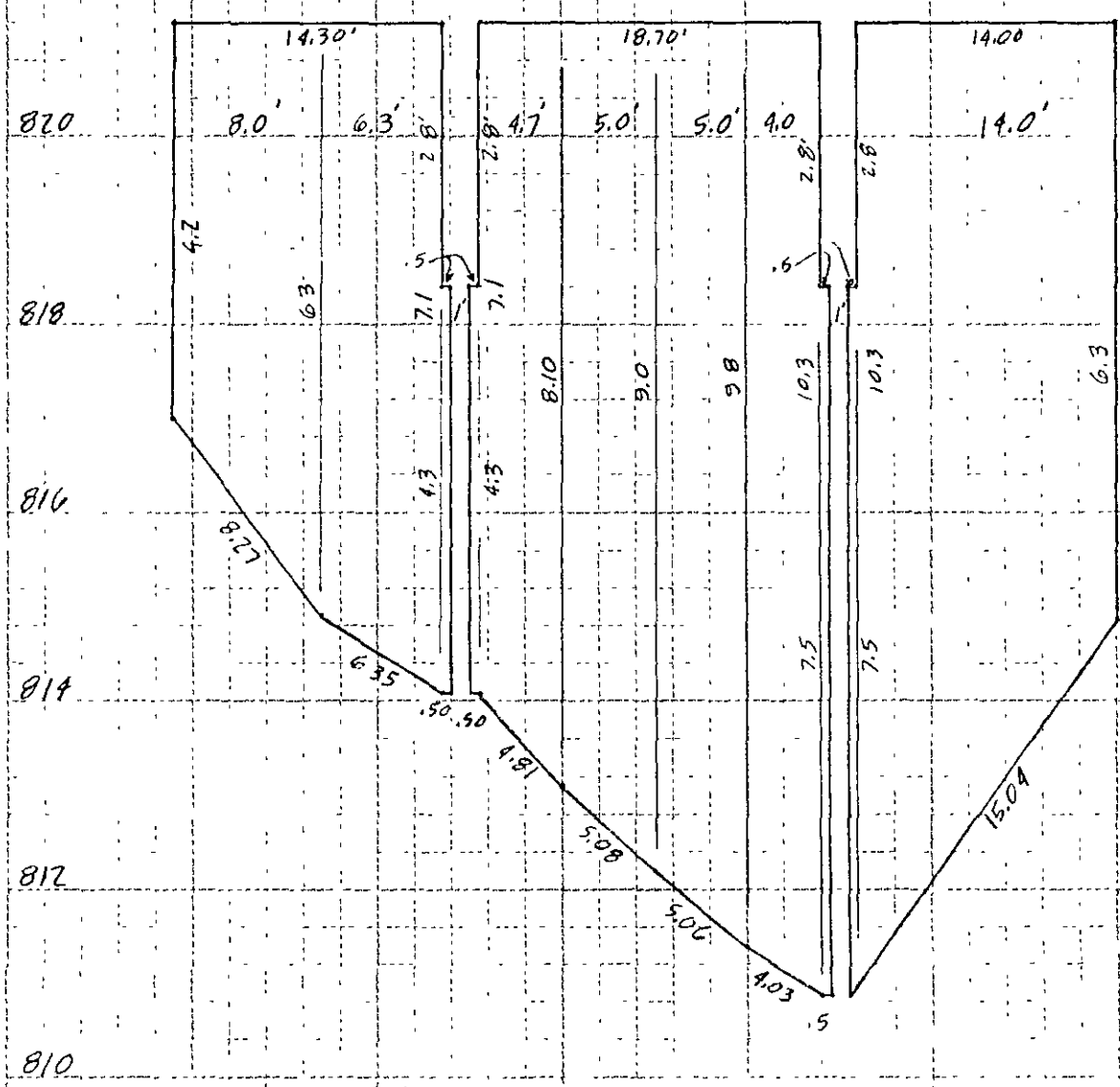
Sta. 37+03 to Sta 37+55
City of Novi 5555-76-04

Scale: Vert. 1" = 2'
Horz 1" = 10'

Area = 378 ft²

W.P. = 144 ft

R = 2.62 ft



JOB NAME: Novi, FIS | JOB NO. 5555 | 46 | 1 | 04

WATERCOURSE: Patnales Drain | CULVERT LOCATION: C & O R.R. E. New Novi Rd

CULVERT DESCRIPTION: Conc R.R. Bridge w/wingwalls approx 10° to barrel | BY WCR | DATE 5-26-76

n= 0.02 | Q_{10}= 1040 | TW_{10}= 5.12

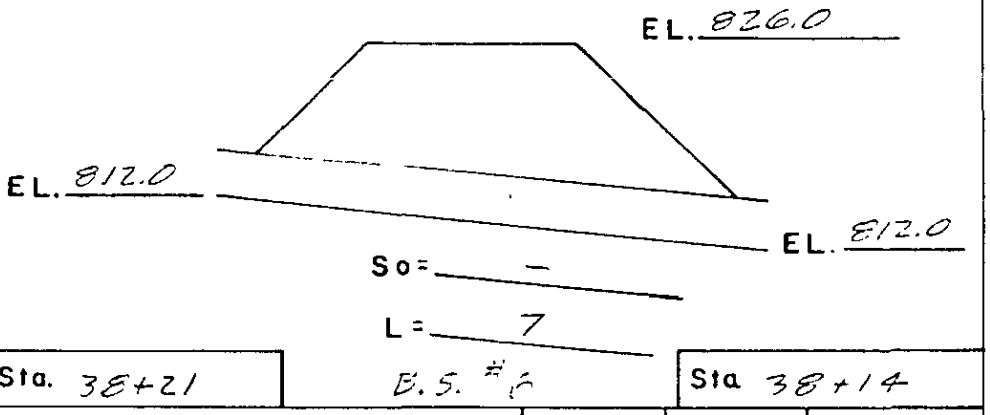
A= 245 | Q_{50}= 1590 | TW_{50}= 6.21

R= 3.10 | Q_{100}= 1840 | TW_{100}= 7.91

Ke= .5 | Q_{500}= 2500 | TW_{500}= ____

D= 84

LSo= —



HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL HW EGL Elev	FINAL HW ELEV.	ΔH HEC-2
	HW/D	HW	H	dc	(dc+D)/2	ho	HW E.G.L.	$D+(1+Ke)\frac{V^2}{2g}$	HW EGL			
1040		4.98	.42	4.19	6.30	6.30	6.72	8.82	6.08	816.08	817.17	
1590		6.02	.99	5.20	6.80	6.80	7.79	9.38	7.60	819.60	818.27	
1840		6.63	1.33	5.62	7.01	7.91	9.24	9.71	8.95	820.95	819.93	
2500		8.69							14.97	826.97	826.97	

El Low Chd = 820.00

CALCULATIONS AND COMMENTS

Outlet Control

$H = .0236\ l^2$

Inlet Control

$HW = \left(\frac{V^2}{2g} \times \frac{1}{C^2}\right) - \frac{1}{2}$ D + LSo

JOB NAME: Novi, FIS JOB NO. 5555 | 40 | 1 | 04

WATERCOURSE: Patnales Drain BS F6 WEIR LOCATION: Btwn old & relocated Novi Rds

WEIR DESCRIPTION: CEO RR tracks BY WCR DATE 5-26-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
2500	826.97	825.12	1.85	2170						334	826.0	-	1	334	2504

CALCULATIONS AND COMMENTS

$Q_c = 1595.77\ H_c^{1.5}$

CITY OF NOVI
C & O R.R. BTWN OLD & RELOCATED NOVI RDS B.S. #6
PAINALES DRAIN
R.R. TRACKS
5 FT BREADTH
NUMBER OF POINTS= 8

STATION	ELEVATION
540.00	829.00
540.00	826.00
723.40	826.60
756.50	826.70
765.00	826.90
840.00	827.20
940.00	827.90
940.00	829.00

WIDTH OF ROADWAY= 5.00
ROAD SURFACE:PAVED

ELEVATION	N
825.00	1.0
826.10	1.12
826.20	9.43
826.30	17.84
826.40	35.84
826.50	64.64
826.60	102.29
826.70	153.81
826.80	210.53
826.90	279.67
827.00	357.92
827.10	445.92
827.20	547.52
827.30	65[illegible].14
827.40	78[illegible].31
827.50	919.62
827.60	1057.85
827.70	1223.35
827.80	1392.35
827.90	1572.91
828.00	1754.53
828.10	1959.11
828.20	2176.74
828.30	2395.95
828.40	2623.28
828.50	2859.38
828.60	3109.96
828.70	3359.72
828.80	3607.32
828.90	3871.63
829.00	4140.19

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY WCR DATE 10-7-75 JOB DESCRIPTION C E O R.R Bridge SHEET 1 OF
SUBJECT Hydraulic Properties JOB NO

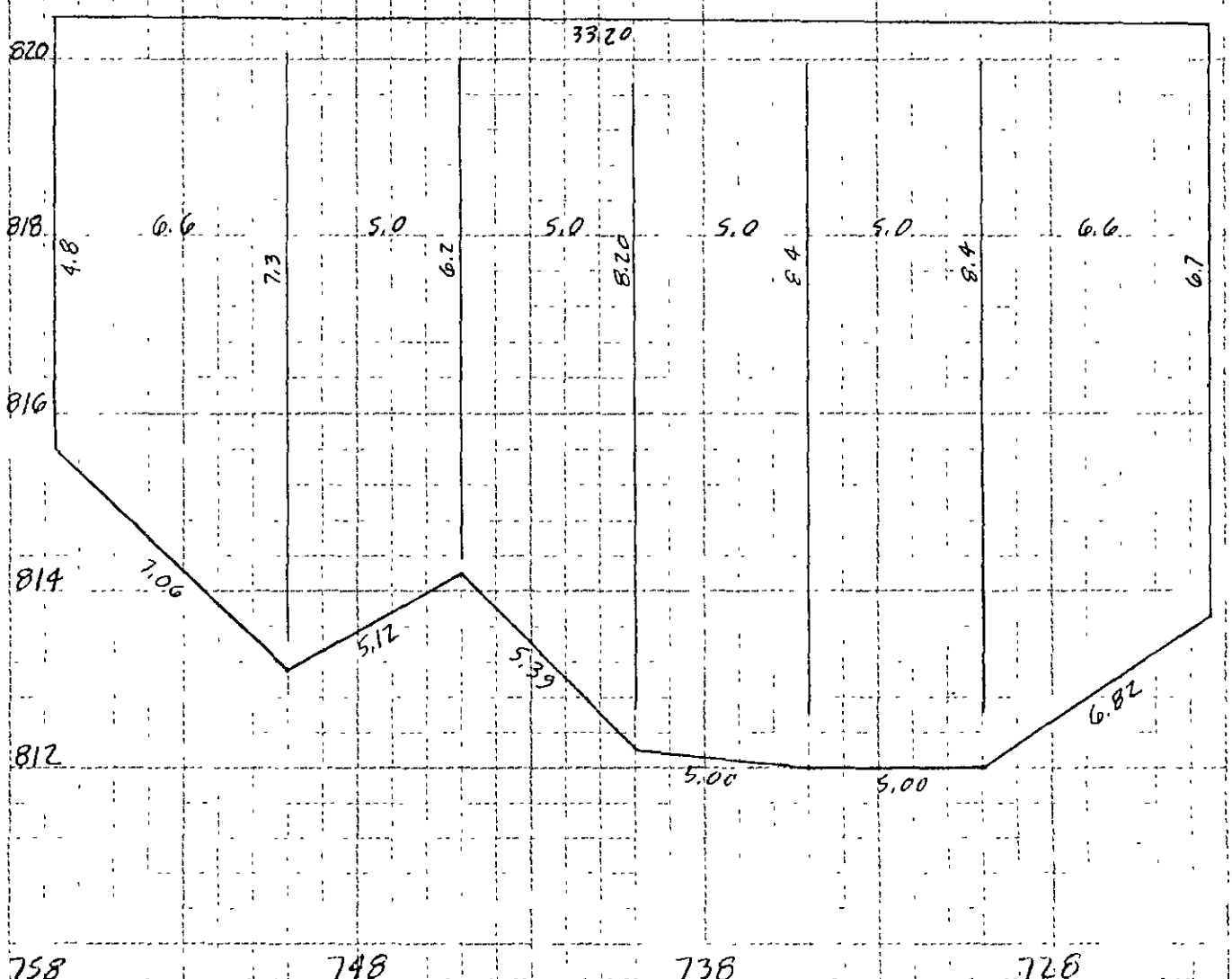
Sta. 38+14 to Sta 38+21 Patnales Drain
City of Maui 5555-46-04

Scale: Vert. 1" = 2'
Horz 1" = 5'

Area = 245 ft²

W.P. = 79 ft

R = 3.10 ft



758 748 738 728

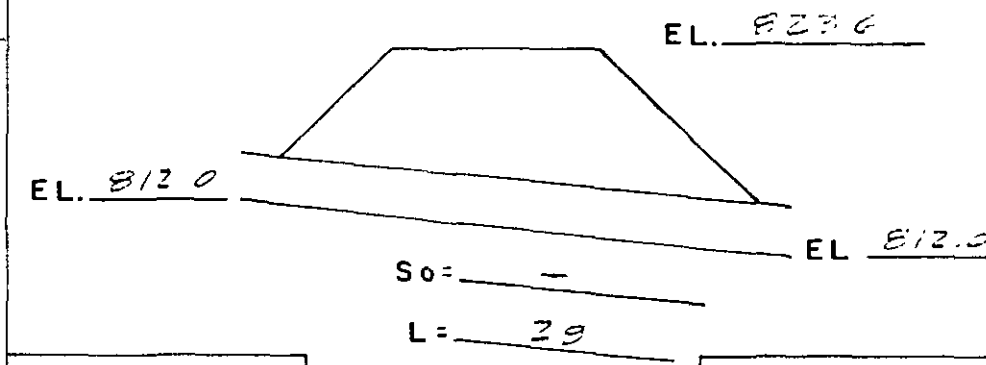
JOB NAME: Novi, FIS | JOB NO. 5555 | 46 | 1 | 04

WATERCOURSE: Patnales Drain | CULVERT LOCATION: Old Novi Rd

CULVERT DESCRIPTION: Conc. Bridge | BY WCR | DATE 5-26-76

[illegible] parallel to embankment

n=	0.020	Q_{10}=	1040	TW_{10}=	4.86
A=	238	Q_{50}=	1590	TW_{50}=	6.19
R=	3.69	Q_{100}=	1840	TW_{100}=	7.25
Ke=	0.5	Q_{500}=	2500	TW_{500}=	
D=	11.55				
LSo=	—				



HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW E.G.L	$D+(1+Ke)\frac{V^2}{2g}$	HW E.G.L.	E.G.L Elev		
1040		6.60	.40	4.86	8.21	8.21	8.67	10.74	7.27	819.27	818.00	
1590		7.70	1.09	6.20	8.88	8.88	9.96	11.34	9.37	821.37	819.65	
1840		8.35	1.45	6.76	9.16	9.16	10.61	11.69	10.13	822.13	820.10	
2500		10.53							15.10	827.10	825.94	

CALCULATIONS AND COMMENTS

El Low Chord 823.70

Outlet Control

$H = .0242\ V^2$

Inlet Control

$HW = \left(\frac{V^2}{2g} \cdot \frac{1}{C^2}\right) - \frac{C}{2}$ C=.6

JOB NAME: Novi, FIS	JOB NO.	5555	46	1	0F
WATERCOURSE: Patnales Drain	WEIR LOCATION: Old Novi Rd B.S #7				
WEIR DESCRIPTION: Deteriorated Hard Surface	BY WCR	DATE 5-26-76			

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
2503	827.10	826.97	13	551						3360	823.6	.903	60	2016	2567
2500	827.09	826.97	.12	530						3146	823.6	.966	.58	1824	2354

CALCULATIONS AND COMMENTS

$Q_c = 1529.67\ H_c^{1/2}$

CITY OF NOVI
OLD NOVI RD 05 07
PATNALES DRAIN
HARD SURFACED RD (DETERIORATED ASPHALT)
20 FT BREADTH
NUMBER OF POINTS= 12

STATION	ELEVATION
645.00	824.09
645.00	823.89
744.00	824.36
833.00	825.36
855.00	826.26
894.00	824.83
897.00	824.76
922.00	827.16
946.00	825.06
975.00	826.53
1045.00	825.6
1045.00	824.03

WIDTH OF ROADWAY= 20.00
ROAD SURFACE:PAVED

ELEVATION	W
823.60	0.0
823.70	0.52
823.80	2.97
823.90	5.24
824.00	17.02
824.10	29.88
824.20	47.28
824.30	69.68
824.40	97.11
824.50	129.99
824.60	165.07
824.70	205.20
824.80	249.45
824.90	298.12
825.00	351.51
825.10	409.79
825.20	473.11
825.30	541.61
825.40	615.43
825.50	694.72
825.60	779.60
825.70	871.46
825.80	964.10
825.90	1073.30
826.00	1187.05
826.10	1310.10
826.20	1443.07
826.30	1587.12
826.40	1743.85
826.50	1912.29
826.60	2092.07
826.70	2283.64
826.80	2485.38
826.90	2695.67
826.99	2917.02
827.09	3145.16
827.19	3383.77
827.29	3624.31
827.39	3861.50
827.49	4101.25

824.40	97.11
824.50	128.54
824.60	165.07
824.70	205.20
824.80	249.45
824.90	298.12
825.00	351.51
825.10	409.79
825.20	473.11
825.30	541.61
825.40	615.43
825.50	694.72
825.60	779.60
825.70	870.40
825.80	964.10
825.90	1073.30
826.00	1187.05
826.10	1310.10
826.20	1443.07
826.30	1587.12
826.40	1743.85
826.50	1912.29
826.60	2092.07
826.70	2283.04
826.80	2485.36
826.90	2696.67
826.99	2917.02
827.09	3146.16
827.19	3383.77
827.29	3629.31
827.39	3881.80
827.49	4141.25
827.59	4406.95
827.69	4679.27
827.79	4958.45
827.89	5244.57
827.99	5536.88
828.09	5835.28
828.19	6139.48
828.29	6449.53
828.39	6765.47
828.49	7087.00
828.59	7414.07
828.69	7745.98
828.79	8085.67
828.89	8429.82
828.99	8779.74

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY WCR DATE 10-8-15 JOB DESCRIPTION Old Novi Rd. Conc. Box SHEET 1 OF

SUBJECT Hydraulic Properties JOB NO

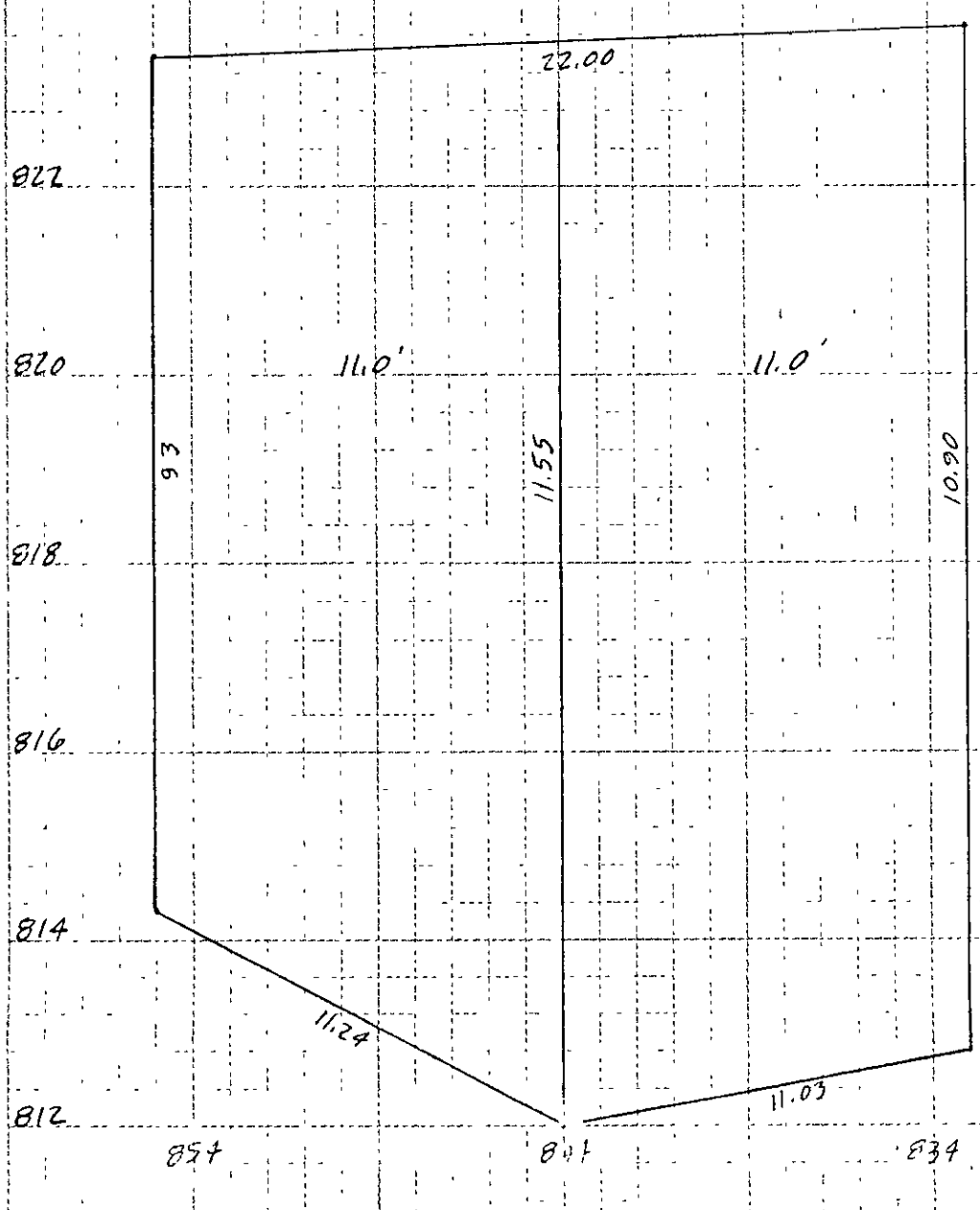
Sta. 38+35 to Sta. 38+64 Patnales Drain
City of Novi 5555-46-04

Area = 238 ft²

W.P = 64 ft

R = 3.69 ft

Scale Vert 1" = 2'
Horz 1" = 5'



Job Name: Novi, FIS | Job No. 5555 | 46 | 1 | 04

Culvert Name: Patnales Drain | Culvert Location: U.S. from Triple Bridges

Culvert Description: Wood deck on I-beams with no wingwalls | By WCR | Date 10-9-75

n = 0.030 | Q_{10} = 1040 | TW_{10} = ____

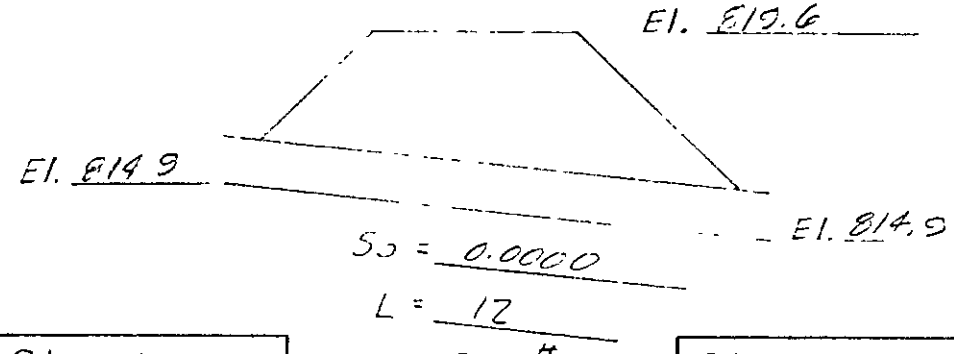
A = 40 ft² | Q_{50} = 1590 | TW_{50} = ____

R = 1.28 ft | Q_{100} = 1890 | TW_{100} = ____

Ke = 0.50 | Q_{500} = 2500 | TW_{500} = ____

D = 4.2 ft

So = 0.0



Sta. 49+96 | Sta. 49+54

HEADWATER ANALYSIS

Q	Inlet Cont. $\frac{HW}{D}$	Inlet Cont. HW	Outlet Cont. H	Outlet Cont. dc	Outlet Cont. $\frac{dc+D}{2}$	Outlet Cont. h_o	Outlet Cont. HW = H+ho−LSo	HEC-2 $D+(1+Ke)\frac{V^2}{2g}$	HEC-2 HW	Final HW	Final HW Elev	ΔH HEC-2

Comments: Inlet & Control

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY WCR DATE 10-9-75 JOB DESCRIPTION Bridge SHEET 1 OF
SUBJECT Hydraulic Properties JOB NO

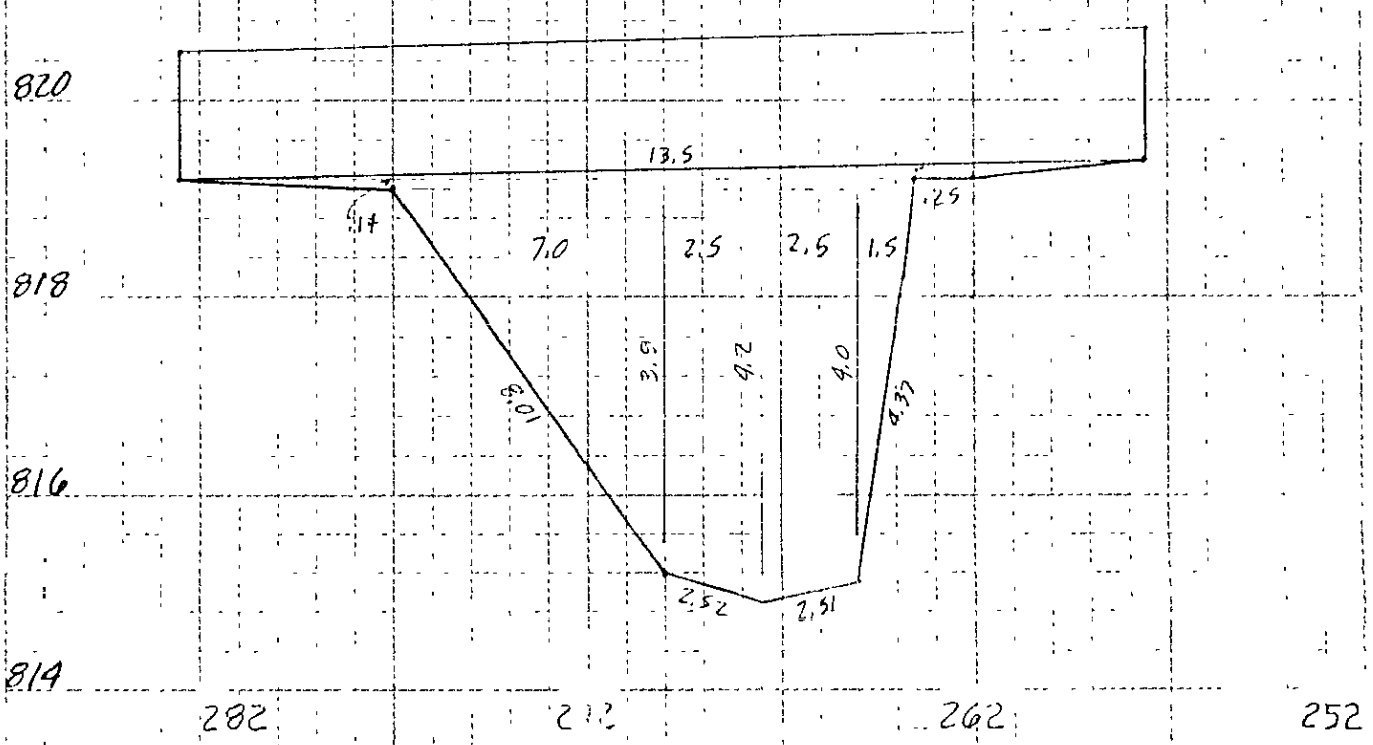
Sta. 49+84 to Sta 49+96 Patnales Drain
City of Novi 5555-46-04

Scale: Vert 1" = 2
Horz 1" = 5'

Area = 40 ft²

W.P. = 31 ft

R = 1.28 ft



Job Name: Novi, FIS	Job No.	5555	46	1	[illegible]
Watershed: Patnales	Culvert Location: South of Nine Mile Rd				
Culvert Description: Concrete Deck on I-beams with no wingwalls	By WCR	Date 10-9-75			

$n = 0.025$ $Q_{10} = 930$ $TW_{10} =$ _____

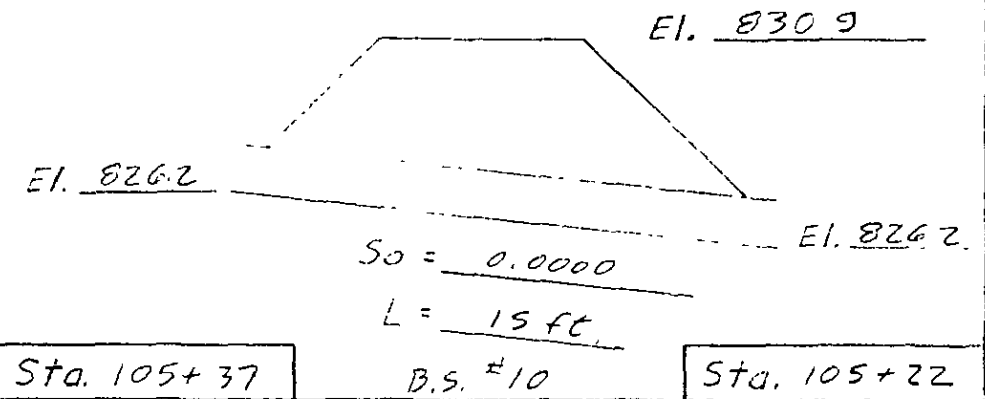
$A = 86\ ft^2$ $Q_{50} = 1420$ $TW_{50} =$ _____

$R = 1.79\ ft$ $Q_{100} = 1640$ $TW_{100} =$ _____

$K_e = 0.50$ $Q_{500} = 2240$ $TW_{500} =$ _____

$D = 4.80\ ft$

$S_o = 0.0$



Q	HEADWATER ANALYSIS									Final HW	Final HW Elev.	ΔH HEC-2
	Inlet Cont.		Outlet Cont. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	h_o	HW	$D+(1+K_e)\frac{V^2}{2g}$	HW			

Calculations & Comments

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY WCR DATE _____ JOB DESCRIPTION Bridge SHEET _____ OF _____

SUBJECT Hydraulic Properties JOB NO _____

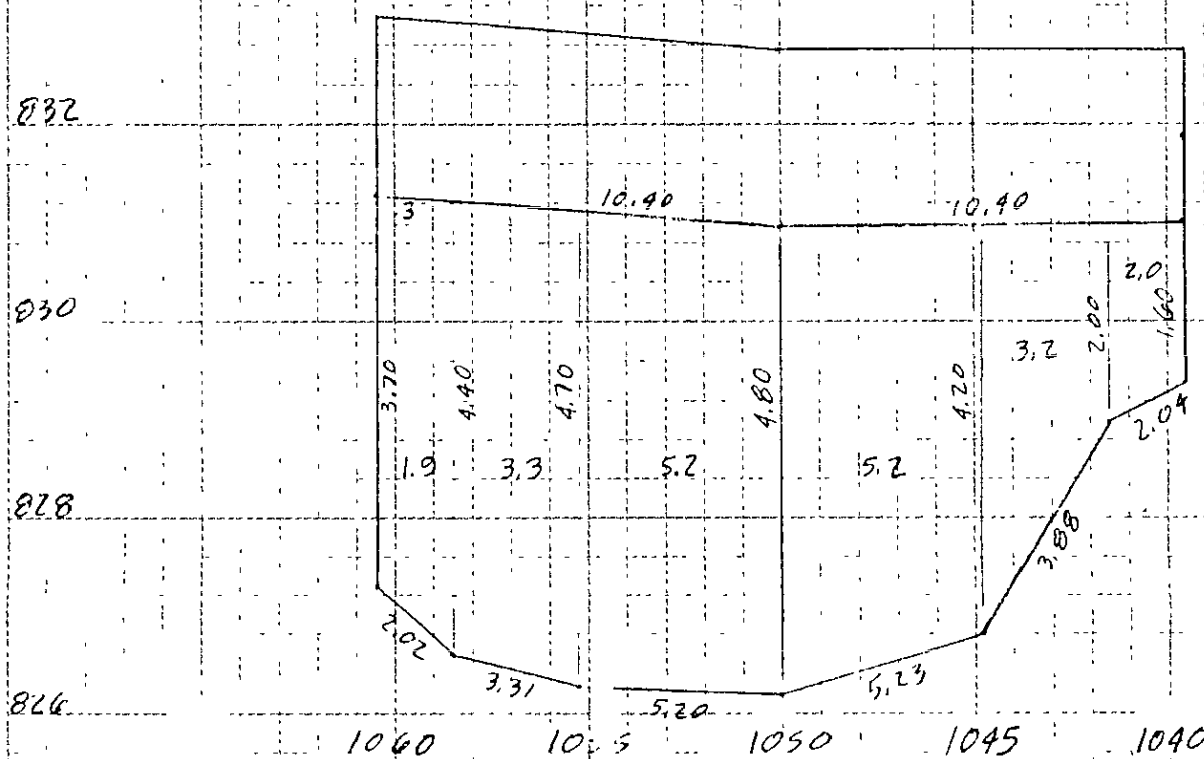
Sta. 105+22 to Sta. 105+37 Pathways
City of Napa 5555-76-01

Scale: Vert 1" = 2'
Horz 1" = 5'

Area = 86 ft²

W.P. = 48 ft

R = 1.79 ft



Project Name: Novi, FIS | Job No. 5555 | 46 | 1 | 04

Watershed: Patnales Drain | Culvert Location: 9 Mile East of Emmisboro

Culvert Description: 6-36" CMP's with projecting entrance from fill

By WCR | Date 10-27-75

n = 0.024 | Q_{10} = 930 | TW_{10} = ____

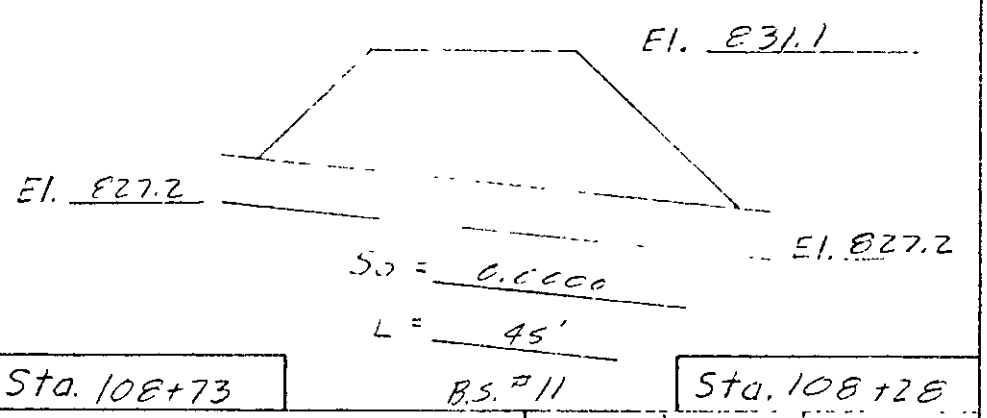
A = 7.1 | Q_{50} = 1420 | TW_{50} = ____

R = .75 | Q_{100} = 1640 | TW_{100} = ____

Ke = 0.9 | Q_{500} = 2240 | TW_{500} = ____

D = 3.0

So = 0.0



HEADWATER ANALYSIS

Q	Inlet Cont.		Outlet Cont. HW = H + ho − LSo					HEC-2		Final HW	Final HW Elev.	ΔH HEC-2
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	h_o	HW'	$D+(1+K_e)\frac{V^2}{2g}$	HW			

Control Notes & Comments

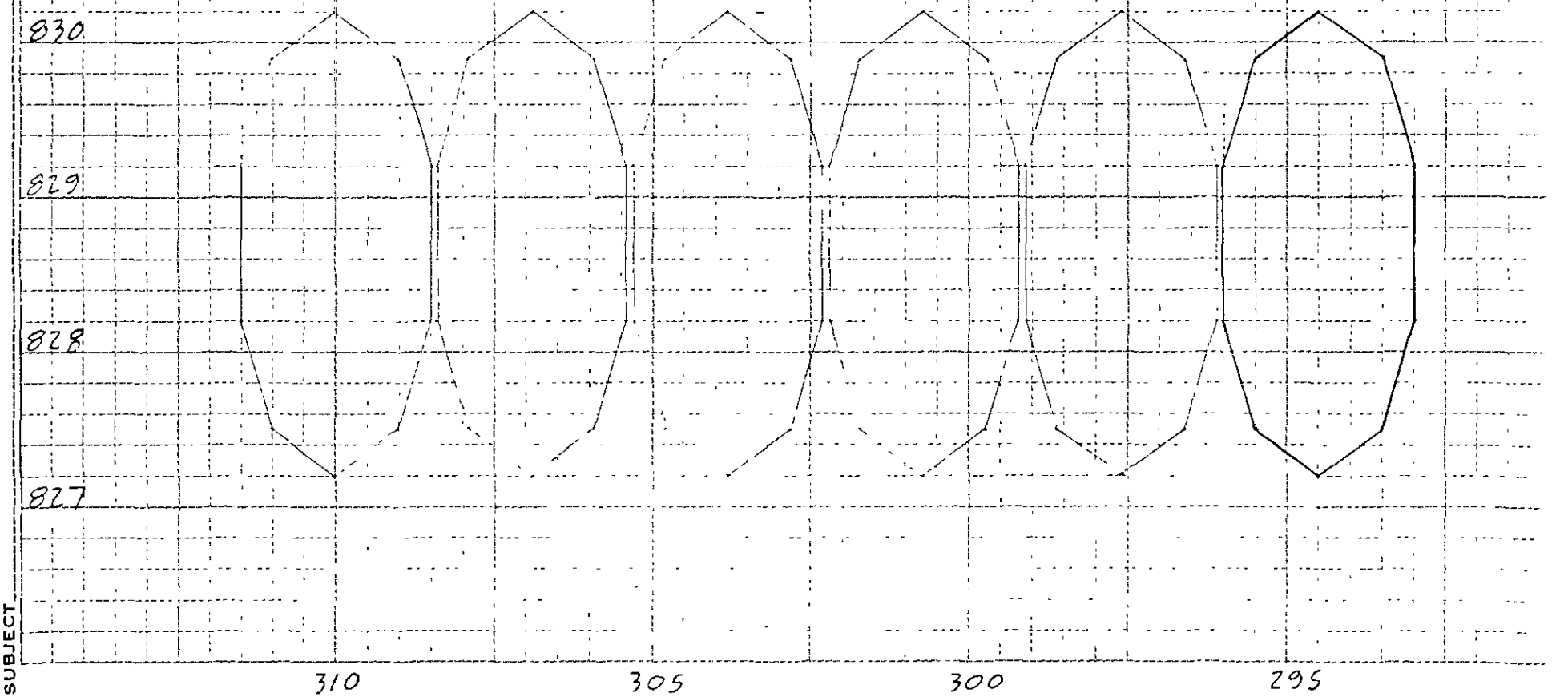
JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY _____ DATE _____ JOB DESCRIPTION _____ JOB NO _____ SHEET _____ O.

SUBJECT _____

Patuales Drain - 10 Mile Rd - 6 x 36" CMP

Scale Vert: 1" = 1'
Horz: 1" = 25'



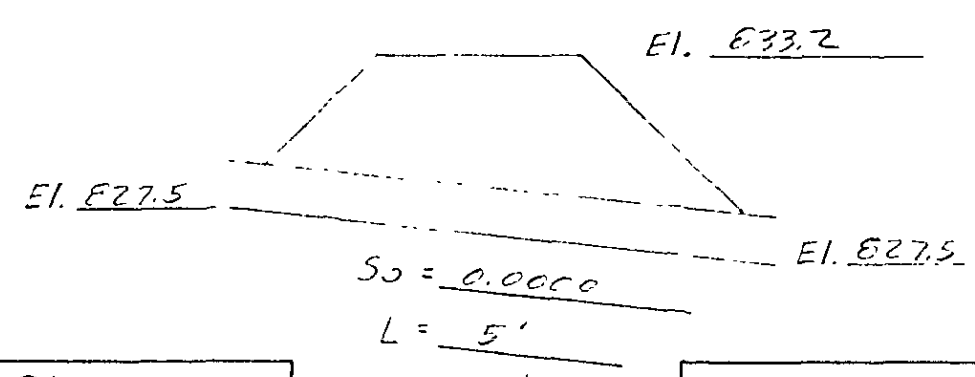
Job Name: Novi, FIS | Job No 5555 | 46 | 1 | 04

Watershed: Patnales Drain | Culvert Location: North of 9 Mile & So. of Dam

Culvert Description: Wooden Pedestrian | By WCR | Date 10-27-75

Bridge

n = 0.02	Q_{10} = 930	TW_{10} = 6.37
A = 127	Q_{50} = 1420	TW_{50} = 6.95
R = 1.73	Q_{100} = 1640	TW_{100} = 7.18
K_e = 0.6	Q_{500} = 2240	TW_{500} = 7.69
D = 6.3		
S_o = 0.0		



HEADWATER ANALYSIS

Q	Inlet Cont. $\frac{HW}{D}$	Inlet Cont. HW	Outlet Cont. $HW = H + h_o - LS_o$ H	d_c	$\frac{d_c + D}{2}$	h_o	HW	HEC-2 $D + (1+K_e)\frac{V^2}{2g}$	HEC-2 HW	Final HW	Final HW Elev.	ΔH HEC-2
930		5.46	1.36	4.92	5.61	6.37	WEIR 7.73	7.63	7.24	6.89	834.39	
1420		WEIR FLOW 8.54		7.16	6.73	6.95	WEIR		7.70	7.38	834.88	
1640				7.28	6.79	7.18	WEIR		7.84	7.54	835.04	
2240				7.44	6.87	7.69	WEIR		8.00	7.93	835.43	

Calculations & Comments

Inlet Control C = 6

$HW = \left(\frac{Q}{2g} \cdot \frac{1}{C^2}\right) + \frac{D}{2}$

Outlet Control

$H = 0.253\ V^2$

833.2 − 827.5 = 5.7 WEIR FLOW BEGINS

Job Name: Novi, FIS											Job No.	5555	46	1	C4
Watercourse: Patnales Drain											Weir Location: North of 9 Mile & So of Dam				
Weir Description: Wood Bridge with grass overbanks											By UCK		Date 11-20-75		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Q_T	HW Elev.	TW Elev	H_c (2-3)	$Q_c = A\sqrt{\frac{2gH_c}{1+K_e+\frac{29n^2L}{R^{4/3}}}}$	L	Avg Rd. El	(6×7)	Hw (2-7)	C	$Q_w = CLH_w^{3/2}$	Min. Rd. El.	$\frac{D}{H}$ $\left(\frac{3-12}{2-12}\right)$	C_s/C_f	(11×14)	(5+15)
[illegible]	834.49	833.57	.52	576						357	833.2	.56	1	357	933
420	834.88	834.45	.43	524						902	833.2	.74	1	902	1426
1640	835.04	834.[illegible]	.36	479						1192	833.2	.80	.98	1168	1647
2240	835.43	835.[illegible]	.24	391						2102	833.2	.89	.90	1892	2283
2[illegible]	[illegible]	[illegible]	.23	383						2074	833.2	.90	.88	1825	2208

Calculations & Comments

$Q_c = 799\ H_c^{1/2}$

CITY OF NOVI
WOOD PEDESTRIAN BRIDGE SOUTH OF MEADO
RAINALES DRAIN
WOOD DAM WITH GRASS OVERBANKS
8 FT BREADTH
NUMBER OF POINTS= 9

STATION	ELEVATION
0.0	844.00
0.0	843.50
100.00	843.50
200.00	834.70
400.00	834.80
430.00	834.80
700.00	833.20
1000.00	843.00
1000.00	844.00

WIDTH OF ROADWAY= 5.00
ROAD SURFACE:GRAVEL

ELEVATION	
833.20	0.0
833.30	0.54
833.40	3.64
833.50	11.14
833.60	21.01
833.70	37.03
833.80	59.06
833.90	87.50
834.00	124.58
834.10	170.92
834.20	226.02
834.30	290.46
834.40	364.84
834.50	449.71
834.60	545.52
834.70	652.63
834.80	777.32
834.90	933.05
835.00	1112.50
835.10	1312.05
835.20	1530.45
835.30	1766.20
835.40	2018.13
835.50	2288.03
835.60	2600.55
835.70	2900.98
835.80	3215.97
835.90	3545.44
836.00	3888.27
836.10	4242.61
836.20	4608.91
836.30	4954.96
836.40	5370.05
836.50	5766.31
836.59	6173.98
836.69	6592.73
836.79	7022.52
836.89	7463.35
836.99	7915.00

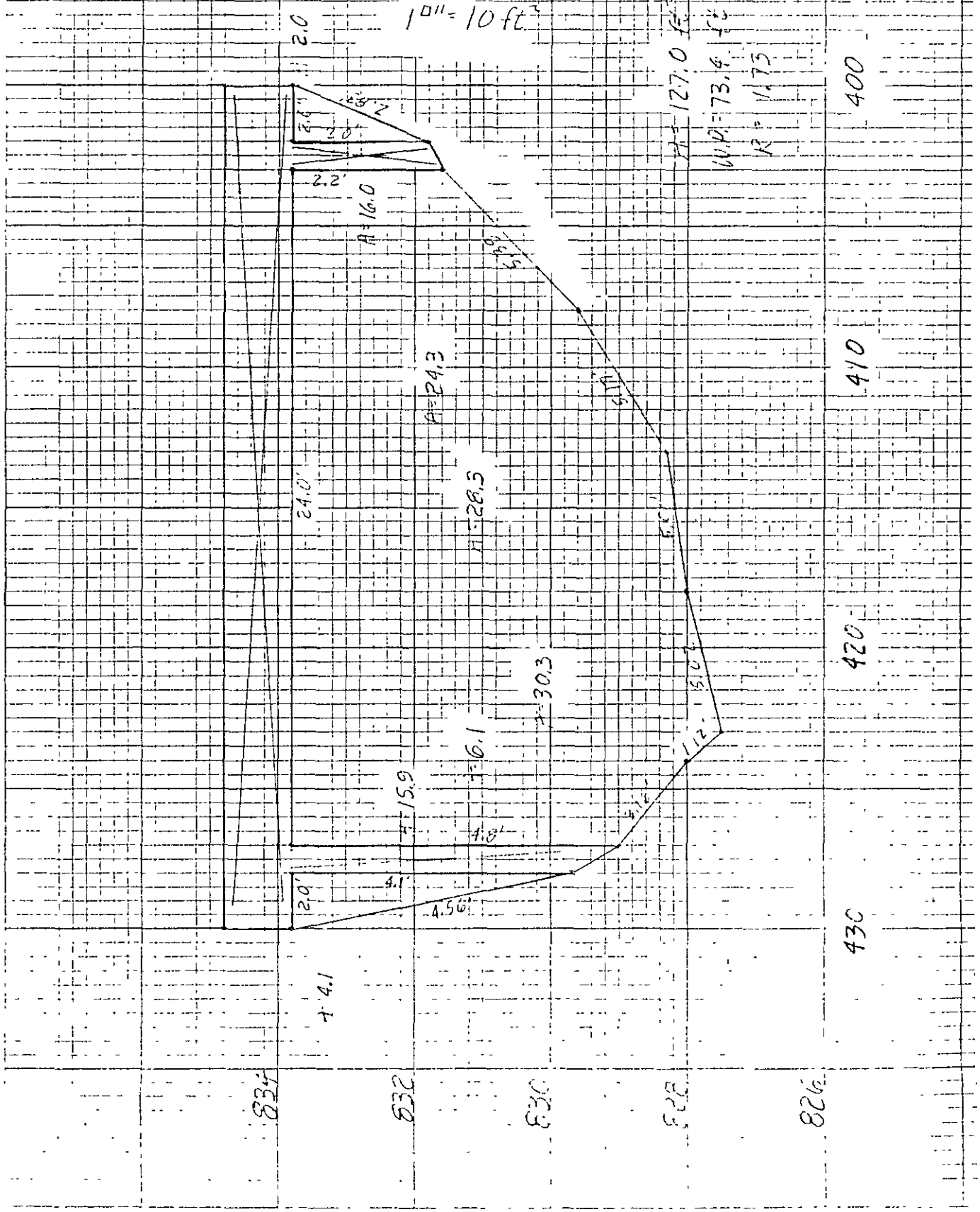
100-YEAR

Patnales Dram - Pedestrian [illegible] North of [illegible] Mile [illegible] South of [illegible]

Scale: 1" = 2' Vert

1" = 5' Horz

1□" = 10 ft²



47 0703

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

100-year

WATERCOURSE: Thornton Creek

CITY/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
0	Confluence of Thornton Cr. & Patnales Dr.	825.63	825.81	367
177	177' U/S of confluence	826.99	827.02	367
354	354' U/S of confluence	827.67	827.73	367
531	320' D/S of C & O railroad	828.75	828.86	367
674	1' D/S of C & O railroad	829.96	830.76	367
675	D/S face of C & O railroad	829.96	830.77	367
685	U/S face of C & O railroad	830.08	830.82	367
686	1' U/S of C & O railroad	830.15	830.84	367
1130	445' U/S of C & O railroad	832.84	832.87	367
1345	660' U/S of C & O railroad	833.54	833.63	367
1560	875' U/S of C & O railroad	834.87	834.95	367
1760	1075' U/S of C & O railroad	835.61	835.73	550
1960	1275' U/S of C & O railroad	836.46	836.63	550
2160	336' D/S of Pedestrian Br. S. of Nine Mile	837.63	838.60	550
2328	168' D/S of Pedestrian Br. S. of Nine Mile	839.78	840.78	550
2495	1' D/S of Pedestrian Br. S. of Nine Mile	840.70	840.78	550
2496	D/S face of Pedestrian Br. S. of Nine Mile	840.67	840.81	550
2502	U/S face of Pedestrian Br. S. of Nine Mile	840.68	840.82	550
2503	1' U/S of Pedestrian Br. S. of Nine Mile	840.77	840.84	550
2560	58' U/S of Pedestrian Br. S. of Nine Mile	840.82	840.89	550
2600	98' U/S of Pedestrian Br. S. of Nine Mile	840.84	840.95	550
2639	1' D/S of Nine Mile E. of Novi road	840.66	841.34	550
2640	D/S face of Nine Mile E. of Novi road			550
2692	U/S face of Nine Mile E. of Novi road			550
2693	1' U/S of Nine Mile E. of Novi Rd.-X5	841.88	842.13	550
2700	8' U/S of Nine Mile E. of Novi rd.	841.84	842.24	550
2760	68' U/S of Nine Mile E. of Novi rd.	842.35	842.80	550
2820	128' U/S of Nine Mile E. of Novi rd.	842.93	843.39	550
2880	212' D/S of Novi rd. N. of Nine Mile	843.53	843.99	550
3091	1' D/S of Novi rd. N. of Nine Mile	845.53	846.20	550
3092	D/S face of Novi rd. N. of Nine Mile	845.77	846.25	550
3178	U/S face of Novi rd. N. of Nine Mile	846.14	846.65	550
3179	1' U/S of Novi rd. N. of Nine Mile	846.08	846.73	550
3309	131' U/S of Novi rd. N. of Nine Mile	847.21	847.28	550
3532	354' U/S of Novi rd. N. of Nine Mile	847.65-Yc	848.50	550
3755	577' U/S of Novi rd. N. of Nine Mile	850.34	850.56	550
3978	800' U/S of Novi rd. N. of Nine MIle	851.51	851.82	550
4227	1049' U/S of Novi rd. N. of Nine Mile	853.08	853.45	550
4476	1298' U/S of Novi rd. N. of Nine Mile	854.81	855.16	550
4725	455' D/S of Culverts N. of Nine Mile	856.47	856.80	550
4979	201' D/S of Culverts N. of Nine Mile	857.55	857.61	550
5179	1' D/S of Culverts N. of Nine Mile	858.02	858.07	550
5180	D/S face of culverts N. of Nine Mile @ E. of Center			550
5194	U/S face of culverts N. of Nine Mile @ E. of Center			550
5195	1' U/S of culverts N. of Nine Mile @ E. of Center-X5	859.42	859.43	550
5295	101' U/S of culverts N. of Nine Mile @ E. of Center	859.43	859.54	330

100-year

WATERCOURSE: Thornton Creek
CITY/TOWNSHIP: Novi
COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
5395	201' U/S of culverts N. of Nine Mile @ E. of Center	860.37	860.57	330
5526	332' U/S of culverts N. of Nine Mile @ E. of Center	862.53	862.85	330
5657	463' D/S of Nine Mile E. of Center St.	864.49	864.68	330
5788	332' D/S of Nine Mile E. of Center St.	866.04	866.29	330
5919	221' D/S of Nine Mile E, of Center St.	867.76	867.95	330
6139	1' D/S of Nine Mile E. of Center St.	870.22	870.32	330
6140	D/S face of Nine Mile E. of Center St.			330
6160	U/S face of Nine Mile E. of Center St.			330
6275	115' U/S of Nine Mile E. of Center St.-X5	872.62	872.68	330
6390	230' U/S of Nine Mile E. of Center St.	873.09	873.14	330
6391	D/S face of Center St.			330
6482	U/S face of Center St.			330
6483	1' U/S of Center St.-X5	874.87	874.90	330
6543	61' U/S of Center St.	874.89	874.93	330
6743	261' U/S of Center St.	875.08	875.19	330
6945	463' U/S of Center St.	876.73	877.02	330
7147	665' U/S of Center St.	879.71	879.89	330
7362	880' U/S of Center St.	881.63	881.83	330
7577	320' D/S of Connemara Drive	883.66	883.85	330
7896	1' D/S of Connemara Drive	885.18	885.25	330
7897	D/S face of Connemara Drive			330
7962	U/S face of Connemara Drive			330
7963	1' U/S of Connemara Drive	888.99	888.99	330
8043	81' U/S of Connemara Drive	888.99	889.00	330
8405	262' U/S of Connemara Drive	889.04	889.08	330
8465	322' U/S of Connemara Drive	889.13	889.20	330
8525	382' U/S of Connemara Drive	889.31	889.44	330
8587	444' U/S of Connemara Drive	889.68	889.84	330
9091	321' D/S of Taft road	892.44	892.55	330
9411	1' D/S of Taft road	894.19	894.61	330
9412	D/S face of Taft road			330
9430	U/S face of Taft road			330
9431	1' U/S of Taft road-X5	897.47	897.49	330
9581	151' U/S of Taft road	897.53	897.61	330
10280	850' U/S of Taft road	899.17	899.25	330
11079	1' D/S of Nine Mile rd. W. of Taft rd.	903.11	903.14	330
11080	D/S face of Nine Mile rd. W. of Taft rd.			330
11120	U/S face of Nine Mile rd. W. of Taft rd.			330
11121	1' U/S of Nine Mile rd. W. of Taft rd.-X5	906.91	906.91	330
11795	675' U/S of Nine Mile rd. W. of Taft rd.	906.96	906.98	330
11895	775' U/S of Nine Mile rd. W. of Taft rd.	907.30	907.33	330
11995	875' U/S of Nine Mile rd. W. of Taft rd.	907.75	907.78	330
12095	975' U/S of Nine Mile rd. W. of Taft rd.	908.24	908.28	330
12195	1075' U/S of Nine Mile rd. W. of Taft rd.	908.70	908.73	280
12595	1475' U/S of Nine Mile rd. W. of Taft rd.	911.13	911.27	280
13155	2035' U/S of Nine Mile rd. W. of Taft rd.	915.78	915.94	280
13620	2300' U/S of Nine Mile rd. W. of Taft rd.	918.00	918.05	280
14029	2909' U/S of Nine Mile rd. W. of Taft rd.	920.25	920.40	280
14634	3514' U/S of Nine Mile rd. W. of Taft rd.	924.54	924.56	182
15238	4118' U/S of Nine Mile rd. W. of Taft rd.	928.73	928.79	182

100-year

WATERCOURSE: Thornton Creek
CITY/TOWNSHIP: Novi
COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
15988	2545' D/S of Ten Mile E. of Beck rd.	934.32	934.38	182
16738	1795' D/S of Ten Mile E. of Beck rd.	940.35	940.60	182
17638	895' D/S of Ten Mile E. of Beck rd.	950.54	950.69	182
18038	495' D/S of Ten Mile E. of Beck rd.	954.34	954.70	182
18240	273' D/S of Ten Mile E. of Beck rd.	956.62	956.71	182
18512	1' D/S of Ten Mile E. of Beck rd.	959.08	959.29	182
18513	D/S face of Ten Mile E. of Beck rd.			182
18557	U/S face of Ten Mile E. of Beck rd.			182
18558	1' U/S of Ten Mile E. of Beck rd. -X5	961.52	961.52	182

100-year

WATERCOURSE: Patnales Drain North

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
	Starts @ U/S end of Meadow-brook Lake- rating curve			
14131	105' D/S of Meadowbrook road	838.29	838.75	880
14235	1' D/S of Meadowbrook road	838.99	839.21	880
14236	D/S face of Meadowbrook road			880
14276	U/S face of Meadowbrook road			880
14277	1' U/S of Meadowbrook road-X5	839.16	839.36	880
14669	393' U/S of Meadowbrook road	839.84	839.92	880
15341	970' D/S of confluence-Bishop creek	840.65	840.78	880
16311	Confluence of Bishop creek	842.08	842.14	640
16657	346' U/S of confluence of Bishop Creek	842.51	842.69	640
17300	1' D/S of Willowbrook Drive	843.43	843.48	640
17301	D/S face of Willowbrook Drive			640
17341	U/S face of Willowbrook Drive			640
17342	1' U/S of Willowbrook Drive	843.71	843.75	640
17437	96' U/S of Willowbrook Drive	843.75	843.79	640
17701	360' U/S of Willowbrook Drive	843.77	844.08	640
18455	68' D/S of Cranbrook Drive	846.55	846.73	640
18522	1' D/S of Cranbrook Drive	846.69	846.91	640
18523	D/S face of Cranbrook Drive	846.63	846.96	640
18598	U/S face of Cranbrook Drive	846.68	847.04	640
18599	1' U/S of Cranbrook Drive	846.85	847.08	640
18713	115' U/S of Cranbrook Drive	847.22	847.30	640
18916	318' U/S of Cranbrook Drive	847.50	847.62	640
19031	433' U/S of Cranbrook Drive	847.75	847.93	640
19529	1' D/S of Ten Mile Road	848.82	848.89	640
19530	D/S face of Ten Mile Road			640
19572	U/S face of Ten Mile road			640
19573	1' U/S of Ten Mile road-X5	851.85	851.85	640
19596	24' U/S of Ten Mile road	851.84	851.87	640
19699	1' D/S of North Ten Mile road	851.86	851.89	640
19700	D/S face of North Ten Mile road			640
19792	U/S face of North Ten Mile road			640
19793	1' U/S of North Ten Mile road	852.71	852.75	640
20000	208' U/S of Norht Ten Mile road	852.79	852.85	640
20446	654' U/S of North Ten Mile road	853.02	853.06	640
20686	832' D/S of Grand River Ave.	853.11	853.15	640
21517	1' D/S of Grand River Ave.	853.09	854.64	640
21518	D/S face of Grand River Ave.			640
21614	U/S face of Grand River Ave.			640
21615	1' U/S of Grand River Ave.-X5	857.77	857.77	640
21995	381' U/S of Grand River Ave.	857.77	857.77	395
22657	1' D/S of Drive Culverts @ Grand River	857.78	857.80	395
22658	D/S face of Drive culverts @ Grand River			395
22708	U/S face of Drive culverts @ Grand River			395
22709	1' U/S of Drive culverts @ Grand River-X5	858.46	858.46	395
23055	1' D/S of 2nd. Drive culverts	858.46	858.46	395
23056	D/S face of 2nd. Drive culverts			395
23106	U/S face of 2nd. Drive culverts			395
23107	1' U/S of 2nd. Drive culverts-X5	858.48	858.48	395
23192	86' U/S of 2nd. Drive culverts	858.48	858.48	395
23200	94' U/S of 2nd. Drive culverts	858.48	858.48	395

100-year

WATERCOURSE: Patnales Drain North
[redacted]TOWNSHIP: Novi
COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
23208	102' U/S of 2nd. Drive culverts	858.48	858.48	395
23788	682' U/S of 2nd. Drive culverts	858.49	858.51	395
24188	1' D/S of culverts @ I-96 exit ramp	858.49	858.66	395
24189	D/S face of culverts @ I-96 exit ramp			395
24333	U/S face of culverts @ I-96 exit ramp			395
24334	1' U/S of culverts @ I-96 exit ramp-X5	860.87	860.87	395

100-year

WATERCOURSE: Patnales South

[redacted] City of ~~TOWNSHIP~~: Novi (consists of old twp)

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
1	39' D/S of C & O railroad	806.3	806.8	1840
39	1' D/S of C & O railroad	805.75	807.65	1840
40	D/S face of C & O railroad			1840
80	U/S face of C & O railroad			1840
81	1' U/S of C & O railroad-X5 card	807.72	808.97	1840
314	234 U/S of C & O railroad	809.37	809.39	1840
725	353' D/S of Old Novi road	809.37	809.54	1840
1077	1' D/S of Old Novi road	809.74	810.01	1840
1078	D/S face of Old Novi road			1840
1106	U/S face of Old Novi road			1840
1107	1' U/S of Old Novi road-X5 card	811.24	811.38	1840
1278	172' U/S of Old Novi road	811.36	811.60	1840
1448	342' U/S of Old Novi road	811.68	812.00	1840
1617	1' D/S of C & O, relocated Eight Mile	812.07	812.87	1840
1618	D/S face of C & O, relocated Eight Mile			1840
1664	U/S face of C & O, relocated Eight Mile			1840
1665	1' U/S of C & O, relocated Eight Mile-X5	817.27	817.39	1840
1803	140' U/S of C & O, relocated Eight Mile	817.41	817.46	1840
2053	252' D/S of Relocated Eight Mile	817.46	817.56	1840
2303	2' D/S of Relocated Eight Mile	817.57	817.84	1840
2305	D/S face of relocated Eight Mile			1840
2560	U/S face of relocated Eight Mile			1840
2562	2' U/S of relocated Eight Mile-X5	819.8	819.93	1840
2693	133' U/S of relocated Eight Mile	819.95	819.97	1840
3093	533' U/S of relocated Eight Mile	819.97	820.00	1840
3500	610' D/S of relocated Novi road	820.00	820.03	1840
3702	1' D/S of relocated Novi road	819.83	820.32	1840
3703	D/S face of relocated Novi road			1840
3755	U/S face of relocated Novi road			1840
3756	1' U/S of relocated Novi road-X5	820.02	820.47	1840
3788	26' D/S of C & O railroad @ Novi road	820.00	820.65	1840
3813	1' D/S of C & O railroad @ Novi road	819.90	820.93	1840
3814	D/S face of C & O railroad @ Novi road			1840
3821	U/S face of C & O railroad @ Novi road			1840
3822	1' U/S of C & O railroad @ Novi road-X5	819.93	820.95	1840
3834	13' U/S of C & O railroad @ Novi road	819.25	821.84	1840
3835	D/S face of Old Novi road			1840
3864	U/S face of Old Novi road			1840
3865	1' U/S of Old Novi road-X5	820.10	822.12	1840
4068	204' U/S of Old Novi road	822.88	822.91	1840
4525	661' U/S of Old Novi road	823.05	823.09	1840
4983	1' D/S of foot bridge-Old Novi road	823.44	823.51	1840
4984	D/S face of foot bridge-Old Novi road	823.47	823.52	1840
4996	U/S face of foot bridge-Old Novi road	823.50	823.55	1840
4997	1' U/S of foot bridge-Old Novi road	823.49	823.56	1840
5058	62' U/S of foot bridge-Old Novi road	823.58	823.65	1840
6108	1112' U/S of foot bridge-Old Novi road	824.90	824.95	1640
7195	1199' U/S of foot bridge-Old Novi road	826.83	826.91	1640
8283	2239' D/S of 2nd. foot bridge	828.51	828.55	1640
10521	1' D/S of 2nd. foot bridge	833.02	833.19	1640
10522	D/S face of 2nd. foot bridge	833.06	833.21	1640
10537	U/S foce of 2nd. foot bridge	833.17	833.29	1640
10538	1' U/S of 2nd. foot bridge	833.16	833.30	1640

100-year

WATERCOURSE: Patnales South

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
10596	75' U/S of 2nd. foot bridge	833.39	833.46	1640
10827	1' D/S of Nine Mile road	833.77	833.92	1640
10828	D/S face of Nine Mile road	833.93	833.96	1640
10873	U/S foce of Nine Mile road	833.94	833.96	1640
10874	1' U/S of Nine Mile road	833.92	833.98	1640
11500	627' U/S of Nine Mile road	834.20	834.23	1640
12172	1302' U/S of Nine Mile road	834.61	834.69	1640
12204	1335' U/S of Nine Mile road	834.65	834.73	1640
12205	D/S face of pedestrian foot bridge			1640
12210	U/S face of pedestrian foot bridge			1640
12211	1' U/S of pedestrian foot bridge-X5	835.04	835.10	1640
12241	31' U/S of pedestrain foot bridge	835.06	835.12	1640

100-year

WATERCOURSE: Trib. "A" Walled Lake Branch

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
	Starting elev. from Walled Lake			
0	Confluence of trib "A" & Walled Lake	855.69	857.54	205
100	100' U/S of confluence	858.01	858.07	205
200	200' U/S of confluence	859.19	859.25	205
300	300' U/S of confluence	860.45	860.51	205
775	1276' D/S of Orchard Service road	871.70	871.86	205
2050	1' D/S of Orchard Service road	882.37	882.40	205
2051	D/S face of Orchard Service road	882.38	882.40	205
2071	U/S face of Orchard Service road	882.39	882.41	205
2072	1' U/S of Orchard Service road	882.39	882.41	205
2897	1' D/S of Novi road	886.91	887.03	205
2898	D/S face of Novi road			205
2968	U/S face of Novi road			205
2969	1' U/S of Novi road-X5	892.81	892.81	205
3519	551' U/S of Novi road	892.81	892.81	205
4569	1601' U/S of Novi road	892.82	892.82	205
5369	1' D/S of Ten Mile road	892.83	892.83	205
5370	D/S face of Ten Mile road	892.83	892.83	205
5424	U/S face of Ten Mile road	892.83	892.83	205
5425	1' U/S of Ten Mile road	892.83	892.83	205

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI TOWNSHIP

3) WATERCOURSE: MIDDLE ROUGE RIVER — WALLED LAKE BRANCH

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

00BREAK00

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

Johnson&Anderson,Inc.
CONSULTANTS
P. O. Box 1166 ▫ 2300 Dixie Highway ▫ Pontiac, Mich. 48056

August 19, 1976

RECEIVED
AUG 23 1976
WATER MANAGEMENT

Michigan Dept. of Natural Resources
Land and Water Management Bureau
Water Management Division
Mason Building, 8th Floor
Lansing, Michigan 48926

Attention: Mr. Richard S. Watt
Flood Insurance Coordinator

Re: Flood Insurance Study - City of Novi
Walled Lake Branch of the Middle River Rouge
Tributary "A" and Tributary "B"

Ref: J&A File No. 5555-46-1

Gentlemen:

Enclosed you will find the necessary information for a review of the above referenced streams in the City of Novi. The data provided is the same as on March 3, 1976, and April 14, 1976, submittals except the culvert methodology has been revised according to our meeting of May 21, 1976, and subsequent phone calls.

We would appreciate a review and approval of this study by September 10, 1976. If you have any questions, please call me.

Thank you for your cooperation.

Sincerely,

William C Rossow

William C. Rossow, P.E.
Project Manager

WCR/dp
encl.
cc: File

HYDRAULIC ANALYSIS

Introduction

The stream that was studied is the Walled Lake Branch of the Middle River Rouge, in the City of Novi, Oakland County, Michigan. The study begins at Meadowbrook Lake, continues for approximately 5.8 river miles until 750' southwest of Walled Lake. Included in this study are two unnamed tributaries, referred to as Tributary "A" and Tributary "B." The study of Tributary "A" begins at its confluence with the Walled Lake Branch, south of Ten Mile Road, continues for approximately 1.0 river mile until Ten Mile Road. The study of Tributary "B" begins at its confluence with the Walled Lake Branch, east of Novi Road, continues for approximately 1.3 river miles, until Taft Road.

The discharges are 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 approved by the Michigan Department of Natural Resources (letter dated November 5, 1975.)

Method of Analysis

The flood profiles were computed by the HEC-2 computer program developed by the U.S. Army Corps of Engineers.[1]

All bridges have been modeled for the requirements of the HEC-2 normal bridge routine. The bridges were checked, by manual calculations, for the occurrence of pressure flow (inlet or outlet control) and/or weir flow. The tailwater elevations used in conjunction with outlet control were determined by

comparing encroached and unencroached valley sections one foot downstream of the bridges. With the aid of photographs and field trips at the site of the bridges, a judgment was made as to the likelihood of the downstream section being either a pool with a small velocity (unencroached section) or an expanding section with a high velocity producing an adverse scope (encroached section). If pressure flow and/or weir flow occur, the HEC-2 normal bridge routine was not used and the manually calculated water surface was inputted by use of the "X5" card. (Exception: if the weir is under high submergence, then HEC-2 normal bridge routine was used.[2]) When the "X5" card is used, the HEC-2 hydraulic calculations for the bridge are ignored as these calculations are no longer valid. If pressure and/or weir flow occurs at a bridge, then the upstream encroachments were removed to reflect the presence of a backwater pool.

Weir stage-discharge information was calculated by the computer using the standard equation, $Q = CLH^{3/2}$. The weir is divided along its length into one-foot segments. After being calculated through each segment, flows are summed.

Variables and Coefficients

The roughness factors (Manning's "n") were established by comparing the photographs and descriptions by Chow[3] with photographs and field inspection trips taken in the City of Novi.

The orifice discharge coefficients for outlet control used in this study were taken from charts published by the Bureau of Public Roads.[4] These

coefficients represent the losses due to inlet, outlet and friction. For inlet control, nomographs from the Bureau of Public Roads[5] were used. If nomographs did not exist for a particular bridge, then the equation $\left|\frac{V^2}{2g} + \frac{1}{C^2}\right| + \frac{D}{2} = HW$ [6, 7] 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[8] to be solved. The weir discharge and submergence coefficients were taken from charts supplied by the Michigan Department of Natural Resources.

Starting Point

The profile computation for the Walled Lake Branch began at Meadowbrook Lake, which is regulated by a dam at its southern end. A stage-discharge relationship was calculated to determine the water elevation for each frequency flood passing over this ~~control point~~.

The profile computation for Tributary "A" and Tributary "B" began at their respective confluence with the Walled Lake Branch. By computing the water elevation on the Walled Lake Branch at these confluences for each frequency flood studied, the starting elevations were determined.

Discussion

A condition of divergence of flow exists on the Walled Lake Branch when the discharge is of flood magnitude. This division begins upstream of section AP and continues to its confluence downstream of section AA. The cause of this division of flow can be traced to the inadequate capacity

of the stream enclosure under the property of the Paragon Steel Plant. This enclosure consists of two 4.5' diameter RCP and one 2.0' diameter RCP which are 390' long. It is apparent that as the discharge increases, the backed up water will seek another flow route.

This condition was analyzed using the procedure recommended by Chow.[9]

References

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

[2]Ibid., p. 8.

[3]Chow, Ven Te, Open-Channel Hydraulics, McGraw-Hill (1959), pp. 101-123.

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

[5]Ibid.

[6]Design of Small Channel Structures, Bureau of Reclamation, Department of the Interior, p. 209.

[7]Morris and Wiggert, Applied Hydraulics in Engineering, p. 288.

[8]Handbook of Concrete Pipe Hydraulics, Portland Cement Association, (1964), pp. 115-116.

[9]Chow, pp. 320-321.

City of Novi
Walled Lake Branch
5555-46-02
DCM 1-8-76

Original Cross-Section Location

Cross-Section	SECNO	Location
A	00	250' D.S. of Chattman also North End of Meadowbrook Lake
B	250	50' D.S. of Chattman Drive Bridge
C	251	Chattman Drive Bridge
D	503	250'± U.S. of Chattman Drive Bridge
E	1678	400'± East & 600'± North of North End of Balcombe Drive
F	2828	200'± North & 200'± West of North End of Balcombe Drive
G	3979	Footbridge 350'± SE of C&O Railroad Bridge
H	4586	1900' South of Ten Mile Road at C&O RR Bridge
I	4587	C&O RR Bridge 1900'± South of Ten Mile Road
J	5238	1600'± South of Ten Mile Road and 300'± West of C&O RR Tracks
K	6463	700'± South of Ten Mile Road and 150'± West of C&O RR Tracks
L	7013	100'± D.S. of C&O RR Tracks and 255' South of Ten Mile Road
M	7014	C&O RR Bridge 233' South of Ten Mile Road
N	7275	50' D.S. of Ten Mile Road Bridge and 100'± East of C&O RR Tracks
O	7276	Ten Mile Road Bridge
P	7875	500'± North of Ten Mile Road and East of C&O RR Tracks
Q	8625	1100'± North of Ten Mile Road and East of C&O RR Tracks

Cross-Section	SECNO	Location
R	9025	50'± D.S. of C&O RR Bridge 1300'± North of Ten Mile Road
S	9026	C&O RR Bridge 1300'± North of Ten Mile Road
T	9362	1500'± North of Ten Mile Road and 300'± NE of C&O RR Bridge
U	9837	1900'± North of Ten Mile Road and 1100'± East of Novi Road
V	10762	110'± SE of Novi Road (down C&O RR tracks) and 650' ± East of Novi Road
W	12012	50'± East of Novi Road at CO& RR Crossing
X	12013	Novi Road Bridge
Y	12444	400'± NW of Novi Road and C&O RR Crossing
Z	12669	50'± D.S. from C&O RR Bridge
AA	12695	C&O RR Bridge 600'± NW of Novi Road and RR Crossing
AB	13206	100'± South of Flint Street Culvert
AC	13207	Flint Street Culvert
AD	13530	50'± D.S. of Foot Bridge
AE	13531	Foot Bridge NE off Flint Street
AF	13857	East of Flint Street and 550'± SW of Intersection of Novi Road and Grand River Avenue
AG	14207	50' D.S. from Creek Enclosure at Flint Street and Grand River Avenue
AH	14208	Flint Street Bridge South of Grand River Avenue
AI	14407	50'± D.S. from Grant River Bridge
AJ	14408	Grand River Avenue Bridge

Cross-Section	SECNO	Location
AK	14491	Footbridge 15'± North of Grand River Avenue
AL	14694	300'± North of Grand River Avenue
AM	15494	800'± North of Grand River Avenue and 800'± West of Novi Road
AN	16594	150'± East of East Edge of Paragon Steel Bldg.
AO	17391	D.S of Railroad Spur
AP	17392	Railroad Spur for Paragon Steel
AQ	17508	25' D.S. of C&O RR Bridge West of Paragon Steel
AR	17509	C&O RR Bridge West of Paragon Steel
AS	17711	50'± D.S. from Culverts, 200'± West of C&O RR Bridge, West of Paragon Steel
AT	17712	Culverts 200'± West of C&O RR Bridge, West of Paragon Steel
AU	19008	750'± North of Grand River Avenue and 1400'± East of Taft Road
AV	19758	300'± South of Eastbound I-96 and 100'± East of Taft Road also 25'± D.S. of Culvert
AW	19759	Culverts South of I-96 under Canzano Construction Property
AX	20023	70'± South of Eastbound I-96
AY	20024	I-96 Bridge
AZ	21381	50'± D.S. from Bridge in Driveway East of Taft Road

Cross-Section	SECNO	Location
BA	21382	Driveway Bridge East of Taft Road
BB	21421	Garage Bridge East of Taft Road
BC	21892	900'± South of 12 Mile Road and 400'± East of Taft Road
BD	22442	50'± D.S. from C&O RR Bridge 600'± SE of 12 Mile Road
BE	22443	C&O RR Bridge 600'± SE of 12 Mile Road
BF	23168	25'± D.S. from Bridge at 12 Mile Road and RR Crossing
BG	23169	12 Mile Road Bridge
BH	23545	280'± NW of 12 Mile Road along C&O RR
BI	24445	1000'± North of 12 Mile Road and 3100'± West of Dixon Road
BJ	25445	1750'± North of 12 Mile Road and 2050'± West of Dixon Road
BK	27220	3150'± North of 12 Mile Road and 2450'± West of Dixon Road
BL	28270	550'± SE of West Road
BM	29245	60' North of Centerline of 13 Mile Road
BN	30845	700'± SW of South Lake Road

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BRANCH | CULVERT LOCATION: WOODEN FOOTBRIDGE

CULVERT DESCRIPTION: FOOTBRIDGE | BY DCM | DATE 7-19-76

31' WIDE

n= 0.05 | Q_{10}= 630 | TW_{10}= ____

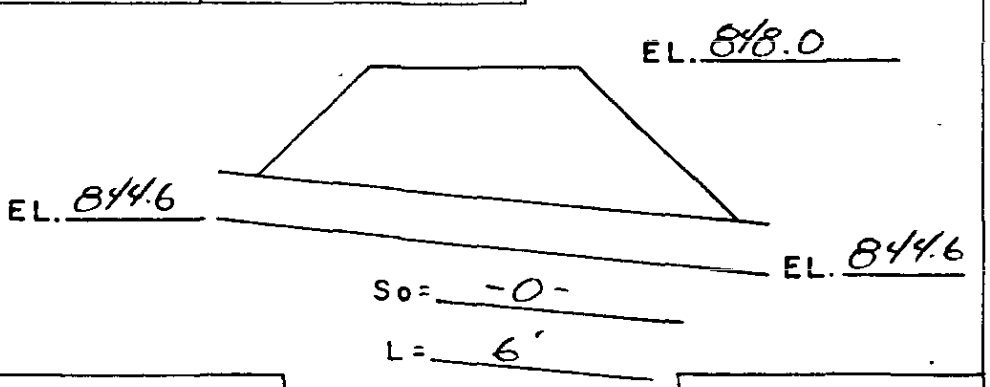
A= 56.82 sq ft | Q_{50}= 930 | TW_{50}= ____

R= 1.225 | Q_{100}= 1080 | TW_{100}= ____

Ke= 0.5 | Q_{500}= 1460 | TW_{500}= ____

D= 3.6'

LSo= -0-



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			

CALCULATIONS AND COMMENTS

WEIR

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BRANCH | WEIR LOCATION: CHATTMAN DRIVE

WEIR DESCRIPTION: HARD SURFACE 41 FT. BREADTH | BY DCH | DATE 7-17-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD. EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD. EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
630	838.35	838.14	0.11	117						562	837.1	0.904	0.92	517	614
930	838.56	838.46	0.10	112						961	837.1	0.932	0.85	817	929
1080	838.67	838.59	0.10	112						1162	837.1	0.937	0.83	964	1076
1460	838.95	838.84	0.11	117						1629	837.1	0.941	0.82	1336	1453

CALCULATIONS AND COMMENTS

USING HEC-2

CITY OF NOVI
WALLED LAKE BRANCH
CHATTMAN DRIVE
HARD SURFACE
41 FT. BREADTH
NUMBER OF POINTS= 14

STATION	ELEVATION
0.0	850.00
0.0	839.60
100.00	837.60
200.00	837.10
300.00	837.70
400.00	838.40
500.00	839.20
600.00	840.10
700.00	841.00
800.00	841.90
900.00	842.80
1000.00	843.80
1100.00	844.90
1200.00	846.20

WIDTH OF ROADWAY= 41.00
ROAD SURFACE:PAVED

ELEVATION FEET	FLOW CFS	CAV	TOP WIDTH FEET	AREA SFT
837.10	0.0	0.0	0.	0.0
837.20	1.35	2.595	37.	1.33
837.30	7.71	2.923	73.	7.36
837.40	21.40	2.942	110.	16.47
837.50	44.17	2.956	146.	29.27
837.60	77.49	2.968	183.	45.73
837.70	122.05	2.983	205.	65.10
837.80	177.41	2.993	224.	86.52
837.90	243.41	3.000	243.	109.80
838.00	320.14	3.005	263.	135.13
838.10	407.84	3.009	282.	162.31
838.20	506.76	3.012	301.	191.42
838.30	617.15	3.014	320.	222.46
838.40	739.26	3.016	340.	255.42
838.50	873.24	3.018	357.	290.21
838.60	1019.33	3.020	375.	326.75
838.70	1177.55	3.021	392.	365.03
838.80	1348.16	3.022	410.	405.06
838.90	1531.37	3.023	427.	446.83
839.00	1727.40	3.023	445.	490.35
839.10	1936.43	3.024	462.	535.61
839.20	2158.80	3.025	479.	582.62
839.30	2394.56	3.026	496.	631.31
839.40	2643.81	3.026	512.	681.60
839.50	2906.69	3.027	528.	733.50
839.60	3183.34	3.027	544.	787.01
839.70	3473.74	3.029	555.	841.89
839.80	3777.56	3.030	566.	897.87
839.90	4094.65	3.031	577.	954.97
840.00	4424.64	3.032	588.	1013.17
840.10	4767.94	3.032	600.	1072.49
840.20	5124.45	3.032	611.	1132.90
840.30	5494.10	3.032	622.	1194.43
840.40	5876.95	3.032	633.	1257.08
840.50	6273.01	3.033	644.	1320.81
840.59	6682.33	3.033	655.	1385.66
840.69	7105.02	3.033	665.	1451.61

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BRANCH CULVERT LOCATION: CHATTMAN DRIVE

CULVERT DESCRIPTION: TWO 6.0' RCP BY DCM DATE 7-17-76

n= 0.015 Q_{10}= 630 TW_{10}=

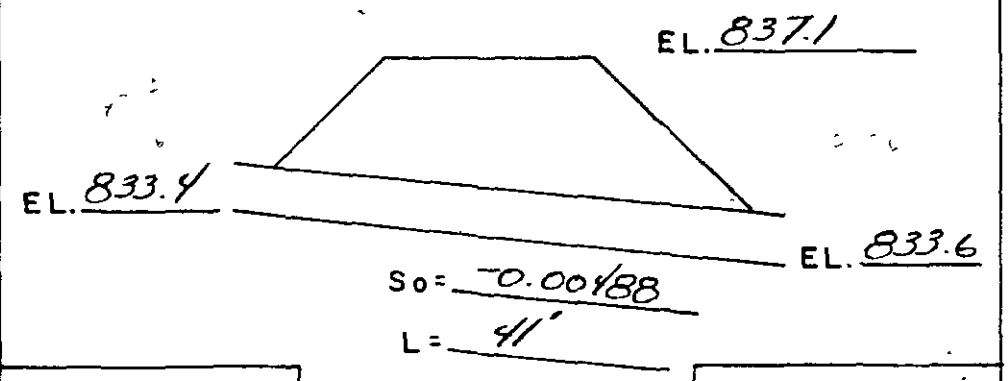
A= 56.55a' Q_{50}= 930 TW_{50}=

R= 1.50 Q_{100}= 1080 TW_{100}= 838.59

Ke= 0.5 Q_{500}= 1460 TW_{500}=

D= 6.0'

LSo= -0.2'



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	Δ H HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	D+(1+Ke) $\frac{V^2}{2g}$	HW			

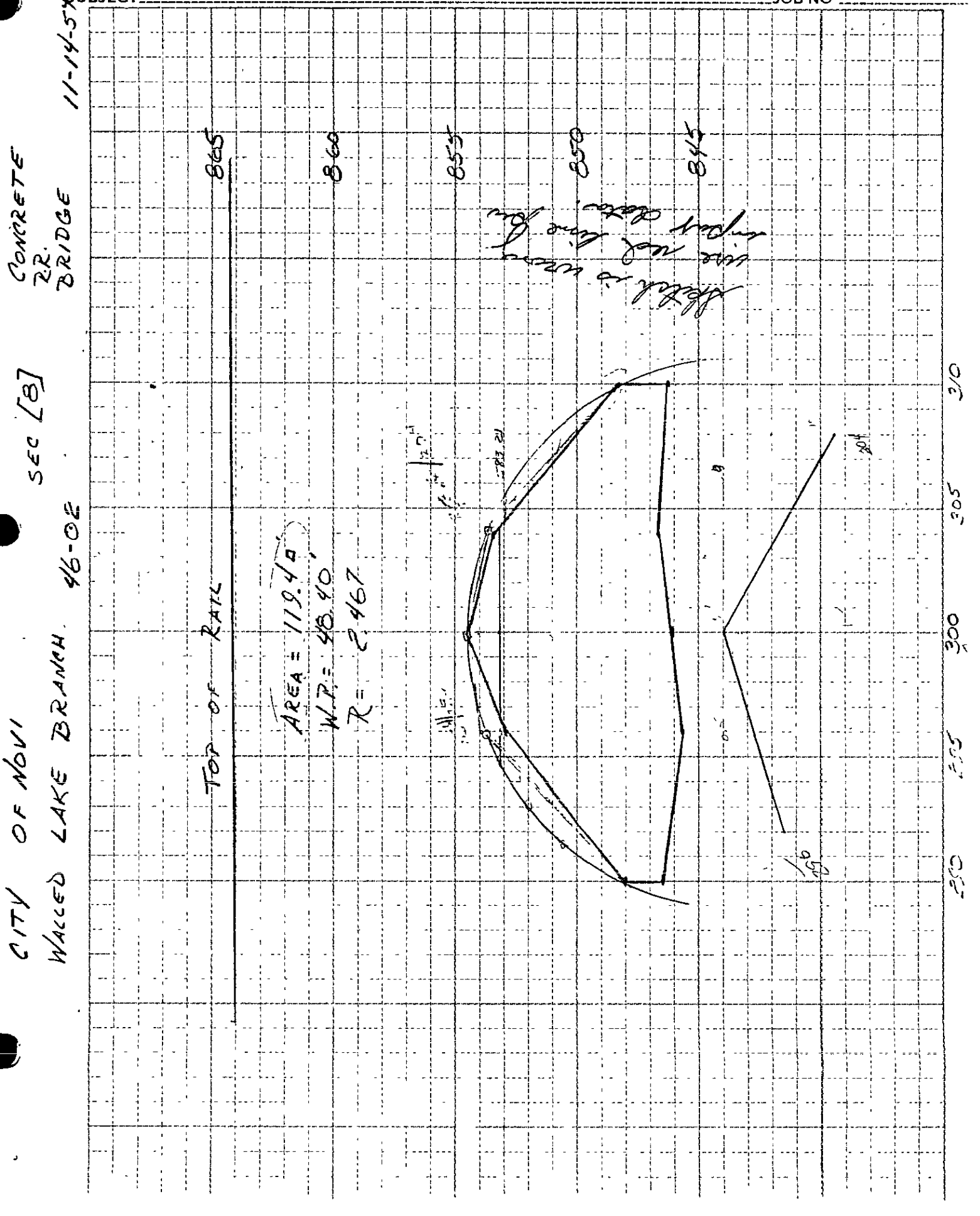
CALCULATIONS AND COMMENTS

WEIR

Cross-Section	SECNO	Location
		West Branch of Island
DA	120	100' U.S. of C&O RR Bridge (AA) and 560'± NW of Novi Road
DB	620	600'± U.S. of C&O RR Bridge (AA)
DC	2000	300'± D.S. from Grand River Avenue Bridge
DD	2380	Grand River Avenue Bridge
DE	2930	SW Corner of Paragon Building
DF	3560	200'± D.S. of C&O RR Bridge (AR)

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY_____ DATE_____ JOB DESCRIPTION_____ SHEET_____ OF_____
SUBJECT_____ JOB NO_____



JOB NAME: CITY OF NOVI | JOB NO. 5555 | 4/6

WATERCOURSE: WALLED LAKE BRANCH | CULVERT LOCATION: C. & O. RR

CULVERT DESCRIPTION: CONCRETE RR BRIDGE | BY DCM | DATE

WINGWALLS 15° TO BARREL SQ. EDGE CROWN

n= 0.021 | Q_{10}= 630 | TW_{10}= 6.05

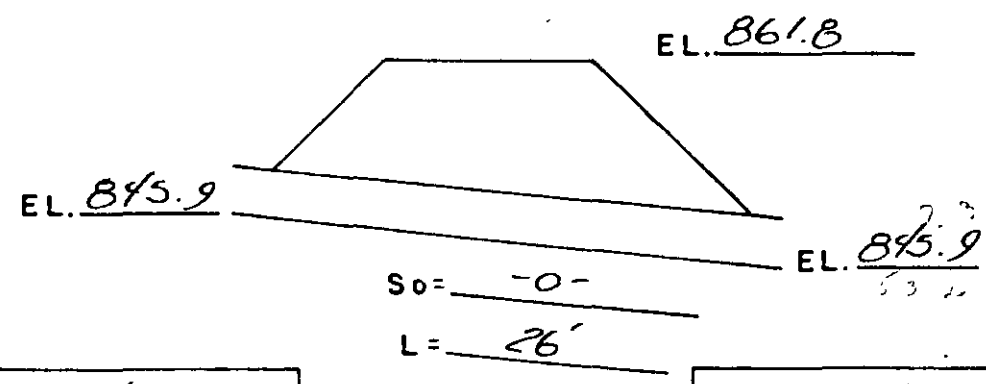
A= 119.4 sq' | Q_{50}= 930 | TW_{50}= 6.92

R= 2.467 | Q_{100}= 1080 | TW_{100}= 7.27

Ke= 0.5 | Q_{500}= 1460 | TW_{500}= 8.04

D= 8.4'

LSo= -0-



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
630	—	5.50	0.69	3.54	5.97	6.05	6.74	9.25	6.89	6.89	852.71	
930	—	6.92	1.51	4.73	6.56	6.92	8.43	10.01	8.36	8.36	853.54	
1080	—	7.63	2.03	5.24	6.87	7.27	9.30	10.51	9.07	9.07	854.15	
1460	—	10.75	3.71	6.53	7.95	8.92	11.73	12.03	10.95	10.95	855.83	

CALCULATIONS AND COMMENTS

INLET CONTROL

$$HW = \left[\frac{V^2}{2g}\frac{1}{Ce}\right] + \frac{D}{2} \quad (C=0.9)$$

USING HEC-2

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BRANCH WEIR LOCATION: WOODEN FOOTBRIDGE

WEIR DESCRIPTION: FOOTBRIDGE WITH GRASS OVERBANKS BY DCM DATE 7-19-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
630	849.39	849.28	0.11	112						586	847.9	0.926	0.87	510	622
930	849.87	849.76	0.11	112						1044	847.9	0.945	0.80	835	947
1080	850.12	850.01	0.11	112						1264	847.9	0.950	0.77	989	1101
1460	850.62	850.51	0.11	112						1869	847.9	0.960	0.72	1346	1458

CALCULATIONS AND COMMENTS

USING HEC-2

CITY OF NOVI
WALLED LAKE BRANCH
WOODEN FOOTBRIDGE
SEC 6.5 WEST OF MEADOWBROOK ROAD & SOUTH OF 10 MILE ROAD
GRASSY OVERBANKS 6 FT. BREADTH
NUMBER OF POINTS= 9

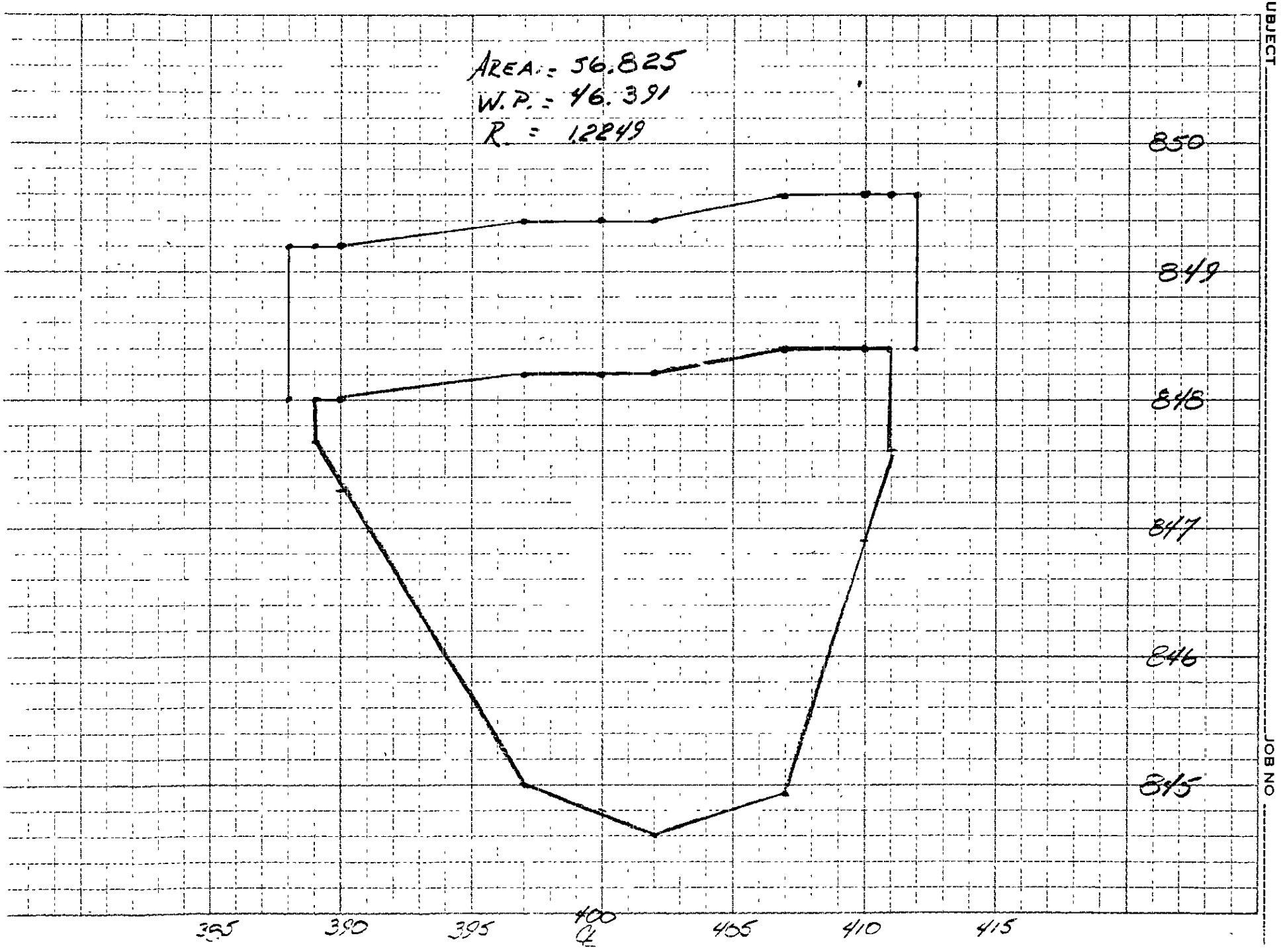
STATION	ELEVATION
280.00	860.00
280.00	848.80
300.00	848.00
388.00	848.00
388.00	849.20
412.00	849.50
412.00	848.30
460.00	849.00
460.00	860.00

WIDTH OF ROADWAY= 6.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
848.00	0.0
848.10	7.10
848.20	20.72
848.30	38.72
848.40	61.71
848.50	89.05
848.60	121.87
848.70	159.14
848.80	203.14
848.90	250.99
849.00	317.77
849.10	378.76
849.20	444.51
849.30	516.33
849.40	593.45
849.50	676.31
849.60	764.39
849.70	857.53
849.80	954.14
849.90	1053.87
850.00	1156.20
850.10	1262.19
850.20	1372.67
850.30	1486.45
850.40	1603.40
850.50	1722.36
850.60	1844.21
850.70	1968.88
850.80	2096.31
850.90	2226.46
851.00	2359.31
851.10	2494.89
851.20	2632.46
851.30	2772.59
851.40	2915.10
851.49	3060.03
851.59	3207.34
851.69	3357.00
851.79	3508.97
851.89	3663.23
851.99	3819.72
852.09	3978.42
852.19	4139.30
852.29	4302.34

CITY OF NOVI
WALLED LAKE BRANCH
SEC [6.3] 11-14-75

FOOT BRIDGE
EAST OF C.P.O. RR.



BY _____ DATE _____ JOB DESCRIPTION _____ SHEET _____ OF _____
SUBJECT _____ JOB NO _____

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

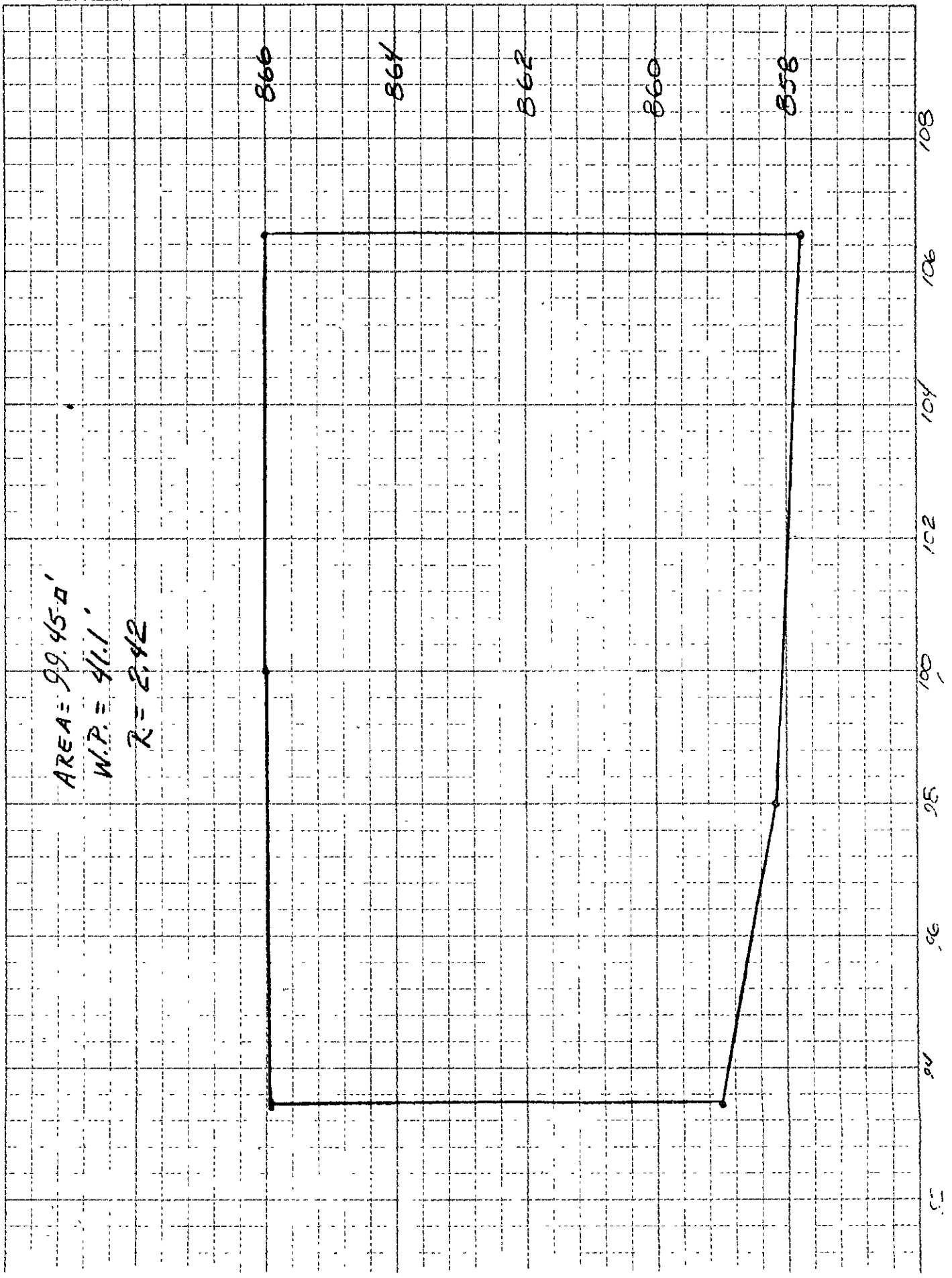
JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY _____ DATE _____ JOB DESCRIPTION _____ SHEET _____ OF _____

SUBJECT _____ JOB NO _____

CONCRETE BOX CULVERT
10 MILE RD.

CITY OF NOVI
WALLED LAKE BRANCH
SEC 1,4] 11-15-75



JOB NAME: CITY OF NOVI | JOB. NO. 5555 | 46

WATERCOURSE: WALLED LAKE BRANCH | CULVERT LOCATION: TEN MILE ROAD

CULVERT DESCRIPTION: CONCRETE BOX CULVERT WINGWALLS PARALLEL TO BARREL | BY DCM | DATE 7-23-76

n= 0.0261 | Q_{10}= 590 | TW_{10}= 5.85

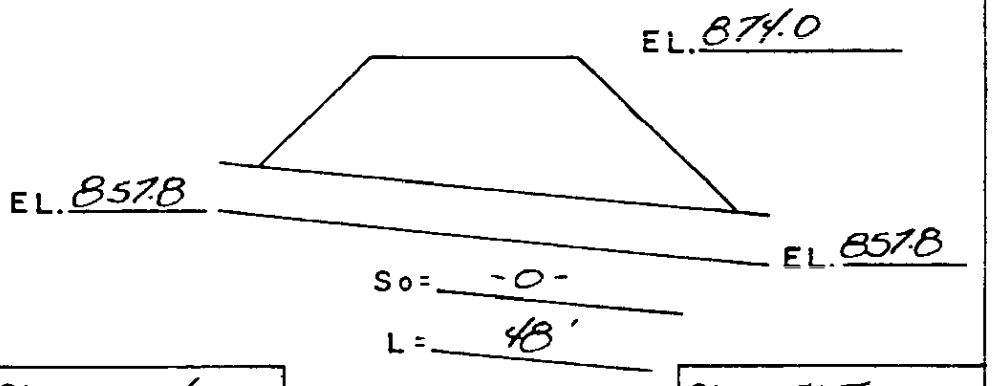
A= 99.78□' | Q_{50}= 880 | TW_{50}= 6.97

R= 2.42 | Q_{100}= 1010 | TW_{100}= 7.44

Ke= 0.7 | Q_{500}= 1370 | TW_{500}= 8.75

D= 8.2'

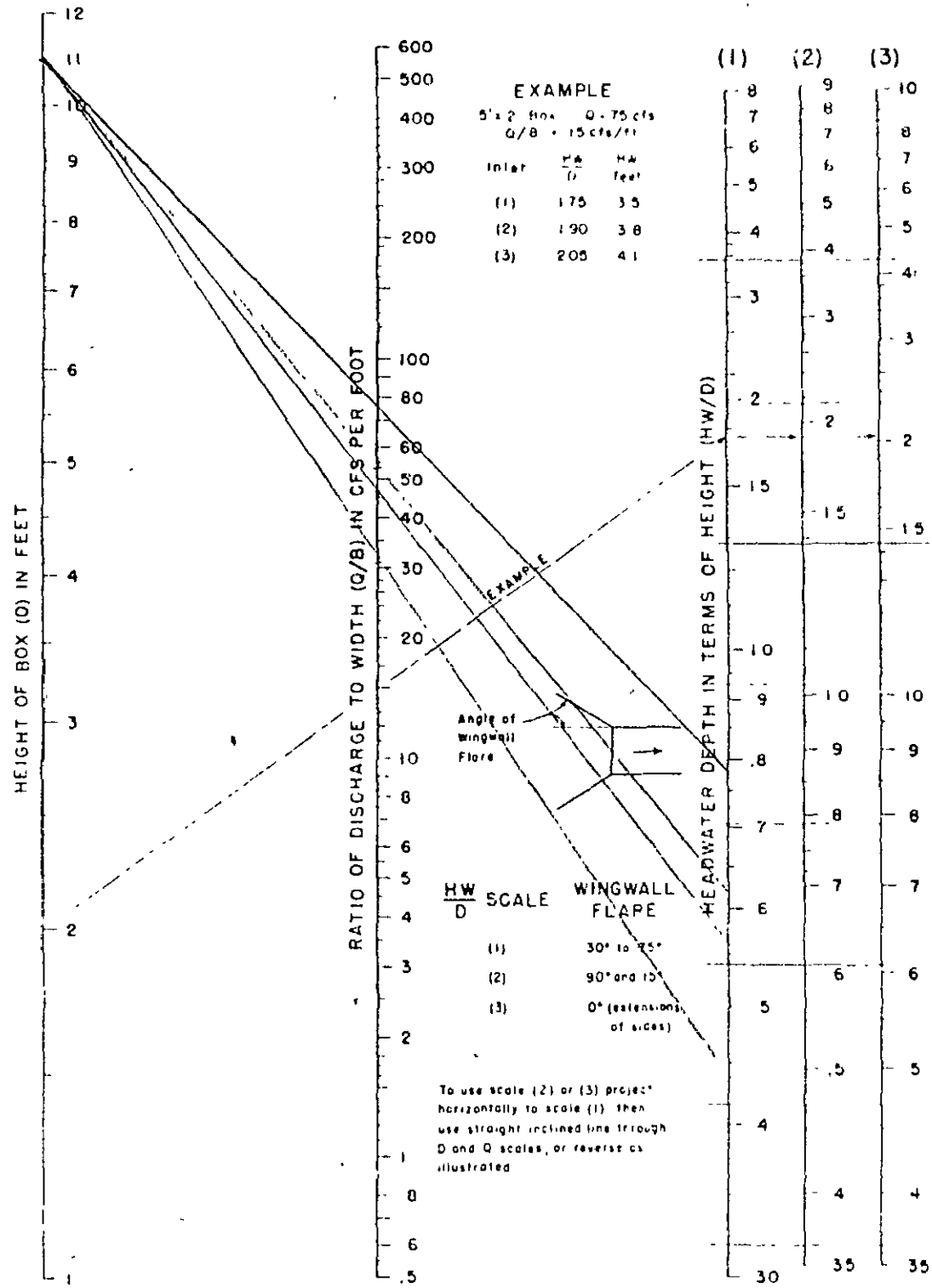
LSo= -0-



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV. W.S.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
590	[illegible]	[illegible]	[illegible]	4.48	[illegible]	6.34	7.42	[illegible]	7.43	7.42		
880	1.08	[illegible]	[illegible]	[illegible]	[illegible]	6.97	9.37	[illegible]	9.29	9.29		
1010	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	7.44	10.61	[illegible]	10.08	10.08		
1370	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14.58	[illegible]		14.58	871.33	

CALCULATIONS AND COMMENTS

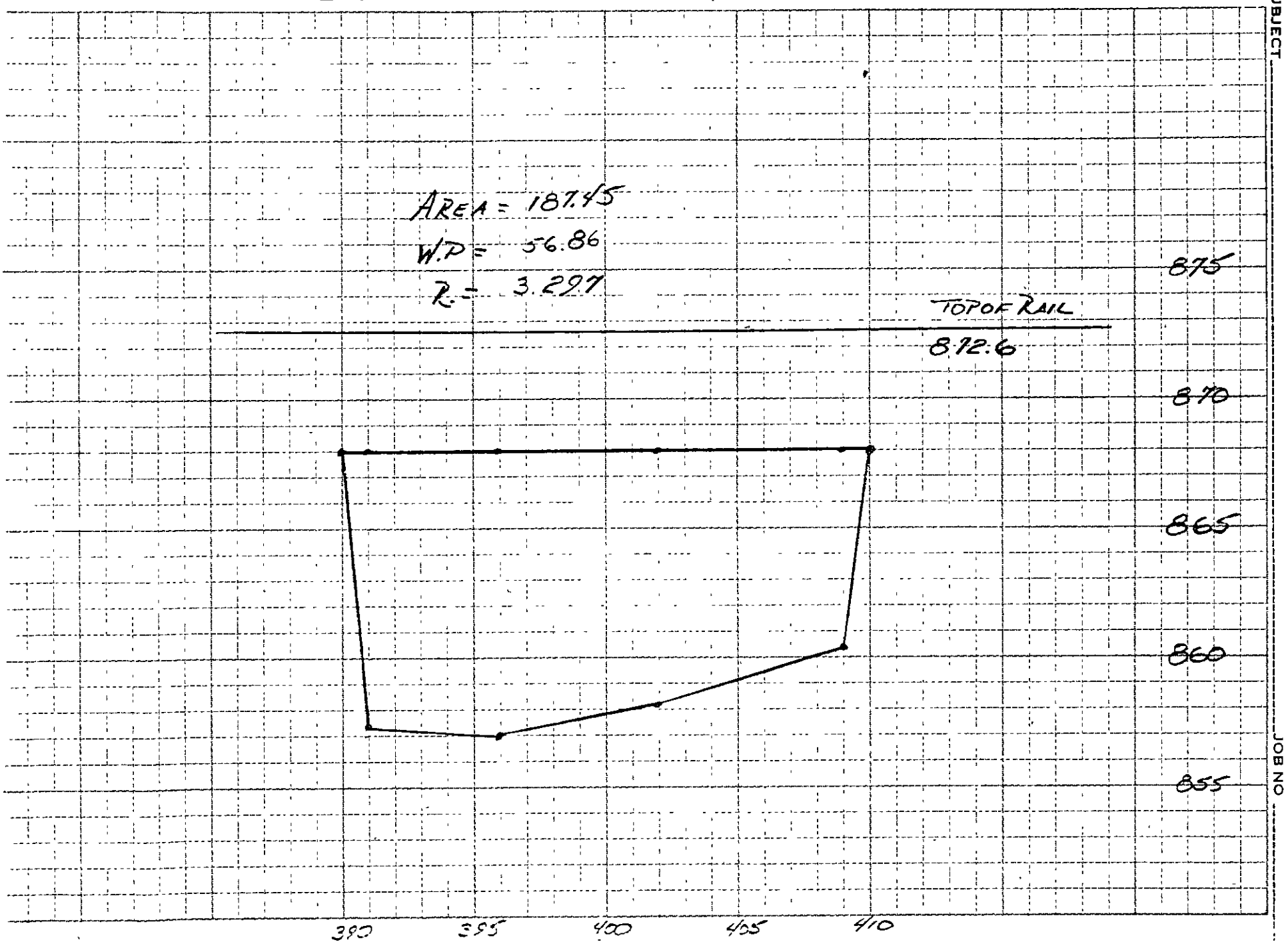
CHART I



HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

CITY OF NOVI
WALLED LAKE BRANCH
SEC [12] 11-15-75

C.40. R.R. BRIDGE
SOUTH OF TEN MILE



JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

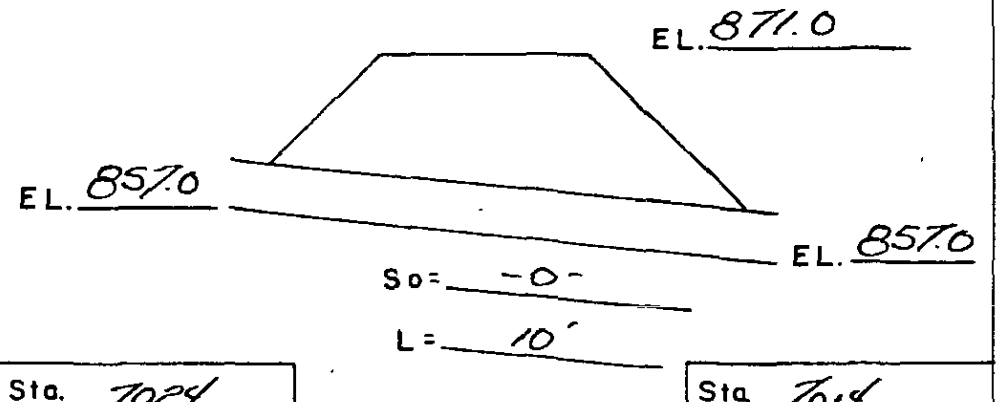
BY _____ DATE _____ JOB DESCRIPTION _____ SHEET _____ OF _____
SUBJECT _____ JOB NO _____

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BRANCH | CULVERT LOCATION: C.+O. R.R.

CULVERT DESCRIPTION: CONCRETE WALLS, WINGWALLS 30° | BY DCM | DATE 7-22-76

n= 0.0264	Q_{10}= 590	TW_{10}= 5.18
A= 187.45□'	Q_{50}= 880	TW_{50}= 5.94
R= 3.297	Q_{100}= 1010	TW_{100}= 6.23
Ke= 0.5	Q_{500}= 1370	TW_{500}= 6.91
D= 11.0'		
LSo= -0-		



Sta. 7024 | Sta. 7014

Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
590	0.43	4.73	[illegible].24	4.25	[illegible]	7.64	7.88	11.23	6.24	6.24		
880	0.56	6.16	[illegible]	[illegible]	[illegible]	8.12	8.65	11.51	7.65	7.65		
1010	0.63	[illegible]	[illegible]	5.67	[illegible]	8.34	9.04	11.68	8.26	8.26		
1370	0.78	[illegible]	[illegible]	[illegible]	[illegible]	8.85	10.13	[illegible]	9.92	9.92		

CALCULATIONS AND COMMENTS

USING HEC-2

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BRANCH | CULVERT LOCATION: NOVI ROAD

CULVERT DESCRIPTION: ONE 103" x 71" | BY DCM | DATE 7-30-72

ARCH CULVERT PROJECTING FROM FILL

n= 0.032 | Q_{10}= 540 | TW_{10}= _____

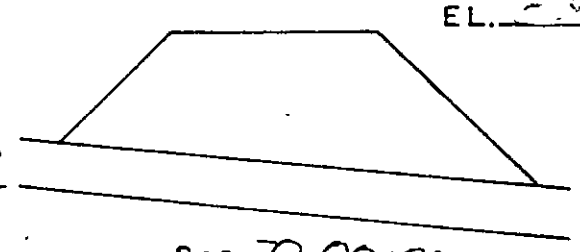
A= 40.0□' | Q_{50}= 800 | TW_{50}= _____

R= 1.698 | Q_{100}= 930 | TW_{100}= 890.83

Ke= 0.90 | Q_{500}= 1250 | TW_{500}= _____

D= 5.92'

LSo= -0.1'



So= -0.00125

L= 80'

Sta. 12093 | Sta. 12013

Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
540	2.2	13.02								WEIR		
800												
930												
1250												

CALCULATIONS AND COMMENTS

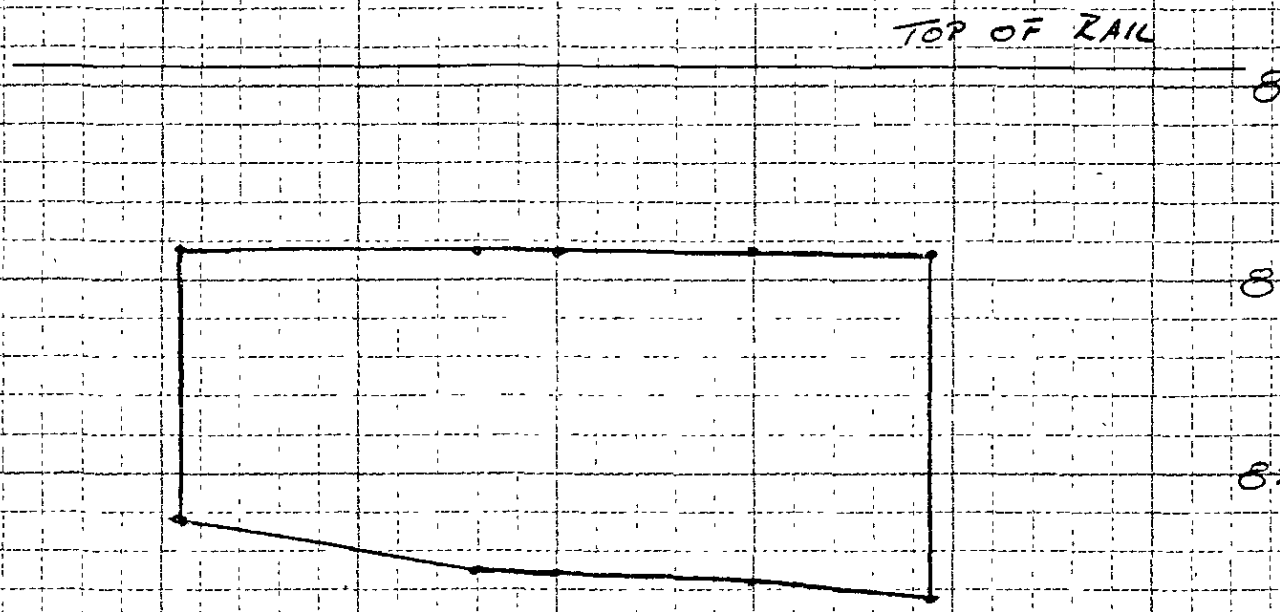
WEIR

weir flow? due to fill on adj to road. max F.W. ≈ #50

CITY OF NOVI
WALLED LAKE BRANCH
SEC [18] 11-15-75

C.&O. R.R.
NORTH OF 10 MILE ROAD

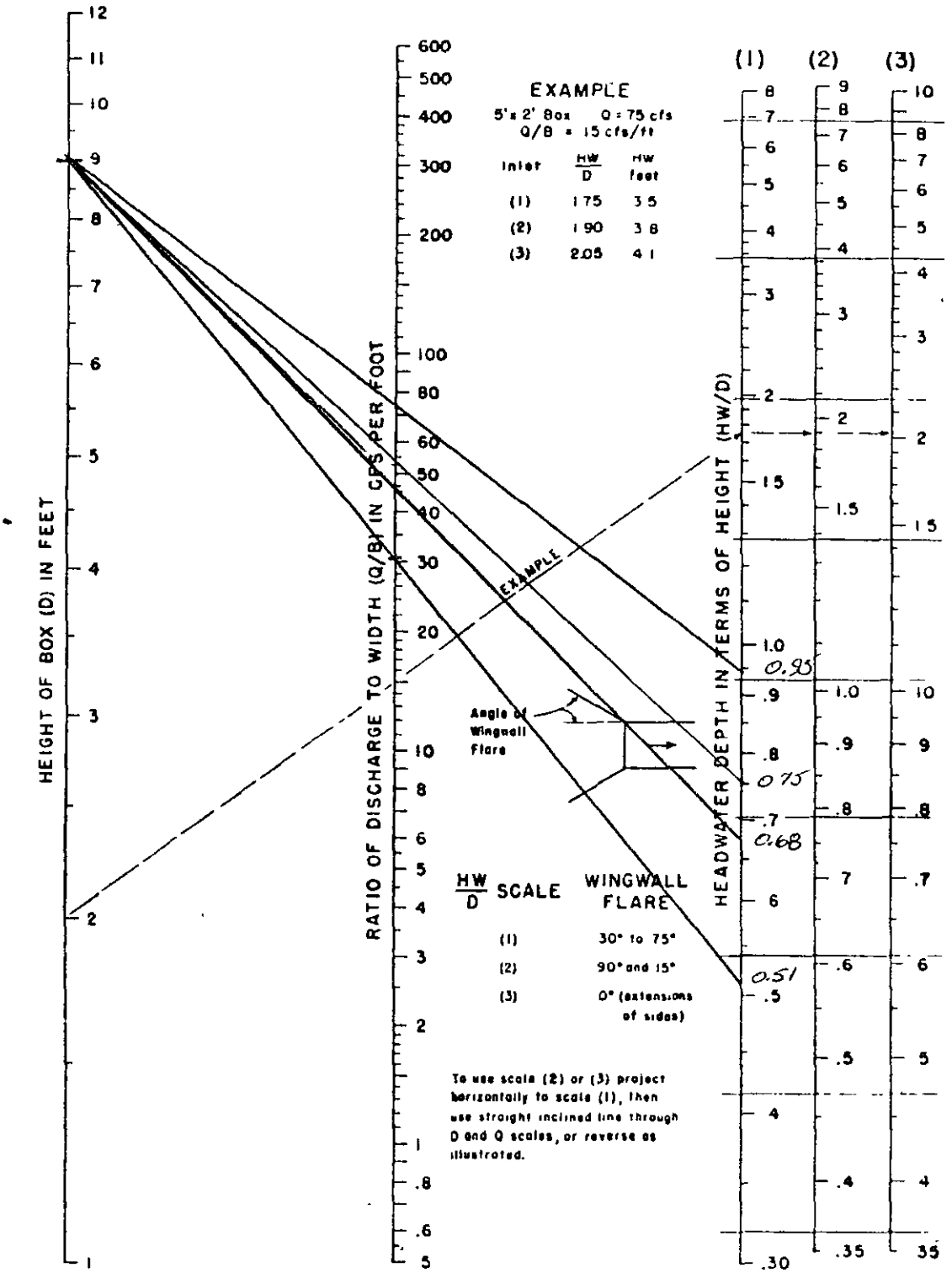
AREA = 158.300'
W.P. 54.15'
R = 2.923



SUBJECT ____ DATE ____ JOB DESCRIPTION ____ SHEET ____ OF ____
BY ____ JOB NO ____

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

CHART 1



HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN 1963

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BRANCH | CULVERT LOCATION: C.+O. R.R.

CULVERT DESCRIPTION: CONCRETE BOX CULVERT | BY DCM | DATE 7-29-76

WINGWALLS 30°

n= 0.027 | Q_{10}= 590 | TW_{10}= 4.86

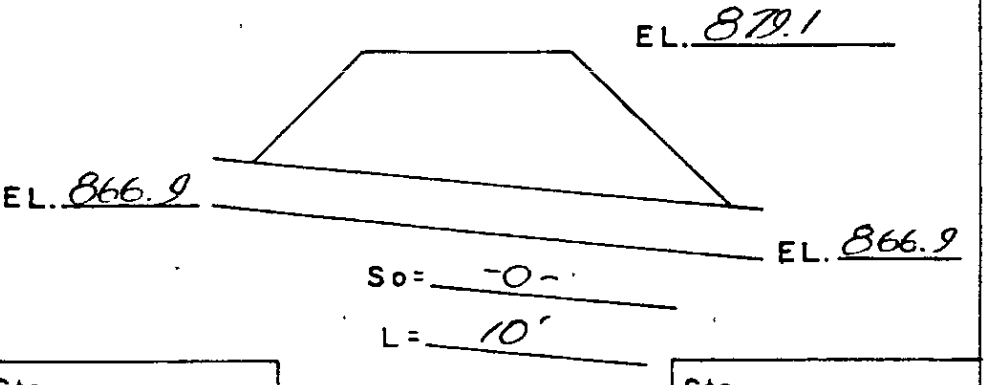
A= 158.3 sq ft | Q_{50}= 880 | TW_{50}= 5.56

R= 2.923 | Q_{100}= 1010 | TW_{100}= 5.80

Ke= 0.4 | Q_{500}= 1370 | TW_{500}= 6.30

D= 9.0'

LSo= -0-

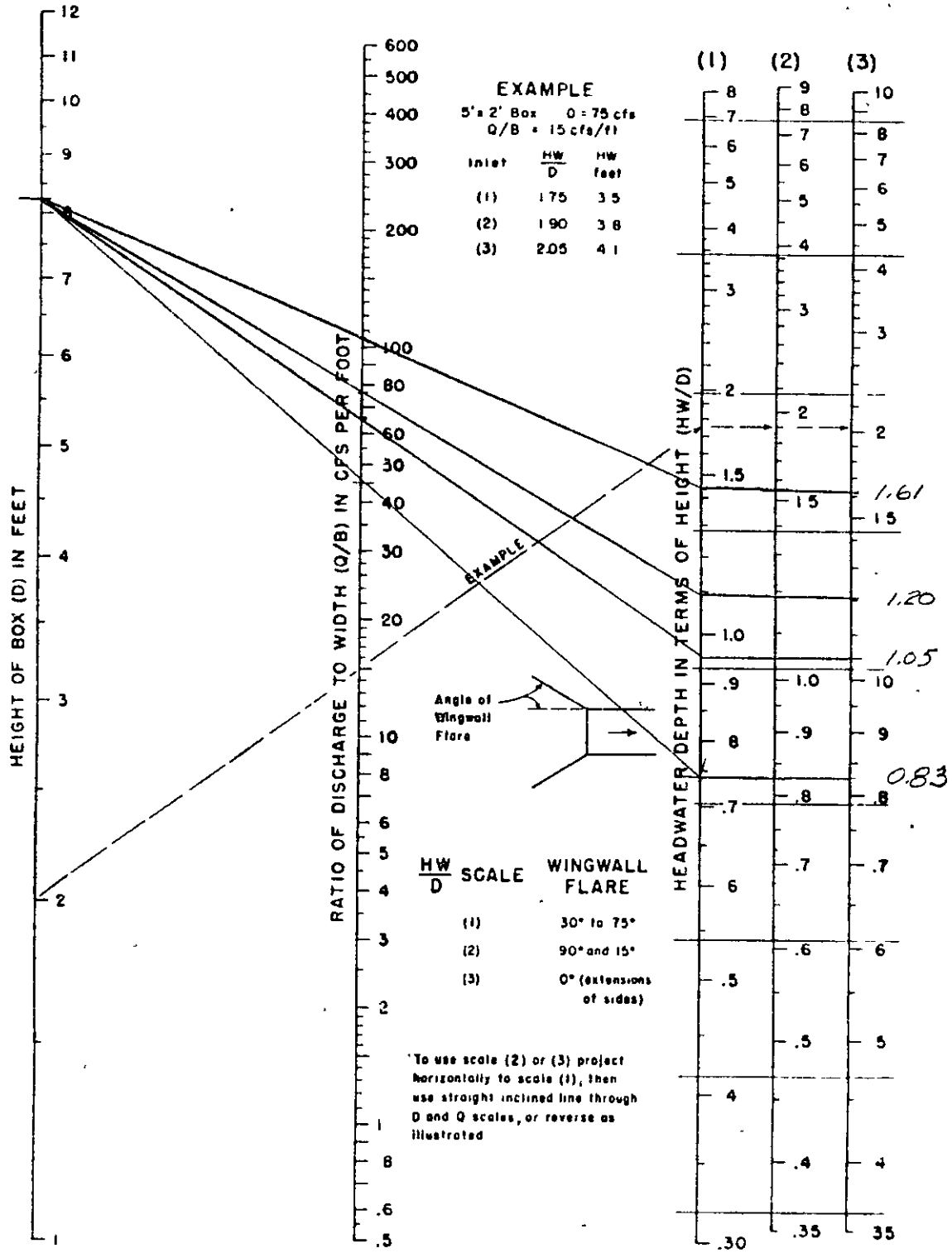


Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	Δ H HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	D+(1+Ke) $V^2/2g$	HW			
590	0.51	4.59	0.31	3.76	6.38	6.38	6.69	9.30	5.93	5.93		
880	0.65	5.85	0.70	4.72	6.86	6.86	7.56	9.67	7.27	7.27		
1010	0.75	6.75	0.98	5.09	7.04	7.04	7.96	9.85	7.85	7.85		
1370	1.00	9.00	1.69	6.05	7.54	7.54	8.23	10.63	9.46	9.46		

CALCULATIONS AND COMMENTS

USING HEC-2

CHART 1



HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN 1963

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BR. (EAST BR. OF IS.) CULVERT LOCATION: FOOTBRIDGE NE OFF FUNT ST.

CULVERT DESCRIPTION: TWO 4.5' RCP & ONE 4.0' RCP PROJECTING FROM FILL GROOVE END U/S

BY DCH DATE 8-9-76

n= 0.015 Q_{10}= 285 TW_{10}= 5.71

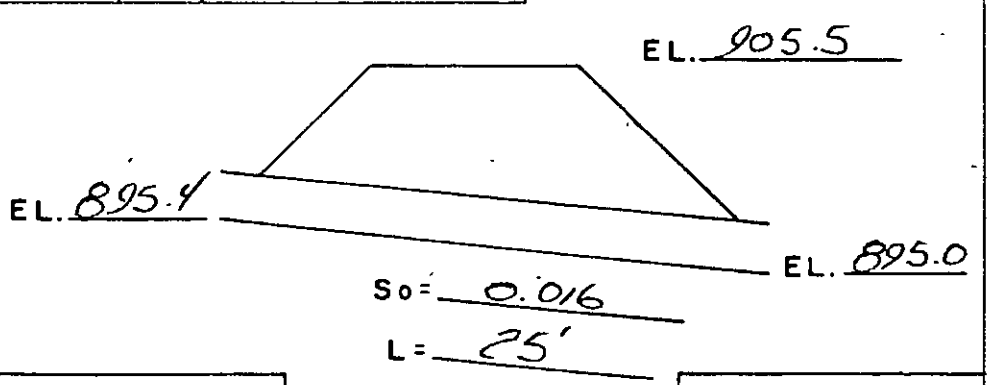
A= 44.37 Q_{50}= 302 TW_{50}= 6.02

R= 1.086 (1.0 for 4') Q_{100}= 308 TW_{100}= 6.09

Ke= 0.2 0.5 Q_{500}= 323 TW_{500}= 6.35

D= 5.8' (poor adj.)

LSo= 0.4'



Sta. 13556 Sta 13531

HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
285	–	5.25	0.36			5.71	6.17	6.57	6.02	6.02		
302	–	5.42	0.97			6.03	6.59	6.66	6.35	6.35		
308	–	5.45	1.01			6.09	6.70	6.70	6.47	6.70	905.10	
323	–	5.63	1.11			6.31	7.06	6.79	6.80	7.06	905.46	

CALCULATIONS AND COMMENTS

902.10 − 901.09 / 1.01 = H

$K = 1 + 0.2 + \frac{(29.16)(0.015)^{0.164}(25)}{1.17} = 1.36$

or

$K = 1 + 0.5 + \frac{(29.16)(0.015)^2(25)}{1.17} = 1.66$

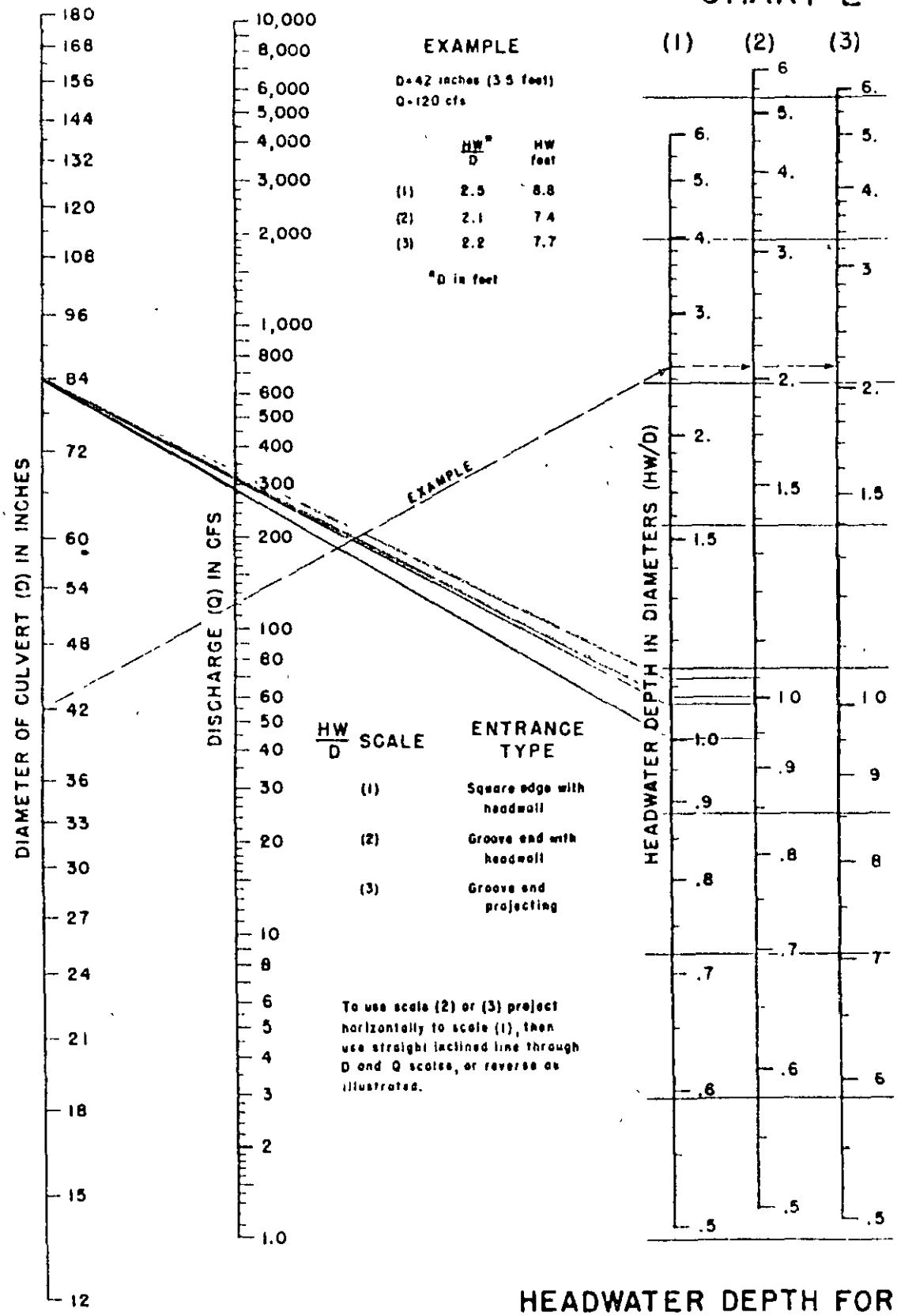
$K = 1 + 0.2 + \frac{(29.16)(0.015)^{0.1402}(25)}{1.17} = 1.31$

$K = 1 + 0.5 + \frac{(29.16)(0.15)^2(25)}{1.17} = 1.64$

Q for Ke = 0.2 = 308.4Y

Q for K = 0.5 = 278.5Q

CHART 2



FLINT ST.

HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH INLET CONTROL

HEADWATER SCALES 2&3
REVISED MAY 1964

BUREAU OF PUBLIC ROADS JAN 1963

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BR. (EAST BR OF IS.) | CULVERT LOCATION: FLINT STREET

CULVERT DESCRIPTION: ONE 7.0' RCP | BY DCM | DATE 8-9-76

WINGWALLS & HEADWALL GROOVE END U/S

n= 0.015 Q_{10}= 285 TW_{10}= 4.92

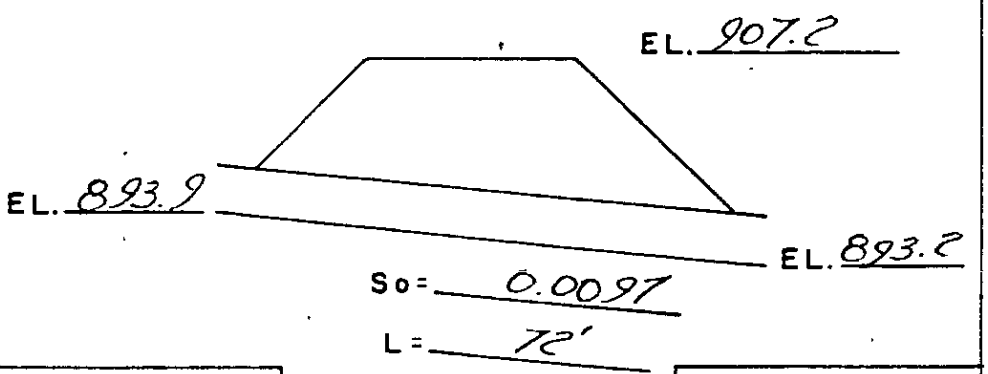
A= 38.480' Q_{50}= 302 TW_{50}= 5.11

R= 1.75 Q_{100}= 308 TW_{100}= 5.25

Ke= 0.2 Q_{500}= 323 TW_{500}= 5.72

D= 7.0'

LSo= 0.7'



Sta. 13279 | Sta. 13207

Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
285	0.94	6.58	1.21	4.43	5.72	5.72	6.23	8.02	—	6.58	900.45	
302	0.99	6.93	1.36	4.57	5.78	5.78	6.44	8.15	—	6.93	900.85	
308	1.00	7.00	1.42	4.62	5.81	5.81	6.53	8.19	—	7.00	900.95	
323	1.04	7.28	1.56	4.73	5.87	5.87	6.72	8.31	7.19	7.28	901.15	

CALCULATIONS AND COMMENTS

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BR. (EAST BR. OF R.) WEIR LOCATION: C. & O. RR

WEIR DESCRIPTION: GRAVEL 10' BREADTH | BY DCM | DATE 8-9-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
285	897.[illegible]	896.7[illegible]	0.24	208						79	896.2	0.654	1.0	79	287
302	897.69	897.65	0.04	85						466	896.2	0.973	0.52	242	327
308	898.04	897.[illegible]2	0.02	60						788	896.2	0.989	0.39	307	367
323	898.[illegible]	895.[illegible]	0.01	42						1800	896.2	0.996	0.32	576	618

CALCULATIONS AND COMMENTS

USING HEC-2

CITY OF NOVI
WALLED LAKE BRANCH (EAST BRANCH OF ISLAND)
GRAVEL BALLAST
C. & O. RAILROAD BRIDGE WEST OF NOVI ROAD
10 FT. BREADTH
NUMBER OF POINTS= 8

STATION	ELEVATION
520.00	910.00
520.00	896.20
551.50	896.30
551.50	898.10
588.50	898.30
588.50	896.50
770.00	897.50
770.00	910.00

WIDTH OF ROADWAY= 10.00
ROAD SURFACE:GRAVEL

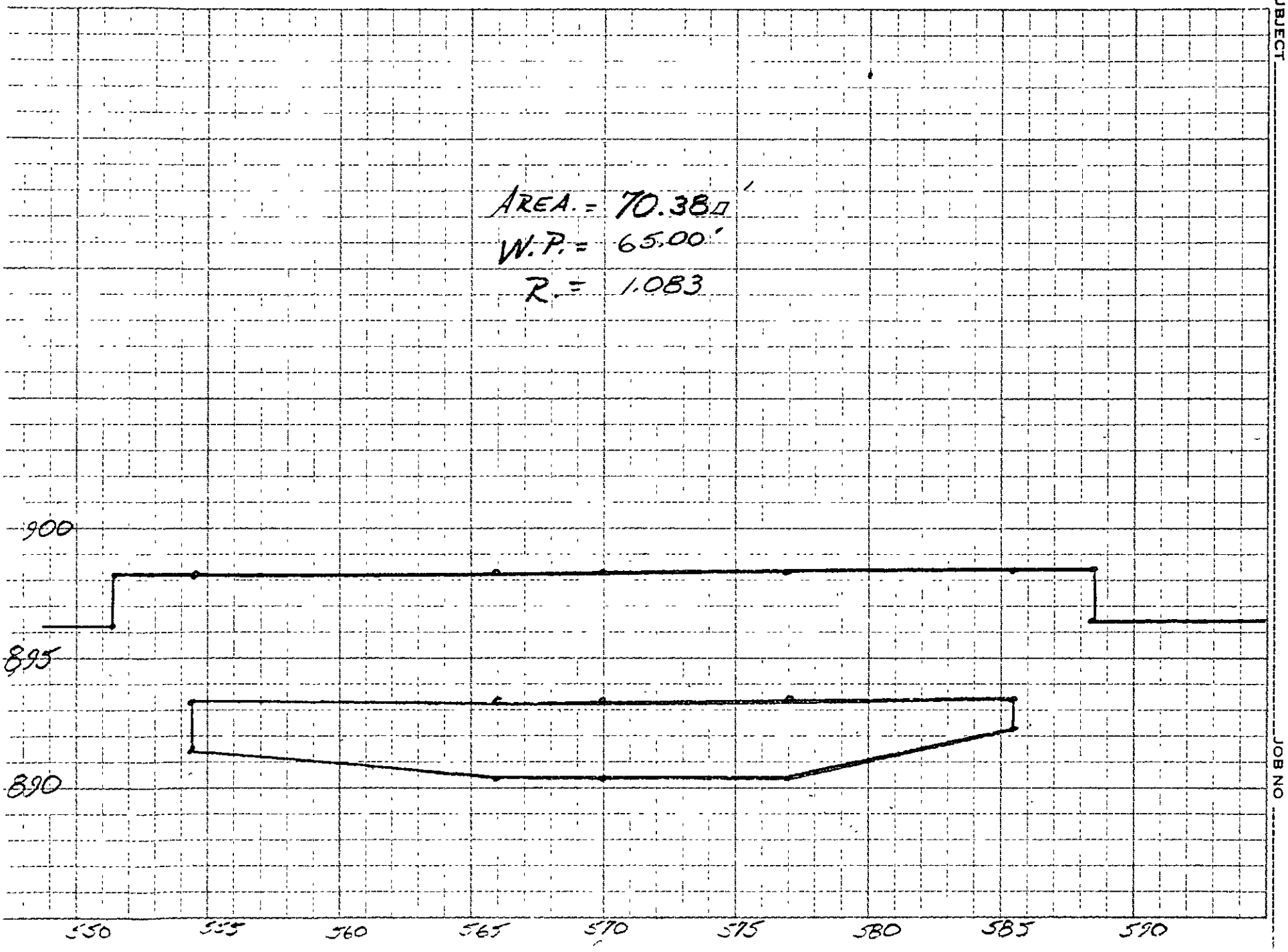
ELEV	CAV	FLOW(CFS)
896.20	0.0	0.0
896.30	2.520	1.01
896.40	2.560	4.71
896.50	2.595	10.14
896.60	2.588	17.57
896.70	2.599	28.46
896.80	2.611	43.64
896.90	2.624	63.84
897.00	2.639	89.83
897.10	2.653	122.03
897.20	2.667	161.07
897.30	2.682	207.65
897.40	2.695	262.00
897.50	2.708	324.73
897.60	2.738	395.74
897.70	2.766	473.78
897.80	2.796	560.08
897.90	2.821	650.71
898.00	2.843	747.03
898.10	2.865	849.84
898.20	2.858	958.46
898.30	2.852	1074.21
898.40	2.873	1197.61
898.50	2.892	1327.57
898.60	2.911	1463.59
898.70	2.929	1605.57
898.80	2.946	1753.12
898.90	2.962	1906.11
899.00	2.977	2064.44

CITY OF NOVI
WALLED LAKE BRANCH
C.&O. RR. BRIDGE WEST OF NOVI RD.

SEC. [26]

11-21-75

AREA. = 70.38 □'
W.P. = 65.00'
R = 1.083



SUBJECT _____ DATE _____ JOB DESCRIPTION _____ BY _____ SHEET _____ OF _____ JOB NO _____

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BR. (EAST BR. OF I5.) | CULVERT LOCATION: C.P.O. RR

CULVERT DESCRIPTION: BOX CULVERT | BY DCM | DATE 8-9-76

NO WINGWALLS

n= 0.032 | Q_{10}= 285 | TW_{10}= 6.22

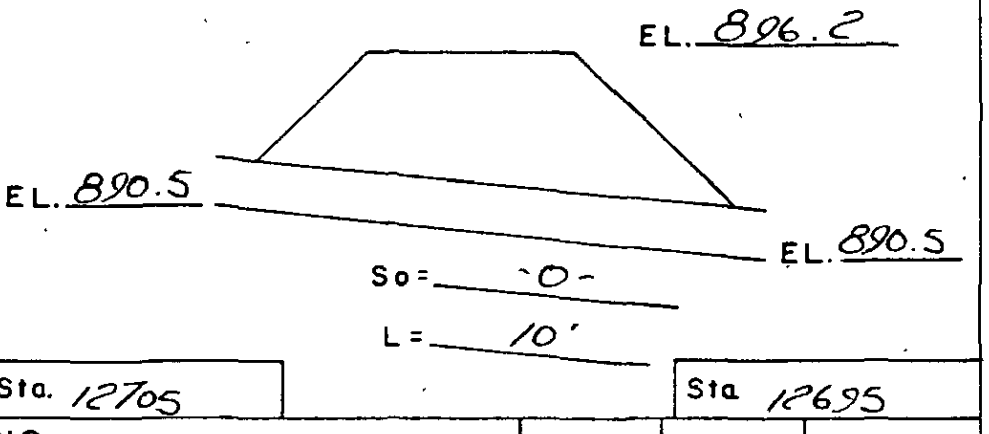
A= 70.38 sq' | Q_{50}= 302 | TW_{50}= 7.15

R= 1.083 | Q_{100}= 308 | TW_{100}= 7.52

Ke= 0.5 | Q_{500}= 323 | TW_{500}= 8.32

D= 2.7'

LSo= -0-



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
285												

CALCULATIONS AND COMMENTS

WEIR

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

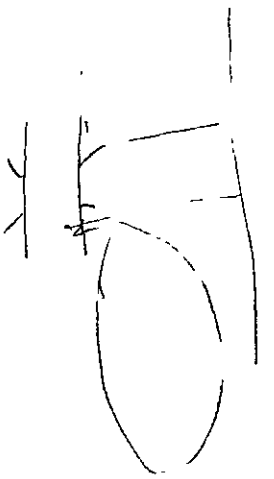
WATERCOURSE: WALLED LAKE BRANCH | WEIR LOCATION: NOVI RD.

WEIR DESCRIPTION: HARD SURFACE 24' BREADTH | BY DCM | DATE 7-30-70

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD. EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD. EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
540	82.84	83.12	3.11	323						215	38.0	-0-	1.0	215	538
800	83.77	82.52	2.70	301						503	38.0	-0-	1.0	503	804
930	83.37	80.98	2.39	283						648	38.0	-0-	1.0	648	931
1250	82.56	79.49	2.17	270						982	38.0	-0-	1.0	982	1252

CALCULATIONS AND COMMENTS

CITY OF NOVI
WALLED LAKE BRANCH
NOVI ROAD
HARD SURFACE
24 FT. BREADTH
NUMBER OF POINTS= 9

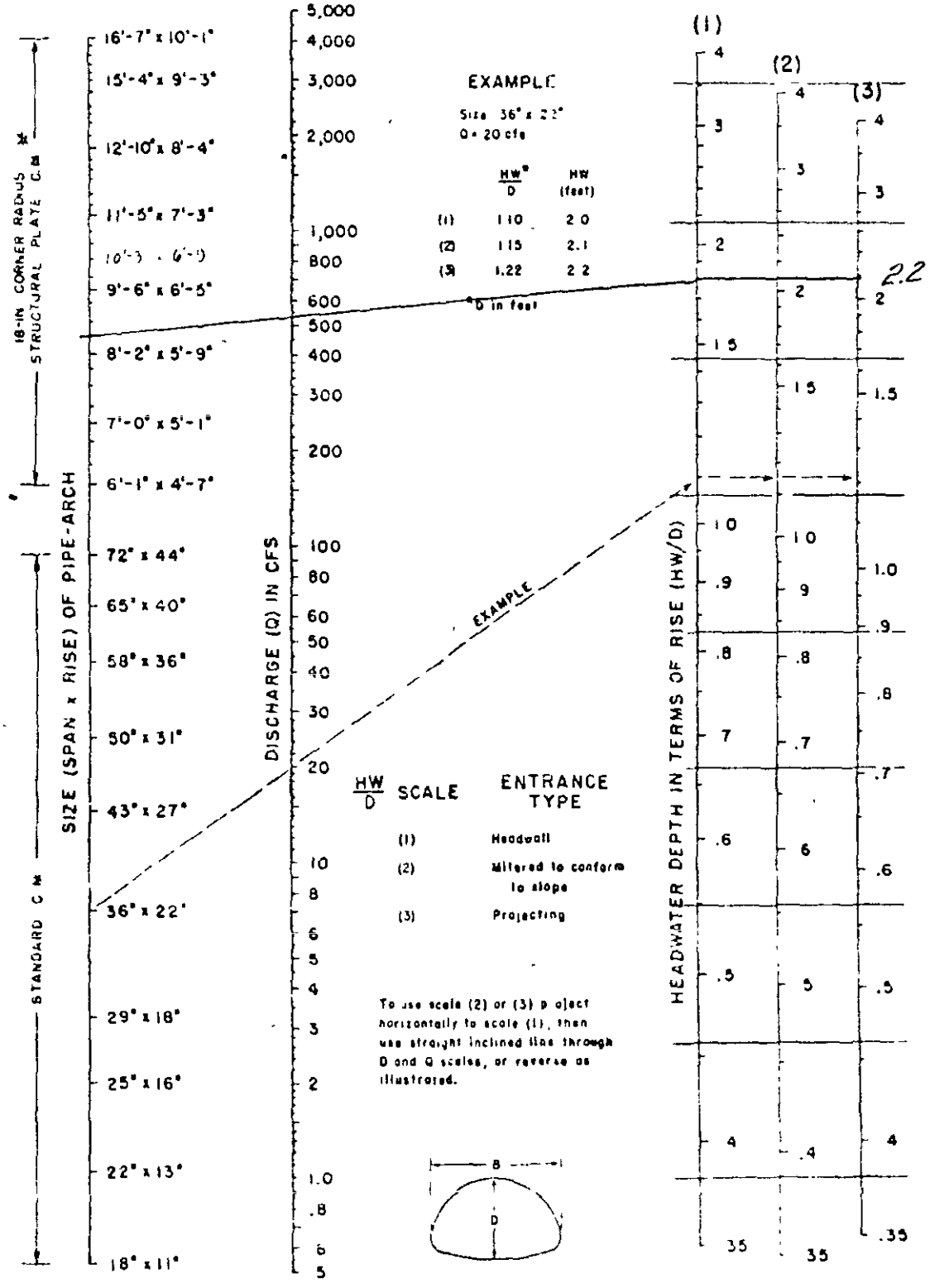


STATION	ELEVATION
0.0	899.40
25.00	894.50
50.00	893.70
106.00	893.30
206.00	892.10
233.00	892.00
300.00	892.50
350.00	892.75
350.00	900.00

WIDTH OF ROADWAY= 24.00
ROAD SURFACE:PAVED

ELEV	CAV	FLOW(CFS)
892.00	0.0	0.0
892.10	2.895	1.49
892.20	2.931	7.82
892.30	2.950	19.67
892.40	2.964	37.79
892.50	2.975	62.92
892.60	2.979	95.91
892.70	2.984	138.02
892.80	2.995	190.13
892.90	3.005	251.55
893.00	3.013	321.20
893.10	3.017	398.70
893.20	3.021	484.67
893.30	3.023	577.47
893.40	3.022	678.54
893.50	3.021	787.85
893.60	3.022	905.90
893.70	3.022	1032.97
893.80	3.027	1167.57
893.90	3.030	1310.81
894.00	3.032	1461.48
894.10	3.033	1619.29
894.20	3.034	1789.28
894.30	3.035	1961.25
894.40	3.035	2139.81
894.50	3.035	2324.86
894.60	3.037	2512.53
894.70	3.038	2714.45
894.80	3.038	2922.95
894.90	3.039	3125.02
895.00	3.039	3348.28

CHART 6



*ADDITIONAL SIZES NOT DIMENSIONED ARE LISTED IN FABRICATOR'S CATALOG

BUREAU OF PUBLIC ROADS JAN 1963

HEADWATER DEPTH FOR C. M. PIPE-ARCH CULVERTS WITH INLET CONTROL

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BR. (EAST BR. OF I.) WEIR LOCATION: FOOTBRIDGE N. OF GRAND RIVER

WEIR DESCRIPTION: CONCRETE WALK GRASS OVERBANKS BY DCM DATE 8-10-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
285	905.67	905.65	0.02	98						338	904.4	0.984	0.53	179	277
302		905.72													
308		905.74													
323		905.80													

CALCULATIONS AND COMMENTS

USING HEC-2

CITY OF NOVI
WALLED LAKE BRANCH
FOOTBRIDGE NORTH OF GRAND RIVER AVE. SEC.(35)
GRASSY OVERBANKS
2 FT. BREADTH
NUMBER OF POINTS= 7

STATION	ELEVATION
500.00	920.00
500.00	904.50
565.00	904.40
584.50	905.10
615.50	905.10
700.00	907.10
700.00	920.00

WIDTH OF ROADWAY= 2.00
ROAD SURFACE:GRAVEL

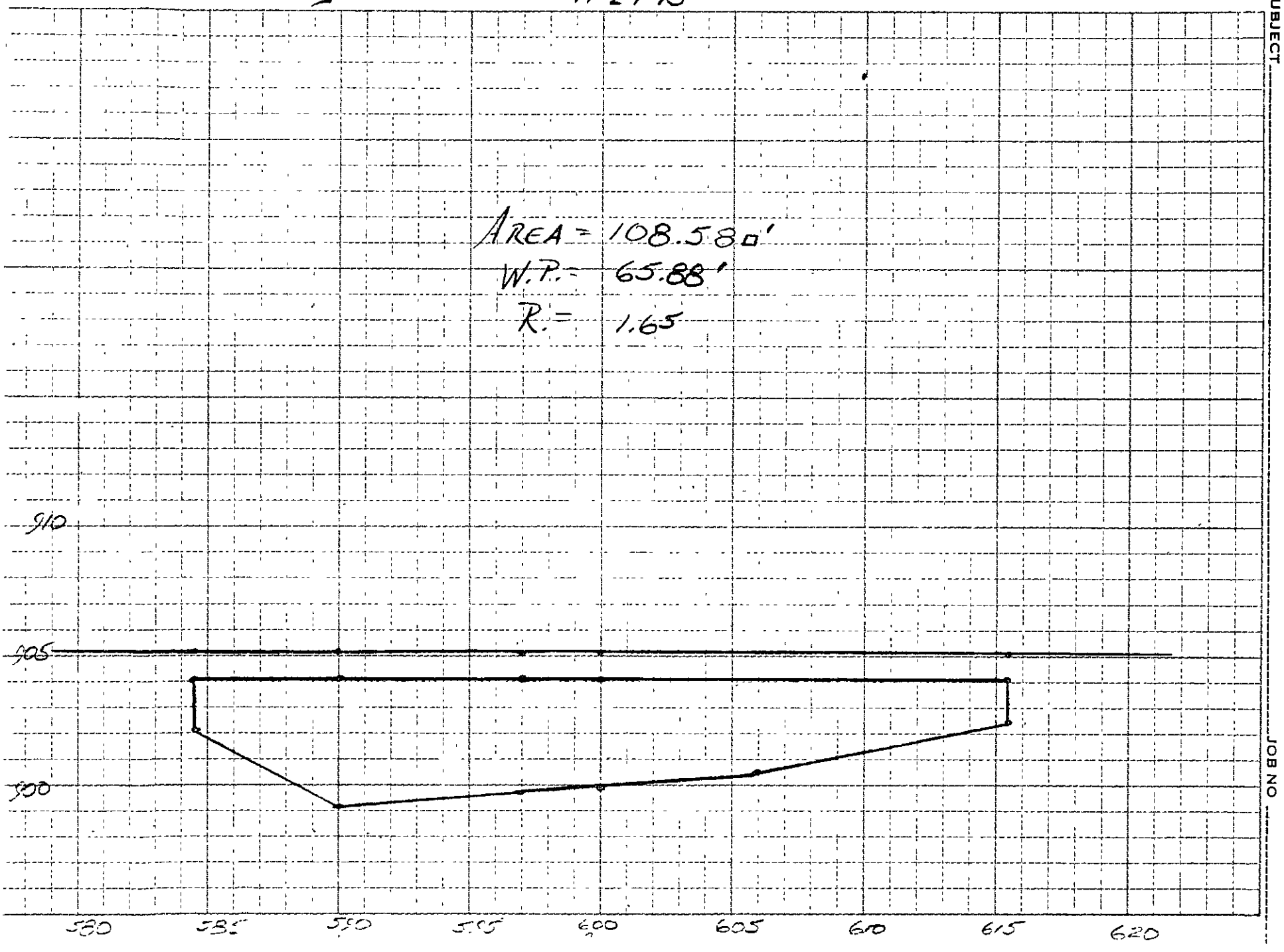
ELEVATION	Q
904.40	0.0
904.50	2.16
904.60	10.30
904.70	22.57
904.80	43.22
904.90	65.06
905.00	90.52
905.10	118.74
905.20	151.96
905.30	190.43
905.40	233.42
905.50	283.82
905.60	337.11
905.70	394.81
905.80	456.42
905.90	522.29
906.00	592.33
906.10	666.58
906.20	745.06
906.30	827.79
906.40	914.83
906.50	1006.10
906.60	1101.68
906.70	1201.59
906.80	1305.93
906.90	1414.59
907.00	1527.67
907.10	1645.20
907.20	1767.10
907.30	1893.08
907.40	2022.82
907.50	2155.95
907.60	2292.45
907.70	2432.17
907.79	2575.06
907.89	2721.03
907.99	2870.02
908.09	3021.95
908.19	3176.76
908.29	3334.40
908.39	3494.79
908.49	3657.89
908.59	3823.66
908.69	3992.04
908.79	4162.97
908.89	4336.41
908.99	4512.37
909.09	4690.77

CITY OF NOVI
WALLED LAKE BRANCH
SEC [35]

I-BEAM FOOT BRIDGE

11-24-75

AREA = 108.580'
W.P.= 65.88'
R.= 1.65



BY _____ DATE _____ JOB DESCRIPTION _____ SHEET _____ OF _____
SUBJECT _____ JOB NO _____

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BR. (EAST BR. OF I.S.) CULVERT LOCATION: FOOTBRIDGE N. OF GRAND RIVER

CULVERT DESCRIPTION: CONCRETE WALKWAY ON I-BEAMS No WINGWALLS BY DCM DATE 8-10-76

n= 0.05 Q_{10}= 285 TW_{10}= ____

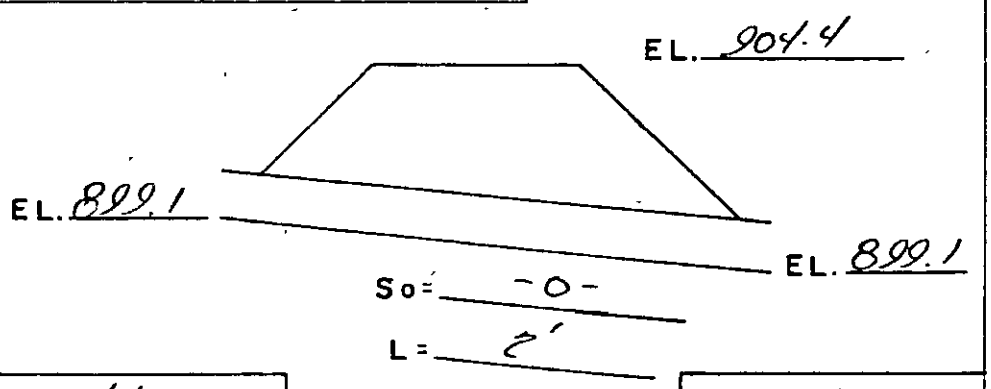
A= 108.58a' Q_{50}= 302 TW_{50}= ____

R= 1.65 Q_{100}= 308 TW_{100}= ____

Ke= 0.5 Q_{500}= 323 TW_{500}= ____

D= 5.0'

LSo= -0-



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	Δ H HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			

CALCULATIONS AND COMMENTS

WEIR

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BR. (EAST BR. OF IS.) WEIR LOCATION: GRAND RIVER AVE.

WEIR DESCRIPTION: HARD SURFACE 66' BREADTH BY DCM DATE 8-10-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
285	905.66	905.01	0.65	188						97	904.9	0.145	1.0	97	285
302	905.73	905.13	0.60	181						121	904.9	0.277	1.0	121	302
308	905.75	905.17	0.58	178						128	904.9	0.318	1.0	128	306
323	905.81	905.25	0.56	175						150	904.9	0.385	1.0	150	325

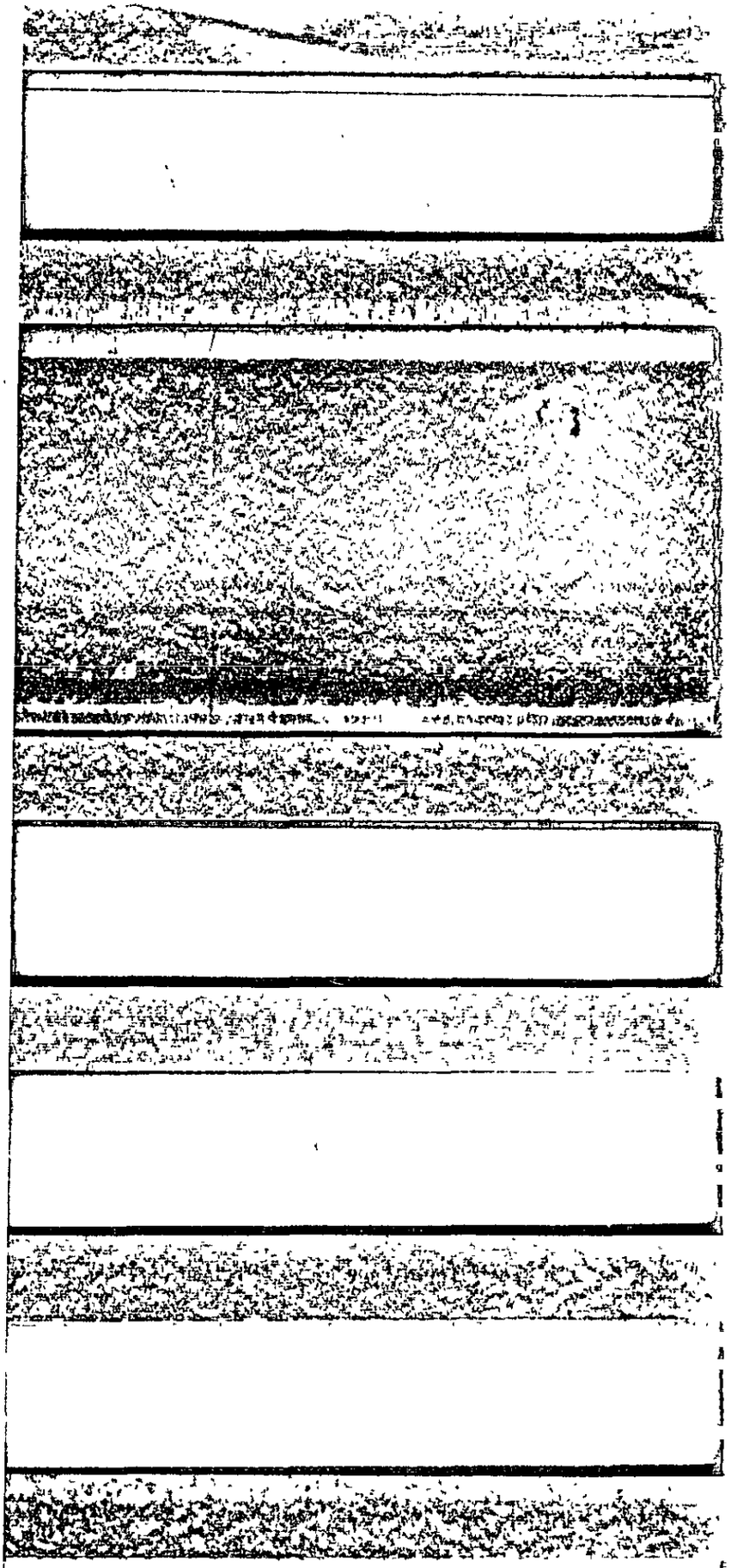
CALCULATIONS AND COMMENTS

CITY OF NOVI
WALLED LAKE BRANCH
GRAND RIVER AVE. SEC.(34)
HARD SURFACE
66 FT. BREADTH
NUMBER OF POINTS= 6

STATION	ELEVATION
645.00	920.00
645.00	904.90
739.50	905.50
750.50	905.50
845.00	906.80
845.00	920.00

WIDTH OF ROADWAY= 66.00
ROAD SURFACE:PAVED

ELEVATION	Q
904.90	0.0
905.00	0.58
905.10	3.31
905.20	9.19
905.30	18.96
905.40	33.27
905.50	52.64
905.60	78.26
905.70	109.61
905.80	146.26
905.90	188.11
906.00	235.11
906.10	287.25
906.20	344.59
906.30	407.15
906.40	475.02
906.50	548.26
906.60	626.93
906.70	711.11
906.80	800.89
906.90	896.11
907.00	996.13
907.10	1100.57
907.20	1209.15
907.30	1321.67
907.40	1437.96
907.50	1557.89
907.60	1681.32
907.70	1808.14
907.80	1938.26
907.90	2071.57
908.00	2208.00
908.10	2347.48
908.20	2489.94
908.29	2635.33
908.39	2783.57
908.49	2934.60
908.59	3088.39
908.69	3244.87
908.79	3404.00
908.89	3565.73
908.99	3730.03
909.09	3896.84
909.19	4066.14
909.29	4237.85
909.39	4411.97
909.49	4588.48
909.59	4767.33



JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BR. (EAST BR. OF I.S.) CULVERT LOCATION: GRAND RIVER AVE

CULVERT DESCRIPTION: TWO 5.0' RCP BY DCH DATE 8-10-76

HEADWALL SQ. EDGE U/S

n= 0.015 Q_{10}= 285 TW_{10}= ____

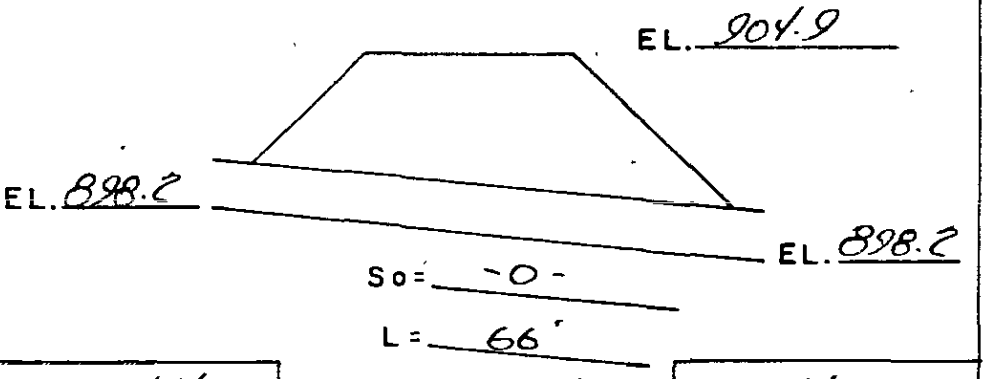
A= 39.27a' Q_{50}= 302 TW_{50}= ____

R= 1.25 Q_{100}= 308 TW_{100}= 905.17

Ke= 0.5 Q_{500}= 323 TW_{500}= ____

D= 5.0

LSo= -0-



Sta. 14474 Sta. 14408

Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	Δ H HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
285												

CALCULATIONS AND COMMENTS

WEIR

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BR. (EAST BR. OF IS.) WEIR LOCATION: FLINT STREET

WEIR DESCRIPTION: GRAVEL ROAD 98' BREADTH BY DCM DATE 8-10-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD. EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD. EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
				INLET CONTROL											
285	904.82	—	—	278						7	904.6	-0-	1.0	7	285
302	905.23	—	—	287						15	904.6	-0-	1.0	15	302
308	905.37	—	—	290						18	904.6	-0-	1.0	18	308
323	905.74	—	—	296						26	904.6	-0-	1.0	26	322

CALCULATIONS AND COMMENTS

CITY OF NOVI
WALLED LAKE BRANCH (EAST BRANCH OF ISLAND)
FLINT ROAD
GRAVEL ROAD
98 FT. BREADTH
NUMBER OF POINTS= 9

STATION	ELEVATION
0.0	920.00
0.0	905.20
25.00	904.60
125.00	906.00
221.50	908.40
285.50	908.40
325.00	906.80
425.00	910.40
425.00	920.00

WIDTH OF ROADWAY= 98.00
ROAD SURFACE:GRAVEL

ELEV	CAV	FLOW(CFS)
904.60	0.0	0.0
904.70	2.521	0.36
904.80	2.539	2.07
904.90	2.558	5.75
905.00	2.576	11.90
905.10	2.596	21.00
905.20	2.613	33.44
905.30	2.637	49.48
905.40	2.659	69.13
905.50	2.679	92.46
905.60	2.697	119.58
905.70	2.714	150.68
905.80	2.728	185.80
905.90	2.742	225.28
906.00	2.756	269.04
906.10	2.774	317.18
906.20	2.791	369.57
906.30	2.806	426.17
906.40	2.820	486.95
906.50	2.833	551.83
906.60	2.845	620.85
906.70	2.856	694.04
906.80	2.866	771.43
906.90	2.864	853.11
907.00	2.864	939.59
907.10	2.864	1031.23
907.20	2.863	1128.16
907.30	2.865	1230.58
907.40	2.865	1338.73
907.50	2.870	1452.84
907.60	2.871	1573.04
907.70	2.874	1699.40
907.80	2.876	1832.10
907.90	2.880	1971.38
907.99	2.882	2117.29

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BR. (EAST BR. OF I.S.) CULVERT LOCATION: FLINT STREET

CULVERT DESCRIPTION: ONE 7.0' RCP BY DCM DATE 8-10-76

WINGWALLS & HEADWALL GROOVE END U/S

n= 0.015 Q_{10}= 285 TW_{10}= 4.50

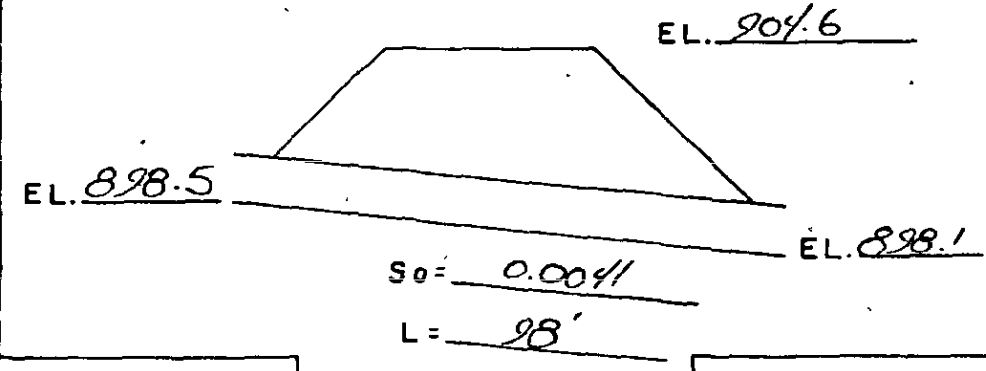
A= 38.48 □' Q_{50}= 302 TW_{50}= 4.65

R= 1.75 Q_{100}= 308 TW_{100}= 4.83

Ke= 0.2 Q_{500}= 323 TW_{500}= 5.01

D= 7.0'

LSo= 0.4'

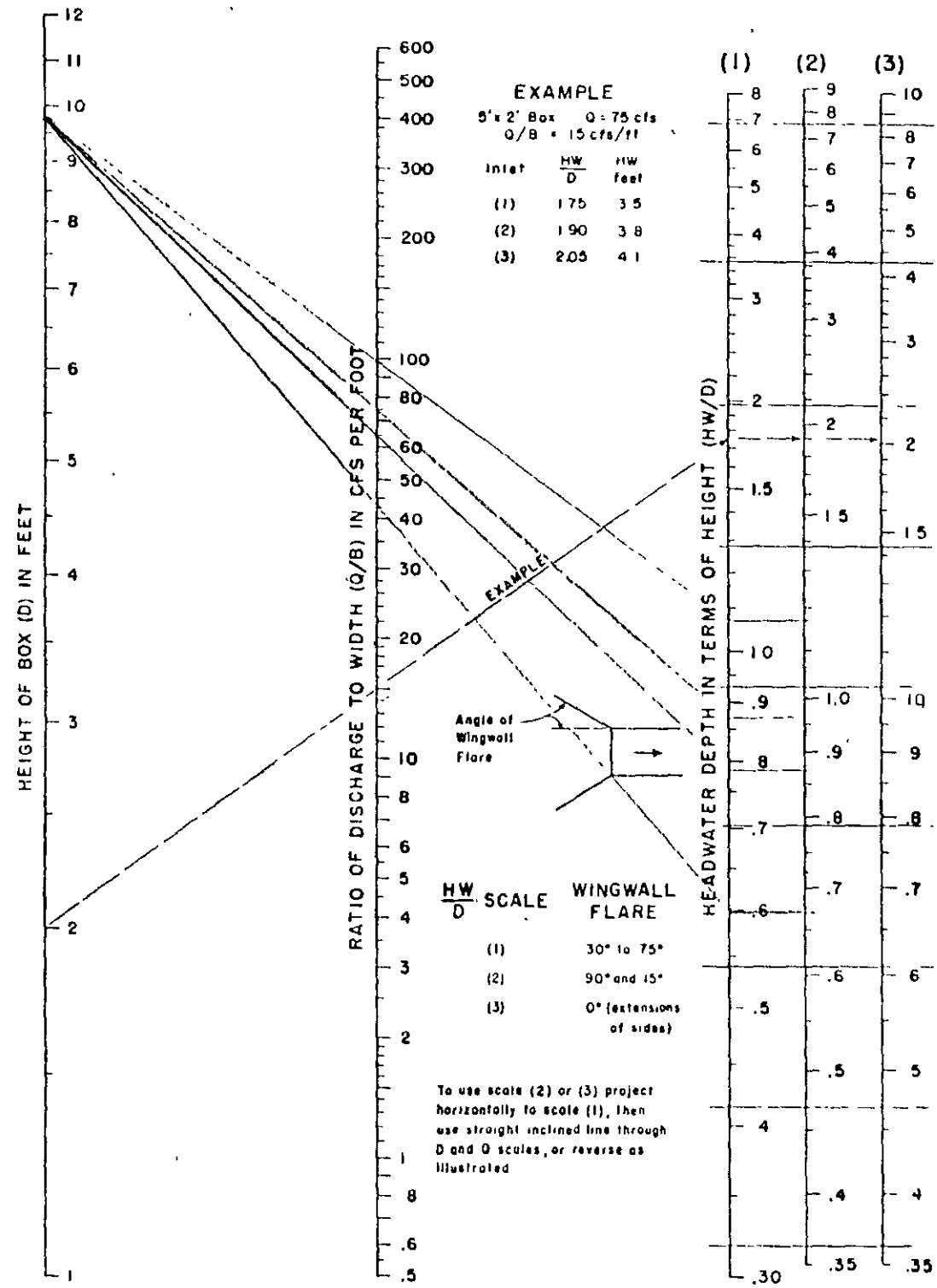


Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	D+(1+Ke) $\frac{V^2}{2g}$	HW			
285	0.94	6.58										

CALCULATIONS AND COMMENTS

WEIR

CHART 1



HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN 1963

I-96 B=10'

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BRANCH | CULVERT LOCATION: I-96

CULVERT DESCRIPTION: BOX CULVERT | BY DCM | DATE 8-13-76

HEADWALL PARALLEL

n= 0.024 Q_{10}= 430 TW_{10}= 8.56

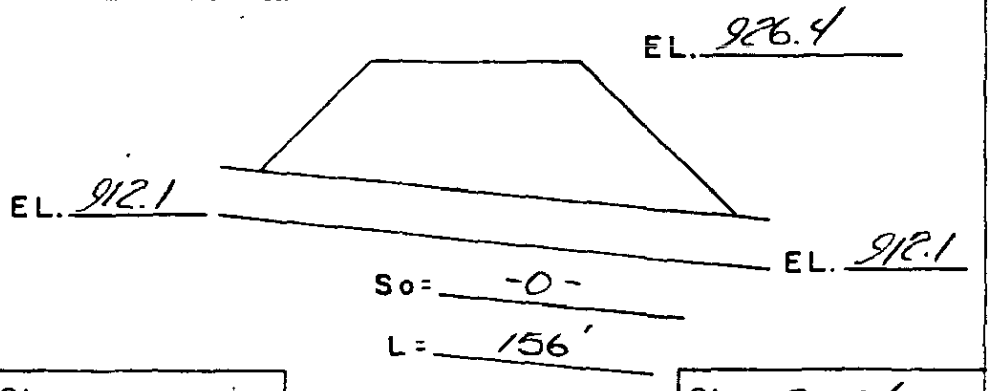
A= 88.500' Q_{50}= 640 TW_{50}= 9.16

R= 2.333 Q_{100}= 740 TW_{100}= 9.53

Ke= 0.5 Q_{500}= 990 TW_{500}= 9.59

D= 9.7'

LSo= -0-



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	Δ H HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
430	0.67	6.50	0.56	4.69	7.20	5.54	9.42	10.25	9.33	9.33		
640	0.87	8.44	1.90	5.86	7.75	9.14	11.06	10.98	—	11.06	923.16	
740	0.96	9.31	2.55	6.35	8.04	9.33	11.52	11.33	—	11.52	923.35	
990	1.15	11.16	4.56	7.56	8.63	9.59	14.15	12.61	—	14.15	926.78	

CALCULATIONS AND COMMENTS

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BRANCH | CULVERT LOCATION: CANZANO CONSTRUCTION

CULVERT DESCRIPTION: ONE 6.0' RCP PROJECTING FROM FILL GROOVE END U/S (PERCHED BRIDGE) | BY DCM | DATE 8-12-76

n= 0.015 | Q_{10}= 500 | TW_{10}= _____

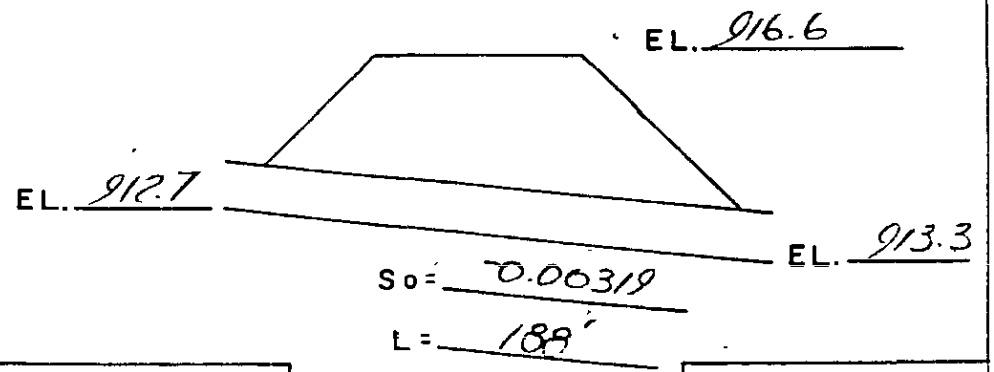
A= 28.37□' | Q_{50}= 740 | TW_{50}= _____

R= 1.5 | Q_{100}= 850 | TW_{100}= _____

Ke= 0.2 | Q_{500}= 1140 | TW_{500}= _____

D= 6.0'

LSo= -0.6



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			

CALCULATIONS AND COMMENTS

USING HEC-2

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BRANCH | CULVERT LOCATION: 200 FT. W. OF C.+O. R.R.

CULVERT DESCRIPTION: TWO 2.0' CMP | BY DCM | DATE 8-12-76

HEADWALLS

n= 0.024 | Q_{10}= 500 | TW_{10}=

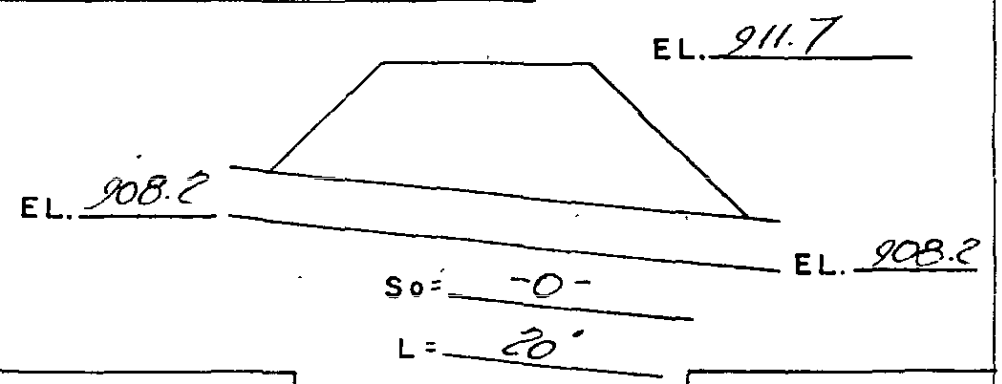
A= 6.28 sq' | Q_{50}= 740 | TW_{50}=

R= 0.5 | Q_{100}= 850 | TW_{100}=

Ke= 0.5 | Q_{500}= 1140 | TW_{500}=

D= 2.0'

LSo= -0-



Sta. 17732 | Sta 17712

Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			

CALCULATIONS AND COMMENTS

SUBMERGED WEIR

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BRANCH WEIR LOCATION: C+O. R.R.

WEIR DESCRIPTION: GRAVEL BALLAST 26' BREADTH BY DCH DATE 8-12-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
500	914.58	914.32	0.26	295						265	911.0	0.927	0.79	209	504
740	915.30	915.01	0.29	311						562	911.0	0.933	0.77	433	744
850	915.54	915.26	0.28	306						734	911.0	0.938	0.74	543	849
1140	916.13	915.91	0.24	283						1314	911.0	0.953	0.66	867	1150

CALCULATIONS AND COMMENTS

USING HEC-2

CITY OF NOVI
WALLED LAKE BRANCH
C.&O. RAILROAD WEST OF PARAGON STEEL
GRAVEL BALLAST
26 FT. BREADTH
NUMBER OF POINTS= 15

STATION	ELEVATION
575.00	920.00
575.00	915.40
650.00	914.40
732.00	914.30
732.00	916.20
768.00	916.20
768.00	914.30
779.00	913.00
783.00	911.10
784.00	911.00
790.00	912.20
795.00	912.70
809.00	916.70
829.00	916.10
829.00	920.00

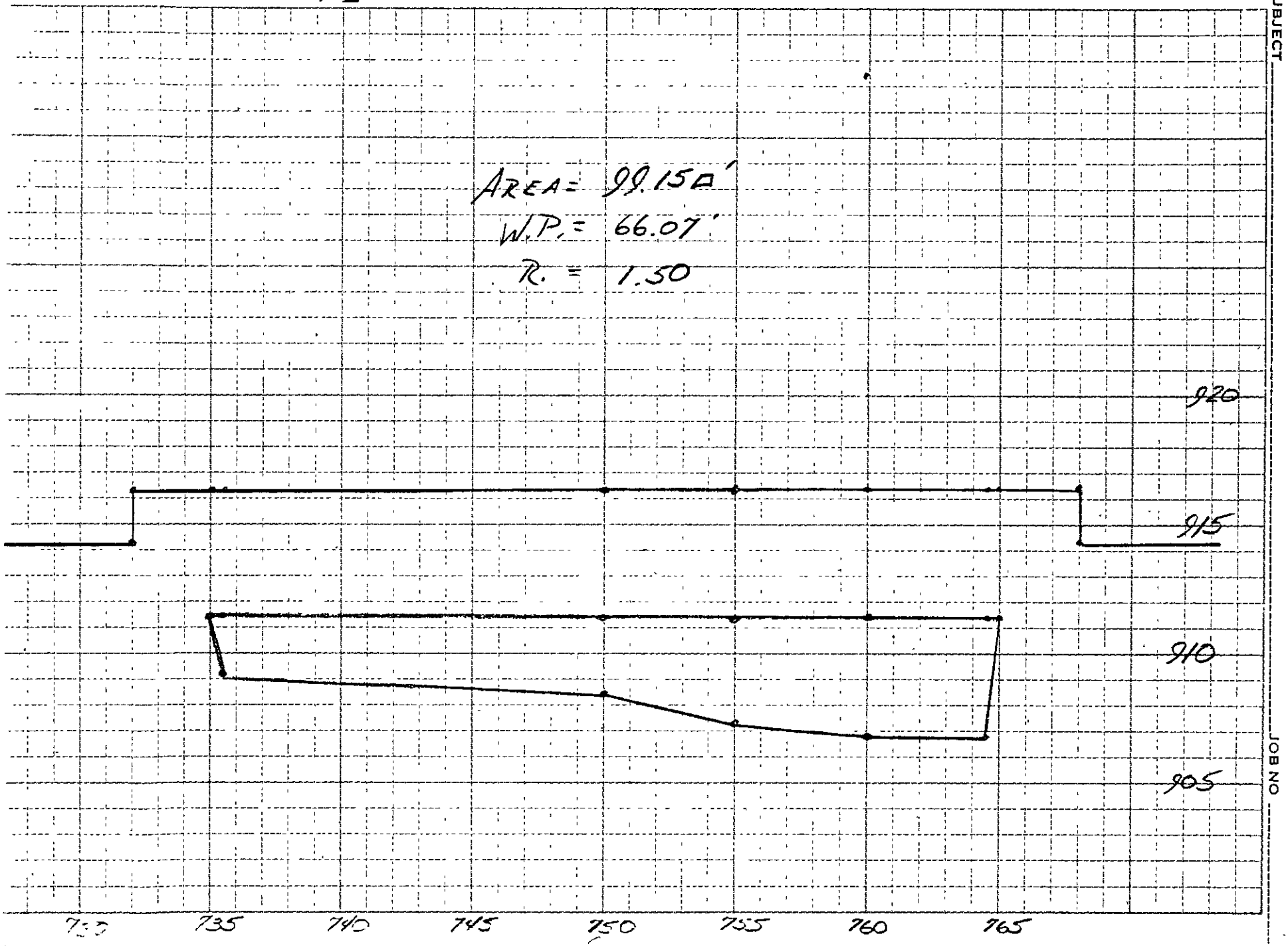
WIDTH OF ROADWAY= 26.00
ROAD SURFACE:GRAVEL

ELEVATION FEET	FLOW CFS	CAV	TOP WIDTH FEET	AREA SFT
911.00	0.0	0.0	0.	0.0
911.10	0.03	2.520	1.	0.05
911.20	0.25	2.554	2.	0.27
911.30	0.70	2.574	3.	0.57
911.40	1.22	2.583	4.	0.88
911.50	1.91	2.613	4.	1.24
911.60	2.91	2.629	5.	1.71
911.70	4.24	2.640	6.	2.27
911.80	6.00	2.678	6.	2.91
911.90	7.70	2.683	7.	3.57
912.00	9.75	2.690	8.	4.29
912.10	12.20	2.698	9.	5.10
912.20	15.27	2.729	9.	6.03
912.30	18.73	2.713	11.	7.05
912.40	22.17	2.723	12.	8.12
912.50	26.25	2.733	13.	9.34
912.60	31.00	2.743	14.	10.69
912.70	36.47	2.754	15.	12.19
912.80	42.43	2.765	16.	13.79
912.90	48.53	2.790	16.	15.32
913.00	55.37	2.798	17.	17.01
913.10	62.91	2.805	18.	18.77
913.20	71.13	2.812	19.	20.65
913.30	80.15	2.804	21.	22.61
913.40	89.31	2.812	22.	24.78
913.50	99.27	2.820	23.	27.01
913.60	110.03	2.829	24.	29.35
913.70	121.63	2.836	25.	31.81
913.80	134.08	2.831	27.	34.41
913.90	147.45	2.839	28.	37.16
914.00	161.44	2.847	29.	40.00
914.10	176.01	2.855	30.	42.93
914.20	191.51	2.862	31.	45.97
914.30	207.99	2.857	33.	49.15
914.40	225.74	2.77	42.	53.06
914.49	246.14	2.733	96.	58.37
914.59	269.23	2.71	110.	65.06

CITY OF NOVI
WALLED LAKE BRANCH
SEC [42]

C.40. R.R. BRIDGE

AREA = 99.15 ft²
W.P. = 66.07'
R. = 1.50



JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY _____ DATE _____ JOB DESCRIPTION _____ SHEET _____ OF _____
SUBJECT _____ JOB NO _____

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BRANCH | CULVERT LOCATION: C.+O. R.R.

CULVERT DESCRIPTION: BOX CULVERT | BY | DATE

WINGWALLS 0°

n= 0.03 | Q_{10}= 500 | TW_{10}=

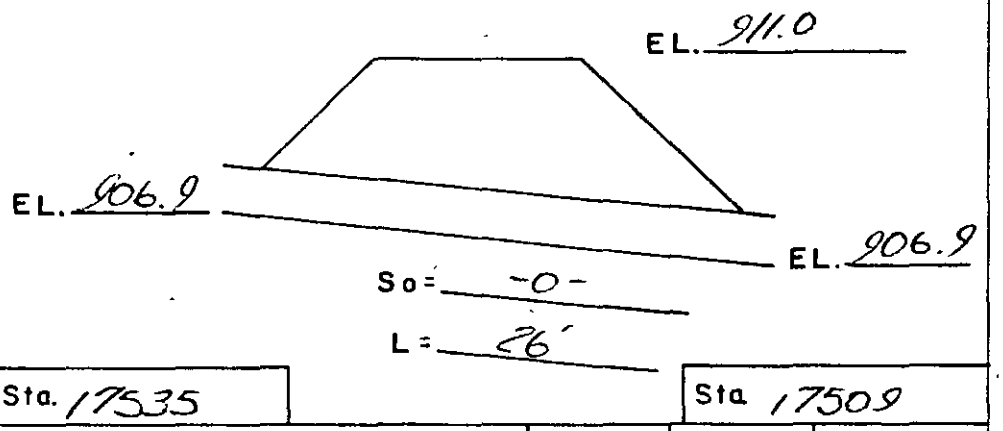
A= 99.15a' | Q_{50}= 740 | TW_{50}=

R= 1.5 | Q_{100}= 850 | TW_{100}=

Ke= 0.5 | Q_{500}= 1140 | TW_{500}=

D= 4.5'

LSo= -0-



Sta. 17535 | Sta 17509

Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
500												
740												
850												
1140												

CALCULATIONS AND COMMENTS

WEIR

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BR. (EAST BR. OF RS.) CULVERT LOCATION: RAILROAD SPUR

CULVERT DESCRIPTION: TWO 4.5' RCP & ONE 2.0' RCP PROTECTING FROM FILL SQ. END U/S

BY DCH DATE 8-10-76

n= 0.015 Q_{10}= 285 TW_{10}= ____

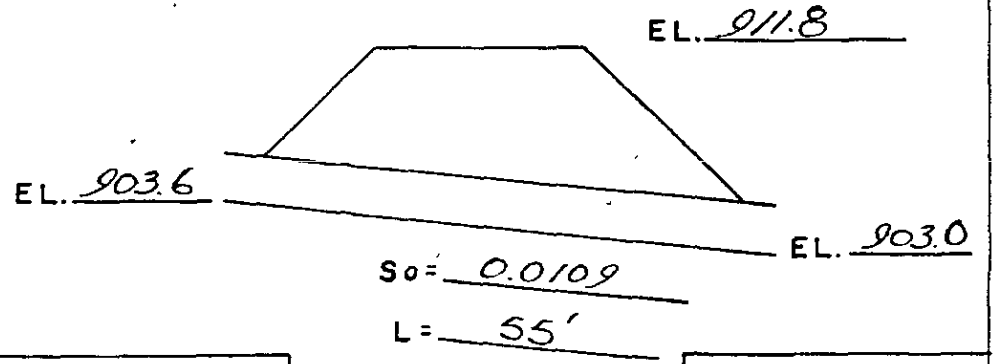
A= 34.95a' Q_{50}= 302 TW_{50}= ____

R= 1.011 Q_{100}= 308 TW_{100}= ____

Ke= 0.5 Q_{500}= 323 TW_{500}= ____

D= 5.0'

LSo= 0.6'



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			

CALCULATIONS AND COMMENTS

SUBMERED WEIR USING HEC-2

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BR. (EAST BR. OF I5) CULVERT LOCATION: PARAGON STEEL

CULVERT DESCRIPTION: TWO 4.5'RCP & ONE 2.0'RCP PROJECTING FROM FILL SQ. CUT U/S END

BY DCM DATE 8-10-76

n= 0.015 Q_{10}= 285 TW_{10}= 5.41

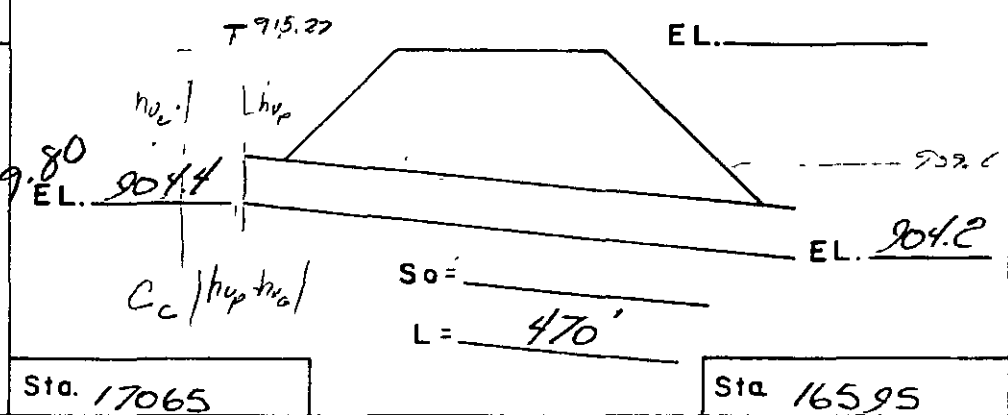
A= 34.95a' Q_{50}= 302 TW_{50}= 5.55

R= 1.011 Q_{100}= 308 TW_{100}= 5.60

Ke= 0.5 Q_{500}= 323 TW_{500}= 5.7?

D= 5.0'

LSo= 0.2'



Sta. 17065 Sta. 16595

HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
285	—	5.37	4.63			5.41	9.89	6.55	—	9.89	914.29	
302	—	5.72	5.26			5.55	10.61	6.74	—	10.61	915.01	
308	—	5.85	(5.47)			5.60	10.87	6.81	—	10.67	(915.27)	
323	—	6.18	6.01			5.72	11.53	6.99	—	11.53	915.93	

CALCULATIONS AND COMMENTS

INLET CONTROL $Hw = \left[\frac{V^2}{2g} \cdot \frac{1}{C^2}\right] + \frac{D}{2}$ C=0.6

$\frac{V^2}{2g} = \left(\frac{308}{34.95}\right)^2 / 64.4$

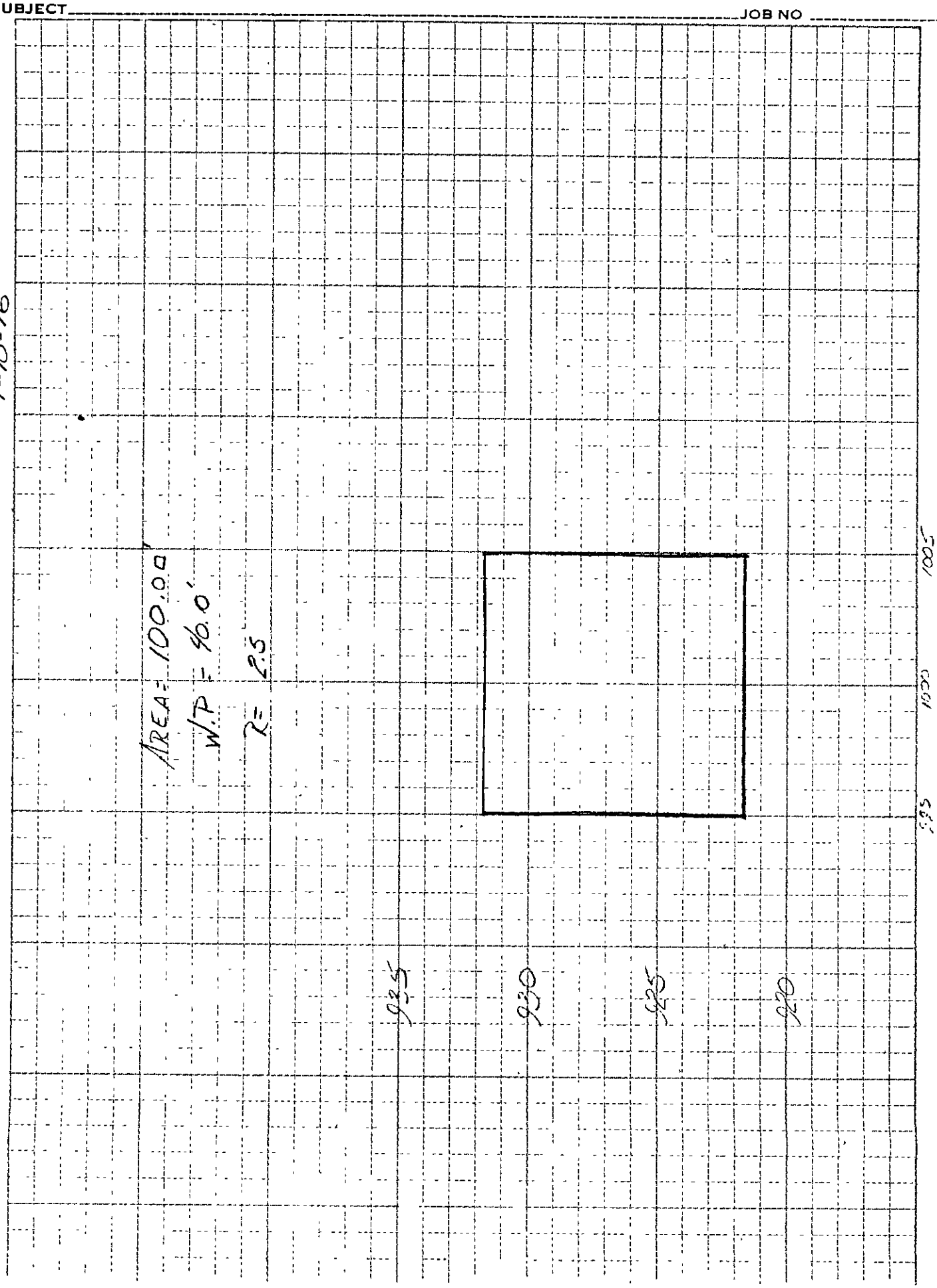
$h_V = 1.21$ ft.

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY _____ DATE _____ JOB DESCRIPTION _____ SHEET _____ OF _____

SUBJECT _____ JOB NO _____

CITY OF NOVI — WALLED LAKE BRANCH — 12 MILE ROAD — 1-10-96 — SEC [37]



JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BRANCH | CULVERT LOCATION: 12 MILE ROAD

CULVERT DESCRIPTION: BOX CULVERT | BY DCM | DATE 8-10-76

WINGWALLS ≈30°

n= 0.023 | Q_{10}= 430 | TW_{10}= 5.18

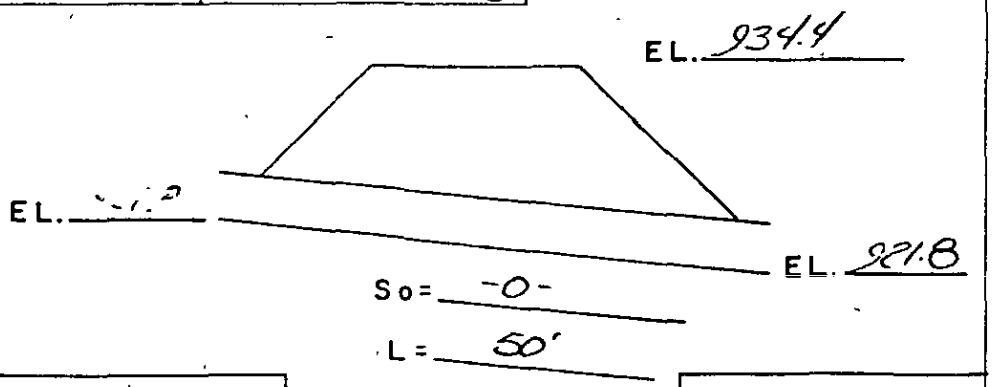
A= 100.0 sq' | Q_{50}= 640 | TW_{50}= 5.49

R= 2.50 | Q_{100}= 740 | TW_{100}= 5.76

Ke= 0.4 | Q_{500}= 990 | TW_{500}= 6.93

D= 10.0'

LSo= -0-



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	D+(1+Ke) V²/2g	HW			
430	0.58	5.80	0.47	3.86	6.93	6.93	7.40	10.40	6.67	6.67		
640	0.75	7.50	1.03	5.01	7.51	7.51	8.54	10.89	8.40	8.40		
740	0.85	8.50	1.33	5.52	7.76	7.76	9.14	11.19	9.26	9.26		
990	1.03	10.30	2.48	6.70	8.35	8.35	10.85	12.13	11.16	11.16		

CALCULATIONS AND COMMENTS

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY_____ DATE_____ JOB DESCRIPTION_____ SHEET_____ OF_____
SUBJECT_____ JOB NO_____

CITY OF NOVI WALLER LAKE BRANCH C.&O. R.R. SEC [55]

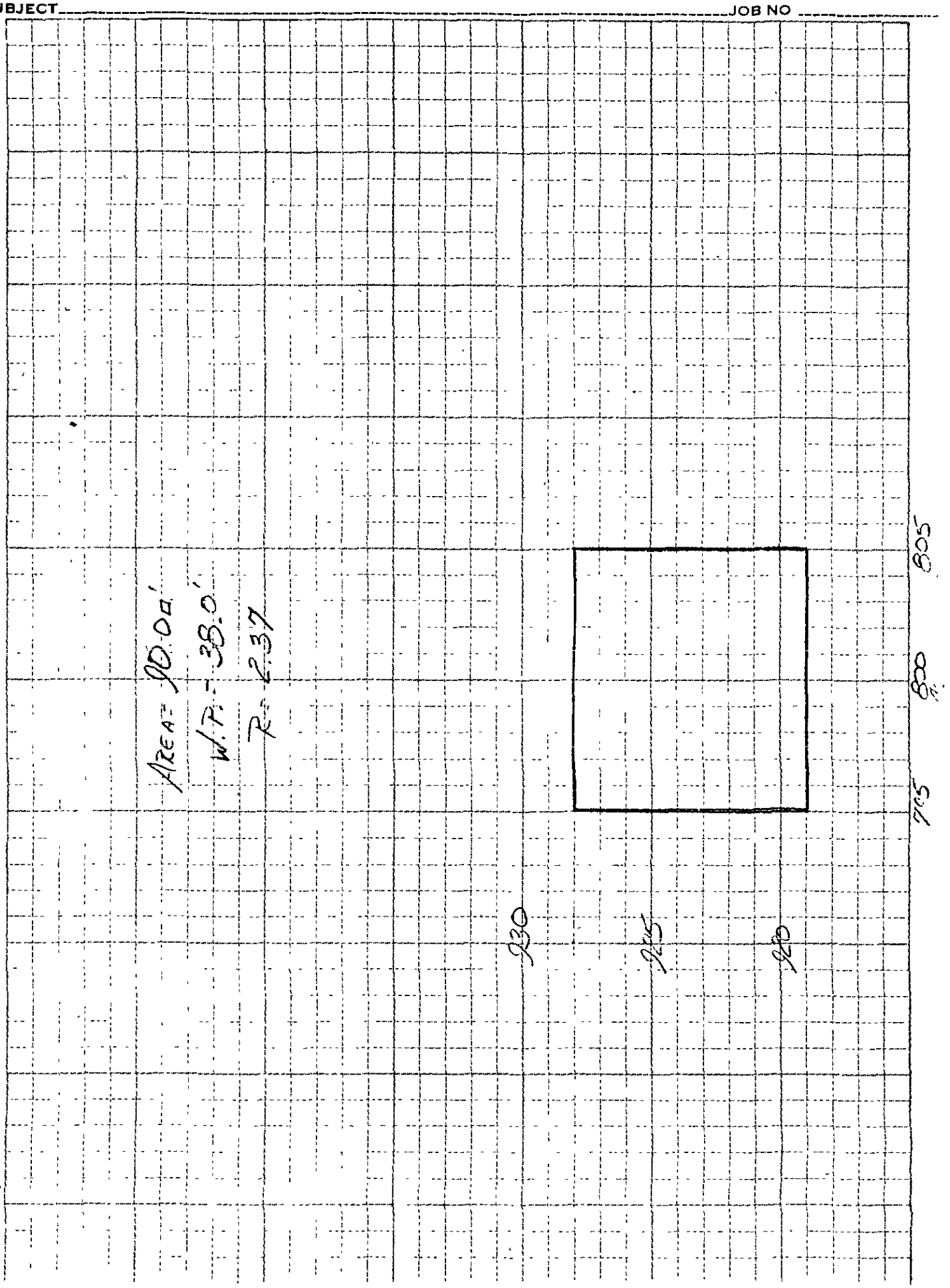
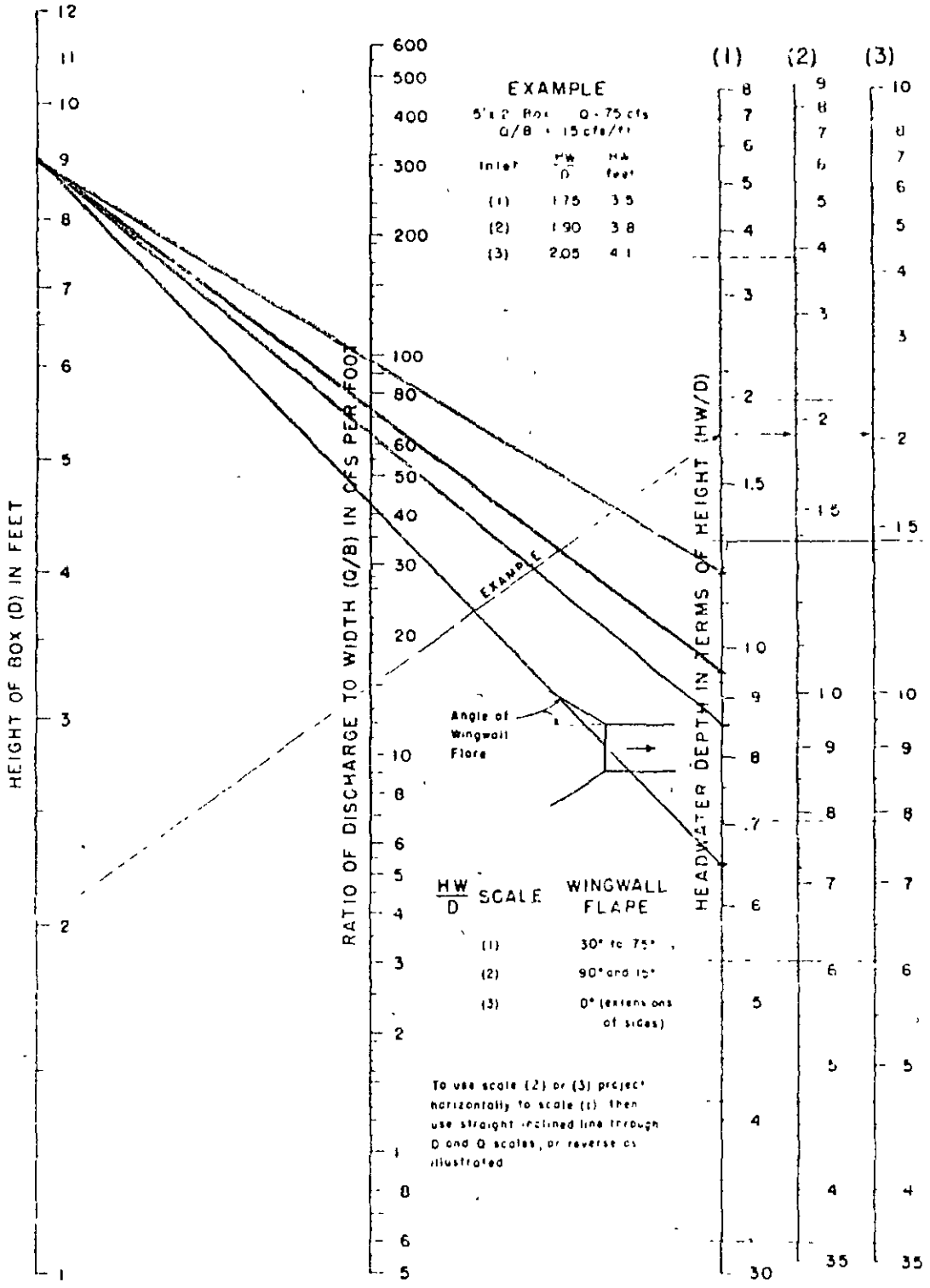


CHART 1



HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

JOB NAME: CITY OF NOVI — JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BRANCH — CULVERT LOCATION: C.P.O. R.R.

CULVERT DESCRIPTION: BOX CULVERT — BY DCH — DATE 8-13-76

WINGWALLS 30°

n= 0.023 Q_{10}= 430 TW_{10}= 4.30

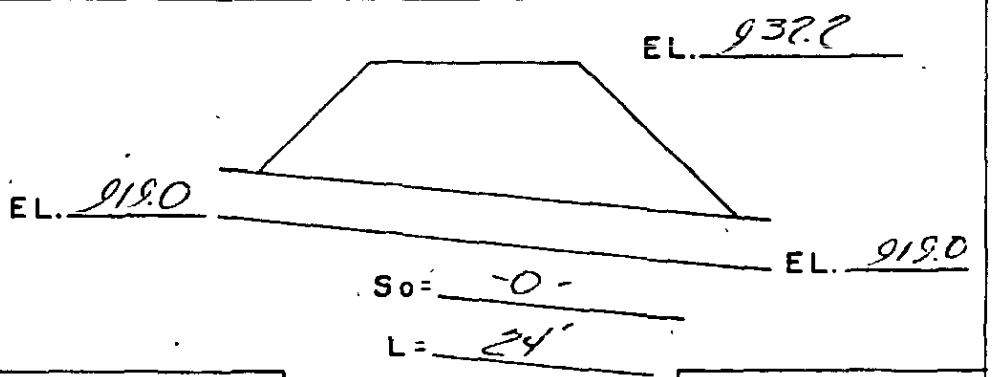
A= 90.00' Q_{50}= 640 TW_{50}= 5.86

R= 2.37 Q_{100}= 740 TW_{100}= 5.76

Ke= 0.4 Q_{500}= 990 TW_{500}= 6.96

D= 9.0'

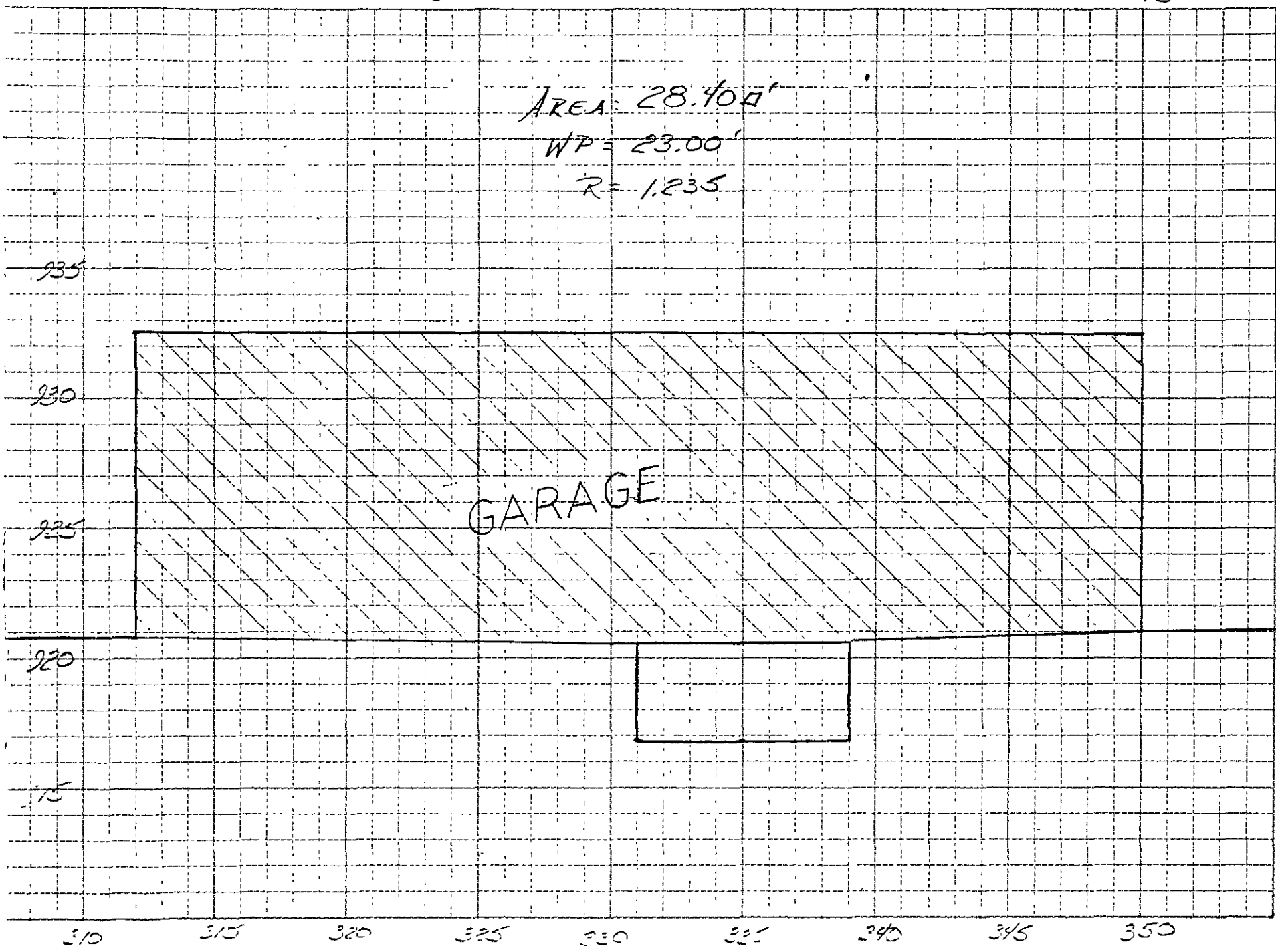
LSo= -0-



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
430	0.65	5.85	0.54	3.84	6.42	6.42	7.06	9.50	6.44	6.44		
640	0.85	7.65	1.19	5.01	7.00	7.00	8.19	10.10	—	7.65	926.65	
740	0.95	8.55	1.59	5.58	7.26	7.25	8.85	10.47	—	8.55	927.55	
990	1.18	10.62	2.85	6.10	7.85	7.85	10.71	11.63	—	10.62	929.62	

CALCULATIONS AND COMMENTS

CITY OF NOVI
WALLED LAKE BRANCH SEC [52]
GARAGE BRIDGE EAST OF TAFT RD. 12-18-75



BY DMH DATE 12/18/75 JOB DESCRIPTION SUBJECT SHEET OF JOB NO

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BRANCH | CULVERT LOCATION: GARAGE BRIDGE

CULVERT DESCRIPTION: BOX CULVERT | BY DCM | DATE 8-13-76

n= 0.05 | Q_{10}= 430 | TW_{10}= ____

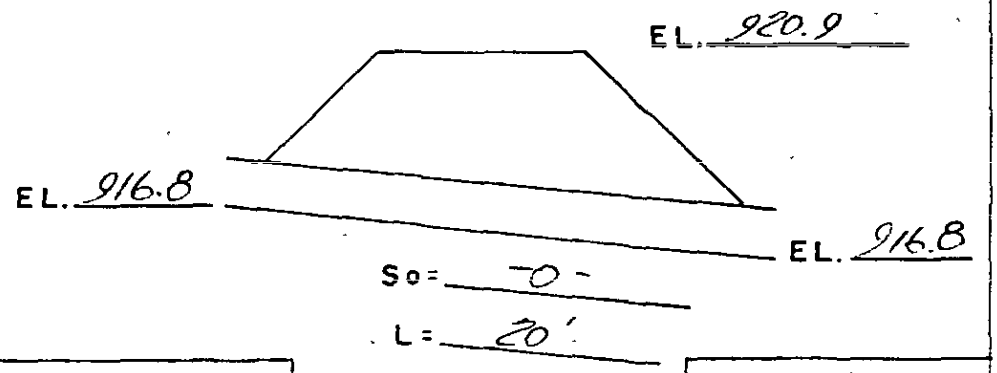
A= 28.40 □′ | Q_{50}= 640 | TW_{50}= ____

R= 1.235 | Q_{100}= 740 | TW_{100}= ____

Ke= 0.5 | Q_{500}= 990 | TW_{500}= ____

D= 3.6′

LSo= ____



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			

CALCULATIONS AND COMMENTS

USING HEC-2

CITY OF NOVI
WALLED LAKE BRANCH
GRAVEL DRIVE WAY EAST OF TAFT RD.

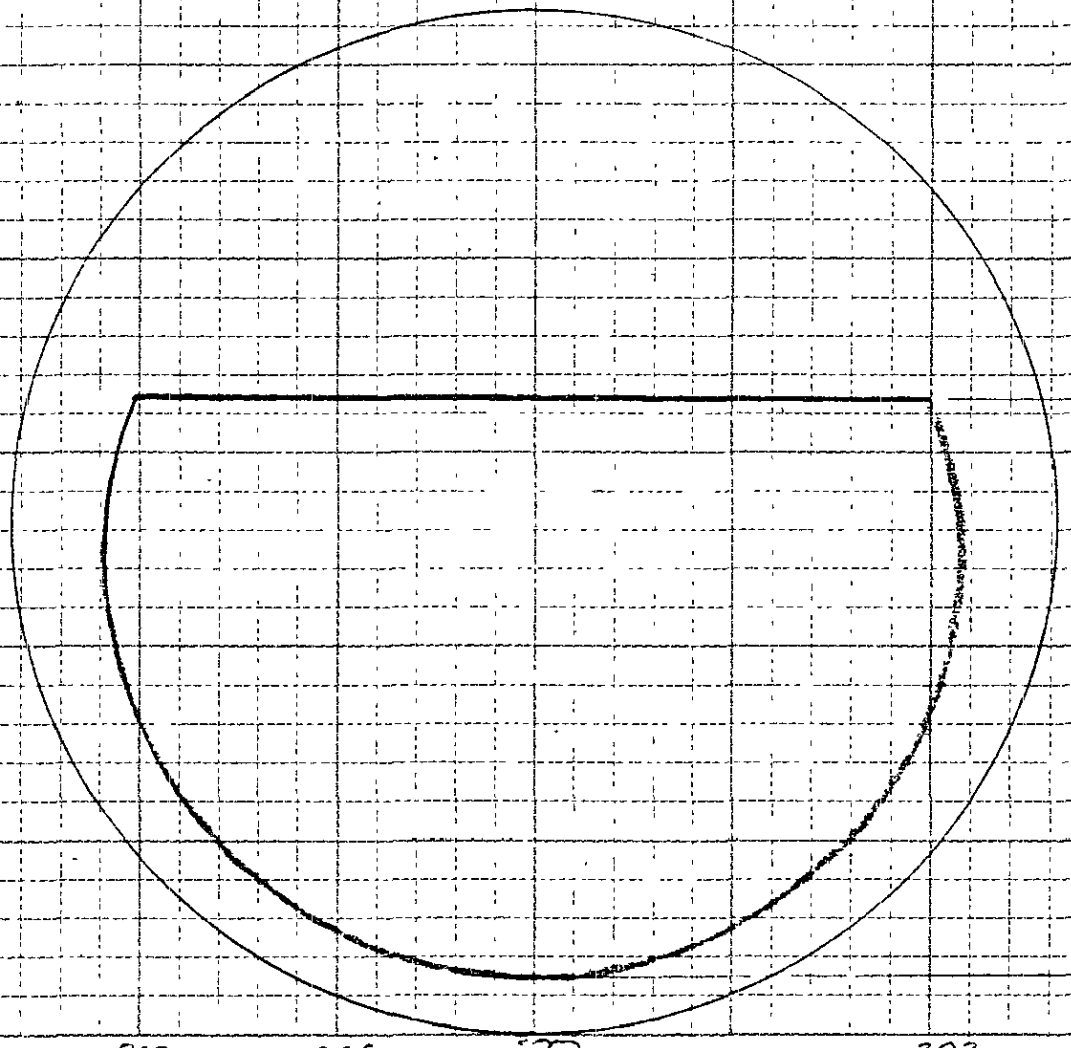
SEC [51]

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY DCM DATE 12/13/95 JOB DESCRIPTION _____ SHEET _____ OF _____

SUBJECT _____ JOB NO _____

AREA = 10.820'
WP = 12.63'
R = 0.8567



JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BRANCH CULVERT LOCATION: DRIVEWAY BRIDGE E. OF TAFT

CULVERT DESCRIPTION: TANK CULVERT BY DCM DATE 8-13-76

63" DIA. WITH HEADWALLS

n= 0.015 Q_{10}= 430 TW_{10}= ____

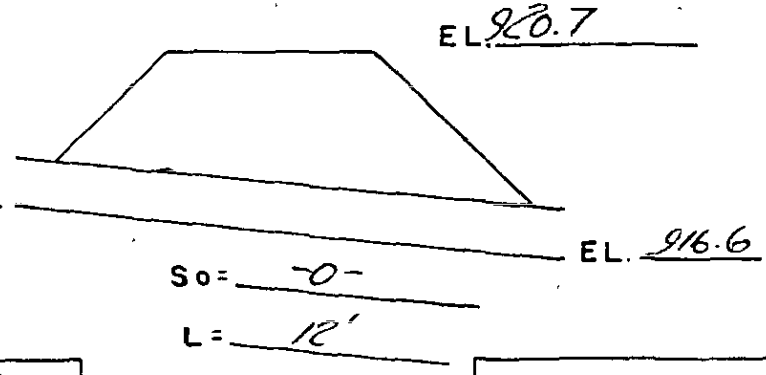
A= 10.82 a' Q_{50}= 640 TW_{50}= ____

R= 0.857 Q_{100}= 740 TW_{100}= ____

Ke= 0.5 Q_{500}= 990 TW_{500}= ____

D= 3.0'

LSo= -0-



HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL HW	FINAL HW ELEV.	Δ H HEC-2
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			

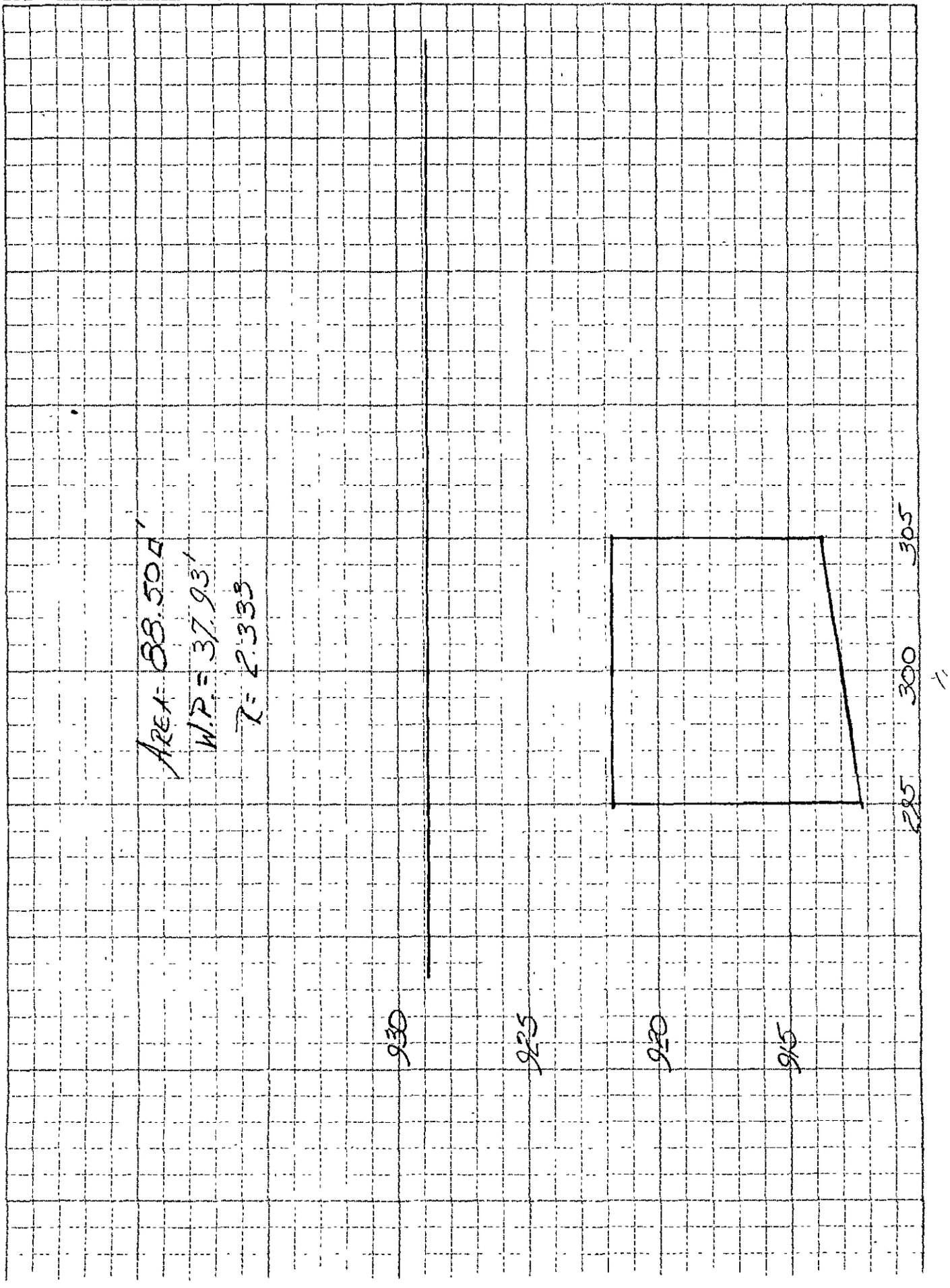
CALCULATIONS AND COMMENTS

USING HEC-2

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY DCM DATE 12-17-85 JOB DESCRIPTION _____ SHEET _____ OF _____

SUBJECT _____ JOB NO _____



City of Novi
Walled Lake Branch
Tributary "A"
5555-46-05
DCM 12-30-75

Original Cross-Section Location

Cross-Section	SECNO	Location
A	300	300' U.S. of Confluence w/Walled Lake Branch
B	775	775' U.S. of Confluence w/Walled Lake Branch also Centerline of Orchard Service Road
C	2051	825' D.S. of Novi Road also Centerline of Orchard Service Road
D	2897	50' D.S. of Novi Road
E	2898	Novi Road Culvert
F	3519	500' U.S. of Novi Road Culvert
G	4569	800" D.S. of Ten Mile Road Culvert
H	5369	50' D.S. of Ten Mile Road Culvert
I	5370	Ten Mile Road Culvert

JOB NAME: CITY OF NOVI JOB NO. 5535 46

WATERCOURSE: WALLED LAKE BR. TRIB. "A" WEIR LOCATION: TEN MILE ROAD

WEIR DESCRIPTION: HARD SURFACE 54' BREADTH BY DCM DATE 7-23-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
117	892.58	892.57	0.01	1						919	890.8	0.994	0.41	377	378
177	892.78	892.77	0.01	1						1191	890.8	0.995	0.39	464	464
205	892.88	892.87	0.01	1						1287	890.8	0.995	0.39	500	501
295	892.98	892.98	0.01	1						1522	890.8	0.995	0.39	594	595

CALCULATIONS AND COMMENTS

USING HEC-2

CITY OF NOVI
WALLED LAKE BRANCH TRIB."A"
10 MILE ROAD SEC.(9) 5370
HARD SURFACE
54 FT. BREADTH
NUMBER OF POINTS= 15

STATION	ELEVATION
0.0	900.00
0.0	897.20
100.00	895.10
200.00	894.30
300.00	894.00
400.00	892.60
500.00	891.60
599.00	890.80
601.00	890.80
700.00	892.50
800.00	893.60
900.00	894.60
1000.00	895.70
1100.00	896.90
1100.00	900.00

WIDTH OF ROADWAY= 54.00
ROAD SURFACE:PAVED

ELEVATION	Q
890.80	0.0
890.90	0.85
891.00	4.36
891.10	11.60
891.20	23.44
891.30	40.58
891.40	63.64
891.50	93.18
891.60	129.68
891.70	173.56
891.80	225.05
891.90	284.40
892.00	351.89
892.10	427.82
892.20	512.44
892.30	606.04
892.40	708.92
892.50	821.31
892.60	943.61
892.70	1076.28
892.80	1219.52
892.90	1373.55
893.00	1538.59
893.10	1714.88
893.20	1902.64
893.30	2102.10
893.40	2313.51
893.50	2537.08
893.60	2773.03
893.70	3021.62
893.80	3283.13
893.90	3557.85
894.00	3845.99
894.09	4148.54
894.19	4468.45
894.29	4807.79
894.39	5167.24
894.49	5546.01
894.59	5943.87

JOB NAME: CITY OF NOVI JOB NO. 5555 4/6

WATERCOURSE: WALLED LAKE BR. TRIB. "A" CULVERT LOCATION: TEN MILE ROAD

CULVERT DESCRIPTION: ONE 2.0' CMP BY DCM DATE 7-23-76

n= 0.024 Q_{10}= 117 TW_{10}= ____

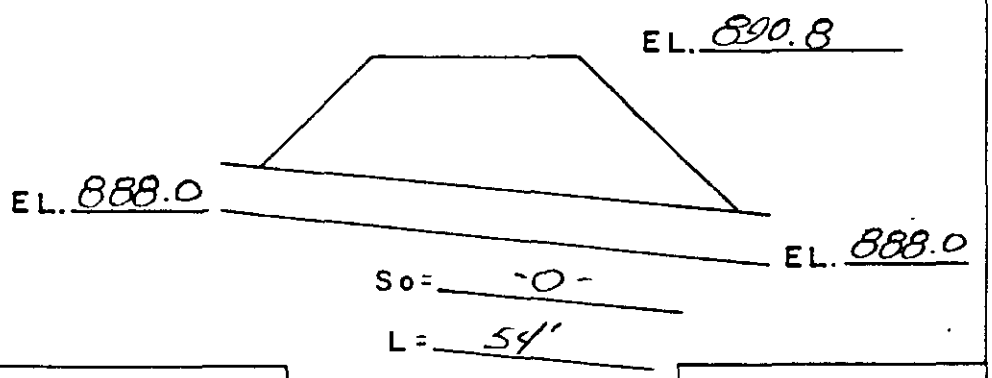
A= 3.14a' Q_{50}= 177 TW_{50}= ____

R= 0.5 Q_{100}= 205 TW_{100}= ____

Ke= 0.9 Q_{500}= 290 TW_{500}= ____

D= 2.0'

LSo= -0-



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	Δ H HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			

CALCULATIONS AND COMMENTS

SUBMERGED WEIR USING HEC-2

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BRANCH TRIB. "A" WEIR LOCATION: NOVI ROAD

WEIR DESCRIPTION: HARD SURFACE 70' BREADTH BY DCM DATE 7-23-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD. EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD. EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
117	892.56	886.41	6.15	105						12	892.4	-0-	1.0	12	117
177	892.75	886.75	5.97	104						72	892.4	-0-	1.0	72	176
205	892.51	886.91	5.90	103						102	892.4	-0-	1.0	102	205
290	892.91	887.26	5.65	101						190	892.4	-0-	1.0	190	291

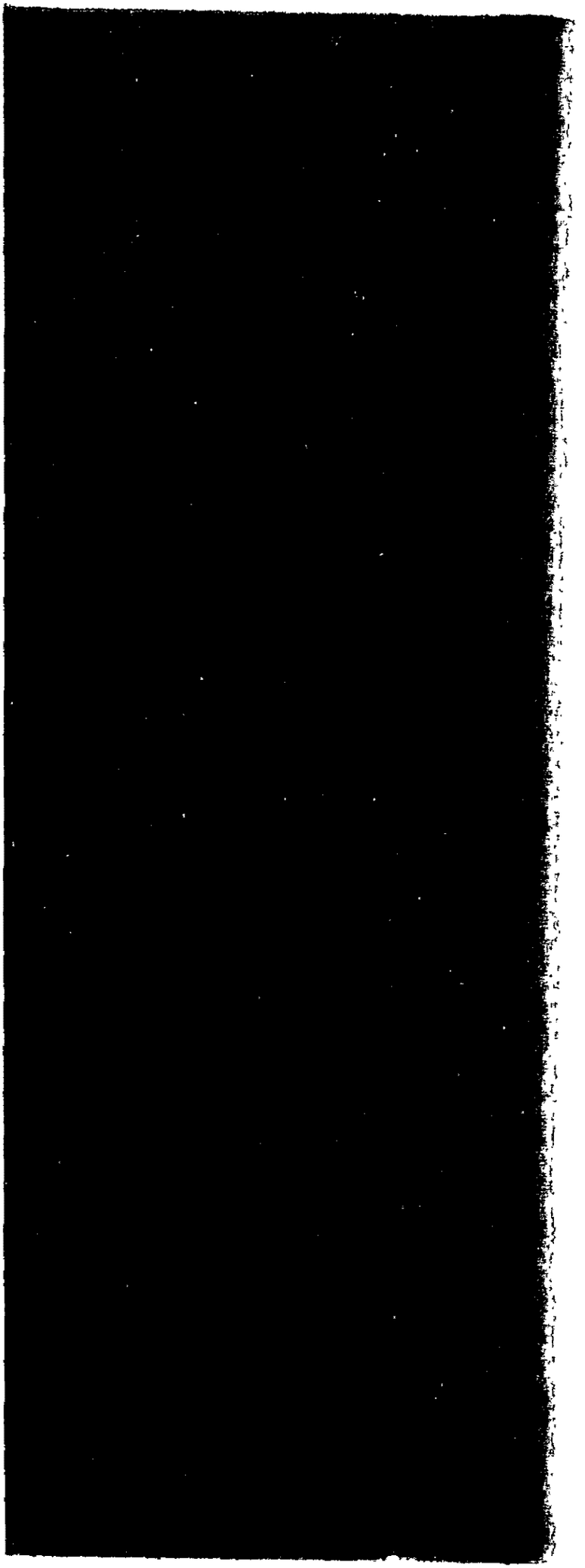
CALCULATIONS AND COMMENTS

CITY OF NOVI
WALLED LAKE BRANCH TRIB."A"
SEC.(5)
HARD SURFACE
70 FT. BREADTH
NUMBER OF POINTS= 15

TATION	ELEVATION
0.0	900.00
0.0	896.80
100.00	895.30
200.00	894.50
300.00	894.10
400.00	893.10
500.00	893.40
600.00	893.00
700.00	892.60
798.30	892.40
801.70	892.40
900.00	892.70
1000.00	893.50
1100.00	895.10
1100.00	900.00

WIDTH OF ROADWAY= 70.00
ROAD SURFACE:PAVED

ELEVATION	Q
892.40	0.0
892.50	3.33
892.60	18.13
892.70	48.60
892.80	95.46
892.90	158.42
893.00	237.80
893.10	334.17
893.20	449.79
893.30	589.72
893.40	757.49
893.50	953.76
893.60	1174.87
893.70	1418.52
893.80	1683.51
893.90	1969.11
894.00	2274.82
894.10	2600.43
894.20	2946.18
894.30	3313.36
894.40	3702.72
894.50	4114.85
894.60	4549.84
894.70	5007.19
894.80	5486.54
894.90	5987.63
895.00	6510.51
895.10	7055.11
895.20	7621.20
895.30	8208.08
895.40	8815.56
895.50	9442.57
895.60	10088.91
895.70	10752.68
895.79	11435.97
895.89	12137.57
895.99	12854.55
896.09	13591.61
896.19	14346.27
896.29	15114.45



JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BRANCH TRIB. "A" | CULVERT LOCATION: NOVI ROAD

CULVERT DESCRIPTION: ONE 3.5' CMP | BY DCH | DATE 7-23-76

PROJECTING FROM FILL

n= 0.024 | Q_{10}= 117 | TW_{10}= ____

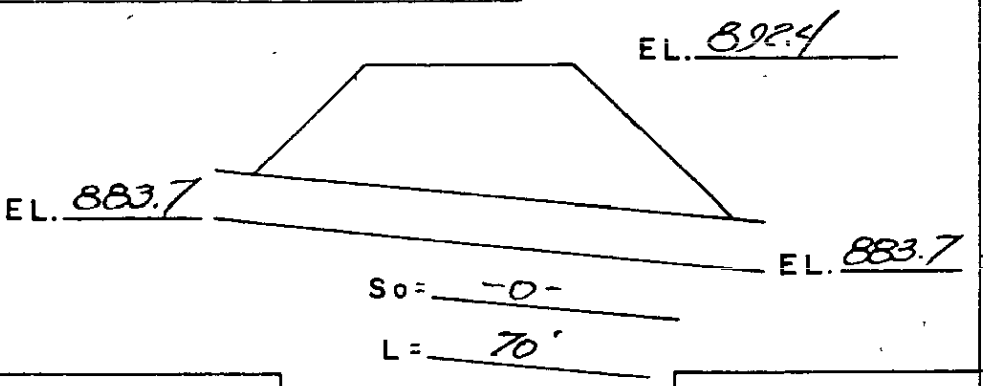
A= 9.62 sq ft | Q_{50}= 177 | TW_{50}= ____

R= 0.875 | Q_{100}= 205 | TW_{100}= ____

Ke= 0.9 | Q_{500}= 290 | TW_{500}= ____

D= 3.5'

LSo= -0-



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
117	3.0	10.50								WEIR		

CALCULATIONS AND COMMENTS

WEIR

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BRANCH TRIB. "A" WEIR LOCATION: ORCHARD SERVICE ROAD

WEIR DESCRIPTION: GRAVEL ROAD 20' BREADTH BY DCM DATE 7-23-76

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Q_T	HW ELEV.	TW ELEV.	H_c (2-3)	$Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	L	AVG. RD.EL.	(6X7)	HW (2-7)	C	$Q_w = CLH_w^{3/2}$	MIN. RD.EL.	$\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	C_s / C_f	(11 X 14)	(5 + 15)
117	881.80	881.7[illegible]	0.02	2						314	879.8	0.990	0.38	119	121
177	882.23	882.21	0.02	2						513	879.8	0.992	0.36	185	187
205	882.40	882.38	0.02	2						608	879.8	0.992	0.36	219	227
290	[illegible]	[illegible]	0.02	2						386	879.8	0.993	0.34	301	303

CALCULATIONS AND COMMENTS

USING HEC-2

CITY OF NOVI
WALLED LAKE BRANCH TRIB."A"
SEC.(3) 2051
GRAVEL ROAD
20 FT. BREADTH
NUMBER OF POINTS= 6

STATION	ELEVATION
250.00	885.90
350.00	884.90
449.00	879.80
451.00	879.80
550.00	883.60
650.00	885.90

WIDTH OF ROADWAY= 20.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
879.80	0.0
879.90	0.30
880.00	1.29
880.10	3.16
880.20	6.12
880.30	10.34
880.40	15.98
880.50	23.18
880.60	32.10
880.70	42.81
880.80	55.49
880.90	70.24
881.00	87.19
881.10	106.43
881.20	128.07
881.30	152.21
881.40	178.95
881.50	208.40
881.60	240.61
881.70	275.67
881.80	313.67
881.90	354.71
882.00	398.86
882.10	446.17
882.20	496.76
882.30	550.62
882.40	607.82
882.50	668.45
882.60	732.58
882.70	800.26
882.80	871.54
882.90	943.25
883.00	1020.04
883.09	1100.14
883.19	1184.49
883.29	1272.28
883.39	1364.50
883.49	1460.30
883.59	1560.63
883.69	1664.71
883.79	1773.69
883.89	1886.75
883.99	2004.54
884.09	2127.68
884.19	2255.39
884.29	2388.69
884.39	2526.77
884.49	2670.68

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BRANCH TRIB. "A" | CULVERT LOCATION: ORCHARD SERVICE ROAD

CULVERT DESCRIPTION: ONE 2.0' DIA. CMP | BY DCM | DATE 7-23-76

PROTECTING FROM FILL

n= 0.024 Q_{10}= 117 TW_{10}= ____

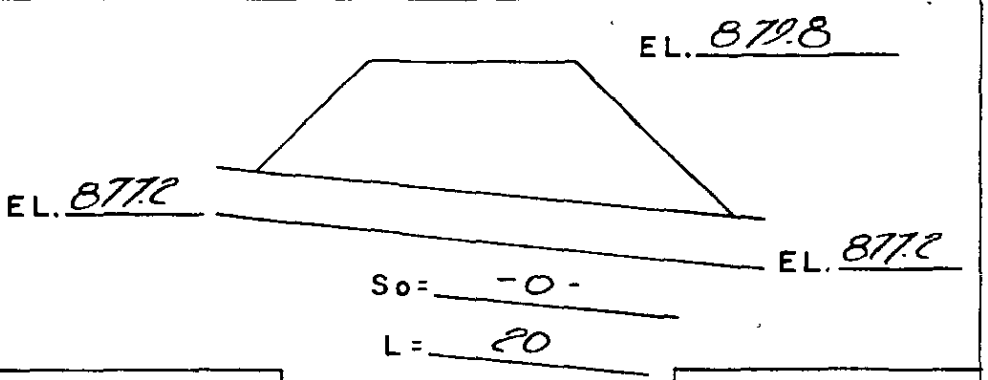
A= 3.14'a Q_{50}= 177 TW_{50}= ____

R= 0.5 Q_{100}= 205 TW_{100}= ____

Ke= 0.9 Q_{500}= 290 TW_{500}= ____

D= 2.0'

LSo= -0-



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			

CALCULATIONS AND COMMENTS

SUBMERGED WEIR USING HEC-2

City of Novi
Walled Lake Branch
Triburary "B"
5555-46-07
DCM 12-29-75

Original Cross-Section Location

Cross-Section	SECNO	Location
A	201	Novi Road Culvert
B	834	550' U.S. Novi Road Culvert
C	1534	1250' U.S. Novi Road Culvert
D	2259	1975' U.S. Novi Road Culvert
E	3034	2750' U.S. Novi Road Culvert
F	3784	3500' U.S. Novi Road Culvert
G	4859	2200' D.S. Taft Road Culvert
H	6209	850' D.S. Taft Road Culvert
I	7059	50' D.S. Taft Road Culvert
J	7060	Taft Road Culvert

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46

WATERCOURSE: WALLED LAKE BR. TRIB. "B" | CULVERT LOCATION: NOVI ROAD

CULVERT DESCRIPTION: 4.0' CMP | BY DCM | DATE 7-30-76

PROTECTING FROM FILL

n= 0.024 | Q_{10}= 116 | TW_{10}=

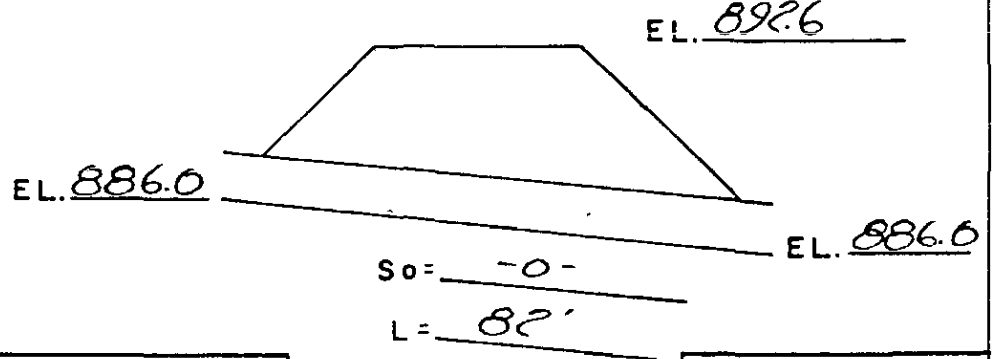
A= 12.57a' | Q_{50}= 175 | TW_{50}=

R= 1.0 | Q_{100}= 205 | TW_{100}=

Ke= 0.9 | Q_{500}= 285 | TW_{500}=

D= 4.0'

LSo= -0-



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	Δ H HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
116	1.75	7.00								WEIR		

CALCULATIONS AND COMMENTS

WEIR

CITY OF NOVI
WALLED LAKE BRANCH TRIB. "B"
NOVI ROAD
HARD SURFACE
24 FT. BREADTH
NUMBER OF POINTS= 9

STATION	ELEVATION
500.00	895.70
539.00	892.80
606.00	893.10
706.00	893.70
768.00	894.60
800.00	895.50
900.00	897.50
943.00	897.60
1006.00	898.70

WIDTH OF ROADWAY= 24.00
ROAD SURFACE:PAVED

ELEV	CAV	FLOW(CFS)
892.80	0.0	0.0
892.90	2.895	0.87
893.00	2.923	4.98
893.10	2.942	13.81
893.20	2.960	28.32
893.30	2.973	48.85
893.40	2.982	75.85
893.50	2.989	109.82
893.60	2.994	151.14
893.70	2.998	200.28
893.80	3.008	257.37
893.90	3.014	321.70
894.00	3.017	393.11
894.10	3.020	471.49
894.20	3.022	556.68
894.30	3.024	648.78
894.40	3.024	747.85
894.50	3.025	853.77
894.60	3.026	966.74
894.70	3.029	1086.71
894.80	3.030	1213.23
894.90	3.031	1346.35
895.00	3.031	1485.96

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BR. TRIB. "8" WEIR LOCATION: NOVI ROAD

WEIR DESCRIPTION: HARD SURFACE 24' BREADTH BY DM DATE 7-30-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD. EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD. EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
				INLET CONTROL											
116	892.87	887.47	—	115						1	882.8	-0-	1.0	1	116
175	893.3	887.76	—	121						54	882.5	-0-	1.0	54	175
205	893.42	888.09	—	122						83	882.5	-0-	1.0	83	205
285	893.62	885.71	—	161						125	882.5	-0-	1.0	125	286

CALCULATIONS AND COMMENTS

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BR. TRIB. "B" CULVERT LOCATION: TAFT ROAD

CULVERT DESCRIPTION: ONE 1.0'CMP BY DCM DATE 7-30-76

PROJECTING FROM FILL

n= 0.024 Q_{10}= 116 TW_{10}= 0 61

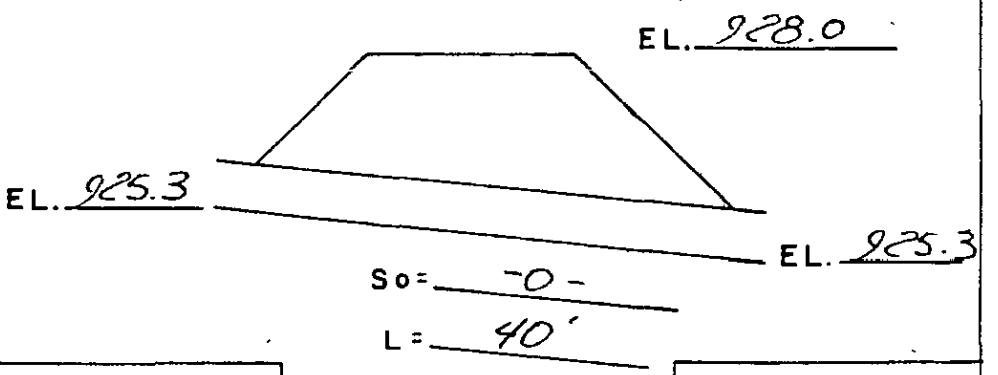
A= 0.780' Q_{50}= 175 TW_{50}=

R= 0.25 Q_{100}= 205 TW_{100}=

Ke= 0.9' Q_{500}= 285 TW_{500}=

D= 1.0'

LSo= -0-



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	D+(1+Ke) V²/2g	HW			
116			2114.57	1.0	1.0	1.0	2115.57			WEIR		

CALCULATIONS AND COMMENTS

WEIR

CITY OF NOVI
WALLED LAKE BRANCH TRIBUTARY "B"
TAFT ROAD SEC (10) 7060
GRAVEL ROAD
40 FT. BREADTH
NUMBER OF POINTS= 12

STATION	ELEVATION
800.00	950.00
800.00	931.50
900.00	931.00
1000.00	929.80
1100.00	928.10
1199.50	928.00
1200.50	928.00
1300.00	929.10
1400.00	931.60
1500.00	934.90
1600.00	937.70
1600.00	950.00

WIDTH OF ROADWAY= 40.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
928.00	0.0
928.10	3.55
928.20	17.08
928.30	38.50
928.40	67.43
928.50	104.14
928.60	148.65
928.70	201.15
928.80	262.32
928.90	331.79
929.00	410.07
929.10	497.94
929.20	594.79
929.30	700.93
929.40	816.03
929.50	939.98
929.60	1073.23
929.70	1215.93
929.80	1367.58
929.90	1528.15
930.00	1698.50

JOB NAME: CITY OF NOVI JOB NO. 5555 46

WATERCOURSE: WALLED LAKE BR. TRIB. "B" WEIR LOCATION: TAFT ROAD

WEIR DESCRIPTION: GRAVEL ROAD 40 FT. BREADTH BY DCM DATE 7-30-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD. EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD. EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
116	926.52	925.91	2.61	4						113	928.0	-0-	1.0	113	117
175	928.68	926.07	2.57	4						170	928.0	-0-	1.0	170	174
205	928.70	926.15	2.55	4						201	928.0	-0-	1.0	201	205
285	928.93	926.31	2.62	4						283	928.0	-0-	1.0	283	287

CALCULATIONS AND COMMENTS

100-year

WATERCOURSE: Trib. "B" Walled Lake Branch

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
	Starting elev. from Walled Lake			
0	Confluence of trib "B" & Walled Lake	888.06	888.06	205
50	50' U/S of confluence	888.06	888.07	205
100	100' U/S of confluence	888.06	888.07	205
150	51' D/S of Novi road	888.07	888.09	205
200	1' D/S of Novi road	888.09	888.25	205
201	D/S face of Novi road			205
283	U/S face of Novi road			205
284	1' U/S of Novi road-X5	893.42	893.42	205
834	551' U/S of Novi road	893.47	893.49	205
1184	901' U/S of Novi road	893.95	893.97	205
1534	1251' U/S of Novi road	895.28	895.33	205
2059	1776' U/S of Novi road	902.13	902.23	205
2646	2163' U/S of Novi road	905.44	905.65	205
3034	2551' U/S of Novi road	908.72	908.83	205
3784	3301' U/S of Novi road	915.83	915.95	205
4859	4376' U/S of Novi road	921.68	921.74	205
5196	4713' U/S of Novi road	922.17	922.20	205
5534	5051' U/S of Novi road	922.27	922.27	205
6209	5726' U/S of Novi road	922.32	922.33	205
6316	746' D/S of Taft road	922.34	922.34	205
6422	639' D/S of Taft road	922.39	922.40	205
6528	533' D/S of Taft road	922.67	922.72	205
6634	427' D/S of Taft road	923.43	923.47	205
6740	321' D/S of Taft road	924.07	924.12	205
6846	215' D/S of Taft road	924.74	924.79	205
6952	108' D/S of Taft road	925.44	925.50	205
7059	1' D/S of Taft road	926.15	926.20	205
7060	D/S face of Taft road			205
7100	U/S face of Taft road			205
7101	1' U/S of Taft road-X5	928.70	928.70	205

100-year

WATERCOURSE: Walled Lake Branch

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
	Starting elevation from stage discharge curve @ dan on Meadowbrook lake			
0	Meadbrook lake confluence	838.29	838.30	1080
62	62' U/S of confluence	838.29	838.33	1080
125	126' U/S of confluence	838.28	838.43	1080
187	64' D/S of Chattman Drive	838.40	838.56	1080
250	1' D/S of Chattman Drive	838.59	838.70	1080
251	D/S face of Chattman Drive	838.58	838.71	1080
292	U/S face of Chattman Drive	838.74	838.83	1080
293	1' U/S of Chattman Drive	838.76	838.83	1080
503A	211' U/S of Chattman Drive	839.13	839.20	1080
601	309' U/S of Chattman Drive	839.29	839.49	1080
699	407' U/S of Chattman Drive	839.64	839.89	1080
797	506' U/S of Chattman Drive	840.02	840.32	1080
895	605' U/S of Chattman Drive	840.46	840.83	1080
993	704' U/S of Chattman Drive	840.95	841.39	1080
1080	803' U/S of Chattman Drive	841.58	841.86	1080
1385	1097' U/S of Chattman Drive	842.64	842.96	1080
1678	2301' D/S of footbridge 350' SE of C & O	843.82	844.16	1080
2253	1726' D/S of footbridge 350' SE of C & O	845.59	845.72	1080
2828	1151' D/S of footbridge 350' SE of C & O	846.73	846.87	1080
3978	1' D/S of footbridge 350' SE of C & O	850.01	850.33	1080
3979	D/S face of footbridge 350' SE of C & O	850.28	850.40	1080
3985	U/S face of footbridge 350' SE of C & O	850.35	850.46	1080
3986	601' D/S of C & O railroad	850.30	850.53	1080
4586	1' D/S of C & O railroad	853.17	854.26	1080
4587	D/S face of C & O railroad	852.89	854.57	1080
4613	U/S face of C & O railroad	853.21	854.75	1080
4614	1' U/S of C & O railroad	854.15	854.97	1080
5238	625' U/S of C & O railroad	855.50	855.51	1080
5544	931' U/S of C & O railroad	855.58	855.63	1080
5697	1084' U/S of C & O railroad	855.76	855.88	1080
5850	1237' U/S of C & O railroad	856.27	856.51	1080
6156	confl. with trib "A" 1543' U/S of C & O	857.52	857.56	1010
6463	307' U/S of confluence with trib. "A"	858.55	858.66	1010
6813	201' D/S of C & O 233' S. of 10 Mile	861.65	862.12	1010
6913	101' D/S of C & O 233' S. of 10 Mile	862.57	863.09	1010
7013	1' D/S of C & O 233' S. of 10 Mile	863.23	864.79	1010
7014	D/S face of C & O 233' S. of 10 Mile	863.08	864.94	1010
7024	U/S face of C & O 233' S. of 10 Mile	863.55	865.12	1010
7025	1' U/S of C & O 233' S. of 10 Mile	864.13	865.26	1010
7045	21' U/S of C & O 233' S. of 10 Mile	865.43	865.60	1010
7175	151' U/S of C & O 233' S. of 10 Mile	865.66	865.82	1010
7225	51' D/S of Ten Mile road	865.65	866.08	1010
7275	1' D/S of Ten Mile road	865.24	867.32	1010
7276	D/S face of Ten Mile road	865.77	867.45	1010
7324	U/S face of Ten Mile road	866.26	867.85	1010
7325	1' U/S of Ten Mile road	866.34	867.88	1010
7338	14' U/S of Ten Mile road	868.14	868.32	1010
7416	92' U/S of Ten Mile road	868.37	868.40	1010
7875	551' U/S of Ten Mile road	868.61	868.68	1010
8625	1301' U/S of Ten Mile road	870.63	870.74	1010

100-year

WATERCOURSE: Walled Lake Branch
CITY/TOWNSHIP: Novi
COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
8975	51' D/S of C & O N. of 10 Mile	872.11	873.21	1010
9025	1' D/S of C & O N. of 10 Mile	872.70	874.48	1010
9026	D/S face of C & O N. of 10 Mile	873.26	874.62	1010
9036	U/S face of C & O N. of 10 Mile	873.40	874.69	1010
9037	1' U/S of C & O N. of 10 Mile	873.36	874.75	1010
9050	14' U/S of C & O N. of 10 Mile	874.77	875.13	1010
9362	326' U/S of C & O N. of 10 Mile	875.75	876.20	1010
9481	445' U/S of C & O N. of 10 Mile	876.26	877.00	1010
9600	564' U/S of C & O N. of 10 Mile	877.27	878.36	1010
9719	683' U/S of C & O N. of 10 Mile	878.75	880.00	1010
9837	801' U/S of C & O N. of 10 Mile	880.75	881.52	1010
10069	1033' U/S of C & O N. of 10 Mile	882.73	883.05	1010
10300	1713' D/S of Novi road	883.68	884.00	1010
10531	1482' D/S of Novi road	884.59	884.87	1010
10762	1251' D/S of Novi road	885.44	885.73	1010
11387	626' D/S of Novi road	888.06	888.36	1010
12012	1' D/S of Novi road	890.83	891.20	930
12013	D/S face of Novi road			930
12093	U/S face of Novi road			930
12094	1' U/S of Novi road-X5	893.37	893.39	930
12269	176' U/S of Novi road	893.40	893.65	930
12444	251' D/S of C & O railroad	894.46	895.00	930
12669	26' D/S of C & O railroad	896.90	897.75	930
	East Branch of Island			
12694	1' D/S of C & O railroad	898.02	898.04	308
12695	D/S face of C & O railroad	898.02	898.04	308
12705	U/S face of C & O railroad	898.03	898.04	308
12706	1' U/S of C & O railroad	898.03	898.05	308
12956	251' U/S of C & O railroad	898.07	898.16	308
13156	51' D/S of Flint Street	898.45	898.70	308
13206	1' D/S of Flint Street	898.45	899.57	308
13207	D/S face of Flint Street			308
13279	U/S face of Flint Street			308
13280	1' U/S of Flint Street-X5	900.90	900.94	308
13287	8' U/S of Flint Street	900.92	900.95	308
13480	51' D/S of footbridge NE of Flint STreet	900.99	901.16	308
13530	1' D/S of footbridge NE of Flint Street	901.09	901.35	308
13531	D/S face of footbridge NE of Flint Street			308
13556	U/S face of footbridge NE of Flint Street			308
13557	1' U/S of footbridge NE of Flint Street-X5	902.10	902.26	308
13572	16' U/S of footbridge NE of Flint Street	902.36	902.52	308
13672	116' U/S of footbridge NE of Flint Street	902.58	902.60	308
13857	241' U/S of footbridge NE of Flint Street	902.62	902.67	308
13987	371' U/S of footbridge NE of Flint Street	902.72	902.89	308
14157	51' D/S of Flint St. S. of G. R. Ave.	903.18	903.35	308
14207	1' D/S of Flint St. S. of G. R. Ave.	902.93	904.29	308
14208	D/S face of Flint St. S. of G. R. Ave.			308
14306	U/S face of Flint ST. S. of G. R. Ave.			308
14307	1' U/S of Flint St. S. of G. R. Ave.-X5	905.07	905.16	308
14407	1' D/S of Grand River Ave.	905.17	905.24	308
14408	D/S face of Grand River Ave.			308
14474	U/S face of Grand River Ave.			308
14475	1' U/S of Grand River Ave.-X5	905.75	905.78	308

100-year

WATERCOURSE: Walled Lake Branch

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
14490	1' D/S of footbridge N. Grand River	905.74	905.79	308
14491	D/S face of footbridge N. Grand River	905.77	905.80	308
14493	U/S face of footbridge N. Grand River	905.78	905.80	308
14494	1' U/S of footbridge N. Grand River	905.76	905.82	308
14694	201' U/S of footbridge N. Grand River	905.90	905.96	308
15494	1001' U/S of footbridge N. Grand River	907.31	907.73	308
16544	51' D/S of culverts-Paragon Steel	909.81	909.88	308
16594	1' D/S of culverts-Paragon Steel	909.80	910.04	308
16595	D/S face of culverts-Paragon Steel			308
17065	U/S face of culverts-Paragon Steel			308
17066	1' U/S of culverts-Paragon Steel-X5	915.27	915.31	308
17391	1' D/S of Railroad Spur-Paragon Steel	915.32	915.32	308
17392	D/S face of Railroad Spur-Paragon Steel	915.32	915.32	308
17447	U/S face of Railroad Spur-Paragon Steel	915.32	915.33	308
17448	1' U/S of Railroad Spur-Paragon Steel Island Confluence	915.33	915.33	308
17508	1' D/S of C & O W. Paragon Steel	915.26	915.40	850
17509	D/S face of C & O W. Paragon Steel	915.20	915.47	850
17535	U/S face of C & O W. Paragon Steel	915.33	915.56	850
17536	1' U/S of C & O W. Paragon Steel	915.47	915.59	850
17711	1' D/S of culverts 200' W. of C & O	915.73	915.77	850
17712	D/S face of culverts 200' W. of C & O	915.73	915.77	850
17732	U/S face of culverts 200' W. of C & O	915.76	915.80	850
17733	1' U/S of culverts 200' W. of C & O	915.76	915.81	850
18370	751' D/S of Canzano Const. culverts	916.49	916.68	850
19758	1' D/S of Canzano Const. culverts	921.42	921.47	850
19759	D/S face of Canzano Const. culverts	921.34	921.56	850
19947	U/S face of Canzano Const. culverts	921.80	921.82	850
19948	1' U/S of Canzano Const. culverts	921.93	921.95	850
20023	1' D/S of I-96 bridge	921.43	922.55	740
20024	D/S face of I-96 bridge			740
20180	U/S face of I-96 bridge			740
20181	1' U/S of I-96 bridge	923.98	923.98	740
20331	151' U/S of I-96 bridge	923.98	924.00	740
21381	1' D/S of Driveway E. of Taft road	924.12	924.16	740
21382	D/S face of Driveway E. of Taft road	924.12	924.16	740
21394	U/S face of Driveway E. of Taft road	924.13	924.16	740
21395	1' U/S of Driveway E. of Taft road	924.13	924.16	740
21420	1' D/S of Garage Street	924.12	924.18	740
21421	D/S face of Garage Street	924.09	924.21	740
21441	U/S face of Garage Street	924.11	924.22	740
21442	1' U/S of Garage Street	924.19	924.24	740
21892	451' U/S of Garage Street	924.31	924.31	740
22392	51' D/S of C & O, 600' SE of 12 Mile	924.02	925.02	740
22442	1' D/S of C & O, 600' SE of 12 Mile	924.76	927.55	740
22443	D/S face of C & O, 600' SE of 12 Mile			740
22468	U/S face of C & O, 600' SE of 12 Mile			740
22469	1' U/S of C & O, 600' SE of 12 Mile-X5	927.55	927.55	740
22718	251' U/S of C & O, 600' SE of 12 Mile	927.49	927.64	740
23143	26' D/S of 12 Mile road	928.42	928.93	740
23168	1' D/S of 12 Mile road	927.54	930.31	740
23169	D/S face of 12 Mile road	929.05	930.67	740

100-year

WATERCOURSE: Walled Lake Branch
[redacted]/TOWNSHIP: Novi
COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
23219	U/S face of 12 Mile road	929.61	931.00	740
23220	1' U/S of 12 Mile road	929.57	931.06	740
23245	26' U/S of 12 Mile road	931.37	931.51	660
23545	326' U/S of 12 Mile road	931.61	931.78	660
24445	1226' U/S of 12 Mile road	932.08	932.09	660
25445	2226' U/S of 12 Mile road	932.16	932.17	660
27220	4001' U/S of 12 Mile road	932.31	932.33	660
28270	5051' U/S of 12 Mile road	932.48	932.48	280
29245	6026' U/S of 12 Mile road	932.49	932.49	280
30045	6426' U/S of 12 Mile road	932.49	932.50	280
30445	6826' U/S of 12 Mile road	932.52	932.54	280
30845	7226' U/S of 12 Mile road	932.84	933.03	280

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI TOWNSHIP

3) WATERCOURSE: NOVI-LYON DRAIN

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

00BREAK00

HYDRAULIC ANALYSIS

Introduction

The stream being investigated is the Novi-Lyon Drain in the City of Novi, Oakland County, Michigan. The study starts from the Johns Road Culvert, about 1000 feet north of Eleven Mile Road, to the Nine Mile Road Culvert, 20 feet east of Garfield Road, covering a distance of approximately 2.9 river miles. Included in this study is one unnamed tributary referred to as Tributary "C." The study of Tributary "C" begins at its confluence with Novi-Lyon Drain, downstream of Farmfield Crossing Bridge No. 5281, and continues for 1.9 river miles until Beck Road. By combining Brater's unit hydrograph-infiltration capacity method with the TR-20 computer program, the 10-, 50-, 100-, and 500-year flood frequency flows were calculated. A significant storage effect that occurred between Ten Mile Road and Nine Mile Road has been taken into consideration.

Method of Analysis

The water surface profiles of all constrictions (culverts and bridges) in this study have been determined by hand calculations, except for those reflecting low flow conditions and completely submerged conditions which can be considered as the backwater profiles. The results of these hand calculations were then entered into the backwater computations on the upstream side of the constriction by the use of an X-5 card in the HEC-2 program. The HEC-2 hydraulics for the two sections that describe the

geometry of the constriction is ignored and replaced by the most representative section, which is moved to points 1.0 foot off the upstream and downstream faces of the constriction. In order to more efficiently model the floodway for the contractions and expansions caused by these constrictions, these same sections were placed upstream and downstream of the constrictions at locations which represent the full cross section unaffected by the constriction.[1] As suggested by the Hydrologic Engineering Center,[2] the downstream section was placed at about four times the average length of the side constriction caused by the bridge or culvert abutments and the upstream section was placed at a distance roughly equal to the bridge or culvert contraction.

There is currently no rational method of evaluating coefficients of contraction and expansion.[3] The coefficients of contractions and expansions used in this study were, respectively, 0.3 and 0.5, as suggested by the example sketched in Exhibit 5 of the HEC-2 Users Manual.

The limits of computational accuracy using the above method of analysis for constrictions will generate a water surface profile with an accuracy of $\pm$ 0.5 foot.

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[1] HEC-2 Users Manual, Exhibit 3 and Exhibit 4.

[2] Applications of HEC-2 Bridge Routines, The Hydrologic Engineering Center, Training Document No. 6.

[3] Chow, V. T., Open Channel Hydraulics, McGraw-Hill, 1959, P. 267.

The discharges were computed by Brater's unit hydrograph-infiltration capacity method and the TR-20 computer program. The former method determines the inflow hydrographs under the conclusion that the unit hydrographs can be correlated with watershed areas and population densities. The latter one determines outflow hydrograph by using "storage-indication method" for both channel and reservoir routing.

Variables and Coefficients

The roughness factors (Manning's "n") were established by comparison of photographs and descriptions found on pages 101 to 123, in Open Channel Hydraulics, by V. T. Chow, with photographs and field inspection trips taken in the City of Novi.

The contraction and expansion coefficients used herein were 0.3 and 0.5, respectively. It is found that these coefficients only have little effect on profile computation.[4]

The orifice discharge coefficients for outlet control used in this study were taken from the Hydraulic Charts for the Selection of Highway Culverts, Hydraulic Engineering Circular No. 5, Bureau of Public Roads. These coefficients represent the addition of the inlet loss, outlet loss and loss due to friction. For inlet control, nomographs from Circular No. 5 (above) were used. If nomographs did not exist for a particular culvert, and the

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[4]Beasley, J. G., A Pilot Study Streamflow Simulation and Flood Profile Determination in Ohio, the Ohio State University, Columbus, Ohio, Nov. 1974.

entrance was submerged, then the equation found on page 209 of Design of Small Channel Structures, U.S. Department of Interior, Bureau of Reclamation, was used. This same equation is found on page 288 of Applied Hydraulics in Engineering by Morris and Wiggert. If the entrance was unsubmerged, either the weir principle was applied or the culvert was made equivalent to a round pipe and solved by the equations found on pages 115 and 116 of Handbook of Concrete Pipe Hydraulics, Portland Cement Association.

The weir discharge coefficients were taken from charts supplied by the Michigan Department of Natural Resources. These coefficients were inserted into a computer program that divides the weir into one foot segments and computes the flow through each segment by the standard weir formula, $Q = C L H^{3/2}$. For a given upstream water surface elevation, the summation of these segments equals the total flow over the weir. If the weir is submerged, a submergence factor (also supplied by the Michigan DNR) for either a gravel or hard surface is manually applied.

Starting Point

The calculations began at the Johns Road Culvert about 1.2 miles downstream from the city limit of Novi. This starting point is selected to ensure that the water elevations at the city limit of Novi are correct, since 1.2 miles is far enough to eliminate the small error of the selected starting water elevations that probably occurred at the Johns Road Culvert. Three different starting elevations have been selected for the water elevation profile calculation. The results show that these three profiles overlap at the section that

is about 0.5 mile upstream of the starting point. The approximate starting water elevations at Johns Road culvert were determined by slope-area method. The calculated water surface elevations at the section where Tributary "C" comes to join Novi-Lyon Drain were used as the starting water elevations for the study of Tributary "C."

Discussion

The large area between Ten Mile Road and Nine Mile Road is very flat and the elevation of this area is about 5.0 feet lower than the surface elevation of Ten Mile Road. Unfortunately, the Ten Mile Road culvert is a CMP pipe with a diameter of 4 feet which is not large enough to discharge the inflows. These observations imply that a significant storage effect between Ten Mile Road and Nine Mile Road must be taken into account. Therefore, this study was divided into two parts at Ten Mile Road (1) a riverine study downstream calculated by HEC-2, and (2) pool elevations upstream calculated by TR-20. Since the stage-discharge relationship of this culvert depends on the tail-water elevations, a number of trials were made to determine flow through the culvert for various headwater elevations. The stage-discharge-storage relationship was put into the TR-20 program to calculate the upstream water surface elevations and discharges for each frequency flood at this "temporary lake."

City of Novi
Novi-Lyon Drain
5555-46-07
MSC 1-30-76

Original Cross-Section Location

Cross-Section	SECNO	Location
A	00	50' d/s of Johns Road Culverts
B	50	Johns Road Culverts
C	1060	50' d/s of Farm Field Crossing Culvert #1110
D	1110	Farm Field Crossing Culvert, 1060'± East of Johns Road and 1120'± North of 11 Mile Road
E	2060	600' West of Napier Road
F	2560	100' d/s from Napier Road Culvert
G	2661	Napier Road Culvert
H	3948	50' d/s from Farm Field Crossing Culvert #3998
I	3998	Farm Field Crossing Culvert, 1050'± East of Napier Road and 5200'± North of Ten Mile Road
J	4748	1750'± East of Napier Road and 5000'± North of Ten Mile Road
K	4949	Old Abandoned Bridge, 13' d/s from Farm Field Crossing Culvert #4981
L	4981	Farm Field Crossing Culvert, 1970'± East of Napier Road and 4850'± North of Ten Mile Road
M	5261	20' d/s from Farm Field Crossing Bridge #5281, u/s of Trib. C
N	5281	Farm Field Crossing Bridge, 220'± East of Napier Road and 4700'± North of Ten Mile Road
O	5751	470' u/s of Bridge #5281
P	6251	970' u/s of Bridge #5281
Q	7076	2010'± West of Wixom Road and 3400'± North of Ten Mile Road

City of Novi
Novi-Lyon Drain
5555-46-07
MSC 1-30-75

Cross Section	SECNO	Location
R	8026	1350'± West of Wixom Road and 2750'± North of Ten Mile Road
S	8801	2600'± West of Wixom Road and 2030'± North of Ten Mile Road
T	9626	2140'± West of Wixom Road and 1320'± North of Ten Mile Road
U	10001	2000'± West of Wixom Road and 970'± North of Ten Mile Road
V	10301	725'± d/s of Ten Mile Road Culvert
W	10626	440'± d/s of Ten Mile Road Culvert
X	11026	35' d/s of Ten Mile Road Culvert
Y	11062	Ten Mile Road Culvert, 1600'± West of Wixom Road

JOB NAME: City of Novi | JOB NO. 5555 | 46 | 01

WATERCOURSE: Novi - Lyon - Drain | CULVERT LOCATION: BS # 50

CULVERT DESCRIPTION: | BY MSC | DATE 6-14-76

n= 0.0318 ✓ | Q_{10}= 320 | TW_{10}= 937.42 (5.02)

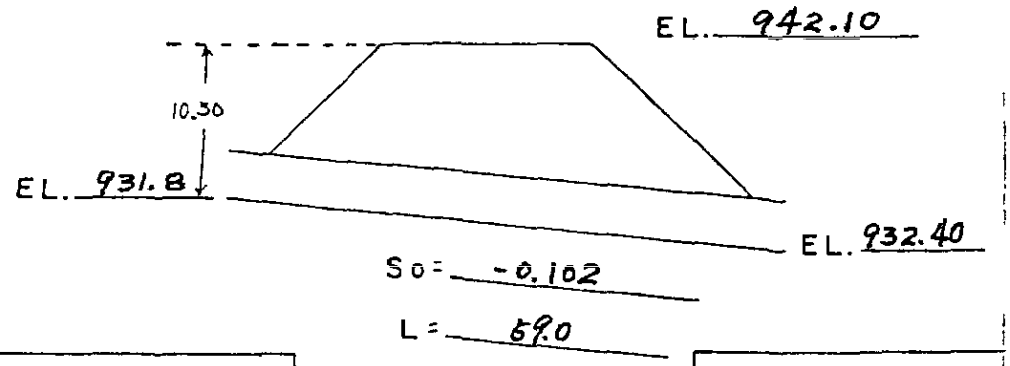
A= 96.0 ✓ | Q_{50}= 505 | TW_{50}= 938.19 (5.79)

R= 1.87 ✓ | Q_{100}= 565 ✓ | TW_{100}= 938.40 ✓ (6.00)

Ke= 0.70 ✓ | Q_{500}= 800 | TW_{500}= 939.17 (6.77)

D= 6.41 ✓

LSo= -0.60 ✓

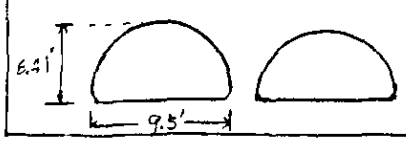


Sta. 109 | Sta. 50

HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL HW	FINAL HW ELEV. EG	Δ H HEC-2
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	D+(1+Ke) $\frac{V^2}{2g}$	HW			
320	Use HEC-2 Solution										937.83	
505	Use HEC-2 Solution										939.02	
565	0.90	5.77	1.32	3.30	4.86	6.00	7.92	7.32	-	7.92	939.72 ✓	939.70 = HG
800	1.19	7.63	2.64	—	—	6.77	10.01	8.24	-	10.01	941.81	

CALCULATIONS AND COMMENTS



$K_f = \frac{29\,n^2 L}{R^{4/3}}$

$= 0.75$ ✓

$H = [1 + K_e + K_f]\frac{V^2}{2g}$

$= [1 + 0.7 + 0.75]\frac{Q^2}{644(9.5)^2}$ (2.45×7 ✓)

$= \frac{Q^2}{242249}$ ✓

1.45

JOB NAME: City of Novi — JOB NO. 5555 | 46 | 01

WATERCOURSE: Novi - Lyon Drain — CULVERT LOCATION: BS # 1110

CULVERT DESCRIPTION: — BY MSC — DATE 6-15-76

n= 0.024 ✓ — Q_{10}= 320 — TW_{10}= 941.33 (5.03)

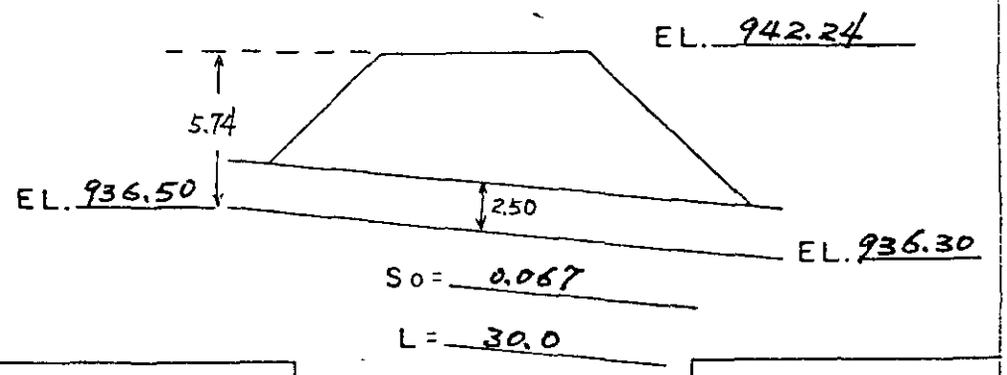
A= 4.91 ✓ — Q_{50}= 505 — TW_{50}= 942.41 (6.11)

R= 0.625 ✓ — Q_{100}= 565 ✓ — TW_{100}= 942.66 (6.36)

Ke= 0.90 ✓ — Q_{500}= 800 — TW_{500}= 943.44 (7.14)

D= 2.50 ✓

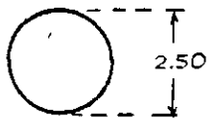
LSo= 0.20 ✓



HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL HW	FINAL HW ELEV.	Δ H HEC-2
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
320												
505												
565					Use Wier + Pressure Flow Route							
800												

CALCULATIONS AND COMMENTS



$H = Q^2/546.7$

CITY OF NOVI 5555-46-01
NOVI-LYON DRAIN
FARM FIELD X-ING CULVERT (SECTION 32) - WITH ENCROACHMENT-
GRAVEL GROUND
ROAD WIDTH IS 25.0 FEET
NUMBER OF POINTS= 8

STATION	ELEVATION
-79.00	960.00
79.00	942.41
121.00	942.24
135.00	943.00
198.80	944.50
201.20	944.50
222.00	944.57
222.00	960.00

WIDTH OF ROADWAY= 25.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
942.24	0.0
942.34	0.26
942.44	1.44
942.54	4.12
942.64	8.53
942.74	15.08
942.84	24.00
942.94	35.57
943.04	49.74
943.14	66.34
943.24	85.56
943.34	107.38
943.44	131.47
943.54	159.14
943.64	189.23
943.74	222.18
943.84	258.11
943.94	297.05
944.04	339.10
944.14	384.25
944.24	432.54
944.34	484.18
944.44	539.13
944.54	597.53
944.64	660.88
944.74	728.75
944.84	800.40
944.94	875.96
945.04	954.02
945.14	1035.56
945.24	1120.13
945.34	1207.48
945.44	1297.31
945.54	1389.95
945.64	1484.92
945.73	1582.25
945.83	1681.87
945.93	1783.63
946.03	1885.01
946.13	1985.45
946.23	2084.70
946.33	2184.08
946.43	2301.15
946.53	2410.27

JOB NAME: City of Novi												JOB NO. 5555	46	01	
WATERCOURSE: Novi - Lyon Drain												WEIR LOCATION: BS # 1110			
WEIR DESCRIPTION:												BY MSC	DATE 6-15-76		
1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD. EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD. EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
320	943.91	941.33	2.58	37.55	-	-	-	-	-	285.38	942.24	< 0	1.0	285.38	322.93
505	944.32	942.41	1.91	32.31	-	-	-	-	-	473.86	942.24	$\frac{0.17}{2.09} = 0.08$	1.0	473.86	506.17
565	944.43	942.66	1.77	31.11	-	-	-	-	-	533.64	942.24	$\frac{0.42}{2.19} = 0.19$	1.0	533.64	564.75
800	944.80	943.44	1.36	27.27	-	-	-	-	-	771.74	942.24	$\frac{1.20}{2.56} = 0.47$	1.0	771.74	799.01

CALCULATIONS AND COMMENTS

$$Q_c = 23.38\sqrt{H_c}$$

JOB NAME: City of Novi — JOB NO. 5555 | 46 | 01

WATERCOURSE: Novi - Lyon Drain — CULVERT LOCATION: BS # 2661

CULVERT DESCRIPTION: — BY MSC — DATE 6-16-76

n= 0.031 ✓ — Q_{10}= 320 — TW_{10}= 946.04 (694) Encr.

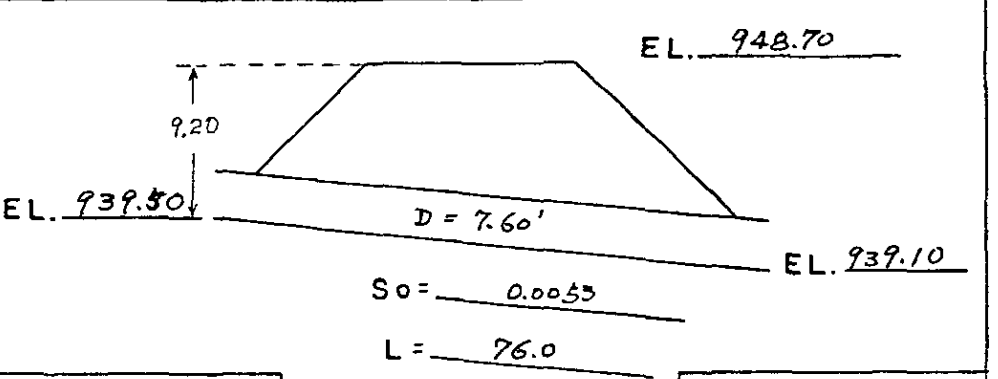
A= 71 ✓ — Q_{50}= 505 — TW_{50}= 946.79 (769)

R= 2.23 ✓ — Q_{100}= 565 ✓ — TW_{100}= 947.02 (793) ✓

Ke= 0.70 ✓ — Q_{500}= 800 — TW_{500}= 947.83 (873)

D= 7.60 ✓

LSo= 0.4 ✓

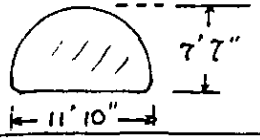


Sta. 2737 — Sta. 2661

HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL ~~HW~~ EG.	FINAL HW ~~ELEV.~~ EG.	Δ H HEC-2
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
320	0.72	5.47	0.77	3.25	5.43	6.94	7.31	8.14	7.02	7.02	946.52	
505	1.02	7.75	1.91	–	–	7.69	9.20	8.92	–	9.20	948.70	
565	1.12	8.51	2.39	–	–	7.93	9.92	} Weir + Pressure	Flow		949.04	
800	1.56	11.86	4.79	–	–	8.73	13.12	}			949.61	

CALCULATIONS AND COMMENTS



$K_f = \frac{29.1\,n^2 L}{D^{4/3}}$

$= 0.73$

$H = (1 + K_e + K_f)\frac{V^2}{2g}$

$= (1 + 0.7 + 0.73)\frac{Q^2}{64.4\,(71)^2}$

$= G/133597$

CITY OF NOVI 5555-46-01
NOVI-LYON DRAIN
NAPIER ROAD CULVERT (SECTION 29) #2661 WITH ENCROACHMENT
GRAVEL ROAD
ROAD WIDTH IS 50 FEET
NUMBER OF POINTS= 7

STATION	ELEVATION
590.00	960.00
590.00	948.98
600.00	948.90
694.00	948.70
706.00	948.70
740.00	948.78
740.00	960.00

WIDTH OF ROADWAY= 50.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
948.70	0.0
948.75	0.84
948.80	3.78
948.85	9.09
948.90	16.91
948.95	27.08
949.00	39.44
949.05	53.67
949.10	69.60
949.15	87.13
949.20	106.17
949.25	126.62
949.30	148.37
949.35	171.40
949.40	195.67
949.45	221.22
949.50	248.05
949.55	275.91
949.60	304.63
949.65	334.48
949.70	365.55
949.75	397.62
949.80	430.65
949.85	464.66
949.90	499.63
949.95	535.52
949.99	572.36
950.04	610.07
950.09	648.56
950.14	687.86
950.19	727.98
950.24	768.93
950.29	810.74
950.34	853.41
950.39	896.94
950.44	941.18
950.49	986.00
950.54	1031.46
950.59	1077.58
950.64	1124.39
950.69	1171.91
950.74	1220.18
950.79	1269.21
950.84	1318.98
950.89	1369.49
950.94	1420.53

951.04	1523.94
951.09	1576.87
951.14	1630.38
951.19	1684.29
951.24	1738.68
951.29	1793.45
951.34	1848.63
951.39	1904.31
951.44	1960.53
951.49	2017.34
951.54	2074.73
951.59	2132.70
951.64	2191.14
951.69	2249.92
951.74	2308.98
951.79	2368.22
951.84	2427.84
951.89	2488.06
951.94	2548.73
951.99	2609.73

JOB NAME: City of Novi												JOB NO.	5555	46	01	
WATERCOURSE: Novi - Lyon Drain								WEIR LOCATION: BS # 2661								
WEIR DESCRIPTION:												BY MSC		DATE 6-16-76		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Q_T	HW ELEV.	TW ELEV.	H_c (2-3)	$Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	L	AVG. RD.EL.	(6X7)	HW (2-7)	C	$Q_w = CLH_w^{3/2}$	MIN. RD.EL.	$\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	C_s / C_f	(11 X 14)	(5 + 15)
565	949.04	947.03	2.01	518.19 ✓	–	–	–	–	–	50.82	948.7	< 0	1.0	50.82	567.01
800	949.61	947.83	1.78	487.64	–	–	–	–	–	310.60	948.7	< 0	1.0	310.60	798.24

CALCULATIONS AND COMMENTS

$$Q_c = 71\sqrt{\frac{64.4}{1+.07+.073}}\,H_c^{1/2} = 365.5\,H_c^{1/2}$$

JOB NAME: City of Novi | JOB NO. 5555 | 46 | 01

WATERCOURSE: Novi - Lyon Drain | CULVERT LOCATION: BS # 3998

CULVERT DESCRIPTION: | BY MSC | DATE 6-17-76

n= 0.015 ✓ Q_{10}= 320 TW_{10}= 949.40 (6.40)

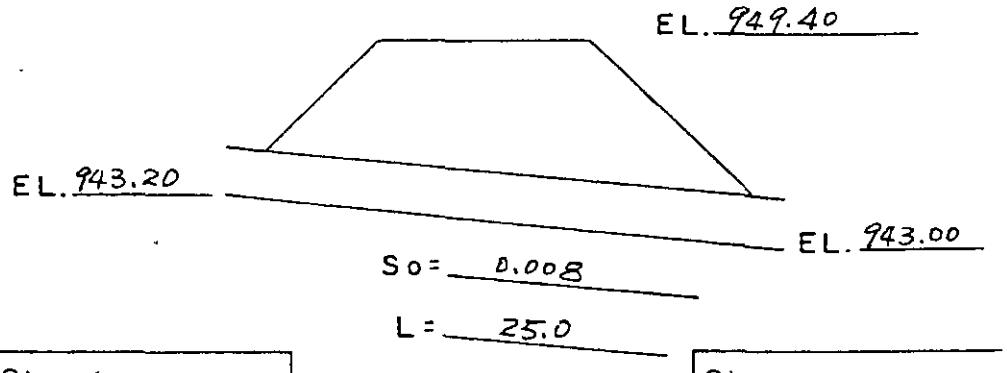
A= 9.62 ✓ Q_{50}= 505 TW_{50}= 950.55 (7.55)

R= 0.875837 Q_{100}= 565 ✓ TW_{100}= 950.84 ✓ (7.84)

Ke= 0.20 ✓ Q_{500}= 800 TW_{500}= 951.64 (8.64)

D= 3.50 ✓

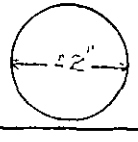
LSo= 0.20



Sta. 4023 | Sta 3998

Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
				Use Weir + Pressure Flow								

CALCULATIONS AND COMMENTS



Concrete Pipe

CITY OF NOVI 5555-46-01
NOVI-LYON DRAIN
FARM FIELD CULVERT (SECTION 28) #3998
GRAVEL GROUND
ROAD WIDTH 20.0 FEET
NUMBER OF POINTS= 9

STATION	ELEVATION
0.0	954.60
100.00	953.90
200.00	951.60
298.30	949.40
301.70	949.40
400.00	953.10
500.00	953.50
600.00	954.20
600.00	954.60

WIDTH OF ROADWAY= 20.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
949.40	0.0
949.50	0.50
949.60	2.08
949.70	5.07
949.80	9.77
949.90	16.46
950.00	25.36
950.10	36.73
950.20	50.79
950.30	67.70
950.40	87.69
950.50	110.96
950.60	137.64
950.70	167.96
950.80	202.02
950.90	240.00
951.00	282.06
951.10	328.36
951.20	379.01
951.30	434.10
951.40	493.83
951.50	558.30
951.60	627.69
951.70	701.97
951.80	781.38
951.90	865.99
952.00	955.80
952.10	1050.94
952.20	1151.54
952.30	1257.66
952.40	1369.37
952.50	1482.17
952.60	1602.09
952.70	1727.84
952.79	1859.53
952.89	1996.77
952.99	2140.63
953.09	2290.74
953.19	2447.79
953.29	2613.87
953.39	2790.34
953.49	2978.29
953.59	3178.50
953.69	3390.94
953.79	3615.37

JOB NAME: City of Novi										JOB NO. 5555	46	01	
WATERCOURSE: Novi - Lyon Drain								WEIR LOCATION: BS # 3998					
WEIR DESCRIPTION:										BY MSC		DATE 6-16-76	

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
320	950.90	949.40	1.50	80.05	–	–	–	–	–	240.00	949.40	0	1.0	240.00	320.05
505	951.32	950.55	0.77	57.35						446.05	949.40	$\frac{1.15}{1.93} = 0.60$	1.0	446.05	503.40
				K=1.395											
565	951.45	950.84	0.59	50.20						513.17	949.40	$\frac{1.44}{2.03} = 0.71$	1.0	513.17	563.37
800	951.91	951.64	0.27	33.96						874.57	949.40	$\frac{2.24}{2.51} = 0.89$	0.875	765.60	799.56

CALCULATIONS AND COMMENTS

$Q_c = 65.36\ H_c^{1/2}$

JOB NAME: city of Novi | JOB NO. 5555 | 46 | 01

WATERCOURSE: Novi - Lyon Drain | CULVERT LOCATION: Ten Mile Road Culvert

CULVERT DESCRIPTION: | BY MSC | DATE 6/17/76

n= 0.024 | Q_{10}= 62 | TW_{10}= 953.97 (4.47)

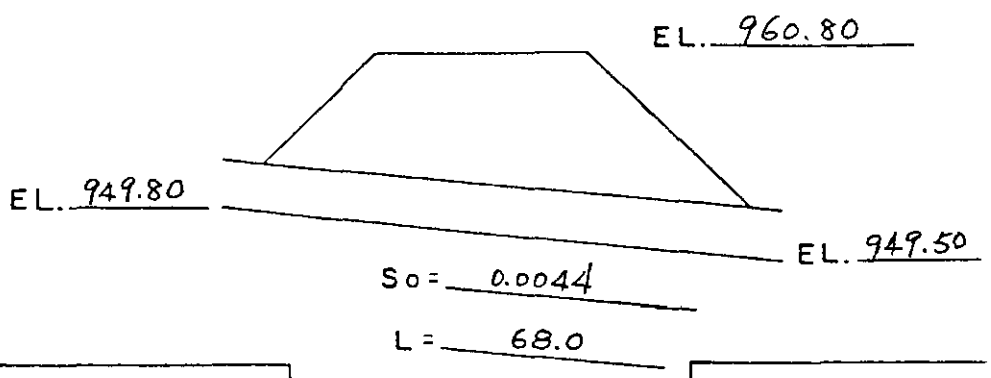
A= 12.57 | Q_{50}= 71 | TW_{50}= 954.43 (4.93)

R= 1.0 | Q_{100}= 73 | TW_{100}= 954.56 (5.06)

Ke= 0.9 | Q_{500}= 81 | TW_{500}= 954.99 (5.49)

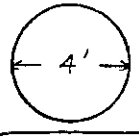
D= 4.0

LSo= 0.30



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV. EG	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
62	0.95	3.80	1.15	-	-	4.47	5.32	4.72	-	5.32	955.12	
71	1.06	4.24	1.51	-	-	4.93	6.14	4.94	-	6.14	955.94	
73	1.08	4.32	1.59	-	-	5.06	6.35	5.00	-	6.35	956.15	956.23
81	1.18	4.72	1.96	-	-	5.49	7.15	5.25	-	7.15	956.95	

CALCULATIONS AND COMMENTS



$K_f = \frac{29 n^2 L}{R^{4/3}}$

$= 1.14$

$H = (1 + K_e + K_f)\frac{V^2}{2g}$

$= (1 + 0.9 + 1.14)\frac{Q^2}{64.4\,(12.57)^2}$

$= Q^2/3347$

Jim Lloyd

City of Novi
Novi-Lyon Drain
Tributary "C"
5555-46-08
DCM 2-4-75

Original Cross-Section Location

Cross-Section	SECNO	Location
A	00	600'± u/s of Confluence with Novi-Lyon Drain
B	855	1455'± u/s of Confluence with Novi-Lyon Drain
C	2080	470' d/s of Wixom Road Bridge
D	2480	50' d/s of Wixom Road Bridge
E	2531	Wixom Road Bridge
F	3119	600'± u/s of Wixom Road Bridge
G	3759	1200'± u/s of Wixom Road Bridge
H	5229	2130'± East of Wixom Road and 900'± South of Eleven Mile Road
I	5489	2400'± East of Wixom Road and 900'± South of Eleven Mile Road
J	5959	2400'± West of Beck Road and 900'± South of Eleven Mile Road
K	6109	2250'± West of Beck Road and 870'± South of Eleven Mile Road
L	6209	2150'± West of Beck Road and 850'± South of Eleven Mile Road
M	6309	120' d/s of Farm Field Crossing
N	6430	Farm Field Crossing 1400' d/s of Eleven Mile Road Bridge
O	7437	30' d/s of Farm Field Crossing
P	7468	Farm Field Crossing 350'± d/s of Eleven Mile Road
Q	7810	35' d/s of Eleven Mile Road Bridge
R	7846	Eleven Mile Road Bridge

Cross-Section	SECNO	Location
S	8334	25' d/s of Farm Culvert Bridge
T	8360	Farm Culvert Bridge 1050'± West of Beck Road and 250'± North of Eleven Mile Road
U	8708	20' d/s of Lawn Culvert
V	8729	Lawn Culvert 825'± West of Beck Road and 50'± North of Eleven Mile Road
W	8883	40' d/s of Driveway Culverts
X	8924	Driveway Culverts 625'± West of Beck Road and 50'± North of Eleven Mile Road
Y	9191	40' d/s of Farm Lane Crossing
Z	9232	Farm Lane Crossing 1050'± d/s of Beck Road Bridge
AA	9550	30'± d/s of Farm Lane Culvert
AB	9581	Farm Lane Culvert 700'± d/s of Beck Road Bridge
AC	10233	40' West of Centerline of Beck Road
AD	10274	Beck Road Bridge

JOB NAME: CITY OF NOVI — JOB NO. 5555 | 46 | 01 | 08

WATERCOURSE: NOVI-LYON TRIB. "C" — CULVERT LOCATION: WIXOM RD.

CULVERT DESCRIPTION: ONE 72"x44" CMP — BY DCM — DATE 6-21-76

PROJECTING FROM FILL

n= 0.024 Q_{10}= 225 TW_{10}= 6.45

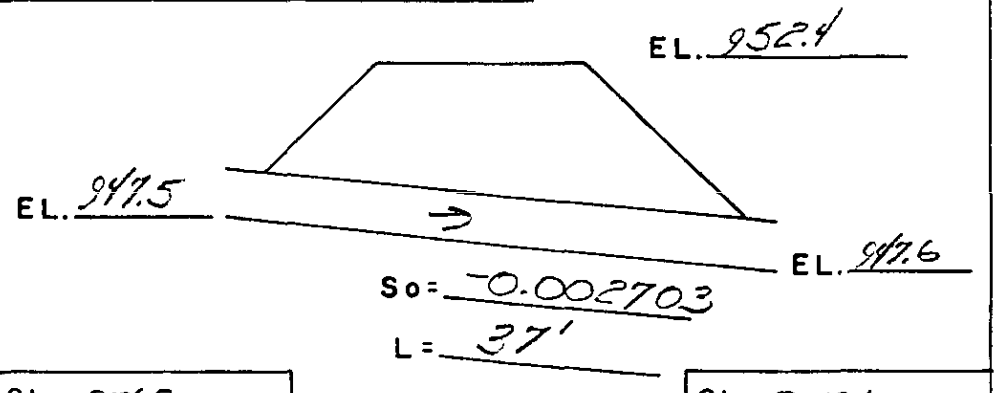
A= 17.60 ft^2 Q_{50}= 340 TW_{50}= 7.01

R= 1.12 Q_{100}= 395 TW_{100}= 7.20

Ke= 0.9 Q_{500}= 540 TW_{500}= 7.65

D= 3.7'

LSo= -0.1



Sta. 2568 — Sta 2531

Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
225									6.55		WEIR	
340									7.11			
395									7.31			
540									7.75			

CALCULATIONS AND COMMENTS

SUBMERGED WEIR USING HEC-2

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46 | 01 | 08

WATERCOURSE: NOVI - LYON DRAIN TRIB. "C" | CULVERT LOCATION: 1350± S. OF 11 MILE RD.

CULVERT DESCRIPTION: ONE 3.5' CMP WITH HEADWALL | BY DCM | DATE 1-30-76

n= 0.024 | Q_{10}= 173 | TW_{10}= 5.32

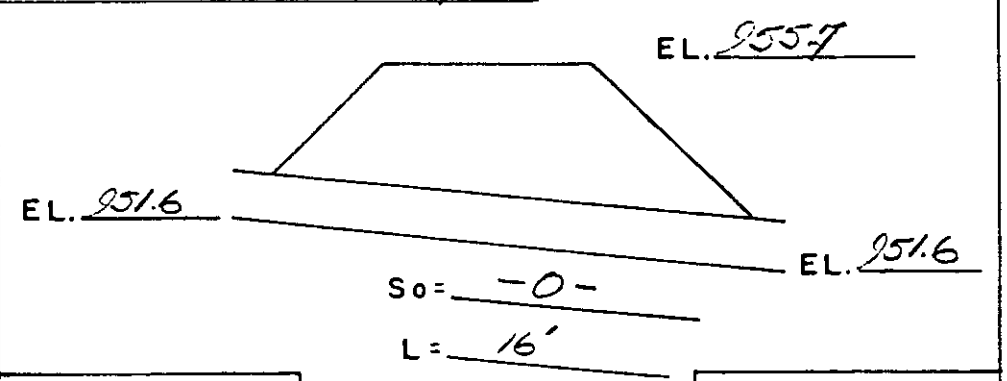
A= 9.62 sq ft | Q_{50}= 260 | TW_{50}= 5.71

R= 0.875 | Q_{100}= 305 | TW_{100}= 5.88

Ke= 0.5 | Q_{500}= 420 | TW_{500}= 6.24

D= 3.5

LSo= -0-



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
173											WEIR	

CALCULATIONS AND COMMENTS

WEIR

CITY OF NOVI
NOVI-LYON DRAIN TRIB. "C"
FARM CROSSING
GRASS
16 FT. BREADTH
NUMBER OF POINTS= 7

STATION	ELEVATION
285.00	960.00
285.00	956.00
298.30	956.30
301.70	956.30
332.00	955.70
400.00	957.90
400.00	960.00

WIDTH OF ROADWAY= 16.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
955.70	0.0
955.80	0.26
955.90	1.48
956.00	4.13
956.10	8.70
956.20	15.92
956.30	26.32
956.40	40.34
956.50	57.59
956.60	77.83
956.70	100.99
956.80	127.07
956.90	156.00
957.00	187.81
957.10	222.50
957.20	260.03
957.30	300.51
957.40	343.88
957.50	390.18
957.60	439.38
957.70	491.52
957.80	546.66
957.90	604.81
958.00	665.84
958.10	729.51
958.20	793.81
958.30	860.42
958.40	929.20
958.50	999.09
958.60	1070.71
958.70	1144.57
958.80	1221.47
958.90	1301.09
959.00	1382.43

JOB NAME: CITY OF NOVI JOB NO. 5555 | 46 | 01 | 03

WATERCOURSE: NOVI-LYON DRAIN TRIB. "C" WEIR LOCATION: FARM X-ING 1400± d/s OF 11 MILE

WEIR DESCRIPTION: GRASS 16 FT. BREADTH BY DCH DATE 1-30-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD. EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD. EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
173	957.02	956.92	0.10	18						195	955.7	0.924	0.81	158	176
260	957.16	957.31	0.09	17						344	955.7	0.947	0.70	241	258
305	957.57	957.48	0.09	17						424	955.7	0.952	0.68	288	305
420	957.94	957.84	0.10	18						629	955.7	0.955	0.65	409	427

CALCULATIONS AND COMMENTS

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46 | 01 | 08

WATERCOURSE: NOVI-LYON DRAIN TRIB. "C" | CULVERT LOCATION: FARM X-ING

CULVERT DESCRIPTION: ONE 3.5' CMP | BY DCH | DATE 1-31-76

PROJECTING FROM FILL

n= 0.024 Q_{10}= 173 TW_{10}= 4.16

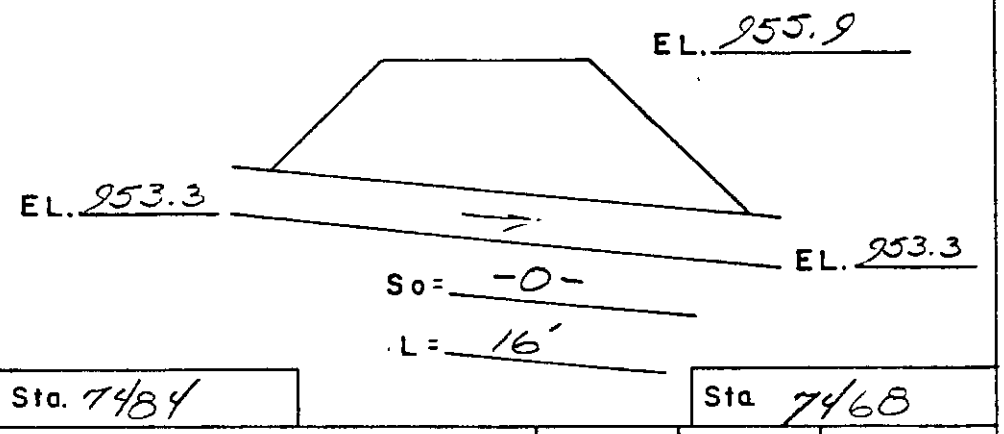
A= 9.62a' Q_{50}= 260 TW_{50}= 4.62

R= 0.875 Q_{100}= 305 TW_{100}= 4.83

Ke= 0.9 Q_{500}= 420 TW_{500}= 5.28

D= 3.5'

LSo= -0-



Sta. 7484 | Sta 7468

Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	Δ H HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
173									4.18			
260									4.64			
305									4.84			
420									5.30			

CALCULATIONS AND COMMENTS

SUBMERGED WEIR, USING HEC-2

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46 | 01 | 08

WATERCOURSE: NOVI-LYON DRAIN TRIB. "C" | CULVERT LOCATION: 11 MILE RD.

CULVERT DESCRIPTION: ONE 4.0' CMP d/s OF ONE 5.5' RCP d/s OF ONE 4.0' CMP HEADWALL | BY DCA | DATE 1-31-76

n= 0.024* Q_{10}= 173 TW_{10}= 4.25

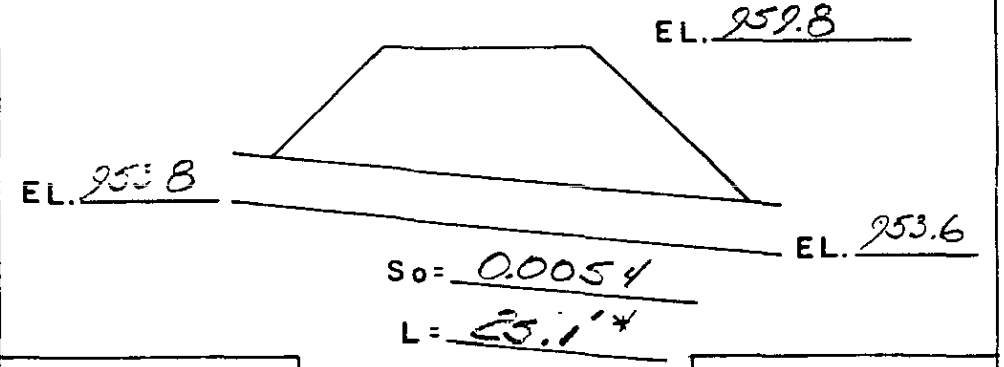
A= 12.57a* Q_{50}= 260 TW_{50}= 4.87

R= 1.0* Q_{100}= 305 TW_{100}= 5.15

Ke= 0.5 Q_{500}= 420 TW_{500}= 5.80

D= 4.0*

LSo= 0.2



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	Δ H HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
173	2.78	11.12	5.65					8.41		WEIR		

CALCULATIONS AND COMMENTS

*FOR CALCULATIONS OF CULVERT HEAD LOSSES THE 5.5' RCP IS ASSUMED TO BE AN EQUIVALENT LENGTH (1.1') OF 4.0' CMP

CITY OF NOVI
NOVI-LYON DRAIN TRIB."C"
11 MILE ROAD
GRAVEL SURFACE
37 FT. BREADTH
NUMBER OF POINTS= 5

STATION	ELEVATION
350.00	970.00
350.00	960.10
400.00	960.00
450.00	959.90
450.00	970.00

WIDTH OF ROADWAY= 537.00
ROAD SURFACE:GRAVEL

ELEVATION	
959.90	0.0
960.00	1.61
960.10	9.15
960.20	23.80
960.30	43.51
960.40	67.52
960.50	95.38
960.60	126.66
960.70	161.28
960.80	198.94
960.90	239.28
961.00	282.54
961.10	328.45
961.20	376.80
961.30	427.56
961.40	480.46
961.50	535.54
961.60	592.96
961.70	652.41
961.80	713.48
961.90	776.34
962.00	841.22
962.10	908.10
962.20	976.55
962.30	1046.47
962.40	1118.22
962.50	1191.14
962.60	1265.13
962.70	1340.57
962.80	1417.58
962.90	1495.92
963.00	1575.00
963.10	1654.94
963.20	1736.22
963.29	1819.54
963.39	1901.81
963.49	1986.32
963.59	2072.05
963.69	2158.97
963.79	2247.07
963.89	2336.35
963.94	2425.77

JOB NAME: CITY OF NOVI										JOB NO. 5555	46	01	08
WATERCOURSE: NOVI-LYON DRAIN TRIB. "C" WEIR LOCATION: 11 MILE ROAD.													
WEIR DESCRIPTION: GRAVEL SURFACE 37 FT. BREADTH										BY DCH	DATE		

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Q_T	HW ELEV.	TW ELEV.	H_c (2-3)	$Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	L	AVG. RD. EL.	(6X7)	HW (2-7)	C	$Q_w = CLH_w^{3/2}$	MIN. RD. EL.	$\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	C_s / C_f	(11 X 14)	(5 + 15)
173	960.35	957.85	2.50	115						56	959.9	-0-	1.0	56	171
260	960.67	958.46	2.21	108						151	959.9	-0-	1.0	151	259
305	960.80	958.75	2.05	104						199	959.9	-0-	1.0	199	303
420	961.09	959.40	1.69	95						323	959.9	-0-	1.0	323	418

CALCULATIONS AND COMMENTS

FOR CALCULATIONS FOR CULVERT HEAD LOSSES THE 5.5' RCP IS ASSUMED TO BE AN EQUIVALENT LENGTH (1.1)' OF 4.0' CMP

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46 | 01 | 08

WATERCOURSE: NOVI-LYON DRAIN TRIB. "C" | CULVERT LOCATION: FARM CULVERT BR.

CULVERT DESCRIPTION: SEVEN 1.0' RCP | BY DCH | DATE 2-6-76

HEADWALL -(3) SQ. CUT (4) GROOVE END U/S

n= 0.015 | Q_{10}= 64 | TW_{10}= 5.77

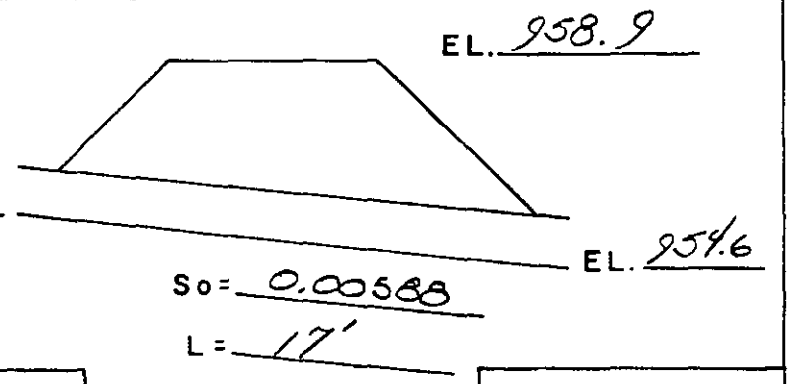
A= 5.50 ft² | Q_{50}= 97 | TW_{50}= 6.10

R= 0.25 | Q_{100}= 113 | TW_{100}= 6.24

Ke= 0.33 | Q_{500}= 157 | TW_{500}= 6.54

D= 2.3'

LSo= 0.1'



Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
64									5.67			
97									6.00			
113									6.14			
157									6.45			

CALCULATIONS AND COMMENTS

SUBMERGED WEIR, USING HEC-2

JOB NAME: CITY OF NOVI — JOB NO. 5555 | 46 | 01 | 08

WATERCOURSE: NOVI - LYON DRAIN TRIB. "C" — CULVERT LOCATION: BECK RD.

CULVERT DESCRIPTION: ONE 2.0' CMP WITH CONC. END RINGS — BY DCH — DATE 2-2-76

n= 0.024 | Q_{10}= 64 | TW_{10}= 3.80

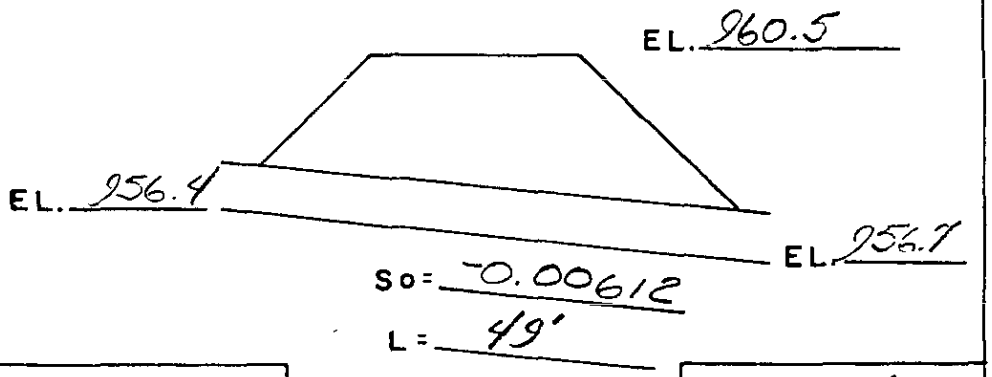
A= 3.140' | Q_{50}= 97 | TW_{50}= 4.15

R= 0.5 | Q_{100}= 113 | TW_{100}= 4.29

Ke= 0.5 | Q_{500}= 157 | TW_{500}= 4.61

D= 2.0'

LSo= -0.3



Sta. 10323 — Sta 10274

Q	HEADWATER ANALYSIS									FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
64												
97												
113												
157												

CALCULATIONS AND COMMENTS

WATER OVER ROAD

CITY OF NOVI
TRIBUTARY "C" NOVI-LYON DRAIN
BECK ROAD
ASPHALT ROAD
49 FT. BREADTH
NUMBER OF POINTS= 6

STATION	ELEVATION
340.00	970.00
340.00	960.98
400.00	960.50
500.00	960.60
600.00	960.80
600.00	970.00

WIDTH OF ROADWAY= 49.00
ROAD SURFACE:PAVED

ELEVATION	Q
960.50	0.0
960.60	4.14
960.70	21.85
960.80	55.21
960.90	104.61
961.00	167.16
961.10	240.82
961.20	323.77
961.30	414.94
961.40	513.60
961.50	619.32
961.60	731.56
961.70	849.89
961.80	973.96
961.90	1103.45
962.00	1238.18
962.10	1377.97
962.20	1522.67
962.30	1672.13
962.40	1826.21
962.50	1984.77
962.60	2147.69
962.70	2314.86
962.80	2486.16
962.90	2661.50
963.00	2840.79

JOB NAME: CITY OF NOVI | JOB NO. 5555 | 46 | 01 | 05

WATERCOURSE: NOVI-LYON DRAIN "TRIB. C" | WEIR LOCATION: BECK ROAD

WEIR DESCRIPTION: ASPHALT 49 FT. BREADTH | BY DCM | DATE 2-4-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD. EL.	8 (6X7)	9 HW. (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD. EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
64	960.35	960.50	0.30	7						55	960.5	0.0	1.0	55	62
97	960.89	960.85	0.04	3						100	960.5	0.897	0.94	94	97
113	961.01	960.99	0.02	2						174	960.5	0.961	0.72	125	127
157	961.32	961.31	0.01	1						435	960.5	0.988	0.50	218	219

CALCULATIONS AND COMMENTS

100-year

WATERCOURSE: Novi-Lyon Drain

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
0	50' D/S of Johns road	938.29	938.58	565
20	30' D/S of Johns road	938.35	938.64	565
49	1' D/S of Johns road	938.40	938.75	565
50	D/S face of Johns road			565
109	U/S face of Johns road			565
110	1' U/S of Johns road-X5	939.70	939.72	565
409	300' U/S of Johns road	939.71	939.90	565
809	700' U/S of Johns road	940.95	941.17	565
959	150' D/S of farm field X-ing	941.87	942.05	565
1060	50' D/S of farm field X-ing	942.40	942.56	565
1109	1' D/S of farm field X-ing	942.66	942.87	565
1110	D/S face of farm field X-ing			565
1140	U/S face of farm field X-ing			565
1141	1' U/S of farm field X-ing-X5	944.38	944.43	565
1600	460' U/S of farm field X-ing	944.92	944.96	565
2060	920' U/S of farm field X-ing	945.45	945.51	565
2560	101' D/S of Napier road	946.62	946.80	565
2660	1' D/S of Napier road	947.03	947.11	565
2661	D/S face of Napier road			565
2737	U/S face of Napier road			565
2738	1' U/S of Napier road-X5	949.00	949.04	565
3250	513' U/S of Napier road	949.28	949.36	565
3675	938' U/S of Napier road	949.90	950.05	565
3948	50' D/S of farm field X-ing	950.61	950.80	565
3997	1' D/S of farm field X-ing	950.84	950.92	565
3998	D/S face of farm field X-ing			565
4023	U/S face of farm field X-ing			565
4024	1' U/S of farm field X-ing-X5	951.37	951.43	565
4450	427' U/S of farm field X-ing	951.80	951.84	565
4748	201' D/S of Old Wooden Bridge	952.19	952.31	565
4948	1' D/S of Old Wooden Bridge	952.73	952.86	565
4949	D/S face of Old Wooden Bridge	952.87	952.90	565
4966	U/S face of Old Wooden Bridge	952.88	952.91	565
4967	1' U/S of Old Wooden Bridge	952.82	951.96	565
4980	14' U/S of Old Wooden Bridge	952.85	952.98	565
4981	D/S face of farm field X-ing	952.94	953.0	565
5011	U/S face of farm field X-ing	952.96	953.02	565
5012	1' U/S of farm field X-ing	952.94	953.04	565
5261	250' U/S of farm field X-ing	953.07	953.08	255
5280	1' D/S of Stul farm bridge	953.08	953.08	255
5281	D/Sface of Stul farm bridge	953.08	953.08	255
5295	U/S face of Stul farm bridge	953.08	953.08	255
5296	1' U/S of Stul farm bridge	953.08	953.09	255
5751	456' U/S of Stul farm bridge	953.11	953.11	255
6251	956' U/S of Stul farm bridge	953.13	953.13	255
6700	1105' U/S of Stul farm bridge	953.16	953.16	195
7076	1481' U/S of Stul farm bridge	953.21	953.21	195
7326	1731' U/S of Stul farm bridge	953.28	953.29	195
7626	2016' U/S of Stul farm bridge	953.38	953.28	195
8026	3086' D/S of Ten Mile road	953.49	953.49	135
8301	2811' D/S of Ten Mile road	953.53	953.54	135
8501	2611' D/S of Ten Mile road	953.58	953.60	135
8801	2311' D/S of Ten Mile road	953.82	953.92	135

100-year

WATERCOURSE: Novi-Lyon Drain

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
9101	1986' D/S of Ten Mile road	954.31	954.33	135
9376	1686' D/S of Ten Mile road	954.43	954.44	135
9626	1436' D/S of Ten Mile road	954.48	954.48	73
10001	1061' D/S of Ten Mile road	954.49	954.49	73
10301	761' D/S of Ten Mile road	954.49	954.49	73
10626	436' D/S of Ten Mile road	954.50	954.50	73
11026	36' D/S of Ten Mile road	954.51	954.55	73
11061	1' D/S of Ten Mile road	954.56	954.57	73
11062	D/S face of Ten Mile road			73
11130	U/S face of Ten Mile road			73
11131	1' U/S of Ten Mile road-X5	956.23	956.24	73

100-year

WATERCOURSE: Tributary "C" Novi-Lyon Drain

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
0	600' U/S of confluence Novi-Lyon Dr.	953.07	953.15	395
520	520' U/S of confluence Novi-Lyon Dr.	954.35	954.41	395
855	875' U/S of confluence Novi-Lyon Dr.	954.69	954.71	395
2080	451' D/S of Wixon road	954.79	954.79	395
2480	51' D/S of Wixon road	954.80	954.80	395
2530	1' D/S of Wixon road	954.80	954.80	395
2531	D/S face of Wixon road	954.80	954.80	395
2568	U/S face of Wixon road	954.80	954.80	395
2569	1' U/S of Wixon road	954.80	954.81	395
3119	551' U/S of Wixon road	954.75	954.93	395
3519	951' U/S of Wixon road	955.91	956.04	395
3759	1191' U/S of Wixon road	956.11	956.11	305
4839	2311' U/S of Wixon road	956.17	956.18	305
5229	2661' U/S of Wixon road	956.23	956.24	305
5489	2921 U/S of Wixon road	956.27	956.27	305
5659	3091' U/S of Wixon road	956.28	956.29	305
5959	471' D/S of farm field crossing	956.32	956.33	305
6109	321' D/S of farm field crossing	956.36	956.37	305
6209	221' D/S of farm field crossing	956.43	956.49	305
6309	121' D/S of farm field crossing	956.94	957.11	305
6429	1' D/S of farm field crossing	957.48	957.50	305
6430	D/S face of farm field crossing 1400' D/S of 11 mile			305
6446	U/S face of farm field crossing 1400' D/S of 11 mile			305
6447	1' U/S of farm field crossing-X5	957.53	957.59	305
7437	31' D/S of farm field crossing 350' D/S of 11 mile	958.11	958.13	305
7467	1' D/S of farm field crossing 350' D/S of 11 mile	958.13	958.14	305
7468	D/S face of farm field crossing 350' D/S of 11 mile	958.13	958.14	305
7484	U/S face of farm crossing 350' D/S of 11 mile	958.14	958.15	305
7485	1' U/S of farm crossing 350' D/S of 11 mile	958.14	958.15	305
7810	36' D/S of 11 mile road	958.14	958.61	305
7845	1' D/S of 11 mile road	958.75	958.88	305
7846	D/S face of 11 mile road			305
7883	U/S face of 11 mile road			305
7884	1' U/S of 11 mile road	960.80	960.81	305
8334	451' U/S of 11 mile road	960.84	960.84	113
8359	1' D/S of farm culverts	960.84	960.84	113
8360	D/S face of farm culverts	960.84	960.84	113
8377	U/S face of farm culverts	960.84	960.84	113
8378	1' U/S of farm culverts	960.84	960.84	113
8708	2' D/S of lawn culverts	960.85	960.85	113
8728	1' D/S of lawn culverts	960.85	960.85	113
8729	D/S face of lawn culverts	960.85	960.85	113
8747	U/S face of lawn culverts	960.85	960.85	113
8748	1' U/S of lawn culverts	960.85	960.85	113
8883	41' D/S of driveway culverts	960.85	960.85	113
8923	1' D/S of driveway culverts	960.85	960.85	113
8924	D/S face of driveway culverts	960.85	960.85	113

100-year

WATERCOURSE: Tributary "C" Novi-Lyon Drain

[redacted]/TOWNSHIP: Novi

COUNTY: Oakland

STATION	LOCATION	CWSEL	EG	Q
8955	U/S face of driveway culverts	960.85	960.85	113
8956	1' U/S of driveway culverts	960.85	960.85	113
9191	41' D/S of farm lane crossing	960.85	960.85	113
9231	1' D/S of farm lane crossing	960.86	960.86	113
9232	D/S face of farm lane crossing	960.86	960.86	113
9264	U/S face of farm lane crossing	960.86	960.86	113
9265	1' U/S of farm lane crossing	960.86	960.86	113
9550	286' U/S of farm lane crossing	960.90	960.92	113
9580	1' D/S of farm lane culverts	960.93	960.93	113
9581	D/S face of farm lane culverts	960.93	960.93	113
9597	U/S face of farm lane culverts	960.93	960.93	113
9598	1' U/S of farm lane culverts	960.93	960.93	113
10233	41' D/S of Beck road Bridge	960.99	960.99	113
10273	1' D/S of Beck road Bridge	960.99	960.99	113
10274	D/S face of Beck road Bridge			113
10323	U/S face of Beck road Bridge			113
10324	1' U/S of Beck road Bridge-X5	961.01	961.01	113

MATCH LINE

CORPORATE LIMITS

TWELVE MILE ROAD

CHESAPEAKE AND OHIO

GRAND RIVER AVENUE

I-96

WALLED LAKE

MIDDLE RIVER ROUGE

HAGGERTY ROAD

ELEVEN MILE ROAD

BISHOP CREEK

I-696

MATTER ROAD

WIXOM ROAD

BEECK ROAD

TAFT ROAD

NOVI ROAD

MEADOWBROOK ROAD

CORPORATE LIMITS

TEN MILE ROAD

NOVI TOWNSHIP
AREA NOT INCLUDED

NINE MILE ROAD

THORNTON CREEK

MEADOWBROOK

PARKWAY

GARFIELD ROAD

CORPORATE LIMITS

EIGHT MILE ROAD

CORPORATE LIMITS

FR2

FINAL:	JOB NO. 5555-46-1
DATE COMPLETED:	DATE ISSUED
PRELIMINARY:	SHEET NO. 1

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: NOVI TOWNSHIP

3) WATERCOURSE: THORNTON CREEK

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

00BREAK00

HYDRAULIC ANALYSIS

Introduction

The stream being investigated is the Thornton Creek in the City of Novi, Oakland County, Michigan. The study limits are from its confluence with the Patnales Drain, south of Nine Mile Road, to Ten Mile Road west of Taft Road, a distance of approximately 3.5 river miles. Included in the scope of study is a small segment of overland flow which occurs just upstream of the confluence.

The 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 approved by the Michigan Department of Natural Resources.

Method of Analysis

All constrictions (culverts and bridges) in this study have been modeled for low flow conditions according to the requirements of the normal bridge routine of HEC-2. They were then analyzed by hand calculations for pressure flow (inlet or outlet control) and weir flow or a combination of flows. The tailwater elevations used in conjunction with outlet control were determined by comparing encroached and unencroached valley sections one foot downstream of the constriction. With the aid of photographs and field inspection trips to the site of the constriction, a judgment was made as to the likelihood of the downstream section being either a pool with a small velocity (unencroached

section) or an expanding section with a high velocity producing an adverse slope (encroached section).

If the constriction was flowing under pressure and/or weir flow existed, then the correct water surfaces from the hand calculations were entered into the backwater computations at the full valley section one foot upstream of the constriction by the use of an X-5 card in the HEC-2 program. This full valley section reflects the presence of a pool. When an X-5 card is used, the two sections that describe the geometry of the bridge are left in place for informational purposes and the HEC-2 hydraulics for these two sections is ignored.

Because of the requirements of the HEC-2 normal bridge routine, the original field-surveyed cross sections that were taken within two hundred feet downstream of all constrictions have been physically relocated to points that are one foot from the upstream and downstream faces of the constrictions.

In order to more efficiently model the floodway for the contractions and expansions caused by these constrictions, these same sections were placed upstream and downstream of the constriction at locations that represent the full cross section unaffected by the constriction, as set forth in Exhibit 4 of the HEC-2 Users Manual for the required cross sections using the normal bridge routine. These same cross sections are also required for the special bridge routine as set forth in Exhibit 3 of the HEC-2 Users Manual.

The guidelines set forth on pages 18 through 21, inclusive, in the Applications of HEC-2 Bridge Routines, The Hydrologic Engineering Center, Training Document No. 6, were used to determine the location of these cross sections. Accordingly, the downstream section was placed at about four (4) times the average length of the side constriction caused by the bridge or culvert abutments. The upstream section was placed a distance equal to the bridge or culvert contraction. These distances have been modified in some cases due to the physical encroachments of buildings, high banks, etc.

The coefficients of contraction and expansion used in Exhibit 5 in the HEC-2 Users Manual are 0.3 and 0.5, respectively. These values were used in this study since the example situation in the Users Manual closely approximates typical conditions found on the Thornton Creek.

The limits of computational accuracy using the above method of analysis for constrictions will reflect a water surface profile with an accuracy of $\pm$ .5 foot.

Variables and Coefficients

The roughness factors (Manning's "n") were established by comparing the photographs and descriptions found on pages 101 and 123 in Open-Channel Hydraulics by Ven Te Chow, with photographs and field inspection trips taken in the City of Novi.

The contraction and expansion coefficients used in the Novi Study were .3 and .5, respectively. Generally, the changes in shape of the stream cross

sections were not considered gradual transitions; they more nearly approached the transition section of bridges and culverts. Although this assumption may lead to a higher eddy loss than actually occurs, it should have little effect on profile computations. As stated by Beasley in A Pilot Study Streamflow Simulation and Flood Profile Determination in Ohio on page 143, " . . . a sensitivity study . . . has indicated that the HEC-2 is not very sensitive to these [contraction and expansion] coefficients and little time should be spent on their selection."

The orifice discharge coefficients for outlet control used in this study were taken from the Hydraulic Charts for the Selection of Highway Culverts, Hydraulic Engineering Circular No. 5, Bureau of Public Roads. These coefficients represent the addition of the inlet loss, outlet loss and loss due to friction. For inlet control, nomographs from Circular No. 5 (above) were used. If nomographs did not exist for a particular culvert, and the entrance was submerged, then the equation found on page 209 of Design of Small Channel Structures, U.S. Department of Interior, Bureau of Reclamation, was used. If the entrance was unsubmerged, either the weir principle was applied or the culvert was made equivalent to a round pipe and solved by the equations found on pages 115 and 116 of Handbook of Concrete Pipe Hydraulics, Portland Cement Association.

The weir discharge coefficients were taken from charts supplied by the Michigan Department of Natural Resources. These coefficients were inserted into a computer program that divides the weir into one foot segments and computes the flow through each segment by the standard weir formula, $Q = CLH^{3/2}$. For a given

upstream water surface elevation, the summation of these segments equals the total flow over the weir. If the weir was submerged, a submergence factor (also supplied by the Michigan DNR) for either a gravel or hard surface was manually applied.

Starting Point

The profile computations for the Thornton Creek began at its confluence with the Patnales Drain and the starting elevations were taken from the Patnales Drain study. The starting elevations for the overland flow leg were taken at its confluence with the Patnales Drain. Since this was a free outfall situation, the starting elevations were obtained by a weir analysis.

Discussion

The only unusual condition in this study was the overland diversion of flow caused by the earth embankment of the C&O Railroad. The division of flow was determined by the technique illustrated on page 320 and 321 of Open-Channel Hydraulics by Ven Te Chow.

Original Cross-Section Location

Cross-Section	SECNO	Location
A	0	700' D.S. C&O RR Bridge Confluence w/Patnales
B	674	50' D.S. C&O RR Bridge
C	675	C&O RR Bridge
D	1560	1100' D.S. 9 Mile Road
E	2160	500' D.S. 9 Mile Road
F	2496	Pedestrian Footbridge
G	2639	50' D.S. 9 Mile Road
H	2640	9 Mile Road
I	2880	250' U.S. 9 Mile Road
J	3091	100' D.S. Novi Road
K	3092	Novi Road
L	3978	500' U.S. Novi Road
M	5179	50' D.S. Van Buren Est. Bridge
N	5180	Van Buren Estate Bridge
O	5919	400' D.S. 9 Mile Road
P	6139	50' D.S. 9 Mile Road
Q	6140	9 Mile Road
R	6390	70' D.S. Center Street
S	6391	Center Street
T	7147	700' U.S. Center Street
U	7896	100 D.S. Connemara Drive
V	7897	Connemara Drive

Cross-Section	SECNO	Location
W	8587	630' U.S. Connemara Drive
X	9411	50' D.S. Taft Road
Y	9412	Taft Road
Z	10280	700' U.S. Taft Road
AA	11079	50' D.S. 9 Mile Road
AB	11080	9 Mile Road
AC	12195	700' U.S. 9 Mile Road
AD	13620	400' D.S. Farm Lane
AE	14029	50' D.S. Farm Lane
AF	15238	1100' U.S. Farm Lane
AG	15988	2300' D.S. Ten Mile Road
AH	16738	1650' D.S. Ten Mile Road
AI	17638	850' D.S. Ten Mile Road
AJ	18512	50' D.S. Ten Mile Road
AK	18513	10 Mile Road

Thornton Creek Island
Overland Flow Leg
5555-46-1-01
WCR 12-22-75

Original Cross-Section Location

Cross-Section	SECNO	Location
A	0	50' U.S. Confluence w/Patnales
B	810	900' U.S. Confluence w/ Patnales
C	1520	1900' D.S. 9 Mile Road

JOB NAME: Novi, FIS	JOB NO.	5555	46	1	
WATERCOURSE: Thornton Creek	WEIR LOCATION: Btwn CEO R.R. & Relocated Novi				
WEIR DESCRIPTION: Grass with 100' breadth	BY WCR	DATE 6-8-76			

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
124	818.76	817.03								125	817.1	–	1	125	125
164	819.00	818.26								165	817.1	.61	1	165	165
183	820.08	820.02								406	817.1	.98	.46	187	187
224	825.12	825.12									817.1				224

CALCULATIONS AND COMMENTS

T.W. from SECNO 37+56 Patinales Study

CITY OF NOVI
THORNTON CREEK ISLAND
WEIR BETWEEN C&O R.R. & RELOCATED NOVI RD
GRASS
100 FT BREADTH
NUMBER OF POINTS= 7

STATION	ELEVATION
0.0	826.60
8.00	825.10
29.00	817.80
54.00	817.10
70.00	822.20
98.00	822.90
98.00	826.60

WIDTH OF ROADWAY= 100.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
817.10	0.0
817.20	0.15
817.30	0.68
817.40	1.97
817.50	4.07
817.60	7.19
817.70	11.54
817.80	17.01
817.90	23.91
818.00	32.00
818.10	40.88
818.20	50.90
818.30	62.17
818.40	73.98
818.50	86.78
818.60	100.75
818.70	115.59
818.80	130.97
818.90	147.47
819.00	165.14
819.10	183.12
819.20	202.01
819.30	222.16
819.40	243.06
819.50	264.32
819.60	286.80
819.70	310.43
819.80	334.17
819.90	358.84
820.00	384.73
820.10	411.32
820.20	438.12
820.30	466.12
820.40	495.31
820.49	524.37
820.59	554.45
820.69	585.70
820.79	617.57
820.89	649.71
820.99	683.12
821.09	717.83
821.19	752.26
821.29	787.90
821.39	824.84
[illegible]	[illegible]

100-YEAR

WCR
6-25-76

Starting elevations for Confluence Leg are taken from an interpolated SECNO 64+08 of the Patnales Drain study

10 yr	824.48
50 yr	825.13
100 yr	825.43
500 yr	827.93

Job Name: Novi, FIS | Job No. 5555 | 46 | 1 | 01

Watercourse: Thornton Creek | Culvert Location: E. of Novi Rd & So of 9 Mile

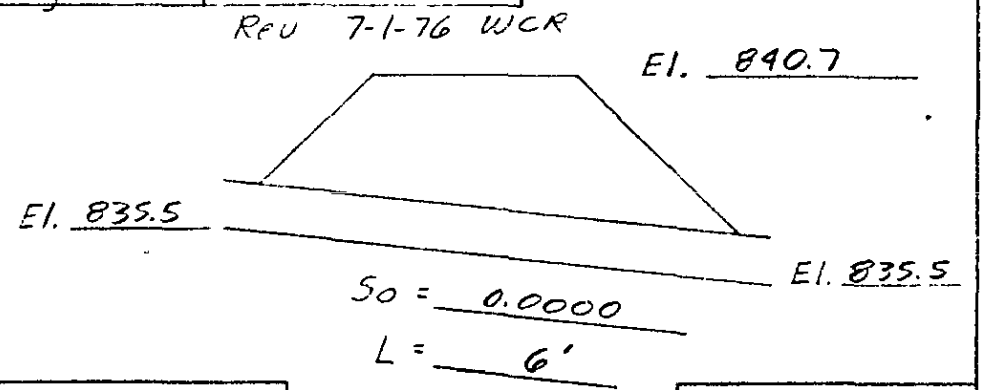
Culvert Description: Wooden Pedestrian Bridge | By WCR | Date 11-25-75

Rev 7-1-76 WCR

$n = 0.02$ $A = 187$ $R = 1.06$ $Ke = 0.6$ $D = 4.70$ $L So = 0$

$Q_{10} = 315$ $Q_{50} = 470$ $Q_{100} = 550$ $Q_{500} = 750$

$TW_{10} = 3.85$ $TW_{50} = 4.79$ $TW_{100} = 5.20$ $TW_{500} = 6.08$



Sta. 25+02 | Sta. 24+96

Q	HEADWATER ANALYSIS									Final HW	Final HW Elev. W.S.	ΔH HEC-2
	Inlet Cont.		Outlet Cont. HW = H + ho − LSo					HEC-2				
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	D+(1+Ke)V²/2g	HW			
315		2.32	0.07	1.79	3.25				3.87	3.87	839.37	
470		2.47	0.16	2.22	3.46				4.83	4.83	840.33	
550		2.57	0.22	2.40	3.55				5.27	5.27	840.77	
750		2.89	0.42	2.79	3.75				6.15	6.15	841.65	

Calculations & Comments

Inlet Control

$HW = \left(\frac{V^2}{2g} \times \frac{1}{C^2}\right) + \frac{D}{2}$ $C = .6$

Outlet Control

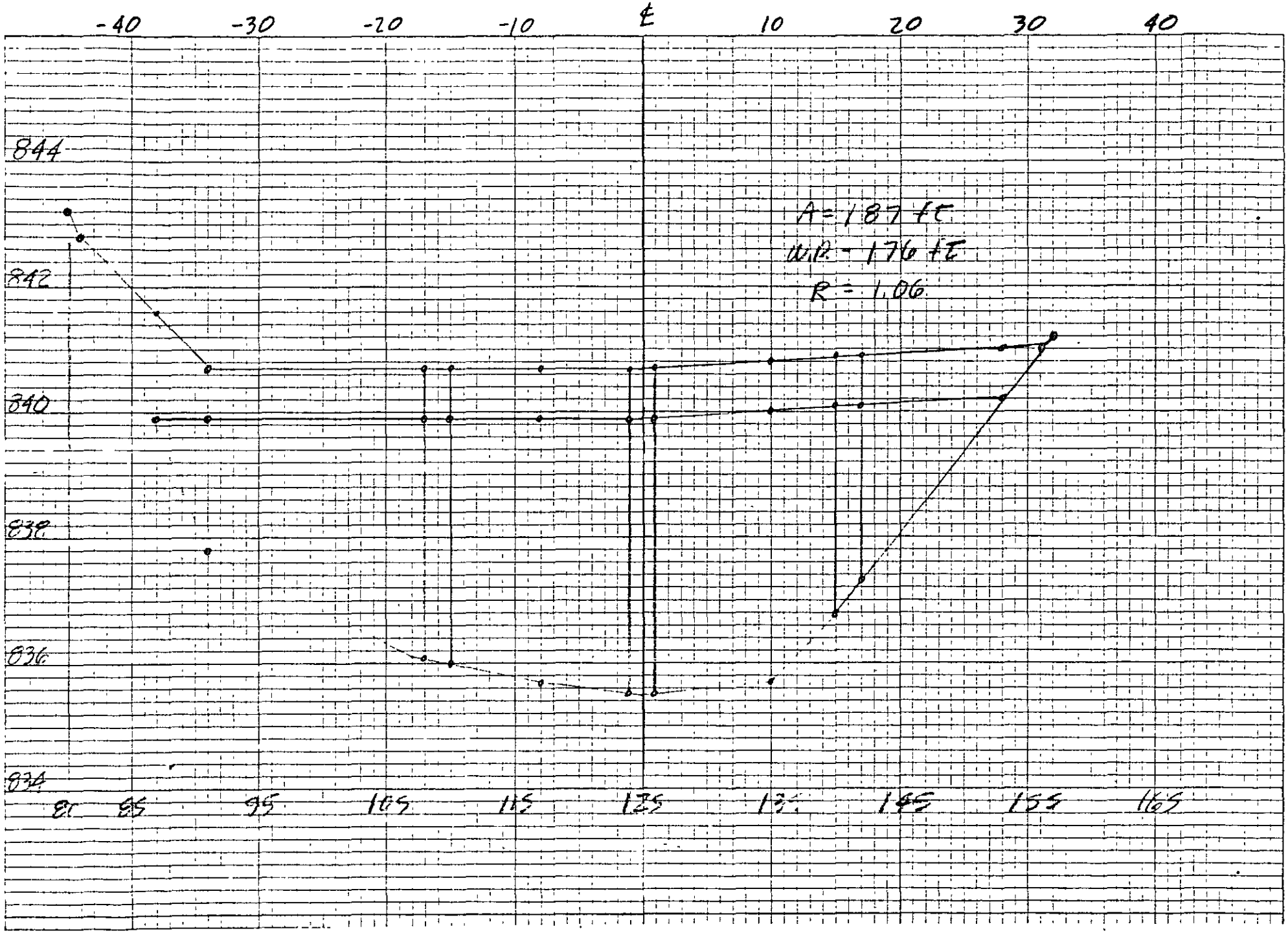
$H = .0258\,V^2$

40.7 − 35.5 = 5.20 WEIR FLOW BEGINS

Bridge & abutments are a small obstruction to the flow. Friction losses are the predominate consideration. ∴ Use normal bridge routine.

KEUFFEL & ESSER CO. MADE IN U.S.A.

47 0703



46-01 Thornton Creek Mun. Client Presentation Bridge

CITY OF NOVI
THORNTON CREEK
EAST OF NOVI ROAD AND SOUTH OF NINE MILE ROAD
WOODEN PEDESTRIAN BRIDGE WITH GRASS AND BRUSH OVERBANKS
6 FT BREADTH
NUMBER OF POINTS= 18

STATION	ELEVATION
0.0	847.80
25.00	844.10
80.00	843.20
81.00	842.80
87.00	841.60
91.00	840.70
108.00	840.70
126.00	840.70
135.00	840.80
140.00	840.90
142.00	840.90
153.00	841.00
156.00	841.00
157.00	841.20
225.00	844.50
325.00	845.60
425.00	848.40
440.00	848.70

WIDTH OF ROADWAY= 6.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
840.70	0.0
840.80	3.13
840.90	9.64
841.00	19.41
841.10	32.77
841.20	49.21
841.30	68.33
841.40	90.11
841.50	114.91
841.60	141.63
841.70	171.73
841.80	211.34
841.90	249.05
842.00	288.22
842.10	330.14
842.20	374.83
842.30	422.56
842.40	472.47
842.50	525.27

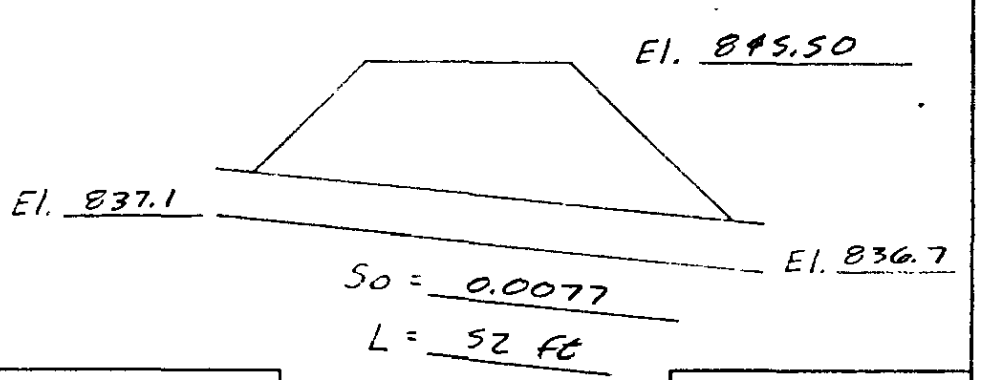
Job Name: Novi, FIS	Job No. 5555	46	1	01
Watercourse: Thornton Creek	Culvert Location: 9 Mile East of Novi Rd			
Culvert Description: (2) 10'-3" x 6'-9" CM Pipe	By WCR	Date 11-26-75	Rev 4-8-76 WCP	
Arch Mitered to Conc Fill Slope				

n = .0317 ✓ A = 54 ✓ R = 1.97 ✓ K_e = 0.70 ✓ D = 6.75 ✓ $L S_o$ = 0.40

Q_{10} = 315 Q_{50} = 470 Q_{100} = 550 ✓ Q_{500} = 750

TW_{10} = 2.65 TW_{50} = 3.55 TW_{100} = 3.96 TW_{500} = 4.76

Y_{500} = 2.75 each



Sta. 26+92 Sta. 26+40

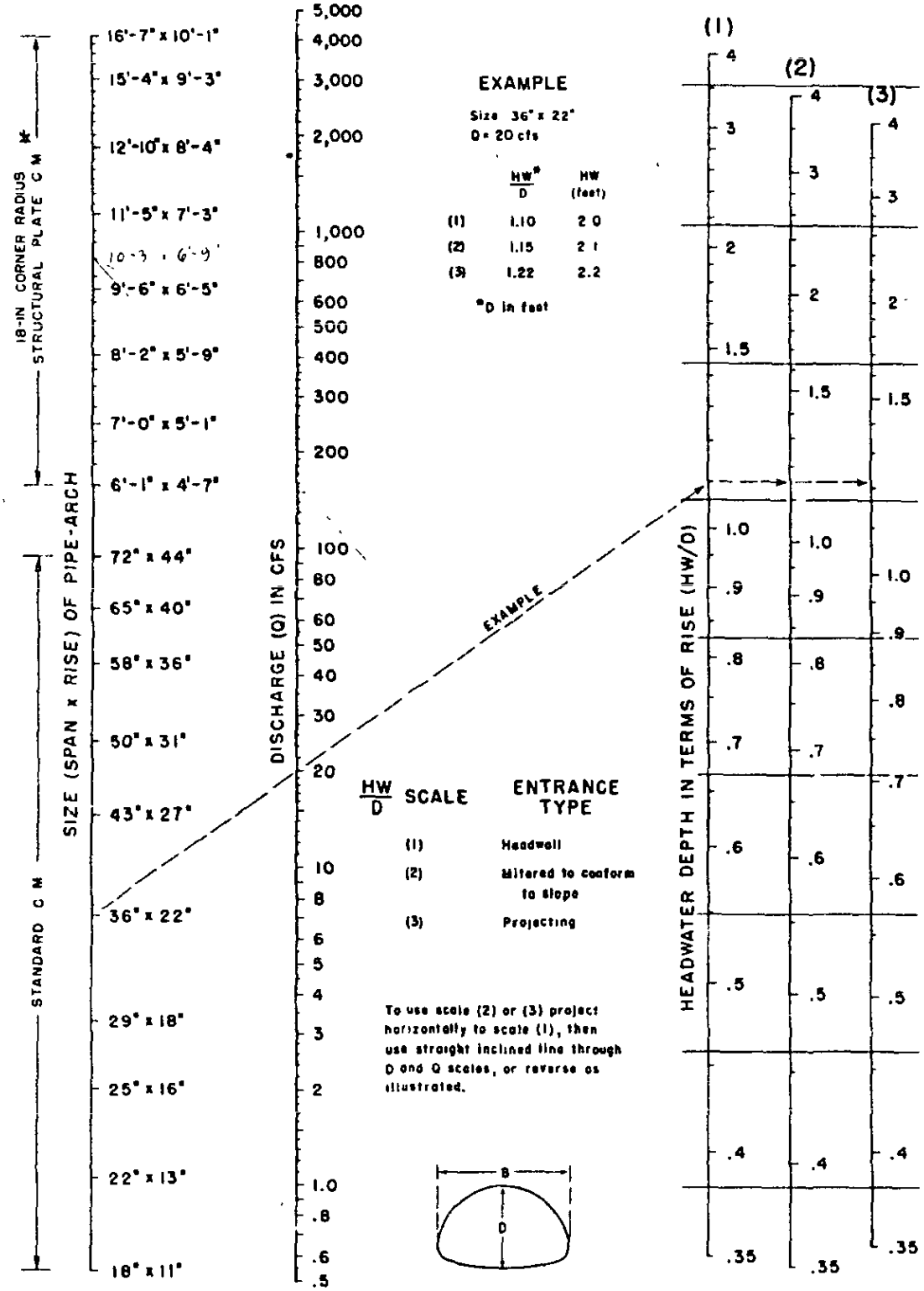
Q	HEADWATER ANALYSIS									Final HW EGL	Final HW Elev. E.G.L.	ΔH HEC-2
	Inlet Cont.		Outlet Cont. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW EGL	H	dc	$\frac{dc+D}{2}$	ho	HW EGL	$D+(1+K_e)\frac{V^2}{2g}$	HW			
158	.54	3.65	.31	2.17	4.46	4.46	4.37	6.98	2.72	3.65	840.75	
235	.67	4.52	.68	2.76	4.76	4.76	5.04	7.25	3.68	4.52	841.62	
275	.74	5.00	.93	3.10	4.93	4.93	5.46	7.43	4.24	(5.00)	842.10	
375	.92	6.21	1.74	3.46	5.11	5.11	6.45	8.02	5.38	6.21	843.31	

Calculations & Comments

$H = .0360\ V^2$

Low flow controls not inlet control however, close enough. 842.25 instead 842.10

CHART 6



* ADDITIONAL SIZES NOT DIMENSIONED ARE LISTED IN FABRICATOR'S CATALOG

BUREAU OF PUBLIC ROADS JAN 1963

HEADWATER DEPTH FOR C. M. PIPE-ARCH CULVERTS WITH INLET CONTROL

Job Name: Novi, FIS | Job No. 5555 | 46 | 1 | 01

Watercourse: Thornton Creek | Culvert Location: Novi Rd North of 9 Mile

Culvert Description: (2) 10'-3" x 6'-9" cm | By WCR | Date 11-26-75 | Rev 6-26-76 WCR.

Pipe Arch Mitered to Rock Fill Slope

n = .0317 ✓ Q_{10} = 315 TW_{10} = 4.31

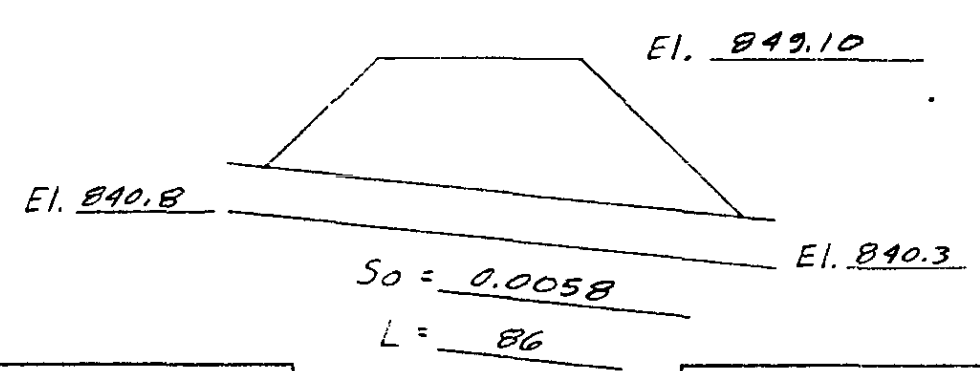
A = 54 ✓ Q_{50} = 470 TW_{50} = 4.96

R = 1.97 ✓ Q_{100} = 550 ✓ TW_{100} = 5.23 ✓

K_e = 0.70 ✓ Q_{500} = 750 TW_{500} = 5.76

D = 6.75 ✓

$L S_o$ = 0.5 ✓



Sta. 31+78 | Sta. 30+92

Q	HEADWATER ANALYSIS									Final HW Elev. EGL	ΔH HEC-2
	Inlet Cont.		Outlet Cont. HW = H + ho − LSo					HEC-2		Final HW EGL	
	HW/D	HW EGL	H	dc	(dc+D)/2	ho	HW EGL	$D + (1+K_e)\frac{V^2}{2g}$	HW EGL		
158	.54	3.65	.36	2.17	4.46	4.46	4.32	6.98	4.54	4.54	845.34	
235	.67	4.52	.80	2.80	4.78	4.96	5.26	7.25	5.50	5.50	846.30	
275	.74	5.00	1.09	3.10	4.93	5.23	5.82	7.43	5.93	5.93	846.73	
375	.92	6.21	2.04	3.51	5.13	5.76	7.30	8.02	6.89	6.89	847.69	

Calculations & Comments

$H = .0422\ V^2$

Low flow control agrees with HEC2

Job Name: Novi, FIS | Job No. 5555 | 46 | 1 | .01

Watercourse: Thornton Creek | Culvert Location: Van Buren Estate, No of 9

Culvert Description: Concrete Box Culvert with Pier and no Wingwalls | By WCR | Date 12-18-75 | Rev 4-8-76 WCR, 6-28-76 WCR

n = 0.02 | Q_{10} = 315 | TW_{10} = 2.24

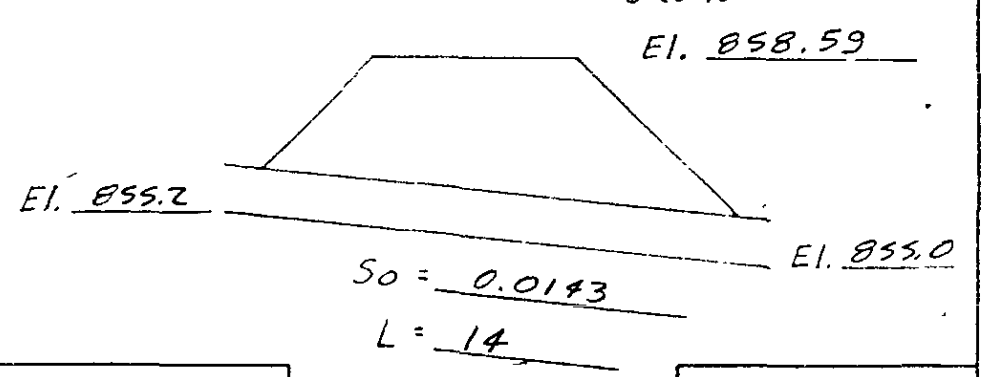
A = 55 | Q_{50} = 470 | TW_{50} = 2.77

R = 1.03 | Q_{100} = 550 | TW_{100} = 3.02 ✓

K_e = 0.5 | Q_{500} = 750 | TW_{500} = 3.58

D = 3.0

L S_o = 0.2



Sta. 51+94 | Sta. 51+80

HEADWATER ANALYSIS

Q	Inlet Cont.		Outlet Cont. HW = H + ho − L So					HEC-2		Final HW EGL	Final HW Elev EGL	ΔH HEC-2
	HW/D	HW E.G.L.	H	dc	(dc+D)/2	ho	HW E.G.L.	D + (1+Ke) V²/2g	HW EGL			
315		3.35	.84	2.06	2.53	2.53	3.17	3.76	3.84**	3.35	858.55	
470		*4.65	1.88	2.72	2.86	2.86	4.54	*4.70		3.98	859.18	
550										4.22	859.42	
750										4.62	859.62	

Calculations & Comments

Inlet Control

$$HW = \left(\frac{V^2}{2g} \times \frac{1}{C^2}\right) + \frac{D}{2}$$

Outlet Control

$H = .0257\ V^2$

*858.59 − 855.2 = 3.39 Weir Flow Begins

** Not applicable since section 1' d/s is at critical depth

JOB NAME: Novi, FIS JOB NO. 5555 | 46 | 1 |

WATERCOURSE: Thornton Creek WEIR LOCATION: Van Buren Estate, No. of 9 Mile

WEIR DESCRIPTION: Conc. Bridge Deck & Gravel Approaches BY WCR DATE 4-8-76

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
470	859.18	857.77	1.41	407						65	958.59	-	1	65	472
550	859.42 ✓	858.02	1.40	406 K=1.636 ✓						149	958.59	-	1	149	555
750	859.82	858.58	1.24	382						369	958.59	-	1	369	751

CALCULATIONS AND COMMENTS

REV 9-8-76 WCR

$Q_c = 343\ H_c^{1/2}$

CITY OF NOVI
THORNTON CREEK
VAN BUREN ESTATE (NORTH OF NINE MILE AND EAST OF CENTER ROAD)
CONCRETE BRIDGE DECK ON GRAVEL ROAD
14 FT BREADTH
NUMBER OF POINTS= 15

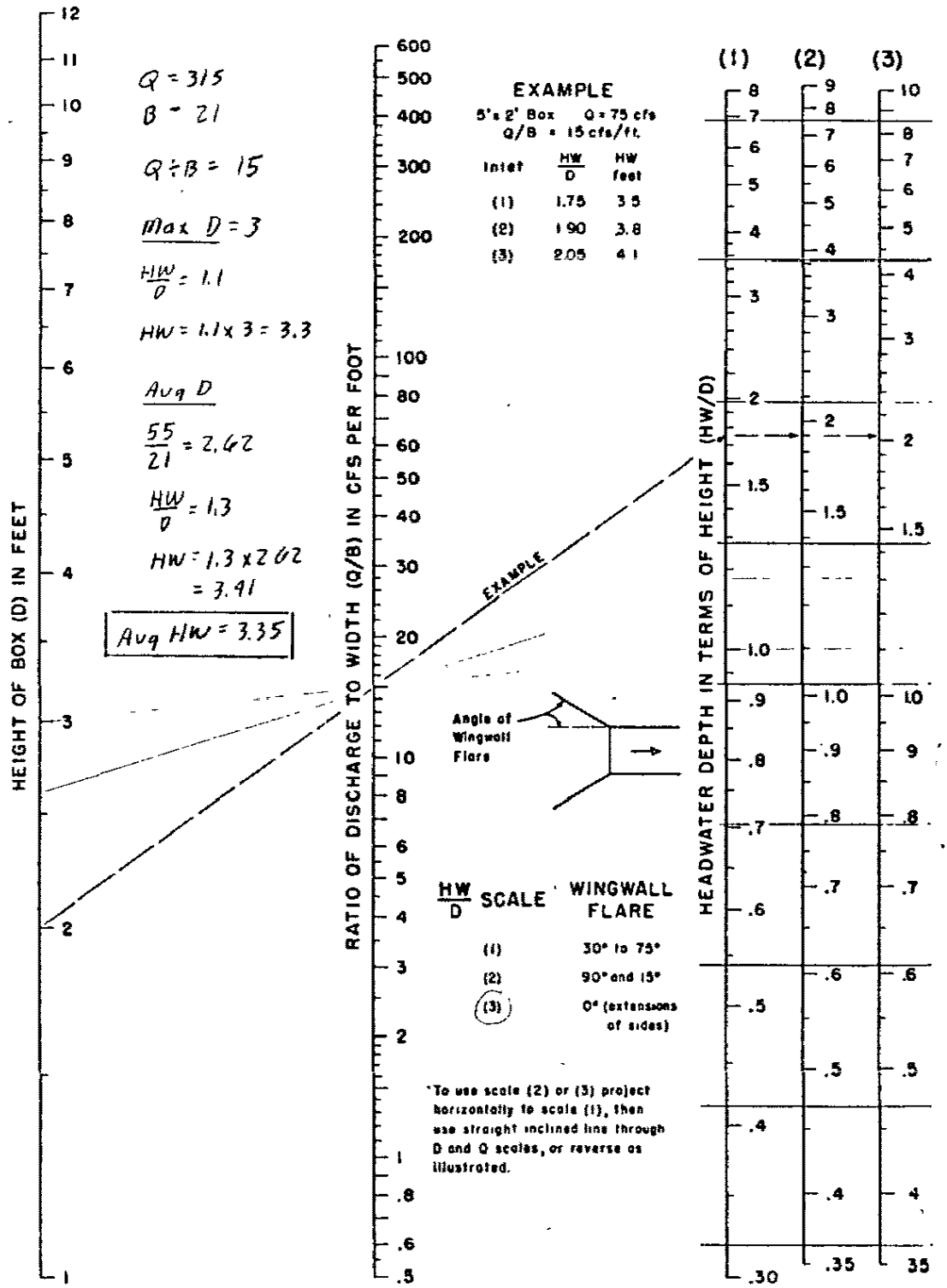
STATION	ELEVATION
0.0	870.90
100.00	865.00
200.00	859.30
287.00	853.60
288.00	853.65
294.00	853.82
299.00	858.59
301.00	854.55
306.00	856.64
311.00	854.69
313.00	858.71
400.00	850.30
444.00	862.30
455.00	861.70
495.00	859.30

WIDTH OF ROADWAY= 14.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
858.59	0.0
858.69	1.03
858.79	5.13
858.89	13.10
858.99	25.69
859.09	43.66
859.19	67.61
859.29	98.16
859.39	135.70
859.49	179.58
859.59	229.69
859.69	285.07
859.79	348.64
859.89	417.42
859.99	492.44
860.09	573.71
860.19	661.35
860.29	755.45
860.39	855.85
860.49	962.32

100-YEAR

CHART 1



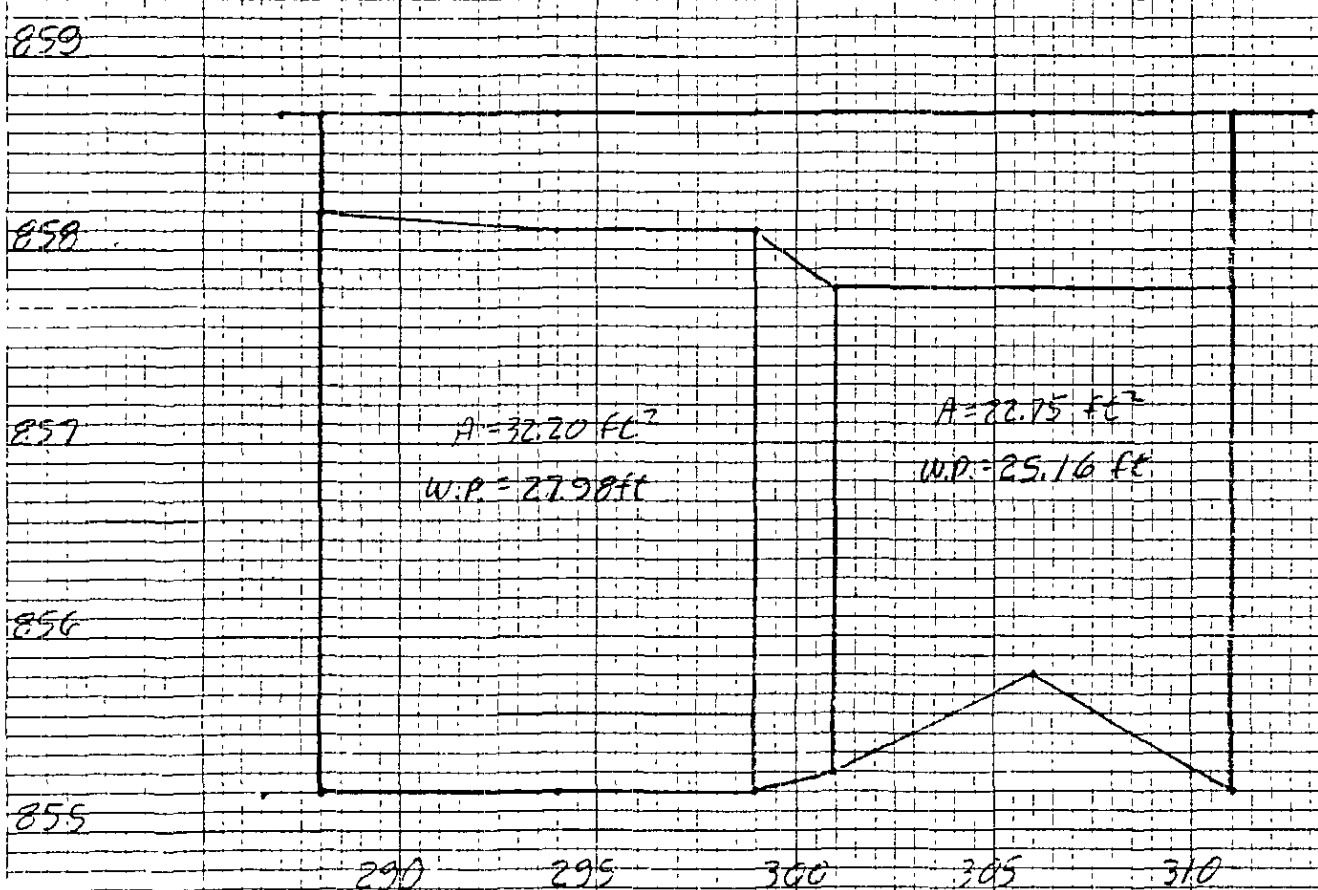
HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN 1963

KEUFFEL & ESSER CO. MADE IN U.S.A.

47 0703

46-01 Thornton Creek Nou
Van Buren Estate



Total Area = 54.95 ft²
Total W.P. = 53.14 ft
R = 1.03

Rev 4-8-76 WCR

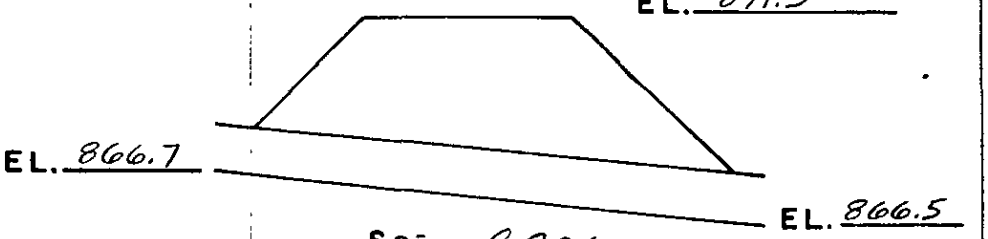
JOB NAME: Novi, FIS | JOB NO. 5555 | 46 | 1 | 01

WATERCOURSE: Thornton Creek | CULVERT LOCATION: 9 Mile East of Center St

CULVERT DESCRIPTION: 2-24" CMP's Projecting from Fill | BY WCR | DATE 1-5-75

Rev 4-8-76 WCR
Rev 6-30-76 WCR

n= 0.024 | Q_{10}= 189 | TW_{10}= 869.61 **
A= 3.14 | Q_{50}= 285 | TW_{50}= 870.05
R= .50 | Q_{100}= 330 | TW_{100}= 870.22
Ke= .90 | Q_{500}= 465 | TW_{500}= 870.63
D= 2.0
LSo= 0.2



HEADWATER ANALYSIS

Q	INLET CONT. $\frac{HW}{D}$	INLET CONT. HW	OUTLET CONT. HW = H + ho − LSo: H	dc	$\frac{dc+D}{2}$	ho	HW	HEC-2: $D+(1+Ke)\frac{V^2}{2g}$	HEC-2 HW	FINAL HW	* FINAL HW ELEV. W.S.	Δ H HEC-2
189											872.30	
285											872.53	
330											872.62	
465											872.86	

CALCULATIONS AND COMMENTS

** CMP's are approximately perpendicular to flow.

* Use these elev. @ 61+60. ** Neglect flow under road. Elev. @ 61+90 will be at critical depth as they should be
** These elev are @ 61+39. Since they are below the road elev of 871.3. The road will not be submerged.

CITY OF NOVI
THORNTON CREEK
NINE MILE EAST OF CENTER ST
GRAVEL RD
20 FT. BREADTH
NUMBER OF POINTS= 9

STATION	ELEVATION
0.0	881.90
50.00	877.10
85.00	874.70
100.00	873.50
150.00	871.40
200.00	871.30
250.00	872.70
300.00	876.90
360.00	881.70

WIDTH OF ROADWAY= 20.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
871.30	0.0
871.40	1.71
871.50	8.26
871.60	18.52
871.70	32.21
871.80	49.43
871.90	70.09
872.00	94.27
872.10	122.25
872.20	153.78
872.30	189.13
872.40	228.57
872.50	271.88
872.60	319.43
872.70	371.06
872.80	426.83
872.90	486.80
873.00	550.87
873.10	618.93
873.20	690.68
873.30	766.54
873.40	846.54
873.50	930.54

JOB NAME: Novi, FIS | JOB NO. 5555 | 46 | 1 | 01

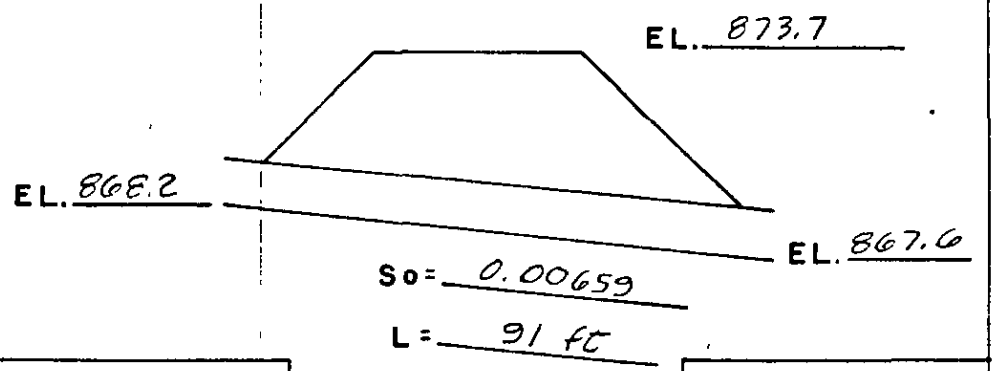
WATERCOURSE: Thornton Creek | CULVERT LOCATION: Center St. South of 9 Mile

CULVERT DESCRIPTION: (2) 65" x 40" CMP with concrete headwall | BY WCR | DATE 1-8-75 | Rev 4-8-76

n= 0.024 ✓ A= 14.3 ✓ R= 1.012 ✓ Ke= 0.5 ✓ D= 3.33 ✓ LSo= .6 ✓

Q_{10}= 189 Q_{50}= 285 Q_{100}= 330 ✓ Q_{500}= 465

TW_{10}= 5.01 TW_{50}= 5.34 TW_{100}= 5.49 5.11 TW_{500}= 5.86



Sta. 64+82 | Sta 63+91

HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL HW	FINAL HW ELEV.	Δ H HEC-2
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
95	1.18	3.93	2.06			5.01	*6.47	4.36	5.87	5.97	874.17	
143	1.80	*5.99	4.66					* 5.66	6.95	6.50	874.70	
165			*6.20						7.14	6.67	874.87	
233									8.10	7.08	875.28	

CALCULATIONS AND COMMENTS

*873.7 − 868.2 = 5.5 . Weir Flow Begins

JOB NAME: Novi, FIS | JOB NO. 5555 | 46 | 1 | 01

WATERCOURSE: Thornton Creek | WEIR LOCATION: Center St. South of 9 Mile

WEIR DESCRIPTION: Concrete Rd. | BY WCR | DATE 1-8-75

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{2.9961\ R^{4/3}}}}$	6 L	7 AVG. RD.EL.	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL.	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
189	874.17	872.61	1.56	166						23	873.7	-	1	23	189
285	874.70	872.94	1.76	176						109	873.7	-	1	109	285
OK 330	874.49 / 874.87 / 874.2	872.71 / 873.09	1.99 / 1.78 / 1.09	177 (189 / 191.7)					133.77	153 (162 / 108)	873.7	-	1	153	330 (342)
465	875.28	873.46	1.82	179						289	873.7	-	1	289	468

CALCULATIONS AND COMMENTS

$Q_c = 132.98\ H_c^{1/2}$

CITY OF NOVI
THORNTON CREEK
CENTER ST SOUTH OF NINE MILE
CONCRETE ROAD
36 FT BREADTH
NUMBER OF POINTS= 8

STATION	ELEVATION
0.0	881.90
50.00	877.10
85.00	874.70
120.00	873.70
141.00	873.70
210.00	878.40
260.00	880.50
370.00	881.70

WIDTH OF ROADWAY= 36.00
ROAD SURFACE:PAVED

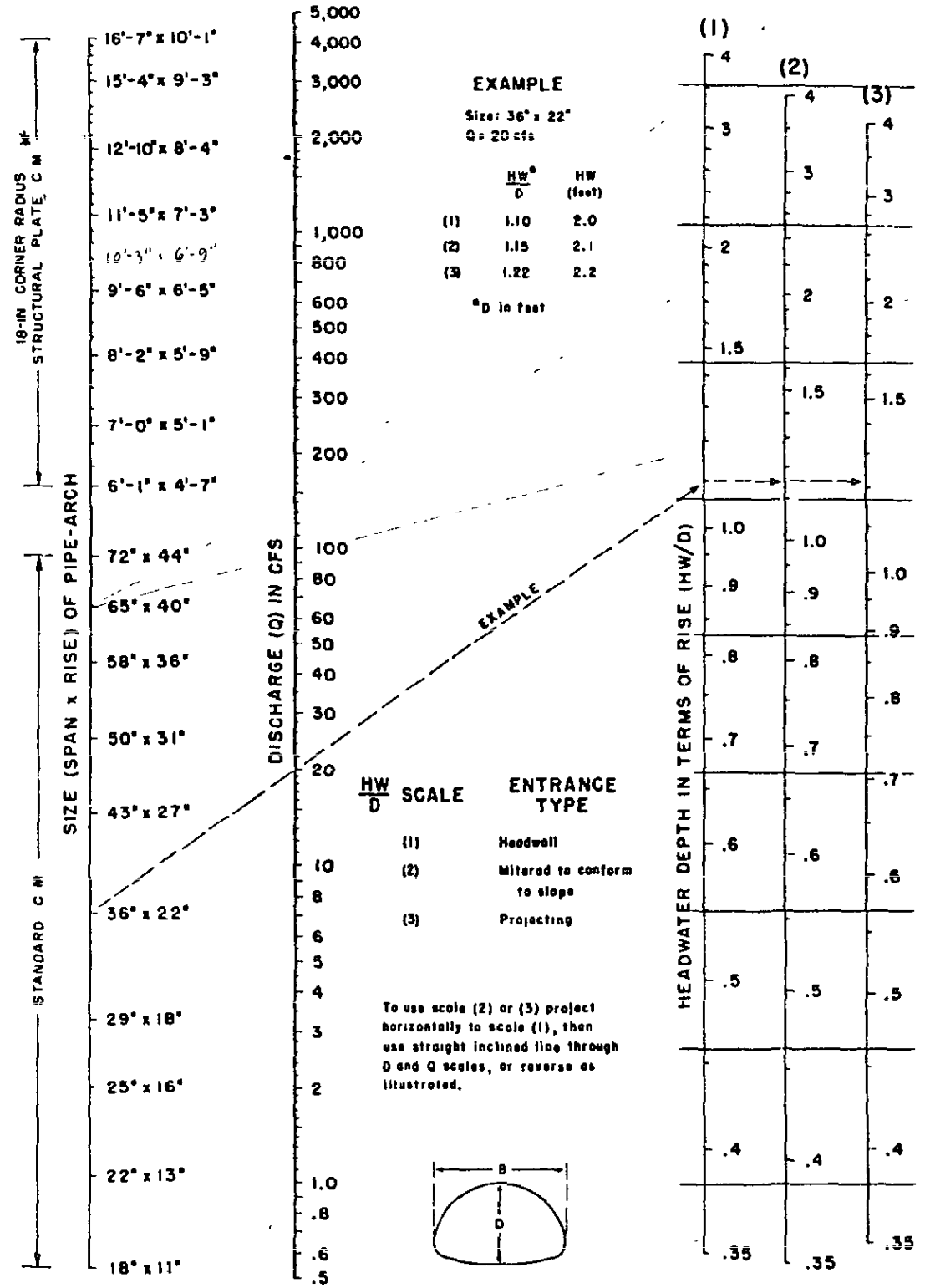
ELEVATION	
873.70	0.0
873.80	1.41
873.90	4.67
874.00	9.73
874.10	16.82
874.20	26.06
874.30	37.52
874.40	51.42
874.50	67.89
874.60	87.02
874.70	108.90
874.80	133.77
874.90	161.15
875.00	191.17
875.10	223.67
875.20	258.76
875.30	296.30
875.40	336.49
875.50	379.23
875.60	424.50
875.70	472.46
875.80	522.89
875.90	576.16
876.00	631.89
876.10	690.47
876.20	751.66
876.30	815.72
876.40	882.49
876.50	952.04
876.60	1024.54
876.70	1099.74
876.80	1177.96
876.90	1258.99
877.00	1343.10
877.09	1429.93
877.19	1519.89
877.29	1612.80
877.39	1708.67
877.49	1807.59
877.59	1909.42
877.69	2014.29
877.79	2122.08
877.89	2232.93

100-YEAR

133

873.80	1.41
873.90	4.67
874.00	9.73
874.10	16.82
874.20	26.06
874.30	37.52
874.40	51.42
874.50	67.89
874.60	87.02
874.70	108.96
874.80	133.77
874.90	161.15
875.00	191.17
875.10	223.67
875.20	258.76
875.30	296.36
875.40	336.49
875.50	379.23
875.60	424.50
875.70	472.46
875.80	522.89
875.90	576.16
876.00	631.89
876.10	690.47
876.20	751.60
876.30	815.72
876.40	882.49
876.50	952.04
876.60	1024.54
876.70	1099.74
876.80	1177.96
876.90	1258.99
877.00	1343.10
877.09	1429.93
877.19	1519.89
877.29	1612.80
877.39	1708.67
877.49	1807.59
877.59	1909.42
877.69	2014.25
877.79	2122.08
877.89	2232.93
877.99	2346.92
878.09	2463.87
878.19	2583.89
878.29	2707.00
878.39	2833.21
878.49	2962.60

CHART 6



*ADDITIONAL SIZES NOT DIMENSIONED ARE LISTED IN FABRICATOR'S CATALOG

BUREAU OF PUBLIC ROADS JAN 1963

HEADWATER DEPTH FOR C. M. PIPE-ARCH CULVERTS WITH INLET CONTROL

Job Name: Novi, FIS	Job No	5555	46	1	01

Watercourse: Thornton Creek — Culvert Location: Connemara Drive

Culvert Description: 7'-3" x 5'-3" Multiplate — By WCR — Date 12-19-75 — Rev 6-29-76 WCR

Projecting from Fill

n = .0324 ✓ — Q_{10} = 189 — TW_{10} = 3.07

A = 30 ✓ — Q_{50} = 285 — TW_{50} = 3.43

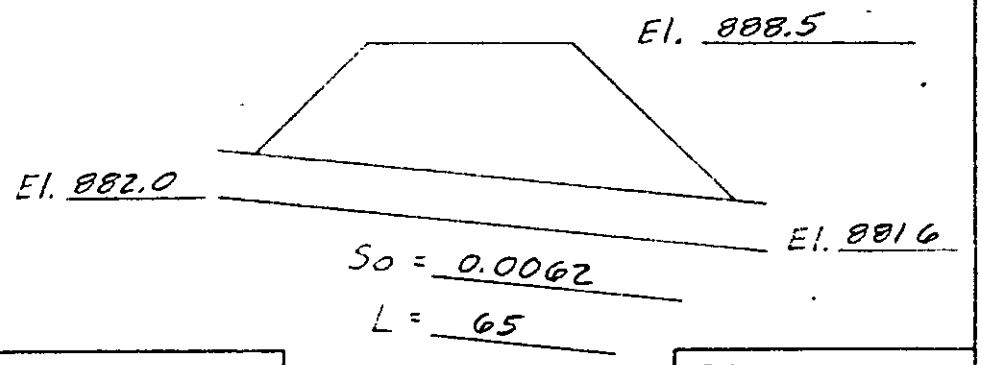
R = 1.51 ✓ — Q_{100} = 330 ✓ — TW_{100} = 3.58 ✓

K_e = 0.9 ✓ — Q_{500} = 465 — TW_{500} = 3.97

D = 5.25 ✓

LS_o = .4 ✓

K = 3.0423



Q	HEADWATER ANALYSIS									Final HW Elev. EGL	ΔH HEC-2
	Inlet Cont.		Outlet Cont. HW = H + ho − LSo					HEC-2			
	HW/D	HW EGL	H	dc	(dc+D)/2	ho	HW EGL	D + (1+Ke) V²/2g	HW EGL		
189	1.03	5.41	1.88	2.91	4.08	4.08	5.56	6.42	5.24	887.41	
285	1.5	7.88*	4.27	3.59	3.59	3.59	7.46	7.91*		888.80	
330										888.99	
465										889.32	

* 88.5 − 82.0 = 6.50 Weir Flow Begins

Calculations & Comments

Outlet Control

$H = .0473\,V^2$

Job Name: Novi, FIS — Job No 5555 | 46 | 1 | 01

Watercourse: Thornton Creek — Weir Location: Connemara Drive

Weir Description: Asphalt Drive — By WCR — Date 12-19-75

1 Q_T	2 HW Elev.	3 TW Elev	4 Hc (2-3)	5 $Q_c = A\sqrt{\frac{2gHc}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 Avg Rd. El.	8 (6×7)	9 Hw (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 Min. Rd. El.	13 $\frac{D}{H}$ $\left(\frac{3-12}{2-12}\right)$	14 Cs/Cf	15 (11×14)	16 (5+15)
~~285~~	888.99	886.35	2.64	224						62	888.5	–	1	62	286
330	889.13	~~886.58~~	2.55	220						112	888.5	–	1	112	332
~~465~~	889.42	887.21	2.21	205						258	888.5	–	1	258	463
				Rev 6-29-30 WCR											
285	888.80	885.03	3.77	268						18	888.5	–	1	18	286
330	888.99	885.18	3.81	269 ✓						62 ✓	888.5	–	1	62	331
465	889.32	885.57	3.75	267						201	888.5	–	1	267	468

Calculations & Comments

$Q_c = 138\ H_c^{1/2}$

CITY OF NOVI
THORNTON CREEK
CONNEMARA DR SOUTH OF NINE MI
ASPHALT DR
20 FT BREADTH
NUMBER OF POINTS= 11

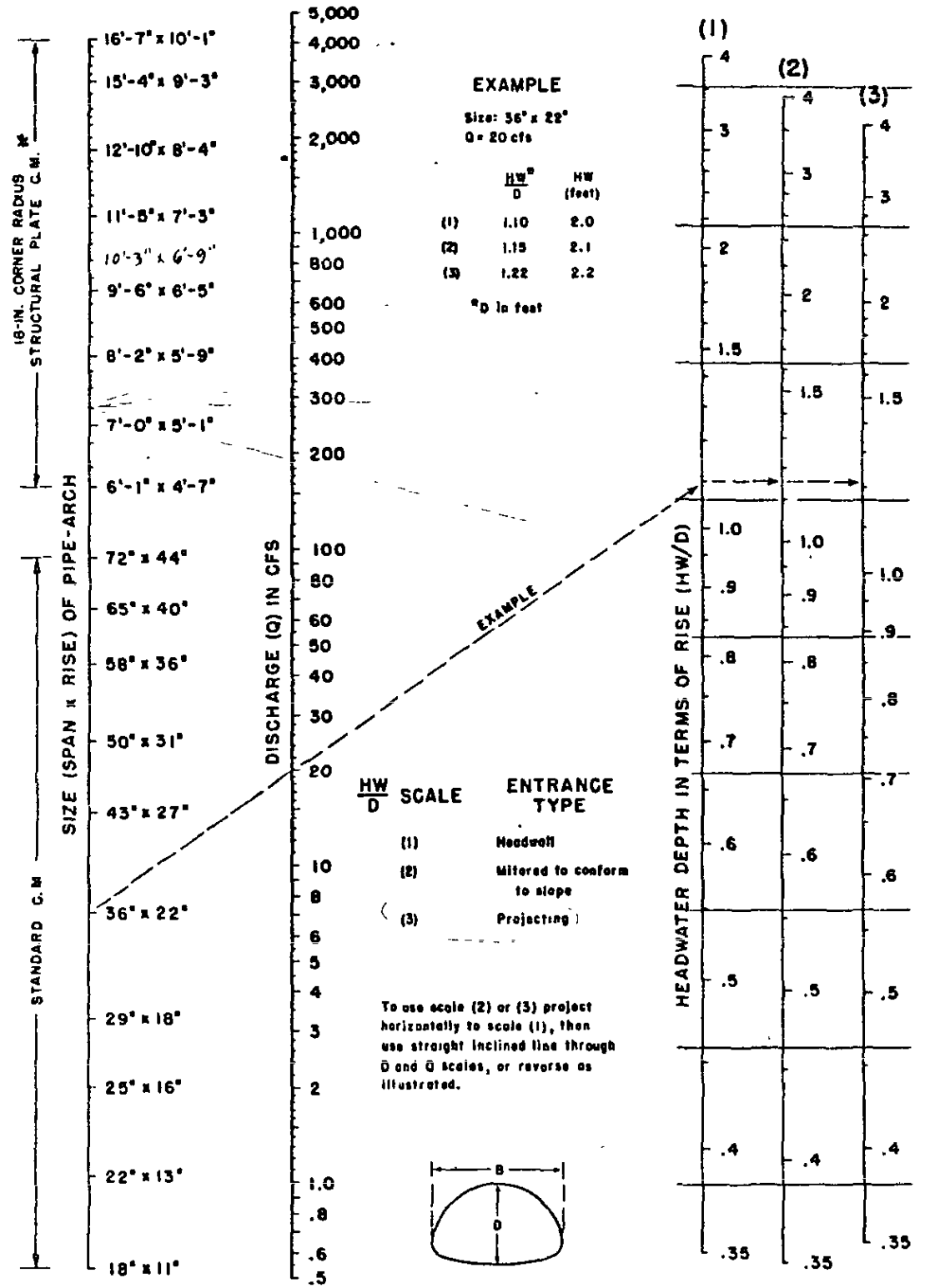
STATION	ELEVATION
0.0	897.50
100.00	893.50
200.00	890.10
296.40	888.60
298.00	888.60
300.00	888.50
303.60	888.50
400.00	888.90
500.00	890.80
600.00	892.30
700.00	895.20

WIDTH OF ROADWAY= 20.00
ROAD SURFACE:PAVED

ELEVATION	Q
888.50	0.0
888.60	1.30
888.70	6.76
888.80	15.30
888.90	37.55
889.00	64.87
889.10	99.45
889.20	141.06
889.30	189.64
889.40	245.26
889.50	308.05
889.60	378.14
889.70	455.65
889.80	540.74
889.90	633.49
890.00	734.07
890.10	842.68
890.20	959.33
890.30	1083.85
890.40	1216.18
890.50	1356.30
890.60	1504.23
890.70	1660.00
890.80	1823.66
890.90	1995.28
891.00	2175.05
891.10	2363.14
891.20	2559.67
891.30	2764.76
891.40	2978.53
891.50	3201.09

100-YEAR

CHART 6



*ADDITIONAL SIZES NOT DIMENSIONED ARE LISTED IN FABRICATOR'S CATALOG

BUREAU OF PUBLIC ROADS JAN. 1963

HEADWATER DEPTH FOR C. M. PIPE-ARCH CULVERTS WITH INLET CONTROL

Job Name: Novi, FIS	Job No	5555	96	1	01

Watercourse: Thornton Creek — Culvert Location: Taft Rd. So. of 9 Mile

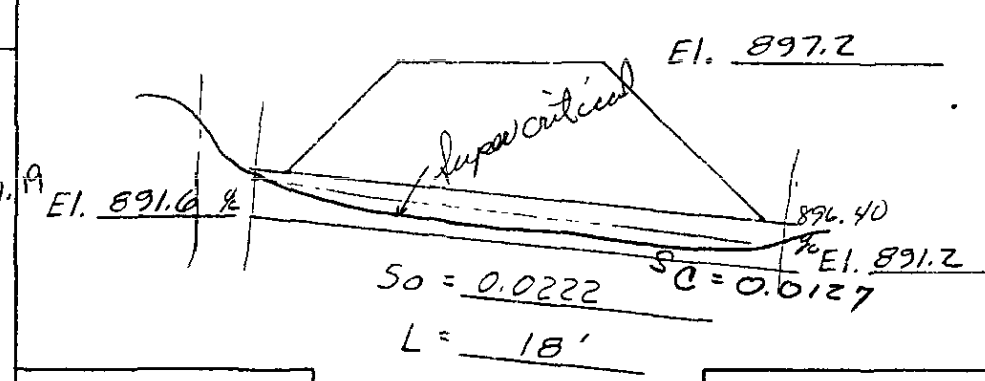
Culvert Description: Half Round Concrete — By WCR — Date 12-20-75 — Rev 4-6-76

Arch with no wingwalls (square edge)

$n = 0.02$ $A = 32$ $R = 1.43$ $K_e = .5$ $D = 4.95$ $LS_o = .4$

$Q_{10} = 189$ $Q_{50} = 285$ $Q_{100} = 330$ $Q_{500} = 465$

$TW_{10} = 2.46$ $TW_{50} = 2.84$ $TW_{100} = 2.99$ $TW_{500} = 3.36$



Sta. 94+30 — Sta. 94+12

HEADWATER ANALYSIS

Q	Inlet Cont.		Outlet Cont. HW = H + ho − LSo					HEC-2		Final HW	Final HW Elev.	ΔH HEC-2
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D + (1+K_e)\frac{V^2}{2g}$	**HW			
189		4.41	.88	2.80	3.88	3.88	4.36	5.76 *	4.37	4.41	896.01	
285		* 5.90	2.01	3.54	4.25	4.25	* 6.26	6.80 *	6.12	5.70	897.30	
330			2.69	3.96	4.46	4.46	* 7.15	7.43 *	6.78	5.89	897.49	
465				6.77 D					6.62	6.22	897.82	

Calculations & Comments

Inlet Control

$HW = \left(\frac{V^2}{2g} \times \frac{1}{C^2}\right) + \frac{D}{2}$

Outlet Control

$H = .0253\,V^2$

* 97.2 − 91.6 = 5.60 Weir Flow Begins

** Since minimum specific energy occurs within the bridge for all flows HEC-2 output is not valid. ie. supercritical flow.

Correct

Job Name: Novi, FIS | Job No. 5555 | 46 | 1 | 01

Watercourse: Thornton Creek | Weir Location: Taft Road So. of 9 Mile

Weir Description: Gravel | By WCR | Date 12-20-75

1 Q_T	2 HW Elev	3 TW Elev	4 Hc (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke-\frac{29n^2L}{R^{4/3}}}}$	6 L	7 Avg Rd. El.	8 (6×7)	9 Hw (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 Min. Rd. El.	13 $\frac{D}{H}$ $\left(\frac{3-12}{2-12}\right)$	14 Cs/Cf	15 (11×14)	16 (5+15)
285	897.30			277						8					285
330	897.49		5.89	285						46					331
465	897.82			298						170					468

Calculations & Comments

$Q_c = 201\, H_c^{1/2}$ (Outlet Control)

$HW = \left[\frac{V^2}{2g} \times \frac{1}{C^2}\right] + \frac{D}{2}$ (Inlet Control)

4-8-16

Thornton Creek WCR

Taft Road South of Nine Mile

Half Round Concrete Arch with no wingwalls

10 year flow

$Q = 189$ cfs

$A = 32$ ft^2

$D = 4.95$ ft

Solution as an equivalent round pipe

Equivalent $\phi = 6.38$

Discharge factor $= Q \div D^{5/2} = 1.84$

$$\frac{He}{D} = K \left(1.273 \frac{Q}{D^{5/2}} \right)^m$$

For square edge with headwall $K = .0098$, $m = 2.0$

$$\frac{He}{D} = .0098 \left(1.273 \times 1.84 \right)^2 = .0538 < .105$$

$$\frac{H}{D} + .5 S_o = \frac{Hc}{D} + \frac{He}{D}$$

$$\frac{HW}{4.95} + .5 \times .022 = \frac{4.16}{4.95} + .054$$

$HW = 4.37$ ft

HW Elev $= 891.6 + 4.37 = 895.97$

4-8-76 WCR

Solution as an equivalent Pipe Arch

7'-3" x 5'-3" Area = 31 ft²

7'-8" x 5'-5" Area = 33 ft²

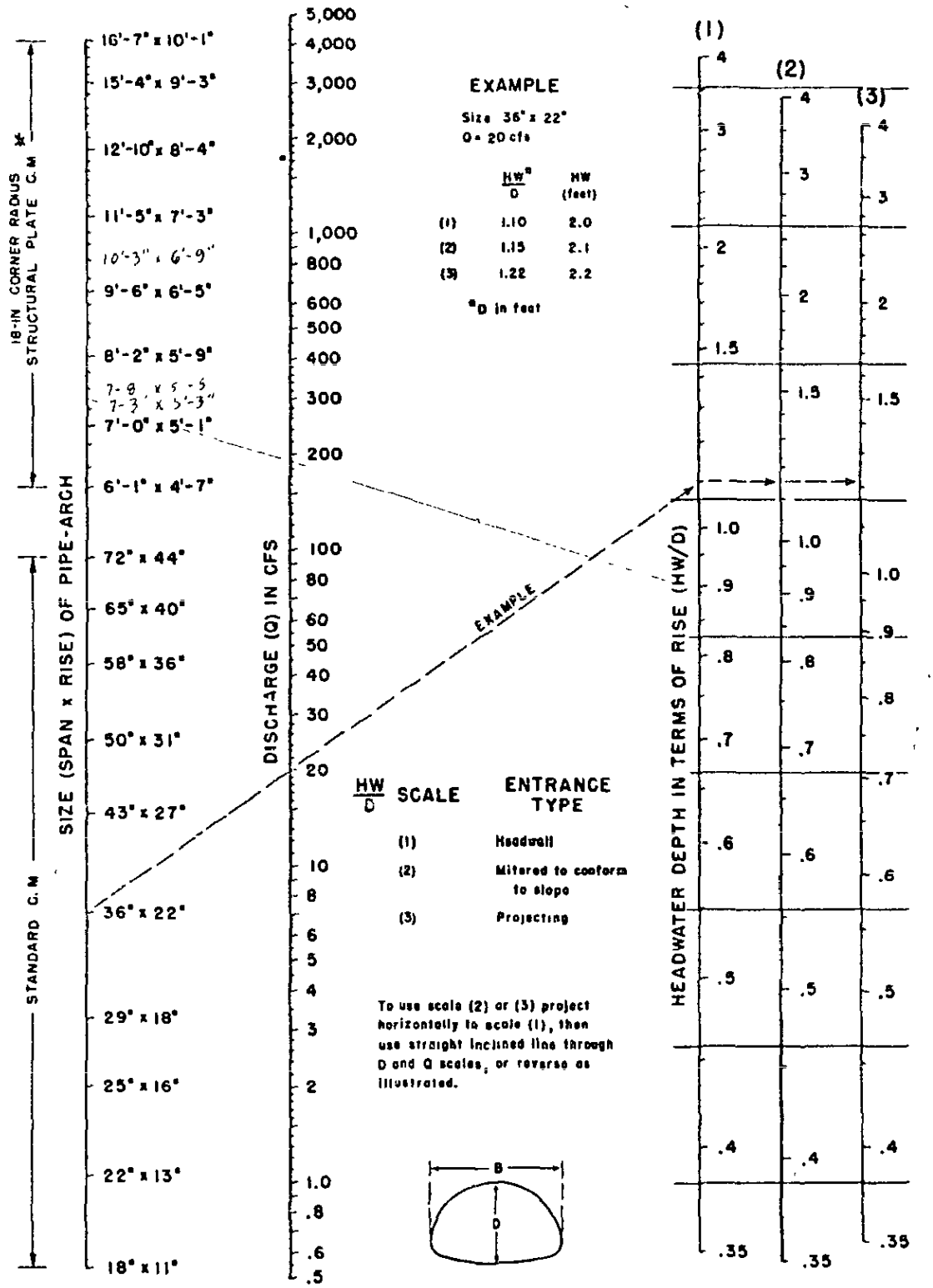
Assume point on inlet control nomograph equidistant between above pipe will equal a pipe arch of 32 ft².

$$\frac{HW}{D} = .89$$

$HW = .89 \times 4.95 = 4.41 \approx 4.37$

HW Elev = 8916 + 4.41 = 896.01 (USE)

CHART 6



*ADDITIONAL SIZES NOT DIMENSIONED ARE LISTED IN FABRICATOR'S CATALOG

BUREAU OF PUBLIC ROADS JAN 1963

HEADWATER DEPTH FOR C. M. PIPE-ARCH CULVERTS WITH INLET CONTROL

CITY OF NOVI
THORNTON CREEK
TAFT RD SOUTH OF NINE MILE RD
GRAVEL RD
16 FT BREADTH
NUMBER OF POINTS= 15

STATION	ELEVATION
0.0	905.20
100.00	901.70
200.00	898.60
300.00	897.20
400.00	897.20
480.00	899.10
495.20	899.60
495.30	900.90
500.00	900.90
502.50	900.60
504.70	900.80
504.80	899.80
520.00	900.10
600.00	903.00
625.00	904.20

WIDTH OF ROADWAY= 16.00
ROAD SURFACE:GRAVEL

ELEVATION	
897.20	0.0
897.30	8.38
897.40	25.10
897.50	48.56
897.60	78.84
897.70	115.97
897.80	159.71
897.90	210.50
898.00	268.97
898.10	333.46
898.20	406.77
898.30	487.07
898.40	575.34
898.50	671.83
898.60	776.00
898.70	888.50
898.80	1009.28
898.90	1138.32
899.00	1274.43
899.10	1418.57
899.20	1570.77
899.30	1731.07
899.40	1899.34
899.50	2073.97

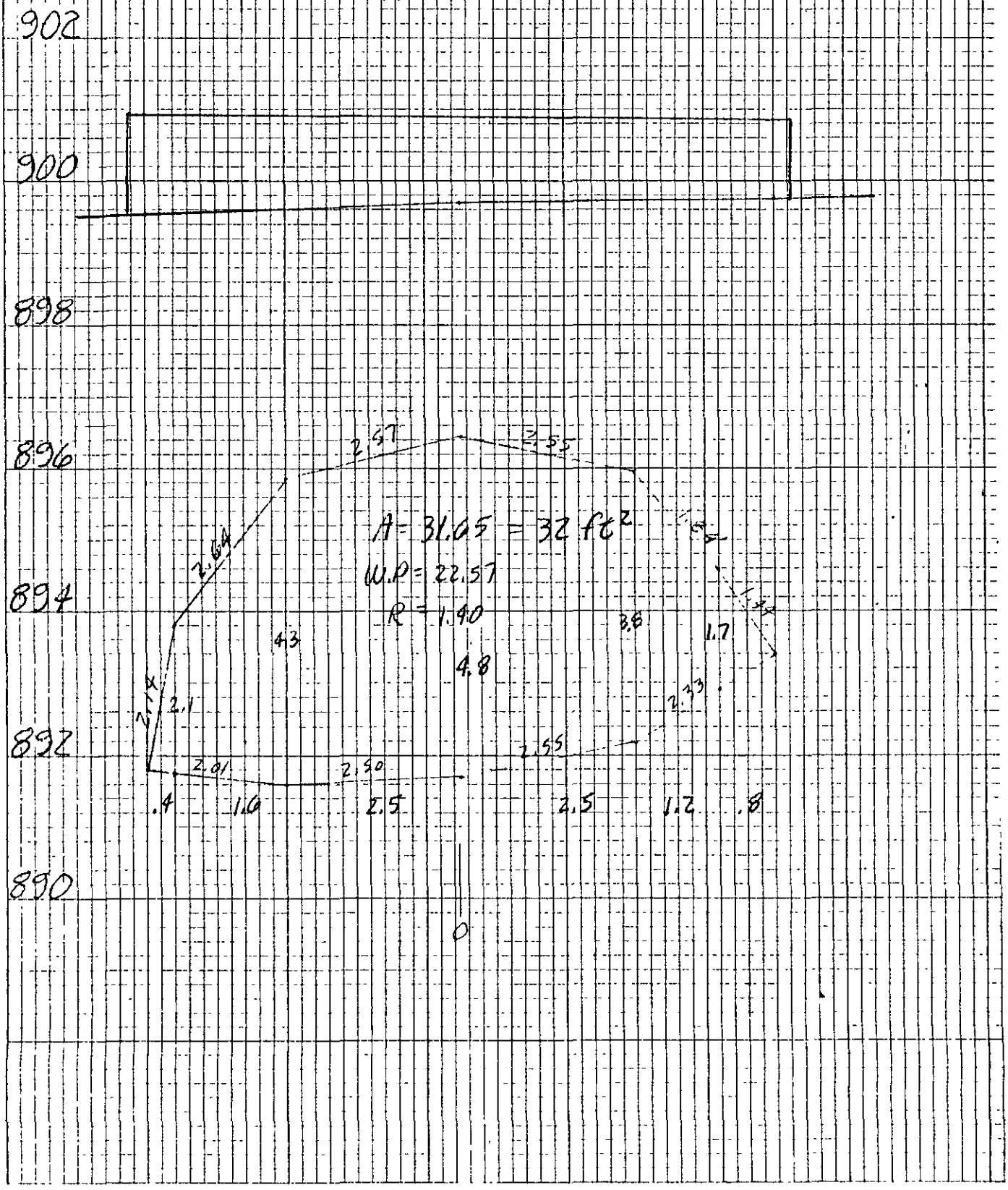
TAFT ROAD 46-01

Thornton Creek - Nov 1

Scale: Vert: 1" = 2

Horz: 1" = 2

Upstream



47 0703

10 X 10 TO THE INCH
KEUFFEL & ESSER CO MADE IN U.S.A.

47 0703

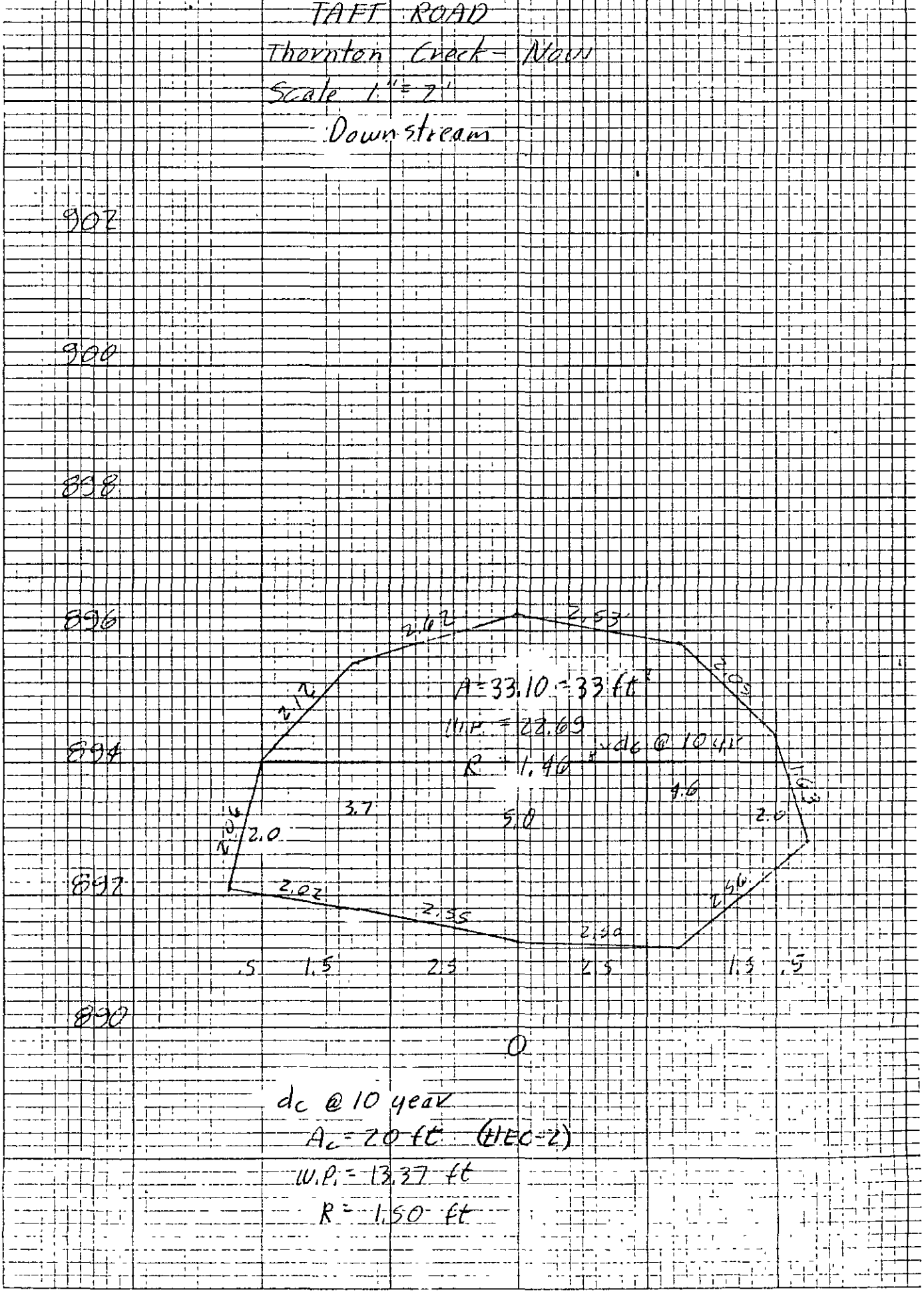
10 X 10 TO THE INCH • 10 X 15 INCHES
KEUFFEL & ESSER CO MADE IN USA
K•E

TAFT ROAD

Thornton Creek - Main

Scale 1" = 2'

Downstream



d_c @ 10 year

A_c = 20 ft (HEC-2)

W.P. = 13.37 ft

R = 1.50 ft

Job Name: Maui, FIS | Job No. 5555 | 46 | 1 | 01

Watercourse: Thornton Creek | Culvert Location: 9 m.le West of Taft

Culvert Description: 36" CMP projecting from fill | By WCR | Date 12-20-75 | REV 4-5-76 WCR 6-30-76 WCR

n = .024✓ Q_{10} = 189 TW_{10} = 1.67

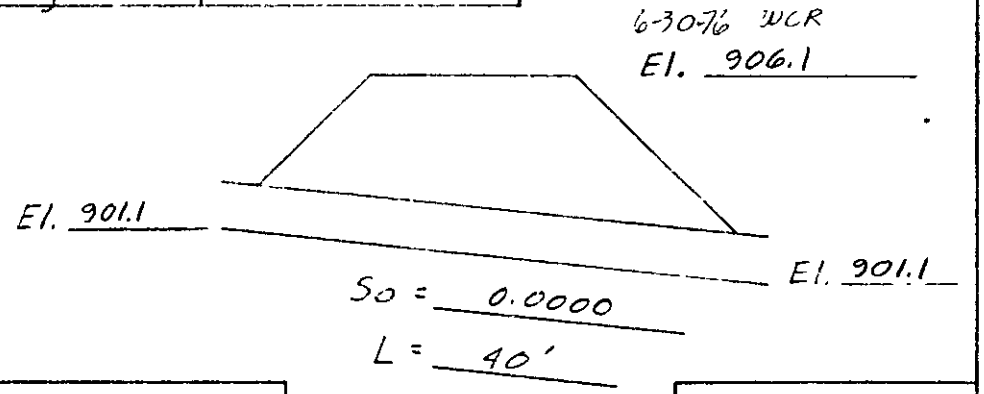
A = 7.1 ✓ Q_{50} = 285 TW_{50} = 1.94

R = .75✓ Q_{100} = 330✓ TW_{100} = 2.01✓

K_e = .9✓ Q_{500} = 465 TW_{500} = 2.19

D = 3.0✓

$L S_o$ = 0.0



Sta. 111+20 | Sta. 110+80

Q	HEADWATER ANALYSIS									Final HW	Final HW Elev.	ΔH HEC-2
	Inlet Cont.		Outlet Cont. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+K_e)\frac{V^2}{2g}$	HW			
189									5.77	5.58	906.68	
285									5.91	5.75	906.85	
330									5.97	5.81	906.91	
465									6.13	5.97	907.07	

Calculations & Comments

JOB NAME: Novi, FIS | JOB NO. 5555 | 46 | 1 | 01

WATERCOURSE: Thornton Creek | WEIR LOCATION: 9 m.le West of Taft

WEIR DESCRIPTION: Gravel Road | BY WCR | DATE 12-30-75

1 Q_T	2 HW ELEV.	3 TW ELEV.	4 H_c (2-3)	5 $Q_c = A\sqrt{\frac{2gH_c}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 AVG. RD.EL	8 (6X7)	9 HW (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 MIN. RD.EL	13 $\frac{D}{H}\left(\frac{3-12}{2-12}\right)$	14 C_s / C_f	15 (11 X 14)	16 (5 + 15)
189	906.65	902.77	3.91	66						125	906.1	-	1	125	191
285	906.85	903.04	3.81	66						223	906.1	-	1	223	289
330	906.91	903.11	3.80	66						263	906.1	-	1	263	329
465	907.07	903.29	3.78	65						398	906.1	-	1	398	463

CALCULATIONS AND COMMENTS

$Q_c = 33.6\ H_c^{1/2}$

REV 4-8-76

CITY OF NOVI
THORNTON CREEK
NINE MILE RD WEST OF TAFT RD
GRAVEL RD
20 FT BREADTH
NUMBER OF POINTS= 15

STATION	ELEVATION
0.0	914.30
100.00	910.80
200.00	908.20
300.00	906.40
400.00	906.10
500.00	906.70
600.00	907.90
700.00	907.50
798.50	907.00
900.00	907.00
1000.00	908.70
1100.00	911.00
1180.00	914.10

WIDTH OF ROADWAY= 20.00
ROAD SURFACE:GRAVEL

ELEVATION	Q
906.10	0.0
906.20	1.60
906.30	4.13
906.40	25.38
906.50	51.73
906.60	87.80
906.70	133.64
906.80	189.95
906.90	256.01
907.00	331.84
907.10	425.21
907.20	541.09
907.30	675.37
907.40	830.18
907.50	1005.99
907.60	1203.52
907.70	1424.23
907.80	1669.93
907.90	1939.61
908.00	2235.58

100-YEAR

Job Name: NOVI, FIS | Job No. 5555 | 96 | 1 | 01

Watercourse: Thornton Creek | Culvert Location: Ten Mile East of Beck

Culvert Description: 30" RCP projecting from Fill (groove end) | By WCR | Date 12-30-75

n = .013 | Q_{10} = 102 | TW_{10} = 1.66

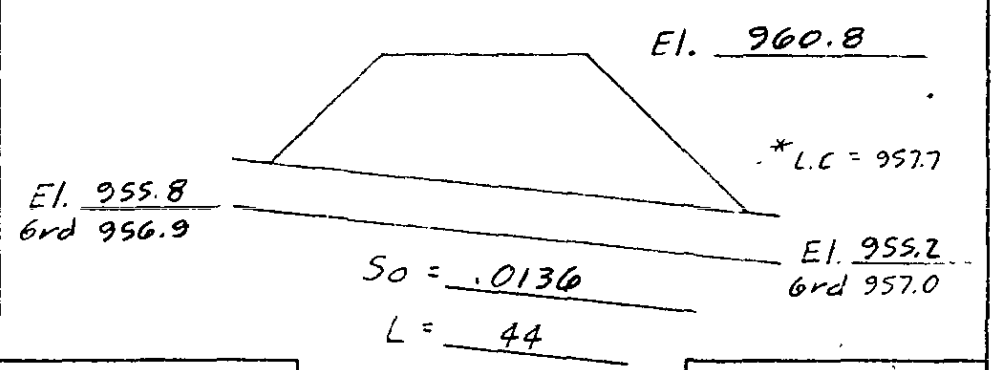
A = 4.9 | Q_{50} = 155 | TW_{50} = 1.95

R = .63 | Q_{100} = 182 | TW_{100} = 2.08

Ke = 0.2 | Q_{500} = 255 | TW_{500} = 2.40

D = 2.5

L So = .6



Sta. 185+57 | Sta. 185+13

Q	HEADWATER ANALYSIS									Final HW	Final HW Elev.	ΔH HEC-2
	Inlet Cont.		Outlet Cont. HW = H + ho − LSo					HEC-2				
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+K_e)\frac{V^2}{2g}$	HW			
102									4.52	4.46	961.36	
155									4.66	4.57	961.47	
182									4.72	4.62	961.52	
255									4.81	4.73	961.63	

Calculations & Comments

* Since only the top .7 ft (957.7 − 957.0) of the 30" RCP conveys water it will be neglected in the computations.

Job Name: Novi, FIS | Job No. 5555 | 46 | 1 | 01

Watercourse: Thornton Creek | Weir Location: Ten Mile West of Beck

Weir Description: Concrete Road | By WCR | Date 12-30-75

1 Q_T	2 HW Elev.	3 TW Elev	4 Hc (2-3)	5 $Q_c = A\sqrt{\frac{2gHc}{1+Ke+\frac{29n^2L}{R^{4/3}}}}$	6 L	7 Avg Rd. El.	8 (6×7)	9 Hw (2-7)	10 C	11 $Q_w = CLH_w^{3/2}$	12 Min. Rd. El.	13 $\frac{D}{H}$ $\left(\frac{3-12'}{2-12}\right)$	14 C_s/C_f	15 (11×14)	16 (5+15)
102	961.36	958.66		Neglected						103		-	1	103	103
155	961.47	958.95		"						155		-	1	155	155
182	961.52	959.08		"						183		-	1	183	183
255	961.63	959.40		"						253		-	1	253	253

Corrections & Comments

CITY OF NOVI
THORNTON CREEK
TEN MILE RD EAST OF BECK RD
ASPHALT
21 FT BREADTH
NUMBER OF POINTS= 11

STATION	ELEVATION
0.0	968.10
100.00	967.00
200.00	964.20
300.00	961.70
399.00	960.80
401.40	960.80
500.00	961.20
600.00	962.30
700.00	963.80
800.00	965.90
900.00	968.30

WIDTH OF ROADWAY= 21.00
ROAD SURFACE:PAVED

ELEVATION	Q
960.80	0.0
960.90	1.53
961.00	8.13
961.10	21.98
961.20	44.75
961.30	77.31
961.40	119.28
961.50	170.77
961.60	232.05
961.70	303.43
961.80	385.05
961.90	476.55
962.00	577.80
962.10	688.81
962.20	809.59
962.30	940.24
962.40	1080.79
962.50	1231.15
962.60	1391.28
962.70	1561.18
962.80	1740.90
962.90	1930.53
963.00	2130.11

CITY OF NOVI

OAKLAND CO., MICHIGAN

FLOOD INSURANCE STUDY

Johnson & Anderson, Inc.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

FR1

SCALE: 1"=800'

KEY TO SYMBOLS

100 YR FLOOD BOUNDARY — FLOODWAY FRINGE — FLOODWAY

CORPORATE LIMITS

PONTIAC TRAIL

FOURTEEN MILE ROAD

WALLED LAKE

WEST ROAD

THIRTEEN MILE ROAD

SHAWOOD LAKE

12 1/2 MILE ROAD

TWELVE MILE ROAD

CHESAPEAKE AND OHIO

GRAND RIVER AVENUE

I-96

WALLED LAKE MIDDLE RIVER ROUGE

BISHOP CREEK

I-696

ELEVEN MILE ROAD

TEN MILE ROAD

NAPIER ROAD

WIXOM ROAD

BECK ROAD

TAFT ROAD

NOVI ROAD

MEADOWBROOK ROAD

HAGGERTY ROAD

MATCH LINES

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: PAINT CREEK
FLOOD HAZARD ANALYSIS

3) WATERCOURSE: PAINT CREEK

4) DOCUMENT TYPE: FINAL RUN - WSP2

00BREAK00

----------80/60 LIST OF INPUT DATA----------

```
NSP2
TITLE     PAINT CREEK FLOOD HAZARD ANALYSES, OAKLAND CO. MICHIGAN      1A
TITLE     10, 50, 100, AND 500 YEAR DISCHARGES FROM TR20 FLOOD ROUTING 2A
DISCHARGE -1.       510.      950.      1160.     1610.                3A
START     9.5       794.22    794.61    795.03    795.68
TRIB      17.14     22.9      27.1                                     5A
OUTPUT    SK                                                         6A
REACH     9.5       1.        0.        0.
SEGMENT   9.5       1.        N         60.
NVALUE    .075
SEGMENT   9.5       2         C         84.
NVALUE    .045
SEGMENT   9.5       3.        N         168.
NVALUE    .075
SECTION   9.5
          0.        805.      1.        798.      8.        796.
          25.       794.      52.       792.      60.       791.4
          61.       789.9     68.       789.7     77.       790.2
          82.       791.1     84.       791.6     117.      792.
          139.      794.      145.      796.      150.      795.
          156.      800.      167.      842.      168.      805.
ENDTABLE
REACH     10.0      2.7       50.       50.
CULV1     10.0      1.        41111
CULVC     9.5       23.       41.       789.6     789.8     .016
SECTION   10.0
          -141.     805.      -140.     799.1     -100.     799.2
          -11.7     800.2     -11.7     800.7     11.7      801.1
          11.7      800.6     100.      801.      101.      805.
ENDTABLE
REACH     10.5      1.        50.       50.
SEGMENT   10.5      1.        N         127.
NVALUE    .075
SEGMENT   10.5      2.        C         152.
NVALUE    .048
SEGMENT   10.5      3.        N         225.
NVALUE    .075
SECTION   10.5
          0.        805.      1.        794.      127.      791.3
          128.      790.2     134.      789.9     144.      790.3
          151.      791.3     152.      792.      172.      794.
          195.      796.      212.      798.      224.      800.
          225.      805.
ENDTABLE
REACH     10.3      1.        325.      310.                          54
```

Square Edge R.C. Box Culvert – 30 to 75° wingwall flair

Final Run – Use original runs upstream of Section 27.1 (7/3/78)

Revised Run 3/79

Dalton Rd run as culvert

Other minor flood plain modifications

Area of culverts

Rec'd 6-11-79

```
-----------------------------80/60 LIST OF INPUT DATA-----------------------------
SEGMENT   10.9      1         N         544.                                  55
NVALUE    .075                                                                56
SEGMENT   10.9      2         C         570.                                  57
NVALUE    .055                                                                58
SEGMENT   10.9      3         N         661.                                  59
NVALUE    .085                                                                60
SECTION   10.9                                                                61
          -3.       810.      -2.       810.      -1.       810.              62
                0.00     805.20     20.00     802.20     66.00     800.00    63
               80.00     795.50    160.00     794.40    260.00     794.50    64
              360.00     795.00    460.00     795.20    [illegible]     795.00    65
              552.00     792.70    556.00     791.00    560.00     791.10    66
              564.00     791.60    568.00     792.20    570.00     795.00    67
              580.00     791.30    588.00     799.60    660.00     804.20    68
          661.      810.                                                      69
ENDTABLE                                                                      70
REACH     10.99     1.        740.      595.                                  71
SEGMENT   10.99     1         N — Left  40.                                   73
NVALUE    .035                                                                74
SEGMENT   10.99     2         C — hannel 72.                                  75
NVALUE    .055                                                                76
SEGMENT   10.99     3         N  Right  531.                                  77
NVALUE    .085                                                                78
SECTION   10.99                                                               79
          0.        812.      1.        808.      10.       808.              80
          20.       800.      28.       798.      35.       796.              81
          40.       794.      48.       793.1     48.1      790.2             82
          48.2      793.1     56.       793.2     64.       793.7             83
          72.       794.3     80.       796.      530.      798.              84
          531.      812.                                                      85
ENDTABLE                                                                      86
ROAD      11.0      2.7       50.       50.                                   87
BPR       11.0      B         3                                               88
GIRDER    798.5     797.67    0.        .6        2.6                         89
          -22.7     801.6     -22.7     797.6     22.7      797.8             90
          22.7      801.8                                                     91
ENDTABLE                                                                      92
SECTION   11.0                                                                93
          -201.     809.      -200.     800.      -100.     800.4             94
          -25.      800.7     -22.7     801.6     -22.      796.6             95
          -20.      794.1     -15.      793.2     -10.      792.8             96
          -5.       791.8     0.        790.2     5.        791.9             97
          10.       793.2     15.       795.4     20.       796.5             98
          22.       796.9     22.7      801.8     25.       801.              99
          100.      801.2     200.      801.8     201.      809.              100
```

```
-----------------------------80/60 LIST OF INPUT DATA-----------------------------
ENDTABLE                                                                      101
REACH     11.1+     1.        50.       50.                                   102
REACH2    10.99                                                               103
REACH     11.9      1.        955.      800.                                  104
SEGMENT   11.9      1         N         87.                                   105
NVALUE    .095                                                                106
SEGMENT   11.9      2         C         114.                                  107
NVALUE    .065                                                                108
SEGMENT   11.9      3         N         456.                                  109
NVALUE    .095                                                                110
SECTION   11.9                                                                111
          -3.       815.      -2.       815.      -1.       815.              112
                0.00    810.40     10.00    805.50     70.00    801.20   113
               87.00    798.40     90.00    793.90     95.00    793.30   114
              100.00    793.70    105.00    793.60    110.00    796.40   115
              114.00    796.00    200.00    797.80    300.00    798.00   116
              400.00    797.90    435.00    796.40    455.00    803.30   117
          456.      815.                                                    118
ENDTABLE                                                                      119
REACH     11.99     1.        1375.     1090.                                 120
SEGMENT   11.99     1         N         240.                                  121
NVALUE    .1                                                                  122
SEGMENT   11.99     2         C         267.                                  123
NVALUE    .05                                                                 124
SEGMENT   11.99     3         N         431.                                  125
NVALUE    .1                                                                  126
SECTION   11.99                                                               127
          0.        810.      50.       800.      60.       798.              128
          160.      796.      240.      797.5     245.      794.8             129
          249.      794.5     253.      794.3     263.      794.7             130
          267.      799.      410.      800.      430.      807.              131
          431.      810.                                                    132
ENDTABLE                                                                      133
ROAD      12.0      2.7       50.       50.                                   134
BPR       12.0      B         3         2                                     135
PIER      799.4     1.        798.5     1.        795.7     1.                136
GIRDER    807.      806.17    0.        .7        2.65                        137
          -30.      808.82    -30.      806.17    30.       805.72            138
          30.       808.43                                                  139
ENDTABLE                                                                      140
SECTION   12.0                                                                141
          -301.     815.      -300.     810.5     -200.     809.8             142
          -100.     809.1     -30.      808.82    -30.      801.9             143
          -25.      801.4     -20.      800.3     -15.      799.4             144
          -10.      800.4     -5.       800.5     -1.       800.3             145
```

```
-----------------------------80/80 LIST OF INPUT DATA-----------------------------
          0.        798.5     5.        796.      10.       794.5     146
          15.       795.7     20.       797.9     25.       799.5     147
          30.       799.7     30.       808.43    100.      807.8     148
          200.      807.3     300.      806.9     301.      815.      149
ENDTABLE                                                              150
REACH     12.1+     1.        50.       50.                           141++
REACH2    11.99     .2                                                142++
REACH     12.9      1.        2750.     2050.                         143++
SEGMENT   12.9      1         N         215.                          144++
NVALUE    .125                                                        145++
SEGMENT   12.9      2         C         245.                          146++
NVALUE    .05                                                         147++
SEGMENT   12.9      3         N         466.                          148++
NVALUE    .125                                                        149++
SECTION   12.9                                                        150++
          -3.       820.      -2.       820.      -1.       820.      151
                0.00    813.80     30.00    810.10     55.00    808.80   152
              105.00    810.30    130.00    804.90    215.00    805.90   153
              217.00    803.60    223.00    803.00    230.00    801.60   154
              237.00    800.60    242.00    803.10    245.00    805.60   155
              330.00    805.20    430.00    805.60    445.00    805.60   156
          465.      813.5     466.      820.                          157
ENDTABLE                                                              158
REACH     +12.99    1.        1750.     1200.                         158A
REACH2    13.1                                                        159
ROAD      13.0      2.7       50.       50.                           160
BPR       13.0      B         2                                       161
GIRDER    812.9     812.12    40.       .6        2.69                162
          -22.3     818.71    -22.3     812.12    22.3      812.42    163
          22.3      818.91                                            164
ENDTABLE                                                              165
SECTION   13.0                                                        166
          -301.     820.      -300.     817.3     -200.     817.9     167
          -100.     818.4     -22.3     818.71    -22.3     812.12    168
          -19.      812.12    -19.      807.1     -15.      806.5     169
          -10.      805.5     -5.       805.2     0.        804.9     170
          5.        805.1     10.       805.      15.       805.9     171
          19.       806.3     19.       812.42    22.3      818.97    172
          100.      819.3     200.      819.8     300.      820.2     173
          301.      820.                                              174
ENDTABLE                                                              175
REACH     13.1      1         .50.      50.                           176
SEGMENT   13.1      1         N         37.                           177
NVALUE    .115                                                        178
SEGMENT   13.1      2         C         69.                           179
```

```
-----------------------------80/60 LIST OF INPUT DATA-----------------------------
NVALUE    .05                                                                  180
SEGMENT   13.1      3         N         488.                                   181
NVALUE    .115                                                                 182
SECTION   13.1                                                                 183
          0.        823.      1.        818.      11.       816.               184
          18.       814.      21.       812.      30.       810.               185
          35.       808.      37.       809.3     39.       807.               186
          45.       806.4     52.       805.      59.       804.98             187
          64.       806.5     67.       809.      69.       809.4              188
          317.      810.      321.      812.      332.      814.               189
          336.      816       338.      818.      487.      820.               190
          488.      823.                                                       191
ENDTABLE                                                                       192
REACH     13.9      1.        1425.     1350.                                  193
SEGMENT   13.9      1         N         354.                                   194
NVALUE    .1                                                                   195
SEGMENT   13.9      2         C         387.                                   196
NVALUE    .045                                                                 197
SEGMENT   13.9      3         N         571.                                   198
NVALUE    .125                                                                 199
SECTION   13.9                                                                 200
          -3.       832.      -2.       832.      -1.       832.               201
                0.00     827.10     35.00     819.20     70.00     816.70     202
              170.00     815.20    270.00     813.00    354.00     813.20     203
              357.00     808.20    363.00     808.20    370.00     809.50     204
              377.00     809.20    385.00     811.20    387.00     813.40     205
              440.00     812.20    480.00     828.70    570.00     829.70     206
          571.      832.                                                       207
ENDTABLE                                                                       208
REACH     13.99     1.        1310.     690.                                   209
SEGMENT   13.99     1         N         420.                                   210
NVALUE    .1                                                                   211
SEGMENT   13.99     2         C         453.                                   212
NVALUE    .045                                                                 213
SEGMENT   13.99     3         N         531.                                   214
NVALUE    .125                                                                 215
SECTION   13.99                                                                216
          0.        830.      1.        824.      40.       822.               217
          168.      820.      190.      818.      264.      816.               218
          423.      816.3     423.      811.3     429.      811.3              219
          436.      812.6     443.      812.3     451.      814.3              220
          453.      816.5     463.      816.      473.      818.               221
          505.      820.      530.      821.      531.      830.               222
ENDTABLE                                                                       223
RCAD      14.0      2.7       50.       50.                                    224
```

```
-----------------------------80/80 LIST OF INPUT DATA-----------------------------
BPR       14.0      B         1                                                225
GIRDER    819.      818.6     0.        .6        2.55                         226
          -17.75    821.1     -17.75    815.6     -17.      815.6              227
          -17.      818.6     17.       818.8     17.       815.8              228
          17.75     815.8     17.75     821.3                                  228A
ENDTABLE                                                                       229
SECTION   14.0                                                                 230
          -471.     835.      -470.     828.6     -400.     824.6              231
          -300.     821.4     -200.     819.3     -100.     819.8              232
          -17.75    821.1     -17.75    812.1     -15.      812.5              233
          -10.      813.5     0.        814.      4.        814.7              234
          -1.       814.6     0.        813.8     5.        813.6              235
          10.       813.      15.       812.      17.75     811.8              236
          17.75     821.3     88.       820.9     100.      821.2              237
          200.      828.7     200.      835.                                   238
ENDTABLE                                                                       240
REACH     14.05     1.        50.       50.                                    241
SEGMENT   14.05     1         N         388.                                   242
NVALUE    .1                                                                   243
SEGMENT   14.05     2         C         416.                                   244
NVALUE    .045                                                                 245
SEGMENT   14.05     3         N         486.                                   246
NVALUE    .125                                                                 247
SECTION   14.05                                                                248
          0.        832.      1.        826.      20.       824.               249
          100.      822.      172.      820.      215.      818.               250
          360.      816.      385.      816.      388.      813.7              251
          394.      813.7     401.      815.      408.      814.7              252
          410.      816.7     429.      818.      460.      820.               253
          485.      821.6     486.      832.                                   254
ENDTABLE                                                                       255
REACH     14.1      1.        150.      145.                                   256
SEGMENT   14.1      1         N         189.                                   257
NVALUE    .1                                                                   258
SEGMENT   14.1      2         C         211.                                   259
NVALUE    .05                                                                  260
SEGMENT   14.1      3         N         273.                                   261
NVALUE    .11                                                                  262
SECTION   14.1                                                                 263
          -3.       836.      -2.       836.      -1.       836.               264
              0.00     824.20     100.00     822.40     120.00     820.80     265
            135.00     817.20     189.00     815.20     192.00     812.00     266
            194.00     812.10     200.00     812.50     206.00     812.80     267
            208.00     813.40     211.00     816.90     220.00     819.90     268
          235.      822.4     272.      821.9     273.      836.               269
```

```
-----------------------------80/80 LIST OF INPUT DATA-----------------------------
ENDTABLE                                                                      270
REACH     14.5      1.        1400.     1300.                                 271
SEGMENT   14.5      1         N         325.                                  272
NVALUE    .125                                                                273
SEGMENT   14.5      2         C         355.                                  274
NVALUE    .05                                                                 275
SEGMENT   14.5      3         N         431.                                  276
NVALUE    .125                                                                277
SECTION   14.5                                                                278
          -3.       836.      -2.       836.      -1.       836.              279
                0.00    830.80     20.00    826.20     40.00    825.20    280
              140.00    823.70    240.00    823.00    300.00    822.80    281
              310.00    825.10    325.00    818.60    328.00    817.10    282
              330.00    816.10    340.00    815.30    350.00    816.10    283
              352.00    816.90    355.00    818.30    365.00    826.50    284
              385.00    824.40    400.00    830.10    430.00    830.30    285
          431.      836.                                                    286
ENDTABLE                                                                      287
REACH     14.9      1.        900.      740.                                  288
SEGMENT   14.9      1         N         190.                                  289
NVALUE    .125                                                                290
SEGMENT   14.9      2         C         220.                                  291
NVALUE    .05                                                                 292
SEGMENT   14.9      3         N         541.                                  293
NVALUE    .125                                                                294
SECTION   14.9                                                                295
          0.        837.      1.        830.      11.       828.              296
          18.       826.      180.      824.      190.      825.4             297
          193.      823.9     195.      822.9     205.      822.1             298
          215.      822.9     217.      823.7     220.      825.1             299
          225.      824.      232.      826.      356.      828.              300
          500.      830.      540.      832.      541.      837.              301
ENDTABLE                                                                      302
ROAD      15.0      2.7       50.       50.                                   303
BPR       15.0      8         3                                               304
GIRDER    831.      830.54    0.        .6        2.55                        305
          -14.25    836.9     -14.25    833.31    -14.25    832.86            306
          14.25     836.5                                                     307
ENDTABLE                                                                      308
SECTION   15.0                                                                309
          -301.     850.      -300.     844.1     -200.     841.              310
          -100.     838.6     -14.25    836.9     -14.      825.3             311
          -10.      824.4     -5.       823.5     0.        823.5             312
          5.        823.1     10.       822.6     14.       823.2             313
          14.25     836.5     100.      835.1     200.      834.5             314
```

```
-----------------------------80/60 LIST OF INPUT DATA-----------------------------
          300.      834.3                                                  315
ENDTABLE                                                                   316
REACH     15.1+     1.        50.       50.                                317
REACH2    15.5      -2.85                                                  318
REACH     15.5      1.        500.      370.                               319
SEGMENT   15.5      1         N         16.                                320
NVALUE    .125                                                             321
SEGMENT   15.5      2         C         54.                                322
NVALUE    .05                                                              523
SEGMENT   15.5      3         N         236.                               324
NVALUE    .125                                                             325
SECTION   15.5                                                             326
          -3.       845.      -2.       845.      -1.       845.           327
                0.00     840.00     10.00     834.30     16.00     827.60    328
               17.00     826.90     20.00     825.60     25.00     825.70    329
               35.00     826.10     45.00     826.00     50.00     826.10    330
               53.00     826.20     54.00     828.20     90.00     831.60    331
              135.00     831.30    235.00     831.50236.       845.          332
ENDTABLE                                                                   337
REACH     16.0      1.        525.      500.                               338
SEGMENT   16.0      1         N         -18.                               339
NVALUE    .07                                                              340
SEGMENT   16.0      2         C         18.                                341
NVALUE    .045                                                             342
SEGMENT   16.0      3         N         541.                               343
NVALUE    .07                                                              344
SECTION   16.0                                                             345
          -71.      847.      -70.      841.4     -50.      838.3          346
          -50.      837.3     -18.      834.4     -17.      831.7          347
          -15.      830.2     -10.      827.5     -5.       827.           348
          0.        827.2     5.        827.3     10.       827.           349
          15.       827.7     17.       829.5     18.       833.9          350
          30.       832.3     100.      832.      200.      833.1          351
          300.      831.      400.      830.9     500.      829.4          352
          540.      831.4     541.      847.                               353
ENDTABLE                                                                   354
REACH     16.9      1.        285.      280.                               355
SEGMENT   16.9      1         N         234.                               356
NVALUE    .095                                                             357
SEGMENT   16.9      2         C         260.                               358
NVALUE    .05                                                              359
SEGMENT   16.9      3         N         291.                               360
NVALUE    .095                                                             361
SECTION   16.9                                                             362
          0.        842.      1.        836.      66.       834.           363
```

----------80/80 LIST OF INPUT DATA----------

```
          145.      832.      232.      830.      234.      829.8     364
          240.      827.9     247.      826.8     254.      827.      365
          260.      829.5     262.      830.      270.      832.      366
          284.      834.      290.      834.      291.      842.      367
ENDTABLE                                                              368
ROAD      17.0      2.7       50.       50.                           369
BPR       17.0      8         1                                       370
GIRDER    834.8     834.27    0.        .6        2.65                371
          -14.      836.72    -14.      834.29    14.       834.24    372
          14.       836.67                                            373
ENDTABLE                                                              374
SECTION   17.0                                                        375
          -600.     846.      -500.     840.7     -500.     840.      376
          -400.     836.3     -300.     837.7     -200.     839.8     377
          -100.     837.1     -18.      836.3     -14.      836.72    378
          -14.      829.1     -10.      828.5     -5.       827.9     379
          0.        828.2     5.        828.3     10.       829.2     380
          14.       830.      14.       836.67    18.       836.3     381
          100.      834.9     200.      834.2     300.      833.6     382
          301.      846.                                              383
ENDTABLE                                                              384
REACH     17.1+     1.        50.       50.                           385
REACH2    16.9      0.                                                386
COMPUTE   9.5       17.1+     9.5                                     1270A
```

----------END OF 80/80 LIST----------

23

COMPUTE 9.5 17.1+ 9.5 127 CA

----------STARTING DATA FROM GIVEN ELEVATION----------

RATING TABLE FOR SECTION 9.5 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	789.70	0.0	0.0						
BANK FULL	791.4	29.9	229.4	0.00	0.00	0.00			
1	794.22	256.7	610.0	0.00	0.00	0.00	610.00	792.6	.00237
2	794.81	327.3	950.0	0.00	0.00	0.00	950.00	793.1	.00307
3	795.03	354.6	1160.0	0.00	0.00	0.00	1160.00	793.3	.00370
4	795.68	438.7	1610.0	0.00	0.00	0.00	1610.00	793.8	.00403

SEGMENT TABLE FOR SECTION 9.5

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	610.	67.	385.	159.
610.	VELOCITY FPS	3.29	1.24	3.96	1.50
2	DISCHARGE CFS	950.	127.	548.	275.
950.	VELOCITY FPS	3.97	1.64	4.92	1.98
3	DISCHARGE CFS	1160.	164.	651.	346.
1160.	VELOCITY FPS	4.45	1.89	5.56	2.28
4	DISCHARGE CFS	1610.	261.	838.	511.
1610.	VELOCITY FPS	4.93	2.23	6.33	2.70
1	ELEV 794.22 KO	12494.	1337.	7939.	3217.
2	ELEV 794.81 KO	17116.	2240.	9956.	4918.
3	ELEV 795.03 KO	19141.	2643.	10756.	5639.
4	ELEV 795.68 KO	25345.	4062.	13263.	8020.

KD TABLE FOR CROSS SECTION 9.5

ELEVATION	AREA	KD	KD BY SEGMENT		
789.70	0.				
790.	2.	25.	1.	22.	1.
791.	20.	631.	1.	629.	1.
792.	54.	2195.	19.	2111.	31.
793.	131.	5564.	285.	4365.	877.
794.	231.	10936.	1069.	7235.	2678.
795.	351.	18805.	2585.	10648.	5537.
796.	481.	28023.	4696.	14573.	9339.
797.	621.	41230.	8219.	18977.	14026.
798.	767.	55712.	12367.	23826.	19494.
799.	916.	72371.	17481.	29115.	25758.
800.	1071.	91740.	23315.	34816.	32597.
801.	1226.	110286.	29730.	40919.	39629.
802.	1391.	131765.	36669.	47408.	47695.
803.	1558.	156149.	44135.	54277.	57732.
804.	1725.	182480.	52035.	61510.	68935.
805.	1893.	211015.	60669.	69120.	81318.
806.	2060.	241778.	70952.	77100.	94934.
807.	2227.	274790.	80197.	85444.	109813.

ROAD SECTION 10.0

NO.	HW	CFS	HL	TW	CSM
0	789.80	0.00	0.00	0.00	0.00
1	794.98	610.00	.64	794.34	610.00
2	796.32	950.00	1.36	794.96	950.00
3	797.06	1160.00	1.84	795.22	1160.00
4	798.76	1610.00	2.88	795.88	1610.00

MIN ROAD ELEVATION 799.10

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	41111.	8.50	23.00	41.00	789.80	789.60	.018

RATING TABLE FOR SECTION 10.5 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	789.90	0.0	0.0						
BANK FULL	791.3	24.1	167.0	0.00	0.00	0.00			
1	795.01	460.9	610.0	0.00	0.00	0.00	610.00	792.6	.00077
2	796.35	714.2	950.0	0.00	0.00	0.00	950.00	793.1	.00054
3	797.08	860.1	1160.0	0.00	0.00	0.00	1160.00	793.3	.00047
4	798.78	1218.0	1610.0	0.00	0.00	0.00	1610.00	793.7	.00033

SEGMENT TABLE FOR SECTION 10.5

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	610.	289.	287.	33.
610.	VELOCITY FPS	1.66	.97	2.47	.71
2	DISCHARGE CFS	950.	506.	369.	75.
950.	VELOCITY FPS	1.75	1.09	2.47	.76
3	DISCHARGE CFS	1160.	635.	417.	108.
1150.	VELOCITY FPS	1.73	1.14	2.49	.80
4	DISCHARGE CFS	1610.	905.	507.	198.
1610.	VELOCITY FPS	1.64	1.17	2.41	.84
1	ELEV 795.01 KD	21899.	10294.	10441.	1164.
2	ELEV 796.35 KD	40957.	21810.	15918.	3229.
3	ELEV 797.08 KD	53618.	29354.	19287.	4977.
4	ELEV 798.78 KD	89073.	50853.	28112.	10908.

KD TABLE FOR CROSS SECTION 10.5

ELEVATION	AREA	KD	KD BY SEGMENT		
789.90	0.				
790.	0.	5.	1.	4.	1.
791.	17.	459.	1.	457.	1.
792.	53.	1945.	107.	1825.	1.
793.	140.	5314.	1188.	4044.	60.
794.	282.	11321.	4177.	6926.	398.
795.	458.	21794.	10199.	10391.	1150.
796.	647.	35403.	18447.	14481.	2475.
797.	845.	52194.	28492.	18919.	4766.
798.	1052.	71808.	40065.	23913.	7815.
799.	1266.	94362.	53084.	29365.	11901.
800.	1486.	119654.	67446.	35256.	16937.
801.	1710.	148149.	83063.	41569.	23505.
802.	1934.	179031.	99859.	48292.	30929.
803.	2158.	212277.	117776.	55412.	39078.
804.	2383.	247536.	135729.	62917.	47869.
805.	2608.	285509.	157055.	70817.	57744.
806.	2832.	326305.	178806.	79106.	68822.
807.	3057.	369941.	201984.	87777.	81162.
808.	3281.	416431.	226591.	96824.	94822.

RATING TABLE FOR SECTION 10.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	791.00	0.0	0.0						
BANK FULL	795.0	206.3	520.8	0.00	0.00	0.00			
1	795.69	504.1	610.0	0.00	0.00	0.00	610.00	794.8	.00238
2	796.64	987.5	950.0	0.00	0.00	0.00	950.00	795.1	.00080
3	797.28	1313.7	1160.0	0.00	0.00	0.00	1160.00	795.2	.00049
4	798.88	2134.9	1610.0	0.00	0.00	0.00	1610.00	795.3	.00020

SEGMENT TABLE FOR SECTION 10.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	611.	337.	226.	47.
610.	VELOCITY FPS	1.88	.88	2.65	1.36
2	DISCHARGE CFS	953.	695.	207.	47.
950.	VELOCITY FPS	1.16	.84	1.88	.97
3	DISCHARGE CFS	1160.	907.	205.	49.
1160.	VELOCITY FPS	1.01	.80	1.62	.83
4	DISCHARGE CFS	1610.	1346.	210.	54.
1610.	VELOCITY FPS	.01	.72	1.25	.64
1	ELEV 795.69 KD	12147.	6335.	4809.	1003.
2	ELEV 796.64 KD	33575.	24518.	7373.	1684.
3	ELEV 797.28 KD	52244.	40707.	9318.	2219.
4	ELEV 798.88 KD	114167.	95382.	14950.	3836.

KD TABLE FOR CROSS SECTION 10.9

ELEVATION	AREA	KD	KD BY SEGMENT		
791.00	0.				
792.	9.	167.	1.	158.	8.
793.	29.	638.	1.	760.	77.
794.	57.	2045.	1.	1733.	264.
795.	206.	4938.	666.	3304.	620.
796.	663.	18138.	11156.	5600.	1208.
797.	1171.	43345.	32827.	8437.	1974.
798.	1683.	77690.	63022.	11729.	2999.
799.	2199.	120017.	100601.	15437.	3980.
800.	2721.	168504.	144397.	19535.	4572.
801.	3267.	220035.	190727.	24009.	5298.
802.	3850.	276661.	242321.	28846.	7093.
803.	4465.	348616.	304682.	34031.	9903.
804.	5105.	426376.	372962.	39548.	13833.
805.	5759.	512964.	447526.	45396.	19915.
806.	6418.	608552.	529424.	51565.	27466.
807.	7079.	712138.	618080.	58045.	35923.
808.	7740.	822100.	712046.	64830.	45192.
809.	8402.	936103.	810990.	71918.	55169.
810.	9063.	1056261.	917207.	79314.	66626.
811.	9724.	1196520.	1330605.	87044.	79687.
812.	10386.	1339224.	1151391.	95034.	94480.

RATING TABLE FOR SECTION 10.99 DA=)1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM.	CSM	CRIT ELEV	FRICTION SLOPE
0	790.20	0.0	0.0						
BANK FULL	794.0	16.4	316.0	0.00	0.00	0.00			
1	797.54	438.6	610.0	0.00	0.00	0.00	610.00	795.7	.00216
2	798.12	700.9	950.0	0.00	0.00	0.00	950.00	796.7	.00188
3	798.43	852.7	1160.0	0.00	0.00	0.00	1160.00	795.8	.00172
4	799.45	1369.8	1610.0	0.00	0.00	0.00	1610.00	797.1	.00081

SEGMENT TABLE FOR SECTION 10.99

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	610.	20.	353.	237.
610.	VELOCITY FPS	2.26	1.17	2.75	.81
2	DISCHARGE CFS	950.	29.	420.	501.
950.	VELOCITY FPS	2.08	1.23	2.86	.94
3	DISCHARGE CFS	1160.	33.	435.	691.
1160.	VELOCITY FPS	2.10	1.20	2.78	1.03
4	DISCHARGE CFS	1610.	43.	420.	1147.
1610.	VELOCITY FPS	1.46	.97	2.22	1.01
1	ELEV 797.54 KD	12953.	433.	7825.	4696.
2	ELEV 798.12 KD	21704.	669.	9816.	11219.
3	ELEV 798.43 KD	27735.	821.	10932.	15982.
4	ELEV 799.45 KD	56305.	1497.	14998.	39811.

KD TABLE FOR CROSS SECTION 10.99

ELEVATION	AREA	KD	KD BY SEGMENT		
790.20	0.				
791.	0.	7.	1.	5.	1.
792.	0.	10.	1.	8.	1.
793.	1.	12.	1.	10.	1.
794.	16.	243.	1.	240.	1.
795.	50.	1502.	15.	1476.	11.
796.	101.	3729.	90.	3474.	135.
797.	266	8237.	270.	6139.	1444.
798.	648.	19815.	615.	9392.	9469.
799.	1142.	42765.	1164.	13154.	28145.
800.	1650.	75449.	2000.	17412.	55910.
801.	2161.	115755.	3217.	22133.	90338.
802.	2673.	162910.	4729.	27295.	130846.
803.	3167.	216025.	6477.	32866.	176631.
804.	3701.	275426.	8485.	38657.	228047.
805.	4227.	341605.	10746.	45248.	284589.
806.	4735.	411262.	13259.	52024.	345969.
807.	5253.	487256.	16027.	59175.	411355.
808.	5776.	565511.	17324.	66656.	481498.
809.	6303.	650533.	20242.	74511.	555767.
810.	6834.	741840.	24655.	82725.	634447.
811.	7364.	837338.	29301.	91266.	716755.
812.	7895.	939763.	34542.	100226.	805117.
813.	8425.	1049283.	40420.	109603.	899667.
814.	8956.	1166129.	46981.	119399.	1000540.

TABLE OF VALUES FOR BFR E[illegible]TION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
1.1042	1.1042	0.0000	0.0000	0.0000	0.0000	.5514	1.0000	1.0000	193.1875	576.2628	486.1250
DCRIT	794.61	KBCRIT=									
1.6470	1.6470	0.0000	0.0000	0.0000	0.0000	.4172	1.0000	1.0000	193.5650	844.8758	743.9058
DCRIT	795.40	KBCRIT=									
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	193.5650	844.8758	743.9058
DCRIT	-1.00	KBCRIT=									
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	193.5650	844.8758	743.9058
DCRIT	-1.00	KBCRIT=									

ROAD SECTION 11.0

NO.	HW	CFS	HL	TW	CSM
0	790.20	0.00	0.00	0.00	0.00
1	797.82	610.00	.18	797.64	610.00
2	799.25	950.00	1.04	798.21	950.00
3	800.05	1160.00	1.54	798.51	1160.00
4	801.15	1610.00	1.66	799.49	1610.00

MIN ROAD ELEVATION 800.00

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 797.67 OPENING NO.= 1

RATING TABLE FOR SECTION 11.1+ DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	790.20	0.0	0.0						
BANK FULL	794.0	16.4	301.4	0.00	0.00	0.00			
1	797.89	599.5	610.0	0.00	0.00	0.00	610.00	795.7	.00127
2	799.27	1279.6	950.0	0.00	0.00	0.00	950.00	796.7	.00040
3	800.07	1663.7	1160.0	0.00	0.00	0.00	1160.00	796.8	.00026
4	801.16	2241.6	1610.0	0.00	0.00	0.00	1610.00	797.1	.00020

SEGMENT TABLE FOR SECTION 11.1+

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	610.	18.	310.	282.
610.	VELOCITY FPS	1.74	.85	2.22	.64
2	DISCHARGE CFS	950.	24.	284.	642.
950.	VELOCITY FPS	1.00	.60	1.54	.61
3	DISCHARGE CFS	1161.	30.	284.	846.
1160.	VELOCITY FPS	.86	.54	1.36	.60
4	DISCHARGE CFS	1610.	44.	327.	1239.
1610.	VELOCITY FPS	.83	.57	1.34	.65
1	ELEV 797.89 KQ	16759.	509.	9010.	7240.
2	ELEV 799.27 KQ	47410.	1220.	14278.	31920.
3	ELEV 800.07 KQ	71694.	1854.	17713.	52127.
4	ELEV 801.16 KQ	112745.	3096.	22931.	86718.

KD TABLE FOR CROSS SECTION 11.1+

ELEVATION	AREA	KD	KD BY SEGMENT		
790.20	0.				
791.	0.	7.	1.	5.	1.
792.	0.	19.	1.	8.	1.
793.	1.	12.	1.	10.	1.
794.	16.	243.	1.	240.	1.
795.	58.	1499.	13.	1476.	10.
796.	101.	3703.	81.	3474.	121.
797.	268.	8029.	242.	7179.	1294.
798.	646.	18752.	551.	9392.	8490.
799.	1142.	39743.	1044.	13154.	25237.
800.	1650.	69463.	1793.	17412.	50134.
801.	2161.	106188.	2885.	22133.	81005.
802.	2673.	146903.	4241.	27295.	117328.
803.	3187.	197137.	5808.	32866.	158384.
804.	3701.	250990.	7609.	38857.	204486.
805.	4217.	310033.	9635.	45248.	255188.
806.	4735.	374150.	11869.	52024.	310227.
807.	5253.	442941.	14371.	59175.	369396.
808.	5776.	513975.	15534.	66656.	431755.
809.	6303.	591048.	18151.	74511.	498351.
810.	6834.	673748.	22108.	82725.	568902.
811.	7364.	760262.	25274.	91266.	643708.
812.	7895.	853031.	30973.	100226.	721941.
813.	8425.	952190.	36244.	109603.	806723.
814.	8956.	1057669.	42127.	119399.	897175.

RATING TABLE FOR SECTION 11.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	793.30	0.0	0.0						
BANK FULL	798.0	134.6	473.1	0.00	0.00	0.00			
1	799.36	567.1	610.0	0.00	0.00	0.00	610.00	797.0	.00128
2	800.20	890.0	950.0	0.00	0.00	0.00	950.00	798.3	.00094
3	800.76	1096.3	1160.0	0.00	0.00	0.00	1160.00	798.3	.00075
4	801.73	1465.3	1610.0	0.00	0.00	0.00	1610.00	798.5	.00060

SEGMENT TABLE FOR SECTION 11.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	610.	1.	258.	351.
610.	VELOCITY FPS	1.52	.42	2.04	.77
2	DISCHARGE CFS	950.	5.	296.	649.
950.	VELOCITY FPS	1.36	.50	1.98	.89
3	DISCHARGE CFS	1160.	9.	313.	839.
1160.	VELOCITY FPS	1.27	.52	1.90	.92
4	DISCHARGE CFS	1610.	20.	358.	1232.
1610.	VELOCITY FPS	1.26	.54	1.88	1.00
1	ELEV 799.36 KD	16773.	23.	7481.	9269.
2	ELEV 800.20 KD	30862.	147.	9639.	20876.
3	ELEV 800.76 KD	42364.	309.	11556.	30519.
4	ELEV 801.73 KD	65744.	761.	14791.	50192.

KD TABLE FOR CROSS SECTION 11.9

ELEVATION	AREA	KD	KD BY SEGMENT		
793.30	0.				
794.	6.	80.	1.	78.	1.
795.	23.	611.	1.	609.	1.
796.	43.	1509.	1.	1506.	1.
797.	65.	2726.	1.	2723.	1.
798.	135.	4340.	1.	4306.	120.
799.	459.	12430.	7.	6553.	5824.
800.	816.	27376.	107.	9262.	17995.
801.	1167.	47081.	395.	12338.	35074.
802.	1571.	73213.	938.	15754.	56456.
803.	1970.	103399.	1949.	19499.	81889.
804.	2367.	138645.	3666.	23556.	111361.
805.	2818.	178594.	6224.	27914.	144497.
806.	3261.	223351.	10087.	32559.	180766.
807.	3701.	273171.	15290.	37490.	220288.
808.	4157.	327044.	21470.	42696.	262620.
809.	4609.	384904.	28493.	48170.	308223.
810.	5062.	446412.	36259.	53902.	356231.
811.	5518.	511590.	44950.	59884.	406686.
812.	5974.	580637.	54553.	66121.	459910.
813.	6430.	653310.	64946.	72607.	515746.
814.	6887.	728872.	75810.	79326.	573709.
815.	7343.	808965.	87846.	86305.	634979.
816.	7811.	893093.	101123.	93543.	699591.
817.	8256.	983042.	115701.	101036.	767564.

RATING TABLE FOR SECTION 11.99 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	794.30	0.0	0.0						
BANK FULL	797.5	68.5	331.2	0.00	0.00	0.00			
1	800.19	663.1	610.0	0.00	0.00	0.00	610.00	798.0	.00062
2	801.00	956.8	950.0	0.00	0.00	0.00	950.00	798.3	.00059
3	801.49	1137.1	1160.0	0.00	0.00	0.00	1160.00	798.5	.00055
4	802.40	1477.5	1610.0	0.00	0.00	0.00	1610.00	798.8	.00050

SEGMENT TABLE FOR SECTION 11.99

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	610.	300.	272.	37.
610.	VELOCITY FPS	1.46	.70	2.00	.38
2	DISCHARGE CFS	950.	489.	345.	117.
950.	VELOCITY FPS	1.48	.84	2.19	.54
3	DISCHARGE CFS	1160.	602.	382.	175.
1160.	VELOCITY FPS	1.46	.89	2.24	.61
4	DISCHARGE CFS	1610.	840.	456.	314.
1610.	VELOCITY FPS	1.47	.98	2.33	.74
1	ELEV 800.19 KD	24277.	12014.	11158.	1104.
2	ELEV 801.00 KD	38817.	20024.	14299.	4494.
3	ELEV 801.49 KD	49604.	25763.	16358.	7463.
4	ELEV 802.40 KD	72009.	37587.	20445.	13977.

KD TABLE FOR CROSS SECTION 11.99

ELEVATION	AREA	KD	KD BY SEGMENT		
794.30	0.				
795.	9.	160.	1.	158.	1.
796.	29.	1023.	1.	1020.	1.
797.	92.	2448.	1.	2446.	1.
798.	106.	4714.	122.	4479.	1.
799.	307.	10701.	3461.	7126.	2.
800.	593.	21729.	10436.	10455.	714.
801.	957.	35274.	20010.	14207.	4402.
802.	1326.	61651.	32113.	18611.	10823.
803.	1708.	88994.	46428.	23366.	19108.
804.	2096.	120798.	62934.	28545.	29260.
805.	2491.	156762.	81503.	34132.	41087.
806.	2894.	196724.	102079.	40110.	54506.
807.	3306.	240626.	124577.	46465.	69544.
808.	3723.	286637.	149066.	53192.	86348.
809.	4146.	340539.	175485.	60279.	104757.
810.	4573.	396183.	203860.	67721.	124603.
811.	5001.	456629.	234659.	75535.	146629.
812.	5428.	521966.	267899.	83718.	170922.
813.	5855.	592286.	303627.	92265.	197568.

TABLE OF VALUES FOR BPR E TION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
1.7959	1.5469	.2491	.5893	0.0000	0.0000	.4404	1.0000	1.0000	97.6482	1009.9305	601.8883
DCRIT	799.36	KBCRIT=									
1.9041	1.7700	.2140	.5337	0.0000	0.0000	.3894	1.0000	1.0000	137.2086	1452.3737	893.9808
DCRIT	800.69	KBCRIT=									
2.0774	1.8817	.1957	.5070	0.0000	0.0000	.3649	1.0000	1.0000	163.7199	1691.6783	1073.3078
DCRIT	801.04	KBCRIT=									
2.1869	2.0179	.1711	.4754	0.0000	0.0000	.3358	1.0000	1.0000	217.2214	2142.7536	1411.0714
DCRIT	801.72	KBCRIT=									

ROAD SECTION 12.0

NO.	HH	CFS	HL	TW	CSM
0	794.50	0.00	0.00	0.00	0.00
1	801.32	610.00	1.10	800.22	610.00
2	802.51	950.00	1.48	801.03	950.00
3	803.14	1160.00	1.62	801.52	1160.00
4	804.30	1610.00	1.88	802.42	1610.00

MIN ROAD ELEVATION 806.90

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 806.17 OPENING NO.= 1

RATING TABLE FOR SECTION 12.14 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	794.50	0.0	0.0						
BANK FULL	797.7	68.5	285.5	0.00	0.00	0.00			
1	801.34	1007.2	610.0	0.00	0.00	0.00	610.00	798.2	.00025
2	802.52	1448.9	950.0	0.00	0.00	0.00	950.00	798.5	.00022
3	803.15	1668.0	1160.0	0.00	0.00	0.00	1160.00	798.7	.00021
4	804.31	2138.9	1610.0	0.00	0.00	0.00	1610.00	799.0	.00020

SEGMENT TABLE FOR SECTION 12.14

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	610.	302.	231.	77.
610.	VELOCITY FPS	.97	.49	1.43	.33
2	DISCHARGE CFS	950.	473.	295.	176.
950.	VELOCITY FPS	.96	.57	1.53	.43
3	DISCHARGE CFS	1160.	586.	332.	242.
1160.	VELOCITY FPS	.98	.60	1.58	.48
4	DISCHARGE CFS	1610.	815.	410.	385.
1610.	VELOCITY FPS	1.02	.67	1.70	.56
1	ELEV 801.34 KD	38653.	19162.	14861.	4630.
2	ELEV 802.52 KD	64611.	32564.	20095.	11952.
3	ELEV 803.15 KD	80269.	40601.	23102.	16566.
4	ELEV 804.31 KD	114109.	57793.	29144.	27172.

KD TABLE FOR CROSS SECTION 12.1+

ELEVATION	AREA	KD	KD BY SEGMENT		
794.50	0.				
795.	5.	69.	1.	66.	1.
796.	25.	802.	1.	800.	1.
797.	47.	2121.	1.	2119.	1.
798.	83.	4073.	34.	4019.	1.
799.	264.	8834.	2124.	6552.	1.
800.	526.	18036.	7810.	9743.	255.
801.	813.	32793.	15993.	13493.	3212.
802.	1253.	52456.	26280.	17712.	8373.
803.	1632.	76464.	38610.	22379.	15378.
804.	2018.	104579.	52933.	27476.	24107.
805.	2412.	136476.	69104.	32982.	34346.
806.	2813.	172003.	87071.	38883.	46017.
807.	3223.	211182.	106767.	45164.	59114.
808.	3639.	253831.	128247.	51619.	73792.
809.	4061.	300249.	151444.	58836.	89963.
810.	4488.	349754.	176290.	66202.	107254.
811.	4915.	403550.	203273.	73943.	126470.
812.	5342.	461716.	232429.	82052.	147690.
813.	5770.	524327.	263794.	90526.	170989.

RATING TABLE FOR SECTION 12.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	800.60	0.0	0.0						
BANK FULL	805.6	165.4	502.6	0.00	0.00	0.00			
1	806.67	492.2	610.0	0.00	0.00	0.00	610.00	804.8	.00172
2	807.34	713.2	950.0	0.00	0.00	0.00	950.00	805.6	.00166
3	807.70	831.6	1160.0	0.00	0.00	0.00	1160.00	805.8	.00162
4	808.46	1088.5	1610.0	0.00	0.00	0.00	1610.00	806.0	.00147

SEGMENT TABLE FOR SECTION 12.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	610.	77.	363.	170.
610.	VELOCITY FPS	2.39	.67	2.92	.67
2	DISCHARGE CFS	950.	151.	464.	335.
950.	VELOCITY FPS	2.38	.85	3.20	.86
3	DISCHARGE CFS	1160.	198.	522.	439.
1160.	VELOCITY FPS	2.38	.93	3.36	.95
4	DISCHARGE CFS	1610.	307.	626.	677.
1610.	VELOCITY FPS	2.36	1.06	3.51	1.09
1	ELEV 806.67 KO	14417.	1693.	9005.	3719.
2	ELEV 807.34 KO	23219.	3624.	11576.	8019.
3	ELEV 807.70 KO	28759.	4387.	13053.	10819.
4	ELEV 808.46 KO	41977.	7965.	16417.	17595.

KD TABLE FOR CROSS SECTION 12.9

ELEVATION	AREA	KD	KD BY SEGMENT		
800.60	0.				
801.	1.	9.	1.	7.	1.
802.	9.	206.	1.	204.	1.
803.	24.	817.	1.	815.	1.
804.	46.	2020.	1.	2018.	1.
805.	82.	4081.	5.	4055.	3.
806.	282.	8392.	455.	6755.	682.
807.	[illegible]	[illegible]	2885.	10262.	[illegible]337.
808.	933.	33729.	6020.	14340.	13320.
809.	1279.	51829.	9806.	18952.	23016.
810.	1661.	72946.	13939.	24077.	34880.
811.	2085.	99680.	21275.	29680.	48636.
812.	2527.	131763.	31779.	35741.	64180.
813.	2979.	167746.	44005.	42239.	81440.
814.	3439.	206034.	58259.	49175.	100561.
815.	3905.	253330.	75297.	56526.	121557.
816.	4370.	301845.	93690.	64265.	143860.
817.	4836.	353762.	113695.	72401.	167631.
818.	5302.	408876.	135156.	80920.	192760.
819.	5769.	467732.	158461.	89843.	219507.
820.	6235.	531376.	184227.	99199.	248252.
821.	67[illegible]2.	599759.	212566.	108985.	279030.
822.	7168.	673031.	243590.	119199.	311873.

RATING TABLE FOR SECTION *12.99 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	804.98	0.0	0.0						
BANK FULL	809.3	165.5	483.9	0.00	0.00	0.00			
1	810.43	325.5	610.0	0.00	0.00	0.00	610.00	808.4	.00251
2	811.19	546.2	950.0	0.00	0.00	0.00	950.00	809.9	.00214
3	811.54	649.5	1160.0	0.00	0.00	0.00	1160.00	810.0	.00209
4	812.12	823.5	1610.0	0.00	0.00	0.00	1610.00	810.2	.00216

SEGMENT TABLE FOR SECTION *12.99

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	610.	10.	475.	126.
610.	VELOCITY FPS	3.26	.85	3.60	.69
2	DISCHARGE CFS	950.	18.	581.	351.
950.	VELOCITY FPS	3.03	.92	3.72	.95
3	DISCHARGE CFS	1160.	24.	648.	489.
1160.	VELOCITY FPS	3.02	.96	3.67	1.07
4	DISCHARGE CFS	1610.	36.	790.	783.
1610.	VELOCITY FPS	3.13	1.12	4.25	1.30
1	ELEV 810.43 KD	11602.	187.	9603.	1812.
2	ELEV 811.19 KD	20301.	381.	12743.	7176.
3	ELEV 811.54 KD	25304.	508.	14304.	10493.
4	ELEV 812.12 KD	34609.	782.	17062.	16766.

KD TABLE FOR CROSS SECTION +12.99

ELEVATION	AREA	KD	KD BY SEGMENT		
804.98	0.				
805.	0.	2.	1.	2.	1.
806.	11.	274.	1.	271.	1.
807.	31.	1061.	1.	1058.	1.
808.	56.	2739.	1.	2736.	1.
809.	89.	4995.	17.	4973.	1.
810.	208.	8394.	115.	8003.	369.
811.	491.	18157.	324.	11934.	5602.
812.	788.	32391.	718.	16475.	15277.
813.	1091.	51125.	1372.	21584.	28163.
814.	1401.	73227.	2220.	27220.	43783.
815.	1718.	99031.	3151.	33367.	62510.
816.	2040.	126185.	4332.	40005.	83846.
817.	2309.	160342.	5676.	47115.	107747.
818.	2704.	192331.	7471.	54678.	130520.
819.	3068.	216320.	9914.	62688.	143643.
820.	3533.	248716.	12745.	71134.	164801.
821.	4013.	294760.	15816.	80003.	198852.
822.	4500.	352164.	19166.	89299.	243790.
823.	4937.	416493.	22970.	99051.	295426.
824.	5474.	488129.	27261.	109254.	354302.
825.	5961.	567451.	32071.	119904.	420973.

TABLE OF VALUES FOR BFR EQUATION

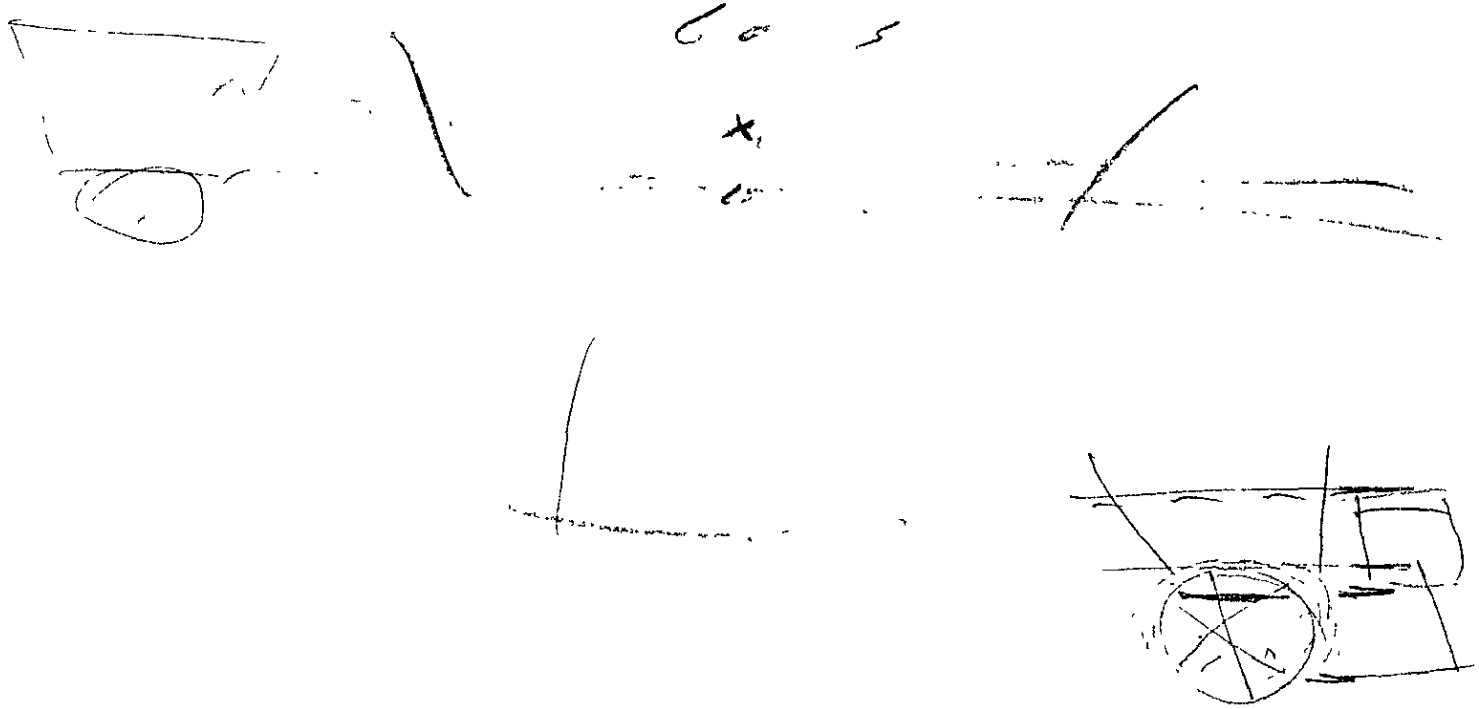
COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
.4455	.3272	0.0000	0.0000	0.0001	.1162	.7846	1.0000	1.0000	190.1100	426.1069	385.0351
DCRIT	807.55	KSCRIT=									
.7938	.6992	0.0000	0.0000	0.0000	.0946	.6466	1.0000	1.0000	218.3079	728.1347	602.7310
DCRIT	806.24	KBCRIT=									
.8414	.7580	0.0000	0.0000	0.0000	.0834	.6278	1.0000	1.0000	231.4275	879.6812	705.6172
DCRIT	808.62	KBCRIT=									
.9454	.8976	0.0000	0.0000	0.0000	.0478	.5855	1.0000	1.0000	244.3525	1063.9675	881.5315
DCRIT	809.37	KBCRIT=									

ROAD SECTION 13.0

NO.	HW	CFS	HL	TW	CSM
0	804.90	0.00	0.00	0.00	0.00
1	810.68	610.00	.12	810.56	610.00
2	811.70	950.00	.40	811.30	950.00
3	812.21	1160.00	.56	811.65	1160.00
4	814.09	1610.00	1.86	812.23	1610.00

MIN ROAD ELEVATION 817.30

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 812.12 OPENING NO.= 1



RATING TABLE FOR SECTION 13.1 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	804.98	0.0	0.0						
BANK FULL	809.3	105.5	463.5	0.00	0.00	0.00			
1	810.67	393.0	610.0	0.00	0.00	0.00	610.00	808.4	.00226
2	811.69	695.7	950.0	0.00	0.00	0.00	950.00	809.9	.00179
3	812.20	847.1	1160.0	0.00	0.00	0.00	1160.00	810.0	.00167
4	814.09	1429.6	1610.0	0.00	0.00	0.00	1610.00	810.2	.00083

SEGMENT TABLE FOR SECTION 13.1

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	611.	7.	499.	105.
610.	VELOCITY FPS	3.27	.50	3.57	.44
2	DISCHARGE CFS	950.	15.	629.	306.
950.	VELOCITY FPS	3.03	.55	3.65	.62
3	DISCHARGE CFS	1160.	20.	713.	428.
1160.	VELOCITY FPS	2.99	.59	3.78	.66
4	DISCHARGE CFS	1610.	39.	800.	771.
1610.	VELOCITY FPS	2.32	.58	3.21	.69
1	ELEV 810.67 KO	12777.	141.	10559.	2077.
2	ELEV 811.69 KO	22366.	336.	15012.	7020.
3	ELEV 812.20 KO	28389.	486.	17452.	10451.
4	ELEV 814.09 KO	55726.	1350.	27741.	26635.

KD TABLE FOR CROSS SECTION 13.1

ELEVATION	AREA	KD	KD BY SEGMENT		
804.98	0.				
805.	0.	2.	1.	2.	1.
806.	11.	283.	6.	271.	6.
807.	31.	1074.	8.	1058.	8.
808.	58.	2756.	10.	2736.	10.
809.	89.	5000.	15.	4973.	12.
810.	208.	8540.	68.	8003.	217.
811.	431.	15623.	191.	11534.	3297.
812.	766.	25966.	422.	16475.	8990.
813.	1091.	38969.	806.	21584.	16573.
814.	1401.	54234.	1306.	27220.	25764.
815.	1718.	72008.	1854.	33367.	36785.
816.	2040.	91396.	2549.	40005.	49340.
817.	2369.	113803.	3341.	47119.	63405.
818.	2704.	135889.	4396.	54678.	76806.
819.	3088.	159698.	5834.	62686.	84529.
820.	3533.	175641.	7500.	71134.	96979.
821.	4013.	206401.	9308.	80003.	117017.
822.	4511.	243962.	11279.	89299.	143461.
823.	4987.	285617.	13517.	99051.	173647.
824.	5474.	331549.	16042.	109254.	208493.
825.	5961.	381938.	18873.	119904.	247726.

*****SECT.13.9 KD VALUES REVERSED ON SEGMENT 3 AT ELEVATION 829.20 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****

RATING TABLE FOR SECTION 13.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	808.20	0.0	0.0						
BANK FULL	813.2	164.3	547.8	0.00	0.00	0.00			
1	813.77	264.2	610.0	0.00	0.00	0.00	610.00	811.6	.00237
2	814.70	481.1	950.0	0.00	0.00	0.00	950.00	812.8	.00204
3	815.09	584.2	1160.0	0.00	0.00	0.00	1160.00	813.2	.00209
4	816.16	911.7	1610.0	0.00	0.00	0.00	1610.00	813.7	.00157

SEGMENT TABLE FOR SECTION 13.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	610.	38.	541.	32.
610.	VELOCITY FPS	3.67	.53	3.88	.58
2	DISCHARGE CFS	950.	162.	696.	90.
950.	VELOCITY FPS	3.96	.80	4.10	.83
3	DISCHARGE CFS	1160.	245.	792.	123.
1160.	VELOCITY FPS	3.66	.91	4.33	.94
4	DISCHARGE CFS	1610.	475.	931.	204.
1610.	VELOCITY FPS	3.31	.96	4.26	1.03
1	ELEV 813.77 KD	12377.	626.	11122.	629.
2	ELEV 814.70 KD	20954.	3485.	15512.	1956.
3	ELEV 815.09 KD	25241.	5123.	17477.	2641.
4	ELEV 816.16 KD	40606.	11956.	23516.	5134.

KO TABLE FOR CROSS SECTION 13.9

ELEVATION	AREA	KO	KO BY SEGMENT		
808.20	C.				
809.	7.	159.	1.	157.	1.
810.	26.	646.	1.	844.	1.
811.	52.	2449.	1.	2447.	1.
812.	83.	4917.	1.	4915.	1.
813.	129.	8182.	1.	8083.	99.
814.	316.	14334.	1150.	12144.	875.
815.	561.	24351.	4704.	17021.	2471.
816.	859.	37999.	10672.	22542.	4695.
817.	1222.	56674.	20423.	28658.	7447.
818.	1615.	80317.	34718.	35351.	10725.
819.	2026.	109743.	52570.	42593.	14499.
820.	2469.	143610.	74416.	50365.	18758.
821.	2881.	181055.	99437.	58642.	23479.
822.	3316.	223745.	127556.	67423.	28691.
823.	3763.	269679.	158561.	76689.	34430.
824.	4214.	319338.	192341.	86427.	40546.
825.	4671.	372626.	228811.	96627.	47188.
826.	5138.	429067.	267494.	107261.	54272.
827.	5610.	489797.	309552.	118345.	61853.
828.	6087.	553241.	354962.	129866.	68295.
829.	6575.	621706.	403485.	141806.	76296.
830.	7123.	678606.	454248.	154159.	70084.
831.	7685.	747296.	508238.	166945.	72291.
832.	8246.	819540.	565909.	180181.	74469.
833.	8811.	895360.	627344.	193853.	76618.
834.	9373.	974778.	692619.	207960.	78741.

RATING TABLE FOR SECTION 13.99 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	811.30	0.0	0.0						
BANK FULL	816.3	158.1	553.1	0.00	0.00	0.00			
1	816.81	263.6	610.0	0.00	0.00	0.00	610.00	814.7	.00227
2	817.58	454.5	950.0	0.00	0.00	0.00	950.00	816.3	.00201
3	817.90	540.0	1160.0	0.00	0.00	0.00	1160.00	816.4	.00206
4	818.53	720.8	1610.0	0.00	0.00	0.00	1610.00	816.8	.00197

SEGMENT TABLE FOR SECTION 13.99

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	610.	90.	516.	4.
610.	VELOCITY FPS	3.49	.76	3.75	.54
2	DISCHARGE CFS	950.	293.	641.	16.
950.	VELOCITY FPS	3.33	1.08	3.93	.78
3	DISCHARGE CFS	1160.	422.	716.	22.
1160.	VELOCITY FPS	3.39	1.24	4.13	.85
4	DISCHARGE CFS	1610.	716.	857.	37.
1610.	VELOCITY FPS	3.38	1.47	4.41	.91
1	ELEV 816.81 KD	12179.	1215.	10896.	67.
2	ELEV 817.58 KD	20979.	6225.	14429.	325.
3	ELEV 817.90 KD	25427.	8971.	15983.	474.
4	ELEV 818.53 KD	36232.	16075.	19327.	830.

KD TABLE FOR CROSS SECTION 13.99

ELEVATION	AREA	KD	KD BY SEGMENT		
811.30	0.				
812.	6.	126.	1.	123.	1.
813.	23.	730.	1.	727.	1.
814.	50.	2255.	1.	2252.	1.
815.	79.	4640.	1.	4637.	1.
816.	113.	7743.	6.	7735.	2.
817.	306.	14455.	2506.	11699.	117.
818.	569.	27236.	9910.	16525.	521.
819.	865.	45465.	22171.	21961.	1211.
820.	1192.	66016.	37443.	28017.	2448.
821.	1577.	93511.	54164.	34654.	4608.
822.	2032.	126154.	75938.	41842.	8242.
823.	2528.	169229.	106465.	49562.	13074.
824.	3048.	221201.	144614.	57790.	18632.
825.	3575.	281476.	189864.	66523.	24957.
826.	4105.	349417.	241659.	75743.	31945.
827.	4635.	423248.	296249.	85436.	39543.
828.	5165.	502305.	359034.	95584.	47654.
829.	5696.	586196.	423731.	106175.	56224.
830.	6227.	677013.	495052.	117252.	65661.
831.	6757.	773841.	573709.	128817.	76064.
832.	7288.	866565.	668026.	140865.	87477.
833.	7819.	1004268.	754324.	153391.	99946.

*****SECT.14.09 KD VALUES REVERSED ON SEGMENT 1 AT ELEVATION 816.10 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
1.3334	1.3334	0.0000	0.0000	0.0000	0.0000	.4463	1.0000	1.0000	128.2820	641.4113	174.1301
DCRIT	815.36	KBCRIT=									
1.6069	1.6069	0.0000	0.0000	0.0000	0.0000	.3805	1.0000	1.0000	154.7297	993.7224	337.6570
DCRIT	816.07	KBCRIT=									
1.6395	1.6395	0.0000	0.0000	0.0000	0.0000	.3730	1.0000	1.0000	188.4500	1068.5808	418.4401
DCRIT	816.47	KBCRIT=									
1.6439	1.6439	0.0000	0.0000	0.0000	0.0000	.3720	1.0000	1.0000	186.4500	1080.1830	591.6187
DCRIT	817.26	KBCRIT=									

ROAD SECTION 14.0

NO.	HH	CFS	HL	TW	CSM
0	811.80	0.00	0.00	0.00	0.00
1	817.48	610.00	.60	816.88	610.00
2	818.68	950.00	1.06	817.62	950.00
3	819.56	1160.00	1.62	817.94	1160.00
4	820.62	1610.00	2.04	818.58	1610.00

MIN ROAD ELEVATION 819.80

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 818.60 OPENING NO.= 1

RATING TABLE FOR SECTION 14.05 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-OAM	CSM	CRIT ELEV	FRICTION SLOPE
.0	813.70	0.0	0.0						
BANK FULL	813.7	0.0	0.0	0.00	0.00	0.00			
1	817.54	217.8	610.0	0.00	0.00	0.00	610.00	816.8	.00749
2	818.69	462.7	950.0	0.00	0.00	0.00	950.00	817.2	.00337
3	819.56	686.3	1160.0	0.00	0.00	0.00	1160.00	817.4	.00189
4	820.61	956.7	1610.0	0.00	0.00	0.00	1610.00	817.7	.00145

SEGMENT TABLE FOR SECTION 14.05

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	610.	168.	439.	3.
610.	VELOCITY FPS	4.66	1.25	5.57	.64
2	DISCHARGE CFS	950.	412.	523.	14.
950.	VELOCITY FPS	3.65	1.25	4.71	.66
3	DISCHARGE CFS	1160.	582.	548.	30.
1160.	VELOCITY FPS	2.93	1.16	4.04	.62
4	DISCHARGE CFS	1610.	877.	668.	64.
1610.	VELOCITY FPS	2.78	1.19	4.05	.67
1	ELEV 817.54 KD	7004.	1853.	5131.	20.
2	ELEV 818.69 KD	16398.	6979.	9102.	227.
3	ELEV 819.56 KD	26626.	13283.	12685.	658.
4	ELEV 820.61 KD	42222.	22958.	17614.	1650.

KD TABLE FOR CROSS SECTION 14.05

ELEVATION	AREA	KD	KD BY SEGMENT		
813.70	0.				
814.	2.	32.	3.	28.	1.
815.	15.	365.	11.	354.	1.
816.	42.	1583.	34.	1548.	1.
817.	136.	4337.	736.	3601.	3.
818.	306.	10129.	3399.	6629.	73.
819.	540.	19733.	8992.	10326.	345.
820.	[illegible]	[illegible]	17146.	[illegible]	[illegible]
821.	1122.	48895.	27103.	19592.	2184.
822.	1469.	68656.	39636.	25061.	4100.
823.	1894.	93102.	55023.	31064.	6974.
824.	2337.	122394.	74399.	37570.	10377.
825.	2806.	158567.	99710.	44562.	14253.
826.	3265.	200206.	129587.	52022.	18550.
827.	3769.	247263.	164033.	59942.	23274.
828.	4254.	296528.	201877.	68299.	28336.
829.	4739.	353444.	242609.	77084.	33722.
830.	5224.	412082.	286320.	86292.	39442.
831.	5710.	474202.	332803.	95911.	45461.
832.	6196.	540136.	382424.	105944.	51828.
833.	6682.	611099.	436206.	116408.	58675.
834.	7167.	667027.	494254.	127299.	66012.
835.	7653.	768050.	556671.	138611.	73847.

RATING TABLE FOR SECTION 14.1 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	812.00	0.0	0.0						
BANK FULL	815.2	50.2	319.6	0.00	0.00	0.00			
1	818.11	219.5	610.0	0.00	0.00	0.00	610.00	816.1	.00287
2	819.08	303.4	950.0	0.00	0.00	0.00	950.00	816.9	.00318
3	819.83	373.8	1160.0	0.00	0.00	0.00	1160.00	817.1	.00282
4	820.83	474.7	1610.0	0.00	0.00	0.00	1610.00	817.7	.00302

SEGMENT TABLE FOR SECTION 14.1

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	610.	128.	481.	1.
610.	VELOCITY FPS	3.66	1.22	4.29	.56
2	DISCHARGE CFS	950.	264.	680.	6.
950.	VELOCITY FPS	4.41	1.62	5.10	.86
3	DISCHARGE CFS	1160.	370.	779.	12.
1160.	VELOCITY FPS	4.38	1.73	5.19	.90
4	DISCHARGE CFS	1610.	573.	1011.	26.
1610.	VELOCITY FPS	4.84	2.06	5.88	1.05
1	ELEV 818.11 KD	11340.	2291.	9031.	18.
2	ELEV 819.08 KD	16822.	4647.	12076.	98.
3	ELEV 819.83 KD	21819.	6917.	14687.	215.
4	ELEV 820.83 KD	29301.	10391.	18445.	464.

KD TABLE FOR CROSS SECTION 14.1

ELEVATION	AREA	KD	KD BY SEGMENT		
812.00	0.				
813.	9.	169.	1.	167.	1.
814.	26.	935.	1.	933.	1.
815.	45.	2161.	1.	2159.	1.
816.	76.	3950.	59.	3865.	1.
817.	133.	6669.	609.	6017.	2.
818.	211.	10859.	2076.	8716.	14.
819.	297.	16373.	4430.	11835.	88.
820.	390.	23062.	7507.	15304.	252.
821.	492.	30716.	11069.	19126.	523.
822.	611.	38911.	14785.	23281.	845.
823.	766.	46739.	17088.	27757.	1894.
824.	1019.	57912.	21236.	32543.	4134.
825.	1290.	76379.	31703.	37624.	6908.
826.	1562.	98100.	44670.	42999.	10268.
827.	1835.	122559.	59660.	48659.	14121.
828.	2108.	149363.	75304.	54596.	19410.
829.	2380.	178399.	94469.	60804.	23085.
830.	2653.	209394.	113981.	67275.	28096.
831.	2926.	242232.	134761.	74003.	33469.
832.	3200.	277116.	157010.	80939.	39061.
833.	3473.	313917.	180614.	88228.	45076.
834.	3747.	352042.	205070.	95704.	51239.
835.	4021.	391936.	231788.	103425.	57693.
836.	4295.	433150.	257890.	111359.	64472.
837.	4568.	476041.	286371.	119603.	71721.
838.	4842.	524349.	317760.	128066.	79452.
839.	5116.	574212.	350661.	136774.	87677.

RATING TABLE FOR SECTION 14.5 DA= 1.8

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	815.30	0.0	0.0						
BANK FULL	818.3	62.5	306.6	0.00	0.00	0.00			
1	821.27	165.4	610.0	0.00	0.00	0.00	610.00	818.6	.00216
2	822.54	220.1	950.0	0.00	0.00	0.00	950.00	819.4	.00242
3	823.27	281.7	1160.0	0.00	0.00	0.00	1160.00	819.9	.00248
4	824.31	561.8	1610.0	0.00	0.00	0.00	1610.00	820.7	.00254

SEGMENT TABLE FOR SECTION 14.5

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	610.	6.	601.	3.
610.	VELOCITY FPS	3.95	.67	3.97	.64
2	DISCHARGE CFS	951.	16.	925.	9.
950.	VELOCITY FPS	4.82	.82	4.88	.84
3	DISCHARGE CFS	1160.	21.	1125.	14.
1160.	VELOCITY FPS	5.24	.38	5.32	.95
4	DISCHARGE CFS	1610.	154.	1432.	24.
1610.	VELOCITY FPS	5.57	.65	5.90	1.08
1	ELEV 821.27 KD	13119.	114.	12933.	72.
2	ELEV 822.54 KD	19325.	324.	18813.	188.
3	ELEV 823.27 KD	23289.	424.	22578.	287.
4	ELEV 824.31 KD	31924.	3031.	28417.	476.

KD TABLE FOR CROSS SECTION 14.5

ELEVATION	AREA	KD	KD BY SEGMENT		
815.30	0.				
816.	6.	92.	1.	90.	1.
817.	28.	901.	1.	898.	1.
818.	54.	2418.	1.	2416.	1.
819.	84.	4788.	2.	4783.	3.
820.	118.	8023.	20.	7985.	16.
821.	155.	11355.	87.	11810.	56.
822.	195.	16382.	220.	16207.	130.
823.	259.	21781.	385.	21147.	247.
824.	434.	29132.	1708.	26598.	413.
825.	707.	39788.	6326.	32539.	547.
826.	1044.	54812.	14612.	38950.	893.
827.	1411.	74474.	26646.	45814.	1736.
828.	1791.	97943.	41490.	53113.	3042.
829.	2176.	124371.	59112.	60841.	4723.
830.	2574.	154762.	79225.	68984.	6457.
831.	2991.	187135.	101782.	77532.	7817.
832.	3421.	225089.	126982.	86472.	11574.
833.	3852.	265798.	154057.	95733.	15779.
834.	4283.	309683.	183480.	105498.	20588.
835.	4714.	356738.	215229.	115561.	25970.
836.	5145.	408074.	250485.	126057.	32384.
837.	5577.	463846.	289435.	136921.	39964.
838.	6006.	524205.	332272.	148167.	48652.

RATING TABLE FOR SECTION 14.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	822.10	0.0	0.0						
BANK FULL	825.1	120.7	453.2	0.00	0.00	0.00			
1	826.14	311.4	610.0	0.00	0.00	0.00	610.00	825.0	.00472
2	826.80	471.5	950.0	0.00	0.00	0.00	950.00	825.4	.00432
3	827.20	588.1	1160.0	0.00	0.00	0.00	1160.00	825.5	.00384
4	827.87	796.8	1610.0	0.00	0.00	0.00	1610.00	825.9	.00349

SEGMENT TABLE FOR SECTION 14.9

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	610.	203.	394.	13.
610.	VELOCITY FPS	3.49	1.02	4.21	.71
2	DISCHARGE CFS	950.	398.	521.	31.
950.	VELOCITY FPS	3.54	1.27	4.60	.69
3	DISCHARGE CFS	1160.	523.	578.	59.
1160.	VELOCITY FPS	3.44	1.36	4.60	.76
4	DISCHARGE CFS	1610.	773.	710.	126.
1610.	VELOCITY FPS	3.45	1.54	4.88	.85
1	ELEV 826.14 KD	8830.	2856.	5788.	186.
2	ELEV 826.80 KD	14420.	5991.	7971.	458.
3	ELEV 827.20 KD	18630.	8351.	9444.	844.
4	ELEV 827.87 KD	27180.	13053.	12093.	2034.

KD TABLE FOR CROSS SECTION 14.9

ELEVATION	AREA	KD	KD BY SEGMENT		
822.10	0.				
823.	10.	181.	1.	179.	1.
824.	33.	1152.	2.	1148.	2.
825.	110.	3215.	341.	2801.	30.
826.	282.	7945.	2353.	5386.	170.
827.	528.	16536.	7172.	8702.	625.
828.	843.	29098.	14031.	12640.	2342.
829.	1227.	45376.	22664.	17152.	5560.
830.	1664.	67623.	32988.	22201.	12382.
831.	2192.	96016.	45201.	27752.	22977.
832.	2721.	129617.	58929.	33789.	36841.
833.	3259.	169078.	74017.	40291.	54714.
834.	3799.	213150.	90391.	47243.	75477.
835.	4339.	261243.	107946.	54626.	98597.
836.	4880.	313428.	125686.	62436.	124233.
837.	5421.	370504.	146835.	70634.	153181.
838.	5962.	433237.	168563.	79379.	186322.
839.	6502.	501781.	191883.	88515.	223941.
840.	7042.	576281.	216809.	98086.	266323.

TABLE OF VALUES FOR BFR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAK	AEXIT
.6057	.6057	0.0000	0.0000	0.0000	0.0000	.7018	1.0000	1.0000	80.9238	164.6193	265.4686
DCRIT	825.98	KBCRIT=									
.7334	.7334	0.0000	0.0000	0.0000	0.0000	.6596	1.0000	1.0000	98.3610	231.7872	407.2685
DCRIT	826.82	KBCRIT=									
.8573	.8573	0.0000	0.0000	0.0000	0.0000	.6213	1.0000	1.0000	108.6318	350.6562	502.2787
DCRIT	827.29	KBCRIT=									
1.4954	1.4954	0.0000	0.0000	0.0000	0.0000	.4525	1.0000	1.0000	131.2947	837.4971	693.3962
DCRIT	826.21	KBCRIT=C									

ROAD SECTION 15.0

NO.	HW	CFS	HL	TW	CSM
0	822.60	0.00	0.00	0.00	0.00
1	826.68	610.00	.46	826.42	610.00
2	827.92	950.00	.88	827.64	950.00
3	828.73	1160.00	1.32	827.41	1160.00
4	830.95	1610.00	2.90	828.05	1610.000

MIN ROAD ELEVATION 834.30

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 830.54 OPENING NO.= 1

RATING TABLE FOR SECTION 15.1+ DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	822.75	0.0	0.0						
BANK FULL	824.7	59.2	283.7	0.00	0.00	0.00			
1	827.05	164.6	610.0	0.00	0.00	0.00	610.00	825.2	.00332
2	828.10	232.0	950.0	0.00	0.00	0.00	950.00	826.0	.00345
3	828.88	345.5	1160.0	0.00	0.00	0.00	1160.00	826.4	.00296
4	831.00	810.4	1610.0	0.00	0.00	0.00	1610.00	827.1	.00125

SEGMENT TABLE FOR SECTION 15.1+

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	610.	1.	599.	10.
610.	VELOCITY FPS	4.06	.58	4.09	.63
2	DISCHARGE CFS	950.	4.	911.	36.
950.	VELOCITY FPS	4.80	.76	4.89	.87
3	DISCHARGE CFS	1160.	6.	1078.	76.
1160.	VELOCITY FPS	4.83	.80	4.99	.63
4	DISCHARGE CFS	1610.	12.	1190.	408.
1610.	VELOCITY FPS	3.49	.66	4.01	.82
1	ELEV 827.05 KD	10567.	23.	10402.	161.
2	ELEV 828.10 KD	16150.	64.	15510.	577.
3	ELEV 828.88 KD	21260.	112.	19845.	1323.
4	ELEV 831.00 KD	45356.	338.	33718.	11301.

KD TABLE FOR CROSS SECTION 15.14

ELEVATION	AREA	KD	KO BY SEGMENT		
822.75	0.				
823.	1.	13.	1.	11.	1.
824.	32.	842.	1.	840.	1.
825.	69.	2957.	2.	2954.	1.
826.	110.	6137.	4.	6116.	10.
827.	161.	10350.	22.	10176.	149.
828.	225.	15608.	59.	15007.	523.
829.	300.	22233.	121.	20371.	1585.
830.	585.	32393.	213.	26613.	5335.
831.	810.	45416.	338.	33694.	11280.
832.	1035.	60779.	496.	41193.	19018.
833.	1262.	78265.	709.	49234.	28223.
834.	1491.	97742.	996.	57944.	38765.
835.	1722.	119037.	1367.	67156.	50529.
836.	1954.	142283.	1833.	76906.	63537.
837.	2189.	167124.	2402.	87174.	77529.
838.	2425.	193662.	3121.	97951.	92560.
839.	2661.	221791.	3927.	109225.	108612.
840.	2897.	251407.	4787.	120986.	125610.
841.	3133.	282581.	5714.	133228.	143644.
842.	3370.	315646.	6755.	145955.	163096.
843.	3606.	350609.	7919.	159162.	183394.
844.	3843.	387473.	9213.	172840.	206367.

RATING TABLE FOR SECTION 15.5 DA= 1.8

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	825.60	0.0	0.0						
BANK FULL	827.6	59.2	309.3	0.00	0.00	0.00			
1	829.54	144.8	610.0	0.00	0.00	0.00	610.00	828.0	.00463
2	830.50	201.6	950.0	0.00	0.00	0.00	950.00	826.8	.00480
3	831.13	244.4	1160.0	0.00	0.00	0.00	1160.00	829.2	.00446
4	832.41	467.6	1610.0	0.00	0.00	0.00	1610.00	830.0	.00329

SEGMENT TABLE FOR SECTION 15.5

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	610.	1.	601.	8.
610.	VELOCITY FPS	4.90	.72	4.52	.75
2	DISCHARGE CFS	950.	4.	916.	30.
950.	VELOCITY FPS	5.33	.94	5.41	1.06
3	DISCHARGE CFS	1160.	6.	1100.	54.
1160.	VELOCITY FPS	5.56	1.03	5.69	1.19
4	DISCHARGE CFS	1610.	11.	1368.	231.
1610.	VELOCITY FPS	5.27	1.09	5.65	.98
1	ELEV 829.54 KD	8958.	17.	8844.	97.
2	ELEV 830.50 KD	13711.	51.	13239.	421.
3	ELEV 831.13 KD	17372.	86.	16483.	802.
4	ELEV 832.41 KD	27796.	196.	24001.	3599.

KD TABLE FOR CROSS SECTION 15.5

ELEVATION	AREA	KD	KD BY SEGMENT		
825.60	0.				
826.	3.	36.	1.	34.	1.
827.	37.	1086.	1.	1083.	1.
828.	74.	3373.	2.	3369.	1.
829.	117.	6709.	7.	6671.	21.
830.	171.	11107.	30.	10890.	216.
831.	236.	16600.	77.	15797.	708.
832.	396.	23662.	155.	21458.	2039.
833.	619.	35216.	267.	27803.	7030.
834.	843.	49637.	418.	34779.	14286.
835.	1069.	66642.	611.	42369.	23562.
836.	1297.	85398.	869.	50546.	34512.
837.	1526.	107355.	1216.	59290.	46996.
838.	1757.	131168.	1664.	68583.	60870.
839.	1990.	156828.	2222.	78412.	76170.
840.	2224.	184408.	2903.	88761.	92744.
841.	2460.	213765.	3769.	99612.	110362.
842.	2696.	244364.	4712.	110959.	129167.
843.	2932.	277598.	5719.	122791.	149060.
844.	3169.	312170.	6815.	135106.	170269.
845.	3405.	348872.	8046.	147906.	193131.
846.	3642.	387717.	9421.	161184.	217680.
847.	3878.	428715.	10948.	174932.	243947.

RATING TABLE FOR SECTION 16.0 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	827.00	0.0	0.0						
1	831.16	272.4	610.0	0.00	0.00	0.00	610.00	830.1	.00318
2	831.93	509.3	950.0	0.00	0.00	0.00	950.00	830.6	.00225
3	832.48	724.3	1160.0	0.00	0.00	0.00	1160.00	830.8	.00169
4	833.32	1152.8	1610.0	0.00	0.00	0.00	1610.00	831.2	.00108

SEGMENT TABLE FOR SECTION 16.0

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	610.	0.	464.	146.
610.	VELOCITY FPS	3.53	0.00	4.00	.93
2	DISCHARGE CFS	950.	0.	526.	424.
950.	VELOCITY FPS	2.90	0.00	3.69	1.16
3	DISCHARGE CFS	1160.	0.	552.	608.
1160.	VELOCITY FPS	2.52	0.00	3.42	1.08
4	DISCHARGE CFS	1610.	0.	569.	1041.
1610.	VELOCITY FPS	1.99	0.00	2.98	1.08
1	ELEV 831.16 KO	10783.	1.	8249.	2533.
2	ELEV 831.93 KO	19936.	1.	11204.	8733.
3	ELEV 832.48 KO	28239.	1.	13551.	14687.
4	ELEV 833.32 KO	48896.	1.	17444.	31453.

KD TABLE FOR CROSS SECTION 16.0

ELEVATION	AREA	KD	KD BY SEGMENT		
827.00	0.				
829.	20.	532.	1.	530.	1.
829.	48.	2126.	1.	2124.	1.
830.	94.	4686.	1.	4533.	152.
831.	240.	9730.	1.	7636.	1953.
832.	536.	20989.	1.	11502.	9373.
833.	965.	39942.	1.	15930.	23719.
834.	1530.	77313.	1.	20890.	52226.
835.	2090.	118852.	19.	26812.	92020.
836.	2661.	173255.	264.	33513.	139478.
837.	3242.	236192.	964.	40800.	194428.
838.	3832.	307452.	2451.	48648.	256352.
839.	4424.	386216.	4336.	57040.	324840.
840.	5023.	471929.	6712.	65951.	399211.
841.	5628.	564936.	9786.	75377.	479746.
842.	6237.	665511.	13969.	85303.	566122.
843.	6848.	773115.	19244.	95716.	658061.
844.	7459.	887108.	25096.	106613.	755369.
845.	8071.	1007084.	31430.	117952.	857656.
846.	8682.	1132767.	38210.	129752.	964744.
847.	9294.	1265736.	45792.	142024.	1078018.
848.	9906.	1406672.	54397.	154773.	1198084.
849.	10517.	1555642.	64103.	167953.	1324936.
850.	11129.	1712715.	74991.	181674.	1458808.

RATING TABLE FOR SECTION 16.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	826.80	0.0	0.0						
BANK FULL	829.5	45.1	313.5	0.00	0.00	0.00			
1	832.05	223.8	610.0	0.00	0.00	0.00	610.00	830.6	.00349
2	832.82	335.1	950.0	0.00	0.00	0.00	950.00	831.3	.00387
3	833.29	414.7	1160.0	0.00	0.00	0.00	1160.00	831.6	.00371
4	834.06	571.1	1610.0	0.00	0.00	0.00	1610.00	832.0	.00365

SEGMENT TABLE FOR SECTION 16.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	610.	99.	497.	14.
610.	VELOCITY FPS	4.12	.99	4.48	1.05
2	DISCHARGE CFS	950.	231.	690.	30.
950.	VELOCITY FPS	4.59	1.28	5.27	1.26
3	DISCHARGE CFS	1161.	330.	786.	42.
1160.	VELOCITY FPS	4.63	1.38	5.50	1.32
4	DISCHARGE CFS	1610.	564.	974.	72.
1610.	VELOCITY FPS	4.76	1.57	5.97	1.48
1	ELEV 832.05 KO	10244.	1526.	8490.	228.
2	ELEV 832.82 KO	15195.	3551.	11181.	462.
3	ELEV 833.29 KO	19021.	5364.	12982.	675.
4	ELEV 834.06 KO	26630.	9293.	16160.	1177.

KD TABLE FOR CROSS SECTION 16.9

ELEVATION	AREA	KD	KD BY SEGMENT		
826.80	0.				
827.	1.	7.	1.	5.	1.
828.	13.	344.	1.	342.	1.
829.	33.	1250.	1.	1248.	1.
830.	60.	2652.	3.	2839.	4.
831.	112.	5605.	246.	5301.	57.
832.	217.	10037.	1422.	8311.	216.
833.	384.	16655.	4132.	11860.	537.
834.	556.	25355.	8933.	15896.	1127.
835.	799.	36652.	16053.	20377.	2160.
836.	1070.	55051.	25974.	25330.	3705.
837.	1359.	76398.	40185.	30640.	5520.
838.	1649.	101233.	57246.	36381.	7570.
839.	1939.	126901.	76536.	42508.	9823.
840.	2229.	159400.	98104.	49017.	12279.
841.	2520.	192153.	121377.	55882.	14870.
842.	2810.	228708.	148009.	63142.	17775.
843.	3101.	269213.	176216.	70793.	21006.
844.	3391.	313610.	212217.	78829.	24578.

TABLE OF VALUES FOR BFR EQUATION

COEFK	AKB	DGTAK	SIGNA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
.0445	.0445	0.0000	0.0000	0.0000	0.0000	.9343	1.0000	1.0000	101.9189	123.6633	121.6283
DCRIT	831.01	KBCRIT=									
.1535	.1535	0.0000	0.0000	0.0000	0.0000	.8545	1.0000	1.0000	121.0687	193.3732	190.8752
DCRIT	831.86	KBCRIT=									
.2379	.2379	0.0000	0.0000	0.0000	0.0000	.8076	1.0000	1.0000	133.1933	247.4576	244.9596
DCRIT	832.33	KBCRIT=									
.5712	.5712	0.0000	0.0000	0.0000	0.0000	.6684	1.0000	1.0000	153.9116	457.2310	358.3746
DCRIT	832.81	KBCRIT=									

ROAD SECTION 17.0

NO.	HW	CFS	HL	TW	CSM
0	827.90	0.00	0.00	0.00	0.00
1	832.21	610.00	0.00	832.21	610.00
2	832.89	950.00	0.00	832.89	950.00
3	833.32	1160.00	0.00	833.32	1160.00
4	834.58	1610.00	.52	834.06	1610.00

MIN ROAD ELEVATION 833.60

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 834.27 OPENING NO.= 1

RATING TABLE FOR SECTION 17.1+ DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	826.80	0.6	0.0						
BANK FULL	829.5	45.1	275.4	0.00	0.00	0.00			
1	832.78	328.7	610.0	0.00	0.00	0.00	610.00	830.6	.00166
2	833.62	481.3	950.0	0.00	0.00	0.00	950.00	831.3	.00186
3	834.05	569.3	1160.0	0.00	0.00	0.00	1160.00	831.6	.00192
4	835.04	809.7	1610.0	0.00	0.00	0.00	1610.00	832.0	.00170

SEGMENT TABLE FOR SECTION 17.1+

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	610.	145.	447.	19.
610.	VELOCITY FPS	3.01	.82	3.44	.81
2	DISCHARGE CFS	950.	300.	613.	38.
950.	VELOCITY FPS	3.33	1.03	4.03	.98
3	DISCHARGE CFS	1160.	403.	705.	51.
1160.	VELOCITY FPS	3.46	1.13	4.33	1.06
4	DISCHARGE CFS	1610.	676.	842.	92.
1610.	VELOCITY FPS	3.37	1.24	4.47	1.18
1	ELEV 832.78 KO	14870.	3392.	11035.	443.
2	ELEV 833.62 KO	21977.	6803.	14317.	857.
3	ELEV 834.05 KO	26454.	9166.	16128.	1160.
4	ELEV 835.04 KO	38980.	16228.	20560.	2191.

357° 163° 48°

$A_7 = 357 + 163 + 48 = 568$

KD TABLE FOR CROSS SECTION 17.1+

ELEVATION	AREA	KD	KD BY SEGMENT		
826.80	0.				
827.	1.	7.	1.	5.	1.
828.	13.	344.	1.	342.	1.
829.	33.	1250.	1.	1248.	1.
830.	60.	2852.	3.	2839.	4.
831.	112.	5602.	244.	5301.	57.
832.	217.	10122.	1409.	8311.	214.
833.	364.	16613.	4155.	11860.	532.
834.	556.	25367.	8854.	15896.	1117.
835.	799.	38491.	15911.	20377.	2141.
836.	1070.	54789.	25745.	25300.	3672.
837.	1359.	75995.	39831.	30640.	5472.
838.	1649.	100662.	56741.	36381.	7503.
839.	1939.	128140.	75863.	42506.	9737.
840.	2229.	158427.	97240.	49017.	12171.
841.	2520.	190953.	120307.	55882.	14739.
842.	2810.	227048.	146705.	63142.	17618.
843.	3101.	267460.	176648.	70793.	20821.
844.	3391.	311729.	210347.	78829.	24362.

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-----------------------------80/80 LIST OF INPUT DATA-----------------------------
LINK                                                                        1219
CHANGE    DISCHARGE                                                             1271
DISCHARGE -1.       490.      770.      940.      1310.                         1272
END                                                                             1273
REACH     17.5      1.        350.      320.                                  387
SEGMENT   17.5      1         N         452.                                  388
NVALUE    .095                                                                389
SEGMENT   17.5      2         C         464.                                  390
NVALUE    .05                                                                 391
SEGMENT   17.5      3         N         621.                                  392
NVALUE    .125                                                                393
SECTION   17.5                                                                394
          -3.       850.      -2.       850.      -1.       850.              395
                0.00    844.20    70.00    840.90    170.00    838.90    396
              270.00    837.50   283.00    837.60    370.00    837.70    397
              452.00    837.30   457.00    831.80    463.00    829.90    398
              470.00    826.80   477.00    829.00    483.00    831.50    399
              484.00    833.90   518.00    834.60    530.00    839.60    400
              551.00    840.10   570.00    838.70    600.00    840.10    401
          620.      844.3     621.      850.                                  402
ENDTABLE                                                                      403
REACH     17.9      1.        330.      320.                                  404
SEGMENT   17.9      1         N         27.                                   405
NVALUE    .095                                                                406
SEGMENT   17.9      2         C         46.                                   407
NVALUE    .05                                                                 408
SEGMENT   17.9      3         N         256.                                  409
NVALUE    .125                                                                410
SECTION   17.9                                                                411
          -3.       847.      -2.       847.      -1.       847.              412
                0.00    841.70    15.00    841.50    27.00    832.20    413
               33.00    826.70    40.00    828.20    45.00    830.10    414
               48.00    832.20    60.00    837.50    74.00    840.30    415
               90.00    838.00   103.00    834.90   140.00    834.60    416
              174.00    835.20   132.00    833.30   184.00    831.40    417
              190.00    831.10   196.00    831.70   198.00    833.40    418
              208.00    837.70   240.00    840.80   255.00    841.50    419
          256.      847.                                                      420
ENDTABLE                                                                      421
ROAD      18.0      2.7       50.       50.                                   422
BPR       18.0      8         3                                               423
GIRDER    841.5     836.95    0.        .6        2.9                         424
          -26.25    842.51    -26.      847.31    -23.75    840.99            425
          23.75     836.95    26.       843.75    26.25     840.21            426
ENDTABLE                                                                      427
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----------80/60 LIST OF INPUT DATA----------

SECTION	18.0						428
	-131.	850.	-130.	841.1	-100.	841.8	429
	-36.	842.5	-26.25	842.51	-26.	847.31	430
	-23.75	840.99	-23.75	838.1	-18.	837.7	431
	-10.	833.	-5.	831.9	0.	832.	432
	0.5	827.8	1.(	827.8	1.5	832.	432A
	5.	832.3	10.	832.5	15.	832.6	433
	23.75	833.3	23.75	836.95	26.	843.75	434
	26.25	840.21	41.	840.4	42.	850.	435
ENDTABLE							436
REACH	18.5	1.	50.	50.			437
SEGMENT	18.5	1	N	-12.			438
NVALUE	.125						439
SEGMENT	18.5	2	C	12.			440
NVALUE	.055						441
SEGMENT	18.5	3	N	44.			442
NVALUE	.125						443
SECTION	18.5						444
	-36.	850.	-35.	845.8	-13.	835.1	445
	-12.	833.	-9.	829.4	-6.	827.8	446
	0.	829.4	6.	830.1	12.	832.9	447
	13.	834.9	30.	839.2	43.	840.2	448
	44.	850.					448A
ENDTABLE							449
REACH	18.9	1.	3000.	2500.			450
SEGMENT	18.9	1.	N	490.			451
NVALUE	.135						452
SEGMENT	18.9	2	C	510.			453
NVALUE	.055						454
SEGMENT	18.9	3	N	711.			455
NVALUE	.135						456
SECTION	18.9						457
	-1.	857.	0.	852.	70.	851.	458
	75.	847.5	120.	847.5	200.	841.1	459
	235.	843.2	300.	840.3	400.	840.9	460
	490.	838.8	492.	837.2	495.	836.8	461
	500.	836.	505.	836.5	507.	837.	462
	509.	837.4	510.	838.4	600.	841.1	463
	670.	842.	700.	848.8	710.	852.2	464
	711.	857.					465
ENDTABLE							466
REACH	18.92	1.	360.	350.			467
SEGMENT	18.92	1	N	205.			468
NVALUE	.135						469
SEGMENT	18.92	2	C	225.			470

----------80/60 LIST OF INPUT DATA----------

NVALUE	.055						471
SEGMENT	18.92	3	N	411.			472
NVALUE	.135						473
SECTION	18.92						474
	0.	858.	1.	846.5	21.	846.	475
	60.	844.	190.	842.	200.	840.	476
	205.	840.08	207.	836.48	210.	836.08	477
	215.	837.28	220.	837.78	222.	838.28	478
	224.	838.68	225.	839.68	232.	840.	479
	310.	842.	345.	844.	352.	846.	480
	390.	846.	410.	850.	411.	858.	481
ENDTABLE							482
REACH	+18.98	1.	40.	40.			483
REACH2	18.92	.12					484
REACH	19.0	1.	10.	10.			485
SEGMENT	19.0	1	N	-16.1			486
NVALUE	.125						487
SEGMENT	19.0	2	C	16.6			488
NVALUE	.018						489
SEGMENT	19.0	3	N	251.			490
NVALUE	.125						491
SECTION	19.0						492
	-301.	855.	-300.	851.5	-200.	848.	493
	-100.	847.6	-18.	845.79	-16.1	845.79	494
	-16.	842.87	-11.	842.87	-11.	841.81	495
	11.	841.82	11.	842.89	16.5	842.89	496
	16.6	845.82	18.	845.82	70.	846.6	497
	240.	848.	250.	850.	251.	855.	498
ENDTABLE							499
REACH	+19.05	1.	10.	10.			500
REACH2	19.1	-.1					501
REACH	19.1	1.	40.	40.			502
SEGMENT	19.1	1	N	235.			503
NVALUE	.125						504
SEGMENT	19.1	2	C	265.			505
NVALUE	.055						506
SEGMENT	19.1	3	N	551.			507
NVALUE	.125						508
SECTION	19.1						509
	0.	356.	1.	850.	45.	848.	510
	85.	846.	94.	844.	225.	842.	511
	235.	840.6	240.	839.	247.5	835.6	512
	260.	837.9	272.5	838.3	277.5	838.8	513
	282.5	839.4	285.	840.2	355.	842.	514
	475.	844.	500.	846.	540.	848.	515

```
-----------------------------80/60 LIST OF INPUT DATA-----------------------------
          550.      850.      551.      856.                                516
ENDTABLE                                                                     517
REACH     19.9      1.        1650.     950.                                518
SEGMENT   19.9      1         N         480.                                519
NVALUE    .135                                                               520
SEGMENT   19.9      2         C         506.                                521
NVALUE    .055                                                               522
SEGMENT   19.9      3         N         651.                                523
NVALUE    .135                                                               524
SECTION   19.9                                                               525
          268.      864       269.      848.      270.      846.                527
          480.      844.6     481.      842.7     487.      841.4             528
          493.      841.3     499.      841.2     505.      841.2             529
          506.      844.3     518.      846.      650.      848.              530
          651.      864.
ENDTABLE                                                                     533
RCAD      20.0      2.7       50.       50.                                 534
BPR       20.0      B         3                                             535
GIRDER    850.      849.4     C.        .6        2.55                      536
          -14.75    851.1     -14.75    846.4     -14.      846.4             537
          -14.      849.4     14.       849.5     14.       846.5             538
          14.75     846.5     14.75     851.4                                539
ENDTABLE                                                                     540
SECTION   20.0                                                               541
          -202.     873.      -201.     872.      -200.     848.6               543
          -100.     848.7     -14.75    851.1     -14.75    841.7             544
          -14.      841.7     -10.      841.7     -5.       841.4             545
          0.        841.6     5.        841.9     10.       842.3             546
          14.       843.      14.75     843.      14.75     851.4             547
          100.      850.8     200.      850.3     201.      873.              548
ENDTABLE                                                                     551
---------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 20.0   EXCEEDS  20. FEET------------
REACH     20.1+     1.        50.       49.                                 552
REACH2    19.9      .12                                                     553
REACH     20.9      1.        780.      490.                                554
SEGMENT   20.9      1         N         -13.                                555
NVALUE    .135                                                               556
SEGMENT   20.9      2         C         13.                                 557
NVALUE    .055                                                               558
SEGMENT   20.9      3         N         66.                                 559
NVALUE    .135                                                               560
SECTION   20.9                                                               561
          -361.     865.      -360.     858.2     -300.     853.              562
          -200.     849.1     -100.     847.6     -59.      847.3             563
          -58.      857.3     -23.      857.3     -22.      847.4             564
          -13.      847.3     -9.       845.4     -6.       844.1             565
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----------80/80 LIST OF INPUT DATA----------

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          0.        844.      6.        843.9     12.       843.9     566
          13.       847.      64.       847.9     66.       865.      567
ENDTABLE                                                              568
REACH     +20.99    1.        130.      128.                          569
REACH2    20.9      -1.                                               570
ROAD      21.0      2.7       50.       49.                           571
BFR       21.0      B         3                                       572
GIRDER    8-9.5     848.34    0.        .6        2.65                573
          -8.5      850.24    -8.5      848.99    8.5       848.34    574
          8.5       849.59                                            575
ENDTABLE                                                              576
SECTION   21.0                                                        577
          -191.     865.      -190.     849.2     -100.     843.3     580
          -40.      848.7     -11.      849.9     -8.5      850.24    581
          -8.5      843.2     -4.       841.7     0.        841.8     582
          4.        842.2     8.5       844.6     8.5       849.59    583
          100.      848.8     200.      849.5     201.      865.      584
ENDTABLE                                                              587
REACH     21.1      1.        50.       45.                           588
SEGMENT   21.1      1         N         300.                          589
NVALUE    .15                                                         590
SEGMENT   21.1      2         C         319.                          591
NVALUE    .055                                                        592
SEGMENT   21.1      3         N         661.                          593
NVALUE    .15                                                         594
SECTION   21.1                                                       595
          0.        865.      1.        860.      35.       858.      596
          60.       856.      75.       854.      100.      852.      597
          120.      850.      260.      846.      300.      847.94    598
          300.      843.2     304.      842.5     309.      842.2     599
          313.      842.2     319.      842.4     319.      847.19    600
          326.      847.5     480.      850.      490.      852.      601
          496.      854.      660.      856.      661.      865.      602
ENDTABLE                                                              603
REACH     21.89     1.        1770.     1240.                         604
SEGMENT   21.89     1         N         225.                          605
NVALUE    .15                                                         606
SEGMENT   21.89     2         C         243.                          607
NVALUE    .055                                                        608
SEGMENT   21.89     3         N         491.                          609
NVALUE    .155                                                        610
SECTION   21.89                                                       611
          0.        870.      1.        862.      30.       860.      612
          60.       858.      142.      856.      180.      854.      613
          214.      852.      225.      850.4     226.      846.42    614
```

----------80/80 LIST OF INPUT DATA----------

```
         230.      846.02    234.      845.62    238.      845.22    615
         242.      847.92    243.      850.4     265.      852.      616
         370.      854.      410.      856.      448.      858.      617
         455.      860.      490.      861.      491.      870.      618
ENDTABLE                                                           619
REACH    21.9      1.        50.       49.                         620
SEGMENT  21.9      1         N         251.                        621
NVALUE   .15                                                       622
SEGMENT  21.9      2         C         269.                        623
NVALUE   .055                                                      624
SEGMENT  21.9      3         N         561.                        625
NVALUE   .15                                                       626
SECTION  21.9                                                      627
         -3.       868.      -2.       868.      -1.       868.    628
              0.00    862.10     60.00    858.50    160.00    855.30  629
            251.00    853.00    252.00    846.40    256.00    846.00  630
            260.00    845.20    264.00    846.20    268.00    847.90  631
            269.00    851.90    360.00    852.90    460.00    855.80  632
         560.      857.6     561.      868.                        633
ENDTABLE                                                           634
REACH    +21.91    1.        50.       49.                         635
REACH2   21.69     0.16                                           636
REACH    21.99     1.        2175.     1360.                       638
SEGMENT  21.99     1         N         180.                        639
NVALUE   .15                                                       640
SEGMENT  21.99     2         C         206.                        641
NVALUE   .055                                                      642
SEGMENT  21.99     3         N         381.                        643
NVALUE   .15                                                       644
SECTION  21.99                                                     645
         0.        870.      1.        866.      26.       864.    646
         55.       862.      150.      860.      165.      858.    647
         167.      856.      180.      853.9     184.      851.49  648
         187.      850.19    193.      850.9     199.      849.99  649
         205.      849.99    206.      853.09    210.      856.    650
         340.      858.      350.      860.      360.      862.    651
         380.      864.      381.      870.                        652
ENDTABLE                                                           653
RCAC     22.0      2.7       50.       50.                         654
BPR      22.0      B         3                                     655
GIRDER   866.      865.5     15.       .6        2.65              656
         -14.75    869.73    -14.75    855.5     -10.      861.4   657
         -5.       864.5     0.        865.5     5.        864.85  658
         10.       862.3     14.75     855.7     14.75     869.74  659
ENDTABLE                                                           660
```

```
----------------------------80/80 LIST OF INPUT DATA-----------------------------
SECTION   22.0                                                              661
          -601.     880.      -600.     872.5     -500.     872.6         662
          -400.     872.7     -300.     872.6     -200.     872.6         663
          -100.     872.6     -14.75    869.73    -14.75    855.5         664
          -14.7     850.4     -10.      850.7     -5.       851.3         665
          0.        850.1     5.        851.4     10.       854.7         666
          14.7      855.2     14.75     855.7     14.75     869.74        667
          100.      872.8     200.      873.      300.      873.          668
          400.      873.1     500.      873.2     600.      873.2         669
          601.      880.                                                  670
ENDTABLE                                                                  671
REACH     22.1      1.        50.       50.                               672
SEGMENT   22.1      1         N         228.                              673
NVALUE    .15                                                             674
SEGMENT   22.1      2         C         253.                              675
NVALUE    .055                                                            676
SEGMENT   22.1      3         N         641.                              677
NVALUE    .15                                                             678
SECTION   22.1                                                            679
          -3.       877.      -2.       877.      -1.       877.          680
               0.00    871.30    25.00    858.50    40.00    858.20    681
             140.00    857.60   180.00    859.00   215.00    857.60    682
             228.00    854.80   229.00    853.30   235.00    852.70    683
             240.00    852.70   245.00    852.60   251.00    852.80    684
             253.00    855.30   340.00    856.70   440.00    857.70    685
             470.00    858.40   500.00    863.50   540.00    863.70    686
          641.      865.5     641.      877.                            687
ENDTABLE                                                                  688
REACH     22.5      1.        4100.     2470.                             689
SEGMENT   22.5      1         N         20.                               690
NVALUE    .15                                                             691
SEGMENT   22.5      2         C         44.                               692
NVALUE    .055                                                            693
SEGMENT   22.5      3         N         293.                              694
NVALUE    .15                                                             695
SECTION   22.5                                                            696
          -3.       878.      -2.       878.      -1.       878.          697
               0.00    871.20     8.00    869.90    20.00    863.20    698
              22.00    861.60    27.00    859.10    32.00    857.30    699
              37.00    859.20    42.00    860.70    44.00    863.20    700
             132.00    866.80   232.00    868.50   262.00    870.00    701
          292.      874.7     293.      878.                            702
ENDTABLE                                                                  703
REACH     22.9      1.        4100.     2470.                             704
SEGMENT   22.9      1         N         564.                              705
```

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----------------------------80/80 LIST OF INPUT DATA-------------------------------
NVALUE    .15                                                          706
SEGMENT   22.9      2         C         595.                          707
NVALUE    .035                                                         708
SEGMENT   22.9      3         N         813.                          709
NVALUE    .15                                                          710
SECTION   22.9                                                         711
          -3.       884.      -2.       884.      -1.       884.      712
                0.00    878.60    80.00   875.40   180.00   871.70   713
              280.00    870.60   380.00   870.30   460.00   870.10   714
              530.00    868.70   564.00   868.70   567.00   866.50   715
              577.00    865.50   580.00   869.70   587.00   877.00   716
              593.00    867.30   595.00   869.20   630.00   869.10   717
              680.00    868.70   750.00   868.60   791.00   868.80   718
          812.      873.9     813.      884.                          719
ENDTABLE                                                               720
COMPUTE   17.5      22.9      17.1+                                        1274
----------------------------END OF 80/80 LIST--------------------------------
```

	COMPUTE	17.5	22.9	17.14		1274

----------STARTING DATA FROM PREVIOUS COMPUTATIONS----------

RATING TABLE FOR SECTION 17.5 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	828.80	0.0	0.0						
BANK FULL	833.9	112.6	402.1	0.00	0.00	0.00			
1	833.98	115.7	490.0	0.00	0.00	0.00	490.00	832.0	.00403
2	834.97	166.8	770.0	0.00	0.00	0.00	770.00	832.8	.00471
3	835.45	197.8	940.0	0.00	0.00	0.00	940.00	833.2	.00501
4	836.42	264.3	1310.0	0.00	0.00	0.00	1310.00	834.6	.00520

SEGMENT TABLE FOR SECTION 17.5

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	490.	0.	489.	1.
490.	VELOCITY FPS	4.35	0.00	4.34	.32
2	DISCHARGE CFS	770.	0.	751.	19.
770.	VELOCITY FPS	5.25	0.00	5.30	.77
3	DISCHARGE CFS	940.	0.	898.	42.
940.	VELOCITY FPS	5.65	0.00	5.75	1.01
4	DISCHARGE CFS	1310.	0.	1197.	113.
1310.	VELOCITY FPS	6.18	0.00	6.43	1.45
1	ELEV 833.98 KD	7706.	1.	7701.	6.
2	ELEV 834.97 KD	11148.	1.	10955.	191.
3	ELEV 835.45 KD	13242.	1.	12706.	535.
4	ELEV 836.42 KD	18138.	1.	16624.	1512.

KD TABLE FOR CROSS SECTION 17.5

ELEVATION	AREA	KD	KD BY SEGMENT		
828.80	0.				
829.	1.	7.	1.	5.	1.
830.	13.	344.	1.	342.	1.
831.	33.	1250.	1.	1248.	1.
832.	58.	2793.	1.	2791.	1.
833.	85.	5025.	1.	5023.	1.
834.	116.	7765.	1.	7758.	6.
835.	169.	11347.	1.	11063.	283.
836.	235.	15950.	1.	14876.	1071.
837.	314.	21519.	3.	19130.	2274.
838.	470.	29041.	477.	24198.	3839.
839.	861.	41527.	5934.	29910.	5281.
840.	1222.	58824.	16279.	36096.	6285.
841.	1729.	84456.	31390.	42737.	10053.
842.	2276.	110423.	52856.	49823.	15739.
843.	2854.	138149.	78240.	57330.	22268.
844.	3496.	204133.	108813.	65252.	29883.
845.	4072.	256301.	145686.	73534.	36798.
846.	4692.	319735.	188375.	82311.	48897.
847.	5313.	387347.	235914.	91437.	59996.
848.	5934.	456715.	286051.	100919.	71616.
849.	6556.	535677.	346639.	110783.	84145.
850.	7178.	618635.	408877.	121032.	97656.
851.	7799.	709627.	466416.	131691.	112561.
852.	8421.	809478.	540092.	142758.	128931.
853.	9043.	918015.	621546.	154226.	146838.

RATING TABLE FOR SECTION 17.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	828.20	0.0	0.0						
BANK FULL	832.2	66.4	297.3	0.00	0.00	0.00			
1	834.79	190.1	490.0	0.00	0.00	0.00	490.00	832.1	.00217
2	835.91	327.4	770.0	0.00	0.00	0.00	770.00	832.8	.00232
3	836.44	401.9	940.0	0.00	0.00	0.00	940.00	833.2	.00231
4	837.47	557.4	1310.0	0.00	0.00	0.00	1310.00	833.9	.00222

SEGMENT TABLE FOR SECTION 17.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	490.	3.	429.	57.
490.	VELOCITY FPS	3.69	.77	3.92	.75
2	DISCHARGE CFS	770.	9.	612.	149.
770.	VELOCITY FPS	4.15	.99	4.60	.81
3	DISCHARGE CFS	940.	13.	697.	231.
940.	VELOCITY FPS	4.23	1.08	4.84	.94
4	DISCHARGE CFS	1310.	22.	864.	423.
1310.	VELOCITY FPS	4.31	1.22	5.21	1.13
1	ELEV 834.79 KO	10516.	69.	9230.	1217.
2	ELEV 835.91 KO	15867.	181.	12760.	2926.
3	ELEV 836.44 KO	19471.	258.	14566.	4648.
4	ELEV 837.47 KO	27751.	463.	18412.	8877.

KD TABLE FOR CROSS SECTION 17.9

ELEVATION	AREA	KD	KD BY SEGMENT		
828.20	0.				
829.	5.	89.	1.	87.	1.
830.	17.	537.	1.	535.	1.
831.	32.	1387.	1.	1385.	2.
832.	60.	2732.	1.	2657.	66.
833.	96.	4909.	3.	4579.	327.
834.	139.	7771.	26.	7009.	736.
835.	213.	11302.	65.	9845.	1364.
836.	340.	16545.	193.	13059.	3205.
837.	485.	23833.	360.	16620.	6829.
838.	642.	32524.	598.	20518.	11368.
839.	818.	42436.	915.	24738.	16755.
840.	1017.	54028.	1319.	29267.	23413.
841.	1239.	67796.	1819.	34092.	31622.
842.	1481.	84383.	2312.	39211.	42767.
843.	1734.	103949.	3100.	44614.	56145.
844.	1990.	126077.	4675.	50293.	71070.
845.	2246.	150018.	6458.	56242.	87318.
846.	2503.	175330.	8356.	62444.	104520.
847.	2759.	203285.	10661.	68934.	123837.
848.	3016.	233434.	13430.	75710.	145553.
849.	3272.	267124.	16727.	82709.	169657.

TABLE OF VALUES FOR BFR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	H	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	1.0000	90.0797	121.3690	247.2461
DCRIT	834.20	KBCRIT=									
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	1.0000	133.9440	155.5900	406.7474
DCRIT	834.85	KBCRIT=									
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	1.0000	154.5539	173.3681	483.7205
DCRIT	835.20	KBCRIT=									
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	.9981	1.0000	1.0000	196.3402	213.1583	644.3764
DCRIT	835.89	KBCRIT=									

ROAD SECTION 18.0

NO.	HW	CFS	HL	TW	CSM
0	827.80	0.00	0.00	0.00	0.00
1	834.91	490.00	0.00	834.91	490.00
2	836.07	770.00	0.00	836.07	770.00
3	836.59	940.00	0.00	836.59	940.00
4	837.62	1310.00	0.00	837.62	1310.00

MIN ROAD ELEVATION 840.21

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 838.95 OPENING NO.= 1

RATING TABLE FOR SECTION 18.5 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	827.80	0.0	0.0						
BANK FULL	832.9	71.2	343.6	0.00	0.00	0.00			
1	835.07	125.6	490.0	0.00	0.00	0.00	490.00	832.2	.00284
2	836.27	162.3	770.0	0.00	0.00	0.00	770.00	833.1	.00346
3	836.82	181.1	940.0	0.00	0.00	0.00	940.00	833.6	.00386
4	837.89	224.8	1310.0	0.00	0.00	0.00	1310.00	834.5	.00449

SEGMENT TABLE FOR SECTION 18.5

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	491.	0.	489.	1.
490.	VELOCITY FPS	3.97	.38	3.97	.38
2	DISCHARGE CFS	771.	2.	763.	4.
770.	VELOCITY FPS	5.12	.60	5.03	.64
3	DISCHARGE CFS	940.	4.	928.	8.
940.	VELOCITY FPS	5.59	.71	5.62	.75
4	DISCHARGE CFS	1316.	12.	1275.	23.
1310.	VELOCITY FPS	6.60	.99	6.68	1.06
1	ELEV 835.07 KQ	9186.	7.	9172.	9.
2	ELEV 836.27 KQ	13079.	34.	12984.	58.
3	ELEV 836.82 KQ	15125.	65.	14938.	122.
4	ELEV 837.89 KQ	19551.	173.	19041.	337.

KD TABLE FOR CROSS SECTION 18.5

ELEVATION	AREA	KD	KD BY SEGMENT		
827.80	0.				
828.	0.	4.	1.	2.	1.
829.	4.	76.	1.	74.	1.
830.	24.	372.	1.	370.	1.
831.	31.	1126.	1.	1124.	1.
832.	51.	2294.	1.	2292.	1.
833.	74.	3923.	1.	3920.	1.
834.	98.	6232.	3.	6153.	2.
835.	124.	8975.	6.	6961.	8.
836.	153.	12163.	24.	12092.	39.
837.	188.	15837.	78.	15631.	146.
838.	230.	20022.	186.	19459.	365.
839.	277.	24733.	364.	23649.	711.
840.	333.	29984.	625.	28158.	1171.
841.	399.	36079.	986.	32984.	2109.
842.	469.	42922.	1446.	38036.	3344.
843.	541.	50371.	2031.	43503.	4799.
844.	614.	58411.	2746.	49197.	6436.
845.	690.	67128.	3608.	55167.	8224.
846.	767.	76238.	4641.	61418.	10179.
847.	846.	86016.	5877.	67914.	12196.
848.	925.	96294.	7238.	74679.	14354.
849.	1005.	107093.	8733.	81714.	16668.
850.	1084.	116832.	10446.	89042.	19222.
851.	1164.	130601.	12397.	96661.	22029.
852.	1243.	143312.	14607.	104569.	25101.

RATING TABLE FOR SECTION 18.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	836.00	0.0	0.0						
BANK FULL	838.4	32.1	224.3	0.00	0.00	0.00			
1	841.24	433.3	490.0	0.00	0.00	0.00	490.00	839.5	.00217
2	841.94	695.9	770.0	0.00	0.00	0.00	770.00	839.9	.00203
3	842.40	896.0	940.0	0.00	0.00	0.00	940.00	840.1	.00165
4	843.02	1192.4	1310.0	0.00	0.00	0.00	1310.00	840.5	.00158

SEGMENT TABLE FOR SECTION 18.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	490.	115.	284.	92.
490.	VELOCITY FPS	2.56	.56	3.19	.65
2	DISCHARGE CFS	770.	254.	350.	166.
770.	VELOCITY FPS	2.44	.69	3.41	.73
3	DISCHARGE CFS	940.	346.	373.	221.
940.	VELOCITY FPS	2.18	.71	3.33	.74
	DISCHARGE CFS	1310.	533.	431.	346.
1310.	VELOCITY FPS	2.13	.80	3.46	.86
1	ELEV 841.24 KD	13282.	2101.	6235.	1946.
2	ELEV 841.94 KD	16944.	5413.	7942.	3594.
3	ELEV 842.40 KD	23143.	8522.	9192.	5429.
4	ELEV 843.02 KD	32683.	13317.	10942.	8624.

KD TABLE FOR CROSS SECTION 18.9

ELEVATION	AREA	KD	KD BY SEGMENT		
836.00	0.				
837.	8.	135.	1.	132.	1.
838.	24.	773.	1.	771.	1.
839.	51.	1966.	2.	1932.	32.
840.	141.	4334.	249.	3604.	431.
841.	352.	8758.	1367.	5676.	1571.
842.	723.	17827.	5765.	8107.	3809.
843.	1181.	32581.	13108.	10897.	8583.
844.	1684.	53567.	24474.	13959.	15135.
845.	2207.	79372.	38889.	17339.	23144.
846.	2748.	109583.	56054.	21007.	32522.
847.	3305.	144031.	75672.	24951.	43209.
848.	3911.	177631.	93307.	29161.	55163.
849.	4526.	223294.	121225.	33628.	68403.
850.	5156.	273635.	152186.	38343.	83060.
851.	5797.	333038.	186725.	43313.	96965.
852.	6467.	374454.	209677.	48519.	116242.
853.	7173.	435066.	246102.	53958.	134976.
854.	7883.	515735.	293374.	59625.	155107.
855.	8595.	600360.	339575.	65515.	176226.
856.	9306.	659300.	369269.	71627.	190437.
857.	10015.	742507.	442469.	77956.	221681.

RATING TABLE FOR SECTION 18.92 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	837.28	0.0	0.0						
BANK FULL	839.7	32.1	226.2	0.00	0.00	0.00			
1	842.48	264.9	490.0	0.00	0.00	0.00	490.00	840.8	.00336
2	843.23	407.7	770.0	0.00	0.00	0.00	770.00	841.3	.00371
3	843.56	483.1	940.0	0.00	0.00	0.00	940.00	841.5	.00394
4	844.20	657.4	1310.0	0.00	0.00	0.00	1310.00	841.9	.00404

SEGMENT TABLE FOR SECTION 18.92

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	490.	23.	352.	115.
490.	VELOCITY FPS	3.47	.58	4.00	.84
2	DISCHARGE CFS	770.	62.	481.	228.
770.	VELOCITY FPS	3.80	.67	4.67	1.07
3	DISCHARGE CFS	940.	92.	554.	294.
940.	VELOCITY FPS	3.97	.73	5.05	1.19
4	DISCHARGE CFS	1310.	195.	671.	444.
1310.	VELOCITY FPS	4.08	.92	5.48	1.37
1	ELEV 842.48 KD	8430.	375.	6133.	1892.
2	ELEV 843.23 KD	12554.	909.	7976.	3669.
3	ELEV 843.56 KD	14917.	1415.	8861.	4651.
4	ELEV 844.20 KD	20493.	2909.	10651.	6933.

KD TABLE FOR CROSS SECTION 18.92

ELEVATION	AREA	KD	KD BY SEGMENT		
837.28	0.				
838.	4.	60.	1.	58.	1.
839.	19.	536.	1.	534.	1.
840.	42.	1560.	3.	1547.	6.
841.	95.	3388.	64.	3095.	213.
842.	192.	6411.	227.	5062.	1108.
843.	356.	11131.	664.	7394.	3093.
844.	[illegible]	[illegible]	2333.	[illegible]	[illegible]
845.	894.	29577.	5895.	13062.	10533.
846.	1216.	43115.	10934.	16359.	15749.
847.	1570.	59323.	18044.	19946.	21249.
848.	1949.	78372.	27332.	23816.	27763.
849.	2343.	102252.	38235.	27953.	36023.
850.	2747.	128858.	53420.	32349.	46038.
851.	3155.	158834.	63954.	37001.	57836.
852.	3565.	191332.	78711.	41900.	71246.
853.	3975.	227371.	94618.	47039.	85706.
854.	4365.	265074.	111556.	52413.	101099.
855.	4795.	304775.	129412.	58014.	117327.
856.	5215.	346601.	148379.	63843.	134563.
857.	5616.	391168.	168462.	69897.	152816.
858.	6027.	438591.	190067.	76184.	172455.
859.	6437.	489117.	213226.	82693.	193512.
860.	6846.	542794.	237971.	89440.	216018.

RATING TABLE FOR SECTION +18.98 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	837.40	0.0	0.0						
BANK FULL	839.9	32.1	225.7	0.00	0.00	0.00			
1	842.61	266.8	490.0	0.00	0.00	0.00	490.00	840.9	.00334
2	843.37	413.2	770.0	0.00	0.00	0.00	770.00	841.4	.00366
3	843.72	490.6	940.0	0.00	0.00	0.00	940.00	841.6	.00386
4	844.36	667.7	1310.0	0.00	0.00	0.00	1310.00	842.1	.00396

SEGMENT TABLE FOR SECTION +18.98

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	490.	23.	352.	115.
490.	VELOCITY FPS	3.47	.57	4.00	.83
2	DISCHARGE CFS	770.	62.	481.	227.
770.	VELOCITY FPS	3.79	.66	4.65	1.05
3	DISCHARGE CFS	940.	92.	554.	293.
940.	VELOCITY FPS	3.94	.72	5.03	1.16
4	DISCHARGE CFS	1310.	197.	671.	442.
1310.	VELOCITY FPS	4.64	.91	5.45	1.35
1	ELEV 842.61 KD	8423.	374.	6160.	1889.
2	ELEV 843.37 KD	12646.	926.	8040.	3682.
3	ELEV 843.72 KD	15091.	1445.	8953.	4693.
4	ELEV 844.36 KD	20722.	2982.	10757.	6983.

KD TABLE FOR CROSS SECTION +18.98

ELEVATION	AREA	KD	KD BY SEGMENT		
837.40	0.				
838.	3.	38.	1.	36.	1.
839.	17.	449.	1.	447.	1.
840.	38.	1405.	2.	1396.	3.
841.	84.	3103.	51.	2889.	164.
842.	179.	5963.	202.	4804.	931.
843.	329.	10433.	553.	7099.	2781.
844.	560.	17449.	2013.	9730.	5626.
845.	858.	27869.	5294.	12686.	9799.
846.	1176.	41001.	10102.	15947.	14869.
847.	1526.	56688.	16808.	19502.	20285.
848.	1903.	75671.	25734.	23337.	26531.
849.	2295.	98257.	36319.	27442.	34448.
850.	2698.	124174.	48193.	31808.	44120.
851.	3106.	153413.	61413.	36430.	55533.
852.	3516.	185800.	75840.	41300.	68644.
853.	3925.	220607.	91405.	46411.	82790.
854.	4336.	257449.	107900.	51755.	97781.
855.	4746.	296463.	125414.	57329.	113697.
856.	5156.	337784.	144026.	63132.	130612.
857.	5567.	381257.	163651.	69158.	148447.
858.	5977.	427739.	184772.	75417.	167646.
859.	6388.	477277.	207421.	81905.	188239.
860.	6799.	529918.	231631.	88620.	210257.

RATING TABLE FOR SECTION 19.0 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM		CRIT ELEV	FRICTION SLOPE
0	841.81	0.0	0.0							
1	844.07	62.2	490.0	0.00	0.00	0.00	490.00	C	844.1	.00456
2	844.75	84.3	770.0	0.00	0.00	0.00	770.00	C	844.7	.00429
3	845.11	96.2	940.0	0.00	0.00	0.00	940.00	C	845.1	.00423
BANK FULL	845.8	120.2	1102.5	0.00	0.00	0.00				
4	846.65	192.4	1310.0	0.00	0.00	0.00	1310.00	C	846.7	.00206

SEGMENT TABLE FOR SECTION 19.0

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	490.	0.	490.	0.
490.	VELOCITY FPS	7.89	0.00	7.87	0.00
2	DISCHARGE CFS	770.	0.	770.	0.
770.	VELOCITY FPS	9.15	0.00	9.14	0.00
3	DISCHARGE CFS	940.	0.	940.	0.
940.	VELOCITY FPS	9.79	0.00	9.78	0.00
4	DISCHARGE CFS	1310.	7.	1295.	9.
1310.	VELOCITY FPS	8.80	.34	8.84	.32
1	ELEV 844.07 KO	7258.	1.	7256.	1.
2	ELEV 844.75 KO	11751.	1.	11749.	1.
3	ELEV 845.11 KO	14451.	1.	14449.	1.
4	ELEV 846.65 KO	28823.	126.	28538.	159.

KD TABLE FOR CROSS SECTION 19.0

ELEVATION	AREA	KD	KD BY SEGMENT		
841.81	0.				
842.	4.	110.	1.	108.	1.
843.	27.	1937.	1.	1935.	1.
844.	60.	6818.	1.	6816.	1.
845.	92.	13596.	1.	13594.	1.
846.	126.	21948.	4.	21939.	4.
847.	259.	33145.	276.	32287.	375.
848.	563.	[illegible]	1449.	[illegible]	[illegible]
849.	994.	70940.	5233.	57563.	8115.
850.	1466.	99975.	11439.	72288.	16052.
851.	2008.	134356.	20093.	88333.	26376.
852.	2552.	176033.	31677.	105638.	36636.
853.	3103.	223463.	46562.	124160.	52645.
854.	3654.	276149.	63940.	143870.	68500.
855.	4206.	335604.	85634.	164732.	87300.
856.	4757.	402087.	112265.	186671.	109303.
857.	5308.	475645.	144488.	210112.	134772.

RATING TABLE FOR SECTION +19.05 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	837.80	0.0	0.0						
BANK FULL	840.1	78.4	155.8	0.00	0.00	0.00			
1	845.03	1191.1	490.0	0.00	0.00	0.00	490.00	840.0	.00010
2	846.04	1606.0	770.0	0.00	0.00	0.00	770.00	840.6	.00012
3	846.59	1844.0	940.0	0.00	0.00	0.00	940.00	840.9	.00013
4	847.84	2427.6	1310.0	0.00	0.00	0.00	1310.00	841.4	.00012

SEGMENT TABLE FOR SECTION +19.05

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	490.	64.	301.	125.
490.	VELOCITY FPS	.74	.20	.93	.23
2	DISCHARGE CFS	770.	128.	417.	225.
770.	VELOCITY FPS	.85	.27	1.11	.30
3	DISCHARGE CFS	940.	168.	484.	288.
940.	VELOCITY FPS	.90	.30	1.20	.33
-	DISCHARGE CFS	1310.	263.	611.	435.
1310.	VELOCITY FPS	.94	.34	1.31	.37
1	ELEV 845.03 KO	49230.	6412.	30325.	12493.
2	ELEV 846.04 KO	70842.	11700.	38554.	20586.
3	ELEV 846.59 KO	83976.	14910.	43407.	25660.
4	ELEV 847.84 KO	118326.	23751.	55264.	39312.

KD TABLE FOR CROSS SECTION +19.05

ELEVATION	AREA	KD	KD BY SEGMENT		
837.80	0.				
838.	1.	8.	1.	6.	1.
839.	29.	613.	1.	611.	1.
840.	73.	2610.	1.	2607.	1.
841.	141.	6123.	3.	5995.	101.
842.	252.	11473.	62.	10617.	793.
843.	467.	19328.	511.	16200.	2471.
844.	791	[illegible]	2332.	[illegible]	[illegible].
845.	1178.	48635.	6276.	30030.	12276.
846.	1590.	70060.	11500.	38232.	20269.
847.	2029.	94567.	17567.	47158.	29795.
848.	2507.	123199.	24974.	56817.	41358.
849.	3018.	157041.	33794.	67183.	56022.
850.	3554.	195687.	44637.	78230.	72749.
851.	4103.	241187.	59307.	89947.	91933.
852.	4653.	290536.	75535.	102298.	112645.
853.	5202.	343732.	93350.	115279.	135035.
854.	5753.	400588.	112645.	128877.	159010.
855.	6303.	461675.	133792.	143095.	184696.
856.	6853.	527825.	157372.	157944.	213170.
857.	7404.	599146.	183506.	173416.	243904.
858.	7954.	675740.	212317.	189502.	277167.

RATING TABLE FOR SECTION 19.1 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	837.90	0.0	0.0						
BANK FULL.	840.2	78.4	157.9	0.00	0.00	0.00			
1	845.04	1152.8	490.0	0.00	0.00	0.00	490.00	840.1	.00011
2	846.04	1564.8	770.0	0.00	0.00	0.00	770.00	840.7	.00013
3	846.59	1802.9	940.0	0.00	0.00	0.00	940.00	841.0	.00013
4	847.85	2381.2	1310.0	0.00	0.00	0.00	1310.00	841.5	.00013

SEGMENT TABLE FOR SECTION 19.1

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	490.	62.	306.	122.
490.	VELOCITY FPS	.77	.20	.96	.23
2	DISCHARGE CFS	770.	126.	421.	222.
770.	VELOCITY FPS	.87	.28	1.14	.30
3	DISCHARGE CFS	940.	166.	488.	286.
940.	VELOCITY FPS	.92	.31	1.23	.33
4	DISCHARGE CFS	1310.	261.	616.	433.
1310.	VELOCITY FPS	.96	.34	1.34	.37
1	ELEV 845.04 KD	47278.	5930.	29576.	11773.
2	ELEV 846.04 KD	68729.	11200.	37741.	19788.
3	ELEV 846.59 KD	81592.	14315.	42550.	24727.
4	ELEV 847.85 KD	115447.	23002.	54321.	38124.

KD TABLE FOR CROSS SECTION 19.1

ELEVATION	AREA	KD	KD BY SEGMENT		
837.90	0.				
838.	0.	5.	1.	4.	1.
839.	25.	494.	1.	492.	1.
840.	69.	2352.	1.	2350.	1.
841.	132.	5690.	2.	5599.	76.
842.	239.	10853.	52.	10103.	679.
843.	440.	18387.	424.	15599.	2236.
844.	755.	29840.	2032.	22021.	5572.
845.	1139.	46646.	5748.	29303.	11504.
846.	1547.	67344.	10985.	37385.	19442.
847.	1982.	91965.	16918.	46235.	28786.
848.	2456.	120077.	24187.	55822.	40041.
849.	2965.	153486.	32847.	66117.	54498.
850.	3499.	191460.	43332.	77098.	70992.
851.	4048.	236368.	57702.	88743.	89879.
852.	4598.	285348.	73788.	101032.	110451.
853.	5147.	338217.	91484.	113952.	132708.
854.	5698.	394754.	110659.	127490.	156550.
855.	6248.	455340.	131570.	141644.	182201.
856.	6798.	520979.	154901.	156431.	210233.
857.	7349.	591778.	180774.	171841.	240718.
858.	7899.	667340.	209312.	187866.	273725.

RATING TABLE FOR SECTION 19.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	841.20	0.0	0.0						
BANK FULL	844.3	71.0	280.0	0.00	0.00	0.00			
1	846.63	443.6	490.0	0.00	0.00	0.00	490.00	843.8	.00111
2	847.50	719.6	770.0	0.00	0.00	0.00	770.00	845.2	.00094
3	847.99	901.0	940.0	0.00	0.00	0.00	940.00	845.5	.00082
4	848.92	1249.6	1310.0	0.00	0.00	0.00	1310.00	845.8	.00067

SEGMENT TABLE FOR SECTION 19.9

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	490.	165.	313.	12.
490.	VELOCITY FPS	1.98	.59	2.39	.35
2	DISCHARGE CFS	770.	346.	379.	45.
770.	VELOCITY FPS	1.83	.75	2.47	.43
3	DISCHARGE CFS	940.	453.	403.	84.
940.	VELOCITY FPS	1.72	.80	2.42	.50
4	DISCHARGE CFS	1310.	668.	459.	183.
1310.	VELOCITY FPS	1.59	.88	2.41	.61
1	ELEV 846.63 KD	14477.	4609.	9527.	341.
2	ELEV 847.50 KD	24972.	11160.	12435.	1378.
3	ELEV 847.99 KD	32544.	15649.	14228.	2668.
4	ELEV 848.92 KD	50312.	25673.	17609.	6830.

KD TABLE FOR CROSS SECTION 19.9

ELEVATION	AREA	KD	KD BY SEGMENT		
841.20	0.				
842.	14.	290.	1.	287.	1.
843.	37.	1278.	1.	1276.	1.
844.	63.	2055.	1.	2853.	1.
845.	109.	5036.	34.	4968.	11.
846.	272.	9449.	1681.	7636.	132.
847.	557.	18703.	7205.	10738.	615.
848.	903.	32152.	15712.	14251.	2189.
849.	1282.	52312.	25704.	18153.	7334.
850.	1663.	76165.	39745.	22422.	13902.
851.	2044.	103080.	54757.	27044.	22021.
852.	2426.	135035.	71556.	32007.	31465.
853.	2807.	169539.	90031.	37298.	42183.
854.	3189.	206931.	110023.	42908.	53963.
855.	3571.	247316.	131581.	48823.	66878.
856.	3953.	290498.	154598.	55052.	80829.
857.	4335.	336340.	179006.	61570.	95755.
858.	4717.	384725.	204745.	66378.	111602.
859.	5099.	435236.	231591.	75465.	128165.
860.	5482.	488253.	259759.	82831.	145655.
861.	5864.	543663.	289179.	90470.	164009.
862.	6247.	601130.	319681.	98376.	183068.
863.	6630.	660631.	351251.	106543.	202829.
864.	7013.	722710.	384181.	114974.	223567.
865.	7396.	787380.	418585.	123667.	245398.
866.	7778.	855242.	454463.	132619.	268330.
867.	8161.	925635.	491815.	141826.	292370.

TABLE OF VALUES FOR BFR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
.7593	.7593	0.0300	0.0000	0.0000	0.0000	.6514	1.0000	1.0000	141.6059	441.6812	403.2372
DCRIT	843.92	KBCRIT=									
1.3584	1.3584	0.0000	0.0000	0.0000	0.0000	.4858	1.0000	1.0000	167.0833	829.4656	669.2616
DCRIT	844.64	KBCRIT=									
1.6340	1.6340	0.0000	0.0000	0.0000	0.0000	.4201	1.0000	1.0000	181.5795	1096.5750	841.2401
DCRIT	845.02	KBCRIT=									
1.9166	1.9166	0.0000	0.0000	0.0000	0.0000	.3574	1.0000	1.0000	208.5646	1452.8357	1186.0377
DCRIT	845.14	KBCRIT=									

ROAD SECTION 20.0

NO.	HW	CFS	HL	TW	CSN
0	841.40	0.00	0.00	0.00	0.00
1	846.60	490.00	.12	846.68	490.00
2	847.98	770.00	.44	847.54	770.00
3	848.69	940.00	.66	848.03	940.00
4	849.63	1310.00	.68	848.95	1310.00

MIN ROAD ELEVATION 848.60

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 849.40 OPENING NO.= 1

RATING TABLE FOR SECTION 20.1+ DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	841.32	0.0	0.0						
BANK FULL	844.4	71.0	273.8	0.00	0.00	0.00			
1	846.87	477.1	490.0	0.00	0.00	0.00	490.00	843.9	.00114
2	848.03	869.1	770.0	0.00	0.00	0.00	770.00	845.3	.00080
3	848.73	1132.7	940.0	0.00	0.00	0.00	940.00	845.6	.00063
4	849.66	1487.9	1310.0	0.00	0.00	0.00	1310.00	845.9	.00059

SEGMENT TABLE FOR SECTION 20.1+

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	490.	146.	333.	11.
490.	VELOCITY FPS	2.08	.48	2.49	.27
2	DISCHARGE CFS	770.	324.	390.	57.
770.	VELOCITY FPS	1.76	.59	2.37	.36
3	DISCHARGE CFS	940.	424.	412.	104.
940.	VELOCITY FPS	1.57	.61	2.26	.41
4	DISCHARGE CFS	1310.	619.	490.	201.
1310.	VELOCITY FPS	1.56	.69	2.37	.52
1	ELEV 846.87 KD	14450.	4222.	9918.	310.
2	ELEV 848.03 KD	27062.	11318.	13914.	1830.
3	ELEV 848.73 KD	37486.	16917.	16583.	3996.
4	ELEV 849.66 KD	54054.	25517.	20416.	8121.

KD TABLE FOR CROSS SECTION 20.1+

ELEVATION	AREA	KD	KD BY SEGMENT		
841.32	0.				
842.	12.	214.	1.	212.	1.
843.	34.	1122.	1.	1120.	1.
844.	60.	2641.	1.	2639.	1.
845.	96.	4725.	12.	4630.	5.
846.	246.	8426.	966.	7291.	81.
847.	516.	15697.	4915.	10345.	382.
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
849.	1236.	42098.	19254.	17665.	5054.
850.	1617.	60903.	29003.	21690.	9902.
851.	1999.	82791.	40285.	26471.	15968.
852.	2360.	107450.	52941.	31393.	23071.
853.	2761.	134684.	66883.	36646.	31124.
854.	3143.	164263.	81998.	42216.	40016.
855.	3525.	196228.	98318.	48102.	49783.
856.	3907.	230399.	115753.	54290.	60343.
857.	4289.	266676.	134252.	60773.	71647.
858.	4671.	304860.	153709.	67545.	83600.
859.	5053.	344871.	174086.	74599.	96170.
860.	5436.	386670.	195475.	81933.	109451.
861.	5816.	430750.	217819.	89540.	123389.
862.	6201.	476176.	240938.	97413.	137819.
863.	6584.	523323.	264929.	105549.	152837.
864.	6967.	572401.	289907.	113948.	168553.
865.	7350.	623665.	316009.	122610.	185101.
866.	7732.	677113.	343235.	131531.	202488.
867.	8115.	732745.	371585.	140708.	220719.

RATING TABLE FOR SECTION 20.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	843.90	0.0	0.0						
BANK FULL	847.0	67.5	312.4	0.00	0.00	0.00			
1	848.76	291.3	490.0	0.00	0.00	0.00	490.00	846.6	.00245
2	849.59	479.3	770.0	0.00	0.00	0.00	770.00	847.8	.00218
3	850.09	603.7	940.0	0.00	0.00	0.00	940.00	848.0	.00190
4	850.94	827.3	1310.0	0.00	0.00	0.00	1310.00	848.3	.00169

SEGMENT TABLE FOR SECTION 20.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	490.	72.	363.	55.
490.	VELOCITY FPS	2.66	.63	3.26	.82
2	DISCHARGE CFS	770.	194.	460.	115.
770.	VELOCITY FPS	2.76	.82	3.46	1.05
3	DISCHARGE CFS	940.	287.	501.	152.
940.	VELOCITY FPS	2.63	.89	3.43	1.12
4	DISCHARGE CFS	1310.	484.	600.	226.
1310.	VELOCITY FPS	2.56	1.01	3.57	1.26
1	ELEV 848.76 KD	9861.	1389.	7383.	1090.
2	ELEV 849.59 KD	16464.	4081.	9923.	2460.
3	ELEV 850.09 KD	21488.	6430.	11596.	3462.
4	ELEV 850.94 KD	31628.	11687.	14659.	5482.

KD TABLE FOR CROSS SECTION 20.9

ELEVATION	AREA	KD	KD BY SEGMENT		
843.00	0.				
844.	1.	10.	1.	9.	1.
845.	20.	507.	1.	504.	1.
846.	41.	1576.	1.	1574.	1.
847.	68.	3129.	2.	3120.	2.
848.	156.	5897.	216.	5323.	245.
849.	344.	11558.	1940.	8075.	1403.
850.	588.	20547.	5918.	11271.	3353.
851.	843.	32675.	12121.	14881.	5640.
852.	1133.	47683.	20332.	18879.	8452.
853.	1448.	65707.	30780.	23246.	11657.
854.	1783.	87589.	44382.	27973.	15217.
855.	2129.	112394.	60239.	33042.	19101.
856.	2488.	139941.	78208.	38442.	23279.
857.	2856.	170192.	98281.	44165.	27733.
858.	3267.	199592.	117051.	50208.	32433.
859.	3689.	237171.	143168.	56541.	37360.
860.	4115.	280565.	174765.	63182.	42557.
861.	4540.	326373.	208768.	70114.	47948.
862.	4967.	376056.	245159.	77333.	53546.
863.	5393.	427609.	283423.	84826.	59309.
864.	5819.	481970.	324061.	92601.	65271.
865.	6246.	539153.	367090.	100648.	71428.
866.	6673.	599996.	413439.	108972.	77840.
867.	7100.	664553.	463195.	117571.	84505.
868.	7527.	732870.	516446.	126440.	91423.

RATING TABLE FOR SECTION +20.99 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	842.90	0.0	0.0						
BANK FULL	846.0	67.5	251.3	0.00	0.00	0.00			
1	848.94	566.5	490.0	0.00	0.00	0.00	490.00	845.6	.00073
2	849.77	781.6	770.0	0.00	0.00	0.00	770.00	846.8	.00085
3	850.26	916.0	940.0	0.00	0.00	0.00	940.00	847.0	.00085
4	851.10	1164.4	1310.0	0.00	0.00	0.00	1310.00	847.3	.00092

SEGMENT TABLE FOR SECTION +20.99

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	490.	126.	296.	68.
490.	VELOCITY FPS	1.67	.42	2.08	.54
2	DISCHARGE CFS	770.	247.	405.	118.
770.	VELOCITY FPS	1.86	.55	2.48	.69
3	DISCHARGE CFS	940.	330.	462.	148.
940.	VELOCITY FPS	1.91	.61	2.62	.76
4	DISCHARGE CFS	1310.	517.	582.	212.
1310.	VELOCITY FPS	2.05	.71	2.94	.89
1	ELEV 846.94 KO	18006.	4500.	11082.	2504.
2	ELEV 849.77 KO	26426.	8380.	14020.	4027.
3	ELEV 850.26 KO	32147.	11215.	15880.	5052.
4	ELEV 851.10 KO	43250.	16967.	19298.	6986.

KD TABLE FOR CROSS SECTION +20.99

ELEVATION	AREA	KD	KD BY SEGMENT		
842.90	0.				
843.	1.	10.	1.	9.	1.
844.	20.	506.	1.	504.	1.
845.	41.	1576.	1.	1574.	1.
846.	68.	3127.	2.	3120.	2.
847.	156.	5782.	172.	5323.	196.
848.	344.	10864.	1549.	8075.	1120.
849.	501.	16607.	4727.	11271.	2593.
850.	843.	29197.	9682.	14881.	4505.
851.	1133.	41888.	16243.	18879.	6751.
852.	1466.	57164.	24586.	23248.	9312.
853.	1763.	75594.	35451.	27973.	12155.
854.	2129.	96427.	48117.	33042.	15257.
855.	2488.	119517.	62469.	38442.	18594.
856.	2858.	144832.	78503.	44165.	22152.
857.	3267.	169609.	93496.	50200.	25905.
858.	3669.	206829.	114357.	56541.	29856.
859.	4115.	236625.	139596.	63182.	33993.
860.	4540.	275207.	166756.	70114.	38299.
861.	4967.	315943.	195624.	77333.	42770.
862.	5393.	358633.	226388.	84828.	47374.
863.	5819.	403618.	258848.	92601.	52136.
864.	6246.	450939.	293216.	100643.	57054.
865.	6673.	501160.	330239.	108972.	62176.
866.	7100.	554414.	369983.	117571.	67500.
867.	7527.	610707.	412517.	126440.	73026.

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
.2959	.2959	0.0000	0.0000	0.0000	0.0000	.8226	1.0000	1.0000	105.9795	425.1678	894.2256
DCRIT	45.17	KBCRIT=									
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	105.9800	425.1678	894.2256
DCRIT	-1.00	KBCRIT=									
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	105.9800	425.1678	894.2256
DCRIT	-1.00	KBCRIT=									
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	105.9800	425.1678	894.2256
DCRIT	-1.00	KBCRIT=									

ROAD SECTION 21.0

NO.	HW	CFS	HL	TW	CSM
0	841.70	0.00	0.00	0.00	0.00
1	849.00	490.00	.02	848.98	490.00
2	849.94	770.00	.12	849.82	770.00
3	850.41	940.00	.10	850.31	940.00
4	851.27	1310.00	.12	851.15	1310.00

MIN ROAD ELEVATION 848.30

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 848.34 OPENING NO.= 1

RATING TABLE FOR SECTION 21.1 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	842.20	0.0	0.0						
BANK FULL	842.4	1.7	14.3	0.00	0.00	0.00			
1	845.04	301.1	490.0	0.00	0.00	0.00	490.00	845.1	.00171
2	849.97	571.3	770.0	0.00	0.00	0.00	770.00	846.1	.00182
3	850.43	735.6	940.0	0.00	0.00	0.00	940.00	846.6	.00175
4	851.31	1061.2	1310.0	0.00	0.00	0.00	1310.00	846.7	.00154

SEGMENT TABLE FOR SECTION 21.1

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	490.	31.	424.	34.
490.	VELOCITY FPS	3.17	.36	3.37	.38
2	DISCHARGE CFS	770.	114.	545.	111.
770.	VELOCITY FPS	3.25	.52	3.79	.53
3	DISCHARGE CFS	940.	181.	586.	172.
940.	VELOCITY FPS	3.13	.60	3.85	.61
4	DISCHARGE CFS	1310.	337.	660.	313.
1310.	VELOCITY FPS	2.84	.72	3.90	.73
1	ELEV 849.04 KO	11612.	583.	10333.	696.
2	ELEV 849.97 KO	17812.	2492.	12860.	2460.
3	ELEV 850.43 KO	22254.	4106.	14217.	3931.
4	ELEV 851.31 KO	33281.	8484.	16892.	7905.

KD TABLE FOR CROSS SECTION 21.1

ELEVATION	AREA	KD	KD BY SEGMENT		
842.20	0.				
843.	11.	229.	1.	227.	1.
844.	30.	1082.	1.	1080.	1.
845.	49.	2358.	1.	2356.	1.
846.	66.	3939.	1.	3937.	1.
847.	87.	5760.	1.	5758.	1.
848.	132.	7944.	4.	7806.	43.
849.	293.	11664.	541.	10239.	655.
850.	583.	18315.	2601.	12958.	2558.
851.	945.	29203.	6725.	15927.	6317.
852.	1326.	43592.	12658.	19135.	11671.
853.	1726.	60976.	19999.	22575.	18323.
854.	2140.	80187.	28824.	26239.	25078.
855.	2618.	99575.	39289.	30120.	30078.
856.	3168.	123937.	51143.	34212.	38472.
857.	3767.	155042.	64131.	38510.	52255.
858.	4385.	191715.	78192.	43010.	70450.
859.	5018.	231509.	93111.	47707.	90692.
860.	5671.	275522.	110491.	52595.	112342.
861.	6328.	324905.	131014.	57672.	136134.
862.	6988.	379349.	154522.	62936.	161860.
863.	7646.	436791.	179319.	68382.	189057.
864.	8309.	497236.	205427.	74006.	217753.
865.	8969.	562109.	233566.	79809.	248812.
866.	9630.	632109.	264104.	85789.	282678.
867.	10291.	707401.	297125.	91942.	319470.
868.	10951.	788146.	332721.	98268.	359310.

RATING TABLE FOR SECTION 21.09 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	845.02	0.0	0.0						
BANK FULL	850.4	76.3	333.3	0.00	0.00	0.00			
1	852.93	210.8	490.0	0.00	0.00	0.00	490.00	848.9	.00209
2	854.10	393.4	770.0	0.00	0.00	0.00	770.00	850.1	.00221
3	854.61	500.0	940.0	0.00	0.00	0.00	940.00	851.2	.00223
4	855.49	704.1	1310.0	0.00	0.00	0.00	1310.00	852.4	.00228

SEGMENT TABLE FOR SECTION 21.09

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	490.	15.	445.	30.
490.	VELOCITY FPS	3.51	.54	3.67	.48
2	DISCHARGE CFS	770.	51.	596.	123.
770.	VELOCITY FPS	3.72	.73	4.18	.68
3	DISCHARGE CFS	940.	79.	659.	202.
940.	VELOCITY FPS	3.73	.80	4.35	.81
4	DISCHARGE CFS	1310.	144.	789.	377.
1310.	VELOCITY FPS	3.76	.93	4.71	.99
1	ELEV 852.93 KO	10678.	307.	9743.	628.
2	ELEV 854.10 KO	16320.	1063.	12728.	2529.
3	ELEV 854.61 KO	19709.	1583.	14111.	4009.
4	ELEV 855.49 KO	27259.	2925.	16662.	7672.

KD TABLE FOR CROSS SECTION 21.89

ELEVATION	AREA	KD	KD BY SEGMENT		
845.02	0.				
846.	6.	116.	1.	114.	1.
847.	19.	577.	1.	574.	1.
848.	35.	1412.	1.	1409.	1.
849.	51.	2534.	1.	2531.	1.
850.	69.	3879.	1.	3876.	1.
851.	92.	5587.	8.	5551.	10.
852.	133.	7900.	79.	7806.	143.
853.	217.	10951.	336.	9913.	694.
854.	373.	15732.	973.	12454.	2288.
855.	562.	22997.	2133.	15222.	5623.
856.	830.	32565.	3980.	18207.	10363.
857.	1129.	44250.	6268.	21403.	16578.
858.	1492.	59515.	10213.	24799.	24387.
859.	1886.	79318.	16231.	28395.	34493.
860.	2305.	101759.	24127.	32184.	45311.
861.	2753.	126897.	33572.	36161.	57066.
862.	3231.	157070.	44791.	40321.	71686.
863.	3720.	193188.	58628.	44660.	89603.
864.	4209.	232435.	74465.	49173.	108734.
865.	4699.	275207.	91810.	53860.	129468.
866.	5109.	320973.	110603.	58719.	151646.
867.	5679.	368796.	130256.	63738.	174744.
868.	6170.	419494.	151293.	68923.	199218.
869.	6660.	473231.	173631.	74273.	225184.
870.	7151.	531361.	198596.	79794.	253263.
871.	7641.	593352.	225706.	85484.	283533.
872.	8132.	660910.	255279.	91343.	316069.

RATING TABLE FOR SECTION 21.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	845.20	0.0	0.0						
BANK FULL	851.9	100.8	418.6	0.00	0.00	0.00			
1	853.04	179.6	490.0	0.00	0.00	0.00	490.00	849.2	.00308
2	854.22	364.4	770.0	0.00	0.00	0.00	770.00	850.3	.00316
3	854.73	485.6	940.0	0.00	0.00	0.00	940.00	850.9	.00314
4	855.62	728.3	1310.0	0.00	0.00	0.00	1310.00	853.1	.00313

SEGMENT TABLE FOR SECTION 21.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	491.	0.	463.	27.
490.	VELOCITY FPS	3.85	.14	3.95	.44
2	DISCHARGE CFS	770.	12.	617.	141.
770.	VELOCITY FPS	4.12	.41	4.46	.72
3	DISCHARGE CFS	940.	35.	678.	226.
940.	VELOCITY FPS	4.00	.55	4.60	.83
4	DISCHARGE CFS	1310.	98.	804.	408.
1310.	VELOCITY FPS	3.96	.70	4.92	.96
1	ELEV 853.04 KD	8722.	2.	8349.	371.
2	ELEV 854.22 KD	13691.	210.	10995.	2486.
3	ELEV 854.73 KD	16533.	488.	12231.	3815.
4	ELEV 855.62 KD	23242.	1581.	14530.	7130.

KD TABLE FOR CROSS SECTION 21.9

ELEVATION	AREA	KD	KD BY SEGMENT		
845.20	0.				
846.	3.	44.	1.	42.	1.
847.	15.	397.	1.	395.	1.
848.	30.	1130.	1.	1128.	1.
849.	46.	2176.	1.	2174.	1.
850.	63.	3427.	1.	3425.	1.
851.	81.	4829.	1.	4827.	1.
852.	104.	6436.	1.	6433.	7.
853.	175.	8713.	2.	8263.	324.
854.	326.	12631.	81.	10467.	1870.
855.	550.	18574.	749.	12912.	4744.
856.	848.	26062.	2311.	15558.	8854.
857.	1223.	37375.	4964.	18397.	14403.
858.	1682.	53431.	8792.	21421.	22989.
859.	2176.	73748.	14272.	24629.	34632.
860.	2693.	98348.	21523.	28015.	48685.
861.	3225.	126419.	30252.	31573.	64538.
862.	3774.	157825.	40454.	35300.	82071.
863.	4335.	193467.	53382.	39185.	100770.
864.	4895.	232636.	68123.	43234.	121223.
865.	5457.	275212.	84469.	47444.	143262.
866.	6016.	320233.	101922.	51807.	166513.
867.	6579.	367698.	120523.	56320.	190996.
868.	7141.	419363.	141057.	60993.	217408.
869.	7703.	475348.	163979.	65828.	246100.
870.	8265.	536035.	189447.	70823.	277161.
871.	8826.	601405.	217625.	75978.	310678.

RATING TABLE FOR SECTION +21.91 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	845.18	0.0	0.0						
BANK FULL	850.6	76.3	329.4	0.00	0.00	0.00			
1	853.18	219.8	490.0	0.00	0.00	0.00	490.00	849.1	.00203
2	854.36	413.0	770.0	0.00	0.00	0.00	770.00	850.3	.00221
3	854.86	518.5	940.0	0.00	0.00	0.00	940.00	851.3	.00229
4	855.74	724.6	1310.0	0.00	0.00	0.00	1310.00	852.6	.00245

SEGMENT TABLE FOR SECTION +21.91

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	490.	13.	449.	27.
490.	VELOCITY FPS	3.50	.46	3.65	.41
2	DISCHARGE CFS	770.	47.	607.	116.
770.	VELOCITY FPS	3.78	.63	4.21	.60
3	DISCHARGE CFS	940.	72.	683.	186.
940.	VELOCITY FPS	3.86	.70	4.45	.71
4	DISCHARGE CFS	1311.	133.	831.	347.
1310.	VELOCITY FPS	3.99	.82	4.91	.86
1	ELEV 853.18 KD	10869.	293.	9970.	606.
2	ELEV 854.36 KD	16278.	969.	12977.	2332.
3	ELEV 854.86 KD	19458.	1437.	14358.	3663.
4	ELEV 855.74 KD	26330.	2603.	16309.	6818.

KD TABLE FOR CROSS SECTION +21.91

ELEVATION	AREA	KD	KD BY SEGMENT		
845.18	C.				
846.	5.	82.	1.	80.	1.
847.	17.	469.	1.	467.	1.
848.	32.	1255.	1.	1253.	1.
849.	49.	2339.	1.	2337.	1.
850.	66.	3644.	1.	3642.	1.
851.	87.	5267.	4.	5248.	5.
852.	125.	7429.	50.	7259.	95.
853.	202.	10266.	231.	9526.	466.
854.	348.	14445.	700.	12029.	1614.
855.	548.	20623.	1600.	14761.	4145.
856.	791.	28841.	3058.	17713.	7981.
857.	1081.	36916.	4943.	20676.	13035.
858.	1433.	51319.	8005.	24241.	19425.
859.	1822.	68417.	12766.	27806.	27650.
860.	2236.	87663.	19264.	31565.	36922.
861.	2677.	109178.	27061.	35513.	46442.
862.	3153.	134458.	35200.	39645.	58804.
863.	3642.	164348.	47665.	43953.	73196.
864.	4131.	196548.	60742.	48439.	89253.
865.	4621.	235076.	75281.	53100.	106652.
866.	5111.	273870.	90824.	57929.	125077.
867.	5601.	314832.	107347.	62923.	144499.
868.	6091.	358254.	125037.	68033.	165087.
869.	6582.	403933.	143600.	73405.	186761.
870.	7072.	453325.	164431.	78899.	210212.
871.	7563.	506372.	187028.	84563.	235504.
872.	8053.	563252.	211693.	90394.	262702.

RATING TABLE FOR SECTION 21.99 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	849.99	0.0	0.0						
BANK FULL	853.1	60.2	233.6	0.00	0.00	0.00			
1	856.49	186.3	490.0	0.00	0.00	0.00	490.00	852.9	.00160
2	857.79	341.4	770.0	0.00	0.00	0.00	770.00	853.8	.00165
3	858.33	432.4	940.0	0.00	0.00	0.00	940.00	854.3	.00169
4	859.34	620.5	1310.0	0.00	0.00	0.00	1310.00	855.3	.00167

SEGMENT TABLE FOR SECTION 21.99

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	491.	13.	471.	6.
490.	VELOCITY FPS	3.13	.65	3.18	.32
2	DISCHARGE CFS	770.	36.	672.	62.
770.	VELOCITY FPS	3.48	.93	3.70	.51
3	DISCHARGE CFS	940.	46.	767.	127.
940.	VELOCITY FPS	3.59	.96	3.92	.67
4	DISCHARGE CFS	1310.	68.	943.	299.
1310.	VELOCITY FPS	3.67	.98	4.24	.91
1	ELEV 856.49 KO	12216.	320.	11787.	109.
2	ELEV 857.79 KO	18852.	871.	16593.	1388.
3	ELEV 858.33 KO	22622.	1116.	18777.	2728.
4	ELEV 859.34 KO	31667.	1644.	23181.	7043.

KD TABLE FOR CROSS SECTION 21.99

ELEVATION	AREA	KD	KD BY SEGMENT		
849.99	0.				
850.	0.	1.	1.	1.	1.
851.	13.	259.	1.	256.	1.
852.	34.	1172.	1.	1170.	1.
853.	58.	2579.	1.	2577.	1.
854.	64.	4537.	2.	4531.	5.
855.	116.	7160.	29.	7097.	26.
856.	168.	10309.	174.	10131.	0.
857.	239.	14528.	506.	13586.	361.
858.	373.	20308.	986.	17435.	1878.
859.	554.	28650.	1418.	21654.	5573.
860.	746.	39239.	2144.	26231.	10760.
861.	974.	51036.	2592.	31153.	17287.
862.	1253.	66156.	4673.	36407.	25068.
863.	1572.	84435.	8867.	41982.	33484.
864.	1915.	106074.	14492.	47871.	43517.
865.	2274.	131261.	21552.	54067.	55466.
866.	2646.	160123.	30323.	60562.	69090.
867.	3025.	192483.	41137.	67346.	83827.
868.	3405.	227647.	53562.	74419.	99572.
869.	3785.	265260.	67112.	81768.	116247.
870.	4166.	306238.	82666.	89404.	134395.
871.	4546.	350178.	100794.	97326.	154281.
872.	4927.	399935.	121770.	105537.	175976.
873.	5307.	452960.	145879.	114027.	199551.

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
1.3386	1.3539	0.0000	0.0000	0.0000	-.0152	.4869	1.0000	1.0000	140.0614	1066.7476	183.2519
DCRIT	853.40	KBCRIT=									
1.8453	1.9120	0.0000	0.0000	0.0000	-.0667	.3584	1.0000	1.0000	176.3069	1819.5067	336.5351
DCRIT	854.29	KBCRIT=									
1.9589	2.0688	0.0000	0.0000	0.0000	-.0799	.3251	1.0000	1.0000	194.1961	2175.2324	426.3596
DCRIT	854.84	KBCRIT=									
2.1646	2.2602	0.0000	0.0000	0.0000	-.0956	.2859	1.0000	1.0000	224.0914	2860.0085	613.6981
DCRIT	855.76	KBCRIT=									

ROAD SECTION 22.0

NO.	HW	CFS	HL	TW	CSM
0	850.10	0.00	0.00	0.00	0.00
1	856.97	490.00	.40	856.57	490.00
2	858.61	770.00	.74	857.87	770.00
3	859.37	940.00	.96	858.41	940.00
4	860.84	1310.00	1.42	859.42	1310.00

MIN ROAD ELEVATION 869.73

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 865.50 OPENING NO.= 1

RATING TABLE FOR SECTION 22.1 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	852.60	0.0	0.0						
BANK FULL	854.8	47.3	247.4	0.00	0.00	0.00			
1	856.96	215.1	490.0	0.00	0.00	0.00	490.00	855.5	.00408
2	858.59	671.8	770.0	0.00	0.00	0.00	770.00	856.1	.00172
3	859.36	1007.1	940.0	0.00	0.00	0.00	940.00	856.4	.00112
4	860.84	1685.6	1310.0	0.00	0.00	0.00	1310.00	856.8	.00059

SEGMENT TABLE FOR SECTION 22.1

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	490.	7.	421.	61.
490.	VELOCITY FPS	3.89	.66	4.17	.59
2	DISCHARGE CFS	770.	50.	476.	244.
770.	VELOCITY FPS	2.73	.37	3.36	.62
3	DISCHARGE CFS	940.	119.	475.	346.
940.	VELOCITY FPS	2.18	.42	2.95	.61
4	DISCHARGE CFS	1310.	284.	492.	535.
1310.	VELOCITY FPS	1.60	.46	2.46	.59
1	ELEV 856.96 KD	7647.	113.	6621.	916.
2	ELEV 858.59 KD	18256.	902.	11653.	5701.
3	ELEV 859.36 KD	27912.	3273.	14403.	10236.
4	ELEV 860.84 KD	53746.	11489.	20332.	21928.

KD TABLE FOR CROSS SECTION 22.1

ELEVATION	AREA	KD	KD BY SEGMENT		
852.60	0.				
853.	6.	67.	1.	65.	1.
854.	26.	820.	1.	818.	1.
855.	52.	2203.	2.	2200.	1.
856.	108.	4421.	22.	4220.	145.
857.	222.	7854.	116.	6739.	970.
858.	453.	13334.	321.	9706.	3218.
859.	[illegible]	[illegible]	2099.	[illegible]	[illegible]
860.	1299.	38266.	6414.	16871.	14893.
861.	1760.	57052.	12547.	21022.	23370.
862.	2229.	79404.	20341.	25532.	33459.
863.	2707.	104094.	29556.	30385.	44109.
864.	3215.	128365.	40079.	35571.	53261.
865.	3767.	156432.	51633.	41078.	63482.
866.	4401.	191190.	64853.	46699.	79388.
867.	5032.	234072.	79032.	53025.	102015.
868.	5665.	280131.	94207.	59445.	126439.
869.	6299.	329693.	110497.	66157.	152992.
870.	6936.	382522.	127639.	73153.	181479.
871.	7575.	438861.	146353.	80429.	212060.
872.	8215.	498342.	166079.	87977.	244266.
873.	8856.	560785.	186351.	95793.	278110.
874.	9497.	626350.	208661.	103874.	313795.
875.	10139.	694355.	231417.	112216.	351222.
876.	10780.	765483.	254833.	120811.	389814.
877.	11422.	839880.	279486.	129662.	430764.
878.	12064.	[illegible]	306394.	138768.	474109.
879.	12705.	1000118.	332560.	148125.	519888.

RATING TABLE FOR SECTION 22.5 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	857.30	0.0	0.0						
BANK FULL	863.2	85.6	363.5	0.00	0.00	0.00			
1	865.25	189.4	490.0	0.00	0.00	0.00	490.00	861.9	.00193
2	866.47	305.9	770.0	0.00	0.00	0.00	770.00	862.8	.00206
3	867.20	394.9	940.0	0.00	0.00	0.00	940.00	863.7	.00198
4	868.44	619.5	1310.0	0.00	0.00	0.00	1310.00	864.7	.00181

SEGMENT TABLE FOR SECTION 22.5

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	490.	2.	458.	30.
490.	VELOCITY FPS	3.32	.53	3.43	.57
2	DISCHARGE CFS	770.	7.	657.	106.
770.	VELOCITY FPS	3.76	.74	4.03	.79
3	DISCHARGE CFS	940.	12.	762.	166.
940.	VELOCITY FPS	3.64	.83	4.23	.83
4	DISCHARGE CFS	1310.	23.	940.	347.
1310.	VELOCITY FPS	3.64	.94	4.47	.90
1	ELEV 865.25 KD	11130.	44.	10425.	661.
2	ELEV 866.47 KD	16917.	154.	14493.	2265.
3	ELEV 867.20 KD	21124.	263.	17174.	3687.
4	ELEV 868.44 KD	30734.	545.	22193.	7996.

KD TABLE FOR CROSS SECTION 22.5

ELEVATION	AREA	KD	KD BY SEGMENT		
857.30	0.				
858.	1.	20.	1.	17.	1.
859.	8.	184.	1.	182.	1.
860.	26.	625.	1.	622.	1.
861.	37.	1457.	1.	1455.	1.
862.	57.	2761.	1.	2758.	1.
863.	80.	4479.	1.	4475.	2.
864.	117.	6932.	5.	6882.	45.
865.	172.	10166.	30.	9638.	447.
866.	257.	14515.	100.	12848.	1488.
867.	371.	19950.	226.	16423.	3242.
868.	533.	26942.	428.	20340.	6092.
869.	746.	36781.	711.	24583.	11333.
870.	990.	49647.	1039.	29136.	19261.
871.	1249.	65359.	1496.	33999.	29704.
872.	1526.	83839.	2203.	39161.	42388.
873.	1797.	104723.	3176.	44612.	56908.
874.	2062.	127669.	4243.	50336.	73061.
875.	2373.	153153.	5382.	56325.	91352.
876.	2666.	181214.	6627.	62591.	111924.
877.	2959.	211873.	7972.	69133.	134794.
878.	3252.	245809.	9503.	75983.	160651.
879.	3545.	283138.	11233.	83140.	190350.
880.	3838.	324177.	13179.	90603.	223556.

RATING TABLE FOR SECTION 22.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	865.50	0.0	0.0						
BANK FULL	868.7	93.4	353.1	0.00	0.00	0.00			
1	869.94	405.1	490.0	0.00	0.00	0.00	490.00	868.5	.00129
2	870.67	708.6	770.0	0.00	0.00	0.00	770.00	869.1	.00114
3	871.18	977.2	940.0	0.00	0.00	0.00	940.00	869.2	.00087
4	871.89	1404.0	1310.0	0.00	0.00	0.00	1310.00	869.4	.00074

SEGMENT TABLE FOR SECTION 22.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	490.	25.	351.	113.
490.	VELOCITY FPS	2.86	.34	3.30	.51
2	DISCHARGE CFS	771.	82.	451.	238.
770.	VELOCITY FPS	2.79	.39	3.50	.65
3	DISCHARGE CFS	940.	144.	485.	311.
940.	VELOCITY FPS	2.47	.40	3.35	.66
4	DISCHARGE CFS	1310.	295.	570.	446.
1310.	VELOCITY FPS	2.30	.47	3.41	.72
1	ELEV 869.94 KD	13366.	697.	9890.	2971.
2	ELEV 870.67 KD	22491.	1985.	13624.	6881.
3	ELEV 871.18 KD	31823.	4718.	16561.	10545.
4	ELEV 871.89 KD	48205.	10940.	21010.	16435.

KD TABLE FOR CROSS SECTION 22.9

ELEVATION	AREA	KD	KD BY SEGMENT		
865.50	0.				
866.	4.	78.	1.	76.	1.
867.	21.	833.	1.	830.	1.
868.	47.	2724.	1.	2721.	1.
869.	140.	6231.	52.	5842.	161.
870.	424.	14261.	740.	10164.	3235.
871.	875.	28511.	3605.	15515.	9207.
872.	1472.	51034.	11633.	21762.	17639.
873.	2113.	81385.	25240.	28683.	27343.
874.	2784.	118389.	42728.	36422.	39101.
875.	3462.	161309.	64356.	44892.	52563.
876.	4209.	211700.	89935.	54054.	67585.
877.	4964.	267566.	119620.	63834.	84101.
878.	5747.	329746.	153283.	74356.	102034.
879.	6549.	399493.	192443.	85462.	121509.
880.	7361.	478993.	239155.	97178.	142636.
881.	8174.	568057.	289491.	109483.	165058.
882.	8987.	667470.	343380.	122363.	188671.
883.	9800.	778180.	400843.	135811.	213461.
884.	10614.	852343.	462922.	149842.	239652.
885.	11427.	961930.	530579.	164470.	267421.
886.	12241.	1079059.	603987.	179687.	296776.
887.	13055.	1203642.	683322.	195486.	327724.

----------80/80 LIST OF INPUT DATA----------

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LINK                                                                    1274A
CHANGE    DISCHARGE                                                         1275
DISCHARGE -1.       410.      520.      560.      720.                    1276
END                                                                       1277
REACH     22.99     1.        1001.     600.                        721
SEGMENT   22.99     1         N         600.                        722
NVALUE    .15                                                       723
SEGMENT   22.99     2         C         630.                        724
NVALUE    .055                                                      725
SEGMENT   22.99     3         N         861.                        726
NVALUE    .15                                                       727
SECTION   22.99                                                     728
          499.      885.      500.      871.      598.      870.    729
          600.      870.2     603.      868.      609.      867.    730
          616.      867.2     622.      868.5     628.      868.8   731
          630.      870.7     800.      872.      801.      885.
ENOTABLE                                                            734
ROAD      23.0      2.7       50.       48.                         735
BPR       23.0      B         1                                     736
GIRDER    873.5     872.79    0.        .6        2.7               737
          -17.5     874.49    -17.5     872.79    17.5      872.79  738
          17.5      874.49                                          739
ENOTABLE                                                            740
SECTION   23.0                                                      741
          -101.     880.      -100.     873.4     -23.5     874.49  744
          -23.5     875.79    -17.51    875.79    -17.5     874.49  745
          -17.5     872.79    -17.49    871.9     -14.      871.4   746
          -12.      868.6     -10.      867.8     -5.       867.    747
          0.        867.3     5.        867.5     10.       867.8   748
          12.       869.6     13.       871.      17.49     871.9   749
          17.5      872.79    17.5      874.49    17.51     875.79  750
          23.5      875.79    23.5      874.49    100.      873.1   751
          200.      873.8     300.      873.2     301.      860.    752
ENOTABLE                                                            754
REACH     23.1      1.        50.       50.                         755
SEGMENT   23.1      1         N         600.                        756
NVALUE    .15                                                       757
SEGMENT   23.1      2         C         630.                        758
NVALUE    .055                                                      759
SEGMENT   23.1      3         N         901.                        760
NVALUE    .15                                                       761
SECTION   23.1                                                      762
          477.      885.      478.      870.6     479.      872.    763
          480.      872.      600.      870.4     603.      868.2   764
          609.      867.2     616.      867.4     622.      868.7   765
```

----------80/80 LIST OF INPUT DATA----------

```
         628.      869.      630.      870.9     900.      872.      766
         901.      885.
ENDTABLE                                                             769
REACH    23.9      1.        2650.     1840.                        770
SEGMENT  23.9      1         N         380.                         771
NVALUE   .15                                                         772
SEGMENT  23.9      2         C         402.                         773
NVALUE   .055                                                        774
SEGMENT  23.9      3         N         556.                         775
NVALUE   .15                                                         776
SECTION  23.9                                                        777
         0.        895.      1.        890.      30.       888.      778
         50.       886.      120.      884.      160.      884.      779
         230.      882.      365.      880.      380.      880.2     780
         382.      879.5     387.      878.5     392.      877.8     781
         397.      877.7     402.      879.5     420.      880.      782
         520.      880.      555.      890.      556.      895.      783
ENDTABLE                                                             784
ROAD     24.0      2.7       50.       50.                          785
BPR      24.0      B         3                                      786
GIRDER   884.5     883.91    0.        .6        2.5                  787
         -11.9     890.91    -11.9     883.91    11.9      883.91    788
         11.9      890.91                                           789
ENDTABLE                                                             790
SECTION  24.0                                                        791
         -239.     900.      -238.     893.4     -200.     891.4     792
         -150.     889.3     -100.     888.1     -50.      887.3     793
         -22.      887.3     -22.      890.91    -11.9     890.91    794
         -11.9     893.91    -11.89    878.5     -6.       878.1     795
         -5.0      878.1     -4.0      877.3     -3.0      878.1     796A
         0.        878.1     6.        877.9     11.89     880.      796
         11.9      883.91    11.9      890.91    22.       890.91    797
         22.       887.3     50.       887.7     100.      888.7     798
         150.      890.3     200.      892.3     230.      893.4     799
ENDTABLE                                                             800
REACH    +24.0!    1.        50.       50.                          801
REACH2   24.1      -0.17                                            802
REACH    24.1      1.        50.       50.                          803
SEGMENT  24.1      1         N         89.                          804
NVALUE   .15                                                         805
SEGMENT  24.1      2         C         114.                         806
NVALUE   .055                                                        807
SEGMENT  24.1      3         N         360.                         808
NVALUE   .15                                                         809
SECTION  24.1                                                        810
```

```
-----------------------------80/80 LIST OF INPUT DATA-----------------------------
          -3.        396.       -2.        896.       -1.        896.       811
                0.00     889.90      9.00     887.90     81.00     884.20   812
               89.00     882.20     91.00     879.20     95.00     877.50   813
              100.00     877.80    105.00     878.30    109.00     879.70   814
              114.00     881.10    122.00     883.00    200.00     882.30   815
              236.00     883.00    300.00     881.80    342.00     881.20   816
          359.       890.5      360.       896.                             817
ENDTABLE                                                                    818
REACH     24.5       1.         2950.      2395.                            819
SEGMENT   24.5       1          N          88.                              820
NVALUE    .15                                                               821
SEGMENT   24.5       2          C          114.                             822
NVALUE    .055                                                              823
SEGMENT   24.5       3          N          551.                             824
NVALUE    .15                                                               825
SECTION   24.5                                                              826
          -3.        906.       -2.        906.       -1.        906.       827
                0.00     900.50     26.00     899.70     58.00     892.30   828
               88.00     890.70     90.00     890.00     95.00     889.00   829
              100.00     888.30    105.00     888.20    110.00     890.00   830
              114.00     891.20    200.00     891.30    300.00     892.20   831
              400.00     897.10    500.00     899.50    550.00     900.70   832
          551.       906.                                                    833
ENDTABLE                                                                    834
REACH     24.9       1.         2400.      1610.                            835
SEGMENT   24.9       1          N          228.                             836
NVALUE    .125                                                              837
SEGMENT   24.9       2          C          258.                             838
NVALUE    .055                                                              839
SEGMENT   24.9       3          N          544.                             840
NVALUE    .125                                                              841
SECTION   24.9                                                              842
          -3.        918.       -2.        918.       -1.        918.       843
                0.00     912.90      8.00     911.80     23.00     905.90   844
               43.00     904.50    143.00     900.90    228.00     898.90   845
              230.00     896.50    237.00     896.40    243.00     896.30   846
              249.00     896.80    256.00     897.70    258.00     898.60   847
              276.00     899.20    343.00     899.40    387.00     900.30   848
              418.00     904.10    443.00     904.70    493.00     909.20   849
          543.       911.4      544.       918.                             850
ENDTABLE                                                                    851
REACH     24.99      1.         2350.      2020.                            852
SEGMENT   24.99      1          N          165.                             853
NVALUE    .09                                                               854
SEGMENT   24.99      2          C          196.                             855
```

----------80/80 LIST OF INPUT DATA----------

```
NVALUE    .055                                                          856
SEGMENT   24.99     3          N          361.                         857
NVALUE    .09                                                           858
SECTION   24.99                                                         859
          0.        925.       1.         914.2      11.       914.    860
          20.       912.       118.       910.       150.      908.    861
          165.      907.16     167.       905.36     174.      905.26  862
          181.      905.36     183.       904.66     195.      904.86  863
          196.      906.16     200.       908.       250.      910.    864
          270.      912.       285.       914.       302.      916.    865
          360.      918.       361.       925.                         866
ENDTABLE                                                                867
RCAD      25.0      2.7        50.        50.                          868
BPR       25.0      B          3          5                            869
PIER      906.2     0.42                                              870
GIRDER    912.      911.65     0.         .6         2.55              871
          -20.2     912.8      -20.1      911.65     12.1      911.65  872
          12.2      912.8                                             873
ENDTABLE                                                                874
SECTION   25.0                                                          875
          -346.     930.       -345.      922.2      -300.     916.5   876
          -209.     914.9      -184.      915.2      -100.     911.1   877
          -50.      911.9      -20.2      912.8      -20.1     911.65  878
          -20.      909.8      -12.       907.       -6.       906.2   879
          0.        905.7      6.         905.5      12.       906.4   880
          12.1      911.65     12.2       912.8      50.       913.2   881
          100.      915.9      200.       921.2      201.      930.    882
ENDTABLE                                                                883
REACH     25.1+     1.         50.        50.                          884
REACH2    24.99     0.67                                              885
REACH     25.9      1.         3000.      2950.                        886
SEGMENT   25.9      1          N          164.                         887
NVALUE    .125                                                          888
SEGMENT   25.9      2          C          195.                         889
NVALUE    .055                                                          890
SEGMENT   25.9      3          N          421.                         891
NVALUE    .125                                                          892
SECTION   25.9                                                         893
          -3.       946.       -2.        946.       -1.       946.    894
              0.00    937.10     47.00    924.70     80.00    924.90    895
            164.00    924.40    166.00    922.60    173.00    922.50    896
            180.00    922.60    187.00    921.90    194.00    922.10    897
            195.00    923.40    260.00    925.80    380.00    925.90    898
          420.      941.       421.       946.                         899
ENDTABLE                                                                900
```

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-----------------------------80/60 LIST OF INPUT DATA-----------------------------
REACH     25.99     1.        170.      105.                                  901
SEGMENT   25.99     1         N         260.                                  902+
NVALUE    .125                                                                903
SEGMENT   25.99     2         C         288.                                  904
NVALUE    .055                                                                905
SEGMENT   25.99     3         N         571.                                  906
NVALUE    .125                                                                907
SECTION   25.99                                                               908
          0.        942.      1.        935.      10.       934.              909
          20.       936.      45.       926.      240.      924.              910
          260.      923.48    267.      923.38    274.      921.72            911
          281.      922.76    288.      922.98    295.      924.              912
          310.      926.      360.      928.      440.      930.              913
          510.      932.      570.      934.      571.      942.              914
ENDTABLE                                                                      915
RCAC      26.0      2.7       50.       50.                                   916
BPR       26.0      B         3                                               917
GIRDER    935.      934.39    0.        .6        2.7                         918
          -12.51    941.      -12.5     926.15    -5.       933.36            919
          0.        934.36    5.        933.36    12.5      926.15            920
          12.51     941.2                                                     921
ENDTABLE                                                                      922
SECTION   26.0                                                                923
          -601.     954.      -600.     934.9     -500.     936.3             924
          -400.     937.1     -300.     938.1     -200.     939.2             925
          -100.     940.1     -12.51    941.      -12.5     926.15            926
          -12.5     921.      -6.       921.2     0.        922.5             927
          6.        923.5     12.5      924.7     12.5      926.15            928
          12.51     941.2     100.      942.      200.      943.1             929
          300.      944.2     400.      945.2     401.      955.              930
ENDTABLE                                                                      931
REACH     26.1      1.        50.       50.                                   932
SEGMENT   26.1      1         N         50.                                   933
NVALUE    .125                                                                934
SEGMENT   26.1      2         C         78.                                   935
NVALUE    .055                                                                936
SEGMENT   26.1      3         N         151.                                  937
NVALUE    .125                                                                938
SECTION   26.1                                                                939
          0.        950.      1.        934.      18.       932.              940
          30.       930.      32.       928.      40.       926.              941
          42.       924.      50.       923.74    57.       923.64            942
          64.       921.99    71.       923.04    76.       923.24            943
          80.       924.      90.       926.      92.       928.              944
          120.      936.      150.      942.      151.      950.              945
```

----------80/60 LIST OF INPUT DATA----------

```
ENDTABLE                                                                946
REACH       26.9        1.          990.        930.                    947
SEGMENT     26.9        1           N           38.                     948
NVALUE      .15                                                         949
SEGMENT     26.9        2           C           66.                     950
NVALUE      .055                                                        951
SEGMENT     26.9        3           N           136.                    952
NVALUE      .15                                                         953
SECTION     26.9                                                        954
            0.          955.        1.          942.        30.         928.    955
            59.         927.63      66.         927.83      68.         932.    957
            75.         934.        88.         936.        102.        938.    958
            122.        940.        135.        942.        136.        955.    959
ENDTABLE                                                                960
ROAC        27.0        2.7         50.         50.                     961
BPR         27.0        B           2                                   962
GIRDER      943.        942.48      0.          .6          2.55        963
            -11.76      943.7       -11.75      942.48      11.75       942.48  964
            11.76       943.7                                           965
ENDTABLE                                                                966
SECTION     27.0                                                        967
            -111.5      965.        -110.       951.2       -100.       948.5   968
            -50.        945.7       -11.76      943.7       -11.75      942.48  969
            -11.5       932.46      -9.5        932.46      -9.5        929.9   970
            -5.         930.        0.          929.7       6.          928.7   971
            11.5        928.5       11.75       942.48      11.76       943.7   972
            50.         944.4       100.        946.7       155.        950.3   973
            156.        965.                                            974
ENDTABLE                                                                975
REACH       27.1        1.          50.         50.
SEGMENT     27.1        1           N           75.                     977
NVALUE      .15                                                         978
SEGMENT     27.1        2           C           109.                    979
NVALUE      .055                                                        980
SEGMENT     27.1        3           N           146.                    981
NVALUE      .15                                                         982
SECTION     27.1                                                        983
            0.          960.        1.          944.        10.         942.    984
            12.         940.        30.         938.        46.         936.    985
            58.         934.        65.         932.        75.         931.2   986
            84.         931.        92.         930.7       100.        930.5   987
            109.        930.8       111.        932.        145.        944.    988
            146.        960.                                            989
ENDTABLE                                                                990
```

----------80/80 LIST OF INPUT DATA----------

```
COMPUTE    22.99      27.1       22.9                                    1278
```

----------END OF 80/80 LIST----------

COMPUTE	22.99	27.1	22.9		1278

----------STARTING DATA FROM PREVIOUS COMPUTATIONS----------

RATING TABLE FOR SECTION 22.99 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	867.00	0.0	0.0						
BANK FULL	870.2	71.9	272.2	0.00	0.00	0.00			
1	871.82	329.1	410.0	0.00	0.00	0.00	410.00	869.7	.00168
2	872.17	432.5	520.0	0.00	0.00	0.00	520.00	870.3	.00162
3	872.48	526.6	560.0	0.00	0.00	0.00	560.00	870.6	.00121
4	873.04	693.0	720.0	0.00	0.00	0.00	720.00	870.8	.00102

SEGMENT TABLE FOR SECTION 22.99

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	410.	84.	296.	30.
410.	VELOCITY FPS	2.24	.63	2.60	.37
2	DISCHARGE CFS	520.	121.	329.	71.
520.	VELOCITY FPS	2.21	.72	2.64	.50
3	DISCHARGE CFS	560.	139.	326.	96.
560.	VELOCITY FPS	1.92	.70	2.43	.50
4	DISCHARGE CFS	720.	191.	362.	168.
720.	VELOCITY FPS	1.80	.75	2.40	.58
1	ELEV 871.82 KD	9976.	2032.	7238.	706.
2	ELEV 872.17 KD	12605.	2906.	8365.	1414.
3	ELEV 872.48 KD	15967.	3944.	9465.	2558.
4	ELEV 873.04 KD	22449.	5932.	11505.	5012.

KD TABLE FOR CROSS SECTION 22.99

ELEVATION	AREA	KD	KD BY SEGMENT		
867.00	0.				
868.	11.	222.	1.	219.	1.
869.	32.	966.	1.	963.	1.
870.	60.	2541.	1.	2538.	1.
871.	154.	5354.	395.	4826.	22.
872.	383.	11454.	2454.	7813.	1019.
873.	681.	22075.	5777.	11352.	4611.
874.	961.	36442.	10126.	15436.	10847.
875.	1282.	53926.	15365.	19942.	18619.
876.	1582.	74040.	21333.	24926.	27781.
877.	1883.	96662.	28011.	30345.	38305.
878.	2184.	121819.	35347.	36183.	50089.
879.	2485.	148768.	43294.	42424.	63050.
880.	2786.	177900.	51786.	49052.	77063.
881.	3088.	209055.	60838.	56062.	92145.
882.	3389.	242126.	70413.	63445.	108268.
883.	3691.	277024.	80484.	71189.	125344.
884.	3992.	313818.	91073.	79295.	143455.
885.	4294.	352975.	102329.	87781.	162921.
886.	4596.	394500.	114255.	96643.	183759.
887.	4898.	438402.	126850.	105875.	205987.

TABLE OF VALUES FOR BFR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
.4965	.4965	0.0000	0.0000	0.0000	0.0000	.6957	1.0000	1.0000	112.2068	453.0163	354.0877
DCRIT	869.66	KBCRIT=									
.8146	.8146	0.0000	0.0000	0.0000	0.0000	.5886	1.0000	1.0000	124.2706	657.6923	456.4465
DCRIT	870.03	KBCRIT=									
1.0299	1.0299	0.0000	0.0000	0.0000	0.0000	.5260	1.0000	1.0000	134.6523	799.8593	544.5160
DCRIT	870.15	KBCRIT=									
1.3201	1.3201	0.0000	0.0000	0.0000	0.0000	.4497	1.0000	1.0000	143.2341	1072.6927	708.2736
DCRIT	870.52	KBCRIT=									

ROAD SECTION 23.0

NO.	HW	CFS	HL	TW	CSM
0	867.00	0.00	0.00	0.00	0.00
1	872.00	410.00	.10	871.90	410.00
2	872.49	520.00	.24	872.25	520.00
3	872.82	560.00	.28	872.54	560.00
4	873.75	720.00	.66	873.09	720.00

MIN ROAD ELEVATION 873.10

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 872.79 OPENING NO.= 1

RATING TABLE FOR SECTION 23.1 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	867.20	0.0	0.0						
BANK FULL	870.4	67.7	269.0	0.00	0.00	0.00			
1	872.08	391.1	410.0	0.00	0.00	0.00	410.00	869.9	.00182
2	872.54	568.3	520.0	0.00	0.00	0.00	520.00	870.5	.00138
3	872.87	724.5	560.0	0.00	0.00	0.00	560.00	870.8	.00100
4	873.78	1108.2	720.0	0.00	0.00	0.00	720.00	871.2	.00057

SEGMENT TABLE FOR SECTION 23.1

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	410.	42.	312.	56.
410.	VELOCITY FPS	2.41	.39	2.70	.33
2	DISCHARGE CFS	520.	74.	326.	121.
520.	VELOCITY FPS	2.68	.45	2.51	.41
3	DISCHARGE CFS	560.	89.	316.	153.
560.	VELOCITY FPS	1.76	.44	2.28	.40
4	DISCHARGE CFS	720.	137.	322.	261.
720.	VELOCITY FPS	1.34	.44	1.93	.42
1	ELEV 872.08 KO	9509.	928.	7418.	1163.
2	ELEV 872.54 KO	13632.	1841.	8968.	2824.
3	ELEV 872.87 KO	17656.	2774.	10120.	4762.
4	ELEV 873.78 KO	30228.	5725.	13625.	10878.

KD TABLE FOR CROSS SECTION 23.1

ELEVATION	AREA	KD	KD BY SEGMENT		
867.20	0.				
868.	8.	136.	1.	134.	1.
869.	27.	765.	1.	763.	1.
870.	54.	2168.	1.	2166.	1.
871.	110.	4417.	48.	4333.	5.
872.	359.	9000.	825.	7178.	997.
873.	781.	19281.	3121.	10605.	5451.
874.	1203.	33336.	6560.	14566.	12640.
875.	1626.	52049.	10943.	18993.	22074.
876.	2048.	73378.	16103.	23887.	33354.
877.	2471.	97664.	22007.	29222.	46414.
878.	2894.	124662.	28582.	34978.	61087.
879.	3317.	154209.	35782.	41140.	77277.
880.	3740.	186030.	43543.	47692.	94840.
881.	4164.	220347.	51881.	54629.	113825.
882.	4587.	256839.	60754.	61940.	134137.
883.	5011.	295467.	70132.	69614.	155717.
884.	5434.	336146.	79992.	77644.	178511.
885.	5858.	379584.	90546.	86054.	203031.
886.	6282.	425736.	101801.	94841.	229301.
887.	6706.	474798.	113761.	103999.	257340.

RATING TABLE FOR SECTION 23.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	877.70	0.0	0.0						
BANK FULL	879.5	23.6	190.3	0.00	0.00	0.00			
1	881.42	330.1	410.0	0.00	0.00	0.00	410.00	880.3	.00343
2	881.72	411.4	520.0	0.00	0.00	0.00	520.00	880.4	.00325
3	881.86	448.2	560.0	0.00	0.00	0.00	560.00	880.5	.00300
4	882.21	553.1	720.0	0.00	0.00	0.00	720.00	880.6	.00293

SEGMENT TABLE FOR SECTION 23.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	410.	54.	201.	155.
410.	VELOCITY FPS	2.31	.60	3.13	.88
2	DISCHARGE CFS	520.	84.	230.	206.
520.	VELOCITY FPS	2.31	.66	3.25	.97
3	DISCHARGE CFS	560.	95.	239.	225.
560.	VELOCITY FPS	2.24	.66	3.25	.98
4	DISCHARGE CFS	720.	149.	277.	294.
720.	VELOCITY FPS	2.28	.75	3.40	1.07
1	ELEV 881.42 KO	6371.	883.	3465.	2620.
2	ELEV 881.72 KO	9003.	1407.	4088.	3508.
3	ELEV 881.86 KO	10213.	1719.	4388.	4106.
4	ELEV 882.21 KO	13254.	2657.	5172.	5425.

KD TABLE FOR CROSS SECTION 23.9

ELEVATION	AREA	KD	KD BY SEGMENT		
877.70	0.				
878.	2.	17.	1.	14.	1.
879.	14.	321.	1.	319.	1.
880.	46.	1197.	2.	1159.	24.
881.	229.	4522.	360.	2667.	1425.
882.	489.	11333.	2058.	4692.	4612.
883.	807.	21911.	5720.	7137.	9003.
884.	1154.	35[illegible].	10475.	9986.	[illegible].
885.	1593.	53352.	18887.	13200.	21246.
886.	2066.	76076.	30384.	16759.	28808.
887.	2563.	102809.	45614.	20654.	37489.
888.	3075.	135689.	63734.	24867.	47054.
889.	3602.	171013.	84054.	29388.	57546.
890.	4145.	211549.	107209.	34204.	69099.
891.	4699.	255824.	134489.	39312.	82015.
892.	5254.	305287.	164659.	44697.	95916.
893.	5809.	358060.	197083.	50354.	110598.
894.	6364.	414190.	231823.	56279.	126063.
895.	6920.	474361.	269498.	62477.	142449.
896.	7475.	539147.	310655.	68952.	159862.
897.	8031.	608620.	355399.	75699.	178306.
898.	8586.	682851.	403833.	82716.	197784.

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	.9909	1.0000	1.0000	77.0622	84.4378	471.3412
DCRIT	880.39	KBCRIT=									
.0565	.0565	0.0000	0.0000	0.0000	0.0000	.9539	1.0000	1.0000	84.2226	110.9743	562.6676
DCRIT	880.76	KBCRIT=									
.0706	.0706	0.0000	0.0000	0.0000	0.0000	.9442	1.0000	1.0000	87.3249	121.7547	602.3642
DCRIT	880.88	KBCRIT=									
.1869	.1869	0.0000	0.0000	0.0000	0.0000	.8755	1.0000	1.0000	95.6718	176.9571	715.2511
DCRIT	881.35	KBCRIT=									

ROAD SECTION 24.0

NO.	HW	CFS	HL	TW	CSM
0	877.30	0.00	0.00	0.00	0.00
1	881.54	410.00	0.00	881.54	410.00
2	881.84	520.00	0.00	881.84	520.00
3	881.97	560.00	0.00	881.97	560.00
4	882.32	720.00	0.00	882.32	720.00

MIN ROAD ELEVATION 887.30

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 883.91 OPENING NO.= 1

RATING TABLE FOR SECTION +24.05 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	877.33	0.0	0.0						
BANK FULL	880.9	56.6	313.4	0.00	0.00	0.00			
1	882.04	123.1	410.0	0.00	0.00	0.00	410.00	880.6	.00660
2	882.42	165.7	520.0	0.00	0.00	0.00	520.00	881.5	.00669
3	882.56	212.6	560.0	0.00	0.00	0.00	560.00	881.6	.00655
4	882.99	298.1	720.0	0.00	0.00	0.00	720.00	881.9	.00659

SEGMENT TABLE FOR SECTION +24.05

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	410.	0.	388.	22.
410.	VELOCITY FPS	4.52	0.00	4.63	.55
2	DISCHARGE CFS	520.	0.	462.	57.
520.	VELOCITY FPS	4.75	.62	4.95	.63
3	DISCHARGE CFS	560.	0.	487.	73.
560.	VELOCITY FPS	4.76	.53	5.02	.63
4	DISCHARGE CFS	720.	1.	584.	135.
720.	VELOCITY FPS	4.54	.51	5.42	.72
1	ELEV 882.04 KD	5016.	2.	4788.	228.
2	ELEV 882.42 KD	6282.	4.	5707.	552.
3	ELEV 882.56 KD	6605.	5.	6073.	727.
4	ELEV 882.99 KD	8825.	11.	7239.	1575.

KD TABLE FOR CROSS SECTION +24.05

ELEVATION	AREA	KD	KD BY SEGMENT		
877.33	0.				
878.	4.	55.	1.	53.	1.
879.	18.	489.	1.	487.	1.
880.	36.	1364.	1.	1362.	1.
881.	59.	2689.	1.	2683.	2.
882.	120.	4939.	2.	4699.	200.
883.	301.	8943.	11.	7272.	1605.
884.	566.	16528.	69.	10288.	6082.
885.	843.	26783.	232.	13715.	12763.
886.	1141.	39547.	717.	17522.	21222.
887.	1460.	54831.	1688.	21696.	31375.
888.	1799.	72711.	3373.	26219.	43041.
889.	2148.	93157.	5879.	31078.	56135.
890.	2504.	116103.	9099.	36258.	70504.
891.	2863.	141271.	13015.	41757.	86443.
892.	3223.	166778.	17502.	47563.	103684.
893.	3582.	196255.	22465.	53666.	122115.
894.	3943.	229487.	27614.	60060.	141600.
895.	4303.	262412.	33534.	66733.	162114.
896.	4664.	297693.	39935.	73712.	184111.
897.	5025.	335302.	47126.	80998.	207709.
898.	5385.	375376.	55157.	88590.	232934.
899.	5746.	418955.	64078.	96495.	259811.

RATING TABLE FOR SECTION 24.1 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	877.50	0.0	0.0						
BANK FULL	881.1	56.6	303.8	0.00	0.00	0.00			
1	882.36	141.9	410.0	0.00	0.00	0.00	410.00	880.8	.00553
2	882.75	216.1	520.0	0.00	0.00	0.00	520.00	881.7	.00553
3	882.89	242.1	560.0	0.00	0.00	0.00	560.00	881.8	.00548
4	883.32	341.5	720.0	0.00	0.00	0.00	720.00	882.1	.00528

SEGMENT TABLE FOR SECTION 24.1

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	410.	0.	381.	29.
410.	VELOCITY FPS	4.22	0.00	4.35	.53
2	DISCHARGE CFS	520.	0.	451.	69.
520.	VELOCITY FPS	4.39	.48	4.63	.58
3	DISCHARGE CFS	561.	1.	477.	83.
560.	VELOCITY FPS	4.42	.45	4.73	.59
4	DISCHARGE CFS	720.	1.	550.	168.
720.	VELOCITY FPS	4.43	.53	4.92	.74
1	ELEV 882.36 KO	5490.	2.	5140.	347.
2	ELEV 882.75 KO	6876.	5.	6119.	752.
3	ELEV 882.89 KO	7463.	6.	6485.	972.
4	ELEV 883.32 KO	9760.	15.	7703.	2041.

KD TABLE FOR CROSS SECTION 24.1

ELEVATION	AREA	KD	KD BY SEGMENT		
877.50	0.				
878.	2.	27.	1.	25.	1.
879.	15.	383.	1.	381.	1.
880.	33.	1187.	1.	1185.	1.
881.	54.	2417.	1.	2415.	1.
882.	106.	4480.	1.	4321.	112.
883.	264.	8166.	8.	6798.	1199.
884.	521	15073.	57.	9750.	5227.
885.	794.	24363.	186.	13135.	11506.
886.	1089.	37187.	603.	16847.	19645.
887.	1405.	52051.	1482.	20960.	29531.
888.	1740.	69476.	3021.	25425.	40946.
889.	2089.	89498.	5395.	30226.	53803.
890.	2444.	111947.	8501.	35354.	68013.
891.	2802.	136841.	12328.	40802.	83667.
892.	3161.	164033.	16742.	46558.	100721.
893.	3521.	193105.	21585.	52609.	118896.
894.	3881.	223992.	26847.	58951.	138169.
895.	4242.	256603.	32521.	65576.	158532.
896.	4603.	291518.	38792.	72503.	180259.
897.	4963.	328834.	45845.	79736.	203583.
898.	5324.	368830.	53730.	87276.	228830.
899.	5685.	411363.	62496.	95121.	255124.

RATING TABLE FOR SECTION 24.5 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	888.20	0.0	0.0						
BANK FULL	890.7	38.5	235.4	0.00	0.00	0.00			
1	892.55	312.5	410.0	0.00	0.00	0.00	410.00	891.3	.00298
2	892.74	359.6	520.0	0.00	0.00	0.00	520.00	891.5	.00353
3	892.78	370.1	560.0	0.00	0.00	0.00	560.00	891.6	.00383
4	893.16	469.7	720.0	0.00	0.00	0.00	720.00	891.8	.00361

SEGMENT TABLE FOR SECTION 24.5

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	410.	20.	272.	119.
410.	VELOCITY FPS	2.66	.61	3.16	.61
2	DISCHARGE CFS	520.	28.	323.	169.
520.	VELOCITY FPS	2.91	.73	3.56	.73
3	DISCHARGE CFS	560.	30.	344.	186.
560.	VELOCITY FPS	3.04	.76	3.75	.78
4	DISCHARGE CFS	721.	45.	396.	278.
720.	VELOCITY FPS	3.01	.87	3.90	.88
1	ELEV 892.55 KD	7452.	344.	5039.	2069.
2	ELEV 892.74 KD	8671.	446.	5519.	2706.
3	ELEV 892.78 KD	8971.	472.	5630.	2869.
4	ELEV 893.16 KD	11944.	737.	6681.	4531.

KD TABLE FOR CROSS SECTION 24.5

ELEVATION	AREA	KD	KD BY SEGMENT		
888.20	0.				
889.	6.	113.	1.	111.	1.
890.	23.	653.	1.	651.	1.
891.	47.	1786.	5.	1779.	1.
892.	184.	4558.	127.	3704.	639.
893.	425.	10730.	631.	6230.	3870.
894.	701.	19930.	1483.	9235.	9184.
895.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
896.	1322.	46671.	4199.	16604.	25852.
897.	1671.	63936.	6064.	20907.	36949.
898.	2054.	82771.	8288.	25599.	48876.
899.	2461.	104428.	10882.	30664.	62673.
900.	2957.	128326.	12631.	36088.	79591.
901.	3496.	159488.	15865.	41855.	101716.
902.	4038.	197363.	20483.	47963.	128845.
903.	4588.	240356.	26034.	54401.	159876.
904.	5139.	286749.	32068.	61161.	193500.
905.	5691.	336380.	38551.	68233.	229596.
906.	6242.	390376.	45655.	75643.	269744.
907.	6794.	450712.	54027.	83387.	314132.
908.	7345.	515758.	63117.	91460.	362947.

RATING TABLE FOR SECTION 24.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	896.30	0.0	0.0						
BANK FULL	898.6	53.2	247.4	0.00	0.00	0.00			
1	900.11	221.7	410.0	0.00	0.00	0.00	410.00	898.7	.00333
2	900.47	295.9	520.0	0.00	0.00	0.00	520.00	899.4	.00306
3	900.61	330.[illegible]	560.0	0.00	0.00	0.00	560.00	899.4	.00286
4	900.79	373.9	720.0	0.00	0.00	0.00	720.00	899.6	.00363

SEGMENT TABLE FOR SECTION 24.9

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	410.	21.	324.	66.
410.	VELOCITY FPS	3.01	.63	3.29	.73
2	DISCHARGE CFS	520.	36.	373.	111.
520.	VELOCITY FPS	2.94	.69	3.42	.82
3	DISCHARGE CFS	560.	45.	382.	132.
560.	VELOCITY FPS	2.66	.71	3.37	.86
4	DISCHARGE CFS	720.	68.	464.	189.
720.	VELOCITY FPS	3.25	.87	3.90	1.07
1	ELEV 900.11 KD	7001.	309.	5687.	1005.
2	ELEV 900.47 KD	9366.	641.	6761.	1965.
3	ELEV 900.61 KD	10429.	809.	7214.	2406.
4	ELEV 900.79 KD	11861.	1055.	7795.	3015.

KD TABLE FOR CROSS SECTION 24.9

ELEVATION	AREA	KD	KD BY SEGMENT		
896.30	0.				
897.	11.	185.	1.	183.	1.
898.	36.	1116.	1.	1114.	1.
899.	71.	2878.	5.	2852.	10.
900.	198.	6471.	243.	5369.	804.
901.	424.	13814.	1411.	8485.	3861.
902.	695.	25069.	4003.	12146.	8892.
903.	1062.	39971.	8092.	16311.	15568.
904.	1345.	58268.	13916.	20557.	23353.
905.	1734.	80323.	22043.	26055.	32157.
906.	2156.	107920.	32808.	31590.	43460.
907.	2597.	140301.	46208.	37542.	56596.
908.	3052.	177902.	61737.	43899.	72306.
909.	3522.	218576.	78972.	50645.	88910.
910.	4010.	262047.	98001.	57774.	106236.
911.	4520.	309237.	118666.	65273.	125272.
912.	5050.	363012.	140726.	73136.	149135.
913.	5590.	423265.	163162.	81350.	178736.
914.	6133.	489305.	189182.	89907.	210164.
915.	6677.	559787.	217150.	98807.	243793.
916.	7221.	634167.	246664.	108042.	279453.
917.	7766.	711616.	277362.	117600.	316631.
918.	8310.	794194.	310160.	127493.	356647.
919.	8855.	881930.	345093.	137716.	399572.
920.	9399.	975051.	382198.	148264.	445475.

RATING TABLE FOR SECTION 24.99 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	904.66	0.0	0.0						
BANK FULL	906.2	30.8	157.2	0.00	0.00	0.00			
1	908.57	134.4	410.0	0.00	0.00	0.00	410.00	906.9	.00385
2	909.10	178.7	520.0	0.00	0.00	0.00	520.00	907.3	.00346
3	909.21	169.4	560.0	0.00	0.00	0.00	560.00	907.4	.00357
4	909.69	243.1	720.0	0.00	0.00	0.00	720.00	907.9	.00362

SEGMENT TABLE FOR SECTION 24.99

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	410.	17.	384.	9.
410.	VELOCITY FPS	3.57	.93	3.68	.78
2	DISCHARGE CFS	520.	35.	463.	21.
520.	VELOCITY FPS	3.64	1.06	3.62	.88
3	DISCHARGE CFS	560.	41.	493.	26.
560.	VELOCITY FPS	3.75	1.12	3.95	.93
4	DISCHARGE CFS	720.	69.	598.	53.
720.	VELOCITY FPS	3.97	1.24	4.28	1.12
1	ELEV 908.57 KD	6575.	241.	6211.	122.
2	ELEV 909.10 KD	8801.	566.	7906.	327.
3	ELEV 909.21 KD	9325.	654.	6278.	393.
4	ELEV 909.69 KD	11913.	1111.	9995.	807.

KD TABLE FOR CROSS SECTION 24.99

ELEVATION	AREA	KD	KD BY SEGMENT		
904.66	0.				
905.	2.	24.	1.	21.	1.
906.	26.	628.	1.	626.	1.
907.	57.	2215.	1.	2206.	7.
908.	99.	4682.	55.	4559.	49.
909.	169.	8376.	495.	7577.	275.
910.	283.	13900.	1458.	11169.	1199.
911.	[illegible]	21700.	3212.	15306.	3246.
912.	662.	33237.	6929.	19941.	6289.
913.	919.	49561.	13956.	25052.	10414.
914.	1168.	69494.	23191.	30623.	15591.
915.	1473.	92706.	34241.	36633.	21752.
916.	1772.	119552.	48074.	43065.	28356.
917.	2089.	148228.	63596.	49906.	34676.
918.	2430.	180933.	80848.	57146.	42886.
919.	2789.	221391.	99555.	64775.	57234.
920.	3149.	266038.	119578.	72777.	73606.
921.	3509.	313915.	141016.	81149.	91673.
922.	3869.	364922.	163750.	89882.	111213.
923.	4230.	419224.	187368.	98972.	132363.
924.	4590.	476078.	213022.	108405.	154613.
925.	4951.	537186.	240019.	118193.	179193.
926.	5312.	602634.	269392.	128332.	206214.
927.	5672.	672506.	299676.	138816.	235789.

TABLE OF VALUES FOR BPE EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
.4251	.4053	.0198	.9295	0.0000	0.0000	.7760	1.0000	1.0000	72.7320	106.0392	98.9860
DCRIT	908.14	KBCRIT=									
.4327	.4135	.0192	.9277	0.0000	0.0000	.7727	1.0000	1.0000	86.7127	137.5441	127.3297
DCRIT	908.50	KECRIT=									
.4289	.4099	.0190	.9285	0.0000	0.0000	.7742	1.0000	1.0000	96.0369	146.8711	135.1975
DCRIT	908.61	KBCRIT=									
.4793	.4612	.0181	.9173	0.0000	0.0000	.7541	1.0000	1.0000	104.3077	197.7976	172.4320
DCRIT	909.07	KBCRIT=									

ROAD SECTION 25.0

NO.	HW	CFS	HL	TW	CSH
0	905.50	0.00	0.00	0.00	0.00
1	908.97	410.00	.12	908.65	410.00
2	909.44	520.00	.12	909.32	520.00
3	909.56	560.00	.14	909.42	560.00
4	910.11	720.00	.24	909.87	720.00

MIN ROAD ELEVATION 911.10

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 911.65 OPENING NO.= 1

RATING TABLE FOR SECTION 25.1+ DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	905.33	0.0	0.0						
BANK FULL	906.8	30.8	156.7	0.00	0.00	0.00			
1	909.25	135.2	410.0	0.00	0.00	0.00	410.00	907.6	.00384
2	909.72	173.8	520.0	0.00	0.00	0.00	520.00	908.0	.00371
3	909.85	187.0	560.0	0.00	0.00	0.00	560.00	908.1	.00373
4	910.40	248.0	720.0	0.00	0.00	0.00	720.00	908.6	.00357

SEGMENT TABLE FOR SECTION 25.1*

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	410.	16.	386.	8.
410.	VELOCITY FPS	3.58	.86	3.66	.72
2	DISCHARGE CFS	520.	32.	470.	19.
520.	VELOCITY FPS	3.76	1.00	3.92	.83
3	DISCHARGE CFS	561.	38.	499.	24.
560.	VELOCITY FPS	3.83	1.05	4.02	.87
4	DISCHARGE CFS	720.	66.	602.	52.
720.	VELOCITY FPS	3.97	1.15	4.28	1.05
1	ELEV 909.25 KD	6590.	228.	6246.	116.
2	ELEV 909.72 KD	8508.	491.	7739.	278.
3	ELEV 909.85 KD	9133.	587.	8195.	350.
4	ELEV 910.40 KD	11991.	1066.	10137.	787.

KD TABLE FOR CROSS SECTION 25.1+

ELEVATION	AREA	KD	KD BY SEGMENT		
905.33	0.				
906.	7.	100.	1.	98.	1.
907.	36.	1164.	1.	1061.	2.
908.	69.	2921.	4.	2898.	15.
909.	117.	5709.	139.	5491.	68.
910.	201.	9887.	706.	8702.	446.
911.	328.	15907.	1776.	12480.	1629.
912.	511.	24575.	3857.	16779.	3819.
913.	745.	36987.	8236.	21575.	6977.
914.	1006.	53705.	15586.	26841.	11135.
915.	1261.	73436.	24570.	32559.	16229.
916.	1572.	96633.	35779.	38709.	22265.
917.	1873.	122573.	49150.	45278.	28089.
918.	2201.	150688.	64008.	52251.	34366.
919.	2549.	183995.	80421.	59626.	43836.
920.	2908.	223490.	98236.	67373.	57810.
921.	3268.	266641.	117373.	75502.	73750.
922.	3628.	312628.	137651.	83994.	90952.
923.	3988.	361337.	159036.	92842.	109364.
924.	4349.	413178.	181687.	102045.	129293.
925.	4709.	467775.	205569.	111596.	150623.
926.	5070.	526457.	231169.	121501.	174147.
927.	5431.	589202.	258520.	131754.	199970.
928.	5791.	656083.	287651.	142350.	228193.

RATING TABLE FOR SECTION 25.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	921.90	0.0	0.0						
BANK FULL	923.4	30.9	180.1	0.00	0.00	0.00			
1	925.32	229.7	410.0	0.00	0.00	0.00	410.00	924.2	.00400
2	925.61	298.8	520.0	0.00	0.00	0.00	520.00	924.5	.00387
3	925.71	328.1	560.0	0.00	0.00	0.00	560.00	924.6	.00379
4	926.03	415.8	720.0	0.00	0.00	0.00	720.00	924.9	.00390

SEGMENT TABLE FOR SECTION 25.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	410.	54.	297.	59.
410.	VELOCITY FPS	2.92	.73	3.31	.90
2	DISCHARGE CFS	520.	94.	345.	81.
520.	VELOCITY FPS	2.94	.86	3.50	.86
3	DISCHARGE CFS	561.	112.	360.	88.
560.	VELOCITY FPS	2.93	.92	3.53	.84
4	DISCHARGE CFS	720.	175.	429.	116.
720.	VELOCITY FPS	3.15	1.10	3.84	.80
1	ELEV 925.32 KD	6297.	623.	4767.	907.
2	ELEV 925.61 KD	8325.	1431.	5600.	1294.
3	ELEV 925.71 KD	9029.	1696.	5913.	1420.
4	ELEV 926.03 KD	11492.	2746.	6899.	1847.

KD TABLE FOR CROSS SECTION 25.9

ELEVATION	AREA	KD	KD BY SEGMENT		
921.90	0.				
922.	0.	5.	1.	4.	1.
923.	19.	370.	1.	367.	1.
924.	56.	1804.	1.	1758.	39.
925.	162.	4760.	187.	3932.	563.
926.	407.	11272.	2624.	6799.	1802.
927.	743.	23718.	6865.	10256.	6492.
928.	1091.	41165.	12663.	14253.	14159.
929.	1445.	62725.	19361.	18784.	24062.
930.	1816.	87972.	28307.	23785.	35870.
931.	2173.	116756.	37982.	29248.	49518.
932.	2546.	148318.	48849.	35154.	64910.
933.	2926.	184339.	60879.	41436.	81970.
934.	3313.	222921.	74052.	48230.	100635.
935.	3706.	264538.	88357.	55375.	120862.
936.	4116.	309265.	103771.	62933.	142578.
937.	4512.	357271.	120631.	70821.	165809.
938.	4922.	408423.	139187.	79107.	190519.
939.	5335.	463727.	159295.	87755.	216669.
940.	5751.	521436.	180416.	96759.	244257.
941.	6171.	582105.	202375.	106103.	273613.
942.	6591.	646005.	225318.	115802.	304877.
943.	7012.	713050.	249193.	125834.	338021.
944.	7433.	783304.	273821.	136192.	372255.
945.	7855.	853913.	299266.	146876.	407763.
946.	8276.	928232.	325680.	157887.	444668.
947.	8698.	1005602.	353207.	169224.	483208.
948.	9120.	1086017.	381849.	180885.	523386.
949.	9542.	1169470.	411600.	192865.	565205.

RATING TABLE FOR SECTION 25.99 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	921.72	0.0	0.0						
BANK FULL	923.0	9.3	127.0	0.00	0.00	0.00			
1	925.79	312.5	410.0	0.00	0.00	0.00	410.00	924.4	.00247
2	926.08	364.2	520.0	0.00	0.00	0.00	520.00	924.6	.00244
3	926.15	403.4	560.0	0.00	0.00	0.00	560.00	924.7	.00252
4	926.48	494.0	720.0	0.00	0.00	0.00	720.00	924.9	.00243

SEGMENT TABLE FOR SECTION 25.99

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	410.	152.	232.	26.
410.	VELOCITY FPS	2.27	.76	2.75	.92
2	DISCHARGE CFS	520.	220.	267.	32.
520.	VELOCITY FPS	2.21	.86	2.90	.92
3	DISCHARGE CFS	560.	245.	281.	34.
560.	VELOCITY FPS	2.25	.90	2.97	.92
4	DISCHARGE CFS	720.	350.	328.	42.
720.	VELOCITY FPS	2.27	1.02	3.16	.91
1	ELEV 925.79 KD	8204.	2971.	4712.	520.
2	ELEV 926.08 KD	10476.	4333.	5487.	658.
3	ELEV 926.15 KD	11105.	4732.	5683.	689.
4	ELEV 926.48 KD	14573.	7056.	6664.	853.

KD TABLE FOR CROSS SECTION 25.99

ELEVATION	AREA	KD	KD BY SEGMENT		
921.72	0.				
922.	0.	6.	1.	3.	1.
923.	10.	168.	1.	165.	1.
924.	46.	1107.	25.	1040.	33.
925.	155.	3883.	786.	2832.	211.
926.	364.	9671.	3937.	5262.	625.
927.	644.	20756.	11108.	8282.	1300.
928.	948.	38033.	21464.	14812.	2757.
929.	1290.	55254.	34252.	15828.	5159.
930.	1677.	78819.	49205.	20287.	9260.
931.	2101.	107155.	66394.	25186.	15504.
932.	2561.	140238.	85613.	30498.	24109.
933.	3058.	178494.	106777.	36210.	35431.
934.	3566.	221348.	128832.	42305.	50026.
935.	4137.	268440.	149935.	46779.	69681.
936.	4702.	323111.	174969.	55612.	92456.
937.	5271.	385153.	204648.	62796.	117616.
938.	5841.	452248.	236639.	70328.	145197.
939.	6411.	523630.	273376.	78196.	174979.
940.	6982.	599509.	305941.	86402.	207152.
941.	7552.	678818.	342933.	94923.	240914.
942.	8123.	763804.	382184.	103739.	278046.
943.	8693.	854563.	423712.	112996.	318695.
944.	9264.	951189.	467532.	122541.	363004.

TABLE OF VALUES FOR BPR [illegible]ATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
.3659	.3659	0.0000	0.0000	0.0000	0.0000	.7922	1.0000	1.0000	83.9559	165.2508	526.0689
DCRIT	924.51	KBCRIT=									
.3900	.3900	0.0000	0.0000	0.0000	0.0000	.7822	1.0000	1.0000	91.1914	182.5629	610.0879
DCRIT	924.88	KBCRIT=									
.3933	.3933	0.0000	0.0000	0.0000	0.0000	.7809	1.0000	1.0000	93.0442	186.7094	631.6024
DCRIT	925.01	KBCRIT=									
.4069	.4069	0.0000	0.0000	0.0000	0.0000	.7754	1.0000	1.0000	101.4246	206.8718	728.9136
DCRIT	925.47	KBCRIT=									

ROAD SECTION 26.0

NO.	HW	CFS	HL	TW	CSM
0	921.00	0.00	0.00	0.00	0.00
1	925.91	410.00	.04	925.87	410.00
2	926.22	520.00	.06	926.16	520.00
3	926.30	560.00	.06	926.24	560.00
4	926.65	720.00	.08	926.57	720.00

MIN ROAD ELEVATION 934.90

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 934.39 OPENING NO.= 1

RATING TABLE FOR SECTION 26.1 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	921.99	0.0	0.0						
BANK FULL	923.2	9.2	124.6	0.00	0.00	0.00			
1	926.10	121.9	410.0	0.00	0.00	0.00	410.00	924.6	.00572
2	926.43	138.7	520.0	0.00	0.00	0.00	520.00	925.0	.00643
3	926.51	143.2	560.0	0.00	0.00	0.00	560.00	925.1	.00683
4	926.89	163.4	720.0	0.00	0.00	0.00	720.00	925.5	.00781

SEGMENT TABLE FOR SECTION 26.1

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	410.	26.	366.	17.
410.	VELOCITY FPS	4.07	1.31	4.27	1.06
2	DISCHARGE CFS	520.	35.	460.	26.
520.	VELOCITY FPS	4.60	1.45	4.85	1.28
3	DISCHARGE CFS	560.	38.	494.	29.
560.	VELOCITY FPS	4.61	1.51	5.08	1.36
4	DISCHARGE CFS	720.	50.	626.	42.
720.	VELOCITY FPS	5.49	1.69	5.82	1.62
1	ELEV 926.10 KD	5422.	347.	4849.	225.
2	ELEV 926.43 KD	6401.	431.	5738.	313.
3	ELEV 926.51 KD	6775.	453.	5982.	339.
4	ELEV 926.89 KD	8145.	565.	7111.	469.

KD TABLE FOR CROSS SECTION 26.1

ELEVATION	AREA	KD	KD BY SEGMENT		
921.99	0.				
922.	0.	1.	1.	1.	1.
923.	6.	90.	1.	88.	1.
924.	29.	709.	3.	701.	5.
925.	70.	2472.	114.	2307.	50.
926.	117.	5104.	322.	4579.	201.
927.	169.	8555.	602.	7444.	507.
928.	227.	12797.	1037.	10830.	930.
929.	283.	17819.	1687.	14728.	1402.
930.	356.	23605.	2496.	19082.	2027.
931.	429.	29372.	3163.	23868.	2841.
932.	513.	37055.	4121.	29073.	3861.
933.	607.	45037.	5250.	34651.	5106.
934.	713.	54693.	6819.	40678.	6594.
935.	827.	64816.	9401.	47047.	8344.
936.	944.	76427.	12295.	53784.	10320.
937.	1066.	88283.	15464.	60680.	12516.
938.	1193.	102225.	19878.	68324.	15005.
939.	1325.	116519.	22511.	76108.	17886.
940.	1461.	131759.	26336.	84223.	21187.
941.	1604.	147945.	30329.	92661.	24930.
942.	1750.	165360.	34525.	101422.	29376.
943.	1899.	184208.	38902.	110500.	34797.
944.	2049.	204045.	43378.	119678.	40755.
945.	2199.	224697.	49014.	129562.	47082.
946.	2349.	246211.	52831.	139552.	53827.
947.	2500.	268259.	57709.	149925.	60695.
948.	2650.	291105.	62750.	160395.	67941.
949.	2801.	314624.	67909.	171252.	75453.
950.	2951.	339084.	73280.	182409.	83476.
951.	3102.	364487.	78866.	193863.	92026.
952.	3253.	390836.	84667.	205612.	101116.

RATING TABLE FOR SECTION 26.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	927.63	0.0	0.0						
BANK FULL	927.8	.9	22.9	0.00	0.00	0.00			
1	931.21	125.8	410.0	0.00	0.00	0.00	410.00	929.6	.00510
2	931.67	146.3	520.0	0.00	0.00	0.00	520.00	929.9	.00519
3	931.87	155.7	560.0	0.00	0.00	0.00	560.00	930.0	.00497
4	932.44	162.2	720.0	0.00	0.00	0.00	720.00	930.3	.00515

SEGMENT TABLE FOR SECTION 26.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	410.	44.	364.	2.
410.	VELOCITY FPS	3.93	1.26	4.14	.59
2	DISCHARGE CFS	520.	58.	460.	2.
520.	VELOCITY FPS	4.33	1.37	4.56	.65
3	DISCHARGE CFS	560.	63.	495.	3.
560.	VELOCITY FPS	4.39	1.39	4.64	.65
4	DISCHARGE CFS	720.	83.	633.	4.
720.	VELOCITY FPS	4.69	1.52	5.18	.67
1	ELEV 931.21 KD	5739.	620.	5097.	23.
2	ELEV 931.67 KD	7219.	800.	6387.	32.
3	ELEV 931.87 KD	7941.	890.	7014.	37.
4	ELEV 932.44 KD	10033.	1159.	8824.	50.

KD TABLE FOR CROSS SECTION 26.9

ELEVATION	AREA	KD	KD BY SEGMENT		
927.63	0.				
928.	3.	30.	2.	26.	2.
929.	34.	734.	64.	665.	5.
930.	74.	2524.	251.	2265.	7.
931.	117.	5101.	544.	4537.	19.
932.	162.	8392.	947.	7406.	39.
933.	211.	12352.	1467.	10804.	80.
934.	266	16333.	2109.	14702.	181.
935.	327.	22314.	2884.	19060.	365.
936.	398.	28376.	3797.	23869.	706.
937.	477.	35204.	4857.	29033.	1248.
938.	566.	42822.	6072.	34711.	2023.
939.	665.	51254.	7448.	40731.	3055.
940.	776.	60642.	8994.	47130.	4481.
941.	896.	71071.	10716.	53898.	6435.
942.	1025.	82530.	12626.	61024.	8873.
943.	1159.	95579.	14940.	68498.	12100.
944.	1293.	109482.	17384.	76314.	15740.
945.	1428.	124158.	19935.	84464.	19714.
946.	1562.	139617.	22601.	92944.	24057.
947.	1697.	155738.	25342.	101744.	28631.
948.	1832.	172515.	28164.	110858.	33465.
949.	1967.	189971.	31077.	120285.	38593.
950.	2102.	208067.	34070.	130018.	43977.
951.	2237.	226869.	37105.	140047.	49496.
952.	2373.	245922.	40229.	150375.	55336.
953.	2508.	265727.	43413.	160996.	61318.
954.	2644.	286135.	46644.	171902.	67475.
955.	2780.	306978.	49962.	183096.	73924.
956.	2916.	328620.	53385.	194581.	80725.
957.	3052.	350939.	56911.	206349.	87883.
958.	3187.	373992.	60539.	218399.	95404.

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
.8497	.8497	0.0000	0.0000	0.0000	0.0000	.5997	1.0000	1.0000	47.7937	192.6037	104.0666
DCRIT	931.63	KBCRIT=									
.8963	.8963	0.0000	0.0000	0.0000	0.0000	.5859	1.0000	1.0000	56.2363	239.7993	122.9599
DCRIT	932.03	KBCRIT=									
.9179	.9179	0.0000	0.0000	0.0000	0.0000	.5796	1.0000	1.0000	59.7456	259.1227	131.0454
DCRIT	932.19	KBCRIT=									
.9612	.9612	0.0000	0.0000	0.0000	0.0000	.5671	1.0000	1.0000	71.7807	323.2270	154.9828
DCRIT	932.74	KBCRIT=									

ROAD SECTION 27.0

NO.	HW	CFS	HL	TW	CSM
0	928.50	0.00	0.00	0.00	0.00
1	932.66	410.00	1.08	931.58	410.00
2	933.36	520.00	1.34	932.02	520.00
3	933.62	560.00	1.42	932.20	560.00
4	934.45	720.00	1.72	932.73	720.00

MIN ROAD ELEVATION 943.70

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 942.46 OPENING NO.= 1

RATING TABLE FOR SECTION 27.1 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	930.50	0.0	0.0						
BANK FULL	933.8	3.3	49.6	0.00	0.00	0.00			
1	932.98	94.1	410.0	0.00	0.00	0.00	410.00	932.4	.01327
2	933.58	126.4	520.0	0.00	0.00	0.00	520.00	932.6	.00919
3	933.79	138.9	560.0	0.00	0.00	0.00	560.00	932.7	.00820
4	934.54	163.6	720.0	0.00	0.00	0.00	720.00	933.0	.00626

SEGMENT TABLE FOR SECTION 27.1

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	410.	19.	386.	5.
410.	VELOCITY FPS	5.08	1.25	5.22	1.04
2	DISCHARGE CFS	520.	31.	481.	8.
520.	VELOCITY FPS	4.94	1.26	5.11	1.03
3	DISCHARGE CFS	560.	35.	515.	10.
560.	VELOCITY FPS	4.89	1.26	5.07	1.03
4	DISCHARGE CFS	720.	51.	652.	16.
720.	VELOCITY FPS	4.92	1.24	5.14	1.05
1	ELEV 932.98 KD	3558.	166.	3352.	40.
2	ELEV 933.58 KD	5424.	316.	5024.	84.
3	ELEV 933.79 KD	6182.	381.	5696.	105.
4	ELEV 934.54 KD	9097.	644.	8249.	204.

RATING TABLE FOR SECTION 27.1 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	930.50	0.0	0.0						
BANK FULL	930.8	3.3	49.6	0.00	0.00	0.00			
1	932.98	94.1	410.0	0.00	0.00	0.00	410.00	932.4	.01327
2	933.58	126.4	520.0	0.00	0.00	0.00	520.00	932.6	.00919
3	933.79	139.9	560.0	0.00	0.00	0.00	560.00	932.7	.00820
4	934.54	183.6	720.0	0.00	0.00	0.00	720.00	933.0	.00626

SEGMENT TABLE FOR SECTION 27.1

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	410.	19.	386.	5.
410.	VELOCITY FPS	5.08	1.25	5.22	1.04
2	DISCHARGE CFS	520.	31.	481.	8.
520.	VELOCITY FPS	4.94	1.26	5.11	1.03
3	DISCHARGE CFS	560.	35.	515.	10.
560.	VELOCITY FPS	4.89	1.26	5.07	1.03
4	DISCHARGE CFS	720.	51.	652.	15.
720.	VELOCITY FPS	4.92	1.24	5.14	1.05
1	ELEV 932.98 KD	3556.	166.	3352.	40.
2	ELEV 933.58 KD	5424.	316.	5024.	84.
3	ELEV 933.79 KD	6182.	381.	5696.	105.
4	ELEV 934.54 KD	9097.	644.	8249.	204.

KD TABLE FOR CROSS SECTION 27.1

ELEVATION	AREA	KD	KD BY SEGMENT		
930.50	0.				
931.	8.	93.	1.	89.	3.
932.	46.	1263.	21.	1232.	8.
933.	95.	3617.	170.	3404.	41.
934.	151.	6945.	449.	6367.	128.
935.	214.	11165.	851.	10025.	288.
936.	286.	16301.	1443.	14319.	537.
937.	365.	22332.	2234.	19203.	892.
938.	461.	29337.	3320.	24643.	1368.
939.	565.	37336.	4734.	30612.	1977.
940.	680.	46499.	6654.	37090.	2734.
941.	804.	56983.	9252.	44056.	3650.
942.	931.	68536.	12288.	51493.	4738.
943.	1065.	80952.	15469.	59386.	6010.
944.	1204.	94350.	19083.	67725.	7521.
945.	1348.	109287.	23415.	76496.	9368.
946.	1492.	125281.	28188.	85689.	11397.
947.	1636.	142089.	33245.	95293.	13536.
948.	1781.	159685.	38581.	105301.	15783.
949.	1925.	178087.	44221.	115708.	18149.
950.	2071.	197218.	50107.	126502.	20605.
951.	2215.	216997.	56188.	137677.	23123.
952.	2360.	237490.	62520.	149228.	25735.
953.	2505.	258666.	69086.	161150.	28423.
954.	2651.	280408.	75803.	173432.	31167.
955.	2798.	302809.	82745.	186075.	33984.
956.	2941.	325838.	89832.	199072.	36872.
957.	3086.	349377.	97166.	212416.	39792.
958.	3232.	373545.	104652.	226106.	42786.
959.	3378.	398243.	112284.	240134.	45823.
960.	3524.	423639.	120161.	254505.	48960.
961.	3670.	449725.	128342.	269213.	52197.
962.	3815.	476499.	136767.	284255.	55533.

```
-----------------------------80/80 LIST OF INPUT DATA-----------------------------
NK                                                                          1278A
ANGE     DISCHARGE                                                        99  1230
SCHARGE  -1.        390.       500.       540.       720.                     1281
ND                                                                           1282
ACH      27.9+      1.         90.        89.                             991
ACH2     27.1       0.25                                                   992
DAD      28.0       2.7        50.        49.                             993
PR       28.0       B          2                                          994
RDER     943.5      942.78     15.        .6         2.7                  995
         -12.51     952.33     -12.5      934.58     -5.        941.78    996
         0.         942.78     5.         941.78     12.5       934.58    997
         12.51      952.1                                                 998
NOTABLE                                                                   999
CTION    28.0                                                             1000
         -601.      964.       -600.      955.5      -500.      955.4     1001
         -400.      955.1      -300.      954.7      -200.      954.1     1002
         -100.      953.1      -12.51     952.33     -12.5      934.58    1003
         -12.5      931.4      -6.        931.       0.         930.7     1004
         6.         929.7      12.49      929.2      12.5       934.58    1005
         12.51      952.1      100.       951.2      210.       950.1     1006
         211.       964.                                                  1007
NOTABLE                                                                   1008
EACH     +23.05     1.         50.        50.                             1009
EACH2    28.1       -0.91                                                 1010
EACH     28.1       1.         160.       125.                            1011
EGMENT   28.1       1          N          100.                            1012
VALUE    .135                                                             1013
EGMENT   28.1       2          C          146.                            1014
VALUE    .06                                                              1015
EGMENT   28.1       3          N          189.                            1016
VALUE    .135                                                             1017
ECTION   28.1                                                             1018
         -3.        952.       -2.        952.       -1.        952.      1019
              0.00     946.90     25.00     943.40     64.00     939.00    1020
            100.00     937.00    108.00     931.90    117.00     931.70    1021
            125.00     931.40    133.00     931.20    142.00     931.50    1022
         146.       935.       188.       946.9      189.       952.      1023
NOTABLE                                                                   1024
EACH     28.4+      1.         280.       200.  ← FP Dis                  1025
EACH2    28.1       1.8                                                   1026
EACH     28.5       1.         50.        40.                             1027
EGMENT   28.5       1          N          221.                            1028
VALUE    .135                                                             1029
EGMENT   28.5       2          C          242.                            1030
VALUE    .06                                                              1031
```

Chan

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-----------------------------80/80 LIST OF INPUT DATA-----------------------------
EGMENT   28.5      3         N         331.                                  1032
VALUE    .135.                                                               1033
ECTION   28.5                                                                1034
         -3.       963.      -2.       963.      -1.       963.              1035
              0.00     954.10     70.00     950.30    130.00    954.10    1036
            173.00     952.80    184.00     952.10    221.00    947.00    1037
            222.00     935.10    226.00     935.20    230.00    934.30    1038
            234.00     935.10    238.00     937.30    242.00    940.90    1039
            251.00     941.30    259.00     946.80    282.00    952.80    1040
         330.      957.1     331.      963.                                  1041
NOTABLE                                                                      1042
EACH     28.7      1.        670.      574.                                  1043
EGMENT   28.7      1         N         246.                                  1044
VALUE    .14                                                                 1045
EGMENT   28.7      2         C         293.                                  1046
VALUE    .055                                                                1047
EGMENT   28.7      3         N         469.                                  1048
VALUE    .1                                                                  1049
ECTION   28.7                                                                1050
         -3.       961.      -2.       961.      -1.       961.              1051
              0.00     954.50     21.00     950.70     58.00    949.50    1052
            158.00     946.50    242.00     945.50    246.00    939.50    1053
            252.00     938.90    258.00     938.80    264.00    939.10    1054
            270.00     939.80    272.00     941.00    279.00    941.30    1055
            293.00     945.10    358.00     945.90    448.00    950.30    1056
         468.      955.      469.      961.                                  1057
NOTABLE                                                                      1058
EACH     28.9      1.        1480.     1340.                                 1059
EGMENT   28.9      1         N         -13.                                  1060
VALUE    .1                                                                  1061
EGMENT   28.9      2         C         14.                                   1062
VALUE    .055                                                                1063
EGMENT   28.9      3         N         217.                                  1064
VALUE    .1                                                                  1065
ECTION   28.9                                                                1066
         -107.     971.      -106.     961.9     -100.     960.1             1067
         -60.      954.6     -13.      951.9     -12.      949.9             1068
         -6.       949.3     0.        950.1     6.        949.8             1069
         12.       950.4     14.       952.5     100.      952.6             1070
         190.      955.1     215.      966.      217.      971.              1071
NOTABLE                                                                      1072
EACH     +28.99    1.        2930.     2200.                                 1073
EACH2    28.9      5.7                                                       1074
EACH     29.05     1.        100.      101.                                  1075
EGMENT   29.05     1         N         -12.                                  1076
```

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-----------------------------80/80 LIST OF INPUT DATA-----------------------------
VALUE    .1                                                                  1078
EGMENT   29.05    2        C        8.                                      1079
VALUE    .055                                                                1080
EGMENT   29.05    3        N        87.                                     1081
VALUE    .1                                                                  1082
ECTION   29.05                                                               1083
         -119.    974.     -118.    967.9    -100.    966.6                  1084
         -50.     962.7    -25.     961.4    -12.     960.6                  1085
         -9.      959.3    -5.      957.1    -3.      956.1                  1086
         0.       955.4    3.       955.1    6.       955.5                  1087
         7.       956.7    8.       959.8    50.      959.7                  1088
         62.      960.     86.      964.     87.      974.                   1089
NOTABLE                                                                      1090
OAD      29.1     2.7      50.      49.                                      1091
PR       29.1     A        3                                                 1092
IRDER    960.     959.3    25.      .6       2.7                             1093
         -9.      960.8    -9.      959.3    8.       959.3                  1094
         8.       960.8                                                      1095
NOTABLE                                                                      1096
ECTION   29.1                                                                1097
         -118.    974.     -118.    967.9    -100.    966.6                  1098
         -50.     962.7    -25.     961.4    -12.     960.6                  1099
         -9.      960.8    -5.      957.1    -3.      956.1                  1100
         0.       955.4    3.       955.1    6.       955.5                  1101
         7.       956.7    8.       960.8    50.      959.7                  1102
         62.      960.     86.      964.     86.      974.                   1103
NOTABLE                                                                      1104
EACH     +29.11   1.       50.      49.                                      1105
EACH2    29.05    0.2                                                       1106
EACH     29.9+    1.       1500.    1030.                                    1107
EACH2    30.1     -0.1                                                      1108
OAD      30.0     2.7      50.      49.                                      1109
PR       30.0     B        3                                                 1110
IRDER    972.     971.     0.       .6       2.7                             1111
         -10.     1006.    -10.     966.5    -5.      969.8                  1112
         0.       971.     5.       969.8    10.      966.5                  1113
         10.      1006.                                                      1114
NOTABLE                                                                      1115
ECTION   30.0                                                                1116
         -200.    1015.    -200.    1005.6   -100.    1005.9                 1117
         -10.     1006.    -10.     962.8    -5.      961.5                  1118
         0.       960.     5.       959.5    10.      960.2                  1119
         10.      1006.    100.     1006.5   121.     1006.7                 1120
         122.     1020.                                                      1121
NOTABLE                                                                      1122
```

```
----------------------------80/80 LIST OF INPUT DATA-----------------------------
P2                                                                          001
TLE     PAINT CREEK FLOOD HAZARD ANALYSES, OAKLAND CO. MICHIGAN      1A
TLE     10, 50, 100, AND 500 YEAR DISCHARGES FROM TR20 FLOOD ROUTING   2A
SCHARGE   -1.      390.      500.      540.      720.
ARTE    27.1      932.98     933.58    933.79    934.54
UTPUT   SK                                                                 6A
ACH     27.1      1.        0.        0.                                 976
GMENT   27.1      1         N         75.                                977
VALUE   .15                                                              978
GMENT   27.1      2         C         109.                               979
VALUE   .055                                                             980
GMENT   27.1      3         N         146.                               981
VALUE   .15                                                              982
CTION   27.1                                                             983
        0.        960.      1.        944.      10.       942.           984
        12.       940.      30.       938.      46.       936.           985
        59.       934.      65.       932.      75.       931.2          986
        84.       931.      92.       930.7     100.      930.5          987
        109.      930.8     111.      932.      145.      944.           988
        146.      960.                                                   989
NDTABLE                                                                  990
ACH     27.9+     1.        90.       89.                                991
ACH2    27.1      0.25                                                   992
AD      28.0      2.7       50.       49.                                993
R       28.0      8         2                                            994
TRDER   943.5     942.78    15.       .6        2.7                      995
        -12.51    952.33    -12.5     934.58    -5.       941.78         996
        0.        942.78    5.        941.78    12.5      934.58         997
        12.51     952.1                                                  998
NDTABLE                                                                  999
ECTION  28.0                                                             1000
        -601.     964.      -600.     955.5     -500.     955.4          1001
        -400.     955.1     -300.     954.7     -200.     954.1          1002
        -100.     953.1     -12.51    952.33    -12.5     934.58         1003
        -12.5     931.4     -6.       931.      0.        930.7          1004
        6.        929.7     12.49     929.2     12.5      934.58         1005
        12.51     952.1     100.      951.2     210.      950.1          1006
        211.      964.                                                   1007
NDTABLE                                                                  1008
ACH     +28.05    1.        50.       50.                                1009
EACH2   28.1      -0.91                                                  1010
EACH    28.1      1.        160.      125.                               1011
EGMENT  28.1      1         N         100.                               1012
VALUE   .135                                                             1013
EGMENT  28.1      2         C         146.                               1014
```

```
-----------------------------80/80 LIST OF INPUT DATA-------------------------------
VALUE    .06                                                                  1015
EGMENT   28.1      3         N         189.                                  1016
VALUE    .135                                                                 1017
 CTION   28.1                                                                 1018
         -3.       952.      -2.       952.      -1.       952.              1019
              0.00     946.90     25.00     943.40     64.00     939.00    1020
            100.00     937.00    108.00     931.90    117.00     931.70    1021
            125.00     931.40    133.00     931.20    142.00     931.50    1022
         146.      935.      183.      946.9     189.      952.              1023
NOTABLE                                                                      1024
EACH     28.4+     1.        280.      200.                                  1025
EACH2    28.1      1.8                                                       1026
EACH     28.5      1.        50.       40.                                   1027
EGMENT   28.5      1         N         221.                                  1028
VALUE    .135                                                                 1029
EGMENT   28.5      2         C         242.                                  1030
VALUE    .06                                                                  1031
EGMENT   28.5      3         N         331.                                  1032
VALUE    .135                                                                 1033
ECTION   28.5                                                                 1034
         -3.       963.      -2.       963.      -1.       963.              1035
              0.00     954.10     70.00     950.30    130.00     954.10    1036
            173.00     952.80    184.00     952.10    221.00     947.00    1037
            222.00     935.10    226.00     935.20    230.00     934.30    1038
            234.00     935.10    238.00     937.30    242.00     940.90    1039
            251.00     941.30    259.00     946.80    282.00     952.80    1040
         330.      957.1     331.      963.                                  1041
NOTABLE                                                                      1042
 ACH     28.7      1.        570.      574.                                  1043
EGMENT   28.7      1         N         246.                                  1044
VALUE    .14                                                                  1045
EGMENT   28.7      2         C         293.                                  1046
VALUE    .055                                                                 1047
EGMENT   28.7      3         N         469.                                  1048
VALUE    .1                                                                   1049
ECTION   28.7                                                                 1050
         -3.       961.      -2.       961.      -1.       961.              1051
              0.00     954.50     21.00     950.70     58.00     949.50    1052
            158.00     946.50    242.00     945.50    246.00     939.50    1053
            252.00     938.90    258.00     938.80    264.00     939.10    1054
            270.00     939.80    272.00     941.00    279.00     941.30    1055
            293.00     945.10    353.00     945.90    448.00     950.30    1056
         469.      955.      469.      961.                                  1057
NOTABLE                                                                      1058
EACH     28.9      1.        1480.     1340.                                 1059
```

----------80/80 LIST OF INPUT DATA----------

```
GMENT   28.9     1        N        -13.                          1060
VALUE   .1                                                      1061
GMENT   28.9     2        C        14.                           1062
VALUE   .055                                                    1063
GMENT   28.9     3        N        217.                          1064
VALUE   .1                                                      1065
CTION   28.9                                                    1066
        -107.    971.     -106.    950.9    -100.    960.1       1067
        -60.     954.6    -13.     951.9    -12.     949.9       1068
        -6.      949.3    0.       950.1    6.       949.8       1069
        12.      950.4    14.      952.5    100.     952.6       1070
        190.     955.1    216.     966.     217.     971.        1071
NOTABLE                                                         1072
ACH     +28.99   1.       2930.    2200.                         1073
ACH2    28.9     5.7                                            1074
ACH     29.05    1.       100.     100.                          1075
GMENT   29.05    1        N        -12.                          1076
VALUE   .1                                                      1078
GMENT   29.05    2        C        8.                            1079
VALUE   .055                                                    1080
GMENT   29.05    3        N        87.                           1081
VALUE   .1                                                      1082
CTION   29.05                                                   1083
        -119.    974.     -116.    967.9    -100.    966.6       1084
        -50.     962.7    -25.     961.4    -12.     960.6       1085
        -9.      959.3    -5.      957.1    -3.      956.1       1086
        0.       955.4    3.       955.1    6.       955.5       1087
        7.       956.7    8.       959.8    50.      959.7       1088
        62.      960.     86.      964.     87.      974.        1089
NOTABLE                                                         1090
OAD     29.1     2.7      50.      49.                           1091
R       29.1     A        3                                      1092
RDER    960.     959.3    25.      .6       2.7                  1093
        -9.      960.8    -9.      959.3    8.       959.3       1094
        8.       960.8                                          1095
NOTABLE                                                         1096
CTION   29.1                                                    1097
        -118.    974.     -118.    967.9    -100.    966.6       1098
        -50.     962.7    -25.     961.4    -12.     960.6       1099
        -9.      960.8    -5.      957.1    -3.      956.1       1100
        0.       955.4    3.       955.1    6.       955.5       1101
        7.       956.7    8.       960.8    50.      959.7       1102
        62.      960.     86.      964.     86.      974.        1103
NOTABLE                                                         1104
ACH     +29.11   1.       50.      49.                           1105
```

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-----------------------------30/80 LIST OF INPUT DATA-------------------------------
EACH2    29.05    0.2                                                    1106
EACH     29.9+    1.       1500.    1030.                                1107
EACH2    30.1     -0.1                                                   1108
OAD      30.0     2.7      50.      49.                                  1109
PR       30.0     B        3                                             1110
IRDER    972.     971.     0.       .6       2.7                         1111
         -10.     1006.    -10.     966.5    -5.      969.8              1112
         0.       971.     5.       959.9    10.      966.5              1113
         10.      1006.                                                  1114
NOTABLE                                                                  1115
ECTION   30.0                                                            1116
         -200.    1015.    -200.    1005.6   -100.    1005.9             1117
         -10.     1006.    -10.     962.9    -5.      961.5              1118
         0.       960.     5.       959.6    10.      960.2              1119
         10.      1006.    100.     1006.5   121.     1006.7             1120
         122.     1020.                                                  1121
NOTABLE                                                                  1122
---------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 30.0   EXCEEDS  20. FEET-------------
EACH     30.1     1.       90.      90.                                  1123
EGMENT   30.1     1        N        39.                                  1124
VALUE    .135                                                            1125
EGMENT   30.1     2        C        71.                                  1126
VALUE    .055                                                            1127
EGMENT   30.1     3        N        356.                                 1128
VALUE    .1                                                              1129
ECTION   30.1                                                            1130
         -3.      981.     -2.      981.     -1.      981.               1131
              0.00    975.90    21.00    969.80    37.00    963.50    1132
             39.00    962.40    47.00    959.60    55.00    959.50    1133
             63.00    960.60    71.00    962.30    75.00    963.40    1134
            115.00    964.60   155.00    967.00   255.00    971.60    1135
         355.     974.4    355.     981.                                 1136
NOTABLE                                                                  1137
EACH     30.9     1.       2440.    1890.                                1138
EGMENT   30.9     1        N        123.                                 1139
VALUE    .125                                                            1140
EGMENT   30.9     2        C        150.                                 1141
VALUE    .055                                                            1142
EGMENT   30.9     3        N        241.                                 1143
VALUE    .125                                                            1144
ECTION   30.9                                                            1145
         -3.      988.     -2.      988.     -1.      988.               1146
              0.00    983.00    33.00    970.90    37.00    968.60    1147
             50.00    967.40    80.00    966.80   100.00    966.90    1148
            123.00    965.70   127.00    964.60   133.00    965.30    1149
            141.00    964.30   150.00    966.40   165.00    967.90    1150
```

----------80/60 LIST OF INPUT DATA----------

```
          130.00    976.2)    200.00    980.00    240.00    981.30   1151
     241.          988.                                             1152
NOTABLE                                                             1153
 ACH      +30.99    1.        125.      121.                        1154
 ACH2     30.9      0.1                                           1155
 AD       31.0      2.7       50.       50.                         1156
 LV1      31.0      1         12211                                 1157
 LV2      9.        16.       54.       964.      963.89            1158
 CTION    31.0                                                    1159
          -301.     990.      -300.     983.7     -200.     975.    1160
          -100.     972.2     -50.      972.9     0.        974.8   1161
          50.       975.7     100.      977.5     200.      981.5   1162
          201.      990.                                          1163
NOTABLE                                                          1164
 ACH      31.9      1.        55.       55.                         1165
 GMENT    31.9      1         N         279.                        1166
 ALUE     .125                                                    1167
 GMENT    31.9      2         0         303.                        1168
 ALUE     .055                                                    1169
 GMENT    31.9      3         N         424.                        1170
 ALUE     .125                                                    1171
 CTION    31.9                                                    1172
          -3.       986.      -2.       986.      -1.       986.  1173
            0.00    980.00      65.00   971.80    185.00    969.80  1174
          235.00    969.70    259.00    968.50    261.00    967.80  1175
          267.00    966.80    273.00    966.80    279.00    965.70  1176
          285.00    964.50    291.00    964.20    297.00    964.40  1177
          333.00    965.80    309.00    968.20    313.00    968.30  1178
          335.00    965.50    365.00    968.20    383.00    968.30  1179
          399.00    975.60    413.00    975.80    423.00    980.70  1180
     424.          986.                                             1181
NOTABLE                                                          1182
 ACH      +31.99    1.        1250.     1200.                       1183
 ACH2     31.9      1.4                                           1184
 AD       32.0      2.7       50.       42.                         1185
 R        32.0      8         1         7                           1186
 ER       966.4     1.                                            1187
 RDER     972.8     972.3     0.        .6        2.7               1188
          -9.5      973.1     -9.5      972.3     9.5       972.3   1189
          9.5       973.1                                         1190
NOTABLE                                                          1191
 CTION    32.0                                                    1192
          -254.     999.      -253.     979.7     -200.     977.1   1193
          -100.     973.      -50.      972.9     -9.5      973.1   1194
          -9.5      966.2     -5.       965.8     0.        966.4   1195
```

----------80/80 LIST OF INPUT DATA----------

	5.	966.	9.5	966.6	9.5	973.1	1196
	50.	972.7	100.	973.5	150.	974.2	1197
	200.	976.6	240.	979.7	241.	999.	1198
NOTABLE							1199
ACH	32.1+	1.	51.	46.			1200
ACH2	31.9	1.6					1201
ACH	33.0	1.	1150.	855.			1202
GMENT	33.0	1	N	-19.			1203
ALUE	.1						1204
GMENT	33.0	2	C	19.			1205
ALUE	.055						1206
GMENT	33.0	3	N	401.			1207
ALUE	.1						1208
CTION	33.0						1209
	-322.	988.	-321.	980.6	-300.	978.7	1210
	-200.	974.4	-100.	971.4	-50.	971.7	1211
	-19.	970.	-13.3	967.3	-7.	965.9	1212
	0.	966.3	7.	966.1	13.25	968.	1213
	19.	970.2	50.	971.5	100.	972.4	1214
	200.	974.	300.	978.	400.	982.6	1215
	401.	988.					1216
NOTABLE							1217
ACH	34.0	1.	1090.	908.			1220
GMENT	34.0	1	N	-15.			1221
ALUE	.09						1222
GMENT	34.0	2	C	15.			1223
ALUE	.055						1224
GMENT	34.0	3	N	156.			1225
ALUE	.09						1226
CTION	34.0						1227
	-401.	988.	-400.	981.4	-300.	978.5	1228
	-200.	976.1	-100.	973.7	-50.	973.4	1229
	-15.	971.4	-8.	968.1	0.	968.6	1230
	0.	969.7	15.	971.9	50.	972.1	1231
	100.	972.7	136.	974.1	155.	983.2	1232
	156.	988.					1233
NOTABLE							1234
CACH	34.9+	1.	120.	115.			1235
CACH2	35.9	0.5					1236
OAD	35.0	2.7	50.	49.			1237
ER	35.0	8	1				1238
IRDER	977.	976.5	0.	.6	2.55		1239
	-6.	983.7	-6.	976.5	6.	976.5	1240
	6.	983.7					1241
NOTABLE							1242

```
----------------------------80/80 LIST OF INPUT DATA-----------------------------
ECTION   35.0                                                                1243
         -600.     995.      -600.     987.6     -500.     987.2            1244
         -400.     986.9     -300.     986.5     -200.     985.4            1245
         -100.     984.2     -6.       983.7     -6.       968.4            1246
         0.        968.9     6.        969.3     6.        983.7            1247
         100.      983.4     200.      983.9     300.      985.5            1248
         400.      986.6     500.      986.4     600.      985.8            1249
         601.      995.                                                     1250
NOTABLE                                                                     1251
EACH     35.1+     1.        50.       50.                                  1252
EACH2    35.9      0.8                                                      1253
EACH     35.9      1.        115.      115.                                 1254
EGMENT   35.9      1         N         60.                                  1255
VALUE    .1                                                                 1256
EGMENT   35.9      2         C         140.                                 1257
VALUE    .05                                                                1258
EGMENT   35.9      3         N         186.                                 1259
VALUE    .1                                                                 1260
ECTION   35.9                                                                1261
         -3.       987.      -2.       987.      -1.       987.             1262
              0.00     981.80     43.00     980.80     56.00     973.30     1263
             60.00     971.20     70.00     969.60     80.00     968.80     1264
             90.00     968.60    100.00     967.60    110.00     967.80     1265
            120.00     968.00    130.00     968.30    140.00     971.60     1266
            147.00     977.10    153.00     979.80    185.00     980.70     1267
         185.      987.                                                     1268
NOTABLE                                                                     1269
OMPUTE   27.1       35.9       27.1                                         1283
----------------------------END OF 80/80 LIST-----------------------------
```

COMPUTE 27.1 35.9 27.1 1283

----------STARTING DATA FROM GIVEN ELEVATION----------

RATING TABLE FOR SECTION 27.1 OA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	930.50	0.0	0.0						
BANK FULL	930.8	3.3	47.2	0.00	0.00	0.00			
1	932.98	94.1	390.0	0.00	0.00	0.00	390.00	932.3	.01200
2	933.58	125.5	500.0	0.00	0.00	0.00	500.00	932.5	.00846
3	933.79	138.6	540.0	0.11	0.03	0.00	540.00	932.6	.00766
4	934.54	153.8	720.0	0.11	0.00	0.00	720.00	933.0	.00624

SEGMENT TABLE FOR SECTION 27.1

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	390.	18.	367.	5.
390.	VELOCITY FPS	4.84	1.19	4.96	.99
2	DISCHARGE CFS	500.	29.	463.	8.
500.	VELOCITY FPS	4.74	1.21	4.90	.99
3	DISCHARGE CFS	540.	34.	497.	9.
540.	VELOCITY FPS	4.73	1.21	4.90	.99
4	DISCHARGE CFS	720.	51.	652.	16.
720.	VELOCITY FPS	4.91	1.24	5.14	1.05
1	ELEV 932.98 KO	3559.	166.	3353.	40.
2	ELEV 933.58 KO	5435.	317.	5034.	84.
3	ELEV 933.79 KO	6166.	379.	5683.	105.
4	ELEV 934.54 KO	9110.	646.	8260.	204.

KD TABLE FOR CROSS SECTION 27.1

ELEVATION	AREA	KD	KD BY SEGMENT		
930.50	0.				
931.	8.	93.	1.	89.	3.
932.	46.	1263.	21.	1232.	8.
933.	95.	3617.	170.	3404.	41.
934.	151.	6945.	449.	6367.	128.
935.	214.	11165.	851.	10025.	288.
936.	286.	16301.	1443.	14319.	537.
937.	368.	22332.	2234.	19203.	892.
938.	461.	29337.	3320.	24643.	1368.
939.	565.	37336.	4734.	30612.	1977.
940.	680.	46499.	6654.	37190.	2734.
941.	804.	56983.	9252.	44056.	3651.
942.	931.	68536.	12286.	51493.	4736.
943.	1065.	80902.	15489.	59386.	6010.
944.	1204.	94350.	19183.	67725.	7521.
945.	1348.	109287.	23415.	76496.	9363.
946.	1498.	125261.	28168.	85685.	11397.
947.	1636.	142189.	33245.	95293.	13536.
948.	1781.	159685.	38581.	105301.	15783.
949.	1925.	178187.	44231.	115708.	18149.
950.	2070.	197213.	50107.	126502.	20605.
951.	2215.	216397.	56188.	137677.	23123.
952.	2360.	237490.	62526.	149228.	25735.
953.	2505.	259666.	69086.	161150.	28429.
954.	2650.	283048.	75893.	173432.	31167.
955.	2795.	308209.	82745.	186075.	33984.
956.	2941.	325338.	89852.	199072.	36872.
957.	3086.	349377.	97166.	212416.	39792.
958.	3232.	373545.	104652.	226106.	42786.
959.	3378.	398243.	112284.	240134.	45823.
960.	3524.	423633.	120101.	254515.	48960.
961.	3670.	449725.	128242.	269213.	52197.
962.	3815.	476439.	136767.	284255.	55533.

RATING TABLE FOR SECTION 27.9+ DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	930.75	0.0	0.0						
BANK FULL	931.1	3.3	40.3	0.00	0.00	0.00			
1	933.65	115.8	390.0	0.00	0.00	0.00	390.00	932.6	.00646
2	934.17	146.1	500.0	0.00	0.00	0.00	500.00	932.8	.00566
3	934.36	157.2	540.0	0.00	0.00	0.00	540.00	932.9	.00535
4	935.05	200.2	720.0	0.00	0.00	0.00	720.00	933.2	.00495

SEGMENT TABLE FOR SECTION 27.9+

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	390.	22.	362.	6.
390.	VELOCITY FPS	3.97	1.01	4.10	.83
2	DISCHARGE CFS	500.	32.	459.	9.
500.	VELOCITY FPS	4.17	1.08	4.33	.88
3	DISCHARGE CFS	541.	36.	494.	10.
540.	VELOCITY FPS	4.21	1.09	4.39	.89
4	DISCHARGE CFS	726.	54.	649.	18.
720.	VELOCITY FPS	4.56	1.15	4.78	.99
1	ELEV 933.65 KO	4851.	269.	4512.	69.
2	ELEV 934.17 KO	5644.	424.	6100.	119.
3	ELEV 934.36 KO	7380.	491.	6746.	143.
4	ELEV 935.05 KO	10231.	758.	9223.	250.

KD TABLE FOR CROSS SECTION 27.9+

ELEVATION	AREA	KD	KD BY SEGMENT		
930.75	0.				
931.	2.	18.	1.	15.	1.
932.	35.	848.	8.	834.	5.
933.	82.	2933.	121.	2782.	29.
934.	136.	6128.	369.	5556.	101.
935.	197.	10130.	737.	9051.	242.
936.	267.	14942.	1283.	13186.	468.
937.	346.	20752.	2124.	17928.	797.
938.	436.	27516.	3137.	23234.	1244.
939.	536.	35272.	4369.	29072.	1822.
940.	651.	44119.	6134.	35425.	2544.
941.	772.	54300.	8586.	42270.	3425.
942.	899.	65672.	11594.	49591.	4475.
943.	1031.	77855.	14765.	57371.	5706.
944.	1166.	90931.	18137.	65601.	7138.
945.	1312.	105627.	22413.	74263.	8937.
946.	1456.	121393.	27192.	83350.	10925.
947.	1601.	138047.	32119.	92853.	13056.
948.	1745.	155509.	37433.	102762.	15298.
949.	1889.	173790.	43056.	113071.	17662.
950.	2034.	192731.	48888.	123767.	20085.
951.	2179.	212408.	54943.	134847.	22607.
952.	2324.	232804.	61271.	146306.	25222.
953.	2469.	253847.	67894.	158135.	27905.
954.	2614.	275483.	74507.	170327.	30640.
955.	2759.	297811.	81410.	182882.	33467.
956.	2905.	320704.	88578.	195793.	36341.
957.	3051.	344183.	95860.	209047.	39272.
958.	3196.	368291.	103361.	222652.	42278.
959.	3341.	392874.	110969.	236595.	45307.
960.	3487.	418157.	118844.	250880.	48437.
961.	3633.	444134.	126984.	265504.	51665.
962.	3779.	470802.	135390.	280464.	54995.

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
.6728	.6497	0.0010	0.0000	0.0000	.0231	.6628	1.0000	1.0000	86.3305	193.5578	225.8219
DCRIT	932.38	KBCRIT=									
.6885	.6657	0.0010	0.0000	0.0000	.0229	.6575	1.0000	1.0000	99.4453	223.4088	263.7103
DCRIT	932.74	KBCRIT=									
.7090	.6865	0.0010	0.0000	0.0000	.0225	.6507	1.0000	1.0000	104.2450	236.8121	277.8590
DCRIT	932.85	KBCRIT=									
.7680	.7465	0.0000	0.0000	0.0000	.0216	.6315	1.0000	1.0000	121.6754	291.6461	333.8324
DCRIT	933.37	KBCRIT=									

ROAD SECTION 28.0

NO.	HW	CFS	HL	TW	CSM
0	929.20	0.00	0.00	0.00	0.00
1	934.28	390.00	.40	933.88	390.00
2	934.86	500.00	.46	934.40	500.00
3	935.09	540.00	.50	934.59	540.00
4	935.94	720.00	.64	935.30	720.00

MIN ROAD ELEVATION 950.10

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 942.78 OPENING NO.= 1

RATING TABLE FOR SECTION +28.05 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	930.29	0.0	0.0						
BANK FULL	934.1	133.6	364.3	0.00	0.00	0.00			
1	934.36	145.2	390.0	0.00	0.00	0.00	390.00	932.2	.00252
2	934.94	171.6	500.0	0.00	0.00	0.00	500.00	932.4	.00250
3	935.16	192.5	540.0	0.00	0.00	0.00	540.00	932.5	.00243
4	936.00	225.1	720.0	0.00	0.00	0.00	720.00	932.9	.00237

SEGMENT TABLE FOR SECTION +28.05

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	390.	0.	390.	0.
390.	VELOCITY FPS	2.69	0.00	2.69	0.00
2	DISCHARGE CFS	500.	0.	500.	0.
500.	VELOCITY FPS	2.94	0.00	2.93	.33
3	DISCHARGE CFS	540.	0.	539.	1.
540.	VELOCITY FPS	2.99	0.00	2.99	.37
4	DISCHARGE CFS	720.	0.	717.	3.
720.	VELOCITY FPS	3.28	0.00	3.29	.52
1	ELEV 934.36 KD	7771.	1.	7769.	1.
2	ELEV 934.94 KD	9981.	1.	9989.	7.
3	ELEV 935.16 KD	10946.	1.	10931.	14.
4	ELEV 936.00 KD	14784.	1.	14717.	65.

KD TABLE FOR CROSS SECTION *28.05

ELEVATION	AREA	KD	KD BY SEGMENT		
930.29	0.				
931.	14.	195.	1.	192.	1.
932.	51.	1472.	1.	1470.	1.
933.	88.	3620.	1.	3618.	1.
934.	130.	6525.	1.	6523.	1.
935.	175.	10263.	1.	10251.	8.
936.	225.	14793.	2.	14722.	66.
937.	286.	20433.	40.	20159.	204.
938.	371.	27188.	342.	26351.	452.
939.	472.	35155.	1075.	33184.	831.
940.	588.	44341.	2286.	40638.	1364.
941.	712.	54765.	3963.	48682.	2073.
942.	851.	66467.	6152.	57297.	2974.
943.	1001.	79551.	8934.	66468.	4084.
944.	1163.	94013.	12357.	76164.	5427.
945.	1335.	109853.	16399.	86392.	7016.
946.	1516.	127193.	21139.	97130.	8896.
947.	1704.	146915.	27211.	108361.	11316.
948.	1893.	167916.	33837.	120071.	13923.
949.	2082.	190190.	41015.	132265.	16766.
950.	2271.	213725.	48991.	144937.	19823.
951.	2461.	238709.	57898.	158105.	23244.
952.	2650.	265401.	67887.	171763.	27052.
953.	2839.	293578.	79031.	185907.	31269.

RATING TABLE FOR SECTION 28.1 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	931.20	0.0	0.0						
1	934.89	128.9	390.0	0.00	0.00	0.00	390.00	933.1	.00363
BANK FULL	935.0	133.6	410.2	0.00	0.00	0.00			
2	935.47	154.4	500.0	0.00	0.00	0.00	500.00	933.4	.00343
3	935.69	154.4	540.0	0.00	0.00	0.00	540.00	933.5	.00332
4	936.48	202.9	720.0	0.00	0.00	0.00	720.00	933.8	.00319

SEGMENT TABLE FOR SECTION 28.1

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	390.	0.	390.	0.
390.	VELOCITY FPS	3.03	0.00	3.03	0.00
2	DISCHARGE CFS	500.	0.	500.	0.
500.	VELOCITY FPS	3.25	0.00	3.25	0.00
3	DISCHARGE CFS	540.	0.	540.	0.
540.	VELOCITY FPS	3.31	0.00	3.30	.41
4	DISCHARGE CFS	720.	0.	718.	2.
720.	VELOCITY FPS	3.61	0.00	3.61	.60
1	ELEV 934.89 KD	5471.	1.	6469.	1.
2	ELEV 935.47 KD	8531.	1.	8528.	2.
3	ELEV 935.69 KD	9368.	1.	9363.	4.
4	ELEV 936.48 KD	12741.	1.	12704.	36.

KD TABLE FOR CROSS SECTION 28.1

ELEVATION	AREA	KD	KD BY SEGMENT		
931.20	0.				
932.	17.	263.	1.	260.	1.
933.	53.	1632.	1.	1630.	1.
934.	92.	3851.	1.	3849.	1.
935.	134.	6829.	1.	6826.	1.
936.	179.	10640.	1.	10626.	13.
937.	230.	15270.	2.	15177.	84.
938.	295.	21034.	56.	20688.	249.
939.	381.	27965.	440.	26942.	541.
940.	482.	36193.	1320.	33832.	983.
941.	596.	45714.	2727.	41342.	1600.
942.	724.	56558.	4665.	49436.	2416.
943.	863.	68773.	7182.	58102.	3452.
944.	1015.	82489.	10379.	67313.	4723.
945.	1176.	97683.	14289.	77063.	6253.
946.	1351.	114365.	18897.	87336.	8072.
947.	1533.	132770.	24359.	98118.	10240.
948.	1721.	153719.	31313.	109398.	13009.
949.	1911.	176664.	38806.	121150.	15962.
950.	2099.	199642.	47016.	133385.	19167.
951.	2288.	224696.	56003.	146101.	22644.
952.	2477.	251425.	66136.	159314.	26534.
953.	2667.	279852.	77495.	173016.	30860.
954.	2856.	309999.	90161.	187203.	35650.

RATING TABLE FOR SECTION 28.4+ DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	933.00	0.0	0.0						
1	936.30	112.2	390.0	0.00	0.00	0.00	390.00	934.9	.00556
BANK FULL	936.8	133.5	497.9	0.10	0.00	0.00			
2	936.81	134.0	500.0	0.10	0.00	0.00	500.00	935.2	.00531
3	937.01	142.8	540.0	0.09	0.00	0.00	540.00	935.3	.00509
4	937.76	177.0	720.0	0.10	0.00	0.00	720.00	935.6	.00472

SEGMENT TABLE FOR SECTION 28.4+

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	390.	0.	390.	0.
390.	VELOCITY FPS	3.48	0.00	3.47	0.00
2	DISCHARGE CFS	500.	0.	500.	0.
500.	VELOCITY FPS	3.74	0.00	3.73	0.00
3	DISCHARGE CFS	540.	0.	540.	0.
540.	VELOCITY FPS	3.79	0.00	3.79	0.00
4	DISCHARGE CFS	720.	0.	719.	1.
720.	VELOCITY FPS	4.10	0.00	4.10	.55
1	ELEV 936.30 KO	5229.	1.	5227.	1.
2	ELEV 936.81 KO	5853.	1.	6669.	1.
3	ELEV 937.01 KO	7566.	1.	7566.	1.
4	ELEV 937.76 KO	10477.	1.	10464.	12.

KD TABLE FOR CROSS SECTION 28.44

ELEVATION	AREA	KD	KD BY SEGMENT		
933.00	0.				
933.	0.	0.	0.	0.	0.
934.	24.	450.	1.	447.	1.
935.	61.	2017.	1.	2015.	1.
936.	100.	4390.	1.	4387.	1.
937.	142.	7525.	1.	7523.	1.
938.	189.	11495.	1.	11469.	21.
939.	242.	16343.	5.	16214.	112.
940.	310.	22340.	105.	21888.	311.
941.	398.	29544.	619.	28277.	648.
942.	503.	38108.	1668.	35294.	1146.
943.	626.	47990.	3239.	42920.	1831.
944.	756.	59238.	5379.	51131.	2729.
945.	891.	71003.	8137.	59907.	3860.
946.	1046.	86148.	11033.	69224.	5241.
947.	1212.	101899.	15852.	79077.	6901.
948.	1387.	119184.	20807.	89451.	8857.
949.	1571.	138488.	28821.	100331.	11247.
950.	1759.	161160.	34218.	111706.	14187.
951.	1947.	183285.	42311.	123562.	17367.
952.	2137.	207664.	50959.	135888.	20740.
953.	2326.	233630.	60591.	148705.	24463.
954.	2515.	261336.	71437.	162015.	28617.
955.	2704.	290807.	83583.	175815.	33237.
956.	2894.	322067.	97113.	190098.	38346.

RATING TABLE FOR SECTION 28.5 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM		CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM				
0	934.30	0.0	0.0							
1	937.86	43.0	390.0	0.00	0.00	0.00	390.00	C	937.9	.04945
2	938.34	51.3	500.0	0.00	0.00	0.00	500.00	C	938.3	.04891
3	938.51	54.2	540.0	0.00	0.00	0.00	540.00	C	938.5	.04832
4	939.20	65.7	720.0	0.00	0.00	0.00	720.00	C	939.2	.04787

SEGMENT TABLE FOR SECTION 28.5

CSM		TOTAL	SEG NO 1	2	3
			N	C	N
1	DISCHARGE CFS	390.	0.	390.	0.
390.	VELOCITY FPS	9.07	0.00	9.07	0.00
2	DISCHARGE CFS	500.	0.	500.	0.
500.	VELOCITY FPS	9.76	0.00	9.75	0.00
3	DISCHARGE CFS	540.	0.	540.	0.
540.	VELOCITY FPS	9.95	0.00	9.95	0.00
4	DISCHARGE CFS	720.	0.	720.	0.
720.	VELOCITY FPS	10.11	0.00	10.80	0.00
1	ELEV 937.86 KD	1754.	1.	1752.	1.
2	ELEV 938.34 KD	2261.	1.	2259.	1.
3	ELEV 938.51 KD	2457.	1.	2454.	1.
4	ELEV 939.20 KD	3291.	1.	3288.	1.

KD TABLE FOR CROSS SECTION 28.5

ELEVATION	AREA	KD	KD BY SEGMENT		
934.30	0.				
935.	2.	30.	1.	28.	1.
936.	14.	347.	1.	345.	1.
937.	29.	987.	1.	985.	1.
938.	45.	1901.	1.	1899.	1.
939.	63.	3143.	1.	3140.	1.
940.	82.	4392.	1.	4390.	1.
941.	103.	5993.	1.	5983.	4.
942.	131.	8003.	1.	7905.	76.
943.	162.	10346.	1.	10018.	309.
944.	196.	12955.	1.	12282.	659.
945.	236.	15808.	1.	14678.	1113.
946.	286.	18896.	1.	17194.	1693.
947.	304.	22267.	3.	19930.	2327.
948.	349.	26069.	18.	22978.	3058.
949.	404.	30484.	166.	26324.	3955.
950.	471.	35459.	511.	29851.	5085.
951.	550.	41001.	967.	33549.	6470.
952.	696.	47962.	2192.	37414.	8123.
953.	881.	56128.	4591.	41451.	9776.
954.	1115.	65940.	8756.	45655.	11367.
955.	1416.	80544.	16398.	50013.	13603.
956.	1769.	98142.	28122.	54531.	16498.
957.	2051.	118686.	38884.	59206.	20343.
958.	2381.	142777.	52653.	64032.	25794.
959.	2711.	169255.	67953.	69006.	31995.
960.	3042.	198490.	85253.	74134.	39055.
961.	3373.	229153.	103226.	79401.	46333.
962.	3705.	263158.	124111.	84827.	54624.
963.	4036.	300731.	148249.	90412.	64023.
964.	4367.	342100.	176006.	96155.	74633.

RATING TABLE FOR SECTION 28.7 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	938.80	0.0	0.0						
BANK FULL	939.5	9.8	72.8	0.00	0.00	0.00			
1	942.55	102.7	390.0	0.00	0.00	0.00	390.00	941.2	.00581
2	943.16	127.9	500.0	0.00	0.00	0.00	500.00	941.5	.00504
3	943.36	136.4	540.0	0.00	0.00	0.00	540.00	941.6	.00489
4	944.02	155.8	720.0	0.00	0.00	0.00	720.00	942.1	.00498

SEGMENT TABLE FOR SECTION 28.7

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	390.	2.	388.	0.
390.	VELOCITY FPS	3.89	.78	3.89	0.00
2	DISCHARGE CFS	500.	4.	496.	0.
500.	VELOCITY FPS	4.12	.82	4.12	0.00
3	DISCHARGE CFS	540.	4.	536.	0.
540.	VELOCITY FPS	4.07	.84	4.08	0.00
4	DISCHARGE CFS	720.	6.	714.	0.
720.	VELOCITY FPS	4.48	.94	4.49	0.00
1	ELEV 942.55 KO	5118.	32.	5185.	1.
2	ELEV 943.16 KO	7044.	52.	6991.	1.
3	ELEV 943.36 KO	7725.	60.	7664.	1.
4	ELEV 944.02 KO	10262.	91.	10111.	1.

KD TABLE FOR CROSS SECTION 28.7

ELEVATION	AREA	KD	KD BY SEGMENT		
938.80	0.				
939.	1.	11.	1.	9.	1.
940.	21.	530.	3.	526.	1.
941.	45.	1758.	6.	1751.	1.
942.	82.	3641.	19.	3621.	1.
943.	121.	6504.	46.	6457.	1.
944.	165.	10132.	90.	10041.	1.
945.	213.	14614.	153.	14459.	2.
946.	307.	20780.	176.	20280.	324.
947.	517.	30329.	1141.	27017.	1973.
948.	783.	43239.	3527.	34532.	5083.
949.	1103.	59901.	7339.	42765.	9670.
950.	1476.	80582.	12813.	51686.	15956.
951.	1893.	106336.	20371.	61268.	24589.
952.	2326.	138059.	30434.	71506.	35619.
953.	2776.	173379.	42911.	82379.	48007.
954.	3232.	212609.	56636.	93784.	62052.
955.	3696.	256294.	72399.	105822.	77942.
956.	4164.	304326.	90165.	118435.	95716.
957.	4633.	356534.	109458.	131628.	115446.
958.	5102.	411305.	129794.	145337.	136090.
959.	5571.	469556.	151670.	159600.	158211.
960.	6041.	531523.	175219.	174424.	181941.
961.	6510.	598253.	201182.	189845.	207885.
962.	6979.	669853.	229217.	205860.	236138.
963.	7448.	746452.	260181.	222464.	266792.

RATING TABLE FOR SECTION 28.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	949.30	0.0	0.0						
BANK FULL	951.9	52.1	282.8	0.00	0.00	0.00			
1	952.89	117.5	390.0	0.00	0.00	0.00	390.00	951.9	.00798
2	953.32	155.2	500.0	0.00	0.00	0.00	500.00	952.3	.00635
3	953.33	155.8	540.0	0.00	0.00	0.00	540.00	952.5	.00736
4	953.85	280.0	720.0	0.00	0.00	0.00	720.00	953.0	.00592

SEGMENT TABLE FOR SECTION 28.9

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	390.	7.	362.	20.
390.	VELOCITY FPS	4.48	.88	4.64	.66
2	DISCHARGE CFS	500.	19.	404.	78.
500.	VELOCITY FPS	4.13	1.01	4.49	1.01
3	DISCHARGE CFS	540.	20.	436.	84.
540.	VELOCITY FPS	4.45	1.09	4.85	1.09
4	DISCHARGE CFS	720.	41.	499.	181.
720.	VELOCITY FPS	4.12	1.13	4.79	1.27
1	ELEV 952.89 KO	4344.	81.	4054.	209.
2	ELEV 953.32 KO	5142.	211.	5121.	810.
3	ELEV 953.33 KO	6160.	212.	5131.	817.
4	ELEV 953.85 KO	9277.	500.	6557.	2220.

KD TABLE FOR CROSS SECTION 28.9

ELEVATION	AREA	KD	KD BY SEGMENT		
949.30	0.				
950.	5.	58.	1.	56.	1.
951.	28.	807.	1.	805.	1.
952.	55.	2249.	3.	2244.	1.
953.	135.	4811.	107.	4322.	319.
954.	306.	10377.	613.	6981.	2732.
955.	535.	19302.	1796.	10125.	7344.
956.	796.	32484.	3768.	13716.	14943.
957.	1056.	49199.	6452.	17735.	24972.
958.	1335.	68379.	9856.	22154.	36929.
959.	1621.	91783.	14032.	26960.	50762.
960.	1917.	117490.	19007.	32136.	66324.
961.	2223.	146337.	25103.	37668.	83543.
962.	2534.	178475.	32575.	43545.	102313.
963.	2848.	213572.	41096.	49760.	122688.
964.	3164.	251241.	50331.	56303.	144591.
965.	3482.	291392.	60232.	63166.	167989.
966.	3804.	333921.	70704.	70339.	192868.
967.	4126.	379382.	81707.	77815.	219843.
968.	4449.	427313.	93333.	85593.	248374.
969.	4772.	477472.	105533.	93667.	278269.
970.	5096.	529441.	118146.	102026.	309261.
971.	5421.	584311.	131564.	110683.	341998.
972.	5743.	641794.	145738.	119634.	376488.
973.	6067.	702201.	160857.	128877.	412744.

RATING TABLE FOR SECTION +28.99 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	955.00	0.0	0.0						
BANK FULL	957.6	52.1	227.2	0.00	0.00	0.00			
1	959.46	263.1	390.0	0.00	0.00	0.00	390.00	957.6	.00187
2	959.68	304.2	500.0	0.00	0.00	0.00	500.00	958.0	.00224
3	959.76	320.0	540.0	0.00	0.00	0.00	540.00	958.2	.00232
4	960.19	414.5	720.0	0.00	0.00	0.00	720.00	958.7	.00236

SEGMENT TABLE FOR SECTION +28.99

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	390.	22.	269.	99.
390.	VELOCITY FPS	2.28	.72	2.65	.76
2	DISCHARGE CFS	500.	32.	325.	143.
500.	VELOCITY FPS	2.52	.84	3.02	.90
3	DISCHARGE CFS	540.	36.	345.	160.
540.	VELOCITY FPS	2.58	.87	3.14	.94
4	DISCHARGE CFS	720.	61.	404.	256.
720.	VELOCITY FPS	2.66	1.02	3.33	1.09
1	ELEV 959.46 KD	8933.	485.	6306.	2142.
2	ELEV 959.68 KD	10504.	656.	6926.	2923.
3	ELEV 959.76 KD	11182.	733.	7170.	3278.
4	ELEV 960.19 KD	14714.	1185.	8452.	5077.

KD TABLE FOR CROSS SECTION +28.99

ELEVATION	AREA	KD	KD BY SEGMENT		
955.00	0.				
955.	0.	0.	0.	0.	0.
956.	11.	179.	1.	177.	1.
957.	38.	1181.	1.	1179.	1.
958.	64.	2308.	8.	2298.	1.
959.	182.	6271.	221.	5164.	835.
960.	372.	13133.	965.	7872.	4222.
961.	619.	23974.	2522.	11153.	10200.
962.	869.	39363.	4943.	14879.	19489.
963.	1139.	58445.	8149.	19024.	31273.
964.	1419.	80741.	12138.	23561.	45042.
965.	1706.	106246.	16979.	28479.	60789.
966.	2007.	134966.	22709.	33752.	78414.
967.	2315.	167087.	29847.	39399.	97841.
968.	2626.	202376.	38539.	45377.	118934.
969.	2942.	241569.	48187.	51689.	141764.
970.	3259.	283041.	58418.	58327.	166273.
971.	3579.	327220.	69473.	65284.	192447.
972.	3900.	374195.	81201.	72550.	220436.
973.	4223.	424385.	93531.	80119.	250726.
974.	4546.	476822.	106424.	87984.	282401.
975.	4869.	531680.	119950.	96143.	315578.
976.	5193.	588840.	134064.	104592.	350184.
977.	5517.	649055.	149166.	113337.	386709.
978.	5840.	712337.	164967.	122377.	425163.
979.	6164.	778699.	181778.	131706.	465553.

PLINT CREEK FLOOD HAZARD ANALYSES, OAKLAND CO. MICHIGAN
10, 50, 100, AND ECL YEAR DISCHARGES FROM TR20 FLOOD ROUTING

RATING TABLE FOR SECTION 29.05 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	955.10	0.0	0.0						
NK FULL	959.8	63.6	360.9	0.11	0.00	0.00			
1	960.18	87.5	390.0	0.00	0.00	0.00	390.00	959	.01098
2	960.49	111.0	500.0	0.00	0.00	0.00	500.00	961.1	.01248
3	960.60	119.2	540.0	0.10	0.00	0.00	540.00	959.2	.01286
4	961.04	157.2	720.0	0.11	0.00	0.00	720.00	960.4	.01345

SEGMENT TABLE FOR SECTION 29.05

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	390.	0.	363.	27.
390.	VELOCITY FPS	5.50	0.00	5.54	1.21
2	DISCHARGE CFS	500.	0.	442.	58.
500.	VELOCITY FPS	5.95	0.00	6.23	1.46
3	DISCHARGE CFS	540.	0.	470.	70.
540.	VELOCITY FPS	6.07	0.00	6.44	1.52
4	DISCHARGE CFS	720.	3.	572.	145.
720.	VELOCITY FPS	6.43	1.01	7.00	2.00
1	ELEV 960.18 KD	3593.	1.	3499.	93.
2	ELEV 960.49 KD	4305.	2.	3982.	322.
3	ELEV 961.60 KD	4651.	2.	4159.	489.
4	ELEV 961.04 KD	6133.	9.	4994.	1131.

KD TABLE FOR CROSS SECTION 29.05

ELEVATION	AREA	KD	KD BY SEGMENT		
955.10	0.				
956.	5.	98.	1.	96.	1.
957.	16.	488.	1.	486.	1.
958.	29.	1146.	1.	1144.	1.
959.	44.	2058.	1.	2056.	1.
960.	74.	3330.	1.	3236.	44.
961.	153.	6044.	7.	4903.	1065.
962.	252.	10396.	171.	7093.	3065.
963.	373.	16364.	832.	9597.	5903.
964.	517.	24198.	2146.	12388.	9538.
965.	675.	33329.	4189.	15457.	14255.
966.	845.	45585.	7046.	18713.	19724.
967.	1033.	59011.	10706.	22383.	25823.
968.	1232.	74555.	15815.	26216.	32462.
969.	1435.	92492.	22441.	30291.	39668.
970.	1640.	112439.	31385.	34600.	47392.
971.	1845.	133905.	39217.	39137.	55596.
972.	2051.	157022.	48166.	43895.	64249.
973.	2256.	181316.	59147.	48863.	73273.
974.	2462.	207736.	70651.	54176.	82970.
975.	2667.	236343.	84085.	59534.	93349.
976.	2873.	267193.	98956.	65234.	104421.

TABLE OF VALUES FOR DPF EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	45.3500	291.6461	333.8324
DCRIT	-1.00	KBCRIT=									
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	45.3500	291.6461	333.8324
DCRIT	-1.00	KBCRIT=									
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	45.3500	291.6461	333.8324
DCRIT	-1.00	KBCRIT=									
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	45.3500	291.6461	333.8324
DCRIT	-1.00	KBCRIT=									

ROAD SECTION 29.1

NO.	HW	CFS	HL	TW	CSM
0	955.10	0.00	0.00	0.00	0.00
1	961.25	390.00	.56	960.69	390.00
2	961.58	500.00	.52	961.06	500.00
3	961.71	540.00	.52	961.19	540.00
4	962.15	720.00	.48	961.67	720.00

MIN ROAD ELEVATION 959.70

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 959.30 OPENING NO.= 1

RATING TABLE FOR SECTION +29.11 DA= 1.1

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	955.30	0.0	0.0						
BANK FULL	960.0	53.6	300.3	0.00	0.00	0.00			
1	961.40	171.3	390.0	0.00	0.00	0.00	390.00	959.1	.00326
2	961.76	204.1	500.0	0.00	0.00	0.00	500.00	960.3	.00361
3	961.89	217.9	540.0	0.00	0.00	0.00	540.00	960.4	.00368
4	962.36	268.6	720.0	0.00	0.00	0.00	720.00	960.6	.00408

SEGMENT TABLE FOR SECTION +29.11

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	390.	2.	301.	87.
390.	VELOCITY FPS	3.20	.49	3.54	1.06
2	DISCHARGE CFS	500.	5.	365.	130.
500.	VELOCITY FPS	3.46	.58	3.96	1.25
3	DISCHARGE CFS	540.	7.	384.	149.
540.	VELOCITY FPS	3.53	.66	4.06	1.32
4	DISCHARGE CFS	720.	17.	475.	227.
720.	VELOCITY FPS	3.65	.81	4.57	1.59
1	ELEV 961.40 KO	5741.	18.	5323.	1407.
2	ELEV 961.76 KO	8311.	66.	6096.	2149.
3	ELEV 961.89 KO	8864.	88.	6379.	2397.
4	ELEV 962.36 KO	11219.	241.	7470.	3509.

KD TABLE FOR CROSS SECTION +29.11

ELEVATION	AREA	KD	KD BY SEGMENT		
955.30	0.				
956.	4.	56.	1.	54.	1.
957.	14.	388.	1.	386.	1.
958.	26.	994.	1.	992.	1.
959.	41.	1855.	1.	1853.	1.
960.	64.	2994.	1.	2976.	17.
961.	135.	5362.	3.	4511.	821.
962.	231.	9433.	112.	6630.	2631.
963.	348.	15086.	645.	9289.	5303.
964.	438.	22496.	1821.	11801.	8799.
965.	643.	31949.	3735.	14817.	13336.
966.	813.	43333.	6450.	18101.	18733.
967.	995.	56564.	10045.	21642.	24776.
968.	1192.	71724.	14836.	25427.	31382.
969.	1394.	89307.	21167.	29457.	38573.
970.	1595.	109117.	29059.	33722.	46283.
971.	1804.	130556.	37833.	38215.	54493.
972.	2039.	153424.	47359.	42927.	63123.
973.	2215.	177693.	57558.	47849.	72141.
974.	2421.	203795.	69166.	53014.	81798.
975.	2626.	232192.	82136.	58423.	92144.
976.	2832.	262842.	96819.	64074.	103188.
977.	3038.	295803.	113244.	69967.	114940.

RATING TABLE FOR SECTION 29.9+ DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	959.40	0.0	0.0						
BANK FULL	962.2	55.9	216.8	0.00	0.00	0.00			
1	964.44	161.7	390.0	0.00	0.00	0.00	390.00	962.1	.00189
2	964.85	195.8	500.0	0.00	0.00	0.00	500.00	962.4	.00208
3	965.05	213.1	540.0	0.00	0.00	0.00	540.00	962.5	.00202
4	965.65	271.6	720.0	0.00	0.00	0.00	720.00	963.0	.00213

SEGMENT TABLE FOR SECTION 29.9+

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	391.	3.	367.	20.
390.	VELOCITY FPS	2.83	.55	2.89	.67
2	DISCHARGE CFS	501.	4.	456.	40.
500.	VELOCITY FPS	3.12	.64	3.25	.82
3	DISCHARGE CFS	541.	5.	485.	50.
540.	VELOCITY FPS	3.15	.66	3.30	.86
4	DISCHARGE CFS	720.	10.	610.	101.
720.	VELOCITY FPS	3.42	.78	3.67	1.08
1	ELEV 964.44 KO	8911.	54.	8483.	373.
2	ELEV 964.85 KO	10939.	92.	10024.	793.
3	ELEV 965.05 KO	12010.	115.	10808.	1087.
4	ELEV 965.65 KO	15549.	201.	13243.	2105.

KD TABLE FOR CROSS SECTION 29.9+

ELEVATION	AREA	KD	KD BY SEGMENT		
959.40	0.				
960.	6.	94.	1.	92.	1.
961.	23.	658.	1.	656.	1.
962.	50.	1855.	1.	1852.	1.
963.	83.	4036.	3.	4023.	11.
964.	131.	7183.	28.	6990.	138.
965.	216.	11723.	109.	10599.	1020.
966.	309.	17968.	268.	14765.	2896.
967.	429.	25911.	528.	19474.	5865.
968.	571.	35682.	907.	24689.	10021.
969.	737.	47606.	1426.	30391.	15722.
970.	927.	61917.	2083.	36557.	23213.
971.	1142.	78820.	2899.	43170.	32689.
972.	1388.	97756.	3922.	50212.	43559.
973.	1667.	119236.	5184.	57679.	56301.
974.	1982.	145115.	6705.	65554.	72766.
975.	2326.	178257.	8505.	73828.	95923.
976.	2682.	217659.	10727.	82483.	124341.
977.	3036.	260695.	13309.	91517.	155608.
978.	3394.	307461.	16281.	100930.	190045.
979.	3756.	357605.	19590.	110712.	227303.
980.	4106.	410063.	22899.	120840.	266242.
981.	4463.	467175.	26569.	131349.	309522.
982.	4819.	529108.	30621.	142234.	357393.
983.	5176.	596031.	35075.	153490.	410105.

TABLE OF VALUES FOR APP EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
.5033	.5033	0.0000	0.0000	0.0000	1.0000	.7383	1.0000	1.0000	77.6315	171.1634	153.1725
DCRIT	962.91	KBCRIT=									
.6260	.6260	0.0000	0.0000	0.0000	0.0000	.6949	1.0000	1.0000	86.1196	219.2095	187.8790
DCRIT	963.33	KBCRIT=									
.6965	.6965	0.0000	0.0000	0.0000	0.0000	.6714	1.0000	1.0000	90.0477	244.3572	203.9402
DCRIT	963.47	KBCRIT=									
.9076	.9076	0.0000	0.0000	0.0000	0.0000	.6065	1.0000	1.0000	102.0538	344.4592	262.0414
DCRIT	964.08	KBCRIT=									

ROAD SECTION 30.0

NO.	HW	CFS	HL	TW	CSM
0	959.60	0.00	0.00	0.00	0.00
1	964.73	390.00	.20	964.53	390.00
2	965.30	500.00	.34	964.96	500.00
3	965.55	540.00	.40	965.15	540.00
4	966.49	720.00	.74	965.75	720.00

MIN ROAD ELEVATION 1005.60

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 971.00 OPENING NO.= 1

RATING TABLE FOR SECTION 30.1 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	959.50	0.0	0.0						
BANK FULL	962.3	55.9	203.0	0.00	0.00	0.00			
1	964.88	189.7	390.0	0.00	0.00	0.00	390.00	962.2	.00139
2	965.44	241.5	500.0	0.00	0.00	0.00	500.00	962.5	.00139
3	965.69	265.3	540.0	0.00	0.00	0.00	540.00	962.6	.00132
4	966.61	357.3	720.0	0.00	0.00	0.00	720.00	963.1	.00117

SEGMENT TABLE FOR SECTION 30.1

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	390.	3.	363.	25.
390.	VELOCITY FPS	2.55	.43	2.62	.55
2	DISCHARGE CFS	500.	5.	445.	50.
500.	VELOCITY FPS	2.71	.50	2.85	.67
3	DISCHARGE CFS	540.	6.	471.	63.
540.	VELOCITY FPS	2.71	.51	2.87	.70
4	DISCHARGE CFS	720.	11.	585.	124.
720.	VELOCITY FPS	2.75	.56	3.02	.80
1	ELEV 964.88 KD	10385.	70.	9738.	578.
2	ELEV 965.44 KD	13341.	126.	11958.	1256.
3	ELEV 965.69 KD	14795.	159.	12992.	1644.
4	ELEV 966.61 KD	21031.	323.	17125.	3584.

KD TABLE FOR CROSS SECTION 30.1

ELEVATION	AREA	KD	KD BY SEGMENT		
959.50	0.				
960.	5.	66.	1.	64.	1.
961.	21.	576.	1.	574.	1.
962.	47.	1697.	1.	1694.	1.
963.	79.	3762.	2.	3752.	7.
964.	125.	6792.	20.	6662.	87.
965.	201.	11038.	61.	10206.	715.
966.	298.	16773.	206.	14326.	2221.
967.	416.	24022.	413.	18980.	4594.
968.	556.	32055.	718.	24144.	7934.
969.	721.	43533.	1137.	29800.	12536.
970.	907.	56261.	1673.	35920.	18609.
971.	1120.	71200.	2336.	42489.	26317.
972.	1362.	88001.	3168.	49409.	35290.
973.	1636.	106000.	4197.	56915.	45634.
974.	1947.	129140.	5440.	64751.	58805.
975.	2293.	157605.	6911.	72981.	77662.
976.	2647.	191282.	8722.	81599.	100829.
977.	3002.	228338.	10896.	90597.	126675.
978.	3358.	268589.	13374.	99974.	155161.
979.	3714.	311515.	16059.	109716.	185755.
980.	4071.	356669.	18755.	119815.	218017.
981.	4427.	405501.	21776.	130281.	253640.
982.	4784.	458337.	25124.	141128.	293059.
983.	5140.	515305.	28784.	152346.	336484.
984.	5497.	576531.	32803.	163936.	384126.

RATING TABLE FOR SECTION 30.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	964.30	0.0	0.0						
BANK FULL	965.7	18.4	121.9	0.00	0.00	0.00			
1	968.78	236.9	390.0	0.00	0.00	0.00	390.00	966.9	.00148
2	969.24	347.5	500.0	0.00	0.00	0.00	500.00	967.1	.00143
3	969.30	364.6	540.0	0.00	0.00	0.00	540.00	967.2	.00158
4	970.07	457.4	720.0	0.00	0.00	0.00	720.00	967.4	.00136

SEGMENT TABLE FOR SECTION 30.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	391.	128.	245.	17.
390.	VELOCITY FPS	2.11	.79	2.44	.68
2	DISCHARGE CFS	500.	180.	294.	25.
500.	VELOCITY FPS	2.09	.89	2.61	.77
3	DISCHARGE CFS	540.	197.	315.	28.
540.	VELOCITY FPS	2.21	.95	2.76	.82
4	DISCHARGE CFS	721.	289.	388.	44.
720.	VELOCITY FPS	2.23	1.05	2.87	.91
1	ELEV 968.78 KO	10124.	3276.	6412.	436.
2	ELEV 969.24 KO	13193.	4721.	7804.	669.
3	ELEV 969.30 KO	13563.	4835.	7972.	696.
4	ELEV 970.07 KO	19533.	7808.	10546.	1178.

KD TABLE FOR CROSS SECTION 30.9

ELEVATION	AREA	KD	KD BY SEGMENT		
964.30	0.				
965.	4.	50.	1.	47.	1.
966.	27.	687.	4.	681.	1.
967.	81.	2374.	177.	2147.	3.
968.	166.	5941.	1453.	4325.	148.
969.	315.	11555.	3942.	7056.	542.
970.	448.	18967.	7530.	10300.	1131.
971.	584.	27886.	11907.	14611.	1900.
972.	724.	38212.	17101.	18168.	2855.
973.	868.	49895.	23145.	22745.	3998.
974.	1018.	62930.	29168.	27726.	5333.
975.	1172.	77273.	37314.	33093.	6866.
976.	1331.	92879.	45478.	38834.	8563.
977.	1495.	109454.	54343.	44934.	10173.
978.	1667.	127268.	63924.	51387.	11952.
979.	1846.	146535.	74211.	58183.	14136.
980.	2035.	166987.	85210.	65313.	16463.
981.	2244.	186173.	96882.	72766.	16513.
982.	2477.	211036.	109254.	80535.	21133.
983.	2715.	238682.	122706.	88620.	27249.
984.	2956.	268766.	137326.	97015.	34403.
985.	3196.	300617.	152889.	105706.	41961.
986.	3436.	333915.	169157.	114693.	50097.
987.	3679.	368094.	186952.	123980.	59039.
988.	3920.	405790.	203697.	133570.	69086.
989.	4161.	444622.	222296.	143459.	80319.
990.	4403.	485405.	241754.	153644.	92821.

RATING TABLE FOR SECTION +30.99 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	964.40	0.0	0.0						
BANK FULL	965.8	18.4	119.5	0.00	0.00	0.00			
1	968.97	298.3	390.0	0.00	0.00	0.00	390.00	967.0	.00144
2	969.43	358.6	500.0	0.00	0.00	0.00	500.00	967.2	.00143
3	969.50	368.1	540.0	0.00	0.00	0.00	540.00	967.3	.00156
4	970.25	457.7	720.0	0.00	0.00	0.00	720.00	967.5	.00140

SEGMENT TABLE FOR SECTION +30.99

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	390.	122.	252.	17.
390.	VELOCITY FPS	2.13	.72	2.45	.62
2	DISCHARGE CFS	500.	172.	304.	25.
500.	VELOCITY FPS	2.14	.82	2.64	.71
3	DISCHARGE CFS	540.	188.	325.	27.
540.	VELOCITY FPS	2.25	.87	2.78	.75
4	DISCHARGE CFS	720.	274.	404.	42.
720.	VELOCITY FPS	2.31	.95	2.95	.84
1	ELEV 968.97 KO	10271.	3174.	6669.	428.
2	ELEV 969.43 KO	13193.	4487.	8167.	639.
3	ELEV 969.50 KO	13669.	4703.	8292.	674.
4	ELEV 970.25 KO	19217.	7289.	10814.	1105.

KD TABLE FOR CROSS SECTION +30.99

ELEVATION	AREA	KD	KT BY SEGMENT		
964.40	0.				
965.	3.	31.	1.	29.	1.
966.	23.	586.	2.	583.	1.
967.	72.	2116.	116.	1966.	4.
968.	176.	5354.	1156.	4186.	112.
969.	302.	10476.	3257.	6759.	442.
970.	434.	17336.	6421.	9957.	959.
971.	576.	25583.	11325.	13620.	1631.
972.	710.	35144.	14933.	17733.	2472.
973.	854.	45976.	20220.	22268.	3480.
974.	1003.	58069.	26211.	27210.	4662.
975.	1158.	71382.	32817.	32539.	6021.
976.	1314.	85867.	40087.	38243.	7533.
977.	1478.	101297.	47968.	44307.	8998.
978.	1649.	117820.	56533.	50726.	10556.
979.	1828.	135682.	65712.	57489.	12473.
980.	2014.	154390.	75520.	64586.	14783.
981.	2223.	172739.	85944.	72005.	14823.
982.	2454.	195331.	97000.	79743.	18482.
983.	2691.	220727.	108953.	87799.	23990.
984.	2931.	248442.	122000.	96163.	30278.
985.	3172.	277756.	135899.	104822.	36966.
986.	3413.	308471.	150381.	113781.	44243.
987.	3659.	340661.	165480.	123037.	52185.
988.	3896.	374593.	181344.	132597.	61107.
989.	4137.	410287.	197974.	142457.	71088.
990.	4379.	447754.	215374.	152612.	82201.

ROAD SECTION 31.0

NO.	HW	CFS	HL	TW	CSH
0	964.00	0.00	0.00	0.00	0.00
1	972.63	390.00	3.60	969.03	390.00
2	973.02	500.00	3.52	969.50	500.00
3	973.17	540.00	3.60	969.57	540.00
4	973.60	720.00	3.28	970.32	720.00

MIN ROAD ELEVATION 972.20

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	12211.	8.00		64.00	964.00	963.89	.026

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----------80/80 LIST OF INPUT DATA----------
----------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 30.0  EXCEEDS  20. FEET----------
REACH     30.1      1.        90.       96.                              1123
SEGMENT   30.1      1         N         39.                              1124
NVALUE    .135                                                           1125
SEGMENT   30.1      2         C         71.                              1126
NVALUE    .055                                                           1127
SEGMENT   30.1      3         N         356.                             1128
NVALUE    .1                                                             1129
SECTION   30.1                                                           1130
          -3.       981.      -2.       981.      -1.       981.       1131
               0.00    975.90     21.00    969.80     37.00    963.50   1132
              39.00    962.40     47.00    959.60     55.00    959.50   1133
              63.00    960.80     71.00    962.30     75.00    963.40   1134
             115.00    964.60    155.00    967.00    255.00    971.60   1135
          355.      974.4     355.      981.                             1136
ENDTABLE                                                                 1137
REACH     30.9      1.        2440.     1890.                            1138
SEGMENT   30.9      1         N         123.                             1139
NVALUE    .125                                                           1140
SEGMENT   30.9      2         C         150.                             1141
NVALUE    .055                                                           1142
SEGMENT   30.9      3         N         241.                             1143
NVALUE    .125                                                           1144
SECTION   30.9                                                           1145
          -3.       988.      -2.       988.      -1.       988.       1146
               0.00    983.00     33.00    970.90     37.00    968.60   1147
              50.00    967.40     80.00    966.60    100.00    966.90   1148
             123.00    965.70    127.00    964.80    133.00    965.30   1149
             141.00    964.30    150.00    966.40    165.00    967.90   1150
             180.00    976.20    200.00    980.00    240.00    981.30   1151
          241.      988.                                                1152
ENDTABLE                                                                 1153
REACH     +30.99    1.        125.      120.                             1154
REACH2    30.9      0.1                                                  1155
ROAD      31.0      2.7       50.       50.                              1156
CULV1     31.0      1         12211                                      1157
CULV2     8.        16.       54.       964.      963.89                 1158
SECTION   31.0                                                           1159
          -301.     990.      -300.     983.7     -200.     975.         1160
          -100.     972.2     -50.      972.9     0.        974.8        1161
          50.       975.7     100.      977.5     200.      981.5        1162
          201.      990.                                                 1163
ENDTABLE                                                                 1164
REACH     31.9      1.        55.       55.                              1165
SEGMENT   31.9      1         N         279.                             1166
NVALUE    .125                                                           1167
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-----------------------------80/80 LIST OF INPUT DATA-----------------------------
EGMENT   31.9      2         C         303.                                  1168
VALUE    .055                                                               1169
EGMENT   31.9      3         N         424.                                  1170
VALUE    .125                                                               1171
ECTION   31.9                                                               1172
         -3.       986.      -2.       986.      -1.       986.            1173
              0.00     980.00     85.00     971.80    185.00    969.80    1174
            235.00     969.70    259.00     968.50    261.00    967.80    1175
            267.00     966.60    273.00     966.80    279.00    965.70    1176
            285.00     964.50    291.00     964.20    297.00    964.40    1177
            303.00     965.80    309.00     968.10    313.00    968.30    1178
            335.00     965.50    365.00     968.10    383.00    968.30    1179
            399.00     975.60    413.00     975.80    423.00    980.70    1180
         424.      986.                                                     1181
NOTABLE                                                                     1182
EACH     +31.99    1.        1250.     1200.                                1183
EACH2    31.9      1.4                                                      1184
OAD      32.0      2.7       50.       42.                                  1185
PR       32.0      B         1         7                                    1186
IER      966.4     1.                                                       1187
IRDER    972.8     972.3     0.        .6        2.7                        1188
         -9.5      973.1     -9.5      972.3     9.5       972.3            1189
         9.5       973.1                                                    1190
NOTABLE                                                                     1191
ECTION   32.0                                                               1192
         -254.     999.      -253.     979.7     -200.     977.1            1193
         -100.     973.      -50.      972.9     -9.5      973.1            1194
         -9.5      966.2     -5.       965.8     C.        966.4            1195
         5.        966.      9.5       966.6     9.5       973.1            1196
         50.       972.7     100.      973.5     150.      974.2            1197
         200.      976.6     240.      979.7     241.      999.             1198
NOTABLE                                                                     1199
EACH     32.1+     1.        50.       48.                                  1200
EACH2    31.9      1.6                                                      1201
EACH     33.0      1.        1150.     855.                                 1202
EGMENT   33.0      1         N         -19.                                 1203
VALUE    .1                                                                 1204
EGMENT   33.0      2         C         19.                                  1205
VALUE    .055                                                               1206
EGMENT   33.0      3         N         401.                                 1207
VALUE    .1                                                                 1208
ECTION   33.0                                                               1209
         -322.     988.      -321.     980.6     -300.     978.7            1210
         -200.     974.4     -100.     971.4     -50.      971.7            1211
         -19.      970.      -13.3     967.3     -7.       965.9            1212
```

80/80 LIST OF INPUT DATA

```
          0.        966.3     7.        966.1     13.25     968.      1213
          19.       970.2     50.       971.5     100.      972.4     1214
          200.      974.      300.      978.      400.      982.6     1215
          401.      988.                                              1216
NOTABLE                                                             1217
EACH      34.0      1.        1090.     908.                          1220
EGMENT    34.0      1         N         -15.                          1221
VALUE     .39                                                       1222
EGMENT    34.0      2         C         15.                           1223
VALUE     .055                                                      1224
EGMENT    34.0      3         N         156.                          1225
VALUE     .09                                                       1226
ECTION    34.0                                                      1227
          -401.     988.      -400.     981.4     -300.     978.5     1228
          -200.     976.1     -100.     973.7     -50.      973.4     1229
          -15.      971.4     -8.       968.1     0.        968.6     1230
          5.        969.7     15.       972.9     50.       972.1     1231
          100.      972.7     135.      974.1     155.      983.2     1232
          156.      988.                                              1233
NOTABLE                                                             1234
EACH      34.9+     1.        120.      115.                          1235
EACH2     35.9      0.5                                             1236
OAD       35.0      2.7       50.       49.                           1237
PR        35.0      B         1                                       1238
IRDER     977.      976.5     0.        .6        2.55              1239
          -6.       983.7     -6.       976.5     6.        976.5     1240
          6.        983.7                                             1241
NOTABLE                                                             1242
ECTION    35.0                                                      1243
          -600.     995.      -600.     987.6     -500.     987.2     1244
          -400.     986.9     -300.     986.5     -200.     985.4     1245
          -100.     984.2     -6.       983.7     -6.       968.4     1246
          0.        968.9     6.        969.3     6.        983.7     1247
          100.      983.4     200.      983.9     300.      985.5     1248
          400.      986.6     500.      986.4     601.      985.8     1249
          601.      995.                                              1250
NOTABLE                                                             1251
EACH      35.1+     1.        50.       50.                           1252
EACH2     35.9      0.8                                             1253
EACH      35.9      1.        115.      115.                          1254
EGMENT    35.9      1         N         60.                           1255
VALUE     .1                                                        1256
EGMENT    35.9      2         C         140.                          1257
VALUE     .05                                                       1258
EGMENT    35.9      3         N         186.                          1259
```

----------80/80 LIST OF INPUT DATA----------

```
NVALUE    .1                                                          1260
SECTION   35.9                                                        1261
          -3.       987.      -2.       987.      -1.       987.     1262
               0.00    981.60     43.00    980.80     56.00    973.30  1263
              60.00    971.20     70.00    969.50     80.00    968.80  1264
              90.00    968.60    100.00    967.60    110.00    967.80  1265
             120.00    968.00    130.00    968.30    140.00    971.60  1266
             147.00    977.10    153.00    979.80    185.00    980.70  1267
         185.      987.                                               1268
ENDTABLE                                                              1269
COMPUTE   27.9+     35.9      27.1                                        1283
```

----------END OF 80/80 LIST----------

RATING TABLE FOR SECTION 31.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	964.20	0.0	0.0						
BANK FULL	965.7	24.5	69.3	0.00	0.00	0.00			
1	972.64	1176.0	390.0	0.11	0.00	0.00	390.00	966.7	.00007
2	973.02	1297.5	500.0	0.11	0.00	0.00	500.00	966.9	.00008
3	973.18	1347.5	540.0	0.00	0.00	0.00	540.00	967.0	.00009
4	973.60	1436.9	720.0	0.00	0.00	0.00	720.00	967.3	.00012

SEGMENT TABLE FOR SECTION 31.9

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	390.	98.	164.	128.
390.	VELOCITY FPS	.60	.19	.86	.28
2	DISCHARGE CFS	500.	137.	201.	162.
500.	VELOCITY FPS	.68	.23	1.01	.33
3	DISCHARGE CFS	540.	152.	213.	174.
540.	VELOCITY FPS	.70	.24	1.05	.35
4	DISCHARGE CFS	720.	220.	271.	229.
720.	VELOCITY FPS	.84	.33	1.27	.42
1	ELEV 972.64 KD	47732.	11778.	20267.	15687.
2	ELEV 973.02 KD	54292.	14741.	21929.	17622.
3	ELEV 973.18 KD	57212.	16122.	22630.	18460.
4	ELEV 973.60 KD	64682.	19623.	24548.	20710.

KD TABLE FOR CROSS SECTION 31.9

ELEVATION	AREA	KD	KD BY SEGMENT		
964.20	0.				
965.	9.	175.	1.	173.	1.
966.	34.	991.	3.	975.	10.
967.	86.	2830.	44.	2549.	222.
968.	170.	5841.	283.	4674.	874.
969.	291.	10400.	673.	7282.	2445.
970.	452.	16564.	1056.	10325.	5107.
971.	691.	25836.	3401.	13783.	8555.
972.	977.	38206.	7772.	17630.	12718.
973.	1291.	54046.	14579.	21844.	17522.
974.	1618.	72816.	23375.	26414.	22962.
975.	1958.	94275.	33895.	31324.	29010.
976.	2316.	116411.	46107.	36563.	33688.
977.	2693.	142494.	59933.	42119.	40790.
978.	3084.	172798.	75498.	47988.	49263.
979.	3487.	205384.	92769.	54153.	58424.
980.	3901.	241027.	112108.	60626.	68267.
981.	4323.	281195.	134946.	67381.	78868.
982.	4746.	324344.	159519.	74416.	90363.
983.	5170.	370152.	185894.	81729.	102483.
984.	5594.	418466.	213936.	89316.	115198.
985.	6019.	468388.	243313.	97168.	128391.
986.	6442.	522587.	275056.	105293.	142368.
987.	6868.	579610.	309235.	113687.	157136.
988.	7292.	640002.	345918.	122347.	172703.

RATING TABLE FOR SECTION +31.99 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRIT ELEV	FRICTION SLOPE
				DAMAGE	CHANNEL	NON-DAM			
0	965.60	0.0	0.0						
BANK FULL	967.1	24.5	80.8	0.00	0.00	0.00			
1	972.54	807.5	390.0	0.00	0.00	0.00	390.00	968.1	.00016
2	973.26	934.5	500.0	0.00	0.00	0.00	500.00	968.3	.00019
3	973.42	984.5	540.0	0.00	0.00	0.00	540.00	968.4	.00019
4	973.91	1136.8	720.0	0.00	0.00	0.00	720.00	968.7	.00024

SEGMENT TABLE FOR SECTION +31.99

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	390.	65.	193.	132.
390.	VELOCITY FPS	.88	.22	1.20	.38
2	DISCHARGE CFS	500.	100.	232.	168.
500.	VELOCITY FPS	.97	.26	1.35	.44
3	DISCHARGE CFS	540.	114.	245.	181.
540.	VELOCITY FPS	.99	.28	1.39	.45
4	DISCHARGE CFS	720.	177.	304.	238.
720.	VELOCITY FPS	1.13	.35	1.63	.54
1	ELEV 972.84 KO	31071.	5126.	15418.	10527.
2	ELEV 973.26 KO	36518.	7128.	17060.	12330.
3	ELEV 973.42 KO	38882.	8071.	17723.	13088.
4	ELEV 973.91 KO	46299.	11155.	19742.	15402.

KD TABLE FOR CROSS SECTION +31.99

ELEVATION	AREA	KD	KD BY SEGMENT		
965.60	0.				
966.	3.	39.	1.	37.	1.
967.	22.	560.	1.	557.	2.
968.	60.	1970.	16.	1855.	100.
969.	132.	4511.	157.	3763.	572.
970.	238.	8345.	534.	6182.	1601.
971.	376.	13869.	782.	9055.	4001.
972.	585.	21993.	2369.	12355.	7270.
973.	857.	33166.	5438.	16046.	11205.
974.	1165.	47846.	11763.	20114.	15831.
975.	1487.	65785.	20118.	24543.	21131.
976.	1821.	86502.	30059.	29319.	27059.
977.	2171.	108384.	41838.	34427.	32643.
978.	2541.	133578.	55303.	39859.	38367.
979.	2925.	162949.	70556.	45605.	46764.
980.	3322.	195041.	87632.	51657.	55852.
981.	3734.	229694.	106103.	58004.	65566.
982.	4154.	268815.	126058.	64643.	76058.
983.	4577.	311491.	152446.	71567.	87423.
984.	5000.	357299.	178889.	78772.	99619.
985.	5424.	405354.	206752.	86249.	112331.
986.	5849.	455635.	236051.	93994.	125557.
987.	6273.	508934.	267474.	102010.	139501.
988.	6698.	565602.	301356.	110297.	154250.
989.	7122.	625637.	337765.	118851.	169811.
990.	7547.	689237.	376769.	127669.	186191.

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKF	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	110.9500	344.4592	262.0414
DCRIT	-1.00	KBCRIT=									
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	110.9500	344.4592	262.0414
DCRIT	-1.00	KBCRIT=									
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	110.9500	344.4592	262.0414
DCRIT	-1.00	KBCRIT=									
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000	1.0000	110.9500	344.4592	262.0414
DCRIT	-1.00	KBCRIT=									

ROAD SECTION 32.0

NO.	HW	CFS	HL	TW	CSM
0	965.80	0.00	0.00	0.00	0.00
1	973.14	390.00	.34	972.84	390.00
2	973.53	500.00	.26	973.27	500.00
3	973.63	540.00	.20	973.43	540.00
4	974.06	720.00	.14	973.92	720.00

MIN ROAD ELEVATION 972.70

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 972.30 OPENING NO.= 1

RATING TABLE FOR SECTION 32.1+ DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	965.80	0.0	0.0						
BANK FULL.	967.3	24.5	79.2	0.00	0.00	0.00			
1	973.19	854.0	390.0	0.00	0.00	0.00	390.00	968.3	.00013
2	973.54	957.3	500.0	0.00	0.00	0.00	500.00	968.5	.00017
3	973.64	969.9	540.0	0.00	0.00	0.00	540.00	968.5	.00018
4	974.08	1125.1	720.0	0.00	0.00	0.00	720.00	968.9	.00024

SEGMENT TABLE FOR SECTION 32.1+

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	390.	71.	185.	134.
390.	VELOCITY FPS	.81	.22	1.12	.37
2	DISCHARGE CFS	500.	104.	225.	171.
500.	VELOCITY FPS	.92	.27	1.30	.44
3	DISCHARGE CFS	540.	116.	240.	184.
540.	VELOCITY FPS	.96	.28	1.36	.46
4	DISCHARGE CFS	720.	178.	300.	242.
720.	VELOCITY FPS	1.11	.36	1.61	.55
1	ELEV 973.19 KO	33527.	5986.	16020.	11532.
2	ELEV 973.54 KO	38269.	7804.	17368.	13097.
3	ELEV 973.64 KO	39851.	8449.	17797.	13605.
4	ELEV 974.08 KO	46575.	11265.	19587.	15723.

KD TABLE FOR CROSS SECTION 32.1+

ELEVATION	AREA	KD	KD BY SEGMENT		
965.80	0.				
966.	1.	8.	1.	6.	1.
967.	17.	404.	1.	402.	1.
968.	51.	1606.	8.	1535.	57.
969.	116.	3917.	112.	3338.	450.
970.	212.	7450.	482.	5664.	1304.
971.	349.	12810.	775.	8445.	3552.
972.	541.	20398.	1898.	11660.	5744.
973.	798.	31139.	5141.	15279.	10719.
974.	1101.	45467.	10756.	19272.	15350.
975.	1421.	63265.	18885.	23631.	20669.
976.	1753.	83941.	28879.	28338.	26681.
977.	2099.	106936.	40879.	33380.	32826.
978.	2464.	131023.	54242.	38748.	38033.
979.	2846.	160631.	69660.	44433.	46538.
980.	3243.	192868.	86693.	50422.	55727.
981.	3651.	227932.	105553.	56710.	65635.
982.	4069.	267105.	127444.	63292.	76318.
983.	4492.	310339.	152267.	70160.	87867.
984.	4916.	356990.	179314.	77310.	100365.
985.	5340.	405651.	207565.	84731.	113319.
986.	5764.	456950.	237800.	92424.	126894.
987.	6188.	511047.	269555.	100385.	141130.
988.	6613.	568607.	304034.	108619.	156195.
989.	7037.	629682.	341139.	117119.	172098.
990.	7462.	694321.	380851.	125885.	188646.

RATING TABLE FOR SECTION 33.0 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	965.90	0.0	0.0						
BANK FULL	970.0	136.9	213.5	0.00	0.00	0.00			
1	973.39	660.3	390.0	0.00	0.00	0.00	390.00	968.4	.00017
2	973.77	788.3	500.0	0.00	0.00	0.00	500.00	968.7	.00019
3	973.88	828.3	540.0	0.00	0.00	0.00	540.00	968.8	.00020
4	974.36	1021.5	720.0	0.00	0.00	0.00	720.00	969.3	.00023

SEGMENT TABLE FOR SECTION 33.0

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	390.	73.	267.	49.
390.	VELOCITY FPS	.97	.31	1.14	.26
2	DISCHARGE CFS	500.	107.	319.	74.
500.	VELOCITY FPS	1.05	.36	1.28	.31
3	DISCHARGE CFS	541.	119.	338.	83.
540.	VELOCITY FPS	1.08	.38	1.33	.32
4	DISCHARGE CFS	720.	179.	401.	140.
720.	VELOCITY FPS	1.16	.45	1.47	.40
1	ELEV 973.39 KO	30021.	5491.	20921.	3609.
2	ELEV 973.77 KO	35880.	7559.	23096.	5225.
3	ELEV 973.88 KO	37971.	8327.	23799.	5845.
4	ELEV 974.36 KO	46823.	11448.	26668.	8707.

KD TABLE FOR CROSS SECTION 33.0

ELEVATION	AREA	KD	KD BY SEGMENT		
965.90	0.				
966.	0.	3.	1.	2.	1.
967.	16.	346.	1.	343.	1.
968.	41.	1420.	1.	1418.	1.
969.	72.	3193.	1.	3190.	1.
970.	107.	5670.	2.	5667.	1.
971.	165.	9465.	76.	9273.	55.
972.	297.	15299.	751.	13693.	599.
973.	536.	25052.	3758.	18781.	2375.
974.	874.	40072.	9023.	24480.	6457.
975.	1286.	51909.	15918.	30768.	14143.
976.	1751.	89975.	27572.	37817.	24729.
977.	2262.	124143.	40864.	45006.	38207.
978.	2822.	164720.	57033.	52914.	54724.
979.	3427.	212849.	76731.	61327.	74732.
980.	4071.	268765.	100439.	70225.	97922.
981.	4744.	332861.	128596.	79602.	124523.
982.	5441.	405149.	160724.	89446.	154868.
983.	6155.	486391.	196038.	99745.	190516.
984.	5875.	578948.	234047.	110491.	234357.
985.	7598.	676326.	274179.	121660.	280961.
986.	8321.	781742.	317056.	133264.	331323.
987.	9043.	893445.	362698.	145297.	385483.
988.	9765.	1014812.	412335.	157785.	445354.
989.	10488.	1146186.	466110.	170721.	511248.
990.	11211.	1287904.	524168.	184103.	583468.

RATING TABLE FOR SECTION 34.0 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	968.10	0.0	0.0						
BANK FULL	971.4	59.1	216.2	0.00	0.00	0.00			
1	974.05	405.8	390.0	0.11	0.00	0.00	390.00	971.1	.00062
2	974.43	500.4	500.0	0.10	0.00	0.00	500.00	971.3	.00063
3	974.55	532.9	540.0	0.10	0.00	0.00	540.00	971.7	.00063
4	975.04	674.1	720.0	0.09	0.00	0.00	720.00	972.4	.00065

SEGMENT TABLE FOR SECTION 34.0

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	390.	38.	244.	108.
390.	VELOCITY FPS	1.49	.42	1.77	.60
2	DISCHARGE CFS	501.	62.	285.	153.
500.	VELOCITY FPS	1.52	.48	1.91	.68
3	DISCHARGE CFS	540.	72.	298.	170.
540.	VELOCITY FPS	1.53	.51	1.95	.71
4	DISCHARGE CFS	720.	123.	349.	248.
720.	VELOCITY FPS	1.58	.59	2.06	.83
1	ELEV 974.05 KD	15455.	1285.	10012.	4158.
2	ELEV 974.43 KD	19851.	2372.	11435.	6044.
3	ELEV 974.55 KD	21429.	2799.	11909.	6722.
4	ELEV 975.04 KD	28164.	4657.	13877.	9630.

KD TABLE FOR CROSS SECTION 34.0

ELEVATION	AREA	KD	KD BY SEGMENT		
968.10	0.				
969.	7.	116.	1.	114.	1.
970.	24.	695.	1.	693.	1.
971.	48.	1868.	1.	1866.	1.
972.	86.	3818.	18.	3747.	10.
973.	197.	7780.	330.	6487.	908.
974.	392.	15138.	1176.	9821.	3939.
975.	662.	27642.	4458.	13695.	9337.
976.	974.	45106.	10199.	18071.	16781.
977.	1332.	67440.	18711.	22911.	25762.
978.	1733.	94987.	30410.	28200.	36259.
979.	2177.	128323.	46185.	33920.	48173.
980.	2659.	167539.	66002.	40054.	61442.
981.	3181.	212464.	89814.	46583.	75961.
982.	3725.	266827.	121706.	53506.	91791.
983.	4276.	329425.	159449.	60810.	109008.
984.	4834.	398245.	201981.	68485.	127695.
985.	5389.	472718.	248348.	76520.	147810.
986.	5945.	551697.	297827.	84901.	168887.
987.	6502.	635680.	350944.	93628.	191019.
988.	7059.	725771.	408734.	102715.	214421.
989.	7615.	823262.	472495.	112173.	238331.
990.	8172.	928363.	542514.	121999.	265765.
991.	8728.	1041279.	619076.	132188.	293742.

RATING TABLE FOR SECTION 34.9+ DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	968.10	0.0	0.0						
BANK FULL	971.7	195.2	234.4	0.00	0.00	0.00			
1	974.09	394.3	390.0	0.00	0.00	0.00	390.00	969.8	.00014
2	974.47	427.1	500.0	0.00	0.00	0.00	500.00	970.1	.00018
3	974.59	438.0	540.0	0.00	0.00	0.00	540.00	970.1	.00020
4	975.08	481.7	720.0	0.00	0.00	0.00	720.00	970.4	.00026

SEGMENT TABLE FOR SECTION 34.9+

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	391.	1.	388.	0.
390.	VELOCITY FPS	1.01	.19	1.01	.16
2	DISCHARGE CFS	500.	2.	498.	1.
500.	VELOCITY FPS	1.19	.24	1.20	.20
3	DISCHARGE CFS	540.	2.	537.	1.
540.	VELOCITY FPS	1.26	.25	1.26	.21
4	DISCHARGE CFS	720.	4.	715.	2.
720.	VELOCITY FPS	1.53	.33	1.54	.28
1	ELEV 974.09 KO	32662.	84.	32547.	31.
2	ELEV 974.47 KO	37114.	127.	36937.	51.
3	ELEV 974.59 KO	38584.	142.	38384.	59.
4	ELEV 975.08 KO	44731.	213.	44424.	94.

PAINT CREEK FLOOD HAZARD ANALYSES, OAKLAND CO. MICHIGAN
10, 50, 100, AND 500 YEAR DISCHARGES FROM TR20 FLOOD ROUTING

KD TABLE FOR CROSS SECTION 34.9+

ELEVATION	AREA	KD	KD BY SEGMENT		
968.10	0.				
969.	22.	414.	1.	412.	1.
970.	75.	2495.	1.	2493.	1.
971.	143.	6610.	1.	6608.	1.
972.	219.	12704.	2.	12701.	1.
973.	301.	21281.	16.	21259.	4.
974.	387.	31668.	76.	31558.	23.
975.	475.	43739.	200.	43445.	87.
976.	566.	57415.	403.	56814.	195.
977.	661.	72617.	697.	71558.	358.
978.	758.	89313.	1095.	87634.	579.
979.	859.	107436.	1611.	104988.	882.
980.	964.	127137.	2255.	123573.	1304.
981.	1086.	147921.	3137.	143335.	1541.
982.	1240.	170469.	3372.	164265.	2695.
983.	1416.	196315.	4532.	186327.	4882.
984.	1602.	224852.	7716.	209492.	7497.
985.	1788.	255738.	11469.	233731.	10487.
986.	1974.	288496.	15615.	259001.	13737.
987.	2161.	323325.	20906.	285403.	17732.
988.	2347.	360234.	27572.	312928.	22588.
989.	2533.	399235.	35872.	341561.	28436.

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
2.4921	2.4921	0.0000	0.0000	0.0000	1.0000	.1921	1.0000	1.0000	62.6436	503.0724	368.7362
DCRIT	972.07	KBCRIT=									
2.5315	2.5315	0.0000	0.0000	0.0000	0.0000	.1843	1.0000	1.0000	67.1925	601.1168	401.7395
DCRIT	972.65	KBCRIT=									
2.5413	2.5413	0.0000	0.0000	0.0000	0.0000	.1824	1.0000	1.0000	91.5000	631.6103	412.3969
DCRIT	972.85	KBCRIT=									
2.5410	2.5410	0.0000	0.0000	0.0000	0.0000	.1824	1.0000	1.0000	91.5000	630.7938	455.8708
DCRIT	973.69	KBCRIT=									

ROAD SECTION 35.0

NO.	HW	CFS	HL	TW	CSM
0	968.40	0.00	0.00	0.00	0.00
1	975.60	390.00	1.50	974.10	390.00
2	976.65	500.00	2.18	974.47	500.00
3	977.00	540.00	2.40	974.60	540.00
4	977.75	720.00	2.66	975.09	720.00

MIN ROAD ELEVATION 963.40

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 976.50 OPENING NO. = 1

RATING TABLE FOR SECTION 35.1+ DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	968.40	0.6	0.0						
BANK FULL	972.0	195.2	195.0	0.00	0.00	0.00			
1	975.60	501.5	390.0	0.00	0.00	0.00	390.00	970.1	.00007
2	976.66	599.5	500.0	0.00	0.00	0.00	500.00	970.4	.00006
3	977.00	631.9	540.0	0.00	0.00	0.00	540.00	970.4	.00006
4	977.75	734.2	720.0	0.00	0.00	0.00	720.00	970.7	.00008

SEGMENT TABLE FOR SECTION 35.1+

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	390.	2.	387.	1.
390.	VELOCITY FPS	.80	.17	.80	.14
2	DISCHARGE CFS	500.	4.	494.	2.
500.	VELOCITY FPS	.87	.20	.87	.17
3	DISCHARGE CFS	540.	5.	533.	2.
540.	VELOCITY FPS	.89	.20	.90	.18
4	DISCHARGE CFS	721.	8.	708.	4.
720.	VELOCITY FPS	1.07	.25	1.08	.22
1	ELEV 975.60 KD	47674.	250.	47311.	113.
2	ELEV 976.66 KD	62644.	488.	61915.	241.
3	ELEV 977.00 KD	67853.	587.	66970.	296.
4	ELEV 977.75 KD	79941.	848.	78651.	442.

KD TABLE FOR CROSS SECTION 35.1+

ELEVATION	AREA	KD	KD BY SEGMENT		
968.40	0.				
969.	10.	148.	1.	145.	1.
970.	57.	1664.	1.	1662.	1.
971.	121.	5177.	1.	5175.	1.
972.	195.	10570.	1.	10568.	1.
973.	276.	18492.	7.	18480.	3.
974.	361.	28396.	52.	28328.	18.
975.	448.	39951.	153.	39728.	64.
976.	538.	53133.	327.	52645.	154.
977.	632.	67865.	587.	66971.	296.
978.	728.	84112.	947.	82658.	497.
979.	826.	101833.	1414.	99615.	768.
980.	932.	121026.	2013.	117857.	1145.
981.	1049.	141476.	2740.	137272.	1454.
982.	1190.	163405.	3267.	157868.	2131.
983.	1361.	187636.	3725.	179602.	4163.
984.	1546.	215769.	6633.	202446.	6631.
985.	1732.	245947.	10098.	226345.	9385.
986.	1918.	278014.	14031.	251299.	12484.
987.	2104.	312089.	18876.	277364.	16183.
988.	2291.	348224.	25003.	304553.	20694.
989.	2477.	386430.	32658.	332856.	25141.
990.	2663.	426716.	42121.	362254.	32657.

RATING TABLE FOR SECTION 35.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	967.60	0.0	0.0						
BANK FULL	971.2	195.2	175.4	0.00	0.00	0.00			
1	975.61	575.7	390.0	0.00	0.00	0.00	390.00	969.3	.00004
2	976.66	676.1	500.0	0.00	0.00	0.00	500.00	969.6	.00004
3	977.01	719.5	540.0	0.00	0.00	0.00	540.00	969.5	.00004
4	977.76	783.9	720.0	0.00	0.00	0.00	720.00	969.9	.00006

SEGMENT TABLE FOR SECTION 35.9

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	390.	3.	386.	1.
390.	VELOCITY FPS	.70	.15	.70	.13
2	DISCHARGE CFS	500.	5.	493.	3.
500.	VELOCITY FPS	.77	.18	.78	.16
3	DISCHARGE CFS	540.	6.	531.	3.
540.	VELOCITY FPS	.80	.19	.81	.16
4	DISCHARGE CFS	720.	9.	706.	5.
720.	VELOCITY FPS	.97	.23	.98	.20
10 1	ELEV 975.61 KD	53950.	422.	58322.	205.
50 2	ELEV 976.66 KD	75248.	740.	74126.	383.
100 3	ELEV 977.01 KD	80653.	865.	79537.	452.
500 4	ELEV 977.76 KD	93888.	1193.	92059.	635.

KD TABLE FOR CROSS SECTION 35.9

ELEVATION	AREA	KD	KD BY SEGMENT		
957.50	0.				
968.	5.	51.	1.	49.	1.
969.	46.	1184.	1.	1182.	1.
970.	107.	4328.	1.	4326.	1.
971.	180.	9343.	1.	9341.	1.
972.	260.	16728.	4.	16721.	2.
973.	344.	26252.	38.	26198.	11.
974.	430.	37524.	128.	37344.	52.
975.	520.	50374.	285.	49952.	132.
976.	613.	64792.	525.	63995.	262.
977.	709.	80739.	862.	79417.	450.
978.	806.	98162.	1308.	96140.	703.
979.	911.	117057.	1874.	114116.	1054.
980.	1024.	137282.	2571.	133296.	1405.
981.	1156.	158820.	3243.	153667.	1823.
982.	1323.	182222.	3281.	175181.	3761.
983.	1529.	209916.	5941.	197780.	6026.
984.	1695.	239654.	9272.	221471.	8726.
985.	1881.	271320.	13138.	246222.	11773.
986.	2067.	304943.	17723.	272061.	15303.
987.	2254.	340621.	23545.	299026.	19622.
988.	2441.	378362.	30837.	327107.	24845.
989.	2626.	418177.	39868.	356290.	31105.

----------80/80 LIST OF INPUT DATA----------

SP2								001
ITLE	PAINT CREEK FLOOD HAZARD ANALYSES, OAKLAND CO. MICHIGAN						1A	
ITLE	10, 50, 100, AND 500 YEAR DISCHARGES FROM TR20 FLOOD ROUTING						2A	
ISCHARGE	-1.	610.	950.	1160.	1610.		3A	
TASTE	9.9	794.45	795.07	795.39	795.95		4A	
RIB	17.1+	22.9	27.1				5A	
UTPUT	SK						6A	
EACH	9.9	1.	3.	0.			10	
EGMENT	9.9	1	N	62.			11	
VALUE	.075						12	
EGMENT	9.9	2	C	76.			13	
VALUE	.045						14	
EGMENT	9.9.	3	N	171.			15	
VALUE	.075						16	
ECTION	9.9						17	
	3.	807.	1.	798.	12.	796.	18	
	27.	794.	49.	792.	62.	789.4	19	
	66.	787.7	70.	787.8	74.	788.3	20	
	79.	788.9	121.	792.	140.	794.	21	
	148.	796.	152.	798.	160.	800.	22	
	170.	802.	171.	807.			23	
NOTABLE							24	
OAD	10.0	2.7	1.	1.			25	
PR	10.0	B	1				26	
IRDER	799.	798.4	0.	.6	2.55		27	
	-11.7	800.7	-11.7	798.2	11.7	798.6	28	
	11.7	801.1					29	
NOTABLE							30	
ECTION	10.0						31	
	-416.	812.	-415.	807.7	-400.	806.4	32	
	-300.	801.1	-200.	799.	-100.	799.2	33	
	-11.7	800.7	-11.7	790.	-10.	789.8	34	
	-9.9	787.7	-9.8	788.8	-5.	789.8	35	
	0.	790.	5.	790.2	11.7	791.2	36	
	11.7	801.1	100.	801.	200.	803.2	37	
	300.	804.4	401.	807.2	401.	812.	38	
NOTABLE							39	
EACH	10.1	1.	3.	56.			40	
EGMENT	10.1	1	N	256.			41	
VALUE	.075						42	
EGMENT	10.1	2	C	272.			43	
VALUE	.045						44	
EGMENT	10.1	3	N	354.			45	
VALUE	.075						46	
ECTION	10.1						47	

80/80 LIST OF INPUT DATA

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          0.        803.      1.        798.      9.        796.      48
          18.       794.      256.      792.3     260.      790.6     49
          264.      790.7     268.      792.2     272.      791.8     50
          309.      794.      330.      796.      345.      798.      51
          353.      800.      354.      803.                          52
NOTABLE                                                             53
EACH      10.9      1.        325.      310.                          54
EGMENT    10.9      1         N         544.                          55
VALUE     .075                                                      56
EGMENT    10.9      2         C         570.                          57
VALUE     .055                                                      58
EGMENT    10.9      3         N         661.                          59
VALUE     .035                                                      60
ECTION    10.9                                                      61
          -3.       810.      -2.       810.      -1.       810.      62
               0.00     805.20     20.00     802.20     66.00     800.00    63
              80.00     795.50    150.00     794.40    260.00     794.50    64
             360.00     795.00    460.00     795.20    544.00     795.00    65
             552.00     792.70    556.00     791.00    560.00     791.10    66
             564.00     791.60    568.00     792.20    570.00     795.00    67
             580.00     791.30    588.00     799.60    660.00     804.20    68
          661.      810.                                            69
NOTABLE                                                             70
EACH      10.99     1.        740.      595.                          71
EGMENT    10.99     1         N         40.                           73
VALUE     .035                                                      74
EGMENT    10.99     2         C         72.                           75
VALUE     .055                                                      76
EGMENT    10.99     3         N         531.                          77
VALUE     .035                                                      78
ECTION    10.99                                                     79
          0.        812.      1.        808.      10.       808.      80
          20.       800.      28.       798.      35.       796.      81
          40.       794.      48.       793.1     48.1      790.2     82
          48.2      793.1     56.       793.2     64.       793.7     83
          72.       794.3     80.       796.      530.      798.      84
          531.      812.                                            85
NOTABLE                                                             86
QAD       11.0      2.7       50.       50.                           87
PR        11.0      8         3                                       88
IRDER     798.5     797.67    0.        .6        2.6                 89
          -22.7     801.6     -22.7     797.6     22.7      797.8     90
          22.7      801.8                                           91
NOTABLE                                                             92
ECTION    11.0                                                      93
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----------80/80 LIST OF INPUT DATA----------

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         -201.      809.       -200.      800.       -100.      800.4      94
         -25.       800.7      -22.7      801.6      -22.       796.6      95
         -20.       794.1      -15.       793.2      -10.       792.8      96
         -5.        791.8      0.         790.2      5.         791.9      97
         10.        793.2      15.        795.4      20.        796.5      98
         22.        796.9      22.7       801.8      25.        801.       99
         100.       801.2      200.       801.8      201.       809.       100
NOTABLE                                                                    101
EACH     11.1+      1.         50.        50.                              102
EACH2    10.99                                                            103
EACH     11.9       1.         955.       800.                             104
EGMENT   11.9       1          N          87.                              105
VALUE    .095                                                             106
EGMENT   11.9       2          C          114.                             107
VALUE    .065                                                             108
EGMENT   11.9       3          N          456.                             109
VALUE    .095                                                             110
ECTION   11.9                                                             111
         -3.        815.       -2.        815.       -1.        815.       112
              0.00     810.40      10.00     805.50      70.00     801.20    113
             87.00     798.40      90.00     793.90      95.00     793.30    114
            100.00     793.70     105.00     793.60     110.00     796.40    115
            114.00     798.00     200.00     797.80     300.00     798.00    116
            400.00     797.90     435.00     798.40     455.00     803.30    117
         456.       815.                                                   118
NOTABLE                                                                    119
EACH     11.99      1.         1371.      1090.                            120
EGMENT   11.99      1          N          249.                             121
VALUE    .1                                                               122
EGMENT   11.99      2          C          267.                             123
VALUE    .05                                                              124
EGMENT   11.99      3          N          431.                             125
VALUE    .1                                                               126
ECTION   11.99                                                            127
         0.         810.       50.        800.       60.        798.       128
         160.       798.       240.       797.5      245.       794.8      129
         249.       794.5      253.       794.3      263.       794.7      130
         267.       799.       410.       800.       430.       807.       131
         431.       810.                                                   132
NOTABLE                                                                    133
OAD      12.0       2.7        50.        50.                              134
PR       12.0       B          S          2                                135
IER      799.4      1.         798.5      1.         795.7      1.         136
IRDER    807.       806.17     0.         .7         2.65                  137
         -30.       808.82     -30.       806.17     30.        805.72     138
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----------80/80 LIST OF INPUT DATA----------

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         30.       808.43                                                  139
NOTABLE                                                                    140
ECTION   12.0                                                              141
         -301.     815.      -300.     810.6     -200.     809.8           142
         -100.     809.1     -30.      808.82    -30.      801.9           143
         -25.      801.4     -20.      800.3     -15.      799.4           144
         -10.      800.4     -5.       800.5     -1.       800.3           145
         0.        798.5     5.        798.      10.       794.5           146
         15.       795.7     20.       797.9     25.       799.5           147
         30.       799.7     30.       808.43    100.      807.8           148
         200.      807.3     300.      806.9     301.      815.            149
NOTABLE                                                                    150
EACH     12.1+     1.        50.       50.                                 141++
EACH2    11.99     .2                                                      142++
EACH     12.9      1.        2750.     2050.                               143++
EGMENT   12.9      1                   215.                                144++
VALUE    .125                                                              145++
EGMENT   12.9      2         C         245.                                146++
VALUE    .05                                                               147++
EGMENT   12.9      3         N         466.                                148++
VALUE    .125                                                              149++
ECTION   12.9                                                              150++
         -3.       820.      -2.       820.      -1.       820.            151
              0.00     813.60     30.00     810.10     55.00     808.80     152
            105.00     810.30    130.00     804.90    215.00     805.90     153
            217.00     803.60    223.00     803.00    230.00     801.60     154
            237.00     800.60    242.00     803.10    245.00     805.60     155
            330.00     805.20    430.00     805.60    445.00     805.60     156
         465.      813.5     465.      820.                                157
NOTABLE                                                                    158
EACH     +12.99    1.        1750.     1200.                               158A
EACH2    13.1                                                              159
OAD      13.0      2.7       50.       50.                                 160
PR       13.0      8         2                                             161
INDER    812.9     812.12    41.       .6        2.69                      162
         -22.3     818.71    -22.3     812.12    22.3      812.42          163
         22.3      818.91                                                  164
NOTABLE                                                                    165
ECTION   13.0                                                              166
         -301.     820.      -300.     817.3     -200.     817.9           167
         -100.     818.4     -22.3     818.71    -22.3     812.12          168
         -19.      812.12    -19.      807.1     -15.      806.5           169
         -10.      805.5     -5.       805.2     0.        804.9           170
         5.        805.1     10.       805.      15.       805.9           171
         19.       806.3     19.       812.42    22.3      818.97          172
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30/60 LIST OF INPUT DATA

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          100.      819.3     200.      819.8     300.      820.2     173
          301.      820.                                              174
NOTABLE                                                             175
EACH      13.1      1         50.       50.                           176
EGMENT    13.1      1         N         37.                           177
VALUE     .115                                                        178
EGMENT    13.1      2         C         69.                           179
VALUE     .05                                                         180
EGMENT    13.1      3         N         488.                          181
VALUE     .115                                                        182
ECTION    13.1                                                        183
          0.        823.      1.        818.      11.       816.      184
          18.       814.      21.       812.      30.       810.      185
          35.       808.      37.       809.3     39.       807.      186
          45.       806.4     52.       805.      54.       804.98    187
          64.       806.5     57.       809.      69.       809.4     188
          317.      810.      321.      812.      332.      814.      189
          336.      816.      338.      818.      487.      820.      190
          488.      823.                                              191
NOTABLE                                                             192
EACH      13.9      1.        1425.     1350.                         193
EGMENT    13.9      1         N         354.                          194
VALUE     .1                                                          195
EGMENT    13.9      2         C         387.                          196
VALUE     .045                                                        197
EGMENT    13.9      3         N         571.                          198
VALUE     .125                                                        199
ECTION    13.9                                                        200
          -3.       832.      -2.       832.      -1.       832.      201
              0.00    827.10     35.00    819.20     70.00    816.70   202
            170.00    815.20    270.00    813.00    354.00    813.20   203
            357.00    808.20    363.00    808.20    370.00    809.50   204
            377.00    809.20    385.00    811.20    387.00    813.40   205
            440.00    812.20    480.00    828.70    570.00    829.70   206
          571.      832.                                              207
NOTABLE                                                             208
EACH      13.99     1.        1310.     690.                          209
EGMENT    13.99     1         N         420.                          210
VALUE     .1                                                          211
EGMENT    13.99     2         C         453.                          212
VALUE     .045                                                        213
EGMENT    13.99     3         N         531.                          214
VALUE     .125                                                        215
ECTION    13.99                                                       216
          0.        830.      1.        824.      40.       822.      217
```

80/80 LIST OF INPUT DATA

	163.	820.	190.	814.	264.	816.	218
	420.	816.3	423.	811.3	429.	811.3	219
	436.	812.6	443.	812.3	451.	814.3	220
	453.	816.5	463.	816.	473.	818.	221
	505.	820.	530.	821.	531.	830.	222
NOTABLE							223
OAD	14.0	2.7	50.	50.			224
PR	14.0	3	1				225
IRDER	919.	818.6	3.	.6	2.55		226
	-17.75	321.1	-17.75	815.6	-17.	815.6	227
	-17.	818.6	17.	818.8	17.	815.8	228
	17.75	815.8	17.75	821.3			223A
NOTABLE							229
ECTION	14.0						230
	-471.	835.	-470.	828.6	-400.	824.6	231
	-300.	821.4	-200.	819.8	-100.	819.8	232
	-17.75	821.1	-17.75	812.1	-15.	812.5	233
	-10.	813.5	-6.	814.	-4.	814.7	234
	-1.	814.6	0.	813.8	5.	813.6	235
	10.	813.	15.	812.	17.75	811.8	236
	17.75	821.3	88.	820.9	100.	821.2	237
	200.	828.7	200.	835.			238
NOTABLE							240
EACH	14.05	1.	50.	50.			241
EGMENT	14.05	1	N	388.			242
VALUE	.1						243
EGMENT	14.05	2	C	416.			244
VALUE	.045						245
EGMENT	14.05	3	N	488.			246
VALUE	.125						247
ECTION	14.05						248
	0.	832.	1.	826.	20.	824.	249
	100.	822.	172.	820.	215.	818.	250
	363.	816.	385.	818.	388.	813.7	251
	394.	813.7	401.	815.	408.	814.7	252
	416.	816.7	429.	818.	460.	820.	253
	485.	821.6	486.	832.			254
NOTABLE							255
EACH	14.1	1.	150.	145.			256
EGMENT	14.1	1	N	189.			257
VALUE	.1						258
EGMENT	14.1	2	C	211.			259
VALUE	.05						260
EGMENT	14.1	3	N	273.			261
VALUE	.11						262

```
----------------------------80/80 LIST OF INPUT DATA-----------------------------
ECTION   14.1                                                                263
         -3.        836.       -2.        836.       -1.        836.        264
              0.00     824.20     100.00     822.40     120.00     820.80    265
            135.00     817.20     169.00     815.20     192.00     812.00    266
            194.00     812.10     200.00     812.50     206.00     812.80    267
            208.00     813.40     211.00     816.90     220.00     819.90    268
         235.       822.4      272.       821.9      273.       836.        269
NOTABLE                                                                      270
EACH     14.5       1.         1400.      1300.                              271
EGMENT   14.5       1          N          325.                               272
VALUE    .125                                                                273
EGMENT   14.5       2          C          355.                               274
VALUE    .05                                                                 275
EGMENT   14.5       3          N          431.                               276
VALUE    .125                                                                277
ECTION   14.5                                                                278
         -3.        836.       -2.        836.       -1.        836.        279
              0.00     830.80      20.00     826.20      40.00     825.20    280
            140.00     823.70     240.00     823.00     300.00     822.80    281
            310.00     825.10     325.00     818.60     328.00     817.10    282
            330.00     816.10     340.00     815.30     350.00     816.10    283
            352.00     816.90     355.00     818.30     365.00     826.50    284
            385.00     824.40     400.00     830.10     430.00     830.30    285
         431.       836.                                                     286
NOTABLE                                                                      287
EACH     14.9       1.         900.       740.                               288
EGMENT   14.9       1          N          190.                               289
VALUE    .125                                                                290
EGMENT   14.9       2          C          220.                               291
VALUE    .05                                                                 292
EGMENT   14.9       3          N          541.                               293
VALUE    .125                                                                294
ECTION   14.9                                                                295
         0.         837.       1.         830.       11.        828.        296
         18.        826.       180.       824.       190.       825.4       297
         193.       823.9      195.       822.9      205.       822.1       298
         215.       822.9      217.       823.7      220.       825.1       299
         225.       824.       232.       826.       356.       828.        300
         500.       830.       540.       832.       541.       837.        301
NOTABLE                                                                      302
LOAD     15.0       2.7        50.        50.                                303
PR       15.0       8          3                                             304
IRDER    831.       830.54     0.         .6         2.55                    305
         -14.25     836.9      -14.25     833.31     -14.25     832.86      306
         14.25      836.5                                                    307
```

```
-----------------------------80/80 LIST OF INPUT DATA-----------------------------
NOTABLE                                                                        308
ECTION   15.0                                                                  309
         -301.     850.      -300.     844.1     -200.     841.               310
         -100.     838.6     -14.25    836.9     -14.      825.3              311
         -10.      824.4     -5.       823.5     0.        823.5              312
         5.        823.1     10.       822.6     14.       823.2              313
         14.25     836.5     100.      835.1     200.      834.5              314
         300.      834.3                                                      315
NOTABLE                                                                        316
EACH     15.1+     1.        50.       50.                                    317
EACH2    15.5      -2.85                                                      318
EACH     15.5      1.        500.      370.                                   319
EGMENT   15.5      1         N         16.                                    320
VALUE    .125                                                                 321
EGMENT   15.5      2         C         54.                                    322
VALUE    .05                                                                  523
EGMENT   15.5      3         N         726.                                   324
VALUE    .125                                                                 325
ECTION   15.5                                                                 326
         -3.       845.      -2.       845.      -1.       845.               327
              0.00     840.00     10.00     834.30     16.00     827.60     328
             17.00     826.90     20.00     825.60     25.00     825.70     329
             35.00     826.10     45.00     826.00     50.00     826.10     330
             53.00     826.20     54.00     828.20     90.00     831.60     331
            135.00     831.30    235.00     831.50    335.00     831.40     332
            423.00     834.50    435.00     833.70    460.00     834.20     333
            480.00     829.20    535.00     829.40    635.00     829.20     334
            685.00     829.10    705.00     835.80    725.00     836.60     335
         726.      845.                                                      336
NOTABLE                                                                        337
EACH     16.0      1.        525.      500.                                   338
EGMENT   16.0      1         N         -18.                                   339
VALUE    .07                                                                  340
EGMENT   16.0      2         C         18.                                    341
VALUE    .045                                                                 342
EGMENT   16.0      3         N         541.                                   343
VALUE    .07                                                                  344
ECTION   16.0                                                                 345
         -71.      847.      -70.      841.4     -50.      838.3              346
         -50.      837.3     -18.      834.4     -17.      831.7              347
         -15.      830.2     -10.      827.5     -5.       827.               348
         0.        827.2     5.        827.3     10.       827.               349
         15.       827.7     17.       829.5     18.       833.9              350
         30.       832.3     100.      832.      200.      833.1              351
         300.      831.      400.      830.9     500.      829.4              352
```

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----------80/80 LIST OF INPUT DATA----------
        540.    831.4   541.    847.                            353
NOTABLE                                                         354
EACH    16.9    1.      285.    280.                            355
EGMENT  16.9    1       N       234.                            356
VALUE   .095                                                    357
EGMENT  16.9    2       N       260.                            358
VALUE   .05                                                     359
EGMENT  16.9    3       N       291.                            360
VALUE   .095                                                    361
ECTION  16.9                                                    362
        0.      842.    1.      836.    66.     834.            363
        145.    832.    232.    830.    234.    829.8           364
        240.    827.9   247.    826.8   254.    827.            365
        260.    829.5   262.    830.    270.    832.            366
        284.    834.    290.    834.    291.    842.            367
NOTABLE                                                         368
OAD     17.0    2.7     50.     50.                             369
PR      17.0    8       1                                       370
IRDER   834.8   834.27  0.      .6      2.65                    371
        -14.    836.72  -14.    834.29  14.     834.24          372
        14.     836.67                                          373
NOTABLE                                                         374
ECTION  17.0                                                    375
        -601.   846.    -600.   841.7   -500.   840.            376
        -400.   838.3   -300.   837.7   -200.   838.8           377
        -100.   837.1   -18.    836.3   -14.    836.72          378
        -14.    829.1   -1.     828.5   -5.     827.9           379
        0.      828.2   5.      828.3   10.     829.2           380
        14.     830.    14.     836.67  18.     836.3           381
        100.    834.9   200.    834.2   300.    833.6           382
        301.    846.                                            383
NOTABLE                                                         384
EACH    17.1+   1.      50.     50.                             385
EACH2   16.9    .32                                             386
OMPUTE  9.9     17.1+   9.9                                         1270A
----------END OF 80/80 LIST----------
```

COMPUTE 9.3 17.1+ 9.9 1270A

----------STARTING DATA FROM GIVEN ELEVATION----------

RATING TABLE FOR SECTION 9.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	787.70	0.0	0.0						
BANK FULL	788.9	10.9	108.4	0.00	0.00	0.00			
1	794.45	379.1	610.0	0.00	0.00	0.00	610.00	791.1	.00078
2	795.07	454.3	950.0	0.00	0.00	0.00	950.00	791.7	.00118
3	795.39	495.3	1160.0	0.00	0.00	0.00	1160.00	792.0	.00141
4	795.95	559.2	1610.0	0.00	0.00	0.00	1610.00	792.6	.00188

SEGMENT TABLE FOR SECTION 9.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	610.	75.	303.	232.
610.	VELOCITY FPS	2.31	.91	3.05	1.17
2	DISCHARGE CFS	950.	133.	438.	379.
950.	VELOCITY FPS	2.95	1.24	4.01	1.59
3	DISCHARGE CFS	1160.	173.	516.	471.
1160.	VELOCITY FPS	3.29	1.42	4.51	1.82
4	DISCHARGE CFS	1610.	263.	676.	672.
1610.	VELOCITY FPS	3.92	1.78	5.48	2.25
1	ELEV 794.45 KD	21778.	2627.	10905.	8244.
2	ELEV 795.07 KD	27596.	3835.	12780.	10981.
3	ELEV 795.39 KD	30848.	4549.	13793.	12506.
4	ELEV 795.95 KD	37063.	6001.	15640.	15452.

KD TABLE FOR CROSS SECTION 9.9

ELEVATION	AREA	KD	KD BY SEGMENT		
787.70	0.				
788.	1.	17.	1.	14.	1.
789.	13.	354.	1.	351.	2.
790.	38.	1452.	7.	1333.	107.
791.	81.	3544.	105.	2820.	604.
792.	143.	6848.	388.	4726.	1727.
793.	225.	11611.	906.	6999.	3681.
794.	327.	18127.	1937.	9621.	6555.
795.	445.	26930.	3891.	12564.	10665.
796.	576.	37714.	6142.	15809.	15723.
797.	716.	50672.	9431.	19349.	21864.
798.	863.	65631.	13615.	23170.	28847.
799.	1016.	82533.	18942.	27260.	36306.
800.	1173.	101161.	25060.	31612.	44467.
801.	1334.	121370.	31820.	36220.	53324.
802.	1501.	143330.	39079.	41073.	63171.
803.	1671.	168346.	46817.	46167.	75346.
804.	1841.	195108.	55045.	51497.	88549.
805.	2011.	223292.	63714.	57058.	102505.
806.	2181.	253065.	72898.	62648.	117325.
807.	2352.	284904.	82809.	68870.	133326.
808.	2522.	318834.	93463.	75121.	150534.
809.	2693.	354879.	104877.	81598.	168974.

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKC	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
2.6787	2.6787	0.0000	0.0000	0.0000	0.0000	.1557	1.0000	1.0000	100.1343	1902.2181	379.2129
DCRIT	792.90	KBCRIT=									
2.7652	2.7652	0.0000	0.0000	0.0000	0.0000	.1391	1.0000	1.0000	115.3557	2625.9380	454.4604
DCRIT	793.85	KBCRIT=									
2.7891	2.7891	0.0000	0.0000	0.0000	0.0000	.1345	1.0000	1.0000	193.2500	2929.7425	495.4336
DCRIT	794.38	KBCRIT=									
2.7802	2.7802	0.0000	0.0000	0.0000	0.0000	.1362	1.0000	1.0000	135.5640	2823.8568	569.5058
DCRIT	795.42	KBCRIT=0									

Culvert

100y

PAINT CREEK FLOOD HAZARD ANALYSES, D[redacted]ND CO. MICHIGAN
10, 50, 100, AND 500 YEAR DISCHARGES FROM TR20 FLOOD ROUTING

ROAD SECTION 10.0

NO.	HW	CFS	HL	TW	CSM
0	787.70	0.00	0.00	0.00	0.00
1	796.05	610.00	1.60	794.45	610.00
2	798.11	950.00	3.04	795.07	950.00
3	798.99	1160.00	3.60	795.39	1160.00
4	798.67	1610.00	2.72	795.95	1610.00C

MIN ROAD ELEVATION 799.00

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 798.40 OPENING NO.= 1

For 100 & 500 Yr Profile use hand computations and run of 5/11/78

RATING TABLE FOR SECTION 10.1 DA= 1.0

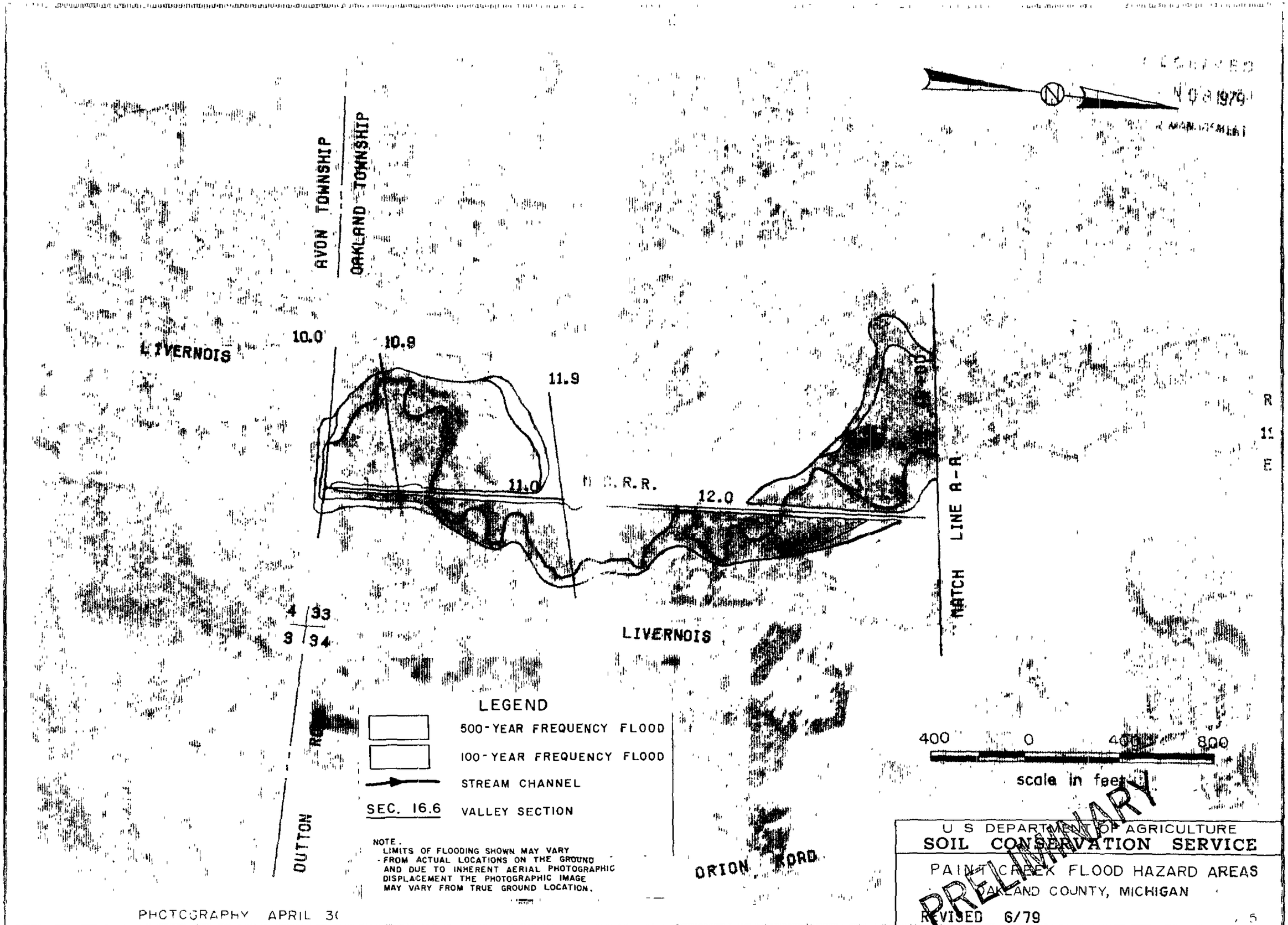
NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	CSM	CRIT ELEV	FRICTION SLOPE
0	790.60	0.0	0.0						
BANK FULL	791.8	10.9	134.2	0.00	0.00	0.00			
1	796.05	918.8	610.0	0.00	0.00	0.00	610.00	793.3	.00023
2	798.11	1604.6	950.0	0.00	0.00	0.00	950.00	793.6	.00010
3	798.99	1909.4	1160.0	0.00	0.00	0.00	1160.00	793.7	.00009
4	798.67	1738.1	1610.0	0.00	0.00	0.00	1610.00	793.9	.00020

SEGMENT TABLE FOR SECTION 10.1

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	610.	423.	112.	75.
610.	VELOCITY FPS	.82	.60	1.42	.54
2	DISCHARGE CFS	950.	686.	132.	132.
950.	VELOCITY FPS	.68	.56	1.19	.48
3	DISCHARGE CFS	1160.	841.	150.	169.
1160.	VELOCITY FPS	.69	.58	1.19	.50
4	DISCHARGE CFS	1610.	1166.	213.	231.
1610.	VELOCITY FPS	1.01	.86	1.77	.73
1	ELEV 796.05 KD	39937.	27658.	7383.	4897.
2	ELEV 798.11 KD	94625.	68288.	13224.	13113.
3	ELEV 798.99 KD	124474.	90229.	16120.	18125.
4	ELEV 798.67 KD	113354.	82077.	15045.	16232.

KD TABLE FOR CROSS SECTION 10.1

ELEVATION	AREA	KD	KD BY SEGMENT		
790.60	0.				
791.	2.	28.	1.	26.	1.
792.	15.	425.	1.	420.	3.
793.	78.	1972.	337.	1464.	170.
794.	293.	7593.	3655.	2993.	861.
795.	586.	20291.	12957.	4937.	2369.
796.	962.	38776.	26764.	7247.	4739.
797.	1228.	62649.	44519.	9903.	8148.
798.	1566.	91135.	65710.	12874.	12541.
799.	1912.	124800.	90456.	16150.	18178.
800.	2262.	163144.	118419.	19719.	24990.
801.	2615.	205867.	149224.	23556.	33063.
802.	2968.	252574.	182720.	27694.	42160.
803.	3322.	303479.	219179.	32069.	52257.
804.	3675.	359485.	259226.	36727.	63703.
805.	4029.	420666.	302908.	41654.	76557.
806.	4382.	487089.	350268.	46843.	90874.



AVON TOWNSHIP
OAKLAND TOWNSHIP
LIVERNOIS
10.0
10.9
11.9
11.0
N.C.R.R.
12.0
MATCH LINE A-A
4 33
3 34
LIVERNOIS
OUTTON
ORION ROAD
LEGEND
500-YEAR FREQUENCY FLOOD
100-YEAR FREQUENCY FLOOD
STREAM CHANNEL
SEC. 16.6 VALLEY SECTION
NOTE.
LIMITS OF FLOODING SHOWN MAY VARY FROM ACTUAL LOCATIONS ON THE GROUND AND DUE TO INHERENT AERIAL PHOTOGRAPHIC DISPLACEMENT THE PHOTOGRAPHIC IMAGE MAY VARY FROM TRUE GROUND LOCATION.
400 0 400 800
scale in feet
PRELIMINARY
U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
PAINT CREEK FLOOD HAZARD AREAS
OAKLAND COUNTY, MICHIGAN
REVISED 6/79
PHOTOGRAPHY APRIL 3(

A. A. S. C. 14611

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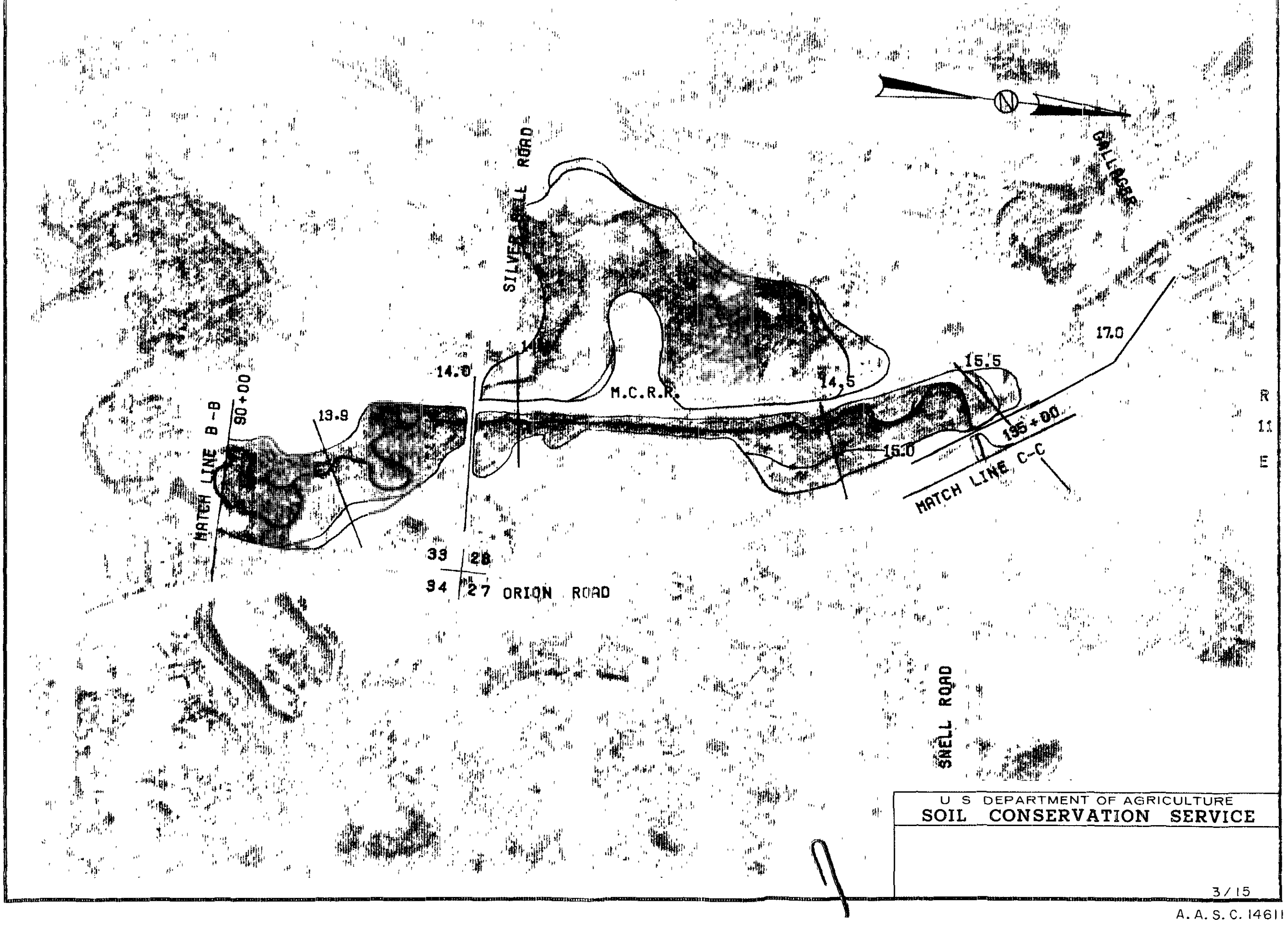

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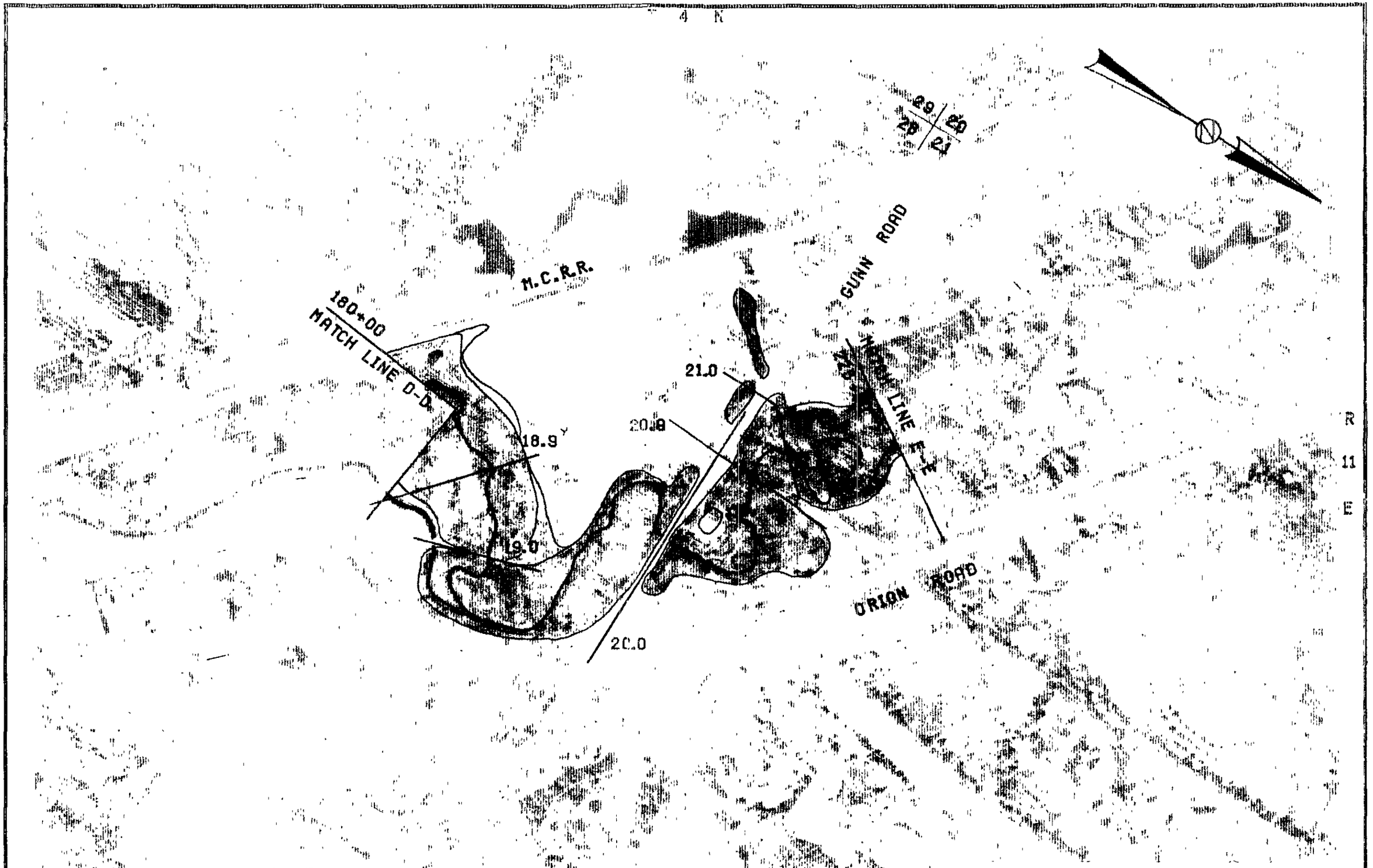

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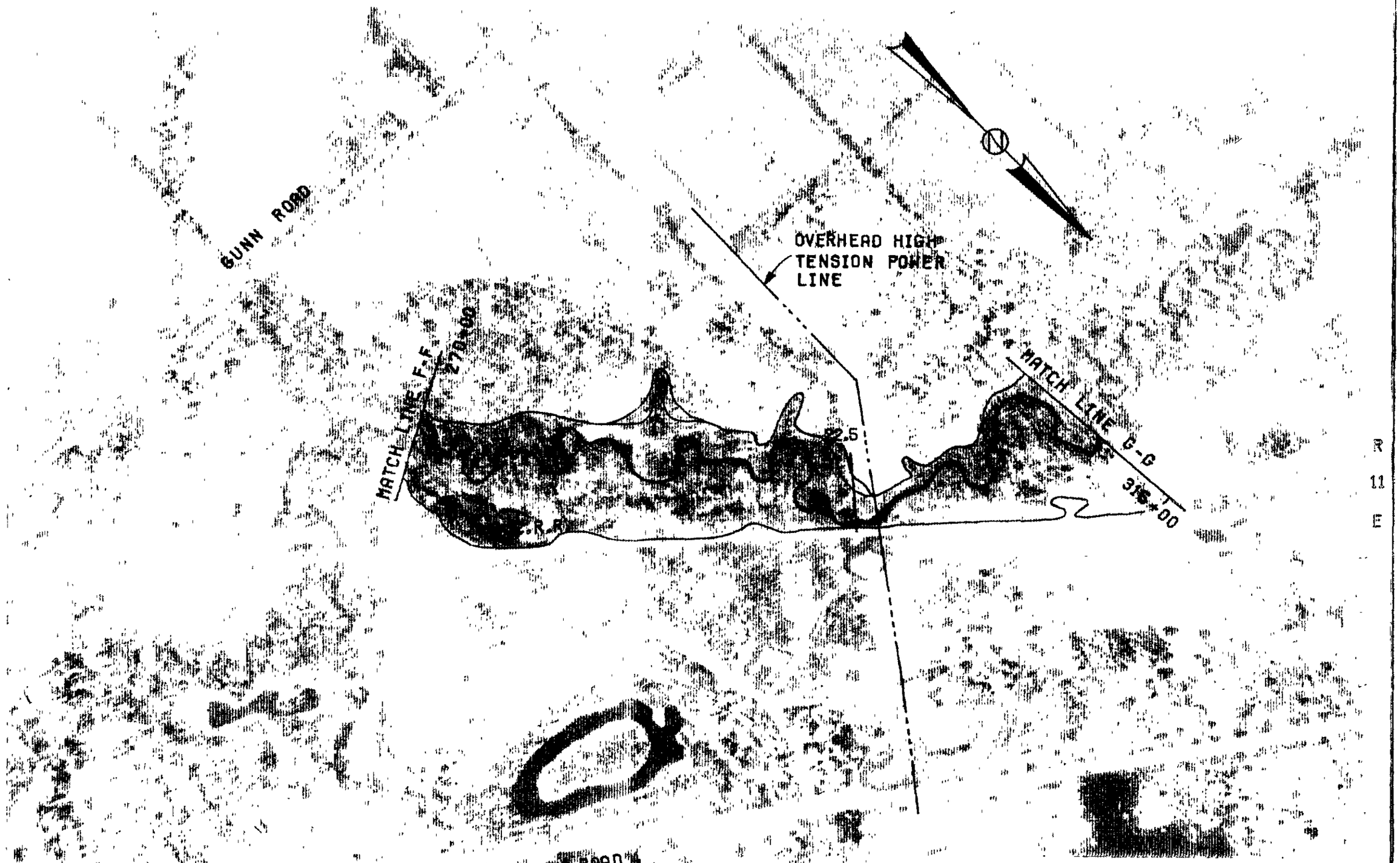


U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

7/15

A. A. S. C. 14611

T 4 N

R 11 E

ADAMS ROAD

22.9

23.0

MATCH LINE G-G

215+80

MATCH LINE H-H

360+00

M.C.R.R.

ORION ROAD

BUELL RD.

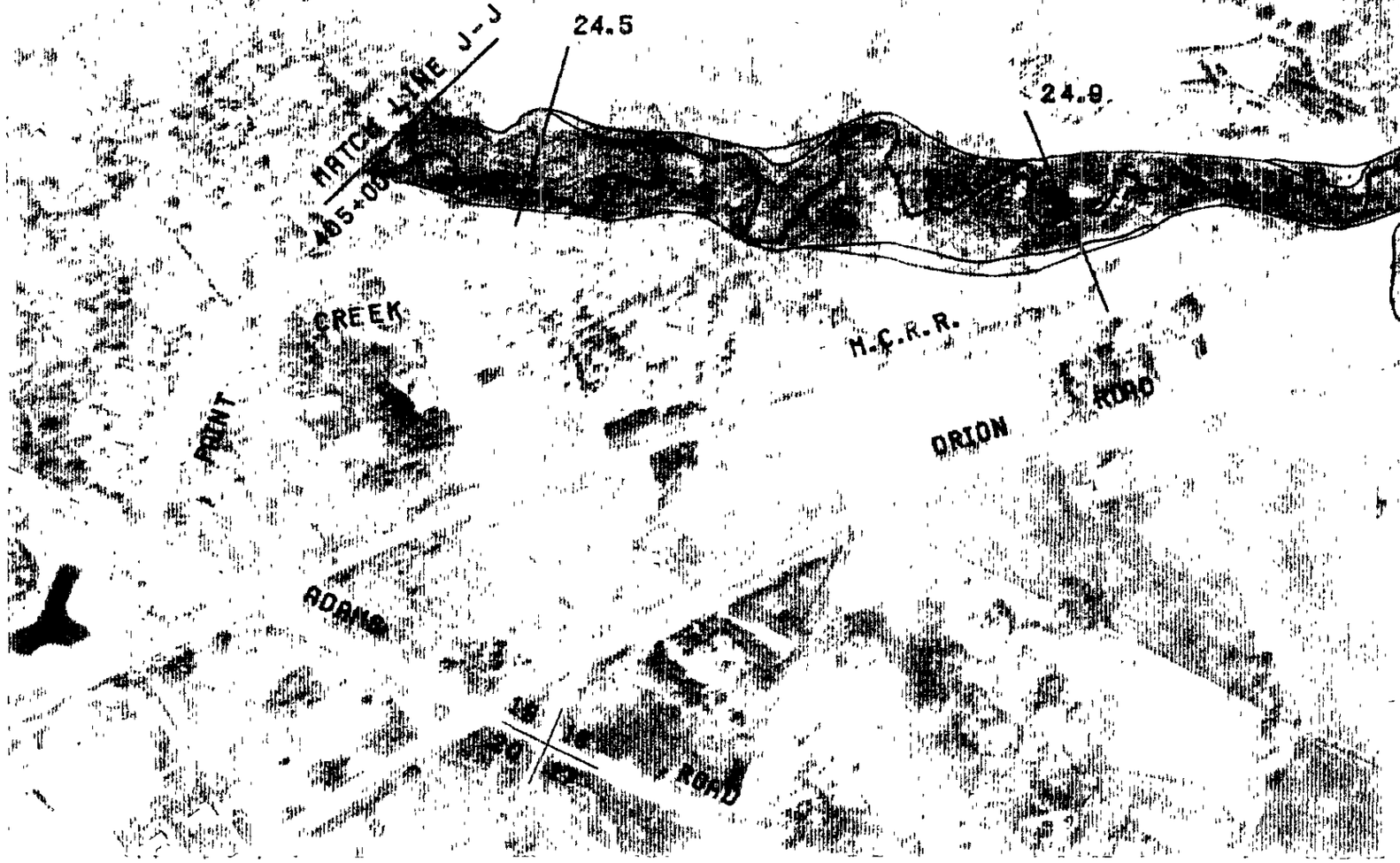
U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

8/15

A. A. S. C. 14611

T 4 N

R 11 E



U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

10/15

A. A. S. C. 14611

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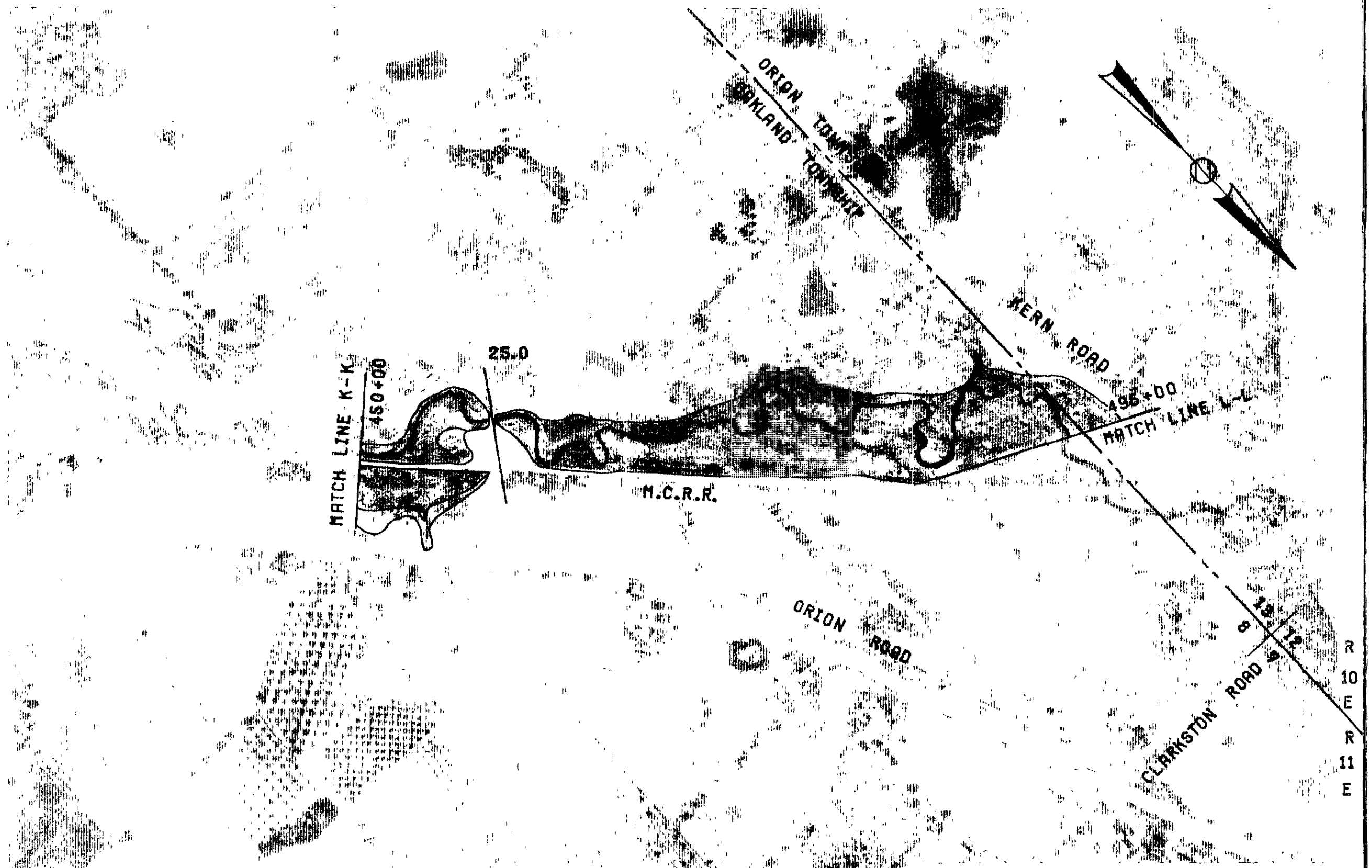


U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

11/15

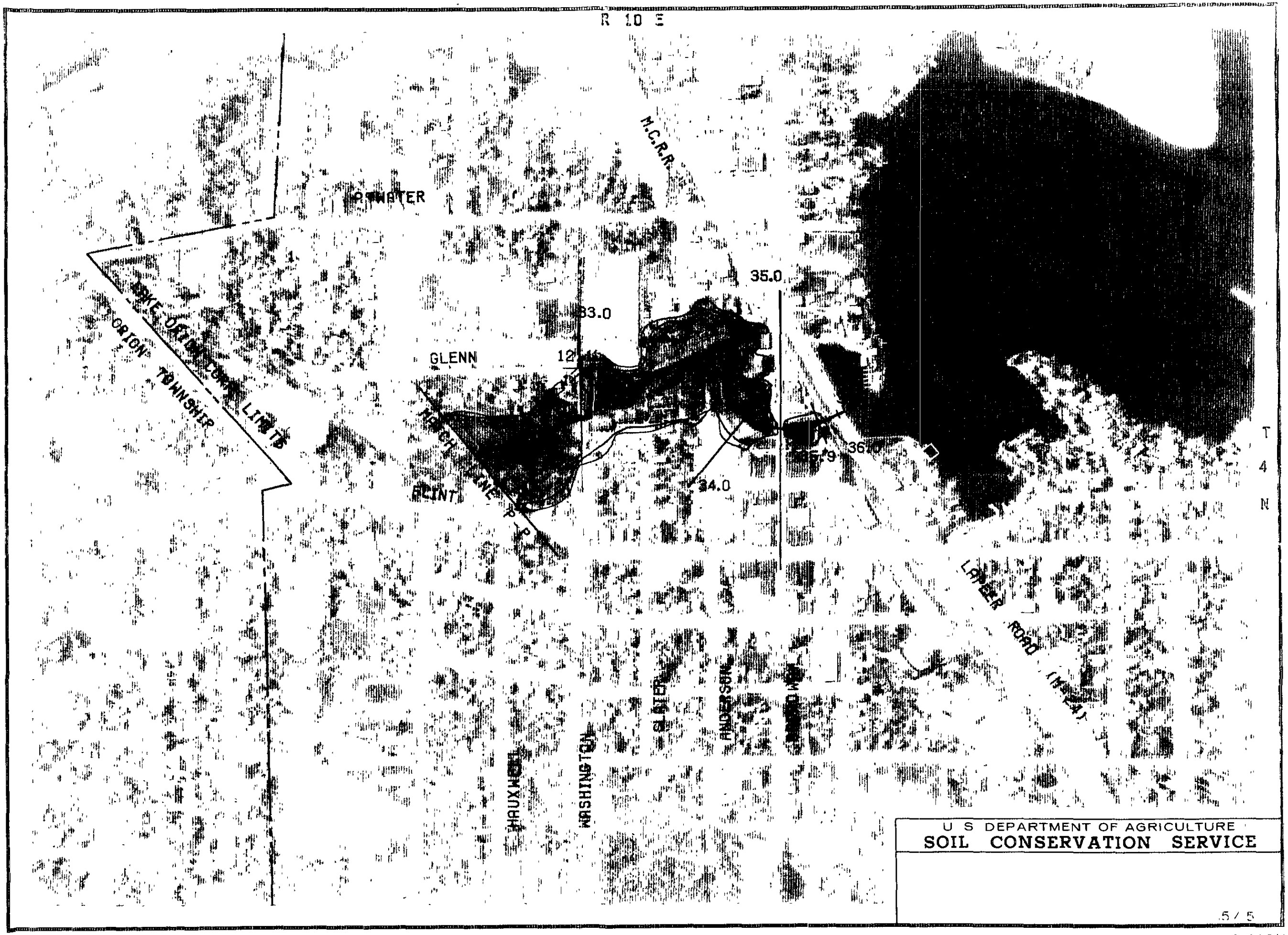
A. A. S. C. 14611



U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

14/15

A. A. S. C. 14611


R 10 E
M.C.R.R.
POWATER
LAKE ORION CORP. LIMITS
ORION TOWNSHIP
GLENN
33.0
35.0
34.0
36.0
T
4
N
LAPEER ROAD
HAUXWELL
WASHINGTON
SLATER
ANDERSON
U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
5 / 5

A. A. S. C. 14611

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: PAINT CREEK
FLOOD HAZARD ANALYSIS

3) WATERCOURSE: PAINT CREEK

4) DOCUMENT TYPE: FLOODWAY MAPS

00BREAK00

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: PETTIBONE CREEK

3) WATERCOURSE: PETTIBONE CREEK — MOORE LAKE TO LOWER PETTIBONE LAKE

4) DOCUMENT TYPE: MULTIPLE PROFILES — DETAILS

00BREAK00

OK

* WATER SURFACE PROFILES *
* VERSION OF NOVEMBER 1976 *
* UPDATED JULY 1979 *

* RUN DATE FR1, MAY 1, 1981, 8:52 AM *

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

PETTIBONE CREEK
MOORE LAKE TO
LOWER PETTIBONE LAKE
HILND2 6504-04

HIGHLAND TWP. FIS

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FORM 1411 GB PRINTED BY ROTARY MANIFOLD FORMS.

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   HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
   ERROR CORR -   01,02,03
   MODIFICATION -  50,51,52,53
C
T1       HIGHLAND TOWNSHIP FIS - JOB NO. 6504/04  L. PETTIBONE TO MOORE LAKE
T2       10 YEAR EVENT
T3       PETTIBONE CREEK          PROJECT MANAGER - P.S. MIHOS

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     R         WSEL      FR
       -1.       2.        0.        0.    .000000       .00       .0       0.    956.410      .000

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
     1.000      .000    -1.000      .000      .000      .000      .000      .000      .000      .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

     39.000     4.000    25.000      .000      .000      .000      .000      .000      .000      .000

OT    4.000   132.000   151.000   172.000   209.000      .000      .000      .000      .000      .000
NC     .040      .040      .030      .300      .500      .000      .000      .000      .000      .000

          MOORE LAKE

X1  5957.000    14.000   105.000   480.000      .000      .000      .000      .000      .000      .000
GR   970.000      .000   960.000    70.000   955.000   105.000   953.400   248.000   951.100   261.000
GR   951.000   276.000   950.800   286.000   951.600   295.000   952.400   301.000   953.100   304.000
GP   953.500   377.000   955.000   480.000   960.000   610.000   970.000   615.000      .000      .000
NC     .070      .070      .040      .300      .500      .000      .000      .000      .000      .000

          REID ROAD D/S

X1  7707.000    18.000   245.000   267.000  1600.000  1560.000  1750.000      .000      .000      .000
X3     .000      .000      .000   242.500      .000   277.600      .000      .000      .000      .000
GP   980.000      .000   970.000    50.000   960.000    80.000   958.600   160.000   955.900   245.000
GR   953.600   250.000   953.300   256.200   952.800   257.500   952.500   259.000   952.500   260.000
GR   952.500   261.000   952.800   262.500   953.300   263.800   954.900   266.000   955.600   267.000
GR   956.000   280.000   963.200   360.000   965.200   391.000      .000      .000      .000      .000

          REID ROAD D/S

X1  7753.000      .000      .000      .000    46.000    46.000    46.000      .000      .000      .000
X3     .000      .000      .000   253.700      .000   266.300      .000      .000      .000      .000

          REID ROAD D/S
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X1	7760.000	.000	.000	.000	7.000	7.000	7.000	.000	.000	.000
X3	.000	.000	.000	255.400	.000	264.600	.000	.000	.000	.000
NC	.000	.000	.032	.000	.000	.000	.000	.000	.000	.000

REID ROAD BRIDGE D/S FACE

X1	7761.000	22.300	255.700	264.300	1.000	1.000	1.000	.000	.000	.000
X3	.000	.000	.000	255.700	.000	264.300	.000	.000	.000	.000
BT	13.000	50.000	970.000	.000	80.000	960.000	.000	160.000	958.600	.000
BT	255.700	959.800	955.500	256.200	959.900	958.700	257.500	959.900	957.900	259.000
BT	959.900	958.600	260.000	959.900	958.800	261.000	959.900	958.600	262.500	960.000
BT	957.900	263.800	960.000	956.700	264.300	960.000	955.500	360.000	963.200	.000
GR	980.000	.000	970.000	50.000	960.000	80.000	958.600	160.000	955.900	245.000
GR	953.600	250.000	955.100	255.700	954.100	255.700	953.300	256.200	952.800	257.500
GR	952.500	259.000	952.500	260.000	952.500	261.000	952.000	262.500	953.300	263.800
GR	954.100	264.300	955.100	264.300	954.900	266.000	955.600	267.000	956.000	280.000
GR	963.200	360.000	965.200	391.000	.000	.000	.300	.000	.000	.000
NC	.090	.090	.038	.300	.500	.000	.000	.000	.000	.000

REID ROAD BRIDGE U/S FACE

X1	7806.000	16.000	255.700	264.300	45.000	45.000	45.000	.000	.000	.000
X3	.000	.000	.000	255.700	.000	264.300	.000	.000	.000	.000
BT	13.000	50.000	970.000	.000	80.000	960.000	.000	160.000	958.600	.000
BT	255.700	959.800	955.500	256.200	959.900	958.700	257.500	959.900	957.900	259.000
BT	959.900	958.600	260.000	959.900	958.800	261.000	959.900	958.600	262.500	960.000
BT	957.900	263.800	960.000	956.700	264.300	960.000	955.500	360.000	963.200	.000
GR	980.000	.000	970.000	50.000	960.000	80.000	958.600	160.000	955.900	245.700
GR	954.500	255.700	953.700	256.200	953.200	257.500	952.900	259.000	952.900	260.000
GR	952.900	261.000	953.200	262.500	953.700	263.800	955.500	264.300	960.000	264.300
GR	963.200	360.000	.000	.000	.000	.000	.000	.000	.000	.000

REID ROAD U/S

X1	7807.000	17.000	245.000	267.000	1.000	1.000	1.000	.000	.000	.000
X3	.000	.000	.000	254.700	.000	265.300	.000	.000	.000	.000
GR	980.000	.000	970.000	50.000	960.000	80.000	958.600	160.000	955.900	245.000
GR	953.600	250.000	953.700	256.200	953.200	257.500	952.900	259.000	952.900	261.000
GR	953.200	262.500	953.700	263.800	954.900	266.000	955.600	267.000	956.000	280.000
GR	963.200	360.000	965.200	391.000	.000	.000	.000	.000	.000	.000

REID ROAD U/S

X1	7809.000	.000	.000	.000	2.000	2.000	2.000	.000	.000	.000
X3	.000	.000	.000	252.700	.000	267.300	.000	.000	.000	.000

REID ROAD U/S

X1	7819.000	.000	.000	.000	10.000	10.000	10.000	.000	.000	.000
X3	.000	.000	.000	242.700	.000	277.300	.000	.000	.000	.000
ET	.000	7.100	9.100	9.100	.000	.000	199.250	.000	160.370	.000

400 FT. +/- U/S OF REID ROAD

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	X1	8171.000	26.000	266.000	296.000	397.000	357.000	352.000	.000	000	.000
	GP	965.400	.000	963.400	32.000	961.500	74 000	960.000	102.000	957 900	126.000
	GR	957.600	158.000	957.200	196.000	957.200	274.000	955.400	268.000	955 100	268.000
1	GR	954.800	270.000	953.700	274.000	953.800	290.000	953.900	286.100	954 600	234.000
2	GR	955.100	295.000	955.400	296.000	956.600	440.000	955 800	468 000	955.500	512.000
3	GR	955.800	554.000	957.000	586.000	960.400	614.000	962.200	630.000	962.800	650.000
4	GP	965.400	664.000	.000	.000	.000	.000	.000	.000	.000	.000
5	NC	.060	.080	.038	.300	.500	.000	000	.000	.000	.000
6											
7											
8		D/S END OF LOWER PETTIBONE LAKE									
9											
10	X1	8701.000	24.000	300.000	328.000	425.000	545.000	530.000	.000	.000	.000
11	X3	.000	.000	.000	.000	.000	576.000	960.000	.000	.000	.000
12	GR	965.400	.000	962.600	20.000	960.700	52.000	952.000	82.000	958.300	136.000
13	GR	959.000	200.000	958.600	252.000	955.700	300.000	955.300	303.000	955.100	304.000
14	GR	953.700	318.000	954.900	327.000	955.300	327.500	955.600	328.000	961.300	548.000
15	GR	959.400	590.000	958.400	664.000	956.600	748.000	955.400	826.000	955.600	870.000
16	GR	957.500	966.000	959.700	1030.000	962.400	1050.000	965.400	1066.000	.000	.000
17	EJ	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
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*PROF 1

CCHV=     .300 CEHV=     .500
*SECNO 5957.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        -V        AL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

        MOORE LAKE

  5957.00      5.61    956.41       .00    956.41    956.41       .00       .00       .00    955.00
     132.        0.      131.        1.        7.     1040.       26         0         0.    955.00
      .00        04       .13       .04       040      .030      .040      .000    950.80     95.13
  .000002         0        0.         0         0         0         0       .00    421.53    516.66

CCHV=     .300 CEHV=     .500
*SECNO 7707.000

3470 ENCROACHMENT STATIONS=      242.5      277.6  TYPE=      1  TARGET=      35.100

        REID ROAD D/S

  7707.00      3.89    956.39       .00       .00    956.46       .07       .01       .03    955.90
     132.        0.      129.        3.        1.       60.        7.       23.        9.    955.60
      .23       .34      2.14       .46      .070      .040      .070      .040    952.50    242.50
  .000942     1600.     1750.     1560.         2         0         0       .00     75.10    277.60

*SECNO 7753.000

3470 ENCROACHMENT STATIONS=      253.7      266.3  TYPE=      1  TARGET=      12.600

        REID ROAD D/S

  7753.00      3.91    956.41       .00       .00    956.57       .16       .07       .05100000.00
     132.        0.      132.        0.        0.       41.        0.       23.        9. 100000.00
      .24       .00      3.22       .00      .070      .040      .070      .040    952.50    253.70
  .002467       46.       46.       46.         0         0         0       .00     12.60    266.30

*SECNO 7760.000

3470 ENCROACHMENT STATIONS=      255.4      264.6  TYPE=      1  TARGET=       9.200

        REID ROAD D/S

  7760.00      3.88    956.38       .00       .00    956.64       .26       .02       .05100000.00
     132.        0.      132.        0.        0.       32.        0.       23.        9. 100000.00
      .24       .00      4.09       .00      .070      .040      .070      .040    952.50    255.40
  .004426        7.        7.        7.         2         0         0       .00      9.20    264.60

*SECNO 7761.000
   SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        AL        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	.TN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 958.60 MAX ELLC= 958.40

3470 ENCROACHMENT STATIONS= 255.7 264.3 TYPE= 1 TARGET= 8.600

REID ROAD BRIDGE D/S FACE

7761.00	3.86	956.36	.00	.00	956.67	.31	.00	.03	955.10
132.	0.	132.	0.	0.	29.	0.	23.	9.	100000.00
.24	.00	4.48	.00	.070	.032	.070	.040	952.50	255.70
.003629	1.	1.	1.	2	0	0	-.66	8.60	264.30

CCHV= .300 CEHV= .500

*SECNO 7806.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 958.60 MAX ELLC= 958.80

3470 ENCROACHMENT STATIONS= 255.7 264.3 TYPE= 1 TARGET= 9.600

REID ROAD BRIDGE U/S FACE

7806.00	3.64	956.54	.00	.00	956.90	.36	.20	.02	959.80
132.	0.	132.	0.	0.	28.	0.	23	9.	100000.00
.24	.00	4.30	.00	.090	.038	.090	.040	952.90	255.70
.006061	45.	45.	45.	0	0	0	-.45	8.60	264.30

*SECNO 7807.000

3470 ENCROACHMENT STATIONS= 254.7 265.3 TYPE= 1 TARGET= 10.600

REID ROAD U/S

7807.00	3.84	956.74	.00	.00	956.95	.21	.00	.04	100000.00
132.	0.	132.	0.	0.	36.	0.	23	9.	100000.00
.24	.00	3.69	.00	.090	.038	.090	.040	952.90	254.70
.003119	1.	1.	1.	2	0	0	.00	10.60	265.30

*SECNO 7809.000

3470 ENCROACHMENT STATIONS= 252.7 267.3 TYPE= 1 TARGET= 14.600

REID ROAD U/S

7809.00	3.95	956.85	.00	.00	956.98	.12	.00	.03	100000.00
132.	0.	132.	0.	0.	47.	0	23	9.	955.60
.24	.00	2.83	.25	.090	.038	090	.040	952.90	252.70
.001512	2.	2.	2.	2	0	0	.00	14.60	267.30

*SECNO 7819.000

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3470 ENCROACHMENT STATIONS= 242.7 277.3 TYPE= 1 TARGET= 276.500

REID ROAD U/S

7815.00	4.03	956.96	.00	.00	957.11	.08	.01	.02	955.93
132.	1.	126.	5	2.	67.	12	13.	4.	955.63
.24	.31	1.88	.41	.090	.128	.090	.040	952.13	242.73
.000558	10.	10.	10.	2	0	0	.00	34.60	277.30

*SECNO 8171.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	-L	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	WOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTH	ELMIN	SSTH
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 199.3 664.0 TYPE= 1 TARGET= -199.250

400 FT. +/- U/S OF REID ROAD

8171.00	3.39	957.09	.00	.00	957.10	.01	.07	.71	955.40
132.	4.	68.	60.	25.	86.	323.	25.	11.	955.40
.44	.15	.80	.19	.090	.078	.030	.039	953.70	235.93
.000105	397.	352.	367.	2	0	0	.00	350.75	586.73

OCHV= .300 OBHV= .300
*SECNO 8701.000

3470 ENCROACHMENT STATIONS= .0 576.0 TYPE= 1 TARGET= 575.999

D/S END OF LOWER PETTIBONE LAKE

8701.00	3.48	957.18	.00	.03	957.20	.03	.10	.01	955.70
132.	7.	109.	15.	18.	74.	48.	29.	14.	955.60
.55	.41	1.49	.32	.060	.038	.080	.039	953.70	275.57
.000405	425.	530.	545.	2	0	0	.00	113.25	388.82

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
*****************************************************

T1      HIGHLAND TOWNSHIP FIS - JOB NO. 6504/04  L. PETTIBONE TO MOORE LAKE
T2      50 YEAR EVENT
T3      PETTIBONE CREEK          PROJECT MANAGER - R.S. MIHOS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     O         WSEL      FQ

     -10.       3.        0.        0.   .000000      .00       .0        0.   957.230      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     IBW       CHNIM     ITRACE

      2.000     .000    -1.000     .000      .000      .000      .000      .000      .000      .000

*PROF 2

CCHV=     .300 CEHV=     .500
*SECNO 5957.000
   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

        MOORE LAKE

  5957.00     6.43    957.23      .00    957.23    957.23      .00       .00       .00    955.00
     161.       1.      158.       3.       17.     1343.      63.        0         0.     955.00
      .00      .04       .12      .04      .040      .030     .040      .000    950.80     89.39
  .000001       0.        0.       0.         0         0        0       .00    448.59    537.98

CCHV=     .300 CEHV=     .500
*SECNO 7707.000

3470 ENCROACHMENT STATIONS=      242.5      277.6  TYPE=      1  TARGET=      35.100

        REID ROAD D/S

  7707.00     4.71    957.21      .00       .00    957.26      .05       .01       .03    955.90
     161.       1.      151.       9.        3.       78.      15.       30        10.     955.60
      .26      .44      1.92      .58      .070      .040     .070      .040    952.50    242.50
  .000538    1600.     1750.    1560.         2         0        0       .00     35.10    277.60

 SECNO 7753.000

3470 ENCROACHMENT STATIONS=      253.7      266.3  TYPE=      1  TARGET=      12.600

        REID ROAD D/S
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```
 7753.00      4.70    957.20       .00       .00    957.36       .16        .05   100000.00
  161.          0.     161.         0.        0.      51.          0.       31.       10.  100000.00
   .27         .00     3.16        .00       .070    .040        .070      .040    952.50    253.70
 .001985        6.      46.         46.        2       0           0        .03     12.60    266.30

 SECNO 7760.000

3470 ENCROACHMENT STATIONS=      255.4      264.6  TYPE=      1  TARGET=        9.200

        REID ROAD D/S

 7760.00      4.67    957.17       .00       .00    957.43       .26        .02   100000.00
  161.          0.     161.         0.        0.      40.          0.       31.       10.  100000.00
   .27         .00     4.07        .00       .070    .040        .070      .040    952.50    255.40
 .003820        7.      7.          7.         2       0           0        .00      9.20    264.60

*SECNO 7761.000
   SECNO      DEPTH     QWSEL     CRIWS     WSELK      EG         HV         HL        QLOSS    BANK ELEV
   Q          QLOB      QCH       QROB      ALOB       ACH        AROB       VOL       TWA    LEFT/RIGHT
   TIME       VLOB      VCH       VROB      XNL        XNCH       XNR        WTH       ELMIN      SSTA
   SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IDC        ICONT      CORAR     TOPWID     ENDST

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  958.60 MAX ELLC=  958.40

3470 ENCROACHMENT STATIONS=      255.7      264.3  TYPE=      1  TARGET=        8.600

        REID ROAD BRIDGE D/S FACE

 7761.00      4.63    957.13       .00       .00    957.47       .34        .00        .04   955.10
  161.          0.     161.         0.        0.      35.          0.       31.       10.  100000.00
   .27         .00     4.66        .00       .070    .032        .070      .040    952.50    255.70
 .003835        1.      1.          1.         2       0           0       -2.12      9.60    264.30


CCHV=     .300 CEHV=     .500
*SECNO 7806.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD=  958.60 MAX ELLC=  958.90

3470 ENCROACHMENT STATIONS=      255.7      264.3  TYPE=      1  TARGET=        8.600

        REID ROAD BRIDGE U/S FACE

 7806.00      4.43    957.33       .00       .00    957.70       .37        .21        .02   959.80
  161.          0.     161.         0.        0.      33.          0.       31.       10.  100000.00
   .27         .00     4.86        .00       .090    .038        .090      .040    952.90    255.70
 .005920       45.      45.         45.        2       0           0       -1.68      8.60    264.30

*SECNO 7807.000

3470 ENCROACHMENT STATIONS=      254.7      265.3  TYPE=      1  TARGET=       10.600

        REID ROAD U/S
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7807.00	4.65	957.55	.00	.00	957.75	.20	.01	.05	100300.00
161.	0.	161.	0.	0.	44.	0.	31.	10.	100300.00
.27	.00	3.63	.00	.090	.038	.090	.040	952.90	254.70
.002575	1.	1.	1.	2	0	0	.00	10.60	265.30

*SECNO 7809.000

3470 ENCROACHMENT STATIONS= 252.7 262.3 TYPE= 1 TARGET= 14.600

REID ROAD U/S

7809.00	4.76	957.66	.00	.00	957.78	.12	.00	.03	100000.00
161.	0.	161.	0.	0.	58.	1.	31.	10.	955.60
.27	.00	2.77	.23	.090	.038	.090	.040	952.90	252.70
.001139	2.	2.	2.	2	0	0	.00	14.60	267.30

*SECNO 7819.000

3470 ENCROACHMENT STATIONS= 242.7 277.3 TYPE= 1 TARGET= 34.600

REID ROAD U/S

7819.00	4.83	957.76	.00	.00	957.81	.05	.01	.02	955.93
161.	1.	151.	9.	4.	85.	20.	31.	10.	955.63
.27	.32	1.77	.44	.090	.038	.090	.040	952.93	242.70
.000364	10.	10.	10.	2	0	0	.00	34.60	277.30

*SECNO 8171.000

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

3470 ENCROACHMENT STATIONS= 160.4 664.0 TYPE= 1 TARGET= -160.370

400 FT. +/- U/S OF REID ROAD

8171.00	4.15	957.85	.00	957.09	957.85	.00	.03	.01	955.40
161.	10.	63.	88.	91.	108.	547.	34.	12.	955.40
.58	.11	.58	.16	.090	.038	.090	.039	953.70	160.37
.000041	397.	352.	367.	2	0	0	.00	432.62	593.00

CCHV= .300 CEHV= .500

*SECNO 8701.000

3470 ENCROACHMENT STATIONS= .0 576.0 TYPE= 1 TARGET= 575.999

D/S END OF LOWER PETTIBONE LAKE

8701.00	4.18	957.88	.00	957.18	957.90	.02	.04	.01	955.70
161.	15.	117.	29.	39.	93.	101.	40.	15.	955.60
.73	.38	1.25	.29	.060	.038	.080	.039	953.70	263.85
.000209	425.	530.	545.	2	0	0	.01	152.29	415.15

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*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
  ERROR CORR -  01,02,03
  MODIFICATION -  50,51,52,53
*****************************************************

T1       HIGHLAND TOWNSHIP FIS - JOB NO. 6504/04  L. PETTIBONE TO MOORE LAKE
T2       100 YEAR EVENT
T3       PETTIBONE CREEK          PROJECT MANAGER - R.S. MIHOS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

     -10.       4         0.        0.   .000000      .00        0        0.   957.260      000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALDC      IBW       CHNIM     ITRACE

     3.000     .000    -1.000     .000      .000      .000      .000      .000      .000      .000

*PROF 3

CCHV=     .300 CEHV=     500
*SECNO 5957.000
   SECNO     DEPTH     CUSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
   Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWP    LEFT/RIGHT
   TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


        MOORE LAKE

  5957.00     6.46    957.26      .00    957.26    957.22      .00       .00       .00    955.00
     172.       1.      168.       3.       18.     1359.      66.        0.        0.    955.00
      .00      .04       .12      .04      .040      .030     .040      .000    950.80     89.18
  .000001       0.        0.       0.         0         0        0       .00    449.58    538.76

CCHV=     .300 CEHV=     .500
*SECNO 7707.000

3470 ENCROACHMENT STATIONS=     242.5     277.6  TYPE=     1  TARGET=     35.100

        REID ROAD D/S

  7707.00     4.74    957.24      .00       .00    957.30      .06       .01       .03    955.90
     172.       2.      161.      10.        3.       79.      16.       31.       10.    955.60
      .25      .47      2.04      .62      .070      .040     .070      .040    952.50    242.50
  .000598    1600.     1750.    1560.         2         0        0       .00     35.10    277.60

*SECNO 7753.000

3470 ENCROACHMENT STATIONS=     253.7     266.3  TYPE=     1  TARGET=     12.600

        REID ROAD D/S
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7753.60	4.73	957.23	.00	.00	957.40	.17	.05	.06	100000.00
172.	0.	172.	0.	0.	51.	0.	31.	10.	100000.00
.25	.00	3.36	.00	.070	.040	.070	.040	952.50	253.70
.002226	46.	46.	46.	2	0	0	.00	12.60	268.30

3ECND 7760.000

3470 ENCROACHMENT STATIONS= 255.4 264.6 TYPE= 1 TARGET= 9.200

REID ROAD D/S

7760.00	4.69	957.19	.00	.00	957.48	.29	.02	.06	100000.00
172.	0.	172.	0.	0.	40.	0.	31.	10.	100000.00
.25	.00	4.33	.00	.070	.040	.070	.040	952.50	255.40
.004304	7.	7.	7.	2	0	0	.00	9.20	264.60

*SECNO 7761.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TMA	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= 958.60 MAX ELLC= 958.40

3470 ENCROACHMENT STATIONS= 255.7 264.3 TYPE= 1 TARGET= 8.600

REID ROAD BRIDGE D/S FACE

7761.00	4.65	957.15	.00	.00	957.53	.38	.00	.05	955.10
172.	0.	172.	0.	0.	35.	0.	31.	10.	100000.00
.25	.00	4.96	.00	.070	.032	.070	.040	952.50	255.70
.004355	1.	1.	1.	2	0	0	-2.23	8.60	264.30

CCHV= .300 CEHV= .500

*SECNO 7806.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 958.60 MAX ELLC= 959.80

3470 ENCROACHMENT STATIONS= 255.7 264.3 TYPE= 1 TARGET= 8.600

REID ROAD BRIDGE U/S FACE

7806.00	4.47	957.37	.00	.00	957.79	.41	.24	.02	959.80
172.	0.	172.	0.	0.	33.	0.	31.	10.	100000.00
.26	.00	5.15	.00	.090	.038	.090	.040	952.90	255.70
.006646	45.	45.	45.	2	0	0	-1.76	8.60	264.30

*SECNO 7807.000

3470 ENCROACHMENT STATIONS= 254.7 265.3 TYPE= 1 TARGET= 10.600

REID ROAD U/S

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7807.00	4.72	957.62	.00	.00	957.85	.22	.00	.06	100000.00
172.	0.	172.	0.	0.	45.	0.	31.	10.	100000.00
.26	.00	3.81	.00	.090	.038	.090	.040	952.90	254.70
.002798	1.	1.	1.	2	0	0	00	10.80	265.30

*SECNO 7809.000

3470 ENCROACHMENT STATIONS= 252.7 267.3 TYPE= 1 TARGET= 14.600

REID ROAD U/S

7809.00	4.85	957.75	.00	.00	957.88	.13	.00	.03	100000.00
172.	0.	172.	0.	0.	55.	1.	31.	10.	955.60
.26	.00	2.90	.24	.090	.038	.090	.040	952.90	252.70
.001218	2.	2.	2.	2	0	0	.00	14.60	267.30

*SECNO 7819.000

3470 ENCROACHMENT STATIONS= 242.7 277.3 TYPE= 1 TARGET= 34.600

REID ROAD U/S

7819.00	4.93	957.86	.00	.00	957.91	.05	.01	.02	955.93
172.	1.	161.	10.	4.	87.	21.	31.	10.	955.63
.26	.33	1.84	.47	.090	.038	.090	.040	952.93	242.70
.000381	10.	10.	10.	2	0	0	00	34.60	277.30

*SECNO 8171.000

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	XTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 160.4 664.0 TYPE= 1 TARGET= -160.370

400 FT. +/- D/S OF REID ROAD

8171.00	4.25	957.95	.00	957.09	957.96	.00	.03	.01	955.40
172.	12.	65.	95.	102.	111.	577.	35.	12.	955.40
.57	.11	.59	.16	.090	.038	.090	.039	953.70	160.37
.000040	397.	352.	367.	2	0	0	.00	433.49	593.85

CCHV= .300 CEHV= .500

*SECNO 8701.000

3470 ENCROACHMENT STATIONS= .0 576.0 TYPE= 1 TARGET= 575.999

D/S END OF LOWER PETTIBONE LAKE

8701.00	4.29	957.99	.00	957.18	958.00	.02	.04	.01	955.70
172.	17.	122.	33.	43.	96.	110.	41.	15.	955.60
.71	.39	1.27	.30	060	.038	080	.039	953.70	262.17
.000207	425.	530.	545.	2	0	0	.00	457.92	420.08

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**********
   HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
   ERROR CORR -   01,02,03
   MODIFICATION -  50,51,52,53
**********

T1       HIGHLAND TOWNSHIP F19 - JOB NO. 6504/04  L. PETTIBONE TO MOORE LAKE
T2       500 YEAR EVENT
T3       PETTIBONE CREEK            PROJECT MANAGER - R.S. MIHOS

J1   ICHECK     INQ        NINV       IDIR       STPT       METRIC     HVINS      Q          WSEL       FQ

       -10.        5.         0.         0.    .000000         00         .0         0.    957.450       .000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLOC      IBW        CHNID      ITRACE

     15.000       .000     -1.000       .000       .000       .000       .000       .000       .000       .000

*PROF 4

CCHV=     .300 CEHV=     .500
*SECNO 5957.000
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       KLOB       KCH        APOB       VOL        TWA    LEFT/RIGHT
   TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
   SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

        MOORE LAKE

  5957.00      6.65    957.45       .00    957.45    957.45       .00       .00       .00    955.00
    209.         1.       204.        4.        21.      1430.       78.        0.        0.    955.00
     .00        .05        .14       .05       .040      .030      .040      .000    950.80     87.85
 .000001         0.         0.        0.         0         0         0       .00    455.85    543.70

CCHV=     .300 CEHV=     .500
*SECNO 7707.000

3470 ENCROACHMENT STATIONS=      242.5      277.6  TYPE=      1  TARGET=       35.100

        REID ROAD D/S

  7707.00      4.52    957.42       .00       .00    957.50       .08       .01       .04    955.30
    209.         2.       194.        13.       4.        83.       18.       33.       10.    955.60
     .22        .55       2.34       .74       .070      .040      .070      .040    952.50    242.50
 .000738     1600.      1750.     1560.         2         0         0       .00     35.10    277.60


*SECNO 7753.000

3470 ENCROACHMENT STATIONS=      253.7      266.3  TYPE=      1  TARGET=       12.600

        REID ROAD D/S
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7753.00	4.90	957.40	.00	.00	957.64	24	.06	.08	100000.00
209.	0.	209.	0.	0.	53.	0.	33.	10.	100000.00
.22	.00	3.91	.00	.070	.040	.070	.040	952.50	253.70
.002930	66.	66.	66.	2	0	0	.00	12.60	266.30

*SECNO 7760.000

3470 ENCROACHMENT STATIONS= 255.4 264.6 TYPE= 1 TARGET= 9.200

REID ROAD D/S

7760.00	4.85	957.35	.00	.00	957.75	.40	.03	.08	100000.00
209.	0.	209.	0.	0.	41.	0.	33.	10.	100000.00
.22	.00	5.07	.00	.070	.040	.070	.040	952.50	255.60
.005784	7.	7.	7.	2	0	0	.00	9.20	264.60

*SECNO 7761.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
O	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 958.60 MAX ELLC= 958.40

3470 ENCROACHMENT STATIONS= 255.7 264.3 TYPE= 1 TARGET= 8.600

REID ROAD BRIDGE D/S FACE

7761.00	4.78	957.28	.00	.00	957.82	.54	.01	.07	955.10
209.	0.	209.	0.	0.	33.	0.	33	10.	100000.00
.22	.00	5.90	.00	.070	.032	.070	.040	952.50	255.70
.006175	1.	1.	1.	2	0	0	-2.63	8.60	264.30

CCHV= .300 CEHV= .500

*SECNO 7806.000

3370 NORMAL BRIDGE,NRD= 13 MIN ELTRD= 959.60 MAX ELLC= 958.80

3470 ENCROACHMENT STATIONS= 255.7 264.3 TYPE= 1 TARGET= 8.600

REID ROAD BRIDGE U/S FACE

7806.00	4.71	957.61	.00	.00	958.17	.56	.33	.01	959.80
209.	0.	209.	0.	0.	35.	0.	33.	10.	100000.00
.22	.00	6.02	.00	.090	.038	.090	.040	952.90	255.70
.009070	45.	45.	45.	2	0	0	-2.39	8.60	264.30

*SECNO 7807.000

3470 ENCROACHMENT STATIONS= 254.7 265.3 TYPE= 1 TARGET= 10.600

REID ROAD U/S

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  7807.00     5.07   957.97      .00      .00   958.26      .28      .01      .08100000.00
     209.       0.     209.       0        0.      49.       0.       33       10  100000.00
      .22      .00     4.27      .00     .090     .038     .090     .040   952.90   254.70
  .003331       1.       1.       1.        2        0        0      .00    10.60   265.30

*SECNO 7809.000

3470 ENCROACHMENT STATIONS=      252.7      267.3  TYPE=      1  TARGET=      14.600

        REID ROAD U/S

  7809.00     5.24   958.14      .00      .00   958.30      .16      .00      .04100000.00
     209.       0.     209.       0.       0.      65.       1.       33.      10.    955.60
      .22      .00     3.22      .25     .090     .038     .090     .040   952.90   252.70
   001370       2.       2.       2.        2        0        0      .00    14.60   267.30

*SECNO 7819.000

3470 ENCROACHMENT STATIONS=      242.7      277.3  TYPE=      1  TARGET=      34.600

        REID ROAD U/S

  7819.00     5.35   958.28      .00      .00   958.33      .06      .01      .03   955.93
     209.       2.     194.      13.       5.      96.      26.       33.      10.    955.63
      .23      .36     2.01      .53     .090     .038     .090     .040   952.93   242.70
  .000396      10.      10.      10.        2        0        0      .00    34.60   277.30

*SECNO 8171.000

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


        400 FT. +/- U/S OF REID ROAD

  8171.00     4.68   958.38      .00      .00   958.38      .00      .03      .02   955.40
     209.      20.      71.     119.     170.     124.     705.      37.      12.    955.40
      .56      .12      .57      .17     .090     .038     .090     .039   953.70   120.54
  .000032     397.     352.     367.        2        0        0      .00   476.80   597.34

CCHV=     .300 CEHV=     .500
*SECNO 8701.000

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=         .0      576.0  TYPE=      1  TARGET=      575.999

        D/S END OF LOWER PETTIBONE LAKE

  8701.00     4.70   958.40      .00      .00   958.42      .02      .03      .01   955.70
     209.      24.     137.      47.      61.     108.     152.      45       16.    955.60
      .71      .40     1.27      .31     060     .038     080      039   953.70   125.00
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,000178 425. 530. 545. 2 0 0 01 198.45 436.21

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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: PETTIBONE CREEK

3) WATERCOURSE: PETTIBONE CREEK
MOORE LAKE TO
LOWER PETTIBONE LAKE

4) DOCUMENT TYPE: SUMMARY

00BREAK00

HEC2 RELEASE DATED NOV 75 UPDATED JULY 1979
ERROR CORR - 01,02,03
MODIFICATION - 50,51,52,53

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

PETTIBONE CREEK

SUMMARY PRINTOUT

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	MV	OLOSS	EG	VLCH	TOPWID	AREA
5957.000	.00	.00	950.80	132.00	956.41	5.61	.00	.00	956.41	.00	421.53	1073.05
5957.000	.00	.00	950.80	161.00	957.23	6.43	.00	.00	957.23	.00	448.59	1429.60
5957.000	.00	.00	950.80	172.00	957.26	6.46	.00	.00	957.26	.00	449.58	1443.28
5957.000	.00	.00	950.80	209.00	957.45	6.65	.00	.00	957.45	.00	455.85	1529.20
7707.000	.00	.00	952.50	132.00	956.39	3.89	.07	.03	956.46	1750.00	35.10	67.93
7707.000	.00	.00	952.50	161.00	957.21	4.71	.05	.03	957.26	1750.00	35.10	96.83
7707.000	.00	.00	952.50	172.00	957.24	4.74	.06	.03	957.30	1750.00	35.10	97.79
7707.000	.00	.00	952.50	209.00	957.42	4.92	.08	.04	957.50	1750.00	35.10	104.19
7753.000	.00	.00	952.50	132.00	956.41	3.91	.16	.05	956.57	46.00	12.60	50.34
7753.000	.00	.00	952.50	161.00	957.20	4.70	.16	.05	957.36	46.00	12.60	50.94
7753.000	.00	.00	952.50	172.00	957.23	4.73	.17	.06	957.40	46.00	12.60	51.26
7753.000	.00	.00	952.50	209.00	957.40	4.90	.24	.08	957.64	46.00	12.60	53.44
7760.000	.00	.00	952.50	132.00	956.39	3.89	.26	.05	956.64	7.00	9.20	32.11
7760.000	.00	.00	952.50	161.00	957.17	4.67	.26	.05	957.42	7.00	9.20	39.55
7760.000	.00	.00	952.50	172.00	957.19	4.69	.29	.06	957.48	7.00	9.20	39.74
7760.000	.00	.00	952.50	209.00	957.35	4.85	.40	.08	957.75	7.00	9.20	41.15
7761.000	958.60	958.40	952.50	132.00	956.36	3.86	.31	.03	956.67	1.00	8.60	29.43
7761.000	958.60	958.40	952.50	161.00	957.13	4.63	.34	.04	957.47	1.00	8.60	34.51
7761.000	958.60	958.40	952.50	172.00	957.15	4.65	.38	.05	957.53	1.00	8.60	34.67
7761.000	958.60	958.40	952.50	209.00	957.28	4.78	.54	.07	957.82	1.00	8.60	35.42
7806.000	958.60	958.80	952.90	132.00	956.54	3.64	.36	.02	956.90	45.00	8.60	27.51
7806.000	958.60	958.80	952.90	161.00	957.33	4.43	.37	.02	957.70	45.00	8.60	33.11
7806.000	958.60	958.80	952.90	172.00	957.37	4.47	.41	.02	957.79	45.00	8.60	33.35
7806.000	958.60	958.80	952.90	209.00	957.61	4.7	.56	.01	958.17	45.00	8.60	34.75
7807.000	.00	.00	952.90	132.00	956.74	3.84	.21	.04	956.95	1.00	10.60	35.82
7807.000	.00	.00	952.90	161.00	957.55	4.65	.20	.05	957.75	1.00	10.60	44.38
7807.000	.00	.00	952.90	172.00	957.62	4.72	.22	.06	957.85	1.00	10.60	45.13
7807.000	.00	.00	952.90	209.00	957.97	5.07	.28	.08	958.26	1.00	10.60	48.93
7809.000	.00	.00	952.90	132.00	956.85	3.95	.12	.03	956.98	2.00	14.60	46.97
7809.000	.00	.00	952.90	161.00	957.66	4.76	.12	.03	957.78	2.00	14.60	58.67
7809.000	.00	.00	952.90	172.00	957.75	4.85	.13	.03	957.88	2.00	14.60	59.96
7809.000	.00	.00	952.90	209.00	958.14	5.24	.16	.04	958.30	2.00	14.60	65.14

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FORM 1411 GO PRINTED BY ROTARY MANIFOLD FORMS,

SECNO	ELTRD	ELLC	ELMIN	D	CWSEL	DEPTH	AV	QLOSS	EG	ALCH	TOPWID	APER
7819.000	.00	.00	952.93	132.00	956.96	4.03	.05	.02	957.01	10.00	3[illegible].60	61.67
7819.000	.00	.00	952.93	161.00	957.76	4.83	.05	.02	957.81	10.00	3[illegible].60	69.51
7819.000	.00	.00	952.93	172.00	957.86	4.93	.05	.02	957.91	10.00	3[illegible].60	72.60
7819.000	.00	.00	952.93	209.00	958.28	5.35	.05	.03	958.33	10.00	3[illegible].60	127.36
8171.000	.00	.00	953.70	132.00	957.09	3.39	.01	.01	957.10	352.00	350.75	434.10
8171.000	.00	.00	953.70	161.00	957.85	4.15	.00	.01	957.85	352.00	432.63	746.07
8171.000	.00	.00	953.70	172.00	957.95	4.25	.00	.01	957.96	352.00	433.98	790.61
8171.000	.00	.00	953.70	209.00	958.38	4.68	.00	.02	958.38	352.00	476.80	998.68
8701.000	.00	.00	953.70	132.00	957.18	3.48	.03	.01	957.20	530.00	113.25	139.60
8701.000	.00	.00	953.70	161.00	957.88	4.18	.02	.01	957.90	530.00	152.29	233.59
8701.000	.00	.00	953.70	172.00	957.99	4.29	.02	.01	958.00	530.00	157.92	249.91
8701.000	.00	.00	953.70	209.00	958.40	4.70	.02	.01	958.42	530.00	198.55	321.17

SUMMARY OF ERRORS

PRINTED IN U.S.A.

FORM 1411-GD PRINTED BY ROTARY MANIFOLD FORMS.

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: PONTIAC, CITY

3) WATERCOURSE: CLINTON RIVER

4) DOCUMENT TYPE: 100 YR

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
**********************************************

T1      CITY OF PONTIAC      5670-06-01      PM = JOHN EMIG
T2      100-YEAR FLOOD
T3      CLINTON RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.      4.        0.        0.  0.000000      0.00      0.0       0.   919.360     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
```

CCHV= .300 CEHV= .500

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 228.0 498.0 TYPE= 1 TARGET= 270.000

BL VALLEY SECTION BL

VALLEY SECTION BL MANUFACTURED FROM 1-FOOT CONTOUR MAP

50.16	6.16	919.36	0.00	919.36	919.52	.16	0.00	0.00	917.20
1240.	246.	763.	231.	226.	191.	218.	0.	0.	917.20
0.00	1.09	3.99	1.06	.080	.035	.080	0.000	913.20	228.00
.001344	0.	0.	0.	0	0	1	0.00	270.00	498.00

1490 NH CARD USED

REPEAT OF BM

50.23	6.40	919.90	0.00	0.00	920.16	.26	.59	.05	921.00
1240.	0.	1240.	0.	0.	303.	0.	4.	1.	920.40
.02	0.00	4.09	0.00	.080	.042	.080	.035	913.50	520.34
.002155	350.	350.	350.	2	0	1	0.00	93.88	614.22

BM VALLEY SECTION BM

50.47	7.26	921.96	0.00	0.00	922.12	.16	1.93	.03	922.20
1240.	0.	1239.	1.	0.	389.	9.	14.	5.	921.60
.14	0.00	3.18	.16	.080	.042	.100	.035	914.70	518.50
.001089	900.	1300.	1200.	2	0	1	0.00	153.49	671.99

3301 HV CHANGED MORE THAN HVINS

BN VALLEY SECTION BN

50.54	4.34	922.24	0.00	0.00	923.37	1.13	.77	.49	924.70
1240.	0.	1240.	0.	0.	145.	0.	16.	6.	922.70
.15	0.00	8.54	0.00	.090	.035	.080	.035	917.90	405.60
.008438	500.	325.	100.	2	0	1	0.00	42.08	447.68

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 925.00 ELREA= 925.00

50.54	7.09	923.59	0.00	0.00	923.84	.25	20	.26	924.70

1240.	0.	1240.	0.	0.	309.	0.	16.	6.	924.70
.15	0.00	4.01	0.00	.090	.035	.080	.035	916.50	400.00
.002304	50.	50.	50.	3	0	1	0.00	52.00	456.00

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=10 MIN ELTRD= 927.10 MAX ELLC= 924.80

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 925.00 ELREA= 925.00

D/S FACE OF GRAND TRUNK WESTERN RAILROAD BRIDGE

6 ROWS OF 14 INCH DIAM TIMBER PIERS

50.55	7.09	923.59	0.00	0.00	923.84	.25	.00	.00	924.70
1240.	0.	1240.	0.	0.	309.	0.	16.	6.	924.70
.15	0.00	4.01	0.00	.035	.028	.035	.035	916.50	400.00
.001471	1.	1.	1.	0	0	1	0.00	52.00	456.00

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=10 MIN ELTRD= 927.10 MAX ELLC= 924.80

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 927.10 ELREA= 927.10

BO BRIDGE SECTION BO

U/S FACE OF GRAND TRUNK WESTERN RAILROAD BRIDGE

50.55	7.11	923.61	0.00	0.00	923.86	.25	.02	.00	924.70
1240.	0.	1240.	0.	0.	310.	0.	17.	6.	924.70
.15	0.00	3.99	0.00	.035	.028	.035	.035	916.50	400.00
.001456	12.	12.	12.	0	0	1	0.00	52.00	456.00

3265 DIVIDED FLOW

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 927.10 ELREA= 927.10

50.55	7.11	923.61	0.00	0.00	923.86	.25	.00	.00	924.70
1240.	0.	1240.	0.	0.	311.	0.	17.	6.	924.70
.15	0.00	3.99	0.00	.070	.035	.100	.035	916.50	400.00
.002274	1.	1.	1.	0	0	1	0.00	52.00	456.00

3470 ENCROACHMENT STATIONS= 185.0 375.0 TYPE= 1 TARGET= 190.000

BP VALLEY SECTION BP

50.59	9.04	923.94	0.00	0.00	924.31	.37	.39	.06	923.70
1240.	74.	1137.	29.	81.	224.	57.	18.	6.	922.50
.16	.91	5.08	.50	.070	.035	.100	.035	914.90	185.00
.001610	350.	200.	100.	2	0	1	0.00	190.00	375.00

3265 DIVIDED FLOW

REPEAT OF BP

50.62	7.77	924.17	0.00	0.00	924.95	.78	.44	.21	925.20
1240.	4.	1236.	0.	7.	174.	1.	19.	7.	924.00
.17	.52	7.09	.18	.070	.035	.100	.035	916.40	186.98
.004112	325.	175.	100.	2	0	1	0.00	79.28	309.38

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

D/S FACE OF THOMAS ROAD BRIDGE

2 ROWS OF 3 26 INCH DIAM PIERS

50.62	7.78	924.18	0.00	0.00	924.95	.77	.00	.00	925.20
1240.	6.	1234.	0.	8.	174.	1.	19.	7.	924.00
.17	.74	7.08	.38	.035	.025	.035	.035	916.40	186.90
.002088	1.	1.	1.	0	0	1	0.00	79.64	309.54

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	.90	1.59	2.83	0.00	20.67	4.00	82.53	0.00	916.40	916.40

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
929.75	925.34	.39	621.	621.	83.	922.00	923.70	30.00

BQ BRIDGE SECTION BQ

U/S FACE OF THOMAS ROAD BRIDGE

50.62	8.78	925.18	0.00	0.00	925.57	.40	.62	0.00	923.90
1240.	29.	1166.	44.	33.	224.	47.	19.	7.	923.80
.17	.89	5.20	.94	.035	.025	.035	.035	916.40	128.16

.000799 12. 12. 12. 2 0 5 0.00 155.52 284.18

3470 ENCROACHMENT STATIONS= 127.0 440.0 TYPE= 1 TARGET= 313.000

REPEAT OF BP

50.62	8.78	925.18	0.00	0.00	925.58	.40	.00	.00	923.90
1240.	38.	1172.	29.	39.	224.	47.	19.	7.	923.80
.17	.99	5.22	.62	.055	.040	.085	.035	916.40	127.00
.002066	1.	1.	1.	0	0	1	0.00	157.25	284.25

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 927.00 ELREA= 920.80

BR VALLEY SECTION BR

50.73	9.18	925.78	0.00	0.00	925.80	.01	.10	.12	927.00
1240.	0.	1111.	129.	0.	1141.	305.	31.	10.	920.80
.34	0.00	.97	.42	.055	.040	.085	.036	916.60	214.59
.000066	550.	550.	550.	2	0	1	0.00	261.93	476.52

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 928.08 ELREA= 921.88

REPEAT OF BR

50.89	8.16	925.84	0.00	0.00	925.84	.00	.04	.00	928.08
600.	0.	543.	57.	0.	947.	239.	56.	15.	921.88
.77	0.00	.57	.24	.055	.040	.085	.037	917.68	226.93
.000027	850.	850.	850.	2	0	1	0.00	246.23	473.16

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 928.00 ELREA= 928.00

51.01	7.21	925.71	0.00	0.00	926.08	.37	.06	.18	918.60
600.	0.	600.	0.	0.	122.	0.	66.	17.	931.80
.81	0.00	4.90	0.00	.055	.040	.085	.037	918.50	300.00
.002484	550.	650.	550.	2	0	1	0.00	18.54	318.54

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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=10 MIN ELTRD= 931.50 MAX ELLC= 927.80

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 928.00 ELREA= 928.00

D/S FACE OF ORCHARD LAKE ROAD BRIDGE

STONE AND CONCRETE - RECT. OPENING APPROX. 20 FT WIDE

51.01 7.21 925.71 0.00 0.00 926.08 .37 .00 .00 918.60

600.	0.	600.	0.	0.	122.	0.	66.	17.	931.80
.81	0.00	4.90	0.00	.020	.015	.020	.037	918.50	300.00
.000349	1.	1.	1.	0	0	1	0.00	18.54	318.54

NORMAL BRIDGE,NRD=10 MIN ELTRD= 931.50 MAX ELLC= 927.80

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 931.50 ELREA= 931.50

RS BRIDGE SECTION RS

U/S FACE OF ORCHARD LAKE ROAD BRIDGE

51.03	7.24	925.74	0.00	0.00	926.11	.37	.03	.00	918.60
600.	0.	600.	0.	0.	123.	0.	66.	17.	931.80
.82	0.00	4.88	0.00	.020	.015	.020	.037	918.50	300.00
.000345	73.	73.	73.	2	0	1	0.00	18.54	318.54

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 931.50 ELREA= 931.50

51.03	7.24	925.74	0.00	0.00	926.11	.37	.00	.00	918.60
600.	0.	600.	0.	0.	123.	0.	66.	17.	931.80
.82	0.00	4.88	0.00	.045	.030	.045	.037	918.50	300.00
.001379	1.	1.	1.	0	0	1	0.00	18.54	318.54

3470 ENCROACHMENT STATIONS= 240.0 362.0 TYPE= 1 TARGET= 122.000

BT VALLEY SECTION BT

51.04	6.81	926.21	0.00	0.00	926.22	.01	.01	.11	926.30
600.	0.	600.	0.	0.	652.	0.	66.	17.	100000.00
.83	0.00	.92	0.00	.045	.030	.045	.037	919.40	240.34
.000038	50.	50.	50.	2	0	1	0.00	121.66	362.00

3470 ENCROACHMENT STATIONS= 330.0 351.0 TYPE= 1 TARGET= 21.000

D/S FOOT OF DAWSONS DAM

BU BRIDGE SECTION BU

EARTH AND CONCRETE DAM - 5 UNDERFLOW SLUICE GATES

51.07	10.17	926.17	0.00	0.00	926.30	.13	.02	.06	100000.00
600.	0.	600.	0.	0.	208.	0.	68.	17.	100000.00
.85	0.00	2.89	0.00	.045	.030	.055	.036	916.00	330.00
.000376	150.	200.	250.	2	0	1	0.00	21.00	351.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.00	3.08	0.00	.01	0.00	.01	0.00	920.00	916.00

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
*********	930.30	0.00	604.	0.	0.	921.00	921.70	30.00

3470 ENCROACHMENT STATIONS= 314.0 335.0 TYPE= 1 TARGET= 21.000
ELENCL= 955.00 ELENCR= 955.00

BV BRIDGE SECTION BV

U/S FACE OF DAWSONS DAM

51.08	6.83	926.83	0.00	0.00	927.10	.27	.80	0.00	920.00
600.	0.	600.	0.	0.	143.	0.	68.	17.	955.00
.85	0.00	4.18	0.00	.045	.030	.055	.036	920.00	314.00
.001073	21.	21.	21.	2	0	10	0.00	21.00	335.00

3470 ENCROACHMENT STATIONS= 244.0 405.0 TYPE= 1 TARGET= 161.000

REPEAT OF BU

51.09	7.00	927.18	0.00	0.00	927.19	.00	.00	.08	920.18
600.	264.	106.	231.	490.	147.	487.	69.	17.	920.18
.89	.54	.72	.47	.040	.030	.045	.036	920.18	244.00
.000016	70.	70.	70.	2	0	1	0.00	161.00	405.00

BW VALLEY SECTION BW

51.19	5.69	927.19	0.00	0.00	927.20	.01	.01	.00	930.40
600.	0.	600.	0.	0.	746.	0.	81.	19.	936.10
1.07	0.00	.80	0.00	.040	.030	.045	.036	921.50	155.62
.000038	530.	530.	530.	2	0	1	0.00	174.02	329.63

REPEAT OF BW

51.41	4.70	927.25	0.00	0.00	927.27	.02	.06	.00	931.45
600.	0.	600.	0.	0.	576.	0.	98.	24.	937.15
1.37	0.00	1.04	0.00	.040	.030	.045	.035	922.55	157.77
.000087	1125.	1125.	1125.	2	0	1	0.00	168.56	326.33

3470 ENCROACHMENT STATIONS= 160.0 325.0 TYPE= 1 TARGET= 165.000

REPEAT OF BW

51.58	3.95	927.36	0.00	0.00	927.39	.03	.12	.01100000.00	
600.	0.	600.	0.	0.	452.	0.	109.	27. 100000.00	
1.5	0.00	1.33	0.00				034	923 41	160 62

Use Revised Cl. Station Area
of Dawsons LK RD to Dawsons LK

.000211	925.	925.	925.	2	0	1	0.00	163.22	323.84

BX VALLEY SECTION BX

51.62	3.75	927.35	0.00	0.00	927.61	.26	.11	.12	930.70
600.	0.	600.	0.	0.	147.	0.	110.	28.	930.80
1.58	0.00	4.08	0.00	.040	.032	.045	.034	923.60	315.38
.003148	200.	200.	200.	2	0	1	0.00	74.47	389.86

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 932.00 ELREA= 932.00

51.81	4.78	929.28	0.00	0.00	929.55	.27	1.94	.01	927.00
600.	0.	600.	0.	0.	144.	0.	114.	29.	926.20
1.64	0.00	4.18	0.00	.040	.032	.045	.034	924.50	279.00
.001310	1000.	1000.	1000.	2	0	1	0.00	35.34	314.34

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

NORMAL BRIDGE,NRD=16 MIN ELTRD= 933.80 MAX ELLC= 932.70

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 932.00 ELREA= 932.00

D/S FACE OF TELEGRAPH ROAD SERVICE DRIVE

CONCRETE BRIDGE RECT. OPENING 38 FT. WIDE ONE PIER

Use Revised Clinton River
ORCHARD LK RD to Sylvan LK

51.81	4.74	929.24	0.00	0.00	929.60	.36	.00	.04	927.00
600.	0.	600.	0.	0.	125.	0.	114.	29.	926.20
1.64	0.00	4.81	0.00	.025	.015	.025	.034	924.50	279.00
.000459	1.	1.	1.	2	0	1	-18.64	35.34	314.34

NORMAL BRIDGE,NRD=16 MIN ELTRD= 933.80 MAX ELLC= 932.70

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 934.00 ELREA= 934.00

BY BRIDGE SECTION BY

U/S FACE OF TELEGRAPH ROAD SERVICE DRIVE

51.82	4.78	929.28	0.00	0.00	929.63	.35	.03	.00	927.00
600.	0.	600.	0.	0.	126.	0.	114.	29.	926.20
1.65	0.00	4.75	0.00	.025	.015	.025	.034	924.50	279.00
.000442	57.	57.	57.	1	0	1	-18.88	35.34	314.34

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 934.00 ELREA= 934.00

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   51.82     4.90   929.40     0.00     0.00   929.66      .26      .00      .03   927.00
    600.       0.     600.       0.       0.     148.       0.     114.      29.    926.20
    1.65     0.00     4.06     0.00     .045     .030     .045     .034   924.50   279.00
 .001049       1.       1.       1.        2        0        1     0.00    35.34   314.34

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      933.00 ELREA=      933.00

   51.83     5.56   929.56     0.00     0.00   929.72      .16      .04      .03   925.10
    600.       0.     600.       0.       0.     186.       0.     114.      29.    924.00
    1.65     0.00     3.22     0.00     .045     .030     .045     .034   924.00   291.00
 .000526      50.      50.      50.        2        0        1     0.00    37.83   329.28

NORMAL BRIDGE,NRD=16 MIN ELTRD=  934.30 MAX ELLC=  933.70

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      933.00 ELREA=      933.00

                    D/S FACE OF TELEGRAPH ROAD - NORTHBOUND

                    CONCRETE BRIDGE  RECT. OPENING  39 FT. WIDE   ONE PIER

   51.83     5.54   929.54     0.00     0.00   929.74      .21      .00      .02   925.10
    600.       0.     600.       0.       0.     164.       0.     114.      29.    924.00
    1.65     0.00     3.66     0.00     .025     .015     .025     .034   924.00   291.00
 .000201       1.       1.       1.        2        0        1   -21.55    37.83   329.27

   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     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=16 MIN ELTRD=  934.30 MAX ELLC=  936.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      935.00 ELREA=      935.00

              BZ       BRIDGE SECTION BZ

                    U/S FACE OF TELEGRAPH ROAD - NORTHBOUND

   51.84     6.11   929.61     0.00     0.00   929.77      .16      .01      .02   924.20
    600.       0.     600.       0.       0.     188.       0.     114.      29.    923.50
    1.66     0.00     3.18     0.00     .025     .015     .025     .034   923.50   291.00
 .000128      65.      65.      65.        2        0        1   -24.06    37.83   329.23

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      935.00 ELPEA=      935.00

   51.84     6.16   929.66     0.00     0.00   929.78      .12      .00      .01   924.20
    600.       0.     600.       0.       0.     214.       0.     114.      29.    923.50
    1.66     0.00     2.80     0.00     .045     .030     .045     .034   923.50   291.00
 .000333       1.       1.       1.        2        0        1     0.00    37.83   329.23
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Use Revised Clinton River
ORCHARD LK Rd to Sylvan LK

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 934.00 ELREA= 934.00

51.85	6.17	929.67	0.00	0.00	929.81	.14	.02	.01	936.60
600.	0.	600.	0.	0.	200.	0.	114.	29.	923.50
1.66	0.00	3.00	0.00	.045	.030	.045	.034	923.50	246.00
.000454	50.	50.	50.	0	0	1	0.00	36.90	283.64

NORMAL BRIDGE,NRD=14 MIN ELTRD= 934.30 MAX ELLC= 934.80

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 934.00 ELREA= 934.00

D/S FACE OF TELEGRAPH ROAD - SOUTHBOUND

CONCRETE BRIDGE RECT. OPENING 28 FT. WIDE ONE PIER

51.85	6.15	929.65	0.00	0.00	929.83	.17	.00	.02	936.60
600.	0.	600.	0.	0.	180.	0.	114.	29.	923.50
1.66	0.00	3.34	0.00	.025	.015	.025	.034	923.50	246.00
.000163	1.	1.	1.	1	0	1	-20.15	36.90	283.64

NORMAL BRIDGE,NRD=15 MIN ELTRD= 934.30 MAX ELLC= 936.90

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 934.30 ELREA= 934.30

Use Revised Centers Road
Orchard Lk Rd. to Sylvan Lk

CA BRIDGE SECTION CA

U/S FACE OF TELEGRAPH ROAD - SOUTHBOUND

51.87	5.64	929.64	0.00	0.00	929.87	.22	.02	.02	926.40
600.	0.	600.	0.	0.	158.	0.	115.	29.	924.60
1.67	0.00	3.79	0.00	.025	.015	.025	.033	924.00	246.00
.000223	88.	88.	88.	2	0	1	-17.88	36.90	283.47

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 934.30 ELREA= 934.30

51.87	5.71	929.71	0.00	0.00	929.88	.18	.00	.01	926.40
600.	0.	600.	0.	0.	179.	0.	115.	29.	924.60
1.67	0.00	3.36	0.00	.045	.022	.040	.033	924.00	246.00
.000323	1.	1.	1.	2	0	1	0.00	36.90	283.47

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 933.30 ELREA= 933.10

CB VALLEY SECTION CB

51.87	6.77	929.77	0.00	0.00	929.90	.14	.01	.01	933.30
600.	0.	600.	0.	0.	203.	0.	115.	29.	933.10
1.67	0.00	2.95	0.00	.045	.022	.040	.033	923.00	46.73
.000353	20.	20.	20.	2	0	1	0.00	52.81	99.54

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: PONTIAC CITY

3) WATERCOURSE: CLINTON DRAIN #1

4) DOCUMENT TYPE: 100 YR

00BREAK00

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$$$$$$$    $$$$$ $  $     $$  $$$$$$$$   $$$$$ $     $$     $      $
$$    $$  $$    $   $$     $$     $$     $$    $     $$$$    $$    $$
$$    $$  $$   $$$  $$$    $$     $$     $$   $$$   $$  $$   $$$  $$$
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$$        $$$   $$  $$   $$$    $$     $$$   $$  $$    $$  $$    $$
$$         $    $$  $$    $$  $$ $$     $    $$  $$    $$  $$    $$
$$       $ $$$$$   $$    $$   $$$     $ $$$$$   $$    $$  $$    $$
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enclosed low flow analysis

Clinton River Drain No. 1

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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      CITY OF PONTIAC  5670-06-I   PM - JOHN EMIG
T2      100-YEAR FLOOD IN SEWAGE DRAINS
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.   894.040    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
NC       .030      .030      .012      .300      .500     0.000     0.000     0.000     0.000     0.000
QT      4.000  1600.000  2280.000  2600.000  3550.000     0.000     0.000     0.000     0.000     0.000

X1     47.718     8.000     0.000    28.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    898.300     0.000   888.300     0.000   888.300    17.000   898.300    17.000   898.300    18.000
GR    888.300    18.000   888.300    28.000   898.300    28.000     0.000     0.000     0.000     0.000
NC       .012      .012      .012     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     47.767     0.000     0.000     0.000   258.000   258.000   258.000     0.000      .600     0.000

X1     47.782     0.000     0.000     0.000    80.000    80.000    80.000     0.000      .250     0.000

X1     47.785     8.000     0.000    21.000    17.000    17.000    17.000     0.000     0.000     0.000
GR    905.000     0.000   889.400     0.000   889.400    10.000   905.000    10.000   905.000    11.000
GR    889.400    11.000   889.400    21.000   905.000    21.000     0.000     0.000     0.000     0.000

X1     47.790     0.000     0.000     0.000    28.000    28.000    28.000     0.000      .067     0.000

X1     47.820     0.000     0.000     0.000   159.000   159.000   159.000     0.000      .382     0.000

X1     47.932     0.000     0.000     0.000   592.000   592.000   592.000     0.000     1.421     0.000

X1     48.050     0.000     0.000     0.000   620.000   620.000   620.000     0.000     1.490     0.000

X1     48.183     0.000     0.000     0.000   700.000   700.000   700.000     0.000     1.680     0.000

X1     48.316     0.000     0.000     0.000   703.000   703.000   703.000     0.000     1.690     0.000
EJ      0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
```

CCHV= .300 CEHV= .500

3720 ASSUMED CRITICAL DEPTH

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
47.72	6.60	894.90	894.90	894.04	898.21	3.31	0.00	0.00	898.30
2600.	0.	2600.	0.	0.	178.	0.	0.	0.	898.30
0.00	0.00	14.60	0.00	.030	.012	.030	0.000	888.30	0.00
.002786	0.	0.	0.	0	7	1	0.00	27.00	28.00

3265 DIVIDED FLOW

3301 HV CHANGED MORE THAN HVINS

47.77	7.76	896.66	0.00	0.00	899.05	2.39	.57	.28	898.90
2600.	0.	2600.	0.	0.	210.	0.	1.	0.	898.90
.01	0.00	12.41	0.00	.012	.012	.012	.012	888.90	0.00
.001812	258.	258.	258.	6	0	1	0.00	27.00	28.00

3265 DIVIDED FLOW

47.78	7.62	896.77	0.00	0.00	899.25	2.48	.15	.05	899.15
2600.	0.	2600.	0.	0.	206.	0.	2.	0.	899.15
.01	0.00	12.64	0.00	.012	.012	.012	.012	889.15	0.00
.001904	80.	80.	80.	2	0	1	0.00	27.00	28.00

3685 20 TRIALS USED WSEL,CWSEL

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

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
47.79	8.04	897.44	897.44	0.00	901.50	4.06	.04	0.00	905.00
2600.	0.	2600.	0.	0.	161.	0.	2.	0.	905.00
.01	0.00	16.18	0.00	.012	.012	.012	.012	889.40	0.00
.003803	17.	17.	17.	30	8	1	0.00	20.00	21.00

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
47.79	9.72	899.19	0.00	0.00	901.97	2.78	.08	.39	905.07
2600.	0.	2600.	0.	0.	194.	0.	2.	0.	905.07
.01	0.00	13.37	0.00	.012	.012	.012	.012	889.47	0.00
.002372	28.	28.	28.	11	0	1	0.00	20.00	21.00

3265 DIVIDED FLOW

47.82	9.72	899.57	0.00	0.00	902.35	2.78	.38	.00	905.45
2600.	0.	2600.	0.	0.	194.	0.	2.	0.	905.45
.01	0.00	13.38	0.00	.012	.012	.012	.012	889.85	0.00
.002373	159.	159.	159.	2	0	1	0.00	20.00	21.00

3265 DIVIDED FLOW

47.93	9.70	900.97	0.00	0.00	903.76	2.79	1.41	.00	906.87
2600.	0.	2600.	0.	0.	194.	0.	5.	1.	906.87
.02	0.00	13.40	0.00	.012	.012	.012	.012	891.27	0.00
.002383	592.	592.	592.	0	0	1	0.00	20.00	21.00

3265 DIVIDED FLOW

48.05	9.69	902.45	0.00	0.00	905.24	2.80	1.48	.00	908.36
2600.	0.	2600.	0.	0.	194.	0.	8.	1.	908.36
.04	0.00	13.42	0.00	.012	.012	.012	.012	892.76	0.00
.002392	620.	620.	620.	0	0	1	0.00	20.00	21.00

3265 DIVIDED FLOW

48.18	9.68	904.12	0.00	0.00	906.92	2.80	1.68	.00	910.04
2600.	0.	2600.	0.	0.	194.	0.	11.	1.	910.04
.05	0.00	13.43	0.00	.012	.012	.012	.012	894.44	0.00
.002398	700.	700.	700.	0	0	1	0.00	20.00	21.00

3265 DIVIDED FLOW

48.32	9.68	905.81	0.00	0.00	908.61	2.81	1.69	.00	911.73
2600.	0.	2600.	0.	0.	193.	0.	14.	2.	911.73
.07	0.00	13.44	0.00	.012	.012	.012	.012	896.13	0.00
.002402	703.	703.	703.	0	0	1	0.00	20.00	21.00

Uarco Business Forms - A

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
47.72	0.00	0.00	0.00	888.30	2600.00	894.90	3.31	0.00	0.00	2600.00	6.60	27.00
47.77	258.00	0.00	0.00	888.90	2600.00	896.66	2.39	.57	.28	2600.00	7.76	27.00
47.78	80.00	0.00	0.00	889.15	2600.00	896.77	2.48	.15	.05	2600.00	7.62	27.00
47.79	17.00	0.00	0.00	889.40	2600.00	897.44	4.06	.04	0.00	2600.00	8.04	20.00
47.79	28.00	0.00	0.00	889.47	2600.00	899.19	2.78	.08	.39	2600.00	9.72	20.00
47.82	159.00	0.00	0.00	889.85	2600.00	899.57	2.78	.38	.00	2600.00	9.72	20.00
47.93	592.00	0.00	0.00	891.27	2600.00	900.97	2.79	1.41	.00	2600.00	9.70	20.00
48.05	620.00	0.00	0.00	892.76	2600.00	902.45	2.80	1.48	.00	2600.00	9.69	20.00
48.18	700.00	0.00	0.00	894.44	2600.00	904.12	2.80	1.68	.00	2600.00	9.68	20.00
48.32	703.00	0.00	0.00	896.13	2600.00	905.81	2.81	1.69	.00	2600.00	9.68	20.00

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
47.718	2600.000	894.897	0.000	0.000	0.000	27.000	0.000	0.000
47.767	2600.000	896.664	0.000	1.766	0.000	27.000	0.000	258.000
47.782	2600.000	896.767	0.000	.103	0.000	27.000	0.000	80.000
47.785	2600.000	897.437	0.000	.670	0.000	20.000	0.000	17.000
47.790	2600.000	899.192	0.000	1.755	0.000	20.000	0.000	28.000
47.820	2600.000	899.568	0.000	.377	0.000	20.000	0.000	159.000
47.932	2600.000	900.971	0.000	1.403	0.000	20.000	0.000	592.000
48.050	2600.000	902.447	0.000	1.476	0.000	20.000	0.000	620.000
48.183	2600.000	904.121	0.000	1.674	0.000	20.000	0.000	700.000
48.316	2600.000	905.806	0.000	1.685	0.000	20.000	0.000	703.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	0.000	1.505	0.000



1) COUNTY: OAKLAND

2) STUDY NAME: PONTIAC, CITY

3) WATERCOURSE: CLINTON DRAIN #3

4) DOCUMENT TYPE: F INPUT LISTING



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C
C     57
C 48.573          AM        VALLEY SECTION AM
C 48.592          AN        VALLEY SECTION AN
C 48.592                    REPEAT OF AN
C 48.630                    REPEAT OF AO
C 48.668          AO        VALLEY SECTION AO
C 48.715                    REPEAT OF AO
C 48.751          AP        VALLEY SECTION AP
C 48.770                    REPEAT OF AP
C 48.791                    REPEAT OF AP
C 48.805                    REPEAT OF AP
C 48.814                    REPEAT OF AQ
C 48.815                    REPEAT OF AQ
C 48.815                    D/S FACE OF WESSEN ST BRIDGE
C 48.815                    30 FT WIDE STONE ARCH
C 48.824          AQ        BRIDGE SECTION AQ
C 48.824                    U/S FACE OF WESSEN ST BRIDGE
C 48.825                    REPEAT OF AQ
C 48.834          AR        VALLEY SECTION AR
C 48.857                    REPEAT OF AR
C 48.881          AS        VALLEY SECTION AS
C 48.905                    REPEAT OF AS
C 48.929                    REPEAT OF AS
C 48.933                    REPEAT OF AS
C 48.937                    REPEAT OF AS
C 48.941                    REPEAT OF AS
C 48.946                    REPEAT OF AT
C 48.947                    REPEAT OF AT
C 48.947                    D/S FACE OF GRAND TRUNK RAILROAD BRIDGE
C 48.947                    FIVE ROWS OF 14 INCH DIA TIMBER POLES
C 48.947                    16 FT LONG, CHANNEL WIDTH IS 70 FT
C 48.950          AT        BRIDGE SECTION AT
C 48.950                    U/S FACE OF GRAND TRUNK RAILROAD BRIDGE
C 48.951                    REPEAT OF AT
C 48.967          AU        VALLEY SECTION AU
C 48.986          AV        VALLEY SECTION AV
C 49.005          AW        VALLEY SECTION AW
C 49.024          AX        VALLEY SECTION AX
C 49.043          AY        VALLEY SECTION AY
C 49.062          AZ        VALLEY SECTION AZ
C 49.081          BA        VALLEY SECTION BA
C 49.100          BB        VALLEY SECTION BB
C 49.118          BC        VALLEY SECTION BC
C 49.137          BD        VALLEY SECTION BD
C 49.156          BE        VALLEY SECTION BE
C 49.175          BF        VALLEY SECTION BF
C 49.194          BG        VALLEY SECTION BG
C 49.213          BH        VALLEY SECTION BH
C 49.232          BI        VALLEY SECTION BI
C 49.246                    REPEAT OF BJ
C 49.247                    REPEAT OF BJ
C 49.247                    D/S FACE OF GILLESPIE ST BRIDGE
C 49.247                    30 FT WIDE CONCRETE ARCH
C 49.256          BJ        BRIDGE SECTION BJ
C 49.256                    U/S FACE OF GILLESPIE ST BRIDGE
C 49.257                    REPEAT OF BJ
C 49.270          BK        VALLEY SECTION BK
C 49.279                    REPEAT OF BK
T1      CITY OF PONTIAC, FIS    5670-06      JOHN EMIG - PROJECT MANAGER
T2      10 YEAR FLOOD
T3      CLINTON RIVER DRAIN #3
J1            2                    -1                    911
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Input Listing
Clinton River
Drain No. 3

City of Pontiac FIS
5670-06-1

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J2      1                -1
J3      1       10       11       12       14        8        4
NC   .044     .038     .026       .3       .5
QT      4       28       67       85      148
X148.573        4        0       25        0        0        0
GR 920.0        0    910.5        0    910.5       25    920.0       25
X148.582       12       47       78       50       50       50
GR 918.0        0    917.0       32    916.0       38    915.0       46    911.2       47
GR 910.0       58    910.0       68    913.0       78    915.0       90    916.0       92
GR 917.0       94    918.0      132
X148.592                                 50       50       50
NC   .042              .038
X148.630       11       30       51      300       20      200             -0.1
GR 916.6        0    916.6       20    911.4       30    910.2       41    913.2       51
GR 916.8       59    919.0       67    920.0       69    921.0       71    922.0       78
GR 923.0      102
NC                     .042
X148.668                                200      200      200             0.1
NC                     .044
X148.715                                225      275      250             0.06
NH      6    .038       14     .042       22     .048       42     .038       89     .042
NH    100    .036      175
X148.751       12       21       50      175      240      190
GR 916.7        0    916.7       14    917.6       21    911.5       22    910.3       32
GR 913.3       42    916.9       50    917.0       89    918.8       94    917.2      100
GR 917.3      125    919.0      175
X148.770                                125       75      100             0.18
X148.791                                130       70      110             0.20
X148.805                                 75       75       75             0.13
X148.814       13      200      230       30       60       48
GR 920.5        0    921.6      100    924.7      199    914.6      200    912.1      205
GR 910.9      210    911.6      215    911.4      220    912.1      225    912.6      230
GR 924.6      232    924.5      300    925.0      400
NC   .018    .018     .042
X148.815                                  1        1        1
BT     13      0.0    920.5      0.0    100.0    921.6      0.0    199.0    924.7      0.0
BT  200.0    925.3    914.6    205.0    925.2    919.7    210.0    925.2    922.0    215.0
BT  925.2    922.4    220.0    925.1    921.9    225.0    925.1    919.8    230.0    924.9
BT  912.6    232.0    924.6      0.0    300.0    924.5      0.0    400.0    925.0      0.0
X148.824                                 53       53       53
X2                                                1
NC   .044     .038     .040
X148.825                                  1        1        1
X148.834        7       69       95       70       20       49
GR 924.3        0    921.2       15    918.1       63    913.8       69    910.1       83
GR 914.0       95    926.0      115
X148.857                                 75      175      125             0.47
X148.881       14       37       93       75      175      125            -0.95
GR 919.3        0    919.2       10    917.0       30    917.0       37    912.0       37
GR 912.0       70    915.0       80    919.2       93    919.3       95    919.7      105
GR 919.9      115    920.4      125    920.4      135    920.5      145
NC   .048              .044
X148.905                                 75      175      125             0.35
X148.929                                128      128      128             0.35
QT      4      205      500      640     1030
X148.933                                 20       20       20             0.05
X5      4  913.12   914.02   914.38   915.21
X148.937                                 20       20       20             0.05
X148.941                                 21       21       21             0.06
NC   .038     .030     .028       .3       .5
X148.946       27       29      100       30       30       30
GR 924.3        0    923.4       29    923.4       30    918.2       30    915.1       42
GR 921.1       42    921.1       43    914.8       43    912.0       54    921.1       54
GR 921.1       55    912.0       55    912.0       66    921.1       66    921.1       67
GR 912.0       67    912.0       78    921.1       78    921.1       79    912.0       79
GR 912.0       84    913.7       89    921.1       89    921.1       90    914.0       90
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GR 917.3     100   924.1     200
NC 0.024   0.024   0.024
X148.947                          1       1       1
BT     6       0   924.3     0.0      30   924.3   921.1      55   924.3   921.1
BT    66   924.2   921.1     100   924.2   921.1     200   924.1     0.0
X148.950                         16      16      16
X2                                                1
NC 0.038   0.030   0.026
X148.951                          1       1       1
X148.967      15      85     115     110      71      91
GR 922.0       0   921.3      10   920.9      20   920.6      30   919.8      40
GR 919.6      50   919.2      60   919.0      65   912.2      85   912.2     115
GR 916.1     126   916.2     144   919.0     170   920.5     180   923.2     200
X148.986      15      82     118     100     100     100
GR 922.4       0   917.0      40   916.6      50   916.0      60   916.0      70
GR 912.3      82   912.3     118   916.0     130   916.0     139   917.6     150
GR 918.2     160   918.9     170   919.6     180   920.8     190   922.0     200
NC  .035    .035    .024
X149.005       8      81     117     100     100     100
GR 916.8       0   916.0      70   912.4      81   912.4     117   915.9     129
GR 916.1     144   917.2     150   918.0     190
X149.024      10      82     118      90     110     100
GR 916.7       0   916.0      71   912.6      82   912.6     118   916.0     128
GR 916.0     131   918.4     140   919.2     170   919.4     180   919.4     190
NC 0.032   0.032   0.024
X149.043      11      82     118     100     100     100
GR 918.0       0   918.0      10   917.8      20   917.4      30   916.3      38
GR 916.0      71   912.6      82   912.6     118   917.8     134   918.2     140
GR 918.5     190
X149.062      14      82     118      90     110     100
GR 917.7       0   917.6      30   917.6      40   916.8      50   916.2      55
GR 916.0      71   912.7      82   912.7     118   916.0     128   916.3     160
GR 916.8     170   917.2     180   917.4     190   917.8     200
X149.081      16      82     118     100     100     100
GR 919.0       0   919.0      10   919.0      17   917.3      25   916.9      70
GR 912.8      82   912.8     118   916.8     130   917.0     141   918.8     147
GR 919.0     150   919.1     160   919.0     170   919.1     180   919.2     190
GR 919.2     200
X149.100      12      82     118      90     110     100
GR 919.6       0   921.0       9   920.8      11   917.5      17   916.6      70
GR 912.8      82   912.8     118   913.0     120   916.0     130   919.4     142
GR 919.6     150   920.6     200
X149.118      15      82     118      90     110     100
X3            10
GR 917.7       0   917.6      60   917.6      65   917.4      69   912.9      82
GR 912.9     118   914.7     124   915.2     130   915.9     140   917.7     150
GR 919.9     160   920.1     170   920.3     180   920.3     190   920.8     200
X149.137      14      82     160      90     110     100
X3            10
GR 917.0       0   917.0      11   917.2      14   918.1      20   918.0      67
GR 913.1      82   913.1     118   912.8     130   913.0     140   913.0     160
GR 915.2     170   917.0     180   919.0     190   919.1     200
X149.156      17      82     200     100     100     100
X3            10
GR 918.5       0   917.8      67   913.2      82   913.2     118   914.4     122
GR 914.1     130   914.1     170   913.8     200   917.0     210   918.0     220
GR 919.1     240   918.0     256   917.0     258   917.2     269   918.0     272
GR 919.1     276   920.0     290
X149.175      17      82     250     100     100     100
X3            10
GR 918.5       0   918.0      67   913.3      82   913.3     118   914.4     122
GR 914.6     130   914.7     170   914.5     190   914.1     200   914.4     250
GR 917.0     256   917.9     264   917.0     277   917.1     284   918.0     289
GR 919.1     293   920.0     298
X149.194      13      82     296     100     100     100
X3            10              82             253
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GR 918.7       0   918.0      68   913.4      82   913.4     118   914.6     122
GR 914.7     130   914.7     200   915.0     296   917.0     306   918.0     309
GR 919.1     311   920.0     313   921.0     316
X149.213      14      82     264     100     100     100
X3    10                     82             199
GR 918.7       0   918.0      68   913.6      82   913.6     118   915.0     123
GR 915.1     130   915.1     177   913.8     200   914.0     264   917.0     270
GR 918.0     273   919.0     276   920.0     282   921.0     286
X149.232      10      82     118     100     100     100
X3    10
GR 920.8       0   919.6      64   913.6      82   913.6     118   917.4     130
GR 917.1     140   917.6     150   918.3     160   918.4     180   920.0     200
X149.246      20     500     530      74      74      74
GR 923.4       0   923.1     100   922.6     200   922.1     300   921.5     400
GR 922.1     499   914.2     500   913.7     505   913.7     510   913.7     515
GR 913.7     520   915.1     525   917.3     530   922.2     531   921.5     600
GR 922.5     700   923.9     800   924.2     900   924.6    1000   923.8    1100
NC  .015    .015    .022
X149.247                              1       1       1
BT    22     0.0   923.4     0.0   100.0   923.1     0.0   200.0   922.6     0.0
BT 300.0   922.1     0.0   400.0   921.5     0.0   499.0   922.1     0.0   499.0
BT 922.1   914.2   500.0   922.1   918.8   505.0   922.1   919.7   510.0   922.1
BT 920.3   515.0   922.1   920.4   520.0   922.2   920.3   525.0   922.2   919.8
BT 530.0   922.2   919.0   530.0   922.2   917.3   531.0   922.2     0.0   600.0
BT 921.5     0.0   700.0   922.5     0.0   800.0   923.9     0.0   900.0   924.2
BT   0.0  1000.0   924.6     0.0  1100.0   923.8     0.0
X149.256                             51      51      51
X2                                                   1
NC 0.032   0.032
X149.257                              1       1       1
X149.270       9      85     117      63      93      73
GR 919.7       0   919.0      69   913.9      85   913.9     117   918.0     128
GR 920.0     137   921.4     150   922.3     170   923.0     200
X149.279                             46      46      46             0.1
EJ
T1      CITY OF PONTIAC, FIS    5670-06      JOHN EMIG - PROJECT MANAGER
T2      50 YEAR FLOOD
T3      CLINTON RIVER DRAIN #3
J1            3                      -1                             911
J2     2              -1
T1      CITY OF PONTIAC, FIS    5670-06      JOHN EMIG - PROJECT MANAGER
T2      100 YEAR FLOOD
T3      CLINTON RIVER DRAIN #3
J1            4                      -1                             911
J2     3              -1
T1      CITY OF PONTIAC, FIS    5670-06      JOHN EMIG - PROJECT MANAGER
T2      500 YEAR FLOOD
T3      CLINTON RIVER DRAIN #3
J1            5                      -1                             911
J2    15              -1


ER
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1) COUNTY: OAKLAND

2) STUDY NAME: PONTIAC

3) WATERCOURSE: CLINTON RIVER DRAIN #3

4) DOCUMENT TYPE: SUMMARY



SUMMARY PRINTOUT FOR MULTIPLE PROFILES

Clinton River Drain No. 3
City of Pontiac F15 5670-06-1

Output Summary

CLINTON RIVER DRAIN #3

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
48.57	0.00	0.00	0.00	910.50	28.00	910.84	.17	0.00	0.00	28.00	.34	25.00
48.57	0.00	0.00	0.00	910.50	67.00	911.10	.31	0.00	0.00	67.00	.60	25.00
48.57	0.00	0.00	0.00	910.50	85.00	911.21	.36	0.00	0.00	85.00	.71	25.00
48.57	0.00	0.00	0.00	910.50	148.00	911.53	.51	0.00	0.00	148.00	1.03	25.00
48.58	50.00	0.00	0.00	910.00	28.00	911.13	.03	.11	.04	28.00	1.13	24.14
48.58	50.00	0.00	0.00	910.00	67.00	911.55	.08	.15	.07	67.00	1.55	26.25
48.58	50.00	0.00	0.00	910.00	85.00	911.70	.10	.16	.08	85.00	1.70	26.81
48.58	50.00	0.00	0.00	910.00	148.00	912.16	.16	.17	.11	147.96	2.16	28.46
48.59	50.00	0.00	0.00	910.00	28.00	911.18	.03	.04	.00	28.00	1.18	24.71
48.59	50.00	0.00	0.00	910.00	67.00	911.62	.07	.06	.00	67.00	1.62	26.52
48.59	50.00	0.00	0.00	910.00	85.00	911.78	.09	.06	.00	85.00	1.78	27.10
48.59	50.00	0.00	0.00	910.00	148.00	912.26	.14	.07	.01	147.95	2.26	28.81
48.63	200.00	0.00	0.00	910.10	28.00	911.47	.09	.32	.03	28.00	1.37	15.90
48.63	200.00	0.00	0.00	910.10	67.00	911.99	.17	.42	.05	66.42	1.89	18.65
48.63	200.00	0.00	0.00	910.10	85.00	912.18	.20	.45	.06	83.92	2.08	19.61
48.63	200.00	0.00	0.00	910.10	148.00	912.69	.29	.51	.07	144.18	2.59	22.33
48.67	200.00	0.00	0.00	910.20	28.00	912.05	.03	.51	.02	27.76	1.85	18.42
48.67	200.00	0.00	0.00	910.20	67.00	912.73	.06	.60	.03	65.24	2.53	21.92
48.67	200.00	0.00	0.00	910.20	85.00	912.96	.08	.63	.04	82.18	2.76	23.18
48.67	200.00	0.00	0.00	910.20	148.00	913.59	.12	.68	.05	140.57	3.39	26.07
48.72	250.00	0.00	0.00	910.26	28.00	912.34	.02	.27	.00	27.59	2.08	19.61
48.72	250.00	0.00	0.00	910.26	67.00	913.11	.04	.35	.01	64.51	2.85	23.61
48.72	250.00	0.00	0.00	910.26	85.00	913.36	.05	.37	.01	81.21	3.10	24.88
48.72	250.00	0.00	0.00	910.26	148.00	914.05	.09	.41	.01	138.42	3.79	27.70
48.75	190.00	0.00	0.00	910.30	28.00	912.50	.02	.17	.00	28.00	2.20	17.51
48.75	190.00	0.00	0.00	910.30	67.00	913.33	.04	.22	.00	67.00	3.03	20.36
48.75	190.00	0.00	0.00	910.30	85.00	913.59	.05	.23	.00	85.00	3.29	20.99
48.75	190.00	0.00	0.00	910.30	148.00	914.32	.09	.27	.00	148.00	4.02	22.72
48.77	100.00	0.00	0.00	910.48	28.00	912.60	.02	.10	.00	28.00	2.12	17.19
48.77	100.00	0.00	0.00	910.48	67.00	913.45	.05	.12	.00	67.00	2.97	20.16
48.77	100.00	0.00	0.00	910.48	85.00	913.72	.06	.13	.00	85.00	3.24	20.85
48.77	100.00	0.00	0.00	910.48	148.00	914.47	.09	.15	.00	148.00	3.99	22.63
48.79	110.00	0.00	0.00	910.68	28.00	912.73	.03	.13	.00	28.00	2.05	16.97
48.79	110.00	0.00	0.00	910.68	67.00	913.59	.05	.15	.00	67.00	2.91	19.99
48.79	110.00	0.00	0.00	910.68	85.00	913.87	.06	.15	.00	85.00	3.19	20.76
48.79	110.00	0.00	0.00	910.68	148.00	914.64	.09	.17	.00	148.00	3.96	22.59
48.81	75.00	0.00	0.00	910.81	28.00	912.83	.03	.10	.00	28.00	2.02	16.85
48.81	75.00	0.00	0.00	910.81	67.00	913.70	.05	.11	.00	67.00	2.89	19.89
48.81	75.00	0.00	0.00	910.81	85.00	913.98	.06	.11	.00	85.00	3.17	20.70
48.81	75.00	0.00	0.00	910.81	148.00	914.76	.10	.12	.00	148.00	3.95	22.56

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
48.81	48.00	0.00	0.00	910.90	28.00	912.88	.01	.03	.00	28.00	1.98	26.62
48.81	48.00	0.00	0.00	910.90	67.00	913.77	.02	.03	.01	66.98	2.87	28.51
48.81	48.00	0.00	0.00	910.90	85.00	914.06	.03	.03	.01	84.97	3.16	29.15
48.81	48.00	0.00	0.00	910.90	148.00	914.86	.04	.03	.02	147.89	3.96	30.40
48.82	1.00	920.50	922.40	910.90	28.00	912.88	.01	.00	.00	28.00	1.98	26.62
48.82	1.00	920.50	922.40	910.90	67.00	913.76	.03	.00	.00	67.00	2.86	28.52
48.82	1.00	920.50	922.40	910.90	85.00	914.06	.03	.00	.00	85.00	3.16	29.15
48.82	1.00	920.50	922.40	910.90	148.00	914.86	.05	.00	.00	148.00	3.96	30.40
48.82	53.00	920.50	922.40	910.90	28.00	912.91	.01	.03	.00	28.00	2.01	26.67
48.82	53.00	920.50	922.40	910.90	67.00	913.80	.02	.03	.00	67.00	2.90	28.58
48.82	53.00	920.50	922.40	910.90	85.00	914.09	.03	.03	.00	85.00	3.19	29.22
48.82	53.00	920.50	922.40	910.90	148.00	914.90	.05	.04	.00	148.00	4.00	30.41
48.83	1.00	0.00	0.00	910.90	28.00	912.91	.01	.00	.00	28.00	2.01	26.67
48.83	1.00	0.00	0.00	910.90	67.00	913.80	.02	.00	.00	66.98	2.90	28.58
48.83	1.00	0.00	0.00	910.90	85.00	914.10	.03	.00	.00	84.96	3.20	29.23
48.83	1.00	0.00	0.00	910.90	148.00	914.91	.04	.00	.00	147.87	4.01	30.41
48.83	49.00	0.00	0.00	910.10	28.00	912.93	.02	.02	.00	28.00	2.83	19.44
48.83	49.00	0.00	0.00	910.10	67.00	913.82	.03	.03	.00	67.00	3.72	25.45
48.83	49.00	0.00	0.00	910.10	85.00	914.12	.04	.03	.01	85.00	4.02	26.63
48.83	49.00	0.00	0.00	910.10	148.00	914.93	.06	.03	.01	147.14	4.83	29.12
48.86	125.00	0.00	0.00	910.57	28.00	913.01	.03	.09	.01	28.00	2.44	16.70
48.86	125.00	0.00	0.00	910.57	67.00	913.92	.05	.11	.01	67.00	3.35	23.00
48.86	125.00	0.00	0.00	910.57	85.00	914.22	.05	.11	.01	85.00	3.65	25.03
48.86	125.00	0.00	0.00	910.57	148.00	915.03	.08	.11	.01	147.67	4.46	27.98
48.88	125.00	0.00	0.00	911.05	28.00	913.07	.00	.02	.01	28.00	2.02	39.72
48.88	125.00	0.00	0.00	911.05	67.00	914.00	.01	.03	.01	67.00	2.95	42.84
48.88	125.00	0.00	0.00	911.05	85.00	914.31	.01	.03	.01	85.00	3.26	43.79
48.88	125.00	0.00	0.00	911.05	148.00	915.14	.01	.04	.02	148.00	4.09	46.36
48.91	125.00	0.00	0.00	911.40	28.00	913.07	.00	.01	.00	28.00	1.67	38.58
48.91	125.00	0.00	0.00	911.40	67.00	914.01	.01	.01	.00	67.00	2.61	41.71
48.91	125.00	0.00	0.00	911.40	85.00	914.32	.01	.01	.00	85.00	2.92	42.74
48.91	125.00	0.00	0.00	911.40	148.00	915.16	.02	.02	.00	148.00	3.76	45.36
48.93	128.00	0.00	0.00	911.75	28.00	913.09	.01	.02	.00	28.00	1.34	37.45
48.93	128.00	0.00	0.00	911.75	67.00	914.04	.01	.02	.00	67.00	2.29	40.59
48.93	128.00	0.00	0.00	911.75	85.00	914.34	.01	.03	.00	85.00	2.59	41.62
48.93	128.00	0.00	0.00	911.75	148.00	915.19	.02	.03	.00	148.00	3.44	44.34
48.93	20.00	0.00	0.00	911.80	205.00	913.12	.30	.09	.15	205.00	1.32	37.40
48.93	20.00	0.00	0.00	911.80	500.00	914.02	.58	.09	.29	500.00	2.22	40.40
48.93	20.00	0.00	0.00	911.80	640.00	914.38	.69	.09	.34	640.00	2.58	41.60
48.93	20.00	0.00	0.00	911.80	1030.00	915.21	.95	.09	.46	1030.00	3.41	44.27

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
48.94	20.00	0.00	0.00	911.85	205.00	913.44	.20	.19	.03	205.00	1.59	38.33
48.94	20.00	0.00	0.00	911.85	500.00	914.46	.41	.21	.05	500.00	2.61	41.69
48.94	20.00	0.00	0.00	911.85	640.00	914.85	.49	.21	.06	640.00	3.00	42.98
48.94	20.00	0.00	0.00	911.85	1030.00	915.76	.69	.22	.08	1030.00	3.91	45.79
48.94	21.00	0.00	0.00	911.91	205.00	913.61	.18	.13	.01	205.00	1.70	38.67
48.94	21.00	0.00	0.00	911.91	500.00	914.68	.35	.15	.02	500.00	2.77	42.27
48.94	21.00	0.00	0.00	911.91	640.00	915.08	.43	.16	.02	640.00	3.17	43.52
48.94	21.00	0.00	0.00	911.91	1030.00	916.03	.61	.17	.03	1030.00	4.12	46.48
48.95	30.00	0.00	0.00	912.00	205.00	913.74	.20	.14	.01	205.00	1.74	38.82
48.95	30.00	0.00	0.00	912.00	500.00	914.84	.36	.16	.00	500.00	2.84	45.53
48.95	30.00	0.00	0.00	912.00	640.00	915.27	.42	.17	.00	640.00	3.27	47.51
48.95	30.00	0.00	0.00	912.00	1030.00	916.32	.52	.18	.03	1030.00	4.32	54.77
48.95	1.00	924.10	921.10	912.00	205.00	913.74	.20	.00	.00	205.00	1.74	38.84
48.95	1.00	924.10	921.10	912.00	500.00	914.85	.36	.00	.00	500.00	2.85	45.55
48.95	1.00	924.10	921.10	912.00	640.00	915.28	.42	.00	.00	640.00	3.28	47.55
48.95	1.00	924.10	921.10	912.00	1030.00	916.33	.52	.00	.00	1030.00	4.33	54.81
48.95	16.00	924.10	921.10	912.00	205.00	913.80	.18	.04	.00	205.00	1.80	39.05
48.95	16.00	924.10	921.10	912.00	500.00	914.93	.33	.05	.01	500.00	2.93	45.83
48.95	16.00	924.10	921.10	912.00	640.00	915.36	.39	.05	.01	640.00	3.36	48.04
48.95	16.00	924.10	921.10	912.00	1030.00	916.42	.49	.05	.01	1030.00	4.42	55.45
48.95	1.00	0.00	0.00	912.00	205.00	913.80	.18	.00	.00	205.00	1.80	39.06
48.95	1.00	0.00	0.00	912.00	500.00	914.94	.33	.00	.00	500.00	2.94	45.84
48.95	1.00	0.00	0.00	912.00	640.00	915.36	.39	.00	.00	640.00	3.36	48.10
48.95	1.00	0.00	0.00	912.00	1030.00	916.43	.49	.00	.00	1030.00	4.43	55.47
48.97	91.00	0.00	0.00	912.20	205.00	914.01	.18	.20	.00	189.55	1.81	40.42
48.97	91.00	0.00	0.00	912.20	500.00	915.15	.35	.22	.01	441.39	2.95	46.98
48.97	91.00	0.00	0.00	912.20	640.00	915.58	.42	.23	.01	555.50	3.38	49.46
48.97	91.00	0.00	0.00	912.20	1030.00	916.63	.54	.22	.02	844.59	4.43	75.97
48.99	100.00	0.00	0.00	912.30	205.00	914.22	.11	.12	.02	189.38	1.92	48.53
48.99	100.00	0.00	0.00	912.30	500.00	915.46	.21	.13	.04	440.51	3.16	56.52
48.99	100.00	0.00	0.00	912.30	640.00	915.93	.25	.13	.05	554.18	3.63	59.53
48.99	100.00	0.00	0.00	912.30	1030.00	917.07	.29	.12	.07	810.99	4.77	106.85
49.01	100.00	0.00	0.00	912.40	205.00	914.31	.11	.09	.00	191.22	1.91	48.38
49.01	100.00	0.00	0.00	912.40	500.00	915.55	.22	.09	.00	446.86	3.15	56.43
49.01	100.00	0.00	0.00	912.40	640.00	916.02	.26	.09	.00	562.28	3.62	68.94
49.01	100.00	0.00	0.00	912.40	1030.00	917.17	.27	.08	.01	798.98	4.77	149.82
49.02	100.00	0.00	0.00	912.60	205.00	914.40	.13	.09	.01	192.58	1.80	47.11
49.02	100.00	0.00	0.00	912.60	500.00	915.63	.24	.09	.01	450.88	3.03	54.77
49.02	100.00	0.00	0.00	912.60	640.00	916.10	.28	.09	.01	567.28	3.50	70.78
49.02	100.00	0.00	0.00	912.60	1030.00	917.23	.30	.07	.01	807.49	4.63	135.64

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
49.04	100.00	0.00	0.00	912.60	205.00	914.51	.11	.09	.01	190.37	1.91	48.09
49.04	100.00	0.00	0.00	912.60	500.00	915.76	.21	.09	.01	443.71	3.16	55.96
49.04	100.00	0.00	0.00	912.60	640.00	916.23	.25	.09	.01	556.44	3.63	83.55
49.04	100.00	0.00	0.00	912.60	1030.00	917.31	.29	.08	.00	812.43	4.71	101.86
49.06	100.00	0.00	0.00	912.70	205.00	914.60	.11	.08	.00	190.34	1.90	48.12
49.06	100.00	0.00	0.00	912.70	500.00	915.85	.22	.09	.00	443.39	3.15	56.08
49.06	100.00	0.00	0.00	912.70	640.00	916.32	.25	.08	.00	551.10	3.62	106.48
49.06	100.00	0.00	0.00	912.70	1030.00	917.45	.24	.07	.02	761.77	4.75	149.24
49.08	100.00	0.00	0.00	912.80	205.00	914.68	.12	.09	.00	191.44	1.88	47.19
49.08	100.00	0.00	0.00	912.80	500.00	915.93	.22	.09	.00	447.29	3.13	54.61
49.08	100.00	0.00	0.00	912.80	640.00	916.40	.27	.09	.01	563.72	3.60	57.38
49.08	100.00	0.00	0.00	912.80	1030.00	917.47	.34	.07	.05	852.75	4.67	118.37
49.10	100.00	0.00	0.00	912.80	205.00	914.79	.10	.08	.01	184.75	1.99	50.20
49.10	100.00	0.00	0.00	912.80	500.00	916.06	.19	.08	.01	429.54	3.26	58.50
49.10	100.00	0.00	0.00	912.80	640.00	916.54	.22	.08	.01	538.31	3.74	61.71
49.10	100.00	0.00	0.00	912.80	1030.00	917.64	.27	.08	.02	803.01	4.84	119.02
49.12	100.00	0.00	0.00	912.90	205.00	914.86	.11	.07	.00	189.88	1.96	49.60
49.12	100.00	0.00	0.00	912.90	500.00	916.13	.19	.07	.00	429.02	3.23	68.69
49.12	100.00	0.00	0.00	912.90	640.00	916.62	.21	.07	.00	531.13	3.72	72.74
49.12	100.00	0.00	0.00	912.90	1030.00	917.71	.27	.07	.00	794.75	4.81	150.06
49.14	100.00	0.00	0.00	912.80	205.00	914.99	.02	.03	.02	196.44	2.19	92.87
49.14	100.00	0.00	0.00	912.80	500.00	916.34	.05	.03	.04	462.73	3.54	104.29
49.14	100.00	0.00	0.00	912.80	640.00	916.85	.06	.03	.05	584.99	4.05	108.68
49.14	100.00	0.00	0.00	912.80	1030.00	917.99	.08	.03	.06	907.53	5.19	137.17
49.16	100.00	0.00	0.00	913.20	205.00	915.02	.03	.02	.00	199.16	1.82	127.73
49.16	100.00	0.00	0.00	913.20	500.00	916.37	.04	.02	.00	478.98	3.17	136.45
49.16	100.00	0.00	0.00	913.20	640.00	916.89	.04	.02	.00	609.56	3.69	139.74
49.16	100.00	0.00	0.00	913.20	1030.00	918.03	.05	.02	.01	957.60	4.83	192.25
49.18	100.00	0.00	0.00	913.30	205.00	915.06	.03	.05	.00	199.80	1.76	175.11
49.18	100.00	0.00	0.00	913.30	500.00	916.41	.03	.02	.00	485.97	3.11	182.51
49.18	100.00	0.00	0.00	913.30	640.00	916.92	.03	.01	.00	620.20	3.62	185.34
49.18	100.00	0.00	0.00	913.30	1030.00	918.07	.03	.01	.01	981.61	4.77	231.94
49.19	100.00	0.00	0.00	913.40	205.00	915.14	.04	.08	.01	205.00	1.74	171.00
49.19	100.00	0.00	0.00	913.40	500.00	916.42	.03	.02	.00	500.00	3.02	171.00
49.19	100.00	0.00	0.00	913.40	640.00	916.93	.03	.01	.00	640.00	3.53	171.00
49.19	100.00	0.00	0.00	913.40	1030.00	918.08	.04	.01	.00	1030.00	4.68	171.00
49.21	100.00	0.00	0.00	913.60	205.00	915.27	.08	.15	.02	205.00	1.67	117.00
49.21	100.00	0.00	0.00	913.60	500.00	916.43	.07	.03	.02	500.00	2.83	117.00
49.21	100.00	0.00	0.00	913.60	640.00	916.94	.08	.03	.02	640.00	3.34	117.00
49.21	100.00	0.00	0.00	913.60	1030.00	918.07	.09	.02	.03	1030.00	4.47	117.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	C SEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
49.23	100.00	0.00	0.00	913.60	205.00	915.38	.13	.14	.03	191.65	1.78	46.98
49.23	100.00	0.00	0.00	913.60	500.00	916.41	.28	.08	.10	450.52	2.81	53.31
49.23	100.00	0.00	0.00	913.60	640.00	916.88	.33	.07	.12	567.29	3.28	56.20
49.23	100.00	0.00	0.00	913.60	1030.00	917.97	.40	.05	.15	861.38	4.37	86.44
49.25	74.00	0.00	0.00	913.70	205.00	915.36	.48	.15	.18	205.00	1.66	25.73
49.25	74.00	0.00	0.00	913.70	500.00	916.21	1.09	.19	0.00	499.75	2.51	27.79
49.25	74.00	0.00	0.00	913.70	640.00	916.62	1.26	.18	0.00	639.60	2.92	28.77
49.25	74.00	0.00	0.00	913.70	1030.00	917.58	1.67	.16	0.00	1029.08	3.88	30.48
49.25	1.00	921.50	920.40	913.70	205.00	915.36	.48	.00	.00	204.99	1.66	25.74
49.25	1.00	921.50	920.40	913.70	500.00	916.70	.73	.00	.11	499.38	3.00	28.93
49.25	1.00	921.50	920.40	913.70	640.00	917.20	.82	.00	.13	639.01	3.50	30.15
49.25	1.00	921.50	920.40	913.70	1030.00	918.31	1.11	.00	.17	1027.72	4.61	30.73
49.26	51.00	921.50	920.40	913.70	205.00	915.75	.29	.14	.06	204.86	2.05	26.68
49.26	51.00	921.50	920.40	913.70	500.00	917.04	.56	.13	.05	499.28	3.34	29.77
49.26	51.00	921.50	920.40	913.70	640.00	917.52	.67	.12	.05	638.91	3.82	30.47
49.26	51.00	921.50	920.40	913.70	1030.00	918.62	.96	.11	.05	1027.48	4.92	30.83
49.26	1.00	0.00	0.00	913.70	205.00	915.75	.29	.00	.00	204.93	2.05	26.68
49.26	1.00	0.00	0.00	913.70	500.00	917.04	.56	.00	.00	499.66	3.34	29.77
49.26	1.00	0.00	0.00	913.70	640.00	917.52	.67	.00	.00	639.49	3.82	30.47
49.26	1.00	0.00	0.00	913.70	1030.00	918.62	.97	.00	.00	1028.82	4.92	30.83
49.27	73.00	0.00	0.00	913.90	205.00	916.06	.11	.07	.06	189.46	2.16	44.58
49.27	73.00	0.00	0.00	913.90	500.00	917.59	.19	.07	.11	438.54	3.69	53.50
49.27	73.00	0.00	0.00	913.90	640.00	918.17	.22	.07	.13	549.75	4.27	57.21
49.27	73.00	0.00	0.00	913.90	1030.00	919.59	.27	.06	.21	827.09	5.69	123.85
49.28	46.00	0.00	0.00	914.00	205.00	916.09	.12	.03	.00	189.97	2.09	44.14
49.28	46.00	0.00	0.00	914.00	500.00	917.61	.20	.03	.01	439.81	3.61	52.99
49.28	46.00	0.00	0.00	914.00	640.00	918.19	.23	.02	.01	551.82	4.19	56.52
49.28	46.00	0.00	0.00	914.00	1030.00	919.60	.28	.02	.01	832.16	5.60	115.08

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
48.573	28.000	910.838	0.000	0.000	0.000	25.000	0.000	0.000
48.573	67.000	911.104	.266	0.000	0.000	25.000	0.000	0.000
48.573	85.000	911.209	.105	0.000	0.000	25.000	0.000	0.000
48.573	148.000	911.529	.319	0.000	0.000	25.000	0.000	0.000
48.582	28.000	911.131	0.000	.293	0.000	24.142	0.000	50.000
48.582	67.000	911.549	.419	.445	0.000	26.249	-2.107	50.000
48.582	85.000	911.703	.154	.494	0.000	26.807	-2.665	50.000
48.582	148.000	912.161	.458	.633	0.000	28.459	-4.317	50.000
48.592	28.000	911.176	0.000	.045	0.000	24.714	0.000	50.000
48.592	67.000	911.621	.445	.071	0.000	26.522	-1.808	50.000
48.592	85.000	911.782	.161	.079	0.000	27.101	-2.388	50.000
48.592	148.000	912.257	.476	.096	0.000	28.812	-4.098	50.000
48.630	28.000	911.469	0.000	.293	0.000	15.900	0.000	200.000
48.630	67.000	911.993	.524	.372	0.000	18.651	-2.751	200.000
48.630	85.000	912.175	.183	.394	0.000	19.611	-3.711	200.000
48.630	148.000	912.692	.516	.434	0.000	22.325	-6.426	200.000
48.668	28.000	912.051	0.000	.581	0.000	18.417	0.000	200.000
48.668	67.000	912.727	.676	.734	0.000	21.921	-3.503	200.000
48.668	85.000	912.957	.231	.782	0.000	23.184	-4.767	200.000
48.668	148.000	913.589	.632	.897	0.000	26.070	-7.653	200.000

48.715	85.000	913.361	.253	.403	0.000	24.880	-5.266	250.000
48.715	148.000	914.049	.689	.460	0.000	27.697	-8.083	250.000
48.751	28.000	912.505	0.000	.168	0.000	17.514	0.000	190.000
48.751	67.000	913.326	.821	.218	0.000	20.357	-2.843	190.000
48.751	85.000	913.591	.265	.231	0.000	20.987	-3.473	190.000
48.751	148.000	914.315	.724	.266	0.000	22.718	-5.204	190.000
48.770	28.000	912.602	0.000	.097	0.000	17.193	0.000	100.000
48.770	67.000	913.448	.846	.121	0.000	20.159	-2.966	100.000
48.770	85.000	913.720	.273	.129	0.000	20.849	-3.656	100.000
48.770	148.000	914.467	.747	.152	0.000	22.628	-5.435	100.000
48.791	28.000	912.730	0.000	.128	0.000	16.973	0.000	110.000
48.791	67.000	913.594	.864	.146	0.000	19.994	-3.021	110.000
48.791	85.000	913.874	.280	.153	0.000	20.757	-3.785	110.000
48.791	148.000	914.641	.767	.173	0.000	22.587	-5.615	110.000
48.805	28.000	912.828	0.000	.098	0.000	16.846	0.000	75.000
48.805	67.000	913.700	.871	.106	0.000	19.891	-3.045	75.000
48.805	85.000	913.983	.284	.110	0.000	20.699	-3.853	75.000
48.805	148.000	914.761	.777	.120	0.000	22.560	-5.714	75.000
48.814	28.000	912.878	0.000	.049	0.000	26.617	0.000	48.000
48.814	67.000	913.766	.888	.066	0.000	28.513	-1.896	48.000
48.814	85.000	914.057	.292	.074	0.000	29.146	-2.530	48.000
48.814	148.000	914.861	.803	.100	0.000	30.403	-3.786	48.000
48.815	28.000	912.878	0.000	.000	0.000	26.619	0.000	1.000
48.815	67.000	913.765	.887	-.001	0.000	28.515	-1.896	1.000
48.815	85.000	914.056	.291	-.001	0.000	29.148	-2.530	1.000
48.815	148.000	914.858	.802	-.003	0.000	30.403	-3.784	1.000
48.824	28.000	912.908	0.000	.031	0.000	26.672	0.000	53.000
48.824	67.000	913.797	.889	.032	0.000	28.581	-1.909	53.000
48.824	85.000	914.090	.293	.034	0.000	29.217	-2.545	53.000
48.824	148.000	914.897	.807	.040	0.000	30.411	-3.739	53.000
48.825	28.000	912.910	0.000	.001	0.000	26.673	0.000	1.000
48.825	67.000	913.801	.891	.004	0.000	28.582	-1.909	1.000
48.825	85.000	914.095	.295	.005	0.000	29.229	-2.555	1.000
48.825	148.000	914.908	.812	.010	0.000	30.413	-3.740	1.000
48.834	28.000	912.931	0.000	.021	0.000	19.445	0.000	49.000
48.834	67.000	913.823	.891	.022	0.000	25.453	-6.009	49.000
48.834	85.000	914.117	.294	.022	0.000	26.630	-7.186	49.000
48.834	148.000	914.929	.812	.021	0.000	29.120	-9.676	49.000
48.857	28.000	913.014	0.000	.083	0.000	16.700	0.000	125.000
48.857	67.000	913.923	.909	.100	0.000	23.002	-6.302	125.000
48.857	85.000	914.218	.295	.101	0.000	25.027	-8.327	125.000
48.857	148.000	915.025	.807	.096	0.000	27.979	-11.279	125.000
48.881	28.000	913.066	0.000	.052	0.000	39.721	0.000	125.000
48.881	67.000	914.002	.935	.079	0.000	42.838	-3.117	125.000
48.881	85.000	914.307	.305	.089	0.000	43.795	-4.074	125.000
48.881	148.000	915.143	.836	.118	0.000	46.358	-6.637	125.000
48.905	28.000	913.075	0.000	.009	0.000	38.583	0.000	125.000
48.905	67.000	914.014	.939	.012	0.000	41.713	-3.130	125.000
48.905	85.000	914.321	.307	.014	0.000	42.736	-4.153	125.000
48.905	148.000	915.162	.841	.019	0.000	45.358	-6.775	125.000

48.929	67.000	914.036	.941	.022	0.000	40.594	-3.143	128.000	
48.929	85.000	914.344	.309	.024	0.000	41.623	-4.172	128.000	
48.929	148.000	915.191	.846	.029	0.000	44.341	-6.890	128.000	
48.933	205.000	913.120	0.000	.026	0.000	37.400	0.000	20.000	
48.933	500.000	914.020	.900	-.016	0.000	40.400	-3.000	20.000	
48.933	640.000	914.380	.360	.036	0.000	41.600	-4.200	20.000	
48.933	1030.000	915.210	.830	.019	0.000	44.269	-6.869	20.000	
48.937	205.000	913.443	0.000	.323	0.000	38.328	0.000	20.000	
48.937	500.000	914.458	1.016	.438	0.000	41.690	-3.362	20.000	
48.937	640.000	914.846	.388	.466	0.000	42.980	-4.652	20.000	
48.937	1030.000	915.757	.911	.547	0.000	45.791	-7.464	20.000	
48.941	205.000	913.609	0.000	.167	0.000	38.666	0.000	21.000	
48.941	500.000	914.684	1.074	.225	0.000	42.268	-3.603	21.000	
48.941	640.000	915.083	.399	.237	0.000	43.520	-4.854	21.000	
48.941	1030.000	916.035	.952	.277	0.000	46.482	-7.817	21.000	
48.946	205.000	913.736	0.000	.127	0.000	38.822	0.000	30.000	
48.946	500.000	914.841	1.105	.157	0.000	45.529	-6.707	30.000	
48.946	640.000	915.271	.430	.188	0.000	47.514	-8.692	30.000	
48.946	1030.000	916.322	1.051	.287	0.000	54.770	-15.948	30.000	
48.947	205.000	913.741	0.000	.005	0.000	38.841	0.000	1.000	
48.947	500.000	914.847	1.106	.006	0.000	45.546	-6.705	1.000	
48.947	640.000	915.277	.430	.006	0.000	47.554	-8.713	1.000	
48.947	1030.000	916.329	1.052	.007	0.000	54.812	-15.971	1.000	
48.950	205.000	913.800	0.000	.059	0.000	39.046	0.000	16.000	
48.950	500.000	914.934	1.133	.087	0.000	45.830	-6.784	16.000	
48.950	640.000	915.358	.424	.080	0.000	48.043	-8.997	16.000	
48.950	1030.000	916.421	1.063	.092	0.000	55.447	-16.401	16.000	
48.951	205.000	913.804	0.000	.004	0.000	39.056	0.000	1.000	
48.951	500.000	914.938	1.134	.004	0.000	45.840	-6.783	1.000	
48.951	640.000	915.364	.426	.007	0.000	48.104	-9.047	1.000	
48.951	1030.000	916.425	1.061	.005	0.000	55.471	-16.414	1.000	
48.967	205.000	914.009	0.000	.205	0.000	40.424	0.000	91.000	
48.967	500.000	915.149	1.140	.211	0.000	46.984	-6.560	91.000	
48.967	640.000	915.577	.428	.213	0.000	49.458	-9.033	91.000	
48.967	1030.000	916.625	1.048	.200	0.000	75.970	-35.546	91.000	
48.986	205.000	914.224	0.000	.215	0.000	48.529	0.000	100.000	
48.986	500.000	915.463	1.239	.313	0.000	56.516	-7.986	100.000	
48.986	640.000	915.927	.464	.350	0.000	59.527	-10.998	100.000	
48.986	1030.000	917.067	1.140	.441	0.000	106.849	-58.319	100.000	
49.005	205.000	914.311	0.000	.087	0.000	48.382	0.000	100.000	
49.005	500.000	915.551	1.240	.089	0.000	56.434	-8.052	100.000	
49.005	640.000	916.015	.464	.088	0.000	68.942	-20.560	100.000	
49.005	1030.000	917.167	1.152	.100	0.000	149.821	-101.439	100.000	
49.024	205.000	914.397	0.000	.086	0.000	47.113	0.000	100.000	
49.024	500.000	915.634	1.237	.083	0.000	54.772	-7.658	100.000	
49.024	640.000	916.096	.462	.081	0.000	70.780	-23.667	100.000	
49.024	1030.000	917.229	1.133	.062	0.000	135.640	-88.526	100.000	
49.043	205.000	914.515	0.000	.118	0.000	48.087	0.000	100.000	
49.043	500.000	915.762	1.247	.128	0.000	55.959	-7.873	100.000	
49.043	640.000	916.231	.469	.134	0.000	83.550	-35.463	100.000	
49.043	1030.000	917.308	1.077	.079	0.000	101.858	-53.771	100.000	

49.062	500.000	915.847	1.249	.085	0.000	56.077	-7.961	100.000
49.062	640.000	916.323	.476	.092	0.000	106.476	-58.360	100.000
49.062	1030.000	917.446	1.123	.139	0.000	149.245	-101.129	100.000
49.081	205.000	914.684	0.000	.085	0.000	47.192	0.000	100.000
49.081	500.000	915.931	1.247	.084	0.000	54.614	-7.422	100.000
49.081	640.000	916.400	.469	.076	0.000	57.377	-10.185	100.000
49.081	1030.000	917.470	1.071	.024	0.000	118.369	-71.177	100.000
49.100	205.000	914.788	0.000	.105	0.000	50.197	0.000	100.000
49.100	500.000	916.059	1.270	.128	0.000	58.497	-8.300	100.000
49.100	640.000	916.539	.481	.139	0.000	61.710	-11.514	100.000
49.100	1030.000	917.635	1.096	.165	0.000	119.021	-68.824	100.000
49.118	205.000	914.857	0.000	.069	0.000	49.599	0.000	100.000
49.118	500.000	916.132	1.274	.073	0.000	68.686	-19.087	100.000
49.118	640.000	916.621	.489	.082	0.000	72.742	-23.143	100.000
49.118	1030.000	917.710	1.089	.074	0.000	150.058	-100.459	100.000
49.137	205.000	914.995	0.000	.137	0.000	92.869	0.000	100.000
49.137	500.000	916.344	1.349	.213	0.000	104.288	-11.419	100.000
49.137	640.000	916.854	.510	.233	0.000	108.681	-15.812	100.000
49.137	1030.000	917.989	1.135	.279	0.000	137.169	-44.301	100.000
49.156	205.000	915.017	0.000	.022	0.000	127.731	0.000	100.000
49.156	500.000	916.375	1.357	.030	0.000	136.446	-8.715	100.000
49.156	640.000	916.889	.514	.035	0.000	139.740	-12.009	100.000
49.156	1030.000	918.035	1.146	.046	0.000	192.251	-64.520	100.000
49.175	205.000	915.064	0.000	.046	0.000	175.110	0.000	100.000
49.175	500.000	916.405	1.341	.031	0.000	182.506	-7.397	100.000
49.175	640.000	916.920	.515	.032	0.000	185.337	-10.227	100.000
49.175	1030.000	918.072	1.152	.037	0.000	231.936	-56.826	100.000
49.194	205.000	915.139	0.000	.075	0.000	170.999	0.000	100.000
49.194	500.000	916.420	1.282	.015	0.000	170.999	-.000	100.000
49.194	640.000	916.932	.512	.011	0.000	170.999	-.000	100.000
49.194	1030.000	918.079	1.147	.007	0.000	170.999	-.000	100.000
49.213	205.000	915.271	0.000	.133	0.000	116.999	0.000	100.000
49.213	500.000	916.434	1.163	.014	0.000	116.999	-.000	100.000
49.213	640.000	916.937	.503	.005	0.000	116.999	-.000	100.000
49.213	1030.000	918.073	1.136	-.006	0.000	116.999	-.000	100.000
49.232	205.000	915.383	0.000	.111	0.000	46.976	0.000	100.000
49.232	500.000	916.410	1.028	-.024	0.000	53.306	-6.329	100.000
49.232	640.000	916.879	.469	-.058	0.000	56.196	-9.220	100.000
49.232	1030.000	917.972	1.093	-.101	0.000	86.439	-39.463	100.000
49.246	205.000	915.356	0.000	-.026	0.000	25.735	0.000	74.000
49.246	500.000	916.215	.858	-.195	0.000	27.789	-2.054	74.000
49.246	640.000	916.623	.408	-.256	0.000	28.769	-3.034	74.000
49.246	1030.000	917.580	.956	-.392	0.000	30.485	-4.750	74.000
49.247	205.000	915.364	0.000	.007	0.000	25.742	0.000	1.000
49.247	500.000	916.696	1.332	.481	0.000	28.934	-3.192	1.000
49.247	640.000	917.198	.502	.575	0.000	30.155	-4.412	1.000
49.247	1030.000	918.310	1.112	.730	0.000	30.729	-4.986	1.000
49.256	205.000	915.747	0.000	.383	0.000	26.677	0.000	51.000
49.256	500.000	917.037	1.291	.341	0.000	29.766	-3.089	51.000

49.232	640.000	916.879	.469	-.058	0.000	56.195	-.220	100.000
49.232	1030.000	917.972	1.093	-.101	0.000	86.439	-39.463	100.000
49.246	205.000	915.356	0.000	-.026	0.000	25.735	0.000	74.000
49.246	500.000	916.215	.858	-.195	0.000	27.789	-2.054	74.000
49.246	640.000	916.623	.408	-.256	0.000	28.769	-3.034	74.000
49.246	1030.000	917.580	.956	-.392	0.000	30.485	-4.750	74.000
49.247	205.000	915.364	0.000	.007	0.000	25.742	0.000	1.000
49.247	500.000	916.696	1.332	.481	0.000	28.934	-3.192	1.000
49.247	640.000	917.198	.502	.575	0.000	30.155	-4.412	1.000
49.247	1030.000	918.310	1.112	.730	0.000	30.729	-4.986	1.000
49.256	205.000	915.747	0.000	.383	0.000	26.677	0.000	51.000
49.256	500.000	917.037	1.291	.341	0.000	29.766	-3.089	51.000
49.256	640.000	917.519	.482	.321	0.000	30.465	-3.788	51.000
49.256	1030.000	918.618	1.099	.309	0.000	30.829	-4.151	51.000
49.257	205.000	915.749	0.000	.003	0.000	26.685	0.000	1.000
49.257	500.000	917.039	1.290	.002	0.000	29.772	-3.087	1.000
49.257	640.000	917.521	.482	.002	0.000	30.466	-3.781	1.000
49.257	1030.000	918.619	1.098	.001	0.000	30.829	-4.145	1.000
49.270	205.000	916.061	0.000	.312	0.000	44.585	0.000	73.000
49.270	500.000	917.587	1.526	.548	0.000	53.497	-8.912	73.000
49.270	640.000	918.168	.581	.647	0.000	57.212	-12.627	73.000
49.270	1030.000	919.586	1.418	.967	0.000	123.855	-79.270	73.000
49.279	205.000	916.085	0.000	.024	0.000	44.138	0.000	46.000
49.279	500.000	917.607	1.522	.020	0.000	52.994	-8.856	46.000
49.279	640.000	918.186	.579	.018	0.000	56.522	-12.384	46.000
49.279	1030.000	919.600	1.414	.015	0.000	115.076	-70.938	46.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	0.000	3.910	0.000
2	0.000	0.000	4.360	.451
3	0.000	0.000	4.729	.819
4	0.000	0.000	6.363	2.453

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: PONTIAC, CITY

3) WATERCOURSE: CLINTON RIVER DRAIN #2

4) DOCUMENT TYPE: 100 YR

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
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T1      CITY OF PONTIAC, FIS    5670-06    JOHN EMIG - PROJECT MANAGER
T2      100 YEAR FLOOD
T3      CLINTON RIVER DRAIN #2
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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.	869.560	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= .200
3280 CROSS SECTION 45.26 EXTENDED 4.56 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TW	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
45.26	11.66	869.56	0.00	869.56	869.64	.08	0.00	0.00	868.60
3950.	1397.	2406.	147.	1038.	914.	134.	0.	0.	868.50
0.00	1.35	2.63	1.10	.035	.022	.035	0.000	857.90	.00
.000098	0.	0.	0.	0	0	1	0.00	340.00	340.00

3470 ENCROACHMENT STATIONS= .0 340.0 TYPE= 1 TARGET= 339.999

REPEAT OF A

INVERT ADJUSTED

3280 CROSS SECTION 45.31 EXTENDED 4.52 FEET

3470 ENCROACHMENT STATIONS= 122.0 302.0 TYPE= 1 TARGET= 130.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 868.60 ELREA= 100000.00

A VALLEY SECTION A

45.31	11.62	869.52	0.00	0.00	869.70	.17	.04	.02	868.60
3950.	693.	3257.	0.	357.	909.	0.	12.	2.	100000.00
.03	1.94	3.54	0.00	.035	.022	.035	.022	857.90	122.00
.000184	300.	300.	300.	2	0	1	0.00	140.00	302.00

3280 CROSS SECTION 45.45 EXTENDED 7.89 FEET

3470 ENCROACHMENT STATIONS= 10.0 150.0 TYPE= 1 TARGET= 140.000

B VALLEY SECTION B

45.45	11.69	869.59	0.00	0.00	869.86	.27	.15	.02	868.50
3950.	15.	3924.	10.	17.	932.	14.	29.	4.	868.50
.07	.87	4.21	.74	.035	.022	.035	.022	857.90	10.00
.000249	700.	700.	700.	2	0	1	0.00	140.00	150.00

3280 CROSS SECTION 45.50 EXTENDED 1.08 FEET

3470 ENCROACHMENT STATIONS= 8.0 128.0 TYPE= 1 TARGET= 120.000

C VALLEY SECTION C

45.50	11.64	869.66	0.00	0.00	869.94	.29	.08	.00	865.58
3950.	2.	3946.	2.	2.	916.	3.	36.	5.	868.58
.09	.72	4.31	.72	.035	.022	.035	.022	858.02	H.00
.000264	300.	300.	300.	0	0	1	0.00	120.00	128.00

3280 CROSS SECTION 45.57 EXTENDED 1.06 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
	D	VALLEY SECTION D							
45.57	11.36	869.73	0.00	0.00	870.05	.32	.10	.01	870.78
3950.	0.	3950.	0.	0.	864.	0.	43.	6.	868.68
.11	0.00	4.57	.01	.035	.022	.035	.022	856.37	3.61
.000316	350.	350.	350.	1	0	1	0.00	113.39	117.00
	E	VALLEY SECTION E							
45.59	10.90	869.65	0.00	0.00	870.12	.47	.04	.03	873.68
3950.	0.	3950.	0.	0.	718.	0.	45.	6.	873.68
.12	0.00	5.50	0.00	.035	.022	.035	.022	858.75	3.12
.000505	100.	100.	100.	2	0	1	0.00	98.76	106.88
	F	VALLEY SECTION F							
45.69	10.76	869.92	0.00	0.00	870.41	.49	.29	.00	874.16
3950.	0.	3950.	0.	0.	706.	0.	54.	8.	874.16
.14	0.00	5.51	0.00	.035	.022	.035	.022	859.16	9.41
.000534	550.	550.	550.	2	0	1	0.00	99.11	108.53
	G	VALLEY SECTION G							
45.78	10.66	870.17	0.00	0.00	870.68	.50	.26	.00	874.58
3950.	0.	3950.	0.	0.	695.	0.	62.	9.	874.58
.17	0.00	5.68	0.00	.035	.022	.035	.022	859.51	8.71
.000552	484.	484.	484.	0	0	1	0.00	97.57	106.29
45.80	10.55	870.13	0.00	0.00	870.74	.61	.04	.02	874.58
3950.	0.	3950.	0.	0.	631.	0.	63.	9.	874.58
.17	0.00	6.26	0.00	.035	.022	.035	.022	859.58	8.90
.000758	66.	66.	66.	2	0	1	0.00	97.21	106.10

NORMAL BRIDGE,NRD=12 MIN ELTRD= 880.08 MAX ELLC= 874.58

45.80	10.45	870.03	0.00	0.00	870.76	.73	.00	.03	874.58
3950.	0.	3950.	0.	0.	575.	0.	63.	9.	874.58
.17	0.00	6.87	0.00	.035	.020	.035	.022	859.58	9.10
.000863	1.	1.	1.	2	0	1	-46.94	96.81	105.90

NORMAL BRIDGE,NRD=12 MIN ELTRD= 880.08 MAX ELLC= 874.58'

45.80	10.46	870.04	0.00	0.00	870.77	.73	.01	.00	874.58
3950.	0.	3950.	0.	0.	575.	0.	63.	9.	874.58
.17	0.00	6.87	0.00	.035	.020	.035	.022	859.58	9.09
.000861	6.	6.	6.	0	0	1	-46.97	96.83	105.91

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

45.80	10.61	870.19	0.00	0.00	870.78	.60	.00	.01	874.58
3950.	0.	3950.	0.	0.	637.	0.	63.	9.	874.58
.17	0.00	6.20	0.00	.035	.020	.035	.022	859.58	8.78
.000611	1.	1.	1.	2	0	1	0.00	97.43	106.22

H VALLEY SECTION H

45.82	10.71	870.37	0.00	0.00	870.86	.49	.07	.01	874.58
3950.	0.	3950.	0.	0.	705.	0.	65.	9.	877.18
.18	0.00	5.60	0.00	.035	.022	.035	.022	859.66	9.88
.000536	117.	117.	117.	2	0	1	0.00	99.04	107.92

I VALLEY SECTION I

45.88	10.63	870.54	0.00	0.00	871.05	.51	.18	.00	874.91
3950.	0.	3950.	0.	0.	590.	0.	70.	10.	874.91
.19	0.00	5.72	0.00	.035	.022	.035	.022	859.91	8.75
.000564	325.	325.	325.	2	0	1	0.00	97.51	106.25

REPEAT OF I

INVERT ADJUSTED

45.94	10.54	870.71	0.00	0.00	871.23	.52	.19	.00	875.17
3950.	0.	3950.	0.	0.	682.	0.	75.	11.	875.17
.21	0.00	5.79	0.00	.035	.022	.035	.022	860.17	8.91
.000584	325.	325.	325.	0	0	1	0.00	97.18	106.09

REPEAT OF J

AREA ADJUSTED

45.96	10.58	870.82	0.00	0.00	871.28	.47	.05	.01	883.28
3950.	0.	3950.	0.	0.	722.	0.	76.	11.	883.88
.21	0.00	5.47	0.00	.035	.022	.035	.022	860.24	99.25
.000525	82.	82.	82.	2	0	1	0.00	102.78	202.03

NORMAL BRIDGE,NRD= 8 MIN ELTRD= 900.38 MAX ELLC= 889.38

REPEAT OF J

D/S FACE OF GRAND TRUNK RR BRIDGE

ONE CONCRETE PIER

22 FT LONG, 10 FT WIDE AT BASE

ON RIGHT OVERBANK

45.96	10.50	870.74	0.00	0.00	871.31	.57	.00	.02	883.28
3950.	0.	3950.	0.	0.	652.	0.	76.	11.	883.88
.21	0.00	6.06	0.00	.035	.020	.035	.022	860.24	99.39
.000606	1.	1.	1.	2	0	1	-61.13	102.51	201.10

NORMAL BRIDGE,NRD= 8 MIN ELTRD= 900.38 MAX ELLC= 889.38

J BRIDGE SECTION J

U/S FACE OF GRAND TRUNK RR BRIDGE

45.96	10.51	870.75	0.00	0.00	871.32	.57	.01	.00	883.28
3950.	0.	3950.	0.	0.	653.	0.	77.	11.	883.88
.21	0.00	6.05	0.00	.035	.020	.035	.022	860.24	99.37
.000603	22.	22.	22.	0	0	1	-61.30	102.55	201.92

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

REPEAT OF J

45.96	10.63	870.87	0.00	0.00	871.33	.46	.00	.01	883.28
3950.	0.	3950.	0.	0.	727.	0.	77.	11.	883.88
.21	0.00	5.43	0.00	.035	.020	.035	.022	860.24	99.16
.000424	1.	1.	1.	2	0	1	0.00	102.96	202.12

K VALLEY SECTION K

46.00	10.55	870.91	0.00	0.00	871.43	.52	.08	.01	875.38
3950.	0.	3950.	0.	0.	681.	0.	79.	11.	878.38
.22	0.00	5.80	0.00	.035	.022	.035	.022	860.36	8.95
.000586	169.	169.	169.	2	0	1	0.00	97.10	106.05

3265 DIVIDED FLOW

L VALLEY SECTION L

46.02	11.35	870.75	0.00	0.00	871.59	.84	.10	.06	863.40
3950.	242.	3526.	182.	90.	455.	74.	82.	12.	863.60
.23	2.68	7.75	2.44	.035	.022	.035	.022	859.40	12.48
.000654	157.	157.	157.	2	0	1	0.00	92.64	109.20

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 6 MIN ELTRD= 884.20 MAX ELLC= 883.20

D/S FACE OF EASTBOUND I-59 BRIDGE

TWO CONCRETE PIERS

50 FT APART, 42 FT LONG, 3.2 FT WIDE AT BASE

46.03	11.35	870.75	0.00	0.00	871.59	.84	.00	.00	863.40
3950.	242.	3526.	182.	90.	455.	74.	82.	12.	863.60
.23	2.68	7.75	2.44	.035	.022	.035	.022	859.40	12.47
.000653	1.	1.	1.	0	0	1	0.00	92.64	109.20

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 6 MIN ELTRD= 883.10 MAX ELLC= 881.40

M BRIDGE SECTION M

U/S FACE OF EASTBOUND I-59 BRIDGE

46.03	11.38	870.78	0.00	0.00	871.62	.84	.03	.00	863.40
3950.	243.	3523.	183.	91.	456.	75.	82.	12.	863.60
.23	2.67	7.72	2.43	.035	.022	.035	.022	859.40	12.42
.000646	42.	42.	42.	0	0	1	0.00	92.99	109.26

3265 DIVIDED FLOW

REPEAT OF

46.03	11.38	870.78	0.00	0.00	871.62	.84	.00	.00	863.40
3950.	243.	3523.	183.	91.	456.	75.	82.	12.	863.60
.23	2.67	7.72	2.43	.035	.022	.035	.022	859.40	12.42
.000646	1.	1.	1.	0	0	1	0.00	93.00	109.26

3265 DIVIDED FLOW

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

N VALLEY SECTION N

INVERT ADJUSTED

46.04	11.38	870.82	0.00	0.00	871.65	.84	.03	.00	863.44
3950.	243.	3524.	183.	91.	456.	75.	83.	12.	863.64
.23	2.68	7.73	2.44	.035	.022	.035	.022	859.44	12.43
.000648	54.	54.	54.	0	0	1	0.00	92.75	109.25

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 6 MIN ELTRD= 884.20 MAX ELLC= 883.20

D/S FACE OF WESTBOUND M-59 BRIDGE

SAME DIMENSIONS AS EASTBOUND M-59 BRIDGE

46.04	11.38	870.82	0.00	0.00	871.65	.84	.00	.00	863.44
3950.	243.	3524.	183.	91.	456.	75.	83.	12.	863.64
.23	2.68	7.73	2.44	.035	.022	.035	.022	859.44	12.43
.000647	1.	1.	1.	0	0	1	0.00	92.75	109.25

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 6 MIN ELTRD= 883.10 MAX ELLC= 881.40

O BRIDGE SECTION O

U/S FACE OF WESTBOUND M-59 BRIDGE

46.05	11.47	870.87	0.00	0.00	871.68	.82	.03	.00	863.40
3950.	247.	3516.	187.	93.	461.	78.	84.	12.	863.60
.23	2.65	7.63	2.42	.035	.022	.035	.022	859.40	12.25
.000623	42.	42.	42.	2	0	1	0.00	93.42	109.47

3265 DIVIDED FLOW

REPEAT OF O

46.05	11.47	870.87	0.00	0.00	871.68	.82	.00	.00	863.40
3950.	247.	3515.	187.	93.	461.	78.	84.	12.	863.60
.23	2.65	7.63	2.42	.035	.022	.035	.022	859.40	12.25
.000623	1.	1.	1.	0	0	1	0.00	93.42	109.47

3265 DIVIDED FLOW

46.05	11.47	870.87	0.00	0.00	871.68	.82	.00	.00	863.40
3950.	247.	3515.	187.	93.	461.	78.	84.	12.	863.60

.000623	1.	1.	1.	0	0	1	0.00	93.42	109.47

P VALLEY SECTION P

46.11	10.57	871.38	0.00	0.00	871.89	.52	.18	.03	876.08
3950.	0.	3950.	0.	0.	684.	0.	88.	13.	876.58
.25	0.00	5.78	0.00	.035	.022	.035	.022	860.81	9.10
.000575	300.	300.	300.	2	0	1	0.00	96.34	105.44

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

Q VALLEY SECTION Q

46.13	10.63	871.51	0.00	0.00	871.95	.44	.05	.01	884.18
3720.	0.	3720.	0.	0.	695.	0.	90.	13.	876.08
.25	0.00	5.35	0.00	.035	.022	.035	.022	860.88	26.63
.000495	100.	100.	100.	2	0	1	0.00	96.43	124.06
46.24	10.32	871.79	0.00	0.00	872.28	.49	.32	.01	884.77
3720.	0.	3720.	0.	0.	665.	0.	99.	14.	876.67
.28	0.00	5.59	0.00	.035	.022	.035	.022	861.47	26.25
.000563	600.	600.	600.	2	0	1	0.00	97.21	123.46

REPEAT OF Q

INVERT ADJUSTED

46.35	10.06	872.12	0.00	0.00	872.65	.53	.36	.01	885.36
3720.	0.	3720.	0.	0.	639.	0.	108.	16.	877.26
.31	0.00	5.82	0.00	.035	.022	.035	.022	862.06	26.40
.000635	600.	600.	600.	0	0	1	0.00	96.12	122.43

REPEAT OF Q

46.36	10.05	872.13	0.00	0.00	872.65	.53	.01	.00	885.38
3720.	0.	3720.	0.	0.	638.	0.	109.	16.	877.28
.31	0.00	5.83	0.00	.035	.012	.035	.022	862.03	26.82
.000189	24.	24.	24.	0	0	1	0.00	96.10	122.92

R VALLEY SECTION R

46.36	10.08	872.16	0.00	0.00	872.66	.50	.00	.00	885.08
3720.	0.	3720.	0.	0.	656.	0.	109.	16.	876.98
.31	0.00	5.67	0.00	.035	.012	.035	.022	862.98	26.14
.000175	1.	1.	1.	2	0	1	0.00	97.42	123.57

S VALLEY SECTION S

46.36	15.53	872.11	0.00	0.00	872.67	.56	.00	.01	877.78
3720.	0.	3720.	0.	0.	621.	0.	109.	16.	877.78
.31	0.00	5.99	0.00	.035	.012	.035	.022	856.58	17.00
.000130	19.	19.	19.	2	0	1	0.00	40.00	57.00

REPEAT OF S

46.38	15.54	872.12	0.00	0.00	872.68	.56	.01	.00	877.78
3720.	0.	3720.	0.	0.	622.	0.	110.	16.	877.78
.32	0.00	5.98	0.00	.035	.012	.035	.022	856.53	17.00
.000129	72.	72.	72.	0	0	1	0.00	40.00	57.00

3685 20 TRIALS USED WSEL,CWSEL

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

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

T VALLEY SECTION T

46.38	6.43	873.32	873.32	0.00	876.57	3.25	.01	0.00	877.78
3720.	0.	3720.	0.	0.	257.	0.	110.	16.	877.78
.32	0.00	14.47	0.00	.035	.012	.035	.022	866.89	17.00
.001656	29.	29.	29.	30	18	1	0.00	40.00	57.00

3685 20 TRIALS USED WSEL,CWSEL

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

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

U VALLEY SECTION U

46.39	8.28	875.17	875.17	0.00	879.11	3.94	.05	0.00	877.98
3720.	0.	3720.	0.	0.	234.	0.	110.	16.	877.98
.32	0.00	15.93	0.00	.035	.012	.035	.022	866.89	14.00
.001822	27.	27.	27.	30	11	1	0.00	30.00	44.00

3685 20 TRIALS USED WSEL,CWSEL

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
46.67	8.29	879.68	879.68	0.00	883.61	3.93	2.73	0.00	882.48
3720.	0.	3720.	0.	0.	234.	0.	118.	17.	882.48
.34	0.00	15.91	0.00	.035	.012	.035	.020	871.39	14.00
.001816	2000.	1500.	1000.	30	5	1	0.00	30.00	44.00

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
46.69	9.24	880.93	879.82	0.00	883.86	2.93	.15	.10	882.78
3600.	0.	3600.	0.	0.	262.	0.	119.	17.	882.78
.35	0.00	13.73	0.00	.035	.012	.035	.020	871.69	14.00
.001226	100.	100.	100.	15	8	1	0.00	30.00	44.00
46.69	9.25	880.94	0.00	0.00	883.86	2.92	.00	.00	882.78
3600.	0.	3600.	0.	0.	262.	0.	119.	17.	882.78
.35	0.00	13.72	0.00	.035	.012	.035	.020	871.69	14.00
.001224	3.	3.	3.	0	0	1	0.00	30.00	44.00

NORMAL BRIDGE,NRD=10 MIN ELTRD= 882.58 MAX ELLC= 886.98

O/S FACE OF EAST BOULEVARD BRIDGE

46.69	9.25	880.94	0.00	0.00	883.86	2.92	.00	.00	882.78
3600.	0.	3600.	0.	0.	262.	0.	119.	17.	882.78
.35	0.00	13.72	0.00	.035	.012	.035	.020	871.69	14.00
.001224	1.	1.	1.	0	0	1	0.00	30.00	44.00

NORMAL BRIDGE,NRD=10 MIN ELTRD= 882.58 MAX ELLC= 886.98

V BRIDGE SECTION V

O/S FACE OF EAST BOULEVARD BRIDGE

46.70	9.52	881.21	0.00	0.00	883.95	2.74	.07	.02	882.78
3600.	0.	3600.	0.	0.	271.	0.	119.	17.	882.78
.35	0.00	13.29	0.00	.035	.012	.035	.019	871.69	14.00
.001120	60.	60.	60.	2	0	1	0.00	30.00	44.00
46.70	9.52	881.21	0.00	0.00	883.95	2.74	.00	.00	882.78
3600.	0.	3600.	0.	0.	271.	0.	119.	17.	882.78
.35	0.00	13.29	0.00	.035	.012	.035	.019	871.69	14.00
.001120	1.	1.	1.	0	0	1	0.00	30.00	44.00

3685 20 TRIALS USED WSEL,CWSEL

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 W					
46.71	8.86	881.44	881.44	0.00	885.63	4.20	.03	0.00	875.08
3600.	113.	3487.	0.	32.	209.	0.	119.	17.	887.83
.35	3.54	16.69	0.00	.035	.012	.035	.019	872.58	0.00
.001764	21.	21.	21.	30	11	1	0.00	30.00	30.00
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

NORMAL BRIDGE,NRD= 4 MIN ELTRD= 887.83 MAX ELLC= 884.58

REPEAT OF W

SIX FOOT DIA SEWER PIPE ABOVE RIVER, D/S FACE

46.71	8.86	881.44	881.44	0.00	885.64	4.19	.00	.00	875.08
3600.	113.	3487.	0.	32.	209.	0.	119.	17.	887.83
.35	3.54	16.69	0.00	.035	.012	.035	.019	872.58	0.00
.001763	1.	1.	1.	0	16	1	0.00	30.00	30.00

3301 HV CHANGED MORE THAN HVINS

NORMAL BRIDGE,NRD= 4 MIN ELTRD= 887.83 MAX ELLC= 884.58

W BRIDGE SECTION W

SIX FOOT DIA SEWER PIPE ABOVE RIVER, U/S FACE

46.71	9.54	882.12	0.00	0.00	885.71	3.59	.01	.06	875.08
3600.	114.	3486.	0.	35.	226.	0.	120.	17.	887.83
.35	3.24	15.43	0.00	.035	.012	.035	.019	872.58	0.00
.001394	6.	6.	6.	4	0	1	0.00	30.00	30.00
46.71	9.54	882.12	0.00	0.00	885.71	3.59	.00	.00	875.08
3600.	114.	3486.	0.	35.	226.	0.	120.	17.	887.83
.35	3.24	15.43	0.00	.035	.012	.035	.019	872.58	0.00
.001393	1.	1.	1.	0	0	1	0.00	30.00	30.00

3685 20 TRIALS USED WSEL,CWSEL

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

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

X VALLEY SECTION X

46.71	9.29	884.87	884.87	0.00	887.67	2.80	.02	0.00	889.59
3600.	0.	3600.	0.	0.	268.	0.	120.	17.	889.58
.35	0.00	13.42	0.00	.035	.012	.035	.019	875.58	0.00
.001702	12.	12.	12.	30	8	1	0.00	48.00	49.00

3301 HV CHANGED MORE THAN HVINS

Y VALLEY SECTION Y

46.72	12.11	887.69	0.00	0.00	887.93	.25	.01	.25	889.58
3600.	0.	3600.	0.	0.	900.	0.	120.	17.	889.58
.35	0.00	4.00	0.00	.035	.012	.035	.019	875.58	3.30
.000074	43.	43.	43.	3	0	1	0.00	118.41	122.20

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

REPEAT OF Y

46.72	12.11	887.69	0.00	0.00	887.93	.25	.00	.00	889.58
3600.	0.	3600.	0.	0.	900.	0.	120.	17.	889.58
.35	0.00	4.00	0.00	.035	.012	.035	.019	875.58	3.79
.000074	1.	1.	1.	0	0	1	0.00	118.41	122.21

Z VALLEY SECTION Z

46.81	12.01	887.74	0.00	0.00	888.00	.26	.06	.00	894.98
3600.	0.	3600.	0.	0.	876.	0.	130.	18.	894.98
.38	0.00	4.11	0.00	.035	.022	.035	.020	875.73	14.39
.000270	483.	483.	483.	1	0	1	0.00	117.21	131.61

AA VALLEY SECTION AA

46.96	11.85	887.98	0.00	0.00	888.20	.22	.20	.00	895.08
3370.	0.	3370.	0.	0.	898.	0.	146.	20.	896.13
.44	0.00	3.75	0.00	.035	.022	.035	.020	876.13	14.41
.000222	800.	800.	800.	2	0	1	0.00	118.12	133.53

47.06	11.62	888.00	0.00	0.00	888.37	.37	.14	.03	896.23
3370.	0.	3370.	0.	0.	588.	0.	155.	22.	892.43
.47	0.00	4.90	0.00	.035	.022	.035	.020	876.38	16.58
.000370	750.	500.	250.	2	0	1	0.00	88.64	105.22

AB VALLEY SECTION AB

47.15	11.55	888.18	0.00	0.00	888.56	.38	.19	.00	896.48
3370.	0.	3370.	0.	0.	682.	0.	163.	23.	892.58
.50	0.00	4.94	0.00	.035	.022	.035	.020	876.63	16.72
.000380	800.	500.	300.	2	0	1	0.00	88.37	105.09

AC VALLEY SECTION AC

47.25	11.43	888.31	0.00	0.00	888.79	.48	.21	.02	895.98
3370.	0.	3370.	0.	0.	603.	0.	171.	24.	893.36
.52	0.00	5.59	0.00	.035	.022	.035	.020	876.88	15.27
.000470	400.	500.	600.	2	0	1	0.00	75.59	90.85

AD VALLEY SECTION AD

47.40	11.40	888.68	0.00	0.00	889.17	.50	.38	.00	909.58
3370.	0.	3370.	0.	0.	597.	0.	182.	25.	894.78
.56	0.00	5.65	0.00	.035	.022	.035	.020	877.28	40.12
.000481	800.	800.	800.	2	0	1	0.00	74.68	114.80

REPEAT OF AD

INVERT ADJUSTED

47.40	11.40	888.69	0.00	0.00	889.18	.50	.01	.00	909.59
3370.	0.	3370.	0.	0.	597.	0.	182.	25.	894.79
.57	0.00	5.65	0.00	.035	.022	.035	.020	877.29	40.12
.000481	20.	20.	20.	0	0	1	0.00	74.67	114.80

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

REPEAT OF AD

47.40	11.40	888.69	0.00	0.00	889.18	.50	.00	.00	909.59
3370.	0.	3370.	0.	0.	597.	0.	182.	25.	894.79
.57	0.00	5.65	0.00	.035	.012	.035	.020	877.29	40.12
.000143	1.	1.	1.	0	0	1	0.00	74.68	114.80

AE VALLEY SECTION AE

47.40	11.40	888.82	0.00	0.00	889.31	.50	.09	.03	909.59

3370.	0.	3370.	0.	0.	939.	0.	182.	25.	888.58
.57	.09	3.59	.09	.035	.012	.035	.020	873.58	15.13
.000041	22.	22.	22.	2	0	1	0.00	91.74	106.87

3301 HV CHANGED MORE THAN HVINS

AF VALLEY SECTION AF

47.41	14.89	888.47	0.00	0.00	889.35	.88	.00	.14	895.08
3370.	0.	3370.	0.	0.	447.	0.	182.	25.	895.08
.57	0.00	7.54	0.00	.035	.012	.035	.020	873.58	10.00
.000254	1.	1.	1.	-2	0	1	0.00	30.00	40.00

REPEAT OF AF

47.42	14.90	888.48	0.00	0.00	889.37	.88	.01	.00	895.63
3370.	0.	3370.	0.	0.	447.	0.	183.	25.	895.08
.57	0.00	7.54	0.00	.035	.012	.035	.020	873.58	10.00
.000254	57.	57.	57.	0	0	1	0.00	30.00	40.00

3685 20 TRIALS USED WSEL,CWSEL

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

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

AG VALLEY SECTION AG

47.42	7.30	891.48	891.48	0.00	895.16	3.67	.09	0.00	895.08
3370.	0.	3370.	0.	0.	219.	0.	183.	25.	895.08
.57	0.00	15.38	0.00	.035	.012	.035	.020	884.18	10.00
.001846	29.	29.	29.	30	11	1	0.00	30.00	40.00

3301 HV CHANGED MORE THAN HVINS

REPEAT OF AH

47.43	8.01	892.25	0.00	0.00	895.31	3.06	.09	.06	899.88
3370.	0.	3370.	0.	0.	240.	0.	183.	25.	899.88
.57	0.00	14.04	0.00	.035	.012	.035	.020	884.24	10.00
.001420	58.	58.	58.	7	0	1	0.00	30.00	40.00

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

NORMAL BRIDGE,NRD= 2 MIN ELTRD= 899.88 MAX ELLC= 897.18

REPEAT OF AH

D/S FACE OF PADDOCK ST BRIDGE

47.43	8.07	892.31	0.00	0.00	895.32	3.01	.00	.01	899.86
3370.	0.	3370.	0.	0.	242.	0.	184.	25.	899.88
.57	0.00	13.92	0.00	.035	.012	.035	.020	384.24	10.00
.001385	1.	1.	1.	2	0	1	0.00	30.00	40.00

NORMAL BRIDGE,NRD= 2 MIN ELTRD= 899.88 MAX ELLC= 897.23

AH BRIDGE SECTION 4H

U/S FACE OF PADDOCK ST BRIDGE

47.44	8.17	892.46	0.00	0.00	895.39	2.93	.07	.01	899.93
3370.	0.	3370.	0.	0.	245.	0.	184.	25.	899.93
.57	0.00	13.75	0.00	.035	.012	.035	.020	384.29	10.00
.001337	51.	51.	51.	2	0	1	0.00	30.00	40.00

3301 HV CHANGED MORE THAN HVINS

REPEAT OF AH

47.44	10.01	894.30	0.00	0.00	895.56	1.27	.00	.17	899.93
2710.	0.	2710.	0.	0.	300.	0.	184.	25.	899.93
.57	0.00	9.03	0.00	.035	.012	.035	.020	384.29	10.00
.000487	1.	1.	1.	4	0	1	0.00	30.00	40.00

REPEAT OF AI

INVERT ADJUSTED

47.45	9.85	894.16	0.00	0.00	895.61	1.45	.01	.04	896.64
2710.	0.	2710.	0.	0.	280.	0.	184.	25.	896.64
.57	0.00	9.66	0.00	.035	.012	.035	.020	384.31	18.00
.000575	17.	17.	17.	2	0	1	0.00	30.00	48.00

AI VALLEY SECTION AI

47.45	9.83	894.18	0.00	0.00	895.63	1.46	.02	.00	896.68
2710.	0.	2710.	0.	0.	280.	0.	184.	25.	896.68
.57	0.00	9.68	0.00	.035	.012	.035	.020	384.35	18.00
.000578	42.	42.	42.	0	0	1	0.00	30.00	48.00

AJ VALLEY SECTION AJ

47.53	9.61	894.36	0.00	0.00	895.89	1.53	.24	.01	896.98
2710.	0.	2710.	0.	0.	273.	0.	187.	26.	897.18
.58	0.00	9.92	0.00	.035	.012	.035	.020	884.75	19.00
.000618	400.	400.	400.	2	0	1	0.00	30.00	49.00

47.62	9.36	894.61	0.00	0.00	896.23	1.61	.32	.02	897.28
2710.	0.	2710.	0.	0.	266.	0.	190.	26.	897.28
.60	0.00	10.19	0.00	.035	.012	.035	.019	885.25	16.00
.000668	500.	500.	500.	2	0	1	0.00	30.00	46.00

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

AK VALLEY SECTION AK

47.72	9.14	894.89	0.00	0.00	896.59	1.70	.35	.02	897.78
2710.	0.	2710.	0.	0.	259.	0.	193.	26.	897.78
.61	0.00	10.45	0.00	.035	.012	.035	.019	885.75	16.00
.000718	500.	500.	500.	2	0	1	0.00	30.00	46.00

3685 20 TRIALS USED WSEL,CWSEL

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

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

47.73	6.31	894.19	894.19	0.00	897.37	3.18	.05	0.00	897.78
2710.	0.	2710.	0.	0.	189.	0.	193.	26.	897.78
.61	0.00	14.31	0.00	.035	.012	.035	.019	887.88	16.00
.001828	50.	50.	50.	30	14	1	0.00	30.00	46.00



1) COUNTY: OAKLAND

2) STUDY NAME: PONTIAC CITY

3) WATERCOURSE: CLINTON RIVER DRAIN #2

4) DOCUMENT TYPE: 100 YR - 1976



City of Pontiac FIS
J+A File No. 5670-06
Clinton River - Drain No. 2
Revised Starting WSEL
@ corporate limit (Pontiac Twp.)
10-, 50-, 100-, 500- year
Flood Flows through SECNO 46.387

Reed
4/12/79

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**********************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
**********************************************

T1      CITY OF PONTIAC, FIS    5670-06      JOHN EMIG - PROJECT MANAGER
T2      100 YEAR FLOOD
T3      CLINTON RIVER DRAIN #2

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.        4.        0.        0.  0.000000    0.00      0.0       0.    869.754   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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FORM 1411-G2 PRINTED BY NOTARY MANIFOLD FORMS

*PROF 3

CCHV= .100 CEHV= .200

*SECNO 45.256

3280 CROSS SECTION 45.26 EXTENDED 4.75 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
45.26	11.85	869.75	0.00	869.75	869.83	.07	0.00	0.00	868.60
3950.	1399.	2417.	134.	1075.	936.	142.	0.	0.	868.50
0.00	1.30	2.58	.94	.035	.022	.035	0.000	857.90	.00
.000091	0.	0.	0.	0	0	0	0.00	340.00	340.00

3470 ENCROACHMENT STATIONS= .0 340.0 TYPE= 1 TARGET= 339.999

REPEAT OF A

INVERT ADJUSTED

*SECNO 45.313

3280 CROSS SECTION 45.31 EXTENDED 4.71 FEET

3470 ENCROACHMENT STATIONS= 122.0 302.0 TYPE= 1 TARGET= 180.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 868.60 ELREA= 100000.00

A VALLEY SECTION A

45.31	11.81	869.71	0.00	0.00	869.88	.17	.04	.02	868.60
3950.	653.	3297.	0.	370.	931.	0.	12.	2.	100000.00
.03	1.76	3.54	0.00	.035	.022	.035	.022	857.90	122.00
.000175	300.	300.	300.	2	0	0	0.00	180.00	302.00

*SECNO 45.445

3280 CROSS SECTION 45.45 EXTENDED 7.28 FEET

3470 ENCROACHMENT STATIONS= 10.0 150.0 TYPE= 1 TARGET= 140.000

B VALLEY SECTION B

45.45	11.88	869.78	0.00	0.00	870.04	.26	.14	.02	868.50
3950.	15.	3924.	12.	20.	954.	16.	30.	4.	863.50
.07	.74	4.11	.71	.035	.022	.035	.022	857.90	10.00
.000230	700.	700.	700.	2	0	0	0.00	140.00	150.00

*SECNO 45.502

3280 CROSS SECTION 45.50 EXTENDED 1.26 FEET

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3470 ENCROACHMENT STATIONS= 8.0 128.0 TYPE= 1 TARGET= 120.000

C VALLEY SECTION C

45.50	11.82	869.84	0.00	0.00	870.12	.28	.07	.00	868.58
3950.	1.	3946.	2.	3.	937.	4.	37.	5.	868.58
.09	.56	4.21	.61	.035	.022	.035	.022	858.02	8.00
.000245	300.	300.	300.	0	0	0	0.00	120.00	128.00

*SECNO 45.569

3280 CROSS SECTION 45.57 EXTENDED 1.24 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	OLOB	OCH	OROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WIN	FLMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

D VALLEY SECTION D

45.57	11.54	869.91	0.00	0.00	870.22	.31	.09	.01	870.78
3950.	0.	3950.	0.	0.	884.	0.	44.	6.	868.68
.11	0.00	4.47	0.00	.035	.022	.035	.022	858.37	3.00
.000299	350.	350.	350.	1	0	0	0.00	114.00	117.00

*SECNO 45.587

E VALLEY SECTION E

45.59	11.08	869.83	0.00	0.00	870.28	.45	.04	.03	873.68
3950.	0.	3950.	0.	0.	736.	0.	46.	6.	873.68
.12	0.00	5.37	0.00	.035	.022	.035	.022	858.75	7.75
.000469	100.	100.	100.	2	0	0	0.00	99.49	107.25

*SECNO 45.692

F VALLEY SECTION F

45.69	10.93	870.09	0.00	0.00	870.55	.46	.27	.00	874.16
3950.	0.	3950.	0.	0.	722.	0.	55.	8.	874.16
.15	0.00	5.47	0.00	.035	.022	.035	.022	859.16	9.05
.000500	550.	550.	550.	2	0	0	0.00	99.80	108.85

*SECNO 45.783

G VALLEY SECTION G

45.78	10.81	870.32	0.00	0.00	870.80	.48	.25	.00	874.58
3950.	0.	3950.	0.	0.	709.	0.	63.	9.	874.58
.17	0.00	5.57	0.00	.035	.022	.035	.022	859.51	3.42
.000520	484.	484.	484.	0	0	0	0.00	93.15	105.58

*SECNO 45.796

45.80	10.70	870.28	0.00	0.00	870.86	.58	.04	.02	874.58
3950.	0.	3950.	0.	0.	648.	0.	64.	9.	874.58
.18	0.00	6.12	0.00	.035	.022	.035	.022	859.58	3.60
.000709	66.	66.	66.	2	0	0	0.00	97.80	106.40

*SECNO 45.797

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 880.08 MAX ELLC= 874.58

45.80	10.61	870.19	0.00	0.00	870.89	.70	.00	.02	874.58
3950.	0.	3950.	0.	0.	589.	0.	64.	9.	874.58
.18	0.00	6.71	0.00	.035	.020	.035	.022	859.58	8.79
.000803	1.	1.	1.	2	0	0	-47.94	97.43	106.21

*SECNO 45.798

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD= 880.03 MAX ELLC= 874.58

45.80	10.61	870.19	0.00	0.00	870.89	.70	.00	.00	874.58
3950.	0.	3950.	0.	0.	589.	0.	64.	9.	874.56
.18	0.00	6.70	0.00	.035	.020	.035	.022	859.58	8.78
.000802	6.	6.	6.	0	0	0	-47.97	97.44	106.22

*SECNO 45.799

45.80	10.75	870.33	0.00	0.00	870.90	.57	.00	.01	874.58
3950.	0.	3950.	0.	0.	651.	0.	64.	9.	874.58
.18	0.00	6.07	0.00	.035	.020	.035	.022	859.58	8.50
.000572	1.	1.	1.	2	0	0	0.00	98.01	106.50

*SECNO 45.819

4 VALLEY SECTION 4

45.82	10.85	870.51	0.00	0.00	870.98	.47	.06	.01	874.58
3950.	0.	3950.	0.	0.	718.	0.	66.	9.	877.18
.18	0.00	5.50	0.00	.035	.022	.035	.022	859.66	8.60
.000508	117.	117.	117.	2	0	0	0.00	99.60	108.19

*SECNO 45.881

I VALLEY SECTION I

45.88	10.75	870.66	0.00	0.00	871.15	.49	.17	.00	874.91
3950.	0.	3950.	0.	0.	702.	0.	72.	10.	874.91
.20	0.00	5.62	0.00	.035	.022	.035	.022	859.91	8.50
.000537	325.	325.	325.	2	0	0	0.00	98.00	106.50

*SECNO 45.943

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 I

INVERT ADJUSTED

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45.94	10.66	870.83	0.00	0.00	871.33	.50	.18	.00	875.17
3950.	0.	3950.	0.	0.	693.	0.	77.	11.	875.17
.21	0.00	5.70	0.00	.035	.022	.035	.022	860.17	8.68
.000557	325.	325.	325.	0	0	0	0.00	97.64	106.32

*SECNO 45.958

REPEAT OF J

AREA ADJUSTED

45.96	10.69	870.93	0.00	0.00	871.38	.45	.04	.01	883.28
3950.	0.	3950.	0.	0.	733.	0.	73.	11.	883.88
.22	0.00	5.39	0.00	.035	.022	.035	.022	860.24	99.07
.000501	82.	82.	82.	2	0	0	0.00	103.14	202.21

*SECNO 45.959

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 900.38 MAX ELLC= 889.38

REPEAT OF J

D/S FACE OF GRAND TRUNK RR BRIDGE

ONE CONCRETE PIER

22 FT LONG, 10 FT WIDE AT BASE

ON RIGHT OVERBANK

45.96	10.61	870.85	0.00	0.00	871.40	.55	.00	.02	883.28
3950.	0.	3950.	0.	0.	662.	0.	78.	11.	883.88
.22	0.00	5.97	0.00	.035	.020	.035	.022	860.24	99.21
.000579	1.	1.	1.	2	0	0	-62.64	102.87	202.08

*SECNO 45.962

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 900.38 MAX ELLC= 889.38

J BRIDGE SECTION J

U/S FACE OF GRAND TRUNK RR BRIDGE

45.96	10.62	870.86	0.00	0.00	871.41	.55	.01	.00	883.28
3950.	0.	3950.	0.	0.	663.	0.	79.	11.	883.88
.22	0.00	5.96	0.00	.035	.020	.035	.022	860.24	99.19
.000577	22.	22.	22.	0	0	0	-62.81	102.91	202.10

*SECNO 45.963

REPEAT OF J

45.96	10.74	870.98	0.00	0.00	871.42	.44	.00	.01	883.28

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3950.	0.	3950.	0.	0.	738.	0.	79.	11.	883.88
.22	0.00	5.35	0.00	.035	.020	.035	.022	860.24	98.98
.000405	1.	1.	1.	2	0	0	0.00	103.30	202.29

*SECNO 45.995

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

K VALLEY SECTION K

46.00	10.65	871.01	0.00	0.00	871.52	.51	.08	.01	875.38
3950.	0.	3950.	0.	0.	692.	0.	81.	11.	878.38
.23	0.00	5.71	0.00	.035	.022	.035	.022	860.36	8.74
.000561	169.	169.	169.	2	0	0	0.00	97.52	106.26

*SECNO 46.024

3265 DIVIDED FLOW

L VALLEY SECTION L

46.02	11.45	870.85	0.00	0.00	871.67	.82	.09	.06	863.40
3950.	246.	3517.	186.	93.	460.	77.	84.	12.	863.60
.23	2.66	7.65	2.43	.035	.022	.035	.022	859.40	12.27
.000627	157.	157.	157.	2	0	0	0.00	93.13	109.44

*SECNO 46.025

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 6 MIN ELTRD= 884.20 MAX ELLC= 883.20

D/S FACE OF EASTBOUND M-59 BRIDGE

TWO CONCRETE PIERS

50 FT APART, 42 FT LONG, 3.2 FT WIDE AT BASE

46.03	11.45	870.85	0.00	0.00	871.67	.82	.00	.00	863.40
3950.	246.	3517.	186.	93.	460.	77.	84.	12.	863.60
.23	2.66	7.65	2.43	.035	.022	.035	.022	859.40	12.28
.000627	1.	1.	1.	0	0	0	0.00	93.12	109.44

*SECNO 46.033

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 6 MIN ELTRD= 883.10 MAX ELLC= 881.40

M BRIDGE SECTION M

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U/S FACE OF EASTBOUND M-59 BRIDGE

46.03	11.49	870.89	0.00	0.00	871.70	.81	.03	.00	863.40
3950.	248.	3514.	188.	94.	461.	78.	84.	12.	863.60
.23	2.65	7.62	2.41	.035	.022	.035	.022	859.40	12.23
3000620	42.	42.	42.	0	0	0	0.00	93.47	109.50

*SECNO 46.034

3265 DIVIDED FLOW

REPEAT OF M

46.03	11.49	870.89	0.00	0.00	871.70	.81	.00	.00	863.40
3950.	248.	3514.	188.	94.	461.	78.	84.	12.	863.60
.23	2.64	7.61	2.41	.035	.022	.035	.022	859.40	12.21
3000619	1.	1.	1.	0	0	0	0.00	93.51	109.52

*SECNO 46.043

3265 DIVIDED FLOW

SECNO	DEPTH	CHSEL	CRIWS	ASELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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

INVERT ADJUSTED

46.04	11.48	870.92	0.00	0.00	871.73	.81	.03	.00	863.44
3950.	248.	3515.	188.	93.	461.	78.	85.	12.	863.64
.24	2.65	7.62	2.42	.035	.022	.035	.022	859.44	12.22
3000620	54.	54.	54.	0	0	0	0.00	93.26	109.50

*SECNO 46.044

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 6 MIN ELTRD= 884.20 MAX ELLC= 883.20

D/S FACE OF WESTBOUND M-59 BRIDGE

SAME DIMENSIONS AS EASTBOUND M-59 BRIDGE

46.04	11.48	870.92	0.00	0.00	871.74	.81	.00	.00	863.44
3950.	248.	3515.	188.	93.	461.	78.	85.	12.	863.64
.24	2.65	7.62	2.42	.035	.022	.035	.022	859.44	12.22
3000620	1.	1.	1.	0	0	0	0.00	93.25	109.50

*SECNO 46.051

3265 DIVIDED FLOW

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3370 NORMAL BRIDGE,NRD= 6 MIN ELTRD= 883.10 MAX ELLC= 881.40

0 BRIDGE SECTION O

U/S FACE OF WESTBOUND M-59 BRIDGE

46.05	11.57	870.97	0.00	0.00	871.76	.80	.03	.00	863.40
3950.	251.	3508.	191.	95.	465.	80.	86.	12.	863.60
.24	2.63	7.55	2.40	.035	.022	.035	.022	859.40	12.08
.000602	42.	42.	42.	1	0	0	0.00	93.82	109.67

*SECNO 46.052

3265 DIVIDED FLOW

REPEAT OF O

46.05	11.57	870.97	0.00	0.00	871.76	.79	.00	.00	863.40
3950.	251.	3507.	192.	96.	465.	80.	86.	12.	863.60
.24	2.63	7.54	2.40	.035	.022	.035	.022	859.40	12.06
.000600	1.	1.	1.	0	0	0	0.00	93.87	109.70

*SECNO 46.053

3265 DIVIDED FLOW

46.05	11.57	870.97	0.00	0.00	871.76	.79	.00	.00	863.40
3950.	251.	3507.	192.	96.	465.	80.	86.	12.	863.60
.24	2.63	7.54	2.40	.035	.022	.035	.022	859.40	12.06
.000599	1.	1.	1.	0	0	0	0.00	93.88	109.70

*SECNO 46.108

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
O	OLOB	OCH	OROB	ALOB	ACH	AROB	WOI	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

P VALLEY SECTION P

46.11	10.65	871.46	0.00	0.00	871.97	.51	.17	.03	876.08
3950.	0.	3950.	0.	0.	692.	0.	90.	13.	876.58
.25	0.00	5.71	0.00	.035	.022	.035	.022	860.81	8.94
.000555	300.	300.	300.	2	0	0	0.00	96.66	105.60

*SECNO 46.127

Q VALLEY SECTION Q

46.13	10.71	871.59	0.00	0.00	872.02	.43	.05	.01	834.18
3720.	0.	3720.	0.	0.	703.	0.	92.	13.	876.08
.26	0.00	5.29	0.00	.035	.022	.035	.022	860.85	25.47
.000479	100.	100.	100.	2	0	0	0.00	98.74	124.21

*SECNO 46.241

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   46.24    10.39   871.86     0.00     0.00   872.34      .48      .31      .01   884.77
   3720.       0.    3720.       0.       0.     672.       0.     101.      14.   876.67
     .29     0.00     5.54     0.00     .035     .022     .035     .022   861.47    26.11
 .000547     600.     600.     600.        2        0        0     0.00    97.48   123.60

*SECNO 46.354

                    REPEAT OF Q

                    INVERT ADJUSTED

   46.35    10.12   872.18     0.00     0.00   872.70      .52      .35      .01   885.36
   3720.       0.    3720.       0.       0.     645.       0.     110.      16.   877.26
     .32     0.00     5.77     0.00     .035     .022     .035     .022   862.06    26.68
 .000618     600.     600.     600.        0        0        0     0.00    96.36   123.04

*SECNO 46.359

                    REPEAT OF Q

   46.36    10.11   872.19     0.00     0.00   872.70      .52      .01      .00   885.38
   3720.       0.    3720.       0.       0.     645.       0.     111.      16.   877.28
     .32     0.00     5.77     0.00     .035     .012     .035     .022   862.08    26.68
 .000184      24.      24.      24.        0        0        0     0.00    96.37   123.05

*SECNO 46.360
   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       DLOSS   BANK ELEV
   Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
   TIME     VLOB     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
   SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST

              R        VALLEY SECTION R

   46.36    10.14   872.22     0.00     0.00   872.71      .49      .00      .00   885.08
   3720.       0.    3720.       0.       0.     662.       0.     111.      16.   876.98
     .32     0.00     5.62     0.00     .035     .012     .035     .022   862.08    26.03
 .000171       1.       1.       1.        2        0        0     0.00    97.65   123.68

*SECNO 46.363

              S        VALLEY SECTION S

   46.36    15.59   872.17     0.00     0.00   872.72      .55      .00      .01   877.78
   3720.       0.    3720.       0.       0.     624.       0.     111.      16.   877.78
     .32     0.00     5.97     0.00     .035     .012     .035     .022   856.58    17.00
 .000128      19.      19.      19.        2        0        0     0.00    40.00    57.00

*SECNO 46.376

                    REPEAT OF S

   46.38    15.60   872.18     0.00     0.00   872.73      .55      .01      .00   877.78
   3720.       0.    3720.       0.       0.     624.       0.     112.      16.   877.78
     .32     0.00     5.96     0.00     .035     .012     .035     .022   856.58    17.00
 .000128      72.      72.      72.        0        0        0     0.00    40.00    57.00

*SECNO 46.382
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3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	OLOB	OCH	OROB	ALOB	ACH	AROB	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

T VALLEY SECTION T

46.38	6.43	873.32	873.32	0.00	876.57	3.25	.01	.54	877.78
3720.	0.	3720.	0.	0.	257.	0.	112.	16.	877.73
.32	0.00	14.47	0.00	.035	.012	.035	.022	866.89	17.00
.001656	29.	29.	29.	20	18	0	0.00	40.00	57.00

*SECNO 46.387

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	OLOB	OCH	OROB	ALOB	ACH	AROB	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

U VALLEY SECTION U

46.39	8.28	875.17	875.17	0.00	879.11	3.94	.05	.14	877.98
3720.	0.	3720.	0.	0.	234.	0.	113.	16.	877.98
.32	0.00	15.93	0.00	.035	.012	.035	.022	866.89	14.00
.001822	27.	27.	27.	20	11	0	0.00	30.00	44.00

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**********************************************
 HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
 ERROR CORR -  01,02
 MODIFICATION -  50,51,52,53
**********************************************

T1      CITY OF PONTIAC, FIS    5670-06      JOHN EMIC - PROJECT MANAGER
T2      500 YEAR FLOOD
T3      CLINTON RIVER DRAIN #2

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.        5.        0.        0.  0.000000      0.00      0.0       0.    870.228     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= .100 CEHV= .200

*SECNO 45.256

3280 CROSS SECTION 45.26 EXTENDED 5.23 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
45.26	12.33	870.23	0.00	870.23	870.35	.12	0.00	0.00	868.60
5440.	1964.	3280.	196.	1164.	990.	160.	0.	0.	868.50
0.00	1.69	3.31	1.23	.035	.022	.035	0.000	857.90	.00
.000139	0.	0.	0.	0	0	0	0.00	340.00	340.00

3470 ENCROACHMENT STATIONS= .0 340.0 TYPE= 1 TARGET= 339.999

REPEAT OF A

INVERT ADJUSTED

45.26	12.33	870.23	0.00	870.23	870.35	.12	0.00	0.00	868.60
5440.	1964.	3280.	196.	1164.	990.	160.	0.	0.	868.50
0.00	1.69	3.31	1.23	.035	.022	.035	0.000	857.90	.00
.000139	0.	0.	0.	0	0	0	0.00	340.00	340.00

*SECNO 45.313

3280 CROSS SECTION 45.31 EXTENDED 5.15 FEET

3470 ENCROACHMENT STATIONS= 122.0 302.0 TYPE= 1 TARGET= 180.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 868.60 ELREA= 100000.00

A VALLEY SECTION A

45.31	12.25	870.15	0.00	0.00	870.44	.29	.06	.03	868.60
5440.	917.	4523.	0.	399.	981.	0.	13.	2.	100000.00
.02	2.30	4.61	0.00	.035	.022	.035	.022	857.90	122.00
.000278	300.	300.	300.	2	0	0	0.00	180.00	302.00

*SECNO 45.445

3280 CROSS SECTION 45.45 EXTENDED 7.75 FEET

3470 ENCROACHMENT STATIONS= 10.0 150.0 TYPE= 1 TARGET= 140.000

B VALLEY SECTION B

45.45	12.35	870.25	0.00	0.00	870.69	.44	.22	.03	863.50
5440.	27.	5389.	24.	25.	1009.	22.	32.	4.	868.50
.06	1.09	5.34	1.09	.035	.022	.035	.022	857.90	10.00
.000361	700.	700.	700.	2	0	0	0.00	140.00	150.00

*SECNO 45.502

3280 CROSS SECTION 45.50 EXTENDED 1.77 FEET

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3470 ENCROACHMENT STATIONS= 8.0 128.0 TYPE= 1 TARGET= 120.000

C VALLEY SECTION C

45.50	12.32	870.34	0.00	0.00	870.81	.46	.11	.00	868.58
5440.	3.	5433.	5.	4.	995.	5.	39.	5.	868.58
.07	.79	5.46	.89	.035	.022	.035	.022	858.02	8.00
.000379	300.	300.	300.	0	0	0	0.00	120.00	128.00

*SECNO 45.569

3280 CROSS SECTION 45.57 EXTENDED 1.77 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

D VALLEY SECTION D

45.57	12.08	870.45	0.00	0.00	870.96	.51	.15	.01	870.78
5440.	0.	5440.	0.	0.	945.	0.	47.	6.	868.68
.09	0.00	5.75	0.00	.035	.022	.035	.022	858.37	1.15
.000466	350.	350.	350.	2	0	0	0.00	115.85	117.00

*SECNO 45.587

E VALLEY SECTION E

45.59	11.57	870.32	0.00	0.00	871.07	.75	.06	.05	873.68
5440.	0.	5440.	0.	0.	785.	0.	49.	6.	873.68
.09	0.00	6.93	0.00	.035	.022	.035	.022	858.75	6.77
.000739	100.	100.	100.	2	0	0	0.00	101.46	108.23

*SECNO 45.692

F VALLEY SECTION F

45.69	11.57	870.73	0.00	0.00	871.47	.74	.41	.00	874.16
5440.	0.	5440.	0.	0.	788.	0.	59.	8.	874.16
.11	0.00	6.91	0.00	.035	.022	.035	.022	859.16	7.62
.000738	550.	550.	550.	2	0	0	0.00	102.52	110.14

*SECNO 45.783

G VALLEY SECTION G

45.78	11.58	871.09	0.00	0.00	871.83	.74	.35	.00	874.58
5440.	0.	5440.	0.	0.	786.	0.	68.	9.	874.58
.13	0.00	6.92	0.00	.035	.022	.035	.022	859.51	6.90
.000732	484.	484.	484.	0	0	0	0.00	101.19	108.10

*SECNO 45.796

45.80	11.45	871.03	0.00	0.00	871.91	.89	.06	.03	874.58
5440.	0.	5440.	0.	0.	720.	0.	69.	9.	874.58
.14	0.00	7.55	0.00	.035	.022	.035	.022	859.58	7.10
.000976	66.	66.	66.	2	0	0	0.00	100.79	107.90

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*SECNO 45.797

SECNO	DEPTH	CHSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 880.08 MAX ELLC= 874.58									
45.80	11.29	870.87	0.00	0.00	871.95	1.08	.00	.04	874.58
5440.	0.	5440.	0.	0.	652.	0.	69.	9.	874.58
.14	0.00	8.34	0.00	.035	.020	.035	.022	859.58	7.41
.001126	1.	1.	1.	2	0	0	-52.41	100.18	107.59

*SECNO 45.798

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD= 880.08 MAX ELLC= 874.58									
45.80	11.30	870.88	0.00	0.00	871.96	1.08	.01	.00	874.58
5440.	0.	5440.	0.	0.	653.	0.	69.	9.	874.58
.14	0.00	8.33	0.00	.035	.020	.035	.022	859.58	7.40
.001124	6.	6.	6.	0	0	0	-52.45	100.20	107.60

*SECNO 45.799

45.80	11.54	871.12	0.00	0.00	871.98	.86	.00	.02	874.58
5440.	0.	5440.	0.	0.	730.	0.	69.	9.	874.58
.14	0.00	7.46	0.00	.035	.020	.035	.022	859.58	6.92
.000777	1.	1.	1.	2	0	0	0.00	101.17	108.08

*SECNO 45.819

H		VALLEY SECTION H							
45.82	11.72	871.38	0.00	0.00	872.08	.71	.09	.02	874.58
5440.	0.	5440.	0.	0.	807.	0.	71.	9.	877.18
.14	0.00	6.74	0.00	.035	.022	.035	.022	859.66	6.76
.000688	117.	117.	117.	2	0	0	0.00	103.24	110.00

*SECNO 45.881

I		VALLEY SECTION I							
45.88	11.68	871.59	0.00	0.00	872.32	.73	.23	.00	874.91
5440.	0.	5440.	0.	0.	795.	0.	77.	10.	874.91
.15	0.00	6.84	0.00	.035	.022	.035	.022	859.91	6.64
.000710	325.	325.	325.	2	0	0	0.00	101.71	108.36

*SECNO 45.943

SECNO	DEPTH	CHSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 I							
I VERT ADJUSTED									

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45.94	11.65	871.82	0.00	0.00	872.55	.73	.23	.00	875.17
5440.	0.	5440.	0.	0.	792.	0.	83.	11.	875.17
.17	0.00	6.87	0.00	.035	.022	.035	.022	800.17	6.71
.000718	325.	325.	325.	0	0	0	0.00	101.58	108.29

*SECNO 45.958

REPEAT OF J

AREA ADJUSTED

45.96	11.72	871.96	0.00	0.00	872.61	.65	.06	.01	883.28
5440.	0.	5440.	0.	0.	841.	0.	85.	11.	883.88
.17	0.00	6.47	0.00	.035	.022	.035	.022	860.24	97.33
.000629	82.	82.	82.	2	0	0	0.00	106.50	203.83

*SECNO 45.959

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 900.38 MAX ELLC= 889.38

REPEAT OF J

D/S FACE OF GRAND TRUNK RR BRIDGE

ONE CONCRETE PIER

22 FT LONG, 10 FT WIDE AT BASE

ON RIGHT OVERBANK

45.96	11.59	871.83	0.00	0.00	872.65	.81	.00	.03	883.28
5440.	0.	5440.	0.	0.	751.	0.	85.	11.	883.88
.17	0.00	7.24	0.00	.035	.020	.035	.022	860.24	97.55
.000754	1.	1.	1.	2	0	0	-76.14	106.07	203.63

*SECNO 45.962

3370 NORMAL BRIDGE,NRD= 8 MIN ELTRD= 900.38 MAX ELLC= 889.38

J BRIDGE SECTION J

U/S FACE OF GRAND TRUNK RR BRIDGE

45.96	11.61	871.85	0.00	0.00	872.66	.81	.02	.00	883.28
5440.	0.	5440.	0.	0.	753.	0.	85.	11.	883.88
.17	0.00	7.23	0.00	.035	.020	.035	.022	860.24	97.53
.000750	22.	22.	22.	0	0	0	-76.35	106.12	203.65

*SECNO 45.963

REPEAT OF J

45.96	11.80	872.04	0.00	0.00	872.68	.64	.00	.02	883.28

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5440.	0.	5440.	0.	0.	850.	0.	85.	11.	883.88
.17	0.00	6.40	0.00	.035	.020	.035	.022	860.24	97.19
.000504	1.	1.	1.	2	0	0	0.00	106.77	203.96

*SECNO 45.995

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

K VALLEY SECTION K

46.00	11.72	872.08	0.00	0.00	872.80	.72	.10	.02	875.38
5440.	0.	5440.	0.	0.	798.	0.	88.	12.	878.38
.18	0.00	6.82	0.00	.035	.022	.035	.022	860.36	6.61
.000702	169.	169.	169.	2	0	0	0.00	101.78	103.39

*SECNO 46.024

3265 DIVIDED FLOW

I VALLEY SECTION I

46.02	12.40	871.80	0.00	0.00	873.02	1.21	.12	.10	863.40
5440.	392.	4736.	312.	116.	504.	100.	91.	12.	863.60
.18	3.38	9.39	3.13	.035	.022	.035	.022	859.40	10.49
.000835	157.	157.	157.	2	0	0	0.00	97.43	111.60

*SECNO 46.025

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 6 MIN ELTRD= 884.20 MAX ELLC= 883.20

D/S FACE OF EASTBOUND M-59 BRIDGE

TWO CONCRETE PIERS

50 FT APART, 42 FT LONG, 3.2 FT WIDE AT BASE

46.03	12.40	871.80	0.00	0.00	873.02	1.21	.00	.00	863.40
5440.	391.	4737.	312.	116.	504.	100.	91.	12.	863.60
.18	3.38	9.39	3.13	.035	.022	.035	.022	859.40	10.49
.000836	1.	1.	1.	0	0	0	0.00	97.42	111.60

*SECNO 46.033

3265 DIVIDED FLOW

3370 NORMAL BRIDGE, NRD= 6 MIN ELTRD= 883.10 MAX ELLC= 881.40

M BRIDGE SECTION M

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U/S FACE OF EASTBOUND M-59 BRIDGE

46.03	12.45	871.85	0.00	0.00	873.05	1.20	.03	.00	863.40
5440.	394.	4731.	315.	117.	506.	101.	92.	12.	863.60
.19	3.36	9.35	3.11	.035	.022	.035	.022	859.40	10.42
.000823	42.	42.	42.	1	0	0	0.00	97.87	111.69

*SECNO 46.034

3265 DIVIDED FLOW

REPEAT OF M

46.03	12.46	871.86	0.00	0.00	873.05	1.20	.00	.00	863.40
5440.	395.	4730.	315.	118.	507.	101.	92.	12.	863.60
.19	3.35	9.34	3.10	.035	.022	.035	.022	859.40	10.40
.000821	1.	1.	1.	0	0	0	0.00	97.91	111.71

*SECNO 46.043

3265 DIVIDED FLOW

SECNO	DEPTH	CHSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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

INVERT ADJUSTED

46.04	12.46	871.90	0.00	0.00	873.10	1.20	.04	.00	863.44
5440.	394.	4730.	315.	117.	507.	101.	93.	12.	863.64
.19	3.36	9.33	3.11	.035	.022	.035	.022	859.44	10.39
.000819	54.	54.	54.	0	0	0	0.00	97.68	111.73

*SECNO 46.044

3265 DIVIDED FLOW

3370 NORMAL BRIDGE,NRD= 6 MIN ELTRD= 884.20 MAX ELLC= 833.20

D/S FACE OF WESTBOUND M-59 BRIDGE

SAME DIMENSIONS AS EASTBOUND M-59 BRIDGE

46.04	12.46	871.90	0.00	0.00	873.10	1.20	.00	.00	863.44
5440.	395.	4730.	315.	117.	507.	101.	93.	12.	863.64
.19	3.36	9.33	3.11	.035	.022	.035	.022	859.44	10.38
.000818	1.	1.	1.	0	0	0	0.00	97.69	111.73

*SECNO 46.051

3265 DIVIDED FLOW

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3370 NORMAL BRIDGE,NRD= 6 MIN ELTRD= 883.10 MAX ELLC= 881.40

O BRIDGE SECTION O

U/S FACE OF WESTBOUND M-59 BRIDGE

46.05	12.57	871.97	0.00	0.00	873.14	1.16	.03	.00	863.40
5440.	401.	4717.	322.	121.	512.	105.	93.	12.	863.60
.19	3.32	9.21	3.08	.035	.022	.035	.022	859.40	10.17
.000787	42.	42.	42.	2	0	0	0.00	98.46	111.99

*SECNO 46.052

3265 DIVIDED FLOW

REPEAT OF O

46.05	12.57	871.97	0.00	0.00	873.14	1.16	.00	.00	863.40
5440.	401.	4717.	322.	121.	512.	105.	93.	12.	863.60
.19	3.32	9.21	3.08	.035	.022	.035	.022	859.40	10.17
.000787	1.	1.	1.	0	0	0	0.00	98.46	111.99

*SECNO 46.053

3265 DIVIDED FLOW

46.05	12.58	871.98	0.00	0.00	873.14	1.16	.00	.00	863.40
5440.	401.	4717.	322.	121.	512.	105.	93.	12.	863.60
.19	3.32	9.21	3.08	.035	.022	.035	.022	859.40	10.17
.000786	1.	1.	1.	0	0	0	0.00	98.47	111.99

*SECNO 46.108

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

P VALLEY SECTION P

46.11	11.90	872.71	0.00	0.00	873.40	.69	.21	.05	876.08
5440.	0.	5440.	0.	0.	816.	0.	99.	13.	876.58
.20	0.00	6.57	0.00	.035	.022	.035	.022	860.81	6.52
.000651	300.	300.	300.	2	0	0	0.00	101.38	107.90

*SECNO 46.127

Q VALLEY SECTION Q

46.13	12.01	872.89	0.00	0.00	873.47	.58	.06	.01	884.18
5110.	0.	5110.	0.	0.	834.	0.	101.	13.	876.06
.21	0.00	6.12	0.00	.035	.022	.035	.022	860.88	22.85
.000549	100.	100.	100.	2	0	0	0.00	103.91	126.75

*SECNO 46.241

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46.24	11.73	873.20	0.00	0.00	873.82	.62	.35	.01	884.77
5110.	0.	5110.	0.	0.	806.	0.	112.	15.	876.67
.23	0.00	6.34	0.00	.035	.022	.035	.022	861.47	23.41
.000607	600.	600.	600.	2	0	0	0.00	102.80	126.21

*SECNO 46.354

REPEAT OF 0

INVERT ADJUSTED

46.35	11.49	873.55	0.00	0.00	874.21	.66	.38	.01	885.36
5110.	0.	5110.	0.	0.	781.	0.	123.	16.	877.26
.26	0.00	6.54	0.00	.035	.022	.035	.022	862.06	23.90
.000665	600.	600.	600.	0	0	0	0.00	101.84	125.74

*SECNO 46.359

REPEAT OF 0

46.36	11.48	873.56	0.00	0.00	874.22	.67	.01	.00	885.38
5110.	0.	5110.	0.	0.	781.	0.	123.	16.	877.28
.26	0.00	6.55	0.00	.035	.012	.035	.022	862.08	23.90
.000198	24.	24.	24.	0	0	0	0.00	101.83	125.73

*SECNO 46.360

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

C

R VALLEY SECTION R

46.36	11.51	873.59	0.00	0.00	874.23	.63	.00	.00	885.08
5110.	0.	5110.	0.	0.	800.	0.	123.	16.	876.98
.26	0.00	6.39	0.00	.035	.012	.035	.022	862.08	23.24
.000185	1.	1.	1.	2	0	0	0.00	103.13	126.37

*SECNO 46.363

S VALLEY SECTION S

46.36	16.80	873.38	0.00	0.00	874.28	.90	.00	.05	877.78
5110.	0.	5110.	0.	0.	672.	0.	124.	16.	877.78
.26	0.00	7.60	0.00	.035	.012	.035	.022	856.58	17.00
.000197	19.	19.	19.	2	0	0	0.00	40.00	57.00

*SECNO 46.376

REPEAT OF S

46.38	16.82	873.40	0.00	0.00	874.30	.90	.01	.00	877.78
5110.	0.	5110.	0.	0.	673.	0.	125.	16.	877.78
.26	0.00	7.60	0.00	.035	.012	.035	.022	856.58	17.00
.000197	72.	72.	72.	0	0	0	0.00	40.00	57.00

*SECNO 46.382

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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	IOC	ICONT	CORAR	TOPWID	ENDST

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

T VALLEY SECTION T

46.38	7.98	874.87	874.87	0.00	878.85	3.98	.01	.62	877.78
5110.	0.	5110.	0.	0.	319.	0.	125.	16.	877.78
.26	0.00	16.02	0.00	.035	.012	.035	.022	866.89	17.00
.001643	29.	29.	29.	20	11	0	0.00	40.00	57.00

*SECNO 46.387

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	IOC	ICONT	CORAR	TOPWID	ENDST

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

U VALLEY SECTION U

46.39	10.11	877.00	877.00	0.00	881.87	4.88	.05	.18	877.98
5110.	0.	5110.	0.	0.	288.	0.	125.	16.	877.98
.26	0.00	17.72	0.00	.035	.012	.035	.022	866.89	14.00
.001891	27.	27.	27.	20	11	0	0.00	30.00	44.00

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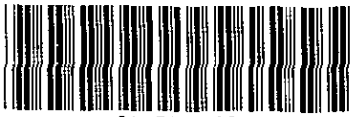

1) COUNTY: OAKLAND

2) STUDY NAME: PONTIAC, CITY

3) WATERCOURSE: CLINTON RIVER DRAIN #2

4) DOCUMENT TYPE: SUMMARY



****
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

CLINTON RIVER DRAIN #2

SUMMARY PRINTOUT

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
45.256	0.00	0.00	857.90	2410.00	868.77	10.87	.04	0.00	868.80	0.00	340.00	1816.32
45.256	0.00	0.00	857.90	3460.00	869.53	11.63	.06	0.00	869.59	0.00	340.00	2077.10
45.256	0.00	0.00	857.90	3950.00	869.75	11.85	.07	0.00	869.83	0.00	340.00	2152.24
45.256	0.00	0.00	857.90	5440.00	870.23	12.33	.12	0.00	870.35	0.00	340.00	2313.40
45.313	0.00	0.00	857.90	2410.00	868.75	10.85	.08	.01	868.84	0.00	180.00	1128.49
45.313	0.00	0.00	857.90	3460.00	869.50	11.60	.14	.02	869.64	0.00	180.00	1263.47
45.313	0.00	0.00	857.90	3950.00	869.71	11.81	.17	.02	869.88	0.00	180.00	1301.52
45.313	0.00	0.00	857.90	5440.00	870.15	12.25	.29	.03	870.44	0.00	180.00	1380.26
45.445	0.00	0.00	857.90	2410.00	868.80	10.90	.13	.01	868.92	0.00	140.00	853.76
45.445	0.00	0.00	857.90	3460.00	869.56	11.66	.21	.01	869.77	0.00	140.00	960.26
45.445	0.00	0.00	857.90	3950.00	869.78	11.88	.26	.02	870.04	0.00	140.00	990.16
45.445	0.00	0.00	857.90	5440.00	870.25	12.35	.44	.03	870.69	0.00	140.00	1055.95
45.502	0.00	0.00	858.02	2410.00	868.83	10.81	.13	.00	868.97	.40	120.00	822.22
45.502	0.00	0.00	858.02	3460.00	869.61	11.59	.22	.00	869.83	.40	120.00	915.78
45.502	0.00	0.00	858.02	3950.00	869.86	11.82	.28	.00	870.12	.40	120.00	943.36
45.502	0.00	0.00	858.02	5440.00	870.34	12.32	.46	.00	870.81	.40	120.00	1003.95
45.569	0.00	0.00	858.37	2410.00	868.87	10.50	.15	.00	869.02	1.00	110.42	768.11
45.569	0.00	0.00	858.37	3460.00	869.67	11.30	.25	.01	869.92	1.00	113.17	856.81
45.569	0.00	0.00	858.37	3950.00	869.91	11.54	.31	.01	870.22	1.00	114.00	884.25
45.569	0.00	0.00	858.37	5440.00	870.45	12.08	.51	.01	870.96	1.00	115.85	945.50
45.587	0.00	0.00	858.75	2410.00	868.84	10.09	.22	.01	869.06	3.80	95.48	638.59
45.587	0.00	0.00	858.75	3460.00	869.61	10.86	.37	.02	869.97	3.80	98.59	713.38
45.587	0.00	0.00	858.75	3950.00	869.83	11.08	.45	.03	870.25	3.80	99.49	735.72
45.587	0.00	0.00	858.75	5440.00	870.32	11.57	.75	.05	871.07	3.80	101.46	784.65
45.692	0.00	0.00	859.16	2410.00	868.95	9.82	.24	.00	869.22	.75	95.12	614.35
45.692	0.00	0.00	859.16	3460.00	869.82	10.66	.38	.00	870.20	.75	98.67	695.88
45.692	0.00	0.00	859.16	3950.00	870.09	10.93	.46	.00	870.55	.75	99.80	722.47
45.692	0.00	0.00	859.16	5440.00	870.73	11.57	.74	.00	871.47	.75	102.52	787.63
45.783	0.00	0.00	859.51	2410.00	869.12	9.61	.26	.00	869.37	.72	93.37	593.77
45.783	0.00	0.00	859.51	3460.00	870.02	10.51	.40	.00	870.42	.72	96.95	679.80
45.783	0.00	0.00	859.51	3950.00	870.32	10.81	.48	.00	870.80	.72	98.15	709.42
45.783	0.00	0.00	859.51	5440.00	871.09	11.58	.74	.00	871.83	.72	101.19	786.02

PRINTED IN U.S.A.
FORM 141 GRAPHED BY IOTAMY MANIFOLD FORMS

SECNO	ELTRD	ELLC	ELMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
45.796	0.00	0.00	859.58	2410.00	869.04	9.51	.32	.01	869.41	1.06	93.04	532.40
45.796	0.00	0.00	859.58	3460.00	869.98	10.40	.49	.02	870.47	1.06	96.61	617.01
45.796	0.00	0.00	859.58	3950.00	870.23	10.70	.58	.02	870.86	1.06	97.80	645.90
45.796	0.00	0.00	859.58	5440.00	871.03	11.45	.89	.03	871.91	1.06	100.79	720.14
45.797	880.08	874.58	859.58	2410.00	869.04	9.46	.38	.01	869.42	0.00	92.85	487.37
45.797	880.08	874.58	859.58	3460.00	869.91	10.33	.59	.02	870.49	0.00	96.30	563.46
45.797	880.08	874.58	859.58	3950.00	870.19	10.61	.70	.02	870.89	0.00	97.43	588.83
45.797	880.08	874.58	859.58	5440.00	870.87	11.29	1.08	.04	871.95	0.00	100.18	652.28
45.798	880.08	874.58	859.58	2410.00	869.05	9.47	.38	.00	869.42	0.00	92.86	487.63
45.798	880.08	874.58	859.58	3460.00	869.91	10.33	.58	.00	870.50	0.00	96.32	563.81
45.798	880.08	874.58	859.58	3950.00	870.19	10.61	.70	.00	870.89	0.00	97.44	589.22
45.798	880.08	874.58	859.58	5440.00	870.88	11.30	1.08	.00	871.96	0.00	100.20	652.81
45.799	0.00	0.00	859.58	2410.00	869.12	9.54	.32	.01	869.43	0.00	93.15	534.80
45.799	0.00	0.00	859.58	3460.00	870.02	10.44	.48	.01	870.51	0.00	96.78	621.06
45.799	0.00	0.00	859.58	3950.00	870.33	10.75	.57	.01	870.90	0.00	98.01	651.00
45.799	0.00	0.00	859.58	5440.00	871.12	11.54	.86	.02	871.98	0.00	101.17	729.60
45.819	0.00	0.00	859.66	2410.00	869.22	9.56	.26	.01	869.48	.68	94.23	593.81
45.819	0.00	0.00	859.66	3460.00	870.17	10.51	.40	.01	870.57	.68	98.21	685.37
45.819	0.00	0.00	859.66	3950.00	870.51	10.85	.47	.01	870.98	.68	99.60	718.22
45.819	0.00	0.00	859.66	5440.00	871.36	11.72	.71	.02	872.08	.68	103.24	806.55
45.881	0.00	0.00	859.91	2410.00	869.32	9.41	.27	.00	869.59	.77	92.68	575.63
45.881	0.00	0.00	859.91	3460.00	870.31	10.40	.42	.00	870.72	.77	96.59	668.15
45.881	0.00	0.00	859.91	3950.00	870.66	10.75	.49	.00	871.15	.77	98.00	702.32
45.881	0.00	0.00	859.91	5440.00	871.59	11.68	.73	.00	872.32	.77	101.71	795.07
45.943	0.00	0.00	860.17	2410.00	869.43	9.26	.29	.00	869.72	.80	92.05	561.13
45.943	0.00	0.00	860.17	3460.00	870.46	10.29	.43	.00	870.89	.80	96.15	657.55
45.943	0.00	0.00	860.17	3950.00	870.83	10.66	.50	.00	871.33	.80	97.64	693.49
45.943	0.00	0.00	860.17	5440.00	871.82	11.65	.73	.00	872.55	.80	101.58	791.73
45.958	0.00	0.00	860.24	2410.00	869.49	9.25	.26	.00	869.75	.85	98.45	587.92
45.958	0.00	0.00	860.24	3460.00	870.54	10.30	.39	.00	870.93	.85	101.88	693.34
45.958	0.00	0.00	860.24	3950.00	870.93	10.69	.45	.01	871.38	.85	103.14	732.89
45.958	0.00	0.00	860.24	5440.00	871.96	11.72	.65	.01	872.61	.85	106.50	841.33
45.959	900.38	889.38	860.24	2410.00	869.45	9.21	.31	.01	869.76	0.00	98.33	540.70
45.959	900.38	889.38	860.24	3460.00	870.48	10.24	.47	.02	870.95	0.00	101.66	629.07
45.959	900.38	889.38	860.24	3950.00	870.85	10.61	.55	.02	871.40	0.00	102.87	661.90
45.959	900.38	889.38	860.24	5440.00	871.83	11.59	.81	.03	872.65	0.00	106.07	751.24
45.962	900.38	889.38	860.24	2410.00	869.46	9.22	.31	.00	869.77	0.00	98.36	541.41
45.962	900.38	889.38	860.24	3460.00	870.49	10.25	.47	.00	870.96	0.00	101.70	630.01
45.962	900.38	889.38	860.24	3950.00	870.86	10.62	.55	.00	871.41	0.00	102.91	662.96
45.962	900.38	889.38	860.24	5440.00	871.85	11.61	.81	.00	872.66	0.00	106.12	752.62
45.963	0.00	0.00	860.24	2410.00	869.52	9.28	.26	.00	869.77	0.00	98.54	590.50
45.963	0.00	0.00	860.24	3460.00	870.58	10.34	.38	.01	870.97	0.00	102.02	697.68
45.963	0.00	0.00	860.24	3950.00	870.98	10.74	.44	.01	871.42	0.00	103.30	738.22
45.963	0.00	0.00	860.24	5440.00	872.04	11.80	.64	.02	872.68	0.00	106.77	850.14

PRINTED IN U.S.A.
FORM 1411 G.J PRINTED BY ROTARY MAN FOLD FORMS

SECNO	ELTRD	ELLC	FLMIN	Q	CWSEL	DEPTH	HV	OLOSS	EG	K*CHSL	TOPWID	AREA
45.995	0.00	0.00	860.36	2410.00	869.55	9.19	.29	.01	869.84	.71	91.66	553.04
45.995	0.00	0.00	860.36	3460.00	870.61	10.25	.44	.01	871.05	.71	95.94	653.36
45.995	0.00	0.00	860.36	3950.00	871.01	10.65	.51	.01	871.52	.71	97.52	691.61
45.995	0.00	0.00	860.36	5440.00	872.08	11.72	.72	.02	872.80	.71	101.78	797.80
46.024	0.00	0.00	859.40	2410.00	869.48	10.08	.45	.03	869.94	-6.11	86.93	505.92
46.024	0.00	0.00	859.40	3460.00	870.49	11.09	.70	.05	871.19	-6.11	91.49	595.95
46.024	0.00	0.00	859.40	3950.00	870.85	11.45	.82	.06	871.67	-6.11	93.13	629.44
46.024	0.00	0.00	859.40	5440.00	871.80	12.40	1.21	.10	873.02	-6.11	97.43	720.16
46.025	884.20	883.20	859.40	2410.00	869.48	10.08	.45	.00	869.94	0.00	86.93	505.94
46.025	884.20	883.20	859.40	3460.00	870.49	11.09	.70	.00	871.19	0.00	91.49	595.95
46.025	884.20	883.20	859.40	3950.00	870.85	11.45	.82	.00	871.67	0.00	93.12	629.41
46.025	884.20	883.20	859.40	5440.00	871.80	12.40	1.21	.00	873.02	0.00	97.42	719.96
46.033	883.10	881.40	859.40	2410.00	869.50	10.10	.45	.00	869.95	0.00	87.19	507.92
46.033	883.10	881.40	859.40	3460.00	870.52	11.12	.69	.00	871.21	0.00	91.81	598.75
46.033	883.10	881.40	859.40	3950.00	870.89	11.49	.81	.00	871.70	0.00	93.47	632.61
46.033	883.10	881.40	859.40	5440.00	871.85	12.45	1.20	.00	873.05	0.00	97.87	724.91
46.034	0.00	0.00	859.40	2410.00	869.50	10.10	.45	.00	869.95	0.00	87.20	508.20
46.034	0.00	0.00	859.40	3460.00	870.52	11.12	.69	.00	871.21	0.00	91.84	599.28
46.034	0.00	0.00	859.40	3950.00	870.89	11.49	.81	.00	871.70	0.00	93.51	633.30
46.034	0.00	0.00	859.40	5440.00	871.86	12.46	1.20	.00	873.05	0.00	97.91	725.78
46.043	0.00	0.00	859.44	2410.00	869.52	10.08	.45	.00	869.98	.74	86.94	506.22
46.043	0.00	0.00	859.44	3460.00	870.55	11.11	.69	.00	871.24	.74	91.58	597.78
46.043	0.00	0.00	859.44	3950.00	870.92	11.48	.81	.00	871.73	.74	93.26	632.11
46.043	0.00	0.00	859.44	5440.00	871.90	12.46	1.20	.00	873.10	.74	97.68	725.50
46.044	884.20	883.20	859.44	2410.00	869.52	10.08	.45	.00	869.98	0.00	86.93	506.08
46.044	884.20	883.20	859.44	3460.00	870.55	11.11	.69	.00	871.24	0.00	91.57	597.68
46.044	884.20	883.20	859.44	3950.00	870.92	11.48	.81	.00	871.74	0.00	93.25	632.06
46.044	884.20	883.20	859.44	5440.00	871.90	12.46	1.20	.00	873.10	0.00	97.69	725.72
46.051	883.10	881.40	859.40	2410.00	869.55	10.15	.45	.00	870.00	-.95	87.37	511.53
46.051	883.10	881.40	859.40	3460.00	870.59	11.19	.68	.00	871.27	-.95	92.11	604.75
46.051	883.10	881.40	859.40	3950.00	870.97	11.57	.80	.00	871.76	-.95	93.82	639.73
46.051	883.10	881.40	859.40	5440.00	871.97	12.57	1.16	.00	873.14	-.95	98.46	737.61
46.052	0.00	0.00	859.40	2410.00	869.55	10.15	.45	.00	870.00	0.00	87.42	512.33
46.052	0.00	0.00	859.40	3460.00	870.59	11.19	.68	.00	871.27	0.00	92.14	605.54
46.052	0.00	0.00	859.40	3950.00	870.97	11.57	.79	.00	871.76	0.00	93.87	640.71
46.052	0.00	0.00	859.40	5440.00	871.97	12.57	1.16	.00	873.14	0.00	98.46	737.69
46.053	0.00	0.00	859.40	2410.00	869.55	10.15	.44	.00	870.00	0.00	87.42	512.49
46.053	0.00	0.00	859.40	3460.00	870.59	11.19	.68	.00	871.27	0.00	92.16	605.75
46.053	0.00	0.00	859.40	3950.00	870.97	11.57	.79	.00	871.76	0.00	93.88	640.99
46.053	0.00	0.00	859.40	5440.00	871.98	12.58	1.16	.00	873.14	0.00	98.47	737.79
46.108	0.00	0.00	860.81	2410.00	869.82	9.01	.31	.01	870.13	4.70	90.48	538.57
46.108	0.00	0.00	860.81	3460.00	871.00	10.19	.44	.02	871.45	4.70	94.94	648.10
46.108	0.00	0.00	860.81	3950.00	871.46	10.65	.51	.03	871.97	4.70	96.66	691.70
46.108	0.00	0.00	860.81	5440.00	872.71	11.90	.69	.05	873.40	4.70	101.38	815.75

FORM 1211 GTAR MFD BY HOT-RY MANIFOLD FORMS

	SECNO	ELTRD	ELLC	ELMIN	Q	CHSEL	DEPTH	HV	QLOSS	EG	K*CHSL	TOPWID	AREA
	46.127	0.00	0.00	860.88	2270.00	869.91	9.03	.27	.00	870.18	.70	92.05	542.45
	46.127	0.00	0.00	860.88	3250.00	871.12	10.24	.38	.01	871.50	.70	96.88	657.15
	46.127	0.00	0.00	860.88	3720.00	871.59	10.71	.43	.01	872.02	.70	98.74	702.90
	46.127	0.00	0.00	860.88	5110.00	872.89	12.01	.59	.01	873.47	.70	103.91	834.46
	46.241	0.00	0.00	861.47	2270.00	870.13	8.66	.31	.01	870.44	.98	90.59	508.89
	46.241	0.00	0.00	861.47	3250.00	871.38	9.91	.42	.01	871.80	.98	95.55	624.95
	46.241	0.00	0.00	861.47	3720.00	871.86	10.39	.48	.01	872.34	.98	97.48	671.89
	46.241	0.00	0.00	861.47	5110.00	873.20	11.73	.62	.01	873.82	.98	102.80	805.75
	46.354	0.00	0.00	862.06	2270.00	870.40	8.34	.35	.01	870.75	.98	89.28	479.46
	46.354	0.00	0.00	862.06	3250.00	871.68	9.62	.46	.01	872.14	.98	94.37	596.80
	46.354	0.00	0.00	862.06	3720.00	872.18	10.12	.52	.01	872.70	.98	96.36	644.54
	46.354	0.00	0.00	862.06	5110.00	873.55	11.49	.66	.01	874.21	.98	101.84	780.85
	46.359	0.00	0.00	862.08	2270.00	870.41	8.33	.35	.00	870.76	.83	89.29	479.58
	46.359	0.00	0.00	862.08	3250.00	871.68	9.60	.46	.00	872.14	.83	94.36	596.67
	46.359	0.00	0.00	862.08	3720.00	872.19	10.11	.52	.00	872.70	.83	96.37	644.69
	46.359	0.00	0.00	862.08	5110.00	873.56	11.48	.07	.00	874.22	.83	101.83	780.58
	46.360	0.00	0.00	862.08	2270.00	870.43	8.35	.33	.00	870.76	.00	90.55	493.96
	46.360	0.00	0.00	862.08	3250.00	871.71	9.63	.44	.00	872.15	.00	95.64	613.01
	46.360	0.00	0.00	862.08	3720.00	872.22	10.14	.49	.00	872.71	.00	97.65	661.94
	46.360	0.00	0.00	862.08	5110.00	873.59	11.51	.63	.00	874.23	.00	103.13	800.07
	46.363	0.00	0.00	856.58	2270.00	870.51	13.93	.26	.01	870.77	-289.47	40.00	557.20
	46.363	0.00	0.00	856.58	3250.00	871.70	15.12	.45	.00	872.15	-289.47	40.00	605.32
	46.363	0.00	0.00	856.58	3720.00	872.17	15.59	.55	.01	872.72	-289.47	40.00	623.56
	46.363	0.00	0.00	856.58	5110.00	873.38	16.80	.90	.05	874.28	-289.47	40.00	672.18
	46.376	0.00	0.00	856.58	2270.00	870.52	13.94	.26	.00	870.77	0.00	40.00	557.51
	46.376	0.00	0.00	856.58	3250.00	871.71	15.13	.45	.00	872.16	0.00	40.00	605.32
	46.376	0.00	0.00	856.58	3720.00	872.18	15.60	.55	.00	872.73	0.00	40.00	623.99
	46.376	0.00	0.00	856.58	5110.00	873.40	16.82	.90	.00	874.30	0.00	40.00	672.73
*	46.382	0.00	0.00	866.89	2270.00	871.52	4.63	2.34	.42	873.85	355.52	40.00	185.07
*	46.382	0.00	0.00	866.89	3250.00	872.77	5.88	2.97	.50	875.73	355.52	40.00	235.00
*	46.382	0.00	0.00	866.89	3720.00	873.32	6.43	3.25	.54	876.57	355.52	40.00	257.13
*	46.382	0.00	0.00	866.89	5110.00	874.87	7.98	3.98	.62	878.85	355.52	40.00	319.00
*	46.387	0.00	0.00	866.89	2270.00	872.99	6.10	2.83	.10	875.82	0.00	30.00	168.06
*	46.387	0.00	0.00	866.89	3250.00	874.50	7.61	3.60	.13	878.10	0.00	30.00	213.44
*	46.387	0.00	0.00	866.89	3720.00	875.17	8.28	3.94	.14	879.11	0.00	30.00	233.54
*	46.387	0.00	0.00	866.89	5110.00	877.00	10.11	4.88	.13	881.87	0.00	30.00	288.32

SUMMARY OF ERRORS

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CAUTION  SECNO=  46.382  PROFILE= 1  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  46.382  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  46.382  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  46.382  PROFILE= 2  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  46.382  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  46.382  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  46.382  PROFILE= 3  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  46.382  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SECNO=  46.382  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION  SECNO=  46.382  PROFILE= 4  CRITICAL DEPTH ASSUMED
CAUTION  SECNO=  46.382  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION  SEC O=  46.382  PROFILE= 4  20 TRIALS ATTEMPTED TO BALA CE  SEL
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 CAUTION  SECNO=    46.387  PROFILE= 1  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=    46.387  PROFILE= 1  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=    46.387  PROFILE= 1  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=    46.387  PROFILE= 2  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=    46.387  PROFILE= 2  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=    46.387  PROFILE= 2  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=    46.387  PROFILE= 3  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=    46.387  PROFILE= 3  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=    46.387  PROFILE= 3  20 TRIALS ATTEMPTED TO BALANCE WSEL
 CAUTION  SECNO=    46.387  PROFILE= 4  CRITICAL DEPTH ASSUMED
 CAUTION  SECNO=    46.387  PROFILE= 4  PROBABLE MINIMUM SPECIFIC ENERGY
 CAUTION  SECNO=    46.387  PROFILE= 4  20 TRIALS ATTEMPTED TO BALANCE WSEL
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FORM 1411-GB PRINTED BY ROTARY MANIFOLD FORMS

1) COUNTY: OAKLAND

2) STUDY NAME: PONTIAC, CITY

3) WATERCOURSE: CLINTON RIVER DRAIN #2

4) DOCUMENT TYPE: SUMMARY
MULTIPLE PROFILES

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

CLINTON RIVER DRAIN #2

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
45.26	0.00	0.00	0.00	857.90	2410.00	868.68	.04	0.00	0.00	1520.41	10.78	340.00
45.26	0.00	0.00	0.00	857.90	3460.00	869.39	.06	0.00	0.00	2120.98	11.49	340.00
45.26	0.00	0.00	0.00	857.90	3950.00	869.56	.06	0.00	0.00	2406.39	11.66	340.00
45.26	0.00	0.00	0.00	857.90	5440.00	869.81	.13	0.00	0.00	3285.20	11.91	340.00
45.31	300.00	0.00	0.00	857.90	2410.00	868.67	.08	.02	.01	2008.18	10.77	180.00
45.31	300.00	0.00	0.00	857.90	3460.00	869.36	.14	.03	.02	2858.50	11.46	180.00
45.31	300.00	0.00	0.00	857.90	3950.00	869.52	.17	.04	.02	3257.13	11.62	180.00
45.31	300.00	0.00	0.00	857.90	5440.00	869.73	.31	.07	.04	4474.66	11.83	180.00
45.45	700.00	0.00	0.00	857.90	2410.00	868.71	.13	.08	.01	2405.97	10.81	140.00
45.45	700.00	0.00	0.00	857.90	3460.00	869.42	.22	.12	.02	3441.33	11.52	140.00
45.45	700.00	0.00	0.00	857.90	3950.00	869.59	.27	.15	.02	3924.46	11.69	140.00
45.45	700.00	0.00	0.00	857.90	5440.00	869.85	.48	.26	.03	5395.57	11.95	140.00
45.50	300.00	0.00	0.00	858.02	2410.00	868.75	.14	.04	.00	2409.86	10.73	120.00
45.50	300.00	0.00	0.00	858.02	3460.00	869.48	.23	.06	.00	3457.39	11.46	120.00
45.50	300.00	0.00	0.00	858.02	3950.00	869.66	.29	.08	.00	3946.10	11.64	120.00
45.50	300.00	0.00	0.00	858.02	5440.00	869.96	.51	.13	.00	5432.37	11.94	120.00
45.57	350.00	0.00	0.00	858.37	2410.00	868.79	.16	.06	.00	2410.00	10.42	110.13
45.57	350.00	0.00	0.00	858.37	3460.00	869.54	.26	.08	.01	3460.00	11.17	112.71
45.57	350.00	0.00	0.00	858.37	3950.00	869.73	.32	.10	.01	3950.00	11.36	113.39
45.57	350.00	0.00	0.00	858.37	5440.00	870.08	.56	.17	.01	5440.00	11.71	114.59
45.59	100.00	0.00	0.00	858.75	2410.00	868.76	.23	.02	.01	2410.00	10.01	95.15
45.59	100.00	0.00	0.00	858.75	3460.00	869.47	.38	.03	.02	3460.00	10.72	98.05
45.59	100.00	0.00	0.00	858.75	3950.00	869.65	.47	.04	.03	3950.00	10.90	98.76
45.59	100.00	0.00	0.00	858.75	5440.00	869.94	.82	.07	.05	5440.00	11.19	99.93
45.69	550.00	0.00	0.00	859.16	2410.00	868.90	.24	.16	.00	2410.00	9.74	94.80
45.69	550.00	0.00	0.00	859.16	3460.00	869.70	.40	.24	.00	3460.00	10.54	98.16
45.69	550.00	0.00	0.00	859.16	3950.00	869.92	.49	.29	.00	3950.00	10.76	99.11
45.69	550.00	0.00	0.00	859.16	5440.00	870.43	.80	.46	.00	5440.00	11.27	101.24
45.78	484.00	0.00	0.00	859.51	2410.00	869.04	.26	.16	.00	2410.00	9.53	93.09
45.78	484.00	0.00	0.00	859.51	3460.00	869.91	.42	.22	.00	3460.00	10.40	96.51
45.78	484.00	0.00	0.00	859.51	3950.00	870.17	.50	.26	.00	3950.00	10.66	97.57
45.78	484.00	0.00	0.00	859.51	5440.00	870.61	.80	.40	.00	5440.00	11.32	100.18
45.80	66.00	0.00	0.00	859.58	2410.00	869.02	.33	.03	.01	2410.00	9.44	92.75
45.80	66.00	0.00	0.00	859.58	3460.00	869.87	.51	.04	.02	3460.00	10.29	96.16
45.80	66.00	0.00	0.00	859.58	3950.00	870.13	.61	.04	.02	3950.00	10.55	97.21
45.80	66.00	0.00	0.00	859.58	5440.00	870.77	.95	.06	.03	5440.00	11.19	99.74
45.80	1.00	880.08	874.58	859.58	2410.00	868.97	.39	.00	.01	2410.00	9.39	92.55
45.80	1.00	880.08	874.58	859.58	3460.00	869.79	.61	.00	.02	3460.00	10.21	95.84
45.80	1.00	880.08	874.58	859.58	3950.00	870.03	.73	.00	.03	3950.00	10.45	96.81
45.80	1.00	880.08	874.58	859.58	5440.00	870.59	1.17	.00	.04	5440.00	11.01	99.05

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
45.80	6.00	880.08	874.58	859.58	2410.00	868.97	.39	.00	.00	2410.00	9.39	92.57
45.80	6.00	880.08	874.58	859.58	3460.00	869.80	.61	.00	.00	3460.00	10.22	95.86
45.80	6.00	880.08	874.58	859.58	3950.00	870.04	.73	.01	.00	3950.00	10.46	96.83
45.80	6.00	880.08	874.58	859.58	5440.00	870.60	1.17	.01	.00	5440.00	11.02	99.08
45.80	1.00	0.00	0.00	859.58	2410.00	869.05	.32	.00	.01	2410.00	9.47	92.86
45.80	1.00	0.00	0.00	859.58	3460.00	869.91	.50	.00	.01	3460.00	10.33	96.34
45.80	1.00	0.00	0.00	859.58	3950.00	870.19	.60	.00	.01	3950.00	10.61	97.43
45.80	1.00	0.00	0.00	859.58	5440.00	870.87	.92	.00	.02	5440.00	11.29	100.18
45.82	117.00	0.00	0.00	859.66	2410.00	869.16	.26	.04	.01	2410.00	9.50	93.95
45.82	117.00	0.00	0.00	859.66	3460.00	870.07	.41	.06	.01	3460.00	10.41	97.78
45.82	117.00	0.00	0.00	859.66	3950.00	870.37	.49	.07	.01	3950.00	10.71	99.04
45.82	117.00	0.00	0.00	859.66	5440.00	871.16	.75	.09	.02	5440.00	11.50	102.34
45.88	325.00	0.00	0.00	859.91	2410.00	869.26	.23	.12	.00	2410.00	9.35	92.43
45.88	325.00	0.00	0.00	859.91	3460.00	870.21	.43	.16	.00	3460.00	10.30	96.21
45.88	325.00	0.00	0.00	859.91	3950.00	870.54	.51	.18	.00	3950.00	10.63	97.51
45.88	325.00	0.00	0.00	859.91	5440.00	871.39	.76	.25	.00	5440.00	11.48	100.93
45.94	325.00	0.00	0.00	860.17	2410.00	869.37	.29	.12	.00	2410.00	9.20	91.83
45.94	325.00	0.00	0.00	860.17	3460.00	870.37	.44	.16	.00	3460.00	10.20	95.80
45.94	325.00	0.00	0.00	860.17	3950.00	870.71	.52	.19	.00	3950.00	10.54	97.18
45.94	325.00	0.00	0.00	860.17	5440.00	871.64	.77	.25	.00	5440.00	11.47	100.87
45.96	82.00	0.00	0.00	860.24	2410.00	869.43	.27	.03	.00	2410.00	9.19	98.26
45.96	82.00	0.00	0.00	860.24	3460.00	870.46	.40	.04	.00	3460.00	10.22	101.60
45.96	82.00	0.00	0.00	860.24	3950.00	870.82	.47	.05	.01	3950.00	10.58	102.78
45.96	82.00	0.00	0.00	860.24	5440.00	871.80	.50	.06	.01	5440.00	11.56	105.97
45.96	1.00	900.38	889.38	860.24	2410.00	869.39	.31	.00	.01	2410.00	9.15	98.14
45.96	1.00	900.38	889.38	860.24	3460.00	870.39	.48	.00	.02	3460.00	10.15	101.38
45.96	1.00	900.38	889.38	860.24	3950.00	870.74	.57	.00	.02	3950.00	10.50	102.51
45.96	1.00	900.38	889.38	860.24	5440.00	871.66	.85	.00	.03	5440.00	11.42	105.52
45.96	22.00	900.38	889.38	860.24	2410.00	869.40	.31	.01	.00	2410.00	9.16	98.17
45.96	22.00	900.38	889.38	860.24	3460.00	870.40	.48	.01	.00	3460.00	10.16	101.42
45.96	22.00	900.38	889.38	860.24	3950.00	870.75	.57	.01	.00	3950.00	10.51	102.55
45.96	22.00	900.38	889.38	860.24	5440.00	871.68	.35	.02	.00	5440.00	11.44	105.57
45.96	1.00	0.00	0.00	860.24	2410.00	869.46	.26	.00	.00	2410.00	9.22	98.35
45.96	1.00	0.00	0.00	860.24	3460.00	870.50	.39	.00	.01	3460.00	10.26	101.74
45.96	1.00	0.00	0.00	860.24	3950.00	870.87	.46	.00	.01	3950.00	10.63	102.96
45.96	1.00	0.00	0.00	860.24	5440.00	871.89	.66	.00	.02	5440.00	11.65	106.25
46.00	169.00	0.00	0.00	860.36	2410.00	869.49	.36	.06	.01	2410.00	9.13	91.43
46.00	169.00	0.00	0.00	860.36	3460.00	870.53	.45	.08	.01	3460.00	10.17	95.61
46.00	169.00	0.00	0.00	860.36	3950.00	870.91	.52	.08	.01	3950.00	10.55	97.10
46.00	169.00	0.00	0.00	860.36	5440.00	871.92	.75	.11	.02	5440.00	11.56	101.16

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
46.02	157.00	0.00	0.00	859.40	2410.00	869.42	.46	.07	.03	2225.22	10.02	86.67
46.02	157.00	0.00	0.00	859.40	3460.00	870.41	.71	.09	.05	3115.00	11.01	91.11
46.02	157.00	0.00	0.00	859.40	3950.00	870.75	.84	.10	.06	3526.43	11.35	92.64
46.02	157.00	0.00	0.00	859.40	5440.00	871.64	1.27	.13	.10	4754.56	12.24	96.68
46.03	1.00	884.20	883.20	859.40	2410.00	869.42	.46	.00	.00	2225.19	10.02	86.67
46.03	1.00	884.20	883.20	859.40	3460.00	870.41	.71	.00	.00	3114.96	11.01	91.11
46.03	1.00	884.20	883.20	859.40	3950.00	870.75	.84	.00	.00	3526.38	11.35	92.64
46.03	1.00	884.20	883.20	859.40	5440.00	871.64	1.26	.00	.00	4754.47	12.24	96.68
46.03	42.00	883.10	881.40	859.40	2410.00	869.45	.46	.02	.00	2223.91	10.05	86.93
46.03	42.00	883.10	881.40	859.40	3460.00	870.44	.71	.02	.00	3112.65	11.04	91.43
46.03	42.00	883.10	881.40	859.40	3950.00	870.78	.84	.03	.00	3523.48	11.38	92.99
46.03	42.00	883.10	881.40	859.40	5440.00	871.69	1.25	.04	.00	4748.94	12.29	97.13
46.03	1.00	0.00	0.00	859.40	2410.00	869.45	.46	.00	.00	2223.86	10.05	86.93
46.03	1.00	0.00	0.00	859.40	3460.00	870.44	.71	.00	.00	3112.61	11.04	91.43
46.03	1.00	0.00	0.00	859.40	3950.00	870.78	.84	.00	.00	3523.43	11.38	93.00
46.03	1.00	0.00	0.00	859.40	5440.00	871.69	1.25	.00	.00	4748.84	12.29	97.14
46.04	54.00	0.00	0.00	859.44	2410.00	869.47	.46	.02	.00	2225.14	10.03	86.67
46.04	54.00	0.00	0.00	859.44	3460.00	870.47	.71	.03	.00	3113.77	11.03	91.18
46.04	54.00	0.00	0.00	859.44	3950.00	870.82	.84	.03	.00	3524.40	11.38	92.75
46.04	54.00	0.00	0.00	859.44	5440.00	871.74	1.25	.05	.00	4748.92	12.30	96.91
46.04	1.00	884.20	883.20	859.44	2410.00	869.47	.46	.00	.00	2225.12	10.03	86.67
46.04	1.00	884.20	883.20	859.44	3460.00	870.47	.71	.00	.00	3113.72	11.03	91.18
46.04	1.00	884.20	883.20	859.44	3950.00	870.82	.84	.00	.00	3524.34	11.38	92.75
46.04	1.00	884.20	883.20	859.44	5440.00	871.74	1.25	.00	.00	4748.83	12.30	96.91
46.05	42.00	883.10	881.40	859.40	2410.00	869.49	.45	.02	.00	2221.48	10.09	87.11
46.05	42.00	883.10	881.40	859.40	3460.00	870.51	.69	.02	.00	3106.59	11.11	91.79
46.05	42.00	883.10	881.40	859.40	3950.00	870.87	.82	.03	.00	3515.51	11.47	93.42
46.05	42.00	883.10	881.40	859.40	5440.00	871.82	1.21	.04	.00	4733.80	12.42	97.76
46.05	1.00	0.00	0.00	859.40	2410.00	869.49	.45	.00	.00	2221.17	10.09	87.14
46.05	1.00	0.00	0.00	859.40	3460.00	870.51	.69	.00	.00	3106.55	11.11	91.79
46.05	1.00	0.00	0.00	859.40	3950.00	870.87	.82	.00	.00	3515.45	11.47	93.42
46.05	1.00	0.00	0.00	859.40	5440.00	871.82	1.21	.00	.00	4733.71	12.42	97.77
46.05	1.00	0.00	0.00	859.40	2410.00	869.50	.45	.00	.00	2221.14	10.10	87.14
46.05	1.00	0.00	0.00	859.40	3460.00	870.51	.69	.00	.00	3106.51	11.11	91.79
46.05	1.00	0.00	0.00	859.40	3950.00	870.87	.82	.00	.00	3515.40	11.47	93.42
46.05	1.00	0.00	0.00	859.40	5440.00	871.82	1.21	.00	.00	4733.62	12.42	97.77
46.11	300.00	0.00	0.00	860.81	2410.00	869.77	.32	.13	.01	2410.00	8.96	90.30
46.11	300.00	0.00	0.00	860.81	3460.00	870.94	.45	.16	.02	3460.00	10.13	94.68
46.11	300.00	0.00	0.00	860.81	3950.00	871.38	.52	.18	.03	3950.00	10.57	96.34
46.11	300.00	0.00	0.00	860.81	5440.00	872.59	.71	.22	.05	5440.00	11.78	100.95

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
46.13	100.00	0.00	0.00	860.88	2270.00	869.66	.28	.04	.00	2270.00	8.98	91.86
46.13	100.00	0.00	0.00	860.88	3250.00	871.06	.39	.05	.01	3250.00	10.18	96.62
46.13	100.00	0.00	0.00	860.88	3720.00	871.51	.44	.05	.01	3720.00	10.63	98.43
46.13	100.00	0.00	0.00	860.88	5110.00	872.78	.60	.06	.01	5110.00	11.90	103.48
46.24	600.00	0.00	0.00	861.47	2270.00	870.09	.31	.26	.01	2270.00	8.62	90.42
46.24	600.00	0.00	0.00	861.47	3250.00	871.32	.43	.30	.01	3250.00	9.85	95.32
46.24	600.00	0.00	0.00	861.47	3720.00	871.79	.49	.32	.01	3720.00	10.32	97.21
46.24	600.00	0.00	0.00	861.47	5110.00	873.11	.64	.36	.01	5110.00	11.64	102.43
46.35	600.00	0.00	0.00	862.06	2270.00	870.37	.35	.31	.01	2270.00	8.31	89.14
46.35	600.00	0.00	0.00	862.06	3250.00	871.63	.47	.34	.01	3250.00	9.57	94.17
46.35	600.00	0.00	0.00	862.06	3720.00	872.12	.53	.36	.01	3720.00	10.06	96.12
46.35	600.00	0.00	0.00	862.06	5110.00	873.47	.68	.39	.01	5110.00	11.41	101.51
46.36	24.00	0.00	0.00	862.08	2270.00	870.37	.35	.01	.00	2270.00	8.29	89.11
46.36	24.00	0.00	0.00	862.08	3250.00	871.63	.47	.01	.00	3250.00	9.55	94.15
46.36	24.00	0.00	0.00	862.08	3720.00	872.13	.53	.01	.00	3720.00	10.05	96.10
46.36	24.00	0.00	0.00	862.08	5110.00	873.48	.68	.01	.00	5110.00	11.40	101.50
46.36	1.00	0.00	0.00	862.08	2270.00	870.40	.33	.00	.00	2270.00	8.32	90.41
46.36	1.00	0.00	0.00	862.08	3250.00	871.66	.44	.00	.00	3250.00	9.58	95.45
46.36	1.00	0.00	0.00	862.08	3720.00	872.16	.50	.00	.00	3720.00	10.08	97.42
46.36	1.00	0.00	0.00	862.08	5110.00	873.51	.65	.00	.00	5110.00	11.43	102.82
46.36	19.00	0.00	0.00	856.58	2270.00	870.48	.26	.00	.01	2270.00	13.90	40.00
46.36	19.00	0.00	0.00	856.58	3250.00	871.66	.45	.00	.00	3250.00	15.08	40.00
46.36	19.00	0.00	0.00	856.58	3720.00	872.11	.56	.00	.01	3720.00	15.53	40.00
46.36	19.00	0.00	0.00	856.58	5110.00	873.31	.91	.00	.05	5110.00	16.73	40.00
46.38	72.00	0.00	0.00	856.58	2270.00	870.48	.26	.00	.00	2270.00	13.90	40.00
46.38	72.00	0.00	0.00	856.58	3250.00	871.67	.45	.01	.00	3250.00	15.09	40.00
46.38	72.00	0.00	0.00	856.58	3720.00	872.12	.56	.01	.00	3720.00	15.54	40.00
46.38	72.00	0.00	0.00	856.58	5110.00	873.33	.90	.01	.00	5110.00	16.75	40.00
46.38	29.00	0.00	0.00	866.89	2270.00	871.52	2.34	.01	0.00	2270.00	4.63	40.00
46.38	29.00	0.00	0.00	866.89	3250.00	872.77	2.97	.01	0.00	3250.00	5.88	40.00
46.38	29.00	0.00	0.00	866.89	3720.00	873.32	3.25	.01	0.00	3720.00	6.43	40.00
46.38	29.00	0.00	0.00	866.89	5110.00	874.86	3.99	.01	0.00	5110.00	7.97	40.00
46.39	27.00	0.00	0.00	866.89	2270.00	872.99	2.83	.05	0.00	2270.00	6.10	30.00
46.39	27.00	0.00	0.00	866.89	3250.00	874.50	3.60	.05	0.00	3250.00	7.61	30.00
46.39	27.00	0.00	0.00	866.89	3720.00	875.17	3.94	.05	0.00	3720.00	8.28	30.00
46.39	27.00	0.00	0.00	866.89	5110.00	877.00	4.88	.05	0.00	5110.00	10.11	30.00
46.67	1500.00	0.00	0.00	871.39	2270.00	877.49	2.83	2.65	0.00	2270.00	6.10	30.00
46.67	1500.00	0.00	0.00	871.39	3250.00	879.01	3.59	2.70	0.00	3250.00	7.62	30.00
46.67	1500.00	0.00	0.00	871.39	3720.00	879.68	3.93	2.73	0.00	3720.00	8.29	30.00
46.67	1500.00	0.00	0.00	871.39	5110.00	881.52	4.86	2.83	0.00	5110.00	10.13	30.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	AV	HL	OLOSS	QCH	DEPTH	TOPWID
46.69	100.00	0.00	0.00	871.69	2200.00	878.26	2.27	.15	.06	2200.00	6.57	30.00
46.69	100.00	0.00	0.00	871.69	3150.00	880.11	2.73	.15	.09	3150.00	8.42	30.00
46.69	100.00	0.00	0.00	871.69	3600.00	880.93	2.93	.15	.10	3600.00	9.24	30.00
46.69	100.00	0.00	0.00	871.69	4950.00	883.18	3.48	.15	.14	4940.87	11.49	60.75
46.69	3.00	0.00	0.00	871.69	2200.00	878.27	2.26	.00	.00	2200.00	6.58	30.00
46.69	3.00	0.00	0.00	871.69	3150.00	880.11	2.73	.00	.00	3150.00	8.42	30.00
46.69	3.00	0.00	0.00	871.69	3600.00	880.94	2.92	.00	.00	3600.00	9.25	30.00
46.69	3.00	0.00	0.00	871.69	4950.00	883.19	3.47	.00	.00	4940.70	11.50	60.77
46.69	1.00	882.58	886.98	871.69	2200.00	878.26	2.26	.00	.00	2200.00	6.57	30.00
46.69	1.00	882.58	886.98	871.69	3150.00	880.12	2.72	.00	.00	3150.00	8.43	30.00
46.69	1.00	882.58	886.98	871.69	3600.00	880.94	2.92	.00	.00	3600.00	9.25	30.00
46.69	1.00	882.58	886.98	871.69	4950.00	883.19	3.47	.00	.00	4940.65	11.50	60.78
46.70	60.00	882.58	886.98	871.69	2200.00	878.60	2.03	.07	.02	2200.00	6.91	30.00
46.70	60.00	882.58	886.98	871.69	3150.00	880.39	2.54	.07	.02	3150.00	8.70	30.00
46.70	60.00	882.58	886.98	871.69	3600.00	881.21	2.74	.07	.02	3600.00	9.52	30.00
46.70	60.00	882.58	886.98	871.69	4950.00	883.50	3.25	.07	.02	4926.02	11.81	62.32
46.70	1.00	0.00	0.00	871.69	2200.00	878.60	2.03	.00	.00	2200.00	6.91	30.00
46.70	1.00	0.00	0.00	871.69	3150.00	880.39	2.54	.00	.00	3150.00	8.70	30.00
46.70	1.00	0.00	0.00	871.69	3600.00	881.21	2.74	.00	.00	3600.00	9.52	30.00
46.70	1.00	0.00	0.00	871.69	4950.00	883.51	3.25	.00	.00	4925.96	11.82	62.33
46.71	21.00	0.00	0.00	872.58	2200.00	879.17	2.98	.03	0.00	2137.69	6.59	30.00
46.71	21.00	0.00	0.00	872.58	3150.00	880.74	3.83	.03	0.00	3053.29	8.16	30.00
46.71	21.00	0.00	0.00	872.58	3600.00	881.44	4.20	.03	0.00	3487.40	8.86	30.00
46.71	21.00	0.00	0.00	872.58	4950.00	883.40	5.19	.03	0.00	4791.29	10.82	30.00
46.71	1.00	887.83	884.58	872.58	2200.00	879.17	2.98	.00	.00	2137.68	6.59	30.00
46.71	1.00	887.83	884.58	872.58	3150.00	880.75	3.84	.00	.00	3053.25	8.17	30.00
46.71	1.00	887.83	884.58	872.58	3600.00	881.44	4.19	.00	.00	3487.39	8.86	30.00
46.71	1.00	887.83	884.58	872.58	4950.00	883.42	5.18	.00	.00	4791.27	10.84	30.00
46.71	6.00	887.83	884.58	872.58	2200.00	879.58	2.62	.01	.04	2135.92	7.00	30.00
46.71	6.00	887.83	884.58	872.58	3150.00	881.35	3.28	.01	.05	3051.67	8.77	30.00
46.71	6.00	887.83	884.58	872.58	3600.00	882.12	3.59	.01	.06	3486.02	9.54	30.00
46.71	6.00	887.83	884.58	872.58	4950.00	884.22	4.46	.01	.07	4790.74	11.64	30.00
46.71	1.00	0.00	0.00	872.58	2200.00	879.68	2.53	.00	.01	2135.49	7.10	30.00
46.71	1.00	0.00	0.00	872.58	3150.00	881.36	3.28	.00	.00	3051.67	8.78	30.00
46.71	1.00	0.00	0.00	872.58	3600.00	882.12	3.59	.00	.00	3486.02	9.54	30.00
46.71	1.00	0.00	0.00	872.58	4950.00	884.22	4.46	.00	.00	4790.74	11.64	30.00
46.71	12.00	0.00	0.00	875.58	2200.00	883.19	2.12	.02	0.00	2200.00	7.61	45.33
46.71	12.00	0.00	0.00	875.58	3150.00	884.36	2.59	.02	0.00	3150.00	8.78	48.00
46.71	12.00	0.00	0.00	875.58	3600.00	884.87	2.80	.02	0.00	3600.00	9.29	48.00
46.71	12.00	0.00	0.00	875.58	4950.00	886.15	3.51	.02	0.00	4950.00	10.57	48.00

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
46.72	43.00	0.00	0.00	875.58	2200.00	885.33	.19	.01	.19	2200.00	9.75	108.98
46.72	43.00	0.00	0.00	875.58	3150.00	886.97	.23	.01	.24	3150.00	11.39	115.55
46.72	43.00	0.00	0.00	875.58	3600.00	887.69	.25	.01	.25	3600.00	12.11	118.41
46.72	43.00	0.00	0.00	875.58	4950.00	889.69	.29	.01	.32	4950.00	14.11	126.00
46.72	1.00	0.00	0.00	875.58	2200.00	885.33	.19	.00	.00	2200.00	9.75	108.98
46.72	1.00	0.00	0.00	875.58	3150.00	886.97	.23	.00	.00	3150.00	11.39	115.55
46.72	1.00	0.00	0.00	875.58	3600.00	887.69	.25	.00	.00	3600.00	12.11	118.41
46.72	1.00	0.00	0.00	875.58	4950.00	889.69	.29	.00	.00	4950.00	14.11	126.00
46.81	483.00	0.00	0.00	875.73	2200.00	885.38	.20	.07	.00	2200.00	9.65	107.87
46.81	483.00	0.00	0.00	875.73	3150.00	887.02	.24	.06	.00	3150.00	11.29	114.38
46.81	483.00	0.00	0.00	875.73	3600.00	887.74	.26	.06	.00	3600.00	12.01	117.21
46.81	483.00	0.00	0.00	875.73	4950.00	889.74	.30	.06	.00	4950.00	14.01	125.17
46.96	800.00	0.00	0.00	876.13	2060.00	885.64	.17	.21	.00	2060.00	9.51	109.62
46.96	800.00	0.00	0.00	876.13	2950.00	887.27	.20	.20	.00	2950.00	11.14	116.24
46.96	800.00	0.00	0.00	876.13	3370.00	887.98	.22	.20	.00	3370.00	11.85	119.12
46.96	800.00	0.00	0.00	876.13	4630.00	889.98	.25	.18	.00	4630.00	13.85	127.20
47.06	500.00	0.00	0.00	876.38	2060.00	885.70	.27	.14	.02	2060.00	9.32	79.46
47.06	500.00	0.00	0.00	876.38	2950.00	887.31	.34	.14	.03	2950.00	10.92	85.86
47.06	500.00	0.00	0.00	876.38	3370.00	888.00	.37	.14	.03	3370.00	11.62	88.64
47.06	500.00	0.00	0.00	876.38	4630.00	889.96	.44	.13	.04	4630.00	13.58	96.48
47.15	500.00	0.00	0.00	876.63	2060.00	885.87	.28	.18	.00	2060.00	9.24	79.12
47.15	500.00	0.00	0.00	876.63	2950.00	887.48	.35	.19	.00	2950.00	10.85	85.58
47.15	500.00	0.00	0.00	876.63	3370.00	888.18	.38	.19	.00	3370.00	11.55	88.37
47.15	500.00	0.00	0.00	876.63	4630.00	890.14	.45	.18	.00	4630.00	13.51	96.19
47.25	500.00	0.00	0.00	876.88	2060.00	886.02	.34	.20	.01	2060.00	9.14	66.47
47.25	500.00	0.00	0.00	876.88	2950.00	887.62	.44	.21	.02	2950.00	10.74	72.83
47.25	500.00	0.00	0.00	876.88	3370.00	888.31	.48	.21	.02	3370.00	11.43	75.59
47.25	500.00	0.00	0.00	876.88	4630.00	890.24	.58	.21	.03	4630.00	13.36	83.29
47.40	800.00	0.00	0.00	877.28	2060.00	886.35	.35	.34	.00	2060.00	9.07	65.52
47.40	800.00	0.00	0.00	877.28	2950.00	887.98	.45	.37	.00	2950.00	10.70	71.94
47.40	800.00	0.00	0.00	877.28	3370.00	888.69	.50	.38	.00	3370.00	11.40	74.68
47.40	800.00	0.00	0.00	877.28	4630.00	890.61	.59	.39	.00	4630.00	13.33	82.26
47.40	20.00	0.00	0.00	877.29	2060.00	886.36	.35	.01	.00	2060.00	9.07	65.52
47.40	20.00	0.00	0.00	877.29	2950.00	887.99	.45	.01	.00	2950.00	10.70	71.94
47.40	20.00	0.00	0.00	877.29	3370.00	888.69	.50	.01	.00	3370.00	11.40	74.67
47.40	20.00	0.00	0.00	877.29	4630.00	890.62	.59	.01	.00	4630.00	13.33	82.26
47.40	1.00	0.00	0.00	877.29	2060.00	886.36	.35	.00	.00	2060.00	9.07	65.52
47.40	1.00	0.00	0.00	877.29	2950.00	887.99	.45	.00	.00	2950.00	10.70	71.94
47.40	1.00	0.00	0.00	877.29	3370.00	888.69	.50	.00	.00	3370.00	11.40	74.68
47.40	1.00	0.00	0.00	877.29	4630.00	890.62	.59	.00	.00	4630.00	13.33	82.26

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
47.40	22.00	0.00	0.00	873.58	2060.00	886.61	.12	.00	.02	2060.00	13.03	82.13
47.40	22.00	0.00	0.00	873.58	2950.00	888.30	.16	.00	.03	2950.00	14.72	88.87
47.40	22.00	0.00	0.00	873.58	3370.00	889.02	.20	.00	.03	3369.97	15.44	91.74
47.40	22.00	0.00	0.00	873.58	4630.00	890.99	.27	.00	.03	4626.61	17.41	99.63
47.41	1.00	0.00	0.00	873.58	2060.00	886.35	.45	.00	.07	2060.00	12.77	30.00
47.41	1.00	0.00	0.00	873.58	2950.00	887.85	.74	.00	.11	2950.00	14.27	30.00
47.41	1.00	0.00	0.00	873.58	3370.00	888.47	.88	.00	.14	3370.00	14.89	30.00
47.41	1.00	0.00	0.00	873.58	4630.00	890.12	1.35	.00	.22	4630.00	16.54	30.00
47.42	57.00	0.00	0.00	873.58	2060.00	886.36	.43	.01	.00	2060.00	12.78	30.00
47.42	57.00	0.00	0.00	873.58	2950.00	887.86	.74	.01	.00	2950.00	14.28	30.00
47.42	57.00	0.00	0.00	873.58	3370.00	888.48	.88	.01	.00	3370.00	14.90	30.00
47.42	57.00	0.00	0.00	873.58	4630.00	890.14	1.35	.02	.00	4630.00	16.56	30.00
47.42	29.00	0.00	0.00	884.18	2060.00	889.43	2.66	.01	0.00	2060.00	5.25	30.00
47.42	29.00	0.00	0.00	884.18	2950.00	890.85	3.37	.01	0.00	2950.00	6.67	30.00
47.42	29.00	0.00	0.00	884.18	3370.00	891.48	3.67	.02	0.00	3370.00	7.30	30.00
47.42	29.00	0.00	0.00	884.18	4630.00	893.20	4.55	.02	0.00	4630.00	9.02	30.00
47.43	58.00	0.00	0.00	884.24	2060.00	890.05	2.17	.09	.05	2060.00	5.81	30.00
47.43	58.00	0.00	0.00	884.24	2950.00	891.60	2.77	.09	.06	2950.00	7.36	30.00
47.43	58.00	0.00	0.00	884.24	3370.00	892.25	3.06	.09	.06	3370.00	8.01	30.00
47.43	58.00	0.00	0.00	884.24	4630.00	894.16	3.77	.10	.08	4630.00	9.92	30.00
47.43	1.00	899.88	897.18	884.24	2060.00	890.06	2.17	.00	.00	2060.00	5.82	30.00
47.43	1.00	899.88	897.18	884.24	2950.00	891.61	2.77	.00	.00	2950.00	7.37	30.00
47.43	1.00	899.88	897.18	884.24	3370.00	892.31	3.01	.00	.01	3370.00	8.07	30.00
47.43	1.00	899.88	897.18	884.24	4630.00	894.16	3.76	.00	.00	4630.00	9.92	30.00
47.44	51.00	899.88	897.23	884.29	2060.00	890.23	2.08	.07	.01	2060.00	5.94	30.00
47.44	51.00	899.88	897.23	884.29	2950.00	891.79	2.67	.07	.01	2950.00	7.50	30.00
47.44	51.00	899.88	897.23	884.29	3370.00	892.46	2.93	.07	.01	3370.00	8.17	30.00
47.44	51.00	899.88	897.23	884.29	4630.00	894.37	3.54	.07	.01	4630.00	10.08	30.00
47.44	1.00	0.00	0.00	884.29	1670.00	891.49	.93	.00	.11	1670.00	7.20	30.00
47.44	1.00	0.00	0.00	884.29	2380.00	893.44	1.17	.00	.15	2380.00	9.15	30.00
47.44	1.00	0.00	0.00	884.29	2710.00	894.30	1.27	.00	.17	2710.00	10.01	30.00
47.44	1.00	0.00	0.00	884.29	3700.00	896.68	1.54	.00	.21	3700.00	12.39	30.00
47.45	17.00	0.00	0.00	884.31	1670.00	891.34	1.13	.01	.04	1670.00	7.03	30.00
47.45	17.00	0.00	0.00	884.31	2380.00	893.30	1.36	.01	.04	2380.00	8.99	30.00
47.45	17.00	0.00	0.00	884.31	2710.00	894.16	1.45	.01	.04	2710.00	9.85	30.00
47.45	17.00	0.00	0.00	884.31	3700.00	896.55	1.71	.01	.04	3700.00	12.24	30.00
47.45	42.00	0.00	0.00	884.35	1670.00	891.36	1.13	.03	.00	1670.00	7.01	30.00
47.45	42.00	0.00	0.00	884.35	2380.00	893.32	1.36	.02	.00	2380.00	8.97	30.00
47.45	42.00	0.00	0.00	884.35	2710.00	894.18	1.46	.02	.00	2710.00	9.83	30.00
47.45	42.00	0.00	0.00	884.35	3700.00	896.57	1.72	.02	.00	3700.00	12.22	30.00

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
47.53	400.00	0.00	0.00	884.75	1670.00	891.56	1.21	.26	.01	1670.00	6.81	30.00
47.53	400.00	0.00	0.00	884.75	2380.00	893.50	1.43	.24	.01	2380.00	8.75	30.00
47.53	400.00	0.00	0.00	884.75	2710.00	894.36	1.53	.24	.01	2710.00	9.61	30.00
47.53	400.00	0.00	0.00	884.75	3700.00	896.75	1.79	.23	.01	3700.00	12.00	30.00
47.62	500.00	0.00	0.00	885.25	1670.00	891.84	1.30	.36	.02	1670.00	6.59	30.00
47.62	500.00	0.00	0.00	885.25	2380.00	893.76	1.52	.33	.02	2380.00	8.51	30.00
47.62	500.00	0.00	0.00	885.25	2710.00	894.61	1.61	.32	.02	2710.00	9.36	30.00
47.62	500.00	0.00	0.00	885.25	3700.00	896.99	1.87	.31	.02	3700.00	11.74	30.00
47.72	500.00	0.00	0.00	885.75	1670.00	892.17	1.37	.39	.02	1670.00	6.42	30.00
47.72	500.00	0.00	0.00	885.75	2380.00	894.05	1.61	.36	.02	2380.00	8.30	30.00
47.72	500.00	0.00	0.00	885.75	2710.00	894.89	1.70	.35	.02	2710.00	9.14	30.00
47.72	500.00	0.00	0.00	885.75	3700.00	897.26	1.95	.33	.02	3700.00	11.51	30.00
47.73	50.00	0.00	0.00	887.88	1670.00	892.46	2.29	.06	0.00	1670.00	4.58	30.00
47.73	50.00	0.00	0.00	887.88	2380.00	893.66	2.92	.06	0.00	2380.00	5.78	30.00
47.73	50.00	0.00	0.00	887.88	2710.00	894.19	3.18	.05	0.00	2710.00	6.31	30.00
47.73	50.00	0.00	0.00	887.88	3700.00	896.01	3.57	.05	.32	3700.00	8.13	30.00

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSEL<	TOPWID	T.W. DIFF	LENGTH
45.256	2410.000	868.681	0.000	0.000	0.000	339.998	0.000	0.000
45.256	3460.000	869.393	.712	0.000	0.000	339.998	-.000	0.000
45.256	3950.000	869.560	.167	0.000	0.000	339.998	-.000	0.000
45.256	5440.000	869.806	.246	0.000	0.000	339.998	-.000	0.000
45.313	2410.000	868.668	0.000	-.013	0.000	179.999	0.000	300.000
45.313	3460.000	869.363	.695	-.030	0.000	179.999	-.000	300.000
45.313	3950.000	869.521	.158	-.039	0.000	179.999	-.000	300.000
45.313	5440.000	869.730	.209	-.076	0.000	179.999	-.000	300.000
45.445	2410.000	868.713	0.000	.045	0.000	139.999	0.000	700.000
45.445	3460.000	869.422	.709	.059	0.000	139.999	-.000	700.000
45.445	3950.000	869.591	.168	.070	0.000	139.999	-.000	700.000
45.445	5440.000	869.848	.258	.119	0.000	139.999	-.000	700.000
45.502	2410.000	868.750	0.000	.037	0.000	119.999	0.000	300.000
45.502	3460.000	869.476	.726	.054	0.000	119.999	-.000	300.000
45.502	3950.000	869.656	.180	.065	0.000	119.999	-.000	300.000
45.502	5440.000	869.961	.305	.112	0.000	119.999	-.000	300.000
45.569	2410.000	868.790	0.000	.040	0.000	110.129	0.000	350.000
45.569	3460.000	869.535	.745	.059	0.000	112.714	-2.585	350.000
45.569	3950.000	869.728	.192	.072	0.000	113.385	-3.257	350.000
45.569	5440.000	870.084	.356	.123	0.000	114.587	-4.459	350.000
45.587	2410.000	868.756	0.000	-.034	0.000	95.148	0.000	100.000
45.587	3460.000	869.474	.719	-.061	0.000	98.046	-2.899	100.000
45.587	3950.000	869.650	.176	-.077	0.000	98.755	-3.608	100.000
45.587	5440.000	869.940	.290	-.144	0.000	99.925	-4.777	100.000
45.692	2410.000	868.901	0.000	.145	0.000	94.795	0.000	550.000
45.692	3460.000	869.698	.797	.223	0.000	98.159	-3.364	550.000
45.692	3950.000	869.924	.226	.273	0.000	99.113	-4.318	550.000
45.692	5440.000	870.427	.504	.487	0.000	101.238	-6.443	550.000
45.783	2410.000	869.044	0.000	.143	0.000	93.092	0.000	484.000
45.783	3460.000	869.907	.863	.209	0.000	96.514	-3.422	484.000
45.783	3950.000	870.174	.267	.250	0.000	97.573	-4.482	484.000
45.783	5440.000	870.831	.657	.404	0.000	100.181	-7.089	484.000

45.796	2410.000	869.018	0.000	-.025	0.000	92.754	0.000	66.000
45.796	3460.000	869.871	.852	-.036	0.000	96.163	-3.409	66.000
45.796	3950.000	870.131	.260	-.043	0.000	97.205	-4.451	66.000
45.796	5440.000	870.765	.634	-.066	0.000	99.742	-6.988	66.000
45.797	2410.000	868.968	0.000	-.050	0.000	92.553	0.000	1.000
45.797	3460.000	869.790	.822	-.081	0.000	95.840	-3.283	1.000
45.797	3950.000	870.032	.242	-.100	0.000	96.807	-4.254	1.000
45.797	5440.000	870.592	.561	-.173	0.000	99.053	-6.500	1.000
45.798	2410.000	868.972	0.000	.004	0.000	92.565	0.000	6.000
45.798	3460.000	869.795	.823	.005	0.000	95.857	-3.292	6.000
45.798	3950.000	870.038	.243	.006	0.000	96.827	-4.261	6.000
45.798	5440.000	870.603	.565	.010	0.000	99.041	-6.516	6.000
45.799	2410.000	869.045	0.000	.073	0.000	92.861	0.000	1.000
45.799	3460.000	869.915	.870	.119	0.000	96.340	-3.480	1.000
45.799	3950.000	870.187	.272	.149	0.000	97.430	-4.570	1.000
45.799	5440.000	870.873	.686	.270	0.000	100.183	-7.323	1.000
45.819	2410.000	869.156	0.000	.111	0.000	93.949	0.000	117.000
45.819	3460.000	870.073	.917	.159	0.000	97.783	-3.835	117.000
45.819	3950.000	870.375	.301	.188	0.000	99.044	-5.095	117.000
45.819	5440.000	871.162	.787	.289	0.000	102.337	-8.388	117.000
45.881	2410.000	869.253	0.000	.102	0.000	92.429	0.000	325.000
45.881	3460.000	870.213	.955	.140	0.000	96.213	-3.784	325.000
45.881	3950.000	870.537	.324	.162	0.000	97.507	-5.078	325.000
45.881	5440.000	871.393	.857	.231	0.000	100.934	-8.505	325.000
45.943	2410.000	869.371	0.000	.113	0.000	91.823	0.000	325.000
45.943	3460.000	870.367	.996	.154	0.000	95.798	-3.970	325.000
45.943	3950.000	870.714	.346	.177	0.000	97.182	-5.354	325.000
45.943	5440.000	871.640	.926	.246	0.000	100.875	-9.047	325.000
45.958	2410.000	869.431	0.000	.060	0.000	98.263	0.000	82.000
45.958	3460.000	870.457	1.026	.090	0.000	101.602	-3.339	82.000
45.958	3950.000	870.820	.363	.106	0.000	102.782	-4.519	82.000
45.958	5440.000	871.798	.978	.158	0.000	105.965	-7.703	82.000
45.959	2410.000	869.393	0.000	-.038	0.000	98.139	0.000	1.000
45.959	3460.000	870.390	.997	-.067	0.000	101.383	-3.244	1.000
45.959	3950.000	870.737	.347	-.083	0.000	102.511	-4.372	1.000
45.959	5440.000	871.661	.924	-.137	0.000	105.519	-7.381	1.000
45.962	2410.000	869.403	0.000	.010	0.000	98.167	0.000	22.000
45.962	3460.000	870.403	1.000	.013	0.000	101.419	-3.252	22.000
45.962	3950.000	870.752	.349	.015	0.000	102.552	-4.385	22.000
45.962	5440.000	871.682	.930	.021	0.000	105.572	-7.406	22.000
45.963	2410.000	869.458	0.000	.055	0.000	98.350	0.000	1.000
45.963	3460.000	870.501	1.043	.098	0.000	101.745	-3.395	1.000
45.963	3950.000	870.873	.372	.121	0.000	102.957	-4.607	1.000
45.963	5440.000	871.885	1.012	.203	0.000	106.252	-7.902	1.000
45.995	2410.000	869.488	0.000	.030	0.000	91.433	0.000	169.000
45.995	3460.000	870.533	1.044	-.032	0.000	95.610	-4.178	169.000
45.995	3950.000	870.906	.373	.033	0.000	97.104	-5.672	169.000
45.995	5440.000	871.919	1.013	.034	0.000	101.158	-9.726	169.000
46.024	2410.000	869.424	0.000	-.064	0.000	86.667	0.000	157.000
46.024	3460.000	870.406	.982	-.126	0.000	91.107	-4.440	157.000
46.024	3950.000	870.745	.339	-.161	0.000	92.640	-5.974	157.000
46.024	5440.000	871.636	.891	-.284	0.000	96.676	-10.010	157.000
46.025	2410.000	869.434	0.000	.001	0.000	86.667	0.000	1.000

46.025	3460.000	870.407	.932	.001	0.000	91.109	-4.441	1.000
46.025	3950.000	870.746	.339	.001	0.000	92.543	-5.974	1.000
46.025	5440.000	871.637	.891	.001	0.000	96.680	-10.011	1.000
46.033	2410.000	869.445	0.000	.021	0.000	86.926	0.000	42.000
46.033	3460.000	870.434	.991	.030	0.000	91.432	-4.505	42.000
46.033	3950.000	870.781	.344	.035	0.000	92.994	-6.067	42.000
46.033	5440.000	871.690	.909	.053	0.000	97.132	-10.206	42.000
46.034	2410.000	869.446	0.000	.000	0.000	86.928	0.000	1.000
46.034	3460.000	870.437	.992	.001	0.000	91.435	-4.506	1.000
46.034	3950.000	870.781	.344	.001	0.000	92.995	-6.068	1.000
46.034	5440.000	871.691	.910	.001	0.000	97.136	-10.208	1.000
46.043	2410.000	869.466	0.000	.021	0.000	86.673	0.000	54.000
46.043	3460.000	870.466	1.000	.029	0.000	91.179	-4.506	54.000
46.043	3950.000	870.815	.349	.034	0.000	92.747	-6.074	54.000
46.043	5440.000	871.740	.925	.049	0.000	96.908	-10.236	54.000
46.044	2410.000	869.467	0.000	.000	0.000	86.675	0.000	1.000
46.044	3460.000	870.467	1.000	.001	0.000	91.181	-4.507	1.000
46.044	3950.000	870.816	.349	.001	0.000	92.750	-6.075	1.000
46.044	5440.000	871.741	.925	.001	0.000	96.912	-10.238	1.000
46.051	2410.000	869.494	0.000	.027	0.000	87.115	0.000	42.000
46.051	3460.000	870.510	1.016	.043	0.000	91.788	-4.573	42.000
46.051	3950.000	870.867	.358	.051	0.000	93.417	-6.302	42.000
46.051	5440.000	871.821	.954	.081	0.000	97.765	-10.650	42.000
46.052	2410.000	869.495	0.000	.001	0.000	87.139	0.000	1.000
46.052	3460.000	870.510	1.015	.001	0.000	91.791	-4.651	1.000
46.052	3950.000	870.868	.358	.001	0.000	93.420	-6.280	1.000
46.052	5440.000	871.823	.955	.001	0.000	97.768	-10.629	1.000
46.053	2410.000	869.495	0.000	.000	0.000	87.141	0.000	1.000
46.053	3460.000	870.511	1.016	.001	0.000	91.793	-4.652	1.000
46.053	3950.000	870.869	.358	.001	0.000	93.423	-6.281	1.000
46.053	5440.000	871.824	.955	.001	0.000	97.772	-10.631	1.000
46.108	2410.000	869.775	0.000	.279	0.000	90.298	0.000	300.000
46.108	3460.000	870.937	1.162	.426	0.000	94.684	-4.387	300.000
46.108	3950.000	871.376	.439	.507	0.000	96.342	-6.044	300.000
46.108	5440.000	872.594	1.219	.771	0.000	100.954	-10.656	300.000
46.127	2270.000	869.860	0.000	.036	0.000	91.860	0.000	100.000
46.127	3250.000	871.057	1.197	.120	0.000	96.623	-4.763	100.000
46.127	3720.000	871.510	.453	.134	0.000	98.426	-6.565	100.000
46.127	5110.000	872.780	1.270	.186	0.000	103.481	-11.621	100.000
46.241	2270.000	870.088	0.000	.228	0.000	90.420	0.000	600.000
46.241	3250.000	871.320	1.232	.263	0.000	95.322	-4.902	600.000
46.241	3720.000	871.794	.474	.284	0.000	97.207	-6.786	600.000
46.241	5110.000	873.106	1.312	.326	0.000	102.430	-12.009	600.000
46.354	2270.000	870.367	0.000	.278	0.000	89.143	0.000	600.000
46.354	3250.000	871.627	1.261	.307	0.000	94.175	-5.032	600.000
46.354	3720.000	872.119	.492	.326	0.000	96.123	-6.980	600.000
46.354	5110.000	873.468	1.349	.362	0.000	101.514	-12.371	600.000
46.359	2270.000	870.373	0.000	.006	0.000	89.113	0.000	24.000
46.359	3250.000	871.634	1.261	.006	0.000	94.149	-5.037	24.000
46.359	3720.000	872.126	.493	.007	0.000	96.100	-6.988	24.000
46.359	5110.000	873.476	1.350	.008	0.000	101.497	-12.384	24.000
46.360	2270.000	870.397	0.000	.024	0.000	90.413	0.000	1.000

46.360	3720.000	872.158	.496	.032	0.000	97.423	-7.010	1.000
46.360	5110.000	873.513	1.355	.037	0.000	102.816	-12.402	1.000
46.363	2270.000	870.479	0.000	.082	0.000	40.000	0.000	19.000
46.363	3250.000	871.659	1.180	-.003	0.000	40.000	0.000	19.000
46.363	3720.000	872.115	.456	-.043	0.000	40.000	0.000	19.000
46.363	5110.000	873.310	1.195	-.203	0.000	40.000	0.000	19.000
46.376	2270.000	870.484	0.000	.005	0.000	40.000	0.000	72.000
46.376	3250.000	871.667	1.183	.008	0.000	40.000	0.000	72.000
46.376	3720.000	872.125	.458	.010	0.000	40.000	0.000	72.000
46.376	5110.000	873.326	1.201	.016	0.000	40.000	0.000	72.000
46.382	2270.000	871.517	0.000	1.033	0.000	40.000	0.000	29.000
46.382	3250.000	872.765	1.248	1.098	0.000	40.000	0.000	29.000
46.382	3720.000	873.318	.553	1.193	0.000	40.000	0.000	29.000
46.382	5110.000	874.863	1.545	1.537	0.000	40.000	0.000	29.000
46.387	2270.000	872.987	0.000	1.470	0.000	30.000	0.000	27.000
46.387	3250.000	874.500	1.513	1.735	0.000	30.000	0.000	27.000
46.387	3720.000	875.170	.670	1.852	0.000	30.000	0.000	27.000
46.387	5110.000	876.996	1.826	2.133	0.000	30.000	0.000	27.000
46.672	2270.000	877.491	0.000	4.504	0.000	30.000	0.000	1500.000
46.672	3250.000	879.007	1.516	4.507	0.000	30.000	0.000	1500.000
46.672	3720.000	879.678	.671	4.508	0.000	30.000	0.000	1500.000
46.672	5110.000	881.517	1.839	4.522	0.000	30.000	0.000	1500.000
46.689	2200.000	878.260	0.000	.769	0.000	30.000	0.000	100.000
46.689	3150.000	880.106	1.846	1.099	0.000	30.000	0.000	100.000
46.689	3600.000	880.932	.826	1.253	0.000	30.000	0.000	100.000
46.689	4950.000	883.183	2.252	1.666	0.000	60.751	-30.751	100.000
46.690	2200.000	878.272	0.000	.012	0.000	30.000	0.000	3.000
46.690	3150.000	880.113	1.841	.007	0.000	30.000	0.000	3.000
46.690	3600.000	880.939	.825	.007	0.000	30.000	0.000	3.000
46.690	4950.000	883.191	2.252	.007	0.000	60.773	-30.773	3.000
46.691	2200.000	878.278	0.000	.007	0.000	30.000	0.000	1.000
46.691	3150.000	880.116	1.837	.002	0.000	30.000	0.000	1.000
46.691	3600.000	880.941	.825	.002	0.000	30.000	0.000	1.000
46.691	4950.000	883.193	2.252	.002	0.000	60.772	-30.779	1.000
46.701	2200.000	878.597	0.000	.319	0.000	30.000	0.000	60.000
46.701	3150.000	880.389	1.791	.273	0.000	30.000	0.000	60.000
46.701	3600.000	881.207	.818	.266	0.000	30.000	0.000	60.000
46.701	4950.000	883.504	2.297	.311	0.000	62.322	-32.322	60.000
46.702	2200.000	878.599	0.000	.002	0.000	30.000	0.000	1.000
46.702	3150.000	880.390	1.791	.002	0.000	30.000	0.000	1.000
46.702	3600.000	881.209	.818	.002	0.000	30.000	0.000	1.000
46.702	4950.000	883.506	2.297	.002	0.000	62.327	-32.327	1.000
46.705	2200.000	879.168	0.000	.569	0.000	30.000	0.000	21.000
46.705	3150.000	880.738	1.570	.348	0.000	30.000	0.000	21.000
46.705	3600.000	881.438	.700	.230	0.000	30.000	0.000	21.000
46.705	4950.000	883.397	1.959	-.109	0.000	30.000	0.000	21.000
46.706	2200.000	879.172	0.000	.004	0.000	30.000	0.000	1.000
46.706	3150.000	880.751	1.580	.013	0.000	30.000	0.000	1.000
46.706	3600.000	881.442	.691	.004	0.000	30.000	0.000	1.000
46.706	4950.000	883.418	1.976	.021	0.000	30.000	0.000	1.000
46.707	2200.000	879.581	0.000	.409	0.000	30.000	0.000	6.000
46.707	3150.000	881.354	1.773	.603	0.000	30.000	0.000	6.000

46.707	4950.000	884.217	2.098	.799	0.000	30.000	0.000	6.000
46.708	2200.000	879.680	0.000	.100	0.000	30.000	0.000	1.000
46.708	3150.000	881.357	1.676	.003	0.000	30.000	0.000	1.000
46.708	3600.000	882.122	.765	.003	0.000	30.000	0.000	1.000
46.708	4950.000	884.220	2.098	.003	0.000	30.000	0.000	1.000
46.709	2200.000	883.195	0.000	3.514	0.000	45.334	0.000	12.000
46.709	3150.000	884.363	1.168	3.006	0.000	48.000	-2.666	12.000
46.709	3600.000	884.872	.509	2.750	0.000	48.000	-2.666	12.000
46.709	4950.000	886.145	1.273	1.925	0.000	48.000	-2.666	12.000
46.717	2200.000	885.327	0.000	2.132	0.000	108.978	0.000	43.000
46.717	3150.000	886.971	1.644	2.608	0.000	115.551	-6.573	43.000
46.717	3600.000	887.686	.715	2.814	0.000	118.410	-9.432	43.000
46.717	4950.000	889.695	2.009	3.549	0.000	126.000	-17.022	43.000
46.718	2200.000	885.327	0.000	.000	0.000	108.982	0.000	1.000
46.718	3150.000	886.971	1.644	.000	0.000	115.554	-6.573	1.000
46.718	3600.000	887.686	.715	.000	0.000	118.413	-9.432	1.000
46.718	4950.000	889.695	2.009	.000	0.000	126.000	-17.018	1.000
46.809	2200.000	885.383	0.000	.056	0.000	107.868	0.000	483.000
46.809	3150.000	887.023	1.640	.052	0.000	114.380	-6.512	483.000
46.809	3600.000	887.737	.713	.051	0.000	117.212	-9.345	483.000
46.809	4950.000	889.740	2.004	.046	0.000	125.168	-17.300	483.000
46.961	2060.000	885.636	0.000	.253	0.000	109.622	0.000	800.000
46.961	2950.000	887.270	1.633	.246	0.000	116.239	-6.617	800.000
46.961	3370.000	887.980	.711	.244	0.000	119.118	-9.497	800.000
46.961	4630.000	889.975	1.995	.235	0.000	127.200	-17.578	800.000
47.055	2060.000	885.698	0.000	.062	0.000	79.456	0.000	500.000
47.055	2950.000	887.301	1.602	.031	0.000	85.856	-6.400	500.000
47.055	3370.000	887.998	.698	.018	0.000	88.643	-9.187	500.000
47.055	4630.000	889.960	1.962	.015	0.000	96.480	-17.024	500.000
47.150	2060.000	885.874	0.000	.176	0.000	79.125	0.000	500.000
47.150	2950.000	887.483	1.609	.142	0.000	85.584	-6.459	500.000
47.150	3370.000	888.181	.698	.182	0.000	88.372	-9.247	500.000
47.150	4630.000	890.137	1.956	.177	0.000	96.186	-17.062	500.000
47.245	2060.000	886.020	0.000	.146	0.000	66.465	0.000	500.000
47.245	2950.000	887.616	1.596	.133	0.000	72.832	-6.367	500.000
47.245	3370.000	888.307	.691	.126	0.000	75.587	-9.122	500.000
47.245	4630.000	890.238	1.932	.102	0.000	83.294	-16.829	500.000
47.396	2060.000	886.352	0.000	.331	0.000	65.524	0.000	800.000
47.396	2950.000	887.980	1.629	.364	0.000	71.939	-6.415	800.000
47.396	3370.000	888.678	.698	.372	0.000	74.676	-9.152	800.000
47.396	4630.000	890.614	1.936	.376	0.000	82.263	-16.739	800.000
47.400	2060.000	886.360	0.000	.009	0.000	65.518	0.000	20.000
47.400	2950.000	887.990	1.629	.009	0.000	71.937	-6.418	20.000
47.400	3370.000	888.688	.699	.010	0.000	74.675	-9.156	20.000
47.400	4630.000	890.624	1.936	.010	0.000	82.262	-16.744	20.000
47.401	2060.000	886.360	0.000	.000	0.000	65.520	0.000	1.000
47.401	2950.000	887.990	1.629	.000	0.000	71.939	-6.419	1.000
47.401	3370.000	888.688	.699	.000	0.000	74.676	-9.156	1.000
47.401	4630.000	890.624	1.936	.000	0.000	82.264	-16.744	1.000
47.404	2060.000	886.613	0.000	.252	0.000	82.132	0.000	22.000
47.404	2950.000	888.297	1.684	.307	0.000	88.868	-6.736	22.000
47.404	3370.000	889.015	.718	.327	0.000	91.741	-9.609	22.000
47.404	4630.000	890.986	1.971	.343	0.000	99.427	-17.295	22.000

47.405	2060.000	886.353	0.000	-.260	0.000	30.000	0.000	1.000
47.405	2950.000	887.848	1.496	-.449	0.000	30.000	0.000	1.000
47.405	3370.000	888.468	.620	-.547	0.000	30.000	0.000	1.000
47.405	4630.000	890.118	1.650	-.868	0.000	30.000	0.000	1.000
47.415	2060.000	886.361	0.000	.009	0.000	30.000	0.000	57.000
47.415	2950.000	887.862	1.500	.013	0.000	30.000	0.000	57.000
47.415	3370.000	888.484	.622	.016	0.000	30.000	0.000	57.000
47.415	4630.000	890.141	1.658	.023	0.000	30.000	0.000	57.000
47.421	2060.000	889.431	0.000	3.070	0.000	30.000	0.000	29.000
47.421	2950.000	890.853	1.421	2.991	0.000	30.000	0.000	29.000
47.421	3370.000	891.485	.632	3.001	0.000	30.000	0.000	29.000
47.421	4630.000	893.196	1.712	3.055	0.000	30.000	0.000	29.000
47.432	2060.000	890.055	0.000	.663	0.000	30.000	0.000	58.000
47.432	2950.000	891.603	1.548	.750	0.000	30.000	0.000	58.000
47.432	3370.000	892.251	.648	.766	0.000	30.000	0.000	58.000
47.432	4630.000	894.156	1.905	.959	0.000	30.000	0.000	58.000
47.433	2060.000	890.057	0.000	.003	0.000	30.000	0.000	1.000
47.433	2950.000	891.605	1.548	.003	0.000	30.000	0.000	1.000
47.433	3370.000	892.310	.705	.059	0.000	30.000	0.000	1.000
47.433	4630.000	894.159	1.849	.003	0.000	30.000	0.000	1.000
47.442	2060.000	890.228	0.000	.170	0.000	30.000	0.000	51.000
47.442	2950.000	891.790	1.562	.184	0.000	30.000	0.000	51.000
47.442	3370.000	892.460	.670	.150	0.000	30.000	0.000	51.000
47.442	4630.000	894.366	1.905	.207	0.000	30.000	0.000	51.000
47.443	1670.000	891.490	0.000	1.262	0.000	30.000	0.000	1.000
47.443	2380.000	893.441	1.951	1.652	0.000	30.000	0.000	1.000
47.443	2710.000	894.297	.856	1.837	0.000	30.000	0.000	1.000
47.443	3700.000	896.680	2.382	2.314	0.000	30.000	0.000	1.000
47.445	1670.000	891.339	0.000	-.151	0.000	30.000	0.000	17.000
47.445	2380.000	893.299	1.961	-.142	0.000	30.000	0.000	17.000
47.445	2710.000	894.159	.860	-.138	0.000	30.000	0.000	17.000
47.445	3700.000	896.548	2.389	-.131	0.000	30.000	0.000	17.000
47.446	1670.000	891.360	0.000	.021	0.000	30.000	0.000	42.000
47.446	2380.000	893.319	1.960	.020	0.000	30.000	0.000	42.000
47.446	2710.000	894.179	.859	.020	0.000	30.000	0.000	42.000
47.446	3700.000	896.568	2.390	.020	0.000	30.000	0.000	42.000
47.529	1670.000	891.558	0.000	.198	0.000	30.000	0.000	400.000
47.529	2380.000	893.504	1.946	.185	0.000	30.000	0.000	400.000
47.529	2710.000	894.360	.857	.182	0.000	30.000	0.000	400.000
47.529	3700.000	896.750	2.389	.181	0.000	30.000	0.000	400.000
47.623	1670.000	891.844	0.000	.286	0.000	30.000	0.000	500.000
47.623	2380.000	893.763	1.919	.259	0.000	30.000	0.000	500.000
47.623	2710.000	894.612	.850	.252	0.000	30.000	0.000	500.000
47.623	3700.000	896.995	2.383	.245	0.000	30.000	0.000	500.000
47.718	1670.000	892.172	0.000	.329	0.000	30.000	0.000	500.000
47.718	2380.000	894.053	1.880	.290	0.000	30.000	0.000	500.000
47.718	2710.000	894.892	.839	.279	0.000	30.000	0.000	500.000
47.718	3700.000	897.260	2.369	.265	0.000	30.000	0.000	500.000
47.727	1670.000	892.461	0.000	.289	0.000	30.000	0.000	50.000
47.727	2380.000	893.662	1.200	-.341	0.000	30.000	0.000	50.000
47.727	2710.000	894.192	.530	-.699	0.000	30.000	0.000	50.000
47.727	3700.000	896.014	1.822	-1.246	0.000	30.000	0.000	50.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	0.000	24.908	0.000
2	0.000	0.000	25.853	.945
3	0.000	0.000	26.226	1.318
4	0.000	0.000	27.332	2.424

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: PONTIAC, CITY

3) WATERCOURSE: CLINTON RIVER DRAIN #3

4) DOCUMENT TYPE: 100 YR

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
**********************************************


T1      CITY OF PONTIAC  5670-06-1   PM - JOHN EMIG
T2      100-YEAR FLOOD IN SEWAGE DRAINS - UPPER STREAM PORTION
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.   913.610   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
NC       .030      .030      .012      .300      .500     0.000     0.000     0.000     0.000     0.000
QT      4.000     0.000     0.000   600.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     48.957     4.000     0.000    11.000     0.000     0.000     0.000     0.000     0.000     0.000
GR    918.000     0.000   903.610     0.000   903.610    11.000   918.000    11.000     0.000     0.000

X1     49.036     0.000     0.000     0.000   413.000   413.000   413.000     0.000      .700     0.000
NC       .018      .018      .018     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     49.038     0.000     0.000     0.000    10.000    10.000    10.000     0.000      .010     0.000
NC       .012      .012      .012     0.000     0.000     0.000     0.000     0.000     0.000     0.000

X1     49.043     0.000     0.000     0.000    25.000    25.000    25.000     0.000      .030     0.000

X1     49.190     0.000     0.000     0.000   777.000   777.000   777.000     0.000     1.300     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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Uarco Business Forms - A

CCHV= .300 CEHV= .500

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
48.96	10.00	913.61	0.00	913.61	914.07	.46	0.00	0.00	918.00
600.	0.	600.	0.	0.	110.	0.	0.	0.	918.00
0.00	0.00	5.45	0.00	.030	.012	.030	0.000	903.61	0.00
.000358	0.	0.	0.	0	0	1	0.00	11.00	11.00
49.04	9.43	913.74	0.00	0.00	914.26	.52	.16	.03	918.70
600.	0.	600.	0.	0.	104.	0.	1.	0.	918.70
.02	0.00	5.78	0.00	.030	.012	.030	.012	904.31	0.00
.000414	413.	413.	413.	1	0	1	0.00	11.00	11.00
49.04	9.43	913.75	0.00	0.00	914.27	.52	.01	.00	918.71
600.	0.	600.	0.	0.	104.	0.	1.	0.	918.71
.02	0.00	5.78	0.00	.018	.018	.018	.012	904.32	0.00
.000932	10.	10.	10.	0	0	1	0.00	11.00	11.00
49.04	9.41	913.76	0.00	0.00	914.28	.52	.01	.00	918.74
600.	0.	600.	0.	0.	104.	0.	1.	0.	918.74
.02	0.00	5.79	0.00	.012	.012	.012	.012	904.35	0.00
.000416	25.	25.	25.	0	0	1	0.00	11.00	11.00
49.19	8.41	914.06	0.00	0.00	914.72	.65	.37	.07	920.04
600.	0.	600.	0.	0.	93.	0.	3.	0.	920.04
.05	0.00	6.48	0.00	.012	.012	.012	.012	905.65	0.00
.000552	777.	777.	777.	2	0	1	0.00	11.00	11.00

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	AV	AL	OLOSS	QCH	DEPTH	TOPWID
48.96	0.00	0.00	0.00	903.61	600.00	913.61	.46	0.00	0.00	600.00	10.00	11.00
49.04	413.00	0.00	0.00	904.31	600.00	913.74	.52	.16	.03	600.00	9.43	11.00
49.04	10.00	0.00	0.00	904.32	600.00	913.75	.52	.01	.00	600.00	9.43	11.00
49.04	25.00	0.00	0.00	904.35	600.00	913.76	.52	.01	.00	600.00	9.41	11.00
49.19	777.00	0.00	0.00	905.65	600.00	914.06	.65	.37	.07	600.00	8.41	11.00

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
48.957	600.000	913.610	0.000	0.000	0.000	11.000	0.000	0.000
49.036	600.000	913.741	0.000	.131	0.000	11.000	0.000	413.000
49.038	600.000	913.746	0.000	.006	0.000	11.000	0.000	10.000
49.043	600.000	913.760	0.000	.014	0.000	11.000	0.000	25.000
49.190	600.000	914.065	0.000	.304	0.000	11.000	0.000	777.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	0.000	.309	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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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: PONTIAC, CITY

3) WATERCOURSE: CLINTON RIVER

4) DOCUMENT TYPE: HYDRAULIC ANALYSIS

00BREAK00

JOHNSON & ANDERSON, INC.
Consulting Engineers
P.O. Box 1066 • 2300 Dixie Highway
Pontiac, Michigan 48056
Phone (313) 334-9901

LETTER OF TRANSMITTAL

DATE	JOB NO.
October 28, 1977	5670-06
RE: City of Pontiac Flood Insurance Study	

If enclosures are not as noted, kindly notify us at once.

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

GENTLEMEN:

WE ARE SENDING YOU ☒ Attached ☐ ~~Under separate cover via~~ Hand-carried the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐

COPIES	DATE	NO.	DESCRIPTION
1			HEC-2 Computer Printout, 4 flow, Clinton River
1			I-PLOTS
1			Hydraulic Analysis Report with hydraulic support data

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Reviewed

☒ For your use ☐ Rejected ☐ Submit _____ copies for distribution

☒ As requested ☐ As noted ☐ Return _____ corrected prints

☐ For review and comment ☐ Revise & Resubmit _____ copies for approval

REMARKS:

SIGNED: John Emig

John J. Emig, P.E., Project Manager

Copy to: Mr. Robert Freitag
File

(Yellow copy to File)
Form GU-030 (07-77)JJE/dp

CITY OF PONTIAC FLOOD INSURANCE STUDY

HYDRAULIC ANALYSIS

CLINTON RIVER

J&A File No. 5670-06-1

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

TABLE OF CONTENTS

Introduction

General Description of River

Cross Section Data Acquisition

Methods of Analyses

Special Situations

Starting Points .

Variables and Coefficients

Appendices

Appendix A	SECNO Tables
Appendix B	Bridge Field Notes
Appendix C	Gate Curve and Construction Plans for Structures
Appendix D	Supercritical Channel Slope Calculations
Appendix E	Drain No. 1 Hand Calculations
Appendix F	Drain No. 3 Flow Division Calculations Crystal Lake Weir Analysis

City of Pontiac
Oakland County, Michigan

HYDRAULIC ANALYSIS

Introduction

The river being studied is the Clinton River in the City of Pontiac, Oakland County, Michigan. The study limits are from the eastern corporate limit of the city at Opdyke Road upstream to Sylvan Lake. The flows used were determined using Brater's method and have been approved by the Michigan Department of Natural Resources. The hydraulic analysis of the Clinton River in the City of Pontiac was reviewed with Mr. Jan Persson, Senior Engineering Assistant, City of Pontiac. The project manager for this analysis was John Emig.

General Description of River

Because of its history of flooding, the Clinton River waterway in the City of Pontiac has been improved in several areas. In 1963, the section of the river through the downtown area of Pontiac was completely enclosed from west of Wide Track Drive to east of Union Street. This project is called the Clinton River Drain No. 1. The Drain No. 1 waterway consists primarily of twin concrete 10 ft. by 10 ft. box culverts with a 200 feet length of twin 11 ft. diameter concrete tubes used near the upstream end of the drain. Smooth transition sections are used between the different culvert types. The enclosed Drain No. 1 does not follow the route of the old Clinton River channel that was filled in (See Figure 1).

The 1965, the Drain No. 2 project consisted of improvements to the Clinton River waterway from the Drain No. 1 outlet near Union Street downstream to the eastern corporate limit of the city at Opdyke Road. To increase the flow capacity of the river, a straightened, excavated earth channel was constructed. Two portions of Drain No. 2 are concrete lined with vertical sidewalls. One area is downstream of the Drain No. 1 outlet for a distance of approximately 1600 feet and the other one is downstream of East Boulevard for approximately 1700 feet. The concrete-lined channels are 30 feet wide

with the height of the sidewalls varying from 10 to 12 feet. Steep channel slopes at the upstream ends of the concrete-lined areas are used to increase the flow velocity. At the downstream ends, drop structures with concrete aprons are used to reduce flow velocities before the flow enters the earth channel portions of the waterway.

The Clinton River Drain No. 3 project was completed in summer, 1977, and included improvements to the river waterway from the outlet of Crystal Lake downstream to the inlet of Drain No. 1 (See Figure 2). Some dredging was done on Crystal Lake. The Drain No. 3 system consists of an open channel waterway and a series of underground culverts. The open channel is connected to the enclosed portion at three points along the open channel reach. The first inlet is at the Crystal Lake outlet and consists of an Amil constant upstream level gate (Model D500). A 30 ft. wide weir alongside the gate diverts part of the flow to the open channel portion of Drain No. 3. The gate is designed to maintain the Crystal Lake water-surface at a constant level while passing a variable flow to an underground 10 by 11 ft. concrete box culvert. The remaining flow from the lake (normally constant) goes over the weir and enters the open channel portion. From Crystal Lake downstream to river mile 48.967, the open channel has been widened and deepened. At river mile 48.933, an inlet structure is located to permit part of the flow in the open channel to be diverted to an underground concrete 10 by 11 ft. box culvert. This culvert runs out to Bagley Street and then runs parallel to the culvert from the Amil gate. The two parallel culverts are connected by openings in the dividing wall to permit flow equalization. The remaining flow in the open channel continues on to the final inlet near the southwest corner of Bagley Street and Orchard Lake Avenue. The flow from the Bagley-Orchard Lake inlet enters the enclosed portion of Drain No. 3 through a 60 inch diameter concrete pipe. At this point, Drain No. 3 is completely enclosed in twin 10 by 10 ft. concrete box culverts and enters Drain No. 1 at the point of the old Drain No. 1 inlet. Construction plans for structures are shown in Appendix C.

From Crystal Lake upstream to Sylvan Lake, the Clinton River channel has not been improved. At river mile 51.078 is an earth and concrete dam called Dawson's Dam. The pond formed behind the dam is Dawson's Millpond. The dam is operated with a series of five sluice-underflow gates to vary the flow through the dam.

Cross Section Data Acquisition

Much of the Clinton River waterway in the City of Pontiac has been improved with some portions being concrete-lined or enclosed. The improved areas include

Clinton River Drains Number 1, 2 and 3. For Drains No. 1 and 2, channel and overbank information was obtained from as-built plans developed by Jones & Henry Engineers, Ltd., Toledo, Ohio (dated 1963 and 1965, respectively). Channel and overbank information for the improved areas of Drain No. 3 was obtained from construction plans also developed by Jones & Henry Engineers, Ltd., (1975). For the unimproved areas of the Clinton River, field-surveyed cross sections obtained by Johnson & Anderson, Inc., were used in the analysis. The date of this field survey was November, 1976.

Methods of Analysis

Water-surface profiles were computed using the COE HEC-2 step-backwater computer program. Bridges that were under low flow conditions for all four flows were coded according to the "normal bridge" routine requirements. For those bridges that experienced pressure or weir flow for any of the four flows, the "special bridge" routine was used to determine the upstream water-surface elevation.

The hydraulic model was developed for the 100-year flow. In the unimproved portions of the Clinton River, valley sections upstream and downstream of bridges were located where full cross section flow would be developed out 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. The upstream section was at a distance about equal to the constriction. If additional sections were found necessary within this distance, the intermediate sections were encroached as appropriate. The same reasoning was used in modeling natural constrictions in the floodway.

The enclosed portions of the Clinton River system in the City of Pontiac were analyzed by hand using Manning's equation to determine losses.

Several high water marks had been recorded for the Clinton River in the City of Pontiac, however, because of the changes in the river and the improvements made they could not be used in this study.

Note that high water data not applicable

When was study Drain completed ?

Special Situations

The floodway for Drain No. 2 is within the river banks except for the initial 1300 feet of reach length west of Opdyke Road. This is the only portion of Drain No. 2 that requires the use of encroachments. The floodway for this area is encroached to expand at an angle of approximately 15° on both sides downstream from the point where the floodway is within the river banks. The concrete-lined area downstream of East Boulevard on Drain No. 2, because of its relatively steep slope and low friction, causes critical depth to be assumed by the HEC-2 program for this reach. Supercritical flow is possible for the concrete-lined area because the channel slope is steeper than critical for the flows used. However, the critical depth profiles obtained are conservative and are used for clarity in the Final Flood Insurance Study. This approach was approved in conversation with Dan Morgan of the MDNR. The drop structure used at the downstream end of the concrete-lined area returns the flow to subcritical conditions before entering the earth portions of the waterway. See Appendix D for calculations.

During the floods of the return periods examined, the Amil gate at the Crystal Lake outlet cannot keep the lake at the design level and reaches its maximum flow capacity of about 600 cubic feet per second. The remaining flood flow goes over the weir and enters the open channel portion of Drain No. 3. During the flood events, the weir is submerged.

The division of flow for the other two inlets on the open channel was analyzed as an island situation as described on page 320 of Open-Channel Hydraulics by Ven Te Chow. It was assumed that critical depth would occur at the inlet structures because of the drop of several feet in the invert elevation inside of both inlets. To support this assumption, Drain No. 1 and the enclosed portions of Drain No. 3 were analyzed to show that the back-water effects would not interfere with critical depth occurring at the Bagley-Orchard Lake and the intermediate inlets. Refer to Appendix E. A HEC-2 program was then started at the Bagley-Orchard Lake inlet at critical depth with assumed flow values and was run up to the intermediate inlet to obtain energy grade elevations at that point. A curve of flow rate versus energy grade elevation was then constructed for the channel cross section at the intermediate inlet. The intermediate inlet was analyzed as a weir in order to generate

Refer to Appendix F.

another curve of flow rate versus energy grade elevation. After the correct flows for each part of Drain No. 3 were determined, a HEC-2 program was started at the Bagley-Orchard Lake inlet and run up to the weir at Crystal Lake. An X5 card was used at the intermediate inlet to input the exact water-surface elevations at that point. The water-surface elevations obtained at the weir at Crystal Lake were below the lake elevations obtained by analyzing only the gate and weir showing that the Drain No. 3 open channel does not control the lake elevations. Refer to Appendix 6.

Dawson's Dam upstream of Crystal Lake was input into the HEC-2 program as a special bridge. The dam gates were coded as being in the fully open position. The bridge opening and width were input on the SB card as infinitely small values to force the special bridge routine to use weir flow only.

Hydraulic computations upstream of Dawson Mill Pond Dam were begun with the assumed starting condition of all gates fully open. This assumption is reasonable since there is no established operating policy, and since this would be a reasonable operating policy for the 100 year event based on the increased hydraulic capacity downstream with the completion of the Clinton River Drain No. 3 project. This analysis has determined that the Clinton River system through Pontiac can handle the 100 year event without flooding adjacent property. The hydraulic computations begun at the dam were carried to the upstream valley section at Sylvan Lake.

The final Flood Insurance Study profiles would reflect these computations except in the backwater of the dam where the mean dam elevation would be extended horizontally upstream until all four flow-profiles were intersected. The mean dam elevation (928.09) was computed using Oakland County Drain Commission weekly lake level reports for the period February 26, 1969 - July 29, 1977 (454 readings). A horizontal extension of mean dam was chosen as representative since, with the improved channel downstream, it would be reasonable operating policy to maintain a constant pool elevation with the mean elevation a reasonable choice.

NO

The hydraulic profiles will be adopted in the Flood Insurance Study through to Sylvan Lake. The flood frequency elevations for Sylvan Lake will be the flood frequency elevations developed hydraulically at the upstream valley section.

Consideration was given to establishing the Sylvan Lake flood levels based on a statistical analysis of the Cass Lake gage adjusted for the loss occurring between Cass Lake and Sylvan Lake. However, since a hydraulic analysis of the reach between Cass Lake and Sylvan Lake would not be contracturally feasible, and since assumed losses as reported in Brater's report[1] would be based in part on past operating policies at Dawson Dam, it seemed more reasonable to assume flows as presented in Brater's report and to base Sylvan Lake elevations on the hydraulic capacity of the channel between Sylvan Lake and the Dawson Dam.

Starting Points

Clinton River Drain No. 2 water-surface profiles begin at Opdyke Road at the eastern corporate limit of the City of Pontiac. The HEC-2 run starts using water-surface elevations for the 10-, 50-, 100- and 500-year floods from the Pontiac Township study (submitted to MDNR August 12, 1977) as known water-surface elevations.

Clinton River Drain No. 3 water-surface profiles begin at the Bagley-Orchard Lake inlet at critical depth for each flood flow. The water-surface profiles for the section of the Clinton River upstream of Crystal Lake are started at the lake elevations for the 10-, 50-, 100- and 500-year floods.

Variables and Coefficients

The roughness factors (Manning's "n") were established by comparing photographs and field inspection with the photographs and descriptions found on pages 101 to 123 in Open-Channel Hydraulics, by Ven Te Chow, as well as with photographs and descriptions found in the geological Survey Water-Supply Paper 1849, Roughness Characteristics of Natural Channels.

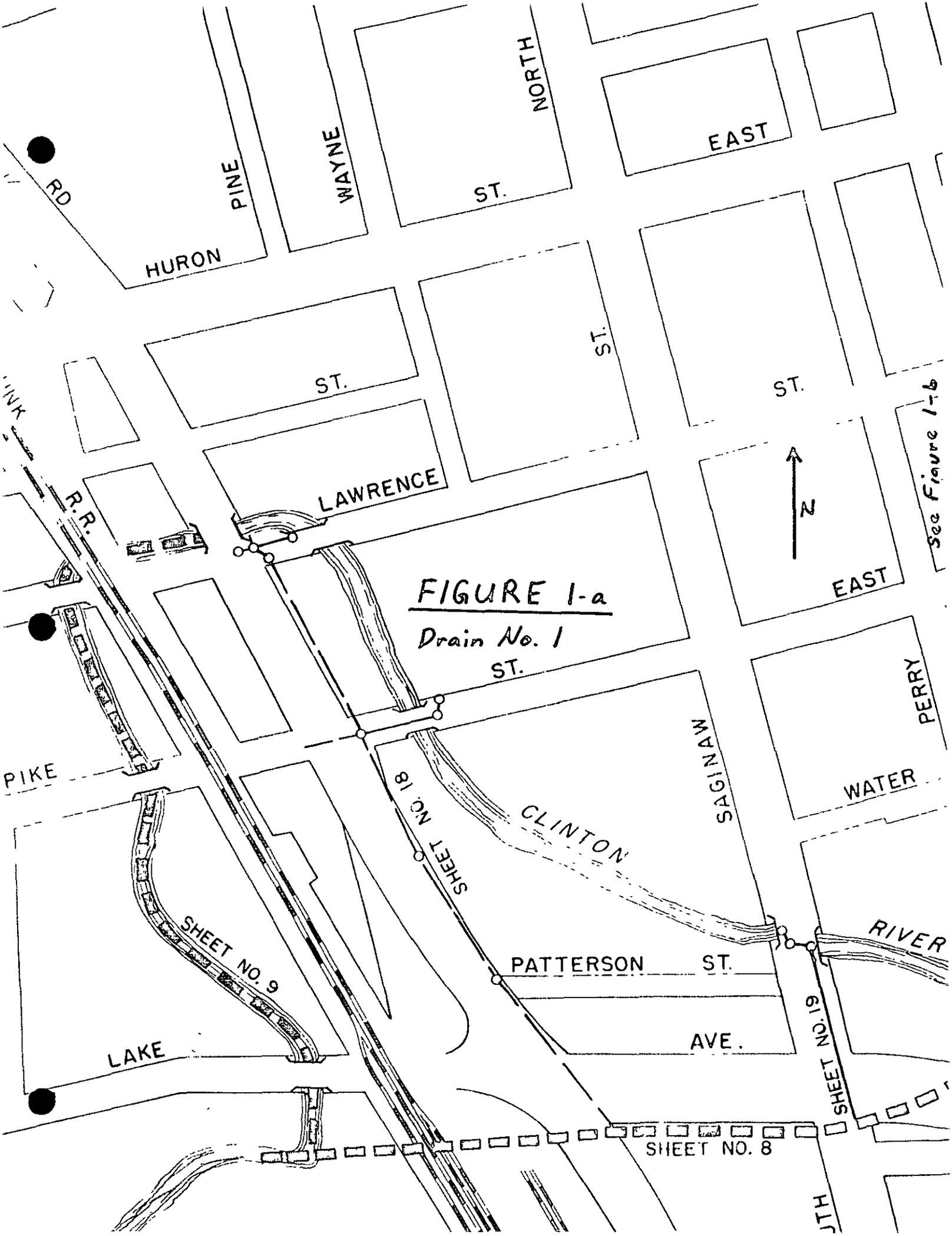
[1] "A Study of Flood Conditions along the Clinton River in the Region Which Includes the Western Part of Pontiac, Waterford Township, and West Bloomfield Township", E. F. Brater, March 4, 1976.

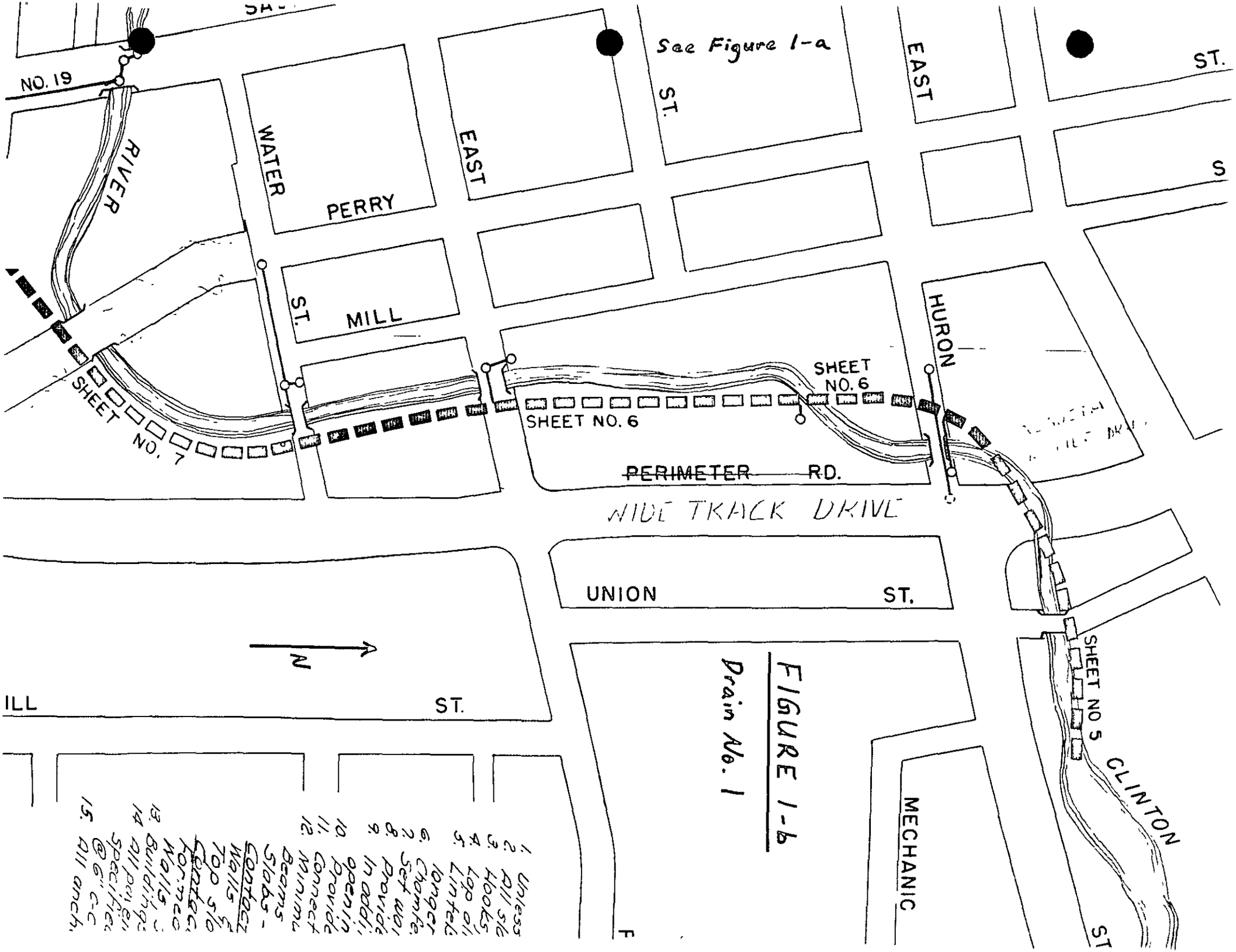
In general, the following range of values were used:

	Description	Manning's "n"
1.	Channel	
a.	Concrete lined, excellent condition	.012
b.	Excavated, clay bottom, no debris	.020 - .024
c.	Excavated, clay bottom, light debris	.025 - .026
d.	Natural channel, clay bottom, moderate debris, brush	.028 - .035
e.	Natural channel, heavy debris and brush	.038 - .044
2.	Flood Plains	
a.	Short grass, little or no weeds and debris	.030 - .035
b.	Tall grass, weeds, light brush	.038 - .045
c.	Moderate to heavy brush, some debris	.048 - .055
d.	Very dense brush, some debris	.070 - .100

Because of the very smooth transitions and alignment of the Clinton River Drain No. 2, the contraction and expansion coefficients used for this portion of the river were .1 and .2, respectively. For all other parts of the Clinton River, the coefficients used were .3 for contraction and .5 for expansion.

The loss coefficients used in the HEC-2 "special bridge" routine were determined as outlined in exhibit 2 of the HEC-2 Users Manual.


RD
HURON
PINE
WAYNE
NORTH
ST.
EAST
ST.
ST.
ST.
ST.
LAWRENCE
R.R.
N
See Figure 1-b
FIGURE 1-a
Drain No. 1
ST.
EAST
PERRY
PIKE
SHEET NO. 18
SAGINAW
CLINTON
WATER
SHEET NO. 9
PATTERSON
ST.
RIVER
LAKE
AVE.
SHEET NO. 19
SHEET NO. 8


See Figure 1-a
NO. 19
RIVER
WATER
PERRY
EAST
ST.
MILL
EAST
ST.
S
HURON
SHEET NO. 7
SHEET NO. 6
SHEET NO. 6
PERIMETER RD.
WIDE TRACK DRIVE
UNION ST.
N
ILL ST.
SHEET NO 5
CLINTON
MECHANIC
ST
FIGURE 1-b
Drain No. 1

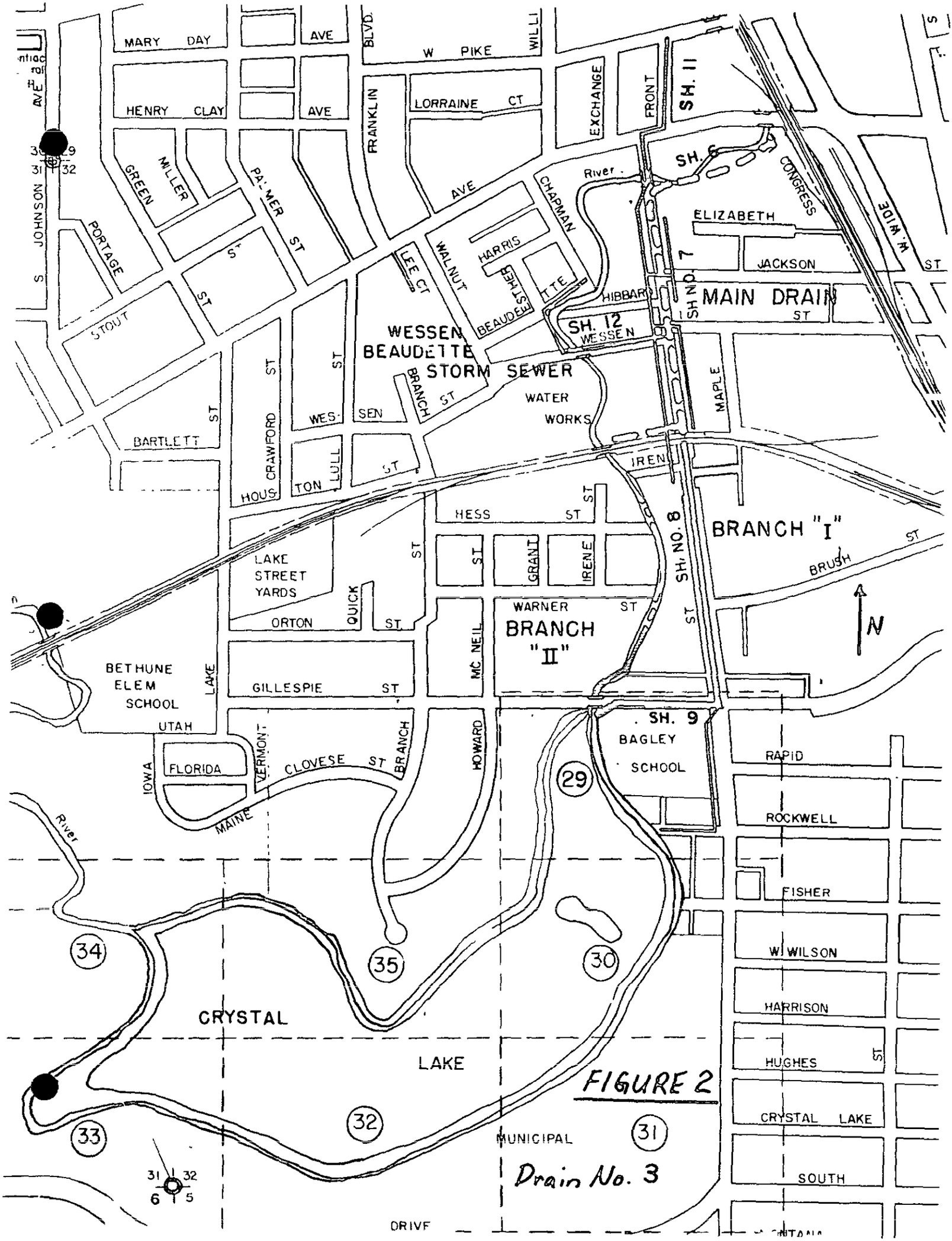

MARY DAY AVE
W PIKE
HENRY CLAY AVE
LORRAINE CT
FRANKLIN BLVD.
EXCHANGE
FRONT
SH. 11
SH. 6
CONGRESS
W. WIDE
ELIZABETH
JACKSON
MAIN DRAIN
SH NO. 7
HIBBARD
SH. 12
WESSEN
WESSEN BEAUDETTE STORM SEWER
WATER WORKS
MAPLE
IRENE
BRANCH "I"
BRUSH
SH. NO. 8
HESS ST
GRANT
IRENE
WARNER ST
BRANCH "II"
LAKE STREET YARDS
ORTON
QUICK
GILLESPIE ST
MC NEIL
HOWARD
BETHUNE ELEM SCHOOL
UTAH
LAKE
FLORIDA
IOWA
VERMONT
CLOVESE ST
BRANCH
MAINE
SH. 9
BAGLEY SCHOOL
RAPID
ROCKWELL
FISHER
W. WILSON
HARRISON
HUGHES
CRYSTAL LAKE
SOUTH
CRYSTAL
LAKE
MUNICIPAL
DRIVE
River
N
29
30
31
32
33
34
35
Drain No. 3

FIGURE 2

APPENDIX A

SECNO Table

Drain No. 2

```
C CITY OF PONTIAC FLOOD INSURANCE STUDY
C CLINTON RIVER J&A NO. 5670-06
C FIELD SECTIONS A THROUGH AL FROM PONTIAC-CLINTON
C RIVER DRAIN #2  JONES, HENRY & WILLIAMS 1965
C PROJECT MANAGER  JOHN EMIG
C
C              FIELD
C  SECNO       SECTION        DESCRIPTION
C              45.256         REPEAT OF A
C                             INVERT ADJUSTED
C     A        45.313         VALLEY SECTION A
C     B        45.445         VALLEY SECTION B
C     C        45.502         VALLEY SECTION C
C     D        45.569         VALLEY SECTION D
C     E        45.587         VALLEY SECTION E
C     F        45.692         VALLEY SECTION F
C     G        45.783         VALLEY SECTION G
C     H        45.819         VALLEY SECTION H
C     I        45.881         VALLEY SECTION I
C              45.943         REPEAT OF I
C              45.958         REPEAT OF J
C                             AREA ADJUSTED
C              45.959         REPEAT OF J
C                             D/S FACE OF GRAND TRUNK RR BRIDGE
C                             ONE CONCRETE PIER
C                             22 FT LONG, 10 FT WIDE AT BASE
C                             ON RIGHT OVERBANK
C     J        45.962         BRIDGE SECTION J
C                             U/S FACE OF GRAND TRUNK RR BRIDGE
C              45.963         REPEAT OF J
C     K        45.995         VALLEY SECTION K
C       M-59 BRIDGES WERE FIELD SURVEYED BY J&A IN NOVEMBER 1976
C     L        46.024         BRIDGE SECTION L
C              46.025         D/S FACE OF EASTBOUND M-59 BRIDGE
C                             TWO CONCRETE PIERS
C                             50 FT APART, 42 FT LONG, 3.2 FT WIDE AT BASE
C     M        46.033         BRIDGE SECTION M
C                             U/S FACE OF EASTBOUND M-59 BRIDGE
C              46.034         REPEAT OF M
C     N        46.043         VALLEY SECTION N
C                             INVERT ADJUSTED
C              46.044         D/S FACE OF WESTBOUND M-59 BRIDGE
C                             SAME DIMENSIONS AS EASTBOUND M-59 BRIDGE
C     O        46.051         BRIDGE SECTION O
C                             U/S FACE OF WESTBOUND M-59 BRIDGE
C              46.052         REPEAT OF O
C     P        46.108         VALLEY SECTION P
C     Q        46.127         VALLEY SECTION Q
C              46.354         REPEAT OF Q
C                             INVERT ADJUSTED
C              46.359         REPEAT OF Q
C     R        46.360         VALLEY SECTION R
C     S        46.363         VALLEY SECTION S
C              46.376         REPEAT OF S
C     T        46.382         VALLEY SECTION T
C     U        46.387         VALLEY SECTION U
C              46.689         REPEAT OF V
C              46.690         REPEAT OF V
C              46.691         REPEAT OF V
C                             D/S FACE OF EAST BOULEVARD BRIDGE
C     V        46.701         BRIDGE SECTION V
C                             U/S FACE OF EAST BOULEVARD BRIDGE
C              46.702         REPEAT OF V
```

```
C             46.705      REPEAT OF W
C             46.706      REPEAT OF W
C                         SIX FOOT DIA SEWER PIPE ABOVE RIVER,D/S FACE
C     W       46.707      BRIDGE SECTION W
C                         SIX FOOT DIA SEWER PIPE ABOVE RIVER,U/S FACE
C     X       46.709      VALLEY SECTION X
C     Y       46.717      VALLEY SECTION Y
C             46.718      REPEAT OF Y
C     Z       46.809      VALLEY SECTION Z
C     AA      46.961      VALLEY SECTION AA
C     AB      47.150      VALLEY SECTION AB
C     AC      47.245      VALLEY SECTION AC
C     AD      47.396      VALLEY SECTION AD
C             47.400      REPEAT OF AD
C                         INVERT ADJUSTED
C             47.401      REPEAT OF AD
C     AE      47.404      VALLEY SECTION AE
C     AF      47.405      VALLEY SECTION AF
C             47.415      REPEAT OF AF
C     AG      47.421      VALLEY SECTION AG
C             47.432      REPEAT OF AH
C             47.433      REPEAT OF AH
C                         D/S FACE OF PADDOCK ST BRIDGE
C     AH      47.442      BRIDGE SECTION AH
C                         U/S FACE OF PADDOCK ST BRIDGE
C             47.443      REPEAT OF AH
C             47.445      REPEAT OF AI
C                         INVERT ADJUSTED
C     AI      47.446      VALLEY SECTION AI
C     AJ      47.529      VALLEY SECTION AJ
C     AK      47.718      VALLEY SECTION AK
C     AL      47.727      VALLEY SECTION AL
```

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C  CLINTON RIVER J&A NO. 5670-06
C  PROJECT MANAGER  JOHN EMIG
C     VALLEY SECTIONS AP THROUGH AT WERE FIELD SURVEYED BY J&A  NOVEMBER 1976
C     VALLEY SECTIONS AM,AN,AO AND AP THROUGH BK ARE FROM DRAIN #3 CONSTRUCTIO
C     PLANS    JONES & HENRY ENGINEER'S  1975
C     ALL BRIDGE SECTIONS FOR DRAIN  3 WERE SURVEYED BY J&A NOVEMBER 1976
C                FIELD
C   SECNO        SECTION        DESCRIPTION
C     AM          48.573        VALLEY SECTION AM
C     AN          48.582        VALLEY SECTION AN
C                 48.592        REPEAT OF AN
C                 48.630        REPEAT OF AO
C     AO          48.668        VALLEY SECTION AO
C                 48.715        REPEAT OF AO
C     AP          48.751        VALLEY SECTION AP
C                 48.770        REPEAT OF AP
C                 48.791        REPEAT OF AP
C                 48.805        REPEAT OF AP
C                 48.814        REPEAT OF AQ
C                 48.815        REPEAT OF AQ
C                               D/S FACE OF WESSEN ST BRIDGE
C                               30 FT WIDE STONE ARCH
C     AQ          48.824        BRIDGE SECTION AQ
C                 48.824        U/S FACE OF WESSEN ST BRIDGE
C                 48.825        REPEAT OF AQ
C     AR          48.834        VALLEY SECTION AR
C                 48.857        REPEAT OF AR
C     AS          48.881        VALLEY SECTION AS
C                 48.905        REPEAT OF AS
C                 48.929        REPEAT OF AS
C                 48.933        REPEAT OF AS
C                 48.937        REPEAT OF AS
C                 48.941        REPEAT OF AS
C                 48.946        REPEAT OF AT
C                 48.947        REPEAT OF AT
C                               D/S FACE OF GRAND TRUNK RAILROAD BRIDGE
C                               FIVE ROWS OF 14 INCH DIA TIMBER POLES
C                               16 FT LONG,CHANNEL WIDTH IS 70 FT
C     AT          48.950        BRIDGE SECTION AT
C                 48.950        U/S FACE OF GRAND TRUNK RAILROAD BRIDGE
C                 48.951        REPEAT OF AT
C     AU          48.967        VALLEY SECTION AU
C     AV          48.986        VALLEY SECTION AV
C     AW          49.005        VALLEY SECTION AW
C     AX          49.024        VALLEY SECTION AX
C     AY          49.043        VALLEY SECTION AY
C     AZ          49.062        VALLEY SECTION AZ
C     BA          49.081        VALLEY SECTION BA
C     BB          49.100        VALLEY SECTION BB
C     BC          49.118        VALLEY SECTION BC
C     BD          49.137        VALLEY SECTION BD
C     BE          49.156        VALLEY SECTION BE
C     BF          49.175        VALLEY SECTION BF
C     BG          49.194        VALLEY SECTION BG
C     BH          49.213        VALLEY SECTION BH
C     BI          49.232        VALLEY SECTION BI
C                 49.246        REPEAT OF BJ
C                 49.247        REPEAT OF BJ
C                               D/S FACE OF GILLESPIE ST BRIDGE
C                               30 FT WIDE CONCRETE ARCH
C     BJ          49.256        BRIDGE SECTION BJ
C                               U/S FACE OF GILLESPIE ST BRIDGE
```

SECNO Table

Drain No. 3

C	BK	49.270	VALLEY SECTION BK
C		49.279	REPEAT OF BK

SECNO Table

Crystal Lake to Sylvan Lake

```
C CITY OF PONTIAC FLOOD INSURANCE STUDY
C CLINTON RIVER J&A NO. 5670-06
C    CRYSTAL LAKE TO SYLVAN LAKE
C PROJECT MANAGER  JOHN EMIG
C    VALLEY AND BRIDGE SECTIONS WERE FIELD SURVEYED BY J&A IN NOVEMBER 1976
C    EXCEPT WHERE NOTED
C              FIELD
C  SECNO       SECTION        DESCRIPTION
C    BL         50.161        VALLEY SECTION BL
C               50.227        REPEAT OF BM
C    BM         50.474        VALLEY SECTION BM
C    BN         50.535        VALLEY SECTION BN
C               50.544        1 FOOT D/S FROM D/S FACE OF GTWRR BRIDGE
C               50.545        D/S FACE OF GTWRR BRIDGE
C    BO         50.547        BRIDGE SECTION BO  U/S FACE OF GTWRR BRIDGE
C               50.548        1 FOOT U/S FROM U/S FACE OF GTWRR BRIDGE
C    BP         50.586        VALLEY SECTION BP
C               50.619        REPEAT OF BP  1 FT D/S FROM D/S FACE OF THOMAS ROAD
C               50.620        D/S FACE OF THOMAS ROAD BRIDGE
C    BQ         50.622        BRIDGE SECTION BQ  U/S FACE OF THOMAS ROAD BRIDGE
C               50.623        1 FOOT U/S FROM U/S FACE OF THOMAS ROAD BRIDGE
C    BR         50.727        VALLEY SECTION BR
C               50.888        REPEAT OF BR
C               51.011        1 FOOT D/S FROM D/S FACE OF ORCHARD LAKE ROAD BRIDGE
C               51.012        D/S FACE OF ORCHARD LAKE ROAD BRIDGE
C    BS         51.026        BRIDGE SECTION BS  U/S FACE OF ORCHARD LAKE RD. BRIDGE
C               51.027        1 FOOT U/S FROM U/S FACE OF ORCHARD LAKE ROAD BRIDGE
C    BT         51.036        VALLEY SECTION BT
C    BU         51.074        BRIDGE SECTION BU
C                              FOOT OF DAWSONS DAM
C    BV         51.078        BRIDGE SECTION BV
                              U/S FACE OF DAWSONS DAM
C               51.091        REPEAT OF BV
C    BW         51.192        VALLEY SECTION BW
C               51.405        REPEAT OF BW
C               51.580        REPEAT OF BW
C    BX         51.618        VALLEY SECTION BX
C               51.807        1 FOOT D/S FROM D/S FACE OF TELEGRAPH RD SERVICE DRIVE
C               51.808        D/S FACE OF TELEGRAPH RD SERVICE DRIVE
C    BY         51.819        BRIDGE SECTION BY  U/S FACE OF TELEGRAPH RD SERVICE DR
C               51.820        1 FOOT U/S FROM U/S FACE OF TELEGRAPH RD SERVICE DR
C               51.829        1 FOOT D/S FROM D/S FACE OF TELEGRAPH RD NORTHBOUND
C               51.830        D/S FACE OF TELEGRAPH RD NORTHBOUND
C    BZ         51.842        BRIDGE SECTION BZ  U/S FACE OF TELEGRAPH RD NORTHBOUND
C               51.843        1 FOOT U/S FROM U/S FACE OF TELEGRAPH RD NORTHBOUND
C               51.852        1 FOOT D/S FROM D/S FACE OF TELEGRAPH RD SOUTHBOUND
C               51.853        D/S FACE OF TELEGRAPH RD SOUTHBOUND
C    CZ         51.869        BRIDGE SECTION CA  U/S FACE OF TELEGRAPH RD SOUTHBOUND
C               51.870        1 FOOT U/S FROM U/S FACE OF TELEGRAPH RD SOUTHBOUND
C    CB         51.874        VALLEY SECTION CB
```

APPENDIX B

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

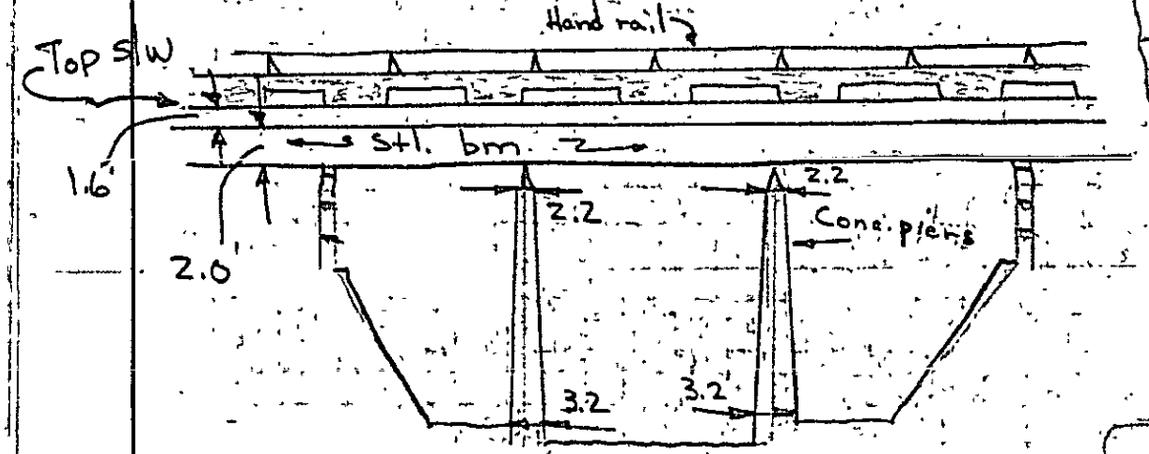
HYDRAULIC STRUCTURAL DATA

Code No. 5670-06-BS45

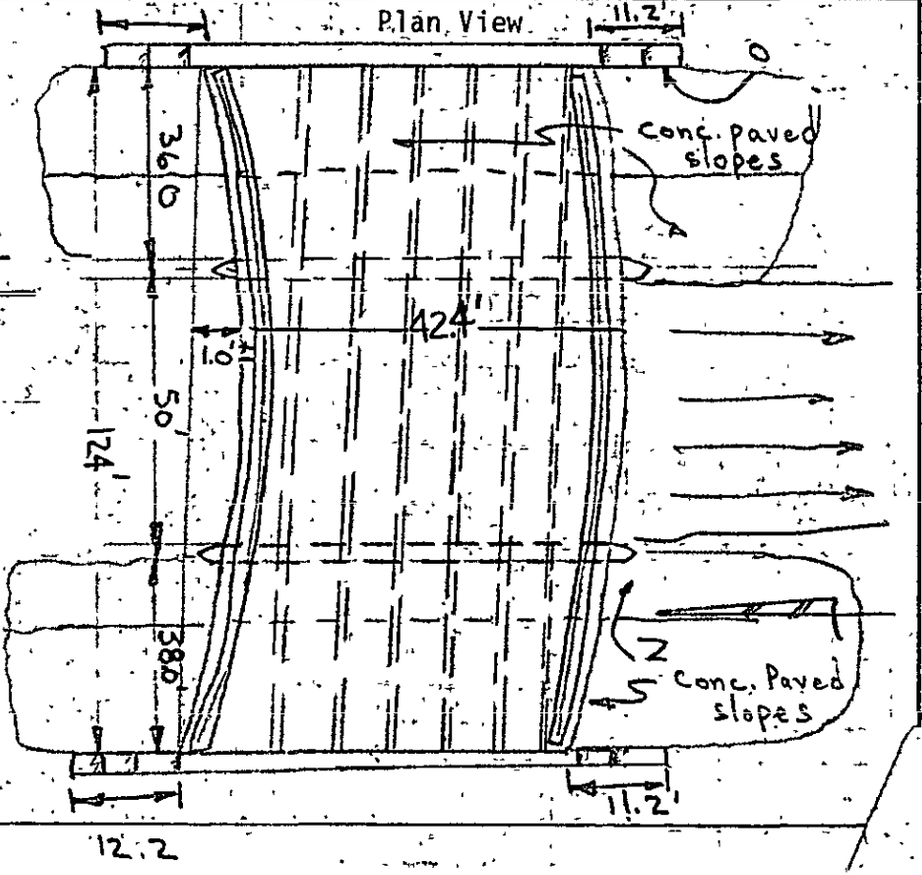
Job Name: City of Pontiac- FIS			By: G. Norberg C. Mapley D. DeForge
Date: 11-1-76	Feature: Conc. Bridge @ E. Bnd M59.		Water Course: Clinton River
Remarks: Bridge over Clinton- E. bnd. lane M-59 freeway			
Width of Piers:	Pier Shape: 2.5' 2.2 at top 3.2 at btm	No. of Piers: 2 ea	Area:
Water Elevation: 861.9	Length:	Width of Deck: 42.4'	Skew:

FIELD SKETCH

Profile View



Plan View



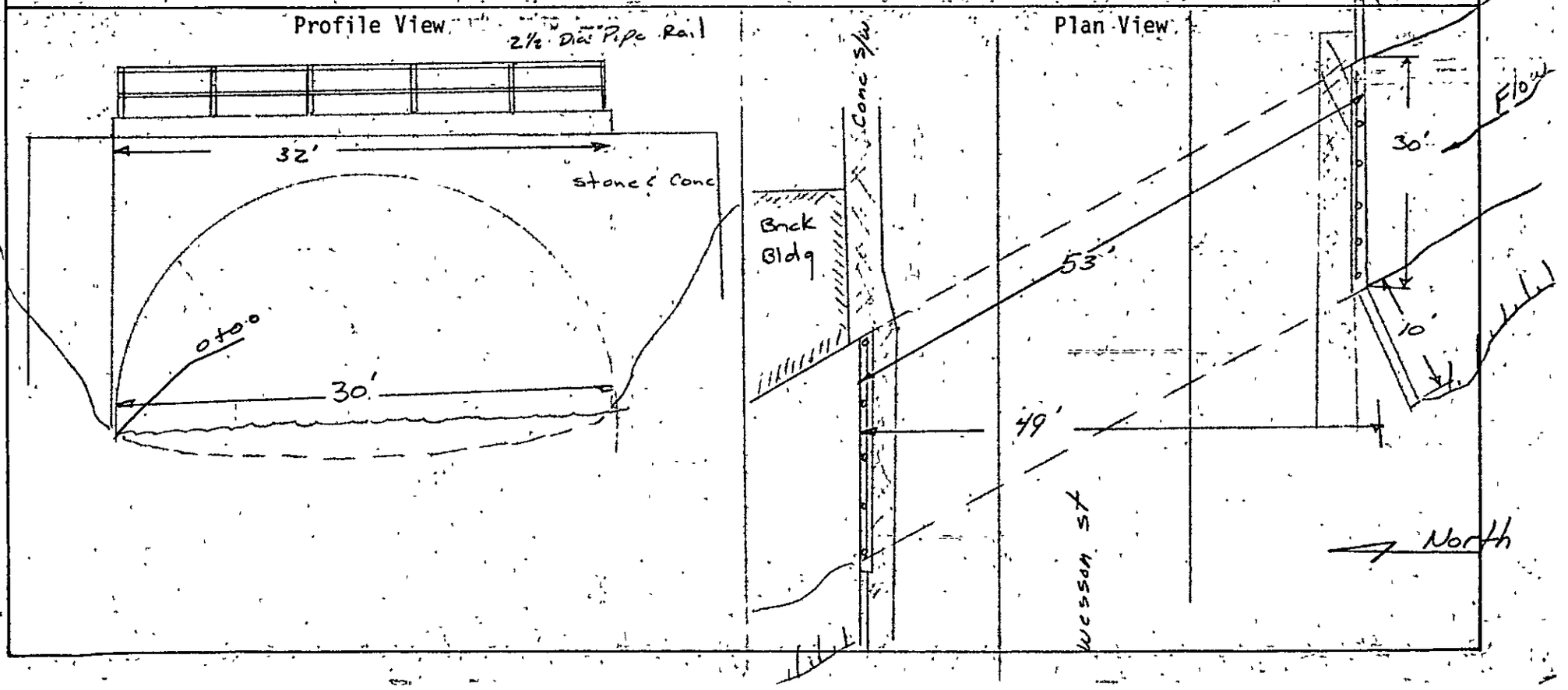
Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

Code No. 5670-06 Bs #47

Job Name: Pontiac, City of			By: G. Norberg
Date: 11-4-76	Feature: stone & conc arch Bridge		Water Course: Clinton River
Remarks: wesson st. Bridge			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 914.7	Length: 53'	Width of Deck:	Skew: shown Below

FIELD SKETCH



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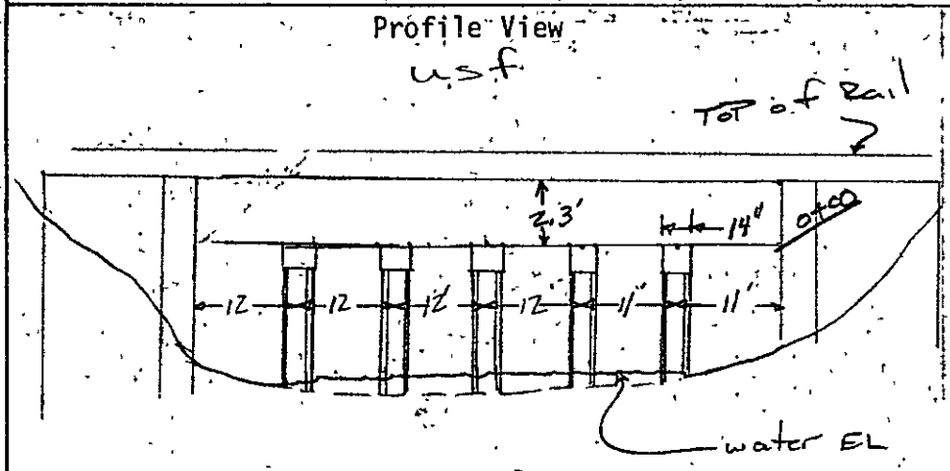
HYDRAULIC STRUCTURAL DATA

Code No. 5670-06 BS #4

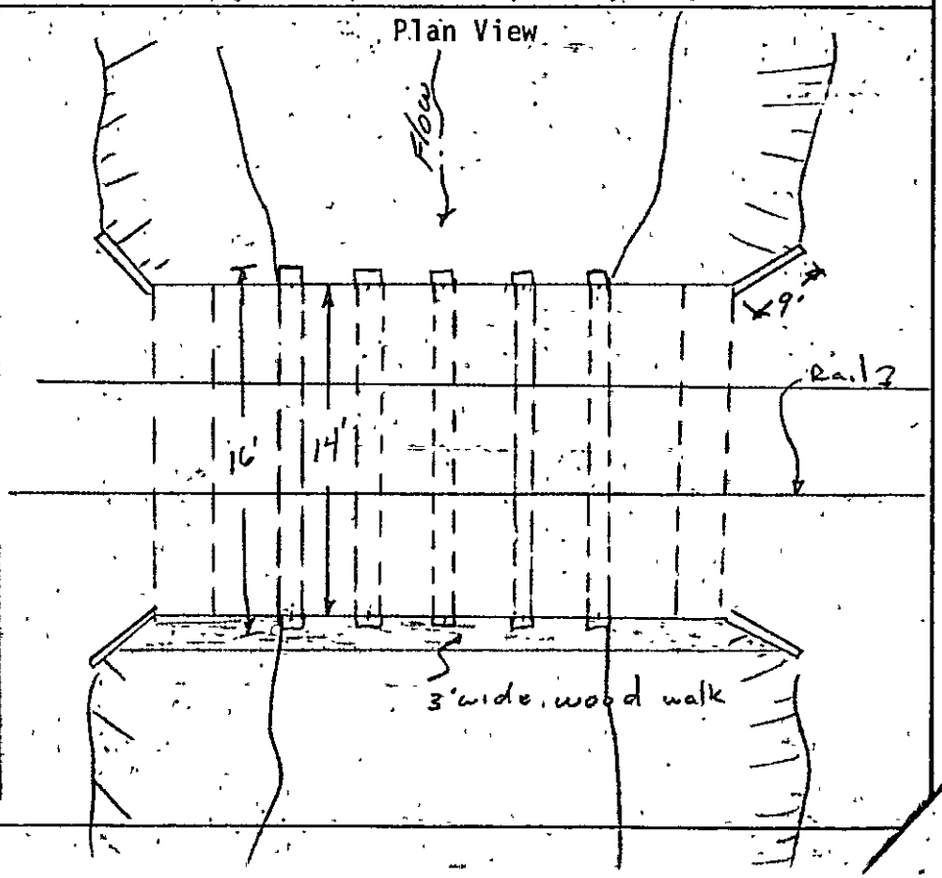
Job Name: Pontiac, City of			By: G. Norberg
Date: 1-4-76	Feature: wood R.R. Bridge		Water Course: Clinton River
Remarks: Grand Trunk R.R. Bridge			
Width of Piers: 14" ±	Pier Shape: 14" I Dia wood Piers	No. of Piers: 5	Area: —
Water Elevation: 915.1	Length: 70'	Width of Deck: 14'	Skew: —

FIELD SKETCH

Profile View



Plan View



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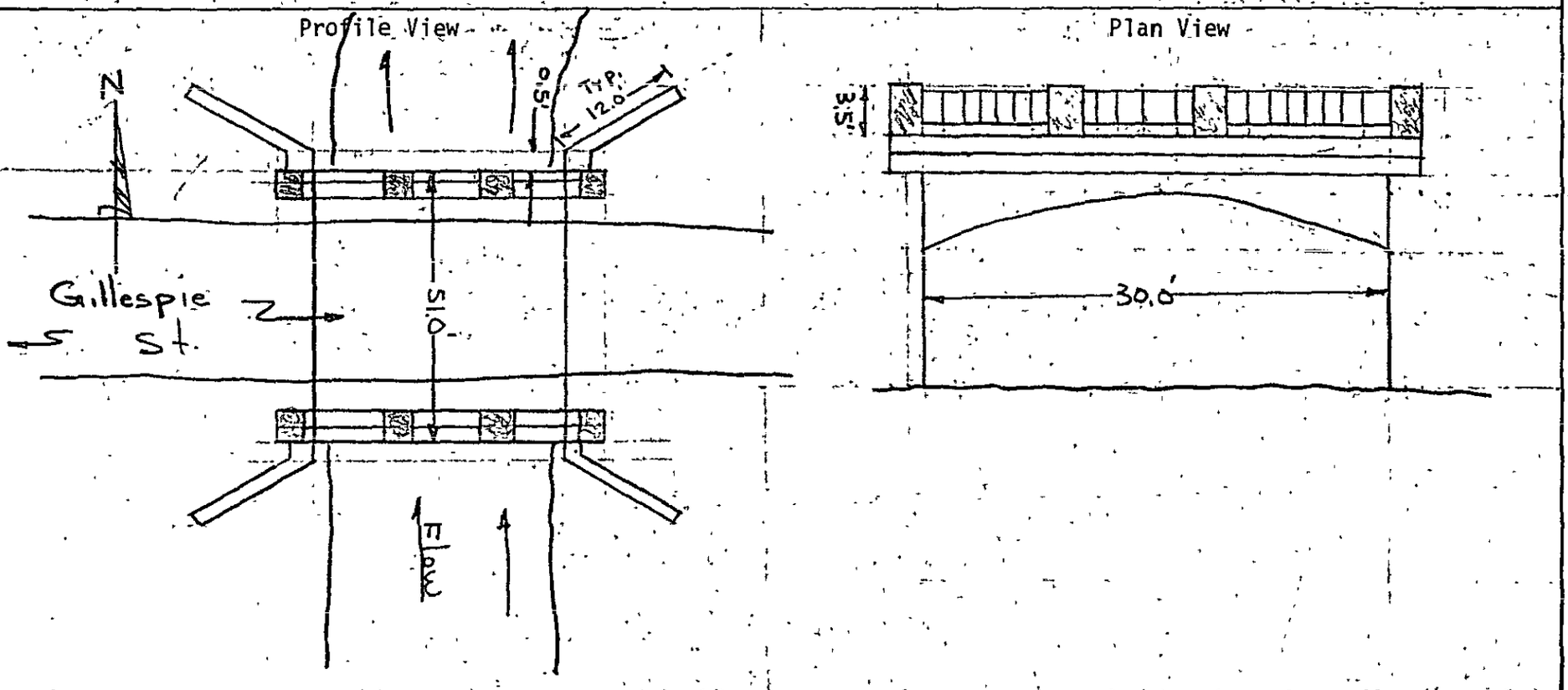
HYDRAULIC STRUCTURAL DATA

913.7 all A[illegible] way acro

Code No. 5670-06-01-BS#5

Job Name: City of Pontiac FIS			By: C. Mapley, G Norberg, C. Fuentes
Date: 11-9-76	Feature: Conc. arch bridge		Water Course: Clinton River
Remarks: Area under construction (Clinton River Diversion) Gillespie Rd. under construction			
Width of Piers: NA	Pier Shape: NA	No. of Piers: NA	Area:
Water Elevation: 915.1	Length: 30.0'	Width of Deck: 51.0	Skew: None

FIELD SKETCH



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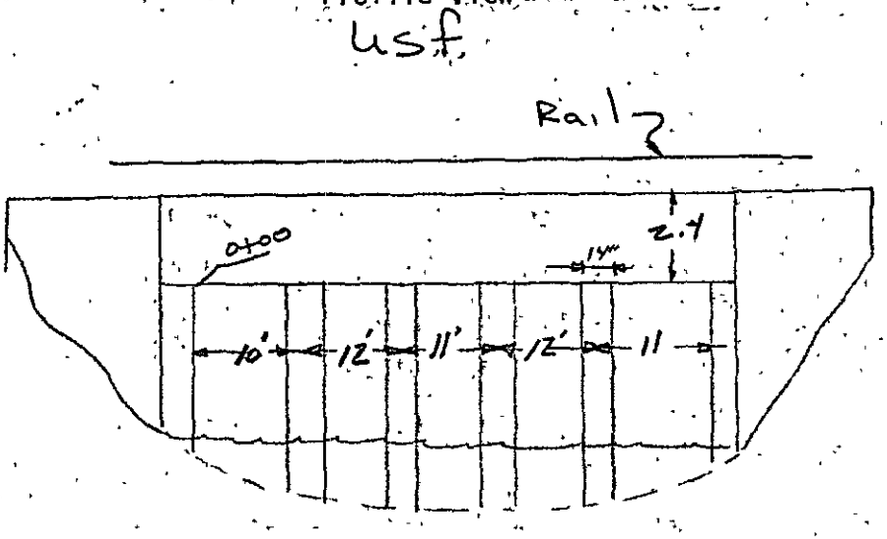
HYDRAULIC STRUCTURAL DATA

Code No. 5670-06 Bs #s

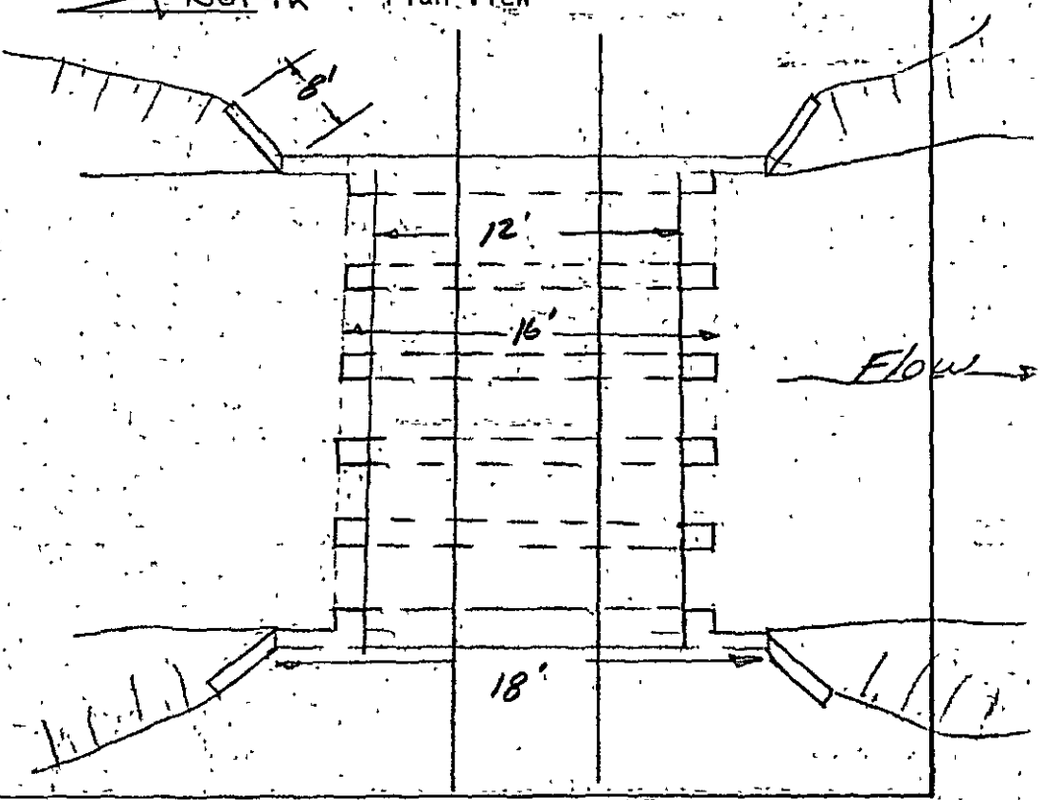
Job Name: Pontiac, City of			By: G. Norberg
Date: 11-4-76	Feature: wood RR. Bridge		Water Course: Clinton River
Remarks: G. T. R.R. Bridge			
Width of Piers: 14"±	Pier Shape: 14" Dia	No. of Piers: 4	Area: —
Water Elevation: 919.8	Length: 56'	Width of Deck: 12'	Skew: —

FIELD SKETCH

Profile View



North Plan View



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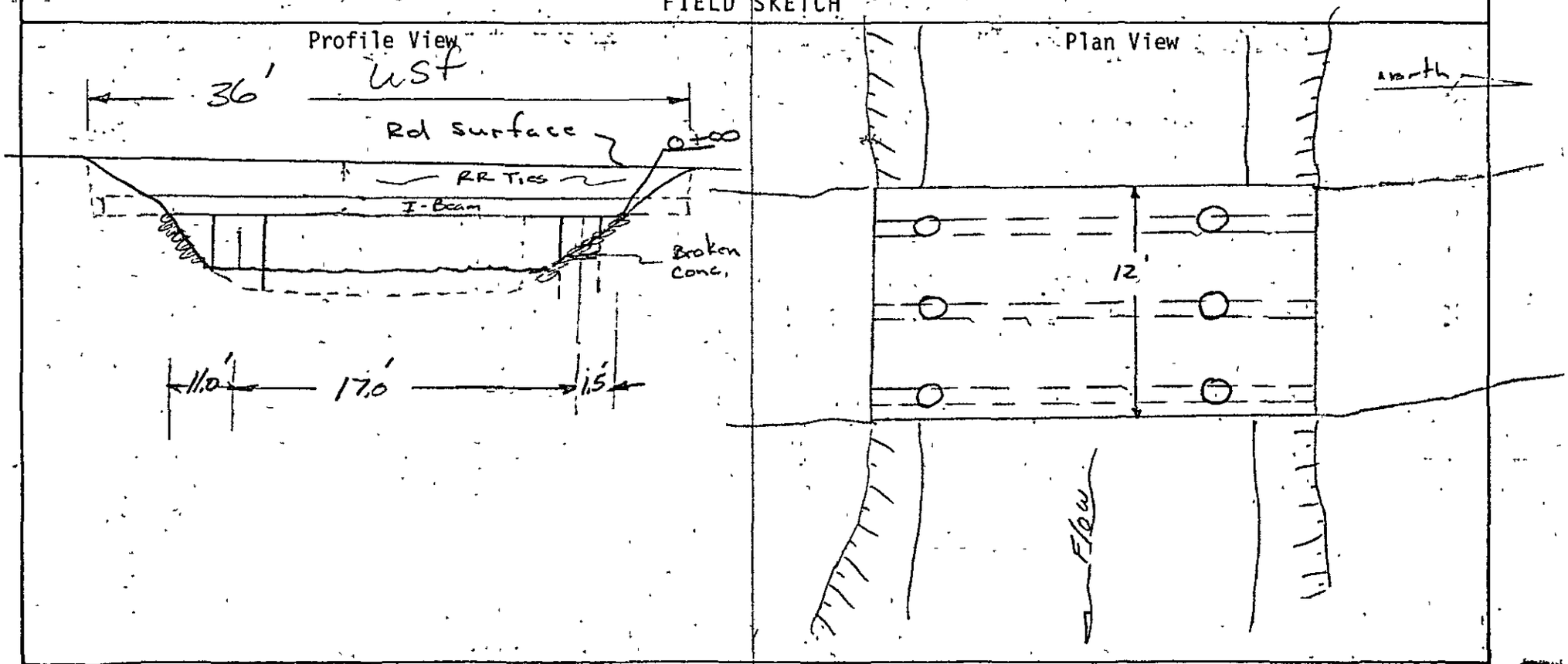
HYDRAULIC STRUCTURAL DATA

Code No. 5670-06 BS#57

Job Name: Pontiac, City of			By: G. Norberg
Date: 11-5-76	Feature: Wood Bridge		Water Course: Clinton River
Remarks: Thomas Rd Bridge			
Width of Piers: 26" Dia	Pier Shape: 26" Dia	No. of Piers: 6	Area: —
Water Elevation: 919.88	Length: 36'	Width of Deck: 12'	Skew: —

FIELD SKETCH



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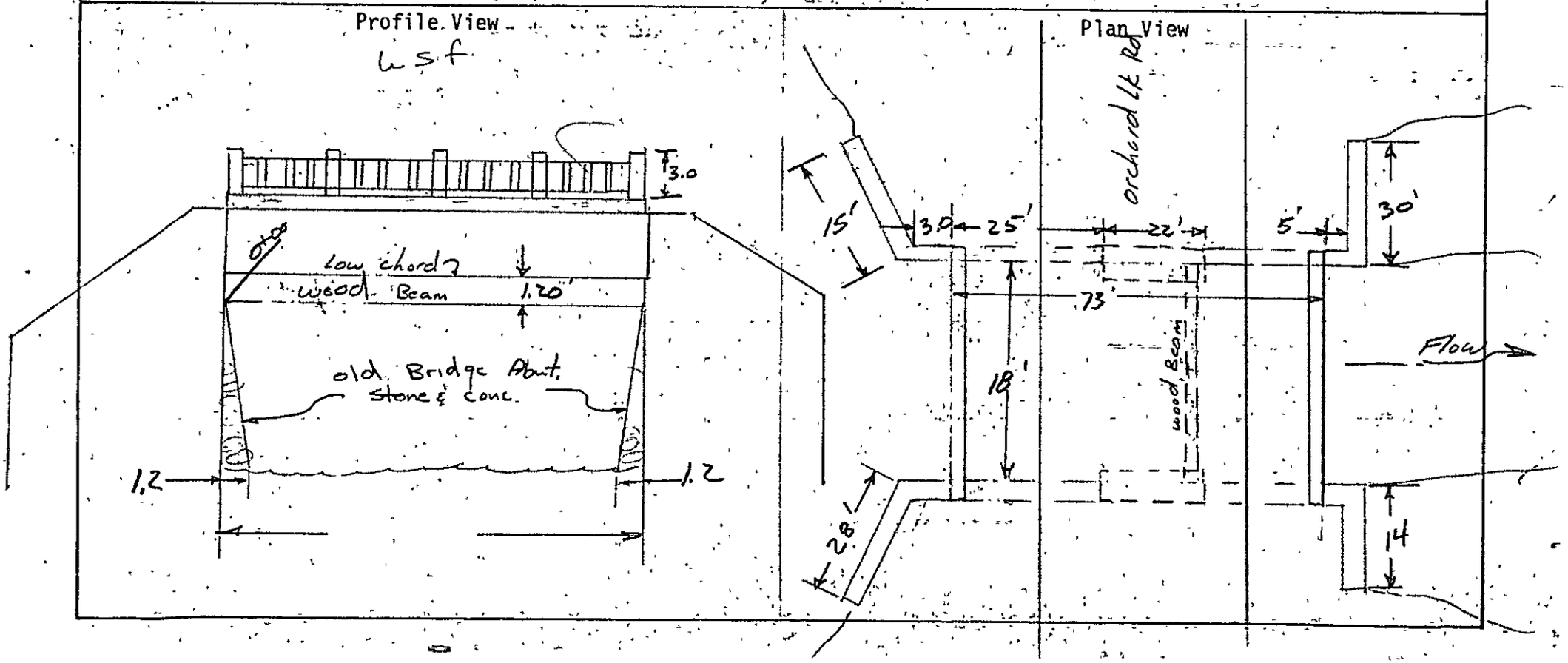
HYDRAULIC STRUCTURAL DATA

Code No. 5670-06-01 BS #5

Job Name: Pontiac, City of		By: George Norberg	
Date: 11-5-76 / /	Feature: Conc. Bridge	Water Course: Clinton River	
Remarks: Orchard Lk Rd Notes Taken show Low chord El of New Bridge. Steel T-Beam was Meas.			
Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 920.8	Length: 73	Width of Deck: 20	Skew: —

FIELD SKETCH



Job No.	Cont. No.	Cost Tab	Type of Job

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

To	Information Only	Action Required	Date
File			
Discard			
Return to Sender			

Reply on back - Required Action Taken

INTER-OFFICE MEMORANDUM

SUBJECT: Dwyer Hill Road Dam #62

FROM: JJE DATE: 9/28/77

Error discovered in Field notes. Spillway width adjacent to Fish ladder is 8' not 12'. Notes reflect change on drawing but not in stationing of elevation notes.

☐ RUSH ☐ TODAY ☐

Form GU-018 (01-75)

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Consulting Engineers
Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

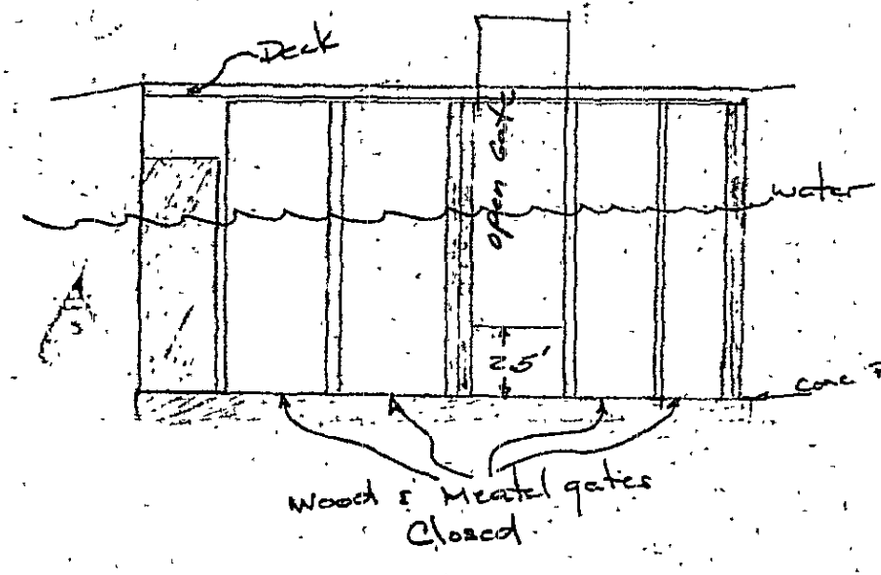
HYDRAULIC STRUCTURAL DATA

Code No. 5670-06 BS #62

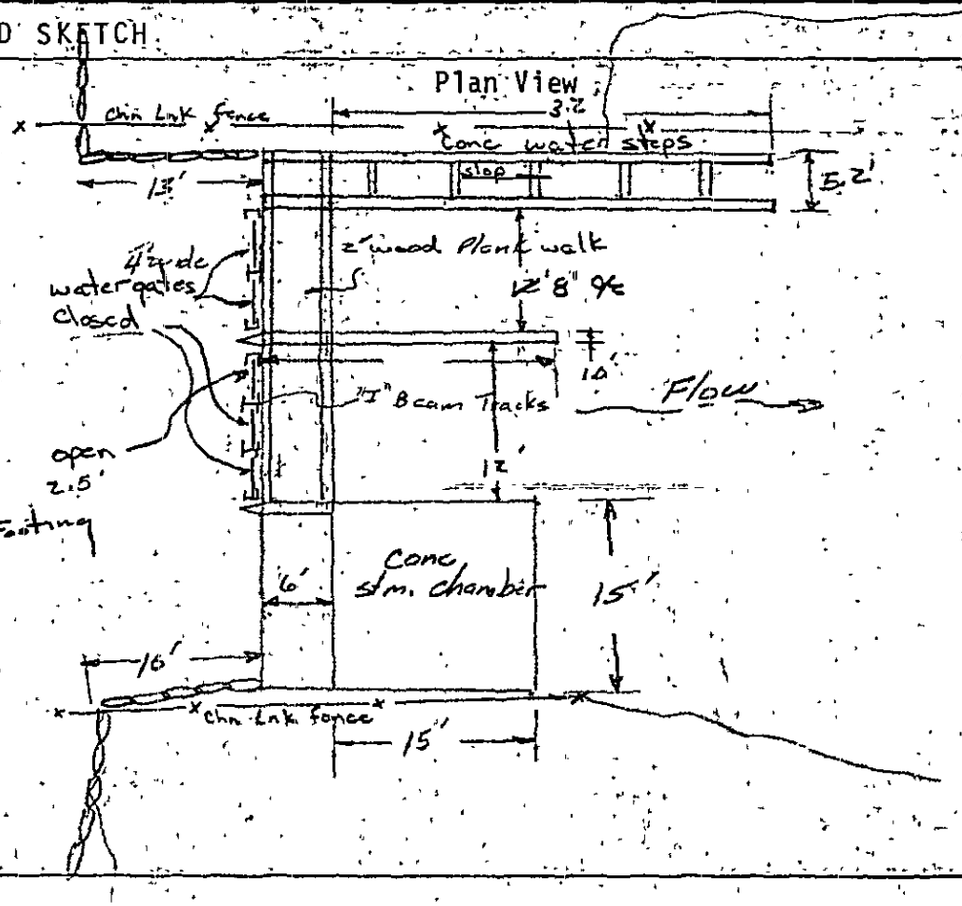
Job Name: Pontiac, City of			By: George Norberg
Date: 11-3-76	Feature: Conc & wood Weir		Water Course: Clinton River
Remarks: Poor Cond. (Dawsons Millpond)			
Width of Piers:	Pier Shape: 8" 1.0'	No. of Piers: 2	Area: —
Water Elevation: See Notes	Length: —	Width of Deck: —	Skew: —

FIELD SKETCH

Profile View



Plan View



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HYDRAULIC STRUCTURAL DATA

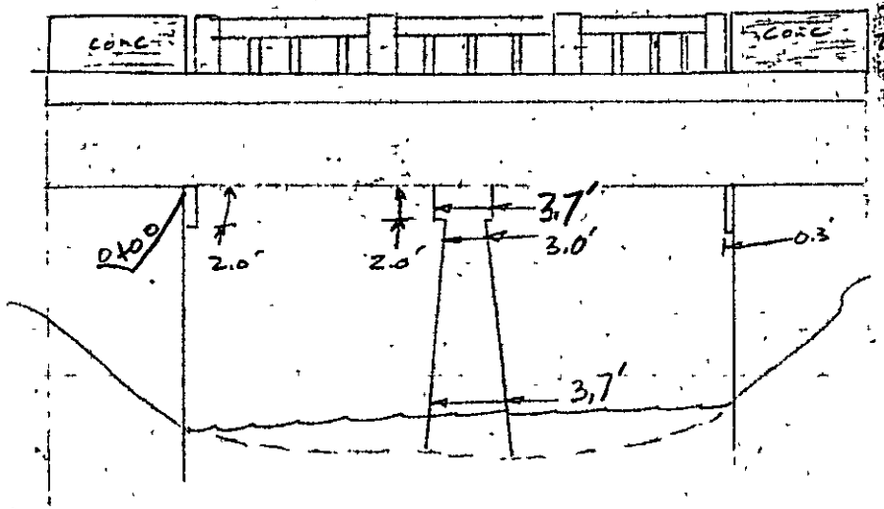
Code No. 5670-06-01-BS#6

Job Name: Pontiac, City of			By: George Norberg
Date:	Feature: Conc. Bridge		Water Course: Clinton River
Remarks: Telegraph Rd. Service Drive			
Width of Piers: Var.	Pier Shape:	No. of Piers: 1	Area:
Water Elevation: 927.51	Length: 53'	Width of Deck:	Skew: 0.93

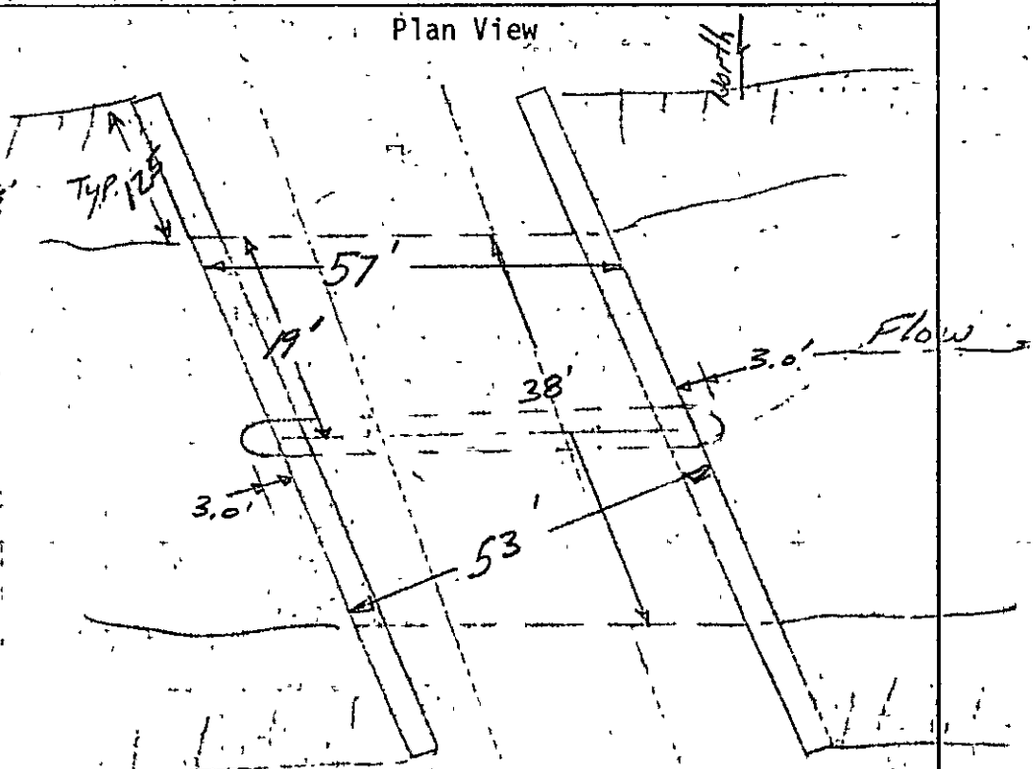
FIELD SKETCH

Profile View

U.S.f.



Plan View



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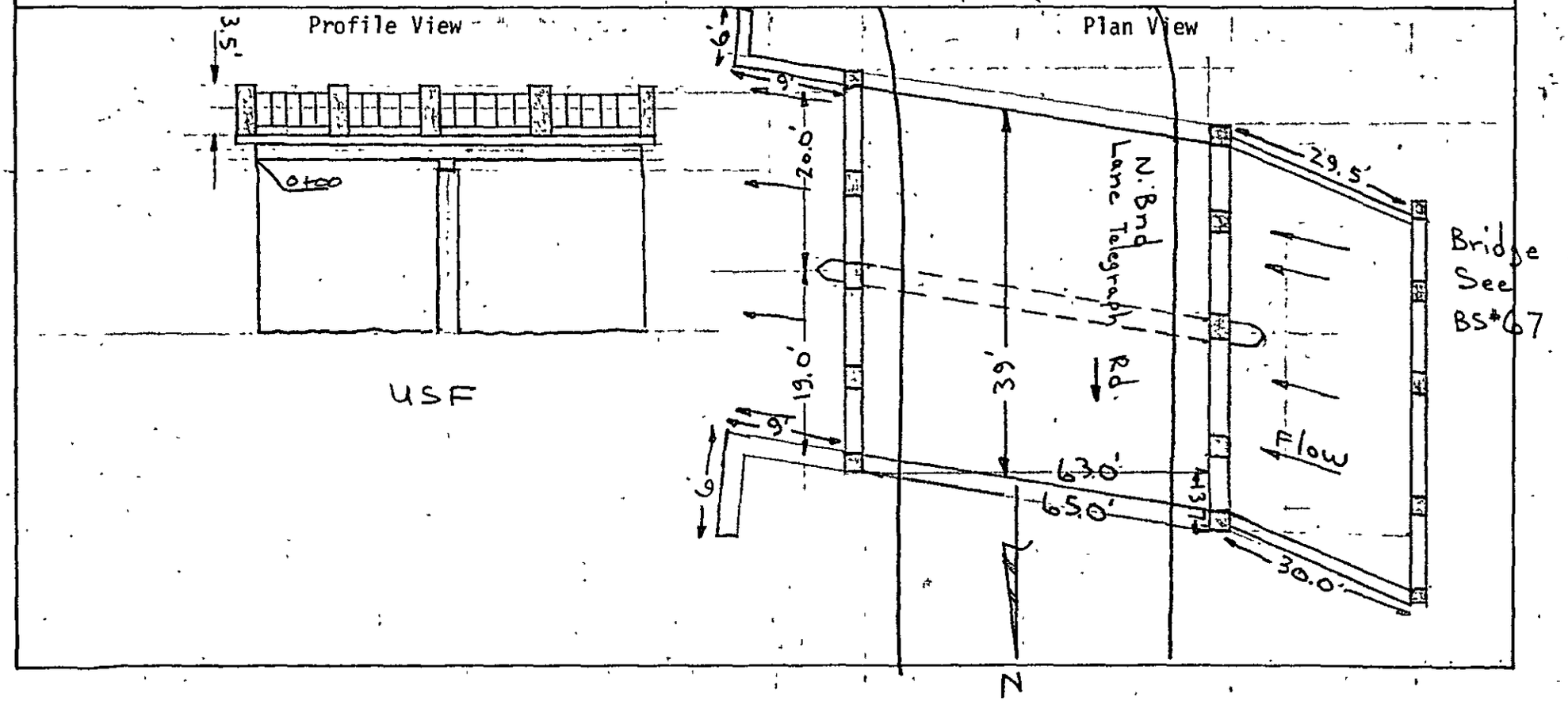
HYDRAULIC STRUCTURAL DATA

Code No. 5670-06-01-BS

Job Name: City of Pontiac FIS		By: E. Mapley C. Fuentes G. Norberg
Date: 11-8-76	Feature: Conc. bridge	Water Course: Clinton River
Remarks:		

Width of Piers: Top 2.0' Btm 2.0'	Pier Shape: 2.0'	No. of Piers: 1 ea	Area:
Water Elevation: 927.5	Length: 39'	Width of Deck: 63'	Skew: 0.97

FIELD SKETCH



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Consulting Engineers
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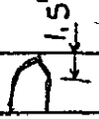
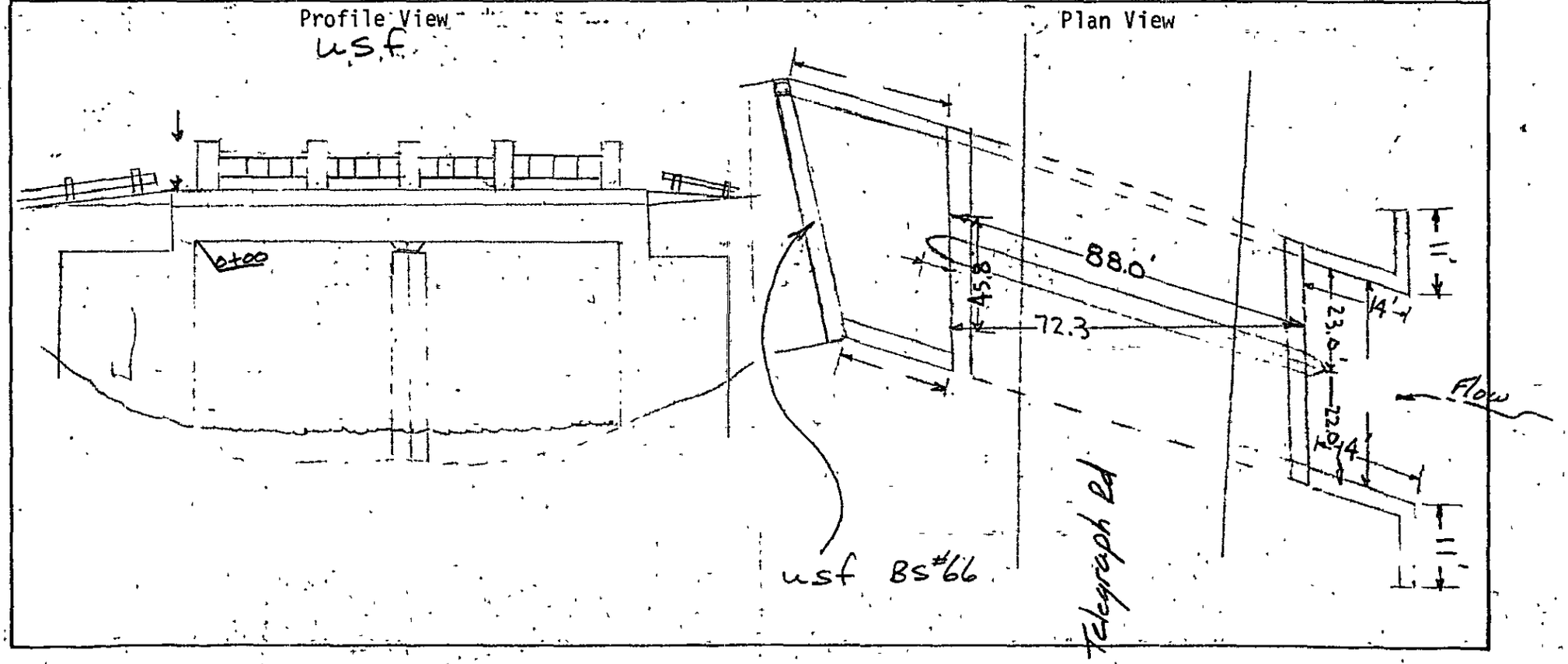
HYDRAULIC STRUCTURAL DATA

Code No. 5670-06-01-BS*

Job Name: Pontiac, City of			By: G. Norberg
Date: 11-8-76	Feature: Conc. Bridge		Water Course: Clinton River
Remarks: South Bound Telegraph Rd			
Width of Piers: Top 2.0', Btm 2.0'	Pier Shape: 	No. of Piers: 1	Area:
Water Elevation:	Length:	Width of Deck:	Skew: 0.82

FIELD SKETCH



APPENDIX C

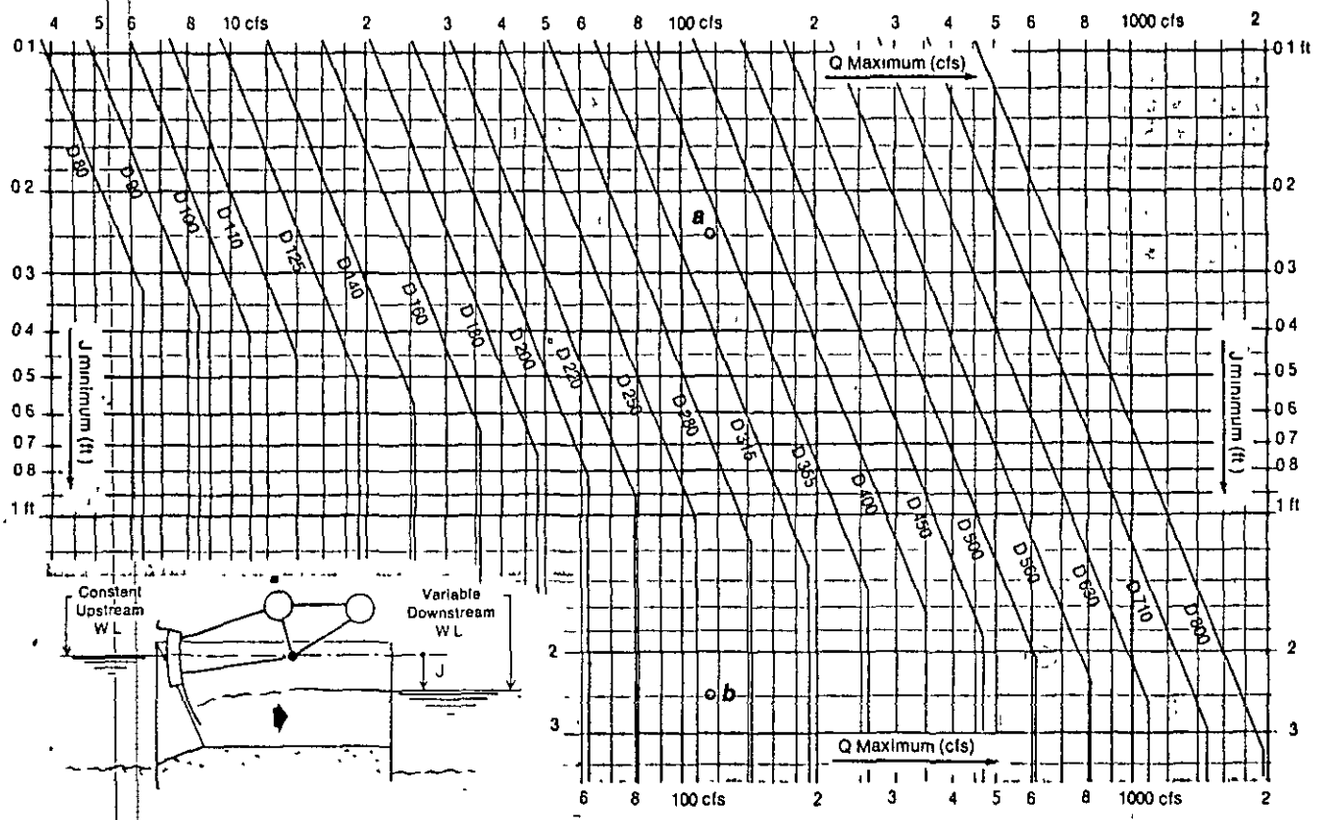
AMIL gates are manufactured in 21 standard sizes, designated AMIL D80, AMIL D90 .. up to AMIL D800

SELECTING YOUR AMIL GATE

Plot on the chart below the point corresponding to:

1. *Maximum discharge* Q_M to be handled at the gate
2. *Minimum head differential* J_m available at maximum discharge for the equipped structure

Find the proper gate size on the first black line to the right of this point.



GATE SIZE SELECTION CHART

Hydraulic Data based on *TRANOR* Standard Structure* (see next page)

Example 1:

The water level must be kept constant at elevation 54 00 ft in a canal, at a location where the maximum discharge is 115 cfs Maximum tailwater elevation is 53 75 ft Which gate is suitable?

The minimum head differential available for the equipped structure is $J_m = 54\,00 - 53\,75 = 0\,25$ *ft Point* **a** *on the chart corresponds to* $Q_M = 115$ *cfs and* $J_m = 0\,25$ *ft The suitable gate size is the AMIL D355*

Note that for a head differential of 0 25 ft, the AMIL D355 capacity is 124 cfs

Example 2:

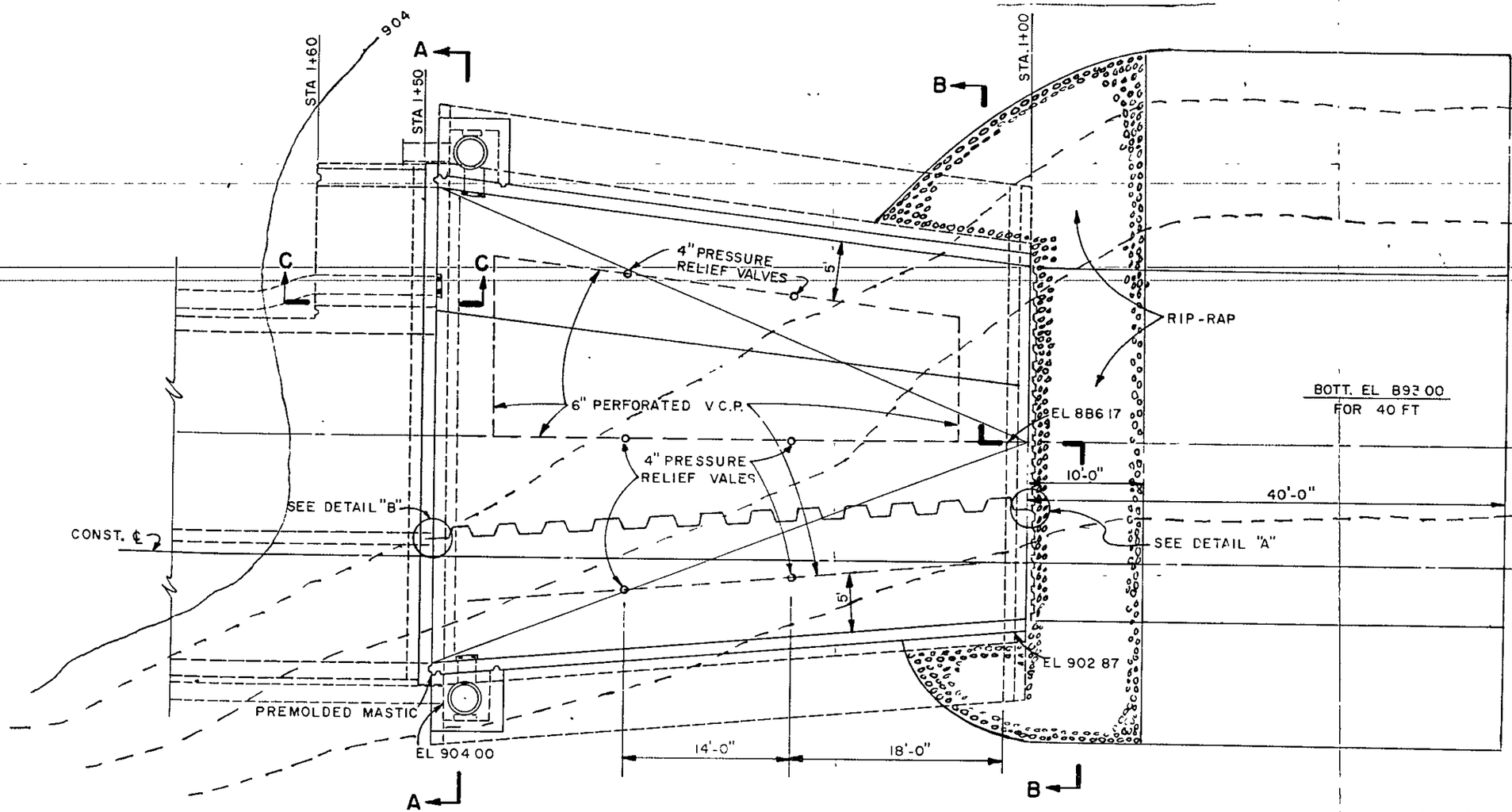
The free surface elevation of a lake has to be maintained constant The maximum discharge at the outlet is equal to 115 cfs and the drop is 2 50 ft Which gate is suitable?

Point **b** *on the chart corresponds to the above data and the suitable gate size is now the AMIL D280*

Note that the AMIL D280 has a maximum capacity of 142 cfs.

Two or more AMIL gates can be installed side by side (in parallel) to increase capacity, to reduce head differential or to better match structure and site

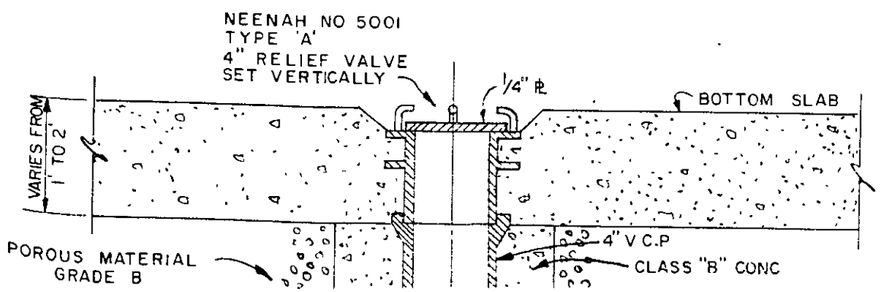
* *Trademark, NEYRPIC, INC*

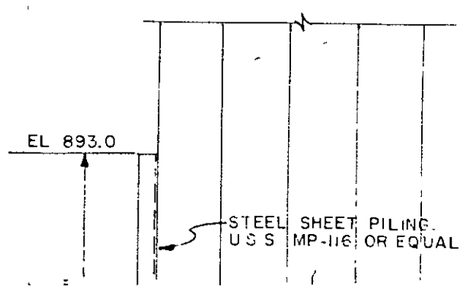


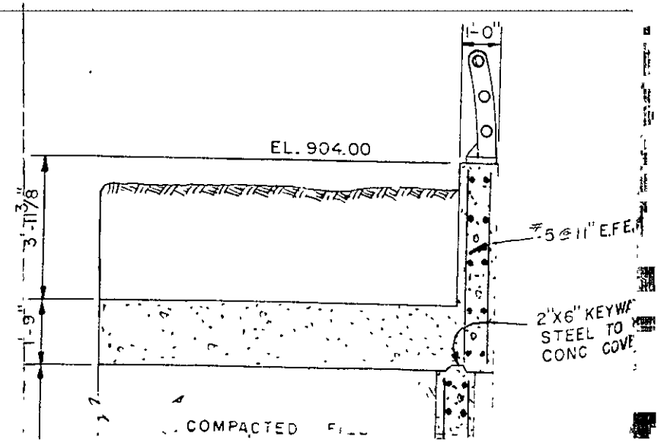
PLAN

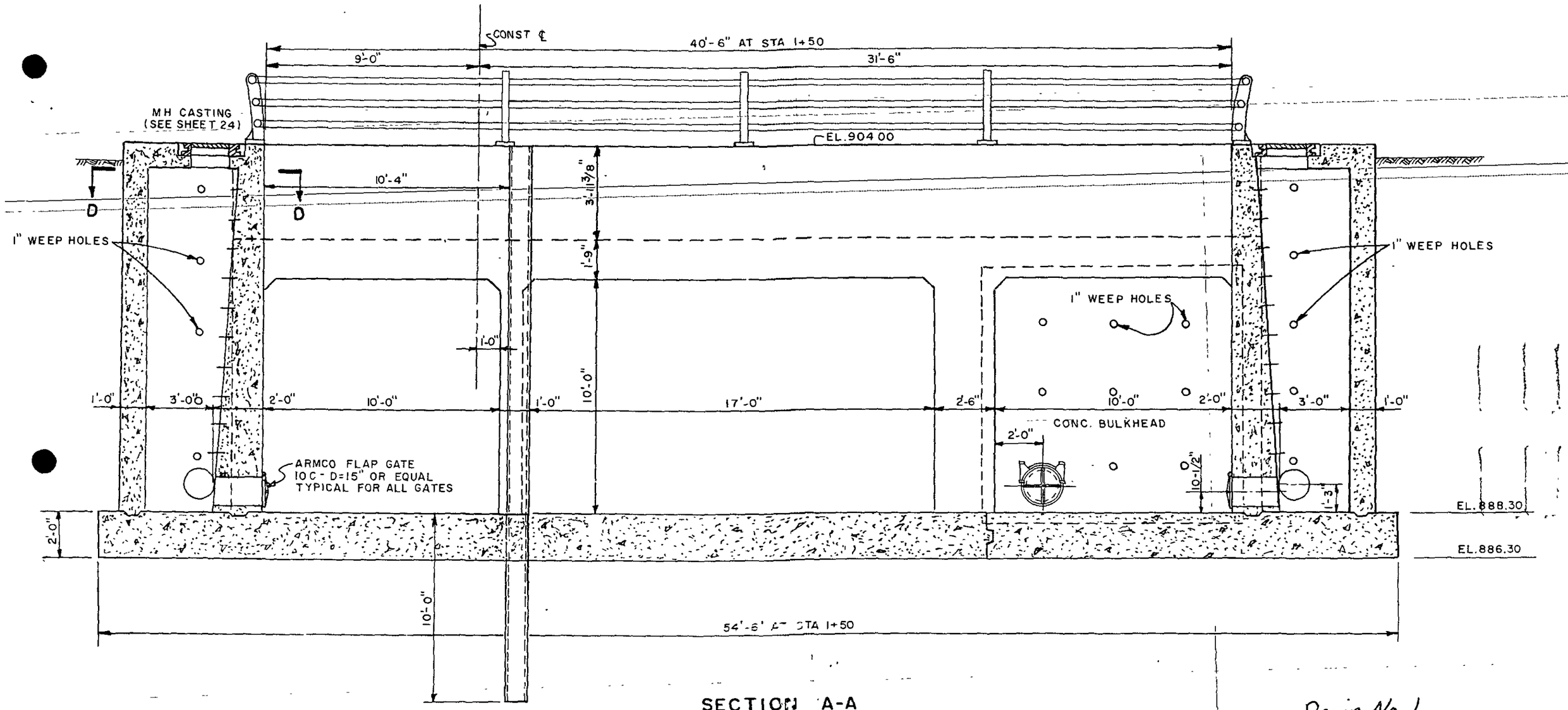
SCALE 1"=10'

Drain No. 1
Outlet Structure





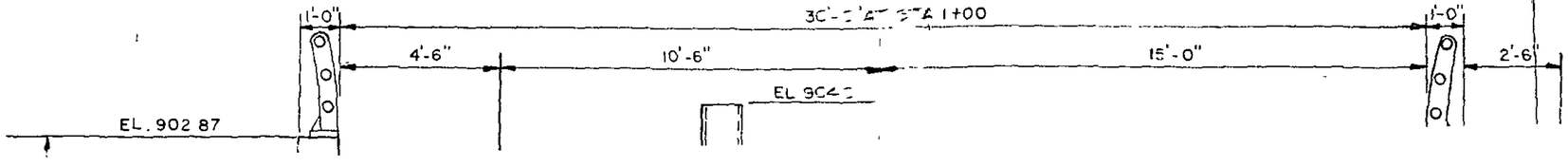




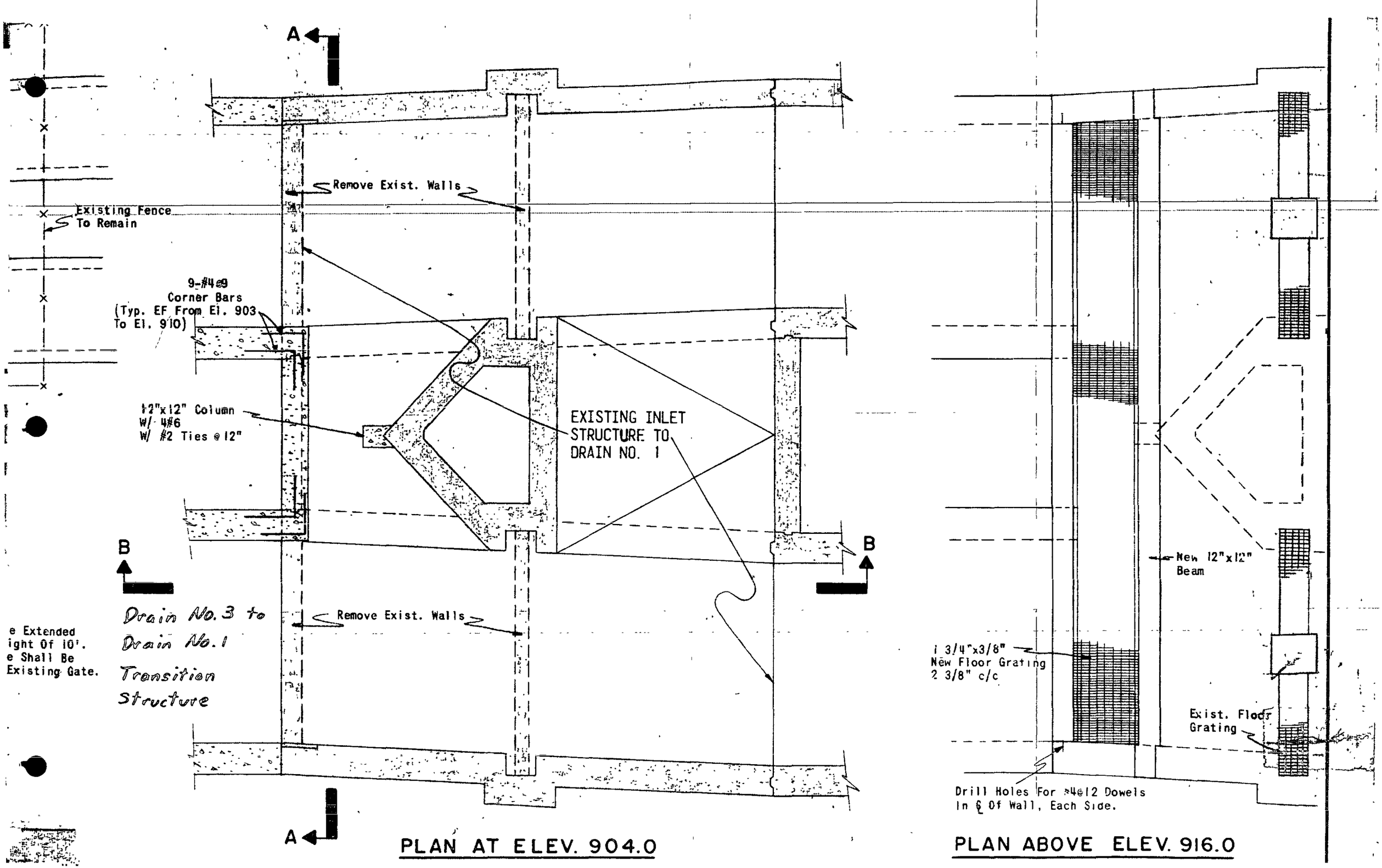
SECTION A-A

SCALE 1/4" = 1'-0"

Drain No. 1
Outlet Structure



AROUND
2" MIN.



PLAN AT ELEV. 904.0

PLAN ABOVE ELEV. 916.0

@ 12" Below Finished Grade

Curve No. 1
Δ=34° 00' 00"
R=200.00'
T= 61.14'
L=119.00'

Remove Exist. Conc. Slab And Piling As Required To Construct New Drain

15" Drain

P.I. No. 1A

Exist. Piling Cut Off @ 12" Below Finished Grade

Exist. Fence To Remain

New Fence

New Grating

Existing Fence To Remain

(Typ. EF To El. 910

10'-0"

Add Corner Post And Fence Across Fill Area. Add Corner Post At Opposite Side.

12"x12 W/ 4#6 W/ #2

Drain No.3 to Drain No.1 Transition Structure

Remove Exist. Fence

Sta. 0+63.0

Sta. 0+43.0

P.C. Sta. 0+29.0

Sta. 0+83.0

Sta. 1+03.0

Sta. 1+14.0

Sta. 1+23.0

Sta. 1+43.0

P.T. Sta. 1+48.0

Item 29a

Item 3

15" Drain

ing Same As Shown For Double Box Sheet No. 16

d Water Drain

PLAN
1"=10'-0"

NOTE:
Ground Water Drain To Discharge Into Exist. Transition Structure.

NOTE: Remove Existing Plates And Pour New Conc. Against Existing Beam. Surface Of Existing Beam To Be Cleaned Before Pouring New Beam.

Steel Floor Grating

1'-8"

1'-0"

¼" Mastic Joint

El. 916.0

#5@12"

#4@0"

1'-0"

8'-4"

#6@12"

Dowels EF.

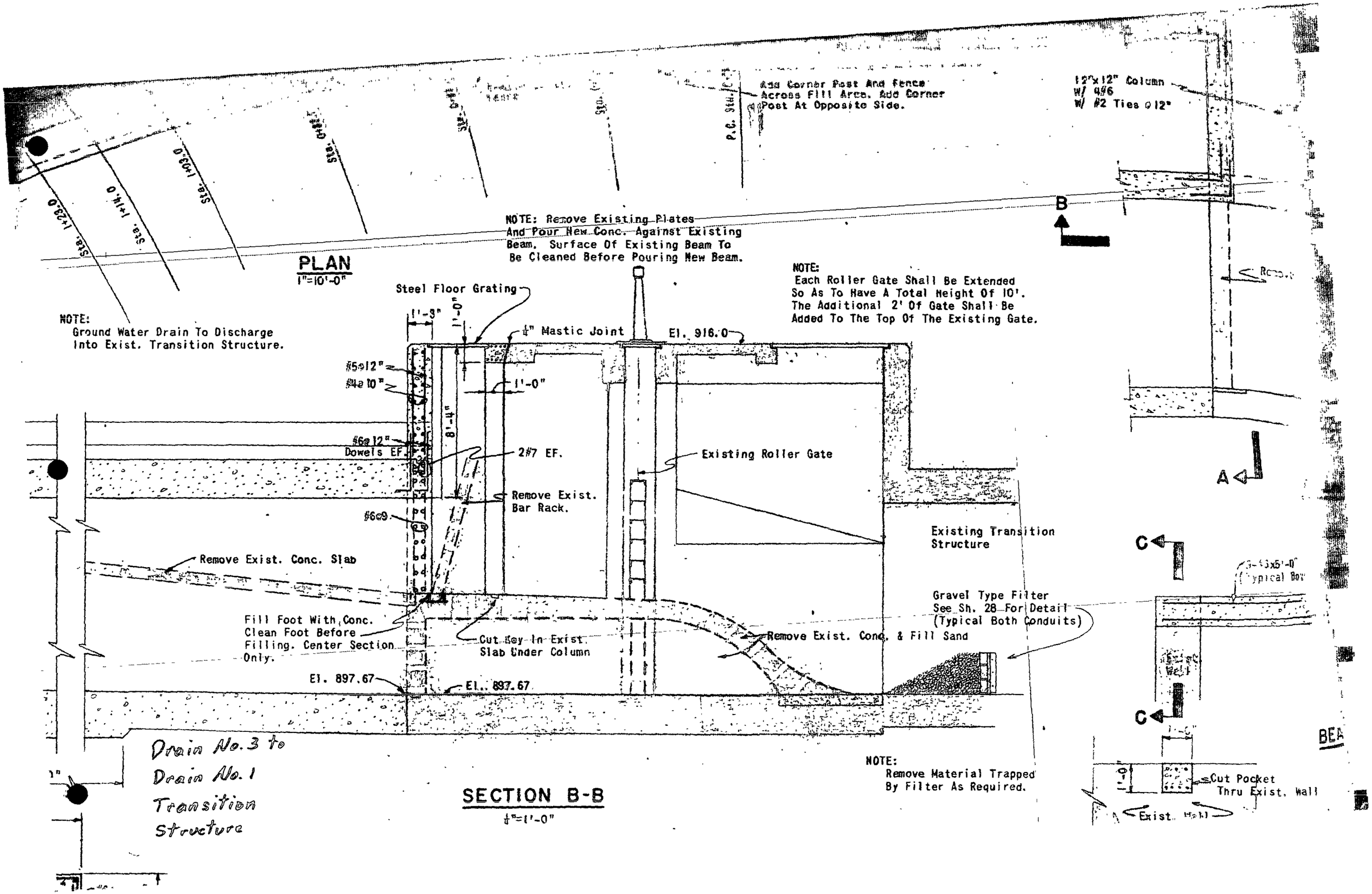
2#7 EF.

Existing Roller Gate

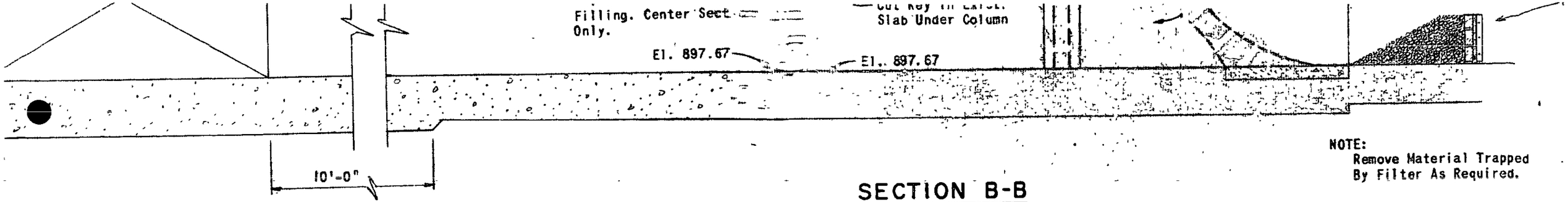
Remove Exist.

NOTE:
Each Roller Gate Shall Be Extended So As To Have A Total Height Of 10'. The Additional 2' Of Gate Shall Be Added To The Top Of The Existing Gate.

B



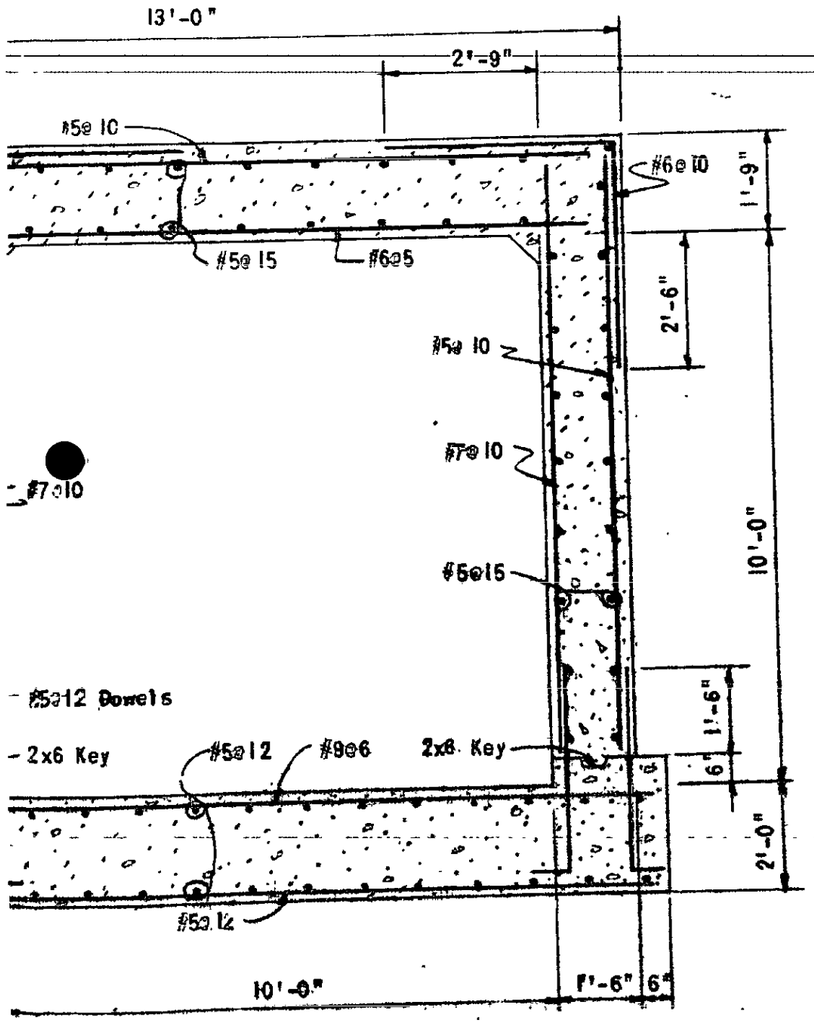
Add Corner Post And Fence Across Fill Area. Add Corner Post At Opposite Side.
12"x12" Column W/ 4#6 W/ #2 Ties @12"
Sta. 1+23.0
Sta. 1+14.0
Sta. 1+03.0
P.C. Sta.
B
NOTE: Remove Existing Plates And Pour New Conc. Against Existing Beam. Surface Of Existing Beam To Be Cleaned Before Pouring New Beam.
PLAN
1"=10'-0"
NOTE: Each Roller Gate Shall Be Extended So As To Have A Total Height Of 10'. The Additional 2' Of Gate Shall Be Added To The Top Of The Existing Gate.
NOTE: Ground Water Drain To Discharge Into Exist. Transition Structure.
Steel Floor Grating
1'-3"
1'-0"
¼" Mastic Joint
El. 916.0
#5@12"
#4@10"
1'-0"
8'-4"
#6@12" Dowels EF.
2#7 EF.
Existing Roller Gate
Remove Exist. Bar Rack.
#6@9
Existing Transition Structure
A
C
Remove Exist. Conc. Slab
Gravel Type Filter See Sh. 28 For Detail (Typical Both Conduits)
Fill Foot With Conc. Clean Foot Before Filling. Center Section Only.
Cut Key In Exist. Slab Under Column
Remove Exist. Conc. & Fill Sand
El. 897.67
El. 897.67
C
Drain No. 3 to Drain No. 1 Transition Structure
NOTE: Remove Material Trapped By Filter As Required.
Cut Pocket Thru Exist. Wall
Exist. Wall
SECTION B-B
¼"=1'-0"



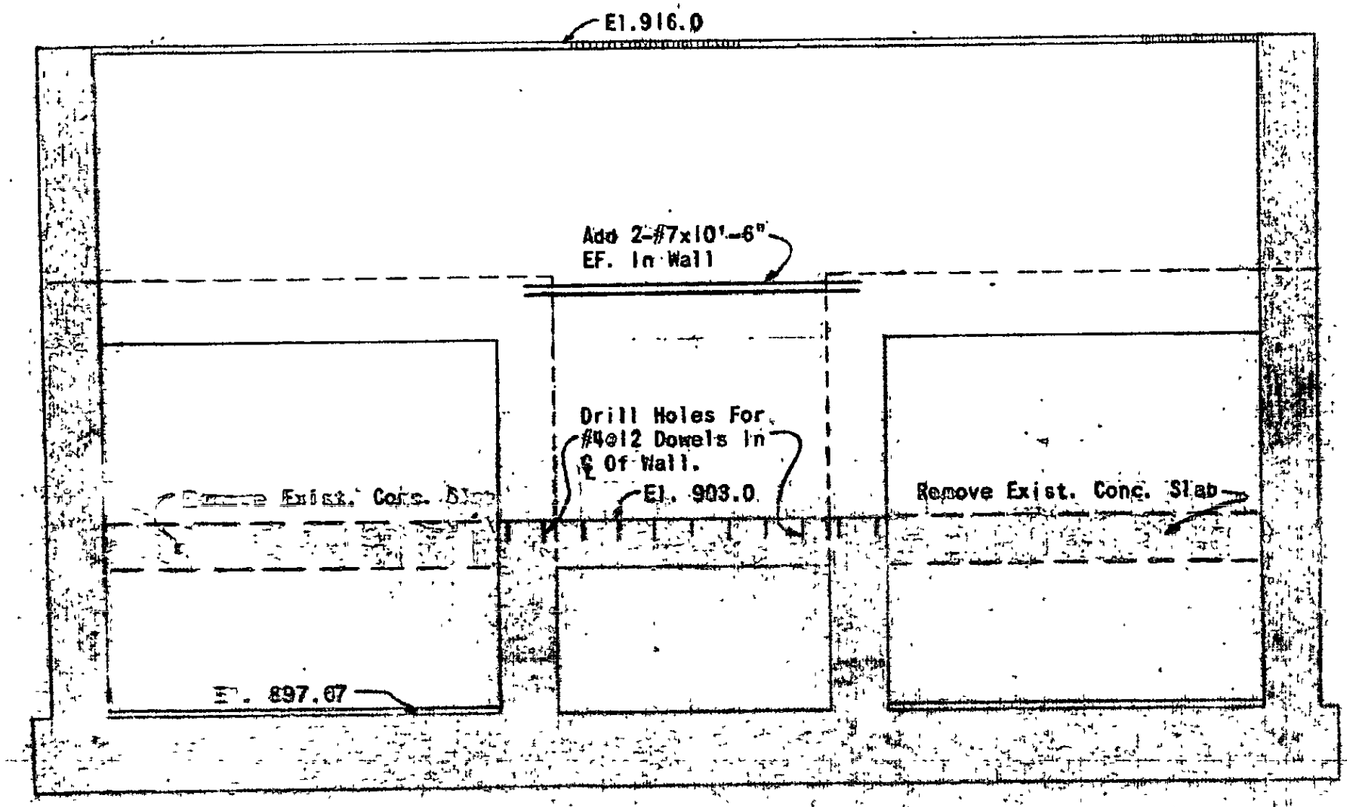
NOTE:
Remove Material Trapped By Filter As Required.

SECTION B-B

$\frac{1}{4}$"=1'-0"



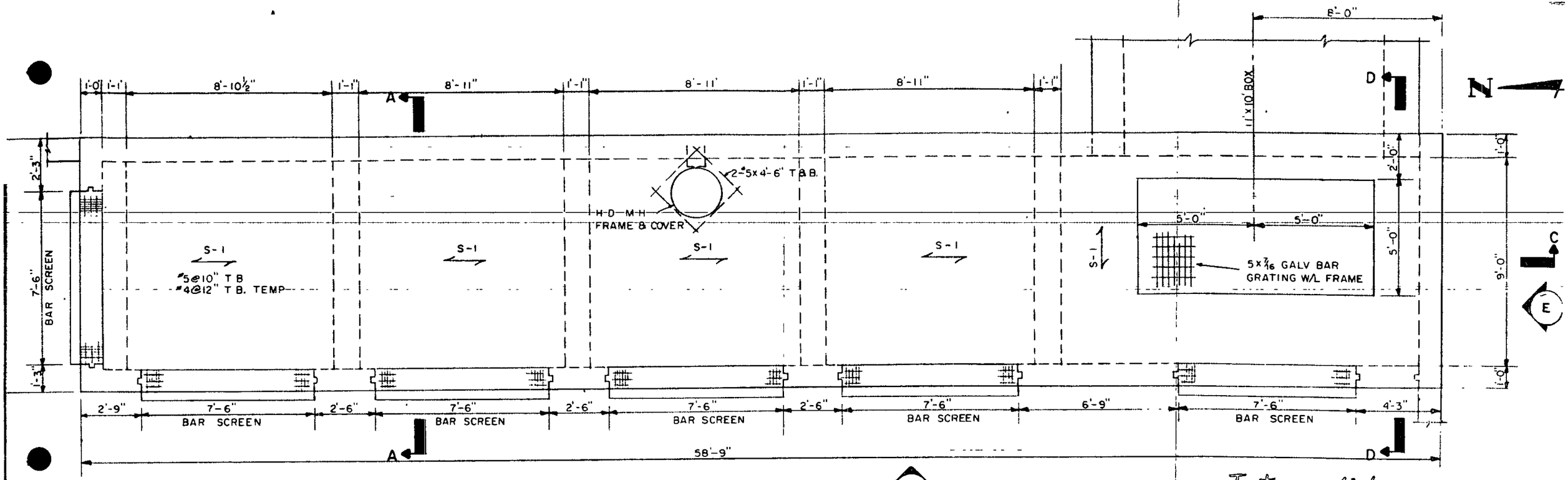
10'X10' SINGLE BOX CONDUIT
STA. 0+24.0 TO STA. 1+14.0



SECTION A-A

$\frac{1}{4}$"=1'-0"

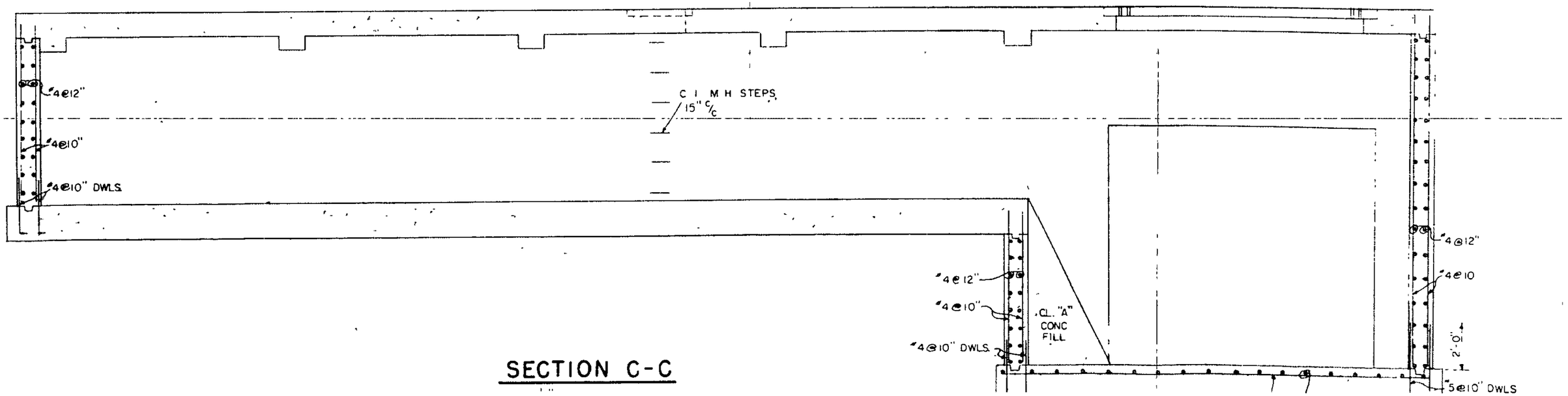
Drain No. 3 to Drain No. 1 Transition Structure



TOP SLAB PLAN

¼" = 1'-0"

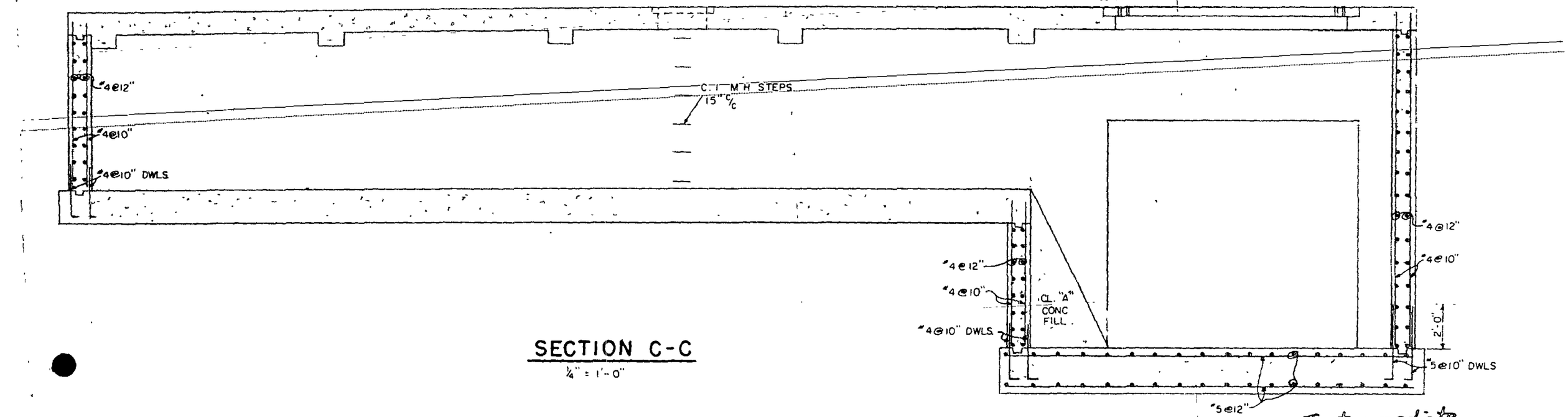
Intermediate Inlet Structure



SECTION C-C

TOP SLAB PLAN

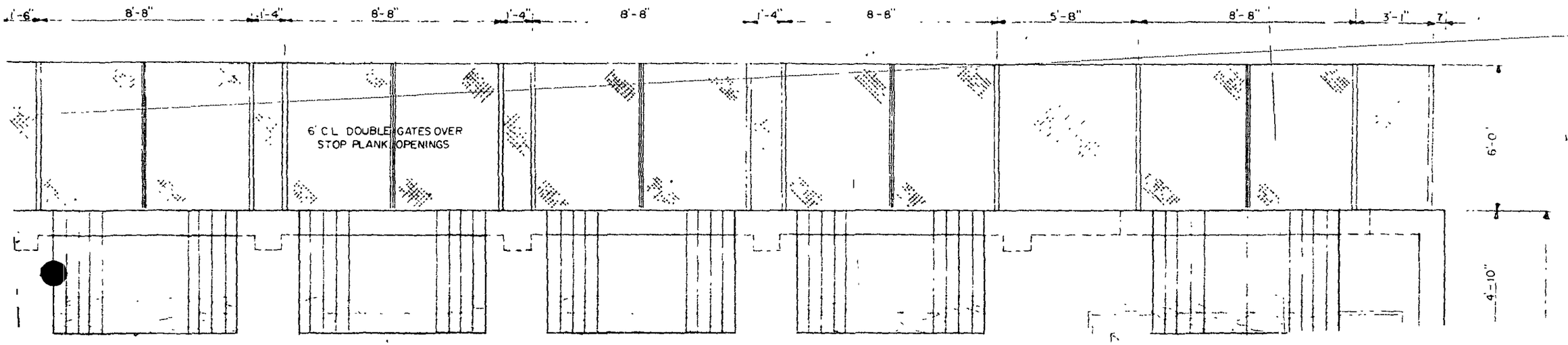
1/4" = 1'-0"

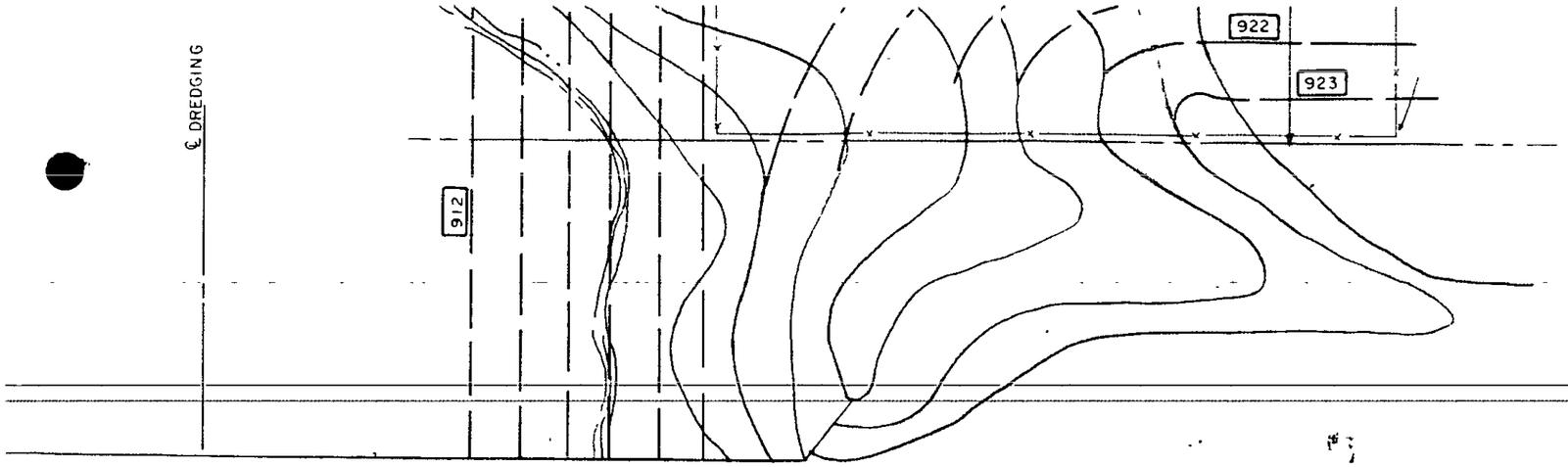


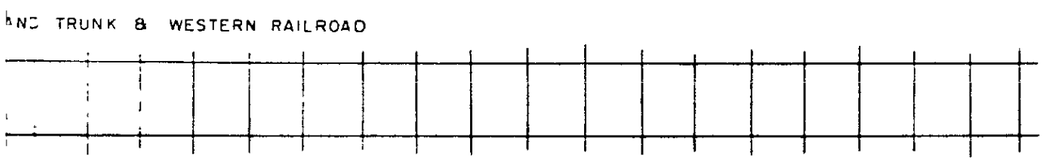
Intermediate
Inlet
Structure

SECTION C-C

1/4" = 1'-0"

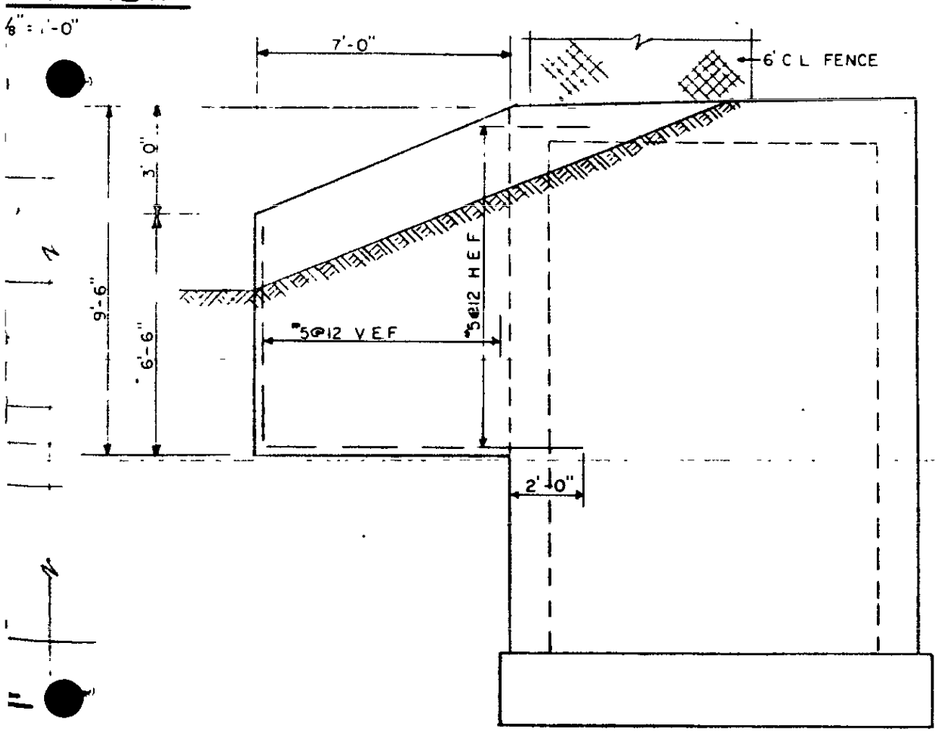






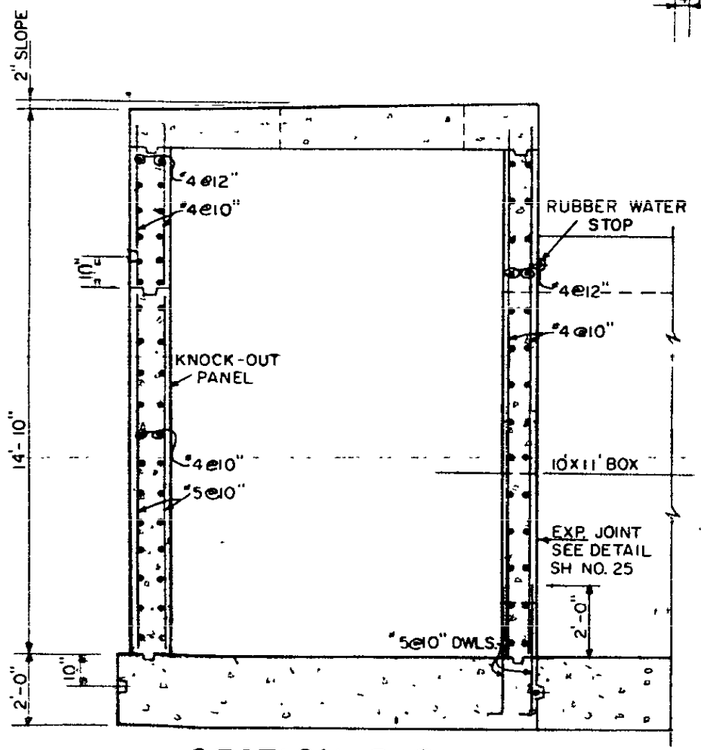
AN VIEW

⅛" = 1'-0"



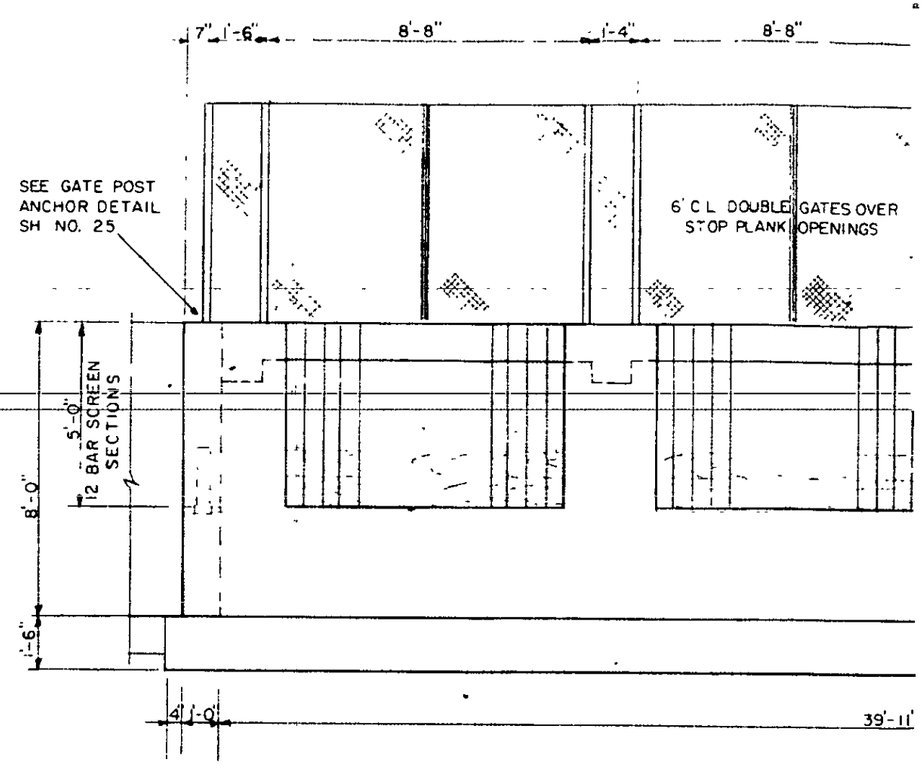
ELEVATION E

¼" = 1'-0"

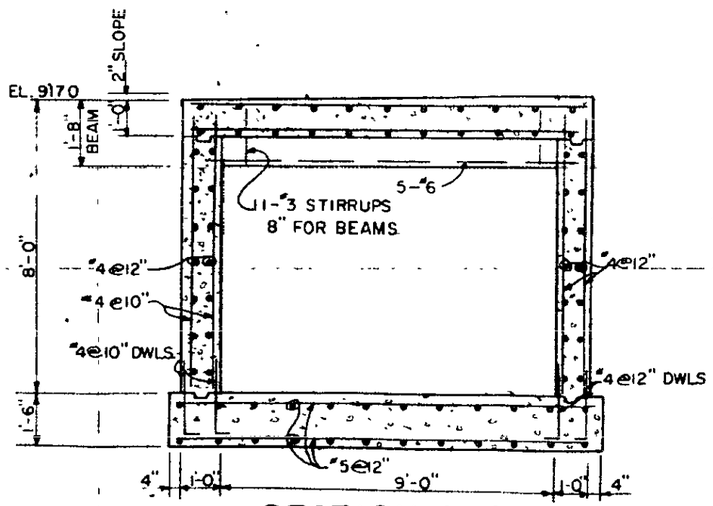


SECTION D-D

¼" = 1'-0"



Intermediate Inlet Structure



SECTION A-A

¼" = 1'-0"

12' Double Gate

A

80" Storm

nce

Stone Surface

Provide 8#5 E.F.
Diagonal Around Pipe

1'-6"

Guard Rail

20'-0"

Inclined
Screen

8'-4"

8'-4"

8'-4"

13'-0"

C

18"x18" Column
w/4#6 And #2 Ties @12

Horiz.
Screen

1'-3"

6"

25'-0"

-0"@12 Corner
Typical

10'-0"

45'-0"

B

A

PLAN AT ELEV. 917.0

1/4"= 1'-0"

6'-0" Chain Link Fence

Guard
Rail

Elev.
916.0

El. 917.0

5'-11"

3/4"Ø Bolt

#5@12

Granular Material
M.S.H.D. Class II

2"Ø Weep Hole @ El. 912.0 3'-0" c/c

6'-6"

5'-1 1/2"

7'-7 1/2"

Detail B

11'-6"

Bagley - Orchard Lake
Inlet Structure

Each
All
To Be
er

917.0

#5@12 E.N.E.F.

18"x18"x2" Beam Pocket
El.910.5

18"x18" Beam
w/ 4#8

#5@12
Dowels

El.905.5

ON C-C
1'-0"

#6@9

5@12

A

Fence

Stone Surface

Provide 8#5 E.F.
Diagonal Around Pipe

6"
1'-6"
8'-4"
8'

C
C

Horiz.
Screen

1'-3"

6"

135°

B

#5x2'-0"@12 Corner
Bars, Typical

6"
1'-6"
8'-0"

B

45

A

PLAN AT

6'-0" Chai

El.

Bagley - Orchard Lake
Inlet Structure

Bars. Typical

"x2" Beam Pocket

18"x18" Beam w/ 4#8

6"

1'-6"

8'-0"

45'-0"

10'

B

A

PLAN AT ELEV. 917.0

$\frac{1}{4}$"= 1'-0"

Bagley - Orchard Lake
Inlet Structure

6'-0" Chain Link Fence

Guard Rail

Elev. 916.0

El. 917.0

5'-11"

5'-7½"

Detail B

¾"Ø Bolt

Granular Material M.S.H.D. Class II

#5@12

2"Ø Weep Hole @ El. 912.0 3'-0" c/c

6'-6"

11'-6"

DETAIL A

El. 910.5

46° 19' 56"

Channel Bottom El. 910.0

1'-6"

#6@9

#4@10

5'-0"

18"x18" Columns @ 8'-4"c/c

60" El. 905.5

#5@12

El. 905.5

#6@6 Dowels

2'-0"

#5@12 E.F. Dowels

#6@9

#5@12

#8@9

#8@9 Dowels

6"

1'-3"

9"

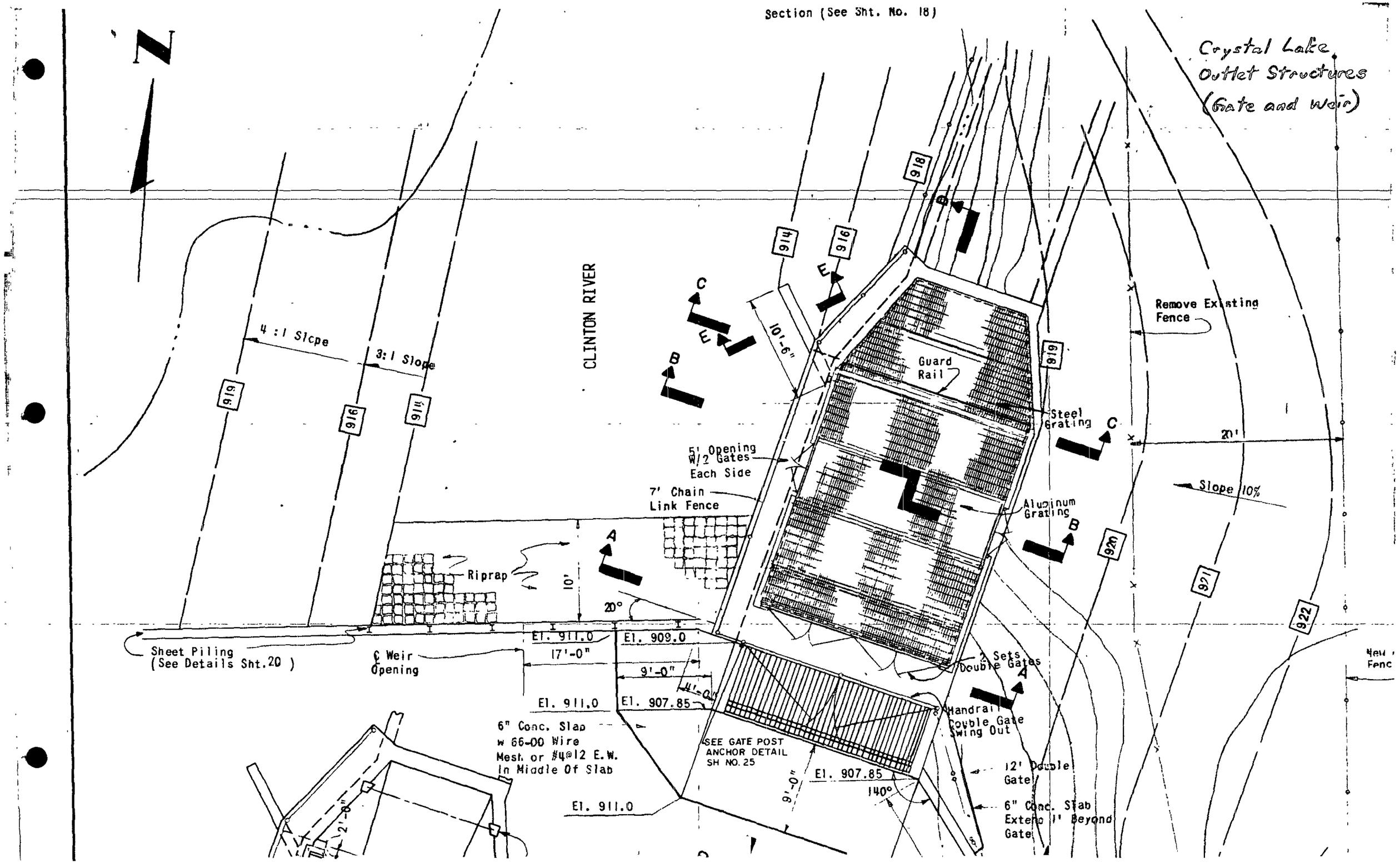
5'-3"

1'-6"

6"

10'-0"

SECTION A-A



Section (See Sht. No. 18)
Crystal Lake
Outlet Structures
(Gate and Weir)
N
CLINTON RIVER
4 : 1 Slope
3:1 Slope
919
916
914
918
920
921
922
10'-6"
Guard Rail
Steel Grating
Remove Existing Fence
20'
Slope 10%
5' Opening W/2 Gates Each Side
7' Chain Link Fence
Aluminum Grating
Riprap
10'
20°
Sheet Piling (See Details Sht.20)
℄ Weir Opening
El. 911.0
El. 909.0
17'-0"
9'-0"
4'-0"
El. 911.0
El. 907.85
6" Conc. Slab w 66-00 Wire Mesh or #4@12 E.W. In Middle Of Slab
SEE GATE POST ANCHOR DETAIL SH NO. 25
El. 907.85
9'-0"
140°
El. 911.0
2 Sets Double Gates
Handrail Double Gate Swing Out
12' Double Gate
6" Conc. Slab Extend 1' Beyond Gate
2'-0"
A
B
C
D
E

Crystal Lake
Outlet Structures

(Gate and Weir)

Sheet Piling
(See Details Sht. 20)

℄ Weir
Opening

El. 911.0

17'-0"

El. 911.0

El. 907.85

6" Conc. Slab
w 66-00 Wire
Mesh or #4@12 E.W.
In Middle Of Slab

SEE GATE POST
ANCHOR DETAIL
SH. NO 25

9'-0"

El. 907.85

140°

El. 911.0

Beam Pockets

21'-6"

45°

Gate Not Shown

Handrail

Double Gate
Swing Out

SECTIONAL
PLAN

@El. 919.0

1/8" = 1'-0"

CRYSTAL LAKE

Set
Double Gate

Handrail
Double Gate
Swing Out

12' Double
Gate

6" Conc. Slab
Extend 1' Beyond
Gate

El. 911.0

El. 911.0

30'

3:1 Slope

12' Double
Gate

Relocate Existing
Fence

El. 91

3'-0"

5:1 Slope

911 912 913 914 915 916 917 918

PLAN VIEW

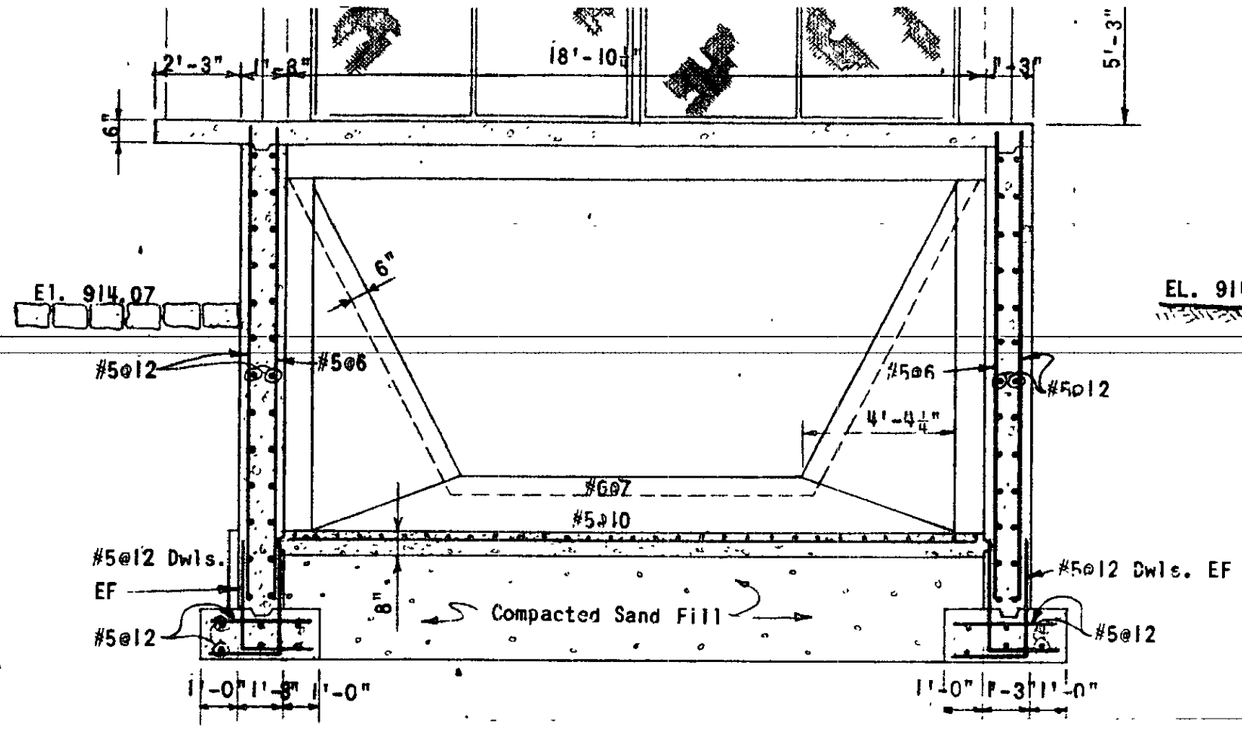
1/8"=1'-0"

7' Chain Link Fence

El. 919.0

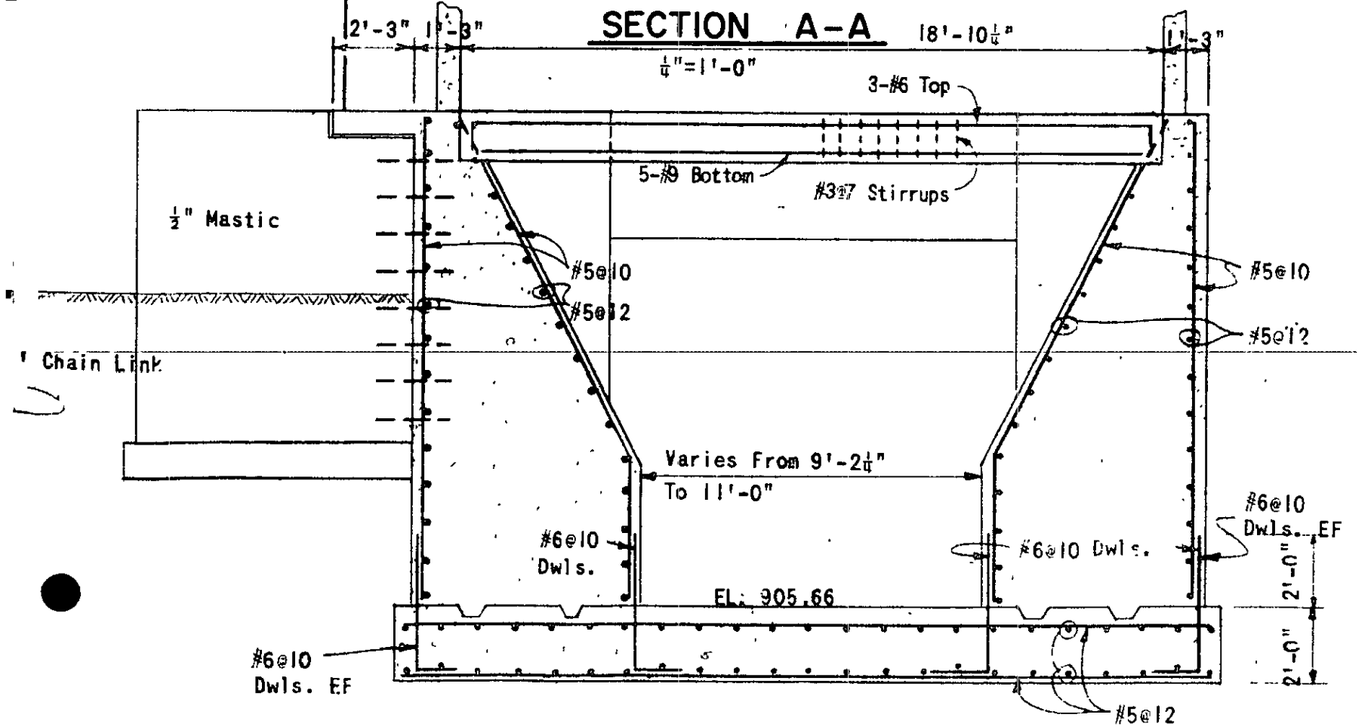
Exist

30'-0"

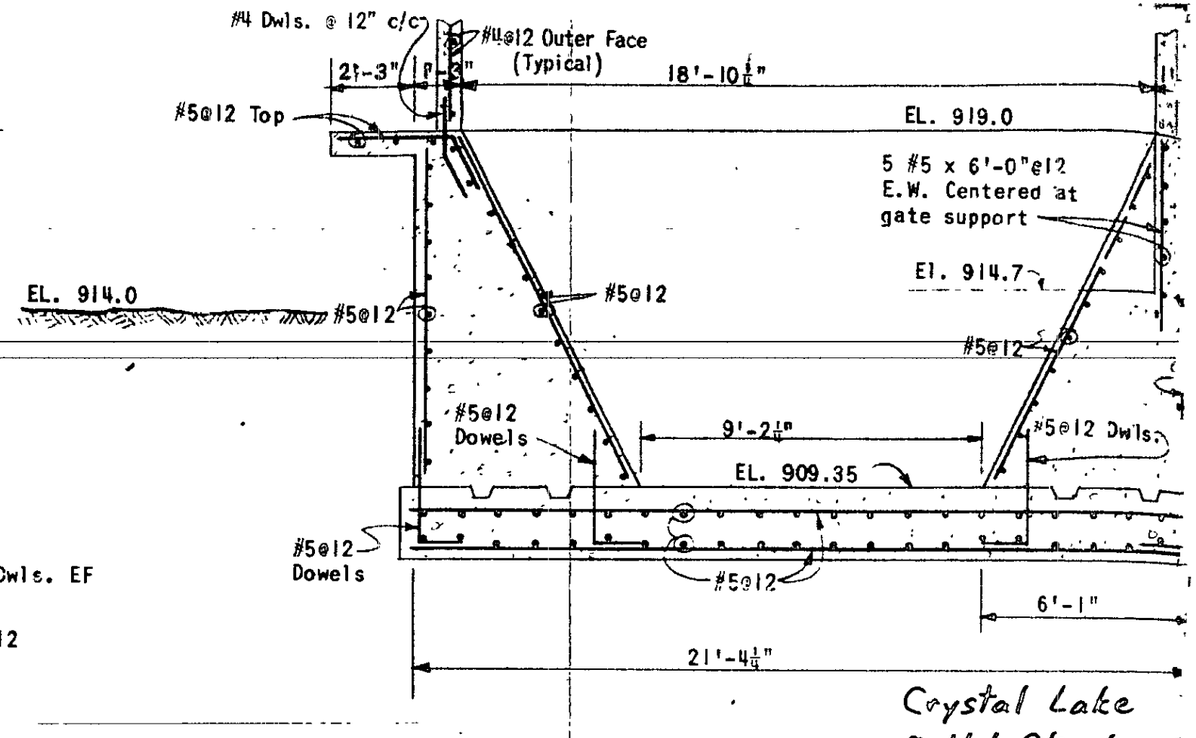


SECTION A-A

$\frac{1}{4}$"=1'-0"



SECTION C-C

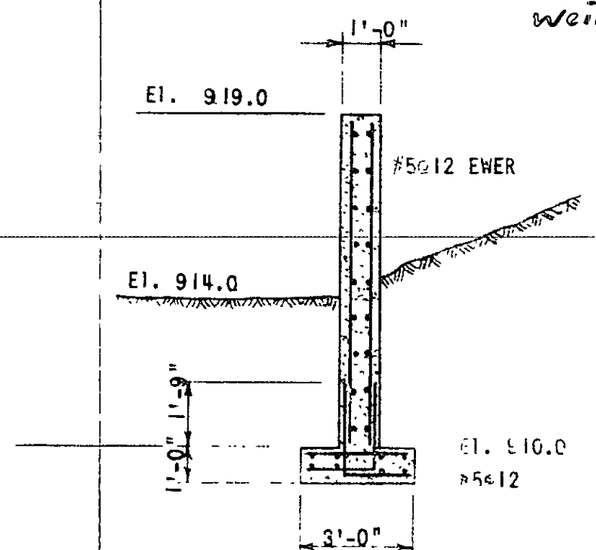


Crystal Lake
Outlet Structures

SECTION B-B

$\frac{1}{4}$"=1'-0"

(Gate and weir)



SECTION E-E

7' Chain Link Fence

914
912
910
908
906
904
902
900
898
896

EGL
HGL
Low chord
Invert
HGL

Elevation in feet

48.25 48.30 48.35 48.40 48.45 48.50 48.55 48.60 48.65 48.70 48.75 48.80 48.85 48.90

Miles Above Mouth

APPENDIX D

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

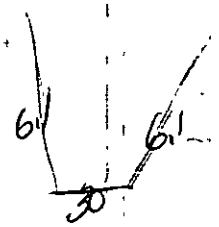
BY RSW DATE 8-2-77 JOB DESCRIPTION City of Pontiac FIS SHEET 1 OF 2
SUBJECT Clinton River Drain No. 2 JOB NO. 5620-26-1

Critical Slope Computations for Concrete-Lined Channel Downstream of East Boulevard

for the 10 yr. flood: $Q = 2270$ cfs

$b = 30$ ft. $\quad q = \frac{2270}{30} = 75.67 \frac{cfs}{ft.}$

$d_c = 6.10$ ft. (from HEC - II output)



$A_c = 6.10(30) = 183 ft^2$

$W_c = 42.2 ft. = P$

$R_c = \frac{183}{42.2} = 4.34$

$S_c = \left(\frac{n Q}{1.49 A_c R_c^{2/3}}\right)^2$ from Morris and Wiggert, p. 143

$S_c = \left[\frac{0.012(2270)}{1.49(183)(4.34)^{2/3}}\right]^2 = .0014$

$= .14\%$

$S_c = .000068 \; (= 0.0068\%) < 0.30\%$ (channel slope)

6

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY [illegible] DATE [illegible] JOB DESCRIPTION [illegible] SHEET [illegible] OF 2
SUBJECT Clinton River Dam No. 2 JOB NO. 5670-06-1

for the 50 yr. flood: $Q = 3250$ cfs

$d_c = 7.62$ ft.

$A_c = 228.6$ ft.^{2} $R_c = 45.2$ ft.

$$S_c = \left[\frac{0.012(3250)}{1.49(228.6)(45.2)^{2/3}}\right]^2$$

$S_c = 0.000081 = 0.0081\% < 0.30\%$

for the 100 yr. flood $Q = 3720$ cfs

$d_c = 8.29$ ft.

$A_c = 248.7$ ft.^{2} $R = 46.6$ ft. $R_c = 5.34$

$$S_c = \left[\frac{0.012(3720)}{1.49(248.7)(\cancel{46.6})^{2/3}}\right]^2$$

$= 0.00156$

$S_c = \cancel{0.000087} = \cancel{0.0087\%} < 0.30\%$

0.156

for the 500 yr. flood $Q = 5110$ cfs

$d_c = 10.12$ ft.

$A_c = 303.6$ ft.^{2} $R_c = 50.2$ ft.

$$S_c = \left[\frac{0.012(5110)}{1.49(303.6)(50.2)^{2/3}}\right]$$

$.1668\%$

$S_c = \cancel{0.000099} = \cancel{0.0099\%} < 0.30\%$

Channel slope is steeper than critical slope for all flows

APPENDIX E

Table 1. Culvert Feature of Clinton River Drain No. 1

Reach in Miles		Culvert	Slope (ft/ft)	100-year flow Discharge (cfs)
From	to			
47.718 (888.30)*	47.782 (889.15)*	10'x17' & 10'x10' (Concrete Culvert)	0.0022	2600
47.782	47.785 (889.40)*	Transition Zone	0.0024	2600
47.785	48.316 (896.13)*	Twin 10'x10' (Concrete Culvert)	0.0024	2600
48.316	48.348 (896.22)*	Twin 10'x10' (Concrete Culvert)	0.00056	2150
48.348	48.352 (896.24)*	Transition Zone	0.00056	2150
48.352	48.389 (896.35)*	Twin 11'ϕ (Concrete Pipe)	0.00056	2150
48.389	48.393 (897.61)*	Transition Zone	0.0533	1730

* Invert Elevation in feet (USGS)

Table 2 : Culvert Feature of Clinton River Drain #3

Reach in Miles		Culvert	slope	100-year flood discharge
From	To		(ft/ft)	(cfs)
48.393 (899.61)*	48.420 (898.10)*	Twin. 10' x 10' (Concrete Culvert)	0.0034	1730
48.420	48.538 (899.24)*	Twin 10' x 10' (Concrete Culvert)	0.0019	1730
48.538	48.540 (899.26)*	Twin 10' x 10' (Concrete Culvert)	0.0019 (with bending)	1650
48.540	48.757 (901.44)*	Twin 10' x 10' (Concrete Culvert)	0.0019	1650
48.757	48.764 (901.51)*	Transition Zone	0.0019	600
48.764	48.768 (901.88)*	10' x 11' (Concrete Culvert)	0.0185	600
48.768	49.036 (904.31)*	10' x 11' (Concrete Culvert)	0.0017	600
49.036	49.045 (904.36)*	10' x 11' (Concrete Culvert)	0.0017 (with bending)**	600
49.045	49.190 (905.65)*	10' x 11' (Concrete Culvert)	0.0017	600

* Invert Elevation in feet (USGS)

** Manning Coefficient increased by 50% due to bending.

At Section 48.316 , (Q = 2600 cfs)

depth, $d = 9.68$ ft. $\Rightarrow \frac{V^2}{2g} = 2.80$ ft.

bottom elevation = 896.13 ft

water surface elevation = 905.81 ft. includes input from 10'x10' Box flow from North of Pontiac

Energy Gradient elevation = 908.61 ft

2. At Section 48.318 , (Q = 2150 cfs)

$d = 10.0$ ft. $\Rightarrow \frac{V^2}{2g} = 1.79$ ft. ; $L = 10.0$ ft

$P = 80.0$ ft

$A = 200$ ft^2

$R = A/P = 2.5$ ft

$h_f = \frac{29.1 n^2 L}{R^{4/3}} \frac{V^2}{2g} = 0.02$ ft

h_e (expansion loss) $= 0.2 \frac{V^2}{2g} = 0.36$ ft.

Total head, $H = 908.61 + 0.02 + 0.36 = 908.99$ ft. (HGL = 907.20 ft.)

2. At Section 48.348 : (Q = 2150 cfs)

$d = 10.0$ ft $\Rightarrow \frac{V^2}{2g} = 1.79$ ft. ; $L = 158.0$ ft

$R = 2.5$ ft.

$h_f = \frac{29.1 n^2 L}{R^{4/3}} \frac{V^2}{2g} = 0.35$

$H = 908.99 + 0.35 = 909.34$ (H.G.L. = 907.55 ft.)

3. At Section 48.352 , (Q = 2150 cfs) (Transition Zone)

$d = 11.0$ ft ((Twin 11'ϕ)

$R = \frac{d}{4} = 2.75$ ft.

$A = 2 \times \frac{\pi}{4} (11)^2 = 190.07$ ft^2. $\Rightarrow \frac{V^2}{2g} = 1.99$ ft. ; $L = 24$ ft.

$h_f = \frac{29.1 n^2 L}{R^{4/3}} \frac{V^2}{2g} = 0.05$

h_t (transition loss) $= 0.1 \frac{V^2}{2g} = 0.20$

$H = 909.34 + 0.05 + 0.20 = 909.59$ ft. (HGL = 907.60 ft.)

4. At Section 48.389 : (Q = 2150 cfs)

$d = 11.0$ ft. (Twin 11'ϕ)

$R = 2.75$ ft

$A = 190.07$ ft^2 ; $\Rightarrow \frac{V^2}{2g} = 1.99$ ft ; $L = 190$ ft.

$h_f = \frac{29.1 n^2 L}{R^{4/3}} \frac{V^2}{2g} = 0.41$

$H = 909.59 + 0.41 = 910.0$ ft (HGL = 908.01 ft)

5. At Section 48.393 : (Q = 1730 cfs) (Transition zone)

$d = 10.0$ ft

$R = 2.5$ ft

$A = 200$ ft $\Rightarrow \frac{V^2}{2g} = 1.16$ ft ; $L = 24$ ft.

$h_f = 0.03$ ft

h_t (transition loss) $= 0.15 \frac{V^2}{2g} = 0.17$ ft

$H_T = 910.0 + 0.03 + 0.17 = 910.20$ ft. (HGL = 909.04 ft.)

6. At Section 48.420 : (Q = 1730 cfs)

$d = 10.0$ ft

$R = 2.50$ ft

$A = 200$ ft $\Rightarrow \frac{V^2}{2g} = 1.16$ ft. ; $L = 143$ ft.

$h_f = \frac{29.1 n^2 L}{R^{4/3}} \frac{V^2}{2g} = 0.21$ ft

$H = 910.20 + 0.21 = 910.41$ ft. (HGL = 909.25 ft)

7. At Section 48.538 (Q = 1730 cfs)

d = 10.0 ft.

R = 2.50 ft

A = 200 ft^2 $\Rightarrow \frac{V^2}{2g}$ = 1.16 ; L = 622 ft.

h_f = 0.89 ft

H = 910.41 + 0.89 = 911.30 ft. (HGL = 910.14 ft)

8. At Section 48.540 (Q = 1650 cfs)

d = 10.0 ft

R = 2.50 ft

A = 200 ft^2 $\Rightarrow \frac{V^2}{2g}$ = 1.06 ft ; L = 10 ft.

h_f = 0.01 ; bent loss ; $h_b = 0.45 \frac{V^2}{2g}$ = 0.47 ft

H = 911.30 + 0.01 + 0.47 = 911.78 ft (HGL = 910.72 ft.)

9. At Section 48.757 (Q = 1650 cfs)

d = 10.0 ft

R = 2.50 ft

A = 200 ft^2 ; $\Rightarrow \frac{V^2}{2g}$ = 1.06 ft ; L = 1146 ft.

h_f = 1.50 ft

H = 911.78 + 1.50 = 913.28 ft. (HGL = 912.22 ft)

10. At Section 48.764 (Q = 600 cfs)

d = 10.0 ft

A = 110 ft ; P = 42 ft.

R = 2.62 ft ; L = 37.5 ft ; $\frac{V^2}{2g}$ = 0.46

h_f = 0.02

h_t (Trasition) = $0.5 \frac{V^2}{2g}$ = 0.23

$\Rightarrow H = 913.28 + 0.02 + 0.23 = 913.53$ ft.

(HGL = 913.07 ft)

At Section 48.768 ($Q = 600$ cfs)

$d = 10.0$ ft

$A = 110$ ft ; $\frac{v^2}{2g} = 0.46$ ft ; $L = 20$ ft.

$R = 2.62$ ft

$S_f = 0.01$

$H = 913.53 + 0.01 = 913.54$ ft. (HGL = 913.08 ft.)

12. At Section 48.957 ($Q = 600$ cfs)

$d = 10.0$ ft.

$A = 110$ ft $\longrightarrow$ $\frac{v^2}{2g} = 0.46$, $L = 1000$ ft.

$R = 2.62$ ft.

$S_f = 0.53$

$H = 913.54 + 0.53 = 914.07$ ft. (HGL = 913.61 ft).

$Q = 85$ cfs

$D = 5'$ concrete $\quad A = \frac{\pi}{4}R^2 = 19.635 \text{ ft}^2 \Rightarrow v = 4.33$ ft/sec

$L = 160'$ $\quad \rightarrow \frac{v^2}{2g} = 0.29$ ft

$n = 0.012$

$R = 1.25'$

$$h_f = \frac{29.1 n^2 L}{R^{4/3}} \frac{v^2}{2g} = 0.14 \text{ ft}$$

$$h_e = 0.4 \frac{v^2}{2g} = 0.12 \text{ ft}$$

$H_T = 0.26$ ft.

APPENDIX F

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RGW DATE 7-13-77 JOB DESCRIPTION City of Pontiac FIS SHEET 1 OF 3
SUBJECT Determination of Flow Separation - Clinton & Drain No. 3 JOB NO. 5670-06-1

From HEC-2

Trial flows @ Bagley - Orchard Lake Inlet	EGL @ Intermediate Inlet from HEC-2	Total flow for Drain No. 3 open channel Flow @ Intermediate Inlet	EGL @ Intermediate Inlet from Weir Eqn. (see below)
Q, cfs	EGL, feet	Q, cfs	EGL, feet
40	913.46	600	914.48
80	914.29	560	914.37
110	914.74	530	914.29
140	915.13	500	914.20

Net weir opening - 45 ft.

Reduction in weir length due to 12 side contractions

$$L = L' - 0.1NH \quad ①$$

$$L = 45 - 0.1(12)3$$

$$L = 41.4 \text{ ft.}$$

Computation of weir coefficient, C

$$C = 3.27 + 0.40 \frac{H}{h} \quad ①$$

$$C = 3.27 + 0.40 \frac{3}{3}$$

$$C = 3.67$$

H = head on weir
h = height of weir
H = 3 ft. } estimated values
h = 3 ft. }

① From: Ven Te Chow, Open-Channel Hydraulics, p. 362

$$Q = CLH^{3/2}$$

$$H = \left(\frac{Q}{CL}\right)^{2/3}$$

$$H = \left[\frac{600}{3.7(41.4)}\right]^{2/3}$$

$$H = 2.48$$

Sensitivity of C Value

@ Q = 600

@ C = 3.0 H = 2.86

@ C = 4.0 H = 2.36

Intermediate inlet crest @ elev. 912.00

EGL @ Inter. Inlet = 912.00 + 2.48 = 914.48

Other values in table on previous page calculated similarly.

The headloss caused by the bars on the inlet structures was examined as shown below.

Bars are: 6" long x ½" wide x 69" high Flat Face
Spacing: 6" center to center.

from Kirschmer: $h_L = \beta\left(\frac{w}{b}\right)^{4/3} h_v \sin\theta$ ②

where h_L = headloss

β = bar shape factor = 2.42 (P. 276 of ②)

w = maximum cross-sectional width of bars facing flow, ft.

b = minimum clear spacing of bars, ft.

h_v = velocity head of flow approaching rack, ft.

θ = angle of rack with horizontal

② from Metcalf & Eddy, Inc. Wastewater Engineering, p. 275

$h_v = 0.01$ (from HEC-2 @ $Q = 80$ cfs)

$h_L = 2.42 \left(\frac{.042}{0.5}\right)^{4/3} (0.01)(1)$

$h_L = 0.0009$ ft. insignificant due to relatively wide spacing of bars.

Using the values in the table, Curves ① and ② were plotted. Curve ② was used to determine the flow division for each flood event. Curve ① was used as a check for the 100-year flow only.

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RGW DATE 7-14-77 JOB DESCRIPTION City of Pontiac EIS SHEET 4 OF 4
SUBJECT Determination of Flow Separation - Clinton River Drain No. 3 JOB NO. 5620-06-1

Final Flow Division (from Curve (2))

	Flow Rate at Bagley Orchard-Lake Inlet (cfs)	Flow Rate at GTRR Intermediate Inlet (cfs)	WSEL. at GTRR Intermediate Inlet (ft.)
10 yr.	28	177	913.12
50 yr.	67	433	914.02
100 yr.	85	555	914.38
500 yr.	148	882	915.21

K&E 10 X 10 TO ¼ INCH • 7½ X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 1472

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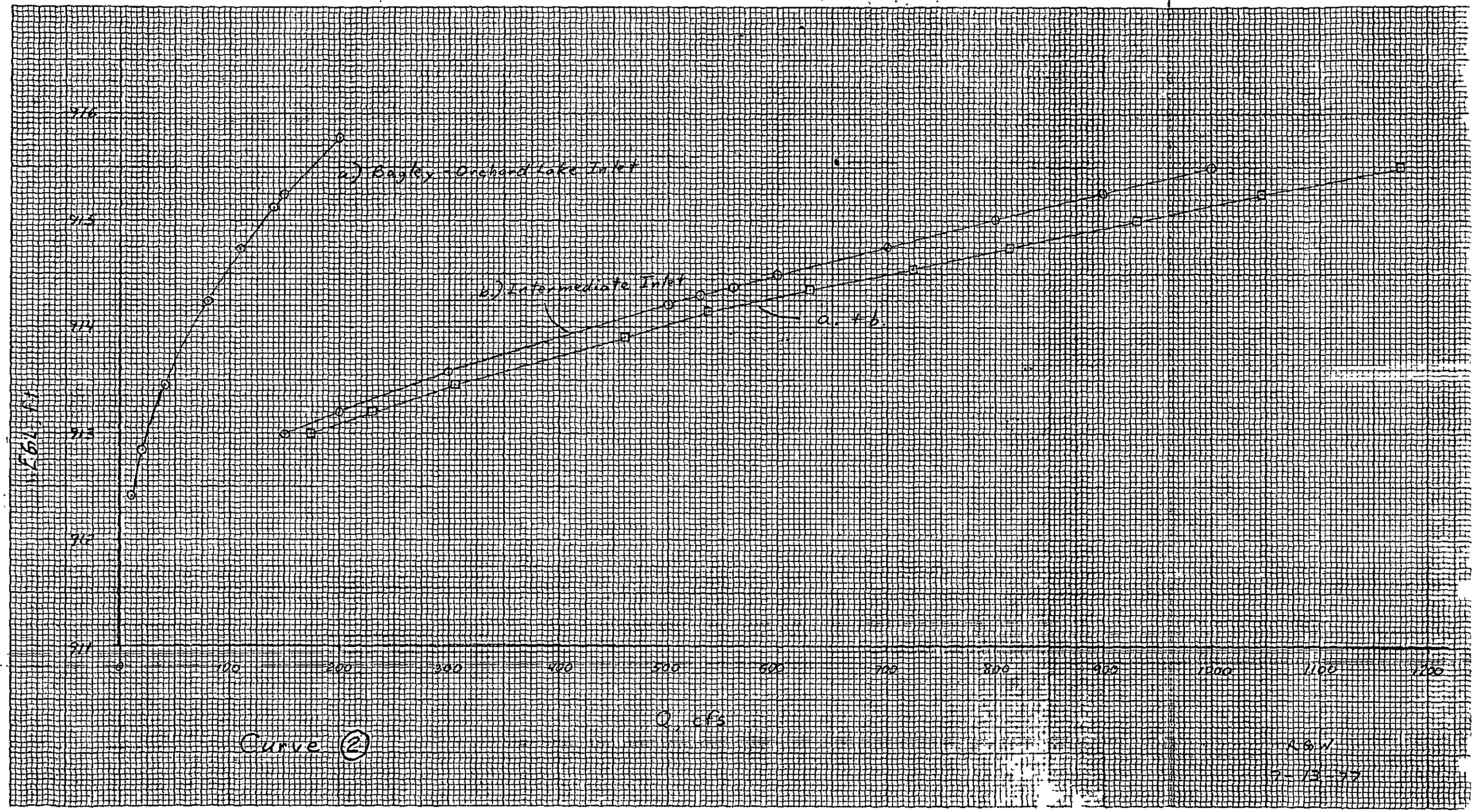
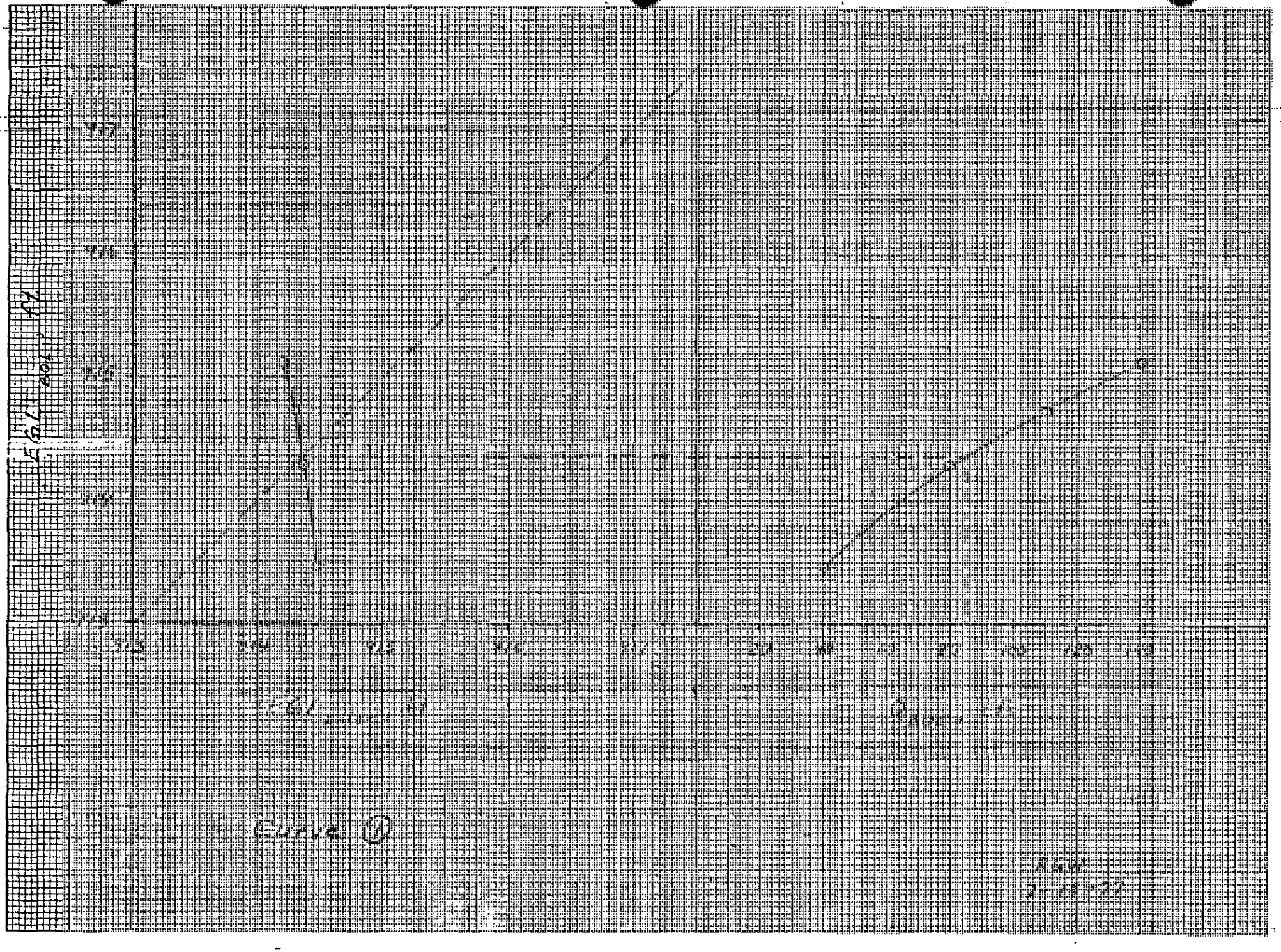


Curve (2)

K & W

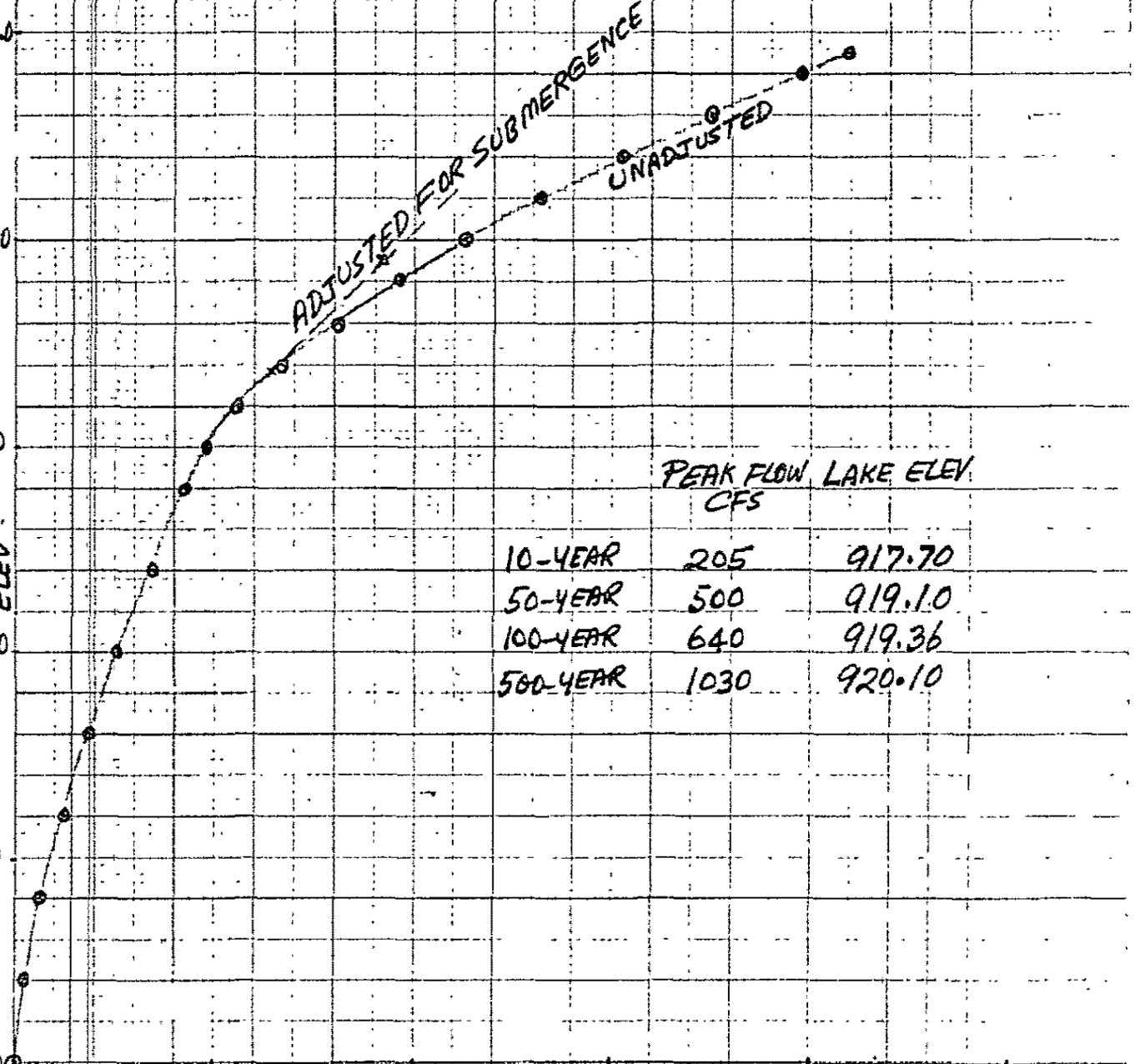
7-13-77

K·E 10 X 10 TO ½ INCH • 7½ X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.



APPENDIX G

RATING CURVE FOR CRYSTAL LAKE OUTLET WEIR



	PEAK FLOW CFS	LAKE ELEV
10-YEAR	205	917.70
50-YEAR	500	919.10
100-YEAR	640	919.36
500-YEAR	1030	920.10

J&A
5670-06-1
FIS Pontiac City
Dawn 9/27/77

CLINTON RIVER
CRYSTAL LAKE
OUTLET WEIR
LFT THICK
NUMBER OF POINTS= 8

STATION	ELEVATION
0.0	921.00
45.00	919.00
155.00	919.00
155.00	916.00
185.00	916.00
185.00	919.00
195.00	919.00
195.00	921.00

WIDTH OF ROADWAY= 1.00
ROAD SURFACE:PAVED

ELEVATION FEET	FLOW CFS	CAV	TOP WIDTH FEET	AREA SFT
916.00	0.0	0.0	0.	0.0
916.10	2.77	2.930	30.	3.00
916.20	8.23	3.075	30.	5.99
916.30	15.20	3.090	30.	8.99
916.40	23.40	3.090	30.	11.98
916.50	32.70	3.090	30.	14.98
916.60	42.99	3.090	30.	17.97
916.70	54.17	3.090	30.	20.97
916.80	66.18	3.090	30.	23.96
916.90	78.97	3.090	30.	26.96
917.00	92.50	3.090	30.	29.96
917.10	106.71	3.090	30.	32.95
917.20	121.59	3.090	30.	35.95
917.30	137.10	3.090	30.	38.94
917.40	153.22	3.090	30.	41.94
917.50	169.93	3.090	30.	44.93
917.60	187.20	3.090	30.	47.93
917.70	205.02	3.090	30.	50.93
917.80	223.37	3.090	30.	53.92
917.90	242.24	3.090	30.	56.92
918.00	261.62	3.090	30.	59.91
918.10	281.48	3.090	30.	62.91
918.20	301.83	3.090	30.	65.90
918.30	322.64	3.090	30.	68.90
918.40	343.91	3.090	30.	71.89
918.50	365.62	3.090	30.	74.89
918.60	387.78	3.090	30.	77.89
918.70	410.36	3.090	30.	80.88
918.80	433.37	3.090	30.	83.88
918.90	456.79	3.090	30.	86.87
919.00	480.62	3.090	30.	89.87
919.10	515.27	2.959	152.	104.41
919.20	561.66	3.073	154.	119.65
919.30	615.43	3.086	157.	135.36
919.40	674.74	3.086	159.	151.05
919.49	739.37	3.086	161.	166.92
919.59	808.90	3.086	163.	182.97
919.69	884.79	3.086	166.	199.88
919.79	963.62	3.086	168.	216.37
919.89	1046.67	3.086	170.	233.03
919.99	1133.78	3.086	172.	249.88
920.09	1228.34	3.086	175.	267.99
920.19	1323.68	3.086	177.	285.28
920.29	1422.80	3.087	179.	302.75

920.39	1525.64	3.087	181.	320.39
920.49	1637.72	3.087	184.	339.70
920.59	1748.30	3.087	186.	357.79
920.69	1862.44	3.087	188.	376.06
920.79	1980.12	3.087	190.	394.51
920.89	2109.27	3.087	193.	415.02

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY Dan DATE 9/27/77 JOB DESCRIPTION EIS - Pontiac City SHEET ____ OF ____
SUBJECT Rating Curve for Weir @ JOB NO 5670-06-1
outlet of Crystal Lake in Pontiac

Check for Weir Submergence

1. 10-year Flood
   Q = 205 cfs
   Tailwater Elevation = 916.09
   Head Water Elev (EG) = 917.70

$$\frac{D}{H} = \left(\frac{916.09 - 916.0}{917.70 - 916.0}\right) = \frac{0.09}{1.70} = 5.29\%$$

No adjustment is required.

2. 50-year Flood
   Q = 500 cfs
   Tailwater Elev = 917.61
   Headwater Elev = 919.10

$$\frac{D}{H} = \frac{1.61}{3.10} = 51.9\%$$

No adjustment is required

3. 100-year Flood
   Q = 640 cfs
   Tailwater Elev = 918.19
   Headwater Elev = 919.36

$$\frac{D}{H} = \frac{2.19}{3.36} = 65.2\%$$

No adjustment is required.

4. 500-year Flood
   Q = 1030 cfs
   Tailwater Elev = 919.6
   Headwater Elev = 919.9

$$\frac{D}{H} = \frac{3.6}{3.9} = 92.3\%$$ Coefft = 0.89

Q = 917 cfs

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: PONTIAC, CITY

3) WATERCOURSE: CLINTON RIVER

4) DOCUMENT TYPE: INPUT LISTING

00BREAK00

```
C
C     83
C 45.256                REPEAT OF A
C 45.256                INVERT ADJUSTED
C 45.313          A     VALLEY SECTION A
C 45.445          B     VALLEY SECTION B
C 45.502          C     VALLEY SECTION C
C 45.569          D     VALLEY SECTION D
C 45.587          E     VALLEY SECTION E
C 45.692          F     VALLEY SECTION F
C 45.783          G     VALLEY SECTION G
C 45.819          H     VALLEY SECTION H
C 45.881          I     VALLEY SECTION I
C 45.943                REPEAT OF I
C 45.943                INVERT ADJUSTED
C 45.958                REPEAT OF J
C 45.958                AREA ADJUSTED
C 45.959                REPEAT OF J
C 45.959                D/S FACE OF GRAND TRUNK RR BRIDGE
C 45.959                ONE CONCRETE PIER
C 45.959                22 FT LONG, 10 FT WIDE AT BASE
C 45.959                ON RIGHT OVERBANK
C 45.962          J     BRIDGE SECTION J
C 45.962                U/S FACE OF GRAND TRUNK RR BRIDGE
C 45.963                REPEAT OF J
C 45.995          K     VALLEY SECTION K
C 46.024          L     VALLEY SECTION L
C 46.025                D/S FACE OF EASTBOUND M-59 BRIDGE
C 46.025                TWO CONCRETE PIERS
C 46.025                50 FT APART, 42 FT LONG, 3.2 FT WIDE AT BASE
C 46.033          M     BRIDGE SECTION M
C 46.033                U/S FACE OF EASTBOUND M-59 BRIDGE
C 46.034                REPEAT OF M
C 46.043          N     VALLEY SECTION N
C 46.043                INVERT ADJUSTED
C 46.044                D/S FACE OF WESTBOUND M-59 BRIDGE
C 46.044                SAME DIMENSIONS AS EASTBOUND M-59 BRIDGE
C 46.051          O     BRIDGE SECTION O
C 46.051                U/S FACE OF WESTBOUND M-59 BRIDGE
C 46.052                REPEAT OF O
C 46.108          P     VALLEY SECTION P
C 46.127          Q     VALLEY SECTION Q
C 46.354                REPEAT OF Q
C 46.354                INVERT ADJUSTED
C 46.359                REPEAT OF Q
C 46.360          R     VALLEY SECTION R
C 46.363          S     VALLEY SECTION S
C 46.376                REPEAT OF S
C 46.382          T     VALLEY SECTION T
C 46.387          U     VALLEY SECTION U
C 46.691                D/S FACE OF EAST BOULEVARD BRIDGE
C 46.701          V     BRIDGE SECTION V
C 46.701                U/S FACE OF EAST BOULEVARD BRIDGE
C 46.705                REPEAT OF W
C 46.706                REPEAT OF W
C 46.706                SIX FOOT DIA SEWER PIPE ABOVE RIVER, D/S FACE
C 46.707          W     BRIDGE SECTION W
C 46.707                SIX FOOT DIA SEWER PIPE ABOVE RIVER, U/S FACE
C 46.709          X     VALLEY SECTION X
C 46.717          Y     VALLEY SECTION Y
C 46.718                REPEAT OF Y
C 46.809          Z     VALLEY SECTION Z
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Input Listing

Clinton River

Drain No. 2

City of Pontiac FIS

5670-06-1

See Revised Listing Following

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C 46.961        AA       VALLEY SECTION AA
C 47.150        AB       VALLEY SECTION AB
C 47.245        AC       VALLEY SECTION AC
C 47.396        AD       VALLEY SECTION AD
C 47.400                 REPEAT OF AD
C 47.400                 INVERT ADJUSTED
C 47.401                 REPEAT OF AD
C 47.404        AE       VALLEY SECTION AE
C 47.405        AF       VALLEY SECTION AF
C 47.415                 REPEAT OF AF
C 47.421        AG       VALLEY SECTION AG
C 47.432                 REPEAT OF AH
C 47.433                 REPEAT OF AH
C 47.433                 D/S FACE OF PADDOCK ST BRIDGE
C 47.442        AH       BRIDGE SECTION AH
C 47.442                 U/S FACE OF PADDOCK ST BRIDGE
C 47.443                 REPEAT OF AH
C 47.445                 REPEAT OF AI
C 47.445                 INVERT ADJUSTED
C 47.446        AI       VALLEY SECTION AI
C 47.529        AJ       VALLEY SECTION AJ
C 47.718        AK       VALLEY SECTION AK
C 48.727        AL       VALLEY SECTION AL
T1      CITY OF PONTIAC, FIS    5670-06      JOHN EMIG - PROJECT MANAGER
T2      10 YEAR FLOOD
T3      CLINTON RIVER DRAIN #2
J1            2                                                  868.681
J2     1              -1
J3     1      10      11      12      14       8       4
NC  .035    .035    .022      .1      .2
QT     4    2410    3460    3950    5440
X145.256      10     188     302       0       0       0
X3    10                      0             340
GR 865.0       0   862.3     165   868.6     178   868.6     188   857.9     227
GR 857.9     263   868.5     302   868.5     312   864.0     325   865.0     365
X145.313                           300     300     300
X3    10                    122             302
X145.445       8      22     138     700     700     700
X3    10                     10             150
GR 861.0       0   868.5      14   868.5      22   857.9      62   857.9      98
GR 868.5     138   868.5     148   862.5     160
X145.502       6      10     125     300     300     300
X3    10                      8             128
GR868.58    0.00  868.58   10.00  858.02   50.00  858.02   85.00  868.58  125.00
GR868.58  135.00
X145.569       4             117     350     350     350
GR870.78    0.00  858.37   43.00  858.37   78.00  868.68  117.00
X145.587       8             115     100     100     100
GR873.68    0.00  864.75   18.00  864.75   28.00  858.75   40.00  858.75   75.00
GR864.75   87.00  864.75   97.00  873.68  115.00
X145.692       8             117     550     550     550
GR874.16    0.00  865.16   20.00  865.16   30.00  859.16   42.00  859.16   77.00
GR865.16   89.00  865.16   99.00  874.16  117.00
X145.783       8             115     484     484     484
GR874.58    0.00  865.48   18.00  865.48   28.00  859.51   40.00  859.51   75.00
GR865.48   87.00  865.48   97.00  874.58  115.00
X145.796      12             115      66      66      66
GR874.58    0.00  865.58   18.00  865.58   32.50  862.68   37.50  862.58   38.50
GR859.58   44.50  859.58   70.50  862.58   76.50  862.68   77.50  865.58   82.50
GR865.58   97.00  874.58  115.00
NC  .035    .035    .020
X145.797                             1       1       1
BT  12.0    0.00  880.08     0.0    0.00  880.08  874.58   37.50  880.08  874.58
BT  37.5  880.08  862.68   38.50  880.08  862.58   38.50  880.08  874.58   76.50
BT880.08  874.58   76.50  880.08  862.58   77.50  880.08  863.08   77.50  880.08
BT874.58  115.00  880.08  874.58  115.00  880.08     0.0
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X145.798                                    6       6       6
X2                                                          1
X145.799                                    1       1       1
NC  .035    .035    .022
X145.819      8               122     117     117     117
GR874.58    0.00  865.58    19.00   865.58   29.00  859.66   41.00  859.66   76.00
GR865.58   88.00  865.58    98.00   877.18  122.00
X145.881      8               115     325     325     325
GR874.91    0.00  865.91    18.00   865.91   28.00  859.91   40.00  859.91   75.00
GR865.91   87.00  865.91    97.00   874.91  115.00
X145.943                                  325     325     325             0.26
X145.958       12      16      241      82      82      82   .9459
GR883.38    0.00  883.28    16.00   875.28   53.00  875.28   97.00  866.28  113.00
GR866.28  115.00  866.28   125.00   866.28  144.00  860.24  157.00  860.24  196.00
GR876.48  223.00  883.88   241.00
NC  .035    .035    .020
X145.959                                    1       1       1
X2                                                                  .9459
BT   8.0    0.00  900.38     0.0     0.00  900.38  889.38  115.00  900.38  889.38
BT 115.0  900.38  866.28   125.00   900.38  866.28  125.00  900.38  889.38  241.00
BT900.38  889.38  241.00   900.38     0.0
X145.962                                   22      22      22
X2                                                          1
X145.963                                    1       1       1
NC  .035    .035    .022
X145.995      8               121     169     169     169
GR875.38    0.00  866.38    18.00   866.38   28.00  860.36   40.00  860.36   75.00
GR866.38   87.00  866.38    97.00   878.38  121.00
X146.024     23     37.6     84.4     157     157     157
GR 884.2      0   874.3        0   874.2       6   866.2      21   865.7      32
GR 864.4   34.4   881.2       36   863.4    37.6   861.4      44   859.4      50
GR 859.9     55   860.1       60   860.1      65   860.9      70   861.7      75
GR 862.0     79   863.6     84.4   882.3      86   866.3    87.6   866.7     100
GR 875.5    120   875.7      124   887.0     124
X146.025                                    1       1       1
BT   6       0   884.2      0.0       0   884.2   880.5      36   885.0   881.2
BT  86   886.1   882.3      124   887.0   883.2     124   887.0     0.0
X146.033     23     37.6     84.4      42      42      42
BT   6       0   883.1      0.0       0   883.1   879.3      36   883.6   879.8
BT  86   884.5   880.6      124   885.2   881.4     124   885.2     0.0
GR 883.1      0   874.3        0   874.2       6   866.2      21   865.7      32
GR 864.4   34.4   879.8       36   863.4    37.6   861.4      44   859.4      50
GR 859.9     55   860.1       60   860.1      65   860.9      70   861.7      75
GR 862.0     79   863.6     84.4   880.6      86   866.3    87.6   866.7     100
GR 875.5    120   875.7      124   885.2     124
X146.034                                    1       1       1
X146.043     23     37.6     84.4      54      54      54             0.04
GR 884.2      0   874.3        0   874.2       6   866.2      21   865.7      32
GR 864.4   34.4   881.2       36   863.4    37.6   861.4      44   859.4      50
GR 859.9     55   860.1       60   860.1      65   860.9      70   861.7      75
GR 862.0     79   863.6     84.4   882.3      86   866.3    87.6   866.7     100
GR 875.5    120   875.7      124   887.0     124
X146.044                                    1       1       1
BT   6       0   884.2      0.0       0   884.2   880.5      36   885.0   881.2
BT  86   886.1   882.3      124   887.0   883.2     124   887.0     0.0
X146.051     23     37.6     84.4      42      42      42
BT   6       0   883.1      0.0       0   883.1   879.3      36   883.6   879.8
BT  86   884.5   880.6      124   885.2   881.4     124   885.2     0.0
GR 883.1      0   874.3        0   874.2       6   866.2      21   865.7      32
GR 864.4   34.4   879.8       36   863.4    37.6   861.4      44   859.4      50
GR 859.9     55   860.1       60   860.1      65   860.9      70   861.7      75
GR 862.0     79   863.6     84.4   880.6      86   866.3    87.6   866.7     100
GR 875.5    120   875.7      124   885.2     124
X146.052                                    1       1       1
X146.053                                    1       1       1
X146.108      8       0      115     300     300     300
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GR876.08     0.00   866.78   18.00   866.78   28.00   860.81   40.00   860.81   75.00
GR866.78    87.00   866.78   97.00   876.58  115.00
QT     4     2270     3250     3720     5110
X146.127       8        0      133      100      100      100
GR884.18     0.00   866.88   35.00   866.88   46.00   860.88   58.00   860.88   93.00
GR866.88   105.00   866.88  115.00   876.08  133.00
X146.241                                600      600      600             0.59
X146.354                                600      600      600             0.59
NC  .035     .035     .012
X146.359                                 24       24       24             0.02
X146.360       8        0      133        1        1        1
GR885.08     0.00   867.78   35.00   867.78   46.00   862.08   58.00   862.08   93.00
GR867.78   105.00   867.78  115.00   876.98  133.00
X146.363       7       17       57       19       19       19
GR882.58     0.00   877.78    9.00   877.78   17.00   856.58   17.00   856.58   57.00
GR877.78    57.00   878.98   98.00
X146.376                                 72       72       72
X146.382       7       17       57       29       29       29
GR882.58     0.00   877.78    9.00   877.78   17.00   866.89   17.00   866.89   57.00
GR877.78    57.00   878.98   98.00
X146.387       9       14       44       27       27       27
GR882.48     0.00   878.08    9.00   877.98   14.00   867.88   14.00   866.89   29.00
GR867.88    44.00   877.98   44.00   877.98   68.00   883.68   84.00
X146.672                                2000     1000     1500             4.5
QT     4     2200     3150     3600     4950
X146.689                                 100      100      100             0.3
X146.690                                   3        3        3
X146.691                                   1        1        1
BT  10.0     0.00   882.58      0.0     0.00   892.88      0.0     3.00   892.88      0.0
BT   3.0   889.18      0.0     5.00   889.18   886.98    31.00   889.18   886.98    37.00
BT 889.1     0.0    37.00   892.88      0.0    40.00   892.88      0.0    40.00   882.58
BT   0.0
X146.701                                  60       60       60
X2                                                          1
X146.702                                   1        1        1
X146.705       8        5       30       21       21       21
GR887.83     0.00   875.08     0.00   875.08    5.00   872.58    5.00   872.58    25.00
GR875.08    25.00   875.08    30.00   887.83   30.00
X146.706                                   1        1        1
BT   4.0     0.00   887.83      0.0     0.00   891.08   884.58   30.00   891.08   884.58
BT  30.0   887.83      0.0
X146.707                                   6        6        6
X2                                                          1
X146.708                                   1        1        1
X146.709      10        0       48       12       12       12
GR889.58     0.00   883.74     0.00   881.49    5.50   881.49   14.00   875.58    14.00
GR875.58    34.00   881.49    34.00   881.49   42.50   883.74   48.00   889.58    48.00
X146.717       8              126       43       43       43
GR889.58     0.00   881.58    16.00   881.58   36.00   875.58   48.00   875.58    78.00
GR881.58    90.00   881.58   110.00   889.58  126.00
X146.718                                   1        1        1
NC  .035     .035     .022
X146.809       8              146      483      483      483
GR894.98     0.00   881.88    26.00   881.88   46.00   875.73   58.00   875.73    88.00
GR881.88   100.00   881.88   120.00   894.98  146.00
QT     4     2060     2950     3370     4630
X146.961       8              150      800      800      800
GR895.08     0.00   881.78    27.00   881.78   47.00   876.13   59.00   876.13    89.00
GR881.78   101.00   881.78   121.00   896.13  150.00
X147.055       8        0      114      750      250      500             -0.25
GR896.48     0.00   882.58    28.00   882.58   34.00   876.63   46.00   876.63    76.00
GR882.58    88.00   882.58    94.00   892.68  114.00
X147.150                                 800      300      500             0.25
X147.245       4        0      101      400      600      500
GR895.98     0.00   876.88    38.00   876.88   68.00   893.38  101.00
X147.396       4              127      800      800      800
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GR909.58     0.00   877.28   62.00   877.28   92.00   894.78  127.00
X147.400                       20       20       20                0.01
NC  .035     .035     .012
X147.401                        1        1        1
X147.404        6       16      106       22       22       22
GR896.58     0.00   888.58   16.00   873.58   46.00   873.58   76.00   888.58  106.00
GR904.58   138.00
X147.405        6       10       40        1        1        1
GR895.08     0.00   895.08   10.00   873.58   10.00   873.58   40.00   895.08   40.00
GR895.08    50.00
X147.415                               57       57       57
X147.421        6       10       40       29       29       29
GR895.08     0.00   895.08   10.00   884.18   10.00   884.18   40.00   895.08   40.00
GR895.08    50.00
X147.432        6       10       40       58       58       58
GR899.88     0.00   899.88   10.00   884.24   10.00   884.24   40.00   899.88   40.00
GR899.88    50.00
X147.433                               1        1        1
BT     2       10   899.88   897.18       40   899.88   897.18
X147.442                               51       51       51                .05
X2                                                      1
QT     4     1670     2380     2710     3700
X147.443                               1        1        1
X147.445        9       18       48       17       17       17               -.04
GR903.38     0.00   896.68   13.00   896.68   18.00   885.35   18.00   884.35   33.00
GR885.35    48.00   896.68   48.00   896.68   58.00   898.78   63.00
X147.446                               42       42       42                0.04
X147.529        9       19       49      400      400      400
GR903.48     0.00   896.98   14.00   896.98   19.00   885.75   19.00   884.75   34.00
GR885.75    49.00   897.18   49.00   897.18   54.00   901.78   62.00
X147.623        9       16       46      500      500      500               -0.5
GR903.68     0.00   897.78   11.00   897.78   16.00   886.75   16.00   885.75   31.00
GR886.75    46.00   897.78   46.00   897.78   52.00   903.18   63.00
X147.718                               500      500      500                0.5
X147.727        9       16       46       50       50       50
GR903.68        0   897.78       11   897.78       16   887.88       16   887.88       31
GR887.88       46   897.78       46   897.78       52   903.18       63
EJ
T1      CITY OF PONTIAC, FIS    5670-06      JOHN EMIG - PROJECT MANAGER
T2      50 YEAR FLOOD
T3      CLINTON RIVER DRAIN #2
J1              3                                                   869.393
J2     2                -1
T1      CITY OF PONTIAC, FIS    5670-06      JOHN EMIG - PROJECT MANAGER
T2      100 YEAR FLOOD
T3      CLINTON RIVER DRAIN #2
J1              4                                                   869.560
J2     3                -1
T1      CITY OF PONTIAC, FIS    5670-06      JOHN EMIG - PROJECT MANAGER
T2      500 YEAR FLOOD
T3      CLINTON RIVER DRAIN #2
J1              5                                                   869.806
J2    15                -1


ER
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00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: PONTIAC, CITY

3) WATERCOURSE: CLINTON RIVER
[illegible] LK. RD TO
SYLVAN LK

4) DOCUMENT TYPE: 100 YR REVISED

00BREAK00

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City of Pontiac
Flood Insurance Study
Clinton River from
Orchard Lake Rd to
Sylvan Lake

Profile sensitivity to
Dam Operating Policy.
Policy analyzed = 4 gates half
open, one gate closed entirely

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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      CITY OF PONTIAC      5670-06-01      PM = JOHN EMIG
T2      100-YEAR FLOOD
T3      CLINTON RIVER
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.        4.        0.        0.  0.000000      0.00      0.0       0.    925.780     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= .300 CEHV= .500

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 927.00 ELREA= 920.80									
50.73	9.18	925.78	0.00	925.78	925.79	.01	0.00	0.00	927.00
1240.	0.	1111.	129.	0.	1141.	305.	0.	0.	920.80
0.00	0.00	.97	.42	.055	.040	.085	0.000	916.60	214.64
.000066	0.	0.	0.	0	0	1	0.00	261.87	476.51
OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 928.08 ELREA= 921.88									
50.89	8.15	925.83	0.00	0.00	925.84	.00	.04	.00	928.08
600.	0.	543.	57.	0.	947.	239.	26.	5.	921.88
.44	0.00	.57	.24	.055	.040	.085	.040	917.68	226.93
.000027	850.	850.	850.	0	0	1	0.00	246.24	473.16
OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 928.00 ELREA= 928.00									
51.01	7.20	925.70	0.00	0.00	926.08	.37	.06	.18	918.60
600.	0.	600.	0.	0.	122.	0.	35.	7.	931.80
.47	0.00	4.91	0.00	.055	.040	.085	.040	918.50	300.00
.002489	550.	650.	550.	2	0	1	0.00	18.54	318.54
NORMAL BRIDGE,NRD=10 MIN ELTRD= 931.50 MAX ELLC= 927.80									
OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 928.00 ELREA= 928.00									
51.01	7.20	925.70	0.00	0.00	926.08	.37	.00	.00	918.60
600.	0.	600.	0.	0.	122.	0.	35.	7.	931.80
.47	0.00	4.91	0.00	.020	.015	.020	.040	918.50	300.00
.000350	1.	1.	1.	0	0	1	0.00	18.54	318.54
SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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=10 MIN ELTRD= 931.50 MAX ELLC= 927.80									
OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 931.50 ELREA= 931.50									
51.03	7.23	925.73	0.00	0.00	926.10	.37	.03	.00	918.60
600.	0.	600.	0.	0.	123.	0.	35.	7.	931.80
.48	0.00	4.88	0.00	.020	.015	.020	.039	918.50	300.00
.000346	73.	73.	73.	2	0	1	0.00	18.54	318.54

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 931.50 ELREA= 931.50

51.03	7.24	925.74	0.00	0.00	926.11	.37	.00	.00	918.60
600.	0.	600.	0.	0.	123.	0.	35.	7.	931.80
.48	0.00	4.88	0.00	.045	.030	.045	.039	918.50	300.00
.001382	1.	1.	1.	0	0	1	0.00	18.54	318.54

3470 ENCROACHMENT STATIONS= 240.0 362.0 TYPE= 1 TARGET= 122.000

51.04	6.81	926.21	0.00	0.00	926.22	.01	.01	.11	926.30
600.	0.	600.	0.	0.	651.	0.	36.	7.	100000.00
.49	0.00	.92	0.00	.045	.030	.045	.039	919.40	240.36
.000038	50.	50.	50.	2	0	1	0.00	121.64	362.00

3470 ENCROACHMENT STATIONS= 330.0 351.0 TYPE= 1 TARGET= 21.000

51.07	10.16	926.16	0.00	0.00	926.29	.13	.02	.06	100000.00
600.	0.	600.	0.	0.	208.	0.	38.	7.	100000.00
.51	0.00	2.89	0.00	.045	.030	.055	.038	916.00	330.00
.000376	150.	200.	250.	2	0	1	0.00	21.00	351.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.00	3.08	0.00	.01	0.00	.01	0.00	920.00	916.00

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
*********	930.29	0.00	606.	0.	0.	921.00	925.70	30.00

3470 ENCROACHMENT STATIONS= 314.0 335.0 TYPE= 1 TARGET= 21.000

ELENCL= 955.00 ELENCR= 955.00

51.08	10.87	930.87	0.00	0.00	930.98	.11	4.68	0.00	920.00
600.	0.	600.	0.	0.	228.	0.	38.	7.	955.00
.51	0.00	2.63	0.00	.045	.030	.055	.037	920.00	314.00
.000301	21.	21.	21.	2	0	12	0.00	21.00	335.00

3470 ENCROACHMENT STATIONS= 244.0 405.0 TYPE= 1 TARGET= 161.000

51.09	10.83	931.01	0.00	0.00	931.01	.00	.00	.03	920.18
600.	264.	105.	231.	758.	227.	755.	39.	7.	920.18
.57	.35	.46	.31	.040	.030	.045	.037	920.18	244.00
.000004	70.	70.	70.	2	0	1	0.00	161.00	405.00

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
51.19	9.51	931.01	0.00	0.00	931.01	.00	.00	.00	930.40
600.	0.	600.	0.	6.	1450.	0.	59.	10.	936.10

.000005	530.	530.	530.	2	0	1	0.00	211.50	340.42
51.41	8.47	931.02	0.00	0.00	931.02	.00	.01	.00	931.45
600.	0.	600.	0.	0.	1252.	0.	94.	15.	937.15
1.58	0.00	.48	0.00	.040	.030	.045	.034	922.55	150.76
.000008	1125.	1125.	1125.	0	0	1	0.00	187.69	338.45

3470 ENCROACHMENT STATIONS= 160.0 325.0 TYPE= 1 TARGET= 165.000

51.58	7.62	931.03	0.00	0.00	931.03	.01	.01	.001	00000.00
600.	0.	600.	0.	0.	1056.	0.	118.	19.	100000.00
2.03	0.00	.57	0.00	.040	.032	.045	.033	923.41	160.00
.000013	925.	925.	925.	0	0	1	0.00	165.00	325.00

3280 CROSS SECTION 51.62 EXTENDED .32 FEET

51.62	7.42	931.02	0.00	0.00	931.04	.02	.01	.01	930.70
600.	15.	585.	0.	95.	497.	1.	122.	20.	930.80
2.08	.16	1.18	.07	.040	.032	.045	.033	923.60	0.00
.000083	200.	200.	200.	0	0	1	0.00	407.55	407.55

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 932.00 ELREA= 932.00

51.81	6.62	931.12	0.00	0.00	931.25	.13	.16	.05	927.00
600.	0.	600.	0.	0.	209.	0.	131.	25.	926.20
2.17	0.00	2.88	0.00	.040	.032	.045	.033	924.50	279.00
.000390	1000.	1000.	1000.	2	0	1	0.00	35.34	314.34

NORMAL BRIDGE,NRD=16 MIN ELTRD= 933.80 MAX ELLC= 932.70

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 932.00 ELREA= 932.00

51.81	6.61	931.11	0.00	0.00	931.27	.16	.00	.02	927.00
600.	0.	600.	0.	0.	184.	0.	131.	25.	926.20
2.17	0.00	3.26	0.00	.025	.015	.025	.033	924.50	279.00
.000130	1.	1.	1.	1	0	1	-29.11	35.34	314.34

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

NORMAL BRIDGE,NRD=16 MIN ELTRD= 933.80 MAX ELLC= 932.70

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 934.00 ELREA= 934.00

51.82	6.61	931.11	0.00	0.00	931.28	.16	.01	.00	927.00
600.	0.	600.	0.	0.	184.	0.	132.	25.	926.20
2.18	0.00	3.25	0.00	.025	.015	.025	.033	924.50	279.00
.000130	57.	57.	57.	1	0	1	-29.14	35.34	314.34

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 934.00 ELREA= 934.00

51.82	6.66	931.16	0.00	0.00	931.29	.13	.00	.01	927.00
600.	0.	600.	0.	0.	210.	0.	132.	25.	926.20
2.18	0.00	2.86	0.00	.045	.030	.045	.033	924.50	279.00
.000336	1.	1.	1.	2	0	1	0.00	35.34	314.34

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 933.00 ELREA= 933.00

51.83	7.22	931.22	0.00	0.00	931.31	.09	.01	.01	925.10
600.	0.	600.	0.	0.	249.	0.	132.	25.	924.00
2.18	0.00	2.41	0.00	.045	.030	.045	.033	924.00	291.00
.000205	50.	50.	50.	2	0	1	0.00	37.83	329.41

NORMAL BRIDGE,NRD=16 MIN ELTRD= 934.30 MAX ELLC= 933.70

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 933.00 ELREA= 933.00

51.83	7.21	931.21	0.00	0.00	931.33	.12	.00	.01	925.10
600.	0.	600.	0.	0.	220.	0.	132.	25.	924.00
2.18	0.00	2.73	0.00	.025	.015	.025	.033	924.00	291.00
.000078	1.	1.	1.	1	0	1	-28.89	37.83	329.41

NORMAL BRIDGE,NRD=16 MIN ELTRD= 934.30 MAX ELLC= 936.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 935.00 ELREA= 935.00

51.84	7.74	931.24	0.00	0.00	931.34	.09	.00	.01	924.20
600.	0.	600.	0.	0.	243.	0.	132.	25.	923.50
2.19	0.00	2.47	0.00	.025	.015	.025	.033	923.50	291.00
.000057	65.	65.	65.	1	0	1	-31.15	37.83	329.33

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 935.00 ELREA= 935.00

51.84	7.77	931.27	0.00	0.00	931.34	.07	.00	.01	924.20
600.	0.	600.	0.	0.	275.	0.	132.	25.	923.50
2.19	0.00	2.18	0.00	.045	.030	.045	.033	923.50	291.00
.000149	1.	1.	1.	2	0	1	0.00	37.83	329.34

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 934.00 ELREA= 934.00

51.85	7.77	931.27	0.00	0.00	931.36	.08	.01	.00	936.60
600.	0.	600.	0.	0.	259.	0.	133.	25.	923.50
2.20	0.00	2.31	0.00	.045	.030	.045	.033	923.50	246.00
.000201	50.	50.	50.	0	0	1	0.00	36.90	283.84

NORMAL BRIDGE,NRD=14 MIN ELTRD= 934.30 MAX ELLC= 934.80

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 934.00 ELREA= 934.00

51.85	7.76	931.26	0.00	0.00	931.37	.10	.00	.01	936.60
600.	0.	600.	0.	0.	233.	0.	133.	25.	923.50
2.20	0.00	2.57	0.00	.025	.015	.025	.033	923.50	246.00
.000072	1.	1.	1.	1	0	1	-26.09	36.90	283.84

NORMAL BRIDGE,NRD=15 MIN ELTRD= 934.30 MAX ELLC= 936.90

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 934.30 ELREA= 934.30

51.87	7.26	931.26	0.00	0.00	931.39	.12	.01	.01	926.40
600.	0.	600.	0.	0.	212.	0.	133.	25.	924.60
2.21	0.00	2.83	0.00	.025	.015	.025	.032	924.00	246.00
.000088	88.	88.	88.	2	0	1	-23.84	36.90	283.65

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 934.30 ELREA= 934.30

51.87	7.29	931.29	0.00	0.00	931.39	.10	.00	.01	926.40
600.	0.	600.	0.	0.	237.	0.	133.	25.	924.60
2.21	0.00	2.53	0.00	.045	.022	.040	.032	924.00	246.00
.000130	1.	1.	1.	2	0	1	0.00	36.90	283.65

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 933.30 ELREA= 933.10

51.87	8.34	931.34	0.00	0.00	931.40	.07	.00	.01	933.30
600.	0.	600.	0.	0.	289.	0.	133.	25.	933.10
2.21	0.00	2.08	0.00	.045	.022	.040	.032	923.00	43.74
.000122	20.	20.	20.	2	0	1	0.00	56.02	99.76

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: PONTIAC, CITY

3) WATERCOURSE: CLINTON RIVER
ORCHARD LK RD TO
SYLVAN LK

4) DOCUMENT TYPE: SUMMARY

00BREAK00

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
50.73	0.00	0.00	0.00	916.60	805.00	924.79	.01	0.00	0.00	728.39	8.19	246.75
50.73	0.00	0.00	0.00	916.60	1100.00	925.54	.01	0.00	0.00	987.95	8.94	258.20
50.73	0.00	0.00	0.00	916.60	1240.00	925.78	.01	0.00	0.00	1111.34	9.18	261.87
50.73	0.00	0.00	0.00	916.60	1630.00	926.43	.02	0.00	0.00	1453.41	9.83	271.79
50.89	850.00	0.00	0.00	917.68	385.00	924.83	.00	.03	.00	352.71	7.15	227.51
50.89	850.00	0.00	0.00	917.68	540.00	925.59	.00	.04	.00	490.14	7.91	242.48
50.89	850.00	0.00	0.00	917.68	600.00	925.83	.00	.04	.00	543.10	8.15	246.24
50.89	850.00	0.00	0.00	917.68	750.00	926.49	.01	.05	.00	674.34	8.81	256.38
51.01	650.00	0.00	0.00	918.50	385.00	924.77	.21	.04	.10	385.00	6.27	18.47
51.01	650.00	0.00	0.00	918.50	540.00	925.48	.32	.05	.16	540.00	6.98	18.52
51.01	650.00	0.00	0.00	918.50	600.00	925.70	.37	.06	.18	600.00	7.20	18.54
51.01	650.00	0.00	0.00	918.50	750.00	926.32	.49	.06	.24	750.00	7.82	18.59
51.01	1.00	931.50	927.80	918.50	385.00	924.77	.21	.00	.00	385.00	6.27	18.47
51.01	1.00	931.50	927.80	918.50	540.00	925.48	.32	.00	.00	540.00	6.98	18.52
51.01	1.00	931.50	927.80	918.50	600.00	925.70	.37	.00	.00	600.00	7.20	18.54
51.01	1.00	931.50	927.80	918.50	750.00	926.32	.49	.00	.00	750.00	7.82	18.59
51.03	73.00	931.50	927.80	918.50	385.00	924.79	.21	.02	.00	385.00	6.29	18.47
51.03	73.00	931.50	927.80	918.50	540.00	925.51	.32	.02	.00	540.00	7.01	18.53
51.03	73.00	931.50	927.80	918.50	600.00	925.73	.37	.03	.00	600.00	7.23	18.54
51.03	73.00	931.50	927.80	918.50	750.00	926.35	.48	.03	.00	750.00	7.85	18.59
51.03	1.00	0.00	0.00	918.50	385.00	924.79	.21	.00	.00	385.00	6.29	18.47
51.03	1.00	0.00	0.00	918.50	540.00	925.51	.32	.00	.00	540.00	7.01	18.53
51.03	1.00	0.00	0.00	918.50	600.00	925.74	.37	.00	.00	600.00	7.24	18.54
51.03	1.00	0.00	0.00	918.50	750.00	926.35	.48	.00	.00	750.00	7.85	18.59
51.04	50.00	0.00	0.00	919.40	385.00	925.05	.01	.00	.06	385.00	5.65	117.31
51.04	50.00	0.00	0.00	919.40	540.00	925.91	.01	.01	.09	540.00	6.51	120.55
51.04	50.00	0.00	0.00	919.40	600.00	926.21	.01	.01	.11	600.00	6.81	121.64
51.04	50.00	0.00	0.00	919.40	750.00	926.97	.02	.01	.14	750.00	7.57	122.00
51.07	200.00	0.00	0.00	916.00	385.00	925.03	.07	.01	.03	385.00	9.03	21.00
51.07	200.00	0.00	0.00	916.00	540.00	925.88	.11	.02	.05	540.00	9.88	21.00
51.07	200.00	0.00	0.00	916.00	600.00	926.16	.13	.02	.06	600.00	10.16	21.00
51.07	200.00	0.00	0.00	916.00	750.00	926.91	.18	.02	.08	750.00	10.91	21.00
51.08	21.00	925.70	921.00	920.00	385.00	929.58	.06	4.54	0.00	385.00	9.58	21.00
51.08	21.00	925.70	921.00	920.00	540.00	930.55	.09	4.65	0.00	540.00	10.55	21.00
51.08	21.00	925.70	921.00	920.00	600.00	930.87	.11	4.68	0.00	600.00	10.87	21.00
51.08	21.00	925.70	921.00	920.00	750.00	931.25	.16	4.32	0.00	750.00	11.25	21.00
51.09	70.00	0.00	0.00	920.18	385.00	929.65	.00	.00	.02	67.67	9.47	161.00
51.09	70.00	0.00	0.00	920.18	540.00	930.66	.00	.00	.03	94.90	10.48	161.00
51.09	70.00	0.00	0.00	920.18	600.00	931.01	.00	.00	.03	105.44	10.83	161.00
51.09	70.00	0.00	0.00	920.18	750.00	931.45	.00	.00	.05	131.79	11.27	161.00

Aqua Data

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
51.19	530.00	0.00	0.00	921.50	385.00	929.65	.00	.00	.00	385.00	8.15	186.56
51.19	530.00	0.00	0.00	921.50	540.00	930.67	.00	.00	.00	539.97	9.17	198.97
51.19	530.00	0.00	0.00	921.50	600.00	931.01	.00	.00	.00	599.76	9.51	211.50
51.19	530.00	0.00	0.00	921.50	750.00	931.45	.00	.00	.00	748.85	9.95	227.56
51.41	1125.00	0.00	0.00	922.55	385.00	929.66	.00	.01	.00	385.00	7.11	182.76
51.41	1125.00	0.00	0.00	922.55	540.00	930.67	.00	.01	.00	540.00	8.12	186.44
51.41	1125.00	0.00	0.00	922.55	600.00	931.02	.00	.01	.00	600.00	8.47	187.69
51.41	1125.00	0.00	0.00	922.55	750.00	931.46	.00	.01	.00	750.00	8.91	189.61
51.58	925.00	0.00	0.00	923.41	385.00	929.67	.00	.01	.00	385.00	6.26	165.00
51.58	925.00	0.00	0.00	923.41	540.00	930.68	.00	.01	.00	540.00	7.27	165.00
51.58	925.00	0.00	0.00	923.41	600.00	931.03	.01	.01	.00	600.00	7.62	165.00
51.58	925.00	0.00	0.00	923.41	750.00	931.47	.01	.01	.00	750.00	8.06	165.00
51.62	200.00	0.00	0.00	923.60	385.00	929.66	.02	.01	.01	385.00	6.06	98.62
51.62	200.00	0.00	0.00	923.60	540.00	930.68	.02	.01	.01	539.82	7.08	218.45
51.62	200.00	0.00	0.00	923.60	600.00	931.02	.02	.01	.01	584.67	7.42	407.55
51.62	200.00	0.00	0.00	923.60	750.00	931.47	.02	.01	.01	684.18	7.87	422.59
51.81	1000.00	0.00	0.00	924.50	385.00	929.80	.09	.17	.03	385.00	5.30	35.34
51.81	1000.00	0.00	0.00	924.50	540.00	930.79	.12	.16	.05	540.00	6.29	35.34
51.81	1000.00	0.00	0.00	924.50	600.00	931.12	.13	.16	.05	600.00	6.62	35.34
51.81	1000.00	0.00	0.00	924.50	750.00	931.56	.17	.17	.08	750.00	7.06	35.34
51.81	1.00	933.80	932.70	924.50	385.00	929.79	.11	.00	.01	385.00	5.29	35.34
51.81	1.00	933.80	932.70	924.50	540.00	930.78	.15	.00	.02	540.00	6.28	35.34
51.81	1.00	933.80	932.70	924.50	600.00	931.11	.16	.00	.02	600.00	6.61	35.34
51.81	1.00	933.80	932.70	924.50	750.00	931.54	.22	.00	.03	750.00	7.04	35.34
51.82	57.00	933.80	932.70	924.50	385.00	929.80	.11	.01	.00	385.00	5.30	35.34
51.82	57.00	933.80	932.70	924.50	540.00	930.78	.15	.01	.00	540.00	6.28	35.34
51.82	57.00	933.80	932.70	924.50	600.00	931.11	.16	.01	.00	600.00	6.61	35.34
51.82	57.00	933.80	932.70	924.50	750.00	931.55	.22	.01	.00	750.00	7.05	35.34
51.82	1.00	0.00	0.00	924.50	385.00	929.83	.09	.00	.01	385.00	5.33	35.34
51.82	1.00	0.00	0.00	924.50	540.00	930.83	.12	.00	.01	540.00	6.33	35.34
51.82	1.00	0.00	0.00	924.50	600.00	931.16	.13	.00	.01	600.00	6.66	35.34
51.82	1.00	0.00	0.00	924.50	750.00	931.62	.17	.00	.02	750.00	7.12	35.34
51.83	50.00	0.00	0.00	924.00	385.00	929.88	.06	.01	.01	385.00	5.88	37.83
51.83	50.00	0.00	0.00	924.00	540.00	930.89	.08	.01	.01	540.00	6.89	37.83
51.83	50.00	0.00	0.00	924.00	600.00	931.22	.09	.01	.01	600.00	7.22	37.83
51.83	50.00	0.00	0.00	924.00	750.00	931.69	.12	.02	.01	750.00	7.69	37.83
51.83	1.00	934.30	933.70	924.00	385.00	929.87	.07	.00	.01	385.00	5.87	37.83
51.83	1.00	934.30	933.70	924.00	540.00	930.88	.10	.00	.01	540.00	6.88	37.83
51.83	1.00	934.30	933.70	924.00	600.00	931.21	.12	.00	.01	600.00	7.21	37.83
51.83	1.00	934.30	933.70	924.00	750.00	931.68	.16	.00	.02	750.00	7.68	37.83

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
51.84	65.00	934.30	936.10	923.50	385.00	929.89	.06	.00	.00	385.00	6.39	37.83
51.84	65.00	934.30	936.10	923.50	540.00	930.90	.08	.00	.01	540.00	7.40	37.83
51.84	65.00	934.30	936.10	923.50	600.00	931.24	.09	.00	.01	600.00	7.74	37.83
51.84	65.00	934.30	936.10	923.50	750.00	931.72	.13	.01	.01	750.00	8.22	37.83
51.84	1.00	0.00	0.00	923.50	385.00	929.91	.05	.00	.00	385.00	6.41	37.83
51.84	1.00	0.00	0.00	923.50	540.00	930.93	.07	.00	.01	540.00	7.43	37.83
51.84	1.00	0.00	0.00	923.50	600.00	931.27	.07	.00	.01	600.00	7.77	37.83
51.84	1.00	0.00	0.00	923.50	750.00	931.76	.10	.00	.01	750.00	8.26	37.83
51.85	50.00	0.00	0.00	923.50	385.00	929.91	.05	.01	.00	385.00	6.41	36.90
51.85	50.00	0.00	0.00	923.50	540.00	930.93	.07	.01	.00	540.00	7.43	36.90
51.85	50.00	0.00	0.00	923.50	600.00	931.27	.08	.01	.00	600.00	7.77	36.90
51.85	50.00	0.00	0.00	923.50	750.00	931.76	.11	.01	.01	750.00	8.26	36.90
51.85	1.00	934.30	934.80	923.50	385.00	929.91	.07	.00	.01	385.00	6.41	36.90
51.85	1.00	934.30	934.80	923.50	540.00	930.92	.09	.00	.01	540.00	7.42	36.90
51.85	1.00	934.30	934.80	923.50	600.00	931.26	.10	.00	.01	600.00	7.76	36.90
51.85	1.00	934.30	934.80	923.50	750.00	931.75	.14	.00	.01	750.00	8.25	36.90
51.87	88.00	934.30	936.90	924.00	385.00	929.91	.08	.01	.01	385.00	5.91	36.90
51.87	88.00	934.30	936.90	924.00	540.00	930.92	.11	.01	.01	540.00	6.92	36.90
51.87	88.00	934.30	936.90	924.00	600.00	931.26	.12	.01	.01	600.00	7.26	36.90
51.87	88.00	934.30	936.90	924.00	750.00	931.74	.17	.01	.01	750.00	7.74	36.90
51.87	1.00	0.00	0.00	924.00	385.00	929.93	.07	.00	.00	385.00	5.93	36.90
51.87	1.00	0.00	0.00	924.00	540.00	930.95	.09	.00	.01	540.00	6.95	36.90
51.87	1.00	0.00	0.00	924.00	600.00	931.29	.10	.00	.01	600.00	7.29	36.90
51.87	1.00	0.00	0.00	924.00	750.00	931.79	.13	.00	.01	750.00	7.79	36.90
51.87	20.00	0.00	0.00	923.00	385.00	929.95	.05	.00	.00	385.00	6.95	53.19
51.87	20.00	0.00	0.00	923.00	540.00	930.99	.06	.00	.01	540.00	7.99	55.31
51.87	20.00	0.00	0.00	923.00	600.00	931.34	.07	.00	.01	600.00	8.34	56.02
51.87	20.00	0.00	0.00	923.00	750.00	931.85	.09	.00	.01	750.00	8.85	57.07

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
50.727	805.000	924.790	0.000	0.000	0.000	246.753	0.000	0.000
50.727	1100.000	925.540	.750	0.000	0.000	258.202	-11.449	0.000
50.727	1240.000	925.780	.240	0.000	0.000	261.866	-15.113	0.000
50.727	1630.000	926.430	.650	0.000	0.000	271.789	-25.035	0.000
50.888	385.000	924.827	0.000	.037	0.000	227.508	0.000	850.000
50.888	540.000	925.586	.759	.046	0.000	242.479	-14.971	850.000
50.888	600.000	925.831	.246	.051	0.000	246.237	-18.729	850.000
50.888	750.000	926.494	.663	.064	0.000	256.381	-28.873	850.000
51.011	385.000	924.767	0.000	-.060	0.000	18.471	0.000	650.000
51.011	540.000	925.479	.712	-.107	0.000	18.525	-.054	650.000
51.011	600.000	925.704	.225	-.128	0.000	18.542	-.070	650.000
51.011	750.000	926.315	.611	-.179	0.000	18.588	-.116	650.000
51.012	385.000	924.767	0.000	.001	0.000	18.471	0.000	1.000
51.012	540.000	925.480	.712	.001	0.000	18.525	-.054	1.000
51.012	600.000	925.705	.225	.001	0.000	18.542	-.070	1.000
51.012	750.000	926.316	.611	.001	0.000	18.588	-.116	1.000
51.026	385.000	924.785	0.000	.018	0.000	18.473	0.000	73.000
51.026	540.000	925.506	.721	.026	0.000	18.527	-.054	73.000
51.026	600.000	925.734	.229	.030	0.000	18.544	-.071	73.000
51.026	750.000	926.354	.619	.037	0.000	18.591	-.118	73.000

51.027	385.000	924.786	0.000	.000	0.000	18.473	0.000	1.000
51.027	540.000	925.506	.721	.001	0.000	18.527	-.054	1.000
51.027	600.000	925.735	.229	.001	0.000	18.544	-.071	1.000
51.027	750.000	926.355	.619	.001	0.000	18.591	-.118	1.000
51.036	385.000	925.049	0.000	.263	0.000	117.307	0.000	50.000
51.036	540.000	925.915	.866	.408	0.000	120.554	-3.247	50.000
51.036	600.000	926.205	.291	.470	0.000	121.644	-4.337	50.000
51.036	750.000	926.969	.764	.615	0.000	121.999	-4.692	50.000
51.074	385.000	925.033	0.000	-.016	0.000	20.999	0.000	200.000
51.074	540.000	925.882	.849	-.033	0.000	20.999	-.000	200.000
51.074	600.000	926.165	.283	-.041	0.000	20.999	-.000	200.000
51.074	750.000	926.908	.744	-.061	0.000	20.999	-.000	200.000
51.078	385.000	929.580	0.000	4.547	0.000	21.000	0.000	21.000
51.078	540.000	930.546	.966	4.665	0.000	21.000	-.000	21.000
51.078	600.000	930.872	.325	4.707	0.000	21.000	-.000	21.000
51.078	750.000	931.250	.378	4.341	0.000	21.000	-.000	21.000
51.091	385.000	929.653	0.000	.073	0.000	160.999	0.000	70.000
51.091	540.000	930.665	1.012	.119	0.000	160.999	-.000	70.000
51.091	600.000	931.009	.344	.138	0.000	160.999	-.000	70.000
51.091	750.000	931.450	.441	.201	0.000	160.999	-.000	70.000
51.192	385.000	929.654	0.000	.001	0.000	186.562	0.000	530.000
51.192	540.000	930.667	1.012	.002	0.000	198.968	-12.406	530.000
51.192	600.000	931.011	.345	.002	0.000	211.498	-24.935	530.000
51.192	750.000	931.453	.442	.003	0.000	227.563	-41.001	530.000
51.405	385.000	929.659	0.000	.005	0.000	182.761	0.000	1125.000
51.405	540.000	930.673	1.013	.006	0.000	186.441	-3.681	1125.000
51.405	600.000	931.017	.345	.006	0.000	187.694	-4.933	1125.000
51.405	750.000	931.461	.444	.008	0.000	189.608	-6.848	1125.000
51.580	385.000	929.667	0.000	.007	0.000	164.999	0.000	925.000
51.580	540.000	930.681	1.014	.008	0.000	164.999	-.000	925.000
51.580	600.000	931.026	.345	.008	0.000	164.999	-.000	925.000
51.580	750.000	931.472	.446	.011	0.000	164.999	-.000	925.000
51.618	385.000	929.665	0.000	-.002	0.000	98.616	0.000	200.000
51.618	540.000	930.678	1.013	-.003	0.000	218.453	-119.836	200.000
51.618	600.000	931.023	.346	-.003	0.000	407.552	-308.936	200.000
51.618	750.000	931.470	.447	-.001	0.000	422.588	-323.972	200.000
51.807	385.000	929.800	0.000	.136	0.000	35.340	0.000	1000.000
51.807	540.000	930.793	.993	.116	0.000	35.340	0.000	1000.000
51.807	600.000	931.125	.331	.101	0.000	35.340	0.000	1000.000
51.807	750.000	931.562	.437	.092	0.000	35.340	0.000	1000.000
51.808	385.000	929.788	0.000	-.013	0.000	35.340	0.000	1.000
51.808	540.000	930.777	.989	-.016	0.000	35.340	0.000	1.000
51.808	600.000	931.107	.330	-.018	0.000	35.340	0.000	1.000
51.808	750.000	931.537	.430	-.025	0.000	35.340	0.000	1.000
51.819	385.000	929.795	0.000	.007	0.000	35.340	0.000	57.000
51.819	540.000	930.785	.990	.008	0.000	35.340	0.000	57.000
51.819	600.000	931.115	.330	.008	0.000	35.340	0.000	57.000
51.819	750.000	931.548	.433	.011	0.000	35.340	0.000	57.000
51.820	385.000	929.830	0.000	.035	0.000	35.340	0.000	1.000
51.820	540.000	930.830	1.000	.045	0.000	35.340	0.000	1.000
51.820	600.000	931.164	.334	.049	0.000	35.340	0.000	1.000
51.820	750.000	931.616	.452	.068	0.000	35.340	0.000	1.000

51.829	540.000	930.887	1.009	.057	0.000	37.830	0.000	50.000
51.829	600.000	931.225	.338	.061	0.000	37.830	0.000	50.000
51.829	750.000	931.695	.470	.079	0.000	37.830	0.000	50.000
51.830	385.000	929.870	0.000	-.008	0.000	37.830	0.000	1.000
51.830	540.000	930.875	1.006	-.011	0.000	37.830	0.000	1.000
51.830	600.000	931.212	.337	-.013	0.000	37.830	0.000	1.000
51.830	750.000	931.678	.466	-.017	0.000	37.830	0.000	1.000
51.842	385.000	929.894	0.000	.024	0.000	37.830	0.000	65.000
51.842	540.000	930.904	1.010	.029	0.000	37.830	0.000	65.000
51.842	600.000	931.243	.338	.031	0.000	37.830	0.000	65.000
51.842	750.000	931.717	.474	.040	0.000	37.830	0.000	65.000
51.843	385.000	929.911	0.000	.017	0.000	37.830	0.000	1.000
51.843	540.000	930.929	1.018	.024	0.000	37.830	0.000	1.000
51.843	600.000	931.270	.341	.027	0.000	37.830	0.000	1.000
51.843	750.000	931.756	.485	.038	0.000	37.830	0.000	1.000
51.852	385.000	929.915	0.000	.004	0.000	36.900	0.000	50.000
51.852	540.000	930.933	1.018	.004	0.000	36.900	0.000	50.000
51.852	600.000	931.274	.342	.004	0.000	36.900	0.000	50.000
51.852	750.000	931.760	.486	.005	0.000	36.900	0.000	50.000
51.853	385.000	929.909	0.000	-.006	0.000	36.900	0.000	1.000
51.853	540.000	930.924	1.016	-.009	0.000	36.900	0.000	1.000
51.853	600.000	931.265	.340	-.010	0.000	36.900	0.000	1.000
51.853	750.000	931.747	.482	-.013	0.000	36.900	0.000	1.000
51.869	385.000	929.906	0.000	-.003	0.000	36.900	0.000	88.000
51.869	540.000	930.921	1.015	-.004	0.000	36.900	0.000	88.000
51.869	600.000	931.261	.340	-.004	0.000	36.900	0.000	88.000
51.869	750.000	931.742	.481	-.005	0.000	36.900	0.000	88.000
51.870	385.000	929.927	0.000	.021	0.000	36.900	0.000	1.000
51.870	540.000	930.950	1.023	.029	0.000	36.900	0.000	1.000
51.870	600.000	931.293	.343	.032	0.000	36.900	0.000	1.000
51.870	750.000	931.786	.493	.044	0.000	36.900	0.000	1.000
51.874	385.000	929.949	0.000	.022	0.000	53.186	0.000	20.000
51.874	540.000	930.988	1.039	.038	0.000	55.307	-2.121	20.000
51.874	600.000	931.338	.350	.045	0.000	56.021	-2.835	20.000
51.874	750.000	931.851	.513	.065	0.000	57.069	-3.883	20.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	0.000	19.988	0.000
2	0.000	0.000	22.334	2.346
3	0.000	0.000	25.309	5.321
4	0.000	0.000	26.137	6.149

00BREAK00

1) COUNTY: OAKLAND

2) STUDY NAME: PONTIAC, CITY OF ~~CLINTON RIVER~~

3) WATERCOURSE: CLINTON RIVER

4) DOCUMENT TYPE: SUMMARY

00BREAK00

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
50.16	0.00	0.00	0.00	913.20	805.00	917.71	.61	0.00	0.00	748.67	4.51	270.00
50.16	0.00	0.00	0.00	913.20	1100.00	919.10	.16	0.00	0.00	709.03	5.90	270.00
50.16	0.00	0.00	0.00	913.20	1240.00	919.36	.16	0.00	0.00	762.66	6.16	270.00
50.16	0.00	0.00	0.00	913.20	1630.00	920.10	.15	0.00	0.00	901.44	6.90	270.00
50.23	350.00	0.00	0.00	913.50	805.00	919.29	.16	1.00	.13	805.00	5.79	85.64
50.23	350.00	0.00	0.00	913.50	1100.00	919.66	.24	.60	.04	1100.00	6.16	90.69
50.23	350.00	0.00	0.00	913.50	1240.00	919.90	.26	.59	.05	1240.00	6.40	93.88
50.23	350.00	0.00	0.00	913.50	1630.00	920.55	.31	.53	.08	1629.81	7.05	122.11
50.47	1300.00	0.00	0.00	914.70	805.00	920.96	.12	1.61	.01	805.00	6.26	92.04
50.47	1300.00	0.00	0.00	914.70	1100.00	921.67	.15	1.89	.03	1099.98	6.97	110.42
50.47	1300.00	0.00	0.00	914.70	1240.00	921.96	.16	1.93	.03	1238.51	7.26	153.49
50.47	1300.00	0.00	0.00	914.70	1630.00	922.67	.18	1.95	.04	1582.08	7.97	386.72
50.54	325.00	0.00	0.00	917.90	805.00	921.32	.87	.73	.38	805.00	3.42	39.33
50.54	325.00	0.00	0.00	917.90	1100.00	921.98	1.04	.76	.45	1100.00	4.08	41.30
50.54	325.00	0.00	0.00	917.90	1240.00	922.24	1.13	.77	.49	1240.00	4.34	42.08
50.54	325.00	0.00	0.00	917.90	1630.00	922.82	1.42	.78	.62	1629.93	4.92	47.39
50.54	50.00	0.00	0.00	916.50	805.00	922.40	.16	.17	.21	805.00	5.90	52.00
50.54	50.00	0.00	0.00	916.50	1100.00	923.23	.22	.19	.25	1100.00	6.73	52.00
50.54	50.00	0.00	0.00	916.50	1240.00	923.59	.25	.20	.26	1240.00	7.09	52.00
50.54	50.00	0.00	0.00	916.50	1630.00	924.48	.33	.23	.33	1630.00	7.98	52.00
50.55	1.00	927.10	924.80	916.50	805.00	922.41	.16	.00	.00	805.00	5.91	52.00
50.55	1.00	927.10	924.80	916.50	1100.00	923.24	.22	.00	.00	1100.00	6.74	52.00
50.55	1.00	927.10	924.80	916.50	1240.00	923.59	.25	.00	.00	1240.00	7.09	52.00
50.55	1.00	927.10	924.80	916.50	1630.00	924.48	.33	.00	.00	1630.00	7.98	52.00
50.55	12.00	927.10	924.80	916.50	805.00	922.42	.16	.01	.00	805.00	5.92	52.00
50.55	12.00	927.10	924.80	916.50	1100.00	923.26	.22	.02	.00	1100.00	6.76	52.00
50.55	12.00	927.10	924.80	916.50	1240.00	923.61	.25	.02	.00	1240.00	7.11	52.00
50.55	12.00	927.10	924.80	916.50	1630.00	924.50	.32	.02	.00	1630.00	8.00	52.00
50.55	1.00	0.00	0.00	916.50	805.00	922.42	.16	.00	.00	805.00	5.92	52.00
50.55	1.00	0.00	0.00	916.50	1100.00	923.26	.22	.00	.00	1100.00	6.76	52.00
50.55	1.00	0.00	0.00	916.50	1240.00	923.61	.25	.00	.00	1240.00	7.11	52.00
50.55	1.00	0.00	0.00	916.50	1630.00	924.51	.32	.00	.00	1630.00	8.01	52.00
50.59	200.00	0.00	0.00	914.90	805.00	922.69	.33	.34	.08	802.15	7.79	81.33
50.59	200.00	0.00	0.00	914.90	1100.00	923.56	.37	.38	.08	1046.87	8.66	168.39
50.59	200.00	0.00	0.00	914.90	1240.00	923.94	.37	.39	.06	1137.13	9.04	190.00
50.59	200.00	0.00	0.00	914.90	1630.00	924.88	.34	.38	.01	1342.49	9.98	190.00
50.62	175.00	0.00	0.00	916.40	805.00	922.97	.64	.44	.16	805.00	6.57	29.00
50.62	175.00	0.00	0.00	916.40	1100.00	923.83	.72	.44	.17	1099.86	7.43	46.36
50.62	175.00	0.00	0.00	916.40	1240.00	924.17	.78	.44	.21	1236.00	7.77	79.28
50.62	175.00	0.00	0.00	916.40	1630.00	925.02	.83	.39	.24	1553.12	8.62	186.68

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
50.62	1.00	0.00	0.00	916.40	805.00	922.97	.64	.00	.00	805.00	6.57	29.00
50.62	1.00	0.00	0.00	916.40	1100.00	923.84	.72	.00	.00	1099.79	7.44	46.57
50.62	1.00	0.00	0.00	916.40	1240.00	924.18	.77	.00	.00	1234.11	7.78	79.64
50.62	1.00	0.00	0.00	916.40	1630.00	925.33	.60	.00	.07	1443.19	8.93	218.71
50.62	12.00	923.70	922.00	916.40	805.00	924.33	.30	1.03	0.00	805.00	7.93	29.00
50.62	12.00	923.70	922.00	916.40	1100.00	925.00	.35	.79	0.00	1052.62	8.60	139.30
50.62	12.00	923.70	922.00	916.40	1240.00	925.18	.40	.62	0.00	1166.34	8.78	155.52
50.62	12.00	923.70	922.00	916.40	1630.00	925.67	.48	.23	0.00	1435.22	9.27	198.25
50.62	1.00	0.00	0.00	916.40	805.00	924.33	.30	.00	.00	805.00	7.93	29.00
50.62	1.00	0.00	0.00	916.40	1100.00	925.00	.35	.00	.00	1058.22	8.60	147.70
50.62	1.00	0.00	0.00	916.40	1240.00	925.18	.40	.00	.00	1172.37	8.78	157.25
50.62	1.00	0.00	0.00	916.40	1630.00	925.66	.51	.00	.01	1458.37	9.26	211.12
50.73	550.00	0.00	0.00	916.60	805.00	924.79	.01	.08	.09	728.36	8.19	246.80
50.73	550.00	0.00	0.00	916.60	1100.00	925.54	.01	.09	.10	987.97	8.94	258.16
50.73	550.00	0.00	0.00	916.60	1240.00	925.78	.01	.10	.12	1111.30	9.18	261.93
50.73	550.00	0.00	0.00	916.60	1630.00	926.43	.02	.13	.15	1453.45	9.83	271.73
50.89	850.00	0.00	0.00	917.68	385.00	924.83	.00	.03	.00	352.72	7.15	227.50
50.89	850.00	0.00	0.00	917.68	540.00	925.58	.00	.04	.00	490.18	7.90	242.37
50.89	850.00	0.00	0.00	917.68	600.00	925.84	.00	.04	.00	543.10	8.16	246.23
50.89	850.00	0.00	0.00	917.68	750.00	926.49	.01	.05	.00	674.40	8.81	256.23
51.01	650.00	0.00	0.00	918.50	385.00	924.77	.21	.04	.10	385.00	6.27	18.47
51.01	650.00	0.00	0.00	918.50	540.00	925.48	.32	.05	.16	540.00	6.98	18.52
51.01	650.00	0.00	0.00	918.50	600.00	925.71	.37	.06	.18	600.00	7.21	18.54
51.01	650.00	0.00	0.00	918.50	750.00	926.31	.49	.06	.24	750.00	7.81	18.59
51.01	1.00	931.50	927.80	918.50	385.00	924.77	.21	.00	.00	385.00	6.27	18.47
51.01	1.00	931.50	927.80	918.50	540.00	925.48	.32	.00	.00	540.00	6.98	18.52
51.01	1.00	931.50	927.80	918.50	600.00	925.71	.37	.00	.00	600.00	7.21	18.54
51.01	1.00	931.50	927.80	918.50	750.00	926.31	.49	.00	.00	750.00	7.81	18.59
51.03	73.00	931.50	927.80	918.50	385.00	924.79	.21	.02	.00	385.00	6.29	18.47
51.03	73.00	931.50	927.80	918.50	540.00	925.50	.32	.02	.00	540.00	7.00	18.53
51.03	73.00	931.50	927.80	918.50	600.00	925.74	.37	.03	.00	600.00	7.24	18.54
51.03	73.00	931.50	927.80	918.50	750.00	926.35	.48	.03	.00	750.00	7.85	18.59
51.03	1.00	0.00	0.00	918.50	385.00	924.79	.21	.00	.00	385.00	6.29	18.47
51.03	1.00	0.00	0.00	918.50	540.00	925.50	.32	.00	.00	540.00	7.00	18.53
51.03	1.00	0.00	0.00	918.50	600.00	925.74	.37	.00	.00	600.00	7.24	18.54
51.03	1.00	0.00	0.00	918.50	750.00	926.35	.48	.00	.00	750.00	7.85	18.59
51.04	50.00	0.00	0.00	919.40	385.00	925.05	.01	.00	.06	385.00	5.65	117.32
51.04	50.00	0.00	0.00	919.40	540.00	925.91	.01	.01	.09	540.00	6.51	120.54
51.04	50.00	0.00	0.00	919.40	600.00	926.21	.01	.01	.11	600.00	6.81	121.66
51.04	50.00	0.00	0.00	919.40	750.00	926.97	.02	.01	.14	750.00	7.57	122.00

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
51.07	200.00	0.00	0.00	916.00	385.00	925.04	.07	.01	.03	385.00	9.04	21.00
51.07	200.00	0.00	0.00	916.00	540.00	925.88	.11	.02	.05	540.00	9.88	21.00
51.07	200.00	0.00	0.00	916.00	600.00	926.17	.13	.02	.06	600.00	10.17	21.00
51.07	200.00	0.00	0.00	916.00	750.00	926.91	.18	.02	.08	750.00	10.91	21.00
51.08	21.00	921.70	921.00	920.00	385.00	925.55	.17	.61	0.00	385.00	5.55	21.00
51.08	21.00	921.70	921.00	920.00	540.00	926.49	.24	.75	0.00	540.00	6.49	21.00
51.08	21.00	921.70	921.00	920.00	600.00	926.83	.27	.80	0.00	600.00	6.83	21.00
51.08	21.00	921.70	921.00	920.00	750.00	927.63	.34	.89	0.00	750.00	7.63	21.00
51.09	70.00	0.00	0.00	920.18	385.00	925.77	.00	.00	.05	67.76	5.59	161.00
51.09	70.00	0.00	0.00	920.18	540.00	926.81	.00	.00	.07	94.99	6.63	161.00
51.09	70.00	0.00	0.00	920.18	600.00	927.18	.00	.00	.08	105.53	7.00	161.00
51.09	70.00	0.00	0.00	920.18	750.00	928.07	.01	.00	.10	131.88	7.89	161.00
51.19	530.00	0.00	0.00	921.50	385.00	925.78	.01	.01	.00	385.00	4.28	165.53
51.19	530.00	0.00	0.00	921.50	540.00	926.62	.01	.01	.00	540.00	5.32	172.12
51.19	530.00	0.00	0.00	921.50	600.00	927.19	.01	.01	.00	600.00	5.69	174.02
51.19	530.00	0.00	0.00	921.50	750.00	928.08	.01	.01	.00	750.00	6.58	180.84
51.41	1125.00	0.00	0.00	922.55	385.00	925.87	.02	.10	.00	385.00	3.32	158.70
51.41	1125.00	0.00	0.00	922.55	540.00	926.88	.02	.07	.00	540.00	4.33	165.94
51.41	1125.00	0.00	0.00	922.55	600.00	927.25	.02	.06	.00	600.00	4.70	168.56
51.41	1125.00	0.00	0.00	922.55	750.00	928.13	.02	.05	.00	750.00	5.58	173.39
51.58	925.00	0.00	0.00	923.41	385.00	926.12	.04	.26	.01	385.00	2.71	151.65
51.58	925.00	0.00	0.00	923.41	540.00	927.02	.03	.14	.01	540.00	3.61	160.75
51.58	925.00	0.00	0.00	923.41	600.00	927.36	.03	.12	.01	600.00	3.95	163.22
51.58	925.00	0.00	0.00	923.41	750.00	928.21	.02	.09	.00	750.00	4.80	165.00
51.62	200.00	0.00	0.00	923.60	385.00	926.20	.38	.25	.17	385.00	2.60	47.73
51.62	200.00	0.00	0.00	923.60	540.00	927.01	.30	.13	.13	540.00	3.41	65.08
51.62	200.00	0.00	0.00	923.60	600.00	927.35	.26	.11	.12	600.00	3.75	74.47
51.62	200.00	0.00	0.00	923.60	750.00	928.20	.18	.07	.08	750.00	4.60	89.94
51.81	1000.00	0.00	0.00	924.50	385.00	928.55	.17	2.07	.07	385.00	4.05	35.34
51.81	1000.00	0.00	0.00	924.50	540.00	929.10	.24	2.01	.02	540.00	4.60	35.34
51.81	1000.00	0.00	0.00	924.50	600.00	929.28	.27	1.94	.01	600.00	4.78	35.34
51.81	1000.00	0.00	0.00	924.50	750.00	929.70	.35	1.59	.08	750.00	5.20	35.34
51.81	1.00	933.80	932.70	924.50	385.00	928.53	.22	.00	.03	385.00	4.03	35.34
51.81	1.00	933.80	932.70	924.50	540.00	929.06	.32	.00	.04	540.00	4.56	35.34
51.81	1.00	933.80	932.70	924.50	600.00	929.24	.36	.00	.04	600.00	4.74	35.34
51.81	1.00	933.80	932.70	924.50	750.00	929.64	.46	.00	.06	750.00	5.14	35.34
51.82	57.00	933.80	932.70	924.50	385.00	928.55	.22	.02	.00	385.00	4.05	35.34
51.82	57.00	933.80	932.70	924.50	540.00	929.09	.31	.02	.00	540.00	4.59	35.34
51.82	57.00	933.80	932.70	924.50	600.00	929.28	.35	.03	.00	600.00	4.78	35.34
51.82	57.00	933.80	932.70	924.50	750.00	929.69	.45	.03	.00	750.00	5.19	35.34

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
51.82	1.00	0.00	0.00	924.50	385.00	928.63	.16	.00	.02	385.00	4.13	35.34
51.82	1.00	0.00	0.00	924.50	540.00	929.20	.23	.00	.03	540.00	4.70	35.34
51.82	1.00	0.00	0.00	924.50	600.00	929.40	.26	.00	.03	600.00	4.90	35.34
51.82	1.00	0.00	0.00	924.50	750.00	929.85	.33	.00	.04	750.00	5.35	35.34
51.83	50.00	0.00	0.00	924.00	385.00	928.74	.10	.03	.02	385.00	4.74	37.83
51.83	50.00	0.00	0.00	924.00	540.00	929.35	.14	.03	.03	540.00	5.35	37.83
51.83	50.00	0.00	0.00	924.00	600.00	929.56	.16	.04	.03	600.00	5.56	37.83
51.83	50.00	0.00	0.00	924.00	750.00	930.04	.21	.04	.04	750.00	6.04	37.83
51.83	1.00	934.30	933.70	924.00	385.00	928.72	.12	.00	.01	385.00	4.72	37.83
51.83	1.00	934.30	933.70	924.00	540.00	929.33	.18	.00	.02	540.00	5.33	37.83
51.83	1.00	934.30	933.70	924.00	600.00	929.54	.21	.00	.02	600.00	5.54	37.83
51.83	1.00	934.30	933.70	924.00	750.00	930.01	.27	.00	.03	750.00	6.01	37.83
51.84	65.00	934.30	936.10	923.50	385.00	928.77	.09	.01	.01	385.00	5.27	37.83
51.84	65.00	934.30	936.10	923.50	540.00	929.40	.14	.01	.01	540.00	5.90	37.83
51.84	65.00	934.30	936.10	923.50	600.00	929.61	.16	.01	.02	600.00	6.11	37.83
51.84	65.00	934.30	936.10	923.50	750.00	930.11	.21	.01	.02	750.00	6.61	37.83
51.84	1.00	0.00	0.00	923.50	385.00	928.80	.07	.00	.01	385.00	5.30	37.83
51.84	1.00	0.00	0.00	923.50	540.00	929.44	.11	.00	.01	540.00	5.94	37.83
51.84	1.00	0.00	0.00	923.50	600.00	929.66	.12	.00	.01	600.00	6.16	37.83
51.84	1.00	0.00	0.00	923.50	750.00	930.17	.16	.00	.01	750.00	6.67	37.83
51.85	50.00	0.00	0.00	923.50	385.00	928.81	.08	.01	.01	385.00	5.31	36.90
51.85	50.00	0.00	0.00	923.50	540.00	929.45	.12	.02	.01	540.00	5.95	36.90
51.85	50.00	0.00	0.00	923.50	600.00	929.67	.14	.02	.01	600.00	6.17	36.90
51.85	50.00	0.00	0.00	923.50	750.00	930.18	.18	.02	.01	750.00	6.68	36.90
51.85	1.00	934.30	934.80	923.50	385.00	928.80	.10	.00	.01	385.00	5.30	36.90
51.85	1.00	934.30	934.80	923.50	540.00	929.43	.15	.00	.01	540.00	5.93	36.90
51.85	1.00	934.30	934.80	923.50	600.00	929.65	.17	.00	.02	600.00	6.15	36.90
51.85	1.00	934.30	934.80	923.50	750.00	930.16	.23	.00	.02	750.00	6.66	36.90
51.87	88.00	934.30	936.90	924.00	385.00	928.79	.14	.01	.02	385.00	4.79	36.90
51.87	88.00	934.30	936.90	924.00	540.00	929.42	.20	.02	.02	540.00	5.42	36.90
51.87	88.00	934.30	936.90	924.00	600.00	929.64	.22	.02	.02	600.00	5.64	36.90
51.87	88.00	934.30	936.90	924.00	750.00	930.15	.28	.02	.03	750.00	6.15	36.90
51.87	1.00	0.00	0.00	924.00	385.00	928.83	.11	.00	.01	385.00	4.83	36.90
51.87	1.00	0.00	0.00	924.00	540.00	929.48	.16	.00	.01	540.00	5.48	36.90
51.87	1.00	0.00	0.00	924.00	600.00	929.71	.18	.00	.01	600.00	5.71	36.90
51.87	1.00	0.00	0.00	924.00	750.00	930.23	.22	.00	.02	750.00	6.23	36.90
51.87	20.00	0.00	0.00	923.00	385.00	928.85	.09	.01	.00	385.00	5.85	48.85
51.87	20.00	0.00	0.00	923.00	540.00	929.53	.12	.01	.01	540.00	6.53	52.32
51.87	20.00	0.00	0.00	923.00	600.00	929.77	.14	.01	.01	600.00	6.77	52.81
51.87	20.00	0.00	0.00	923.00	750.00	930.32	.16	.01	.02	750.00	7.32	53.94

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
50.161	805.000	917.712	0.000	0.000	0.000	269.999	0.000	0.000
50.161	1100.000	919.100	1.388	0.000	0.000	269.999	-.000	0.000
50.161	1240.000	919.360	.260	0.000	0.000	269.999	-.000	0.000
50.161	1630.000	920.100	.740	0.000	0.000	269.999	-.000	0.000
50.227	805.000	919.290	0.000	1.578	0.000	85.641	0.000	350.000
50.227	1100.000	919.662	.372	.562	0.000	90.686	-5.045	350.000
50.227	1240.000	919.897	.235	.537	0.000	93.882	-8.240	350.000
50.227	1630.000	920.547	.651	.[illegible]7	0.000	122.112	-36.471	350.000

50.474	805.000	920.961	0.000	1.671	0.000	92.036	0.000	1300.000
50.474	1100.000	921.671	.710	2.009	0.000	110.422	-18.386	1300.000
50.474	1240.000	921.964	.293	2.067	0.000	153.493	-61.457	1300.000
50.474	1630.000	922.665	.701	2.118	0.000	386.716	-294.680	1300.000
50.535	805.000	921.320	0.000	.360	0.000	39.330	0.000	325.000
50.535	1100.000	921.981	.661	.310	0.000	41.302	-1.973	325.000
50.535	1240.000	922.242	.261	.278	0.000	42.083	-2.754	325.000
50.535	1630.000	922.820	.578	.155	0.000	47.395	-8.065	325.000
50.544	805.000	922.404	0.000	1.084	0.000	52.000	0.000	50.000
50.544	1100.000	923.235	.831	1.254	0.000	52.000	0.000	50.000
50.544	1240.000	923.588	.353	1.346	0.000	52.000	0.000	50.000
50.544	1630.000	924.477	.889	1.656	0.000	52.000	0.000	50.000
50.545	805.000	922.406	0.000	.001	0.000	52.000	0.000	1.000
50.545	1100.000	923.237	.831	.002	0.000	52.000	0.000	1.000
50.545	1240.000	923.590	.353	.002	0.000	52.000	0.000	1.000
50.545	1630.000	924.480	.889	.003	0.000	52.000	0.000	1.000
50.547	805.000	922.421	0.000	.015	0.000	52.000	0.000	12.000
50.547	1100.000	923.256	.835	.018	0.000	52.000	0.000	12.000
50.547	1240.000	923.610	.355	.020	0.000	52.000	0.000	12.000
50.547	1630.000	924.504	.894	.024	0.000	52.000	0.000	12.000
50.548	805.000	922.422	0.000	.001	0.000	52.000	0.000	1.000
50.548	1100.000	923.257	.835	.002	0.000	52.000	0.000	1.000
50.548	1240.000	923.612	.355	.002	0.000	52.000	0.000	1.000
50.548	1630.000	924.507	.894	.002	0.000	52.000	0.000	1.000
50.586	805.000	922.685	0.000	.263	0.000	81.329	0.000	200.000
50.586	1100.000	923.564	.878	.306	0.000	168.387	-87.057	200.000
50.586	1240.000	923.938	.375	.326	0.000	189.999	-108.670	200.000
50.586	1630.000	924.880	.941	.373	0.000	189.999	-108.670	200.000
50.619	805.000	922.968	0.000	.283	0.000	28.999	0.000	175.000
50.619	1100.000	923.834	.866	.270	0.000	46.361	-17.362	175.000
50.619	1240.000	924.169	.335	.230	0.000	79.279	-50.280	175.000
50.619	1630.000	925.025	.856	.145	0.000	186.678	-157.679	175.000
50.620	805.000	922.972	0.000	.004	0.000	28.999	0.000	1.000
50.620	1100.000	923.838	.867	.004	0.000	46.566	-17.567	1.000
50.620	1240.000	924.177	.339	.009	0.000	79.637	-50.638	1.000
50.620	1630.000	925.327	1.150	.302	0.000	218.713	-189.714	1.000
50.622	805.000	924.330	0.000	1.358	0.000	28.999	0.000	12.000
50.622	1100.000	925.002	.672	1.164	0.000	139.302	-110.303	12.000
50.622	1240.000	925.178	.176	1.001	0.000	155.520	-126.521	12.000
50.622	1630.000	925.670	.492	.343	0.000	198.249	-169.250	12.000
50.623	805.000	924.331	0.000	.001	0.000	28.999	0.000	1.000
50.623	1100.000	925.000	.669	-.002	0.000	147.700	-118.701	1.000
50.623	1240.000	925.176	.176	-.002	0.000	157.254	-128.255	1.000
50.623	1630.000	925.660	.484	-.010	0.000	211.124	-182.125	1.000
50.727	805.000	924.793	0.000	.462	0.000	246.802	0.000	550.000
50.727	1100.000	925.537	.744	.537	0.000	258.155	-11.353	550.000
50.727	1240.000	925.785	.248	.608	0.000	261.934	-15.132	550.000
50.727	1630.000	926.427	.642	.766	0.000	271.734	-24.932	550.000
50.888	385.000	924.830	0.000	.037	0.000	227.497	0.000	850.000
50.888	540.000	925.583	.753	.046	0.000	242.370	-14.873	850.000
50.888	600.000	925.836	.253	.051	0.000	246.231	-18.734	850.000
50.888	750.000	926.491	.655	.065	0.000	256.232	-28.735	850.000

51.011	385.000	924.770	0.000	-.060	0.000	18.471	0.000	650.000
51.011	540.000	925.476	.706	-.107	0.000	18.525	-.053	650.000
51.011	600.000	925.709	.233	-.127	0.000	18.542	-.071	650.000
51.011	750.000	926.312	.603	-.179	0.000	18.587	-.116	650.000
51.012	385.000	924.771	0.000	.001	0.000	18.472	0.000	1.000
51.012	540.000	925.477	.706	.001	0.000	18.525	-.053	1.000
51.012	600.000	925.710	.233	.001	0.000	18.542	-.071	1.000
51.012	750.000	926.313	.603	.001	0.000	18.587	-.116	1.000
51.026	385.000	924.789	0.000	.018	0.000	18.473	0.000	73.000
51.026	540.000	925.503	.714	.026	0.000	18.527	-.054	73.000
51.026	600.000	925.739	.236	.030	0.000	18.544	-.071	73.000
51.026	750.000	926.351	.611	.038	0.000	18.590	-.117	73.000
51.027	385.000	924.789	0.000	.000	0.000	18.473	0.000	1.000
51.027	540.000	925.504	.715	.001	0.000	18.527	-.054	1.000
51.027	600.000	925.740	.236	.001	0.000	18.544	-.071	1.000
51.027	750.000	926.351	.612	.001	0.000	18.590	-.117	1.000
51.036	385.000	925.052	0.000	.263	0.000	117.319	0.000	50.000
51.036	540.000	925.912	.860	.409	0.000	120.545	-3.226	50.000
51.036	600.000	926.209	.297	.469	0.000	121.659	-4.340	50.000
51.036	750.000	926.966	.757	.615	0.000	121.999	-4.680	50.000
51.074	385.000	925.036	0.000	-.016	0.000	20.999	0.000	200.000
51.074	540.000	925.879	.843	-.033	0.000	20.999	-.000	200.000
51.074	600.000	926.169	.290	-.041	0.000	20.999	-.000	200.000
51.074	750.000	926.906	.737	-.061	0.000	20.999	-.000	200.000
51.078	385.000	925.546	0.000	.510	0.000	20.999	0.000	21.000
51.078	540.000	926.493	.946	.614	0.000	20.999	-.000	21.000
51.078	600.000	926.830	.337	.661	0.000	20.999	-.000	21.000
51.078	750.000	927.632	.802	.726	0.000	20.999	-.000	21.000
51.091	385.000	925.766	0.000	.220	0.000	160.999	0.000	70.000
51.091	540.000	926.807	1.041	.314	0.000	160.999	-.000	70.000
51.091	600.000	927.180	.373	.351	0.000	160.999	-.000	70.000
51.091	750.000	928.070	.890	.438	0.000	160.999	-.000	70.000
51.192	385.000	925.776	0.000	.010	0.000	165.533	0.000	530.000
51.192	540.000	926.817	1.041	.010	0.000	172.120	-6.587	530.000
51.192	600.000	927.190	.373	.010	0.000	174.016	-8.483	530.000
51.192	750.000	928.080	.890	.010	0.000	180.842	-15.310	530.000
51.405	385.000	925.871	0.000	.095	0.000	158.696	0.000	1125.000
51.405	540.000	926.882	1.012	.065	0.000	165.936	-7.240	1125.000
51.405	600.000	927.249	.367	.059	0.000	168.561	-9.864	1125.000
51.405	750.000	928.128	.879	.048	0.000	173.394	-14.698	1125.000
51.580	385.000	926.121	0.000	.250	0.000	151.645	0.000	925.000
51.580	540.000	927.017	.897	.135	0.000	160.747	-9.102	925.000
51.580	600.000	927.363	.345	.114	0.000	163.220	-11.575	925.000
51.580	750.000	928.209	.846	.081	0.000	164.999	-13.354	925.000
51.618	385.000	926.199	0.000	.074	0.000	47.734	0.000	200.000
51.618	540.000	927.014	.815	-.003	0.000	65.083	-17.350	200.000
51.618	600.000	927.354	.340	-.009	0.000	74.475	-26.741	200.000
51.618	750.000	928.197	.843	-.012	0.000	89.938	-42.204	200.000
51.807	385.000	928.554	0.000	2.354	0.000	35.340	0.000	1000.000
51.807	540.000	929.097	.543	2.082	0.000	35.340	0.000	1000.000
51.807	600.000	929.283	.187	1.929	0.000	35.340	0.000	1000.000
51.807	750.000	929.699	.415	1.502	0.000	35.340	0.000	1000.000
51.808	385.000	928.527	0.000	-.027	0.000	35.340	0.000	1.000

Use revised Clinton Rd. to Orchard Rd to Sylvan Lk

51.808	540.000	929.058	.531	-.038	0.000	35.340	0.000	1.000
51.808	600.000	929.240	.182	-.043	0.000	35.340	0.000	1.000
51.808	750.000	929.644	.403	-.055	0.000	35.340	0.000	1.000
51.819	385.000	928.553	0.000	.026	0.000	35.340	0.000	57.000
51.819	540.000	929.091	.538	.033	0.000	35.340	0.000	57.000
51.819	600.000	929.276	.184	.036	0.000	35.340	0.000	57.000
51.819	750.000	929.687	.411	.043	0.000	35.340	0.000	57.000
51.820	385.000	928.628	0.000	.074	0.000	35.340	0.000	1.000
51.820	540.000	929.201	.573	.110	0.000	35.340	0.000	1.000
51.820	600.000	929.400	.199	.124	0.000	35.340	0.000	1.000
51.820	750.000	929.849	.449	.163	0.000	35.340	0.000	1.000
51.829	385.000	928.738	0.000	.110	0.000	37.830	0.000	50.000
51.829	540.000	929.347	.610	.146	0.000	37.830	0.000	50.000
51.829	600.000	929.560	.212	.160	0.000	37.830	0.000	50.000
51.829	750.000	930.043	.484	.194	0.000	37.830	0.000	50.000
51.830	385.000	928.724	0.000	-.013	0.000	37.830	0.000	1.000
51.830	540.000	929.327	.602	-.020	0.000	37.830	0.000	1.000
51.830	600.000	929.536	.210	-.023	0.000	37.830	0.000	1.000
51.830	750.000	930.013	.477	-.030	0.000	37.830	0.000	1.000
51.842	385.000	928.775	0.000	.051	0.000	37.830	0.000	65.000
51.842	540.000	929.396	.621	.069	0.000	37.830	0.000	65.000
51.842	600.000	929.612	.216	.076	0.000	37.830	0.000	65.000
51.842	750.000	930.106	.493	.093	0.000	37.830	0.000	65.000
51.843	385.000	928.801	0.000	.026	0.000	37.830	0.000	1.000
51.843	540.000	929.437	.636	.041	0.000	37.830	0.000	1.000
51.843	600.000	929.659	.222	.047	0.000	37.830	0.000	1.000
51.843	750.000	930.168	.509	.062	0.000	37.830	0.000	1.000
51.852	385.000	928.809	0.000	.008	0.000	36.900	0.000	50.000
51.852	540.000	929.446	.638	.010	0.000	36.900	0.000	50.000
51.852	600.000	929.669	.223	.010	0.000	36.900	0.000	50.000
51.852	750.000	930.180	.510	.012	0.000	36.900	0.000	50.000
51.853	385.000	928.799	0.000	-.009	0.000	36.900	0.000	1.000
51.853	540.000	929.432	.633	-.015	0.000	36.900	0.000	1.000
51.853	600.000	929.653	.221	-.017	0.000	36.900	0.000	1.000
51.853	750.000	930.158	.505	-.022	0.000	36.900	0.000	1.000
51.869	385.000	928.794	0.000	-.005	0.000	36.900	0.000	88.000
51.869	540.000	929.425	.631	-.007	0.000	36.900	0.000	88.000
51.869	600.000	929.645	.220	-.008	0.000	36.900	0.000	88.000
51.869	750.000	930.148	.503	-.009	0.000	36.900	0.000	88.000
51.870	385.000	928.831	0.000	.037	0.000	36.900	0.000	1.000
51.870	540.000	929.479	.649	.055	0.000	36.900	0.000	1.000
51.870	600.000	929.707	.227	.062	0.000	36.900	0.000	1.000
51.870	750.000	930.229	.522	.080	0.000	36.900	0.000	1.000
51.874	385.000	928.853	0.000	.022	0.000	48.853	0.000	20.000
51.874	540.000	929.527	.674	.048	0.000	52.325	-3.472	20.000
51.874	600.000	929.765	.238	.059	0.000	52.811	-3.958	20.000
51.874	750.000	930.316	.551	.088	0.000	53.935	-5.082	20.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	1.000	0.000	25.158	0.000
2	0.000	0.000	27.887	2.729
3	1.000	0.000	29.230	1.072

We Revised Clinton River Overbank LK 89 to Sylvan LK

4 0.000 0.000 34.877 9.719

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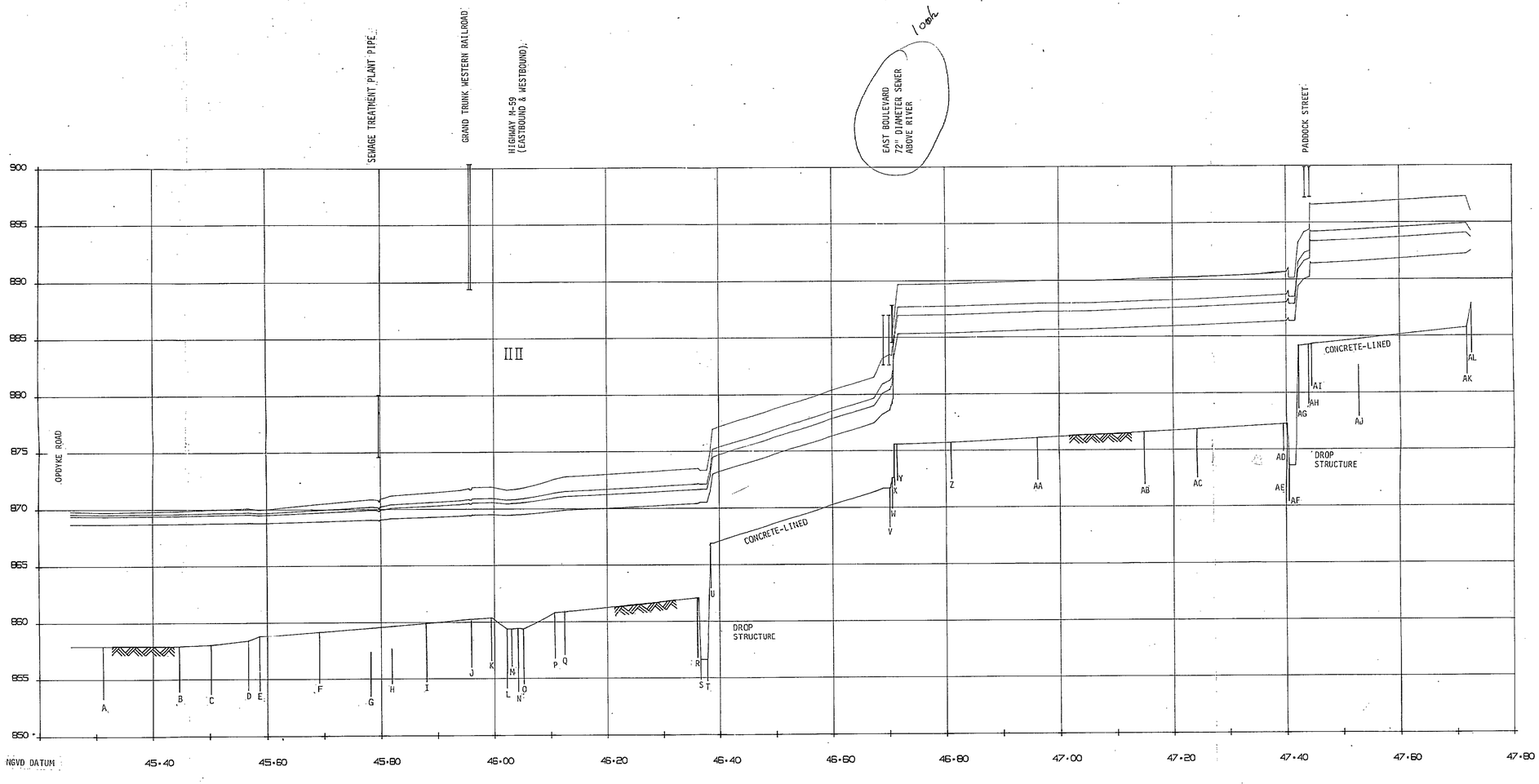
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
****



NOTE: STARTING WATER-SURFACE ELEVATIONS ARE BASED ON PONTIAC TOWNSHIP WATER-SURFACE ELEVATIONS SUBMITTED TO MDNR AUGUST 12, 1977.

DRAWN:
DESIGN:
CHECKED:
FINAL:
DATE COMPLETED:
PRELIMINARY:

SCALE: VERT. 1" = 5' HORIZ. 1" = 0.1"

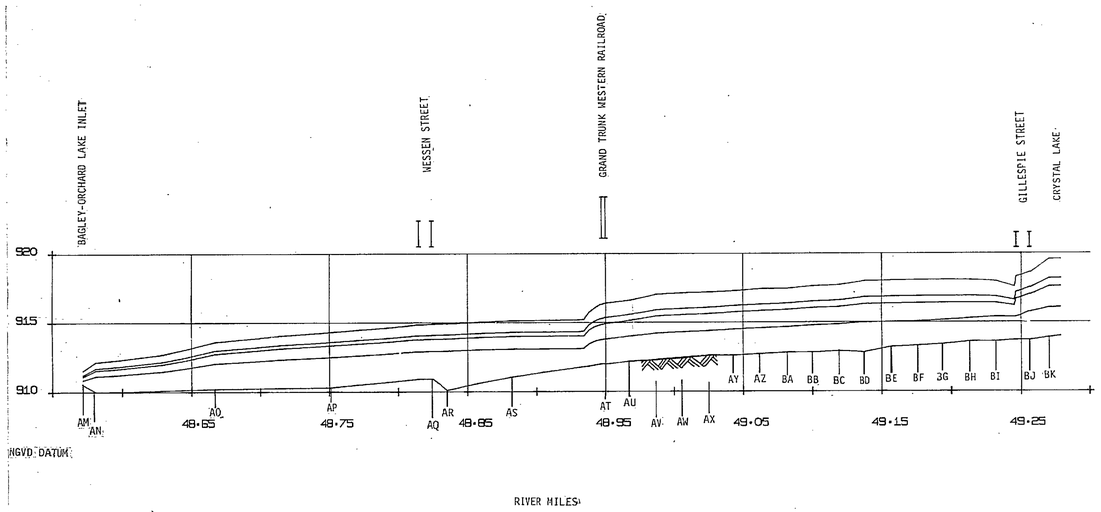
REVISIONS	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

CITY OF PONTIAC, MI, FIS

CLINTON RIVER
DRAIN NO. 2

JOB NO. 5670-06-1
DATE ISSUED 9-1-77
SHEET NO.



DRAWN:
DESIGN:
CHECKED:
FINAL:
DATE COMPLETED:
PRELIMINARY:

SCALE: VERT. 1" = 5'
HORIZ. 1" = 0.05 MI

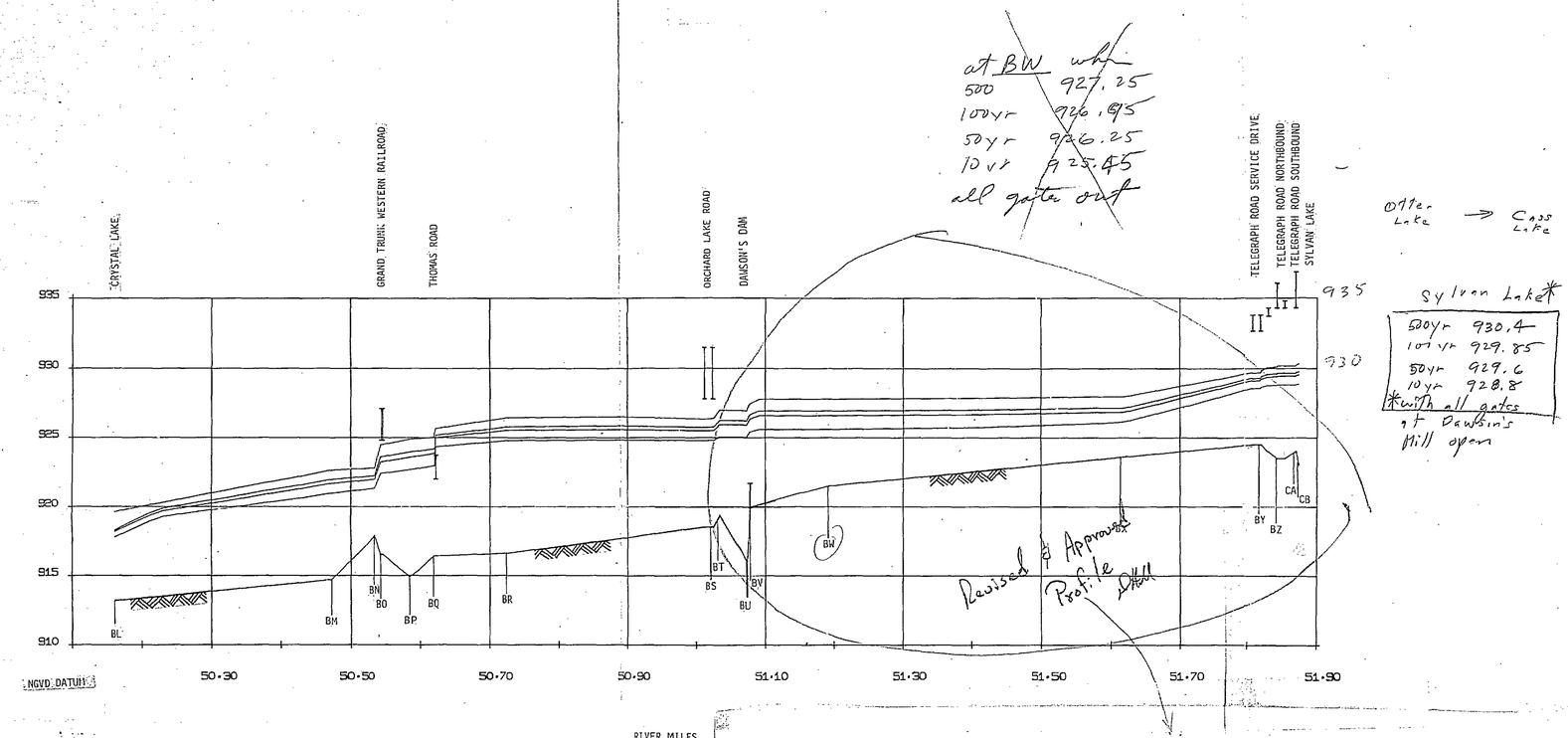
REVISIONS	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE

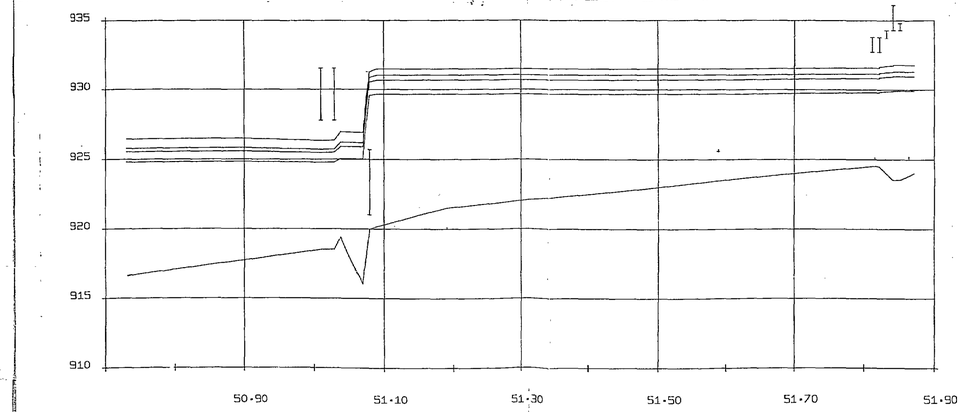
JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

CITY OF PONTIAC, MI, FIS

CLINTON RIVER
DRAIN NO. 3

JOB NO. 5670-06-1
DATE ISSUED 9-1-77
SHEET NO.





RGW

= 5'
= 0.1 MI.

DRAWN:
DESIGN:
CHECKED:
FINAL:
DATE COMPLETED:
PRELIMINARY:

REVISIONS	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE	MARK	BULLETIN	DATE

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS
PONTIAC, MICHIGAN

CITY OF PONTIAC, MI, FIS

CLINTON RIVER
CRYSTAL LAKE TO SYLVAN LAKE

JOB NO. 5670-06-1
DATE ISSUED 9-1-77
SHEET NO.