00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Benton, Royalton & Sodus Twps

3) WATERCOURSE: St. Joseph R.

4) DOCUMENT TYPE: 3/6-11/76 Calibration

00BREAK00

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NEC2 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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ST. JOSEPH RIVER
MARCH 6 & 11, 1976 FLOODS
WITH SPRING "n" VALUES
J&A FILE NOS. 5555-59 & 65

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C
1       ST. JOSEPH RIVER  BENTON, ROYALTON, SODUS TOWNSHIPS 5555-07,59@65
T2       MARCH 6, 1976 FLOOD
T3       ST. JOSEPH RIVER
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-0.	2.	-0.	-0.	-0.000000	-0.00	-0.0	-0.	582.800	-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	1.000	3.000	4.000	5.000	16.000	18.000	17.000	-0.000	-0.000	-0.000
NC	.090	.040	.032	.200	.400	-0.000	-0.000	-0.000	-0.000	-0.000
QT	2.000	16400.000	12561.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2.991	38.000	102.000	698.000	-0.000	-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	-0.000	-0.000	-0.000
GR	629.200	0.000	626.400	102.000	617.400	102.000	616.800	105.000	593.900	149.000
GR	592.100	204.000	591.500	211.000	583.100	229.700	577.500	232.200	574.100	258.000
GR	568.300	286.000	567.400	315.000	567.900	344.000	569.200	373.000	567.600	398.700
GR	566.600	401.300	570.500	427.000	571.200	456.000	571.500	485.000	572.600	514.000
GR	572.800	542.000	570.800	567.700	570.900	570.300	573.700	596.000	574.100	620.000
GR	569.700	645.000	583.400	667.000	594.300	695.000	594.400	698.000	604.200	698.000
GR	602.400	722.000	599.900	800.000	598.000	900.000	597.600	1000.000	598.200	1100.000
GR	599.800	1200.000	602.800	1300.000	606.900	1400.000	-0.000	-0.000	-0.000	-0.000
NC	.050	.035	.035	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3.043	35.000	150.000	602.000	275.000	275.000	275.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	606.400	0.000	593.400	18.000	592.900	133.000	582.000	150.000	579.700	161.000
GR	578.400	167.000	572.200	177.000	570.800	197.000	569.900	222.000	569.700	242.000
GR	569.700	267.000	568.600	302.000	568.300	327.000	568.800	352.000	570.200	377.000
GR	572.000	412.000	572.200	452.000	573.100	472.000	574.000	507.000	573.700	527.000
GR	573.500	548.000	574.200	567.000	577.000	584.000	581.700	590.000	584.500	593.000
GR	586.700	602.000	584.100	702.000	581.300	802.000	583.700	902.000	583.500	1002.000
GR	583.100	1102.000	582.900	1202.000	582.100	1302.000	588.200	1402.000	597.900	1448.000
NC	.070	.035	.035	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
QT	2.000	16270.000	12462.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3.431	46.000	436.000	970.000	2050.000	2050.000	2050.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	608.800	0.000	595.300	17.000	594.700	32.000	586.700	51.000	583.600	101.000
GR	583.500	163.000	583.600	167.000	582.800	267.000	581.700	367.000	582.900	436.000
GR	581.100	445.000	580.300	453.000	577.500	467.000	575.500	482.000	574.900	502.000
GR	575.400	532.000	574.600	567.000	573.900	607.000	576.900	626.000	573.400	657.000
GR	572.700	686.000	572.100	717.000	572.200	749.000	572.200	782.000	571.800	822.000
GR	571.600	857.000	571.300	880.000	570.000	904.000	582.300	941.000	582.800	958.000
GR	586.200	965.000	586.400	970.000	584.200	986.000	582.400	1067.000	581.800	1167.000
GR	582.600	1267.000	583.100	1367.000	582.500	1467.000	582.200	1567.000	581.600	1667.000
GR	581.700	1767.000	582.400	1867.000	582.700	1967.000	582.900	2067.000	583.500	2167.000
GR	586.000	2267.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.050	.090	.032	-0.000	-1.00	0.00	-0.000	-0.000	-0.000	-0.000

X1	3.910	53.000	1340.000	2367.000	2530.000	2530.000	2530.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1172.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	595.900	0.000	595.000	72.000	587.100	172.000	585.500	272.000	584.700	372.000
GR	584.400	472.000	584.000	572.000	583.600	672.000	584.000	772.000	584.300	872.000
GR	584.500	972.000	584.700	1072.000	585.100	1172.000	584.600	1272.000	583.900	1300.000
GR	582.900	1340.000	581.300	1348.000	574.200	1361.000	571.700	1382.000	572.700	1407.000
GR	573.100	1442.000	573.200	1477.000	573.300	1532.000	574.700	1585.000	576.100	1627.000
GR	575.900	1642.000	575.900	1670.000	582.300	1702.000	584.400	1704.000	584.100	1772.000
GR	583.500	1872.000	585.300	1972.000	585.700	2072.000	594.400	2090.000	589.200	2102.000
GR	587.500	2102.000	587.200	2119.000	588.700	2133.000	590.600	2138.000	591.200	2152.000
GR	590.900	2161.000	582.100	2163.000	577.700	2190.000	576.100	2217.000	574.900	2244.000
GR	574.700	2277.000	574.700	2316.000	577.900	2341.000	582.100	2351.000	586.300	2358.000
GR	591.800	2367.000	594.600	2397.000	600.200	2440.000	-0.000	-0.000	-0.000	-0.000
NC	.055	.060	.032	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

X1	4.261	35.000	15.000	457.000	1850.000	1850.000	1850.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	598.900	0.000	582.900	15.000	581.400	28.000	577.700	38.000	574.100	48.000
GR	572.300	68.000	571.500	88.000	570.900	108.000	571.300	128.000	571.400	148.000
GR	572.000	168.000	572.600	188.000	573.000	208.000	573.900	228.000	574.400	248.000
GR	575.000	268.000	575.500	288.000	575.500	308.000	575.800	328.000	575.800	348.000
GR	576.000	368.000	576.000	388.000	575.500	408.000	575.300	428.000	579.000	438.000
GR	581.300	448.000	582.100	457.000	584.700	461.000	583.800	568.000	582.400	658.000
GR	584.900	768.000	583.000	868.000	582.600	888.000	583.000	1098.000	602.700	1148.000
NC	.050	.080	.032	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

X1	4.886	33.000	1058.000	1418.000	3400.000	2000.000	3303.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	584.900	0.000	584.200	100.000	583.400	200.000	582.900	300.000	582.800	400.000
GR	583.700	500.000	584.700	600.000	584.300	700.000	583.700	800.000	584.600	900.000
GR	584.200	1000.000	584.500	1055.000	582.400	1058.000	581.100	1070.000	579.500	1080.000
GR	576.500	1100.000	576.400	1120.000	576.100	1140.000	575.500	1160.000	574.600	1180.000
GR	573.600	1200.000	572.600	1220.000	572.200	1240.000	571.400	1260.000	570.600	1280.000
GR	569.600	1300.000	569.300	1320.000	568.700	1340.000	569.800	1360.000	577.700	1380.000
GR	580.600	1385.000	582.400	1396.000	619.400	1418.000	-0.000	-0.000	-0.000	-0.000
NC	.050	.080	.032	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

X1	5.123	66.000	1200.000	1615.000	1150.000	2000.000	1250.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	1765.000	-0.000	-0.000	-0.000	-0.000
GR	586.100	0.000	585.600	100.000	585.100	200.000	584.700	300.000	584.600	400.000
GR	584.900	500.000	585.400	600.000	585.300	700.000	585.100	800.000	585.600	900.000
GR	585.400	1000.000	585.000	1100.000	582.300	1200.000	581.700	1208.000	579.400	1224.000
GR	578.100	1240.000	576.700	1256.000	576.000	1272.000	575.600	1288.000	575.100	1304.000
GR	575.000	1320.000	575.100	1336.000	574.900	1352.000	574.500	1368.000	574.400	1384.000
GR	574.400	1400.000	574.300	1416.000	574.000	1432.000	573.700	1448.000	573.400	1464.000
GR	573.900	1480.000	572.900	1496.000	572.400	1512.000	572.400	1528.000	572.000	1544.000
GR	571.300	1560.000	570.300	1576.000	572.800	1592.000	574.600	1598.000	578.600	1609.000
GR	585.300	1615.000	584.600	1644.000	584.100	1677.000	583.700	1710.000	583.400	1743.000
GR	583.100	1780.000	582.500	1813.000	581.800	1846.000	582.800	1879.000	584.200	1912.000
GR	583.800	1932.000	583.600	1945.000	584.900	2011.000	584.500	2059.000	582.100	2061.000
GR	584.800	2063.000	584.500	2078.000	584.200	2144.000	584.200	2151.000	582.100	2154.000
GR	583.800	2157.000	583.700	2210.000	583.800	2276.000	591.700	2329.000	594.500	2342.000
GR	610.000	2372.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.050	.060	.032	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

X1	5.420	60.000	1300.000	1821.000	550.000	1800.000	1565.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	450.000	-0.000	3370.000	-0.000	-0.000	-0.000	-0.000
GR	587.300	0.000	586.000	500.000	586.600	1000.000	586.600	1077.000	586.600	1154.000
GR	585.400	1231.000	584.200	1300.000	583.600	1310.000	581.300	1330.000	580.000	1350.000
GR	578.600	1370.000	577.900	1390.000	577.500	1410.000	577.000	1430.000	576.900	1450.000
GR	577.000	1470.000	576.800	1490.000	576.400	1510.000	576.300	1530.000	576.300	1550.000
GR	576.200	1570.000	575.900	1590.000	575.600	1610.000	575.300	1630.000	575.100	1650.000
GR	574.800	1670.000	574.300	1690.000	574.300	1710.000	573.900	1730.000	573.200	1750.000
GR	572.200	1770.000	574.700	1790.000	576.500	1800.000	580.500	1814.000	585.300	1821.000
G	58 .600	1910.000	5 .100	2010.000	583.700	2110.000	583.400	2210.000	583.100	231 .000

GR	583.600	2810.000	584.900	3010.000	584.500	3155.000	582.100	3160.000	584.800	3165.000
GR	584.500	3210.000	584.200	3410.000	584.200	3430.000	582.100	3440.000	583.800	3450.000
GR	583.700	3610.000	583.800	3810.000	591.700	3970.000	594.500	4010.000	610.000	4100.000
NC	.050	.080	.032	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5.636	42.000	280.000	800.000	1000.000	1200.000	1145.000	-0.000	-0.000	-0.000
GR	602.800	0.000	596.500	140.000	585.700	170.000	585.700	225.000	586.800	250.000
GR	587.300	280.000	579.500	292.000	577.700	298.000	575.100	308.000	572.000	318.000
GR	573.400	338.000	573.900	358.000	575.100	378.000	576.000	398.000	575.900	418.000
GR	576.000	438.000	576.300	458.000	576.600	478.000	577.000	498.000	577.200	518.000
GR	577.300	538.000	577.600	558.000	577.900	578.000	577.900	598.000	578.100	618.000
GR	578.300	638.000	578.600	658.000	578.900	678.000	578.500	698.000	577.700	718.000
GR	581.400	738.000	582.600	741.000	582.800	761.000	589.800	800.000	587.700	965.000
GR	586.600	1165.000	585.900	1365.000	586.500	1565.000	587.700	1765.000	586.800	1835.000
GR	590.800	1880.000	610.000	1965.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.070	.032	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5.877	51.000	800.000	1320.000	1350.000	1200.000	1270.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	500.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000
GR	589.800	0.000	588.000	78.000	587.000	157.000	586.600	200.000	586.200	235.000
GR	585.600	313.000	584.600	392.000	584.700	470.000	585.000	548.000	585.100	626.000
GR	586.000	705.000	587.900	783.000	588.700	800.000	579.500	812.000	577.700	818.000
GR	574.800	828.000	571.700	838.000	573.100	858.000	573.600	878.000	574.800	898.000
GR	575.700	918.000	575.600	938.000	575.700	958.000	576.000	978.000	576.300	998.000
GR	576.700	1018.000	576.900	1038.000	577.000	1058.000	577.800	1078.000	577.600	1098.000
GR	577.600	1118.000	577.800	1138.000	578.000	1158.000	578.300	1178.000	578.600	1198.000
GR	578.200	1218.000	577.400	1238.000	581.400	1258.000	582.600	1261.000	582.800	1281.000
GR	586.100	1320.000	585.200	1397.000	584.800	1513.000	585.600	1629.000	587.000	1745.000
GR	587.700	1775.000	584.000	1861.000	585.500	1977.000	585.900	2020.000	586.700	2093.000
GR	596.500	2209.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.060	.032	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.000	53.000	1022.000	1534.000	800.000	600.000	650.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	950.000	-0.000	1700.000	-0.000	-0.000	-0.000	-0.000
GR	589.800	0.000	588.000	100.000	587.000	200.000	586.200	300.000	585.600	400.000
GR	584.600	500.000	584.700	600.000	585.000	700.000	585.000	722.000	585.100	800.000
GR	586.000	900.000	587.900	1000.000	588.700	1022.000	579.400	1034.000	577.600	1040.000
GR	574.700	1050.000	571.600	1060.000	573.000	1080.000	573.500	1100.000	574.700	1120.000
GR	575.600	1140.000	575.500	1160.000	575.600	1180.000	575.900	1200.000	576.200	1220.000
GR	576.600	1240.000	576.800	1260.000	576.900	1280.000	577.200	1300.000	577.500	1320.000
GR	577.500	1340.000	577.700	1360.000	577.900	1380.000	578.200	1400.000	578.500	1420.000
GR	578.100	1440.000	577.300	1460.000	581.300	1480.000	582.700	1483.000	582.900	1500.000
GR	586.100	1534.000	585.200	1600.000	584.800	1700.000	585.600	1800.000	586.400	1858.000
GR	587.000	1900.000	587.700	1926.000	584.000	2000.000	585.500	2100.000	586.700	2186.000
GR	586.500	2241.000	597.300	2254.000	612.800	2281.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.035	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.095	53.000	280.000	920.000	500.000	500.000	500.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	607.700	0.000	606.700	100.000	606.000	200.000	606.600	280.000	599.200	280.000
GR	598.400	284.000	595.100	295.000	594.200	314.000	592.600	346.000	592.000	350.000
GR	590.000	369.000	588.200	390.000	585.900	411.000	580.800	423.000	577.600	434.000
GR	575.300	438.000	574.700	453.000	575.100	474.000	576.400	495.000	574.900	514.000
GR	574.700	518.000	576.300	537.000	575.900	558.000	575.400	579.000	573.800	598.000
GR	574.000	602.000	575.800	621.000	572.100	642.000	571.700	663.000	569.600	682.000
GR	568.700	686.000	571.500	705.000	571.600	726.000	572.000	747.000	570.300	766.000
GR	570.700	770.000	572.200	789.000	572.300	810.000	572.400	831.000	574.900	850.000
GR	576.200	854.000	580.800	876.000	581.700	886.000	592.100	916.000	592.300	920.000
GR	604.100	920.000	603.100	1000.000	603.100	1100.000	603.200	1200.000	603.600	1300.000
GR	604.200	1400.000	605.000	1500.000	606.100	1600.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.037	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.096	67.000	280.000	920.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
BT	50.000	.000	607.710	-0.000	10.000	606.700	-0.000	200.000	606.000	-0.000

BT	606.500	602.000	346.000	606.500	601.900	350.000	606.500	601.900	369.000	606.400
BT	601.800	390.000	606.300	601.700	411.000	606.200	601.600	423.000	606.200	601.600
BT	434.000	606.100	601.500	438.000	606.100	601.500	453.000	606.100	601.500	474.000
BT	605.900	601.400	495.000	605.900	601.300	514.000	605.800	601.300	518.000	605.800
BT	601.300	537.000	605.700	601.200	558.000	605.600	601.000	579.000	605.500	600.900
BT	598.000	605.400	600.900	602.000	605.400	600.900	621.000	605.300	600.900	642.000
BT	605.200	600.800	663.000	605.100	600.700	682.000	605.100	600.600	686.000	605.100
BT	600.600	705.000	605.000	600.500	726.000	604.900	600.400	747.000	604.800	600.400
BT	766.000	604.700	600.300	770.000	604.700	600.300	789.000	604.600	600.200	810.000
BT	604.600	600.100	831.000	604.500	600.000	850.000	604.400	600.000	854.000	604.400
BT	600.000	876.000	604.300	599.900	886.000	604.300	599.800	916.000	604.200	599.700
BT	920.000	604.100	599.700	1000.000	603.100	-0.000	1100.000	603.100	-0.000	1200.000
BT	603.200	-0.000	1300.000	603.600	-0.000	1400.000	604.200	-0.000	1500.000	605.000
BT	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	607.700	0.000	606.700	100.000	606.000	200.000	606.600	280.000	599.200	280.000
GR	598.400	284.000	595.100	295.000	594.200	314.000	592.600	346.000	601.900	346.000
GR	601.900	350.000	592.000	350.000	590.000	369.000	588.200	390.000	585.900	411.000
GR	580.800	423.000	577.600	434.000	601.500	434.000	601.500	438.000	575.300	438.000
GR	574.700	453.000	575.100	474.000	576.400	495.000	574.900	514.000	601.300	514.000
GR	601.300	518.000	574.700	518.000	576.300	537.000	575.900	558.000	575.400	579.000
GR	573.800	598.000	600.900	598.000	600.900	602.000	574.000	602.000	575.800	621.000
GR	572.100	642.000	571.700	663.000	569.600	682.000	600.600	682.000	600.600	686.000
GR	568.700	686.000	571.500	705.000	571.600	726.000	572.000	747.000	570.300	766.000
GR	600.300	766.000	600.300	770.000	570.700	770.000	572.200	789.000	572.300	810.000
GR	572.400	831.000	574.900	850.000	600.000	850.000	600.000	854.000	576.200	854.000
GR	580.800	876.000	581.700	886.000	592.100	916.000	592.300	920.000	604.100	920.000
GR	603.100	1000.000	603.100	1100.000	603.200	1200.000	603.600	1300.000	604.200	1400.000
GR	605.000	1500.000	606.100	1600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.104	-0.000	-0.000	-0.000	48.000	48.000	48.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.035	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.105	53.000	280.000	920.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	607.700	0.000	606.700	100.000	606.000	200.000	606.600	280.000	599.200	280.000
GR	598.400	284.000	595.100	295.000	594.200	314.000	592.600	346.000	592.000	350.000
GR	590.000	369.000	588.200	390.000	585.900	411.000	580.800	423.000	577.600	434.000
GR	575.300	438.000	574.700	453.000	575.100	474.000	576.400	495.000	574.900	514.000
GR	574.700	518.000	576.300	537.000	575.900	558.000	575.400	579.000	573.800	598.000
GR	574.000	602.000	575.800	621.000	572.100	642.000	571.700	663.000	569.600	682.000
GR	568.700	686.000	571.500	705.000	571.600	726.000	572.000	747.000	570.300	766.000
GR	570.700	770.000	572.200	789.000	572.300	810.000	572.400	831.000	574.900	850.000
GR	576.200	854.000	580.800	876.000	581.700	886.000	592.100	916.000	592.300	920.000
GR	604.100	920.000	603.100	1000.000	603.100	1100.000	603.200	1200.000	603.600	1300.000
GR	604.200	1400.000	605.000	1500.000	606.100	1600.000	-0.000	-0.000	-0.000	-0.000
X1	6.110	-0.000	-0.000	-0.000	30.000	30.000	30.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.037	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.111	67.000	280.000	920.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
BT	50.000	0.000	607.710	-0.000	100.000	606.700	-0.000	200.000	606.000	-0.000
BT	280.000	606.600	602.000	284.000	606.600	602.000	295.000	606.600	602.000	314.000
BT	606.500	602.000	346.000	606.500	601.900	350.000	606.500	601.900	369.000	606.400
BT	601.800	390.000	606.300	601.700	411.000	606.200	601.600	423.000	606.200	601.600
BT	434.000	606.100	601.500	438.000	606.100	601.500	453.000	606.100	601.500	474.000
BT	605.900	601.400	495.000	605.900	601.300	514.000	605.800	601.300	518.000	605.800
BT	601.300	537.000	605.700	601.200	558.000	605.600	601.000	579.000	605.500	600.900
BT	598.000	605.400	600.900	602.000	605.400	600.900	621.000	605.300	600.900	642.000
BT	605.200	600.800	663.000	605.100	600.700	682.000	605.100	600.600	686.000	605.100
BT	600.600	705.000	605.000	600.500	726.000	604.900	600.400	747.000	604.800	600.400
BT	766.000	604.700	600.300	770.000	604.700	600.300	789.000	604.600	600.200	810.000

BT	600.000	876.000	604.300	599.900	886.000	604.300	599.800	916.000	604.200	599.700
BT	920.000	604.100	599.700	1000.000	603.100	-0.000	1100.000	603.100	-0.000	1200.000
BT	603.200	-0.000	1300.000	603.600	-0.000	1400.000	604.200	-0.000	1500.000	605.000
BT	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	607.700	0.000	606.700	100.000	606.000	200.000	606.600	280.000	599.200	280.000
GR	598.400	284.000	595.100	295.000	594.200	314.000	592.600	346.000	601.900	346.000
GR	601.900	350.000	592.000	350.000	590.000	369.000	588.200	390.000	585.900	411.000
GR	580.800	423.000	577.600	434.000	601.500	434.000	601.500	438.000	575.300	438.000
GR	574.700	453.000	575.100	474.000	576.400	495.000	574.900	514.000	601.300	514.000
GR	601.300	518.000	574.700	518.000	576.300	537.000	575.900	558.000	575.400	579.000
GR	573.800	598.000	600.900	598.000	600.900	602.000	574.000	602.000	575.800	621.000
GR	572.100	642.000	571.700	663.000	569.600	682.000	600.600	682.000	600.600	686.000
GR	568.700	686.000	571.500	705.000	571.600	726.000	572.000	747.000	570.300	766.000
GR	600.300	766.000	600.300	770.000	570.700	770.000	572.200	789.000	572.300	810.000
GR	572.400	831.000	574.900	850.000	600.000	850.000	600.000	854.000	576.200	854.000
GR	580.800	876.000	581.700	886.000	592.100	916.000	592.300	920.000	604.100	920.000
GR	603.100	1000.000	603.100	1100.000	603.200	1200.000	603.600	1300.000	604.200	1400.000
GR	605.000	1500.000	606.100	1600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.036	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.119	-0.000	-0.000	-0.000	48.000	48.000	48.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.036	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.120	53.000	280.000	920.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	607.700	0.000	606.700	100.000	606.000	200.000	606.600	280.000	599.200	280.000
GR	598.400	284.000	595.100	295.000	594.200	314.000	592.600	346.000	592.000	350.000
GR	590.000	369.000	588.200	390.000	585.900	411.000	580.800	423.000	577.600	434.000
GR	575.300	438.000	574.700	453.000	575.100	474.000	576.400	495.000	574.900	514.000
GR	574.700	518.000	576.300	537.000	575.900	558.000	575.400	579.000	573.800	598.000
GR	574.000	602.000	575.800	621.000	572.100	642.000	571.700	663.000	569.600	682.000
GR	568.700	686.000	571.500	705.000	571.600	726.000	572.000	747.000	570.300	766.000
GR	570.700	770.000	572.200	789.000	572.300	810.000	572.400	831.000	574.900	850.000
GR	576.200	854.000	580.800	876.000	581.700	886.000	592.100	916.000	592.300	920.000
GR	604.100	920.000	603.100	1000.000	603.100	1100.000	603.200	1200.000	603.600	1300.000
GR	604.200	1400.000	605.000	1500.000	606.100	1600.000	-0.000	-0.000	-0.000	-0.000
NC	.060	.060	.036	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.171	45.000	500.000	992.000	350.000	200.000	275.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	150.000	-0.000	1150.000	-0.000	-0.000	-0.000	-0.000
GR	600.000	0.000	590.000	50.000	585.000	100.000	583.500	200.000	582.500	300.000
GR	582.800	350.000	583.000	400.000	583.200	450.000	583.400	500.000	576.700	512.000
GR	574.900	518.000	572.000	528.000	568.900	538.000	570.300	548.000	570.800	558.000
GR	572.000	578.000	572.900	598.000	572.800	618.000	572.900	638.000	573.200	658.000
GR	573.500	678.000	573.900	698.000	574.100	718.000	574.200	738.000	574.500	758.000
GR	574.800	778.000	574.800	798.000	575.000	818.000	575.200	838.000	575.500	858.000
GR	575.800	878.000	575.400	898.000	574.600	918.000	578.600	938.000	580.000	941.000
GR	580.200	958.000	585.700	992.000	586.500	1004.000	585.500	1044.000	584.900	1144.000
GR	586.100	1244.000	586.300	1292.000	586.500	1344.000	591.000	1444.000	600.000	1491.000
X1	6.257	38.000	200.000	650.000	550.000	400.000	450.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	100.000	-0.000	1000.000	-0.000	-0.000	-0.000	-0.000
GR	600.000	0.000	586.500	35.000	583.500	65.000	583.200	100.000	583.000	125.000
GR	583.100	150.000	583.300	175.000	583.400	200.000	578.200	206.000	574.500	221.000
GR	572.900	246.000	571.800	270.000	569.400	295.000	569.500	320.000	570.800	344.000
GR	571.100	369.000	571.200	394.000	571.000	418.000	571.100	443.000	570.500	468.000
GR	570.600	492.000	570.600	517.000	571.400	542.000	573.600	566.000	575.400	591.000
GR	576.200	616.000	578.500	640.000	579.600	648.000	581.900	649.000	585.700	650.000
GR	586.500	662.000	585.500	702.000	584.900	802.000	586.100	902.000	586.300	950.000
GR	586.500	1002.000	591.000	1102.000	600.000	1149.000	-0.000	-0.000	-0.000	-0.000
X1	6.562	35.000	29.000	373.000	1740.000	1740.000	1740.000	-0.000	-0.000	-0.000
X	10.00	0.000	0.000	-0.000	0.000	48.000	-0.000	-0.000	-0.000	-0.000
G	.0	0	5.3[illegible]	9.[illegible]	9.7	[illegible]	[illegible]	[illegible]	574.40	[illegible]

GR	587.00	0.000	587.400	200.000	585.600	30.000	586.700	400.000	588.800	500.000	
X3	10.000	-0.000	-0.000	900.000	-0.000	1650.000	-0.000	-0.000	-0.000	-0.000	
X1	6.740	54.000	1051.000	1448.000	200.000	150.000	200.000	-0.000	-0.000	-0.000	
NC	.080	.070	.037	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
GR	603.600	1700.000	603.400	1800.000	602.900	1900.000	602.000	2000.000	-0.000	-0.000	
GR	604.100	1212.000	603.500	1300.000	603.400	1400.000	603.500	1500.000	603.700	1600.000	
GR	580.300	1178.000	582.400	1183.000	582.100	1191.500	585.100	1200.000	586.600	1203.000	
GR	574.000	1098.000	573.500	1104.000	574.600	1124.000	573.900	1147.000	577.100	1170.000	
GR	569.800	995.700	565.800	1004.300	564.900	1025.000	569.700	1050.000	573.300	1075.000	
GR	581.400	866.000	579.700	872.000	574.800	901.000	572.000	934.000	570.900	967.000	
GR	604.600	500.000	604.200	600.000	603.900	700.000	603.800	800.000	595.800	820.000	
GR	607.700	0.000	607.100	100.000	606.500	200.000	605.800	300.000	605.100	400.000	
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
X1	6.703	39.000	820.000	1212.000	1.000	1.000	1.000	-0.000	-0.000	-0.000	
NC	.080	.070	.037	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
GR	603.600	1700.000	603.400	1800.000	602.900	1900.000	602.000	2000.000	-0.000	-0.000	
GR	604.100	1212.000	603.500	1300.000	603.400	1400.000	603.500	1500.000	603.700	1600.000	
GR	582.400	1183.000	582.100	1191.500	585.100	1200.000	589.800	1200.000	589.800	1203.000	
GR	574.600	1124.000	573.900	1147.000	577.100	1170.000	589.800	1170.000	589.800	1183.000	
GR	573.300	1075.000	574.000	1098.000	600.000	1098.000	599.600	1104.000	573.500	1104.000	
GR	600.700	995.700	600.000	1004.300	565.800	1004.300	564.900	1025.000	569.700	1050.000	
GR	579.700	872.000	574.800	901.000	572.000	934.000	570.900	967.000	569.800	995.700	
GR	601.900	820.000	595.800	820.000	600.000	603.800	800.000	601.900	806.000		
GR	604.600	500.000	604.200	600.000	603.900	700.000	603.800	800.000	601.100	866.000	872.000
GR	607.700	0.000	607.100	100.000	606.500	200.000	605.800	300.000	605.100	400.000	
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
X2	-0.000	-0.000	-0.000	-0.000	-0.000	1.000	-0.000	-0.000	-0.000	-0.000	
X1	6.702	-0.000	-0.000	40.000	40.000	40.000	-0.000	-0.000	-0.000	-0.000	
GR	603.600	1700.000	603.400	1800.000	602.900	1900.000	602.000	2000.000	-0.000	-0.000	
GR	604.100	1212.000	603.500	1300.000	603.400	1400.000	603.500	1500.000	603.700	1600.000	
GR	582.400	1183.000	582.100	1191.500	585.100	1200.000	589.800	1200.000	589.800	1203.000	
GR	574.600	1124.000	573.900	1147.000	577.100	1170.000	589.800	1170.000	589.800	1183.000	
GR	573.300	1075.000	574.000	1098.000	600.000	1098.000	599.600	1104.000	573.500	1104.000	
GR	600.700	995.700	600.000	1004.300	565.800	1004.300	564.900	1025.000	569.700	1050.000	
GR	579.700	872.000	574.800	901.000	572.000	934.000	570.900	967.000	569.800	995.700	
GR	601.900	820.000	595.800	820.000	600.000	603.800	800.000	601.900	806.000		
GR	604.600	500.000	604.200	600.000	603.900	700.000	603.800	800.000	601.100	866.000	872.000
GR	607.700	0.000	607.100	100.000	606.500	200.000	605.800	300.000	605.100	400.000	
BT	603.700	0.000	1700.000	0.000	1800.000	0.000	603.400	0.000	1900.000	602.900	
BT	1303.000	603.500	0.000	1400.000	0.000	1500.000	603.500	0.000	1600.000		
BT	589.800	1203.000	604.500	0.000	1212.000	604.500	0.000	1212.000	604.100	0.000	
BT	604.500	589.800	1183.000	604.500	589.800	1191.500	589.800	604.500	589.800	1200.000	604.500
BT	1124.000	604.600	1147.000	604.600	599.700	1170.000	604.500	599.600			
BT	599.600	1075.000	604.500	1098.000	600.000	1104.000	604.600				
BT	604.500	600.700	1004.300	600.000	604.500	1025.000	600.000	1050.000	604.400		
BT	901.000	604.500	600.700	934.000	604.500	967.000	604.500	600.700	995.700		
BT	0.000	820.000	601.100	866.000	604.600	872.000	604.500	600.700			
BT	604.200	0.000	603.900	0.000	800.000	0.000	603.800	820.000	603.800		
BT	300.000	605.800	0.000	400.000	0.000	605.100	0.000	500.000	604.600	0.000	600.000
BT	41.000	0.000	607.700	0.000	100.000	0.000	607.100	0.000	200.000	0.000	606.500
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.695	49.000	820.000	1212.000	1.000	1.000	1.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.037	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	603.600	1700.000	603.400	1800.000	602.900	1900.000	602.000	2000.000	-0.000	-0.000	
GR	604.100	1212.000	603.500	1300.000	603.400	1400.000	603.500	1500.000	603.700	1600.000	
GR	580.300	1178.000	582.400	1183.000	582.100	1191.500	585.100	1200.000	586.600	1203.000	
GR	574.000	1098.000	573.500	1104.000	574.600	1124.000	573.900	1147.000	577.100	1170.000	
GR	569.800	995.700	565.800	1004.300	564.900	1025.000	569.700	1050.000	573.300	1075.000	
GR	581.400	866.000	579.700	872.000	574.800	901.000	572.000	934.000	570.900	967.000	
GR	604.600	500.000	604.200	600.000	603.900	700.000	603.800	800.000	595.800	820.000	
GR	607.700	0.000	607.100	100.000	606.500	200.000	605.800	300.000	605.100	400.000	
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
X1	6.694	39.000	820.000	1212.000	800.000	500.000	700.000	-0.000	-0.000	-0.000	
NC	.080	.080	.037	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
GR	586.900	826.000	587.200	926.000	587.800	1026.000	590.800	1126.000	603.100	1160.000	
GR	585.500	626.000	585.400	448.000	584.900	526.000	586.100	626.000	586.500	726.000	
GR	580.000	366.000	581.100	372.000	583.400	373.000	585.700	374.000	586.500	386.000	
GR	572.100	286.000	572.900	306.000	575.100	326.000	576.900	346.000	577.700	356.000	
GR	572.700	186.000	572.500	206.000	572.600	226.000	572.000	246.000	572.100	266.000	
GR	573.300	86.000	570.900	106.000	571.000	126.000	572.300	146.000	572.600	166.000	

GR	589.100	1000.000	589.600	1020.000	588.100	1051.000	576.300	1054.000	568.000	1058.000
GR	569.400	1074.000	567.300	1080.000	565.900	1096.000	565.700	1112.000	566.100	1128.000
GR	565.700	1144.000	566.000	1160.000	566.200	1170.000	566.300	1192.000	566.600	1208.000
GR	566.900	1224.000	567.200	1240.000	567.300	1256.000	567.500	1272.000	567.700	1288.000
GR	568.100	1304.000	568.500	1320.000	569.200	1336.000	570.100	1352.000	569.400	1368.000
GR	571.000	1384.000	571.300	1400.000	573.600	1416.000	574.100	1434.000	586.600	1448.000
GR	587.400	1508.000	588.600	1608.000	588.200	1648.000	587.700	1708.000	587.700	1808.000
GR	586.200	1908.000	587.200	2008.000	588.000	2108.000	587.400	2208.000	586.300	2308.000
GR	586.100	2408.000	585.900	2508.000	585.900	2748.000	585.900	2773.000	-0.000	-0.000
QT	2.000	16214.000	12419.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.896	73.000	3845.000	4334.000	850.000	800.000	825.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	2550.000	-0.000	4834.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	585.100	200.000	585.700	400.000	585.200	600.000	586.000	800.000
GR	585.600	1000.000	586.000	1200.000	586.600	1400.000	586.500	1600.000	586.500	1800.000
GR	586.400	2000.000	585.800	2200.000	585.800	2270.000	585.800	2400.000	585.800	2600.000
GR	585.800	2800.000	585.800	3000.000	585.800	3200.000	586.000	3400.000	588.200	3600.000
GR	588.700	3770.000	588.500	3800.000	588.200	3845.000	584.100	3849.000	571.000	3854.000
GR	572.700	3874.000	570.600	3894.000	569.200	3914.000	569.000	3934.000	569.400	3954.000
GR	569.000	3974.000	569.300	3994.000	569.500	4014.000	569.600	4034.000	569.900	4054.000
GR	570.200	4074.000	570.500	4094.000	570.600	4114.000	570.800	4134.000	571.000	4154.000
GR	571.400	4174.000	571.800	4194.000	572.500	4214.000	573.400	4234.000	572.700	4254.000
GR	574.300	4274.000	574.600	4279.000	581.400	4283.000	581.900	4294.000	588.900	4334.000
GR	587.100	4479.000	588.200	4609.000	588.200	4629.000	585.500	4659.000	585.200	4679.000
GR	585.200	4699.000	585.200	4899.000	585.600	4959.000	587.200	5099.000	587.900	5299.000
GR	587.900	5479.000	586.800	5484.000	586.800	5499.000	597.400	5539.000	597.400	5584.000
GR	587.800	5634.000	588.000	5699.000	588.000	5899.000	587.000	5999.000	586.200	6099.000
GR	586.200	6299.000	586.200	6369.000	610.000	6454.000	-0.000	-0.000	-0.000	-0.000
X1	7.052	73.000	3481.000	3970.000	750.000	1050.000	825.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1550.000	-0.000	5320.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	601.700	35.000	601.500	50.000	592.600	130.000	584.700	330.000
GR	585.000	530.000	585.000	730.000	585.000	930.000	585.500	1130.000	586.700	1330.000
GR	586.500	1530.000	585.500	1730.000	585.800	1930.000	586.900	2130.000	587.000	2330.000
GR	587.000	2530.000	587.400	2630.000	585.600	2730.000	586.700	2830.000	588.800	2930.000
GR	589.300	3030.000	588.200	3130.000	588.500	3230.000	589.500	3330.000	589.100	3430.000
GR	589.600	3450.000	588.100	3481.000	574.400	3490.000	575.800	3510.000	573.700	3530.000
GR	572.600	3650.000	572.700	3670.000	573.000	3690.000	573.300	3710.000	573.600	3730.000
GR	573.700	3750.000	573.900	3770.000	574.100	3790.000	574.500	3810.000	574.900	3830.000
GR	575.600	3850.000	576.500	3870.000	575.800	3890.000	577.400	3910.000	577.700	3915.000
GR	580.000	3919.000	580.500	3930.000	586.600	3970.000	587.400	4030.000	588.600	4130.000
GR	587.700	4230.000	587.700	4330.000	586.200	4430.000	587.200	4530.000	588.000	4630.000
GR	587.400	4730.000	587.000	4770.000	586.300	4830.000	586.100	4930.000	585.900	5030.000
GR	585.900	5230.000	585.800	5430.000	585.800	5630.000	586.100	5830.000	585.700	5845.000
GR	585.600	5940.000	585.600	6030.000	585.500	6160.000	585.300	6230.000	585.400	6430.000
GR	585.400	6485.000	591.800	6630.000	610.000	6755.000	-0.000	-0.000	-0.000	-0.000
X1	7.207	78.000	3481.000	3970.000	800.000	900.000	818.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1900.000	-0.000	5470.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	601.700	35.000	601.500	50.000	592.600	130.000	584.700	330.000
GR	585.000	530.000	585.000	730.000	585.000	930.000	585.500	1130.000	586.700	1330.000
GR	586.500	1530.000	585.500	1730.000	585.800	1930.000	586.900	2130.000	587.000	2330.000
GR	587.000	2530.000	587.400	2630.000	585.600	2730.000	586.700	2830.000	588.800	2930.000
GR	589.300	3030.000	588.200	3130.000	588.500	3230.000	589.500	3330.000	589.100	3430.000
GR	589.600	3450.000	588.100	3481.000	578.400	3490.000	578.000	3510.000	577.700	3530.000
GR	576.200	3550.000	576.100	3570.000	576.500	3590.000	576.100	3610.000	576.400	3630.000
GR	576.600	3650.000	576.700	3670.000	577.000	3690.000	577.200	3710.000	577.600	3730.000
GR	577.700	3750.000	577.900	3770.000	578.100	3790.000	578.500	3810.000	578.900	3830.000
GR	579.600	3850.000	580.500	3870.000	579.800	3890.000	581.400	3910.000	581.700	3915.000
GR	584.000	3919.000	584.500	3930.000	586.600	3970.000	587.400	4030.000	588.600	4130.000
GR	587.700	4230.000	587.700	4330.000	586.200	4430.000	587.200	4530.000	588.000	4630.000
GR	587.400	4730.000	587.000	4770.000	586.300	4830.000	586.100	4930.000	585.900	5030.000
GR	585.900	5230.000	585.800	5430.000	585.800	5630.000	586.100	5830.000	585.700	5845.000
GR	585.600	59 0.000	585.600	6030.000	585.500	6160.000	585.300	6230.000	585.400	6430.000
GR	585. 00	6. 0	591.80	6630. 00	610.0	7 5. 0	0.00	-0. 00	-0.000	-0.000
NC	80	8	03	0 00	0 0	0	0	0	0 0	0 0 0

X1	7.801	42.000	1077.000	1393.000	3150.000	3100.000	3135.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	250.000	-0.000	1743.000	-0.000	-0.000	-0.000	-0.000
GR	594.700	0.000	594.100	100.000	588.700	200.000	588.400	300.000	587.800	400.000
GR	588.400	500.000	587.800	600.000	588.600	700.000	587.000	800.000	590.100	892.000
GR	589.000	930.000	585.800	956.000	584.600	1000.000	586.500	1077.000	582.000	1080.000
GR	579.000	1090.000	576.200	1100.000	576.600	1120.000	575.300	1140.000	575.500	1160.000
GR	575.100	1180.000	574.300	1200.000	574.400	1220.000	575.000	1240.000	575.100	1260.000
GR	574.600	1280.000	574.200	1300.000	573.900	1320.000	574.200	1340.000	575.300	1360.000
GR	580.800	1380.000	582.200	1389.000	589.500	1393.000	589.500	1496.000	591.100	1525.000
GR	589.600	1600.000	588.000	1700.000	589.200	1860.000	591.300	1900.000	593.300	2000.000
GR	596.400	2072.000	605.200	2100.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.035	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	7.934	45.000	1345.000	1661.000	550.000	700.000	700.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	646.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	599.700	30.000	596.000	200.000	593.200	400.000	591.800	440.000
GR	588.900	480.000	588.900	600.000	587.800	800.000	588.600	1050.000	589.300	1135.000
GR	587.200	1140.000	589.600	1150.000	589.900	1160.000	589.000	1198.000	585.800	1224.000
GR	584.600	1268.000	586.500	1345.000	581.900	1348.000	578.900	1358.000	576.100	1368.000
GR	576.500	1388.000	575.200	1408.000	575.400	1428.000	575.000	1448.000	574.200	1468.000
GR	574.300	1488.000	574.900	1508.000	575.000	1528.000	574.500	1548.000	574.100	1568.000
GR	573.800	1588.000	574.100	1608.000	575.200	1628.000	580.700	1648.000	582.100	1657.000
GR	589.500	1661.000	589.500	1683.000	591.100	1689.000	589.600	1705.000	588.000	1726.000
GR	589.200	1760.000	591.300	1768.000	593.300	1776.000	596.400	1797.000	605.200	1812.000
X1	7.945	42.000	1085.000	1401.000	60.000	60.000	60.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	386.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	601.700	0.000	598.000	100.000	595.250	200.000	592.500	300.000	591.000	400.000
GR	590.250	500.000	589.900	600.000	589.750	700.000	589.950	800.000	589.800	900.000
GR	589.000	938.000	585.800	964.000	584.600	1008.000	586.500	1085.000	581.900	1088.000
GR	578.900	1098.000	576.100	1108.000	576.500	1128.000	575.200	1148.000	575.400	1168.000
GR	575.000	1188.000	574.200	1208.000	574.300	1228.000	574.900	1248.000	575.000	1268.000
GR	574.500	1288.000	574.100	1308.000	573.800	1328.000	574.100	1348.000	575.200	1368.000
GR	580.700	1388.000	582.100	1397.000	589.500	1401.000	589.500	1423.000	591.100	1429.000
GR	589.600	1445.000	588.000	1466.000	589.200	1500.000	591.300	1508.000	593.300	1516.000
GR	596.400	1537.000	605.200	1552.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.034	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	7.956	45.000	1345.000	1661.000	60.000	60.000	60.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	646.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	599.700	30.000	596.000	200.000	593.200	400.000	591.800	440.000
GR	588.900	480.000	588.900	600.000	587.800	800.000	588.600	1050.000	589.300	1135.000
GR	587.200	1140.000	589.600	1150.000	589.900	1160.000	589.000	1198.000	585.800	1224.000
GR	584.600	1268.000	586.500	1345.000	581.900	1348.000	578.900	1358.000	576.100	1368.000
GR	576.500	1388.000	575.200	1408.000	575.400	1428.000	575.000	1448.000	574.200	1468.000
GR	574.300	1488.000	574.900	1508.000	575.000	1528.000	574.500	1548.000	574.100	1568.000
GR	573.800	1588.000	574.100	1608.000	575.200	1628.000	580.700	1648.000	582.100	1657.000
GR	589.500	1661.000	589.500	1683.000	591.100	1689.000	589.600	1705.000	588.000	1726.000
GR	589.200	1760.000	591.300	1768.000	593.300	1776.000	596.400	1797.000	605.200	1812.000
X1	8.241	39.000	1325.000	1659.000	1400.000	1650.000	1500.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	589.000	60.000	589.000	110.000	590.200	140.000	591.400	190.000
GR	589.400	240.000	590.000	440.000	588.000	640.000	589.300	840.000	589.700	1040.000
GR	589.600	1060.000	589.600	1080.000	587.700	1085.000	589.600	1090.000	589.600	1325.000
GR	586.900	1337.000	583.800	1338.000	582.300	1345.000	578.300	1355.000	575.300	1365.000
GR	575.600	1385.000	574.500	1405.000	574.600	1425.000	574.300	1445.000	574.100	1465.000
GR	574.900	1485.000	574.900	1505.000	575.000	1525.000	574.400	1545.000	573.700	1557.000
GR	574.600	1585.000	575.600	1605.000	576.900	1625.000	579.400	1645.000	580.500	1657.000
GR	585.000	1659.000	586.300	1660.000	587.200	1665.000	612.200	1702.000	-0.000	-0.000
X1	8.345	42.000	1890.000	2225.000	500.000	550.000	550.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	589.700	75.000	589.500	95.000	589.000	115.000	589.600	110.000

GR	592.100	1130.000	591.900	1230.000	590.600	1330.000	589.100	1430.000	589.400	1530.000	
GR	588.600	1630.000	590.100	1712.000	589.000	1830.000	588.800	1890.000	586.900	1902.000	
GR	583.800	1903.000	582.300	1910.000	578.300	1920.000	575.300	1930.000	575.600	1950.000	
GR	574.500	1970.000	574.600	1990.000	574.300	2010.000	574.100	2030.000	574.900	2050.000	
GR	574.900	2070.000	575.000	2090.000	574.400	2110.000	573.700	2130.000	574.600	2150.000	
GR	575.600	2170.000	576.900	2190.000	579.400	2210.000	580.500	2222.000	586.300	2225.000	
GR	587.200	2230.000	612.200	2267.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
X1	8.552	42.000	2285.000	2485.000	400.000	1095.000	1095.000	-0.000	-0.000	-0.000	
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
GR	610.000	0.000	589.700	75.000	589.500	95.000	589.000	105.000	589.600	110.000	
GR	589.000	305.000	589.600	505.000	591.600	705.000	593.400	905.000	591.800	1105.000	
GR	590.000	1205.000	590.800	1305.000	591.400	1345.000	590.200	1465.000	591.000	1505.000	
GR	589.600	1705.000	588.900	1905.000	590.100	1970.000	590.400	2005.000	589.300	2105.000	
GR	590.200	2254.000	587.800	2255.000	587.800	2285.000	586.800	2292.000	587.300	2300.000	
GR	574.400	2311.000	574.500	2322.000	574.200	2333.000	574.000	2344.000	574.800	2355.000	
GR	574.800	2370.000	574.900	2385.000	574.300	2400.000	573.600	2415.000	574.500	2425.000	
GR	575.500	2441.000	576.800	2452.000	579.300	2465.000	580.400	2482.000	586.300	2485.000	
GR	587.200	2490.000	612.200	2527.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
QT	2.000	16056.000	12298.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
X1	8.948	51.000	1258.000	1625.000	550.000	2300.000	2090.000	-0.000	-0.000	-0.000	
X3	-0.000	-0.000	-0.000	200.000	-0.000	2225.000	-0.000	-0.000	-0.000	-0.000	
GR	604.300	0.000	596.000	25.000	592.200	60.000	590.600	92.000	589.100	160.000	
GR	589.600	260.000	588.300	360.000	589.600	460.000	590.800	560.000	591.200	660.000	
GR	591.000	760.000	591.700	860.000	591.700	960.000	591.800	1025.000	592.500	1125.000	
GR	592.400	1158.000	592.200	1225.000	591.600	1258.000	578.000	1270.000	574.900	1285.000	
GR	575.800	1305.000	573.400	1325.000	573.900	1345.000	574.400	1365.000	576.200	1385.000	
GR	576.800	1405.000	577.600	1425.000	578.200	1445.000	578.600	1465.000	578.800	1485.000	
GR	579.000	1505.000	579.200	1525.000	579.200	1545.000	579.300	1565.000	579.400	1585.000	
GR	581.300	1605.000	581.600	1615.000	583.900	1622.000	589.300	1625.000	588.800	1725.000	
GR	587.600	1825.000	587.300	1925.000	587.000	2012.000	584.500	2051.000	587.000	2084.000	
GR	585.800	2125.000	591.100	2225.000	588.000	2325.000	589.800	2425.000	587.700	2525.000	
GR	587.000	2625.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
X1	9.405	49.000	349.000	753.000	2900.000	1900.000	2415.000	-0.000	-0.000	-0.000	
X3	10.000	-0.000	-0.000	-0.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000	
GR	626.200	0.000	596.800	109.000	594.100	141.000	591.200	241.000	584.500	349.000	
GR	581.300	361.000	576.800	381.000	576.200	401.000	576.600	421.000	578.400	441.000	
GR	578.400	461.000	578.500	481.000	577.700	501.000	577.100	521.000	577.600	541.000	
GR	577.000	561.000	577.000	581.000	577.000	601.000	577.200	621.000	577.800	641.000	
GR	577.900	661.000	578.100	681.000	578.700	701.000	579.800	721.000	581.300	741.000	
GR	583.600	753.000	590.900	777.000	591.200	789.000	591.400	812.000	590.600	841.000	
GR	592.200	941.000	590.400	1041.000	590.200	1141.000	590.800	1241.000	590.900	1341.000	
GR	590.200	1441.000	593.700	1541.000	594.500	1641.000	594.400	1741.000	594.600	1841.000	
GR	593.600	1941.000	593.200	2041.000	592.800	2072.000	592.200	2089.000	592.400	2141.000	
GR	592.400	2165.000	593.900	2165.000	600.300	2237.000	621.000	2293.000	-0.000	-0.000	
X1	9.802	29.000	805.000	1149.000	2050.000	1750.000	2095.000	-0.000	-0.000	-0.000	
X3	10.000	-0.000	-0.000	234.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
GR	601.500	0.000	598.000	100.000	595.000	200.000	590.500	300.000	592.600	400.000	
GR	592.700	500.000	591.500	600.000	588.600	700.000	590.600	785.000	591.100	805.000	
GR	583.900	808.000	581.400	824.000	579.800	840.000	578.700	860.000	578.600	880.000	
GR	577.900	900.000	577.000	920.000	576.100	940.000	575.400	960.000	574.400	980.000	
GR	573.000	1000.000	573.600	1020.000	575.700	1040.000	577.000	1060.000	578.500	1080.000	
GR	581.800	1100.000	583.100	1103.000	593.300	1120.000	615.800	1149.000	-0.000	-0.000	
NC	.080	.080	.033	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
X1	10.354	29.000	395.000	700.000	2300.000	2915.000	2915.000	-0.000	-0.000	-0.000	
GR	599.700	0.000	588.300	30.000	587.400	68.000	588.900	168.000	590.700	268.000	
GR	591.100	368.000	590.400	388.000	582.000	395.000	580.100	408.000	578.200	428.000	
GR	577.400	448.000	576.600	468.000	576.100	488.000	575.600	508.000	575.500	528.000	
GR	575.200	548.000	574.600	568.000	57 .2 0	588.000	573.900	608.000	573.500	628.000	
GR	573.100	648.000	574.700	658.000	57 .0 0	668.000	577.900	678.000	580.000	687.000	
G	5 2. 00	700.000	594.1 0	715.000	5 .7 0	31. 00	610.400	754.0 0	-0.000	0.000	
	.80	.80	3	0	0	0	0	0	0	0	

X1	10.877	44.000	81.000	464.000	2800.000	3100.000	2760.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	1174.000	-0.000	-0.000	-0.000	-0.000
GR	612.400	0.000	593.800	26.000	590.700	78.000	583.300	81.000	581.200	94.000
GR	577.400	114.000	576.400	134.000	576.000	154.000	576.200	174.000	576.900	194.000
GR	577.400	214.000	578.400	234.000	579.400	254.000	580.200	274.000	580.200	294.000
GR	579.700	314.000	579.800	334.000	579.700	354.000	579.800	374.000	580.500	394.000
GR	581.000	414.000	581.300	434.000	584.100	464.000	586.200	466.000	591.800	484.000
GR	591.400	574.000	592.000	674.000	591.500	774.000	592.600	874.000	593.300	974.000
GR	594.700	1016.000	596.400	1074.000	597.800	1174.000	595.700	1374.000	597.700	1574.000
GR	598.800	1774.000	599.900	1944.000	599.900	1954.000	599.800	1974.000	600.600	2174.000
GR	600.200	2374.000	600.800	2494.000	605.600	2534.000	610.000	2554.000	-0.000	-0.000
X1	11.066	47.000	50.000	420.000	1050.000	750.000	1000.000	-0.000	-0.000	-0.000
GR	610.000	0.000	596.000	40.000	595.800	50.000	583.300	75.000	580.900	79.000
GR	580.900	98.000	580.600	117.000	579.400	136.000	578.700	155.000	577.900	174.000
GR	577.300	193.000	576.600	212.000	576.900	231.000	576.500	250.000	577.100	269.000
GR	577.900	288.000	577.800	307.000	578.200	326.000	578.800	345.000	579.800	364.000
GR	580.500	383.000	581.200	402.000	581.500	407.000	583.700	418.000	590.600	420.000
GR	588.800	600.000	588.800	790.000	592.100	800.000	593.600	880.000	592.400	940.000
GR	589.800	1000.000	591.500	1100.000	590.200	1160.000	589.300	1200.000	587.600	1240.000
GR	600.100	1370.000	600.600	1400.000	600.600	1435.000	596.600	1580.000	596.500	1600.000
GR	597.600	1800.000	598.400	2000.000	600.300	2200.000	601.500	2400.000	602.600	2580.000
GR	604.600	2600.000	610.000	2660.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	11.326	44.000	186.000	592.000	1370.000	900.000	1370.000	-0.000	-0.000	-0.000
GR	601.800	0.000	597.600	80.000	594.200	186.000	582.300	215.000	581.300	235.000
GR	581.000	255.000	579.800	275.000	579.100	295.000	578.300	315.000	577.700	335.000
GR	577.000	355.000	577.300	375.000	576.900	395.000	577.500	415.000	578.300	435.000
GR	578.200	455.000	578.600	475.000	579.200	495.000	580.200	515.000	580.900	535.000
GR	581.600	555.000	581.900	560.000	583.500	572.000	587.200	575.000	590.600	592.000
GR	589.800	792.000	589.000	832.000	591.600	992.000	594.800	1192.000	593.600	1247.000
GR	590.800	1312.000	591.500	1337.000	595.200	1392.000	597.600	1412.000	597.400	1592.000
GR	602.200	1792.000	603.200	1832.000	598.600	1992.000	598.800	2192.000	602.200	2392.000
GR	601.800	2592.000	603.800	2712.000	604.000	2732.000	610.000	2762.000	-0.000	-0.000

X1	11.636	40.000	1641.000	2047.000	1200.000	1350.000	1640.000	-0.000	-0.000	-0.000
GR	610.000	0.000	598.100	80.000	597.000	200.000	594.600	400.000	592.000	600.000
GR	591.000	650.000	590.800	750.000	590.700	850.000	591.100	950.000	591.000	1050.000
GR	591.100	1150.000	591.000	1250.000	591.700	1350.000	592.000	1450.000	592.900	1550.000
GR	594.200	1641.000	582.900	1670.000	581.900	1690.000	581.600	1710.000	580.400	1730.000
GR	579.700	1750.000	578.900	1770.000	578.300	1790.000	577.600	1810.000	577.900	1830.000
GR	577.500	1850.000	578.100	1870.000	578.900	1890.000	578.800	1910.000	579.200	1930.000
GR	579.800	1950.000	580.800	1970.000	581.500	1990.000	582.200	2010.000	582.500	2015.000
GR	584.100	2027.000	587.800	2030.000	593.400	2047.000	597.600	2100.000	601.800	2140.000
X1	12.081	40.000	90.000	466.000	2150.000	2800.000	2345.000	-0.000	-0.000	-0.000
GR	614.900	0.000	592.900	27.000	590.000	90.000	582.900	113.000	581.500	135.000
GR	581.200	155.000	581.100	175.000	581.000	195.000	580.800	215.000	580.400	235.000
GR	579.900	255.000	579.500	275.000	578.700	295.000	577.600	315.000	577.100	335.000
GR	576.900	355.000	576.700	375.000	577.200	395.000	577.200	415.000	577.900	435.000
GR	580.100	450.000	583.200	455.000	593.200	466.000	592.200	495.000	590.400	595.000
GR	592.100	695.000	591.400	795.000	591.900	895.000	591.700	995.000	591.100	1095.000
GR	590.100	1195.000	590.700	1295.000	590.500	1395.000	590.400	1495.000	589.800	1595.000
GR	589.200	1695.000	589.800	1725.000	598.800	1795.000	599.800	1862.000	624.500	1906.000
NC	.080	.060	.033	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	12.566	61.000	950.000	1380.000	2700.000	1.000	2565.000	-0.000	-0.000	-0.000
GR	610.000	0.000	598.000	50.000	593.500	150.000	593.000	230.000	592.700	250.000
GR	593.300	460.000	594.400	530.000	594.400	550.000	595.700	750.000	594.000	950.000
GR	587.100	959.000	584.300	969.000	582.200	979.000	578.500	999.000	577.600	1019.000
GR	576.000	1039.000	575.600	1059.000	576.400	1079.000	578.400	1099.000	579.100	1119.000
GR	579.700	1139.000	580.100	1159.000	580.300	1179.000	579.800	1199.000	580.000	1219.000
GR	580.300	1239.000	581.600	1259.000	581.600	1279.000	584.100	1291.000	586.300	1300.000
GR	5[illegible].7 0	1380.000	590.800	1420.000	587.[illegible]00	14[illegible]0.000	5[illegible]2.100	1520.000	593.100	162[illegible].000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

GR	589.700	2220.000	590.200	2320.000	594.500	2420.000	593.500	2520.000	592.700	2620.000
GR	592.700	2720.000	591.900	2820.000	592.100	2920.000	591.900	3020.000	591.700	3065.000
GR	591.100	3120.000	590.100	3220.000	590.700	3320.000	590.500	3420.000	590.400	3520.000
GR	589.800	3620.000	589.200	3720.000	589.800	3750.000	598.800	3820.000	599.800	3887.000
GR	624.500	3931.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.033	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	13.193	58.000	5565.000	5847.000	750.000	2050.000	3310.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1100.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	599.100	80.000	598.000	200.000	595.600	400.000	593.000	600.000
GR	591.800	1200.000	591.500	1400.000	590.800	1600.000	591.300	1800.000	591.600	1970.000
GR	592.700	2000.000	593.000	2020.000	592.600	2035.000	592.700	2050.000	594.000	2200.000
GR	596.000	2400.000	594.000	2600.000	594.400	2800.000	594.300	3000.000	595.100	3130.000
GR	594.600	3200.000	594.000	3400.000	593.600	3600.000	594.200	3800.000	593.400	4000.000
GR	592.800	4200.000	591.600	4335.000	591.600	4400.000	591.700	4600.000	591.800	4735.000
GR	591.800	4800.000	591.700	5000.000	591.700	5200.000	591.700	5400.000	591.800	5530.000
GR	595.800	5565.000	588.400	5570.000	585.900	5579.000	584.900	5585.000	583.800	5605.000
GR	581.700	5625.000	581.100	5645.000	580.900	5665.000	580.400	5685.000	579.700	5705.000
GR	578.100	5725.000	576.300	5745.000	576.600	5765.000	575.900	5785.000	574.500	5805.000
GR	575.800	5815.000	580.000	5825.000	583.400	5835.000	586.500	5845.000	588.400	5847.000
GR	598.800	5854.000	598.700	5885.000	616.000	5915.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.033	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	13.896	52.000	4275.000	4552.000	900.000	3710.000	3710.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1675.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	598.800	65.000	601.200	80.000	596.300	200.000	594.500	400.000
GR	595.000	500.000	592.700	600.000	592.700	800.000	592.700	940.000	593.600	950.000
GR	592.700	960.000	593.500	970.000	593.000	2040.000	593.000	2060.000	592.600	2600.000
GR	594.500	2800.000	594.000	3000.000	595.500	3200.000	596.800	3300.000	595.800	3320.000
GR	590.400	3370.000	590.300	3470.000	590.800	3570.000	592.000	3670.000	589.300	3770.000
GR	591.000	3870.000	590.100	3970.000	593.800	4070.000	590.900	4170.000	589.200	4270.000
GR	587.300	4275.000	584.800	4284.000	583.800	4290.000	582.700	4310.000	580.600	4330.000
GR	580.000	4350.000	579.800	4370.000	579.300	4390.000	578.600	4410.000	577.000	4430.000
GR	575.200	4450.000	575.500	4470.000	574.800	4490.000	573.400	4510.000	574.700	4520.000
GR	578.900	4530.000	582.300	4540.000	585.400	4550.000	587.300	4552.000	598.800	4559.000
GR	598.700	4590.000	616.000	4620.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.033	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	14.368	49.000	3200.000	3498.000	1400.000	2495.000	2495.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1450.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	593.700	80.000	593.500	200.000	593.400	230.000	598.700	340.000
GR	599.200	400.000	601.200	600.000	602.700	800.000	600.600	1000.000	599.800	1080.000
GR	597.800	1090.000	599.700	1110.000	599.700	1145.000	598.000	1150.000	599.800	1160.000
GR	599.600	1200.000	603.600	1400.000	603.600	1450.000	598.500	1525.000	597.600	1600.000
GR	594.300	1765.000	592.100	1765.000	592.100	1800.000	592.100	2000.000	592.100	2200.000
GR	592.900	2300.000	592.600	2400.000	591.100	2500.000	592.900	2600.000	593.200	2700.000
GR	593.800	2800.000	593.900	2900.000	592.400	3000.000	589.500	3100.000	589.900	3200.000
GR	584.200	3231.000	582.000	3255.000	580.100	3305.000	579.000	3355.000	578.200	3370.000
GR	577.900	3410.000	574.900	3430.000	576.600	3460.000	579.800	3475.000	586.400	3492.000
GR	593.400	3498.000	594.600	3600.000	596.500	3637.000	606.500	3700.000	-0.000	-0.000
X1	14.877	60.000	3514.000	3776.000	4000.000	1200.000	2685.000	-0.000	-0.000	-0.000
GR	610.000	0.000	601.300	80.000	596.800	145.000	593.900	215.000	594.300	265.000
GR	593.400	300.000	593.400	500.000	593.500	700.000	593.600	900.000	593.200	1100.000
GR	593.200	1300.000	593.600	1500.000	594.500	1700.000	593.900	1900.000	593.900	2050.000
GR	593.900	2100.000	594.900	2300.000	594.900	2500.000	594.300	2600.000	593.800	2700.000
GR	593.500	2800.000	592.400	2900.000	592.500	3000.000	592.900	3100.000	593.700	3200.000
GR	594.100	3300.000	593.700	3400.000	594.400	3514.000	588.200	3537.000	584.400	3542.000
GR	581.400	3550.000	577.600	3560.000	575.100	3580.000	576.700	3600.000	574.900	3620.000
GR	575.300	3640.000	576.100	3660.000	577.000	3680.000	581.500	3690.000	582.200	3700.000
GR	577.200	3720.000	575.000	3740.000	578.500	3750.000	582.500	3760.000	585.100	3767.000
GR	592.200	3776.000	591.900	3800.000	591.200	3900.000	591.100	4000.000	591.000	4100.000
GR	590.700	4206.000	589.500	4300.000	591.000	4370.000	587.700	4400.000	588.200	4500.000
GR	588.200	4520.000	585.600	4600.000	80.00	4665.000	584.900	4700.000	602.200	4731.000
X1	15.15	52.0	3112.00	4.25		93.	147.0	0.	0.0	0.00

X3	-0.000	-0.000	-0.000	350.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	602.200	40.000	595.800	200.000	595.700	230.000	593.100	245.000
GR	595.600	260.000	594.600	400.000	594.800	600.000	594.800	800.000	595.600	960.000
GR	595.300	1000.000	595.600	1170.000	596.000	1200.000	596.000	1400.000	595.000	1600.000
GR	595.800	1800.000	595.400	2000.000	596.400	2200.000	595.700	2400.000	596.000	2600.000
GR	596.700	2690.000	596.800	2890.000	598.300	3030.000	595.500	3090.000	595.000	3290.000
GR	596.800	3340.000	591.400	3352.000	588.000	3386.000	589.300	3452.000	589.400	3552.000
GR	591.700	3652.000	588.400	3752.000	584.500	3777.000	584.700	3792.000	585.000	3812.000
GR	583.900	3832.000	582.900	3852.000	581.900	3872.000	580.400	3892.000	579.600	3912.000
GR	580.000	3932.000	580.400	3952.000	580.400	3972.000	580.900	3992.000	582.400	4008.000
GR	584.100	4014.000	594.300	4025.000	593.700	4052.000	592.100	4152.000	593.800	4252.000
GR	594.000	4333.000	601.500	4352.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	15.717	53.000	2410.000	2756.000	1900.000	3100.000	2965.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	950.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	597.800	70.000	597.500	165.000	598.200	280.000	598.200	315.000
GR	594.000	370.000	594.000	400.000	594.000	600.000	594.000	800.000	595.800	1000.000
GR	596.000	1040.000	596.000	1200.000	595.000	1400.000	595.300	1500.000	595.400	1600.000
GR	595.400	1800.000	594.500	2000.000	594.800	2200.000	594.100	2380.000	592.300	2410.000
GR	586.700	2423.000	585.800	2436.000	585.700	2456.000	586.000	2476.000	584.800	2496.000
GR	583.800	2516.000	583.800	2536.000	584.200	2556.000	584.300	2576.000	584.400	2596.000
GR	584.400	2616.000	584.100	2636.000	584.200	2656.000	583.500	2676.000	581.900	2696.000
GR	581.500	2716.000	581.000	2736.000	583.000	2746.000	586.900	2752.000	596.800	2756.000
GR	596.100	2816.000	595.600	2916.000	595.500	3016.000	595.300	3116.000	594.700	3216.000
GR	594.000	3316.000	593.400	3416.000	592.700	3516.000	592.700	3716.000	592.900	3916.000
GR	593.000	4096.000	594.800	4116.000	610.000	4316.000	-0.000	-0.000	-0.000	-0.000
NC	.060	.060	.039	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	16.015	55.000	795.000	1185.000	1450.000	1900.000	1575.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	300.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	597.800	23.000	597.500	55.000	598.200	92.000	598.200	104.000
GR	594.000	122.000	594.000	132.000	594.000	198.000	594.000	264.000	595.800	330.000
GR	596.000	343.000	596.000	396.000	595.000	462.000	595.300	495.000	595.400	528.000
GR	595.400	594.000	594.500	660.000	594.800	726.000	594.100	785.000	592.800	795.000
GR	586.600	814.000	585.600	825.000	584.400	845.000	583.900	865.000	583.800	885.000
GR	583.000	905.000	583.100	925.000	582.600	945.000	582.100	965.000	583.000	985.000
GR	583.800	1005.000	584.000	1025.000	584.400	1045.000	584.200	1065.000	583.900	1085.000
GR	583.300	1105.000	582.200	1125.000	582.500	1145.000	584.000	1165.000	587.000	1174.000
GR	590.500	1177.000	597.000	1185.000	596.100	1231.000	595.600	1308.000	595.500	1385.000
GR	595.300	1462.000	594.700	1539.000	594.000	1616.000	593.400	1693.000	592.700	1770.000
GR	592.700	1924.000	592.900	2078.000	593.000	2216.000	594.800	2231.000	610.000	2385.000
NC	.080	.060	.038	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	16.290	36.000	27.000	417.000	1200.000	1450.000	1450.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	1722.000	-0.000	-0.000	-0.000	-0.000
GR	607.100	0.000	590.500	27.000	587.800	46.000	586.800	57.000	585.600	77.000
GR	585.100	97.000	585.000	117.000	584.200	137.000	584.300	157.000	583.800	177.000
GR	583.300	197.000	584.200	217.000	585.000	237.000	585.200	257.000	585.600	277.000
GR	585.400	297.000	585.100	317.000	584.500	337.000	583.400	357.000	583.700	377.000
GR	585.200	397.000	588.200	406.000	591.700	409.000	597.000	417.000	597.400	612.000
GR	596.600	812.000	593.000	967.000	593.400	1012.000	593.700	1067.000	594.000	1212.000
GR	595.100	1282.000	596.600	1412.000	597.200	1612.000	597.600	1812.000	598.000	1842.000
GR	610.000	1872.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	16.531	34.000	19.000	300.000	1275.000	700.000	1275.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	1895.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	588.200	19.000	585.500	33.000	584.500	41.000	583.300	55.000
GR	582.800	70.000	582.700	84.000	581.900	99.000	582.000	113.000	581.500	127.000
GR	581.000	142.000	581.900	156.000	582.700	170.000	582.900	185.000	583.300	200.000
GR	583.100	214.000	582.800	228.000	582.200	242.000	581.100	257.000	581.400	271.000
GR	582.900	285.000	585.900	292.000	589.200	294.000	597.400	300.000	597.500	455.000
GR	597.800	655.000	598.000	855.000	597.800	1055.000	596.900	1255.000	597.200	1455.000
GR	597.400	1655.000	597.600	1855.000	598.300	2015.000	610.000	2045.000	-0.000	-0.000
X1	16.788	47.000	1036.000	1244.000	1[illegible].000	200.00	1355.000	-0.000	-0.[illegible]	-0.[illegible]

GR	597.300	0.000	596.000	100.000	595.700	200.000	596.400	300.000	597.800	400.000
GR	596.400	500.000	596.400	600.000	597.900	700.000	598.500	720.000	598.600	800.000
GR	598.700	900.000	598.700	925.000	598.300	1000.000	598.700	1036.000	585.800	1048.000
GR	583.100	1057.000	582.100	1062.000	580.900	1071.000	580.400	1096.000	580.300	1105.000
GR	579.500	1115.000	579.600	1124.000	579.100	1133.000	578.600	1143.000	579.500	1152.000
GR	580.300	1161.000	580.500	1171.000	580.900	1181.000	580.700	1190.000	580.400	1199.000
GR	579.800	1208.000	578.700	1216.000	579.000	1225.000	580.500	1234.000	583.500	1239.000
GR	586.800	1240.000	599.000	1244.000	597.000	1314.000	595.300	1344.000	599.600	1404.000
GR	598.300	1544.000	600.100	1644.000	598.600	1744.000	598.500	1944.000	598.600	2144.000
GR	598.400	2344.000	610.000	2384.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	17.024	41.000	1871.000	2336.000	1150.000	500.000	1245.000	-0.000	-0.000	-0.000
GR	610.000	0.000	605.700	35.000	603.600	85.000	604.800	235.000	601.000	535.000
GR	597.300	835.000	596.000	935.000	595.700	1035.000	596.400	1135.000	597.800	1235.000
GR	596.400	1335.000	596.400	1435.000	597.900	1535.000	598.500	1555.000	594.000	1635.000
GR	591.800	1735.000	598.700	1760.000	598.300	1835.000	598.700	1871.000	593.200	1935.000
GR	589.800	1963.000	591.500	2035.000	590.000	2055.000	587.200	2075.000	585.400	2095.000
GR	584.900	2115.000	584.100	2135.000	583.000	2155.000	582.100	2175.000	581.000	2195.000
GR	577.700	2215.000	576.700	2235.000	576.400	2255.000	576.500	2275.000	580.500	2295.000
GR	584.100	2315.000	588.100	2326.000	591.600	2334.000	599.500	2336.000	599.900	2384.000
GR	620.500	2432.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	17.514	43.000	2976.000	3231.000	1200.000	2590.000	2590.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1635.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	605.700	35.000	603.600	85.000	604.800	235.000	605.400	335.000
GR	600.400	435.000	600.400	635.000	600.200	835.000	600.400	1035.000	600.300	1235.000
GR	599.200	1335.000	599.200	1410.000	599.500	1435.000	601.300	1635.000	599.500	1835.000
GR	599.400	2035.000	598.600	2135.000	599.400	2235.000	599.300	2335.000	597.600	2435.000
GR	597.300	2535.000	598.500	2635.000	598.900	2735.000	599.300	2835.000	597.100	2935.000
GR	597.400	2976.000	594.600	2977.000	589.100	2979.000	584.100	2995.000	582.800	3015.000
GR	579.600	3035.000	577.600	3055.000	576.500	3075.000	578.400	3095.000	580.000	3115.000
GR	580.700	3135.000	582.400	3155.000	583.800	3175.000	588.900	3195.000	589.500	3203.000
GR	591.400	3215.000	593.200	3231.000	612.500	3251.000	-0.000	-0.000	-0.000	-0.000
X1	18.085	41.000	2287.000	2645.000	1300.000	3100.000	3015.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1300.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	596.600	35.000	596.600	85.000	596.600	235.000	595.900	435.000
GR	596.000	635.000	595.800	835.000	596.400	1035.000	597.000	1145.000	598.500	1235.000
GR	598.500	1435.000	599.400	1535.000	595.500	1635.000	594.200	1735.000	595.100	1835.000
GR	596.500	1935.000	597.500	2035.000	598.300	2135.000	600.500	2235.000	602.100	2287.000
GR	594.400	2305.000	592.500	2325.000	589.700	2336.000	589.400	2345.000	588.700	2365.000
GR	587.800	2375.000	586.600	2395.000	585.500	2415.000	585.400	2435.000	587.600	2455.000
GR	587.400	2475.000	586.100	2495.000	585.200	2515.000	583.700	2535.000	584.100	2555.000
GR	585.400	2575.000	586.200	2595.000	588.300	2615.000	589.700	2624.000	602.900	2645.000
GR	610.000	2656.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	18.585	51.000	2000.000	2245.000	1600.000	2900.000	2640.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	599.000	5.000	599.600	200.000	599.800	360.000	601.300	400.000
GR	601.400	420.000	599.000	600.000	601.800	800.000	603.800	980.000	603.700	1000.000
GR	601.500	1140.000	601.500	1160.000	599.800	1200.000	598.400	1330.000	599.600	1400.000
GR	605.000	1600.000	602.000	1800.000	598.900	1950.000	598.900	1980.000	600.000	2000.000
GR	593.100	2006.000	589.800	2009.000	586.100	2024.000	585.400	2037.000	585.600	2050.000
GR	584.700	2063.000	585.000	2076.000	585.200	2089.000	584.800	2102.000	585.000	2115.000
GR	586.000	2128.000	588.600	2141.000	588.100	2154.000	587.400	2167.000	587.100	2180.000
GR	587.000	2193.000	587.100	2206.000	587.900	2219.000	590.100	2232.000	590.000	2245.000
GR	600.200	2295.000	598.400	2495.000	600.300	2695.000	599.000	2895.000	598.900	3095.000
GR	599.200	3295.000	604.400	3395.000	602.800	3495.000	602.000	3695.000	600.800	3880.000
GR	610.000	3890.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	18.867	37.000	9.000	245.000	1500.000	400.000	1490.000	-0.000	-0.000	-0.000
GR	610.000	0.000	593.700	6.000	590.400	9.000	586.700	24.000	586.000	37.000
GR	586.200	50.000	585.300	63.000	585.600	76.000	585.800	89.000	585.400	102.000
GR	585.600	11 .000	586.800	128.000	589. 00	141.000	588.700	154.000	588.000	167.000
GR	7.70	1 . 00	5 7.6	1 3. 00	587.	206.0 0	588. 00	21 .000	590.70	232.000
GR		00	5							

GR	607.800	597.300	594.100	588.500	586.400	587.000	601.500	598.100	597.600	19.222	600.800
GR	2300.000	1700.000	1380.000	1280.000	1180.000	1080.000	1004.000	500.000	0.000	45.000	2835.000
GR	603.600	596.300	594.100	588.400	587.400	586.100	594.500	598.400	596.900	1004.000	610.000
GR	2500.000	1900.000	1447.000	1300.000	1200.000	1100.000	1013.000	600.000	100.000	1470.000	2845.000
GR	600.200	602.000	598.700	588.500	590.000	586.400	591.200	598.900	596.500	2000.000	0.000
GR	2700.000	2000.000	1470.000	1320.000	1220.000	1120.000	1017.000	700.000	200.000	600.000	0.000
GR	2815.000	2100.000	1500.000	1340.000	1240.000	1140.000	1040.000	800.000	300.000	0.000	0.000
GR	610.000	602.300	598.700	591.500	588.800	586.200	586.800	600.000	595.900	0.000	0.000
GR	2830.000	2200.000	1600.000	1360.000	1260.000	1160.000	1060.000	900.000	400.000	0.000	0.000
XI	20.076	35.000	1150.000	4510.000	4510.000	4510.000	0.000	0.000	0.000	0.000	0.000
GR	611.800	0.000	602.700	35.000	601.600	110.000	600.700	210.000	601.300	310.000	
GR	599.700	410.000	600.100	510.000	602.000	610.000	602.100	633.000	600.600	699.000	
GR	594.500	708.000	592.000	711.000	589.800	730.000	588.500	750.000	589.200	770.000	
GR	590.500	790.000	591.800	810.000	592.100	830.000	592.300	850.000	592.400	870.000	
GR	592.100	890.000	591.500	910.000	590.600	930.000	589.400	950.000	589.000	970.000	
GR	589.000	990.000	589.400	1010.000	590.300	1030.000	591.200	1050.000	591.700	1070.000	
GR	592.100	1090.000	592.300	1110.000	594.700	1125.000	598.800	1150.000	613.200	1210.000	
ED	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	600.000	1045.000	600.800	1245.000	600.200	1445.000	598.700	1645.000	598.500	1695.000	
GR	600.400	1845.000	600.000	2045.000	601.300	2245.000	606.200	2445.000	602.400	2645.000	
GR	600.800	2835.000	610.000	2845.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
XI	19.222	45.000	1004.000	1470.000	2000.000	600.000	1870.000	-0.000	-0.000	-0.000	
GR	597.600	0.000	596.900	100.000	596.500	200.000	595.100	300.000	595.900	400.000	
GR	598.100	500.000	598.400	600.000	598.900	700.000	599.600	800.000	600.000	900.000	
GR	601.500	1004.000	594.500	1013.000	591.200	1017.000	587.500	1040.000	586.800	1060.000	
GR	587.000	1080.000	586.100	1100.000	586.400	1120.000	586.600	1140.000	586.200	1160.000	
GR	586.400	1180.000	587.400	1200.000	590.000	1220.000	589.500	1240.000	588.800	1260.000	
GR	588.500	1280.000	588.400	1300.000	588.500	1320.000	589.300	1340.000	591.500	1360.000	
GR	594.100	1380.000	594.100	1447.000	598.700	1470.000	598.200	1500.000	598.700	1600.000	
GR	597.300	1700.000	596.300	1900.000	602.000	2000.000	601.200	2100.000	602.300	2200.000	
GR	607.800	2300.000	603.600	2500.000	600.200	2700.000	600.800	2815.000	610.000	2830.000	

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 CCHV=    .200 CEHV=    .400
    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

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      626.40 ELREA=      604.20

      2.99      16.20     582.80      0.00      582.80     582.96       .16        0.00       0.00      626.40
    16400.         0.    16400.         0.         0.     5056.         0.         0.         0.      604.20
      0.00       0.00      3.24       0.00       .090       .032       .040       0.000    566.60     229.83
   .000191         -0.       -0.        -0.        0          0          1        0.00     436.20     666.04

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      582.00 ELREA=      586.70

      3.04      14.55     582.85      0.00       0.00      583.03       .18        .06        .01      582.00
    16400.         0.    16400.         0.         1.     4842.         0.        31.         3.      586.70
       .02        .24      3.39       0.00       .050       .035       .035       .035     568.30     148.67
   .000265       275.      275.       275.          0          0          1        0.00     442.56     591.23

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      582.90 ELREA=      586.40

      3.43      13.46     583.46      0.00       0.00      583.63       .17        .60        .00      582.90
    16270.        92.    16178.         0.       228.     4810.         0.       264.        31.      586.40
       .19        .40      3.36       0.00       .070       .035       .035       .035     570.00     184.77
   .000329      2050.     2050.      2050.          2          0          1        0.00     774.59     959.35

 3265 DIVIDED FLOW

 3470 ENCROACHMENT STATIONS=     1172.0     2440.0  TYPE=         1  TARGET=     -1172.000

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      582.90 ELREA=      591.80

      3.91      12.67     584.37      0.00       0.00      584.53       .16        .89        .00      582.90
    16270.        23.    16247.         0.        43.     5108.         0.       560.        78.      591.80
       .41        .53      3.18       0.00       .050       .032       .090       .033     571.70    1281.06
   .000379      2530.     2530.      2530.          2          0          1        0.00     825.74    2354.79

    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

 VALLEY SECTION A

      4.26      14.02     584.92      0.00       0.00      585.10       .18        .56        .01      582.90
    16270.         1.    15729.       540.         2.     4543.       972.       786.       119.      582.10
       .57        .33      3.46        .56        .055       .032       .060       .033     570.90      13.10
   .000251      1850.     1850.      1850.          2          0          1        0.00    1 89.78    1102.88
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3280 CROSS SECTION 4.89 EXTENDED .83 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.40 ELREA= 619.40

VALLEY SECTION B

4.89	17.03	585.73	0.00	0.00	585.92	.20	.81	.01	582.40
16270.	1405.	14865.	0.	1925.	3993.	0.	1207.	204.	619.40
.83	.73	3.72	0.00	.050	.032	.080	.033	568.70	0.00
.000245	3400.	3303.	2000.	2	0	1	0.00	1397.98	1397.98

3470 ENCROACHMENT STATIONS= .0 1765.0 TYPE= 1 TARGET= 1764.999

5.12	15.75	586.05	0.00	0.00	586.21	.16	.28	.01	582.30
16270.	565.	15572.	133.	1166.	4684.	301.	1380.	248.	585.30
.94	.48	3.32	.44	.050	.032	.080	.033	570.30	10.79
.000205	1150.	1250.	2000.	2	0	1	0.00	1754.21	1765.00

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 450.0 3370.0 TYPE= 1 TARGET= 2920.000

VALLEY SECTION C

5.42	14.21	586.41	0.00	0.00	586.51	.09	.28	.01	584.20
16270.	78.	13664.	2528.	232.	5107.	4048.	1654.	311.	585.30
1.12	.33	2.68	.62	.050	.032	.060	.033	572.20	450.00
.000159	550.	1565.	1800.	2	0	1	0.00	2597.29	3370.00

3265 DIVIDED FLOW

VALLEY SECTION D

5.64	14.60	586.60	0.00	0.00	586.80	.20	.25	.04	587.30
16270.	28.	16215.	27.	60.	4529.	154.	1842.	359.	589.80
1.21	.47	3.58	.17	.050	.032	.080	.033	572.00	167.48
.000319	1000.	1145.	1200.	1	0	1	0.00	998.81	1563.02

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 500.0 1600.0 TYPE= 1 TARGET= 1100.000

5.88	15.30	587.00	0.00	0.00	587.16	.16	.35	.01	588.70
16270.	164.	15856.	250.	388.	4899.	502.	1995.	388.	586.10
1.32	.42	3.24	.50	.080	.032	.070	.032	571.70	500.00
.000246	1350.	1270.	1200.	2	0	1	0.00	1043.95	1600.00

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

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3470 ENCROACHMENT STATIONS=     950.0     1700.0  TYPE=     1  TARGET=     750.000

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     588.70 ELREA=     586.10

                VALLEY SECTION E

        6.00     15.56    587.16      0.00      0.00    587.32       .16       .16       .00    588.70
    16270.        0.     16085.       185.        0.     4994.      315.      2078.      401.    586.10
        1.38     0.00      3.22       .59       .080      .032       .060      .032    571.60   1023.99
     .000233     800.      650.       600.         2         0          1      0.00    676.01   1700.00


 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     606.60 ELREA=     604.10

        6.10     18.61    587.31      0.00      0.00    587.41       .10       .09       .01    606.60   587.1 = HWM
    16270.        0.     16270.        0.        0.     6273.        0.      2145.      408.    604.10
        1.43     0.00      2.59       0.00      .080      .035       .080      .033    568.70   398.14
     .000131     500.      500.       500.         2         0          1      0.00    504.04   902.18

3265 DIVIDED FLOW

 NORMAL BRIDGE,NRD=50 MIN ELTRD=     603.10 MAX ELLC=     602.00

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     606.60 ELREA=     604.10

                BRIDGE SECTION F , I-94

        6.10     18.60    587.30      0.00      0.00    587.42       .12       .00       .00    606.60
    16270.        0.     16270.        0.        0.     5939.        0.      2145.      408.    604.10
        1.43     0.00      2.74       0.00      .080      .037       .080      .033    568.70   398.13
     .000244        1.        1.         1.         0         0          1      0.00    480.05   902.18

3265 DIVIDED FLOW

 NORMAL BRIDGE,NRD=50 MIN ELTRD=     603.10 MAX ELLC=     602.00

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     606.60 ELREA=     604.10

        6.10     18.61    587.31      0.00      0.00    587.43       .12       .01       .00    606.60
    16270.        0.     16270.        0.        0.     5944.        0.      2152.      408.    604.10
        1.44     0.00      2.74       0.00      .080      .037       .080      .033    568.70   398.05
     .000244       48.       48.        48.         0         0          1      0.00    480.15   902.21

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     606.60 ELREA=     604.10

        6.11     18.63    587.33      0.00      0.00    587.43       .10       .00       .00    606.60
    16270.        0.     16270.        0.        0.     6281.        0.      2152.      408.    604.10
        1.44     0.00      2.59       0.00      .080      .035       .080      .033    568.70   398.00
     .000131        1.        1.         1.         1         0          1      0.00    504.22   902.22

 CAR   LEFT   SEL   LAS   CELK   S    HV    HI    QI  SS  BANK  FREV
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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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      606.60 ELREA=      604.10

    6.11    18.63   587.33     0.00     0.00   587.44      .10      .00      .00   606.60
  16270.       0.   16270.       0.       0.    6283.       0.    2156.     409.   604.10
    1.44     0.00     2.59     0.00     .080     .035     .080     .033   568.70   397.95
 .000131      30.      30.      30.        0        0        1     0.00   504.29   902.24

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=50 MIN ELTRD=  603.10 MAX ELLC=  602.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      606.60 ELREA=      604.10

    6.11    18.63   587.33     0.00     0.00   587.44      .12      .00      .00   606.60
  16270.       0.   16270.       0.       0.    5949.       0.    2156.     409.   604.10
    1.44     0.00     2.73     0.00     .080     .037     .080     .033   568.70   397.95
 .000243       1.       1.       1.        0        0        1     0.00   480.29   902.24

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=50 MIN ELTRD=  603.10 MAX ELLC=  602.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      606.60 ELREA=      604.10

    6.12    18.64   587.34     0.00     0.00   587.45      .12      .01      .00   606.60
  16270.       0.   16270.       0.       0.    5953.       0.    2163.     409.   604.10
    1.45     0.00     2.73     0.00     .080     .036     .080     .033   568.70   397.87
 .000230      48.      48.      48.        0        0        1     0.00   480.39   902.26

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      606.60 ELREA=      604.10

    6.12    18.65   587.35     0.00     0.00   587.46      .10      .00      .00   606.60
  16270.       0.   16270.       0.       0.    6292.       0.    2163.     409.   604.10
    1.45     0.00     2.59     0.00     .080     .036     .080     .033   568.70   397.81
 .000138       1.       1.       1.        1        0        1     0.00   504.48   902.28

3470 ENCROACHMENT STATIONS=     150.0    1150.0  TYPE=     1  TARGET=    1000.000
    6.17    18.51   587.41     0.00     0.00   587.50      .09      .04      .00   583.40
  16270.    1094.   15042.     135.    1499.    6130.     307.    2209.     414.   585.70
    1.48      .73     2.45      .44     .060     .036     .060     .033   568.90   150.00
 .000124     350.     275.     200.        1        0        1     0.00  1000.00  1150.00

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
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3470 ENCROACHMENT STATIONS= 100.0 1000.0 TYPE= 1 TARGET= 900.000

6.26	18.06	587.46	0.00	0.00	587.54	.08	.05	.00	583.40	
16270.	263.	15794.	213.	429.	6775.	611.	2292.	424.	585.70	
1.54	.61	2.33	.35	.060	.036	.060	.033	569.40	100.00	
.000088	550.	450.	400.	0	0	1	0.00	900.00	1000.00	

3470 ENCROACHMENT STATIONS= .0 448.0 TYPE= 1 TARGET= 447.999

VALLEY SECTION G

6.56	16.73	587.63	0.00	0.00	587.80	.17	.22	.04	583.40	
16270.	5.	16196.	69.	10.	4815.	134.	2547.	451.	583.40	
1.68	.48	3.36	.52	.060	.036	.060	.033	570.90	24.10	
.000200	1740.	1740.	1740.	2	0	1	0.00	423.90	448.00	

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 595.80 ELREA= 604.10

6.69	22.88	587.78	0.00	0.00	587.94	.17	.14	.00	595.80	
16270.	0.	16270.	0.	0.	4952.	0.	2626.	457.	604.10	
1.74	0.00	3.29	0.00	.080	.037	.080	.033	564.90	845.63	
.000206	800.	700.	500.	2	0	1	0.00	357.98	1203.61	

586.2 = HWM

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=41 MIN ELTRD= 602.00 MAX ELLC= 601.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 601.90 ELREA= 604.10

BRIDGE SECTION H , US-31 SOMERLAYTON BRIDGE

6.70	22.86	587.76	0.00	0.00	587.96	.20	.00	.01	601.90	
16270.	0.	16270.	0.	0.	4539.	0.	2627.	457.	604.10	
1.74	0.00	3.58	0.00	.080	.037	.080	.033	564.90	845.66	
.000339	1.	1.	1.	1	0	1	0.00	320.74	1200.00	

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=41 MIN ELTRD= 602.00 MAX ELLC= 601.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 601.90 ELREA= 604.10

6.70	22.87	587.77	0.00	0.00	587.97	.20	.01	.00	601.90	
16270.	0.	16270.	0.	0.	4543.	0.	2631.	457.	604.10	
1.74	0.00	3.58	0.00	.080	.037	.080	.033	564.90	845.62	
.000338	40.	40.	40.	0	0	1	0.00	320.78	1200.00	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV	
Q	QLO	QCH	QROB	ALOB	ACH	OB	VOL	TWA	LEFT/RIGHT	
TIME	VLO	CH	VROB	XNL	N H	R	T	ELMIN	SST*	

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 595.80 ELREA= 604.10

6.70	22.91	587.81	0.00	0.00	587.98	.17	.00	.01	595.80	
16270.	0.	16270.	0.	0.	4965.	0.	2631.	457.	604.10	
1.74	0.00	3.28	0.00	.080	.037	.080	.033	564.90	845.52	
.000205	1.	1.	1.	2	0	1	0.00	358.10	1203.62	

3280 CROSS SECTION 6.74 EXTENDED 2.05 FEET

3470 ENCROACHMENT STATIONS= 900.0 1650.0 TYPE= 1 TARGET= 750.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 588.10 ELREA= 586.60

6.74	22.25	587.95	0.00	0.00	588.02	.07	.02	.02	588.10	
16270.	0.	16260.	10.	0.	7645.	69.	2660.	459.	586.60	
1.77	0.00	2.13	.14	.080	.037	.070	.033	565.70	1051.04	
.000058	200.	200.	150.	2	0	1	0.00	502.53	1553.56	

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 2550.0 4834.0 TYPE= 1 TARGET= 2284.000

VALLEY SECTION I

6.90	19.01	588.01	0.00	0.00	588.07	.06	.05	.00	588.20	
16214.	510.	15518.	186.	2041.	7593.	605.	2830.	482.	588.90	
1.89	.25	2.04	.31	.080	.037	.070	.033	569.00	2550.00	
.000069	850.	825.	800.	2	0	1	0.00	1899.72	4834.00	

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1550.0 5320.0 TYPE= 1 TARGET= 3770.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 588.10 ELREA= 586.60

7.05	15.47	588.07	0.00	0.00	588.16	.09	.08	.01	588.10	
16214.	0.	15671.	543.	0.	6297.	1598.	3006.	520.	586.60	
1.98	0.00	2.49	.34	.080	.037	.070	.033	572.60	3481.02	
.000130	750.	825.	1050.	0	0	1	0.00	1734.73	5320.00	

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1900.0 5470.0 TYPE= 1 TARGET= 3570.000

VALLEY SECTION J

7.21	12.10	588.20	0.00	0.00	588.33	.13	.16	.02	588.10	
16214.	635.	14396.	1183.	1460.	4632.	2124.	3160.	566.	586.60	
2.06	.43	3.11	.56	.080	.037	.070	.034	576.10	1900.00	
.0003	80	18.	900.	2	0	1	0.00	291.32	470.00	

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

3470 ENCROACHMENT STATIONS= 250.0 1743.0 TYPE= 1 TARGET= 1493.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.50 ELREA= 589.50

VALLEY SECTION K

7.80	15.13	589.03	0.00	0.00	589.24	.21	.88	.03	586.50
16214.	491.	15723.	0.	1051.	4182.	0.	3644.	709.	589.50
2.30	.47	3.76	0.00	.080	.035	.080	.034	573.90	250.00
.000259	3150.	3135.	3100.	2	0	1	0.00	1073.84	1392.74

589.4 = HWM

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 646.0 1812.0 TYPE= 1 TARGET= -646.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.50 ELREA= 589.50

VALLEY SECTION L

7.93	15.41	589.21	0.00	0.00	589.42	.21	.17	.00	586.50
16214.	466.	15748.	0.	946.	4271.	0.	3724.	723.	589.50
2.35	.49	3.69	0.00	.080	.035	.080	.034	573.80	646.00
.000243	550.	700.	700.	0	0	1	0.00	962.90	1660.84

3470 ENCROACHMENT STATIONS= 386.0 1552.0 TYPE= 1 TARGET= -386.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.50 ELREA= 589.50

VALLEY SECTION M

7.95	15.42	589.22	0.00	0.00	589.43	.21	.01	.00	586.50
16214.	347.	15867.	0.	509.	4276.	0.	3731.	724.	589.50
2.36	.68	3.71	0.00	.080	.035	.080	.034	573.80	927.32
.000245	60.	60.	60.	0	0	1	0.00	473.53	1400.85

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 646.0 1812.0 TYPE= 1 TARGET= -646.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.50 ELREA= 589.50

7.96	15.44	589.24	0.00	0.00	589.45	.20	.01	.00	586.50
16214.	466.	15748.	0.	966.	4271.	0.	3738.	725.	589.50

.000227	60.	60.	60.	0	0	1	0.00	967.96	1660.86

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 589.60 ELREA= 585.00

VALLEY SECTION N

8.24	15.88	589.58	0.00	0.00	589.78	.20	.33	.00	589.60
16214.	0.	16203.	11.	0.	4491.	22.	3905.	747.	585.00
2.48	0.00	3.61	.48	.080	.034	.080	.034	573.70	1325.05
.000219	1400.	1500.	1650.	1	0	1	0.00	343.49	1668.54

3265 DIVIDED FLOW

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

VALLEY SECTION O

8.35	16.01	589.71	0.00	0.00	589.90	.20	.12	.00	588.80
16214.	70.	16134.	9.	409.	4542.	19.	3965.	756.	586.30
2.52	.17	3.55	.48	.080	.034	.080	.034	573.70	74.97
.000211	500.	550.	550.	0	0	1	0.00	1221.66	2233.71

589.4 = HWM

3265 DIVIDED FLOW

VALLEY SECTION P

8.55	16.26	589.86	0.00	0.00	590.43	.57	.38	.15	587.80
16214.	183.	16013.	18.	493.	2631.	21.	4060.	771.	586.30
2.57	.37	6.09	.89	.080	.034	.080	.034	573.60	74.41
.000667	400.	1095.	1095.	2	0	1	0.00	1128.78	2493.94

3265 DIVIDED FLOW

3280 CROSS SECTION 8.95 EXTENDED 3.99 FEET

3470 ENCROACHMENT STATIONS= 200.0 2225.0 TYPE= 1 TARGET= 2025.000

VALLEY SECTION Q

8.95	17.59	590.99	0.00	0.00	591.13	.13	.61	.09	591.60
16056.	202.	14752.	1102.	584.	4818.	1981.	4298.	809.	589.30
2.77	.35	3.06	.56	.080	.034	.080	.034	573.40	200.00
.000164	550.	2090.	2300.	2	0	1	0.00	1372.09	2222.94

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 1600.0 TYPE= 1 TARGET= 1599.999

VALLEY SECTION R

9.41	15.16	591.36	0.00	0.00	591.50	.13	.37	.00	584.50
16056.	196.	15728.	131.	380.	5345.	504.	4666.	874.	583.60
3.00	.52	2.94	.26	.080	.034	.080	.034	576.20	235.32
.000145	2900.	2415.	1900.	2	0	1	0.00	1134.98	1474.28

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 234.0 1149.0 TYPE= 1 TARGET= -234.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 591.10 ELREA= 100000.00

VALLEY SECTION S

9.80	18.69	591.69	0.00	0.00	591.90	.21	.37	.03	591.10
16056.	156.	15900.	0.	409.	4329.	0.	4927.	914.	100000.00
3.16	.38	3.67	0.00	.080	.034	.080	.034	573.00	273.57
.000220	2050.	2095.	1750.	2	0	1	0.00	616.19	1117.32

VALLEY SECTION T

10.35	19.12	592.22	0.00	0.00	592.38	.15	.47	.01	582.00
16056.	465.	15561.	30.	1041.	4897.	60.	5276.	953.	582.70
3.43	.45	3.18	.50	.080	.033	.080	.034	573.10	19.67
.000124	2300.	2915.	2915.	2	0	1	0.00	692.86	712.53

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

3470 ENCROACHMENT STATIONS= .0 1174.0 TYPE= 1 TARGET= 1173.999

VALLEY SECTION U

10.88	16.60	592.60	0.00	0.00	592.75	.15	.38	.00	583.30
16056.	13.	15933.	110.	47.	5112.	402.	5645.	1003.	584.10
3.67	.28	3.12	.27	.080	.033	.080	.034	576.00	46.05
.000152	2800.	2760.	3100.	2	0	1	0.00	828.60	874.65

3265 DIVIDED FLOW

VALLEY SECTION V

11.07	16.27	592.77	0.00	0.00	592.91	.14	.15	.00	595.80
16056.	0.	14980.	1076.	0.	4894.	2205.	5783.	1022.	590.60
3.77	0.00	3.06	.49	.080	.033	.080	.034	576.50	56.06
.000149	1050.	1000.	750.	2	0	1	0.00	1151.93	1293.77

3265 DIVIDED FLOW

VALLEY SECTION W

11.33	16.07	592.97	0.00	0.00	593.11	.14	.20	.00	594.20
16056.	0.	15500.	556.	0.	5156.	1300.	5977.	1049.	590.60
3.90	0.00	3.01	.43	.080	.033	.080	.034	576.90	188.99
.000151	1370.	1370.	900.	2	0	1	0.00	986.09	1358.89

3265 DIVIDED FLOW

VALLEY SECTION X

11.64	15.73	593.23	0.00	0.00	593.36	.14	.26	.00	594.20
16056.	725.	15331.	0.	1916.	5005.	0.	6215.	1087.	593.40
4.05	.38	3.06	0.00	.080	.033	.080	.034	577.50	505.72
.000164	1200.	1890.	1350.	2	0	1	0.00	1470.04	2046.47

VALLEY SECTION Y

12.08	16.89	593.59	0.00	0.00	593.71	.11	.34	.01	590.00
16056.	47.	14572.	1438.	136.	5133.	3445.	6649.	1178.	593.20
4.30	.34	2.84	.42	.080	.033	.080	.034	576.70	26.14
.000124	2150.	2345.	2800.	1	0	1	0.00	1728.41	1754.55

3265 DIVIDED FLOW

VALLEY SECTION Z

12.57	18.28	593.88	0.00	0.00	593.96	.07	.24	.01	594.00
16056.	44.	12884.	3128.	270.	5359.	5977.	6970.	1214.	589.70
4.60	.16	2.40	.52	.080	.033	.060	.034	575.60	141.45
.000100	2700.	2565.	1.	2	0	1	0.00	3111.59	3781.77

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1100.0 5915.0 TYPE= 1 TARGET= -1100.000

VALLEY SECTION AA

13.19	19.72	594.22	0.00	0.00	594.36	.14	.38	.03	595.80
16056.	2800.	13252.	4.	6503.	3957.	11.	7524.	1329.	588.40
4.89	.43	3.35	.33	.080	.033	.080	.034	574.50	1100.00
.000168	750.	3310.	2050.	2	0	1	0.00	3762.15	5850.92

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	YLOBL	YCH	XLOBR	ITRIAL	IDC	ICONT	CORR	TOPWID	ENDT

3470 ENCROACHMENT STATIONS= 1675.0 4620.0 TYPE= 1 TARGET= -1675.000

VALLEY SECTION AB

13.90	21.30	594.70	0.00	0.00	594.83	.13	.47	.00	587.30
16056.	2352.	13699.	5.	5480.	4384.	17.	8004.	1414.	587.30
5.22	.43	3.12	.32	.080	.033	.080	.034	573.40	1675.00
.000123	900.	3710.	3710.	2	0	1	0.00	2644.91	4556.51

3470 ENCROACHMENT STATIONS= 1450.0 3700.0 TYPE= 1 TARGET= -1450.000

VALLEY SECTION AC

14.37	20.11	595.01	0.00	0.00	595.15	.14	.32	.01	589.90
16056.	1881.	14151.	24.	3961.	4364.	105.	8410.	1495.	593.40
5.45	.47	3.24	.23	.080	.033	.080	.034	574.90	1729.43
.000148	1400.	2495.	2495.	0	0	1	0.00	1878.59	3608.01

VALLEY SECTION AD

14.88	20.49	595.39	0.00	0.00	595.47	.07	.30	.01	594.40
16056.	1417.	11017.	3622.	5490.	4211.	5734.	9188.	1748.	592.20
5.82	.26	2.62	.63	.080	.033	.080	.034	574.90	179.01
.000087	4000.	2685.	1200.	2	0	1	0.00	4539.78	4718.80

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 350.0 4352.0 TYPE= 1 TARGET= -350.000

VALLEY SECTION AE

15.16	15.92	595.52	0.00	0.00	595.73	.22	.21	.06	585.00
16056.	3326.	12352.	378.	3466.	2909.	693.	9560.	1835.	594.30
5.94	.96	4.25	.54	.080	.033	.080	.034	579.60	350.00
.000280	800.	1470.	2300.	2	0	1	0.00	2267.48	4336.84

595.5 = HGM1

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 950.0 4316.0 TYPE= 1 TARGET= -950.000

VALLEY SECTION AF

15.72	15.28	596.28	0.00	0.00	596.43	.15	.68	.01	592.30
16056.	543.	13768.	1745.	1651.	4132.	3184.	10049.	1983.	596.80
6.21	.33	3.33	.55	.080	.033	.080	.034	581.00	950.00
.000207	1900.	2965.	3100.	2	0	1	0.00	3140.95	4135.51

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 300.0 235. TYPE= 1 TARGET= 3 .000

```
   16056.     351.   13610.    2095.     741.    4878.    2833.   10383.    2081.    597.00
    6.39      .47     2.79      .74     .060     .039     .060     .034   582.10   300.00
 .000188    1450.    1575.    1900.        2        0        1     0.00  1931.67  2249.78
```

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 1722.0 TYPE= 1 TARGET= 1721.999

VALLEY SECTION AG

```
   16.29    13.64   596.94     0.00     0.00   597.10      .15      .32      .02   590.50
   16056.      20.   14905.    1131.      34.    4561.    1481.   10623.    2131.    597.00
    6.52      .59     3.27      .76     .080     .038     .060     .034   583.30    16.52
 .000267    1200.    1450.    1450.        2        0        1     0.00  1201.50  1526.92
```

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      ELMIN    SSTA
SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID   ENDST
```

3470 ENCROACHMENT STATIONS= .0 1895.0 TYPE= 1 TARGET= 1894.999

VALLEY SECTION AH

```
   16.53    16.25   597.25     0.00     0.00   597.50      .25      .36      .04   588.20
   16056.      24.   16024.       8.      36.    4007.      55.   10762.    2150.    597.40
    6.61      .68     4.00      .14     .080     .038     .060     .034   581.00    11.11
 .000312    1275.    1275.     700.        2        0        1     0.00   616.99  1505.36
```

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 2209.0 TYPE= 1 TARGET= 2208.999

VALLEY SECTION AI

```
   16.79    19.06   597.66     0.00     0.00   597.99      .32      .46      .03   598.70
   16056.     309.   15696.      51.     738.    3402.      92.   10891.    2171.    599.00
    6.69      .42     4.61      .55     .080     .038     .060     .035   578.60      .00
 .000370    1500.    1355.     200.        2        0        1     0.00   957.84  1377.00
```

3265 DIVIDED FLOW

VALLEY SECTION AJ

```
   17.02    21.83   598.23     0.00     0.00   598.34      .11      .31      .04   598.70
   16056.     930.   15126.       0.    1937.    5527.       0.   11054.    2202.    599.50
    6.82      .48     2.74     0.00     .080     .038     .060     .035   576.40   759.38
 .000182    1150.    1245.     500.        2        0        1     0.00  1444.50  2335.68
```

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1635.0 3251.0 TYPE= 1 TARGET= -1635.000

VALLEY SECTION AK

17.51	22.21	598.71	0.00	0.00	598.94	.24	.55	.05	597.40
16056.	111.	15935.	10.	368.	4063.	16.	11371.	2244.	593.20
7.01	.30	3.92	.63	.080	.038	.060	.035	576.50	2121.63
.000262	1200.	2590.	2590.	2	0	1	0.00	718.32	3236.71

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1300.0 2656.0 TYPE= 1 TARGET= -1300.000

VALLEY SECTION AL

18.09	15.93	599.63	0.00	0.00	599.80	.17	.84	.01	602.10
16056.	1643.	14413.	0.	2273.	4126.	0.	11746.	2311.	602.90
7.27	.72	3.49	0.00	.080	.038	.060	.035	583.70	1300.00
.000300	3000.	3015.	3100.	2	0	1	0.00	1242.45	2639.80

600.0 = HWM

3470 ENCROACHMENT STATIONS= 1600.0 3890.0 TYPE= 1 TARGET= -1600.000

VALLEY SECTION AM

18.59	15.78	600.48	0.00	0.00	600.77	.29	.92	.05	600.00
16056.	53.	14851.	1152.	128.	3295.	1503.	12065.	2384.	590.00
7.44	.41	4.51	.77	.080	.038	.060	.035	584.70	1873.61
.000428	1600.	2640.	2900.	2	0	1	0.00	1445.98	3319.59

3265 DIVIDED FLOW

VALLEY SECTION AN

18.87	15.78	601.08	0.00	0.00	601.34	.26	.57	.01	590.40
16056.	37.	14159.	1859.	37.	3226.	2582.	12198.	2408.	593.30
7.53	1.01	4.39	.72	.080	.038	.060	.035	585.30	3.28
.000388	1500.	1490.	400.	2	0	1	0.00	2240.77	2835.30

3265 DIVIDED FLOW

3280 CROSS SECTION 19.22 EXTENDED 4.08 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	CORAR	TOPWID	ENDST

VALLEY SECTION AO

19.22	15.[illegible]	601.67	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	601[illegible]

16056.	2077.	12531.	1447.	3786.	5587.	2241.	12509.	2466.	598.70	
7.79	.55	2.24	.65	.080	.038	.060	.035	586.10	0.00	
.000122	2000.	1870.	600.	1	0	1	0.00	2300.77	2816.43	

VALLEY SECTION AP

20.08	13.90	602.40	0.00	0.00	602.54	.15	.78	.03	600.60
16056.	397.	15643.	16.	936.	4991.	27.	13418.	2643.	598.80
8.20	.42	3.13	.58	.080	.038	.060	.035	588.50	55.80
.000263	4510.	4510.	4510.	2	0	1	0.00	1109.18	1164.98

```
*****************************************
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      ST. JOSEPH RIVER   BENTON,ROYALTON,SODUS TOWNSHIPS   5555-07,59065
T2      MARCH 11,1976 FLOOD
T3      ST. JOSEPH RIVER
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-0.	3.	-0.	-0.	-0.000000	-0.00	-0.0	-0.	582.100	-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

CCHV= .200 CEHV= .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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 626.40 ELREA= 604.20

2.99	15.50	582.10	0.00	582.10	582.21	.11	0.00	0.00	626.40
12561.	0.	12561.	0.	0.	4751.	0.	0.	0.	604.20
0.00	0.00	2.64	0.00	.090	.032	.040	0.000	566.60	230.15
.000137	-0.	-0.	-0.	0	0	1	0.00	434.77	664.91

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.00 ELREA= 586.70

3.04	13.84	582.14	0.00	0.00	582.26	.12	.04	.00	582.00
12561.	0.	12561.	0.	0.	4527.	0.	29.	3.	586.70
.03	.00	2.77	0.00	.050	.035	.035	.035	568.30	149.79
.000194	275.	275.	275.	0	0	1	0.00	440.68	590.47

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.90 ELREA= 586.40

3.43	12.59	582.59	0.00	0.00	582.72	.13	.46	.00	582.90
12462.	0.	12462.	0.	0.	4360.	0.	238.	25.	586.40
.23	0.00	2.86	0.00	.070	.035	.035	.035	570.00	437.53
.000264	2050.	2050.	2050.	2	0	1	0.00	513.45	950.99

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1172.0 2440.0 TYPE= 1 TARGET= -1172.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.90 ELREA= 591.80

3.91	11.53	583.23	0.00	0.00	583.36	.13	.64	.00	582.90
12462.	0.	12462.	0.	2.	4387.	0.	492.	57.	591.80
.47	.14	2.84	0.00	.050	.032	.090	.033	571.70	1326.75
.000240	2530.	2530.	2530.	2	0	1	0.00	566.28	2352.89

3265 DIVIDED FLOW

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

VALLEY SECTION A

4.26	12.76	583.66	0.00	0.00	583.81	.15	.44	.01	582.90
12	0.	123 6.	6.	0.	39 5.	2 0.	77.	7.	58 .1

.000240	1850.	1850.	1850.	2	0	1	0.00	848.15	1099.68

3265 DIVIDED FLOW

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.40 ELREA= 619.40

VALLEY SECTION B

4.89	15.74	584.44	0.00	0.00	584.61	.18	.79	.01	582.40
12462.	281.	12181.	0.	592.	3555.	0.	992.	158.	619.40
.91	.48	3.43	0.00	.050	.032	.080	.033	568.70	66.20
.000241	3400.	3303.	2000.	2	0	1	0.00	1168.11	1397.21

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 1765.0 TYPE= 1 TARGET= 1764.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.30 ELREA= 585.30

5.12	14.45	584.75	0.00	0.00	584.89	.14	.27	.01	582.30
12462.	54.	12408.	0.	126.	4148.	0.	1112.	183.	585.30
1.03	.43	2.99	0.00	.050	.032	.080	.033	570.30	286.32
.000195	1150.	1250.	2000.	2	0	1	0.00	670.68	1614.51

3470 ENCROACHMENT STATIONS= 450.0 3370.0 TYPE= 1 TARGET= 2920.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.20 ELREA= 585.30

VALLEY SECTION C

5.42	12.89	585.09	0.00	0.00	585.22	.12	.32	.00	584.20
12462.	6.	12456.	0.	23.	4420.	0.	1267.	202.	585.30
1.18	.25	2.82	0.00	.050	.032	.060	.033	572.20	1248.71
.000214	550.	1565.	1800.	2	0	1	0.00	571.99	1820.70

VALLEY SECTION D

5.64	13.36	585.36	0.00	0.00	585.52	.16	.29	.01	587.30
12462.	0.	12462.	0.	0.	3909.	0.	1377.	216.	589.80
1.28	0.00	3.19	0.00	.050	.032	.080	.032	572.00	282.99
.000300	1000.	1145.	1200.	2	0	1	0.00	492.28	775.26

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 500.0 1600.0 TYPE= 1 TARGET= 1100.000

5.88	14.03	585.73	0.00	0.00	585.86	.13	.34	.01	588.70
12462.	24.	12401.	37.	110.	4242.	151.	1500.	237.	586.10
1.1	.22	2.92	.25	.080	.032	.070	.032	571.70	500.00
.000	13	1270.	1200.	2	0	1	0.00	941.31	1600.00

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= 950.0 1700.0 TYPE= 1 TARGET= 750.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 588.70 ELREA= 586.10

VALLEY SECTION E

6.00	14.28	585.88	0.00	0.00	586.01	.13	.15	.00	588.70
12462.	0.	12462.	0.	0.	4346.	0.	1566.	248.	586.10
1.47	0.00	2.87	0.00	.080	.032	.060	.032	571.60	1025.63
.000219	800.	650.	600.	2	0	1	0.00	506.07	1531.70

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.60 ELREA= 604.10

6.10	17.32	586.02	0.00	0.00	586.10	.08	.07	.01	606.60
12462.	0.	12462.	0.	0.	5633.	0.	1623.	253.	604.10
1.53	0.00	2.21	0.00	.080	.035	.080	.033	568.70	409.91
.000106	500.	500.	500.	2	0	1	0.00	488.55	898.46

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=50 MIN ELTRD= 603.10 MAX ELLC= 602.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.60 ELREA= 604.10

BRIDGE SECTION F , I-94

6.10	17.31	586.01	0.00	0.00	586.10	.08	.00	.00	606.60
12462.	0.	12462.	0.	0.	5330.	0.	1623.	253.	604.10
1.53	0.00	2.34	0.00	.080	.037	.080	.033	568.70	409.91
.000192	1.	1.	1.	0	0	1	0.00	464.55	898.46

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=50 MIN ELTRD= 603.10 MAX ELLC= 602.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.60 ELREA= 604.10

6.10	17.32	586.02	0.00	0.00	586.11	.08	.01	.00	606.60
12462.	0.	12462.	0.	0.	5334.	0.	1629.	254.	604.10
1.54	0.00	2.34	0.00	.080	.037	.080	.033	568.70	409.84
.000192	48.	48.	48.	0	0	1	0.00	464.64	898.48

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.60 ELREA= 604.10

6.11	17.33	586.03	0.00	0.	0.	586.11	0.00	0.00	0.	606.60

12462.	0.	12462.	0.	0.	5637.	0.	1629.	254.	604.10	
1.54	0.00	2.21	0.00	.080	.035	.080	.033	568.70	409.84	
.000105	1.	1.	1.	0	0	1	0.00	488.64	898.48	

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.60 ELREA= 604.10

6.11	17.34	586.04	0.00	0.00	586.11	.08	.00	.00	606.60
12462.	0.	12462.	0.	0.	5639.	0.	1633.	254.	604.10
1.54	0.00	2.21	0.00	.080	.035	.080	.033	568.70	409.80
.000105	30.	30.	30.	0	0	1	0.00	488.69	898.49

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=50 MIN ELTRD= 603.10 MAX ELLC= 602.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.60 ELREA= 604.10

6.11	17.33	586.03	0.00	0.00	586.12	.08	.00	.00	606.60
12462.	0.	12462.	0.	0.	5336.	0.	1633.	254.	604.10
1.54	0.00	2.34	0.00	.080	.037	.080	.033	568.70	409.80
.000192	1.	1.	1.	0	0	1	0.00	464.69	898.49

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=50 MIN ELTRD= 603.10 MAX ELLC= 602.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.60 ELREA= 604.10

6.12	17.34	586.04	0.00	0.00	586.13	.08	.01	.00	606.60
12462.	0.	12462.	0.	0.	5339.	0.	1639.	255.	604.10
1.55	0.00	2.33	0.00	.080	.036	.080	.033	568.70	409.74
.000181	48.	48.	48.	0	0	1	0.00	464.78	898.51

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.60 ELREA= 604.10

6.12	17.35	586.05	0.00	0.00	586.13	.08	.00	.00	606.60
12462.	0.	12462.	0.	0.	5646.	0.	1639.	255.	604.10
1.55	0.00	2.21	0.00	.080	.036	.080	.033	568.70	409.67
.000111	1.	1.	1.	1	0	1	0.00	488.86	898.53

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=      150.0     1150.0  TYPE=     1  TARGET=    1000.000
      6.17     17.19    586.09      0.00      0.00    586.16       .07       .03       .00    583.40
     12462.      566.    11871.       24.    1039.    5482.       103.    1679.       259.    585.70
      1.58       .55      2.17       .23      .060      .036      .060      .033    568.90    150.00
   .000112      350.      275.      200.         0         0         1      0.00    977.20   1150.00

 3265 DIVIDED FLOW

 3470 ENCROACHMENT STATIONS=      100.0     1000.0  TYPE=     1  TARGET=     900.000
      6.26     16.74    586.14      0.00      0.00    586.20       .06       .04       .00    583.40
     12462.      129.    12303.       30.     296.    6179.       167.    1749.       269.    585.70
      1.65       .43      1.99       .18      .060      .036      .060      .033    569.40    100.00
   .000072      550.      450.      400.         0         0         1      0.00    791.07    911.00

 3265 DIVIDED FLOW

 3470 ENCROACHMENT STATIONS=         .0      448.0  TYPE=     1  TARGET=     447.999

                    VALLEY SECTION G
      6.56     15.38    586.28      0.00      0.00    586.41       .13       .18       .03    583.40
     12462.         2.    12452.         8.         5.    4356.         35.    1969.       293.    583.40
      1.82       .34      2.86       .23      .060      .036      .060      .033    570.90     25.65
   .000165     1740.     1740.     1740.         1         0         1      0.00    410.84    448.00

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     595.80 ELREA=     604.10
      6.69     21.51    586.41      0.00      0.00    586.53       .12       .12       .00    595.80
     12462.         0.    12462.         0.         0.    4465.         0.    2040.       299.    604.10
      1.89       0.00      2.79       0.00      .080      .037      .080      .033    564.90    850.01
   .000167      800.      700.      500.         2         0         1      0.00    352.61   1202.61

 3265 DIVIDED FLOW

 NORMAL BRIDGE,NRD=41 MIN ELTRD=   602.00 MAX ELLC=   601.10

 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     601.90 ELREA=     604.10

                    BRIDGE SECTION H , US-31 SOMERLAYTON BRIDGE
      6.70     21.49    586.39      0.00      0.00    586.54       .14       .00       .01    601.90
     12462.         0.    12462.         0.         0.    4104.         0.    2040.       299.    604.10
      1.89       0.00      3.04       0.00      .080      .037      .080      .033    564.90    850.03
   .000263         1.        1.         1.         1         0         1      0.00    316.37   1200.00

 3265 DIVIDED FLOW

  NO    D   TH    C SEL    CRI    SEL K     FR      HV      HL      LOSS   PEAK FLOW
```

Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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=41 MIN ELTRD= 602.00 MAX ELLC= 601.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 601.90 ELREA= 604.10

6.70	21.50	586.40	0.00	0.00	586.55	.14	.01	.00	601.90
12462.	0.	12462.	0.	0.	4106.	0.	2044.	299.	604.10
1.89	0.00	3.03	0.00	.080	.037	.080	.033	564.90	850.00
.000263	40.	40.	40.	0	0	1	0.00	316.40	1200.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 595.80 ELREA= 604.10

6.70	21.53	586.43	0.00	0.00	586.55	.12	.00	.00	595.80
12462.	0.	12462.	0.	0.	4474.	0.	2044.	299.	604.10
1.89	0.00	2.79	0.00	.080	.037	.080	.033	564.90	849.93
.000166	1.	1.	1.	2	0	1	0.00	352.74	1202.66

3280 CROSS SECTION 6.74 EXTENDED .63 FEET

3470 ENCROACHMENT STATIONS= 900.0 1650.0 TYPE= 1 TARGET= 750.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 588.10 ELREA= 586.60

6.74	20.83	586.53	0.00	0.00	586.58	.05	.02	.01	588.10
12462.	0.	12462.	0.	0.	7084.	0.	2071.	301.	586.60
1.92	0.00	1.76	0.00	.080	.037	.070	.033	565.70	1051.40
.000044	200.	200.	150.	2	0	1	0.00	396.53	1447.93

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 2550.0 4834.0 TYPE= 1 TARGET= 2284.000

VALLEY SECTION I

6.90	17.57	586.57	0.00	0.00	586.62	.05	.04	.00	588.20
12419.	75.	12296.	48.	653.	6906.	244.	2212.	320.	588.90
2.05	.12	1.78	.20	.080	.037	.070	.033	569.00	2550.00
.000058	850.	825.	800.	2	0	1	0.00	1563.31	4834.00

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1550.0 5320.0 TYPE= 1 TARGET= 3770.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 588.10 ELREA= 586.60

7.05	14.02	586.62	0.00	0.00	586.70	.08	.07	.01	588.10
12419.	0.	12362.	57.	0.	5591.	333.	2343.	346.	586.60
2.16	0.00	.21	.17	.080	.037	7	.33	57.60	3481.97
1	7.0	5	10.0	0	0	0	7	5	0

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOLI	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= 1900.0 5470.0 TYPE= 1 TARGET= 3570.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 588.10 ELREA= 586.60

VALLEY SECTION J

7.21	10.64	586.74	0.00	0.00	586.89	.15	.16	.03	588.10
12419.	0.	12228.	191.	0.	3920.	546.	2441.	369.	586.60
2.23	0.00	3.12	.35	.080	.037	.070	.034	576.10	3482.26
.000379	800.	818.	900.	2	0	1	0.00	1266.56	5470.00

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 250.0 1743.0 TYPE= 1 TARGET= 1493.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.50 ELREA= 589.50

VALLEY SECTION K

7.80	13.74	587.64	0.00	0.00	587.80	.17	.91	.01	586.50
12419.	134.	12285.	0.	300.	3744.	0.	2747.	433.	589.50
2.50	.45	3.28	0.00	.080	.035	.080	.034	573.90	760.19
.000227	3150.	3135.	3100.	2	0	1	0.00	509.61	1391.98

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 646.0 1812.0 TYPE= 1 TARGET= -646.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.50 ELREA= 589.50

VALLEY SECTION L

7.93	14.00	587.80	0.00	0.00	587.96	.16	.15	.00	586.50
12419.	143.	12276.	0.	305.	3826.	0.	2812.	440.	589.50
2.56	.47	3.21	0.00	.080	.035	.080	.034	573.80	1138.57
.000211	550.	700.	700.	2	0	1	0.00	456.24	1660.08

3470 ENCROACHMENT STATIONS= 386.0 1552.0 TYPE= 1 TARGET= -386.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.50 ELREA= 589.50

VALLEY SECTION

7.95	14.01	587.81	0.00	0.00	587.97	.16	.01	.00	586.50
12419.	144.	12275.	0.	306.	3830.	0.	2818.	441.	589.50
2.56	.47	3.20	0.00	.080	.035	.080	.034	573.80	947.65
.000211	60.	60.	60.	0	0	1	0.00	452.43	1400.09

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 646.0 1812.0 TYPE= 1 TARGET= -646.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.50 ELREA= 589.50

7.96	14.02	587.82	0.00	0.00	587.98	.16	.01	.00	586.50
12419.	141.	12278.	0.	309.	3834.	0.	2823.	441.	589.50
2.57	.46	3.20	0.00	.080	.034	.080	.034	573.80	795.53
.000198	60.	60.	60.	0	0	1	0.00	468.79	1660.09

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 589.60 ELREA= 585.00

VALLEY SECTION N

8.24	14.42	588.12	0.00	0.00	588.27	.15	.29	.00	589.60
12419.	0.	12416.	3.	0.	4008.	10.	2963.	455.	585.00
2.70	0.00	3.10	.30	.080	.034	.080	.034	573.70	1331.55
.000183	1400.	1500.	1650.	1	0	1	0.00	334.83	1666.37

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 588.80 ELREA= 586.30

VALLEY SECTION O

8.35	14.52	588.22	0.00	0.00	588.37	.15	.10	.00	588.80
12419.	0.	12417.	2.	0.	4047.	8.	3014.	459.	586.30
2.75	0.00	3.07	.30	.080	.034	.080	.034	573.70	1893.61
.000181	500.	550.	550.	0	0	1	0.00	337.92	2231.52

VALLEY SECTION P

8.55	14.78	588.38	0.00	0.00	588.81	.44	.33	.12	587.80
12419.	6.	12408.	5.	18.	2337.	9.	3095.	466.	586.30
2.81	.32	5.31	.50	.080	.034	.080	.034	573.60	2254.76
.000595	400.	1095.	1095.	0	0	1	0.00	237.00	2491.76

3265 DIVIDED FLOW

3280 CROSS SECTION 8.95 EXTENDED 2.35 FEET

3470 ENCROACHMENT STATIONS= 200.0 2225.0 TYPE= 1 TARGET= 2025.000

VALLEY SECTION Q

8.95	15.95	589.35	0.00	0.00	589.47	.12	.59	.06	591.60
12298.	13.	11860.	425.	85.	4218.	1026.	3280.	496.	589.30
3.02	.15	2.81	.41	.080	.034	.080	.034	573.40	200.00
.000164	550.	2090.	2300.	2	0	1	0.00	1104.08	2192.01

3470 ENCROACHMENT STATIONS= .0 1600.0 TYPE= 1 TARGET= 1599.999

VALLEY SECTION R

9.41	13.53	589.73	0.00	0.00	589.83	.10	.36	.00	584.50
12298.	90.	12180.	27.	220.	4683.	62.	3561.	539.	583.60
3.28	.41	2.60	.44	.080	.034	.080	.034	576.20	264.75
.000136	2900.	2415.	1900.	2	0	1	0.00	508.39	773.14

3470 ENCROACHMENT STATIONS= 234.0 1149.0 TYPE= 1 TARGET= -234.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 591.10 ELREA= 100000.00

VALLEY SECTION S

9.80	17.03	590.03	0.00	0.00	590.19	.16	.34	.02	591.10
12298.	0.	12298.	0.	0.	3812.	0.	3772.	558.	100000.00
3.46	0.00	3.23	0.00	.080	.034	.080	.034	573.00	805.45
.000197	2050.	2095.	1750.	1	0	1	0.00	309.10	1114.54

3265 DIVIDED FLOW

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

VALLEY SECTION T

10.35	17.40	590.50	0.00	0.00	590.62	.12	.42	.01	582.00
12298.	143.	12138.	17.	444.	4372.	40.	4058.	586.	582.70
3.76	.32	2.78	.41	.080	.033	.080	.034	573.10	24.20
.000110	2300.	2915.	2915.	2	0	1	0.00	558.07	710.27

3470 ENCROACHMENT STATIONS= .0 1174.0 TYPE= 1 TARGET= 1173.999

VALLEY SECTION U

10.88	14.85	590.85	0.00	0.00	590.97	.12	.35	.00	583.30
12298.	3.	12275.	20.	12.	4440.	46.	4355.	616.	584.10
4.04	.28	2.76	.42	.080	.033	.080	.034	576.00	75.51
.000144	2800.	2760.	3100.	2	0	1	0.00	405.43	480.94

3265 DIVIDED FLOW

VALLEY SECTION V

11.07	14.49	590.99	0.00	0.00	591.11	.12	.15	.00	595.80
12298.	0.	11986.	312.	0.	4251.	941.	4464.	631.	590.60
4.14	0.00	2.82	.33	.080	.033	.080	.034	576.50	59.61
.000150	1050.	1000.	750.	2	0	1	0.00	986.78	1275.30

3265 DIVIDED FLOW

VALLEY SECTION W

11.33	14.30	591.20	0.00	0.00	591.32	.12	.21	.00	594.20
12298.	0.	12191.	107.	0.	4447.	428.	4615.	653.	590.60
4.28	0.00	2.74	.25	.080	.033	.080	.034	576.90	193.30
.000151	1370.	1370.	900.	2	0	1	0.00	798.23	1326.45

3265 DIVIDED FLOW

VALLEY SECTION X

11.64	13.96	591.46	0.00	0.00	591.58	.13	.26	.00	594.20
12298.	50.	12248.	0.	325.	4301.	0.	4790.	684.	593.40
4.44	.15	2.85	0.00	.080	.033	.080	.034	577.50	627.07
.000167	1200.	1640.	1350.	2	0	1	0.00	1081.51	2041.11

3265 DIVIDED FLOW

VALLEY SECTION Y

12.08	15.13	591.83	0.00	0.00	591.93	.11	.35	.00	590.00
12298.	7.	11955.	335.	37.	4471.	1221.	5075.	758.	593.20
4.69	.20	2.67	.27	.080	.033	.080	.034	576.70	50.12
.000132	2150.	2345.	2800.	1	0	1	0.00	1541.74	1740.83

3265 DIVIDED FLOW

VALLEY SECTION Z

12.57	16.56	592.16	0.00	0.00	592.25	.08	.31	.00	594.00
12298.	0.	11242.	1056.	0.	4621.	2438.	5344.	783.	589.70
4.98	0.00	2.43	.43	.080	.033	.060	.034	575.60	952.39
.000123	2700.	2565.	1.	2	0	1	0.00	2000.25	3768.39

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLO	QCH	QROB	ALOB	ACH	AR B	VOL	TWA	LEFT/RIGHT
TIME	LO	VCH	VROB	XNL	XNCH	XN	WTN	ELMI	SSTA
SI PF	LO I	YI CH	YI RR	ITRIAL	C	TC NT	C NR	I R	E DST

3470 ENCROACHMENT STATIONS= 1100.0 5915.0 TYPE= 1 TARGET= -1100.000

VALLEY SECTION AA

13.19	18.10	592.60	0.00	0.00	592.77	.16	.49	.03	595.80
12298.	591.	11705.	2.	2200.	3505.	6.	5729.	866.	588.40
5.26	.27	3.34	.29	.080	.033	.080	.034	574.50	1100.00
.000194	750.	3310.	2050.	2	0	1	0.00	2495.85	5849.83

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1675.0 4620.0 TYPE= 1 TARGET= -1675.000

VALLEY SECTION AB

13.90	19.79	593.19	0.00	0.00	593.31	.12	.53	.01	587.30
12298.	835.	11460.	3.	2354.	3966.	11.	6095.	932.	587.30
5.62	.35	2.89	.27	.080	.033	.080	.034	573.40	1675.00
.000120	900.	3710.	3710.	2	0	1	0.00	2145.11	4555.59

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1450.0 3700.0 TYPE= 1 TARGET= -1450.000

VALLEY SECTION AC

14.37	18.61	593.51	0.00	0.00	593.64	.13	.32	.00	589.90
12298.	631.	11667.	0.	1834.	3915.	0.	6388.	1000.	593.40
5.86	.34	2.98	.03	.080	.033	.080	.034	574.90	1765.00
.000145	1400.	2495.	2495.	2	0	1	0.00	1566.74	3507.01

3265 DIVIDED FLOW

VALLEY SECTION AD

14.88	18.96	593.86	0.00	0.00	593.94	.08	.30	.01	594.40
12298.	138.	9695.	2465.	987.	3809.	4288.	6815.	1174.	592.20
6.20	.14	2.55	.57	.080	.033	.080	.034	574.90	282.32
.000094	4000.	2685.	1200.	0	0	1	0.00	3087.67	4716.05

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 350.0 4352.0 TYPE= 1 TARGET= -350.000

VALLEY SECTION AE

15.16	14.42	594.02	0.00	0.00	594.21	.20	.22	.05	585.00
12298.	2082.	10143.	72.	2232.	2589.	230.	7072.	1237.	594.30
6.32	.93	3.92	.32	.080	.033	.080	.034	579.60	3346.19
.0 0078	8 0.	1470.	2300.	2	0	1	0. 0	973.77	4333.04

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 950.0 4316.0 TYPE= 1 TARGET= -950.000

VALLEY SECTION AF

15.72	13.80	594.80	0.00	0.00	594.95	.15	.72	.01	592.30	
12298.	30.	11640.	628.	149.	3618.	1498.	7396.	1319.	596.80	
6.58	.20	3.22	.42	.080	.033	.080	.034	581.00	1934.16	
.000229	1900.	2965.	3100.	2	0	1	0.00	1733.58	4115.96	

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 2385.0 TYPE= 1 TARGET= -300.000

16.02	13.10	595.20	0.00	0.00	595.30	.10	.34	.01	592.80
12298.	34.	11419.	845.	121.	4314.	1451.	7608.	1381.	597.00
6.76	.28	2.65	.58	.060	.039	.060	.034	582.10	300.00
.000198	1450.	1575.	1900.	1	0	1	0.00	1379.29	2235.09

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 1722.0 TYPE= 1 TARGET= 1721.999

VALLEY SECTION AG

16.29	12.20	595.50	0.00	0.00	595.64	.13	.33	.01	590.50
12298.	10.	11926.	361.	20.	3998.	656.	7784.	1417.	597.00
6.90	.50	2.98	.55	.080	.038	.060	.034	583.30	18.87
.000263	1200.	1450.	1450.	0	0	1	0.00	852.62	1316.30

3470 ENCROACHMENT STATIONS= .0 1895.0 TYPE= 1 TARGET= 1894.999

VALLEY SECTION AH

16.53	14.81	595.81	0.00	0.00	595.99	.18	.33	.02	588.20
12298.	14.	12284.	0.	25.	3603.	0.	7901.	1431.	597.40
7.00	.55	3.41	0.00	.080	.038	.060	.034	581.00	12.37
.000260	1275.	1275.	700.	2	0	1	0.00	286.47	298.84

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 2209.0 TYPE= 1 TARGET= 2208.999

VALLE SECTION AI

16.79	17.	596.16	.00			25.			592.70

12298.	6.	12289.	3.	45.	3090.	11.	8006.	1441.	599.00	
7.10	.14	3.98	.24	.080	.038	.060	.034	578.60	88.47	
.000305	1500.	1355.	200.	2	0	1	0.00	407.34	1355.86	

3265 DIVIDED FLOW

VALLEY SECTION AU

17.02	20.21	596.61	0.00	0.00	596.71	.10	.28	.03	598.70
12298.	282.	12016.	0.	646.	4798.	0.	8128.	1460.	599.50
7.24	.44	2.50	0.00	.080	.038	.060	.034	576.40	888.04
.000173	1150.	1245.	500.	2	0	1	0.00	994.86	2335.27

3470 ENCROACHMENT STATIONS= 1635.0 3251.0 TYPE= 1 TARGET= -1635.000

VALLEY SECTION AK

17.51	20.57	597.07	0.00	0.00	597.24	.18	.50	.03	597.40
12298.	0.	12294.	4.	0.	3645.	8.	8388.	1489.	593.20
7.45	0.00	3.37	.46	.080	.038	.060	.034	576.50	2976.12
.000223	1200.	2590.	2590.	2	0	1	0.00	258.89	3235.01

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1300.0 2656.0 TYPE= 1 TARGET= -1300.000

VALLEY SECTION AL

18.09	14.19	597.89	0.00	0.00	598.05	.16	.80	.00	602.10
12298.	618.	11680.	0.	1007.	3527.	0.	8672.	1527.	602.90
7.71	.61	3.31	0.00	.080	.038	.060	.034	583.70	1573.83
.000322	3000.	3015.	3100.	2	0	1	0.00	849.56	2637.02

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= 1600.0 3890.0 TYPE= 1 TARGET= -1600.000

VALLEY SECTION AM

18.59	14.10	598.80	0.00	0.00	599.06	.27	.97	.04	600.00
12298.	0.	12035.	263.	0.	2884.	207.	8891.	1559.	590.00
7.89	0.00	4.17	1.27	.080	.038	.060	.035	584.70	2001.05
.000435	1600.	2640.	2900.	2	0	1	0.00	373.23	2536.91

3265 DIVIDED FLOW

VALLEY SECTION AN

18.87	14.12	599.42	0.00	0.00	599.69	.27	.63	.00	590.40	
12298.	27.	11914.	357.	28.	2836.	427.	8992.	1570.	593.30	
7.99	.95	4.20	.84	.080	.038	.060	.035	585.30	3.89	
.000422	1500.	1490.	400.	2	0	1	0.00	716.88	1768.00	

3265 DIVIDED FLOW

3280 CROSS SECTION 19.22 EXTENDED 2.47 FEET

VALLEY SECTION AO

19.22	13.98	600.08	0.00	0.00	600.14	.06	.41	.04	601.50
12298.	1067.	10573.	658.	2243.	4839.	1196.	9220.	1612.	598.70
8.25	.48	2.18	.55	.080	.038	.060	.035	586.10	0.00
.000139	2000.	1870.	600.	1	0	1	0.00	1865.11	1966.13

3265 DIVIDED FLOW

VALLEY SECTION AP

20.08	12.38	600.86	0.00	0.00	601.01	.13	.84	.02	600.60
12298.	41.	12253.	4.	164.	4308.	9.	9881.	1747.	598.80
8.69	.25	2.84	.41	.080	.038	.060	.035	588.50	190.05
.000264	4510.	4510.	4510.	2	0	1	0.00	736.59	1158.66

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

ST. JOSEPH RIVER

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	EG	TOPWID	10K*S	K*XNL	K*XNR	K*XNCH
2.99	0.00	0.00	0.00	566.60	16400.00	582.80	582.96	436.20	1.91	90.00	40.00	32.00
2.99	0.00	0.00	0.00	566.60	12561.00	582.10	582.21	434.77	1.37	90.00	40.00	32.00
3.04	275.00	0.00	0.00	568.30	16400.00	582.85	583.03	442.56	2.65	50.00	35.00	35.00
3.04	275.00	0.00	0.00	568.30	12561.00	582.14	582.26	440.68	1.94	50.00	35.00	35.00
3.43	2050.00	0.00	0.00	570.00	16270.00	583.46	583.63	774.59	3.29	70.00	35.00	35.00
3.43	2050.00	0.00	0.00	570.00	12462.00	582.59	582.72	513.45	2.64	70.00	35.00	35.00
3.91	2530.00	0.00	0.00	571.70	16270.00	584.37	584.53	825.74	3.79	50.00	90.00	32.00
3.91	2530.00	0.00	0.00	571.70	12462.00	583.23	583.36	566.28	2.40	50.00	90.00	32.00
4.26	1850.00	0.00	0.00	570.90	16270.00	584.92	585.10	1089.78	2.51	55.00	60.00	32.00
4.26	1850.00	0.00	0.00	570.90	12462.00	583.66	583.81	848.15	2.40	55.00	60.00	32.00
4.89	3303.00	0.00	0.00	568.70	16270.00	585.73	585.92	1397.98	2.45	50.00	80.00	32.00
4.89	3303.00	0.00	0.00	568.70	12462.00	584.44	584.61	1168.11	2.41	50.00	80.00	32.00
5.12	1250.00	0.00	0.00	570.30	16270.00	586.05	586.21	1754.21	2.05	50.00	80.00	32.00
5.12	1250.00	0.00	0.00	570.30	12462.00	584.75	584.89	670.68	1.95	50.00	80.00	32.00
5.42	1565.00	0.00	0.00	572.20	16270.00	586.41	586.51	2597.29	1.59	50.00	60.00	32.00
5.42	1565.00	0.00	0.00	572.20	12462.00	585.09	585.22	571.99	2.14	50.00	60.00	32.00
5.64	1145.00	0.00	0.00	572.00	16270.00	586.60	586.80	998.81	3.19	50.00	80.00	32.00
5.64	1145.00	0.00	0.00	572.00	12462.00	585.36	585.52	492.28	3.00	50.00	80.00	32.00
5.88	1270.00	0.00	0.00	571.70	16270.00	587.00	587.16	1043.95	2.46	80.00	70.00	32.00
5.88	1270.00	0.00	0.00	571.70	12462.00	585.73	585.86	941.31	2.39	80.00	70.00	32.00
6.00	650.00	0.00	0.00	571.60	16270.00	587.16	587.32	676.01	2.33	80.00	60.00	32.00
6.00	650.00	0.00	0.00	571.60	12462.00	585.88	586.01	506.07	2.19	80.00	60.00	32.00
6.10	500.00	0.00	0.00	568.70	16270.00	587.31	587.41	504.04	1.31	80.00	80.00	35.00
6.10	500.00	0.00	0.00	568.70	12462.00	586.02	586.10	488.55	1.06	80.00	80.00	35.00
6.10	1.00	603.10	602.00	568.70	16270.00	587.30	587.42	480.05	2.44	80.00	80.00	37.00
6.10	1.00	603.10	602.00	568.70	12462.00	586.01	586.10	464.55	1.92	80.00	80.00	37.00
6.10	48.00	603.10	602.00	568.70	16270.00	587.31	587.43	480.15	2.44	80.00	80.00	37.00
6.10	48.00	603.10	602.00	568.70	12462.00	586.02	586.11	464.64	1.92	80.00	80.00	37.00
6.11	1.00	0.00	0.00	568.70	16270.00	587.33	587.43	504.22	1.31	80.00	80.00	35.00
6.11	1.00	0.00	0.00	568.70	12462.00	586.03	586.11	488.64	1.05	80.00	80.00	35.00
6.11	30.00	0.00	0.00	568.70	16270.00	587.33	587.44	504.29	1.31	80.00	80.00	35.00
6.11	30.00	0.00	0.00	568.70	12462.00	586.04	586.11	488.69	1.05	80.00	80.00	35.00
6.11	1.00	603.10	602.00	568.70	16270.00	587.33	587.44	480.29	2.43	80.00	80.00	37.00
6.11	1.00	603.10	602.00	568.70	12462.00	586.03	586.12	464.69	1.92	80.00	80.00	37.00
6.12	48.00	603.10	602.00	568.70	16270.00	587.34	587.45	480.39	2.30	80.00	80.00	36.00
6.12	48.00	603.10	602.00	568.70	12462.00	586.04	586.13	464.78	1.81	80.00	80.00	36.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	EG	TOPWID	10K*S	K*XNL	K*XNR	K*XNCH
6.12	1.00	0.00	0.00	568.70	16270.00	587.35	587.46	504.48	1.38	80.00	80.00	36.00
6.12	1.00	0.00	0.00	568.70	12462.00	586.05	586.13	488.86	1.11	80.00	80.00	36.00
6.17	275.00	0.00	0.00	568.90	16270.00	587.41	587.50	1000.00	1.24	60.00	60.00	36.00
6.17	275.00	0.00	0.00	568.90	12462.00	586.09	586.16	977.20	1.12	60.00	60.00	36.00
6.26	450.00	0.00	0.00	569.40	16270.00	587.46	587.54	900.00	.88	60.00	60.00	36.00
6.26	450.00	0.00	0.00	569.40	12462.00	586.14	586.20	791.07	.72	60.00	60.00	36.00
6.56	1740.00	0.00	0.00	570.90	16270.00	587.63	587.80	423.90	2.00	60.00	60.00	36.00
6.56	1740.00	0.00	0.00	570.90	12462.00	586.28	586.41	410.84	1.65	60.00	60.00	36.00
6.69	700.00	0.00	0.00	564.90	16270.00	587.78	587.94	357.98	2.06	80.00	80.00	37.00
6.69	700.00	0.00	0.00	564.90	12462.00	586.41	586.53	352.61	1.67	80.00	80.00	37.00
6.70	1.00	602.00	601.10	564.90	16270.00	587.76	587.96	320.74	3.39	80.00	80.00	37.00
6.70	1.00	602.00	601.10	564.90	12462.00	586.39	586.54	316.37	2.63	80.00	80.00	37.00
6.70	40.00	602.00	601.10	564.90	16270.00	587.77	587.97	320.78	3.38	80.00	80.00	37.00
6.70	40.00	602.00	601.10	564.90	12462.00	586.40	586.55	316.40	2.63	80.00	80.00	37.00
6.70	1.00	0.00	0.00	564.90	16270.00	587.81	587.98	358.10	2.05	80.00	80.00	37.00
6.70	1.00	0.00	0.00	564.90	12462.00	586.43	586.55	352.74	1.66	80.00	80.00	37.00
6.74	200.00	0.00	0.00	565.70	16270.00	587.95	588.02	502.53	.58	80.00	70.00	37.00
6.74	200.00	0.00	0.00	565.70	12462.00	586.53	586.58	396.53	.44	80.00	70.00	37.00
6.90	825.00	0.00	0.00	569.00	16214.00	588.01	588.07	1899.72	.69	80.00	70.00	37.00
6.90	825.00	0.00	0.00	569.00	12419.00	586.57	586.62	1563.31	.58	80.00	70.00	37.00
7.05	825.00	0.00	0.00	572.60	16214.00	588.07	588.16	1734.73	1.30	80.00	70.00	37.00
7.05	825.00	0.00	0.00	572.60	12419.00	586.62	586.70	1076.61	1.20	80.00	70.00	37.00
7.21	818.00	0.00	0.00	576.10	16214.00	588.20	588.33	2914.24	3.03	80.00	70.00	37.00
7.21	818.00	0.00	0.00	576.10	12419.00	586.74	586.89	1266.56	3.79	80.00	70.00	37.00
7.80	3135.00	0.00	0.00	573.90	16214.00	589.03	589.24	1073.84	2.59	80.00	80.00	35.00
7.80	3135.00	0.00	0.00	573.90	12419.00	587.64	587.80	509.61	2.27	80.00	80.00	35.00
7.93	700.00	0.00	0.00	573.80	16214.00	589.21	589.42	962.90	2.43	80.00	80.00	35.00
7.93	700.00	0.00	0.00	573.80	12419.00	587.80	587.96	456.24	2.11	80.00	80.00	35.00
7.95	60.00	0.00	0.00	573.80	16214.00	589.22	589.43	473.53	2.45	80.00	80.00	35.00
7.95	60.00	0.00	0.00	573.80	12419.00	587.81	587.97	452.43	2.11	80.00	80.00	35.00
7.96	60.00	0.00	0.00	573.80	16214.00	589.24	589.45	967.96	2.27	80.00	80.00	34.00
7.96	60.00	0.00	0.00	573.80	12419.00	587.82	587.98	468.79	1.98	80.00	80.00	34.00
8.24	1500.00	0.00	0.00	573.70	16214.00	589.58	589.78	343.49	2.19	80.00	80.00	34.00
8.24	1500.00	0.00	0.00	573.70	12419.00	588.12	588.27	334.83	1.83	80.00	80.00	34.00
8.35	550.00	0.00	0.00	573.70	16214.00	589.71	589.90	1221.66	2.11	80.00	80.00	34.00
8.35	550.00	0.00	0.00	573.70	12419.00	588.22	588.37	337.92	1.81	80.00	80.00	34.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	WSEL	EG	TOPWID	10K*S	K*XNL	K*XNR	K*XNCH
8.55	1095.00	0.00	0.00	573.60	16214.00	589.86	590.43	1128.78	6.67	80.00	80.00	34.00
8.55	1095.00	0.00	0.00	573.60	12419.00	588.38	588.81	237.00	5.95	80.00	80.00	34.00
8.95	2090.00	0.00	0.00	573.40	16056.00	590.99	591.13	1372.09	1.64	80.00	80.00	34.00
8.95	2090.00	0.00	0.00	573.40	12298.00	589.35	589.47	1104.08	1.64	80.00	80.00	34.00
9.41	2415.00	0.00	0.00	576.20	16056.00	591.36	591.50	1134.98	1.45	80.00	80.00	34.00
9.41	2415.00	0.00	0.00	576.20	12298.00	589.73	589.83	508.39	1.36	80.00	80.00	34.00
9.80	2095.00	0.00	0.00	573.00	16056.00	591.69	591.90	616.19	2.20	80.00	80.00	34.00
9.80	2095.00	0.00	0.00	573.00	12298.00	590.03	590.19	309.10	1.97	80.00	80.00	34.00
10.35	2915.00	0.00	0.00	573.10	16056.00	592.22	592.38	692.86	1.24	80.00	80.00	33.00
10.35	2915.00	0.00	0.00	573.10	12298.00	590.50	590.62	558.07	1.10	80.00	80.00	33.00
10.88	2760.00	0.00	0.00	576.00	16056.00	592.60	592.75	828.60	1.52	80.00	80.00	33.00
10.88	2760.00	0.00	0.00	576.00	12298.00	590.85	590.97	405.43	1.44	80.00	80.00	33.00
11.07	1000.00	0.00	0.00	576.50	16056.00	592.77	592.91	1151.93	1.49	80.00	80.00	33.00
11.07	1000.00	0.00	0.00	576.50	12298.00	590.99	591.11	986.78	1.50	80.00	80.00	33.00
11.33	1370.00	0.00	0.00	576.90	16056.00	592.97	593.11	986.09	1.51	80.00	80.00	33.00
11.33	1370.00	0.00	0.00	576.90	12298.00	591.20	591.32	798.23	1.51	80.00	80.00	33.00
11.64	1640.00	0.00	0.00	577.50	16056.00	593.23	593.36	1470.04	1.64	80.00	80.00	33.00
11.64	1640.00	0.00	0.00	577.50	12298.00	591.46	591.58	1081.51	1.67	80.00	80.00	33.00
12.08	2345.00	0.00	0.00	576.70	16056.00	593.59	593.71	1728.41	1.24	80.00	80.00	33.00
12.08	2345.00	0.00	0.00	576.70	12298.00	591.83	591.93	1541.74	1.32	80.00	80.00	33.00
12.57	2565.00	0.00	0.00	575.60	16056.00	593.88	593.96	3111.59	1.00	80.00	60.00	33.00
12.57	2565.00	0.00	0.00	575.60	12298.00	592.16	592.25	2000.25	1.23	80.00	60.00	33.00
13.19	3310.00	0.00	0.00	574.50	16056.00	594.22	594.36	3762.15	1.68	80.00	80.00	33.00
13.19	3310.00	0.00	0.00	574.50	12298.00	592.60	592.77	2495.85	1.94	80.00	80.00	33.00
13.90	3710.00	0.00	0.00	573.40	16056.00	594.70	594.83	2644.91	1.23	80.00	80.00	33.00
13.90	3710.00	0.00	0.00	573.40	12298.00	593.19	593.31	2145.11	1.20	80.00	80.00	33.00
14.37	2495.00	0.00	0.00	574.90	16056.00	595.01	595.15	1878.59	1.48	80.00	80.00	33.00
14.37	2495.00	0.00	0.00	574.90	12298.00	593.51	593.64	1566.74	1.45	80.00	80.00	33.00
14.88	2685.00	0.00	0.00	574.90	16056.00	595.39	595.47	4539.78	.87	80.00	80.00	33.00
14.88	2685.00	0.00	0.00	574.90	12298.00	593.86	593.94	3087.67	.94	80.00	80.00	33.00
15.16	1470.00	0.00	0.00	579.60	16056.00	595.52	595.73	2267.48	2.80	80.00	80.00	33.00
15.16	1470.00	0.00	0.00	579.60	12298.00	594.02	594.21	973.77	2.78	80.00	80.00	33.00
15.72	2965.00	0.00	0.00	581.00	16056.00	596.28	596.43	3140.95	2.07	80.00	80.00	33.00
15.72	2965.00	0.00	0.00	581.00	12298.00	594.80	594.95	1733.58	2.29	80.00	80.00	33.00
16.02	1575.00	0.00	0.00	582.10	16056.00	596.65	596.76	1931.67	1.88	60.00	60.00	39.00
16.02	1575.00	0.00	0.00	582.10	12298.00	595.20	595.30	1379.29	1.98	60.00	60.00	39.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	EG	TOPWID	10K*S	K*XNL	K*XNR	K*XNCH
16.29	1450.00	0.00	0.00	583.30	16056.00	596.94	597.10	1201.50	2.67	80.00	60.00	38.00
16.29	1450.00	0.00	0.00	583.30	12298.00	595.50	595.64	852.62	2.63	80.00	60.00	38.00
16.53	1275.00	0.00	0.00	581.00	16056.00	597.25	597.50	616.99	3.12	80.00	60.00	38.00
16.53	1275.00	0.00	0.00	581.00	12298.00	595.81	595.99	286.47	2.60	80.00	60.00	38.00
16.79	1355.00	0.00	0.00	578.60	16056.00	597.66	597.99	957.84	3.70	80.00	60.00	38.00
16.79	1355.00	0.00	0.00	578.60	12298.00	596.15	596.40	407.34	3.05	80.00	60.00	38.00
17.02	1245.00	0.00	0.00	576.40	16056.00	598.23	598.34	1444.50	1.82	80.00	60.00	38.00
17.02	1245.00	0.00	0.00	576.40	12298.00	596.61	596.71	994.86	1.73	80.00	60.00	38.00
17.51	2590.00	0.00	0.00	576.50	16056.00	598.71	598.94	718.32	2.62	80.00	60.00	38.00
17.51	2590.00	0.00	0.00	576.50	12298.00	597.07	597.24	258.89	2.23	80.00	60.00	38.00
18.09	3015.00	0.00	0.00	583.70	16056.00	599.63	599.80	1242.45	3.00	80.00	60.00	38.00
18.09	3015.00	0.00	0.00	583.70	12298.00	597.89	598.05	849.56	3.22	80.00	60.00	38.00
18.59	2640.00	0.00	0.00	584.70	16056.00	600.48	600.77	1445.98	4.28	80.00	60.00	38.00
18.59	2640.00	0.00	0.00	584.70	12298.00	598.80	599.06	373.23	4.35	80.00	60.00	38.00
18.87	1490.00	0.00	0.00	585.30	16056.00	601.08	601.34	2240.77	3.88	80.00	60.00	38.00
18.87	1490.00	0.00	0.00	585.30	12298.00	599.42	599.69	716.88	4.22	80.00	60.00	38.00
19.22	1870.00	0.00	0.00	586.10	16056.00	601.67	601.73	2300.77	1.22	80.00	60.00	38.00
19.22	1870.00	0.00	0.00	586.10	12298.00	600.08	600.14	1865.11	1.39	80.00	60.00	38.00
20.08	4510.00	0.00	0.00	588.50	16056.00	602.40	602.54	1109.18	2.63	80.00	60.00	38.00
20.08	4510.00	0.00	0.00	588.50	12298.00	600.88	601.01	736.59	2.64	80.00	60.00	38.00

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
2.991	16400.000	582.800	0.000	0.000	0.000	436.203	0.000	-0.000
2.991	12561.000	582.100	-.700	0.000	0.000	434.766	1.437	-0.000
3.043	16400.000	582.853	0.000	.053	0.000	442.565	0.000	275.000
3.043	12561.000	582.138	-.715	.038	0.000	440.684	1.881	275.000
3.431	16270.000	583.459	0.000	.607	0.000	774.586	0.000	2050.000
3.431	12462.000	582.594	-.865	.456	0.000	513.454	261.132	2050.000
3.910	16270.000	584.372	0.000	.913	0.000	825.737	0.000	2530.000
3.910	12462.000	583.231	-1.141	.638	0.000	566.282	259.455	2530.000
4.261	16270.000	584.923	0.000	.550	0.000	1089.776	0.000	1850.000
4.261	12462.000	583.661	-1.262	.430	0.000	848.150	241.626	1850.000
4.886	16270.000	585.727	0.000	.804	0.000	1397.978	0.000	3303.000
4.886	12462.000	584.437	-1.291	.775	0.000	1168.106	229.872	3303.000
5.123	16270.000	586.046	0.000	.319	0.000	1754.210	0.000	1250.000
5.123	12462.000	584.755	-1.291	.318	0.000	670.684	1083.526	1250.000
5.420	16270.000	586.412	0.000	.366	0.000	2597.290	0.000	1565.000
5.420	12462.000	585.092	-1.320	.337	0.000	571.986	2025.304	1565.000
5.636	16270.000	586.601	0.000	.189	0.000	998.805	0.000	1145.000
5.636	12462.000	585.360	-1.241	.268	0.000	492.276	506.530	1145.000
5.877	16270.000	587.003	0.000	.402	0.000	1043.947	0.000	1270.000
5.877	12462.000	585.730	-1.273	.370	0.000	941.315	102.632	1270.000

6.000	16270.000	587.158	0.000	.155	0.000	676.008	0.000	650.000
6.000	12462.000	585.884	-1.274	.154	0.000	506.066	169.942	650.000
6.095	16270.000	587.309	0.000	.151	0.000	504.044	0.000	500.000
6.095	12462.000	586.019	-1.290	.136	0.000	488.548	15.497	500.000
6.096	16270.000	587.302	0.000	-.007	0.000	480.046	0.000	1.000
6.096	12462.000	586.014	-1.288	-.005	0.000	464.550	15.497	1.000
6.104	16270.000	587.314	0.000	.012	0.000	480.155	0.000	48.000
6.104	12462.000	586.023	-1.290	.009	0.000	464.636	15.519	48.000
6.105	16270.000	587.329	0.000	.015	0.000	504.218	0.000	1.000
6.105	12462.000	586.034	-1.294	.011	0.000	488.638	15.580	1.000
6.110	16270.000	587.333	0.000	.004	0.000	504.286	0.000	30.000
6.110	12462.000	586.037	-1.295	.003	0.000	488.691	15.594	30.000
6.111	16270.000	587.326	0.000	-.007	0.000	480.287	0.000	1.000
6.111	12462.000	586.032	-1.293	-.005	0.000	464.693	15.594	1.000
6.119	16270.000	587.337	0.000	.012	0.000	480.395	0.000	48.000
6.119	12462.000	586.041	-1.296	.009	0.000	464.778	15.616	48.000
6.120	16270.000	587.352	0.000	.015	0.000	504.478	0.000	1.000
6.120	12462.000	586.052	-1.300	.011	0.000	488.862	15.616	1.000
6.171	16270.000	587.408	0.000	.056	0.000	999.999	0.000	275.000
6.171	12462.000	586.090	-1.318	.038	0.000	977.203	22.796	275.000
6.257	16270.000	587.461	0.000	.053	0.000	899.999	0.000	450.000
6.257	12462.000	586.141	-1.320	.051	0.000	791.067	108.932	450.000
6.562	16270.000	587.626	0.000	.165	0.000	423.901	0.000	1740.000
6.562	12462.000	586.284	-1.342	.143	0.000	410.840	13.061	1740.000
6.694	16270.000	587.777	0.000	.151	0.000	357.976	0.000	700.000
6.694	12462.000	586.407	-1.370	.123	0.000	352.608	5.368	700.000
6.695	16270.000	587.758	0.000	-.019	0.000	320.741	0.000	1.000
6.695	12462.000	586.394	-1.364	-.013	0.000	316.374	4.368	1.000
6.702	16270.000	587.772	0.000	.014	0.000	320.776	0.000	40.000
6.702	12462.000	586.405	-1.367	.011	0.000	316.401	4.375	40.000
6.703	16270.000	587.811	0.000	.039	0.000	358.103	0.000	1.000
6.703	12462.000	586.432	-1.379	.027	0.000	352.737	5.366	1.000
6.740	16270.000	587.947	0.000	.136	0.000	502.526	0.000	200.000
6.740	12462.000	586.534	-1.413	.102	0.000	396.529	105.998	200.000
6.896	16214.000	588.008	0.000	.062	0.000	1899.721	0.000	825.000
6.896	12419.000	586.575	-1.434	.041	0.000	1563.310	336.411	825.000
7.052	16214.000	588.066	0.000	.058	0.000	1734.729	0.000	825.000
7.052	12419.000	586.625	-1.441	.050	0.000	1076.613	658.116	825.000
7.207	16214.000	588.198	0.000	.132	0.000	2914.243	0.000	818.000
7.207	12419.000	586.742	-1.456	.117	0.000	1266.563	1647.681	818.000
7.801	16214.000	589.027	0.000	.829	0.000	1073.837	0.000	3135.000
7.801	12419.000	587.637	-1.390	.895	0.000	509.613	564.224	3135.000
7.934	16214.000	589.211	0.000	.184	0.000	962.895	0.000	700.000
7.934	12419.000	587.799	-1.412	.161	0.000	456.241	506.654	700.000

[illegible]	[illegible]	[illegible]	0.000	.012	0.000	473.528	0.000	60.000
7.945	12419.000	587.812	-1.411	.013	0.000	452.435	21.093	60.000
7.956	16214.000	589.243	0.000	.020	0.000	967.962	0.000	60.000
7.956	12419.000	587.824	-1.419	.013	0.000	468.793	499.169	60.000
8.241	16214.000	589.580	0.000	.337	0.000	343.488	0.000	1500.000
8.241	12419.000	588.120	-1.460	.296	0.000	334.827	8.661	1500.000
8.345	16214.000	589.707	0.000	.126	0.000	1221.659	0.000	550.000
8.345	12419.000	588.224	-1.483	.103	0.000	337.916	883.743	550.000
8.552	16214.000	589.859	0.000	.152	0.000	1128.778	0.000	1095.000
8.552	12419.000	588.378	-1.482	.154	0.000	236.999	891.779	1095.000
8.948	16056.000	590.991	0.000	1.132	0.000	1372.087	0.000	2090.000
8.948	12298.000	589.352	-1.640	.974	0.000	1104.075	268.012	2090.000
9.405	16056.000	591.365	0.000	.373	0.000	1134.983	0.000	2415.000
9.405	12298.000	589.727	-1.638	.375	0.000	508.395	626.589	2415.000
9.802	16056.000	591.690	0.000	.325	0.000	616.185	0.000	2095.000
9.802	12298.000	590.032	-1.658	.305	0.000	309.097	307.089	2095.000
10.354	16056.000	592.225	0.000	.535	0.000	692.860	0.000	2915.000
10.354	12298.000	590.503	-1.721	.471	0.000	558.073	134.787	2915.000
10.877	16056.000	592.605	0.000	.380	0.000	828.600	0.000	2760.000
10.877	12298.000	590.848	-1.756	.345	0.000	405.428	423.171	2760.000
11.066	16056.000	592.770	0.000	.165	0.000	1151.933	0.000	1000.000
11.066	12298.000	590.994	-1.776	.146	0.000	986.775	165.157	1000.000
11.326	16056.000	592.972	0.000	.202	0.000	986.092	0.000	1370.000
11.326	12298.000	591.205	-1.768	.211	0.000	798.226	187.867	1370.000
11.636	16056.000	593.226	0.000	.253	0.000	1470.037	0.000	1640.000
11.636	12298.000	591.459	-1.767	.254	0.000	1081.508	388.529	1640.000
12.081	16056.000	593.591	0.000	.366	0.000	1728.411	0.000	2345.000
12.081	12298.000	591.827	-1.764	.368	0.000	1541.744	186.667	2345.000
12.566	16056.000	593.885	0.000	.294	0.000	3111.594	0.000	2565.000
12.566	12298.000	592.164	-1.721	.337	0.000	2000.245	1111.348	2565.000
13.193	16056.000	594.219	0.000	.334	0.000	3762.149	0.000	3310.000
13.193	12298.000	592.604	-1.615	.440	0.000	2495.854	1266.295	3310.000
13.896	16056.000	594.702	0.000	.483	0.000	2644.908	0.000	3710.000
13.896	12298.000	593.192	-1.510	.588	0.000	2145.112	499.796	3710.000
14.368	16056.000	595.010	0.000	.308	0.000	1878.588	0.000	2495.000
14.368	12298.000	593.506	-1.504	.314	0.000	1566.738	311.849	2495.000
14.877	16056.000	595.391	0.000	.381	0.000	4539.784	0.000	2685.000
14.877	12298.000	593.863	-1.528	.357	0.000	3087.666	1452.118	2685.000
15.155	16056.000	595.516	0.000	.126	0.000	2267.485	0.000	1470.000
15.155	12298.000	594.016	-1.501	.153	0.000	973.766	1293.718	1470.000
15.717	16056.000	596.282	0.000	.766	0.000	3140.955	0.000	2965.000
15.717	12298.000	594.796	-1.486	.780	0.000	1733.577	1407.378	2965.000
16.01[illegible]	16[illegible]6.[illegible]00	596.65[illegible]	0.[illegible]00	.371	0.[illegible]0	1931.667	0.000	1575.000
16.01[illegible]	1[illegible]	5[illegible]	-1.[illegible]	[illegible]	[illegible]	1[illegible]7.[illegible]3	55[illegible]3	1575.000

16.290	12298.000	595.505	-1.440	.309	0.000	852.618	348.884	1450.000
16.531	16056.000	597.250	0.000	.306	0.000	616.995	0.000	1275.000
16.531	12298.000	595.808	-1.442	.303	0.000	286.466	330.529	1275.000
16.788	16056.000	597.665	0.000	.414	0.000	957.840	0.000	1355.000
16.788	12298.000	596.150	-1.515	.342	0.000	407.337	550.503	1355.000
17.024	16056.000	598.233	0.000	.568	0.000	1444.499	0.000	1245.000
17.024	12298.000	596.611	-1.622	.461	0.000	994.862	449.637	1245.000
17.514	16056.000	598.707	0.000	.474	0.000	718.322	0.000	2590.000
17.514	12298.000	597.066	-1.641	.456	0.000	258.887	459.436	2590.000
18.085	16056.000	599.629	0.000	.922	0.000	1242.450	0.000	3015.000
18.085	12298.000	597.886	-1.744	.820	0.000	849.563	392.887	3015.000
18.585	16056.000	600.479	0.000	.849	0.000	1445.980	0.000	2640.000
18.585	12298.000	598.798	-1.680	.913	0.000	373.233	1072.747	2640.000
18.867	16056.000	601.077	0.000	.599	0.000	2240.773	0.000	1490.000
18.867	12298.000	599.425	-1.653	.626	0.000	716.881	1523.892	1490.000
19.222	16056.000	601.670	0.000	.592	0.000	2300.769	0.000	1870.000
19.222	12298.000	600.075	-1.594	.651	0.000	1865.111	435.658	1870.000
20.076	16056.000	602.395	0.000	.725	0.000	1109.182	0.000	4510.000
20.076	12298.000	600.880	-1.515	.805	0.000	736.589	372.592	4510.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET AREA-ACRES	TOP WIDTH AREA-DIFF	TOP WIDTH
1	0.000	0.000	2642.564	0.000
2	0.000	0.000	1746.871	-895.693

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Royalton & Sodus Twp's

3) WATERCOURSE: St. Joseph R.

4) DOCUMENT TYPE: 100-Yr Encroached

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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ST. JOSEPH RIVER
ROYALTON & SODUS TOWNSHIPS FIS
J&A FILE NO. 5555-59 & 65
SECT. 17.024 - 18.867
W/ENCROACHMENT AT SECT. 17.514

T1
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-0.	4.	-0.	-0.	-0.000000	-0.00	-0.0	-0.	600.379	-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	.090	.090	.045	.200	.400	-0.000	-0.000	-0.000	-0.000	-0.000
QT	4.000	35.000	65.000	23040.000	105.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.075	1435.000	.125	1871.000	.038	2336.000	.100	2432.000	-0.000
X1	17.024	41.000	1871.000	2336.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	605.700	35.000	603.600	85.000	604.800	235.000	601.000	535.000
GR	597.300	835.000	596.000	935.000	595.700	1035.000	596.400	1135.000	597.800	1235.000
GR	596.400	1335.000	596.400	1435.000	597.900	1535.000	598.500	1555.000	594.000	1635.000
GR	591.800	1735.000	598.700	1760.000	598.300	1835.000	598.700	1871.000	593.200	1935.000
GR	589.800	1963.000	591.500	2035.000	590.000	2055.000	587.200	2075.000	585.400	2095.000
GR	584.900	2115.000	584.100	2135.000	583.000	2155.000	582.100	2175.000	581.000	2195.000
GR	577.700	2215.000	576.700	2235.000	576.400	2255.000	576.500	2275.000	580.500	2295.000
GR	584.100	2315.000	588.100	2326.000	591.600	2334.000	599.500	2336.000	599.900	2384.000
GR	620.500	2432.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.075	2635.000	.125	2976.000	.039	3231.000	.125	3251.000	-0.000
X1	17.514	43.000	2976.000	3231.000	1200.000	2590.000	2590.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1635.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	605.700	35.000	603.600	85.000	604.800	235.000	605.400	335.000
GR	600.400	435.000	600.400	635.000	600.200	835.000	600.400	1035.000	600.300	1235.000
GR	599.200	1335.000	599.200	1410.000	599.500	1435.000	601.300	1635.000	599.500	1835.000
GR	599.400	2035.000	598.600	2135.000	599.400	2235.000	599.300	2335.000	597.600	2435.000
GR	597.300	2535.000	598.500	2635.000	598.900	2735.000	599.300	2835.000	597.100	2935.000
GR	597.400	2976.000	594.600	2977.000	589.100	2979.000	584.100	2995.000	582.800	3015.000
GR	579.600	3035.000	577.600	3055.000	576.500	3075.000	578.400	3095.000	580.000	3115.000
GR	580.700	3135.000	582.400	3155.000	583.800	3175.000	588.900	3195.000	589.500	3203.000
GR	591.400	3215.000	593.200	3231.000	612.500	3251.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.075	2235.000	.125	2287.000	.039	2645.000	.125	2656.000	-0.000
X1	18.085	41.000	2287.000	2645.000	3000.000	3100.000	3015.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1300.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	596.600	35.000	596.600	85.000	596.600	235.000	595.900	435.000
GR	596.000	635.000	595.800	835.000	596.400	1035.000	597.000	1145.000	598.500	1235.000
GR	598.500	1435.000	599.400	1535.000	595.500	1635.000	594.200	1735.000	595.100	1835.000
GR	596.500	1935.000	597.500	2035.000	598.300	2135.000	600.500	2235.000	602.100	2287.000
GR	594.400	2305.000	592.500	2325.000	589.700	2336.000	589.400	2345.000	588.700	2365.000
GR	587.800	2375.000	586.600	2395.000	585.500	2415.000	585.400	2435.000	587.600	2455.000
GR	587.400	2475.000	586.100	2495.000	585.200	2515.000	583.700	2535.000	584.100	2555.000
GR	585.400	2575.000	586.200	2595.000	588.300	2615.000	589.700	2624.000	602.900	2645.000
GR	610.000	2656.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.075	1950.000	.125	2000.000	.038	2245.000	.125	2295.000	.075
NH	3890.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

X1	18.585	51.000	2000.000	2245.000	1600.000	2900.000	2640.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	599.000	5.000	599.600	200.000	599.800	360.000	601.300	400.000
GR	601.400	420.000	599.000	600.000	601.800	800.000	603.300	980.000	603.700	1000.000
GR	601.500	1140.000	601.500	1160.000	599.800	1200.000	598.400	1330.000	599.600	1400.000
GR	605.000	1600.000	602.000	1800.000	598.900	1950.000	598.900	1980.000	600.000	2000.000
GR	593.100	2006.000	589.800	2009.000	586.100	2024.000	585.400	2037.000	585.600	2050.000
GR	584.700	2063.000	585.000	2076.000	585.200	2089.000	584.800	2102.000	585.000	2115.000
GR	586.000	2128.000	588.600	2141.000	588.100	2154.000	587.400	2167.000	587.100	2180.000
GR	587.000	2193.000	587.100	2206.000	587.900	2219.000	590.100	2232.000	590.000	2245.000
GR	600.200	2295.000	598.400	2495.000	600.300	2695.000	599.000	2895.000	598.900	3095.000
GR	599.200	3295.000	604.400	3395.000	602.800	3495.000	602.000	3695.000	600.800	3880.000
GR	610.000	3890.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.125	9.000	.038	245.000	.125	445.000	.075	2830.000	-0.000
X1	18.867	37.000	9.000	245.000	1500.000	400.000	1490.000	-0.000	-0.000	-0.000
GR	610.000	0.000	593.700	6.000	590.400	9.000	586.700	24.000	586.000	37.000
GR	586.200	50.000	585.300	63.000	585.600	76.000	585.800	89.000	585.400	102.000
GR	585.600	115.000	586.800	128.000	589.200	141.000	588.700	154.000	588.000	167.000
GR	587.700	180.000	587.600	193.000	587.500	206.000	588.500	219.000	590.700	232.000
GR	593.300	245.000	599.200	335.000	599.200	445.000	600.000	645.000	600.000	845.000
GR	600.000	1045.000	600.800	1245.000	600.200	1445.000	598.700	1645.000	598.500	1695.000
GR	600.400	1845.000	600.000	2045.000	601.300	2245.000	606.200	2445.000	602.400	2645.000
GR	600.800	2835.000	610.000	2845.000	-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

CCHV= .200 CEHV= .400
1490 NH CARD USED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
17.02	23.98	600.38	0.00	600.38	600.52	.14	0.00	0.00	598.70
23040.	2340.	20695.	5.	4478.	6524.	33.	0.	0.	599.50
0.00	.52	3.17	.14	.092	.038	.100	0.000	576.40	585.35
.000160	-0.	-0.	-0.	0	0	1	0.00	1799.76	2385.12

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 1635.0 3251.0 TYPE= 1 TARGET= -1635.000 (1616)

17.51	24.30	600.80	0.00	0.00	601.13	.33	.53	.07	597.40
23040.	1293.	21735.	12.	2516.	4597.	30.	429.	59.	593.20
.15	.51	4.73	.41	.086	.039	.125	.047	576.50	1690.43
.000307	1200.	2590.	2590.	2	0	1	0.00	1548.45	3238.88

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1300.0 2656.0 TYPE= 1 TARGET= -1300.000 (1356)

18.09	18.15	601.85	0.00	0.00	602.04	.19	.88	.03	602.10
23040.	4283.	18757.	0.	4366.	4907.	0.	996.	158.	602.90
.41	.98	3.82	0.00	.075	.039	.125	.046	583.70	1300.00
.000281	3000.	3015.	3100.	2	0	1	0.00	1334.76	2643.34

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1600.0 3890.0 TYPE= 1 TARGET= -1600.000 (2290)

18.59	17.94	602.64	0.00	0.00	602.96	.32	.86	.05	600.00
23040.	324.	19115.	3601.	517.	3823.	4148.	1488.	247.	590.00
.57	.63	5.00	.87	.090	.038	.080	.046	584.70	1757.58
.000414	1600.	2640.	2900.	2	0	1	0.00	1949.57	3882.00

1490 NH CARD USED

3265 DIVIDED FLOW

18.87	17.90	603.20	0.00	0.00	603.46	.25	.49	.01	590.40
23040.	34.	17337.	5669.	50.	3728.	7228.	1679.	277.	593.30
.67	.68	4.65	.78	.125	.038	.082	.047	585.30	2.50
.000354	1500.	1490.	400.	2	0	1	0.00	2555.26	2837.61

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRWS	EG	TOPWID	10K*S	TIME	VOL
17.02	0.00	0.00	0.00	576.40	23040.00	600.38	0.00	600.52	1799.76	1.60	0.00	0.00
17.51	2590.00	0.00	0.00	576.50	23040.00	600.80	0.00	601.13	1548.45	3.07	.15	428.82
18.09	3015.00	0.00	0.00	583.70	23040.00	601.85	0.00	602.04	1334.76	2.81	.41	995.77
18.59	2640.00	0.00	0.00	584.70	23040.00	602.64	0.00	602.96	1949.57	4.14	.57	1488.08
18.87	1490.00	0.00	0.00	585.30	23040.00	603.20	0.00	603.46	2555.26	3.54	.67	1679.23

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
17.024	23040.000	600.379	0.000	0.000	0.000	1799.765	0.000	-0.000
17.514	23040.000	600.801	0.000	.422	0.000	1548.445	0.000	2590.000
18.085	23040.000	601.854	0.000	1.053	0.000	1334.759	0.000	3015.000
18.585	23040.000	602.636	0.000	.782	0.000	1949.566	0.000	2640.000
18.867	23040.000	603.205	0.000	.569	0.000	2555.261	0.000	1490.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	0.000	277.066	0.000

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Benton, Royalton & Sodus Twp's

3) WATERCOURSE: St. Joseph R.

4) DOCUMENT TYPE: 100-yr Encroached

00BREAK00

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C
C     42
C  4.261        VALLEY SECTION A
C  4.886        VALLEY SECTION B
C  5.420        VALLEY SECTION C
C  5.636        VALLEY SECTION D
C  6.000        VALLEY SECTION E
C  6.096        BRIDGE SECTION F , I-94
C  6.562        VALLEY SECTION G
C  6.695        BRIDGE SECTION H , US-31 SOMERLYTON BRIDGE
C  6.896        VALLEY SECTION I
C  7.207        VALLEY SECTION J
C  7.801        VALLEY SECTION K
C  7.934        VALLEY SECTION L
C  7.945        VALLEY SECTION M
C  8.241        VALLEY SECTION N
C  8.345        VALLEY SECTION O
C  8.552        VALLEY SECTION P
C  8.948        VALLEY SECTION Q
C  9.405        VALLEY SECTION R
C  9.802        VALLEY SECTION S
C 10.354        VALLEY SECTION T
C 10.877        VALLEY SECTION U
C 11.066        VALLEY SECTION V
C 11.326        VALLEY SECTION W
C 11.636        VALLEY SECTION X
C 12.081        VALLEY SECTION Y
C 12.566        VALLEY SECTION Z
C 13.193        VALLEY SECTION AA
C 13.896        VALLEY SECTION AB
C 14.368        VALLEY SECTION AC
C 14.877        VALLEY SECTION AD
C 15.155        VALLEY SECTION AE
C 15.717        VALLEY SECTION AF
C 16.290        VALLEY SECTION AG
C 16.531        VALLEY SECTION AH
C 16.788        VALLEY SECTION AI
C 17.024        VALLEY SECTION AJ
C 17.514        VALLEY SECTION AK
C 18.085        VALLEY SECTION AL
C 18.585        VALLEY SECTION AM
C 18.867        VALLEY SECTION AN
C 19.222        VALLEY SECTION AO
C 20.076        VALLEY SECTION AP
T1      ST. JOSEPH RIVER  BENTON, ROYALTON, SODUS TOWNSHIPS 5555-07,59@65
T2      100 YEAR FLOOD
T3      ST. JOSEPH RIVER
J1          4                                                  586.389
J2     1              -1
J3     1       3       4       5      16      18      17
NC    .07     .07    .032     .2      .4
QT     4   17490   21510   23190   27160
X1 4.261      35      15     457
X3    10
GR 598.9       0   582.9      15   581.4      28   577.7      38   574.1      48
GR 572.3      68   571.5      88   570.9     108   571.3     128   571.4     148
GR 572.0     168   572.6     188   573.0     208   573.9     228   574.4     248
GR 575.0     268   575.5     288   575.5     308   575.8     328   575.8     348
GR 576.0     368   576.0     388   575.5     408   575.3     428   579.0     438
GR 581.3     448   582.1     457   584.7     461   583.8     568   582.4     658
GR 584.9     768   583.0     868   582.6     888   583.0    1098   602.7    1148
NC    .05    .125    .032
X1 4.886      33    1058    1418    3400    2000    3303
X3    10
GR 584.9       0   584.2     100   [illegible]
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HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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C
1       ST. JOSEPH RIVER BENTON, ROYALTON, SODUS TOWNSHIPS 5555-07,59065
T2       100 YEAR FLOOD
T3       ST. JOSEPH RIVER
J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
        -0.        4.        -0.        -0.  -0.000000     -0.00      -0.0       -0.     586.389     -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      3.000      4.000      5.000     16.000     18.000     17.000     -0.000     -0.000     -0.000
NC       .070       .070       .032       .200       .400      -0.000     -0.000     -0.000     -0.000     -0.000
QT      4.000  17490.000  21510.000  23190.000  27160.000     -0.000     -0.000     -0.000     -0.000     -0.000
X1      4.261     35.000     15.000    457.000     -0.000     -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     -0.000     -0.000     -0.000
GR    598.900      0.000    582.900     15.000    581.400     28.000    577.700     38.000    574.100     48.000
GR    572.300     68.000    571.500     88.000    570.900    108.000    571.300    128.000    571.400    148.000
GR    572.000    168.000    572.600    188.000    573.000    208.000    573.900    228.000    574.400    248.000
GR    575.000    268.000    575.500    288.000    575.500    308.000    575.800    328.000    575.800    348.000
GR    576.000    368.000    576.000    388.000    575.500    408.000    575.300    428.000    579.000    438.000
GR    581.300    448.000    582.100    457.000    584.700    461.000    583.800    568.000    582.400    658.000
GR    584.900    768.000    583.000    868.000    582.600    888.000    583.000   1098.000    602.700   1148.000
NC       .050       .125       .032      -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000
X1      4.886     33.000   1058.000   1418.000   3400.000   2000.000   3303.000     -0.000     -0.000     -0.000
X3     10.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000
GR    584.900      0.000    584.200    100.000    583.400    200.000    582.900    300.000    582.800    400.000
GR    583.700    500.000    584.700    600.000    584.300    700.000    583.700    800.000    584.600    900.000
GR    584.200   1000.000    584.500   1055.000    582.400   1058.000    581.100   1070.000    579.500   1080.000
GR    576.500   1100.000    576.400   1120.000    576.100   1140.000    575.500   1160.000    574.600   1180.000
GR    573.600   1200.000    572.600   1220.000    572.200   1240.000    571.400   1260.000    570.600   1280.000
GR    569.600   1300.000    569.300   1320.000    568.700   1340.000    569.800   1360.000    577.700   1380.000
GR    580.600   1385.000    582.400   1396.000    619.400   1418.000     -0.000     -0.000     -0.000     -0.000
NC       .050       .125       .032      -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000
X1      5.123     66.000   1200.000   1615.000   1150.000   2000.000   1250.000     -0.000     -0.000     -0.000
X3     10.000     -0.000     -0.000     -0.000     -0.000   1765.000     -0.000     -0.000     -0.000     -0.000
GR    586.100      0.000    585.600    100.000    585.100    200.000    584.700    300.000    584.600    400.000
GR    584.900    500.000    585.400    600.000    585.300    700.000    585.100    800.000    585.600    900.000
GR    585.400   1000.000    585.000   1100.000    582.300   1200.000    581.700   1208.000    579.400   1224.000
GR    578.100   1240.000    576.700   1256.000    576.000   1272.000    575.600   1288.000    575.100   1304.000
GR    575.000   1320.000    575.100   1336.000    574.900   1352.000    574.500   1368.000    574.400   1384.000
GR    574.400   1400.000    574.300   1416.000    574.000   1432.000    573.700   1448.000    573.400   1464.000
GR    573.900   1480.000    572.900   1496.000    572.400   1512.000    572.400   1528.000    572.000   1544.000
GR    571.300   1560.000    570.300   1576.000    572.800   1592.000    574.600   1598.000    578.600   1609.000
GR    585.300   1615.000    584.600   1644.000    584.100   1677.000    583.700   1710.000    583.400   1743.000
GR    583.100   1780.000    582.500   1813.000    581.800   1846.000    582.800   1879.000    584.200   1912.000
GR    583.800   1932.000    583.600   1945.000    584.900   2011.000    584.500   2059.000    582.100   2061.000
GR    584.800   2063.000    584.500   2078.000    584.200   2144.000    584.200   2151.000    582.100   2154.000
GR    583.800   2157.000    583.700   2210.000    583.800   2276.000    591.700   2329.000    594.500   2342.000
GR    610.000   2372.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000
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X1	5.420	60.000	1300.000	1821.000	550.000	1800.000	1565.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	450.000	-0.000	3370.000	-0.000	-0.000	-0.000	-0.000
GR	587.300	0.000	586.000	500.000	586.600	1000.000	586.600	1077.000	586.600	1154.000
GR	585.400	1231.000	584.200	1300.000	583.600	1310.000	581.300	1330.000	580.000	1350.000
GR	578.600	1370.000	577.900	1390.000	577.500	1410.000	577.000	1430.000	576.900	1450.000
GR	577.000	1470.000	576.800	1490.000	576.400	1510.000	576.300	1530.000	576.300	1550.000
GR	576.200	1570.000	575.900	1590.000	575.600	1610.000	575.300	1630.000	575.100	1650.000
GR	574.800	1670.000	574.300	1690.000	574.300	1710.000	573.900	1730.000	573.200	1750.000
GR	572.200	1770.000	574.700	1790.000	576.500	1800.000	580.500	1814.000	585.300	1821.000
GR	584.600	1910.000	584.100	2010.000	583.700	2110.000	583.400	2210.000	583.100	2310.000
GR	582.500	2410.000	581.800	2510.000	582.800	2610.000	584.200	2710.000	583.800	2771.000
GR	583.600	2810.000	584.900	3010.000	584.500	3155.000	582.100	3160.000	584.800	3165.000
GR	584.500	3210.000	584.200	3410.000	584.200	3430.000	582.100	3440.000	583.800	3450.000
GR	583.700	3610.000	583.800	3810.000	591.700	3970.000	594.500	4010.000	610.000	4100.000
NH	6.000	.125	170.000	.075	250.000	.125	280.000	.032	800.000	.085
NH	1165.000	.125	1965.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5.636	42.000	280.000	800.000	1000.000	1200.000	1145.000	-0.000	-0.000	-0.000
GR	602.800	0.000	596.500	140.000	585.700	170.000	585.700	225.000	586.800	250.000
GR	587.300	280.000	579.500	292.000	577.700	298.000	575.100	308.000	572.000	318.000
GR	573.400	338.000	573.900	358.000	575.100	378.000	576.000	398.000	575.900	418.000
GR	576.000	438.000	576.300	458.000	576.600	478.000	577.000	498.000	577.200	518.000
GR	577.300	538.000	577.600	558.000	577.900	578.000	577.900	598.000	578.100	618.000
GR	578.300	638.000	578.600	658.000	578.900	678.000	578.500	698.000	577.700	718.000
GR	581.400	738.000	582.600	741.000	582.800	761.000	589.800	800.000	587.700	965.000
GR	586.600	1165.000	585.900	1365.000	586.500	1565.000	587.700	1765.000	586.800	1835.000
GR	590.800	1880.000	610.000	1965.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.125	.125	.032	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5.877	51.000	800.000	1320.000	1350.000	1200.000	1270.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	500.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000
GR	589.800	0.000	588.000	78.000	587.000	157.000	586.600	200.000	586.200	235.000
GR	585.600	313.000	584.600	392.000	584.700	470.000	585.000	548.000	585.100	626.000
GR	586.000	705.000	587.900	783.000	588.700	800.000	579.500	813.000	577.700	818.000
GR	574.800	828.000	571.700	838.000	573.100	858.000	573.600	878.000	574.800	898.000
GR	575.700	918.000	575.600	938.000	575.700	958.000	576.000	978.000	576.300	998.000
GR	576.700	1018.000	576.900	1038.000	577.000	1058.000	577.300	1078.000	577.600	1098.000
GR	577.600	1118.000	577.800	1138.000	578.000	1158.000	578.300	1178.000	578.600	1198.000
GR	578.200	1218.000	577.400	1238.000	581.400	1258.000	582.600	1261.000	582.800	1281.000
GR	586.100	1320.000	585.200	1397.000	584.800	1513.000	585.600	1629.000	587.000	1745.000
GR	587.700	1775.000	584.000	1861.000	585.500	1977.000	585.900	2020.000	586.700	2093.000
GR	596.500	2209.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.075	1022.000	.032	1534.000	.085	1926.000	.125	2281.000	-0.000
X1	6.000	53.000	1022.000	1534.000	800.000	600.000	650.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	950.000	-0.000	1700.000	-0.000	-0.000	-0.000	-0.000
GR	589.800	0.000	588.000	100.000	587.000	200.000	586.200	300.000	585.600	400.000
GR	584.600	500.000	584.700	600.000	585.000	700.000	585.000	722.000	585.100	800.000
GR	586.000	900.000	587.900	1000.000	588.700	1022.000	579.400	1034.000	577.600	1040.000
GR	574.700	1050.000	571.600	1060.000	573.000	1080.000	573.500	1100.000	574.700	1120.000
GR	575.600	1140.000	575.500	1160.000	575.600	1180.000	575.900	1200.000	576.200	1220.000
GR	576.600	1240.000	576.800	1260.000	576.900	1280.000	577.200	1300.000	577.500	1320.000
GR	577.500	1340.000	577.700	1360.000	577.900	1380.000	578.200	1400.000	578.500	1420.000
GR	578.100	1440.000	577.300	1460.000	581.300	1480.000	582.700	1483.000	582.900	1500.000
GR	586.100	1534.000	585.200	1600.000	584.800	1700.000	585.600	1800.000	586.400	1858.000
GR	587.000	1900.000	587.700	1926.000	584.000	2000.000	585.500	2100.000	586.700	2186.000
GR	586.500	2241.000	597.300	2254.000	612.800	2281.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.035	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.095	53.000	280.000	920.000	500.000	500.000	500.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	607.700	0.000	606.700	100.000	606.000	200.000	606.600	280.000	599.200	280.000
GR	598.400	284.000	595.100	295.000	594.200	314.000	592.600	346.000	592.000	350.000
GR	590.000	369.000	588.200	390.000	585.900	411.000	580.800	423.000	577.600	434.000

GR	574.700	518.000	576.300	537.000	575.900	558.000	575.400	579.000	573.800	598.000
GR	574.000	602.000	575.800	621.000	572.100	642.000	571.700	663.000	569.600	682.000
GR	568.700	686.000	571.500	705.000	571.600	726.000	572.000	747.000	570.300	766.000
GR	570.700	770.000	572.200	789.000	572.300	810.000	572.400	831.000	574.900	850.000
GR	576.200	854.000	580.800	876.000	581.700	886.000	592.100	916.000	592.300	920.000
GR	604.100	920.000	603.100	1000.000	603.100	1100.000	603.200	1200.000	603.600	1300.000
GR	604.200	1400.000	605.000	1500.000	606.100	1600.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.037	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.096	67.000	280.000	920.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
BT	50.000	0.000	607.710	-0.000	100.000	606.700	-0.000	200.000	606.000	-0.000
BT	280.000	606.600	602.000	284.000	606.600	602.000	295.000	606.600	602.000	314.000
BT	606.500	602.000	346.000	606.500	601.900	350.000	606.500	601.900	369.000	606.400
BT	601.800	390.000	606.300	601.700	411.000	606.200	601.600	423.000	606.200	601.600
BT	434.000	606.100	601.500	438.000	606.100	601.500	453.000	606.100	601.500	474.000
BT	605.900	601.400	495.000	605.900	601.300	514.000	605.800	601.300	518.000	605.800
BT	601.300	537.000	605.700	601.200	558.000	605.600	601.000	579.000	605.500	600.900
BT	598.000	605.400	600.900	602.000	605.400	600.900	621.000	605.300	600.900	642.000
BT	605.200	600.800	663.000	605.100	600.700	682.000	605.100	600.600	686.000	605.100
BT	600.600	705.000	605.000	600.500	726.000	604.900	608.400	747.000	604.800	600.400
BT	766.000	604.700	600.300	770.000	604.700	600.300	789.000	604.600	600.200	810.000
BT	604.600	600.100	831.000	604.500	600.000	850.000	604.400	600.000	854.000	604.400
BT	600.000	876.000	604.300	599.900	886.000	604.300	599.800	916.000	604.200	599.700
BT	920.000	604.100	599.700	1000.000	603.100	-0.000	1100.000	603.100	-0.000	1200.000
BT	603.200	-0.000	1300.000	603.600	-0.000	1400.000	604.200	-0.000	1500.000	605.000
BT	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	607.700	0.000	606.700	100.000	606.000	200.000	606.600	280.000	599.200	280.000
GR	598.400	284.000	595.100	295.000	594.200	314.000	592.600	346.000	601.900	346.000
GR	601.900	350.000	592.000	350.000	590.000	369.000	588.200	390.000	585.900	411.000
GR	580.800	423.000	577.600	434.000	601.500	434.000	601.500	438.000	575.300	438.000
GR	574.700	453.000	575.100	474.000	576.400	495.000	574.900	514.000	601.300	514.000
GR	601.300	518.000	574.700	518.000	576.300	537.000	575.900	558.000	575.400	579.000
GR	573.800	598.000	600.900	598.000	600.900	602.000	574.000	602.000	575.800	621.000
GR	572.100	642.000	571.700	663.000	569.600	682.000	600.600	682.000	600.600	686.000
GR	568.700	686.000	571.500	705.000	571.600	726.000	572.000	747.000	570.300	766.000
GR	600.300	766.000	600.300	770.000	570.700	770.000	572.200	789.000	572.300	810.000
GR	572.400	831.000	574.900	850.000	600.000	850.000	600.000	854.000	576.200	854.000
GR	580.800	876.000	581.700	886.000	592.100	916.000	592.300	920.000	604.100	920.000
GR	603.100	1000.000	603.100	1100.000	603.200	1200.000	603.600	1300.000	604.200	1400.000
GR	605.000	1500.000	606.100	1600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.104	-0.000	-0.000	-0.000	48.000	48.000	48.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.035	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.105	53.000	280.000	920.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	607.700	0.000	606.700	100.000	606.000	200.000	606.600	280.000	599.200	280.000
GR	598.400	284.000	595.100	295.000	594.200	314.000	592.600	346.000	592.000	350.000
GR	590.000	369.000	588.200	390.000	585.900	411.000	580.800	423.000	577.600	434.000
GR	575.300	438.000	574.700	453.000	575.100	474.000	576.400	495.000	574.900	514.000
GR	574.700	518.000	576.300	537.000	575.900	558.000	575.400	579.000	573.800	598.000
GR	574.000	602.000	575.800	621.000	572.100	642.000	571.700	663.000	569.600	682.000
GR	568.700	686.000	571.500	705.000	571.600	726.000	572.000	747.000	570.300	766.000
GR	570.700	770.000	572.200	789.000	572.300	810.000	572.400	831.000	574.900	850.000
GR	576.200	854.000	580.800	876.000	581.700	886.000	592.100	916.000	592.300	920.000
GR	604.100	920.000	603.100	1000.000	603.100	1100.000	603.200	1200.000	603.600	1300.000
GR	604.200	1400.000	605.000	1500.000	606.100	1600.000	-0.000	-0.000	-0.000	-0.000
X1	6.110	-0.000	-0.000	-0.000	30.000	30.000	30.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.037	-0.000	-0.000	-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	-0.000	-0.000	-0.000
BT	50.000	0.000	607.710	-0.000	100.000	606.700	-0.000	200.000	606.000	-0.000
BT	280.000	606.600	602.000	284.000	606.600	602.000	295.000	606.600	602.000	314.000
BT	606.500	602.000	346.000	606.500	601.900	350.000	606.500	601.900	369.000	606.400
BT	601.800	390.000	606.300	601.700	411.000	606.200	601.600	423.000	606.200	601.600
BT	434.000	606.100	601.500	438.000	606.100	601.500	453.000	606.100	601.500	474.000
BT	605.900	601.400	495.000	605.900	601.300	514.000	605.800	601.300	518.000	605.800
BT	601.300	537.000	605.700	601.200	558.000	605.600	601.000	579.000	605.500	600.900
BT	598.000	605.400	600.900	602.000	605.400	600.900	621.000	605.300	600.900	642.000
BT	605.200	600.800	663.000	605.100	600.700	682.000	605.100	600.600	686.000	605.100
BT	600.600	705.000	605.000	600.500	726.000	604.900	600.400	747.000	604.800	600.400
BT	766.000	604.700	600.300	770.000	604.700	600.300	789.000	604.600	600.200	810.000
BT	604.600	600.100	831.000	604.500	600.000	850.000	604.400	600.000	854.000	604.400
BT	600.000	876.000	604.300	599.900	886.000	604.300	599.800	916.000	604.200	599.700
BT	920.000	604.100	599.700	1000.000	603.100	-0.000	1100.000	603.100	-0.000	1200.000
BT	603.200	-0.000	1300.000	603.600	-0.000	1400.000	604.200	-0.000	1500.000	605.000
BT	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	607.700	0.000	606.700	100.000	606.000	200.000	606.600	280.000	599.200	280.000
GR	598.400	284.000	595.100	295.000	594.200	314.000	592.600	346.000	601.900	346.000
GR	601.900	350.000	592.000	350.000	590.000	369.000	588.200	390.000	585.900	411.000
GR	580.800	423.000	577.600	434.000	601.500	434.000	601.500	438.000	575.300	438.000
GR	574.700	453.000	575.100	474.000	576.400	495.000	574.900	514.000	601.300	514.000
GR	601.300	518.000	574.700	518.000	576.300	537.000	575.900	558.000	575.400	579.000
GR	573.800	598.000	600.900	598.000	600.900	602.000	574.000	602.000	575.800	621.000
GR	572.100	642.000	571.700	663.000	569.600	682.000	600.600	682.000	600.600	686.000
GR	568.700	686.000	571.500	705.000	571.600	726.000	572.000	747.000	570.300	766.000
GR	600.300	766.000	600.300	770.000	570.700	770.000	572.200	789.000	572.300	810.000
GR	572.400	831.000	574.900	850.000	600.000	850.000	600.000	854.000	576.200	854.000
GR	580.800	876.000	581.700	886.000	592.100	916.000	592.300	920.000	604.100	920.000
GR	603.100	1000.000	603.100	1100.000	603.200	1200.000	603.600	1300.000	604.200	1400.000
GR	605.000	1500.000	606.100	1600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.119	-0.000	-0.000	-0.000	48.000	48.000	48.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.036	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.120	53.000	280.000	920.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	607.700	0.000	606.700	100.000	606.000	200.000	606.600	280.000	599.200	280.000
GR	598.400	284.000	595.100	295.000	594.200	314.000	592.600	346.000	592.000	350.000
GR	590.000	369.000	588.200	390.000	585.900	411.000	580.800	423.000	577.600	434.000
GR	575.300	438.000	574.700	453.000	575.100	474.000	576.400	495.000	574.900	514.000
GR	574.700	518.000	576.300	537.000	575.900	558.000	575.400	579.000	573.800	598.000
GR	574.000	602.000	575.800	621.000	572.100	642.000	571.700	663.000	569.600	682.000
GR	568.700	686.000	571.500	705.000	571.600	726.000	572.000	747.000	570.300	766.000
GR	570.700	770.000	572.200	789.000	572.300	810.000	572.400	831.000	574.900	850.000
GR	576.200	854.000	580.800	876.000	581.700	886.000	592.100	916.000	592.300	920.000
GR	604.100	920.000	603.100	1000.000	603.100	1100.000	603.200	1200.000	603.600	1300.000
GR	604.200	1400.000	605.000	1500.000	606.100	1600.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.075	500.000	.036	992.000	.100	1044.000	.085	1491.000	-0.000
X1	6.171	45.000	500.000	992.000	350.000	200.000	275.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	150.000	-0.000	1150.000	-0.000	-0.000	-0.000	-0.000
GR	600.000	0.000	590.000	50.000	585.000	100.000	583.500	200.000	582.500	300.000
GR	582.800	350.000	583.000	400.000	583.200	450.000	583.400	500.000	576.700	512.000
GR	574.900	518.000	572.000	528.000	568.900	538.000	570.300	548.000	570.800	558.000
GR	572.000	578.000	572.900	598.000	572.800	618.000	572.900	638.000	573.200	658.000
GR	573.500	678.000	573.900	698.000	574.100	718.000	574.200	738.000	574.500	758.000
GR	574.800	778.000	574.800	798.000	575.000	818.000	575.200	838.000	575.500	858.000
GR	575.800	878.000	575.400	898.000	574.600	918.000	578.600	938.000	580.000	941.000
GR	580.200	958.000	585.700	992.000	586.500	1004.000	585.500	1044.000	584.900	1144.000
GR	586.100	1244.000	586.300	1292.000	586.500	1344.000	591.000	1444.000	600.000	1491.000
NH	4.000	.125	200.000	.036	650.000	.100	702.000	.085	1149.000	-0.000

X3	10.000	-0.000	-0.000	100.000	-0.000	1000.000	-0.000	-0.000	-0.000	-0.000
GR	600.000	0.000	586.500	35.000	583.500	65.000	583.200	100.000	583.000	125.000
GR	583.100	150.000	583.300	175.000	583.400	200.000	578.200	206.000	574.500	221.000
GR	572.900	246.000	571.800	270.000	569.400	295.000	569.500	320.000	570.800	344.000
GR	571.100	369.000	571.200	394.000	571.000	418.000	571.100	443.000	570.500	468.000
GR	570.600	492.000	570.600	517.000	571.400	542.000	573.600	566.000	575.400	591.000
GR	576.200	616.000	578.500	640.000	579.600	648.000	581.900	649.000	585.700	650.000
GR	586.500	662.000	585.500	702.000	584.900	802.000	586.100	902.000	586.300	950.000
GR	586.500	1002.000	591.000	1102.000	600.000	1149.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.125	29.000	.036	373.000	.100	426.000	.075	1160.000	-0.000
X1	6.562	35.000	29.000	373.000	1740.000	1740.000	1740.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	448.000	-0.000	-0.000	-0.000	-0.000
GR	608.400	0.000	583.400	29.000	579.700	34.000	576.000	46.000	574.400	66.000
GR	573.300	86.000	570.900	106.000	571.000	126.000	572.300	146.000	572.600	166.000
GR	572.700	186.000	572.500	206.000	572.600	226.000	572.000	246.000	572.100	266.000
GR	572.100	286.000	572.900	306.000	575.100	326.000	576.900	346.000	577.700	356.000
GR	580.000	366.000	581.100	372.000	583.400	373.000	585.700	374.000	586.500	386.000
GR	585.500	426.000	585.400	448.000	584.900	526.000	586.100	626.000	586.500	726.000
GR	586.900	826.000	587.200	926.000	587.800	1026.000	590.800	1126.000	603.100	1160.000
NC	.080	.080	.037	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.694	39.000	820.000	1212.000	800.000	500.000	700.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	607.700	0.000	607.100	100.000	606.500	200.000	605.800	300.000	605.100	400.000
GR	604.600	500.000	604.200	600.000	603.900	700.000	603.800	800.000	595.800	820.000
GR	581.400	866.000	579.700	872.000	574.800	901.000	572.000	934.000	570.900	967.000
GR	569.800	995.700	565.800	1004.300	564.900	1025.000	569.700	1050.000	573.300	1075.000
GR	574.000	1098.000	573.500	1104.000	574.600	1124.000	573.900	1147.000	577.100	1170.000
GR	580.300	1178.000	582.400	1183.000	582.100	1191.500	585.100	1200.000	586.600	1203.000
GR	604.100	1212.000	603.500	1300.000	603.400	1400.000	603.500	1500.000	603.700	1600.000
GR	603.600	1700.000	603.400	1800.000	602.900	1900.000	602.000	2000.000	-0.000	-0.000
X1	6.695	49.000	820.000	1212.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
BT	41.000	0.000	607.700	0.000	100.000	607.100	0.000	200.000	606.500	0.000
BT	300.000	605.800	0.000	400.000	605.100	0.000	500.000	604.600	0.000	600.000
BT	604.200	0.000	700.000	603.900	0.000	800.000	603.800	0.000	820.000	603.800
BT	0.000	820.000	604.600	601.100	866.000	604.600	601.100	872.000	604.500	600.700
BT	901.000	604.500	600.700	934.000	604.500	600.700	967.000	604.500	600.700	995.700
BT	604.500	600.700	1004.300	604.500	600.000	1025.000	604.500	600.000	1050.000	604.400
BT	599.900	1075.000	604.500	600.000	1098.000	604.500	600.000	1104.000	604.600	599.600
BT	1124.000	604.600	599.700	1147.000	604.600	599.700	1170.000	604.500	599.600	1170.000
BT	604.500	589.800	1183.000	604.500	589.800	1191.500	604.500	589.800	1200.000	604.500
BT	589.800	1203.000	604.500	0.000	1212.000	604.500	0.000	1212.000	604.100	0.000
BT	1300.000	603.500	0.000	1400.000	603.400	0.000	1500.000	603.500	0.000	1600.000
BT	603.700	0.000	1700.000	603.600	0.000	1800.000	603.400	0.000	1900.000	602.900
BT	0.000	2000.000	602.000	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	607.700	0.000	607.100	100.000	606.500	200.000	605.800	300.000	605.100	400.000
GR	604.600	500.000	604.200	600.000	603.900	700.000	603.800	800.000	601.900	806.000
GR	601.900	820.000	595.800	820.000	581.400	866.000	601.100	866.000	600.700	872.000
GR	579.700	872.000	574.800	901.000	572.000	934.000	570.900	967.000	569.800	995.700
GR	600.700	995.700	600.000	1004.300	565.800	1004.300	564.900	1025.000	569.700	1050.000
GR	573.300	1075.000	574.000	1098.000	600.000	1098.000	599.600	1104.000	573.500	1104.000
GR	574.600	1124.000	573.900	1147.000	577.100	1170.000	589.800	1170.000	589.800	1183.000
GR	582.400	1183.000	582.100	1191.500	585.100	1200.000	589.800	1200.000	589.800	1203.000
GR	604.100	1212.000	603.500	1300.000	603.400	1400.000	603.500	1500.000	603.700	1600.000
GR	603.600	1700.000	603.400	1800.000	602.900	1900.000	602.000	2000.000	-0.000	-0.000
X1	6.702	-0.000	-0.000	-0.000	40.000	40.000	40.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.703	39.000	820.000	1212.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

GR	604.600	500.000	604.200	600.000	603.900	700.000	603.800	800.000	595.800	820.000
GR	581.400	866.000	579.700	872.000	574.800	901.000	572.000	934.000	570.900	967.000
GR	569.800	995.700	565.800	1004.300	564.900	1025.000	569.700	1050.000	573.300	1075.000
GR	574.000	1098.000	573.500	1104.000	574.600	1124.000	573.900	1147.000	577.100	1170.000
GR	580.300	1178.000	582.400	1183.000	582.100	1191.500	585.100	1200.000	586.600	1203.000
GR	604.100	1212.000	603.500	1300.000	603.400	1400.000	603.500	1500.000	603.700	1600.000
GR	603.600	1700.000	603.400	1800.000	602.900	1900.000	602.000	2000.000	-0.000	-0.000
NC	.125	.110	.037	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.740	54.000	1051.000	1448.000	200.000	150.000	200.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	900.000	-0.000	1650.000	-0.000	-0.000	-0.000	-0.000
GR	587.000	0.000	587.400	200.000	585.600	300.000	586.700	400.000	588.800	500.000
GR	589.300	600.000	588.200	700.000	588.500	800.000	589.500	900.000	589.300	951.000
GR	589.100	1000.000	589.600	1020.000	588.100	1051.000	576.300	1054.000	568.000	1058.000
GR	569.400	1074.000	567.300	1080.000	565.900	1096.000	565.700	1112.000	566.100	1128.000
GR	565.700	1144.000	566.000	1160.000	566.200	1170.000	566.300	1192.000	566.600	1208.000
GR	566.900	1224.000	567.200	1240.000	567.300	1256.000	567.500	1272.000	567.700	1288.000
GR	568.100	1304.000	568.500	1320.000	569.200	1336.000	570.100	1352.000	569.400	1368.000
GR	571.000	1384.000	571.300	1400.000	573.600	1416.000	574.100	1434.000	586.600	1448.000
GR	587.400	1508.000	588.600	1608.000	588.200	1648.000	587.700	1708.000	587.700	1808.000
GR	586.200	1908.000	587.200	2008.000	588.000	2108.000	587.400	2208.000	586.300	2308.000
GR	586.100	2408.000	585.900	2508.000	585.900	2748.000	585.900	2773.000	-0.000	-0.000
QT	4.000	17430.000	21470.000	23150.000	27130.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.125	2200.000	.110	3800.000	.125	3845.000	.036	4334.000	.125
NH	6454.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6.896	73.000	3845.000	4334.000	850.000	800.000	825.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	2550.000	-0.000	4834.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	585.100	200.000	585.700	400.000	585.200	600.000	586.000	800.000
GR	585.600	1000.000	586.000	1200.000	586.600	1400.000	586.500	1600.000	586.500	1800.000
GR	586.400	2000.000	585.800	2200.000	585.800	2270.000	585.800	2400.000	585.800	2600.000
GR	585.800	2800.000	585.800	3000.000	585.800	3200.000	586.000	3400.000	588.200	3600.000
GR	588.700	3770.000	588.500	3800.000	588.200	3845.000	584.100	3849.000	571.000	3854.000
GR	572.700	3874.000	570.600	3894.000	569.200	3914.000	569.000	3934.000	569.400	3954.000
GR	569.000	3974.000	569.300	3994.000	569.500	4014.000	569.600	4034.000	569.900	4054.000
GR	570.200	4074.000	570.500	4094.000	570.600	4114.000	570.800	4134.000	571.000	4154.000
GR	571.400	4174.000	571.800	4194.000	572.500	4214.000	573.400	4234.000	572.700	4254.000
GR	574.300	4274.000	574.600	4279.000	581.400	4283.000	581.900	4294.000	588.900	4334.000
GR	587.100	4479.000	588.200	4609.000	588.200	4629.000	585.500	4659.000	585.200	4679.000
GR	585.200	4699.000	585.200	4899.000	585.600	4959.000	587.200	5099.000	587.900	5299.000
GR	587.900	5479.000	586.800	5484.000	586.800	5499.000	597.400	5539.000	597.400	5584.000
GR	587.800	5634.000	588.000	5699.000	588.000	5899.000	587.000	5999.000	586.200	6099.000
GR	586.200	6299.000	586.200	6369.000	610.000	6454.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.125	2330.000	.110	3481.000	.036	3970.000	.075	5230.000	.125
NH	6755.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	7.052	73.000	3481.000	3970.000	750.000	1050.000	825.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1550.000	-0.000	5320.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	601.700	35.000	601.500	50.000	592.600	130.000	584.700	330.000
GR	585.000	530.000	585.000	730.000	585.000	930.000	585.500	1130.000	586.700	1330.000
GR	586.500	1530.000	585.500	1730.000	585.800	1930.000	586.900	2130.000	587.000	2330.000
GR	587.000	2530.000	587.400	2630.000	585.600	2730.000	586.700	2830.000	588.800	2930.000
GR	589.300	3030.000	588.200	3130.000	588.500	3230.000	589.500	3330.000	589.100	3430.000
GR	589.600	3450.000	588.100	3481.000	574.400	3490.000	575.800	3510.000	573.700	3530.000
GR	572.600	3650.000	572.700	3670.000	573.000	3690.000	573.300	3710.000	573.600	3730.000
GR	573.700	3750.000	573.900	3770.000	574.100	3790.000	574.500	3810.000	574.900	3830.000
GR	575.600	3850.000	576.500	3870.000	575.800	3890.000	577.400	3910.000	577.700	3915.000
GR	580.000	3919.000	580.500	3930.000	586.600	3970.000	587.400	4030.000	588.600	4130.000
GR	587.700	4230.000	587.700	4330.000	586.200	4430.000	587.200	4530.000	588.000	4630.000
GR	587.400	4730.000	587.000	4770.000	586.300	4830.000	586.100	4930.000	585.900	5030.000
GR	585.900	5230.000	585.800	5430.000	585.800	5630.000	586.100	5830.000	585.700	5845.000
GR	585.600	5940.000	585.600	6030.000	585.500	6160.000	585.300	6230.000	585.400	6430.000
GR	585.400	6485.000	591.800	6630.000	610.000	6755.000	-0.000	-0.000	-0.000	-0.000
NH	6.000	.075	1730.000	.125	2630.000	.850	3481.000	.036	3970.000	.075
NH	5430.000	.125	6755.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

X1	7.207	78.000	3481.000	3970.000	800.000	900.000	818.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1900.000	-0.000	5470.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	601.700	35.000	601.500	50.000	592.600	130.000	584.700	330.000
GR	585.000	530.000	585.000	730.000	585.000	930.000	585.500	1130.000	586.700	1330.000
GR	586.500	1530.000	585.500	1730.000	585.800	1930.000	586.900	2130.000	587.000	2330.000
GR	587.000	2530.000	587.400	2630.000	585.600	2730.000	586.700	2830.000	588.800	2930.000
GR	589.300	3030.000	588.200	3130.000	588.500	3230.000	589.500	3330.000	589.100	3430.000
GR	589.600	3450.000	588.100	3481.000	578.400	3490.000	578.000	3510.000	577.700	3530.000
GR	576.200	3550.000	576.100	3570.000	576.500	3590.000	576.100	3610.000	576.400	3630.000
GR	576.600	3650.000	576.700	3670.000	577.000	3690.000	577.200	3710.000	577.600	3730.000
GR	577.700	3750.000	577.900	3770.000	578.100	3790.000	578.500	3810.000	578.900	3830.000
GR	579.600	3850.000	580.500	3870.000	579.800	3890.000	581.400	3910.000	581.700	3915.000
GR	584.000	3919.000	584.500	3930.000	586.600	3970.000	587.400	4030.000	588.600	4130.000
GR	587.700	4230.000	587.700	4330.000	586.200	4430.000	587.200	4530.000	588.000	4630.000
GR	587.400	4730.000	587.000	4770.000	586.300	4830.000	586.100	4930.000	585.900	5030.000
GR	585.900	5230.000	585.800	5430.000	585.800	5630.000	586.100	5830.000	585.700	5845.000
GR	585.600	5940.000	585.600	6030.000	585.500	6160.000	585.300	6230.000	585.400	6430.000
GR	585.400	6485.000	591.800	6630.000	610.000	6755.000	-0.000	-0.000	-0.000	-0.000
NC	.125	.125	.035	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	7.801	42.000	1077.000	1393.000	3150.000	3100.000	3135.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	250.000	-0.000	1743.000	-0.000	-0.000	-0.000	-0.000
GR	594.700	0.000	594.100	100.000	588.700	200.000	588.400	300.000	587.800	400.000
GR	588.400	500.000	587.800	600.000	588.600	700.000	587.000	800.000	590.100	892.000
GR	589.000	930.000	585.800	956.000	584.600	1000.000	586.500	1077.000	582.000	1080.000
GR	579.000	1090.000	576.200	1100.000	576.600	1120.000	575.300	1140.000	575.500	1160.000
GR	575.100	1180.000	574.300	1200.000	574.400	1220.000	575.000	1240.000	575.100	1260.000
GR	574.600	1280.000	574.200	1300.000	573.900	1320.000	574.200	1340.000	575.300	1360.000
GR	580.800	1380.000	582.200	1389.000	589.500	1393.000	589.500	1496.000	591.100	1525.000
GR	589.600	1600.000	588.000	1700.000	589.200	1860.000	591.300	1900.000	593.300	2000.000
GR	596.400	2072.000	605.200	2100.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.100	1198.000	.125	1345.000	.034	1661.000	.125	1812.000	-0.000
X1	7.934	45.000	1345.000	1661.000	550.000	700.000	700.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	646.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	599.700	30.000	596.000	200.000	593.200	400.000	591.800	440.000
GR	588.900	480.000	588.900	600.000	587.800	800.000	588.600	1050.000	589.300	1135.000
GR	587.200	1140.000	589.600	1150.000	589.900	1160.000	589.000	1198.000	585.800	1224.000
GR	584.600	1268.000	586.500	1345.000	581.900	1348.000	578.900	1358.000	576.100	1368.000
GR	576.500	1388.000	575.200	1408.000	575.400	1428.000	575.000	1448.000	574.200	1468.000
GR	574.300	1488.000	574.900	1508.000	575.000	1528.000	574.500	1548.000	574.100	1568.000
GR	573.800	1588.000	574.100	1608.000	575.200	1628.000	580.700	1648.000	582.100	1657.000
GR	589.500	1661.000	589.500	1680.000	591.100	1689.000	589.600	1705.000	588.000	1726.000
GR	589.200	1760.000	591.300	1768.000	593.300	1776.000	596.400	1797.000	605.200	1812.000
NH	4.000	.025	964.000	.125	1085.000	.034	1401.000	.125	1552.000	-0.000
X1	7.945	42.000	1085.000	1401.000	60.000	60.000	60.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	386.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	601.700	0.000	598.000	100.000	595.250	200.000	592.500	300.000	591.000	400.000
GR	590.250	500.000	589.900	600.000	589.750	700.000	589.950	800.000	589.800	900.000
GR	589.000	938.000	585.800	964.000	584.600	1008.000	586.500	1085.000	581.900	1088.000
GR	578.900	1098.000	576.100	1108.000	576.500	1128.000	575.200	1148.000	575.400	1168.000
GR	575.000	1188.000	574.200	1208.000	574.300	1228.000	574.900	1248.000	575.000	1268.000
GR	574.500	1288.000	574.100	1308.000	573.800	1328.000	574.100	1348.000	575.200	1368.000
GR	580.700	1388.000	582.100	1397.000	589.500	1401.000	589.500	1423.000	591.100	1429.000
GR	589.600	1445.000	588.000	1466.000	589.200	1500.000	591.300	1508.000	593.300	1516.000
GR	596.400	1537.000	605.200	1552.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.125	.125	.034	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	7.956	45.000	1345.000	1661.000	60.000	60.000	60.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	646.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	599.700	30.000	596.000	200.000	593.200	400.000	591.800	440.000
GR	588.900	480.000	588.900	600.000	587.800	800.000	588.600	1050.000	589.300	1135.000
GR	587.200	1140.000	589.600	1150.000	589.900	1160.000	589.000	1198.000	585.800	1224.000
GR	584.600	1268.000	586.500	1345.000	581.900	1348.000	578.900	1358.000	576.100	1368.000

GR	574.300	1488.000	574.900	1508.000	575.000	1528.000	574.500	1548.000	574.100	1568.000
GR	573.800	1588.000	574.100	1608.000	575.200	1628.000	580.700	1648.000	582.100	1657.000
GR	589.500	1661.000	589.500	1683.000	591.100	1689.000	589.600	1705.000	588.000	1726.000
GR	589.200	1760.000	591.300	1768.000	593.300	1776.000	596.400	1797.000	605.200	1812.000
NH	5.000	.125	440.000	.075	840.000	.125	1325.000	.034	1659.000	.125
NH	1702.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	8.241	39.000	1325.000	1659.000	1400.000	1650.000	1500.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	589.000	60.000	589.000	110.000	590.200	140.000	591.400	190.000
GR	589.400	240.000	590.000	440.000	588.000	640.000	589.300	840.000	589.700	1040.000
GR	589.600	1060.000	589.600	1080.000	587.700	1085.000	589.600	1090.000	589.600	1325.000
GR	586.900	1337.000	583.800	1338.000	582.300	1345.000	578.300	1355.000	575.300	1365.000
GR	575.600	1385.000	574.500	1405.000	574.600	1425.000	574.300	1445.000	574.100	1465.000
GR	574.900	1485.000	574.900	1505.000	575.000	1525.000	574.400	1545.000	573.700	1557.000
GR	574.600	1585.000	575.600	1605.000	576.900	1625.000	579.400	1645.000	580.500	1657.000
GR	585.000	1659.000	586.300	1660.000	587.200	1665.000	612.200	1702.000	-0.000	-0.000
NH	5.000	.125	110.000	.075	1712.000	.085	1890.000	.034	2225.000	.125
NH	2267.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	8.345	42.000	1890.000	2225.000	500.000	550.000	550.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	589.700	75.000	589.500	95.000	589.000	105.000	589.600	110.000
GR	589.000	305.000	589.600	505.000	591.600	705.000	591.800	905.000	592.000	1030.000
GR	592.100	1130.000	591.900	1230.000	590.600	1330.000	589.100	1430.000	589.400	1530.000
GR	588.600	1630.000	590.100	1712.000	589.000	1830.000	588.800	1890.000	586.900	1902.000
GR	583.800	1903.000	582.300	1910.000	578.300	1920.000	575.300	1930.000	575.600	1950.000
GR	574.500	1970.000	574.600	1990.000	574.300	2010.000	574.100	2030.000	574.900	2050.000
GR	574.900	2070.000	575.000	2090.000	574.400	2110.000	573.700	2130.000	574.600	2150.000
GR	575.600	2170.000	576.900	2190.000	579.400	2210.000	580.500	2222.000	586.300	2225.000
GR	587.200	2230.000	612.200	2267.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	6.000	.125	110.000	.075	1905.000	.085	2254.000	.125	2255.000	.033
NH	2485.000	.125	2527.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	8.552	42.000	2285.000	2485.000	400.000	1095.000	1095.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	589.700	75.000	589.500	95.000	589.000	105.000	589.600	110.000
GR	589.000	305.000	589.600	505.000	591.600	705.000	593.400	905.000	591.800	1105.000
GR	590.000	1205.000	590.800	1305.000	591.400	1345.000	590.200	1465.000	591.000	1505.000
GR	589.600	1705.000	588.900	1905.000	590.100	1970.000	590.400	2005.000	589.300	2105.000
GR	590.200	2254.000	587.800	2255.000	587.800	2285.000	586.800	2292.000	587.300	2300.000
GR	574.400	2311.000	574.500	2322.000	574.200	2333.000	574.000	2344.000	574.800	2355.000
GR	574.800	2370.000	574.900	2385.000	574.300	2400.000	573.600	2415.000	574.500	2425.000
GR	575.500	2441.000	576.800	2452.000	579.300	2465.000	580.400	2482.000	586.300	2485.000
GR	587.200	2490.000	612.200	2527.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
QT	4.000	17260.000	21340.000	23040.000	27030.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.125	660.000	.085	1258.000	.033	1625.000	.110	2625.000	-0.000
X1	8.948	51.000	1258.000	1625.000	550.000	2300.000	2090.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	200.000	-0.000	2225.000	-0.000	-0.000	-0.000	-0.000
GR	604.300	0.000	596.000	25.000	592.200	60.000	590.600	92.000	589.100	160.000
GR	589.600	260.000	588.300	360.000	589.600	460.000	590.800	560.000	591.200	660.000
GR	591.000	760.000	591.700	860.000	591.700	960.000	591.800	1025.000	592.500	1125.000
GR	592.400	1158.000	592.200	1225.000	591.600	1258.000	578.000	1270.000	574.900	1285.000
GR	575.800	1305.000	573.400	1325.000	573.900	1345.000	574.400	1365.000	576.200	1385.000
GR	576.800	1405.000	577.600	1425.000	578.200	1445.000	578.600	1465.000	578.800	1485.000
GR	579.000	1505.000	579.200	1525.000	579.200	1545.000	579.300	1565.000	579.400	1585.000
GR	581.300	1605.000	581.600	1615.000	583.900	1622.000	589.300	1625.000	588.800	1725.000
GR	587.600	1825.000	587.300	1925.000	587.000	2012.000	584.500	2051.000	587.000	2084.000
GR	585.800	2125.000	591.100	2225.000	588.000	2325.000	589.800	2425.000	587.700	2525.000
GR	587.000	2625.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.125	349.000	.033	753.000	.075	2041.000	.125	2293.000	-0.000
X1	9.405	49.000	349.000	753.000	2900.000	1900.000	2415.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000

GR	581.300	361.000	576.800	381.000	576.200	401.000	576.600	421.000	578.400	441.000
GR	578.400	461.000	578.500	481.000	577.700	501.000	577.100	521.000	577.600	541.000
GR	577.000	561.000	577.000	581.000	577.000	601.000	577.200	621.000	577.800	641.000
GR	577.900	661.000	578.100	681.000	578.700	701.000	579.800	721.000	581.300	741.000
GR	583.600	753.000	590.900	777.000	591.200	789.000	591.400	812.000	590.600	841.000
GR	592.200	941.000	590.400	1041.000	590.200	1141.000	590.800	1241.000	590.900	1341.000
GR	590.200	1441.000	593.700	1541.000	594.500	1641.000	594.400	1741.000	594.600	1841.000
GR	593.600	1941.000	593.200	2041.000	592.800	2072.000	592.200	2089.000	592.400	2141.000
GR	592.400	2165.000	593.900	2165.000	600.300	2237.000	621.000	2293.000	-0.000	-0.000
NH	4.000	.075	785.000	.125	805.000	.033	1149.000	.125	1149.000	-0.000
X1	9.802	29.000	805.000	1149.000	2050.000	1750.000	2095.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	234.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	601.500	0.000	598.000	100.000	595.000	200.000	590.500	300.000	592.600	400.000
GR	592.700	500.000	591.500	600.000	588.600	700.000	590.600	785.000	591.100	805.000
GR	583.900	808.000	581.400	824.000	579.800	840.000	578.700	860.000	578.600	880.000
GR	577.900	900.000	577.000	920.000	576.100	940.000	575.400	960.000	574.400	980.000
GR	573.000	1000.000	573.600	1020.000	575.700	1040.000	577.000	1060.000	578.500	1080.000
GR	581.800	1100.000	583.100	1103.000	593.300	1120.000	615.800	1149.000	-0.000	-0.000
NC	.125	.125	.033	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	10.354	29.000	395.000	700.000	2300.000	2915.000	2915.000	-0.000	-0.000	-0.000
GR	599.700	0.000	588.300	30.000	587.400	68.000	588.900	168.000	590.700	268.000
GR	591.100	368.000	590.400	388.000	582.000	395.000	580.100	408.000	578.200	428.000
GR	577.400	448.000	576.600	468.000	576.100	488.000	575.600	508.000	575.500	528.000
GR	575.200	548.000	574.600	568.000	574.200	588.000	573.900	608.000	573.500	628.000
GR	573.100	648.000	574.700	658.000	576.000	668.000	577.900	678.000	580.000	687.000
GR	582.700	700.000	594.100	715.000	599.700	731.000	610.400	754.000	-0.000	-0.000
NH	4.000	.125	81.000	.033	464.000	.125	574.000	.075	2554.000	-0.000
X1	10.877	44.000	81.000	464.000	2800.000	3100.000	2760.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	1174.000	-0.000	-0.000	-0.000	-0.000
GR	612.400	0.000	593.800	26.000	590.700	78.000	583.300	81.000	581.200	94.000
GR	577.400	114.000	576.400	134.000	576.000	154.000	576.200	174.000	576.900	194.000
GR	577.400	214.000	578.400	234.000	579.400	254.000	580.200	274.000	580.200	294.000
GR	579.700	314.000	579.800	334.000	579.700	354.000	579.800	374.000	580.500	394.000
GR	581.000	414.000	581.300	434.000	584.100	464.000	586.200	466.000	591.800	484.000
GR	591.400	574.000	592.000	674.000	591.500	774.000	592.600	874.000	593.300	974.000
GR	594.700	1016.000	596.400	1074.000	597.800	1174.000	595.700	1374.000	597.700	1574.000
GR	598.800	1774.000	599.900	1944.000	599.900	1954.000	599.800	1974.000	600.600	2174.000
GR	600.200	2374.000	600.800	2494.000	605.600	2534.000	610.000	2554.000	-0.000	-0.000
NH	4.000	.125	50.000	.033	420.000	.125	600.000	.075	2660.000	-0.000
X1	11.066	47.000	50.000	420.000	1050.000	750.000	1000.000	-0.000	-0.000	-0.000
GR	610.000	0.000	596.000	40.000	595.800	50.000	583.300	75.000	580.900	79.000
GR	580.900	98.000	580.600	117.000	579.400	136.000	578.700	155.000	577.900	174.000
GR	577.300	193.000	576.600	212.000	576.900	231.000	576.500	250.000	577.100	269.000
GR	577.900	288.000	577.800	307.000	578.200	326.000	578.800	345.000	579.800	364.000
GR	580.500	383.000	581.200	402.000	581.500	407.000	583.700	418.000	590.600	420.000
GR	588.800	600.000	588.800	790.000	592.100	800.000	593.600	880.000	592.400	940.000
GR	589.800	1000.000	591.500	1100.000	590.200	1160.000	589.300	1200.000	587.600	1240.000
GR	600.100	1370.000	600.600	1400.000	600.600	1435.000	596.600	1580.000	596.500	1600.000
GR	597.600	1800.000	598.400	2000.000	600.300	2200.000	601.500	2400.000	602.600	2580.000
GR	604.600	2600.000	610.000	2660.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.125	186.000	.033	592.000	.100	792.000	.075	2762.000	-0.000
X1	11.326	44.000	186.000	592.000	1370.000	900.000	1370.000	-0.000	-0.000	-0.000
GR	601.800	0.000	597.600	80.000	594.200	186.000	582.300	215.000	581.300	235.000
GR	581.000	255.000	579.800	275.000	579.100	295.000	578.300	315.000	577.700	335.000
GR	577.000	355.000	577.300	375.000	576.900	395.000	577.500	415.000	578.300	435.000
GR	578.200	455.000	578.600	475.000	579.200	495.000	580.200	515.000	580.900	535.000
GR	581.600	555.000	581.900	560.000	583.500	572.000	587.200	575.000	590.600	592.000
GR	589.800	792.000	589.000	832.000	591.600	992.000	594.800	1192.000	593.600	1247.000
GR	590.800	1312.000	591.500	1337.000	595.200	1392.000	597.600	1412.000	597.400	1592.000
GR	602.200	1792.000	603.200	1832.000	598.600	1992.000	598.800	2192.000	602.200	2392.000

NC	.125	.125	.033	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	11.636	40.000	1641.000	2047.000	1200.000	1350.000	1640.000	-0.000	-0.000	-0.000
GR	610.000	0.000	598.100	80.000	597.000	200.000	594.600	400.000	592.000	600.000
GR	591.000	650.000	590.800	750.000	590.700	850.000	591.100	950.000	591.000	1050.000
GR	591.100	1150.000	591.000	1250.000	591.700	1350.000	592.000	1450.000	592.900	1550.000
GR	594.200	1641.000	582.900	1670.000	581.900	1690.000	581.600	1710.000	580.400	1730.000
GR	579.700	1750.000	578.900	1770.000	578.300	1790.000	577.600	1810.000	577.900	1830.000
GR	577.500	1850.000	578.100	1870.000	578.900	1890.000	578.800	1910.000	579.200	1930.000
GR	579.800	1950.000	580.800	1970.000	581.500	1990.000	582.200	2010.000	582.500	2015.000
GR	584.100	2027.000	587.800	2030.000	593.400	2047.000	597.600	2100.000	601.800	2140.000
NH	5.000	.125	90.000	.033	466.000	.125	495.000	.075	1195.000	.100
NH	1906.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	12.081	40.000	90.000	466.000	2150.000	2800.000	2345.000	-0.000	-0.000	-0.000
GR	614.900	0.000	592.900	27.000	590.000	90.000	582.900	113.000	581.500	135.000
GR	581.200	155.000	581.100	175.000	581.000	195.000	580.800	215.000	580.400	235.000
GR	579.900	255.000	579.500	275.000	578.700	295.000	577.600	315.000	577.100	335.000
GR	576.900	355.000	576.700	375.000	577.200	395.000	577.200	415.000	577.900	435.000
GR	580.100	450.000	583.200	455.000	593.200	466.000	592.200	495.000	590.400	595.000
GR	592.100	695.000	591.400	795.000	591.900	895.000	591.700	995.000	591.100	1095.000
GR	590.100	1195.000	590.700	1295.000	590.500	1395.000	590.400	1495.000	589.800	1595.000
GR	589.200	1695.000	589.800	1725.000	598.800	1795.000	599.800	1862.000	624.500	1906.000
NH	6.000	.125	150.000	.075	950.000	.033	1380.000	.125	1720.000	.075
NH	3120.000	.100	3931.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	12.566	61.000	950.000	1380.000	2700.000	1.000	2565.000	-0.000	-0.000	-0.000
GR	610.000	0.000	598.000	50.000	593.500	150.000	593.000	230.000	592.700	250.000
GR	593.300	460.000	594.400	530.000	594.400	550.000	595.700	750.000	594.000	950.000
GR	587.100	959.000	584.300	969.000	582.200	979.000	578.500	999.000	577.600	1019.000
GR	576.000	1039.000	575.600	1059.000	576.400	1079.000	578.400	1099.000	579.100	1119.000
GR	579.700	1139.000	580.100	1159.000	580.300	1179.000	579.800	1199.000	580.000	1219.000
GR	580.300	1239.000	581.600	1259.000	581.600	1279.000	584.100	1291.000	586.300	1300.000
GR	589.700	1380.000	590.800	1420.000	587.900	1480.000	592.100	1520.000	593.100	1620.000
GR	593.000	1720.000	592.100	1820.000	592.600	1920.000	590.500	2020.000	589.800	2120.000
GR	589.700	2220.000	590.200	2320.000	594.500	2420.000	593.500	2520.000	592.700	2620.000
GR	592.700	2720.000	591.900	2820.000	592.100	2920.000	591.900	3020.000	591.700	3065.000
GR	591.100	3120.000	590.100	3220.000	590.700	3320.000	590.500	3420.000	590.400	3520.000
GR	589.800	3620.000	589.200	3720.000	589.800	3750.000	598.800	3820.000	599.800	3887.000
GR	624.500	3931.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	6.000	.075	1200.000	.125	1970.000	.085	5400.000	.125	5565.000	.033
NH	5847.000	.125	5915.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	13.193	58.000	5565.000	5847.000	750.000	2050.000	3310.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1100.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	599.100	80.000	598.000	200.000	595.600	400.000	593.000	600.000
GR	591.800	1200.000	591.500	1400.000	590.800	1600.000	591.300	1800.000	591.600	1970.000
GR	592.700	2000.000	593.000	2020.000	592.600	2035.000	592.700	2050.000	594.000	2200.000
GR	596.000	2400.000	594.000	2600.000	594.400	2800.000	594.300	3000.000	595.100	3130.000
GR	594.600	3200.000	594.000	3400.000	593.600	3600.000	594.200	3800.000	593.400	4000.000
GR	592.800	4200.000	591.600	4335.000	591.600	4400.000	591.700	4600.000	591.800	4735.000
GR	591.800	4800.000	591.700	5000.000	591.700	5200.000	591.700	5400.000	591.800	5530.000
GR	595.800	5565.000	588.400	5570.000	585.900	5579.000	584.900	5585.000	583.800	5605.000
GR	581.700	5625.000	581.100	5645.000	580.900	5665.000	580.400	5685.000	579.700	5705.000
GR	578.100	5725.000	576.300	5745.000	576.600	5765.000	575.900	5785.000	574.500	5805.000
GR	575.800	5815.000	580.000	5825.000	583.400	5835.000	586.500	5845.000	588.400	5847.000
GR	598.800	5854.000	598.700	5885.000	616.000	5915.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.075	3200.000	.125	4275.000	.033	4552.000	.125	4620.000	-0.000
X1	13.896	52.000	4275.000	4552.000	900.000	3710.000	3710.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1675.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	598.800	65.000	601.200	80.000	596.300	200.000	594.500	400.000
GR	595.000	500.000	592.700	600.000	592.700	800.000	592.700	940.000	593.600	950.000
GR	592.700	960.000	593.500	970.000	593.000	2040.000	593.000	2060.000	592.800	2600.000
GR	594.500	2800.000	594.000	3000.000	595.500	3200.000	596.800	3300.000	595.800	3320.000

GR	591.000	3870.000	590.100	3970.000	593.800	4070.000	590.900	4170.000	589.200	4270.000
GR	587.300	4275.000	584.800	4284.000	583.800	4290.000	582.700	4310.000	580.600	4330.000
GR	580.000	4350.000	579.800	4370.000	579.300	4390.000	578.600	4410.000	577.000	4430.000
GR	575.200	4450.000	575.500	4470.000	574.800	4490.000	573.400	4510.000	574.700	4520.000
GR	578.900	4530.000	582.300	4540.000	585.400	4550.000	587.300	4552.000	598.800	4559.000
GR	598.700	4590.000	616.000	4620.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.075	2500.000	.125	3200.000	.033	3498.000	.125	3700.000	-0.000
X1	14.368	49.000	3200.000	3498.000	1400.000	2495.000	2495.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1450.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	593.700	80.000	593.500	200.000	593.400	230.000	598.700	340.000
GR	599.200	400.000	601.200	600.000	602.700	800.000	600.600	1000.000	599.800	1080.000
GR	597.800	1090.000	599.700	1110.000	599.700	1145.000	598.000	1150.000	599.800	1160.000
GR	599.600	1200.000	603.600	1400.000	603.600	1450.000	598.500	1525.000	597.600	1600.000
GR	594.300	1765.000	592.100	1765.000	592.100	1800.000	592.100	2000.000	592.100	2200.000
GR	592.900	2300.000	592.600	2400.000	591.100	2500.000	592.900	2600.000	593.200	2700.000
GR	593.800	2800.000	593.900	2900.000	592.400	3000.000	589.500	3100.000	589.900	3200.000
GR	584.200	3231.000	582.000	3255.000	580.100	3305.000	579.000	3355.000	578.200	3370.000
GR	577.900	3410.000	574.900	3430.000	576.600	3460.000	579.800	3475.000	586.400	3492.000
GR	593.400	3498.000	594.600	3600.000	596.500	3687.000	606.500	3700.000	-0.000	-0.000
NH	5.000	.125	3514.000	.033	3776.000	.125	4520.000	.033	4665.000	.125
NH	4731.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	14.877	60.000	3514.000	3776.000	4000.000	1200.000	2685.000	-0.000	-0.000	-0.000
GR	610.000	0.000	601.300	80.000	596.800	145.000	593.900	215.000	594.300	265.000
GR	593.400	300.000	593.400	500.000	593.500	700.000	593.600	900.000	593.200	1100.000
GR	593.200	1300.000	593.600	1500.000	594.500	1700.000	593.900	1900.000	593.900	2050.000
GR	593.900	2100.000	594.900	2300.000	594.900	2500.000	594.300	2600.000	593.800	2700.000
GR	593.500	2800.000	592.400	2900.000	592.500	3000.000	592.900	3100.000	593.700	3200.000
GR	594.100	3300.000	593.700	3400.000	594.400	3514.000	588.200	3537.000	584.400	3542.000
GR	581.400	3550.000	577.600	3560.000	575.100	3580.000	576.700	3600.000	574.900	3620.000
GR	575.300	3640.000	576.100	3660.000	577.000	3680.000	581.500	3690.000	582.200	3700.000
GR	577.200	3720.000	575.000	3740.000	578.500	3750.000	582.500	3760.000	585.100	3767.000
GR	592.200	3776.000	591.900	3800.000	591.200	3900.000	591.100	4000.000	591.000	4100.000
GR	590.700	4206.000	589.500	4300.000	591.000	4370.000	587.700	4400.000	588.200	4500.000
GR	588.200	4520.000	585.600	4600.000	580.900	4665.000	584.900	4700.000	602.200	4731.000
NH	4.000	.075	3386.000	.125	3812.000	.034	4025.000	.125	4352.000	-0.000
X1	15.155	52.000	3812.000	4025.000	800.000	2300.000	1470.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	350.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	602.200	40.000	595.800	200.000	595.700	230.000	593.100	245.000
GR	595.600	260.000	594.600	400.000	594.800	600.000	594.800	800.000	595.600	960.000
GR	595.300	1000.000	595.600	1170.000	596.000	1200.000	596.000	1400.000	595.000	1600.000
GR	595.800	1800.000	595.400	2000.000	596.400	2200.000	595.700	2400.000	596.000	2600.000
GR	596.700	2690.000	596.800	2890.000	598.300	3030.000	595.500	3090.000	595.000	3290.000
GR	596.800	3340.000	591.400	3352.000	588.000	3386.000	589.300	3452.000	589.400	3552.000
GR	591.700	3652.000	588.400	3752.000	584.500	3777.000	584.700	3792.000	585.000	3812.000
GR	583.900	3832.000	582.900	3852.000	581.900	3872.000	580.400	3892.000	579.600	3912.000
GR	580.000	3932.000	580.400	3952.000	580.400	3972.000	580.900	3992.000	582.400	4008.000
GR	584.100	4014.000	594.300	4025.000	593.700	4052.000	592.100	4152.000	593.800	4252.000
GR	594.000	4333.000	601.500	4352.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	6.000	.125	1600.000	.075	2200.000	.125	2410.000	.036	2756.000	.075
NH	3516.000	.125	4316.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	15.717	53.000	2410.000	2756.000	1900.000	3100.000	2965.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	950.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	597.800	70.000	597.500	165.000	598.200	280.000	598.200	315.000
GR	594.000	370.000	594.000	400.000	594.000	600.000	594.000	800.000	595.800	1000.000
GR	596.000	1040.000	596.000	1200.000	595.000	1400.000	595.300	1500.000	595.400	1600.000
GR	595.400	1800.000	594.500	2000.000	594.800	2200.000	594.100	2380.000	592.300	2410.000
GR	586.700	2423.000	585.800	2436.000	585.700	2456.000	586.000	2476.000	584.800	2496.000
GR	583.800	2516.000	583.800	2536.000	584.200	2556.000	584.300	2576.000	584.400	2596.000
GR	584.400	2616.000	584.100	2636.000	584.200	2656.000	583.500	2676.000	581.900	2696.000
GR	581.500	2716.000	581.000	2736.000	583.000	2746.000	586.900	2752.000	596.800	2756.000
GR	596.100	2816.000	595.600	2916.000	595.500	3016.000	595.300	3116.000	594.700	3216.000

GR	593.000	4096.000	594.800	4116.000	610.000	4316.000	-0.000	-0.000	-0.000	-0.000
NC	.075	.075	.039	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	16.015	55.000	795.000	1185.000	1450.000	1900.000	1575.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	300.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	597.800	23.000	597.500	55.000	598.200	92.000	598.200	104.000
GR	594.000	122.000	594.000	132.000	594.000	198.000	594.000	264.000	595.800	330.000
GR	596.000	343.000	596.000	396.000	595.000	462.000	595.300	495.000	595.400	528.000
GR	595.400	594.000	594.500	660.000	594.800	726.000	594.100	785.000	592.800	795.000
GR	586.600	814.000	585.600	825.000	584.400	845.000	583.900	865.000	583.800	885.000
GR	583.000	905.000	583.100	925.000	582.600	945.000	582.100	965.000	583.000	985.000
GR	583.800	1005.000	584.000	1025.000	584.400	1045.000	584.200	1065.000	583.900	1085.000
GR	583.300	1105.000	582.200	1125.000	582.500	1145.000	584.000	1165.000	587.000	1174.000
GR	590.500	1177.000	597.000	1185.000	596.100	1231.000	595.600	1308.000	595.500	1385.000
GR	595.300	1462.000	594.700	1539.000	594.000	1616.000	593.400	1693.000	592.700	1770.000
GR	592.700	1924.000	592.900	2078.000	593.000	2216.000	594.800	2231.000	610.000	2385.000
NC	.125	.075	.038	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	16.290	36.000	27.000	417.000	1200.000	1450.000	1450.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	1722.000	-0.000	-0.000	-0.000	-0.000
GR	607.100	0.000	590.500	27.000	587.800	46.000	586.800	57.000	585.600	77.000
GR	585.100	97.000	585.000	117.000	584.200	137.000	584.300	157.000	583.800	177.000
GR	583.300	197.000	584.200	217.000	585.000	237.000	585.200	257.000	585.600	277.000
GR	585.400	297.000	585.100	317.000	584.500	337.000	583.400	357.000	583.700	377.000
GR	585.200	397.000	588.200	406.000	591.700	409.000	597.000	417.000	597.400	612.000
GR	596.600	812.000	593.000	967.000	593.400	1012.000	593.700	1067.000	594.000	1212.000
GR	595.100	1282.000	596.600	1412.000	597.200	1612.000	597.600	1812.000	598.000	1842.000
GR	610.000	1872.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.125	19.000	.038	300.000	.125	455.000	.075	2045.000	-0.000
X1	16.531	34.000	19.000	300.000	1275.000	700.000	1275.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	1895.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	588.200	19.000	585.500	33.000	584.500	41.000	583.300	55.000
GR	582.800	70.000	582.700	84.000	581.900	99.000	582.000	113.000	581.500	127.000
GR	581.000	142.000	581.900	156.000	582.700	170.000	582.900	185.000	583.300	200.000
GR	583.100	214.000	582.800	228.000	582.200	242.000	581.100	257.000	581.400	271.000
GR	582.900	285.000	585.900	292.000	589.200	294.000	597.400	300.000	597.500	455.000
GR	597.800	655.000	598.000	855.000	597.800	1055.000	596.900	1255.000	597.200	1455.000
GR	597.400	1655.000	597.600	1855.000	598.300	2015.000	610.000	2045.000	-0.000	-0.000
NH	5.000	.075	600.000	.125	1096.000	.038	1244.000	.125	1644.000	.075
NH	2384.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	16.788	47.000	1036.000	1244.000	1500.000	200.000	1355.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	2209.000	-0.000	-0.000	-0.000	-0.000
GR	597.300	0.000	596.000	100.000	595.700	200.000	596.400	300.000	597.800	400.000
GR	596.400	500.000	596.400	600.000	597.900	700.000	598.500	720.000	598.600	800.000
GR	598.700	900.000	598.700	925.000	598.300	1000.000	598.700	1036.000	585.800	1048.000
GR	583.100	1057.000	582.100	1062.000	580.900	1071.000	580.400	1096.000	580.300	1105.000
GR	579.500	1115.000	579.600	1124.000	579.100	1133.000	578.600	1143.000	579.500	1152.000
GR	580.300	1161.000	580.500	1171.000	580.900	1181.000	580.700	1190.000	580.400	1199.000
GR	579.800	1208.000	578.700	1216.000	579.000	1225.000	580.500	1234.000	583.500	1239.000
GR	586.800	1240.000	599.000	1244.000	597.000	1314.000	595.300	1344.000	599.600	1404.000
GR	598.300	1544.000	600.100	1644.000	598.600	1744.000	598.500	1944.000	598.600	2144.000
GR	598.400	2344.000	610.000	2384.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.075	1435.000	.125	1871.000	.038	2336.000	.100	2432.000	-0.000
X1	17.024	41.000	1871.000	2336.000	1150.000	500.000	1245.000	-0.000	-0.000	-0.000
GR	610.000	0.000	605.700	35.000	603.600	85.000	604.800	235.000	601.000	535.000
GR	597.300	835.000	596.000	935.000	595.700	1035.000	596.400	1135.000	597.800	1235.000
GR	596.400	1335.000	596.400	1435.000	597.900	1535.000	598.500	1555.000	594.000	1635.000
GR	591.800	1735.000	598.700	1760.000	598.300	1835.000	598.700	1871.000	593.200	1935.000
GR	589.800	1963.000	591.500	2035.000	590.000	2055.000	587.200	2075.000	585.400	2095.000
GR	584.900	2115.000	584.100	2135.000	583.000	2155.000	582.100	2175.000	581.000	2195.000
GR	577.700	2215.000	576.700	2235.000	576.400	2255.000	576.500	2275.000	580.500	2295.000
GR	584.100	2315.000	588.100	2326.000	591.600	2334.000	599.500	2336.000	599.900	2384.000

NH	4.000	.075	2635.000	.125	2976.000	.039	3231.000	.125	3251.000	-0.000
X1	17.514	43.000	2976.000	3231.000	1200.000	2590.000	2590.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1635.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	605.700	35.000	603.600	85.000	604.800	235.000	605.400	335.000
GR	600.400	435.000	600.400	635.000	600.200	835.000	600.400	1035.000	600.300	1235.000
GR	599.200	1335.000	599.200	1410.000	599.500	1435.000	601.300	1635.000	599.500	1835.000
GR	599.400	2035.000	598.600	2135.000	599.400	2235.000	599.300	2335.000	597.600	2435.000
GR	597.300	2535.000	598.500	2635.000	598.900	2735.000	599.300	2835.000	597.100	2935.000
GR	597.400	2976.000	594.600	2977.000	589.100	2979.000	584.100	2995.000	582.800	3015.000
GR	579.600	3035.000	577.600	3055.000	576.500	3075.000	578.400	3095.000	580.000	3115.000
GR	580.700	3135.000	582.400	3155.000	583.800	3175.000	588.900	3195.000	589.500	3203.000
GR	591.400	3215.000	593.200	3231.000	612.500	3251.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.075	2235.000	.125	2287.000	.039	2645.000	.125	2656.000	-0.000
X1	18.085	41.000	2287.000	2645.000	3000.000	3100.000	3015.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1300.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	596.600	35.000	596.600	85.000	596.600	235.000	595.900	435.000
GR	596.000	635.000	595.800	835.000	596.400	1035.000	597.000	1145.000	598.500	1235.000
GR	598.500	1435.000	599.400	1535.000	595.500	1635.000	594.200	1735.000	595.100	1835.000
GR	596.500	1935.000	597.500	2035.000	598.300	2135.000	600.500	2235.000	602.100	2287.000
GR	594.400	2305.000	592.500	2325.000	589.700	2336.000	589.400	2345.000	588.700	2365.000
GR	587.800	2375.000	586.600	2395.000	585.500	2415.000	585.400	2435.000	587.600	2455.000
GR	587.400	2475.000	586.100	2495.000	585.200	2515.000	583.700	2535.000	584.100	2555.000
GR	585.400	2575.000	586.200	2595.000	588.300	2615.000	589.700	2624.000	602.900	2645.000
GR	610.000	2656.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.075	1950.000	.125	2000.000	.038	2245.000	.125	2295.000	.075
NH	3890.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	18.585	51.000	2000.000	2245.000	1600.000	2900.000	2640.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	599.000	5.000	599.600	200.000	599.800	360.000	601.300	400.000
GR	601.400	420.000	599.000	600.000	601.800	800.000	603.800	980.000	603.700	1000.000
GR	601.500	1140.000	601.500	1160.000	599.800	1200.000	598.400	1330.000	599.600	1400.000
GR	605.000	1600.000	602.000	1800.000	598.900	1950.000	598.900	1980.000	600.000	2000.000
GR	593.100	2006.000	589.800	2009.000	586.100	2024.000	585.400	2037.000	585.600	2050.000
GR	584.700	2063.000	585.000	2076.000	585.200	2089.000	584.800	2102.000	585.000	2115.000
GR	586.000	2128.000	588.600	2141.000	588.100	2154.000	587.400	2167.000	587.100	2180.000
GR	587.000	2193.000	587.100	2206.000	587.900	2219.000	590.100	2232.000	590.000	2245.000
GR	600.200	2295.000	598.400	2495.000	600.300	2695.000	599.000	2895.000	598.900	3095.000
GR	599.200	3295.000	604.400	3395.000	602.800	3495.000	602.000	3695.000	600.800	3880.000
GR	610.000	3890.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.125	9.000	.038	245.000	.125	445.000	.075	2830.000	-0.000
X1	18.867	37.000	9.000	245.000	1500.000	400.000	1490.000	-0.000	-0.000	-0.000
GR	610.000	0.000	593.700	6.000	590.400	9.000	586.700	24.000	586.000	37.000
GR	586.200	50.000	585.300	63.000	585.600	76.000	585.800	89.000	585.400	102.000
GR	585.600	115.000	586.800	128.000	589.200	141.000	588.700	154.000	588.000	167.000
GR	587.700	180.000	587.600	193.000	587.500	206.000	588.500	219.000	590.700	232.000
GR	593.300	245.000	599.200	335.000	599.200	445.000	600.000	645.000	600.000	845.000
GR	600.000	1045.000	600.800	1245.000	600.200	1445.000	598.700	1645.000	598.500	1695.000
GR	600.400	1845.000	600.000	2045.000	601.300	2245.000	606.200	2445.000	602.400	2645.000
GR	600.800	2835.000	610.000	2845.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	5.000	.125	300.000	.075	1004.000	.038	1470.000	.125	1500.000	.075
NH	2830.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	19.222	45.000	1004.000	1470.000	2000.000	600.000	1870.000	-0.000	-0.000	-0.000
GR	597.600	0.000	596.900	100.000	596.500	200.000	595.100	300.000	595.900	400.000
GR	598.100	500.000	598.400	600.000	598.900	700.000	599.600	800.000	600.000	900.000
GR	601.500	1004.000	594.500	1013.000	591.200	1017.000	587.500	1040.000	586.800	1060.000
GR	587.000	1080.000	586.100	1100.000	586.400	1120.000	586.600	1140.000	586.200	1160.000
GR	586.400	1180.000	587.400	1200.000	590.000	1220.000	589.500	1240.000	588.800	1260.000
GR	588.500	1280.000	588.400	1300.000	588.500	1320.000	589.300	1340.000	591.500	1360.000
GR	594.100	1380.000	594.100	1447.000	598.700	1470.000	598.200	1500.000	598.700	1600.000
GR	597.300	1700.000	596.300	1900.000	602.000	2000.000	601.200	2100.000	602.300	2200.000

NH	4.000	.075	610.000	.125	699.000	.038	1150.000	.125	1210.000	-0.000
X1	20.076	35.000	699.000	1150.000	4510.000	4510.000	4510.000	-0.000	-0.000	-0.000
GR	611.800	0.000	602.700	35.000	601.600	110.000	600.700	210.000	601.300	310.000
GR	599.700	410.000	600.100	510.000	602.000	610.000	602.100	633.000	600.600	699.000
GR	594.500	708.000	592.000	711.000	589.800	730.000	588.500	750.000	589.200	770.000
GR	590.500	790.000	591.800	810.000	592.100	830.000	592.300	850.000	592.400	870.000
GR	592.100	890.000	591.500	910.000	590.600	930.000	589.400	950.000	589.000	970.000
GR	589.000	990.000	589.400	1010.000	590.300	1030.000	591.200	1050.000	591.700	1070.000
GR	592.100	1090.000	592.300	1110.000	594.700	1125.000	598.800	1150.000	613.200	1210.000
EJ	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

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**********************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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st W.S. 586.39 From previous study City of St Joseph FIS

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T1       ST. JOSEPH RIVER    BENTON,ROYALTON,SODUS TOWNSHIPS    5555-07,59@65
T2       100 YEAR FLOOD
T3       ST. JOSEPH RIVER

J1  ICHECK     INQ        NINV       IDIR       STRT      METRIC     HVINS      Q          WSEL       FQ
       -10.       4.         -0.        -0.  -0.000000      -0.00      -0.0       -0.    586.389    -0.000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
      4.000     -0.000     -1.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000

CCHV=     .200 CEHV=     .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
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river mile

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                VALLEY SECTION A
     4.26      15.49     586.39       0.00     586.39     586.64        .25       0.00       0.00     582.90
    23190.        2.      21688.      1500.         6.      5191.      1922.         0.         0.      582.10
        0.00      .42       4.18        .78       .070       .032       .070      0.000     570.90      11.73
     .000305     -0.        -0.         -0.          0          0 ch          1       0.00    1094.87    1106.60

3280 CROSS SECTION       4.89 EXTENDED    2.45 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       582.40 ELREA=       619.40

                VALLEY SECTION B
     4.89      18.65     587.35       0.00       0.00     587.58        .23        .93        .00     582.40
    23190.     4071.      19119.         0.      3640.      4545.         0.        556.       86.      619.40
        .25      1.12       4.21        0.00       .050       .032 ch       .125 ROB       .032     568.70       0.00
     .000266  3400.      3303.       2000.          2          0          1 ROB       0.00    1398.94    1398.94
              LOB        ch          ROB

3470 ENCROACHMENT STATIONS=          .0     1765.0  TYPE=       1  TARGET=     1764.999
     5.12      17.39     587.69       0.00       0.00     587.88        .19        .30        .01     582.30
    23190.     2691.      20266.      233.       3138.      5366.       548.       800.       130.      585.30
        .35       .86       3.78        .42       .050       .032 ch       .125 ROB       .032     570.30       .00
     .000221  1150.      1250.       2000.          2          0          1 ROB       0.00    1765.00    1765.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=        450.0     3370.0  TYPE=       1  TARGET=     2920.000
```

shrink of flow

VALLEY SECTION C

5.42	15.87	588.07	0.00	0.00	588.18	.12	.28	.02	584.20
23190.	942.	18377.	3871. ROB	1593.	5969.	6609.	1181.	195.	585.30
.51	.59	3.08	.59	.050	.032 ch	.087 ROB	.033	572.20	450.00
.000162	550.	1565.	1800.	2	0	1	0.00	2920.00	3370.00

1490 NH CARD USED

3265 DIVIDED FLOW

VALLEY SECTION D

5.64	16.23	588.23	0.00	0.00	588.50	.27	.26	.06	587.30
23190.	132.	22637.	421. ROB	233.	5351.	1336.	1460.	254.	589.80
.59	.57	4.23	.32	.079	.032 ch	.118 ROB	.032	572.00	162.97
.000333	1000.	1145.	1200.	2	0	1	0.00	1556.11	1851.10

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= 500.0 1600.0 TYPE= 1 TARGET= 1100.000

5.88	16.98	588.68	0.00	0.00	588.90	.23	.39	.01	588.70
23190.	368.	22373.	449.	852.	5768.	971.	1671.	292.	586.10
.68	.43	3.88	.46	.125	.032 ch	.125	.032	571.70	500.00
.000286	1350.	1270.	1200.	2	0	1	0.00	1099.48	1600.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 950.0 1700.0 TYPE= 1 TARGET= 750.000

VALLEY SECTION E

6.00	17.25	588.85	0.00	0.00	589.08	.23	.17	.00	588.70
23190.	31.	22769.	390.	83.	5858.	596.	1777.	306.	586.10
.73	.37	3.89	.66	.075	.032 ch	.085	.032	571.60	950.00
.000253	800.	650.	600.	2	0	1	0.00	750.00	1700.00

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 606.60 ELREA= 604.10

6.10	20.34	589.04	0.00	0.00	589.20	.16	.11	.01	606.60
23190.	0.	23190.	0.	0.	7163.	0.	1856.	313.	604.10
.77	0.00	3.24	0.00	.080	.035 ch	.080	.032	568.70	380.24
.000182	500.	500.	500.	2	0	1	0.00	526.92	907.16

3265 DIVIDED FLOW

NORMAL BRIDGE, NRD=50 MIN ELTRD= 603.10 MAX ELLC= 602.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.60 ELREA= 604.10

BRIDGE SECTION F , I-94

	6.10	20.33	589.03	0.00	0.00	589.21	.18	.00	.01	606.60
d/s	23190.	0.	23190.	0.	0.	6785.	0.	1856.	313.	604.10
	.77	0.00	3.42	0.00	.080	.037 ck	.080	.032	568.70	380.30
	.000347	1.	1.	1.	1	0	1	0.00	502.84	907.15

3265 DIVIDED FLOW

I-94 westbound

NORMAL BRIDGE,NRD=50 MIN ELTRD= 603.10 MAX ELLC= 602.00

low flow profile

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.60 ELREA= 604.10

	6.10	20.34	589.04	0.00	0.00	589.22	.18	.02	.00	606.60
u/s	23190.	0.	23190.	0.	0.	6791.	0.	1863.	314.	604.10
	.78	0.00	3.41	0.00	.080	.037 ck	.080	.032	568.70	380.16
	.000346	48.	48.	48.	0	0	1	0.00	503.03	907.18

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.60 ELREA= 604.10

6.11	20.37	589.07	0.00	0.00	589.23	.16	.00	.00	606.60
23190.	0.	23190.	0.	0.	7178.	0.	1863.	314.	604.10
.78	0.00	3.23	0.00	.080	.035 ck	.080	.032	568.70	379.90
.000181	1.	1.	1.	2	0	1	0.00	527.35	907.25

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.60 ELREA= 604.10

6.11	20.37	589.07	0.00	0.00	589.23	.16	.01	.00	606.60
23190.	0.	23190.	0.	0.	7182.	0.	1868.	314.	604.10
.78	0.00	3.23	0.00	.080	.035 ck	.080	.032	568.70	379.81
.000180	30.	30.	30.	0	0	1	0.00	527.46	907.27

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=50 MIN ELTRD= 603.10 MAX ELLC= 602.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.60 ELREA= 604.10

	6.11	20.36	589.06	0.00	0.00	589.24	.18	.00	.01	606.60
d/s	23190.	0.	23190.	0.	0.	6803.	0.	1869.	314.	604.10
	.78	0.00	3.41	0.00	.080	.037 ck	.080	.032	568.70	379.88
	.000345	1.	1.	1.	1	0	1	0.00	503.37	907.25

I-94 eastbound

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=50 MIN ELTRD= 603.10 MAX ELLC= 602.00

low flow profile

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.60 ELREA= 604.10

U/S	6.12	20.38	589.08	0.00	0.00	589.26	.18	.02	.00	606.60
	23190.	0.	23190.	0.	0.	6809.	0.	1876.	315.	604.10
	.78	0.00	3.41	0.00	.080	.037 ch	.080	.033	568.70	379.74
	.000344	48.	48.	48.	0	0	1	0.00	503.55	907.29

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.60 ELREA= 604.10

	6.12	20.40	589.10	0.00	0.00	589.26	.16	.00	.00	606.60
	23190.	0.	23190.	0.	0.	7197.	0.	1876.	315.	604.10
	.78	0.00	3.22	0.00	.080	.036 ch	.080	.033	568.70	379.50
	.000190	1.	1.	1.	2	0	1	0.00	527.85	907.35

1490 NH CARD USED

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

3470 ENCROACHMENT STATIONS= 150.0 1150.0 TYPE= 1 TARGET= 1000.000

6.17	20.28	589.18	0.00	0.00	589.31	.13	.05	.01	583.40
23190.	1708.	21191.	291.	2119.	7002.	587.	1931.	320.	585.70
.81	.81	3.03	.50	.075	.036 ch	.088	.033	568.90	150.00
.000149	350.	275.	200.	0	0	1	0.00	1000.00	1150.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 100.0 1000.0 TYPE= 1 TARGET= 900.000

6.26	19.84	589.24	0.00	0.00	589.37	.13	.06	.00	583.40
23190.	259.	22397.	534.	607.	7578.	1236.	2032.	330.	585.70
.86	.43	2.96	.43	.125	.036 ch	.087	.033	569.40	100.00
.000116	550.	450.	400.	1	0	1	0.00	900.00	1000.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 448.0 TYPE= 1 TARGET= 447.999

VALLEY SECTION G

6.56	18.55	589.45	0.00	0.00	589.72	.28	.29	.06	583.40
23190.	7.	23014.	169.	21.	5441.	271.	2335.	356.	583.40
.97	.33	4.23	.62	.125	.036 ch	.090	.033	570.90	21.99
.000259	1740.	1740.	1740.	2	0	1	0.00	426.01	448.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 595.80 ELREA= 604.10

6.69	24.75	589.65	0.00	0.00	589.91	.26	.19	.00	595.80
23190.	0.	23190.	0.	0.	5629.	0.	2425.	363.	604.10
1.02	0.00	4.12	0.00	.080	.037 ch	.080	.033	564.90	839.65

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=41 MIN ELTRD= 602.00 MAX ELLC= 601.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 601.90 ELREA= 604.10

BRIDGE SECTION H , US-31 SOMERLYTON BRIDGE

	6.70	24.72	589.62	0.00	0.00	589.93	.32	.00	.02	601.90
d/s	23190.	0.	23190.	0.	0.	5138.	0.	2425.	363.	604.10
	1.02	0.00	4.51	0.00	.080	.037 ck	.080	.033	564.90	839.75
	.000488	1.	1.	1.	2	0	1	0.00	326.65	1200.00

US-31

3265 DIVIDED FLOW

low flow profile

NORMAL BRIDGE,NRD=41 MIN ELTRD= 602.00 MAX ELLC= 601.10 section shows less than 600 for min conveyance

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 601.90 ELREA= 604.10

	6.70	24.74	589.64	0.00	0.00	589.95	.32	.02	.00	601.90
u/s	23190.	0.	23190.	0.	0.	5143.	0.	2430.	363.	604.10
	1.02	0.00	4.51	0.00	.080	.037 ck	.080	.033	564.90	839.70
	.000487	40.	40.	40.	0	0	1	0.00	326.70	1200.00

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 595.80 ELREA= 604.10

6.70	24.80	589.70	0.00	0.00	589.96	.26	.00	.01	595.80
23190.	0.	23190.	0.	0.	5649.	0.	2430.	363.	604.10
1.02	0.00	4.11	0.00	.080	.037 ck	.080	.033	564.90	839.48
.000279	1.	1.	1.	2	0	1	0.00	365.12	1204.60

3280 CROSS SECTION 6.74 EXTENDED 4.01 FEET

3470 ENCROACHMENT STATIONS= 900.0 1650.0 TYPE= 1 TARGET= 750.000

6.74	24.21	589.91	0.00	0.00	590.02	.12	.03	.03	588.10
23190.	9.	23090.	91.	104.	8423.	429.	2463.	365.	586.60
1.04	.09	4.74	.21	.125	.037 ck	.110	.033	565.70	900.00
.000085	200.	200.	150.	2	0	1	0.00	750.00	1650.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 2550.0 4834.0 TYPE= 1 TARGET= 2284.000

6.90	21.00	590.00	0.00	0.00	590.09	.09	.07	.01	588.20
23150.	1279.	21496.	376.	4512.	8565.	1564.	2688.	394.	588.90
1.14	.28	2.51	.24	.110	.036 ch	.125	.034	569.00	2550.00
.000075	850.	825.	800.	2	0	1	0.00	2284.00	4834.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 1550.0 5320.0 TYPE= 1 TARGET= 3770.000

7.05	17.47	590.07	0.00	0.00	590.17	.10	.08	.00	588.10
23150.	1621.	19607.	1922.	5522.	7279.	4281.	2995.	454.	586.60
1.24	.29	2.69	.45	.119	.036 ch	.078	.034	572.60	1550.00
.000111	750.	825.	1050.	0	0	1	0.00	3770.00	5320.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 1900.0 5470.0 TYPE= 1 TARGET= 3570.000

VALLEY SECTION J

7.21	14.08	590.18	0.00	0.00	590.32	.14	.13	.02	588.10
23150.	1109.	18508.	3533.	4194.	5600.	5080.	3301.	525.	586.60
1.32	.26	3.30	.70	.181	.036 ch	.076	.034	576.10	1900.00
.000234	800.	818.	900.	2	0	1	0.00	3570.00	5470.00

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 250.0 1743.0 TYPE= 1 TARGET= 1493.000

VALLEY SECTION K

7.80	17.03	590.93	0.00	0.00	591.23	.30	.85	.07	586.50
23150.	1242.	21734.	174.	2586.	4783.	542.	4120.	706.	589.50
1.52	.48	4.54	.32	.125	.035 ch	.125	.034	573.90	250.00
.000317	3150.	3135.	3100.	2	0	1	0.00	1481.31	1743.00

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 646.0 1812.0 TYPE= 1 TARGET= -646.000

VALLEY SECTION L

7.93	17.34	591.14	0.00	0.00	591.43	.30	.20	.00	586.50
23150.	1190.	21897.	62.	2277.	4880.	196.	4234.	724.	589.50
1.57	.52	4.49	.32	.110	.034 ch	.125	.034	573.80	646.00
.000270	550.	700.	700.	2	0	1	0.00	1121.38	1767.38

1490 NH CARD USED

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

3470 ENCROACHMENT STATIONS= 386.0 1552.0 TYPE= 1 TARGET= -386.000

VALLEY SECTION M

```
      7.95     17.36    591.16      0.00      0.00    591.45       .29       .02       .00    586.50
     23150.    1346.    21741.       63.      1411.    4885.       198.     4244.      726.    589.50
      1.57      .95      4.45       .32       .057     .034       .125      .034    573.80    389.70
   .000265     60.      60.        60.          0        0          1      0.00   1117.75   1507.45

3470 ENCROACHMENT STATIONS=     646.0     1812.0  TYPE=      1  TARGET=     -646.000
      7.96     17.37    591.17      0.00      0.00    591.47       .30       .02       .00    586.50
     23150.    1093.    21991.       66.      2301.    4890.       200.     4254.      727.    589.50
      1.58      .48      4.50       .33       .125     .034  ch   .125      .034    573.80    646.00
   .000285     60.      60.        60.          0        0          1      0.00   1121.51   1767.51

1490 NH CARD USED

                VALLEY SECTION N

      8.24     17.90    591.60      0.00      0.00    591.86       .27       .39       .01    589.60
     23150.    1146.    21985.       19.      2772.    5159.        44.     4513.      772.    585.00
      1.68      .41      4.26       .43       .096     .034  ch   .125      .034    573.70     52.61
   .000237    1400.    1500.      1650.          0        0          1      0.00   1618.89   1671.49
              LOB      CH         ROB

1490 NH CARD USED

3265 DIVIDED FLOW

                VALLEY SECTION O

      8.35     18.04    591.74      0.00      0.00    591.99       .26       .13       .00    588.80
     23150.    1314.    21819.       17.      2664.    5220.        40.     4610.      792.    586.30
      1.72      .49      4.18       .42       .078     .034  ch   .125      .034    573.70     67.49
   .000226     500.     550.       550.          1        0          1      0.00   1762.91   2236.71
              LOB      CH         ROB

1490 NH CARD USED

3265 DIVIDED FLOW

no continuity

                VALLEY SECTION P

      8.55     18.27    591.87      0.00      0.00    592.48       .61       .35       .14    587.80
     23150.    2818.    20304.       28.      3519.    3034.        42.     4743.      814.    586.30
      1.76      .80      6.69       .68       .073     .033  ch   .125      .034    573.60     66.97
   .000561     400.     1095.      1095.          2        0          1      0.00   2069.58   2496.92
              LOB      CH         ROB

1490 NH CARD USED
3280 CROSS SECTION       8.95 EXTENDED       5.95 FEET

3470 ENCROACHMENT STATIONS=     200.0     2225.0  TYPE=      1  TARGET=     2025.000

                VALLEY SECTION Q

      8.95     19.55    592.95      0.00      0.00    593.15       .19       .58       .08    591.60
     23040.     737.    20546.      1757.      2207.    5538.      3159.     5069.      862.    589.30
      1.93      .33      3.71       .56       .114     .033  ch   .110      .034    573.40    200.00
   .000178     550.     2090.      2300.          2        0          1      0.00   2025.00   2225.00
              LOB      CH         ROB
```

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 1600.0 TYPE= 1 TARGET= 1599.999

VALLEY SECTION R

9.41	17.17	593.37	0.00	0.00	593.55	.18	.41	.00	584.50
23040.	295.	21781.	965.	677.	6155.	1966.	5601.	955.	583.60
2.12	.43	3.54	.49	.125	.033 ch	.075	.034	576.20	166.19
.000162	2900.	2415.	1900.	2	0	1	0.00	1365.36	1531.55

1490 NH CARD USED

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

3470 ENCROACHMENT STATIONS= 234.0 1149.0 TYPE= 1 TARGET= -234.000

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 591.10 ELREA= 100000.00

VALLEY SECTION S

9.80	20.71	593.71	0.00	0.00	594.01	.30	.41	.05	591.10
23040.	818.	22222.	0.	1366.	4961.	0.	5956.	1006.	100000.00
2.26	.60	4.48	0.00	.076	.033 ch	.075	.034	573.00	234.00
.000238	2050.	2095.	1750.	0	0	1	0.00	886.52	1120.52

VALLEY SECTION T

10.35	21.25	594.35	0.00	0.00	594.59	.24	.57	.01	582.00
23040.	830.	22171.	39.	1844.	5545.	89.	6395.	1052.	582.70
2.47	.45	4.00	.43	.125	.033 ch	.125	.034	573.10	14.08
.000166	2300.	2915.	2915.	2	0	1	0.00	701.63	715.71

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= .0 1174.0 TYPE= 1 TARGET= 1173.999

VALLEY SECTION U

10.88	18.85	594.85	0.00	0.00	595.06	.21	.47	.01	583.30
23040.	48.	22250.	742.	160.	5974.	1551.	6883.	1109.	584.10
2.68	.30	3.72	.48	.125	.033 ch	.086	.034	576.00	24.53
.000173	2800.	2760.	3100.	2	0	1	0.00	996.75	1021.27

1490 NH CARD USED

VALLEY SECTION V

* 11.07	18.56	595.06	0.00	0.00	595.23	.17	.16	.01	595.80
23040.	0.	20307.	2733.	0.	5732.	4195.	7069.	1130.	590.60
2.76	0.00	3.54	.65	.125	.033 ch	.083	.034	576.50	51.49
.000153	1050.	1000.	750.	2	0	1	0.00	1266.07	1317.55

10b ch Fob 5

1490 NH CARD USED

* ROB reach length for C-S V & W should be 0 ft (say 5 ft)

11.33	18.36	595.26	0.00	0.00	595.44	.18	.20	.00	594.20
23040.	2.	21339.	1699.	17.	6081.	2913.	7328.	1161.	590.60
2.88	.10	3.51	.58	.125	.033 ch	.083	.034	576.90	153.11
.000156	1370.	1370.	900.	0	0	1	0.00	1239.35	1392.46

106 ch Fab5

shifting of flow from side to side

VALLEY SECTION X

11.64	18.02	595.52	0.00	0.00	595.71	.18	.27	.00	594.20
23040.	1865.	21171.	5.	4699.	5937.	28.	7665.	1207.	593.40
3.01	.40	3.57	.16	.125	.033 ch	.125	.034	577.50	322.92
.000178	1200.	1640.	1350.	2	0	1	0.00	1750.89	2073.81

⇒ higher "n" than .033 but 18' depth of flow might cancel shifting effect

1490 NH CARD USED

VALLEY SECTION Y

12.08	19.23	595.93	0.00	0.00	596.06	.14	.35	.01	590.00
23040.	102.	19316.	3622.	288.	6010.	6471.	8319.	1305.	593.20
3.25	.35	3.21	.56	.125	.033 ch	.087	.034	576.70	23.28
.000123	2150.	2345.	2800.	0	0	1	0.00	1749.41	1772.69

1490 NH CARD USED

VALLEY SECTION Z

12.57	20.61	596.21	0.00	0.00	596.29	.08	.22	.01	594.00
23040.	579.	17009.	5451.	1758.	6355.	11538.	8746.	1358.	589.70
3.52	.33	2.68	.47	.076	.033 ch	.088	.034	575.60	89.96
.000090	2700.	2565.	1.	1	0	1	0.00	3709.83	3799.79

1490 NH CARD USED

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

3470 ENCROACHMENT STATIONS= 1100.0 5915.0 TYPE= 1 TARGET= -1100.000

VALLEY SECTION AA

13.19	21.98	596.48	0.00	0.00	596.60	.12	.29	.02	595.80
23040.	7369.	15666.	5.	16093.	4593.	22.	9588.	1488.	588.40
3.83	.46	3.41	.24	.095	.033 ch	.125	.035	574.50	1100.00
.000133	750.	3310.	2050.	2	0	1	0.00	4752.44	5852.44

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 1675.0 4620.0 TYPE= 1 TARGET= -1675.000

VALLEY SECTION AB

13.90	23.45	596.85	0.00	0.00	597.00	.15	.39	.01	587.30
23040.	5207.	17827.	7.	10832.	4979.	28.	10276.	1585.	587.30
4.11	.48	3.58	.25	.099	.033 ch	.125	.035	573.40	1675.00
.000131	900.	3710.	3710.	2	0	1	0.00	2882.81	4557.81

23040.	102.	19316.	3622.	288.	6010.	6471.	8319.	1305.	593.20
3.25	.35	3.21	.56	.125	.033	.087	.034	576.70	23.28
.000123	2150.	2345.	2800.	0	0	1	0.00	1749.41	1772.69

1490 NH CARD USED

VALLEY SECTION Z

12.57	20.61	596.21	0.00	0.00	596.29	.08	.22	.01	594.00
23040.	579.	17009.	5451.	1758.	6355.	11538.	8746.	1358.	589.70
3.52	.33	2.68	.47	.076	.033	.088	.034	575.60	89.96
.000090	2700.	2565.	1.	1	0	1	0.00	3709.83	3799.79

1490 NH CARD USED

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

3470 ENCROACHMENT STATIONS= -1100.0 5915.0 TYPE= 1 TARGET= -1100.000

VALLEY SECTION AA

13.19	21.98	596.48	0.00	0.00	596.60	.12	.29	.02	595.80
23040.	7369.	15666.	5.	16093.	4593.	22.	9588.	1488.	588.40
3.83	.46	3.41	.24	.095	.033	.125	.035	574.50	1100.00
.000133	750.	3310.	2050.	2	0	1	0.00	4752.44	5852.44

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= -1675.0 4620.0 TYPE= 1 TARGET= -1675.000

VALLEY SECTION AB

13.90	23.45	596.85	0.00	0.00	597.00	.15	.39	.01	587.30
23040.	5207.	17827.	7.	10832.	4979.	28.	10276.	1585.	587.30
4.11	.48	3.58	.25	.099	.033	.125	.035	573.40	1675.00
.000131	900.	3710.	3710.	2	0	1	0.00	2882.81	4557.81

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= -1450.0 3700.0 TYPE= 1 TARGET= -1450.000

VALLEY SECTION AC

14.37	22.26	597.16	0.00	0.00	597.33	.18	.32	.01	589.90
23040.	4173.	18752.	115.	7229.	5003.	383.	10864.	1673.	593.40
4.31	.58	3.75	.30	.093	.033	.125	.035	574.90	1622.20
.000155	1400.	2495.	2495.	2	0	1	0.00	2018.93	3641.13

1490 NH CARD USED

VALLEY SECTION AD

14.88	22.67	597.57	0.00	0.00	597.64	.07	.29	.02	594.40
23040.	3297.	13466.	6277.	12798.	4781.	7789.	12197.	1933.	592.20
4.70	.26	2.82	.81	.125	.033	.069	.035	574.90	133.93
.000077	4000.	2685.	1200.	2	0	1	0.00	4588.76	4722.70

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 350.0 4352.0 TYPE= 1 TARGET= -350.000

VALLEY SECTION AE

15.16	18.07	597.67	0.00	0.00	597.89	.23	.19	.06	585.00
23040.	6708.	15602.	730.	9806.	3367.	1369.	12784.	2036.	594.30
4.82	.68	4.63	.53	.098	.034	.125	.035	579.60	350.00
.000279	800.	1470.	2300.	2	0	1	0.00	3919.59	4342.29

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 950.0 4316.0 TYPE= 1 TARGET= -950.000

VALLEY SECTION AF

15.72	17.43	598.43	0.00	0.00	598.57	.14	.66	.02	592.30
23040.	2370.	16938.	3732.	4792.	4876.	6171.	13651.	2223.	596.80
5.11	.49	3.47	.60	.097	.036	.099	.035	581.00	950.00
.000206	1900.	2965.	3100.	2	0	1	0.00	3213.81	4163.81

3470 ENCROACHMENT STATIONS= 300.0 2385.0 TYPE= 1 TARGET= -300.000

16.02	16.68	598.78	0.00	0.00	598.90	.12	.32	.00	592.80
23040.	1168.	17761.	4111.	1793.	5707.	5116.	14199.	2323.	597.00
5.28	.65	3.11	.80	.075	.039	.075	.035	582.10	300.00
.000190	1450.	1575.	1900.	2	0	1	0.00	1971.32	2271.32

3470 ENCROACHMENT STATIONS= .0 1722.0 TYPE= 1 TARGET= 1721.999

VALLEY SECTION AG

16.29	15.77	599.07	0.00	0.00	599.25	.18	.32	.03	590.50
23040.	28.	19820.	3192.	60.	5386.	4112.	14562.	2383.	597.00
5.41	.46	3.68	.78	.125	.038	.075	.035	583.30	13.08
.000271	1200.	1450.	1450.	1	0	1	0.00	1708.92	1722.00

1490 NH CARD USED

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

3470 ENCROACHMENT STATIONS= .0 1895.0 TYPE= 1 TARGET= 1894.999

VALLEY SECTION AH

16.53	18.35	599.35	0.00	0.00	599.67	.32	.37	.05	588.20
23040.	28.	21455.	1557.	54.	4599.	2928.	14767.	2416.	597.40
5.48	.52	4.67	.53	.125	.038	.078	.035	581.00	9.28
.000340	1275.	1275.	700.	2	0	1	0.00	1885.72	1895.00

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 2209.0 TYPE= 1. TARGET= 2208.999

VALLEY SECTION AI

16.79	21.17	599.77	0.00	0.00	600.18	.41	.47	.04	598.70
23040.	1900.	20684.	456.	2620.	3839.	1160.	14953.	2448.	599.00
5.56	.73	5.39	.39	.081	.038	.096	.035	578.60	.00
.000382	1500.	1355.	200.	2	0	1	0.00	2168.91	2209.00

1490 NH CARD USED

VALLEY SECTION AJ

17.02	23.98	600.38	0.00	0.00	600.52	.14	.29	.05	598.70
23040.	2340.	20695.	5.	4478.	6524.	33.	15202.	2493.	599.50
5.68	.52	3.17	.14	.092	.038	.100	.035	576.40	585.36
.000160	1150.	1245.	500.	2	0	1	0.00	1799.75	2385.12

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 1635.0 3251.0 TYPE= 1 TARGET= -1635.000

VALLEY SECTION AK

17.51	24.30	600.80	0.00	0.00	601.13	.33	.53	.07	597.40
23040.	1293.	21735.	12.	2516.	4597.	30.	15631.	2552.	593.20
5.83	.51	4.73	.41	.086	.039	.125	.036	576.50	1690.45
.000307	1200.	2590.	2590.	2	0	1	0.00	1548.42	3238.88

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1300.0 2656.0 TYPE= 1 TARGET= -1300.000

VALLEY SECTION AL

18.09	18.15	601.85	0.00	0.00	602.04	.19	.88	.03	602.10
23040.	4283.	18757.	0.	4365.	4907.	0.	16198.	2651.	602.90
6.08	.98	3.82	0.00	.075	.039	.125	.036	583.70	1300.00
.000281	3000.	3015.	3100.	2	0	1	0.00	1334.75	2643.34

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1600.0 3890.0 TYPE= 1 TARGET= -1600.000

VALLEY SECTION AM

18.59	17.94	602.64	0.00	0.00	602.96	.32	.86	.05	600.00
23040.	324.	19115.	3601.	517.	3823.	4148.	16690.	2741.	590.00
6.25	.63	5.00	.87	.090	.038	.080	.036	584.70	1757.59
.000414	1600.	2640.	2900.	2	0	1	0.00	1949.53	3882.00

1490 NH CARD USED

3265 DIVIDED FLOW

VALLEY SECTION AN

18.87	17.90	603.20	0.00	0.00	603.46	.26	.49	.01	590.40
23040.	34.	17337.	5669.	50.	3728.	7228.	16881.	2770.	593.30
6.34	.68	4.65	.78	.125	.038	.082	.036	585.30	2.50
.000354	1500.	1490.	400.	2	0	1	0.00	2555.25	2837.61

1490 NH CARD USED

3265 DIVIDED FLOW

3280 CROSS SECTION 19.22 EXTENDED 6.14 FEET

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

VALLEY SECTION AO

19.22	17.64	603.74	0.00	0.00	603.81	.08	.32	.04	601.50
23040.	3602.	16806.	2631.	5854.	6547.	4285.	17316.	2832.	598.70
6.57	.62	2.57	.61	.089	.038	.076	.036	586.10	0.00
.000120	2000.	1870.	600.	2	0	1	0.00	2552.43	2819.79

1490 NH CARD USED

VALLEY SECTION AP

20.08	15.95	604.45	0.00	0.00	604.64	.19	.78	.04	600.60
23040.	1672.	21342.	25.	2303.	5918.	66.	18609.	3024.	598.80
6.94	.73	3.61	.38	.078	.038	.125	.036	588.50	28.27
.000269	4510.	4510.	4510.	2	0	1	0.00	1145.27	1173.54

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Royalton & Sodus Twp's

3) WATERCOURSE: St. Joseph R.

4) DOCUMENT TYPE: 100-yr Natural

00BREAK00

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**********************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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ST. JOSEPH RIVER
ROYALTON & SODUS TOWNSHIPS FIS
J&A FILE NO. 5555-59 & 65
SECT. 17.024 - 18.867
W/O ENCROACHMENT AT SECT.17.514

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T1
T2
T3

J1   ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
          -0.       4.        -0.       -0. -0.000000    -0.00     -0.0      -0.   600.379    -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       .090      .090      .045      .200      .400     -0.000    -0.000    -0.000    -0.000    -0.000
QT      4.000    35.000    65.000 23040.000   105.000    -0.000    -0.000    -0.000    -0.000    -0.000
NH      4.000      .075  1435.000      .125  1871.000      .038  2336.000      .100  2432.000    -0.000

X1     17.024    41.000  1871.000  2336.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
GR    610.000     0.000   605.700    35.000   603.600    85.000   604.800   235.000   601.000   535.000
GR    597.300   835.000   596.000   935.000   595.700  1035.000   596.400  1135.000   597.800  1235.000
GR    596.400  1335.000   596.400  1435.000   597.900  1535.000   598.500  1555.000   594.000  1635.000
GR    591.800  1735.000   598.700  1760.000   598.300  1835.000   598.700  1871.000   593.200  1935.000
GR    589.800  1963.000   591.500  2035.000   590.000  2055.000   587.200  2075.000   585.400  2095.000
GR    584.900  2115.000   584.100  2135.000.  583.000  2155.000   582.100  2175.000   581.000  2195.000
GR    577.700  2215.000   576.700  2235.000   576.400  2255.000   576.500  2275.000   580.500  2295.000
GR    584.100  2315.000   588.100  2326.000   591.600  2334.000   599.500  2336.000   599.900  2384.000
GR    620.500  2432.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
NH      4.000      .075  2635.000      .125  2976.000      .039  3231.000      .125  3251.000    -0.000

X1     17.514    43.000  2976.000  3231.000  1200.000  2590.000  2590.000    -0.000    -0.000    -0.000
GR    610.000     0.000   605.700    35.000   603.600    85.000   604.800   235.000   605.400   335.000
GR    600.400   435.000   600.400   635.000   600.200   835.000   600.400  1035.000   600.300  1235.000
GR    599.200  1335.000   599.200  1410.000   599.500  1435.000   601.300  1635.000   599.500  1835.000
GR    599.400  2035.000   598.600  2135.000   599.400  2235.000   599.300  2335.000   597.600  2435.000
GR    597.300  2535.000   598.500  2635.000   598.900  2735.000   599.300  2835.000   597.100  2935.000
GR    597.400  2976.000   594.600  2977.000   589.100  2979.000   584.100  2995.000   582.800  3015.000
GR    579.600  3035.000   577.600  3055.000   576.500  3075.000   578.400  3095.000   580.000  3115.000
GR    580.700  3135.000   582.400  3155.000   583.800  3175.000   588.900  3195.000   589.500  3203.000
GR    591.400  3215.000   593.200  3231.000   612.500  3251.000    -0.000    -0.000    -0.000    -0.000
NH      4.000      .075  2235.000      .125  2287.000      .039  2645.000      .125  2656.000    -0.000

X1     18.085    41.000  2287.000  2645.000  3000.000  3100.000  3015.000    -0.000    -0.000    -0.000
X3     -0.000    -0.000    -0.000  1300.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
GR    610.000     0.000   596.600    35.000   596.600    85.000   596.600   235.000   595.900   435.000
GR    596.000   635.000   595.800   835.000   596.400  1035.000   597.000  1145.000   598.500  1235.000
GR    598.500  1435.000   599.400  1535.000   595.500  1635.000   594.200  1735.000   595.100  1835.000
GR    596.500  1935.000   597.500  2035.000   598.300  2135.000   600.500  2235.000   602.100  2287.000
GR    594.400  2305.000   592.500  2325.000   589.700  2336.000   589.400  2345.000   588.700  2365.000
GR    587.800  2375.000   586.600  2395.000   585.500  2415.000   585.400  2435.000   587.600  2455.000
GR    587.400  2475.000   586.100  2495.000   585.200  2515.000   583.700  2535.000   584.100  2555.000
GR    585.400  2575.000   586.200  2595.000   588.300  2615.000   589.700  2624.000   602.900  2645.000
GR    610.000  2656.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
NH      5.000      .075  1950.000      .125  2000.000      .038  2245.000      .125  2295.000      .075
NH   3890.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
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X1	18.867	31.000	2000.000	2245.000	1600.000	2400.000	2640.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	610.000	0.000	599.000	5.000	599.600	200.000	599.800	360.000	601.300	400.000
GR	601.400	420.000	599.000	600.000	601.800	800.000	603.800	980.000	603.700	1000.000
GR	601.500	1140.000	601.500	1160.000	599.800	1200.000	598.400	1330.000	599.600	1400.000
GR	605.000	1600.000	602.000	1800.000	598.900	1950.000	598.900	1980.000	600.000	2000.000
GR	593.100	2006.000	589.800	2009.000	586.100	2024.000	585.400	2037.000	585.600	2050.000
GR	584.700	2063.000	585.000	2076.000	585.200	2089.000	584.800	2102.000	585.000	2115.000
GR	586.000	2128.000	588.600	2141.000	588.100	2154.000	587.400	2167.000	587.100	2180.000
GR	587.000	2193.000	587.100	2206.000	587.900	2219.000	590.100	2232.000	590.000	2245.000
GR	600.200	2295.000	598.400	2495.000	600.300	2695.000	599.000	2895.000	598.900	3095.000
GR	599.200	3295.000	604.400	3395.000	602.800	3495.000	602.000	3695.000	600.800	3880.000
GR	610.000	3890.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	4.000	.125	9.000	.038	245.000	.125	445.000	.075	2830.000	-0.000
X1	18.867	37.000	9.000	245.000	1500.000	400.000	1490.000	-0.000	-0.000	-0.000
GR	610.000	0.000	593.700	6.000	590.400	9.000	586.700	24.000	586.000	37.000
GR	586.200	50.000	585.300	63.000	585.600	76.000	585.800	89.000	585.400	102.000
GR	585.600	115.000	586.800	128.000	589.200	141.000	588.700	154.000	588.000	167.000
GR	587.700	180.000	587.600	193.000	587.500	206.000	588.500	219.000	590.700	232.000
GR	593.300	245.000	599.200	335.000	599.200	445.000	600.000	645.000	600.000	845.000
GR	600.000	1045.000	600.800	1245.000	600.200	1445.000	598.700	1645.000	598.500	1695.000
GR	600.400	1845.000	600.000	2045.000	601.300	2245.000	606.200	2445.000	602.400	2645.000
GR	600.800	2835.000	610.000	2845.000	-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

CCHV= .200 CEHV= .400
1490 NH CARD USED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
17.02	23.98	600.38	0.00	600.38	600.52	.14	0.00	0.00	598.70
23040.	2340.	20695.	5.	4478.	6524.	33.	0.	0.	599.50
0.00	.52	3.17	.14	.092	.038	.100	0.000	576.40	585.35
.000160	-0.	-0.	-0.	0	0	1	0.00	1799.76	2385.12

1490 NH CARD USED

3265 DIVIDED FLOW

17.51	24.30	600.80	0.00	0.00	601.12	.32	.53	.07	597.40
23040.	1492.	21536.	12.	3244.	4597.	30.	439.	74.	593.20
.16	.46	4.68	.40	.085	.039	.125	.047	576.50	426.98
.000301	1200.	2590.	2590.	2	0	1	0.00	2701.03	3238.88

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1300.0 2656.0 TYPE= 1 TARGET= =1300.000

18.09	18.14	601.84	0.00	0.00	602.02	.19	.88	.03	602.10
23040.	4270.	18770.	0.	4349.	4901.	0.	1030.	213.	602.90
.41	.98	3.83	0.00	.075	.039	.125	.046	583.70	1300.00
.000283	3000.	3015.	3100.	2	0	1	0.00	1334.13	2643.31

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1600.0 3890.0 TYPE= 1 TARGET= =1600.000

18.59	17.92	602.62	0.00	0.00	602.95	.33	.87	.05	600.00
23040.	322.	19133.	3585.	514.	3820.	4128.	1521.	303.	590.00
.57	.63	5.01	.87	.090	.038	.080	.046	584.70	1758.46
.000416	1600.	2640.	2900.	2	0	1	0.00	1945.10	3881.98

1490 NH CARD USED

3265 DIVIDED FLOW

18.87	17.89	603.19	0.00	0.00	603.45	.26	.49	.01	590.40
23040.	34.	17355.	5652.	50.	3726.	7204.	1712.	332.	593.30
.67	.68	4.66	.78	.125	.038	.082	.047	585.30	2.50
.000356	1500.	1490.	400.	2	0	1	0.00	2554.28	2837.60

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
17.02	0.00	0.00	0.00	576.40	23040.00	600.38	0.00	600.52	1799.76	1.60	0.00	0.00
17.51	2590.00	0.00	0.00	576.50	23040.00	600.80	0.00	601.12	2701.03	3.01	.16	438.84
18.09	3015.00	0.00	0.00	583.70	23040.00	601.84	0.00	602.02	1334.13	2.83	.41	1030.07
18.59	2640.00	0.00	0.00	584.70	23040.00	602.62	0.00	602.95	1945.10	4.16	.57	1521.07
18.87	1490.00	0.00	0.00	585.30	23040.00	603.19	0.00	603.45	2554.28	3.56	.67	1711.88

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
17.024	23040.000	600.379	0.000	0.000	0.000	1799.765	0.000	-0.000
17.514	23040.000	600.801	0.000	.422	0.000	2701.029	0.000	2590.000
18.085	23040.000	601.836	0.000	1.035	0.000	1334.127	0.000	3015.000
18.585	23040.000	602.623	0.000	.787	0.000	1945.101	0.000	2640.000
18.867	23040.000	603.195	0.000	.572	0.000	2554.277	0.000	1490.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	0.000	332.425	0.000

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Benton, Royalton & Sodus TWP's

3) WATERCOURSE: St. Joseph R.

4) DOCUMENT TYPE: Summary

00BREAK00

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

ST. JOSEPH RIVER

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	EG	TOPWID	1@K*S	K*XNL	K*XNR	K*XNCH
4.26	0.00	0.00	0.00	570.90	23190.00	586.39	586.64	1094.87	3.05	70.00	70.00	32.00
4.26	0.00	0.00	0.00	570.90	17490.00	585.04	585.24	1090.18	2.80	70.00	70.00	32.00
4.26	0.00	0.00	0.00	570.90	21510.00	586.01	586.25	1093.54	2.99	70.00	70.00	32.00
4.26	0.00	0.00	0.00	570.90	23190.00	586.39	586.64	1094.87	3.05	70.00	70.00	32.00
4.26	0.00	0.00	0.00	570.90	27160.00	587.26	587.54	1097.88	3.16	70.00	70.00	32.00
4.89	3303.00	0.00	0.00	568.70	23190.00	587.35	587.58	1398.94	2.66	50.00	125.00	32.00
4.89	3303.00	0.00	0.00	568.70	17490.00	585.92	586.14	1398.10	2.62	50.00	125.00	32.00
4.89	3303.00	0.00	0.00	568.70	21510.00	586.95	587.17	1398.70	2.66	50.00	125.00	32.00
4.89	3303.00	0.00	0.00	568.70	23190.00	587.35	587.58	1398.94	2.66	50.00	125.00	32.00
4.89	3303.00	0.00	0.00	568.70	27160.00	588.25	588.49	1399.48	2.64	50.00	125.00	32.00
5.12	1250.00	0.00	0.00	570.30	23190.00	587.69	587.88	1765.00	2.21	50.00	125.00	32.00
5.12	1250.00	0.00	0.00	570.30	17490.00	586.26	586.44	1765.00	2.19	50.00	125.00	32.00
5.12	1250.00	0.00	0.00	570.30	21510.00	587.29	587.48	1765.00	2.22	50.00	125.00	32.00
5.12	1250.00	0.00	0.00	570.30	23190.00	587.69	587.88	1765.00	2.21	50.00	125.00	32.00
5.12	1250.00	0.00	0.00	570.30	27160.00	588.59	588.79	1765.00	2.18	50.00	125.00	32.00
5.42	1565.00	0.00	0.00	572.20	23190.00	588.07	588.18	2920.00	1.62	50.00	125.00	32.00
5.42	1565.00	0.00	0.00	572.20	17490.00	586.64	586.75	2920.00	1.71	50.00	125.00	32.00
5.42	1565.00	0.00	0.00	572.20	21510.00	587.67	587.78	2920.00	1.65	50.00	125.00	32.00
5.42	1565.00	0.00	0.00	572.20	23190.00	588.07	588.18	2920.00	1.62	50.00	125.00	32.00
5.42	1565.00	0.00	0.00	572.20	27160.00	588.96	589.07	2920.00	1.55	50.00	125.00	32.00
5.64	1145.00	0.00	0.00	572.00	23190.00	588.23	588.50	1556.11	3.33	50.00	125.00	32.00
5.64	1145.00	0.00	0.00	572.00	17490.00	586.83	587.05	1088.83	3.08	50.00	125.00	32.00
5.64	1145.00	0.00	0.00	572.00	21510.00	587.84	588.10	1517.84	3.27	50.00	125.00	32.00
5.64	1145.00	0.00	0.00	572.00	23190.00	588.23	588.50	1556.11	3.33	50.00	125.00	32.00
5.64	1145.00	0.00	0.00	572.00	27160.00	589.10	589.40	1641.62	3.42	50.00	125.00	32.00
5.88	1270.00	0.00	0.00	571.70	23190.00	588.68	588.90	1099.48	2.86	125.00	125.00	32.00
5.88	1270.00	0.00	0.00	571.70	17490.00	587.24	587.42	1054.14	2.65	125.00	125.00	32.00
5.88	1270.00	0.00	0.00	571.70	21510.00	588.28	588.49	1090.52	2.80	125.00	125.00	32.00
5.88	1270.00	0.00	0.00	571.70	23190.00	588.68	588.90	1099.48	2.86	125.00	125.00	32.00
5.88	1270.00	0.00	0.00	571.70	27160.00	589.56	589.81	1100.00	2.97	125.00	125.00	32.00
6.00	650.00	0.00	0.00	571.60	23190.00	588.85	589.08	750.00	2.53	125.00	125.00	32.00
6.00	650.00	0.00	0.00	571.60	17490.00	587.40	587.58	676.33	2.24	125.00	125.00	32.00
6.00	650.00	0.00	0.00	571.60	21510.00	588.45	588.66	677.67	2.46	125.00	125.00	32.00
6.00	650.00	0.00	0.00	571.60	23190.00	588.85	589.08	750.00	2.53	125.00	125.00	32.00
6.00	650.00	0.00	0.00	571.60	27160.00	589.74	590.00	750.00	2.70	125.00	125.00	32.00
6.10	500.00	0.00	0.00	568.70	23190.00	589.04	589.20	526.92	1.82	80.00	80.00	35.00
6.10	500.00	0.00	0.00	568.70	17490.00	587.56	587.68	507.12	1.43	80.00	80.00	35.00
6.10	500.00	0.00	0.00	568.70	21510.00	588.63	588.78	520.99	1.70	80.00	80.00	35.00
6.10	500.00	0.00	0.00	568.70	23190.00	589.04	589.20	526.92	1.82	80.00	80.00	35.00
6.10	500.00	0.00	0.00	568.70	27160.00	589.94	590.13	540.05	2.07	80.00	80.00	35.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	EG	TOPWID	10K*S	K*XNL	K*XNR	K*XNCH
6.10	1.00	603.10	602.00	568.70	23190.00	589.03	589.21	502.84	3.47	80.00	80.00	37.00
6.10	1.00	603.10	602.00	568.70	17490.00	587.56	587.69	483.12	2.67	80.00	80.00	37.00
6.10	1.00	603.10	602.00	568.70	21510.00	588.62	588.78	496.92	3.24	80.00	80.00	37.00
6.10	1.00	603.10	602.00	568.70	23190.00	589.03	589.21	502.84	3.47	80.00	80.00	37.00
6.10	1.00	603.10	602.00	568.70	27160.00	589.93	590.14	515.95	4.01	80.00	80.00	37.00
6.10	48.00	603.10	602.00	568.70	23190.00	589.04	589.22	503.03	3.46	80.00	80.00	37.00
6.10	48.00	603.10	602.00	568.70	17490.00	587.57	587.70	483.24	2.66	80.00	80.00	37.00
6.10	48.00	603.10	602.00	568.70	21510.00	588.63	588.80	497.10	3.23	80.00	80.00	37.00
6.10	48.00	603.10	602.00	568.70	23190.00	589.04	589.22	503.03	3.46	80.00	80.00	37.00
6.10	48.00	603.10	602.00	568.70	27160.00	589.95	590.16	516.17	4.00	80.00	80.00	37.00
6.11	1.00	0.00	0.00	568.70	23190.00	589.07	589.23	527.35	1.81	80.00	80.00	35.00
6.11	1.00	0.00	0.00	568.70	17490.00	587.59	587.70	507.31	1.42	80.00	80.00	35.00
6.11	1.00	0.00	0.00	568.70	21510.00	588.66	588.80	521.24	1.70	80.00	80.00	35.00
6.11	1.00	0.00	0.00	568.70	23190.00	589.07	589.23	527.35	1.81	80.00	80.00	35.00
6.11	1.00	0.00	0.00	568.70	27160.00	589.97	590.17	540.55	2.06	80.00	80.00	35.00
6.11	30.00	0.00	0.00	568.70	23190.00	589.07	589.23	527.46	1.80	80.00	80.00	35.00
6.11	30.00	0.00	0.00	568.70	17490.00	587.59	587.71	507.38	1.42	80.00	80.00	35.00
6.11	30.00	0.00	0.00	568.70	21510.00	588.66	588.81	521.35	1.69	80.00	80.00	35.00
6.11	30.00	0.00	0.00	568.70	23190.00	589.07	589.23	527.46	1.80	80.00	80.00	35.00
6.11	30.00	0.00	0.00	568.70	27160.00	589.98	590.17	540.68	2.06	80.00	80.00	35.00
6.11	1.00	603.10	602.00	568.70	23190.00	589.06	589.24	503.37	3.45	80.00	80.00	37.00
6.11	1.00	603.10	602.00	568.70	17490.00	587.58	587.71	483.38	2.66	80.00	80.00	37.00
6.11	1.00	603.10	602.00	568.70	21510.00	588.65	588.82	497.35	3.22	80.00	80.00	37.00
6.11	1.00	603.10	602.00	568.70	23190.00	589.06	589.24	503.37	3.45	80.00	80.00	37.00
6.11	1.00	603.10	602.00	568.70	27160.00	589.97	590.18	516.57	3.98	80.00	80.00	37.00
6.12	48.00	603.10	602.00	568.70	23190.00	589.08	589.26	503.55	3.44	80.00	80.00	37.00
6.12	48.00	603.10	602.00	568.70	17490.00	587.60	587.72	483.50	2.65	80.00	80.00	37.00
6.12	48.00	603.10	602.00	568.70	21510.00	588.67	588.83	497.52	3.21	80.00	80.00	37.00
6.12	48.00	603.10	602.00	568.70	23190.00	589.08	589.26	503.55	3.44	80.00	80.00	37.00
6.12	48.00	603.10	602.00	568.70	27160.00	589.99	590.20	516.78	3.97	80.00	80.00	37.00
6.12	1.00	0.00	0.00	568.70	23190.00	589.10	589.26	527.85	1.90	80.00	80.00	36.00
6.12	1.00	0.00	0.00	568.70	17490.00	587.61	587.73	507.59	1.50	80.00	80.00	36.00
6.12	1.00	0.00	0.00	568.70	21510.00	588.69	588.84	521.85	1.78	80.00	80.00	36.00
6.12	1.00	0.00	0.00	568.70	23190.00	589.10	589.26	527.85	1.90	80.00	80.00	36.00
6.12	1.00	0.00	0.00	568.70	27160.00	590.01	590.21	541.10	2.16	80.00	80.00	36.00
6.17	275.00	0.00	0.00	568.90	23190.00	589.18	589.31	1000.00	1.49	80.00	80.00	36.00
6.17	275.00	0.00	0.00	568.90	17490.00	587.67	587.77	1000.00	1.28	80.00	80.00	36.00
6.17	275.00	0.00	0.00	568.90	21510.00	588.76	588.88	1000.00	1.43	80.00	80.00	36.00
6.17	275.00	0.00	0.00	568.90	23190.00	589.18	589.31	1000.00	1.49	80.00	80.00	36.00
6.17	275.00	0.00	0.00	568.90	27160.00	590.12	590.27	1000.00	1.62	80.00	80.00	36.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	EG	TOPWID	10K*S	K*XNL	K*XNR	K*XNCH
6.26	450.00	0.00	0.00	569.40	23190.00	589.24	589.37	900.00	1.16	80.00	80.00	36.00
6.26	450.00	0.00	0.00	569.40	17490.00	587.72	587.82	900.00	.93	80.00	80.00	36.00
6.26	450.00	0.00	0.00	569.40	21510.00	588.82	588.94	900.00	1.09	80.00	80.00	36.00
6.26	450.00	0.00	0.00	569.40	23190.00	589.24	589.37	900.00	1.16	80.00	80.00	36.00
6.26	450.00	0.00	0.00	569.40	27160.00	590.18	590.34	900.00	1.31	80.00	80.00	36.00
6.56	1740.00	0.00	0.00	570.90	23190.00	589.45	589.72	426.01	2.59	80.00	80.00	36.00
6.56	1740.00	0.00	0.00	570.90	17490.00	587.90	588.09	424.21	2.08	80.00	80.00	36.00
6.56	1740.00	0.00	0.00	570.90	21510.00	589.02	589.27	425.51	2.44	80.00	80.00	36.00
6.56	1740.00	0.00	0.00	570.90	23190.00	589.45	589.72	426.01	2.59	80.00	80.00	36.00
6.56	1740.00	0.00	0.00	570.90	27160.00	590.40	590.73	427.12	2.92	80.00	80.00	36.00
6.69	700.00	0.00	0.00	564.90	23190.00	589.65	589.91	364.92	2.82	80.00	80.00	37.00
6.69	700.00	0.00	0.00	564.90	17490.00	588.06	588.24	359.02	2.24	80.00	80.00	37.00
6.69	700.00	0.00	0.00	564.90	21510.00	589.21	589.45	363.28	2.65	80.00	80.00	37.00
6.69	700.00	0.00	0.00	564.90	23190.00	589.65	589.91	364.92	2.82	80.00	80.00	37.00
6.69	700.00	0.00	0.00	564.90	27160.00	590.63	590.95	368.55	3.19	80.00	80.00	37.00
6.70	1.00	602.00	601.10	564.90	23190.00	589.62	589.93	326.65	4.88	80.00	80.00	37.00
6.70	1.00	602.00	601.10	564.90	17490.00	588.04	588.26	321.60	3.71	80.00	80.00	37.00
6.70	1.00	602.00	601.10	564.90	21510.00	589.18	589.47	325.25	4.54	80.00	80.00	37.00
6.70	1.00	602.00	601.10	564.90	23190.00	589.62	589.93	326.65	4.88	80.00	80.00	37.00
6.70	1.00	602.00	601.10	564.90	27160.00	590.59	590.98	346.25	6.25	80.00	80.00	37.00
6.70	40.00	602.00	601.10	564.90	23190.00	589.64	589.95	326.70	4.87	80.00	80.00	37.00
6.70	40.00	602.00	601.10	564.90	17490.00	588.05	588.27	321.64	3.70	80.00	80.00	37.00
6.70	40.00	602.00	601.10	564.90	21510.00	589.20	589.49	325.30	4.53	80.00	80.00	37.00
6.70	40.00	602.00	601.10	564.90	23190.00	589.64	589.95	326.70	4.87	80.00	80.00	37.00
6.70	40.00	602.00	601.10	564.90	27160.00	590.62	591.00	346.32	6.21	80.00	80.00	37.00
6.70	1.00	0.00	0.00	564.90	23190.00	589.70	589.96	365.12	2.79	80.00	80.00	37.00
6.70	1.00	0.00	0.00	564.90	17490.00	588.10	588.28	359.16	2.22	80.00	80.00	37.00
6.70	1.00	0.00	0.00	564.90	21510.00	589.26	589.50	363.46	2.62	80.00	80.00	37.00
6.70	1.00	0.00	0.00	564.90	23190.00	589.70	589.96	365.12	2.79	80.00	80.00	37.00
6.70	1.00	0.00	0.00	564.90	27160.00	590.70	591.02	368.81	3.15	80.00	80.00	37.00
6.74	200.00	0.00	0.00	565.70	23190.00	589.91	590.02	750.00	.85	125.00	110.00	37.00
6.74	200.00	0.00	0.00	565.70	17490.00	588.25	588.32	536.98	.64	125.00	110.00	37.00
6.74	200.00	0.00	0.00	565.70	21510.00	589.44	589.55	726.10	.79	125.00	110.00	37.00
6.74	200.00	0.00	0.00	565.70	23190.00	589.91	590.02	750.00	.85	125.00	110.00	37.00
6.74	200.00	0.00	0.00	565.70	27160.00	590.94	591.08	750.00	.98	125.00	110.00	37.00
6.90	825.00	0.00	0.00	569.00	23150.00	590.00	590.09	2284.00	.75	125.00	110.00	37.00
6.90	825.00	0.00	0.00	569.00	17430.00	588.31	588.38	2040.13	.64	125.00	110.00	37.00
6.90	825.00	0.00	0.00	569.00	21470.00	589.53	589.61	2284.00	.73	125.00	110.00	37.00
6.90	825.00	0.00	0.00	569.00	23150.00	590.00	590.09	2284.00	.75	125.00	110.00	37.00
6.90	825.00	0.00	0.00	569.00	27130.00	591.06	591.16	2284.00	.81	125.00	110.00	37.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	EG	TOPWID	10K*S	K*XNL	K*XNR	K*XNCH
7.05	825.00	0.00	0.00	572.60	23150.00	590.07	590.17	3770.00	1.11	125.00	110.00	37.00
7.05	825.00	0.00	0.00	572.60	17430.00	588.36	588.46	3226.36	1.14	125.00	110.00	37.00
7.05	825.00	0.00	0.00	572.60	21470.00	589.60	589.69	3769.70	1.13	125.00	110.00	37.00
7.05	825.00	0.00	0.00	572.60	23150.00	590.07	590.17	3770.00	1.11	125.00	110.00	37.00
7.05	825.00	0.00	0.00	572.60	27130.00	591.15	591.24	3770.00	1.07	125.00	110.00	37.00
7.21	818.00	0.00	0.00	576.10	23150.00	590.18	590.32	3570.00	2.34	125.00	110.00	37.00
7.21	818.00	0.00	0.00	576.10	17430.00	588.47	588.62	3098.11	2.82	125.00	110.00	37.00
7.21	818.00	0.00	0.00	576.10	21470.00	589.70	589.84	3570.00	2.46	125.00	110.00	37.00
7.21	818.00	0.00	0.00	576.10	23150.00	590.18	590.32	3570.00	2.34	125.00	110.00	37.00
7.21	818.00	0.00	0.00	576.10	27130.00	591.25	591.38	3570.00	2.10	125.00	110.00	37.00
7.80	3135.00	0.00	0.00	573.90	23150.00	590.93	591.23	1481.31	3.17	125.00	125.00	35.00
7.80	3135.00	0.00	0.00	573.90	17430.00	589.30	589.54	1091.57	2.84	125.00	125.00	35.00
7.80	3135.00	0.00	0.00	573.90	21470.00	590.48	590.76	1450.57	3.09	125.00	125.00	35.00
7.80	3135.00	0.00	0.00	573.90	23150.00	590.93	591.23	1481.31	3.17	125.00	125.00	35.00
7.80	3135.00	0.00	0.00	573.90	27130.00	591.94	592.28	1493.00	3.32	125.00	125.00	35.00
7.93	700.00	0.00	0.00	573.80	23150.00	591.14	591.43	1121.38	2.70	125.00	125.00	35.00
7.93	700.00	0.00	0.00	573.80	17430.00	589.49	589.72	986.98	2.36	125.00	125.00	35.00
7.93	700.00	0.00	0.00	573.80	21470.00	590.68	590.96	1113.62	2.61	125.00	125.00	35.00
7.93	700.00	0.00	0.00	573.80	23150.00	591.14	591.43	1121.38	2.70	125.00	125.00	35.00
7.93	700.00	0.00	0.00	573.80	27130.00	592.15	592.49	1125.42	2.88	125.00	125.00	35.00
7.95	60.00	0.00	0.00	573.80	23150.00	591.16	591.45	1117.75	2.65	125.00	125.00	35.00
7.95	60.00	0.00	0.00	573.80	17430.00	589.50	589.74	563.61	2.37	125.00	125.00	35.00
7.95	60.00	0.00	0.00	573.80	21470.00	590.70	590.98	1059.81	2.61	125.00	125.00	35.00
7.95	60.00	0.00	0.00	573.80	23150.00	591.16	591.45	1117.75	2.65	125.00	125.00	35.00
7.95	60.00	0.00	0.00	573.80	27130.00	592.22	592.51	1125.66	2.62	125.00	125.00	35.00
7.96	60.00	0.00	0.00	573.80	23150.00	591.17	591.47	1121.51	2.85	125.00	125.00	34.00
7.96	60.00	0.00	0.00	573.80	17430.00	589.52	589.75	1065.51	2.49	125.00	125.00	34.00
7.96	60.00	0.00	0.00	573.80	21470.00	590.71	590.99	1114.22	2.75	125.00	125.00	34.00
7.96	60.00	0.00	0.00	573.80	23150.00	591.17	591.47	1121.51	2.85	125.00	125.00	34.00
7.96	60.00	0.00	0.00	573.80	27130.00	592.21	592.55	1125.63	3.03	125.00	125.00	34.00
8.24	1500.00	0.00	0.00	573.70	23150.00	591.60	591.86	1618.89	2.37	125.00	125.00	34.00
8.24	1500.00	0.00	0.00	573.70	17430.00	589.88	590.10	1465.20	2.13	125.00	125.00	34.00
8.24	1500.00	0.00	0.00	573.70	21470.00	591.12	591.37	1598.28	2.31	125.00	125.00	34.00
8.24	1500.00	0.00	0.00	573.70	23150.00	591.60	591.86	1618.89	2.37	125.00	125.00	34.00
8.24	1500.00	0.00	0.00	573.70	27130.00	592.67	592.96	1623.58	2.45	125.00	125.00	34.00
8.35	550.00	0.00	0.00	573.70	23150.00	591.74	591.99	1762.91	2.26	125.00	125.00	34.00
8.35	550.00	0.00	0.00	573.70	17430.00	590.00	590.22	1321.30	2.07	125.00	125.00	34.00
8.35	550.00	0.00	0.00	573.70	21470.00	591.25	591.50	1557.85	2.22	125.00	125.00	34.00
8.35	550.00	0.00	0.00	573.70	23150.00	591.74	591.99	1762.91	2.26	125.00	125.00	34.00
8.35	550.00	0.00	0.00	573.70	27130.00	592.83	593.09	2174.86	2.27	125.00	125.00	34.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	EG	TOPWID	10K*S	K*XNL	K*XNR	K*XNCH
8.55	1095.00	0.00	0.00	573.60	23150.00	591.87	592.48	2069.58	5.61	125.00	125.00	34.00
8.55	1095.00	0.00	0.00	573.60	17430.00	590.12	590.73	1295.05	5.81	125.00	125.00	34.00
8.55	1095.00	0.00	0.00	573.60	21470.00	591.38	592.01	1978.70	5.78	125.00	125.00	34.00
8.55	1095.00	0.00	0.00	573.60	23150.00	591.87	592.48	2069.58	5.61	125.00	125.00	34.00
8.55	1095.00	0.00	0.00	573.60	27130.00	592.98	593.53	2336.90	5.08	125.00	125.00	34.00
8.95	2090.00	0.00	0.00	573.40	23040.00	592.95	593.15	2025.00	1.78	125.00	125.00	34.00
8.95	2090.00	0.00	0.00	573.40	17260.00	591.24	591.40	1560.86	1.63	125.00	125.00	34.00
8.95	2090.00	0.00	0.00	573.40	21340.00	592.50	592.68	2024.82	1.74	125.00	125.00	34.00
8.95	2090.00	0.00	0.00	573.40	23040.00	592.95	593.15	2025.00	1.78	125.00	125.00	34.00
8.95	2090.00	0.00	0.00	573.40	27030.00	593.94	594.15	2025.00	1.86	125.00	125.00	34.00
9.41	2415.00	0.00	0.00	576.20	23040.00	593.37	593.55	1365.36	1.62	125.00	125.00	34.00
9.41	2415.00	0.00	0.00	576.20	17260.00	591.63	591.77	1187.59	1.46	125.00	125.00	34.00
9.41	2415.00	0.00	0.00	576.20	21340.00	592.91	593.08	1336.20	1.58	125.00	125.00	34.00
9.41	2415.00	0.00	0.00	576.20	23040.00	593.37	593.55	1365.36	1.62	125.00	125.00	34.00
9.41	2415.00	0.00	0.00	576.20	27030.00	594.37	594.58	1462.19	1.72	125.00	125.00	34.00
9.80	2095.00	0.00	0.00	573.00	23040.00	593.71	594.01	886.52	2.38	125.00	125.00	34.00
9.80	2095.00	0.00	0.00	573.00	17260.00	591.94	592.17	653.39	2.05	125.00	125.00	34.00
9.80	2095.00	0.00	0.00	573.00	21340.00	593.24	593.52	880.60	2.28	125.00	125.00	34.00
9.80	2095.00	0.00	0.00	573.00	23040.00	593.71	594.01	886.52	2.38	125.00	125.00	34.00
9.80	2095.00	0.00	0.00	573.00	27030.00	594.72	595.07	887.83	2.58	125.00	125.00	34.00
10.35	2915.00	0.00	0.00	573.10	23040.00	594.35	594.59	701.63	1.66	125.00	125.00	33.00
10.35	2915.00	0.00	0.00	573.10	17260.00	592.48	592.66	693.89	1.38	125.00	125.00	33.00
10.35	2915.00	0.00	0.00	573.10	21340.00	593.85	594.07	699.29	1.57	125.00	125.00	33.00
10.35	2915.00	0.00	0.00	573.10	23040.00	594.35	594.59	701.63	1.66	125.00	125.00	33.00
10.35	2915.00	0.00	0.00	573.10	27030.00	595.42	595.70	707.49	1.85	125.00	125.00	33.00
10.88	2760.00	0.00	0.00	576.00	23040.00	594.85	595.06	996.75	1.73	125.00	125.00	33.00
10.88	2760.00	0.00	0.00	576.00	17260.00	592.90	593.07	876.51	1.59	125.00	125.00	33.00
10.88	2760.00	0.00	0.00	576.00	21340.00	594.33	594.53	979.70	1.69	125.00	125.00	33.00
10.88	2760.00	0.00	0.00	576.00	23040.00	594.85	595.06	996.75	1.73	125.00	125.00	33.00
10.88	2760.00	0.00	0.00	576.00	27030.00	595.99	596.22	1036.91	1.82	125.00	125.00	33.00
11.07	1000.00	0.00	0.00	576.50	23040.00	595.06	595.23	1266.07	1.53	125.00	125.00	33.00
11.07	1000.00	0.00	0.00	576.50	17260.00	593.08	593.22	1187.35	1.48	125.00	125.00	33.00
11.07	1000.00	0.00	0.00	576.50	21340.00	594.53	594.69	1259.47	1.52	125.00	125.00	33.00
11.07	1000.00	0.00	0.00	576.50	23040.00	595.06	595.23	1266.07	1.53	125.00	125.00	33.00
11.07	1000.00	0.00	0.00	576.50	27030.00	596.21	596.40	1290.11	1.58	125.00	125.00	33.00
11.33	1370.00	0.00	0.00	576.90	23040.00	595.26	595.44	1239.35	1.56	125.00	125.00	33.00
11.33	1370.00	0.00	0.00	576.90	17260.00	593.28	593.42	1016.66	1.49	125.00	125.00	33.00
11.33	1370.00	0.00	0.00	576.90	21340.00	594.73	594.90	1206.33	1.54	125.00	125.00	33.00
11.33	1370.00	0.00	0.00	576.90	23040.00	595.26	595.44	1239.35	1.56	125.00	125.00	33.00
11.33	1370.00	0.00	0.00	576.90	27030.00	596.41	596.61	1285.12	1.60	125.00	125.00	33.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	EG	TOPWID	10K*S	K*XNL	K*XNR	K*XNCH
11.64	1640.00	0.00	0.00	577.50	23040.00	595.52	595.71	1750.89	1.78	125.00	125.00	33.00
11.64	1640.00	0.00	0.00	577.50	17260.00	593.54	593.69	1518.54	1.78	125.00	125.00	33.00
11.64	1640.00	0.00	0.00	577.50	21340.00	594.99	595.16	1699.58	1.78	125.00	125.00	33.00
11.64	1640.00	0.00	0.00	577.50	23040.00	595.52	595.71	1750.89	1.78	125.00	125.00	33.00
11.64	1640.00	0.00	0.00	577.50	27030.00	596.68	596.88	1861.97	1.79	125.00	125.00	33.00
12.08	2345.00	0.00	0.00	576.70	23040.00	595.93	596.06	1749.41	1.23	125.00	125.00	33.00
12.08	2345.00	0.00	0.00	576.70	17260.00	593.92	594.05	1731.41	1.25	125.00	125.00	33.00
12.08	2345.00	0.00	0.00	576.70	21340.00	595.39	595.52	1744.57	1.23	125.00	125.00	33.00
12.08	2345.00	0.00	0.00	576.70	23040.00	595.93	596.06	1749.41	1.23	125.00	125.00	33.00
12.08	2345.00	0.00	0.00	576.70	27030.00	597.10	597.24	1759.89	1.24	125.00	125.00	33.00
12.57	2565.00	0.00	0.00	575.60	23040.00	596.21	596.29	3709.83	.90	125.00	125.00	33.00
12.57	2565.00	0.00	0.00	575.60	17260.00	594.22	594.31	3206.56	1.05	125.00	125.00	33.00
12.57	2565.00	0.00	0.00	575.60	21340.00	595.67	595.76	3683.88	.93	125.00	125.00	33.00
12.57	2565.00	0.00	0.00	575.60	23040.00	596.21	596.29	3709.83	.90	125.00	125.00	33.00
12.57	2565.00	0.00	0.00	575.60	27030.00	597.37	597.45	3744.81	.83	125.00	125.00	33.00
13.19	3310.00	0.00	0.00	574.50	23040.00	596.48	596.60	4752.44	1.33	125.00	125.00	33.00
13.19	3310.00	0.00	0.00	574.50	17260.00	594.57	594.73	4285.50	1.66	125.00	125.00	33.00
13.19	3310.00	0.00	0.00	574.50	21340.00	595.96	596.09	4743.80	1.42	125.00	125.00	33.00
13.19	3310.00	0.00	0.00	574.50	23040.00	596.48	596.60	4752.44	1.33	125.00	125.00	33.00
13.19	3310.00	0.00	0.00	574.50	27030.00	597.61	597.72	4753.20	1.17	125.00	125.00	33.00
13.90	3710.00	0.00	0.00	573.40	23040.00	596.85	597.00	2882.81	1.31	125.00	125.00	33.00
13.90	3710.00	0.00	0.00	573.40	17260.00	595.06	595.22	2696.63	1.31	125.00	125.00	33.00
13.90	3710.00	0.00	0.00	573.40	21340.00	596.36	596.51	2839.79	1.31	125.00	125.00	33.00
13.90	3710.00	0.00	0.00	573.40	23040.00	596.85	597.00	2882.81	1.31	125.00	125.00	33.00
13.90	3710.00	0.00	0.00	573.40	27030.00	597.92	598.07	2883.46	1.29	125.00	125.00	33.00
14.37	2495.00	0.00	0.00	574.90	23040.00	597.16	597.33	2018.93	1.55	125.00	125.00	33.00
14.37	2495.00	0.00	0.00	574.90	17260.00	595.39	595.55	1904.13	1.48	125.00	125.00	33.00
14.37	2495.00	0.00	0.00	574.90	21340.00	596.67	596.85	1991.72	1.53	125.00	125.00	33.00
14.37	2495.00	0.00	0.00	574.90	23040.00	597.16	597.33	2018.93	1.55	125.00	125.00	33.00
14.37	2495.00	0.00	0.00	574.90	27030.00	598.22	598.41	2099.34	1.59	125.00	125.00	33.00
14.88	2685.00	0.00	0.00	574.90	23040.00	597.57	597.64	4588.76	.77	125.00	125.00	33.00
14.88	2685.00	0.00	0.00	574.90	17260.00	595.76	595.84	4549.17	.78	125.00	125.00	33.00
14.88	2685.00	0.00	0.00	574.90	21340.00	597.07	597.15	4580.76	.77	125.00	125.00	33.00
14.88	2685.00	0.00	0.00	574.90	23040.00	597.57	597.64	4588.76	.77	125.00	125.00	33.00
14.88	2685.00	0.00	0.00	574.90	27030.00	598.65	598.72	4606.31	.76	125.00	125.00	33.00
15.16	1470.00	0.00	0.00	579.60	23040.00	597.67	597.89	3919.59	2.79	125.00	125.00	33.00
15.16	1470.00	0.00	0.00	579.60	17260.00	595.85	596.13	2872.21	3.38	125.00	125.00	33.00
15.16	1470.00	0.00	0.00	579.60	21340.00	597.17	597.42	3861.30	2.99	125.00	125.00	33.00
15.16	1470.00	0.00	0.00	579.60	23040.00	597.67	597.89	3919.59	2.79	125.00	125.00	33.00
15.16	1470.00	0.00	0.00	579.60	27030.00	598.75	598.94	3995.04	2.40	125.00	125.00	33.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	EG	TOPWID	10K*S	K*XNL	K*XNR	K*XNCH
15.72	2965.00	0.00	0.00	581.00	23040.00	598.43	598.57	3213.81	2.06	125.00	125.00	33.00
15.72	2965.00	0.00	0.00	581.00	17260.00	596.80	596.95	3192.05	2.28	125.00	125.00	33.00
15.72	2965.00	0.00	0.00	581.00	21340.00	597.99	598.13	3208.01	2.11	125.00	125.00	33.00
15.72	2965.00	0.00	0.00	581.00	23040.00	598.43	598.57	3213.81	2.06	125.00	125.00	33.00
15.72	2965.00	0.00	0.00	581.00	27030.00	599.41	599.54	3226.61	1.96	125.00	125.00	33.00
16.02	1575.00	0.00	0.00	582.10	23040.00	598.78	598.90	1971.32	1.90	75.00	75.00	39.00
16.02	1575.00	0.00	0.00	582.10	17260.00	597.18	597.29	1955.10	1.89	75.00	75.00	39.00
16.02	1575.00	0.00	0.00	582.10	21340.00	598.35	598.46	1966.93	1.89	75.00	75.00	39.00
16.02	1575.00	0.00	0.00	582.10	23040.00	598.78	598.90	1971.32	1.90	75.00	75.00	39.00
16.02	1575.00	0.00	0.00	582.10	27030.00	599.73	599.86	1980.99	1.91	75.00	75.00	39.00
16.29	1450.00	0.00	0.00	583.30	23040.00	599.07	599.25	1708.92	2.71	125.00	75.00	38.00
16.29	1450.00	0.00	0.00	583.30	17260.00	597.47	597.63	1706.33	2.65	125.00	75.00	38.00
16.29	1450.00	0.00	0.00	583.30	21340.00	598.63	598.81	1708.22	2.69	125.00	75.00	38.00
16.29	1450.00	0.00	0.00	583.30	23040.00	599.07	599.25	1708.92	2.71	125.00	75.00	38.00
16.29	1450.00	0.00	0.00	583.30	27030.00	600.02	600.21	1710.48	2.72	125.00	75.00	38.00
16.53	1275.00	0.00	0.00	581.00	23040.00	599.35	599.67	1885.72	3.40	125.00	75.00	38.00
16.53	1275.00	0.00	0.00	581.00	17260.00	597.76	598.03	1449.37	3.04	125.00	75.00	38.00
16.53	1275.00	0.00	0.00	581.00	21340.00	598.92	599.23	1885.35	3.33	125.00	75.00	38.00
16.53	1275.00	0.00	0.00	581.00	23040.00	599.35	599.67	1885.72	3.40	125.00	75.00	38.00
16.53	1275.00	0.00	0.00	581.00	27030.00	600.30	600.63	1886.55	3.49	125.00	75.00	38.00
16.79	1355.00	0.00	0.00	578.60	23040.00	599.77	600.18	2168.91	3.82	125.00	75.00	38.00
16.79	1355.00	0.00	0.00	578.60	17260.00	598.15	598.49	1025.39	3.34	125.00	75.00	38.00
16.79	1355.00	0.00	0.00	578.60	21340.00	599.34	599.73	2083.70	3.72	125.00	75.00	38.00
16.79	1355.00	0.00	0.00	578.60	23040.00	599.77	600.18	2168.91	3.82	125.00	75.00	38.00
16.79	1355.00	0.00	0.00	578.60	27030.00	600.72	601.14	2209.00	3.95	125.00	75.00	38.00
17.02	1245.00	0.00	0.00	576.40	23040.00	600.38	600.52	1799.75	1.60	125.00	75.00	38.00
17.02	1245.00	0.00	0.00	576.40	17260.00	598.67	598.79	1604.75	1.44	125.00	75.00	38.00
17.02	1245.00	0.00	0.00	576.40	21340.00	599.93	600.06	1762.28	1.55	125.00	75.00	38.00
17.02	1245.00	0.00	0.00	576.40	23040.00	600.38	600.52	1799.75	1.60	125.00	75.00	38.00
17.02	1245.00	0.00	0.00	576.40	27030.00	601.34	601.49	1879.19	1.69	125.00	75.00	38.00
17.51	2590.00	0.00	0.00	576.50	23040.00	600.80	601.13	1548.42	3.07	125.00	75.00	38.00
17.51	2590.00	0.00	0.00	576.50	17260.00	599.07	599.33	940.47	2.60	125.00	75.00	38.00
17.51	2590.00	0.00	0.00	576.50	21340.00	600.34	600.66	1497.28	2.95	125.00	75.00	38.00
17.51	2590.00	0.00	0.00	576.50	23040.00	600.80	601.13	1548.42	3.07	125.00	75.00	38.00
17.51	2590.00	0.00	0.00	576.50	27030.00	601.78	602.13	1604.89	3.29	125.00	75.00	38.00
18.09	3015.00	0.00	0.00	583.70	23040.00	601.85	602.04	1334.75	2.81	125.00	75.00	38.00
18.09	3015.00	0.00	0.00	583.70	17260.00	600.00	600.18	1260.74	2.88	125.00	75.00	38.00
18.09	3015.00	0.00	0.00	583.70	21340.00	601.37	601.55	1316.97	2.81	125.00	75.00	38.00
18.09	3015.00	0.00	0.00	583.70	23040.00	601.85	602.04	1334.75	2.81	125.00	75.00	38.00
18.09	3015.00	0.00	0.00	583.70	27030.00	602.89	603.09	1344.98	2.84	125.00	75.00	38.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	EG	TOPWID	10K*S	K*XNL	K*XNR	K*XNCH
18.59	2640.00	0.00	0.00	584.70	23040.00	602.64	602.96	1949.53	4.14	125.00	75.00	38.00
18.59	2640.00	0.00	0.00	584.70	17260.00	600.82	601.15	1471.66	4.40	125.00	75.00	38.00
18.59	2640.00	0.00	0.00	584.70	21340.00	602.15	602.48	1786.58	4.21	125.00	75.00	38.00
18.59	2640.00	0.00	0.00	584.70	23040.00	602.64	602.96	1949.53	4.14	125.00	75.00	38.00
18.59	2640.00	0.00	0.00	584.70	27030.00	603.67	603.98	2134.32	3.97	125.00	75.00	38.00
18.87	1490.00	0.00	0.00	585.30	23040.00	603.20	603.46	2555.25	3.54	125.00	75.00	38.00
18.87	1490.00	0.00	0.00	585.30	17260.00	601.45	601.75	2325.40	4.11	125.00	75.00	38.00
18.87	1490.00	0.00	0.00	585.30	21340.00	602.74	603.00	2510.99	3.68	125.00	75.00	38.00
18.87	1490.00	0.00	0.00	585.30	23040.00	603.20	603.46	2555.25	3.54	125.00	75.00	38.00
18.87	1490.00	0.00	0.00	585.30	27030.00	604.20	604.43	2649.35	3.29	125.00	75.00	38.00
19.22	1870.00	0.00	0.00	586.10	23040.00	603.74	603.81	2552.43	1.20	125.00	75.00	38.00
19.22	1870.00	0.00	0.00	586.10	17260.00	602.08	602.15	2407.82	1.21	125.00	75.00	38.00
19.22	1870.00	0.00	0.00	586.10	21340.00	603.29	603.37	2519.20	1.20	125.00	75.00	38.00
19.22	1870.00	0.00	0.00	586.10	23040.00	603.74	603.81	2552.43	1.20	125.00	75.00	38.00
19.22	1870.00	0.00	0.00	586.10	27030.00	604.68	604.76	2616.24	1.22	125.00	75.00	38.00
20.08	4510.00	0.00	0.00	588.50	23040.00	604.45	604.64	1145.27	2.69	125.00	75.00	38.00
20.08	4510.00	0.00	0.00	588.50	17260.00	602.79	602.95	1131.97	2.55	125.00	75.00	38.00
20.08	4510.00	0.00	0.00	588.50	21340.00	604.00	604.18	1141.70	2.64	125.00	75.00	38.00
20.08	4510.00	0.00	0.00	588.50	23040.00	604.45	604.64	1145.27	2.69	125.00	75.00	38.00
20.08	4510.00	0.00	0.00	588.50	27030.00	605.40	605.61	1152.92	2.80	125.00	75.00	38.00

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
4.261	23190.000	586.389	0.000	0.000	0.000	1094.872	0.000	-0.000
4.261	17490.000	585.038	-1.351	0.000	0.000	1090.177	4.695	-0.000
4.261	21510.000	586.007	.969	0.000	0.000	1093.545	1.328	-0.000
4.261	23190.000	586.389	.382	0.000	0.000	1094.872	0.000	-0.000
4.261	27160.000	587.255	.866	0.000	0.000	1097.882	-3.010	-0.000
4.886	23190.000	587.348	0.000	.959	0.000	1398.942	0.000	3303.000
4.886	17490.000	585.923	-1.425	.885	0.000	1398.095	.847	3303.000
4.886	21510.000	586.947	1.023	.940	0.000	1398.704	.238	3303.000
4.886	23190.000	587.348	.401	.959	0.000	1398.942	0.000	3303.000
4.886	27160.000	588.249	.901	.994	0.000	1399.478	-.536	3303.000
5.123	23190.000	587.690	0.000	.342	0.000	1764.998	0.000	1250.000
5.123	17490.000	586.262	-1.427	.339	0.000	1764.998	.000	1250.000
5.123	21510.000	587.289	1.026	.342	0.000	1764.998	.000	1250.000
5.123	23190.000	587.690	.401	.342	0.000	1764.998	0.000	1250.000
5.123	27160.000	588.589	.899	.340	0.000	1764.998	-.000	1250.000
5.420	23190.000	588.065	0.000	.376	0.000	2919.999	0.000	1565.000
5.420	17490.000	586.637	-1.428	.375	0.000	2919.999	.000	1565.000
5.420	21510.000	587.666	1.029	.378	0.000	2919.999	.000	1565.000
5.420	23190.000	588.065	.399	.376	0.000	2919.999	0.000	1565.000
5.420	27160.000	588.958	.892	.369	0.000	2919.999	-.000	1565.000
5.636	23190.000	588.231	0.000	.166	0.000	1556.107	0.000	1145.000
5.636	17490.000	586.833	-1.398	.196	0.000	1088.835	467.272	1145.000
5.636	21510.000	587.841	1.008	.175	0.000	1517.837	38.270	1145.000
5.636	23190.000	588.231	.390	.166	0.000	1556.107	0.000	1145.000
5.636	27160.000	589.102	.871	.144	0.000	1641.622	-85.515	1145.000
5.877	23190.000	588.677	0.000	.446	0.000	1099.479	0.000	1270.000
5.877	17490.000	587.243	-1.434	.410	0.000	1054.136	45.343	1270.000
5.877	21510.000	588.280	1.037	.439	0.000	1090.521	8.958	1270.000
5.877	23190.000	588.677	.397	.446	0.000	1099.479	0.000	1270.000
5.877	27160.000	589.557	.880	.455	0.000	1099.999	-.520	1270.000

6.000	17490.000	587.404	-1.445	.161	0.000	676.326	73.673	650.000
6.000	21510.000	588.448	1.044	.168	0.000	677.674	72.325	650.000
6.000	23190.000	588.849	.401	.172	0.000	749.999	0.000	650.000
6.000	27160.000	589.735	.886	.178	0.000	749.999	-.000	650.000
6.095	23190.000	589.036	0.000	.188	0.000	526.922	0.000	500.000
6.095	17490.000	587.565	-1.472	.161	0.000	507.117	19.804	500.000
6.095	21510.000	588.629	1.064	.181	0.000	520.994	5.927	500.000
6.095	23190.000	589.036	.407	.188	0.000	526.922	0.000	500.000
6.095	27160.000	589.938	.902	.203	0.000	540.047	-13.125	500.000
6.096	23190.000	589.026	0.000	-.011	0.000	502.844	0.000	1.000
6.096	17490.000	587.557	-1.469	-.008	0.000	483.120	19.725	1.000
6.096	21510.000	588.619	1.062	-.010	0.000	496.923	5.921	1.000
6.096	23190.000	589.026	.406	-.011	0.000	502.844	0.000	1.000
6.096	27160.000	589.925	.900	-.013	0.000	515.954	-13.110	1.000
6.104	23190.000	589.043	0.000	.017	0.000	503.029	0.000	48.000
6.104	17490.000	587.570	-1.473	.013	0.000	483.238	19.791	48.000
6.104	21510.000	588.635	1.065	.016	0.000	497.096	5.933	48.000
6.104	23190.000	589.043	.408	.017	0.000	503.029	0.000	48.000
6.104	27160.000	589.945	.903	.020	0.000	516.166	-13.137	48.000
6.105	23190.000	589.066	0.000	.023	0.000	527.346	0.000	1.000
6.105	17490.000	587.586	-1.479	.016	0.000	507.308	20.038	1.000
6.105	21510.000	588.656	1.070	.021	0.000	521.240	6.106	1.000
6.105	23190.000	589.066	.410	.023	0.000	527.346	0.000	1.000
6.105	27160.000	589.973	.907	.028	0.000	540.545	-13.199	1.000
6.110	23190.000	589.071	0.000	.006	0.000	527.461	0.000	30.000
6.110	17490.000	587.591	-1.481	.004	0.000	507.381	20.080	30.000
6.110	21510.000	588.661	1.070	.005	0.000	521.347	6.114	30.000
6.110	23190.000	589.071	.410	.006	0.000	527.461	0.000	30.000
6.110	27160.000	589.979	.908	.006	0.000	540.677	-13.216	30.000
6.111	23190.000	589.060	0.000	-.011	0.000	503.367	0.000	1.000
6.111	17490.000	587.583	-1.477	-.008	0.000	483.383	19.984	1.000
6.111	21510.000	588.651	1.068	-.010	0.000	497.350	6.017	1.000
6.111	23190.000	589.060	.409	-.011	0.000	503.367	0.000	1.000
6.111	27160.000	589.966	.906	-.013	0.000	516.566	-13.199	1.000
6.119	23190.000	589.077	0.000	.017	0.000	503.551	0.000	48.000
6.119	17490.000	587.596	-1.481	.013	0.000	483.501	20.050	48.000
6.119	21510.000	588.667	1.071	.016	0.000	497.522	6.029	48.000
6.119	23190.000	589.077	.410	.017	0.000	503.551	0.000	48.000
6.119	27160.000	589.986	.908	.020	0.000	516.777	-13.226	48.000
6.120	23190.000	589.100	0.000	.023	0.000	527.849	0.000	1.000
6.120	17490.000	587.612	-1.488	.016	0.000	507.595	20.254	1.000
6.120	21510.000	588.688	1.076	.021	0.000	521.852	5.997	1.000
6.120	23190.000	589.100	.412	.023	0.000	527.849	0.000	1.000
6.120	27160.000	590.013	.913	.027	0.000	541.105	-13.256	1.000
6.171	23190.000	589.183	0.000	.083	0.000	999.999	0.000	275.000
6.171	17490.000	587.668	-1.515	.056	0.000	999.999	.000	275.000
6.171	21510.000	588.763	1.095	.075	0.000	999.999	.000	275.000
6.171	23190.000	589.183	.420	.083	0.000	999.999	0.000	275.000
6.171	27160.000	590.116	.932	.103	0.000	999.999	-.000	275.000
6.257	23190.000	589.242	0.000	.059	0.000	899.999	0.000	450.000
6.257	17490.000	587.724	-1.518	.056	0.000	899.999	.000	450.000
6.257	21510.000	588.821	1.097	.058	0.000	899.999	.000	450.000
6.257	23190.000	589.242	.421	.059	0.000	899.999	0.000	450.000
6.257	27160.000	590.178	.936	.063	0.000	899.999	-.000	450.000

6.562	17490.000	587.896	-1.549	.172	0.000	424.215	1.797	1740.000
6.562	21510.000	589.016	1.120	.195	0.000	425.514	.498	1740.000
6.562	23190.000	589.446	.430	.203	0.000	426.012	0.000	1740.000
6.562	27160.000	590.399	.953	.220	0.000	427.117	-1.105	1740.000
6.694	23190.000	589.649	0.000	.203	0.000	364.919	0.000	700.000
6.694	17490.000	588.058	-1.591	.162	0.000	359.018	5.901	700.000
6.694	21510.000	589.207	1.150	.191	0.000	363.281	1.638	700.000
6.694	23190.000	589.649	.442	.203	0.000	364.919	0.000	700.000
6.694	27160.000	590.629	.980	.231	0.000	368.554	-3.635	700.000
6.695	23190.000	589.618	0.000	-.031	0.000	326.651	0.000	1.000
6.695	17490.000	588.037	-1.581	-.021	0.000	321.600	5.051	1.000
6.695	21510.000	589.179	1.143	-.028	0.000	325.250	1.401	1.000
6.695	23190.000	589.618	.439	-.031	0.000	326.651	0.000	1.000
6.695	27160.000	590.589	.972	-.040	0.000	346.252	-19.601	1.000
6.702	23190.000	589.638	0.000	.020	0.000	326.700	0.000	40.000
6.702	17490.000	588.052	-1.586	.015	0.000	321.638	5.062	40.000
6.702	21510.000	589.198	1.146	.019	0.000	325.296	1.404	40.000
6.702	23190.000	589.638	.440	.020	0.000	326.700	0.000	40.000
6.702	27160.000	590.616	.978	.027	0.000	346.324	-19.624	40.000
6.703	23190.000	589.703	0.000	.065	0.000	365.120	0.000	1.000
6.703	17490.000	588.096	-1.607	.044	0.000	359.160	5.960	1.000
6.703	21510.000	589.257	1.161	.059	0.000	363.464	1.655	1.000
6.703	23190.000	589.703	.446	.065	0.000	365.120	0.000	1.000
6.703	27160.000	590.699	.995	.082	0.000	368.811	-3.692	1.000
6.740	23190.000	589.906	0.000	.203	0.000	749.999	0.000	200.000
6.740	17490.000	588.245	-1.660	.149	0.000	536.983	213.016	200.000
6.740	21510.000	589.444	1.198	.187	0.000	726.099	23.900	200.000
6.740	23190.000	589.906	.462	.203	0.000	749.999	0.000	200.000
6.740	27160.000	590.939	1.033	.241	0.000	749.999	-.000	200.000
6.896	23150.000	590.002	0.000	.096	0.000	2283.999	0.000	825.000
6.896	17430.000	588.307	-1.695	.061	0.000	2040.131	243.868	825.000
6.896	21470.000	589.529	1.222	.085	0.000	2283.999	.000	825.000
6.896	23150.000	590.002	.473	.096	0.000	2283.999	0.000	825.000
6.896	27130.000	591.062	1.060	.123	0.000	2283.999	-.000	825.000
7.052	23150.000	590.075	0.000	.073	0.000	3769.999	0.000	825.000
7.052	17430.000	588.363	-1.712	.056	0.000	3226.363	543.636	825.000
7.052	21470.000	589.597	1.234	.068	0.000	3769.700	.299	825.000
7.052	23150.000	590.075	.478	.073	0.000	3769.999	0.000	825.000
7.052	27130.000	591.149	1.074	.087	0.000	3769.999	-.000	825.000
7.207	23150.000	590.179	0.000	.104	0.000	3569.999	0.000	818.000
7.207	17430.000	588.467	-1.712	.104	0.000	3098.107	471.892	818.000
7.207	21470.000	589.702	1.235	.105	0.000	3569.999	.000	818.000
7.207	23150.000	590.179	.477	.104	0.000	3569.999	0.000	818.000
7.207	27130.000	591.250	1.070	.101	0.000	3569.999	-.000	818.000
7.801	23150.000	590.929	0.000	.749	0.000	1481.315	0.000	3135.000
7.801	17430.000	589.301	-1.627	.834	0.000	1091.574	389.741	3135.000
7.801	21470.000	590.477	1.176	.775	0.000	1450.566	30.749	3135.000
7.801	23150.000	590.929	.451	.749	0.000	1481.315	0.000	3135.000
7.801	27130.000	591.941	1.013	.692	0.000	1492.999	-11.684	3135.000
7.934	23150.000	591.137	0.000	.208	0.000	1121.379	0.000	700.000
7.934	17430.000	589.492	-1.645	.191	0.000	986.983	134.396	700.000
7.934	21470.000	590.682	1.190	.205	0.000	1113.620	7.759	700.000
7.934	23150.000	591.137	.455	.208	0.000	1121.379	0.000	700.000
7.934	27130.000	592.154	1.017	.212	0.000	1125.415	-4.036	700.000

7.945	17430.000	589.504	-1.656	.013	0.000	563.610	554.137	60.000
7.945	21470.000	590.697	1.192	.015	0.000	1059.810	57.937	60.000
7.945	23150.000	591.161	.464	.024	0.000	1117.747	0.000	60.000
7.945	27130.000	592.215	1.055	.062	0.000	1125.662	-7.915	60.000
7.956	23150.000	591.172	0.000	.011	0.000	1121.507	0.000	60.000
7.956	17430.000	589.523	-1.649	.019	0.000	1065.507	56.000	60.000
7.956	21470.000	590.713	1.190	.016	0.000	1114.216	7.291	60.000
7.956	23150.000	591.172	.459	.011	0.000	1121.507	0.000	60.000
7.956	27130.000	592.207	1.035	-.008	0.000	1125.628	-4.122	60.000
8.241	23150.000	591.596	0.000	.424	0.000	1618.885	0.000	1500.000
8.241	17430.000	589.884	-1.712	.361	0.000	1465.199	153.686	1500.000
8.241	21470.000	591.119	1.235	.406	0.000	1598.277	20.608	1500.000
8.241	23150.000	591.596	.477	.424	0.000	1618.885	0.000	1500.000
8.241	27130.000	592.671	1.075	.464	0.000	1623.584	-4.699	1500.000
8.345	23150.000	591.737	0.000	.141	0.000	1762.908	0.000	550.000
8.345	17430.000	590.005	-1.733	.121	0.000	1321.303	441.605	550.000
8.345	21470.000	591.254	1.250	.135	0.000	1557.855	205.054	550.000
8.345	23150.000	591.737	.483	.141	0.000	1762.908	0.000	550.000
8.345	27130.000	592.828	1.091	.158	0.000	2174.857	-411.949	550.000
8.552	23150.000	591.874	0.000	.136	0.000	2069.579	0.000	1095.000
8.552	17430.000	590.117	-1.757	.112	0.000	1295.054	774.525	1095.000
8.552	21470.000	591.380	1.263	.126	0.000	1978.700	90.879	1095.000
8.552	23150.000	591.874	.494	.136	0.000	2069.579	0.000	1095.000
8.552	27130.000	592.982	1.108	.153	0.000	2336.896	-267.317	1095.000
8.948	23040.000	592.954	0.000	1.081	0.000	2024.999	0.000	2090.000
8.948	17260.000	591.240	-1.715	1.123	0.000	1560.859	464.140	2090.000
8.948	21340.000	592.500	1.260	1.120	0.000	2024.825	.174	2090.000
8.948	23040.000	592.954	.454	1.081	0.000	2024.999	0.000	2090.000
8.948	27030.000	593.940	.985	.958	0.000	2024.999	-.000	2090.000
9.405	23040.000	593.369	0.000	.415	0.000	1365.358	0.000	2415.000
9.405	17260.000	591.626	-1.744	.386	0.000	1187.592	177.766	2415.000
9.405	21340.000	592.907	1.281	.407	0.000	1336.195	29.163	2415.000
9.405	23040.000	593.369	.462	.415	0.000	1365.358	0.000	2415.000
9.405	27030.000	594.369	1.000	.430	0.000	1462.192	-96.833	2415.000
9.802	23040.000	593.705	0.000	.336	0.000	886.520	0.000	2095.000
9.802	17260.000	591.935	-1.770	.309	0.000	653.388	233.132	2095.000
9.802	21340.000	593.235	1.300	.328	0.000	880.601	5.919	2095.000
9.802	23040.000	593.705	.470	.336	0.000	886.520	0.000	2095.000
9.802	27030.000	594.720	1.015	.351	0.000	887.831	-1.311	2095.000
10.354	23040.000	594.349	0.000	.644	0.000	701.630	0.000	2915.000
10.354	17260.000	592.485	-1.864	.550	0.000	693.887	7.742	2915.000
10.354	21340.000	593.853	1.368	.618	0.000	699.288	2.342	2915.000
10.354	23040.000	594.349	.496	.644	0.000	701.630	0.000	2915.000
10.354	27030.000	595.417	1.068	.697	0.000	707.493	-5.863	2915.000
10.877	23040.000	594.855	0.000	.506	0.000	996.746	0.000	2760.000
10.877	17260.000	592.905	-1.950	.420	0.000	876.512	120.234	2760.000
10.877	21340.000	594.332	1.427	.479	0.000	979.698	17.048	2760.000
10.877	23040.000	594.855	.523	.506	0.000	996.746	0.000	2760.000
10.877	27030.000	595.985	1.131	.568	0.000	1036.912	-40.166	2760.000
11.066	23040.000	595.057	0.000	.202	0.000	1266.066	0.000	1000.000
11.066	17260.000	593.076	-1.981	.171	0.000	1187.347	78.719	1000.000
11.066	21340.000	594.525	1.449	.193	0.000	1259.473	6.593	1000.000
11.066	23040.000	595.057	.532	.202	0.000	1266.066	0.000	1000.000
11.066	27030.000	596.207	1.151	.222	0.000	1290.110	-24.044	1000.000

11.326	17260.000	593.276	-1.983	.200	0.000	1016.659	222.688	1370.000
11.326	21340.000	594.726	1.450	.201	0.000	1206.333	33.014	1370.000
11.326	23040.000	595.259	.533	.202	0.000	1239.346	0.000	1370.000
11.326	27030.000	596.412	1.153	.205	0.000	1285.123	-45.777	1370.000
11.636	23040.000	595.525	0.000	.266	0.000	1750.895	0.000	1640.000
11.636	17260.000	593.535	-1.990	.259	0.000	1518.540	232.355	1640.000
11.636	21340.000	594.990	1.455	.264	0.000	1699.575	51.320	1640.000
11.636	23040.000	595.525	.535	.266	0.000	1750.895	0.000	1640.000
11.636	27030.000	596.683	1.158	.270	0.000	1861.973	-111.078	1640.000
12.081	23040.000	595.929	0.000	.404	0.000	1749.409	0.000	2345.000
12.081	17260.000	593.924	-2.006	.388	0.000	1731.413	17.997	2345.000
12.081	21340.000	595.389	1.466	.399	0.000	1744.567	4.842	2345.000
12.081	23040.000	595.929	.540	.404	0.000	1749.409	0.000	2345.000
12.081	27030.000	597.098	1.169	.416	0.000	1759.892	-10.482	2345.000
12.566	23040.000	596.207	0.000	.278	0.000	3709.827	0.000	2565.000
12.566	17260.000	594.219	-1.989	.295	0.000	3206.561	503.265	2565.000
12.566	21340.000	595.670	1.451	.281	0.000	3683.876	25.950	2565.000
12.566	23040.000	596.207	.537	.278	0.000	3709.827	0.000	2565.000
12.566	27030.000	597.374	1.167	.276	0.000	3744.812	-34.986	2565.000
13.193	23040.000	596.477	0.000	.270	0.000	4752.437	0.000	3310.000
13.193	17260.000	594.567	-1.910	.348	0.000	4285.501	466.936	3310.000
13.193	21340.000	595.959	1.391	.289	0.000	4743.805	8.632	3310.000
13.193	23040.000	596.477	.519	.270	0.000	4752.437	0.000	3310.000
13.193	27030.000	597.610	1.132	.236	0.000	4753.199	-.762	3310.000
13.896	23040.000	596.847	0.000	.370	0.000	2882.811	0.000	3710.000
13.896	17260.000	595.063	-1.784	.496	0.000	2696.631	186.181	3710.000
13.896	21340.000	596.359	1.296	.401	0.000	2839.788	43.023	3710.000
13.896	23040.000	596.847	.488	.370	0.000	2882.811	0.000	3710.000
13.896	27030.000	597.920	1.074	.311	0.000	2883.465	-.654	3710.000
14.368	23040.000	597.156	0.000	.309	0.000	2018.931	0.000	2495.000
14.368	17260.000	595.386	-1.770	.323	0.000	1904.131	114.801	2495.000
14.368	21340.000	596.673	1.287	.314	0.000	1991.722	27.209	2495.000
14.368	23040.000	597.156	.483	.309	0.000	2018.931	0.000	2495.000
14.368	27030.000	598.218	1.062	.298	0.000	2099.343	-80.412	2495.000
14.877	23040.000	597.566	0.000	.410	0.000	4588.762	0.000	2685.000
14.877	17260.000	595.761	-1.806	.375	0.000	4549.173	39.589	2685.000
14.877	21340.000	597.073	1.313	.400	0.000	4580.758	8.004	2685.000
14.877	23040.000	597.566	.493	.410	0.000	4588.762	0.000	2685.000
14.877	27030.000	598.647	1.081	.428	0.000	4606.307	-17.545	2685.000
15.155	23040.000	597.667	0.000	.100	0.000	3919.594	0.000	1470.000
15.155	17260.000	595.853	-1.814	.092	0.000	2872.209	1047.384	1470.000
15.155	21340.000	597.170	1.317	.096	0.000	3861.297	58.297	1470.000
15.155	23040.000	597.667	.497	.100	0.000	3919.594	0.000	1470.000
15.155	27030.000	598.754	1.088	.108	0.000	3995.043	-75.450	1470.000
15.717	23040.000	598.434	0.000	.767	0.000	3213.813	0.000	2965.000
15.717	17260.000	596.797	-1.637	.945	0.000	3192.050	21.763	2965.000
15.717	21340.000	597.993	1.196	.823	0.000	3208.011	5.802	2965.000
15.717	23040.000	598.434	.441	.767	0.000	3213.813	0.000	2965.000
15.717	27030.000	599.407	.973	.652	0.000	3226.614	-12.801	2965.000
16.015	23040.000	598.780	0.000	.346	0.000	1971.318	0.000	1575.000
16.015	17260.000	597.179	-1.601	.382	0.000	1955.102	16.217	1575.000
16.015	21340.000	598.347	1.168	.354	0.000	1966.935	4.384	1575.000
16.015	23040.000	598.780	.433	.346	0.000	1971.318	0.000	1575.000
16.015	27030.000	599.734	.955	.328	0.000	1980.993	-9.675	1575.000

16.290	17260.000	597.469	-1.597	.290	0.000	1706.326	2.593	1450.000
16.290	21340.000	598.634	1.164	.287	0.000	1708.218	.701	1450.000
16.290	23040.000	599.066	.432	.287	0.000	1708.919	0.000	1450.000
16.290	27030.000	600.019	.953	.285	0.000	1710.482	-1.564	1450.000
16.531	23040.000	599.354	0.000	.288	0.000	1885.720	0.000	1275.000
16.531	17260.000	597.764	-1.591	.294	0.000	1449.368	436.353	1275.000
16.531	21340.000	598.923	1.160	.290	0.000	1885.345	.375	1275.000
16.531	23040.000	599.354	.431	.288	0.000	1885.720	0.000	1275.000
16.531	27030.000	600.302	.948	.282	0.000	1886.546	-.826	1275.000
16.788	23040.000	599.772	0.000	.418	0.000	2168.906	0.000	1355.000
16.788	17260.000	598.148	-1.624	.384	0.000	1025.390	1143.516	1355.000
16.788	21340.000	599.337	1.189	.413	0.000	2083.698	85.208	1355.000
16.788	23040.000	599.772	.435	.418	0.000	2168.906	0.000	1355.000
16.788	27030.000	600.720	.948	.419	0.000	2208.998	-40.092	1355.000
17.024	23040.000	600.379	0.000	.607	0.000	1799.751	0.000	1245.000
17.024	17260.000	598.674	-1.704	.526	0.000	1604.750	195.002	1245.000
17.024	21340.000	599.930	1.255	.593	0.000	1762.277	37.474	1245.000
17.024	23040.000	600.379	.449	.607	0.000	1799.751	0.000	1245.000
17.024	27030.000	601.340	.961	.619	0.000	1879.186	-79.434	1245.000
17.514	23040.000	600.801	0.000	.422	0.000	1548.425	0.000	2590.000
17.514	17260.000	599.074	-1.727	.399	0.000	940.469	607.956	2590.000
17.514	21340.000	600.345	1.271	.415	0.000	1497.276	51.149	2590.000
17.514	23040.000	600.801	.456	.422	0.000	1548.425	0.000	2590.000
17.514	27030.000	601.775	.974	.435	0.000	1604.886	-56.461	2590.000
18.085	23040.000	601.854	0.000	1.053	0.000	1334.753	0.000	3015.000
18.085	17260.000	600.000	-1.854	.926	0.000	1260.739	74.014	3015.000
18.085	21340.000	601.366	1.366	1.021	0.000	1316.973	17.780	3015.000
18.085	23040.000	601.854	.488	1.053	0.000	1334.753	0.000	3015.000
18.085	27030.000	602.888	1.035	1.113	0.000	1344.981	-10.229	3015.000
18.585	23040.000	602.636	0.000	.783	0.000	1949.525	0.000	2640.000
18.585	17260.000	600.818	-1.818	.818	0.000	1471.659	477.866	2640.000
18.585	21340.000	602.153	1.335	.787	0.000	1786.584	162.941	2640.000
18.585	23040.000	602.636	.484	.783	0.000	1949.525	0.000	2640.000
18.585	27030.000	603.667	1.031	.778	0.000	2134.316	-184.791	2640.000
18.867	23040.000	603.205	0.000	.569	0.000	2555.252	0.000	1490.000
18.867	17260.000	601.447	-1.758	.629	0.000	2325.404	229.847	1490.000
18.867	21340.000	602.738	1.292	.586	0.000	2510.990	44.262	1490.000
18.867	23040.000	603.205	.466	.569	0.000	2555.252	0.000	1490.000
18.867	27030.000	604.196	.992	.530	0.000	2649.347	-94.095	1490.000
19.222	23040.000	603.737	0.000	.532	0.000	2552.431	0.000	1870.000
19.222	17260.000	602.077	-1.660	.630	0.000	2407.815	144.615	1870.000
19.222	21340.000	603.295	1.218	.556	0.000	2519.198	33.233	1870.000
19.222	23040.000	603.737	.442	.532	0.000	2552.431	0.000	1870.000
19.222	27030.000	604.683	.946	.487	0.000	2616.240	-63.809	1870.000
20.076	23040.000	604.450	0.000	.713	0.000	1145.268	0.000	4510.000
20.076	17260.000	602.790	-1.659	.714	0.000	1131.973	13.296	4510.000
20.076	21340.000	604.005	1.214	.710	0.000	1141.704	3.564	4510.000
20.076	23040.000	604.450	.445	.713	0.000	1145.268	0.000	4510.000
20.076	27030.000	605.404	.955	.721	0.000	1152.918	-7.649	4510.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	0.000	3023.521	0.000
2	0.000	0.000	2705.677	-317.843

3	0.000	0.000	[illegible]	[illegible]
4	0.000	0.000	3023.521	0.000
5	0.000	0.000	3076.167	52.647



1) COUNTY: Berrien

2) STUDY NAME: Bertos Harbor, City & Bertos Twp

3) WATERCOURSE: OX Creek

4) DOCUMENT TYPE: 100-yr Natural



.69 10 min

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$$$$$$$   $$$$$$$$  $     $$  $$$$$$$$   $$$$$ $   $$$$$$   $$$$$$$$
$$    $$  $$        $$    $$     $$     $$    $   $$    $$     $$
$$    $$  $$        $$$   $$     $$     $$   $$$  $$    $$     $$
$$$$$$$   $$$$$     $$$$  $$     $$     $$  $ $$  $$    $$     $$
$$    $$  $$        $$ $$ $$     $$     $$ $$ $$  $$    $$     $$
$$    $$  $$        $$  $$$$     $$     $$ $  $$  $$    $$     $$
$$    $$  $$        $$   $$$     $$     $$$   $$  $$    $$     $$
$$    $$  $$        $$    $$  $$ $$      $    $$  $$    $$     $$
$$$$$$$   $$$$$$$$  $$    $$   $$$      $ $$$$$    $$$$$$   $$$$$$$$
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NOV 19 '76

CITY OF BENTON HARBOR &
BENTON TOWNSHIP FIS
J&A File No. 5555-08,07
NATURAL FLOODWAY
100 YR FLOW ONLY

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**********************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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C
1       BENTON TWP. (07) & BENTON HARBOR (08) FIS      P.M. - JOHN EMIG
T2      100 YEAR FLOOD
T3      OX CREEK
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-0.	4.	-0.	-0.	.000640	-0.00	-0.0	-0.	581.900	-0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBV	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	.060	.100	.040	.300	.500	-0.000	-0.000	-0.000	-0.000	-0.000
QT	4.000	460.000	800.000	920.000	1220.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	0.000	31.000	1058.000	1122.000	-0.000	-0.000	-0.000	-0.000	-2.550	-0.000
X3	10.000	-0.000	-0.000	1022.000	-0.000	1522.000	-0.000	-0.000	-0.000	-0.000
GR	586.400	0.000	584.100	22.000	583.500	122.000	582.900	222.000	583.300	322.000
GR	583.400	422.000	583.300	522.000	583.000	622.000	582.900	722.000	582.600	822.000
GR	582.400	922.000	583.700	1022.000	581.600	1058.000	580.000	1067.000	577.200	1072.000
GR	576.100	1082.000	576.300	1092.000	577.700	1102.000	578.600	1112.000	581.400	1118.000
GR	583.400	1122.000	583.400	1222.000	583.700	1322.000	584.000	1422.000	584.200	1522.000
GR	583.300	1622.000	582.400	1722.000	582.700	1822.000	584.400	1892.000	584.100	1907.000
GR	582.700	1927.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	400.000	-0.000	-0.000	-0.000	400.000	400.000	400.000	-0.000	.510	-0.000
X3	10.000	-0.000	-0.000	1022.000	-0.000	1522.000	-0.000	-0.000	-0.000	-0.000
X1	800.000	-0.000	-0.000	-0.000	400.000	400.000	400.000	-0.000	.510	-0.000
X3	10.000	-0.000	-0.000	1022.000	-0.000	1522.000	-0.000	-0.000	-0.000	-0.000
X1	1200.000	-0.000	-0.000	-0.000	400.000	400.000	400.000	-0.000	.510	-0.000
X3	10.000	-0.000	-0.000	1022.000	-0.000	1522.000	-0.000	-0.000	-0.000	-0.000
X1	1600.000	-0.000	-0.000	-0.000	400.000	400.000	400.000	-0.000	.510	-0.000
X3	10.000	-0.000	-0.000	1022.000	-0.000	1522.000	-0.000	-0.000	-0.000	-0.000
X1	2000.000	-0.000	-0.000	-0.000	400.000	400.000	400.000	-0.000	.510	-0.000
X3	10.000	-0.000	-0.000	1022.000	-0.000	1522.000	-0.000	-0.000	-0.000	-0.000
X1	2125.000	-0.000	-0.000	-0.000	125.000	125.000	125.000	-0.000	-1.120	-0.000
X3	10.000	-0.000	-0.000	1060.000	-0.000	1120.000	-0.000	-0.000	-0.000	-0.000
X1	2175.000	-0.000	-0.000	-0.000	50.000	50.000	50.000	-0.000	-.450	-0.000
X3	10.000	-0.000	-0.000	1076.000	-0.000	1104.000	-0.000	-0.000	-0.000	-0.000
X1	2199.000	31.000	1484.600	1500.000	24.000	24.000	24.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1400.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000
GR	585.200	0.000	585.000	100.000	585.700	200.000	586.100	300.000	588.000	335.000
GR	586.400	400.000	583.300	500.000	582.900	600.000	582.800	700.000	583.400	800.000
GR	583.200	900.000	583.000	1000.000	583.000	1100.000	583.000	1200.000	582.900	1300.000
GR	583.300	1400.000	584.800	1484.600	576.900	1484.600	574.300	1492.300	576.100	1500.000

GR	583.400	2000.000	583.300	2100.000	583.400	2200.000	584.700	2301.000	584.300	2320.000
GR	582.000	2365.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.035	.035	.033	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2200.000	-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	1400.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000
BT	6.000	1400.000	583.300	0.000	1484.600	584.800	582.900	1484.600	584.600	582.900
BT	1492.300	584.800	582.900	1500.000	584.800	582.000	1600.000	583.600	0.000	-0.000
X1	2230.000	-0.000	-0.000	-0.000	30.000	30.000	30.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	1.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1400.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000
NC	.050	.050	.040	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2231.000	-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	1400.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000
X1	2255.000	31.000	1058.000	1122.000	24.000	24.000	24.000	-0.000	-1.730	-0.000
X3	10.000	-0.000	-0.000	1050.000	-0.000	1190.000	-0.000	-0.000	-0.000	-0.000
GR	586.400	0.000	584.100	22.000	583.500	122.000	582.900	222.000	583.300	322.000
GR	583.400	422.000	583.300	522.000	583.000	622.000	582.900	722.000	582.600	822.000
GR	582.400	922.000	583.700	1022.000	581.600	1058.000	580.000	1067.000	577.200	1072.000
GR	576.100	1082.000	576.300	1092.000	577.700	1102.000	578.600	1112.000	581.400	1118.000
GR	583.400	1122.000	583.400	1222.000	583.700	1322.000	584.000	1422.000	584.200	1522.000
GR	583.300	1622.000	582.400	1722.000	582.700	1822.000	584.400	1892.000	584.100	1907.000
GR	582.700	1927.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2410.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1022.000	-0.000	1222.000	-0.000	-0.000	-0.000	-0.000
X1	2565.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1022.000	-0.000	1372.000	-0.000	-0.000	-0.000	-0.000
X1	2720.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1022.000	-0.000	1329.000	-0.000	-0.000	-0.000	-0.000
X1	2875.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1022.000	-0.000	1288.000	-0.000	-0.000	-0.000	-0.000
X1	3030.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1022.000	-0.000	1247.000	-0.000	-0.000	-0.000	-0.000
X1	3185.000	39.000	1452.000	1493.000	155.000	155.000	155.000	-0.000	-1.330	-0.000
X3	10.000	-0.000	-0.000	1416.000	-0.000	1599.000	-0.000	-0.000	-0.000	-0.000
GR	592.100	0.000	592.000	52.000	592.600	152.000	591.500	252.000	590.400	352.000
GR	589.700	452.000	589.200	552.000	588.300	652.000	588.300	752.000	587.800	852.000
GR	587.200	952.000	587.000	1052.000	586.800	1152.000	586.100	1252.000	586.000	1352.000
GR	585.200	1452.000	581.200	1452.000	580.300	1457.000	578.700	1462.000	578.400	1472.000
GR	578.400	1482.000	578.500	1487.000	578.900	1493.000	585.400	1493.000	585.800	1552.000
GR	585.000	1652.000	584.800	1752.000	585.200	1852.000	584.600	1952.000	583.500	2052.000
GR	583.400	2152.000	583.700	2252.000	584.200	2352.000	585.200	2452.000	586.100	2552.000
GR	586.000	2652.000	583.600	2752.000	583.700	2852.000	583.200	2895.000	-0.000	-0.000
X1	3340.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1416.000	-0.000	1558.000	-0.000	-0.000	-0.000	-0.000
X1	3495.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1416.000	-0.000	1516.000	-0.000	-0.000	-0.000	-0.000
X1	3650.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1443.000	-0.000	1502.000	-0.000	-0.000	-0.000	-0.000
X1	3700.000	-0.000	-0.000	-0.000	50.000	50.000	50.000	-0.000	-.760	-0.000
X3	10.000	-0.000	-0.000	1453.000	-0.000	1492.000	-0.000	-0.000	-0.000	-0.000

X3	10.000	-0.000	-0.000	1456.000	-0.000	1489.000	-0.000	-0.000	-0.000	-0.000
X1	3775.000	53.000	1469.800	1500.000	25.000	25.000	25.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1400.000	-0.000	1600.000	-0.000	583.000	583.000	-0.000
GR	591.400	0.000	591.100	100.000	591.000	200.000	590.600	300.000	589.900	400.000
GR	589.100	500.000	588.800	600.000	588.400	700.000	588.400	800.000	587.600	900.000
GR	587.200	1000.000	586.600	1100.000	586.200	1200.000	585.900	1300.000	585.600	1400.000
GR	586.200	1435.000	585.200	1469.800	581.700	1469.800	580.700	1469.800	579.200	1472.400
GR	579.200	1473.400	579.200	1475.400	579.200	1476.400	580.700	1479.000	581.700	1479.000
GR	585.200	1479.000	585.100	1483.000	576.900	1483.000	577.800	1487.000	577.300	1491.000
GR	585.100	1491.000	585.100	1492.000	576.500	1492.000	578.300	1496.000	577.700	1500.000
GR	585.100	1500.000	585.500	1550.000	585.300	1600.000	585.200	1650.000	585.100	1700.000
GR	584.400	1800.000	583.900	1900.000	584.200	2000.000	583.600	2100.000	583.500	2200.000
GR	584.100	2300.000	584.800	2400.000	585.800	2500.000	586.600	2600.000	587.600	2700.000
GR	588.500	2800.000	589.400	2900.000	592.100	3003.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	2.030	2.900	-0.000	30.200	-0.000	184.500	-0.000	576.500	576.500
X1	3844.000	-0.000	-0.000	-0.000	69.000	69.000	69.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	582.200	585.300	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1400.000	-0.000	1600.000	-0.000	585.300	585.300	-0.000
BT	16.000	1400.000	585.600	0.000	1469.800	586.800	581.700	1472.400	586.800	584.700
BT	1473.400	586.800	585.200	1475.400	586.800	585.200	1476.400	586.800	584.700	1479.000
BT	586.800	581.700	1483.000	586.800	585.100	1483.000	586.800	585.100	1491.000	586.800
BT	585.100	1491.000	586.800	585.100	1492.000	586.800	585.100	1492.000	586.800	585.100
BT	1500.000	586.800	585.100	1500.000	586.800	577.700	1600.000	585.300	0.000	-0.000
EU	-0.000	-0.000	-0.000	-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	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= 1022.0 1522.0 TYPE= 1 TARGET= 500.000

ENCROACHMENTS ON LEFT DUE TO FACTORY BUILDINGS (UP TO NORTH SHORE DR.)

0.00	7.35	580.90	0.00	581.90	581.02	.11	0.00	0.00	579.05
920.	17.	902.	0.	29.	331.	6.	0.	0.	580.85
0.00	.59	2.72	.05	.060	.040	.100	0.000	573.55	1026.23
.000628	-0.	-0.	-0.	0	0	4	0.00	213.55	1239.76

3470 ENCROACHMENT STATIONS= 1022.0 1522.0 TYPE= 1 TARGET= 500.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 579.56 ELREA= 581.36

400.00	7.11	581.17	0.00	0.00	581.30	.13	.27	.01	579.56
920.	13.	907.	0.	22.	315.	0.	3.	1.	581.36
.04	.58	2.88	0.00	.060	.040	.100	.040	574.06	1030.54
.000742	400.	400.	400.	1	0	1	0.00	91.07	1121.60

3280 CROSS SECTION 800.00 EXTENDED .31 FEET

3470 ENCROACHMENT STATIONS= 1022.0 1522.0 TYPE= 1 TARGET= 500.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.07 ELREA= 581.87

800.00	6.91	581.48	0.00	0.00	581.62	.14	.32	.01	580.07
920.	10.	910.	0.	17.	303.	0.	6.	2.	581.87
.08	.57	3.00	0.00	.060	.040	.100	.040	574.57	1033.83
.000845	400.	400.	400.	2	0	1	0.00	87.38	1121.22

3280 CROSS SECTION 1200.00 EXTENDED .15 FEET

3470 ENCROACHMENT STATIONS= 1022.0 1522.0 TYPE= 1 TARGET= 500.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.58 ELREA= 582.38

1200.00	6.75	581.83	0.00	0.00	581.98	.15	.36	.01	580.58
920.	7.	913.	0.	13.	293.	0.	9.	3.	582.38
.11	.56	3.11	0.00	.060	.040	.100	.040	575.08	1036.55
.000943	400.	400.	400.	2	0	1	0.00	84.35	1120.90

3280 CROSS SECTION 1600.00 EXTENDED .03 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1022.0 1522.0 TYPE= 1 TARGET= 500.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.09 ELREA= 582.89

1600.00	6.63	582.22	0.00	0.00	582.38	.16	.39	.00	581.09
920.	6.	914.	0.	11.	285.	0.	12.	4.	582.89
.15	.54	3.20	0.00	.060	.040	.100	.040	575.59	1038.63
.001027	400.	400.	400.	2	0	1	0.00	82.03	1120.66

3470 ENCROACHMENT STATIONS= 1022.0 1522.0 TYPE= 1 TARGET= 500.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.60 ELREA= 583.40

VALLEY SECTION A

2000.00	6.54	582.64	0.00	0.00	582.81	.17	.42	.00	581.60
920.	5.	915.	0.	9.	280.	0.	15.	5.	583.40
.18	.53	3.27	0.00	.060	.040	.100	.040	576.10	1040.16
.001095	400.	400.	400.	2	0	1	0.00	80.32	1120.48

3280 CROSS SECTION 2125.00 EXTENDED 1.23 FEET

3470 ENCROACHMENT STATIONS= 1060.0 1120.0 TYPE= 1 TARGET= 60.000

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

2125.00	7.83	582.81	0.00	0.00	582.92	.10	.09	.02	100000.00
920.	0.	920.	0.	0.	355.	0.	16.	5.	100000.00
.19	0.00	2.59	0.00	.060	.040	.100	.040	574.98	1060.00
.000519	125.	125.	125.	2	0	1	0.00	60.00	1120.00

3280 CROSS SECTION 2175.00 EXTENDED 1.63 FEET

3470 ENCROACHMENT STATIONS= 1076.0 1104.0 TYPE= 1 TARGET= 28.000

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

2175.00	8.23	582.76	0.00	0.00	583.05	.28	.04	.09	100000.00
920.	0.	920.	0.	0.	215.	0.	16.	5.	100000.00
.20	0.00	4.28	0.00	.060	.040	.100	.040	574.53	1076.00
.001508	50.	50.	50.	2	0	1	0.00	28.00	1104.00

3280 CROSS SECTION 2199.00 EXTENDED .42 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1400.0 1600.0 TYPE= 1 TARGET= 200.000

2199.00	8.11	582.41	0.00	0.00	583.54	1.13	.07	.42	584.80

.20	0.00	8.52	0.00	.060	.040	.100	.040	574.30	1484.60	
.008625	24.	24.	24.	2	0	1	0.00	15.40	1500.00	

3280 CROSS SECTION 2200.00 EXTENDED .41 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	IDC	ICONT	CORAR	TOPWID	ENDST	
NORMAL BRIDGE,NRD= 6 MIN ELTRD= 583.30 MAX ELLC= 582.90										
3470 ENCROACHMENT STATIONS=		1400.0	1600.0	TYPE=	1	TARGET=	200.000			
2200.00	8.10	582.40	0.00	0.00	583.57	1.16	.01	.02	584.80	
920.	0.	920.	0.	0.	106.	0.	16.	5.	584.80	
.20	0.00	8.65	0.00	.035	.033	.035	.040	574.30	1484.60	
.008548	1.	1.	1.	1	0	1	-1.59	15.40	1500.00	
3280 CROSS SECTION 2230.00 EXTENDED .75 FEET										
NORMAL BRIDGE,NRD= 6 MIN ELTRD= 583.30 MAX ELLC= 582.90										
3470 ENCROACHMENT STATIONS=		1400.0	1600.0	TYPE=	1	TARGET=	200.000			
BRIDGE SECTION B U/S EIGHTH ST. BRIDGE LENGTH - 30'										
BRIDGE DECK WITH STEEL GUARDRAILS NO PIERS										
2230.00	8.45	582.75	0.00	0.00	583.83	1.08	.24	.02	584.80	
920.	0.	920.	0.	0.	110.	0.	16.	5.	584.80	
.20	0.00	8.34	0.00	.035	.033	.035	.040	574.30	1484.60	
.007765	30.	30.	30.	2	0	1	-2.91	15.40	1500.00	
3280 CROSS SECTION 2231.00 EXTENDED .88 FEET										
3470 ENCROACHMENT STATIONS=		1400.0	1600.0	TYPE=	1	TARGET=	200.000			
2231.00	8.58	582.88	0.00	0.00	583.87	.99	.01	.03	584.80	
920.	0.	920.	0.	0.	115.	0.	16.	5.	584.80	
.20	0.00	7.99	0.00	.050	.040	.050	.040	574.30	1484.60	
.007284	1.	1.	1.	2	0	1	0.00	15.40	1500.00	
3280 CROSS SECTION 2255.00 EXTENDED 1.41 FEET										
3301 HV CHANGED MORE THAN HVINS										
3470 ENCROACHMENT STATIONS=		1050.0	1120.0	TYPE=	1	TARGET=	70.000			
OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 579.87 ELREA= 99998.27										

2255.00	9.74	584.11	0.00	0.00	584.16	.05	.01	.28	579.87
920.	32.	888.	0.	32.	478.	0.	16.	5.	99998.27
.20	1.01	1.86	0.00	.050	.040	.050	.040	574.37	1050.00
.000183	24.	24.	24.	2	0	1	0.00	70.00	1120.00

3280 CROSS SECTION 2410.00 EXTENDED 1.01 FEET

3470 ENCROACHMENT STATIONS= 1022.0 1222.0 TYPE= 1 TARGET= 200.000

2410.00	9.34	584.16	0.00	0.00	584.19	.03	.02	.01	580.32
920.	70.	734.	116.	100.	458.	204.	18.	5.	582.12
.23	.70	1.60	.57	.050	.040	.050	.040	574.82	1022.00
.000141	155.	155.	155.	2	0	1	0.00	200.00	1222.00

3280 CROSS SECTION 2565.00 EXTENDED 2.32 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	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1022.0 1372.0 TYPE= 1 TARGET= 350.000

2565.00	8.92	584.19	0.00	0.00	584.22	.03	.02	.00	580.77
920.	55.	688.	177.	85.	431.	370.	21.	6.	582.57
.27	.65	1.60	.48	.050	.040	.050	.040	575.27	1022.00
.000151	155.	155.	155.	0	0	1	0.00	350.00	1372.00

3280 CROSS SECTION 2720.00 EXTENDED 1.89 FEET

3470 ENCROACHMENT STATIONS= 1022.0 1329.0 TYPE= 1 TARGET= 307.000

2720.00	8.49	584.21	0.00	0.00	584.25	.05	.03	.01	581.22
920.	49.	760.	111.	70.	404.	229.	24.	7.	583.02
.29	.70	1.88	.48	.050	.040	.050	.040	575.72	1022.00
.000230	155.	155.	155.	0	0	1	0.00	307.00	1329.00

3280 CROSS SECTION 2875.00 EXTENDED 1.47 FEET

3470 ENCROACHMENT STATIONS= 1022.0 1288.0 TYPE= 1 TARGET= 266.000

2875.00	8.07	584.24	0.00	0.00	584.31	.07	.04	.01	581.67
920.	40.	826.	54.	55.	377.	121.	26.	8.	583.47
.31	.73	2.19	.45	.050	.040	.050	.040	576.17	1022.00
.000342	155.	155.	155.	0	0	1	0.00	266.00	1288.00

3280 CROSS SECTION 3030.00 EXTENDED 1.06 FEET

3470 ENCROACHMENT STATIONS= 1022.0 1247.0 TYPE= 1 TARGET= 225.000

3030.00	7.67	584.29	0.00	0.00	584.38	.09	.06	.01	582.12
920.	28.	877.	15.	40.	351.	44.	28.	9.	583.92
.33	.70	2.50	.33	.050	.040	.050	.040	576.62	1022.00
.000489	155.	155.	155.	0	0	1	0.00	225.00	1247.00

3265 DIVIDED FLOW

3280 CROSS SECTION 3185.00 EXTENDED 1.15 FEET

3470 ENCROACHMENT STATIONS= 1416.0 1599.0 TYPE= 1 TARGET= 183.000

3185.00	7.28	584.35	0.00	0.00	584.52	.17	.10	.04	583.87
920.	5.	913.	2.	12.	278.	10.	29.	10.	584.07
.34	.41	3.29	.22	.050	.040	.050	.040	577.07	1416.00
.000837	155.	155.	155.	0	0	1	0.00	149.46	1599.00

3280 CROSS SECTION 3340.00 EXTENDED .83 FEET

3470 ENCROACHMENT STATIONS= 1416.0 1558.0 TYPE= 1 TARGET= 142.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.32 ELREA= 584.52

3340.00	6.96	584.48	0.00	0.00	584.67	.19	.14	.01	584.32
920.	0.	920.	0.	2.	265.	0.	31.	10.	584.52
.36	.17	3.48	0.00	.050	.040	.050	.040	577.52	1431.94
.000995	155.	155.	155.	2	0	1	0.00	61.06	1493.00

3280 CROSS SECTION 3495.00 EXTENDED 1.86 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= 1416.0 1516.0 TYPE= 1 TARGET= 100.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.77 ELREA= 584.97

3495.00	6.67	584.64	0.00	0.00	584.84	.21	.17	.01	584.77
920.	0.	920.	0.	0.	252.	0.	31.	11.	584.97
.37	0.00	3.65	0.00	.050	.040	.050	.040	577.97	1452.00
.001155	155.	155.	155.	1	0	1	0.00	41.00	1493.00

3280 CROSS SECTION 3650.00 EXTENDED 1.60 FEET

3470 ENCROACHMENT STATIONS= 1443.0 1502.0 TYPE= 1 TARGET= 59.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 585.22 ELREA= 585.42

VALLEY SECTION C

3650.00	6.40	584.82	0.00	0.00	585.04	.23	.19	.01	585.22
920.	0.	920.	0.	0.	242.	0.	32.	11.	585.42
.38	0.00	3.81	0.00	.050	.040	.050	.040	576.42	1452.00
.001316	155.	155.	155.	2	0	1	0.00	41.00	1493.00

3280 CROSS SECTION 3700.00 EXTENDED 2.47 FEET

3470 ENCROACHMENT STATIONS= 1453.0 1492.0 TYPE= 1 TARGET= 39.000

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

3700.00	7.27	584.93	0.00	0.00	585.11	.19	.06	.01100000.00	
920.	0.	920.	0.	0.	266.	0.	33.	11.	100000.00
.38	0.00	3.46	0.00	.050	.040	.050	.040	577.66	1453.00
.000957	50.	50.	50.	2	0	1	0.00	39.00	1492.00

3280 CROSS SECTION 3750.00 EXTENDED 3.27 FEET

3470 ENCROACHMENT STATIONS= 1456.0 1489.0 TYPE= 1 TARGET= 33.000

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

3750.00	8.07	584.97	0.00	0.00	585.17	.20	.05	.01100000.00	
920.	0.	920.	0.	0.	257.	0.	33.	11.	100000.00
.39	0.00	3.58	0.00	.050	.040	.050	.040	576.90	1456.00
.000968	50.	50.	50.	1	0	1	0.00	33.00	1489.00

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1400.0 1600.0 TYPE= 1 TARGET= 200.000

3775.00	8.38	584.88	0.00	0.00	585.36	.48	.05	.14	585.20
920.	0.	920.	0.	0.	165.	0.	33.	11.	585.10
.39	0.00	5.57	0.00	.050	.040	.050	.040	576.50	1469.80
.006623	25.	25.	25.	2	0	1	0.00	25.20	1500.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.03	2.90	-0.00	30.20	-0.00	184.50	-0.00	576.50	576.50

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
585.66	585.36	0.00	5.	914.	185.	582.20	585.30	30.00

3470 ENCROACHMENT STATIONS= 1400.0 1600.0 TYPE= 1 TARGET= 200.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 585.30 ELREA= 585.30

BRIDGE SECTION D C/S NORTH SHORELDR LENGTH-69

TWIN CONCRETE BOX CULVERTS 8' X 9'

6' X 9' 3" MULTI PLATE ARCH ON LEFT FLAT HEADWALL

WEIR ENCROACHED TO 200' WIDE DUE TO BUILDINGS ON LEFT AND RIGHT

3844.00	8.72	585.22	0.00	0.00	585.65	.43	.29	0.00	585.20
920.	0.	920.	0.	0.	174.	0.	33.	11.	585.10
.39	0.00	5.28	0.00	.050	.040	.050	.040	576.50	1469.80
.006297	69.	69.	69.	3	0	2	0.00	30.20	1514.73

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

OX CREEK

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
0.00	0.00	0.00	0.00	573.55	920.00	580.90	.11	0.00	0.00	902.35	7.35	213.55
400.00	400.00	0.00	0.00	574.06	920.00	581.17	.13	.27	.01	907.21	7.11	91.07
800.00	400.00	0.00	0.00	574.57	920.00	581.48	.14	.32	.01	910.30	6.91	87.38
1200.00	400.00	0.00	0.00	575.08	920.00	581.83	.15	.36	.01	912.55	6.75	84.35
1600.00	400.00	0.00	0.00	575.59	920.00	582.22	.16	.39	.00	914.07	6.63	82.03
2000.00	400.00	0.00	0.00	576.10	920.00	582.64	.17	.42	.00	915.04	6.54	80.32
2125.00	125.00	0.00	0.00	574.98	920.00	582.81	.10	.09	.02	920.00	7.83	60.00
2175.00	50.00	0.00	0.00	574.53	920.00	582.76	.28	.04	.09	920.00	8.23	28.00
2199.00	24.00	0.00	0.00	574.30	920.00	582.41	1.13	.07	.42	920.00	8.11	15.40
2200.00	1.00	583.30	582.90	574.30	920.00	582.40	1.16	.01	.02	920.00	8.10	15.40
2230.00	30.00	583.30	582.90	574.30	920.00	582.75	1.08	.24	.02	920.00	8.45	15.40
2231.00	1.00	0.00	0.00	574.30	920.00	582.88	.99	.01	.03	920.00	8.58	15.40
2255.00	24.00	0.00	0.00	574.37	920.00	584.11	.05	.01	.28	867.50	9.74	70.00
2410.00	155.00	0.00	0.00	574.82	920.00	584.16	.03	.02	.01	734.13	9.34	200.00
2565.00	155.00	0.00	0.00	575.27	920.00	584.19	.03	.02	.00	687.95	8.92	350.00
2720.00	155.00	0.00	0.00	575.72	920.00	584.21	.05	.03	.01	760.41	8.49	307.00
2875.00	155.00	0.00	0.00	576.17	920.00	584.24	.07	.04	.01	826.36	8.07	266.00
3030.00	155.00	0.00	0.00	576.62	920.00	584.29	.09	.06	.01	877.13	7.67	225.00
3185.00	155.00	0.00	0.00	577.07	920.00	584.35	.17	.10	.04	912.88	7.28	149.46
3340.00	155.00	0.00	0.00	577.52	920.00	584.48	.19	.14	.01	919.72	6.96	61.06
3495.00	155.00	0.00	0.00	577.97	920.00	584.64	.21	.17	.01	920.00	6.67	41.00
3650.00	155.00	0.00	0.00	578.42	920.00	584.82	.23	.19	.01	920.00	6.40	41.00
3700.00	50.00	0.00	0.00	577.66	920.00	584.93	.19	.06	.01	920.00	7.27	39.00
3750.00	50.00	0.00	0.00	576.90	920.00	584.97	.20	.05	.01	920.00	8.07	33.00
3775.00	25.00	0.00	0.00	576.50	920.00	584.88	.48	.05	.14	920.00	8.38	25.20
3844.00	69.00	585.30	582.20	576.50	920.00	585.22	.43	.29	0.00	920.00	8.72	30.20

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	920.000	580.903	0.000	0.000	0.000	213.553	0.000	-0.000

400.000	920.000	581.169	0.000	.266	0.000	91.067	0.000	400.000
800.000	920.000	581.480	0.000	.311	0.000	87.385	0.000	400.000
1200.000	920.000	581.831	0.000	.351	0.000	84.349	0.000	400.000
1600.000	920.000	582.220	0.000	.389	0.000	82.033	0.000	400.000
2000.000	920.000	582.641	0.000	.421	0.000	80.321	0.000	400.000
2125.000	920.000	582.811	0.000	.170	0.000	59.999	0.000	125.000
2175.000	920.000	582.762	0.000	-.049	0.000	27.999	0.000	50.000
2199.000	920.000	582.413	0.000	-.349	0.000	15.400	0.000	24.000
2200.000	920.000	582.404	0.000	-.009	0.000	15.400	0.000	1.000
2230.000	920.000	582.755	0.000	.350	0.000	15.400	0.000	30.000
2231.000	920.000	582.877	0.000	.122	0.000	15.400	0.000	1.000
2255.000	920.000	584.110	0.000	1.234	0.000	69.999	0.000	24.000
2410.000	920.000	584.160	0.000	.050	0.000	199.999	0.000	155.000
2565.000	920.000	584.186	0.000	.026	0.000	349.999	0.000	155.000
2720.000	920.000	584.207	0.000	.021	0.000	306.999	0.000	155.000
2875.000	920.000	584.239	0.000	.032	0.000	265.999	0.000	155.000
3030.000	920.000	584.289	0.000	.050	0.000	224.999	0.000	155.000
3185.000	920.000	584.350	0.000	.060	0.000	149.459	0.000	155.000
3340.000	920.000	584.480	0.000	.131	0.000	61.062	0.000	155.000
3495.000	920.000	584.637	0.000	.156	0.000	41.000	0.000	155.000
3650.000	920.000	584.818	0.000	.182	0.000	41.000	0.000	155.000
3700.000	920.000	584.925	0.000	.107	0.000	38.999	0.000	50.000
3750.000	920.000	584.967	0.000	.042	0.000	32.999	0.000	50.000
3775.000	920.000	584.876	0.000	-.091	0.000	25.200	0.000	25.000
3844.000	920.000	585.217	0.000	.341	0.000	30.200	0.000	69.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	200.000	10.851	0.000

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HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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T1      BENTON TWP. (07) & BENTON HARBOR (08) FIS      P.M. - JOHN EMIG
T2      100 YEAR FLOOD
T3      OX CREEK

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
     -0.       4.      -0.      -0.    .000640   -0.00    -0.0     -0.    581.900   -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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started by slope-area method

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= 1022.0 1522.0 TYPE= 1 TARGET= 500.000

ENCROACHMENTS ON LEFT DUE TO FACTORY BUILDINGS (UP TO NORTH SHORE DR.)

0.00	7.35	580.90	0.00	581.90	581.02	.11	0.00	0.00	579.05
920.	17.	902.	0.	29.	331.	6.	0.	0.	580.85
0.00	.59	2.72	.05	.060	.040	.100	0.000	573.55	1026.23
.000628	-0.	-0.	-0.	0	0	4	0.00	213.55	1239.78

3470 ENCROACHMENT STATIONS= 1022.0 1522.0 TYPE= 1 TARGET= 500.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 579.56 ELREA= 581.36

400.00	7.11	581.17	0.00	0.00	581.30	.13	.27	.01	579.56
920.	13.	907.	0.	22.	315.	0.	3.	1.	581.36
.04	.58	2.88	0.00	.060	.040	.100	.040	574.06	1030.54
.000742	400.	400.	400.	1	0	1	0.00	91.07	1121.60

3280 CROSS SECTION 800.00 EXTENDED .31 FEET

3470 ENCROACHMENT STATIONS= 1022.0 1522.0 TYPE= 1 TARGET= 500.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.07 ELREA= 581.87

800.00	6.91	581.48	0.00	0.00	581.62	.14	.32	.01	580.07
920.	10.	910.	0.	17.	303.	0.	5.	2.	581.87
.08	.57	3.00	0.00	.060	.040	.100	.040	574.57	1033.83
.000845	400.	400.	400.	2	0	1	0.00	87.38	1121.22

3280 CROSS SECTION 1200.00 EXTENDED .15 FEET

3470 ENCROACHMENT STATIONS= 1022.0 1522.0 TYPE= 1 TARGET= 500.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.58 ELREA= 582.38

1200.00	6.75	581.83	0.00	0.00	581.98	.15	.36	.01	580.58
920.	7.	913.	0.	13.	293.	0.	9.	3.	582.38
.11	.56	3.11	0.00	.060	.040	.100	.040	575.08	1036.55
.000943	400.	400.	400.	2	0	1	0.00	84.35	1120.90

3280 CROSS SECTION 1600.00 EXTENDED .03 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

SLOPE	XLOBL	XLCH	XLOBR	ANL ITRIAL	ANCH IDC	XNR ICONT	MIN CORAR	ELMIN TOPWID	SSTA ENDST

3470 ENCROACHMENT STATIONS= 1022.0 1522.0 TYPE= 1 TARGET= 500.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.09 ELREA= 582.89

1600.00	6.63	582.22	0.00	0.00	582.38	.16	.39	.00	581.09
920.	6.	914.	0.	11.	235.	0.	12.	4.	582.89
.15	.54	3.20	0.00	.060	.040	.100	.040	575.59	1038.63
.001027	400.	400.	400.	2	0	1	0.00	82.03	1120.66

3470 ENCROACHMENT STATIONS= 1022.0 1522.0 TYPE= 1 TARGET= 500.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.60 ELREA= 583.40

VALLEY SECTION A

2000.00	6.54	582.64	0.00	0.00	582.81	.17	.42	.00	581.60
920.	5.	915.	0.	9.	260.	0.	15.	5.	583.40
.18	.53	3.27	0.00	.060	.040	.100	.040	576.10	1040.16
.001095	400.	400.	400.	2	0	1	0.00	80.32	1120.48

F.M.

3280 CROSS SECTION 2125.00 EXTENDED 1.23 FEET

3470 ENCROACHMENT STATIONS= 1060.0 1120.0 TYPE= 1 TARGET= 60.000

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

2125.00	7.83	582.61	0.00	0.00	582.92	.10	.09	.02	100000.00
920.	0.	920.	0.	0.	355.	0.	16.	5.	100000.00
.19	0.00	2.59	0.00	.060	.040	.100	.040	574.98	1060.00
.000519	125.	125.	125.	2	0	1	0.00	60.00	1120.00

3280 CROSS SECTION 2175.00 EXTENDED 1.63 FEET

3470 ENCROACHMENT STATIONS= 1076.0 1104.0 TYPE= 1 TARGET= 28.000

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

2175.00	8.23	582.78	0.00	0.00	583.05	.28	.04	.09	100000.00
920.	0.	920.	0.	0.	215.	0.	16.	5.	100000.00
.20	0.00	4.28	0.00	.060	.040	.100	.040	574.53	1076.00
.001508	50.	50.	50.	2	0	1	0.00	28.00	1104.00

3280 CROSS SECTION 2199.00 EXTENDED .42 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1400.0 1600.0 TYPE= 1 TARGET= 200.000

2199.00	8.11	582.41	0.00	0.00	583.54	1.13	.07	.42	584.80

```
   920.      0.      920.      0.       0.      106.      0.      16.      5.     584.80
    .20     0.00     8.52     0.00     .060     .040     .100     .040   574.30  1484.60
 .008625     24.      24.      24.       2        0        1     0.00    15.40  1500.00

3280 CROSS SECTION    2200.00 EXTENDED        .41 FEET

  SECNO    DEPTH    CMSEL    CRIWS    MSELK    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   TDC      ICONT    CORAR    TOPWID   ENDST

NORMAL BRIDGE,NRD= 6 MIN ELTRD=  583.30 MAX ELLC=  582.90

3470 ENCROACHMENT STATIONS=    1400.0    1600.0  TYPE=     1  TARGET=     200.000
 2200.00     8.10   582.40     0.00     0.00   583.57     1.16      .01      .02   584.80
    920.       0.     920.       0.       0.     106.       0.      16.       5.    584.80
     .20     0.00     8.65     0.00     .035     .033     .035     .040   574.30  1484.60
 .008548       1.       1.       1.        1        0        1    -1.59    15.40  1500.00

3280 CROSS SECTION    2230.00 EXTENDED        .75 FEET

NORMAL BRIDGE,NRD= 6 MIN ELTRD=  583.30 MAX ELLC=  582.90

3470 ENCROACHMENT STATIONS=    1400.0    1600.0  TYPE=     1  TARGET=     200.000
              BRIDGE SECTION B  U/S EIGHTH ST. BRIDGE          LENGTH - 30'

              BRIDGE DECK WITH STEEL GUARDRAILS   NO PIERS
 2230.00     8.45   582.75     0.00     0.00   583.83     1.08      .24      .02   584.80
    920.       0.     920.       0.       0.     110.       0.      16.       5.    584.80
     .20     0.00     8.34     0.00     .035     .033     .035     .040   574.30  1484.60
 .007765      30.      30.      30.        2        0        1    -2.91    15.40  1500.00

3280 CROSS SECTION    2231.00 EXTENDED        .88 FEET

3470 ENCROACHMENT STATIONS=    1400.0    1600.0  TYPE=     1  TARGET=     200.000
 2231.00     8.58   582.88     0.00     0.00   583.87      .99      .01      .03   584.80
    920.       0.     920.       0.       0.     115.       0.      16.       5.    584.80
     .20     0.00     7.99     0.00     .050     .040     .050     .040   574.30  1484.60
 .007284       1.       1.       1.        2        0        1     0.00    15.40  1500.00

3280 CROSS SECTION    2255.00 EXTENDED       1.41 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=    1058.0    1122.0  TYPE=     1  TARGET=      64.000

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA=       579.87 ELREA=     99998.27
```

0.41 draw down in 75 ft D/S of bridge channel in vert adverse.

F.M.

2255.00	9.74	584.11	0.00	0.00	584.16	.06	.01	.28	579.87
921.	0.	920.	0.	0.	484.	0.	16.	5.	99998.27
.20	0.00	1.90	0.00	.050	.040	.050	.040	574.37	1058.00
.000210	24.	24.	24.	2	0	1	0.00	64.00	1122.00

3280 CROSS SECTION 2410.00 EXTENDED .99 FEET

3470 ENCROACHMENT STATIONS= 1058.0 1122.0 TYPE= 1 TARGET= 64.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.32 ELREA= 100000.00

2410.00	9.32	584.14	0.00	0.00	584.20	.06	.04	.00	580.32
920.	0.	920.	0.	0.	457.	0.	18.	5.	100000.00
.22	0.00	2.01	0.00	.050	.040	.050	.040	574.82	1058.00
.000250	155.	155.	155.	2	0	1	0.00	64.00	1122.00

3280 CROSS SECTION 2565.00 EXTENDED 2.30 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= 1058.0 1122.0 TYPE= 1 TARGET= 64.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.77 ELREA= 100000.00

2565.00	8.91	584.18	0.00	0.00	584.25	.07	.04	.00	580.77
920.	0.	920.	0.	0.	430.	0.	19.	5.	100000.00
.24	0.00	2.14	0.00	.050	.040	.050	.040	575.27	1058.00
.000300	155.	155.	155.	0	0	1	0.00	64.00	1122.00

3280 CROSS SECTION 2720.00 EXTENDED 1.90 FEET

3470 ENCROACHMENT STATIONS= 1058.0 1122.0 TYPE= 1 TARGET= 64.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.22 ELREA= 100000.00

2720.00	8.50	584.22	0.00	0.00	584.30	.08	.05	.00	581.22
920.	0.	920.	0.	0.	404.	0.	21.	5.	100000.00
.26	0.00	2.28	0.00	.050	.040	.050	.040	575.72	1058.00
.000364	155.	155.	155.	0	0	1	0.00	64.00	1122.00

3280 CROSS SECTION 2875.00 EXTENDED 1.50 FEET

3470 ENCROACHMENT STATIONS= 1058.0 1122.0 TYPE= 1 TARGET= 64.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.67 ELREA= 100000.00

2875.00	8.11	584.28	0.00	0.00	584.37	.09	.06	.01	581.67
920.	0.	920.	0.	0.	379.	0.	22.	6.	100000.00
.28	0.00	2.43	0.00	.050	.040	.050	.040	576.17	1058.00

.000344 155. 155. 155. 1 0 1 0.00 64.00 1122.00

3280 CROSS SECTION 3030.00 EXTENDED 1.12 FEET

3470 ENCROACHMENT STATIONS= 1058.0 1122.0 TYPE= 1 TARGET= 64.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 532.12 ELREA= 100000.00

3030.00	7.73	584.35	0.00	0.00	584.45	.10	.08	.01	582.12
920.	0.	920.	0.	0.	355.	0.	24.	6.	100000.00
.30	0.00	2.59	0.00	.050	.040	.050	.040	576.62	1058.00
.000546	155.	155.	155.	1	0	1	0.00	64.00	1122.00

3280 CROSS SECTION 3185.00 EXTENDED 1.22 FEET

3470 ENCROACHMENT STATIONS= 1452.0 1493.0 TYPE= 1 TARGET= 41.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.87 ELREA= 99998.67

3185.00	7.35	584.42	0.00	0.00	584.59	.17	.10	.03	583.67
920.	0.	920.	0.	0.	281.	0.	25.	6.	99998.67
.31	0.00	3.28	0.00	.050	.040	.050	.040	577.07	1452.00
.000839	155.	155.	155.	0	0	1	0.00	41.00	1493.00

3280 CROSS SECTION 3340.00 EXTENDED .90 FEET

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

3470 ENCROACHMENT STATIONS= 1452.0 1493.0 TYPE= 1 TARGET= 41.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.32 ELREA= 100000.00

3340.00	7.03	584.55	0.00	0.00	584.74	.18	.14	.01	584.32
920.	0.	920.	0.	0.	268.	0.	26.	6.	100000.00
.32	0.00	3.44	0.00	.050	.040	.050	.040	577.52	1452.00
.000967	155.	155.	155.	2	0	1	0.00	41.00	1493.00

3280 CROSS SECTION 3495.00 EXTENDED 1.93 FEET

3470 ENCROACHMENT STATIONS= 1452.0 1493.0 TYPE= 1 TARGET= 41.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.77 ELREA= 100000.00

3495.00	6.74	584.71	0.00	0.00	584.91	.20	.16	.01	584.77
920.	0.	920.	0.	0.	255.	0.	27.	6.	100000.00
.34	0.00	3.61	0.00	.050	.040	.050	.040	577.97	1452.00
.001116	155.	155.	155.	1	0	1	0.00	41.00	1493.00

3280 CROSS SECTION 3650.00 EXTENDED 1.65 FEET

3470 ENCROACHMENT STATIONS= 1452.0 1493.0 TYPE= 1 TARGET= 41.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 585.22 ELREA= 100000.00

VALLEY SECTION C

3650.00	6.46	584.88	0.00	0.00	585.10	.22	.19	.01	585.22	
920.	0.	920.	0.	0.	244.	0.	28.	7.	100000.00	F.M
.35	0.00	3.78	0.00	.050	.040	.050	.040	578.42	1452.00	
.001282	155.	155.	155.	1	0	1	0.00	41.00	1493.00	

3280 CROSS SECTION 3700.00 EXTENDED 2.54 FEET

3470 ENCROACHMENT STATIONS= 1452.0 1493.0 TYPE= 1 TARGET= 41.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.46 ELREA= 100000.00

3700.00	7.34	585.00	0.00	0.00	585.17	.17	.05	.02	584.46	
920.	0.	920.	0.	0.	280.	0.	28.	7.	100000.00	
.35	0.00	3.28	0.00	.050	.040	.050	.040	577.66	1452.00	
.000842	50.	50.	50.	2	0	1	0.00	41.00	1493.00	

3280 CROSS SECTION 3750.00 EXTENDED 3.38 FEET

3470 ENCROACHMENT STATIONS= 1452.0 1493.0 TYPE= 1 TARGET= 41.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.70 ELREA= 100000.00

3750.00	8.18	585.08	0.00	0.00	585.22	.13	.04	.01	583.70	
920.	0.	920.	0.	0.	315.	0.	28.	7.	100000.00	
.36	0.00	2.92	0.00	.050	.040	.050	.040	576.90	1452.00	
.000597	50.	50.	50.	2	0	1	0.00	41.00	1493.00	

3265 DIVIDED FLOW

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

3470 ENCROACHMENT STATIONS= 1400.0 1600.0 TYPE= 1 TARGET= 200.000

3775.00	3.45	584.95	0.00	0.00	585.42	.47	.04	.17	585.20
920.	0.	920.	0.	0.	167.	0.	28.	7.	585.10
.36	0.00	5.51	0.00	.050	.040	.050	.040	576.50	1469.80
.006442	25.	25.	25.	2	0	1	0.00	25.20	1500.00

SPECIAL BRIDGE

SB	XK	AKOR	COFQ	RDLEN	BWC	BYP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.03	2.90	-0.00	30.20	-0.00	184.50	-0.00	576.50	576.50

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	HB	Q-WEIR	QPR	BAREA	ELLC	ELTRD	CLASS
585.73	585.42	0.00	0.	911.	185.	582.20	585.30	30.00

3470 ENCROACHMENT STATIONS= 1400.0 1600.0 TYPE= 1 TARGET= 200.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 585.30 ELREA= 585.30

911 = V = 4.938 1/4
184.50

BRIDGE SECTION D U/S NORTH SHORE JR. LENGTH=69'

TWIN CONCRETE BOX CULVERTS 8' X 9' = 72.0' or 144.0'

6' X 9' 3" MULTI PLATE ARCH ON LEFT FLAT HEADWALL

WEIR ENCROACHED TO 200' WIDE DUE TO BUILDINGS ON LEFT AND RIGHT

3844.00	8.79	585.29	0.00	0.00	585.72	.42	.30	0.00	585.20	F.M. U/S FACE
920.	0.	920.	0.	0.	177.	0.	29.	7.	585.10	
.36	0.00	5.21	0.00	.050	.040	.050	.040	576.50	1469.80	
.006028	69.	69.	69.	3	0	2	0.00	30.20	1524.52	

3280 CROSS SECTION 3869.00 EXTENDED 2.59 FEET

3470 ENCROACHMENT STATIONS= 1400.0 1600.0 TYPE= 1 TARGET= 200.000

3869.00	9.19	585.79	0.00	0.00	585.84	.06	.02	.11	583.60
920.	63.	747.	109.	103.	355.	191.	29.	7.	583.80
.36	.61	2.11	.57	.060	.040	.060	.040	576.60	1400.00
.000248	25.	25.	25.	2	0	1	0.00	200.00	1600.00

3470 ENCROACHMENT STATIONS= 1450.0 1600.0 TYPE= 1 TARGET= 150.000

4047.00	3.34	585.83	0.00	0.00	585.94	.11	.07	.03	585.49
920.	3.	794.	24.	12.	331.	45.	32.	8.	584.89
.39	.21	2.70	.53	.060	.040	.060	.039	577.49	1450.00
.000495	1.	178.	600.	2	0	1	0.00	150.00	1600.00

3470 ENCROACHMENT STATIONS= 1462.0 1569.0 TYPE= 1 TARGET= 87.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.40 ELREA= 585.80

VALLEY SECTION E

4225.00	7.52	585.92	0.00	0.00	586.08	.16	.11	.02	586.40	F.M.
920.	0.	920.	0.	0.	249.	2.	33.	9.	585.80	
.40	0.00	3.14	.18	.060	.040	.060	.039	578.40	1500.63	
.000811	1.	176.	600.	0	0	1	0.00	68.37	1569.00	

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.16 ELREA= 585.58

4250.00	7.78	585.96	0.00	0.00	586.10	.14	.02	.00	586.18
920.	0.	919.	1.	0.	302.	4.	34.	9.	585.58
.40	0.00	3.15	.34	.060	.040	.060	.039	578.18	1500.31
.000709	25.	25.	25.	1	0	1	0.00	61.69	1562.00

SECNO	DEPTH	C,SEL	CRIWS	WSELK	EG	AV	HD	JLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IUC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1496.0 1556.0 TYPE= 1 TARGET= 60.000

4300.00	4.29	586.02	0.00	0.00	586.14	.12	.03	.01	585.73
920.	0.	918.	2.	1.	329.	4.	34.	9.	585.13
.41	.24	2.79	.53	.060	.040	.060	.039	577.73	1496.00
.000538	50.	50.	50.	2	0	1	0.00	60.00	1556.00

3470 ENCROACHMENT STATIONS= 1400.0 1450.0 TYPE= 1 TARGET= 250.000
ELENCL= 650.00 ELENCR= 650.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.30 ELREA= 586.30

4325.00	3.45	585.95	0.00	0.00	586.25	.29	.02	.09	583.60
920.	0.	920.	0.	0.	212.	0.	34.	9.	583.60
.41	0.00	4.35	0.00	.060	.040	.060	.039	577.50	1500.00
.002386	25.	25.	25.	2	0	1	0.00	33.00	1554.70

SPECIAL BRIDGE

SB	XK	XKOR	COFO	ROLEN	SNC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.30	2.60	-0.00	33.00	-0.00	164.00	-0.00	577.50	577.50

PRESSURE FLOW

EGPRS	EGLNC	H3	Q:EIR	QPR	BAREA	ELLC	ELTRD	CLASS
587.08	586.25	0.00	0.	920.	164.	584.20	587.70	10.00

3470 ENCROACHMENT STATIONS= 1400.0 1550.0 TYPE= 1 TARGET= 250.000
ELENCL= 650.00 ELENCR= 650.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 587.70 ELREA= 587.70

BRIDGE SECTION F U/S C&O RR TRACK BRIDGE LENGTH=113'

TWIN CONCRETE BOX CULVERTS 12' X 7'

4438.00	9.35	586.85	0.00	0.00	587.08	.23	.83	0.00	583.60
920.	0.	920.	0.	0.	241.	0.	35.	9.	583.60
.42	0.00	3.81	0.00	.060	.040	.060	.039	577.50	1500.00
.001574	113.	113.	113.	2	0	1	0.00	33.00	1562.98

F.M. U/S FACE

3470 ENCROACHMENT STATIONS= 1200.0 1400.0 TYPE= 1 TARGET= 200.000
ELENCL= 650.00 ELENCR= 650.00

4453.00	10.11	587.11	0.00	0.00	587.14	.04	.01	.06	579.10
920.	364.	403.	153.	277.	223.	151.	35.	9.	577.00
.42	1.31	1.80	1.02	.060	.040	.060	.039	577.00	1250.32
.000251	25.	15.	25.	2	0	1	0.00	149.68	1400.00

top width is ok due to the weir length

SPECIAL BRIDGE

SS	XK	XKOR	COEC	RADFN	BWG	BWP	BAREA	SS	ELCHU	ELCHD
	=0.00	2.34	2.80	=0.00	21.10	=0.00	160.00	=0.00	577.00	577.00

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	HV	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
588.31	587.14	0.00	239.	676.	160.	585.90	586.70	30.00

$D/H = \frac{587.11 - 586.70}{587.73 - 586.70} = \frac{0.41}{1.03}$

$D/H = 0.398$ (x100)

$D/H = 39.8\%$

not effected by tail water submergence

3470 ENCROACHMENT STATIONS= 1200.0 1400.0 TYPE= 1 TARGET= 200.000
ELENCL= 650.00 ELENCR= 650.00

BRIDGE SECTION G U/S WATER ST. LENGTH=68'

TWIN CONCRETE BOX CULVERTS 11.7' X 8' skewed = 10x8

$\frac{676}{160} = V$

$V = 4.225'/''$

WEIR ENCROACHED TO 200' WIDE DUE TO OBSTRUCTIONS ON RIGHT AND LEFT

BRIDGE SKEWED 31 DEGREES

4521.00	10.73	587.73	0.00	0.00	587.76	.03	.61	0.00	579.10
920.	368.	382.	169.	334.	239.	198.	36.	9.	577.00
.44	1.10	1.60	.36	.060	.040	.060	.039	577.00	1200.00
.000181	68.	68.	68.	2	0	2	0.00	200.00	1400.00

F.M. U/S FACE

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

3470 ENCROACHMENT STATIONS= 1398.0 1658.0 TYPE= 1 TARGET= 260.000

4551.00	10.24	587.74	0.00	0.00	587.76	.02	.00	.00	584.50
920.	177.	601.	141.	273.	458.	236.	37.	9.	584.70
.45	.65	1.31	.60	.040	.040	.040	.039	577.50	1398.00
.000082	30.	30.	30.	0	0	1	0.00	260.00	1658.00

3470 ENCROACHMENT STATIONS= 1364.0 1672.0 TYPE= 1 TARGET= 288.000

VALLEY SECTION H

F.M.

4653.00	8.54	587.74	0.00	0.00	587.81	.07	.02	.03	586.20

2[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	558.40
.47	.65	2.25	.53	.040	.040	.040	.039	579.20	1384.00
.000332	1.	102.	350.	2	0	1	0.00	288.00	1672.00

3470 ENCROACHMENT STATIONS=	1428.0	1623.0	TYPE=	1	TARGET=	200.000			
4828.00	8.43	587.80	0.00	0.00	587.88	.08	.06	.00	586.37
920.	54.	439.	26.	74.	355.	46.	42.	13.	586.57
.49	.73	2.36	.57	.040	.040	.040	.039	579.37	1428.00
.000375	1.	175.	300.	2	0	1	0.00	200.00	1628.00

3470 ENCROACHMENT STATIONS=	1353.0	1703.0	TYPE=	1	TARGET=	350.000			
5003.00	8.31	587.86	0.00	0.00	587.95	.09	.07	.00	586.55
920.	47.	852.	20.	78.	348.	42.	44.	13.	586.75
.51	.61	2.45	.49	.040	.040	.040	.039	579.55	1374.79
.000414	1.	175.	300.	0	0	1	0.00	300.64	1675.43

3470 ENCROACHMENT STATIONS=	1374.0	1628.0	TYPE=	1	TARGET=	254.000			
5178.00	8.21	587.93	0.00	0.00	588.02	.09	.07	.00	586.72
920.	39.	866.	15.	66.	342.	30.	46.	14.	586.92
.53	.54	2.53	.52	.040	.040	.040	.039	579.72	1387.35
.000452	1.	175.	300.	1	0	1	0.00	240.65	1628.00

3470 ENCROACHMENT STATIONS=	406.0	566.0	TYPE=	1	TARGET=	160.000			

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 587.60 ELREA= 100000.00

FLOW ON RIGHT ENCROACHED TO BANK DUE TO BUILDINGS

VALLEY SECTION I

5353.00	8.11	588.01	0.00	0.00	588.12	.11	.09	.01	587.60
920.	0.	920.	0.	1.	338.	0.	47.	15.	100000.00
.55	.31	2.72	0.00	.040	.040	.040	.039	579.90	500.42
.000610	1.	175.	300.	1	0	1	0.00	65.58	566.00

F.M.

3470 ENCROACHMENT STATIONS=	1387.0	1521.0	TYPE=	1	TARGET=	134.000			
ELENCL=	650.00	ELENCR=	650.00						
5403.00	9.34	588.04	0.00	0.00	588.18	.14	.04	.01	578.70
920.	330.	590.	0.	135.	180.	0.	45.	15.	650.00
.55	2.45	3.27	0.00	.040	.040	.040	.039	578.70	1424.43
.001264	50.	50.	50.	1	0	1	0.00	96.57	1521.00

SPECIAL BRIDGE

SB	XK	XKOR	COEG	ROLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.91	2.80	-0.00	21.00	-0.00	200.00	-0.00	578.70	578.70

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QBR	BAREA	ELLC	ELTRD	CLASS
588.65	588.44	0.00	12.	911.	200.	587.10	588.30	30.00

3470 ENCROACHMENT STATIONS= 1387.0 1521.0 TYPE= 1 TARGET= 134.000
ELENGL= 650.00 ELENGR= 650.00

BRIDGE SECTION J U/S TERRITORIAL RD. LENGTH=61'

TWIN CONCRETE 30X CULVERTS 10' X 10'

F.M. U/S FACE

5484.00	9.45	588.59	0.00	0.00	588.65	.10	.48	0.00	578.70
920.	374.	546.	0.	178.	191.	0.	48.	15.	650.00
.56	2.11	2.86	0.00	.040	.040	.040	.039	578.70	1409.84
.000903	81.	61.	81.	2	0	2	0.00	111.16	1521.00

3470 ENCROACHMENT STATIONS= 1380.0 1557.0 TYPE= 1 TARGET= 177.000
OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.10 ELREA= 588.80

ENCROACHMENT ON RIGHT DUE TO BUILDINGS

5504.00	9.64	588.64	0.00	0.00	588.68	.04	.01	.02	586.10
921.	252.	668.	0.	268.	355.	0.	48.	15.	588.80
.56	.94	1.88	0.00	.040	.040	.040	.039	579.00	1380.00
.000217	20.	20.	20.	2	0	1	0.00	171.68	1551.68

3470 ENCROACHMENT STATIONS= 1376.0 1676.0 TYPE= 1 TARGET= 300.000
OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 587.20 ELREA= 589.90

VALLEY SECTION K

F.M.

5578.00	3.53	588.63	0.00	0.00	588.73	.09	.02	.03	587.20
920.	131.	789.	0.	142.	299.	0.	49.	15.	589.90
.57	.93	2.64	0.00	.040	.040	.040	.039	580.10	1376.00
.000505	74.	74.	74.	2	0	1	0.00	173.53	1549.53

3470 ENCROACHMENT STATIONS= 1376.0 1676.0 TYPE= 1 TARGET= 300.000
OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.86 ELREA= 589.56

5678.00	3.95	588.71	0.00	0.00	588.78	.07	.04	.01	586.36
920.	184.	736.	0.	193.	320.	0.	50.	16.	589.56
.58	.95	2.30	0.00	.040	.040	.040	.039	579.76	1376.00
.000359	100.	100.	100.	2	0	1	0.00	174.34	1550.34

3470 ENCROACHMENT STATIONS= 1316.0 1616.0 TYPE= 1 TARGET= 300.000

5728.00	9.16	563.75	0.00	0.00	588.80	.05	.02	.01	586.69	
920.	288.	652.	0.	314.	330.	0.	51.	16.	589.39	
.59	.85	1.97	0.00	.040	.040	.040	.039	579.59	1316.00	
.000255	50.	50.	50.	2	0	1	0.00	234.76	1550.76	

3470 ENCROACHMENT STATIONS= 1315.0 1615.0 TYPE= 1 TARGET= 300.000
ELENCL= 650.00 ELENCR= 650.00

5753.00	9.26	588.76	0.00	0.00	588.81	.06	.01	.01	579.90
920.	366.	495.	60.	299.	211.	40.	51.	16.	582.90
.60	1.22	2.35	1.50	.040	.040	.040	.039	579.50	1316.00
.000437	25.	25.	25.	0	0	1	0.00	224.94	1540.98

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	ROLEN	BNC	BMP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.81	2.86	-0.00	25.50	-0.00	192.00	-0.00	579.50	579.50

SECNO	DEPTH	CHSEL	CRIWS	WSELR	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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
589.40	588.81	0.00	490.	426.	192.	586.00	587.10	30.00

3470 ENCROACHMENT STATIONS= 1315.0 1516.0 TYPE= 1 TARGET= 300.000
ELENCL= 650.00 ELENCR= 650.00

BRIDGE SECTION L U/S EAST MAIN ST. LENGTH-51'

TWIN CONCRETE BOX CULVERTS 12.9' X 8'

WEIR ENCROACHED TO 300' WIDE DUE TO OBSTRUCTIONS ON LEFT AND RIGHT

BRIDGE SKEWED 40 DEGREES

5804.00	9.34	588.84	0.00	0.00	588.89	.05	.08	0.00	579.90	
920.	376.	484.	60.	314.	213.	41.	52.	16.	582.90	
.60	1.20	2.27	1.46	.040	.040	.040	.039	579.50	1316.00	
.000404	51.	51.	51.	2	0	5	0.00	225.17	1541.17	

3470 ENCROACHMENT STATIONS= 1352.0 1552.0 TYPE= 1 TARGET= 200.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.63 ELREA= 99999.43

ENCROACHMENT ON RIGHT DUE TO BUILDINGS

$D/H = \frac{588.76 - 587.10}{588.84 - 587.10} = \frac{1.66}{1.74}$

$D/H = 0.954 \times 100 \rightarrow \%$

$D/H = 95.4\%$ only over the structure the rest of the road profile is at 588.80 ; no tail water submergence problem

F.M. U/S FACE

	920.	251.	659.	0.	244.	338.	0.	52.	17.	99999.43
	.61	.91	1.95	0.00	.040	.040	.040	.039	579.53	1352.00
	.000243	25.	25.	25.	0	0	1	0.00	199.07	1551.07

3470 ENCROACHMENT STATIONS= 1400.0 1600.0 TYPE= 1 TARGET= 200.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.92 ELREA= 589.62

	6091.00	9.11	588.93	0.00	0.00	589.00	.07	.08	.01	586.92
	920.	162.	758.	0.	165.	328.	0.	66.	18.	589.62
	.65	.98	2.31	0.00	.040	.040	.040	.039	579.82	1400.00
	.000353	350.	262.	200.	1	0	1	0.00	150.66	1550.66

3470 ENCROACHMENT STATIONS= 216.0 466.0 TYPE= 1 TARGET= 250.000

VALLEY SECTION M

F.M.

	6353.00	8.94	589.04	0.00	0.00	589.07	.04	.06	.01	584.80
	920.	185.	691.	45.	233.	410.	76.	60.	19.	587.80
	.70	.79	1.68	.59	.040	.040	.040	.039	530.10	228.21
	.000156	350.	262.	200.	2	0	1	0.00	237.79	466.00

3470 ENCROACHMENT STATIONS= 216.0 466.0 TYPE= 1 TARGET= 250.000

	6378.00	3.79	589.04	0.00	0.00	589.08	.04	.00	.00	584.95
	920.	175.	705.	40.	216.	402.	68.	61.	19.	587.95
	.70	.81	1.75	.58	.040	.040	.040	.039	580.25	239.88
	.000174	1.	25.	75.	0	0	1	0.00	226.12	466.00

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 750.0 976.0 TYPE= 1 TARGET= 226.000
ELENCL= 650.00 ELENCR= 650.00

	6403.00	8.65	589.05	0.00	0.00	589.08	.04	.00	.00	581.40
	920.	458.	364.	98.	340.	203.	72.	61.	19.	580.90
	.71	1.35	1.80	1.36	.040	.040	.040	.039	580.40	750.00
	.000260	1.	25.	75.	0	0	1	0.00	206.02	976.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	RWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.87	2.94	-0.00	23.00	-0.00	176.00	-0.00	580.40	580.40

3265 DIVIDED FLOW

SECNO	DEPTH	CHSEL	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	#TN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

PRESSURE AND WEIR FLOW

589.84	589.08	0.00	325.	604.	176.	587.30	588.30	30.00	

3470 ENCROACHMENT STATIONS= 750.0 978.0 TYPE= 1 TARGET= 226.000
ELENCL= 650.00 ELENCR= 650.00

RIDGE SECTION N O/S HIGHLAND AVE. LENGTH=66'

TYIN CONCRETE BOX CULVERTS 12.3' X 8'

METR ENCROACHED ON RIGHT DUE TO BUILDINGS

BRIDGE SKEWED 20 DEGREES

6469.00	8.96	589.36	0.00	0.00	589.39	.03	.31	0.00	581.40
920.	477.	345.	98.	386.	210.	83.	62.	20.	580.90
.72	1.24	1.64	1.19	.040	.040	.040	.039	580.40	750.00
.000206	66.	66.	66.	2	0	2	0.00	214.20	976.00

F.M UG FACE

3470 ENCROACHMENT STATIONS= 330.0 630.0 TYPE= 1 TARGET= 300.000

6494.00	8.97	589.39	0.00	0.00	589.40	.01	.00	.01	582.22
920.	359.	194.	367.	732.	244.	617.	63.	20.	584.52
.73	.49	.79	.59	.060	.040	.035	.039	580.42	330.00
.000030	25.	25.	25.	2	0	1	0.00	300.00	630.00

3470 ENCROACHMENT STATIONS= 288.0 958.0 TYPE= 1 TARGET= -288.000
ELENCL= 585.70 ELENCR= 100000.00

6703.00	8.96	589.40	0.00	0.00	589.40	.00	.01	.00	582.24
920.	448.	158.	315.	1377.	244.	705.	75.	23.	584.54
.90	.33	.65	.45	.060	.040	.035	.039	580.44	97.84
.000020	475.	209.	1.	1	0	1	0.00	626.56	724.41

3470 ENCROACHMENT STATIONS= 288.0 958.0 TYPE= 1 TARGET= -288.000
ELENCL= 586.90 ELENCR= 100000.00

6953.00	8.95	589.41	0.00	0.00	589.41	.00	.01	.00	582.26
920.	444.	159.	317.	1348.	244.	702.	89.	26.	584.56
1.06	.33	.65	.45	.060	.040	.035	.039	580.46	98.00
.000021	250.	250.	250.	0	0	1	0.00	625.66	723.66

3470 ENCROACHMENT STATIONS= 288.0 958.0 TYPE= 1 TARGET= -288.000
ELENCL= 587.10 ELENCR= 100000.00

7203.00	8.93	589.41	0.00	0.00	589.41	.00	.01	.00	582.28
920.	440.	161.	319.	1319.	243.	698.	102.	30.	584.58
1.22	.33	.66	.46	.060	.040	.035	.039	580.48	98.18
.000021	250.	250.	250.	0	0	1	0.00	624.67	722.85

3470 ENCROACHMENT STATIONS= 288.0 958.0 TYPE= 1 TARGET= -288.000
ELENCL= 587.30 ELENCR= 100000.00

7453.00	8.92	589.42	0.00	0.00	589.42	.00	.01	.00	582.30
920.	436.	163.	321.	1290.	243.	694.	114.	33.	584.60

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   1.56      .34      .47      .45     .060     .040     .035     .039    580.50     98.86
 .000022    250.     250.     250.        0        0        1     0.00    623.70    722.05

3470 ENCROACHMENT STATIONS=      288.0      958.0  TYPE=      1  TARGET=     -288.000
 ELENCL=     587.50  ELENCR= 100000.00

                VALLEY SECTION Q

 7703.00      8.90   589.42     0.00     0.00   589.43      .00      .01      .00   582.32
    920.      432.     165.     323.    1261.     242.     690.     127.      37.   584.62
    1.53       .34      .68      .47     .060     .040     .035     .039   580.52    98.53
 .000023    250.     250.     250.        0        0        1     0.00   622.73   721.26

3470 ENCROACHMENT STATIONS=      288.0      958.0  TYPE=      1  TARGET=     -288.000
 ELENCL=     587.70  ELENCR= 100000.00
 7963.00      8.89   589.43     0.00     0.00   589.43      .00      .01      .00   582.34
    920.      428.     166.     326.    1229.     242.     687.     140.      41.   584.64
    1.69       .35      .69      .47     .060     .040     .035     .039   580.54    98.94
 .000023    260.     260.     260.        0        0        1     0.00   621.55   720.49

   SECNO     DEPTH     CNSEL     CRIWS     MSELK     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=      288.0      958.0  TYPE=      1  TARGET=     -288.000
 ELENCL=     587.90  ELENCR= 100000.00
 8223.00      8.73   589.43     0.00     0.00   589.44      .00      .01      .00   582.50
    920.      417.     175.     328.    1063.     237.     649.     152.      44.   584.80
    1.84       .39      .74      .51     .060     .040     .035     .039   580.70   146.41
 .000027    260.     260.     260.        0        0        1     0.00   565.70   712.11

3470 ENCROACHMENT STATIONS=      288.0      958.0  TYPE=      1  TARGET=     -288.000
 ELENCL=     588.10  ELENCR= 100000.00
 8483.00      8.54   589.44     0.00     0.00   589.45      .00      .01      .00   582.70
    920.      424.     179.     317.    1033.     231.     603.     164.      47.   585.00
    1.97       .41      .77      .53     .060     .040     .035     .039   580.90   148.85
 .000031    260.     260.     260.        0        0        1     0.00   552.75   701.59

3470 ENCROACHMENT STATIONS=      288.0      958.0  TYPE=      1  TARGET=     -288.000
 ELENCL=     588.30  ELENCR= 100000.00
 8743.00      8.75   589.45     0.00     0.00   589.45      .00      .01      .00   582.50
    920.      424.     180.     316.    1066.     238.     584.     175.      51.   584.80
    2.11       .40      .76      .54     .060     .040     .035     .039   580.70   104.68
 .000029    260.     260.     260.        0        0        1     0.00   553.26   657.94

3470 ENCROACHMENT STATIONS=      288.0      879.0  TYPE=      1  TARGET=     -288.000
 ELENCL=     588.50  ELENCR= 100000.00

                VALLEY SECTION P

 9003.00      8.85   589.45     0.00     0.00   589.48      .03      .02      .01   584.70
    920.      266.     405.     249.     372.     239.     256.     183.      53.   586.60
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F.M.

F.M.

.000176	260.	260.	260.	1	0	1	0.00	358.15	497.67	

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 288.0 579.0 TYPE= 1 TARGET= -288.000
ELENCL= 588.70 ELENCR= 100000.00

9103.00	7.82	589.46	0.00	0.00	589.52	.06	.02	.02	585.74
920.	279.	490.	151.	281.	203.	136.	185.	54.	587.64
2.19	.99	2.42	1.11	.060	.040	.035	.039	581.64	141.66
.000444	1.	100.	200.	0	0	1	0.00	332.34	475.77

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 288.0 679.0 TYPE= 1 TARGET= -288.000
ELENCL= 583.90 ELENCR= 100000.00

9178.00	7.06	589.48	0.00	0.00	589.58	.11	.04	.03	586.52
920.	274.	566.	80.	208.	176.	65.	185.	54.	588.42
2.19	1.32	3.22	1.22	.060	.040	.035	.039	582.42	143.04
.000951	1.	75.	150.	1	0	1	0.00	276.20	446.98

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 236.0 521.4 TYPE= 1 TARGET= 285.400
ELENCL= 589.50 ELENCR= 650.00

9218.00	7.05	589.55	0.00	0.00	589.63	.08	.04	.01	587.70
920.	311.	592.	17.	258.	218.	10.	186.	55.	587.70
2.20	1.20	2.71	1.64	.060	.040	.035	.039	582.50	138.91
.001226	25.	40.	75.	2	0	1	0.00	260.97	428.67

SPECIAL BRIDGE

SR	XK	XKOR	COFQ	RDLEN	BNC	BNP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.61	2.60	-0.00	47.90	-0.00	130.40	-0.00	582.50	582.50

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
590.80	589.83	0.00	189.	738.	130.	587.70	590.20	30.00

3470 ENCROACHMENT STATIONS= 236.0 521.4 TYPE= 1 TARGET= 285.400
ELENCL= 588.50 ELENCR= 650.00

BRIDGE SECTION 9 U/S C&O RR TRACK BRIDGE LENGTH - 10'

3 PIERS (FLAT FACE - 1.5' SIDE)

9228.00	7.81	590.31	0.00	0.00	590.35	.04	.72	0.00	587.70	F.M. U/S FACE
920.	398.	495.	27.	429.	254.	29.	186.	55.	587.70	
2.20	.93	1.95	.93	.060	.040	.035	.039	582.50	133.77	
.000520	10.	10.	10.	2	0	3	0.00	387.63	521.40	

3470 ENCROACHMENT STATIONS= 236.0 453.0 TYPE= 1 TARGET= 217.000
ELENCL= 588.50 ELENCR= 650.00

9253.00	7.15	590.35	0.00	0.00	590.36	.01	.00	.01	583.60	
920.	393.	230.	297.	658.	219.	260.	186.	55.	583.60	
2.21	.60	1.05	1.06	.060	.040	.035	.039	583.20	133.57	
.000099	25.	25.	25.	1	0	1	0.00	319.43	453.00	

SPECIAL BRIDGE

SR	XR	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.66	2.25	-0.00	32.80	-0.00	93.80	-0.00	583.20	583.20

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
592.83	590.36	0.00	642.	279.	94.	586.60	588.20	30.00

3470 ENCROACHMENT STATIONS= 236.0 453.0 TYPE= 1 TARGET= 217.000
ELENCL= 588.50 ELENCR= 650.00

BRIDGE SECTION # U/S PENN CENTRAL RR TRACK BRIDGE LENGTH=10'

2 PIERS (ROUND) TIMBER PILES)

9263.00	7.37	590.57	0.00	0.00	590.58	.01	.22	0.00	583.60	F.M. 590.57 .05 .01 .03
920.	399.	222.	299.	708.	227.	296.	187.	55.	583.60	
2.21	.56	.98	1.01	.060	.040	.035	.039	583.20	132.02	
.000083	10.	10.	10.	1	0	4	0.00	320.98	453.00	

3470 ENCROACHMENT STATIONS= 288.0 588.0 TYPE= 1 TARGET= 300.000

9288.00	7.27	590.53	0.00	0.00	590.63	.11	.01	.05	587.36	
920.	258.	566.	101.	158.	183.	82.	187.	55.	589.26	
2.22	1.60	3.09	1.24	.060	.040	.035	.039	583.26	288.00	
.000833	50.	25.	1.	2	0	1	0.00	167.25	455.25	

3470 ENCROACHMENT STATIONS= 288.0 588.0 TYPE= 1 TARGET= 300.000

9428.00	7.18	590.79	0.00	0.00	590.90	.11	.26	.00	587.71	
920.	253.	575.	93.	154.	180.	74.	190.	56.	589.61	
2.25	1.64	3.20	1.25	.060	.040	.035	.040	583.61	288.00	
.000910	200.	400.	1.	2	0	1	0.00	163.55	451.55	

3470 ENCROACHMENT STATIONS= .0 680.0 TYPE= 1 TARGET= 679.999

9502.00	7.10	590.90	0.00	0.00	590.95	.05	.04	.02	587.90

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	586.60
2.26	.72	2.09	1.59	.060	.040	.035	.040	583.80	552.85
.000298	74.	74.	74.	2	0	1	0.00	127.15	680.00

3265 DIVIDED FLOW

SECNO	DEPTH	CHSEL	CRIWS	HSFLK	EG	HV	HL	VLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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=40 MIN ELTRD= 617.00 MAX ELLC= 613.60

3470 ENCROACHMENT STATIONS= .0 680.0 TYPE= 1 TARGET= 679.999

9503.00	7.09	590.89	0.00	0.00	590.96	.07	.00	.01	587.90
855.	8.	547.	301. ok	13.	223.	183.	190.	56.	586.60
2.26	.59	2.45	1.64	.060	.040	.035	.040	583.80	554.20
.000413	1.	1.	1.	1	0	1	-39.05	119.00	680.00

The flow in the ROB appears correct accord. to the field sketch provided. A large amount of the area under the bridge is on the ROB.

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=40 MIN ELTRD= 617.00 MAX ELLC= 613.60

3470 ENCROACHMENT STATIONS= .0 680.0 TYPE= 1 TARGET= 679.999

BRIDGE SECTION S U/S BRITAIN AVE.

5 PIERS (FLAT FACE - 3.2' WIDE)

9557.00	7.13	590.93	0.00	0.00	590.99	.06	.02	.00	587.90
855.	15.	506.	334. ok	20.	224.	217.	191.	56.	586.60
2.27	.72	2.26	1.54	.060	.040	.035	.040	583.80	554.20
.000349	54.	54.	54.	1	0	1	0.00	119.00	680.00

F.M.

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 680.0 TYPE= 1 TARGET= 679.999

9558.00	7.13	590.93	0.00	0.00	590.99	.06	.00	.00	587.90
855.	15.	506.	334.	20.	224.	217.	191.	56.	586.60
2.27	.72	2.26	1.54	.060	.040	.035	.040	583.80	554.20
.000349	1.	1.	1.	0	0	1	0.00	119.00	680.00

3470 ENCROACHMENT STATIONS= 254.0 423.0 TYPE= 1 TARGET= 169.000

9582.00	7.83	590.99	0.00	0.00	591.01	.02	.00	.01	586.26
855.	252.	196.	407.	350.	157.	366.	191.	56.	585.86
2.27	.72	1.25	1.11	.060	.040	.040	.040	583.16	254.00
.000103	24.	24.	24.	2	0	1	0.00	169.00	423.00

3470 ENCROACHMENT STATIONS= .0 441.0 TYPE= 1 TARGET= 440.999

VALLEY SECTION T

9657.00	8.41	591.01	0.00	0.00	591.01	.00	.00	.00	585.70	
855.	495.	137.	224.	1111.	172.	460.	194.	57.	585.30	
2.32	.45	.80	.47	.060	.040	.060	.040	582.60	101.30	
.000037	75.	75.	75.	0	0	1	0.00	339.70	441.00	

3470 ENCROACHMENT STATIONS= .0 441.0 TYPE= 1 TARGET= 440.999

9957.00	7.78	591.02	0.00	0.00	591.03	.01	.02	.00	586.34	
855.	483.	143.	224.	972.	156.	424.	207.	59.	585.94	
2.48	.50	.92	.53	.060	.040	.060	.039	583.24	103.19	
.000056	450.	300.	100.	0	0	1	0.00	337.81	441.00	

3470 ENCROACHMENT STATIONS= .0 441.0 TYPE= 1 TARGET= 440.999

10257.00	7.16	591.04	0.00	0.00	591.05	.01	.01	.00	586.98	
855.	479.	151.	224.	833.	140.	368.	213.	61.	586.58	
2.56	.58	1.08	.61	.060	.040	.060	.040	583.88	105.10	
.000089	10.	300.	600.	0	0	1	0.00	335.90	441.00	

SECNO	DEPTH	C/SEL	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= .0 265.0 TYPE= 1 TARGET= 264.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 585.24 ELREA= 99997.44

10557.00	7.82	591.06	0.00	0.00	591.07	.02	.02	.01	585.24	
855.	280.	575.	0.	409.	475.	0.	218.	62.	99997.44	
2.62	.68	1.21	0.00	.060	.040	.060	.040	583.24	78.95	
.000110	100.	300.	400.	0	0	1	0.00	186.05	265.00	

3265 DIVIDED FLOW

10857.00	3.57	591.09	0.00	0.00	591.13	.03	.05	.01	586.52	
855.	227.	614.	14.	286.	376.	27.	224.	63.	592.32	
2.68	.80	1.63	.51	.060	.040	.060	.040	584.52	83.53	
.000227	300.	300.	300.	0	0	1	0.00	186.70	289.10	

3470 ENCROACHMENT STATIONS= .0 265.0 TYPE= 1 TARGET= 264.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 587.80 ELREA= 100000.00

VALLEY SECTION U

11157.00	5.38	591.18	0.00	0.00	591.25	.07	.10	.02	587.80	
855.	169.	686.	0.	174.	292.	0.	228.	64.	100000.00	
2.72	.97	2.35	0.00	.060	.040	.060	.040	585.80	87.88	
.000606	300.	300.	300.	2	0	1	0.00	161.24	249.12	

11327.00	4.96	591.20	0.00	0.00	591.37	.08	.12	.01	587.43	
855.	336.	448.	72.	223.	156.	54.	230.	65.	588.13	
2.75	1.50	2.87	1.33	.060	.040	.060	.040	586.33	127.87	
.000805	170.	170.	170.	2	0	1	0.00	134.95	262.82	

3470 ENCROACHMENT STATIONS= .0 273.7 TYPE= 1 TARGET= 273.699

11497.00	4.58	591.42	0.00	0.00	591.55	.11	.16	.01	587.96	
855.	325.	464.	67.	145.	143.	46.	231.	66.	588.66	
2.76	1.67	3.24	1.46	.060	.040	.060	.040	586.86	129.33	
.001160	170.	170.	170.	2	0	1	0.00	132.03	261.37	

3470 ENCROACHMENT STATIONS= .0 292.5 TYPE= 1 TARGET= 292.499

11667.00	4.25	591.64	0.00	0.00	591.79	.14	.22	.02	587.89	
855.	179.	556.	120.	90.	158.	67.	233.	66.	587.79	
2.78	2.00	3.51	1.79	.060	.040	.060	.040	587.39	169.68	
.001431	170.	170.	170.	2	0	1	0.00	102.55	272.23	

3470 ENCROACHMENT STATIONS= .0 282.5 TYPE= 1 TARGET= 282.499

11837.00	3.99	591.91	0.00	0.00	592.08	.17	.28	.01	588.42	
855.	176.	565.	114.	81.	148.	59.	234.	66.	588.32	
2.80	2.16	3.82	1.93	.060	.040	.060	.040	587.92	170.77	
.001849	240.	170.	100.	2	0	1	0.00	100.53	271.30	

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

3470 ENCROACHMENT STATIONS= .0 291.2 TYPE= 1 TARGET= 291.199

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 594.55 ELREA= 593.95

12007.00	3.84	592.29	0.00	0.00	592.69	.40	.49	.11	594.55	
855.	0.	855.	0.	0.	169.	0.	235.	67.	593.95	
2.80	0.00	5.07	0.00	.060	.040	.060	.040	588.45	212.35	
.005123	170.	170.	170.	2	0	1	0.00	63.26	275.61	

3470 ENCROACHMENT STATIONS= .0 291.2 TYPE= 1 TARGET= 291.199

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 595.05 ELREA= 594.48

12177.00	4.16	593.14	0.00	0.00	593.45	.32	.74	.02	595.08	
855.	0.	855.	0.	0.	189.	0.	235.	67.	594.48	
2.82	0.00	4.52	0.00	.060	.040	.060	.040	588.98	210.75	
.003738	170.	170.	170.	2	0	1	0.00	66.65	277.40	

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= .0 300.0 TYPE= 1 TARGET= 299.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 594.70 ELREA= 100000.00

VALLEY SECTION V

12347.00	4.24	593.74	0.00	0.00	595.07	1.33	1.11	.50	594.70
855.	0.	855.	0.	0.	93.	0.	236.	67.	100000.00
2.82	0.00	9.24	0.00	.060	.040	.060	.040	589.50	265.20
.014161	170.	170.	170.	2	0	1	0.00	26.37	291.58

F.M. U/S FACE

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 125.0 300.0 TYPE= 1 TARGET= 175.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 594.60 ELREA= 100000.00

12382.00	5.73	595.13	0.00	0.00	595.55	.42	.21	.27	594.60
855.	113.	742.	0.	77.	134.	0.	236.	67.	100000.00
2.82	1.47	5.56	0.00	.060	.040	.060	.040	589.40	181.81
.003643	1.	35.	200.	6	0	1	0.00	111.92	293.73

12457.00	6.14	595.34	0.00	0.00	596.05	.71	.36	.14	592.40
855.	113.	688.	54.	55.	92.	21.	236.	67.	592.40
2.83	2.04	7.45	2.64	.060	.040	.060	.040	589.20	396.01
.006976	50.	75.	100.	3	0	1	0.00	85.88	481.89

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	=0.00	1.84	2.94	-0.00	20.20	-0.00	90.90	-0.00	589.20	589.20

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
597.87	596.82	0.00	108.	741.	91.	594.50	596.20	30.00

$741. = 90.90 \sqrt{\frac{64.4 \times H}{1.84}}$

BRIDGE SECTION W U/S EMPIRE AVE. LENGTH=28'

$1.3779 = \sqrt{H}$

CONCRETE BOX CULVERT

$1.174 = H$

BRIDGE SKEWED 38 DEGREES

12485.00	7.53	597.03	0.00	0.00	597.24	.21	1.19	0.00	592.70
855.	254.	516.	83.	145.	115.	46.	236.	67.	592.70
2.83	1.76	4.52	1.82	.060	.040	.060	.040	589.50	379.04
.0019305	28.	28.	28.	2	0	3	0.00	116.65	495.69

F.M. U/S FACE

3470 ENCROACHMENT STATIONS= 1600.0 1800.0 TYPE= 1 TARGET= 175.700

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 594.76 ELREA= 100000.05

12510.00	7.67	597.23	0.00	0.00	597.31	.07	.03	.04	594.76	
855.	349.	506.	0.	265.	194.	0.	237.	67.	100000.06	
2.83	1.32	2.60	0.00	.060	.045	.060	.040	589.56	156.86	
.000779	125.	25.	25.	2	0	1	0.00	143.14	300.00	

3470 ENCROACHMENT STATIONS= 100.0 300.0 TYPE= 1 TARGET= 200.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 555.12 ELREA= 100000.00

12660.00	7.52	597.44	0.00	0.00	597.52	.08	.21	.00	595.12	
855.	336.	519.	0.	248.	189.	0.	240.	69.	100000.00	
2.86	1.36	2.75	0.00	.060	.045	.060	.040	589.92	158.54	
.000887	400.	150.	1.	2	0	1	0.00	141.05	299.59	

3470 ENCROACHMENT STATIONS= .0 237.0 TYPE= 1 TARGET= 236.999

VALLEY SECTION X

12907.00	7.11	597.61	0.00	0.00	597.63	.02	.09	.02	592.00	F.M.
855.	596.	230.	29.	636.	160.	44.	244.	70.	592.20	
2.94	.87	1.43	.57	.060	.045	.060	.040	590.50	37.75	
.000165	300.	247.	150.	2	0	1	0.00	199.25	237.00	

3280 CROSS SECTION 12957.00 EXTENDED 3.53 FEET

3470 ENCROACHMENT STATIONS= 1400.0 1600.0 TYPE= 1 TARGET= 200.000

ELENCL= 650.00 ELENCR= 650.00

12957.00	8.52	597.62	0.00	0.00	597.64	.01	.01	.00	590.90
855.	177.	367.	311.	226.	318.	398.	245.	70.	591.00
2.96	.79	1.16	.78	.060	.045	.060	.040	589.10	1400.00
.000158	100.	50.	1.	1	0	1	0.00	200.00	1600.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.62	2.53	-0.00	44.00	-0.00	156.00	-0.00	589.10	589.10

3280 CROSS SECTION 12967.00 EXTENDED 3.66 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	ELLC	ELTRD	CLASS
598.38	597.64	0.00	482.	373.	156.	594.00	596.20	30.00

3470 ENCROACHMENT STATIONS= 1400.0 1600.0 TYPE= 1 TARGET= 200.000
ELENCL= 650.00 ELENCR= 650.00

piers modeled on GR cards

BRIDGE SECTION Y U/S PENN CENTRAL RR TRACK BRIDGE LENGTH=10'

3 PIERS (ROUND TIMBER PILES)

F.M. U/S FACE

12967.00	8.66	597.76	0.00	0.00	597.77	.01	.13	0.00	590.90
855.	179.	362.	314.	233.	323.	411.	245.	70.	591.00
2.96	.77	1.12	.76	.060	.045	.060	.040	589.10	1400.00
.000145	10.	10.	10.	1	0	6	0.00	200.00	1600.00

3470 ENCROACHMENT STATIONS= 37.0 237.0 TYPE= 1 TARGET= 200.000

12987.00	8.61	597.76	0.00	0.00	597.77	.01	.00	.00	590.65
855.	613.	207.	36.	926.	198.	66.	246.	70.	590.85
2.97	.66	1.04	.54	.060	.045	.060	.040	589.15	37.00
.000066	1.	20.	50.	0	0	1	0.00	200.00	237.00

13322.00	7.75	597.77	0.00	0.00	597.78	.01	.01	.00	591.52
855.	514.	186.	155.	788.	176.	261.	249.	71.	591.72
3.12	.65	1.05	.59	.060	.045	.060	.041	590.02	36.90
.000079	1.	335.	500.	2	0	1	0.00	248.24	285.14

VALLEY SECTION Z

F.M.

13657.00	6.90	597.80	0.00	0.00	597.81	.01	.03	.00	592.70
855.	53.	360.	442.	126.	338.	638.	257.	73.	592.30
3.12	.42	1.07	.69	.060	.045	.060	.041	590.90	91.62
.000112	300.	335.	300.	0	0	1	0.00	291.79	383.41

3470 ENCROACHMENT STATIONS= 650.0 1530.0 TYPE= 1 TARGET= -650.000

13756.00	6.42	597.82	0.00	0.00	597.83	.01	.01	.00	592.60
855.	173.	201.	481.	300.	221.	631.	262.	74.	593.30
3.18	.58	.91	.58	.060	.045	.060	.041	591.40	650.00
.000076	300.	99.	150.	0	0	1	0.00	308.22	958.22

3265 DIVIDED FLOW

NORMAL BRIDGE, NRD=46 MIN ELTRD= 628.40 MAX ELLC= 619.50

3470 ENCROACHMENT STATIONS= 650.0 1530.0 TYPE= 1 TARGET= -650.000

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 612.50 ELREA= 593.30

13757.00	6.42	597.82	0.00	0.00	597.83	.01	.00	.00	612.50
855.	0.	268.	587.	0.	221.	767.	262.	74.	593.30
3.19	0.00	1.21	.77	.060	.045	.060	.041	591.40	721.10
.000159	1.	1.	1.	0	0	1	0.00	222.12	958.22

3265 DIVIDED FLOW

SECNO	DEPTH	CHSEL	CHWS	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

NORMAL BRIDGE, WRD=46. MIN ELTRD= 628.40 MAX ELLC= 619.50

3470 ENCROACHMENT STATIONS= 650.0 1530.0 TYPE= 1 TARGET= -650.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 612.50 ELREA= 593.30

BRIDGE SECTION AA U/S HWY M-139 BRIDGE LENGTH-75'

10 PIERS (FLAT FACE - 5' WIDE)

F.M. U/S FACE

13832.00	6.43	597.83	0.00	0.00	597.84	.01	.01	.00	612.50
855.	0.	268.	587.	0.	221.	768.	264.	74.	593.30
3.21	0.00	1.21	.76	.060	.045	.060	.041	591.40	721.10
.000158	75.	75.	75.	0	0	1	0.00	222.18	958.28

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 650.0 1530.0 TYPE= 1 TARGET= -650.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 612.50 ELREA= 593.30

13833.00	6.43	597.83	0.00	0.00	597.84	.01	.00	.00	612.50
855.	0.	268.	587.	0.	221.	768.	264.	74.	593.30
3.21	0.00	1.21	.76	.060	.045	.060	.041	591.40	721.10
.000158	1.	1.	1.	0	0	1	0.00	222.18	958.28
13882.00	6.42	597.84	0.00	0.00	597.85	.02	.01	.00	593.22
855.	41.	375.	440.	91.	308.	562.	265.	75.	592.82
3.22	.45	1.22	.78	.060	.045	.060	.041	591.42	96.17
.000166	49.	49.	49.	0	0	1	0.00	285.81	381.98

3470 ENCROACHMENT STATIONS= 197.0 388.0 TYPE= 1 TARGET= -197.000

14097.00	6.30	597.80	0.00	0.00	598.13	.33	.12	.16	595.00
855.	165.	472.	218.	57.	83.	95.	269.	76.	595.10
3.24	2.88	5.72	2.29	.060	.045	.060	.041	591.50	208.48
.004279	125.	215.	350.	2	0	1	0.00	107.15	315.63

3470 ENCROACHMENT STATIONS= 197.0 388.0 TYPE= 1 TARGET= -197.000

14312.00	7.04	598.61	0.00	0.00	598.77	.17	.60	.05	595.07
855.	176.	404.	275.	78.	95.	148.	270.	76.	595.17
3.26	2.27	4.25	1.87	.060	.045	.060	.041	591.57	203.46
.001955	215.	215.	215.	2	0	1	0.00	124.96	328.42

3470 ENCROACHMENT STATIONS= 197.0 388.0 TYPE= 1 TARGET= -197.000

14527.00	7.36	599.01	0.00	0.00	599.14	.13	.36	.01	595.15

	3.28	2.04	3.77	1.70	.060	.045	.060	.041	591.65	200.69
	.001427	215.	215.	215.	2	0	1	0.00	132.44	333.13

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

3470 ENCROACHMENT STATIONS= 197.0 363.0 TYPE= 1 TARGET= -197.000

14742.00	7.60	599.32	0.00	0.00	599.42	.11	.27	.01	595.22
855.	181.	363.	311.	96.	105.	193.	274.	78.	595.32
3.31	1.89	3.47	1.61	.060	.045	.060	.041	591.72	198.73
.001151	215.	215.	215.	2	0	1	0.00	134.88	333.61

3470 ENCROACHMENT STATIONS= 197.0 388.0 TYPE= 1 TARGET= -197.000

VALLEY SECTION AB

14957.00	7.76	599.56	0.00	0.00	599.65	.09	.23	.00	595.30
855.	182.	353.	320.	102.	107.	207.	276.	78.	595.40
3.33	1.79	3.28	1.55	.060	.045	.060	.041	591.80	197.33
.000993	215.	215.	215.	2	0	1	0.00	136.63	333.95

3470 ENCROACHMENT STATIONS= 197.0 388.0 TYPE= 1 TARGET= -197.000

15257.00	6.97	599.94	0.00	0.00	600.11	.18	.42	.04	596.47
855.	175.	409.	271.	76.	94.	142.	278.	79.	596.57
3.36	2.32	4.36	1.90	.060	.045	.060	.041	592.97	204.04
.002092	300.	300.	300.	2	0	1	0.00	123.19	327.23

15557.00	6.46	600.60	0.00	0.00	600.85	.25	.70	.03	598.94
855.	75.	579.	201.	46.	128.	75.	280.	80.	596.14
3.38	1.62	4.53	2.68	.060	.045	.060	.041	594.14	71.21
.002591	300.	300.	300.	2	0	1	0.00	86.77	157.98

15857.00	6.16	601.47	0.00	0.00	601.77	.31	.90	.03	600.11
855.	59.	599.	197.	36.	119.	67.	282.	81.	597.31
3.40	1.62	5.02	2.93	.060	.045	.060	.041	595.31	72.06
.003486	300.	300.	300.	2	0	1	0.00	85.22	157.28

3470 ENCROACHMENT STATIONS= 1400.0 1600.0 TYPE= 1 TARGET= 200.000
ELENCL= 650.00 ELENCR= 650.00

15957.00	6.35	602.05	0.00	0.00	602.14	.08	.30	.07	598.20
855.	135.	538.	182.	190.	200.	126.	283.	81.	598.40
3.41	1.50	2.69	1.45	.060	.045	.060	.041	595.70	1411.45
.001538	1.	100.	300.	2	0	1	0.00	157.47	1568.92

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	BDLEN	BMC	BAP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.63	2.75	-0.00	42.00	-0.00	87.60	-0.00	595.70	595.70

PRESSURE AND WEIR FLOW

EGPRS	EGLPC	FB	QUEIR	QBR	BAREA	ELLC	ELTRD	CLASS
604.46	602.34	0.00	153.	768.	88.	600.50	603.00	30.00

3470 ENCROACHMENT STATIONS= 1400.0 1600.0 TYPE= 1 TARGET= 200.000
ELENCL= 650.00 ELENCR= 650.00

BRIDGE SECTION AC U/S PENN CENTRAL RR TRACK BRIDGE LENGTH=10'

3 PIERS (ROUND TIMBER PILES)

15967.00	7.98	603.68	0.00	0.00	603.71	.03	1.57	0.00	598.20
855.	181.	434.	241.	179.	268.	263.	283.	81.	598.40
3.42	1.01	1.62	.92	.060	.045	.060	.041	595.70	1400.00
.000375	10.	10.	10.	2	0	2	0.00	199.60	1599.60

F.M. U/S FACE

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= .0 172.0 TYPE= 1 TARGET= 171.999

VALLEY SECTION AD

16007.00	9.88	603.68	0.00	0.00	603.73	.05	.01	.01	598.60
855.	155.	507.	193.	175.	224.	184.	284.	81.	595.80
3.42	.89	2.27	1.05	.070	.040	.070	.041	593.80	61.67
.000243	120.	40.	1.	2	0	1	0.00	110.33	172.00

F.M.

3470 ENCROACHMENT STATIONS= .0 172.0 TYPE= 1 TARGET= 171.999

16207.00	9.23	603.73	0.00	0.00	603.80	.07	.06	.01	599.30
855.	144.	523.	188.	145.	206.	159.	286.	82.	596.50
3.45	.97	2.54	1.19	.070	.040	.070	.041	594.50	63.46
.000342	300.	200.	150.	1	0	1	0.00	105.96	169.42

3470 ENCROACHMENT STATIONS= .0 172.0 TYPE= 1 TARGET= 171.999

16407.00	8.60	603.80	0.00	0.00	603.89	.09	.08	.01	600.00
855.	130.	541.	184.	123.	188.	136.	289.	82.	597.20
3.48	1.06	2.89	1.35	.070	.040	.070	.041	595.20	65.24
.000495	300.	200.	150.	0	0	1	0.00	99.64	164.87

3470 ENCROACHMENT STATIONS= .0 172.0 TYPE= 1 TARGET= 171.999

16607.00	8.02	603.92	0.00	0.00	604.04	.12	.13	.01	600.70
855.	115.	560.	179.	101.	172.	118.	291.	83.	597.90
3.50	1.14	3.27	1.52	.070	.040	.070	.041	595.90	66.86
.000719	100.	200.	350.	2	0	1	0.00	94.72	161.58

3470 ENCROACHMENT STATIONS= .0 205.0 TYPE= 1 TARGET= 204.999

16807.00	7.47	604.07	0.00	0.00	604.22	.15	.17	.02	599.90

	3.62	1.12	3.84	1.74	.070	.040	.070	.041	596.60	108.30
	.001068	300.	200.	150.	2	0	1	0.00	89.64	197.94

3470 ENCROACHMENT STATIONS= .0 205.0 TYPE= 1 TARGET= 204.999

17007.00	7.00	604.30	0.00	0.00	604.49	.19	.25	.02	600.60	
855.	42.	506.	307.	34.	117.	161.	294.	84.	600.50	
3.54	1.22	4.31	1.91	.070	.040	.070	.041	597.30	110.63	
.001499	200.	200.	200.	2	0	1	0.00	86.30	196.93	

3470 ENCROACHMENT STATIONS= .0 205.0 TYPE= 1 TARGET= 204.999

VALLEY SECTION AE

17207.00	6.60	604.60	0.00	0.00	604.85	.24	.33	.03	601.30	F.M.
855.	36.	523.	296.	27.	109.	142.	295.	84.	601.20	
3.55	1.33	4.79	2.08	.070	.040	.070	.041	598.00	112.61	
.002050	300.	200.	150.	2	0	1	0.00	83.46	196.08	

3470 ENCROACHMENT STATIONS= .0 205.0 TYPE= 1 TARGET= 204.999

17497.00	6.08	605.34	0.00	0.00	605.68	.34	.79	.05	602.56	
855.	28.	549.	278.	19.	98.	119.	297.	85.	602.46	
3.57	1.48	5.59	2.34	.070	.040	.070	.041	599.26	115.20	
.003214	220.	290.	360.	2	0	1	0.00	79.76	194.96	

SECNO	DEPTH	CHSEL	CHIMS	WSELK	EG	HV	HL	OLOSS	BANK ELEV	
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= .0 205.0 TYPE= 1 TARGET= 204.999

17787.00	5.83	606.35	0.00	0.00	606.76	.41	1.04	.03	603.82	
855.	25.	563.	267.	16.	93.	109.	299.	85.	603.72	
3.59	1.56	6.07	2.48	.070	.040	.070	.041	600.52	116.44	
.004064	290.	290.	290.	2	0	1	0.00	77.99	194.43	

3470 ENCROACHMENT STATIONS= 102.0 199.0 TYPE= 1 TARGET= 97.000

18077.00	5.52	607.30	0.00	0.00	607.40	.10	.55	.09	603.38	
855.	257.	270.	328.	153.	76.	177.	301.	86.	602.98	
3.62	1.68	3.54	1.85	.070	.040	.070	.041	601.78	102.00	
.001081	290.	290.	290.	2	0	1	0.00	97.00	199.00	

3470 ENCROACHMENT STATIONS= 102.0 199.0 TYPE= 1 TARGET= 97.000

18367.00	4.60	607.64	0.00	0.00	607.70	.05	.28	.01	604.64	
490.	137.	165.	188.	115.	62.	140.	303.	86.	604.24	
3.67	1.19	2.65	1.35	.070	.040	.070	.041	603.04	102.00	
.000790	220.	290.	360.	2	0	1	0.00	97.00	199.00	

3470 ENCROACHMENT STATIONS= 106.0 196.0 TYPE= 1 TARGET= 90.000

18467.00	4.26	607.73	0.00	0.00	607.81	.08	.10	.01	605.07	
490.	127.	179.	184.	92.	57.	117.	304.	86.	604.67	

.001240	100.	100.	100.	0	0	1	0.00	90.00	196.00	

3470 ENCROACHMENT STATIONS= 106.0 196.0 TYPE= 1 TARGET= 90.000

18567.00	3.98	607.86	0.00	0.00	607.96	.10	.15	.01	605.50	
490.	121.	146.	183.	81.	53.	105.	304.	87.	605.10	
3.69	1.50	3.52	1.75	.070	.040	.070	.041	603.90	106.00	
.001744	100.	100.	100.	2	0	1	0.00	90.00	196.00	

3470 ENCROACHMENT STATIONS= 130.0 172.0 TYPE= 1 TARGET= 42.000

VALLEY SECTION AF

18657.00	3.66	607.96	0.00	0.00	608.42	.46	.27	.18	605.90	F.M.
490.	71.	311.	108.	26.	48.	34.	305.	87.	605.50	
3.70	2.74	6.46	3.15	.070	.040	.070	.041	604.30	130.00	
.006635	90.	90.	90.	2	0	1	0.00	42.00	172.00	

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 614.80 ELREA= 614.80

18706.00	5.11	608.11	0.00	0.00	609.06	.95	.40	.24	617.00	
490.	0.	490.	0.	0.	63.	0.	305.	87.	617.00	
3.70	0.00	7.81	0.00	.070	.040	.070	.041	603.00	458.80	
.010082	49.	49.	49.	2	0	1	0.00	15.00	473.80	

NORMAL BRIDGE,NRD=22 MIN ELTRD= 617.00 MAX ELLC= 612.70

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 614.80 ELREA= 614.80

18707.00	5.11	608.11	0.00	0.00	609.06	.95	.00	.00	617.00	
490.	0.	490.	0.	0.	63.	0.	305.	87.	617.00	
3.70	0.00	7.84	0.00	.012	.012	.012	.041	603.00	458.80	
.000918	1.	1.	1.	0	0	1	-.32	15.00	473.80	

SECNO	DEPTH	CHSEL	CHWS	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

NORMAL BRIDGE,NRD=22 MIN ELTRD= 617.00 MAX ELLC= 612.70

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 617.00 ELREA= 617.00

BRIDGE SECTION AG U/S NAPIER AVE. LENGTH=96'

ELLIPTICAL CONCRETE CULVERT 180" X 116"

18803.00	5.28	608.28	0.00	0.00	609.17	.89	.08	.02	617.00	F.M. U/S FACE
490.	0.	490.	0.	0.	65.	0.	305.	87.	617.00	
3.70	0.00	7.57	0.00	.012	.012	.012	.041	603.00	458.80	
.000833	96.	96.	96.	3	0	1	-.48	15.00	473.80	

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 617.00 ELREA= 617.00

18804.00	5.32	608.32	0.00	0.00	609.18	.86	.00	.01	617.00
490.	0.	490.	0.	0.	66.	0.	305.	87.	617.00
3.70	0.00	7.45	0.00	.070	.040	.040	.041	603.00	458.80
.008818	1.	1.	1.	2	0	1	0.00	15.00	473.80

3301. RV CHANGED MORE THAN RVINS

3470 ENCROACHMENT STATIONS= 113.0 183.0 TYPE= 1 TARGET= 65.000

18828.00	6.32	609.40	0.00	0.00	609.44	.04	.02	.25	604.68
490.	106.	163.	221.	115.	86.	128.	305.	87.	604.28
3.71	.92	1.86	1.73	.070	.040	.040	.041	603.08	118.00
.000244	24.	24.	24.	2	0	1	0.00	65.00	183.00

3470 ENCROACHMENT STATIONS= 123.0 178.0 TYPE= 1 TARGET= 55.000

19193.00	5.32	609.51	0.00	0.00	609.60	.09	.14	.02	605.79
490.	93.	196.	201.	73.	73.	82.	307.	87.	605.39
3.75	1.28	2.68	2.44	.070	.040	.040	.041	604.19	123.00
.000653	365.	365.	365.	2	0	1	0.00	55.00	178.00

19583.00	4.37	609.74	0.00	0.00	609.76	.02	.13	.02	606.97
490.	112.	78.	300.	207.	59.	263.	311.	89.	606.57
3.86	.54	1.32	1.14	.070	.040	.040	.040	605.37	51.90
.000212	390.	390.	390.	2	0	1	0.00	194.41	246.31

19973.00	3.31	609.86	0.00	0.00	609.90	.05	.13	.02	608.15
490.	85.	95.	310.	112.	43.	171.	314.	90.	607.75
3.91	.76	2.21	1.81	.070	.040	.040	.041	606.55	55.19
.000907	450.	390.	300.	2	0	1	0.00	187.66	242.85

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

20363.00	2.71	610.44	0.00	0.00	610.56	.11	.62	.03	609.33
490.	56.	115.	319.	61.	34.	122.	317.	92.	608.93
3.96	.92	3.40	2.61	.070	.040	.040	.041	607.73	57.02
.002910	300.	390.	450.	2	0	1	0.00	183.91	240.93

20753.00	3.13	612.04	0.00	0.00	612.09	.05	1.51	.02	610.51
490.	122.	89.	279.	97.	40.	157.	319.	93.	610.11
4.02	1.26	2.21	1.78	.100	.100	.100	.042	608.91	55.73
.006149	250.	390.	400.	3	0	1	0.00	186.55	242.28

VALLEY SECTION AH

21143.00	3.15	613.25	0.00	0.00	613.27	.02	1.17	.01	611.00
490.	169.	206.	114.	144.	170.	97.	322.	95.	610.10
4.11	1.17	1.21	1.17	.100	.100	.100	.043	610.10	62.04

F.M.

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Benton Harbor, City & Benton Twp

3) WATERCOURSE: OX Creek

4) DOCUMENT TYPE: Calibration

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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CITY OF BENTON HARBOR &
BENTON TOWNSHIP FIS
J&A File No. 5555-08,07
HIGH WATER MARK
COMPARISON RUN

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C
1       BENTON TWP. (07) & BENTON HARBOR (08) FIS       P.M. - JOHN EMIG
T2       COMPARISON RUN
T3       OX CREEK

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
        -0.       -0.        -0.        -0. -0.000000      -0.00      -0.0       740.    584.000     -0.000

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

J3       1.000     10.000     11.000     12.000     14.000      8.000      4.000     -0.000     -0.000     -0.000
NC        .050       .050       .040       .300       .500     -0.000     -0.000     -0.000     -0.000     -0.000

X1    2255.000     31.000   1058.000   1122.000     24.000     24.000     24.000     -0.000     -1.730     -0.000
X3      10.000     -0.000     -0.000   1058.000     -0.000   1122.000     -0.000     -0.000     -0.000     -0.000
GR     586.400      0.000    584.100     22.000    583.500    122.000    582.900    222.000    583.300    322.000
GR     583.400    422.000    583.300    522.000    583.000    622.000    582.900    722.000    582.600    822.000
GR     582.400    922.000    583.700   1022.000    581.600   1058.000    580.000   1067.000    577.200   1072.000
GR     576.100   1082.000    576.300   1092.000    577.700   1102.000    578.600   1112.000    581.400   1118.000
GR     583.400   1122.000    583.400   1222.000    583.700   1322.000    584.000   1422.000    584.200   1522.000
GR     583.300   1622.000    582.400   1722.000    582.700   1822.000    584.400   1892.000    584.100   1907.000
GR     582.700   1927.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1    2410.000     -0.000     -0.000     -0.000    155.000    155.000    155.000     -0.000      .450      -0.000
X3      10.000     -0.000     -0.000   1058.000     -0.000   1122.000     -0.000     -0.000     -0.000     -0.000

X1    2565.000     -0.000     -0.000     -0.000    155.000    155.000    155.000     -0.000      .450      -0.000
X3      10.000     -0.000     -0.000   1058.000     -0.000   1122.000     -0.000     -0.000     -0.000     -0.000

X1    2720.000     -0.000     -0.000     -0.000    155.000    155.000    155.000     -0.000      .450      -0.000
X3      10.000     -0.000     -0.000   1058.000     -0.000   1122.000     -0.000     -0.000     -0.000     -0.000

X1    2875.000     -0.000     -0.000     -0.000    155.000    155.000    155.000     -0.000      .450      -0.000
X3      10.000     -0.000     -0.000   1058.000     -0.000   1122.000     -0.000     -0.000     -0.000     -0.000

X1    3030.000     -0.000     -0.000     -0.000    155.000    155.000    155.000     -0.000      .450      -0.000
X3      10.000     -0.000     -0.000   1058.000     -0.000   1122.000     -0.000     -0.000     -0.000     -0.000

X1    3185.000     39.000   1452.000   1493.000    155.000    155.000    155.000     -0.000     -1.330     -0.000
X3      10.000     -0.000     -0.000   1452.000     -0.000   1493.000     -0.000     -0.000     -0.000     -0.000
GR     592.100      0.000    592.000     52.000    592.600    152.000    591.500    252.000    590.400    352.000
GR     589.700    452.000    589.200    552.000    588.300    652.000    588.300    752.000    587.800    852.000
GR     587.200    952.000    587.000   1052.000    586.800   1152.000    586.100   1252.000    586.000   1352.000
GR     585.200   1452.000    581.200   1452.000    580.300   1457.000    578.700   1462.000    578.400   1472.000
GR     578.400   1482.000    578.500   1487.000    578.900   1493.000    585.400   1493.000    585.800   1552.000
GR     585.000   1652.000    584.800   1752.000    585.200   1852.000    584.600   1952.000    583.500   2052.000
GR     583.400   2152.000    583.700   2252.000    584.200   2352.000    585.200   2452.000    586.100   2552.000
GR     586.000   2652.000    583.600   2752.000    583.700   2852.000    583.200   2895.000     -0.000     -0.000

X1    3340.000     -0.000     -0.000     -0.000    155.000    155.000    155.000     -0.000      .450      -0.000
X3      10.000     -0.000     -0.000   1452.000     -0.000   1493.000     -0.000     -0.000     -0.000     -0.000
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X1	3495.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1452.000	-0.000	1493.000	-0.000	-0.000	-0.000	-0.000
X1	3650.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1452.000	-0.000	1493.000	-0.000	-0.000	-0.000	-0.000
X1	3700.000	-0.000	-0.000	-0.000	50.000	50.000	50.000	-0.000	-.760	-0.000
X3	10.000	-0.000	-0.000	1452.000	-0.000	1493.000	-0.000	-0.000	-0.000	-0.000
X1	3750.000	-0.000	-0.000	-0.000	50.000	50.000	50.000	-0.000	-.760	-0.000
X3	10.000	-0.000	-0.000	1452.000	-0.000	1493.000	-0.000	-0.000	-0.000	-0.000
X1	3775.000	53.000	1469.800	1500.000	25.000	25.000	25.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1400.000	-0.000	1600.000	-0.000	583.000	583.000	-0.000
GR	591.400	0.000	591.100	100.000	591.000	200.000	590.600	300.000	589.900	400.000
GR	589.100	500.000	588.800	600.000	588.400	700.000	588.400	800.000	587.600	900.000
GR	587.200	1000.000	586.600	1100.000	586.200	1200.000	585.900	1300.000	585.600	1400.000
GR	586.200	1435.000	585.200	1469.800	581.700	1469.800	580.700	1469.800	579.200	1472.400
GR	579.200	1473.400	579.200	1475.400	579.200	1476.400	580.700	1479.000	581.700	1479.000
GR	585.200	1479.000	585.100	1483.000	576.900	1483.000	577.800	1487.000	577.300	1491.000
GR	585.100	1491.000	585.100	1492.000	576.500	1492.000	578.300	1496.000	577.700	1500.000
GR	585.100	1500.000	585.500	1550.000	585.300	1600.000	585.200	1650.000	585.100	1700.000
GR	584.400	1800.000	583.900	1900.000	584.200	2000.000	583.600	2100.000	583.500	2200.000
GR	584.100	2300.000	584.800	2400.000	585.800	2500.000	586.600	2600.000	587.600	2700.000
GR	588.500	2800.000	589.400	2900.000	592.100	3003.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	2.030	2.900	-0.000	30.200	-0.000	184.500	-0.000	576.500	576.500
X1	3844.000	-0.000	-0.000	-0.000	69.000	69.000	69.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	582.200	585.300	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1400.000	-0.000	1600.000	-0.000	585.300	585.300	-0.000
BT	16.000	1400.000	585.600	0.000	1469.800	586.800	581.700	1472.400	586.800	584.700
BT	1473.400	586.800	585.200	1475.400	586.800	585.200	1476.400	586.800	584.700	1479.000
BT	586.800	581.700	1483.000	586.800	585.100	1483.000	586.800	585.100	1491.000	586.800
BT	585.100	1491.000	586.800	585.100	1492.000	586.800	585.100	1492.000	586.800	585.100
BT	1500.000	586.800	585.100	1500.000	586.800	577.700	1600.000	585.300	0.000	-0.000
NC	.060	.060	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3869.000	39.000	1452.000	1493.000	25.000	25.000	25.000	-0.000	-1.600	-0.000
X3	10.000	-0.000	-0.000	1400.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000
GR	592.100	0.000	592.000	52.000	592.600	152.000	591.500	252.000	590.400	352.000
GR	589.700	452.000	589.200	552.000	588.300	652.000	588.300	752.000	587.800	852.000
GR	587.200	952.000	587.000	1052.000	586.800	1152.000	586.100	1252.000	586.000	1352.000
GR	585.200	1452.000	581.200	1452.000	580.100	1457.000	578.500	1462.000	578.200	1472.000
GR	578.200	1482.000	578.300	1487.000	578.900	1493.000	585.400	1493.000	585.800	1552.000
GR	585.000	1652.000	584.800	1752.000	585.200	1852.000	584.600	1952.000	583.500	2052.000
GR	583.400	2152.000	583.700	2252.000	584.200	2352.000	585.200	2452.000	586.100	2552.000
GR	586.000	2652.000	583.600	2752.000	583.700	2852.000	583.200	2895.000	-0.000	-0.000
X1	4047.000	38.000	1500.000	1552.000	1.000	600.000	178.000	-0.000	-.910	-0.000
X3	10.000	-0.000	-0.000	1450.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000
GR	584.800	0.000	584.800	100.000	585.300	200.000	584.600	300.000	584.700	400.000
GR	584.200	500.000	583.600	600.000	583.400	700.000	584.600	800.000	585.400	900.000
GR	586.500	1000.000	587.500	1100.000	586.900	1200.000	587.000	1300.000	586.800	1400.000
GR	586.400	1500.000	581.100	1507.000	578.700	1515.000	578.800	1523.000	579.200	1533.000
GR	578.400	1539.000	581.400	1546.000	585.800	1552.000	585.800	1600.000	586.000	1700.000
GR	585.900	1800.000	586.300	1900.000	586.600	2000.000	586.600	2100.000	587.000	2200.000
GR	587.300	2300.000	587.400	2400.000	588.500	2500.000	588.500	2600.000	587.700	2700.000
GR	587.000	2800.000	586.500	2900.000	588.000	3000.000	-0.000	-0.000	-0.000	-0.000
X1	4225.000	-0.000	-0.000	-0.000	1.000	600.000	178.000	-0.000	.910	-0.000
X3	10.000	-0.000	-0.000	1482.000	-0.000	1569.000	-0.000	-0.000	-0.000	-0.000
X1	4250.000	-0.000	-0.000	-0.000	25.000	25.000	25.000	-0.000	-.220	-0.000
X3	10.000	-0.000	-0.000	1490.000	-0.000	1562.000	-0.000	-0.000	-0.000	-0.000

	X3	10.000	-0.000	-0.000	1496.000	-0.000	1556.000	-0.000	-0.000	-0.000	-0.000
	X1	4325.000	42.000	1500.000	1533.000	25.000	25.000	25.000	-0.000	-0.000	-0.000
	X3	10.000	-0.000	-0.000	1400.000	650.000	1650.000	650.000	586.300	586.300	-0.000
	GR	588.600	0.000	588.700	100.000	588.800	200.000	588.800	300.000	588.800	400.000
	GR	588.800	500.000	588.600	600.000	588.400	700.000	587.900	800.000	587.700	900.000
	GR	587.800	1000.000	588.000	1100.000	587.700	1200.000	588.000	1300.000	588.300	1400.000
	GR	588.500	1475.000	583.600	1500.000	578.500	1500.000	577.500	1501.000	577.500	1511.000
	GR	577.500	1512.000	583.600	1512.000	583.500	1521.000	577.600	1521.000	577.500	1522.000
	GR	578.500	1527.000	579.600	1532.000	579.600	1533.000	583.600	1533.000	588.700	1580.000
	GR	589.100	1900.000	589.200	2000.000	589.300	2100.000	589.400	2200.000	589.400	2300.000
	GR	589.400	2400.000	589.400	2500.000	589.500	2600.000	589.600	2700.000	589.900	2800.000
	GR	590.300	2900.000	590.700	3000.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	SB	-0.000	2.300	2.600	-0.000	33.000	-0.000	164.000	-0.000	577.500	577.500
	X1	4438.000	-0.000	-0.000	-0.000	113.000	113.000	113.000	-0.000	-0.000	-0.000
	X2	-0.000	-0.000	1.000	584.200	587.700	-0.000	-0.000	-0.000	-0.000	-0.000
	X3	10.000	-0.000	-0.000	1400.000	650.000	1650.000	650.000	587.700	587.700	-0.000
	BT	11.000	1400.000	588.300	0.000	1500.000	588.600	583.600	1501.000	588.600	584.600
	BT	1511.000	588.600	584.600	1512.000	588.600	583.600	1521.000	588.600	583.600	1522.000
	BT	588.600	584.600	1532.000	588.600	584.600	1533.000	588.600	583.600	1580.000	588.700
	BT	0.000	1650.000	588.800	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	X1	4453.000	48.000	1300.000	1324.500	25.000	25.000	15.000	-0.000	-0.000	-0.000
	X3	10.000	-0.000	-0.000	1200.000	650.000	1400.000	650.000	586.000	586.000	-0.000
	GR	591.100	0.000	590.900	100.000	590.500	200.000	590.400	300.000	590.400	321.000
	GR	590.400	400.000	590.100	500.000	589.800	600.000	589.500	700.000	589.300	752.000
	GR	588.600	900.000	588.300	1000.000	588.100	1047.000	587.900	1100.000	587.200	1208.000
	GR	587.200	1250.000	580.000	1275.000	579.100	1300.000	577.800	1300.500	578.000	1305.900
	GR	577.900	1311.200	578.000	1311.700	585.900	1311.700	585.900	1312.800	577.900	1312.800
	GR	577.300	1313.300	577.400	1318.700	577.000	1324.500	586.800	1350.000	586.700	1400.000
	GR	586.200	1448.000	586.300	1500.000	586.000	1600.000	586.400	1700.000	586.800	1800.000
	GR	587.200	1900.000	587.700	2000.000	587.900	2068.000	587.700	2100.000	588.000	2200.000
	GR	588.400	2300.000	588.800	2400.000	589.200	2500.000	589.800	2600.000	591.500	2700.000
	GR	596.400	2800.000	596.200	2827.000	596.500	2842.000	-0.000	-0.000	-0.000	-0.000
	SB	-0.000	2.340	2.800	-0.000	21.100	-0.000	160.000	-0.000	577.000	577.000
	X1	4521.000	-0.000	-0.000	-0.000	68.000	68.000	68.000	-0.000	-0.000	-0.000
	X2	-0.000	-0.000	1.000	585.900	586.700	-0.000	-0.000	-0.000	-0.000	-0.000
	X3	10.000	-0.000	-0.000	1200.000	650.000	1400.000	650.000	586.700	586.700	-0.000
	BT	18.000	1208.000	587.200	-0.000	1250.000	587.200	-0.000	1300.000	587.700	579.100
	BT	1300.000	587.700	577.900	1300.000	587.700	585.900	1300.500	587.700	585.900	1305.900
	BT	587.700	585.900	1311.200	587.700	585.900	1311.700	587.700	585.900	1312.800	587.700
	BT	585.900	1313.300	587.700	585.900	1318.700	587.700	585.900	1324.000	587.700	585.900
	BT	1324.500	587.700	585.900	1324.500	587.700	577.900	1324.500	587.700	577.000	1350.000
	BT	586.800	-0.000	1400.000	586.700	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	NC	.040	.040	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	X1	4551.000	36.000	1500.000	1557.000	30.000	30.000	30.000	-0.000	-1.700	-0.000
	X3	10.000	-0.000	-0.000	1398.000	-0.000	1658.000	-0.000	-0.000	-0.000	-0.000
	GR	590.300	0.000	590.600	100.000	590.700	200.000	591.300	300.000	591.500	400.000
	GR	591.100	500.000	591.200	600.000	590.900	700.000	589.400	800.000	589.900	900.000
	GR	589.300	1000.000	589.000	1100.000	590.000	1200.000	588.100	1300.000	587.300	1400.000
	GR	586.200	1500.000	581.400	1510.000	580.400	1518.000	579.200	1526.000	579.400	1536.000
	GR	580.000	1542.000	581.300	1546.000	586.400	1557.000	587.200	1600.000	587.600	1700.000
	GR	589.500	1800.000	589.900	1900.000	588.300	2000.000	589.300	2100.000	587.900	2200.000
	GR	588.900	2300.000	589.200	2400.000	589.700	2500.000	590.300	2600.000	592.000	2700.000
	GR	595.600	2800.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	X1	4653.000	-0.000	-0.000	-0.000	1.000	850.000	102.000	-0.000	1.700	-0.000
	X3	10.000	-0.000	-0.000	1384.000	-0.000	1672.000	-0.000	-0.000	-0.000	-0.000
	X1	4828.000	-0.000	-0.000	-0.000	1.000	300.000	175.000	-0.000	.170	-0.000
	X3	10.000	-0.000	-0.000	1428.000	-0.000	1628.000	-0.000	-0.000	-0.000	-0.000

X3	10.000	-0.000	-0.000	1353.000	-0.000	1703.000	-0.000	-0.000	-0.000	-0.000
X1	5178.000	-0.000	-0.000	-0.000	1.000	300.000	175.000	-0.000	.170	-0.000
X3	10.000	-0.000	-0.000	1374.000	-0.000	1628.000	-0.000	-0.000	-0.000	-0.000
X1	5353.000	18.000	506.000	566.000	1.000	300.000	175.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	406.000	-0.000	566.000	-0.000	-0.000	-0.000	-0.000
GR	590.200	0.000	589.900	42.000	589.700	81.000	589.500	383.000	588.500	408.000
GR	588.700	470.000	588.600	492.000	587.600	506.000	583.300	525.000	580.300	533.000
GR	579.900	544.000	580.000	555.000	582.400	560.000	583.300	566.000	591.600	762.000
GR	591.400	793.000	593.000	873.000	589.400	1106.000	-0.000	-0.000	-0.000	-0.000
X1	5403.000	37.000	1500.000	1521.000	50.000	50.000	50.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1387.000	650.000	1521.000	650.000	587.700	587.700	-0.000
GR	591.500	0.000	592.200	100.000	592.900	200.000	592.700	300.000	592.400	400.000
GR	592.200	500.000	591.800	600.000	591.400	700.000	591.000	800.000	590.700	900.000
GR	590.600	1009.000	590.300	1100.000	589.800	1200.000	589.400	1300.000	589.100	1387.000
GR	588.900	1400.000	585.700	1490.000	578.700	1500.000	578.700	1500.500	579.200	1505.000
GR	578.700	1509.500	578.900	1510.000	587.100	1510.000	587.100	1511.000	579.000	1511.000
GR	579.000	1511.500	579.300	1516.000	579.300	1521.000	589.500	1545.000	589.600	1600.000
GR	591.000	1700.000	591.700	1755.000	592.200	1800.000	593.800	1900.000	596.700	2000.000
GR	600.400	2100.000	602.100	2135.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	1.910	2.800	-0.000	21.000	-0.000	200.000	-0.000	578.700	578.700
X1	5484.000	-0.000	-0.000	-0.000	81.000	81.000	81.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	587.100	588.300	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1387.000	650.000	1521.000	650.000	588.300	588.300	-0.000
BT	14.000	1387.000	589.100	0.000	1434.000	588.600	0.000	1472.000	588.300	0.000
BT	1500.000	589.400	578.700	1500.000	589.400	587.100	1500.500	589.400	587.600	1505.000
BT	589.400	587.600	1509.500	589.400	587.600	1510.000	589.400	587.100	1511.000	589.400
BT	587.100	1511.500	589.400	587.600	1516.000	589.400	587.600	1521.000	589.400	587.600
BT	1521.000	589.400	579.300	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5504.000	32.000	1500.000	1552.000	20.000	20.000	20.000	-0.000	-1.100	-0.000
X3	10.000	-0.000	-0.000	1380.000	-0.000	1557.000	-0.000	-0.000	-0.000	-0.000
GR	592.000	0.000	592.400	100.000	592.700	200.000	592.000	300.000	591.500	400.000
GR	592.000	500.000	592.500	600.000	591.800	700.000	591.800	800.000	591.400	900.000
GR	591.200	989.000	590.700	1100.000	589.200	1200.000	588.500	1300.000	587.400	1362.000
GR	587.100	1400.000	587.900	1451.000	587.600	1483.000	587.200	1500.000	580.500	1512.000
GR	580.100	1524.000	581.300	1535.000	582.200	1537.000	589.900	1552.000	589.100	1600.000
GR	590.300	1700.000	591.000	1741.000	591.900	1800.000	593.900	1900.000	596.600	2000.000
GR	601.500	2077.000	602.200	2104.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5578.000	-0.000	-0.000	-0.000	74.000	74.000	74.000	-0.000	1.100	-0.000
X3	10.000	-0.000	-0.000	1376.000	-0.000	1676.000	-0.000	-0.000	-0.000	-0.000
X1	5678.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	-.340	-0.000
X3	10.000	-0.000	-0.000	1376.000	-0.000	1676.000	-0.000	-0.000	-0.000	-0.000
X1	5728.000	-0.000	-0.000	-0.000	50.000	50.000	50.000	-0.000	-.170	-0.000
X3	10.000	-0.000	-0.000	1316.000	-0.000	1616.000	-0.000	-0.000	-0.000	-0.000
X1	5753.000	37.000	1500.000	1527.400	25.000	25.000	25.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1316.000	650.000	1616.000	650.000	586.600	586.600	-0.000
GR	593.700	0.000	593.900	100.000	593.900	200.000	593.900	300.000	593.800	400.000
GR	593.700	500.000	593.500	600.000	593.000	700.000	592.900	800.000	592.500	892.000
GR	591.200	1000.000	588.700	1100.000	587.700	1200.000	587.600	1218.000	587.100	1300.000
GR	587.800	1392.000	587.600	1432.000	586.300	1490.000	579.900	1500.000	579.500	1500.500
GR	580.800	1506.500	580.100	1512.400	580.200	1512.900	585.900	1512.900	585.900	1514.500
GR	580.300	1514.500	580.300	1515.000	581.600	1521.000	581.600	1526.900	582.900	1527.400
GR	589.200	1542.000	591.000	1600.000	592.400	1655.000	593.600	1700.000	596.000	1800.000
GR	599.100	1900.000	602.400	2000.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	1.810	2.860	-0.000	25.500	-0.000	192.000	-0.000	579.500	579.500
X1	5804.000	-0.000	-0.000	-0.000	51.000	51.000	51.000	-0.000	-0.000	-0.000

X3	10.000	-0.000	-0.000	1316.000	650.000	1616.000	650.000	587.100	587.100	-0.000
BT	15.000	1300.000	587.100	-0.000	1392.000	587.800	-0.000	1432.000	587.500	-0.000
BT	1500.000	588.800	579.900	1500.000	588.800	585.900	1500.500	588.800	586.400	1506.500
BT	588.800	586.400	1512.400	588.800	586.400	1512.900	588.800	585.900	1514.500	588.800
BT	585.900	1515.000	588.800	586.500	1521.000	588.800	586.500	1527.400	588.800	586.500
BT	1527.400	588.800	582.900	1600.000	591.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5829.000	32.000	1500.000	1552.000	25.000	25.000	25.000	-0.000	-.570	-0.000
X3	10.000	-0.000	-0.000	1352.000	-0.000	1552.000	-0.000	-0.000	-0.000	-0.000
GR	592.000	0.000	592.400	100.000	592.700	200.000	592.000	300.000	591.500	400.000
GR	592.000	500.000	592.500	600.000	591.800	700.000	591.800	800.000	591.400	900.000
GR	591.200	989.000	590.700	1100.000	589.200	1200.000	588.500	1300.000	587.400	1362.000
GR	587.100	1400.000	587.900	1451.000	587.600	1483.000	587.200	1500.000	580.500	1512.000
GR	580.100	1524.000	581.300	1535.000	582.200	1537.000	589.900	1552.000	589.100	1600.000
GR	590.300	1700.000	591.000	1741.000	591.900	1800.000	593.900	1900.000	596.600	2000.000
GR	601.500	2077.000	602.200	2104.000	-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

CCHV= .300 CEHV= .500
3280 CROSS SECTION 2255.00 EXTENDED 1.30 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
2255.00	9.63	584.00	0.00	584.00	584.04	.04	0.00	0.00	579.87
740.	0.	740.	0.	0.	477.	0.	0.	0.	99998.27
0.00	0.00	1.55	0.00	.050	.040	.050	0.000	574.37	1058.00
.000142	24.	24.	24.	0	0	1	0.00	64.00	1122.00

3470 ENCROACHMENT STATIONS= 1058.0 1122.0 TYPE= 1 TARGET= 64.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 579.87 ELREA= 99998.27

3280 CROSS SECTION 2410.00 EXTENDED .87 FEET

3470 ENCROACHMENT STATIONS= 1058.0 1122.0 TYPE= 1 TARGET= 64.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.32 ELREA= 100000.00

2410.00	9.20	584.02	0.00	0.00	584.06	.04	.02	.00	580.32
740.	0.	740.	0.	0.	450.	0.	2.	0.	100000.00
.03	0.00	1.65	0.00	.050	.040	.050	.040	574.82	1058.00
.000170	155.	155.	155.	0	0	1	0.00	64.00	1122.00

3280 CROSS SECTION 2565.00 EXTENDED 2.18 FEET

3470 ENCROACHMENT STATIONS= 1058.0 1122.0 TYPE= 1 TARGET= 64.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 580.77 ELREA= 100000.00

2565.00	8.78	584.05	0.00	0.00	584.10	.05	.03	.00	580.77
740.	0.	740.	0.	0.	422.	0.	3.	0.	100000.00
.05	0.00	1.75	0.00	.050	.040	.050	.040	575.27	1058.00
.000206	155.	155.	155.	0	0	1	0.00	64.00	1122.00

3280 CROSS SECTION 2720.00 EXTENDED 1.76 FEET

3470 ENCROACHMENT STATIONS= 1058.0 1122.0 TYPE= 1 TARGET= 64.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.22 ELREA= 100000.00

2720.00	8.36	584.08	0.00	0.00	584.13	.05	.04	.00	581.22
740.	0.	740.	0.	0.	395.	0.	5.	1.	100000.00
.07	0.00	1.87	0.00	.050	.040	.050	.040	575.72	1058.00
.000253	155.	155.	155.	0	0	1	0.00	64.00	1122.00

3280 CROSS SECTION 2875.00 EXTENDED 1.34 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
2875.00	7.95	584.12	0.00	0.00	584.18	.06	.04	.00	581.67
740.	0.	740.	0.	0.	369.	0.	6.	1.	100000.00
.10	0.00	2.01	0.00	.050	.040	.050	.040	576.17	1058.00
.000314	155.	155.	155.	0	0	1	0.00	64.00	1122.00

3470 ENCROACHMENT STATIONS= 1058.0 1122.0 TYPE= 1 TARGET= 64.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 581.67 ELREA= 100000.00

3280 CROSS SECTION 3030.00 EXTENDED .94 FEET

3470 ENCROACHMENT STATIONS= 1058.0 1122.0 TYPE= 1 TARGET= 64.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.12 ELREA= 100000.00

3030.00	7.55	584.17	0.00	0.00	584.24	.07	.05	.00	582.12
740.	0.	740.	0.	0.	343.	0.	7.	1.	100000.00
.12	0.00	2.16	0.00	.050	.040	.050	.040	576.62	1058.00
.000392	155.	155.	155.	1	0	1	0.00	64.00	1122.00

3280 CROSS SECTION 3185.00 EXTENDED 1.02 FEET

3470 ENCROACHMENT STATIONS= 1452.0 1493.0 TYPE= 1 TARGET= 41.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.87 ELREA= 99998.67

3185.00	7.15	584.22	0.00	0.00	584.34	.11	.07	.02	583.87
740.	0.	740.	0.	0.	272.	0.	8.	1.	99998.67
.13	0.00	2.72	0.00	.050	.040	.050	.040	577.07	1452.00
.000594	155.	155.	155.	0	0	1	0.00	41.00	1493.00

3280 CROSS SECTION 3340.00 EXTENDED .66 FEET

3470 ENCROACHMENT STATIONS= 1452.0 1493.0 TYPE= 1 TARGET= 41.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.32 ELREA= 100000.00

3340.00	6.79	584.31	0.00	0.00	584.44	.13	.10	.01	584.32
740.	0.	740.	0.	0.	258.	0.	9.	1.	100000.00
.15	0.00	2.87	0.00	.050	.040	.050	.040	577.52	1452.00
.000700	155.	155.	155.	2	0	1	0.00	41.00	1493.00

3280 CROSS SECTION 3495.00 EXTENDED 1.64 FEET

3470 ENCROACHMENT STATIONS= 1452.0 1493.0 TYPE= 1 TARGET= 41.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.77 ELREA= 100000.00

3495.00	6.45	584.42	0.00	0.00	584.57	.14	.12	.01	584.77
740.	0.	740.	0.	0.	243.	0.	10.	2.	100000.00
.16	0.00	3.04	0.00	.050	.040	.050	.040	577.97	1452.00
.000832	155.	155.	155.	0	0	1	0.00	41.00	1493.00

3280 CROSS SECTION 3650.00 EXTENDED 1.34 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= 1452.0 1493.0 TYPE= 1 TARGET= 41.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 585.22 ELREA= 100000.00

3650.00	6.14	584.56	0.00	0.00	584.72	.16	.14	.01	585.22
740.	0.	740.	0.	0.	231.	0.	11.	2.	100000.00
.17	0.00	3.21	0.00	.050	.040	.050	.040	578.42	1452.00
.000978	155.	155.	155.	2	0	1	0.00	41.00	1493.00

3280 CROSS SECTION 3700.00 EXTENDED 2.19 FEET

3470 ENCROACHMENT STATIONS= 1452.0 1493.0 TYPE= 1 TARGET= 41.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.46 ELREA= 100000.00

3700.00	6.99	584.65	0.00	0.00	584.77	.12	.04	.01	584.46
740.	0.	740.	0.	0.	266.	0.	11.	2.	100000.00
.18	0.00	2.79	0.00	.050	.040	.050	.040	577.66	1452.00
.000639	50.	50.	50.	2	0	1	0.00	41.00	1493.00

3280 CROSS SECTION 3750.00 EXTENDED 3.00 FEET

3470 ENCROACHMENT STATIONS= 1452.0 1493.0 TYPE= 1 TARGET= 41.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.70 ELREA= 100000.00

3750.00	7.81	584.71	0.00	0.00	584.80	.10	.03	.01	583.70
740.	0.	740.	0.	0.	299.	0.	12.	2.	100000.00
.18	0.00	2.48	0.00	.050	.040	.050	.040	576.90	1452.00
.000450	50.	50.	50.	1	0	1	0.00	41.00	1493.00

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1400.0 1600.0 TYPE= 1 TARGET= 200.000

3775.00	8.11	584.61	0.00	0.00	584.95	.34	.03	.12	585.20
740.	0.	740.	0.	0.	158.	0.	12.	2.	585.10

.004761	25.	25.	25.	2	0	1	0.00	25.20	1500.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.03	2.90	-0.00	30.20	-0.00	184.50	-0.00	576.50	576.50

3265 DIVIDED FLOW

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
585.12	584.95	0.00	0.	740.	185.	582.20	585.30	10.00

3470 ENCROACHMENT STATIONS= 1400.0 1600.0 TYPE= 1 TARGET= 200.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 585.30 ELREA= 585.30

3844.00	8.30	584.80	0.00	0.00	585.12	.32	.17	0.00	585.20
740.	0.	740.	0.	0.	163.	0.	12.	2.	585.10
.19	0.00	4.53	0.00	.050	.040	.050	.040	576.50	1469.80
.004416	69.	69.	69.	2	0	1	0.00	25.20	1500.00

3280 CROSS SECTION 3869.00 EXTENDED 1.96 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= 1400.0 1600.0 TYPE= 1 TARGET= 200.000

3869.00	8.56	585.16	0.00	0.00	585.21	.05	.02	.08	583.60
740.	33.	654.	53.	70.	329.	124.	12.	2.	583.80
.19	.47	1.99	.43	.060	.040	.060	.040	576.60	1400.00
.000244	25.	25.	25.	2	0	1	0.00	200.00	1600.00

3470 ENCROACHMENT STATIONS= 1450.0 1600.0 TYPE= 1 TARGET= 150.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 585.49 ELREA= 584.89

4047.00	7.71	585.20	0.00	0.00	585.30	.09	.06	.02	585.49
740.	0.	736.	4.	0.	299.	15.	14.	3.	584.89
.22	0.00	2.46	.25	.060	.040	.060	.039	577.49	1500.38
.000470	1.	178.	600.	2	0	1	0.00	99.62	1600.00

3470 ENCROACHMENT STATIONS= 1482.0 1569.0 TYPE= 1 TARGET= 87.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.40 ELREA= 585.80

4225.00	6.89	585.29	0.00	0.00	585.42	.13	.10	.02	586.40

.23	0.00	2.88	0.00	.060	.040	.060	.039	578.40	1501.46
.000741	1.	178.	600.	0	0	1	0.00	49.85	1551.31

3470 ENCROACHMENT STATIONS= 1490.0 1562.0 TYPE= 1 TARGET= 72.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.18 ELREA= 585.58

4250.00	7.14	585.32	0.00	0.00	585.44	.12	.02	.00	586.18
740.	0.	740.	0.	0.	269.	0.	16.	4.	585.58
.24	0.00	2.75	0.00	.060	.040	.060	.039	578.18	1501.14
.000649	25.	25.	25.	1	0	1	0.00	50.50	1551.64

3470 ENCROACHMENT STATIONS= 1496.0 1556.0 TYPE= 1 TARGET= 60.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 585.73 ELREA= 585.13

4300.00	7.64	585.37	0.00	0.00	585.47	.10	.03	.01	585.73
740.	0.	740.	0.	0.	295.	1.	16.	4.	585.13
.24	0.00	2.51	.21	.060	.040	.060	.039	577.73	1500.47
.000492	50.	50.	50.	2	0	1	0.00	55.53	1556.00

3470 ENCROACHMENT STATIONS= 1400.0 1650.0 TYPE= 1 TARGET= 250.000
ELENCL= 650.00 ELENCR= 650.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.30 ELREA= 586.30

4325.00	7.83	585.33	0.00	0.00	585.56	.23	.02	.07	583.60
740.	0.	740.	0.	0.	191.	0.	16.	4.	583.60
.24	0.00	3.87	0.00	.060	.040	.060	.039	577.50	1500.00
.002142	25.	25.	25.	2	0	1	0.00	33.00	1548.93

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.30	2.60	-0.00	33.00	-0.00	164.00	-0.00	577.50	577.50

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

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
586.06	585.56	0.00	0.	740.	164.	584.20	587.70	10.00

3470 ENCROACHMENT STATIONS= 1400.0 1650.0 TYPE= 1 TARGET= 250.000
ELENCL= 650.00 ELENCR= 650.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 587.70 ELREA= 587.70

4438.00	8.36	585.86	0.00	0.00	586.06	.20	.49	0.00	583.60

740.	0.	740.	0.	0.	209.	0.	17.	4.	583.60
.25	0.00	3.55	0.00	.060	.040	.060	.039	577.50	1500.00
.001618	113.	113.	113.	2	0	1	0.00	33.00	1553.83

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1200.0 1400.0 TYPE= 1 TARGET= 200.000
ELENCL= 650.00 ELENCR= 650.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.00 ELREA= 586.00

4453.00	8.87	585.87	0.00	0.00	586.10	.23	.02	.02	579.10
740.	0.	740.	0.	0.	193.	0.	17.	4.	577.00
.25	0.00	3.83	0.00	.060	.040	.060	.039	577.00	1300.00
.001624	25.	15.	25.	2	0	1	0.00	23.40	1347.57

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.34	2.80	-0.00	21.10	-0.00	160.00	-0.00	577.00	577.00

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
586.65	586.10	0.00	0.	740.	160.	585.90	586.70	10.00

3470 ENCROACHMENT STATIONS= 1200.0 1400.0 TYPE= 1 TARGET= 200.000
ELENCL= 650.00 ELENCR= 650.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.70 ELREA= 586.70

4521.00	9.45	586.45	0.00	0.00	586.65	.20	.55	0.00	579.10
740.	0.	740.	0.	0.	207.	0.	17.	4.	577.00
.26	0.00	3.57	0.00	.060	.040	.060	.039	577.00	1300.00
.001346	68.	68.	68.	2	0	1	0.00	24.50	1349.08

3470 ENCROACHMENT STATIONS= 1398.0 1658.0 TYPE= 1 TARGET= 260.000

4551.00	9.18	586.68	0.00	0.00	586.71	.03	.01	.05	584.50
740.	94.	582.	64.	165.	398.	130.	18.	4.	584.70
.26	.57	1.46	.50	.040	.040	.040	.039	577.50	1398.00
.000123	30.	30.	30.	2	0	1	0.00	260.00	1658.00

3470 ENCROACHMENT STATIONS= 1384.0 1672.0 TYPE= 1 TARGET= 288.000

4653.00	7.47	586.67	0.00	0.00	586.77	.09	.03	.03	586.20
740.	3.	736.	0.	10.	301.	2.	20.	5.	586.40
.28	.32	2.45	.22	.040	.040	.040	.039	579.20	1456.92
.000502	1.	102.	850.	2	0	1	0.00	114.80	1571.72

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

3470 ENCROACHMENT STATIONS= 1428.0 1628.0 TYPE= 1 TARGET= 200.000

4828.00	7.39	586.76	0.00	0.00	586.86	.10	.09	.00	586.37
740.	2.	738.	0.	7.	296.	1.	21.	6.	586.57
.30	.29	2.49	.18	.040	.040	.040	.039	579.37	1464.34
.000531	1.	175.	300.	2	0	1	0.00	102.99	1567.33

3470 ENCROACHMENT STATIONS= 1353.0 1703.0 TYPE= 1 TARGET= 350.000

5003.00	7.31	586.86	0.00	0.00	586.96	.10	.10	.00	586.55
740.	1.	739.	0.	4.	291.	0.	22.	6.	586.75
.32	.25	2.54	.12	.040	.040	.040	.039	579.55	1472.72
.000566	1.	175.	300.	1	0	1	0.00	89.67	1562.38

3470 ENCROACHMENT STATIONS= 1374.0 1628.0 TYPE= 1 TARGET= 254.000

5178.00	7.24	586.96	0.00	0.00	587.06	.10	.10	.00	586.72
740.	0.	740.	0.	2.	287.	0.	23.	6.	586.92
.34	.21	2.58	.01	.040	.040	.040	.039	579.72	1479.41
.000595	1.	175.	300.	1	0	1	0.00	79.02	1558.42

3470 ENCROACHMENT STATIONS= 406.0 566.0 TYPE= 1 TARGET= 160.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 587.60 ELREA= 100000.00

5353.00	7.16	587.06	0.00	0.00	587.17	.11	.11	.00	587.60
740.	0.	740.	0.	0.	283.	0.	24.	6.	100000.00
.35	0.00	2.62	0.00	.040	.040	.040	.039	579.90	508.37
.000669	1.	175.	300.	2	0	1	0.00	57.63	566.00

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1387.0 1521.0 TYPE= 1 TARGET= 134.000
ELENCL= 650.00 ELENCR= 650.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 587.70 ELREA= 587.70

5403.00	8.31	587.01	0.00	0.00	587.35	.34	.06	.12	578.70
740.	0.	740.	0.	0.	159.	0.	25.	7.	650.00
.36	0.00	4.66	0.00	.040	.040	.040	.039	578.70	1500.00
.003531	50.	50.	50.	2	0	1	0.00	20.00	1521.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.91	2.80	-0.00	21.00	-0.00	200.00	-0.00	578.70	578.70

3265 DIVIDED FLOW

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS

3470 ENCROACHMENT STATIONS= 1387.0 1521.0 TYPE= 1 TARGET= 134.000
ELENCL= 650.00 ELENCR= 650.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 588.30 ELREA= 588.30

5484.00	8.39	587.09	0.00	0.00	587.42	.33	.07	0.00	578.70
740.	0.	740.	0.	0.	160.	0.	25.	7.	650.00
.36	0.00	4.62	0.00	.040	.040	.040	.039	578.70	1500.00
.003447	81.	81.	81.	2	0	1	0.00	20.00	1521.00

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= 1380.0 1557.0 TYPE= 1 TARGET= 177.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.10 ELREA= 588.80

5504.00	8.45	587.45	0.00	0.00	587.52	.07	.02	.08	586.10
740.	93.	647.	0.	126.	295.	0.	25.	7.	588.80
.37	.74	2.20	0.00	.040	.040	.040	.039	579.00	1380.00
.000354	20.	20.	20.	2	0	1	0.00	169.37	1549.37

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1376.0 1676.0 TYPE= 1 TARGET= 300.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 587.20 ELREA= 589.90

5578.00	7.35	587.45	0.00	0.00	587.59	.14	.04	.04	587.20
740.	4.	736.	0.	11.	241.	0.	26.	7.	589.90
.37	.38	3.05	0.00	.040	.040	.040	.039	580.10	1376.00
.000835	74.	74.	74.	2	0	1	0.00	104.06	1547.23

3470 ENCROACHMENT STATIONS= 1376.0 1676.0 TYPE= 1 TARGET= 300.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.86 ELREA= 589.56

5678.00	7.80	587.56	0.00	0.00	587.67	.11	.07	.01	586.86
740.	29.	711.	0.	51.	263.	0.	26.	7.	589.56
.38	.56	2.70	0.00	.040	.040	.040	.039	579.76	1376.00
.000601	100.	100.	100.	2	0	1	0.00	172.11	1548.11

3470 ENCROACHMENT STATIONS= 1316.0 1616.0 TYPE= 1 TARGET= 300.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 586.69 ELREA= 589.39

5728.00	8.03	587.62	0.00	0.00	587.71	.09	.03	.01	586.69
740.	62.	678.	0.	103.	274.	0.	27.	7.	589.39
.39	.60	2.48	0.00	.040	.040	.040	.039	579.59	1321.49
.000486	50.	50.	50.	1	0	1	0.00	227.04	1548.53

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1316.0 1616.0 TYPE= 1 TARGET= 300.000
ELENCL= 650.00 ELENCR= 650.00

5753.00	8.12	587.62	0.00	0.00	587.73	.11	.02	.01	579.90
740.	158.	535.	47.	95.	180.	26.	27.	7.	582.90
.39	1.66	2.98	1.84	.040	.040	.040	.039	579.50	1316.00
.000871	25.	25.	25.	0	0	1	0.00	163.47	1538.34

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.81	2.86	-0.00	25.50	-0.00	192.00	-0.00	579.50	579.50

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
588.04	587.73	0.00	108.	631.	192.	586.00	587.10	30.00

3470 ENCROACHMENT STATIONS= 1316.0 1616.0 TYPE= 1 TARGET= 300.000
ELENCL= 650.00 ELENCR= 650.00

5804.00	8.33	587.83	0.00	0.00	587.93	.09	.19	0.00	579.90
740.	179.	513.	48.	128.	185.	28.	27.	8.	582.90
.40	1.39	2.77	1.72	.040	.040	.040	.039	579.50	1316.00
.000720	51.	51.	51.	2	0	3	0.00	222.83	1538.83

3470 ENCROACHMENT STATIONS= 1352.0 1552.0 TYPE= 1 TARGET= 200.000

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 586.63 ELREA= 99999.43

5829.00	8.35	587.88	0.00	0.00	587.95	.07	.01	.01	586.63
740.	102.	638.	0.	144.	290.	0.	27.	8.	99999.43
.40	.71	2.20	0.00	.040	.040	.040	.039	579.53	1352.00
.000362	25.	25.	25.	2	0	1	0.00	197.17	1549.17

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

OX CREEK

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
2255.00	24.00	0.00	0.00	574.37	740.00	584.00	.04	0.00	0.00	740.00	9.63	64.00
2410.00	155.00	0.00	0.00	574.82	740.00	584.02	.04	.02	.00	740.00	9.20	64.00
2565.00	155.00	0.00	0.00	575.27	740.00	584.05	.05	.03	.00	740.00	8.78	64.00
2720.00	155.00	0.00	0.00	575.72	740.00	584.08	.05	.04	.00	740.00	8.36	64.00
2875.00	155.00	0.00	0.00	576.17	740.00	584.12	.06	.04	.00	740.00	7.95	64.00
3030.00	155.00	0.00	0.00	576.62	740.00	584.17	.07	.05	.00	740.00	7.55	64.00
3185.00	155.00	0.00	0.00	577.07	740.00	584.22	.11	.07	.02	740.00	7.15	41.00
3340.00	155.00	0.00	0.00	577.52	740.00	584.31	.13	.10	.01	740.00	6.79	41.00
3495.00	155.00	0.00	0.00	577.97	740.00	584.42	.14	.12	.01	740.00	6.45	41.00
3650.00	155.00	0.00	0.00	578.42	740.00	584.56	.16	.14	.01	740.00	6.14	41.00
3700.00	50.00	0.00	0.00	577.66	740.00	584.65	.12	.04	.01	740.00	6.99	41.00
3750.00	50.00	0.00	0.00	576.90	740.00	584.71	.10	.03	.01	740.00	7.81	41.00
3775.00	25.00	0.00	0.00	576.50	740.00	584.61	.34	.03	.12	740.00	8.11	25.20
3844.00	69.00	585.30	582.20	576.50	740.00	584.80	.32	.17	0.00	740.00	8.30	25.20
3869.00	25.00	0.00	0.00	576.60	740.00	585.16	.05	.02	.08	654.15	8.56	200.00
4047.00	178.00	0.00	0.00	577.49	740.00	585.20	.09	.06	.02	736.31	7.71	99.62
4225.00	178.00	0.00	0.00	578.40	740.00	585.29	.13	.10	.02	740.00	6.89	49.85
4250.00	25.00	0.00	0.00	578.18	740.00	585.32	.12	.02	.00	740.00	7.14	50.50
4300.00	50.00	0.00	0.00	577.73	740.00	585.37	.10	.03	.01	739.79	7.64	55.53
4325.00	25.00	0.00	0.00	577.50	740.00	585.33	.23	.02	.07	740.00	7.83	33.00
4438.00	113.00	587.70	584.20	577.50	740.00	585.86	.20	.49	0.00	740.00	8.36	33.00
4453.00	15.00	0.00	0.00	577.00	740.00	585.87	.23	.02	.02	740.00	8.87	23.40
4521.00	68.00	586.70	585.90	577.00	740.00	586.45	.20	.55	0.00	740.00	9.45	24.50
4551.00	30.00	0.00	0.00	577.50	740.00	586.68	.03	.01	.05	581.67	9.18	260.00
4653.00	102.00	0.00	0.00	579.20	740.00	586.67	.09	.03	.03	736.30	7.47	114.80
4828.00	175.00	0.00	0.00	579.37	740.00	586.76	.10	.09	.00	737.80	7.39	102.99
5003.00	175.00	0.00	0.00	579.55	740.00	586.86	.10	.10	.00	738.95	7.31	89.67
5178.00	175.00	0.00	0.00	579.72	740.00	586.96	.10	.10	.00	739.51	7.24	79.02

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
5353.00	175.00	0.00	0.00	579.90	740.00	587.06	.11	.11	.00	740.00	7.16	57.63
5403.00	50.00	0.00	0.00	578.70	740.00	587.01	.34	.06	.12	740.00	8.31	20.00
5484.00	81.00	588.30	587.10	578.70	740.00	587.09	.33	.07	0.00	740.00	8.39	20.00
5504.00	20.00	0.00	0.00	579.00	740.00	587.45	.07	.02	.08	647.21	8.45	169.37
5578.00	74.00	0.00	0.00	580.10	740.00	587.45	.14	.04	.04	735.72	7.35	104.06
5678.00	100.00	0.00	0.00	579.76	740.00	587.56	.11	.07	.01	711.20	7.80	172.11
5728.00	50.00	0.00	0.00	579.59	740.00	587.62	.09	.03	.01	677.61	8.03	227.04
5753.00	25.00	0.00	0.00	579.50	740.00	587.62	.11	.02	.01	534.88	8.12	163.47
5804.00	51.00	587.10	586.00	579.50	740.00	587.83	.09	.19	0.00	512.94	8.33	222.83
5829.00	25.00	0.00	0.00	579.53	740.00	587.88	.07	.01	.01	638.29	8.35	197.17

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
2255.000	740.001	584.000	0.000	0.000	0.000	63.999	0.000	24.000
2410.000	740.001	584.022	0.000	.022	0.000	63.999	0.000	155.000
2565.000	740.001	584.048	0.000	.026	0.000	63.999	0.000	155.000
2720.000	740.001	584.080	0.000	.032	0.000	63.999	0.000	155.000
2875.000	740.001	584.119	0.000	.039	0.000	63.999	0.000	155.000
3030.000	740.001	584.169	0.000	.049	0.000	63.999	0.000	155.000
3185.000	740.001	584.221	0.000	.053	0.000	40.999	0.000	155.000
3340.000	740.001	584.315	0.000	.093	0.000	40.999	0.000	155.000
3495.000	740.001	584.425	0.000	.110	0.000	40.999	0.000	155.000
3650.000	740.001	584.556	0.000	.131	0.000	40.999	0.000	155.000
3700.000	740.001	584.646	0.000	.090	0.000	40.999	0.000	50.000
3750.000	740.001	584.706	0.000	.059	0.000	40.999	0.000	50.000
3775.000	740.001	584.610	0.000	-.095	0.000	25.200	0.000	25.000
3844.000	740.001	584.798	0.000	.188	0.000	25.200	0.000	69.000
3869.000	740.001	585.158	0.000	.360	0.000	199.999	0.000	25.000
4047.000	740.001	585.201	0.000	.043	0.000	99.618	0.000	178.000
4225.000	740.001	585.288	0.000	.087	0.000	49.850	0.000	178.000
4250.000	740.001	585.320	0.000	.032	0.000	50.495	0.000	25.000
4300.000	740.001	585.374	0.000	.054	0.000	55.529	0.000	50.000
4325.000	740.001	585.329	0.000	-.045	0.000	33.000	0.000	25.000

4438.000	740.001	585.860	0.000	.532	0.000	33.000	0.000	113.000
4453.000	740.001	585.868	0.000	.008	0.000	23.400	0.000	15.000
4521.000	740.001	586.448	0.000	.579	0.000	24.500	0.000	68.000
4551.000	740.001	586.678	0.000	.231	0.000	259.999	0.000	30.000
4653.000	740.001	586.674	0.000	-.005	0.000	114.801	0.000	102.000
4828.000	740.001	586.762	0.000	.088	0.000	102.990	0.000	175.000
5003.000	740.001	586.856	0.000	.094	0.000	89.666	0.000	175.000
5178.000	740.001	586.956	0.000	.100	0.000	79.016	0.000	175.000
5353.000	740.001	587.065	0.000	.109	0.000	57.633	0.000	175.000
5403.000	740.001	587.014	0.000	-.051	0.000	19.999	0.000	50.000
5484.000	740.001	587.089	0.000	.075	0.000	19.999	0.000	81.000
5504.000	740.001	587.449	0.000	.360	0.000	169.371	0.000	20.000
5578.000	740.001	587.449	0.000	.000	0.000	104.060	0.000	74.000
5678.000	740.001	587.564	0.000	.115	0.000	172.111	0.000	100.000
5728.000	740.001	587.619	0.000	.055	0.000	227.043	0.000	50.000
5753.000	740.001	587.622	0.000	.004	0.000	163.468	0.000	25.000
5804.000	740.001	587.833	0.000	.211	0.000	222.833	0.000	51.000
5829.000	740.001	587.880	0.000	.047	0.000	197.175	0.000	25.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	200.000	7.837	0.000

00BREAK00

1) COUNTY: Barrie

2) STUDY NAME: Bayfield Harbour, City of Barrie Dept

3) WATERCOURSE: Ox Creek

4) DOCUMENT TYPE: Report

00BREAK00

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WATER MANAGEMENT

CITY OF BENTON HARBOR, BENTON TOWNSHIP

FLOOD INSURANCE STUDY

Ox Creek Hydraulic Analysis

JOHNSON & ANDERSON, INC.
Consulting Engineers
2300 Dixie Hwy, Box 1166
Pontiac, Michigan

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HYDRAULIC ANALYSIS

Introduction

The stream being studied is the Ox Creek in the City of Benton Harbor and Benton Township, Michigan. The study limits are from its confluence with the Paw Paw River to approximately 2340 feet upstream (south) of Napier Avenue. The date of the field survey was September, 1975. The flows used were computed by the SCS method and have been approved by the Michigan Department of Natural Resources. The project manager for this analysis was John Emig.

Method of Analysis

Water-surface profiles were computed through the use of the COE HEC-2 step-backwater computer program. Culverts which were under low flow conditions for all four flows were coded according to the "normal bridge" routine requirements. For those culverts or bridges which 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. Valley sections upstream and downstream of culverts or bridges were located where full cross-section flow would be developed out of the influence of the bridge

constriction. The criteria for placement of these sections was that outlined on pages 18-21 of the HEC Training Document No. 6, Application of the HEC-2 Bridge Routines. Accordingly, the downstream section was placed at a distance of about four times the average length of the side constriction caused by the culvert or bridge. The upstream section was placed at a distance about equal to the 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. The same reasoning was used in modeling natural constrictions in the floodway.

Unusual Situations

Where the Ox Creek passes through the downtown area of Benton Harbor, overbank flow is obstructed by buildings and other structures. Accordingly, the expansion and contraction of flow will not necessarily occur as described. Encroachments were placed to account for these obstructions and are noted by comment cards in the HEC-2 output.

In some areas of the watercourse, encroachments are placed on one or both overbanks to restrict flow to effective flow areas. One of these cases occurs upstream of Highland Avenue where the flow on the left side of the railroad tracks is restricted to the area above the elevation of the tracks. Another case occurs from section 12967 upstream to section 15967 where the flow on the left side of the tracks cannot cross over

and back. In this location, the floodway is encroached to the tracks on the left.

Upstream of Napier Avenue, the Ox Creek flows through a swampy area and no well-defined stream channel exists. For this reason, the Manning's 'n' value for the channel is the same as that for the overbanks in this area.

Synthetic Cross Sections

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

The following table lists the synthetic cross sections and their corresponding origins.

SECNO	ORIGIN
2255	Repeat of field section A (2000)
3869	Repeat of field section C (3185)

SECNO	ORIGIN
5829	Repeat of field section K (5578)
8223	Manufactured
8743	Manufactured
9288	Repeat of field section P (9003)
11327 11667 12207	Interpolated using field sections U and V (11157,12347)
12510	Repeat of field section V (12347)
12987	Repeat of field section X (12907)
15557	Repeat of field section AD (16007)
18828	Repeat of field section AF (18657)

Floodway Determination

In general, the floodway described in this analysis is the natural floodway, i.e. areas not in the floodway are areas of no conveyance. However, the natural floodway from Eighth Street upstream to North Shore Drive is encroached to the banks of the stream channel. This encroachment produced less than 0.10 ft. rise in water surface over the natural floodway water surface elevations. The flow velocities are not excessive at any location. Both floodways are shown on the floodway map and comparison computer runs are included with this submittal. The floodway encroached to the banks will be used in the final Flood Insurance Report.

High Water Mark Information

High water marks for Ox Creek were obtained from the Benton Harbor City Engineer's Office for various flood events in 1949 and 1950 (Appendix B). However, corresponding flows were unavailable. High water marks for Ox Creek on April 5, 1947 were also obtained from the Benton Harbor City Engineer's Office (Appendix C). The discharge for Ox Creek on this date was obtained from a letter to the Benton Harbor City Engineer from the United States Department of the Interior, Geological Survey Division (Appendix D). The U.S. Army Corps of Engineers, Detroit District, provided a picture and a brief narrative describing conditions of the 1947 flooding (Appendix E). With these two sources of information a high water comparison run was made with the stream coded to reflect current conditions. With the channel improvement information provided by the City Engineer's Office (Appendix F,p.4), it would be expected that current conditions would produce lower water surface elevations. This is verified by the run which is included with this submittal. The following table briefly summarizes the results.

LOCATION	RECORDED ELEV.	COMPUTED ELEV.
Near North Shore Drive	588.2	584.8
Near Territorial Road	589.8	587.1
Centerline Main Street	588.6	587.6
South of Main Street	590.2	587.8

Starting Point

Profile computations were begun at the Paw Paw River using the slope-area method. In the final Flood Insurance Study Report, the 10-,50-, 100-, and 500-year SCS Paw Paw River Flood Hazard Analyses Report flood levels will be extended horizontally upstream until the corresponding Ox Creek profiles are intersected. The floodway and flood plain as delineated in this submittal are based on the calculated water surface profiles begun at the Paw Paw River. In the final Flood Insurance Study Report, the floodway will be based on the calculated Ox Creek water surface profiles; the flood plain will reflect the backwater influence of the Paw Paw River.

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. In general, the following range of values were used:

Description	Manning's "n"
1. Channel	
a. Clay bottom with debris	.04 - .045
b. No defined channel, dense brush	.10
2. Flood Plains	
a. Grass, gravel parking areas, and roadways with debris	.035 - .04

b.	Brush, light to medium	.05 - .07
c.	Dense brush	.10

The contraction and expansion coefficients used for the Ox Creek were .03 and .05 respectively. These values were used throughout the study. References used in the selection of these values were the HEC-2 Users Manual, exhibit 2, page 2, and Open Channel Hydraulics, Ven Te Chow, pages 311 and 468.

The loss coefficients used in the HEC-2 "special bridge" routine were determined as outlined in exhibit 2 of the HEC-2 Users Manual.

City of Benton Harbor &
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Berrien County
5555-07 & 08

Ox Creek

Cross Section	SECNO	Location
A	2000	200' d/s Eighth Street Bridge
B	2230	u/s Face Eighth Street Bridge
C	3650	125' d/s North Shore Drive Culverts
D	3844	u/s Face North Shore Drive Culverts
E	4225	100' d/s C&O Railroad Track Culverts
F	4438	u/s Face C&O Railroad Track Culverts
G	4521	u/s Face Water Street Culverts
H	4653	132' u/s Water Street Culverts
I	5353	50' d/s Territorial Road Culverts
J	5484	u/s Face Territorial Road Culverts
K	5578	175' d/s East Main Street Culverts
L	5804	u/s Face East Main Street Culverts
M	6353	50' d/s Highland Avenue Culverts
N	6469	u/s Face Highland Avenue Culverts
O	7703	1234' u/s Highland Avenue Culverts
P	9003	215' d/s C&O Railroad Track Bridge
Q	9228	u/s Face C & O Railroad Track Bridge
R	9263	u/s Face Penn Central Railroad Track Bridge
S	9557	u/s Face Britain Avenue Bridge
T	9657	100' u/s Britain Avenue Bridge

City of Benton Harbor &
Benton Township FIS
Berrien County
5555-07 & 08

Cross Section	SECNO	Location
U	11157	1600' u/s Britain Avenue Bridge
V	12347	110' d/s Empire Avenue Bridge
W	12485	u/s Face Empire Avenue Bridge
X	12907	50' d/s Penn Central Railraod Track Bridge
Y	12967	u/s Face Penn Central Railroad Track Bridge
Z	13657	100' d/s Highway M-139 Bridge
AA	13832	u/s Face Highway M-139 Bridge
AB	14957	1000' d/s Penn Central Railroad Track Bridge
AC	15967	u/s Face Penn Central Railroad Track Bridge
AD	16007	40' u/s Penn Central Railroad Track Bridge
AE	17207	1499' d/s Napier Avenue Culvert
AF	18657	50' d/s Napier Avenue Culvert
AG	18803	u/s Face Napier Avenue Culvert
AH	21143	2341' u/s Napier Avenue Culvert

OX CREEK FLOOD ELEVATIONS FOR VARIOUS EVENTS IN 1949 AND 1950

LOCATION	DATE Mar. 31 1949	Dec. 22 1949	Apr. 4 1950	Apr. 24 1950	Apr. 25 1950	PREDICTED FLOOD ELEVATION 10	50	100	500
Eighth Street		578.9	580.3	581.2	581.5	581.0	582.4	582.9	583.4
North Shore Drive	581.1	579.6	580.7	584.0	581.8	583.0	584.6	585.3	587.0
South Side C&O RR Culvert	581.2	579.6	580.7	584.1	582.1	583.8	585.8	586.8	588.8
North Side Water Street	581.6	580.0	580.8	584.1	582.3	583.8	585.8	587.1	588.9
Park Street					585.2	584.7	587.0	587.9	589.2
Territorial Road	585.7	583.8	583.6	588.8	585.7	585.1	587.2	588.6	589.7
Main Street	586.4	584.4	583.7	588.8	585.7	585.6	587.9	588.8	589.9
Highland Avenue		585.8				586.3	588.6	589.2	590.2
Britain Avenue	587.9	587.9	587.9	590.3	588.3	589.1	590.6	590.9	591.5
North Side Empire Avenue			590.4	593.5	592.4	593.4	594.8	595.3	596.5
RR - South Side Empire				595.4	594.0	595.2	597.0	597.6	598.4

From the Benton Harbor City Engineer's Office Files

From Benton Harbor City Engineer's Office Files

HIGH WATER ELEVATIONS OF OX CREEK
April 5, 1947

(Taken April 18, 1947 with Mr. Ronk, man from Foster's office and C. R. Hisler.)

Elevation centerline Main and Culvert - - - - - - - - - - - - 588.62

Elevation high water at Brown Ice and Coal office-south of Main - 590.15

Elevation high water at Varisco Store - south side Territorial - 589.85

Elevation high water at house on North side of Park Street - 588.8

Elevation high water at bottom battery box at Railroad at North Shore Drive (near tower) - 588.2

Elevation Lake Michigan - - - - - - - - - - - - - - - - - - 580 ±

(April 6, 1947)
Elevation High Water of Paw Paw River at Quality Plating Works - 584.52

From Benton Harbor City Engineer's Office Files

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
211 Capitol Savings & Loan Bldg.
Lansing 68, Michigan

May 15, 1947

C. R. Hisler
City Engineer
City of Benton Harbor, Mich.

Dear Mr. Hisler:

Your request of May the 8th was not received in this office until today as it was inadvertently sent to the Surgeon General's Office in Washington, D. C.

Engineers working out of the Indianapolis, Indiana office determined the maximum discharge of 740 second-feet of Ox Creek at Benton Harbor, Michigan on April 5, by computation through a contracted opening. They also determined the maximum discharge of the Paw Paw River at Benton Harbor of 4800 cubic feet per second, on April 7, by means of a series of three discharge measurements of flow.

A copy of your request of May the 8th and a copy of this letter is being forwarded to the district office in Indianapolis and I am sure you will hear from them in the near future, giving details as to the dates and discharges measured during the April flood.

Yours very truly,

Arlington D. Ash

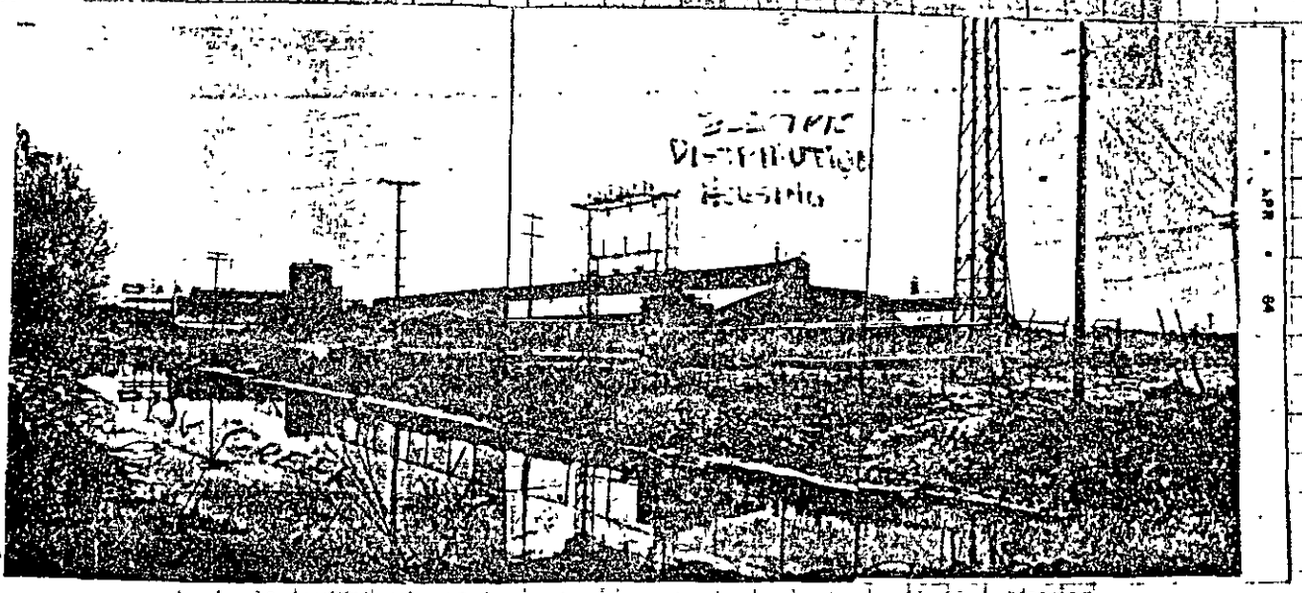
ADA:prg
cc: Indianapolis

ARLINGTON D. ASH,
Engineer in Charge.

Has estimate 30 yr. frequency flood of Paw Paw River as 6,200 c.f.s. for new outlet to Lake. CPH.

BENTON HARBOR MICHIGAN – OX CREEK

(5)



VIEW LOOKING U/S OX CREEK FROM 8TH ST. BRIDGE AT THE BACK OF THE BENTON HARBOR MALLEABLE INDUSTRIES PLANT. NOTE ELECTRICAL DISTRIBUTION HOUSING ON THE BANK. IT IS LOCATED ON ABOUT ELEV. 585 ±. '47 FLOOD W.S.S BELIEVED TO BE AT ABOUT ELEVATION 584± AT THIS POINT. PLANT IS LOCATED ABOUT 1 FT. BELOW THE BANK ELEVATION WHICH IS 585 ± PLANT SITS ON SANDY POROUS MATERIAL.

From the U.S. Army Corps of Engineers Detroit District Office

42

From Sam Wells – City Engineer
Benton Harbor

PREREQUISITES FOR SALE OF FLOOD INSURANCE

I. (C) A brief summary of the community's history of flooding

1. The St. Joseph River area

This stream has flooded once, in the memory of the Public Works Department's oldest employee, within the past 50 plus years. It was caused by ice jamming at the railroad bridge 300-400 ft. below Britain Avenue (center of Section 24-4-19) and the hazard was successfully removed by explosives. There have been two other instances of minor ice jams since, one in the winter of '66-'67 and the other the following winter, but neither one caused any damage within the City Limits and both of them dissipated naturally.

There are no known high water marks for this area. The flood plain here was originally a flat level area at elev. 581 approx. and has since been filled, in part, to approx. elev. 585 or higher.

It is likely, since the Federal revetting of the mouth of this river in the late 1800's and early 1900's, thereby removing the influence of occasional sand bars and shoals across its mouth, that the only cause remaining for a flood would be a major ice jam, such as the one mentioned earlier, of the 1930's.

The St. Joseph River is extensively controlled, with dams at Berrien Springs, Buchanan & Niles in Michigan plus other dams at South Bend and Mishawauka in Indiana and in Michigan, again, at Three Rivers. The Corps of Engineers in a letter of Aug. 2, 1972, which included a chart of stream and flood profiles, state that

the probability of flooding in the St. Joseph River flood plain within the Benton Harbor City Limits is on the order of 1 in 100 at the elevation of their stated profiles. These profiles do not appear to be above the existing filled land areas here, and thus the probability of flooding would appear to be less than the stated 1%.

There is on file in the City Engineer's Office a document of unverified origin which refers to a previous report of the U.S. Engineers which stated that major floods occurred in 1876, 1887, 1892, 1903, 1904 and 1908, and that since then there has been no flood in the river as great as that of 1908. This information would seem to verify that the major cause for alarm here would be an ice jam of the proportions of that one which occurred within the past 50 years.

2. Paw Paw River area

This stream also has had a destructive flood once within a 50 year period, again according to the "oldest employee", in April of 1947. In the above mentioned unverified document a calculation is made whereby the 30 year flood discharge of this river is estimated at 4800 cubic feet per second. The U.S. Dept. of the Interior, Geological Survey, had a party present during the latter stages of the flood of April, 1947, and they calculated from direct observation that the peak discharge of this river was 4800 cubic feet per second, which estimate agrees with the earlier one.

The lower part of this river's course within the City Limits, approximately half, has been deepened, widened and straightened out within the past twenty-five years, and this work has assisted in lowering the flood profile considerably. There was one other occasion within memory, in January of 1969, when there was high water in this river within the City Limits. It was occasioned by an ice jam which was caused by a day of warm rain in late January following a considerable period of extremely cold weather. The 8" to 12" of river ice which had formed during the cold spell was broken loose without melting by the river's rise from the runoff of the rain and snow melt. The large cakes which were loosened thereby passed easily through all of the channels and structures in the river except right at the mouth, where it enters the Ship Canal by passing through the railroad trestle there. The ice cakes lodged on the timber pile bents of the trestle, turned and jammed and formed the beginning of an ice gorge which extended upstream to above the mouth of Ox Creek, or about one half mile. Before the jam was cleared out its backwater had caused the closing of one major street and threatened several industries with closing, during a period of about a week.

The probability of another ice jam causing a flood as above is not known. However, since it was the only occassion of its kind in memory of the oldest employee, it would have to be somewhat on the order of 1 to 40+, perhaps as high as 1 to 100. This stream's flood plain has not been noted for destructive floods in the past.

It has had an annual spring rise, when the cattail marshes through which it winds have had water standing in them, but the flood profile has not ordinarily been forced high enough by the runoff from upstream, to endanger any of the land now in use in the North Shore area of the City. There is no record in this office of destructive flooding in the area above Paw Paw Avenue. This area has only been minimally filled in for use and such occupations as are now existing are residential uses along the area's margin.

3. Ox Creek area

According to correspondence and records on file in the City Engineer's Office, this stream was known in the past to have flooded over the roads periodically, at about a 4 to 6 year frequency. Mention is made of a flood in 1937, then 3 times in 1943 (once as a result of a 500 year storm and once as a result of a more than 100 year storm). There was a flood in 1947 and then, after considerable work had been done in stream widening and four structures replaced or enlarged, another flood occurred in 1950. This last date mentioned is the last recorded high water of consequence, and it appears to be that if the remedial measures undertaken in this area are maintained in good order, only a storm in the 100 year class or over should be troublesome.

Following is a chronological list of the improvements from the

late 1940's to date:

1. The C & O Railroad culvert--enlarged existing box culvert and added second opening, completed in 1948 by the C & O Railroad.

2. Widened and deepened the stream's cross-section from the C & O Railroad to its mouth at the Paw Paw River, completed in 1948, by the City of Benton Harbor.

3. The culverts at Water Street and at Territorial Road were removed and replaced with reinforced concrete box culverts on improved alignments, completed in 1948 by the City of Benton Harbor.

4. The culvert at Main Street removed and replaced with a reinforced concrete box culvert, completed in 1949 by Michigan Department of State Highways.

5. The stream bed from Water Street to Territorial Road was realigned into a smooth sweeping curve, its cross-section was widened and deepened and the obstructing bridge and abutment at Park Street was removed. Also removed were the piles which had supported a railroad trestle just upstream of Water Street and other abandoned piling adjacent, all of which were misaligned to the stream's flow and had been notorious for snagging debris and obstructing flow. This work was completed in 1951 by the City of Benton Harbor, and is considered to be one of the most important pieces of the flood prevention work done along Ox Creek.

6. The culvert at North Shore Drive was enlarged by inserting a corrugated metal multi-plate pipe arch in its South wingwalls, 6'-0" x 9'-3", and making the culvert in effect a triple box.

It was originally built in 1938 and with the work going on, both above and below, it had become the smallest structure, hence liable to be the bottleneck of the system. This work was done in 1952 by the City of Benton Harbor.

7. The structure at Highland Avenue was removed and replaced with a reinforced concrete box culvert and the road approaches were raised and paved. The stream bed was deepened and widened and cleaned of obstructions to Main Street and a lengthy program of straightening and cleaning was done upstream, almost to Britain Avenue. This work was done in 1954 by the City of Benton Harbor.

8. Periodically, to date, the brush along this stream is cut, the accumulations of litter and junk are removed and the waterway is kept in condition. Above Highland Avenue there are no residences or other buildings within this stream's flood plain, which changes in character in the neighborhood of Britain Avenue to become a much narrower ravine-type valley.

4. Willow Creek area

This stream cuts across a short section (approx. 1000 ft.) of the Southwest corner of the City. It is a narrow, ravine-type valley and there are no built-up areas within it.

There have been no mudslides in this community. There are newspaper photographs available showing various sections of the Ox Creek and Paw Paw areas in flood, which could be used for locating high water marks. There are none of the St. Joseph River or Willow Creek in flood.

Special Bridges Only

B.S. 31

$L = 2\frac{1}{2}(9) + 40.5 = 184.5$ ft.

$P = 91$ ft.

$R = A/P = 2.03$

Weighted 'n' value

$$n_T = \frac{\left[P_1 n_1^2 + P_2 n_2^2\right]^{1/2}}{(P_T)^{1/2}}$$

$$n_T = \frac{\left[23.0(0.032)^2 + 2\left[8(.04)^2\right] + \left[2(5) + 4(9)\right](0.016)^2\right]^{1/2}}{(91)^{1/2}}$$

$n_T = 0.026$

$$K_f = \frac{29.1(n^2)L}{R^{4/3}} = \frac{29.1(0.026)^2 68.8}{(2.03)^{4/3}} = 0.535$$

XKOR = 1 + 0.5 + 0.53 = 2.03

B.S. 29

$A = 168 - 4(\text{fillets}) = 164$ ft.^{2}

$P = 76$

$R = 2.16$

$$n_T = \frac{\left[2(14+12)(.016)^2 + 2(12)(.04)^2\right]^{1/2}}{(76)^{1/2}}$$

$n_T = 0.026$

$$K_f = \frac{29.1(0.026)^2 113}{(2.16)^{4/3}} = 0.796$$

XKOR = 1 + 0.5 + 0.80 = 2.30

B.S. 21

$$n_T = \frac{\left[2(27)(.016)^2 + 2(11)(.04)^2\right]^{1/2}}{(76.)^{1/2}}$$

$n_T = 0.025$

$$k_f = \frac{29.1(.025)^2 65.7}{(2.42)^{4/3}} = 0.368$$

XKOR = 1.0 + 0.5 + 0.37 = 1.87

$A = 2(8 \times 11) = 176$ ft^2

$P = 76$

$R = 2.32$

B.S. 18

$$n_T = \frac{\left[(30.4)(.017)^2 + (34.7)(0.04)^2\right]^{1/2}}{(65.1)^{1/2}}$$

$n_T = 0.031$

$$K_f = \frac{29.1(0.031)^2 10}{(2)^{4/3}} = 0.11$$

XKOR = 1.0 + 0.5 + 0.11 = 1.61

$A = 27.2 + 41.6 + 42.4 + 19.2 = 130.4$

$P = 50.4 - 2(7.35) = 65.1$

$S = 1$

$R = 2.06$

B.S. 17

$$n_T = \frac{\left[(30.8)(.017)^2 + (33.6)(.04)^2\right]^{1/2}}{(54.8)^{1/2}} = 0.034$$

$$K_f = \frac{29.1(0.034)^2 10}{(1.71)^{4/3}} = 0.16$$

XKOR = 1.0 + 0.5 + 0.16 = 1.66

$A = 93.8$

$P = 54.8$

$S = 1$

$R = 1.71$

B.S, 28

$$n_T = \frac{\left[2(32+20)(.016)^2 + 2(20)(.04)^2\right]^{1/2}}{(72)^{1/2}}$$

$A = 2(10 \times 8) = 160\ ft.^2$

$P = 40 + 32 = 72\ ft$

$R = 2.22$

$n_T = 0.035$

$$K_n = \frac{29.1\,(0.035)^2 68}{(2.22)^{4/3}} = 0.837$$

$XKOR = 1.0 + 0.5 + 0.84 = \underline{2.34}$

B.S. 25

$A = 200$

$P = 80$

$R = 2.5$

$$n_T = \frac{\left[2(30)(.016)^2 + 2(10)(.04)^2\right]^{1/2}}{(80)^{1/2}} = 0.024$$

$$K_n = \frac{29.1\,(0.024)^2 81}{(2.5)^{4/3}} = 0.41$$

$XKOR = 1.0 + 0.5 + 0.41 = \underline{1.91}$

B.S. 23

$A = 2(12 \times 8) = 192\ ft.^2$

$P = 48 + 32 = 80$

$R = 2.4$

$$n_T = \frac{\left[2(28)(.016)^2 + 2(12)(.04)^2\right]^{1/2}}{(80)^{1/2}}$$

$n_T = 0.026$

$$K_n = \frac{29.1\,(.026)^2 51}{(2.4)^{4/3}} = 0.312$$

$XKOR = 1.0 + 0.5 + 0.31 = \underline{1.81}$

B.S. 12

$$n_T = \frac{\left[29.2(0.016)^2 + 20.2(.045)^2\right]^{1/2}}{(49.4)^{1/3}} = 0.031$$

A = 90.9

P = 49.4

R = 1.84

$$K_f = \frac{29.1(0.031)^2 35.4}{(1.84)^{4/3}} = 0.49$$

XKOR = 1.0 + 0.4 + 0.44 = 1.84

B.S. 10

$$n_T = \frac{\left[(31.8)(0.016)^2 + (35.86)(.045)^2\right]^{1/2}}{(71.7)^{1/2}} = 0.036$$

A = 156

P = 57.7

S = 1

R = 2.30

$$K_f = \frac{29.1(0.036)^2 10}{(2.30)^{4/3}} = 0.124$$

XKOR = 1.0 + 0.5 + 0.12 = 1.62

B.S. 6

$$n_T = \frac{\left[(18.6)(.016)^2 + (22.6)(.045)^2\right]^{1/2}}{(41.2)^{1/2}} = 0.035$$

A = 87.6

P = 41.2

S = 1

R = 2.13

$$K_f = \frac{29.1(0.035)^2 10}{(2.13)^{4/3}} = 0.130$$

XKOR = 1.0 + 0.5 + 0.13 = 1.63

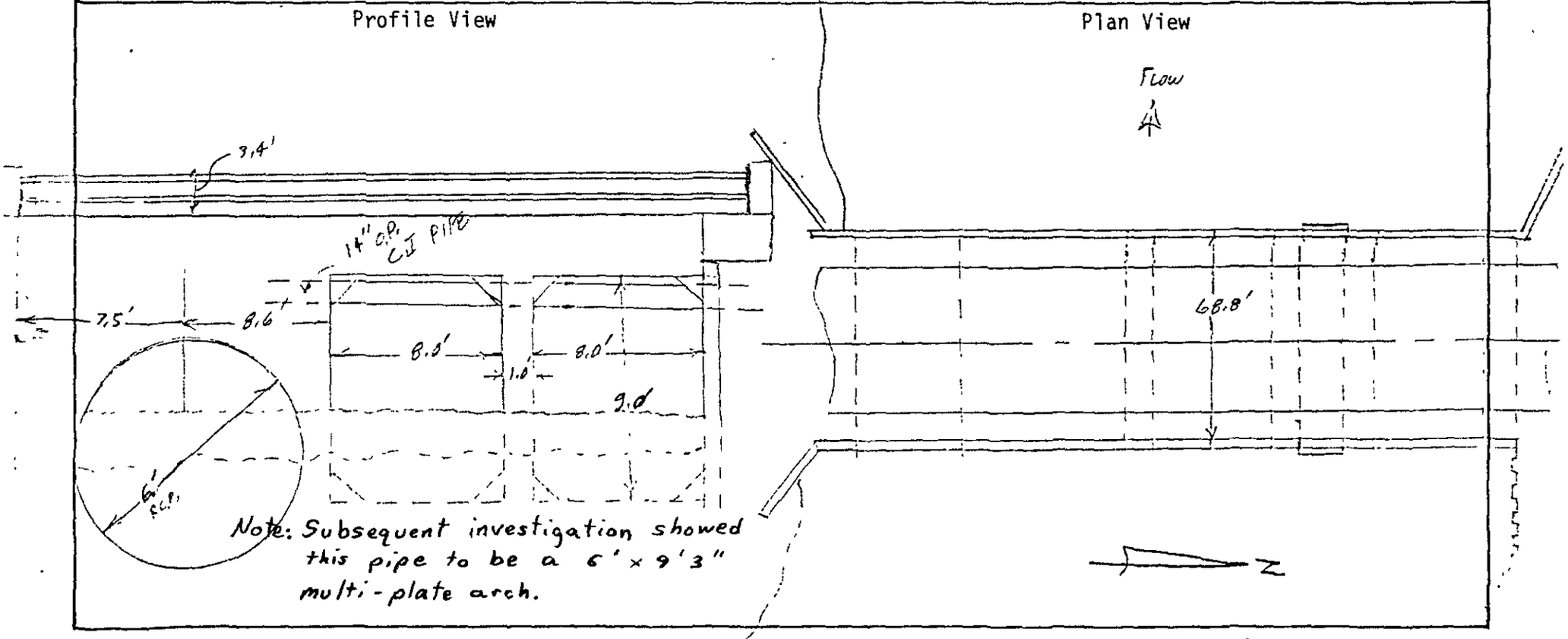
Johnson & Anderson, Inc.
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

Code No. 08-02-31

Job Name: City of Benton Harbor F.I.S.			By: P. Shunck
Date:	Feature: North Shore Drive Concrete Culverts		Water Course: Ox Creek
Remarks: From Bridge Dedication Plans; Ox Creek Bridge 1930 City of Benton Harbor & U.S. Works Progress Admin. G.M. Foster Consulting Engineer			
Pictures: U.S. W-23 U.S Face Right W-24 U.S Face Left W-25 D.S. W-26 D.S. Face Right W-27 Left W-28 W-29			
Width of Piers: 1.0'	Pier Shape: Flat Face	No. of Piers: 1	Area:
Water Elevation:	Length: Total 32.5'	Width of Deck: 68.8'	Skew: 90°

FIELD SKETCH



Note: Subsequent investigation showed this pipe to be a 6' x 9'3" multi-plate arch.

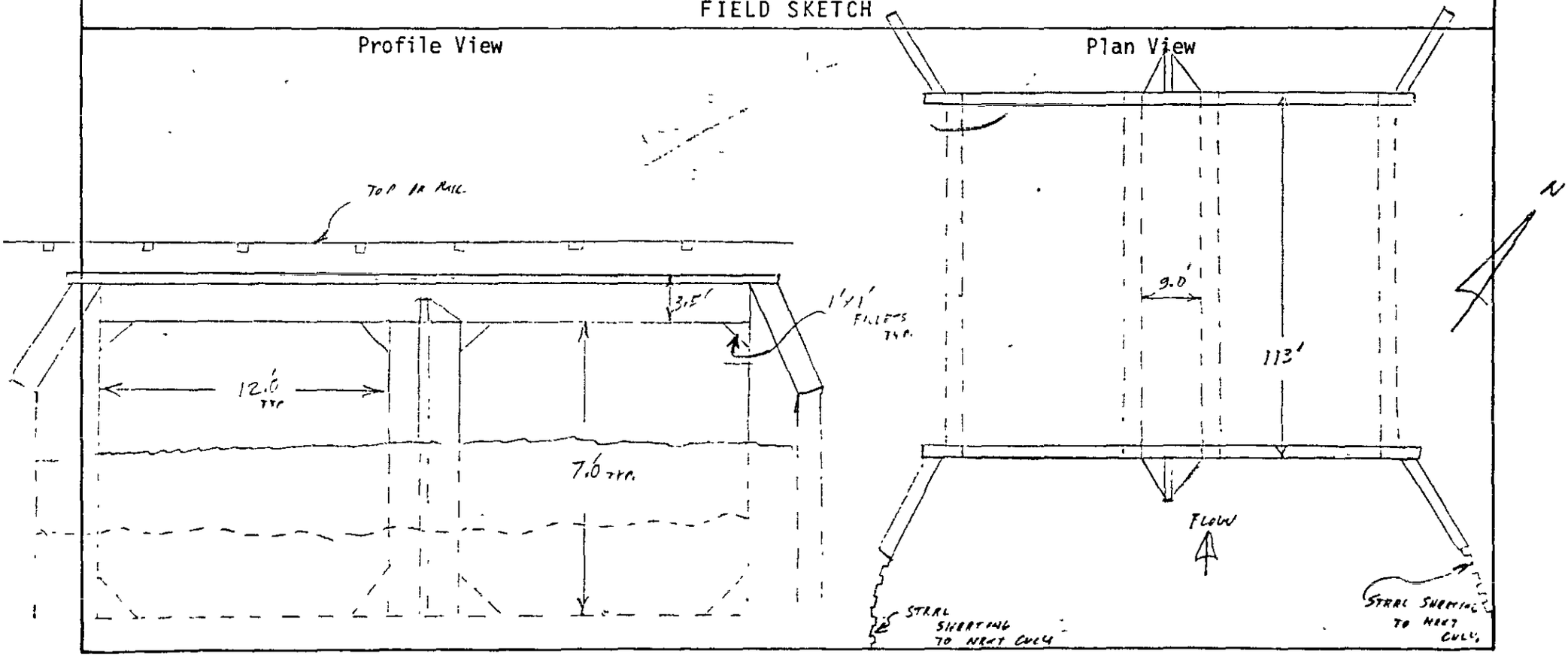
Johnson & Anderson, Inc.
Consulting Engineers
P O Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

Code No. 08-02-29

Job Name: CITY OF BENTON HARBOR F.T.C.			By: P. SHUNCK
Date: 19 SEPTEMBER 1975	Feature: C+O RAILROAD GRADE DOUBLE BOX CULVERTS		Water Course: OX CREEK
Remarks: A. CONCRETE BOX CULVERTS BOTTOM COVERED W/ ROCK + JUNK			
B. CULVERTS SUPPORTED BY 5 SETS OF C+O RR. TRACKS AND ONE GRAVEL DRIVE.			
C. WATER FLOWS BOTH WAYS AS LOW LEVEL VARIES.			
Width of Piers: 9.0'	Pier Shape: POINTED W/ SMALL FLAT END (6" DIA.)	No. of Piers: 1	Area:
Water Elevation: 552.0	Length: 33'	Width of Deck: 113'	Skew: 90°

FIELD SKETCH



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HYDRAULIC STRUCTURAL DATA

Code No. 08-02-28

Job Name: City of Benton Harbor F.J.S.		By: P. Shunck
Date: 18 & 19 September 1975	Feature: Water Street Double Box Culverts	Water Course: Ox Creek

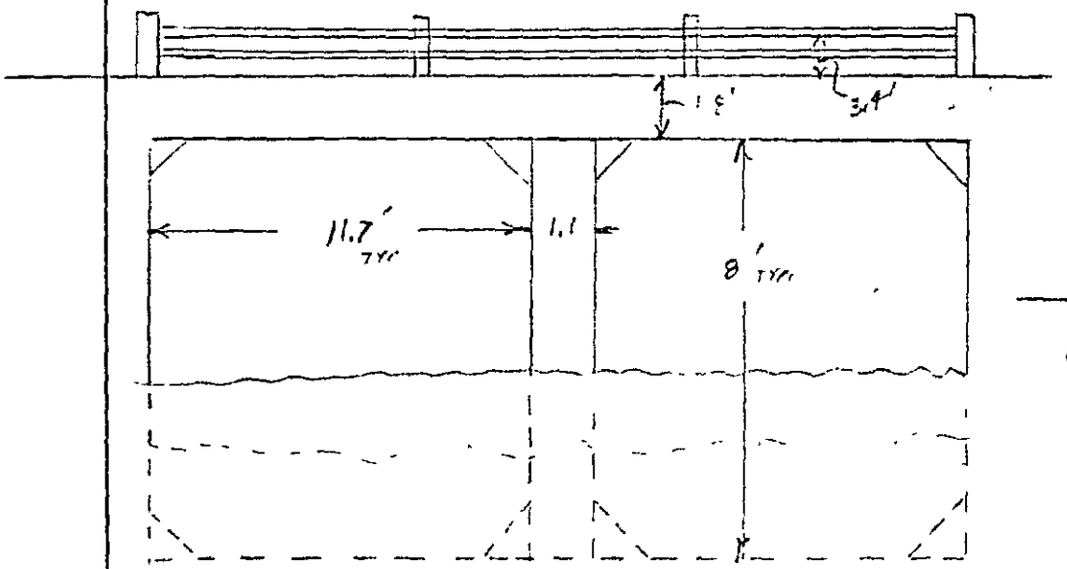
Remarks: A. Concrete Box Culverts Bottom covered w/ muck + junk

B. Water flows from wets as lake level varies

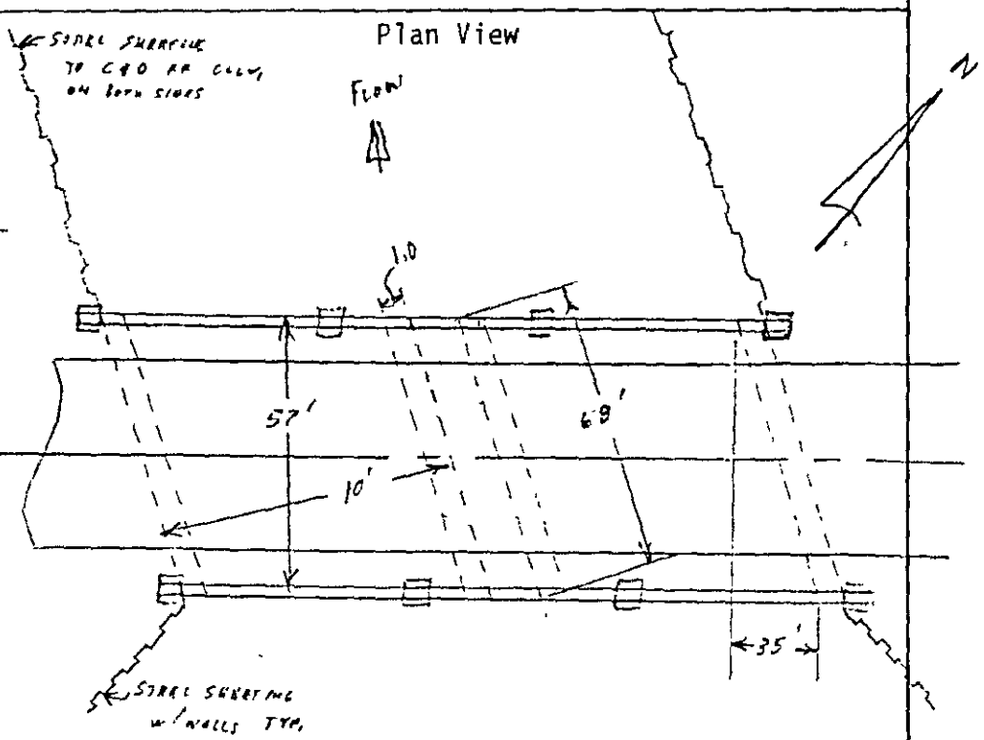
Width of Piers: 1.0'	Pier Shape: Flat Face	No. of Piers: 1	Area:
Water Elevation: 582.1	Length: 24.5'	Width of Deck: 57'	Skew: See below

FIELD SKETCH

Profile View



Plan View



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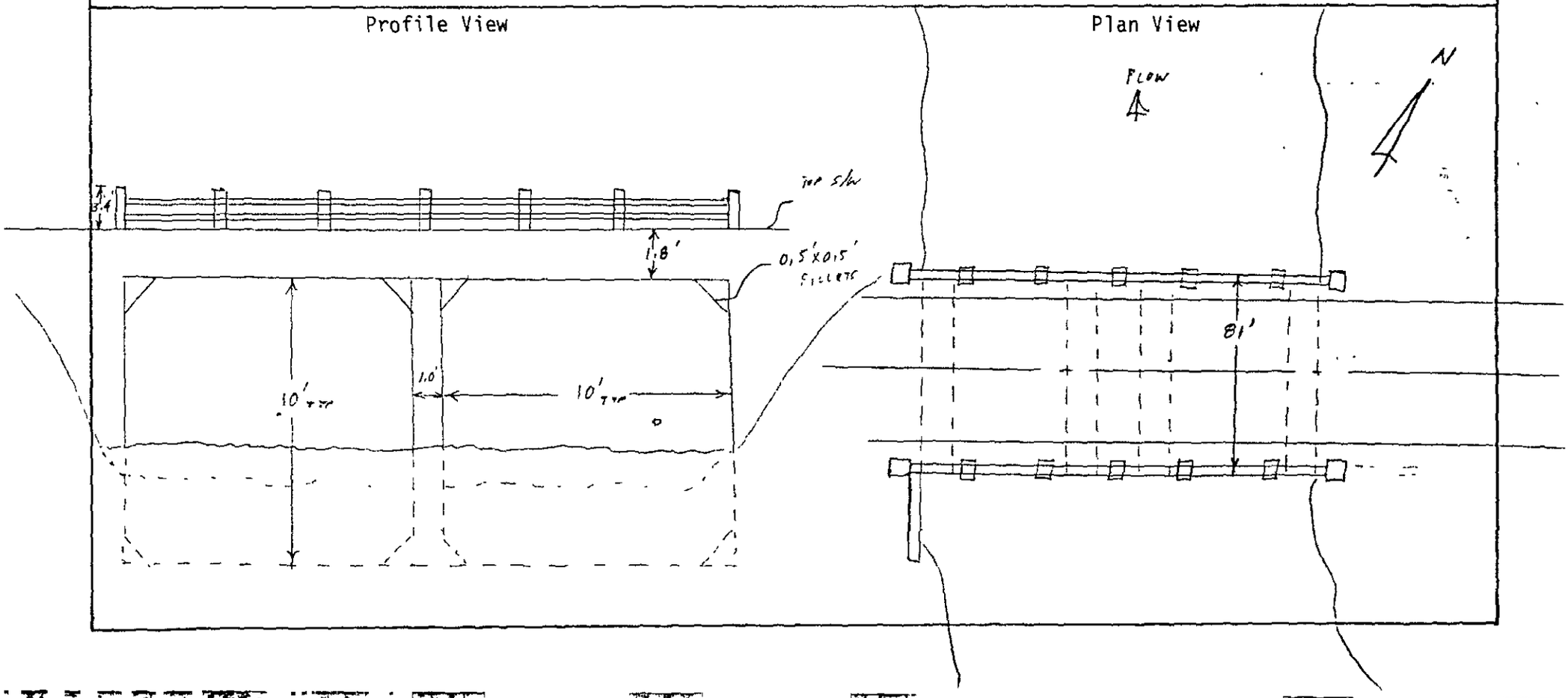
HYDRAULIC STRUCTURAL DATA

Code No. 08-02-25

Job Name: CITY OF BENTON HARBOR F.I.S.			By: P. SHUNCK
Date: 18 SEPTEMBER 1975	Feature: TERRITORIAL ROAD CONCRETE BOX CULVERTS		Water Course: OX CREEK
Remarks: A CONCRETE BOX CULVERTS BOTTOM CULVERT W/ RUNCH & JUNK B WATER FLOWS BOTH DIRECTIONS AS LAKE LEVEL VARIES			
Width of Piers: 1.0'	Pier Shape: FLAT FACE	No. of Piers: 1	Area:
Water Elevation: 582.1	Length: 21'	Width of Deck: 81'	Skew: 90°

FIELD SKETCH



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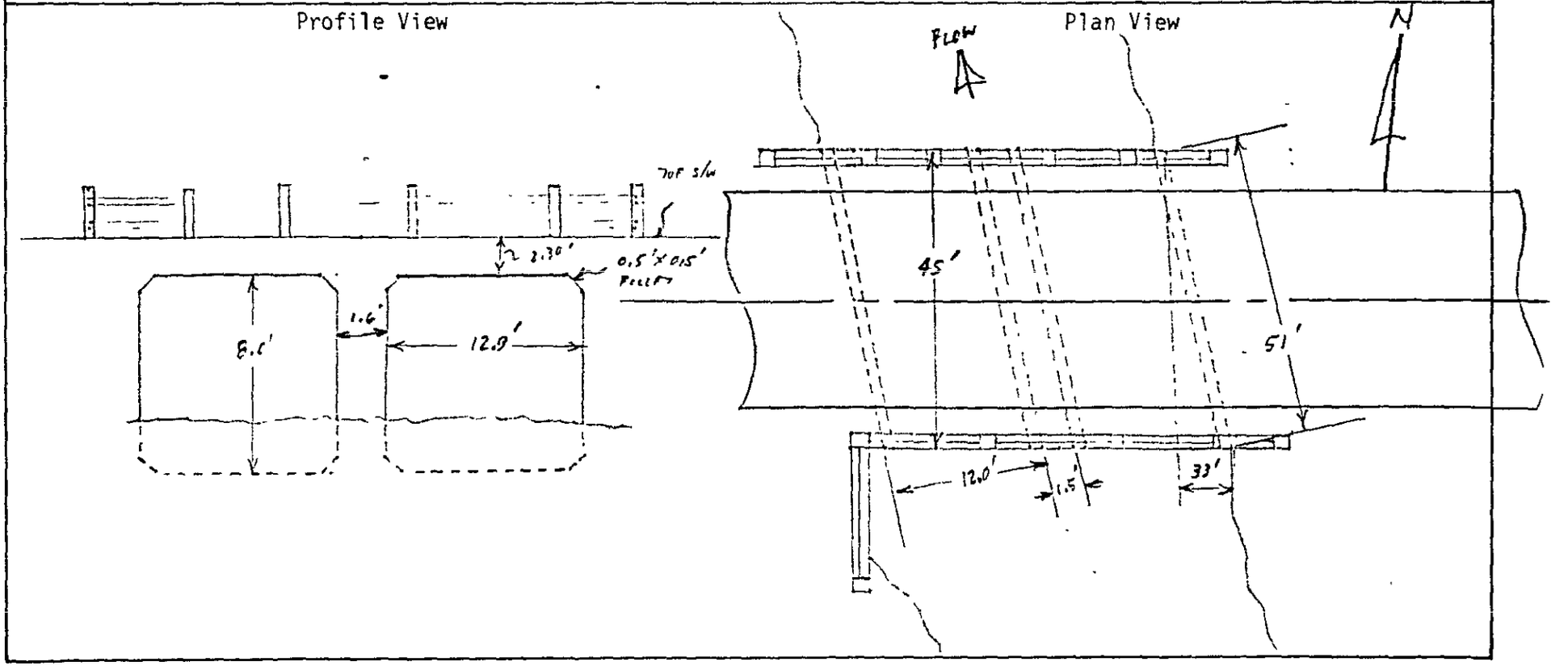
HYDRAULIC STRUCTURAL DATA

Code No. 08-02-23

Job Name: City of Benton Harbor E.I.S.			By: J. Kinser, P. Shunck
Date: 18 September 1975	Feature: East Main Street Double Box Culvert		Water Course: Ox Creek
Remarks: A. Bridge Deviation Plans; Michigan Highway Dept. B3 of 11-2-1 1949			
Bridge No. B03-11013			
B. Concrete Box Culverts Bottom covered w/muck & sand Water flows both directions as lake level varies			
Width of Piers: 1.5'	Pier Shape: Flat face	No. of Piers: 1	Area:
Water Elevation: 582.1	Length: 27.4'	Width of Deck: 45'	Skew: See Below

FIELD SKETCH



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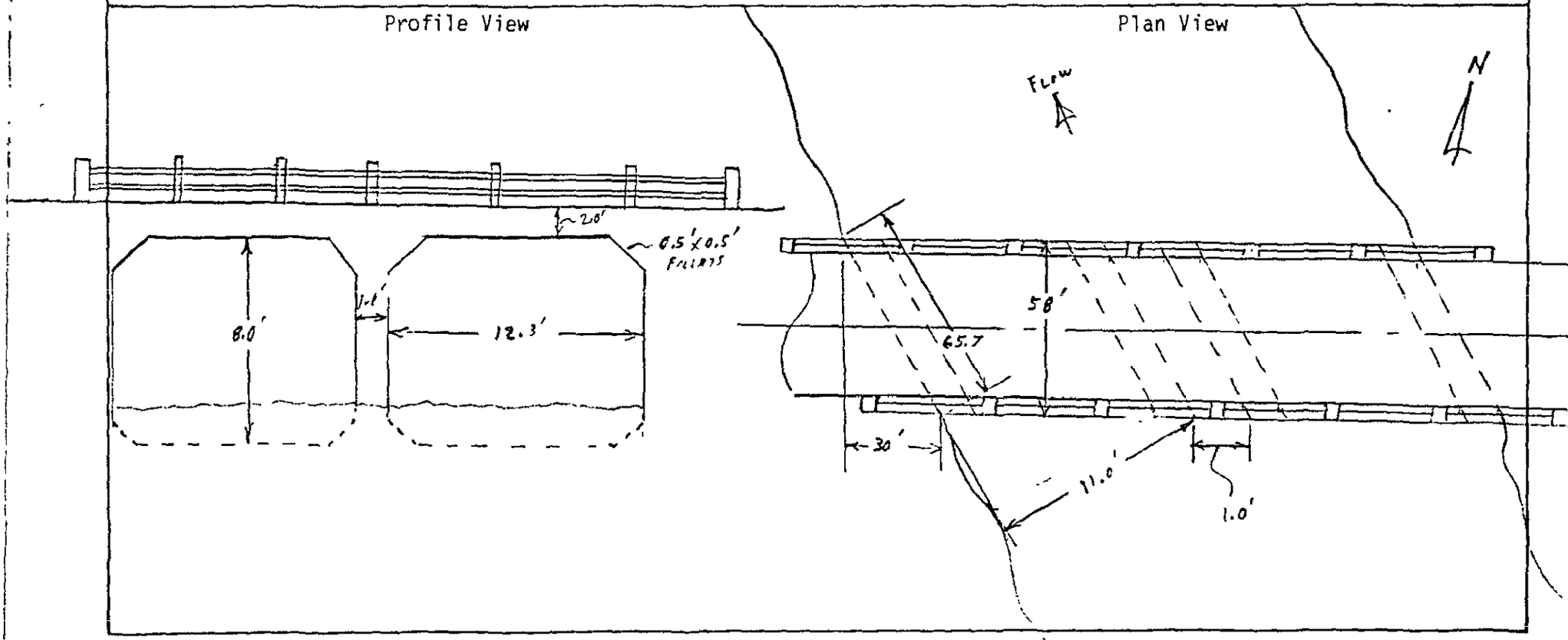
HYDRAULIC STRUCTURAL DATA

Code No. 08-02-21

Job Name: CITY OF BENTON HARBOR F.I.S.			By: P. SHUNCK
Date: 17 SEPTEMBER 1975	Feature: HIGHLAND AVENUE CONCRETE BOX CULVERT		Water Course: OX CREEK
Remarks: A. CONCRETE BOX CULVERT BOTTOM IS COVERED W/ MUCK & JUNK B. WATER FLOWS BOTH WAYS AS LAKE LEVEL VARIES.			
Width of Piers: 1'	Pier Shape: FLAT FACE	No. of Piers: 1	Area:
Water Elevation: 592.1	Length: 25.7'	Width of Deck: 58'	Skew: SEE BELOW

FIELD SKETCH



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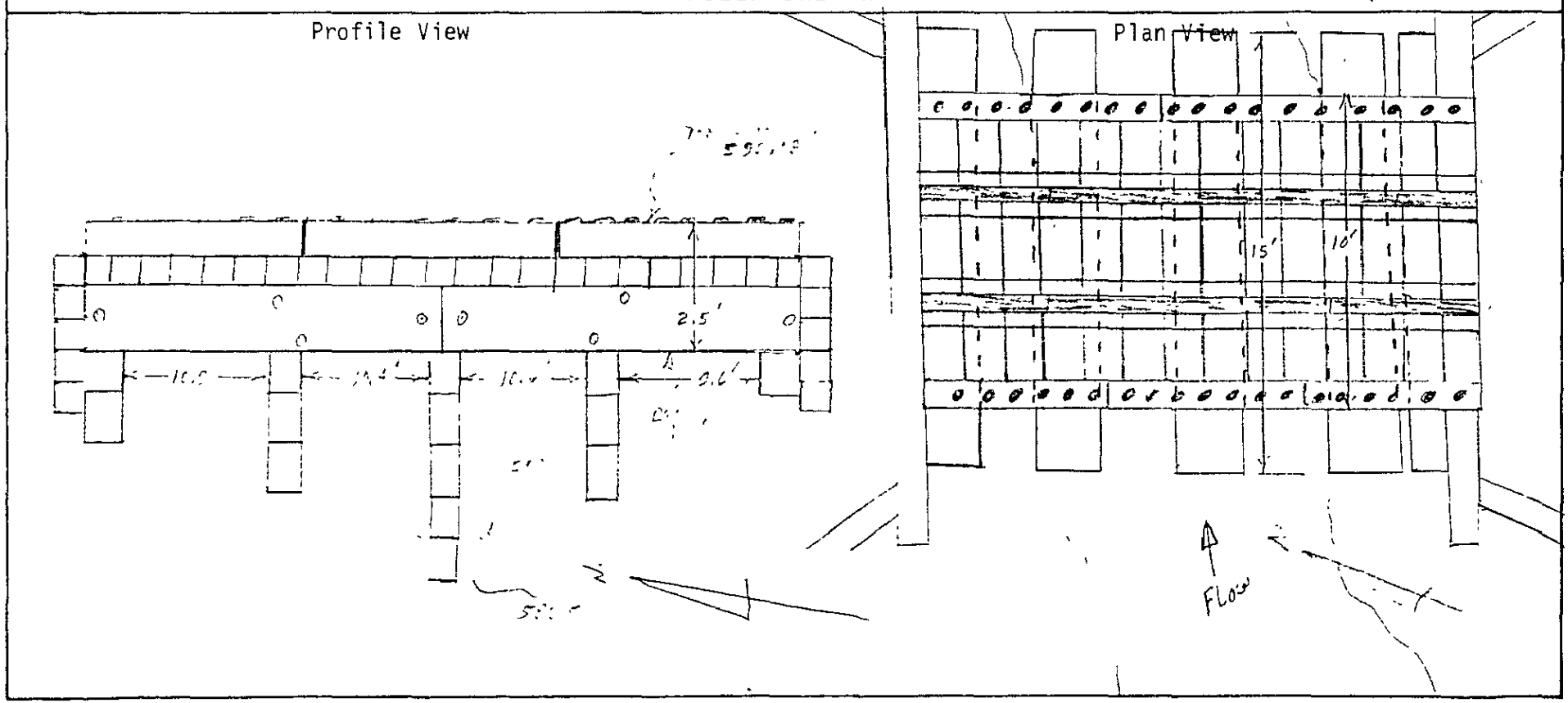
HYDR[illegible]IC STRUCTURAL DATA

Code No. 08-02-18

Job Name: CITY of [illegible] FTS		By: [illegible]	
Date: 17 [illegible]	Feature: C&O [illegible]	Water Course: OX-CREEK	
Remarks: [illegible]			
[illegible]			
[illegible]			
Width of Piers: [illegible]	Pier Shape: FLAT TIMBER	No. of Piers: [illegible]	Area:
Water Elevation: [illegible]	Length: [illegible]	Width of Deck: 10'	Skew: 90°

FIELD SKETCH



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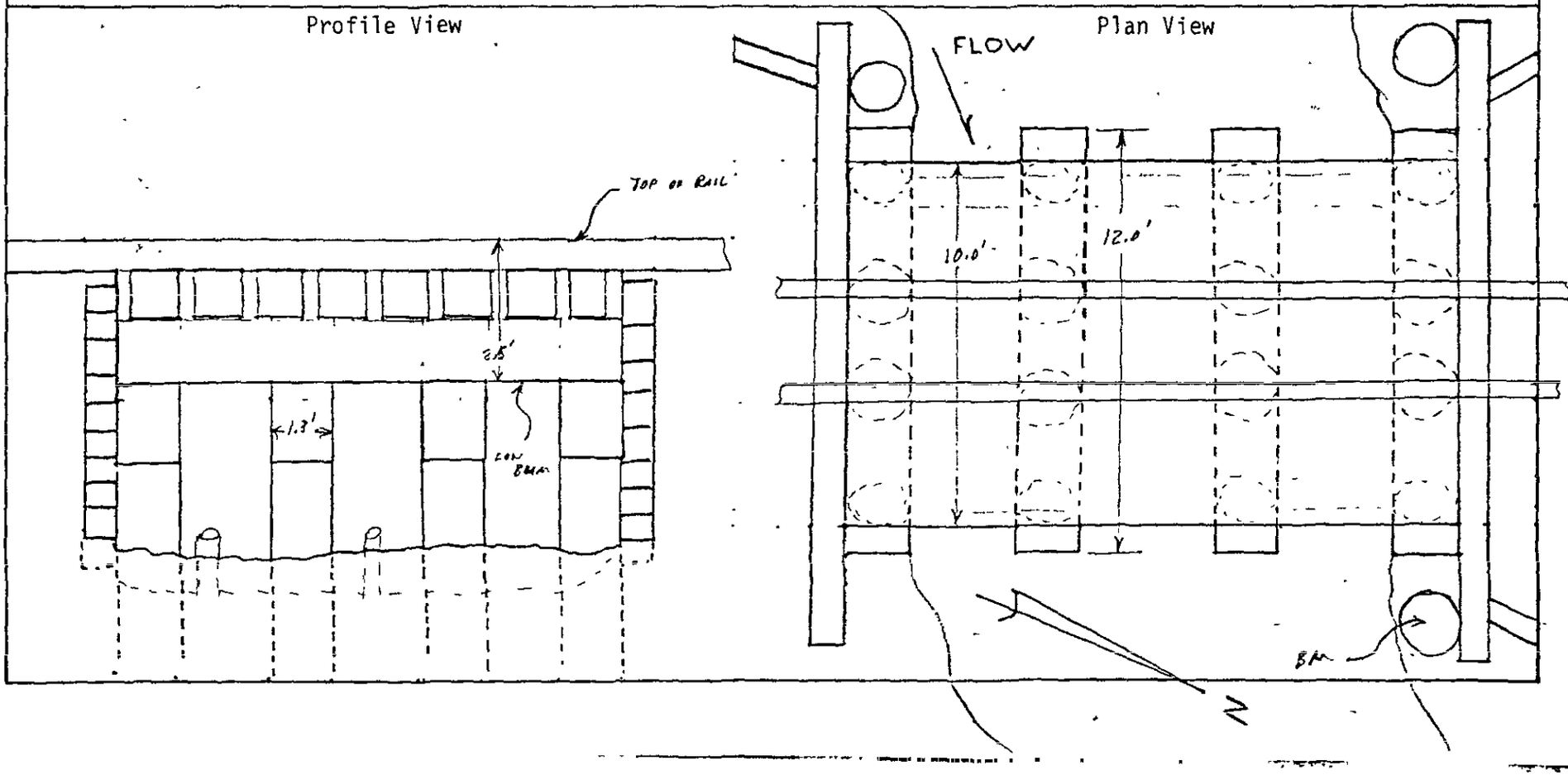
HYDRAULIC STRUCTURAL DATA

Code No. 08-02-17

Job Name: CITY OF BENTON HARBOR F.I.S.			By: J KINER
Date: 16 SEPTEMBER 1975	Feature: PENN CENTRAL R.R. BRIDGE		Water Course: Ox CREEK
Remarks: A. BOTTOM - CLAY W/ BROKEN CONCRETE & STONE			
Width of Piers: 1.3'	Pier Shape: ROUND TIMBER PILING	No. of Piers: 2	Area:
Water Elevation: 583.8	Length: 32.8'	Width of Deck: 10'	Skew: 90°

FIELD SKETCH



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HYDRAULIC STRUCTURAL DATA.

Code No. 08-02-16

Job Name: CITY OF BENTON HARBOR F.I.S.		By: P. SHUNCK
Date: 17 SEPTEMBER 1975	Feature: BRITAIN AVENUE BRIDGE	Water Course: OK CREEK

Remarks: A. BRIDGE OVER: OK CREEK; PEAN — CENTRAL RR; C&O RR; & VALLEY DRIVE

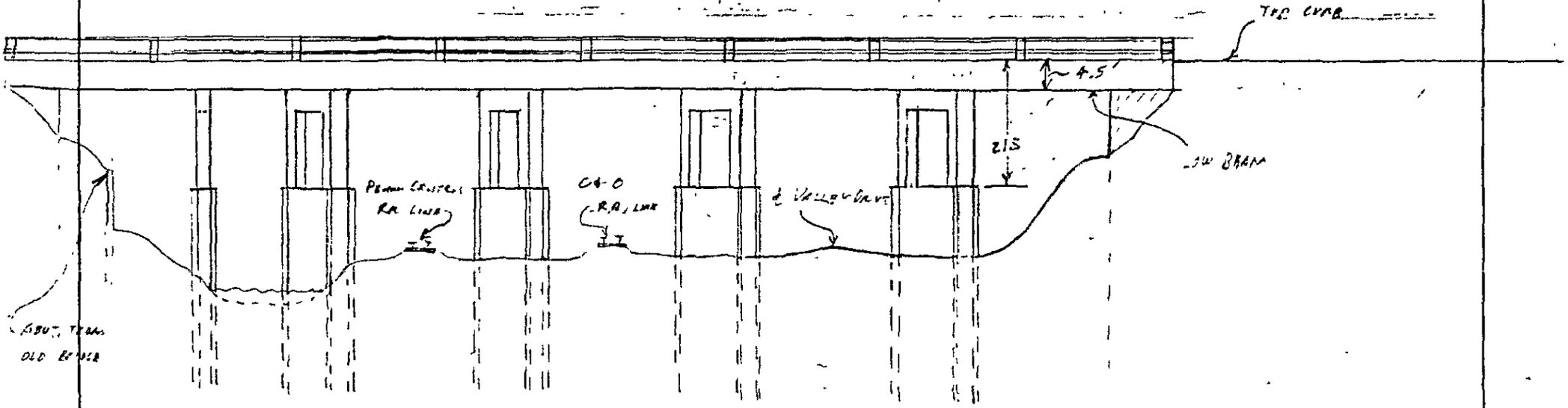
B. FROM BRIDGE DEDICATION PLATE: NO DATA

C. BOTTOM: GRAVEL W/ BROKEN CONCRETE & JUNK

Width of Piers: BASE = 3.2' UPPER = 2.75'	Pier Shape: FLAT	No. of Piers: 5	Area:
Water Elevation: 584.8	Length: 358.4'	Width of Deck: 54.5'	Skew: SEE BELOW (ON BACK)

FIELD SKETCH

Profile View ~~Plan View~~



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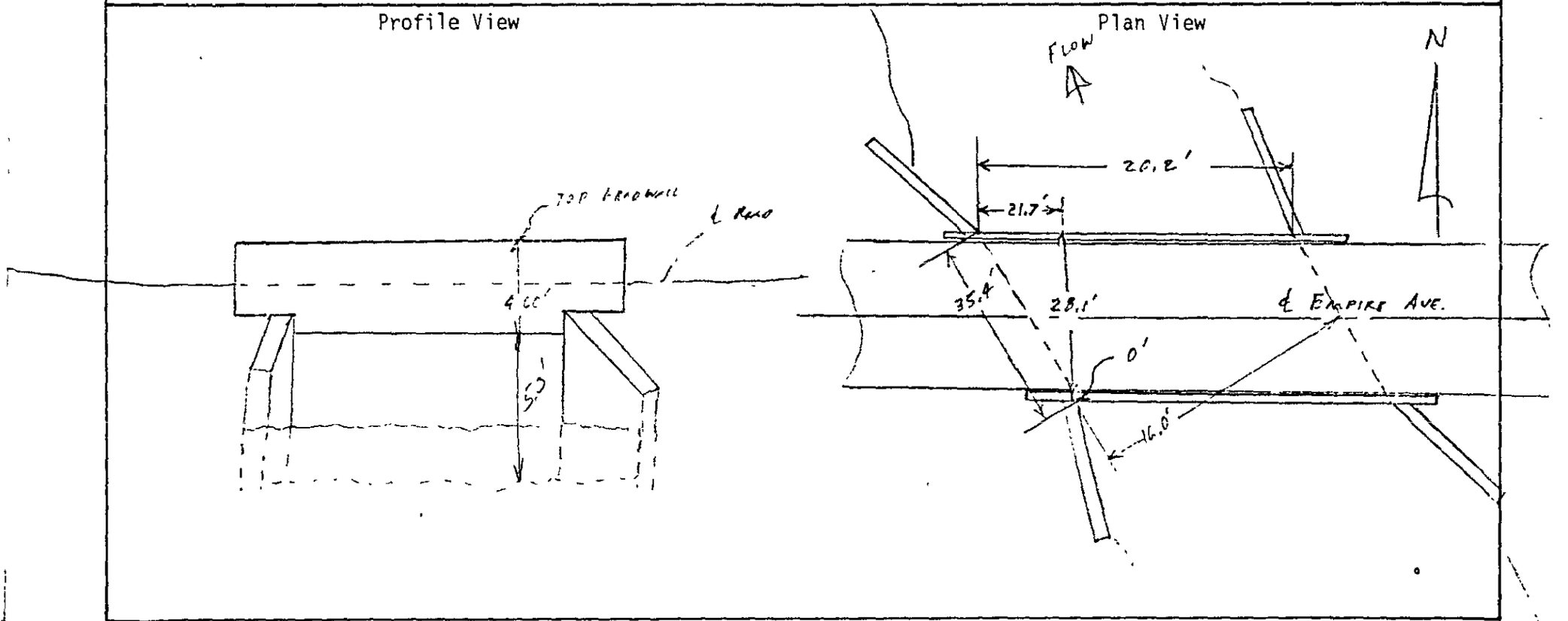
HYDRAULIC STRUCTURAL DATA

Code No. 08-02-12

Job Name: CITY OF BENTON HARBOR I.T.S			By: P. SHUNCK
Date: 16 SEPTEMBER 1975	Feature: EMPIRE AVE, BOX CULVERT		Water Course: OX CREEK
Remarks: A. CONCRETE BOX CULVERT W/ NO [illegible]			
B. BOTTOM IS CLAY W/ SILT			
Width of Piers: N/A	Pier Shape: N/A	No. of Piers: NONE	Area:
Water Elevation: 590.3	Length: 20.2'	Width of Deck: 28'	Skew: SQUARE ANGLE

FIELD SKETCH



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HYDR[illegible]IC STRUCTURAL DATA

Code No. 08-02-10

Job Name: City of Benton Harbor FTS		By: P. Shunck
Date: 16 September 1975	Feature: Penn-Central RR Bridge 435' ± SE. on Empire Ave	Water Course: Ox Creek

Remarks: A. Water in vicinity of [illegible] is [illegible] [illegible] downstream

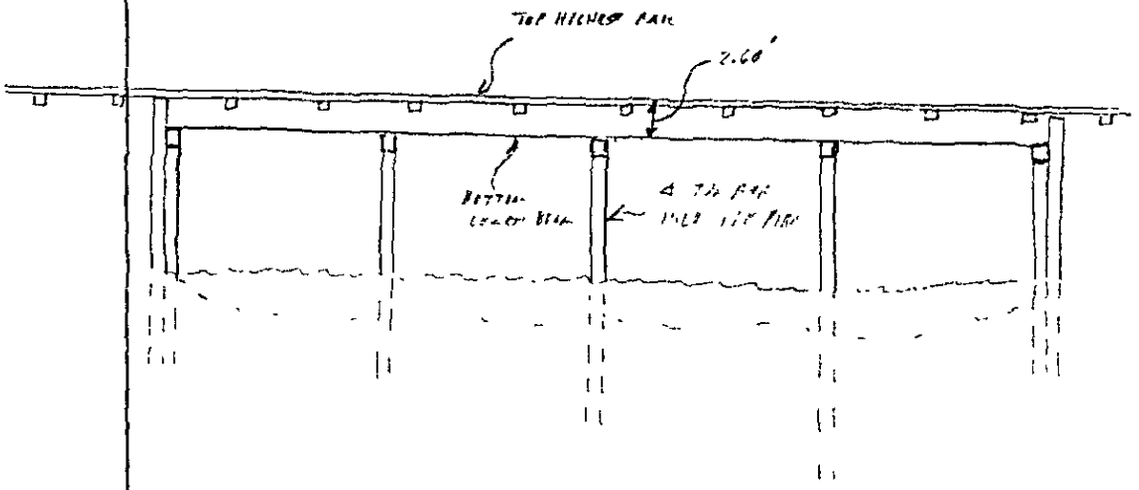
B. Bottom is [illegible]

C. Bridge on C&O RR (40' [illegible]) was originally designated for spectrum, but is extremely high & open.

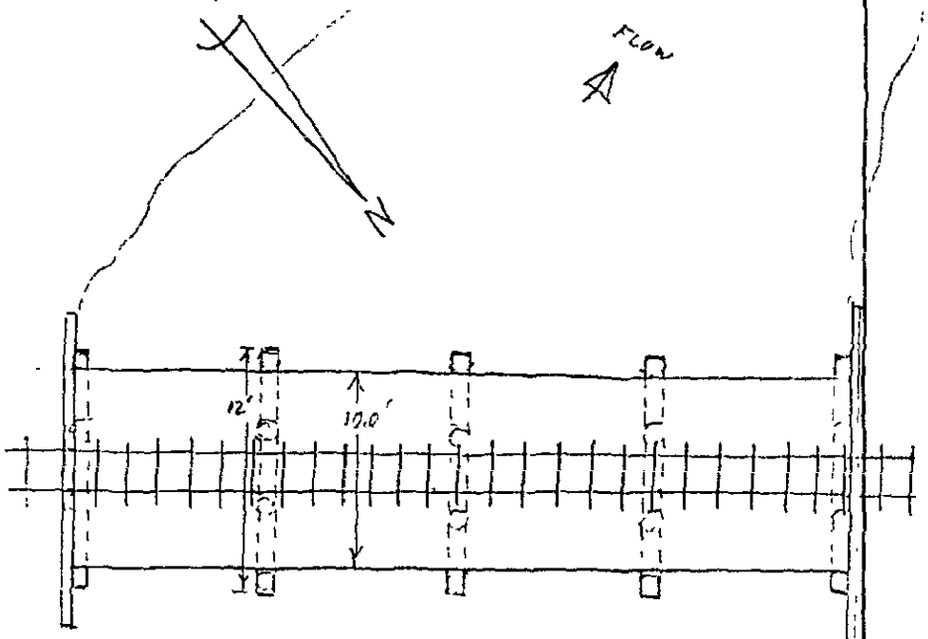
Width of Piers: 1.3'	Pier Shape: Round Timber Piles	No. of Piers: 3	Area:
Water Elevation: 591.5	Length: 44'	Width of Deck: 10'	Skew: 90°

FIELD SKETCH

Profile View



Plan View



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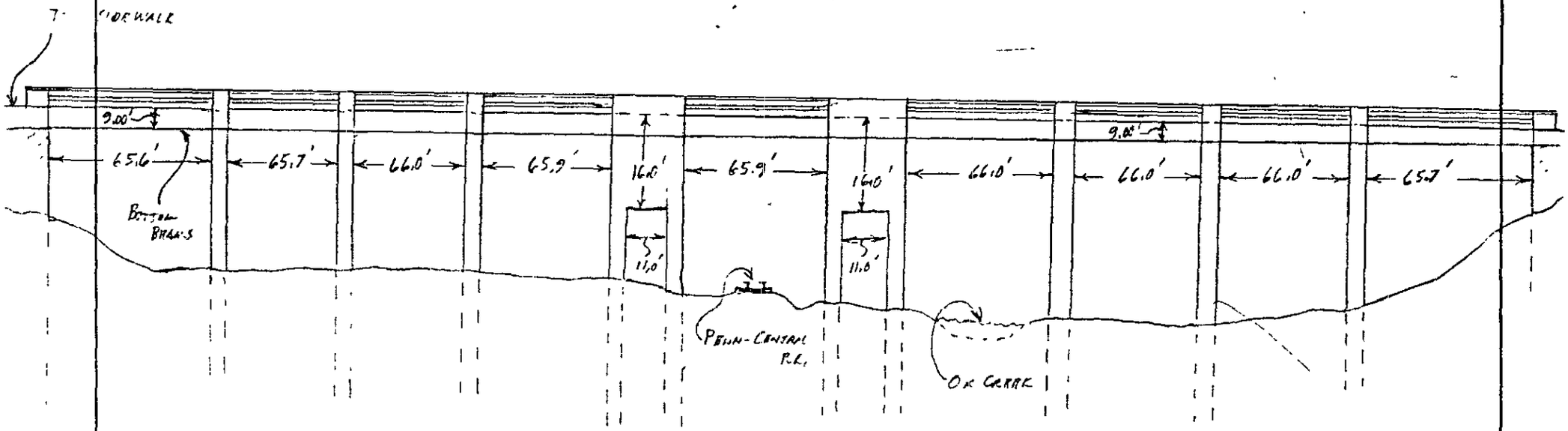
HYDRAULIC STRUCTURAL DATA

Code No. 08-02-08

Job Name: CITY OF BENTON HARBOR F.I.S.			By: P. SHUNCK
Date: 15 + 14 SEPTEMBER 1975	Feature: M-139 BRIDGE OVER OX CREEK + PENN-CENTRAL RAILROAD		Water Course: OX CREEK
Remarks: A. FEDERAL AID PROJECT NO. X2 OF 11-2-21 FA 148 E			
M.D.S.H. NO. X01-11031 BUILT 1936			
B. BOTTOM IS CLAY W/ MANY PIPES OR JUNK			
Width of Piers: 5'	Pier Shape: FLAT FACE	No. of Piers: 10'	Area:
Water Elevation: 592.1	Length: 664.8'	Width of Deck: 74.84'	Skew: 90°

FIELD SKETCH

Profile View ~~Plan View~~



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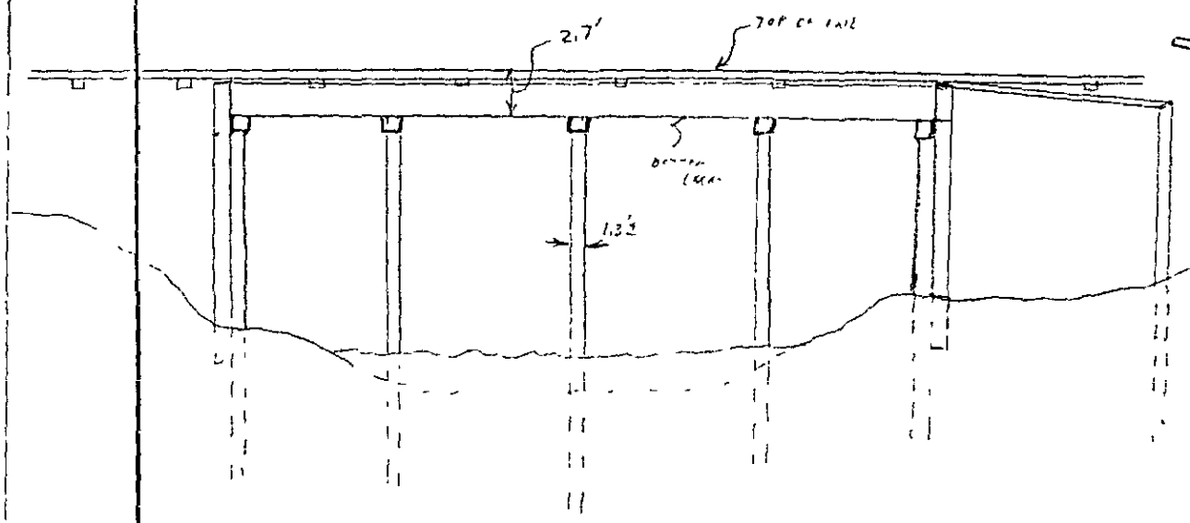
HYDRAULIC STRUCTURAL DATA

Code No. 07-02-06

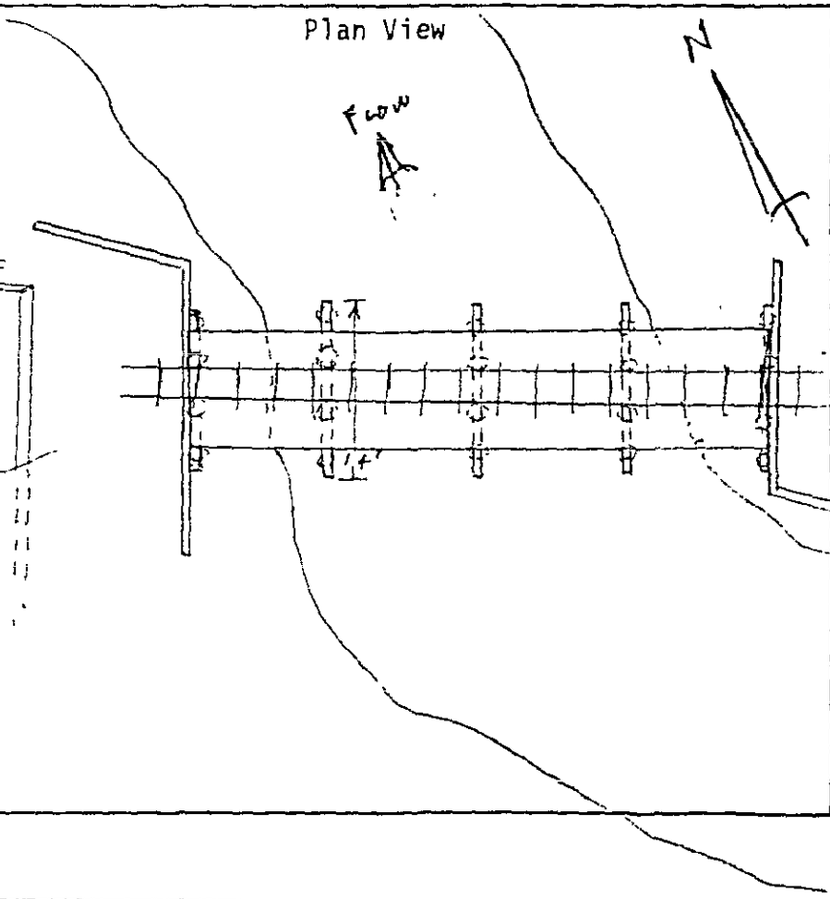
Job Name: Benton Township F.I.S		By: P. Shunck	
Date: 12 September 1975	Feature: Penn-Cen [illegible] Timber Trestle ± up/stream of M-139	Water Course: Ox Creek	
Remarks: There are [illegible] old [illegible] piles from [illegible] trestles under bridge (extending 1.5' above bottom)			
Width of Piers: 1.3'±	Pier Shape: Round timber piles 4 per pier	No. of Piers: 3	Area:
Water Elevation: 596.7	Length: 42'	Width of Deck: 10'	Skew: 90°

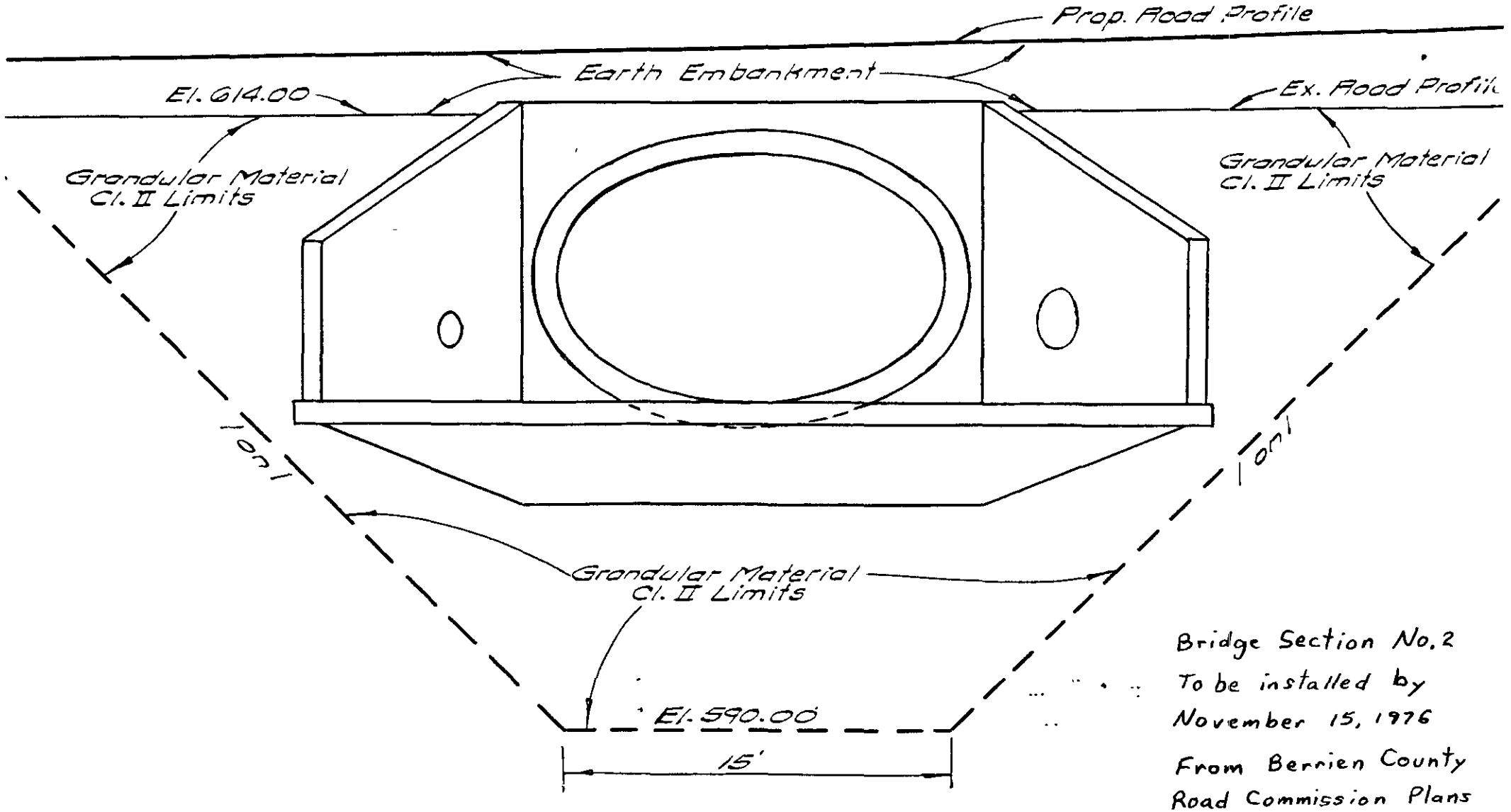
FIELD SKETCH

Profile View



Plan View





Bridge Section No. 2
To be installed by
November 15, 1976
From Berrien County
Road Commission Plans

SECTION A-A



1) COUNTY: Berrien

2) STUDY NAME: Benton Harbor, City of & Benton Twp

3) WATERCOURSE: OX Creek

4) DOCUMENT TYPE: Summary



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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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CITY OF BENTON HARBOR &
BENTON TOWNSHIP FIS
Ox Creek
J&A File No. 5555-08,07
10-,50-,100-,500-YR FLOWS

```
C
1    BENTON TWP. (07) & BENTON HARBOR (08) FIS     P.M. - JOHN EMIG
T2   10-YEAR FLOOD
T3   OX CREEK

J1   ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        -0.       2.        -0.       -0.   .000640     -0.00     -0.0      -0.   581.900    -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        .060      .100      .040      .300      .500    -0.000    -0.000    -0.000    -0.000    -0.000
QT       4.000   460.000   800.000   920.000  1220.000    -0.000    -0.000    -0.000    -0.000    -0.000

X1       0.000    31.000  1058.000  1122.000    -0.000    -0.000    -0.000    -0.000    -2.550    -0.000
X3      10.000    -0.000    -0.000  1022.000    -0.000  1522.000    -0.000    -0.000    -0.000    -0.000
GR     586.400     0.000   584.100    22.000   583.500   122.000   582.900   222.000   583.300   322.000
GR     583.400   422.000   583.300   522.000   583.000   622.000   582.900   722.000   582.600   822.000
GR     582.400   922.000   583.700  1022.000   581.600  1058.000   580.000  1067.000   577.200  1072.000
GR     576.100  1082.000   576.300  1092.000   577.700  1102.000   578.600  1112.000   581.400  1118.000
GR     583.400  1122.000   583.400  1222.000   583.700  1322.000   584.000  1422.000   584.200  1522.000
GR     583.300  1622.000   582.400  1722.000   582.700  1822.000   584.400  1892.000   584.100  1907.000
GR     582.700  1927.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000

X1     400.000    -0.000    -0.000    -0.000   400.000   400.000   400.000    -0.000     .510    -0.000
X3      10.000    -0.000    -0.000  1022.000    -0.000  1522.000    -0.000    -0.000    -0.000    -0.000

X1     800.000    -0.000    -0.000    -0.000   400.000   400.000   400.000    -0.000     .510    -0.000
X3      10.000    -0.000    -0.000  1022.000    -0.000  1522.000    -0.000    -0.000    -0.000    -0.000

X1    1200.000    -0.000    -0.000    -0.000   400.000   400.000   400.000    -0.000     .510    -0.000
X3      10.000    -0.000    -0.000  1022.000    -0.000  1522.000    -0.000    -0.000    -0.000    -0.000

X1    1600.000    -0.000    -0.000    -0.000   400.000   400.000   400.000    -0.000     .510    -0.000
X3      10.000    -0.000    -0.000  1022.000    -0.000  1522.000    -0.000    -0.000    -0.000    -0.000

X1    2000.000    -0.000    -0.000    -0.000   400.000   400.000   400.000    -0.000     .510    -0.000
X3      10.000    -0.000    -0.000  1022.000    -0.000  1522.000    -0.000    -0.000    -0.000    -0.000

X1    2125.000    -0.000    -0.000    -0.000   125.000   125.000   125.000    -0.000   -1.120    -0.000
X3      10.000    -0.000    -0.000  1060.000    -0.000  1120.000    -0.000    -0.000    -0.000    -0.000

X1    2175.000    -0.000    -0.000    -0.000    50.000    50.000    50.000    -0.000    -.450    -0.000
X3      10.000    -0.000    -0.000  1076.000    -0.000  1104.000    -0.000    -0.000    -0.000    -0.000

X1    2199.000    31.000  1484.600  1500.000    24.000    24.000    24.000    -0.000    -0.000    -0.000
X3      -0.000    -0.000    -0.000  1400.000    -0.000  1600.000    -0.000    -0.000    -0.000    -0.000
GR     585.200     0.000   585.000   100.000   585.700   200.000   586.100   300.000   588.000   335.000
GR     586.400   400.000   583.300   500.000   582.900   600.000   582.800   700.000   583.400   800.000
GR     583.200   900.000   583.000  1000.000   583.000  1100.000   583.000  1200.000   582.900  1300.000
GR     583.300  1400.000   584.800  1484.600   576.900  1484.600   574.300  1492.300   576.100  1500.000
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GP	583.400	2000.000	583.300	2100.000	583.400	2200.000	584.700	2301.000	584.300	2320.000
GP	582.000	2365.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.035	.035	.033	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2200.000	-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	1400.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000
BT	6.000	1400.000	583.300	0.000	1484.600	584.800	582.900	1484.600	584.800	582.900
BT	1492.300	584.800	582.900	1600.000	584.800	582.000	1600.000	583.600	0.000	-0.000
X1	2230.000	-0.000	-0.000	-0.000	30.000	30.000	30.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	1.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	1400.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000
NC	.050	.050	.040	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2231.000	-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	1400.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000
X1	2255.000	31.000	1058.000	1122.000	24.000	24.000	24.000	-0.000	-1.730	-0.000
X3	10.000	-0.000	-0.000	1058.000	-0.000	1122.000	-0.000	-0.000	-0.000	-0.000
GR	586.400	0.000	584.100	22.000	583.500	122.000	582.900	222.000	583.300	322.000
GR	583.400	422.000	583.300	522.000	583.000	622.000	582.900	722.000	582.600	822.000
GR	582.400	922.000	583.700	1022.000	581.600	1058.000	580.000	1067.000	577.200	1072.000
GR	576.100	1082.000	576.300	1092.000	577.700	1102.000	578.600	1112.000	581.400	1118.000
GR	583.400	1122.000	583.400	1222.000	583.700	1322.000	584.000	1422.000	584.200	1522.000
GR	583.300	1622.000	582.400	1722.000	582.700	1822.000	584.400	1892.000	584.100	1907.000
GR	582.700	1927.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2410.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1058.000	-0.000	1122.000	-0.000	-0.000	-0.000	-0.000
X1	2565.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1058.000	-0.000	1122.000	-0.000	-0.000	-0.000	-0.000
X1	2720.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1058.000	-0.000	1122.000	-0.000	-0.000	-0.000	-0.000
X1	2875.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1058.000	-0.000	1122.000	-0.000	-0.000	-0.000	-0.000
X1	3030.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1058.000	-0.000	1122.000	-0.000	-0.000	-0.000	-0.000
X1	3185.000	39.000	1452.000	1493.000	155.000	155.000	155.000	-0.000	-1.330	-0.000
X3	10.000	-0.000	-0.000	1452.000	-0.000	1493.000	-0.000	-0.000	-0.000	-0.000
GR	592.100	0.000	592.000	52.000	592.600	152.000	591.500	252.000	590.400	352.000
GR	589.700	452.000	589.200	552.000	588.300	652.000	588.300	752.000	587.800	852.000
GR	587.200	952.000	587.000	1052.000	586.800	1152.000	586.100	1252.000	586.000	1352.000
GR	585.200	1452.000	581.200	1457.000	580.300	1457.000	578.700	1462.000	578.400	1472.000
GR	578.400	1482.000	578.500	1487.000	578.900	1493.000	585.400	1493.000	585.800	1552.000
GR	585.000	1652.000	584.800	1752.000	585.200	1852.000	584.600	1952.000	583.500	2052.000
GR	583.400	2152.000	583.700	2252.000	584.200	2352.000	585.200	2452.000	586.100	2552.000
GR	586.000	2652.000	583.600	2752.000	583.700	2852.000	583.200	2895.000	-0.000	-0.000
X1	3340.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1452.000	-0.000	1493.000	-0.000	-0.000	-0.000	-0.000
X1	3495.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1452.000	-0.000	1493.000	-0.000	-0.000	-0.000	-0.000
X1	3650.000	-0.000	-0.000	-0.000	155.000	155.000	155.000	-0.000	.450	-0.000
X3	10.000	-0.000	-0.000	1452.000	-0.000	1493.000	-0.000	-0.000	-0.000	-0.000
X1	3700.000	-0.000	-0.000	-0.000	50.000	50.000	50.000	-0.000	-.760	-0.000
X3	10.000	-0.000	-0.000	1452.000	-0.000	1493.000	-0.000	-0.000	-0.000	-0.000

X3	10.000	-0.000	-0.000	1452.000	-0.000	1493.000	-0.000	-0.000	-0.000	-0.000
X1	3775.000	53.000	1469.600	1500.000	25.000	25.000	25.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1400.000	-0.000	1600.000	-0.000	583.000	583.000	-0.000
GR	591.400	0.000	591.100	100.000	591.000	200.000	590.600	300.000	589.900	400.000
GR	589.100	500.000	588.800	600.000	588.400	700.000	588.400	800.000	587.600	900.000
GR	587.200	1000.000	586.600	1100.000	586.200	1200.000	585.900	1300.000	585.600	1400.000
GR	586.200	1435.000	585.200	1469.800	581.700	1469.800	580.700	1469.800	579.200	1472.400
GR	579.200	1473.400	579.200	1475.400	579.200	1476.400	580.700	1479.000	581.700	1479.000
GR	585.200	1479.000	585.100	1483.000	576.900	1483.000	577.800	1487.000	577.300	1491.000
GR	585.100	1491.000	585.100	1492.000	576.500	1492.000	578.300	1496.000	577.700	1500.000
GR	585.100	1500.000	585.500	1550.000	585.300	1600.000	585.200	1650.000	585.100	1700.000
GR	584.400	1800.000	583.900	1900.000	584.200	2000.000	583.600	2100.000	583.500	2200.000
GR	584.100	2300.000	584.800	2400.000	585.800	2500.000	586.600	2600.000	587.600	2700.000
GR	588.500	2800.000	589.400	2900.000	592.100	3003.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	2.030	2.900	-0.000	30.200	-0.000	184.500	-0.000	576.500	576.500
X1	3844.000	-0.000	-0.000	-0.000	69.000	69.000	69.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	582.200	585.300	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1400.000	-0.000	1600.000	-0.000	585.300	585.300	-0.000
BT	16.000	1400.000	585.600	0.000	1469.800	586.800	581.700	1472.400	586.800	584.700
BT	1473.400	586.800	585.200	1475.400	586.800	585.200	1476.400	586.800	584.700	1479.000
BT	586.800	581.700	1483.000	586.800	585.100	1483.000	586.800	585.100	1491.000	586.800
BT	585.100	1491.000	586.800	585.100	1492.000	586.800	585.100	1492.000	586.800	585.100
BT	1500.000	586.800	585.100	1500.000	586.800	577.700	1600.000	585.300	0.000	-0.000
NC	.060	.060	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3869.000	39.000	1452.000	1493.000	25.000	25.000	25.000	-0.000	-1.600	-0.000
X3	10.000	-0.000	-0.000	1400.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000
GR	592.100	0.000	592.000	52.000	592.600	152.000	591.500	252.000	590.400	352.000
GR	589.700	452.000	589.200	552.000	588.300	652.000	588.300	752.000	587.800	852.000
GR	587.200	952.000	587.000	1052.000	586.800	1152.000	586.100	1252.000	586.000	1352.000
GR	585.200	1452.000	581.200	1452.000	580.100	1457.000	578.500	1462.000	578.200	1472.000
GR	578.200	1482.000	578.300	1487.000	578.900	1493.000	585.400	1493.000	585.800	1552.000
GR	585.000	1652.000	584.800	1752.000	585.200	1852.000	584.600	1952.000	583.500	2052.000
GR	583.400	2152.000	583.700	2252.000	584.200	2352.000	585.200	2452.000	586.100	2552.000
GR	586.000	2652.000	583.600	2752.000	583.700	2852.000	583.200	2895.000	-0.000	-0.000
X1	4047.000	38.000	1500.000	1552.000	1.000	600.000	178.000	-0.000	-.910	-0.000
X3	10.000	-0.000	-0.000	1450.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000
GR	584.800	0.000	584.800	100.000	585.300	200.000	584.600	300.000	584.700	400.000
GR	584.200	500.000	583.600	600.000	583.400	700.000	584.600	800.000	585.400	900.000
GR	586.500	1000.000	587.500	1100.000	586.900	1200.000	587.000	1300.000	586.800	1400.000
GR	586.400	1500.000	581.100	1507.000	578.700	1515.000	578.800	1523.000	579.200	1533.000
GR	578.400	1539.000	581.400	1546.000	585.800	1552.000	585.800	1600.000	586.000	1700.000
GR	585.900	1800.000	586.300	1900.000	586.600	2000.000	586.600	2100.000	587.000	2200.000
GR	587.300	2300.000	587.400	2400.000	588.500	2500.000	588.500	2600.000	587.700	2700.000
GR	587.000	2800.000	586.500	2900.000	588.000	3000.000	-0.000	-0.000	-0.000	-0.000
X1	4225.000	-0.000	-0.000	-0.000	1.000	600.000	178.000	-0.000	.910	-0.000
X3	10.000	-0.000	-0.000	1482.000	-0.000	1569.000	-0.000	-0.000	-0.000	-0.000
X1	4250.000	-0.000	-0.000	-0.000	25.000	25.000	25.000	-0.000	-.220	-0.000
X3	10.000	-0.000	-0.000	1490.000	-0.000	1562.000	-0.000	-0.000	-0.000	-0.000
X1	4300.000	-0.000	-0.000	-0.000	50.000	50.000	50.000	-0.000	-.450	-0.000
X3	10.000	-0.000	-0.000	1496.000	-0.000	1556.000	-0.000	-0.000	-0.000	-0.000
X1	4325.000	42.000	1500.000	1533.000	25.000	25.000	25.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1400.000	650.000	1650.000	650.000	586.300	586.300	-0.000
GR	588.600	0.000	588.700	100.000	588.800	200.000	588.800	300.000	588.800	400.000
GR	588.800	500.000	588.600	600.000	588.400	700.000	587.900	800.000	587.700	900.000
GR	587.800	1000.000	586.000	1100.000	587.700	1200.000	588.000	1300.000	588.300	1400.000
GR	588.500	1475.000	583.600	1500.000	578.500	1500.000	577.500	1501.000	577.500	1511.000
GR	577.500	1512.000	583.600	1512.000	583.500	1521.000	577.600	1521.000	577.500	1522.000

GR	589.100	1900.000	589.200	2000.000	589.300	2100.000	589.400	2200.000	589.400	2300.000
GR	589.400	2400.000	589.400	2500.000	589.500	2600.000	589.600	2700.000	589.900	2800.000
GR	590.300	2900.000	590.700	3000.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	2.300	2.600	-0.000	33.000	-0.000	164.000	-0.000	577.500	577.500
X1	4438.000	-0.000	-0.000	-0.000	113.000	113.000	113.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	584.200	587.700	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1400.000	650.000	1650.000	650.000	587.700	587.700	-0.000
BT	11.000	1400.000	568.300	0.000	1500.000	588.600	583.600	1501.000	588.600	584.600
BT	1511.000	588.600	584.600	1512.000	588.600	583.600	1521.000	588.600	583.600	1522.000
BT	588.600	584.600	1532.000	588.600	584.600	1533.000	588.600	583.600	1580.000	588.700
BT	0.000	1650.000	588.800	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4453.000	48.000	1300.000	1324.500	25.000	25.000	15.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1200.000	650.000	1400.000	650.000	586.000	586.000	-0.000
GR	591.100	0.000	590.900	100.000	590.500	200.000	590.400	300.000	590.400	321.000
GR	590.400	400.000	590.100	500.000	589.800	600.000	589.500	700.000	589.300	752.000
GR	588.600	900.000	588.300	1000.000	588.100	1047.000	587.900	1100.000	587.200	1208.000
GR	587.200	1250.000	580.000	1275.000	579.100	1300.000	577.800	1300.500	578.000	1305.900
GR	577.900	1311.200	578.000	1311.700	585.900	1311.700	585.900	1312.800	577.900	1312.800
GR	577.300	1313.300	577.400	1318.700	577.000	1324.500	586.800	1350.000	586.700	1400.000
GR	586.200	1448.000	586.300	1500.000	586.000	1600.000	586.400	1700.000	586.800	1800.000
GR	587.200	1900.000	587.700	2000.000	587.900	2068.000	587.700	2100.000	588.000	2200.000
GR	588.400	2300.000	588.800	2400.000	589.200	2500.000	589.800	2600.000	591.500	2700.000
GR	596.400	2800.000	596.200	2827.000	596.500	2842.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	2.340	2.800	-0.000	21.100	-0.000	160.000	-0.000	577.000	577.000
X1	4521.000	-0.000	-0.000	-0.000	68.000	68.000	68.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	585.900	586.700	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1200.000	650.000	1400.000	650.000	586.700	586.700	-0.000
BT	18.000	1208.000	587.200	-0.000	1250.000	587.200	-0.000	1300.000	587.700	579.100
BT	1300.000	587.700	577.900	1300.000	587.700	585.900	1300.500	587.700	585.900	1305.900
BT	587.700	585.900	1311.200	587.700	585.900	1311.700	587.700	585.900	1312.800	587.700
BT	585.900	1313.300	587.700	585.900	1318.700	587.700	585.900	1324.000	587.700	585.900
BT	1324.500	587.700	585.900	1324.500	587.700	577.900	1324.500	587.700	577.000	1350.000
BT	586.800	-0.000	1400.000	586.700	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.040	.040	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4551.000	36.000	1500.000	1557.000	30.000	30.000	30.000	-0.000	-1.700	-0.000
X3	10.000	-0.000	-0.000	1398.000	-0.000	1658.000	-0.000	-0.000	-0.000	-0.000
GR	590.300	0.000	590.600	100.000	590.700	200.000	591.300	300.000	591.500	400.000
GR	591.100	500.000	591.200	600.000	590.900	700.000	589.400	800.000	589.900	900.000
GR	589.300	1000.000	589.000	1100.000	590.000	1200.000	588.100	1300.000	587.300	1400.000
GR	586.200	1500.000	581.400	1510.000	580.400	1518.000	579.200	1526.000	579.400	1536.000
GR	580.000	1542.000	581.300	1546.000	586.400	1557.000	587.200	1600.000	587.600	1700.000
GR	589.500	1800.000	589.900	1900.000	588.300	2000.000	589.300	2100.000	587.900	2200.000
GR	588.900	2300.000	589.200	2400.000	589.700	2500.000	590.300	2600.000	592.000	2700.000
GR	595.600	2800.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4653.000	-0.000	-0.000	-0.000	1.000	850.000	102.000	-0.000	1.700	-0.000
X3	10.000	-0.000	-0.000	1384.000	-0.000	1672.000	-0.000	-0.000	-0.000	-0.000
X1	4828.000	-0.000	-0.000	-0.000	1.000	300.000	175.000	-0.000	.170	-0.000
X3	10.000	-0.000	-0.000	1428.000	-0.000	1628.000	-0.000	-0.000	-0.000	-0.000
X1	5003.000	-0.000	-0.000	-0.000	1.000	300.000	175.000	-0.000	.180	-0.000
X3	10.000	-0.000	-0.000	1353.000	-0.000	1703.000	-0.000	-0.000	-0.000	-0.000
X1	5178.000	-0.000	-0.000	-0.000	1.000	300.000	175.000	-0.000	.170	-0.000
X3	10.000	-0.000	-0.000	1374.000	-0.000	1628.000	-0.000	-0.000	-0.000	-0.000
X1	5353.000	18.000	506.000	566.000	1.000	300.000	175.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	406.000	-0.000	566.000	-0.000	-0.000	-0.000	-0.000
GR	590.200	0.000	589.900	42.000	589.700	81.000	589.500	383.000	588.500	408.000
GR	588.700	470.000	588.600	492.000	587.600	506.000	583.300	525.000	580.300	533.000

GR	591.400	793.000	593.000	873.000	589.400	1106.000	-0.000	-0.000	-0.000	-0.000
X1	5403.000	37.000	1500.000	1521.000	50.000	50.000	50.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1387.000	650.000	1521.000	650.000	587.700	587.700	-0.000
GR	591.500	0.000	592.200	100.000	592.900	200.000	592.700	300.000	592.400	400.000
GR	592.200	500.000	591.800	600.000	591.400	700.000	591.000	800.000	590.700	900.000
GR	590.600	1000.000	590.300	1100.000	589.800	1200.000	589.400	1300.000	589.100	1387.000
GR	588.900	1400.000	585.700	1490.000	578.700	1500.000	578.700	1500.500	579.200	1505.000
GR	578.700	1509.500	578.900	1510.000	587.100	1510.000	587.100	1511.000	579.000	1511.000
GR	579.000	1511.500	579.300	1516.000	579.300	1521.000	589.500	1545.000	589.600	1600.000
GR	591.000	1700.000	591.700	1755.000	592.200	1800.000	593.800	1900.000	596.700	2000.000
GR	600.400	2100.000	602.100	2135.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	1.910	2.800	-0.000	21.000	-0.000	200.000	-0.000	578.700	578.700
X1	5484.000	-0.000	-0.000	-0.000	81.000	81.000	81.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	587.100	588.300	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1387.000	650.000	1521.000	650.000	588.300	588.300	-0.000
BT	14.000	1387.000	589.100	0.000	1434.000	588.600	0.000	1472.000	588.300	0.000
BT	1500.000	589.400	578.700	1500.000	589.400	587.100	1500.500	589.400	587.600	1505.000
BT	589.400	587.600	1509.500	589.400	587.600	1510.000	589.400	587.100	1511.000	589.400
BT	587.100	1511.500	589.400	587.600	1516.000	589.400	587.600	1521.000	589.400	587.600
BT	1521.000	589.400	579.300	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5504.000	32.000	1500.000	1552.000	20.000	20.000	20.000	-0.000	-1.100	-0.000
X3	10.000	-0.000	-0.000	1380.000	-0.000	1557.000	-0.000	-0.000	-0.000	-0.000
GR	592.000	0.000	592.400	100.000	592.700	200.000	592.000	300.000	591.500	400.000
GR	592.000	500.000	592.500	600.000	591.800	700.000	591.800	800.000	591.400	900.000
GR	591.200	989.000	590.700	1100.000	589.200	1200.000	588.500	1300.000	587.400	1362.000
GR	587.100	1400.000	587.900	1451.000	587.600	1483.000	587.200	1500.000	580.500	1512.000
GR	580.100	1524.000	581.300	1535.000	582.200	1537.000	589.900	1552.000	589.100	1600.000
GR	590.300	1700.000	591.000	1741.000	591.900	1800.000	593.900	1900.000	596.600	2000.000
GR	601.500	2077.000	602.200	2104.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5578.000	-0.000	-0.000	-0.000	74.000	74.000	74.000	-0.000	1.100	-0.000
X3	10.000	-0.000	-0.000	1376.000	-0.000	1676.000	-0.000	-0.000	-0.000	-0.000
X1	5678.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	-.340	-0.000
X3	10.000	-0.000	-0.000	1376.000	-0.000	1676.000	-0.000	-0.000	-0.000	-0.000
X1	5728.000	-0.000	-0.000	-0.000	50.000	50.000	50.000	-0.000	-.170	-0.000
X3	10.000	-0.000	-0.000	1316.000	-0.000	1616.000	-0.000	-0.000	-0.000	-0.000
X1	5753.000	37.000	1500.000	1527.400	25.000	25.000	25.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1316.000	650.000	1616.000	650.000	586.600	586.600	-0.000
GR	593.700	0.000	593.900	100.000	593.900	200.000	593.900	300.000	593.800	400.000
GR	593.700	500.000	593.500	600.000	593.000	700.000	592.900	800.000	592.500	892.000
GR	591.200	1000.000	588.700	1100.000	587.700	1200.000	587.600	1218.000	587.100	1300.000
GR	587.800	1392.000	587.600	1432.000	586.300	1490.000	579.900	1500.000	579.500	1500.500
GR	580.800	1506.500	580.100	1512.400	580.200	1512.900	585.900	1512.900	585.900	1514.500
GR	580.300	1514.500	580.300	1515.000	581.600	1521.000	581.600	1526.900	582.900	1527.400
GR	589.200	1542.000	591.000	1600.000	592.400	1655.000	593.600	1700.000	596.000	1800.000
GR	599.100	1900.000	602.400	2000.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	1.810	2.860	-0.000	25.500	-0.000	192.000	-0.000	579.500	579.500
X1	5804.000	-0.000	-0.000	-0.000	51.000	51.000	51.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	586.000	587.100	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1316.000	650.000	1616.000	650.000	587.100	587.100	-0.000
BT	15.000	1300.000	587.100	-0.000	1392.000	587.800	-0.000	1432.000	587.500	-0.000
BT	1500.000	588.800	579.900	1500.000	588.800	585.900	1500.500	588.800	586.400	1506.500
BT	588.800	586.400	1512.400	588.800	586.400	1512.900	588.800	585.900	1514.500	588.800
BT	585.900	1515.000	586.800	586.500	1521.000	588.800	586.500	1527.400	588.800	586.500
BT	1527.400	588.800	582.900	1600.000	591.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5829.000	32.000	1500.000	1552.000	25.000	25.000	25.000	-0.000	-.570	-0.000
X3	10.000	-0.000	-0.000	1352.000	-0.000	1552.000	-0.000	-0.000	-0.000	-0.000

GR	592.000	500.000	592.500	600.000	591.800	700.000	591.800	800.000	591.400	900.000
GR	591.200	989.000	590.700	1100.000	589.200	1200.000	588.500	1300.000	587.400	1362.000
GR	587.100	1400.000	587.900	1451.000	587.600	1483.000	587.200	1500.000	580.500	1512.000
GR	580.100	1524.000	581.300	1535.000	582.200	1537.000	589.900	1552.000	589.100	1600.000
GR	590.300	1700.000	591.000	1741.000	591.900	1800.000	593.900	1900.000	596.600	2000.000
GR	601.500	2077.000	602.200	2104.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6091.000	-0.000	-0.000	-0.000	350.000	200.000	262.000	-0.000	.290	-0.000
X3	10.000	-0.000	-0.000	1400.000	-0.000	1600.000	-0.000	-0.000	-0.000	-0.000
X1	6353.000	21.000	356.000	413.000	350.000	200.000	262.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	216.000	-0.000	466.000	-0.000	-0.000	-0.000	-0.000
GR	602.400	0.000	598.800	56.000	590.100	156.000	589.100	223.000	588.700	256.000
GR	584.800	356.000	581.900	362.000	580.300	378.000	580.100	386.000	580.600	394.000
GR	582.600	404.000	587.800	413.000	587.500	442.000	587.600	466.000	586.700	466.000
GR	588.400	536.000	588.400	556.000	594.300	656.000	598.400	736.000	599.600	756.000
GR	606.500	856.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6378.000	-0.000	-0.000	-0.000	1.000	75.000	25.000	-0.000	.150	-0.000
X3	10.000	-0.000	-0.000	216.000	-0.000	466.000	-0.000	-0.000	-0.000	-0.000
X1	6403.000	34.000	900.000	925.700	1.000	75.000	25.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	750.000	650.000	976.000	650.000	587.800	587.800	-0.000
GR	600.100	0.000	599.900	40.000	599.500	100.000	597.800	200.000	595.900	300.000
GR	594.400	390.000	592.600	500.000	591.000	603.000	589.500	700.000	589.400	714.000
GR	588.700	759.000	588.300	800.000	586.000	850.000	584.800	884.000	581.400	900.000
GR	581.400	900.600	581.000	906.100	580.400	911.700	580.600	912.300	587.300	912.300
GR	587.300	913.400	580.800	913.400	580.600	914.000	581.000	919.500	580.800	925.100
GR	580.900	925.700	589.800	944.000	588.500	976.000	588.600	1000.000	590.500	1100.000
GR	593.100	1188.000	597.400	1300.000	603.000	1400.000	610.400	1500.000	-0.000	-0.000
SB	-0.000	1.870	2.940	-0.000	23.000	-0.000	176.000	-0.000	580.400	580.400
X1	6469.000	-0.000	-0.000	-0.000	66.000	66.000	66.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	587.300	588.300	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	750.000	650.000	976.000	650.000	588.300	588.300	-0.000
BT	30.000	0.000	600.100	0.000	40.000	599.900	0.000	100.000	599.500	0.000
BT	200.000	597.800	0.000	300.000	595.900	0.000	390.000	594.400	0.000	500.000
BT	592.600	0.000	603.000	591.000	0.000	700.000	589.500	0.000	714.000	589.400
BT	0.000	759.000	586.700	0.000	800.000	588.300	0.000	850.000	588.300	0.000
BT	884.000	589.800	0.000	900.000	589.800	581.400	900.000	589.800	587.300	900.600
BT	589.800	587.800	906.100	589.800	587.800	911.700	589.800	587.800	912.300	589.800
BT	587.300	913.400	589.800	587.300	913.400	589.800	587.300	913.400	589.800	587.300
BT	914.000	589.800	587.800	919.500	589.800	587.800	925.100	589.800	587.800	925.700
BT	589.800	587.300	925.700	589.800	580.900	944.000	589.800	0.000	976.000	588.500
BT	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.060	.035	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6494.000	28.000	439.000	470.000	25.000	25.000	25.000	-0.000	-.080	-0.000
X3	10.000	-0.000	-0.000	330.000	-0.000	630.000	-0.000	-0.000	-0.000	-0.000
GR	616.200	0.000	594.000	52.000	590.300	88.000	587.600	120.000	582.300	180.000
GR	582.200	267.000	585.700	278.000	587.500	288.000	586.000	298.000	582.600	306.000
GR	582.700	316.000	585.800	324.000	586.600	331.000	585.600	336.000	582.500	346.000
GR	582.300	439.000	580.600	443.000	580.500	448.000	580.600	456.000	582.400	460.000
GR	582.800	466.000	584.600	470.000	583.900	488.000	586.600	588.000	588.800	688.000
GR	590.400	775.000	602.100	888.000	626.300	958.000	-0.000	-0.000	-0.000	-0.000
X1	6703.000	-0.000	-0.000	-0.000	475.000	1.000	209.000	-0.000	.020	-0.000
X3	10.000	-0.000	-0.000	288.000	586.700	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6953.000	-0.000	-0.000	-0.000	250.000	250.000	250.000	-0.000	.020	-0.000
X3	10.000	-0.000	-0.000	288.000	586.900	-0.000	-0.000	-0.000	-0.000	-0.000
X1	7203.000	-0.000	-0.000	-0.000	250.000	250.000	250.000	-0.000	.020	-0.000
X3	10.000	-0.000	-0.000	288.000	587.100	-0.000	-0.000	-0.000	-0.000	-0.000

X1	[illegible]	[illegible]	[illegible]	[illegible]	250.000	250.000	250.000	-0.000	.020	-0.000
X3	10.000	-0.000	-0.000	280.000	587.300	-0.000	-0.000	-0.000	-0.000	-0.000
X1	7703.000	-0.000	-0.000	-0.000	250.000	250.000	250.000	-0.000	.020	-0.000
X3	10.000	-0.000	-0.000	288.000	587.500	-0.000	-0.000	-0.000	-0.000	-0.000
X1	7963.000	-0.000	-0.000	-0.000	260.000	260.000	260.000	-0.000	.020	-0.000
XB	10.000	-0.000	-0.000	288.000	587.700	-0.000	-0.000	-0.000	-0.000	-0.000
X1	8223.000	28.000	439.000	470.000	260.000	260.000	260.000	-0.000	.200	-0.000
X3	10.000	-0.000	-0.000	288.000	587.900	-0.000	-0.000	-0.000	-0.000	-0.000
GR	616.200	0.000	594.000	52.000	594.000	88.000	590.300	120.000	587.600	180.000
GR	582.200	267.000	585.700	278.000	587.500	288.000	586.000	298.000	582.600	306.000
GR	582.700	316.000	585.800	324.000	586.600	331.000	585.600	336.000	582.500	346.000
GR	582.300	439.000	580.600	443.000	580.500	448.000	580.600	456.000	582.400	460.000
GR	582.800	466.000	584.600	470.000	583.900	488.000	586.600	588.000	588.800	688.000
GR	590.400	775.000	602.100	888.000	626.300	958.000	-0.000	-0.000	-0.000	-0.000
X1	8483.000	-0.000	-0.000	-0.000	260.000	260.000	260.000	-0.000	.200	-0.000
X3	10.000	-0.000	-0.000	288.000	588.100	-0.000	-0.000	-0.000	-0.000	-0.000
X1	8743.000	28.000	439.000	470.000	260.000	260.000	260.000	-0.000	.200	-0.000
X3	10.000	-0.000	-0.000	288.000	588.300	-0.000	-0.000	-0.000	-0.000	-0.000
GR	616.200	0.000	594.000	52.000	590.300	88.000	587.600	120.000	582.300	180.000
GR	582.200	267.000	585.700	278.000	587.500	288.000	586.000	298.000	582.600	306.000
GR	582.700	316.000	585.800	324.000	586.600	331.000	585.600	336.000	582.500	346.000
GR	582.300	439.000	580.600	443.000	580.500	448.000	580.600	456.000	582.400	460.000
GR	582.800	466.000	584.600	470.000	583.900	488.000	586.600	588.000	590.400	688.000
GR	602.100	775.000	626.300	888.000	626.300	958.000	-0.000	-0.000	-0.000	-0.000
X1	9003.000	25.000	435.000	470.000	260.000	260.000	260.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	288.000	589.500	-0.000	-0.000	-0.000	-0.000	-0.000
GR	623.900	0.000	594.900	71.000	592.800	117.000	586.300	146.000	586.100	173.000
GR	585.300	214.000	587.800	225.000	588.500	236.000	587.400	244.000	585.200	255.000
GR	586.900	266.000	588.200	273.000	587.000	284.000	584.200	293.000	584.700	335.000
GR	582.900	339.000	580.600	355.000	580.600	359.000	584.100	363.000	586.600	370.000
GR	586.200	387.000	588.300	473.000	593.000	573.000	594.100	627.000	625.100	679.000
X1	9103.000	-0.000	-0.000	-0.000	1.000	200.000	100.000	-0.000	1.040	-0.000
X3	10.000	-0.000	-0.000	288.000	588.700	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9178.000	-0.000	-0.000	-0.000	1.000	150.000	75.000	-0.000	.780	-0.000
X3	10.000	-0.000	-0.000	288.000	588.900	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9218.000	34.000	373.000	419.300	25.000	75.000	40.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	236.000	588.500	521.400	650.000	589.300	589.300	-0.000
GR	623.900	0.000	594.900	71.000	592.800	117.000	586.300	146.000	586.100	173.000
GR	585.300	214.000	587.800	225.000	588.500	236.000	587.400	244.000	585.200	255.000
GR	586.900	266.000	588.200	273.000	590.200	323.000	587.700	371.400	587.700	373.000
GR	585.700	373.000	584.700	383.900	587.700	383.900	587.700	385.500	584.700	385.500
GR	582.500	395.900	587.700	395.900	587.700	397.500	582.500	397.500	584.700	408.100
GR	587.700	408.100	587.700	409.700	584.700	409.700	586.700	419.300	587.700	419.300
GR	587.700	420.900	590.200	431.400	590.200	521.400	590.700	621.400	-0.000	-0.000
SB	-0.000	1.610	2.600	-0.000	47.900	-0.000	130.400	-0.000	582.500	582.500
X1	9228.000	-0.000	-0.000	-0.000	10.000	10.000	10.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	587.700	590.200	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	236.000	588.500	521.400	650.000	590.200	590.200	-0.000
BT	14.000	273.000	588.200	0.000	323.000	590.200	0.000	371.400	590.200	0.000
BT	373.000	590.200	587.700	383.900	590.200	587.700	385.500	590.200	587.700	395.900
BT	590.200	587.700	397.500	590.200	587.700	408.100	590.200	587.700	409.700	590.200
BT	587.700	419.300	590.200	587.700	420.900	590.200	587.700	431.400	590.200	587.700
BT	521.400	590.200	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9253.000	37.000	350.000	382.800	25.000	25.000	25.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	236.000	588.500	453.000	650.000	587.700	587.700	-0.000

GR	585.300	214.000	587.800	225.000	588.500	236.000	588.800	250.000	585.000	300.000
GR	585.000	325.000	583.600	350.000	583.400	359.800	586.600	359.800	586.600	361.100
GR	583.300	361.100	583.300	366.000	583.200	371.400	586.600	371.400	586.600	372.700
GR	583.300	372.700	583.600	382.800	589.100	453.000	589.100	550.000	590.000	650.000
GR	590.400	750.000	590.500	850.000	590.900	950.000	591.600	1050.000	592.400	1150.000
GR	592.800	1250.000	593.200	1350.000	593.600	1450.000	593.900	1550.000	593.900	1650.000
GR	593.900	1750.000	593.600	1850.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	1.660	2.250	-0.000	32.800	-0.000	93.800	-0.000	583.200	583.200
X1	9263.000	-0.000	-0.000	-0.000	10.000	10.000	10.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	586.600	588.800	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	288.000	588.500	453.000	650.000	588.800	588.800	-0.000
BT	12.000	250.000	586.800	0.000	350.000	589.100	583.600	350.000	589.100	586.600
BT	359.800	589.100	586.600	361.100	589.100	586.600	366.000	589.100	586.600	371.400
BT	589.100	586.600	372.700	589.100	586.600	382.800	589.100	586.600	382.800	589.100
BT	586.600	382.800	589.100	583.600	453.000	589.100	0.000	-0.000	-0.000	-0.000
X1	9286.000	25.000	335.000	370.000	50.000	1.000	25.000	-0.000	2.660	-0.000
X3	10.000	-0.000	-0.000	288.000	-0.000	588.000	-0.000	-0.000	-0.000	-0.000
GR	623.900	0.000	594.900	71.000	592.800	117.000	586.300	146.000	586.100	173.000
GR	585.300	214.000	587.800	225.000	588.500	236.000	587.400	244.000	585.200	255.000
GR	586.900	266.000	588.200	273.000	587.000	284.000	584.200	293.000	584.700	335.000
GR	582.900	339.000	580.600	355.000	580.600	359.000	584.100	363.000	586.600	370.000
GR	586.200	387.000	588.300	473.000	593.000	573.000	594.100	627.000	625.100	679.000
X1	9428.000	-0.000	-0.000	-0.000	200.000	1.000	400.000	-0.000	.350	-0.000
X3	10.000	-0.000	-0.000	288.000	-0.000	588.000	-0.000	-0.000	-0.000	-0.000
QT	4.000	400.000	730.000	855.000	1145.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9502.000	46.000	563.000	600.000	74.000	74.000	74.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	680.000	-0.000	-0.000	-0.000	-0.000
GR	620.200	0.000	619.600	52.000	619.300	100.000	618.200	112.000	617.200	200.000
GR	616.700	300.000	616.400	400.000	616.500	450.000	617.500	500.000	610.300	500.000
GR	603.200	536.000	595.800	537.000	593.100	551.000	589.300	554.200	587.900	563.000
GR	584.300	574.000	583.800	584.000	584.400	595.000	586.600	600.000	587.000	608.600
GR	587.800	612.000	588.000	626.000	588.700	636.000	588.400	646.000	585.700	652.000
GR	587.500	663.600	589.300	667.000	590.000	680.000	589.000	688.000	585.700	696.000
GR	585.300	703.000	588.600	712.000	589.200	720.400	589.000	723.800	588.700	751.000
GR	589.600	791.500	590.200	794.900	591.100	815.000	610.300	855.000	610.600	858.400
GR	617.000	858.400	616.600	900.000	616.600	1000.000	617.700	1100.000	617.900	1114.000
GR	619.800	1200.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9503.000	56.000	563.000	600.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	680.000	-0.000	-0.000	-0.000	-0.000
BT	40.000	500.000	617.500	613.000	536.000	617.800	613.300	537.000	617.800	613.300
BT	551.000	617.800	613.300	551.000	617.800	593.100	554.200	617.800	589.300	554.200
BT	617.800	613.300	563.000	617.900	613.400	574.000	617.900	613.400	584.000	618.000
BT	613.500	595.000	618.000	613.500	600.000	618.000	613.500	608.600	618.100	613.600
BT	608.600	618.100	587.000	612.000	618.100	587.800	612.000	618.100	613.600	626.000
BT	618.100	613.600	636.000	618.100	613.600	646.000	618.100	613.600	663.600	618.100
BT	613.600	663.600	618.100	587.500	667.000	618.100	589.300	667.000	618.100	613.600
BT	680.000	618.100	613.600	688.000	618.100	613.600	696.000	618.000	613.500	703.000
BT	618.000	613.500	712.000	618.000	613.500	720.400	618.000	613.500	720.400	618.000
BT	589.200	723.800	618.000	589.000	723.800	618.000	613.500	751.000	617.900	613.400
BT	791.500	617.600	613.100	791.500	617.600	589.600	794.900	617.600	590.200	794.900
BT	617.600	613.100	815.000	617.400	612.900	855.000	617.000	612.500	858.400	617.000
BT	612.500	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	620.200	0.000	619.600	52.000	619.300	100.000	618.200	112.000	617.200	200.000
GR	616.700	300.000	616.400	400.000	616.500	450.000	617.500	500.000	610.300	500.000
GR	603.200	536.000	595.800	537.000	593.100	551.000	613.300	551.000	613.300	554.200
GR	589.300	554.200	587.900	563.000	584.300	574.000	583.800	584.000	584.400	595.000
GR	586.600	600.000	587.000	608.600	613.600	608.600	613.600	612.000	587.800	612.000
GR	588.000	626.000	588.700	636.000	588.400	646.000	585.700	652.000	587.500	663.600
GR	613.600	663.600	613.600	667.000	589.300	667.000	590.000	680.000	589.000	688.000
GR	585.700	696.000	585.300	703.000	588.600	712.000	589.200	720.400	613.500	720.400

GR	613.100	794.900	590.200	794.900	591.100	815.000	610.300	855.000	610.600	858.400
GR	617.000	858.400	616.600	900.000	616.600	1000.000	617.700	1100.000	617.900	1114.000
GR	619.800	1200.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9557.000	-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	-0.000	-0.000	-0.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	680.000	-0.000	-0.000	-0.000	-0.000
X1	9558.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	660.000	-0.000	-0.000	-0.000	-0.000
NC	.060	.040	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9582.000	23.000	826.000	351.000	24.000	24.000	24.000	-0.000	.560	-0.000
X3	10.000	-0.000	-0.000	254.000	-0.000	423.000	-0.000	-0.000	-0.000	-0.000
GR	624.200	0.000	587.500	112.000	586.400	141.000	585.400	241.000	585.700	326.000
GR	584.600	329.000	582.600	341.000	584.500	344.000	585.300	351.000	585.400	427.000
GR	588.600	438.000	589.500	441.000	588.100	452.000	585.600	465.000	590.300	478.000
GR	590.700	483.000	590.100	491.000	585.200	500.000	585.000	506.000	589.400	514.000
GR	590.000	544.000	593.600	620.000	617.900	693.000	-0.000	-0.000	-0.000	-0.000
NC	-0.000	.060	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9657.000	-0.000	-0.000	-0.000	75.000	75.000	75.000	-0.000	-.560	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	441.000	-0.000	-0.000	-0.000	-0.000
X1	9957.000	-0.000	-0.000	-0.000	450.000	100.000	300.000	-0.000	.640	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	441.000	-0.000	-0.000	-0.000	-0.000
X1	10257.000	-0.000	-0.000	-0.000	10.000	600.000	300.000	-0.000	.640	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	441.000	-0.000	-0.000	-0.000	-0.000
X1	10557.000	17.000	180.000	265.000	100.000	400.000	300.000	-0.000	-2.560	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	265.000	-0.000	-0.000	-0.000	-0.000
GR	615.200	0.000	590.600	90.000	590.400	100.000	587.800	180.000	586.200	182.000
GR	585.800	214.000	587.400	218.000	587.700	242.000	592.100	251.000	593.600	265.000
GR	592.100	274.000	588.900	280.000	601.100	312.000	601.500	316.000	601.500	436.000
GR	601.900	447.000	603.700	719.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	10857.000	-0.000	-0.000	-0.000	300.000	300.000	300.000	-0.000	1.280	-0.000
X1	11157.000	-0.000	-0.000	-0.000	300.000	300.000	300.000	-0.000	1.280	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	265.000	-0.000	-0.000	-0.000	-0.000
X1	11327.000	90.000	204.500	239.100	170.000	170.000	170.000	-0.000	-1.270	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	273.700	-0.000	-0.000	-0.000	-0.000
GR	614.000	0.000	613.700	2.200	613.500	4.500	613.300	6.800	613.100	9.100
GR	612.900	11.400	612.700	13.700	612.500	15.900	612.300	18.200	612.200	20.500
GR	612.000	22.800	611.900	25.100	611.700	27.400	611.500	29.600	611.300	31.900
GR	611.100	34.200	610.800	36.500	610.600	38.800	610.400	41.100	610.300	43.400
GR	610.100	45.600	609.900	47.900	609.800	50.200	609.800	52.500	609.900	54.800
GR	609.900	57.100	609.900	59.300	609.900	61.600	610.000	63.900	610.000	66.200
GR	607.000	73.100	605.200	80.000	603.400	87.000	601.500	93.900	599.700	100.800
GR	597.900	107.700	596.000	114.600	594.200	121.500	592.400	128.500	590.600	135.400
GR	590.200	142.300	590.000	149.200	589.800	156.100	589.600	163.000	589.400	170.000
GR	589.200	176.900	589.000	183.800	588.700	190.700	588.800	197.600	588.700	204.500
GR	587.600	211.400	587.700	218.400	587.900	225.300	588.000	232.200	589.400	239.100
GR	589.600	246.000	589.800	252.900	591.800	259.900	593.600	266.800	594.400	273.700
GR	590.900	285.400	595.200	297.100	599.400	308.800	600.100	320.500	600.100	332.200
GR	600.000	343.900	599.900	355.600	599.900	367.300	599.900	379.000	600.000	390.700
GR	600.200	402.400	600.600	414.100	601.000	425.800	601.200	437.500	601.500	449.200
GR	601.800	460.900	602.000	472.600	602.400	484.300	602.700	496.000	602.900	507.700
GR	603.200	519.400	603.500	531.100	603.800	542.800	604.100	554.500	604.300	566.200
GR	604.600	577.900	604.900	589.600	605.200	601.300	605.400	613.000	605.700	624.700
X1	11497.000	-0.000	-0.000	-0.000	170.000	170.000	170.000	-0.000	.530	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	273.700	-0.000	-0.000	-0.000	-0.000

X1	11667.000	90.000	202.400	242.400	170.000	170.000	170.000	-0.000	-1.710	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	282.500	-0.000	-0.000	-0.000	-0.000
GR	612.800	0.000	612.400	4.500	612.000	9.100	611.600	13.700	611.200	18.200
GR	610.800	22.800	610.400	27.400	610.000	31.900	609.600	36.500	609.300	41.100
GR	609.000	45.600	608.800	50.200	608.300	54.800	607.900	59.300	607.500	63.900
GR	607.100	68.500	606.600	73.100	606.200	77.600	605.800	82.200	605.500	86.800
GR	605.100	91.300	604.800	95.900	604.500	100.500	604.500	105.000	604.600	109.600
GR	604.600	114.200	604.700	118.700	604.700	123.300	604.800	127.900	604.900	132.500
GR	601.300	137.500	600.100	142.400	598.900	147.400	597.600	152.400	596.400	157.400
GR	595.200	162.400	593.900	167.400	592.700	172.400	591.400	177.400	590.200	182.400
GR	590.000	187.400	589.900	192.400	589.700	197.400	589.600	202.400	589.500	207.400
GR	589.400	212.400	589.300	217.400	589.100	222.400	589.400	227.400	589.700	232.400
GR	589.200	237.400	589.500	242.400	589.900	247.400	590.200	252.400	591.400	257.400
GR	591.800	262.400	592.000	267.400	593.400	272.400	594.700	277.400	595.300	282.500
GR	592.900	290.700	595.700	299.000	598.500	307.200	598.900	315.500	598.800	323.800
GR	598.700	332.000	598.500	340.300	598.400	348.600	598.300	356.800	598.500	365.100
GR	598.900	373.400	599.500	381.600	600.000	389.900	600.500	398.200	600.900	406.400
GR	601.400	414.700	601.800	423.000	602.300	431.200	602.800	439.500	603.200	447.800
GR	603.700	456.000	604.100	464.300	604.600	472.600	605.100	480.800	605.500	489.100
GR	606.000	497.400	606.400	505.600	606.900	513.900	607.300	522.200	607.800	530.500
X1	11837.000	-0.000	-0.000	-0.000	240.000	100.000	170.000	-0.000	.530	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	282.500	-0.000	-0.000	-0.000	-0.000
X1	12007.000	90.000	201.800	285.000	170.000	170.000	170.000	-0.000	-1.050	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	291.200	-0.000	-0.000	-0.000	-0.000
GR	611.300	0.000	611.000	6.800	610.400	13.700	609.800	20.500	609.200	27.400
GR	608.600	34.200	608.000	41.100	607.400	47.900	606.800	54.800	606.300	61.600
GR	605.900	68.500	605.600	75.300	604.900	82.200	604.300	89.000	603.600	95.900
GR	603.000	102.800	602.300	109.600	601.700	116.500	601.100	123.300	600.600	130.200
GR	600.100	137.000	599.600	143.900	599.200	150.700	599.200	157.600	599.300	164.400
GR	599.300	171.300	599.400	178.100	599.500	185.000	599.600	191.800	599.800	198.700
GR	595.600	201.800	595.000	204.900	594.300	207.900	593.600	211.000	593.000	214.100
GR	592.400	217.200	591.700	220.300	591.100	223.400	590.400	226.400	589.800	229.500
GR	589.700	232.600	589.700	235.700	589.600	238.800	589.600	241.900	589.600	244.900
GR	589.600	248.000	589.500	251.100	589.500	254.200	590.000	257.300	590.500	260.400
GR	590.700	263.400	591.300	266.500	591.900	269.600	592.400	272.700	593.400	275.800
GR	593.900	278.900	594.200	281.900	595.000	285.000	595.700	288.100	596.200	291.200
GR	594.900	296.000	596.200	300.900	597.500	305.700	597.600	310.500	597.400	315.400
GR	597.300	320.200	597.000	325.000	596.900	329.900	596.700	334.700	597.000	339.500
GR	597.700	344.400	598.400	349.200	599.000	354.000	599.700	358.900	600.300	363.700
GR	600.900	368.500	601.500	373.400	602.200	378.200	602.900	383.000	603.500	387.900
GR	604.100	392.700	604.700	397.500	605.400	402.400	606.100	407.200	606.700	412.000
GR	607.300	416.900	607.900	421.700	608.600	426.500	609.200	431.400	609.900	436.200
X1	12177.000	-0.000	-0.000	-0.000	170.000	170.000	170.000	-0.000	.530	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	291.200	-0.000	-0.000	-0.000	-0.000
X1	12347.000	15.000	265.000	300.000	170.000	170.000	170.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	300.000	-0.000	-0.000	-0.000	-0.000
GR	610.400	0.000	603.900	75.000	602.500	100.000	596.600	163.000	593.900	200.000
GR	594.200	236.000	594.700	265.000	590.000	266.000	589.500	276.000	589.900	286.000
GR	596.100	295.000	597.100	300.000	596.000	308.000	595.100	313.000	612.000	342.000
X1	12382.000	-0.000	-0.000	-0.000	1.000	200.000	35.000	-0.000	-.100	-0.000
X3	10.000	-0.000	-0.000	125.000	-0.000	300.000	-0.000	-0.000	-0.000	-0.000
X1	12457.000	21.000	572.000	592.200	50.000	100.000	75.000	.790	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	594.700	594.700	-0.000
GR	625.200	0.000	623.100	72.000	615.200	172.000	607.000	272.000	601.800	372.000
GR	599.300	440.000	594.000	522.000	594.500	570.000	592.400	572.000	594.300	572.000
GR	590.400	572.000	589.200	582.100	589.400	592.200	592.400	592.200	596.500	617.000
GR	597.700	672.000	601.700	772.000	604.200	857.000	604.600	872.000	611.200	972.000
GR	614.200	1029.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	1.340	2.940	-0.000	20.200	-0.000	90.900	-0.000	589.200	589.200

X1	12485.000	-0.000	-0.000	-0.000	28.000	28.000	28.000	-0.000	.300	-0.000
X2	-0.000	-0.000	1.000	594.500	596.200	-0.000	-0.000	-0.000	.790	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	596.200	596.200	-0.000
BT	18.000	0.000	625.200	0.000	72.000	623.100	0.000	172.000	615.200	0.000
BT	272.000	607.000	-0.000	372.000	601.800	-0.000	440.000	599.300	-0.000	522.000
BT	596.200	-0.000	570.000	597.100	594.500	570.000	599.100	594.500	582.100	599.100
BT	594.500	592.200	599.100	594.500	592.200	597.100	589.400	617.000	596.500	-0.000
BT	617.000	596.500	-0.000	672.000	597.700	-0.000	772.000	601.700	-0.000	857.000
BT	604.200	-0.000	872.000	604.600	-0.000	972.000	611.200	-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	12510.000	15.000	265.000	300.000	25.000	25.000	25.000	-0.000	.060	-0.000
X3	10.000	-0.000	-0.000	125.000	-0.000	300.000	-0.000	-0.000	-0.000	-0.000
GR	610.400	0.000	603.900	75.000	602.500	100.000	596.600	163.000	593.900	200.000
GR	594.200	236.000	594.700	265.000	590.000	266.000	589.500	276.000	589.900	286.000
GR	596.100	295.000	597.100	300.000	596.000	308.000	595.100	313.000	612.000	342.000
X1	12660.000	-0.000	-0.000	-0.000	400.000	1.000	150.000	-0.000	.360	-0.000
X3	10.000	-0.000	-0.000	100.000	-0.000	300.000	-0.000	-0.000	-0.000	-0.000
X1	12907.000	14.000	197.000	222.000	300.000	150.000	247.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	237.000	-0.000	-0.000	-0.000	-0.000
GR	626.300	0.000	595.900	40.000	592.100	137.000	592.000	197.000	590.600	199.000
GR	590.500	211.000	592.200	215.000	592.200	222.000	595.200	230.000	596.500	237.000
GR	594.800	250.000	591.700	257.000	592.600	275.000	622.700	329.000	-0.000	-0.000
X1	12957.000	50.000	1456.000	1500.000	100.000	1.000	50.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1400.000	650.000	1600.000	650.000	595.100	595.100	-0.000
GR	597.700	0.000	597.500	100.000	597.900	200.000	597.300	300.000	596.600	400.000
GR	596.100	500.000	595.900	553.000	595.900	600.000	595.700	700.000	595.900	800.000
GR	596.100	900.000	596.400	1000.000	597.200	1100.000	596.700	1200.000	596.300	1300.000
GR	596.300	1400.000	590.900	1456.000	590.100	1461.000	589.600	1465.700	594.000	1465.700
GR	594.000	1467.000	589.100	1467.000	589.100	1472.000	589.500	1477.500	594.000	1477.500
GR	594.000	1478.800	589.600	1478.800	590.400	1485.000	591.000	1489.500	594.000	1489.500
GR	590.400	1490.800	590.800	1490.800	591.000	1500.000	596.300	1600.000	596.300	1600.000
GR	596.200	1700.000	596.200	1800.000	596.400	1900.000	596.500	1915.000	596.800	2000.000
GR	597.100	2100.000	596.900	2200.000	596.600	2300.000	596.300	2400.000	596.400	2500.000
GR	596.000	2600.000	595.300	2700.000	595.000	2800.000	594.600	2900.000	594.100	3000.000
SB	-0.000	1.620	2.530	-0.000	44.000	-0.000	156.000	-0.000	589.100	589.100
X1	12967.000	-0.000	-0.000	-0.000	10.000	10.000	10.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	594.000	596.200	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1400.000	650.000	1600.000	650.000	596.200	596.200	-0.000
BT	9.000	1400.000	596.300	-0.000	1456.000	596.600	590.900	1456.000	596.600	594.000
BT	1465.700	596.600	594.000	1467.000	596.600	594.000	1472.000	596.600	594.000	1500.000
BT	596.600	594.000	1500.000	596.600	591.000	1600.000	596.300	0.000	-0.000	-0.000
X1	12987.000	14.000	197.000	222.000	1.000	50.000	20.000	-0.000	-1.350	-0.000
X3	10.000	-0.000	-0.000	37.000	-0.000	237.000	-0.000	-0.000	-0.000	-0.000
GR	626.300	0.000	595.900	40.000	592.100	137.000	592.000	197.000	590.600	199.000
GR	590.500	211.000	592.200	215.000	592.200	222.000	595.200	230.000	596.500	237.000
GR	594.800	250.000	591.700	257.000	592.600	275.000	622.700	329.000	-0.000	-0.000
X1	13322.000	-0.000	-0.000	-0.000	1.000	500.000	335.000	-0.000	.870	-0.000
X1	13657.000	16.000	165.000	227.000	300.000	300.000	335.000	-0.000	-0.000	-0.000
GR	621.200	0.000	604.700	27.000	596.900	100.000	595.700	150.000	594.400	161.000
GR	592.700	165.000	593.000	185.000	590.900	187.000	590.900	198.000	593.000	201.000
GR	592.300	227.000	593.900	230.000	592.600	242.000	592.600	300.000	596.300	379.000
GR	621.400	453.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	13756.000	52.000	721.100	760.000	300.000	150.000	99.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	650.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	628.400	0.000	628.700	135.000	628.100	235.000	628.000	285.000	628.400	335.000
GR	613.200	335.000	606.000	354.000	602.000	365.000	600.200	400.600	599.600	405.600

GR	596.100	455.000	597.100	471.300	597.400	476.300	596.200	510.000	596.600	542.300
GR	596.500	547.300	595.300	580.000	594.800	613.200	594.800	618.200	595.000	629.200
GR	594.800	634.200	594.800	640.000	595.800	650.000	595.100	657.000	594.400	664.000
GR	593.200	674.000	593.100	700.100	593.000	705.100	593.200	716.100	592.600	721.100
GR	592.400	724.000	591.400	728.000	592.300	736.000	591.700	749.000	593.300	760.000
GR	593.300	787.100	593.400	792.100	593.300	825.000	593.000	858.100	593.100	863.100
GR	593.000	895.000	593.900	929.100	594.300	934.100	598.800	965.000	614.500	999.800
GR	628.400	999.800	628.000	1035.000	628.400	1135.000	628.500	1235.000	628.100	1335.000
GR	627.500	1435.000	626.000	1530.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	13757.000	72.000	721.100	760.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	650.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
BT	46.000	335.000	628.400	619.400	354.000	628.400	619.400	400.600	628.400	619.400
BT	400.600	628.400	600.200	405.600	628.400	599.600	405.600	628.400	619.400	471.300
BT	628.400	619.400	471.300	628.400	597.700	476.300	628.400	597.400	476.300	628.400
BT	619.400	542.300	628.400	619.400	542.300	628.400	596.600	547.300	628.400	596.500
BT	547.300	628.400	619.400	613.200	628.400	619.400	613.200	628.400	594.800	618.200
BT	628.500	594.800	618.200	628.500	612.500	629.200	628.500	612.500	629.200	628.500
BT	595.000	634.200	628.400	594.800	634.200	628.400	619.400	650.000	628.400	619.400
BT	700.100	628.400	619.400	700.100	628.400	593.100	705.100	628.500	593.000	705.100
BT	628.400	612.500	716.100	628.500	612.500	716.100	628.500	593.200	721.100	628.500
BT	592.600	721.100	628.500	619.500	787.100	628.500	619.500	787.100	628.500	619.500
BT	787.100	628.500	593.300	792.100	628.400	593.400	792.100	628.400	619.500	858.100
BT	628.500	619.500	858.100	628.500	593.000	863.100	628.500	593.100	863.100	628.500
BT	619.500	929.100	825.500	619.500	929.100	628.500	593.900	934.100	628.400	594.300
BT	934.100	628.400	619.400	965.000	628.400	619.400	999.800	628.400	619.400	-0.000
GR	628.400	0.000	628.700	135.000	628.100	235.000	628.000	285.000	628.400	335.000
GR	613.200	335.000	606.000	354.000	602.000	365.000	600.200	400.600	619.400	400.600
GR	619.400	405.600	599.600	405.600	598.100	435.000	597.700	471.300	619.400	471.300
GR	619.400	476.300	597.400	476.300	596.200	510.000	596.600	542.300	619.400	542.300
GR	619.400	547.300	596.500	547.300	595.300	580.000	594.800	613.200	612.500	613.200
GR	612.500	618.200	594.800	618.200	595.000	629.200	612.500	629.200	612.500	634.200
GR	594.800	634.200	594.800	640.000	595.800	650.000	595.100	657.000	594.400	664.000
GR	593.600	674.000	593.100	700.100	612.500	700.100	612.500	705.100	593.000	705.100
GR	593.200	716.100	612.500	716.100	612.500	721.100	592.600	721.100	592.400	724.000
GR	591.400	728.000	592.300	736.000	591.700	749.000	593.300	760.000	593.300	787.100
GR	619.500	787.100	619.500	792.100	593.400	792.100	593.300	825.000	593.000	858.100
GR	619.500	858.100	619.500	863.100	593.100	863.100	593.000	895.000	593.900	929.100
GR	619.500	929.100	619.500	934.100	594.300	934.100	598.800	965.000	614.500	999.800
GR	628.400	999.800	628.000	1035.000	628.400	1135.000	628.500	1235.000	628.100	1335.000
GR	627.500	1435.000	626.000	1530.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	13832.000	-0.000	-0.000	-0.000	75.000	75.000	75.000	-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	650.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	13833.000	-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	650.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	13882.000	16.000	165.000	227.000	49.000	49.000	49.000	-0.000	.520	-0.000
GR	621.200	0.000	604.700	27.000	596.900	100.000	595.700	150.000	594.400	161.000
GR	592.700	165.000	593.000	185.000	590.900	187.000	590.900	198.000	593.000	201.000
GR	592.300	227.000	593.900	230.000	592.600	242.000	592.600	300.000	596.300	379.000
GR	621.400	453.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	14097.000	14.000	234.000	251.000	125.000	350.000	215.000	-0.000	-.300	-0.000
X3	10.000	-0.000	-0.000	197.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	627.500	0.000	598.000	96.000	596.400	181.000	598.200	187.000	599.600	197.000
GR	598.300	208.000	595.800	214.000	595.300	234.000	591.800	237.000	592.500	243.000
GR	595.400	251.000	597.200	300.000	599.100	333.000	625.700	388.000	-0.000	-0.000
X1	14312.000	-0.000	-0.000	-0.000	215.000	215.000	215.000	-0.000	.070	-0.000
X3	10.000	-0.000	-0.000	197.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	14527.000	-0.000	-0.000	-0.000	215.000	215.000	215.000	-0.000	.080	-0.000
X3	10.000	-0.000	-0.000	197.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

X1	14742.000	-0.000	-0.000	-0.000	215.000	215.000	215.000	-0.000	.070	-0.000
X3	10.000	-0.000	-0.000	197.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	14957.000	-0.000	-0.000	-0.000	215.000	215.000	215.000	-0.000	.080	-0.000
X3	10.000	-0.000	-0.000	197.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	15257.000	-0.000	-0.000	-0.000	300.000	300.000	300.000	-0.000	1.170	-0.000
X3	10.000	-0.000	-0.000	197.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	15557.000	14.000	104.000	132.000	300.000	300.000	300.000	-0.000	.340	-0.000
GR	625.800	0.000	598.900	75.000	598.600	104.000	595.600	115.000	593.800	120.000
GR	595.000	127.000	595.800	132.000	598.100	153.000	602.000	162.000	603.400	172.000
GR	600.300	258.000	608.000	288.000	610.500	332.000	616.100	342.000	-0.000	-0.000
X1	15857.000	-0.000	-0.000	-0.000	300.000	300.000	300.000	-0.000	1.170	-0.000
X1	15957.000	49.000	1458.000	1500.000	1.000	300.000	100.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1400.000	650.000	1600.000	650.000	601.600	601.600	-0.000
GR	597.700	0.000	598.500	100.000	598.900	200.000	599.200	300.000	599.100	400.000
GR	599.300	500.000	599.600	600.000	600.100	700.000	600.500	800.000	600.900	900.000
GR	601.600	1000.000	602.000	1100.000	602.300	1200.000	602.800	1300.000	603.000	1400.000
GR	598.200	1458.000	597.600	1467.600	600.500	1467.600	600.500	1468.900	597.300	1468.900
GR	597.200	1472.000	596.600	1474.000	595.900	1478.900	600.500	1478.900	600.500	1480.200
GR	596.200	1480.200	595.700	1485.000	595.900	1489.700	600.600	1489.700	600.600	1491.000
GR	596.300	1491.000	596.400	1494.000	598.100	1496.000	598.400	1500.000	603.700	1600.000
GR	604.300	1700.000	604.500	1800.000	604.000	1900.000	603.600	2000.000	603.600	2100.000
GR	603.400	2200.000	603.800	2300.000	604.300	2400.000	604.700	2500.000	605.100	2600.000
GR	605.500	2700.000	606.200	2800.000	607.100	2900.000	607.600	3000.000	-0.000	-0.000
SB	-0.000	1.630	2.750	-0.000	42.000	-0.000	87.600	-0.000	595.700	595.700
X1	15967.000	-0.000	-0.000	-0.000	10.000	10.000	10.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	600.500	603.000	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	1400.000	650.000	1600.000	650.000	603.000	603.000	-0.000
BT	10.000	1400.000	603.000	-0.000	1458.000	603.200	598.200	1458.000	603.200	600.500
BT	1467.000	603.200	600.500	1468.900	603.200	600.500	1480.200	603.200	600.600	1500.000
BT	603.200	600.600	1500.000	603.200	598.400	1500.000	603.200	-0.000	1600.000	603.700
BT	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.070	.070	.040	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	16007.000	14.000	104.000	132.000	120.000	1.000	40.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	172.000	-0.000	-0.000	-0.000	-0.000
GR	625.800	0.000	598.900	75.000	598.600	104.000	595.600	115.000	593.800	120.000
GR	595.000	127.000	595.800	132.000	598.100	153.000	602.000	162.000	603.400	172.000
GR	600.300	258.000	608.000	288.000	610.500	332.000	616.100	342.000	-0.000	-0.000
X1	16207.000	-0.000	-0.000	-0.000	300.000	150.000	200.000	-0.000	.700	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	172.000	-0.000	-0.000	-0.000	-0.000
X1	16407.000	-0.000	-0.000	-0.000	300.000	150.000	200.000	-0.000	.700	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	172.000	-0.000	-0.000	-0.000	-0.000
X1	16607.000	-0.000	-0.000	-0.000	100.000	350.000	200.000	-0.000	.700	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	172.000	-0.000	-0.000	-0.000	-0.000
X1	16807.000	13.000	129.000	150.000	300.000	150.000	200.000	-0.000	-1.400	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	205.000	-0.000	-0.000	-0.000	-0.000
GR	627.300	0.000	601.300	129.000	598.500	132.000	598.000	138.000	598.800	139.000
GR	601.200	150.000	601.300	189.000	605.500	198.000	606.600	205.000	605.200	215.000
GR	600.300	223.000	601.500	305.000	629.500	361.000	-0.000	-0.000	-0.000	-0.000
X1	17007.000	-0.000	-0.000	-0.000	200.000	200.000	200.000	-0.000	.700	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	205.000	-0.000	-0.000	-0.000	-0.000
X1	17207.000	-0.000	-0.000	-0.000	300.000	150.000	200.000	-0.000	.700	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	205.000	-0.000	-0.000	-0.000	-0.000

X1	17497.000	-0.000	-0.000	-0.000	220.000	360.000	290.000	-0.000	1.260	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	205.000	-0.000	-0.000	-0.000	-0.000
X1	17787.000	-0.000	-0.000	-0.000	290.000	290.000	290.000	-0.000	1.260	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	205.000	-0.000	-0.000	-0.000	-0.000
X1	18077.000	18.000	143.000	158.000	290.000	290.000	290.000	-0.000	-2.520	-0.000
X3	10.000	-0.000	-0.000	102.000	-0.000	199.000	-0.000	-0.000	-0.000	-0.000
GR	625.400	0.000	606.700	58.000	605.900	143.000	604.700	147.000	604.300	149.000
GR	604.300	154.000	605.500	158.000	605.500	236.000	613.800	263.000	614.000	267.000
GR	613.000	280.000	616.700	299.000	616.900	314.000	619.500	315.000	623.200	326.000
GR	623.600	358.000	624.600	394.000	629.400	424.000	-0.000	-0.000	-0.000	-0.000
QT	4.000	230.000	415.000	490.000	655.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	18367.000	-0.000	-0.000	-0.000	220.000	360.000	290.000	-0.000	1.260	-0.000
X3	10.000	-0.000	-0.000	102.000	-0.000	199.000	-0.000	-0.000	-0.000	-0.000
X1	18467.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.430	-0.000
X3	10.000	-0.000	-0.000	106.000	-0.000	196.000	-0.000	-0.000	-0.000	-0.000
X1	18567.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.430	-0.000
X3	10.000	-0.000	-0.000	106.000	-0.000	196.000	-0.000	-0.000	-0.000	-0.000
X1	18657.000	-0.000	-0.000	-0.000	90.000	90.000	90.000	-0.000	.400	-0.000
X3	10.000	-0.000	-0.000	130.000	-0.000	172.000	-0.000	-0.000	-0.000	-0.000
X1	18706.000	26.000	458.800	473.800	49.000	49.000	49.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	614.800	614.800	-0.000
GR	631.800	0.000	629.600	52.000	626.000	152.000	621.100	252.000	618.300	352.000
GR	617.000	402.000	617.000	450.000	617.000	458.800	608.300	458.800	607.800	458.800
GR	604.800	459.800	603.300	462.800	603.000	466.300	603.300	469.800	604.800	472.800
GR	607.800	473.800	608.300	473.800	617.000	473.800	616.900	502.000	617.900	552.000
GR	617.700	604.000	620.700	652.000	624.600	752.000	628.500	852.000	631.600	952.000
GR	633.000	1052.000	-0.000	-0.000	-0.000	-0.000	-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	18707.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	614.800	614.800	-0.000
BT	22.000	0.000	631.800	-0.000	52.000	629.600	-0.000	152.000	626.000	-0.000
BT	252.000	621.100	-0.000	352.000	618.300	-0.000	402.000	617.000	-0.000	450.000
BT	617.000	-0.000	458.800	617.000	607.800	459.800	617.000	610.800	462.800	617.000
BT	612.300	466.300	617.000	612.700	469.800	617.000	612.300	472.800	617.000	610.800
BT	473.800	617.000	607.800	502.000	617.000	-0.000	552.000	617.900	-0.000	604.000
BT	617.700	-0.000	652.000	620.700	-0.000	752.000	624.600	-0.000	852.000	628.500
BT	-0.000	952.000	631.600	-0.000	1052.000	633.000	-0.000	-0.000	-0.000	-0.000
X1	18803.000	-0.000	-0.000	-0.000	96.000	96.000	96.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	617.000	617.000	-0.000
NC	.070	.040	.040	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	18804.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	617.000	617.000	-0.000
X1	18828.000	18.000	143.000	158.000	24.000	24.000	24.000	-0.000	-1.220	-0.000
X3	10.000	-0.000	-0.000	118.000	-0.000	183.000	-0.000	-0.000	-0.000	-0.000
GR	625.400	0.000	606.700	58.000	605.900	143.000	604.700	147.000	604.300	149.000
GR	604.300	154.000	605.500	158.000	605.500	236.000	613.800	263.000	614.000	267.000
GR	613.000	280.000	616.700	299.000	616.900	314.000	619.500	315.000	623.200	326.000
GR	623.600	358.000	624.600	394.000	629.400	424.000	-0.000	-0.000	-0.000	-0.000
X1	19193.000	-0.000	-0.000	-0.000	365.000	365.000	365.000	-0.000	1.110	-0.000
X3	10.000	-0.000	-0.000	123.000	-0.000	178.000	-0.000	-0.000	-0.000	-0.000
X1	19583.000	-0.000	-0.000	-0.000	390.000	390.000	390.000	-0.000	1.180	-0.000

X1	19973.000	-0.000	-0.000	-0.000	450.000	300.000	390.000	-0.000	1.180	-0.000
X1	20363.000	-0.000	-0.000	-0.000	300.000	450.000	390.000	-0.000	1.180	-0.000
NC	.100	.100	.100	-0.000	+0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	20753.000	-0.000	-0.000	-0.000	250.000	400.000	390.000	-0.000	1.180	-0.000
X1	21143.000	11.000	120.000	188.000	390.000	390.000	390.000	-0.000	-0.000	-0.000
GR	630.000	0.000	629.100	20.000	611.000	68.000	610.200	104.000	611.000	120.000
GR	610.100	183.000	610.300	204.000	612.400	220.000	625.700	334.000	629.100	420.000
GR	629.600	455.000	-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

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

DX CREEK

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
0.00	0.00	0.00	0.00	573.55	460.00	579.03	.07	0.00	0.00	460.00	5.48	60.21
0.00	0.00	0.00	0.00	573.55	800.00	580.47	.10	0.00	0.00	791.48	6.92	87.51
0.00	0.00	0.00	0.00	573.55	920.00	580.90	.11	0.00	0.00	902.35	7.35	213.55
0.00	0.00	0.00	0.00	573.55	1220.00	581.61	.13	0.00	0.00	1129.09	8.06	479.80
400.00	400.00	0.00	0.00	574.06	460.00	579.30	.08	.28	.01	460.00	5.24	58.33
400.00	400.00	0.00	0.00	574.06	800.00	580.74	.12	.28	.01	794.43	6.68	82.78
400.00	400.00	0.00	0.00	574.06	920.00	581.17	.13	.27	.01	907.21	7.11	91.07
400.00	400.00	0.00	0.00	574.06	1220.00	581.88	.15	.28	.01	1161.09	7.82	371.21
800.00	400.00	0.00	0.00	574.57	460.00	579.63	.09	.33	.00	460.00	5.06	56.98
800.00	400.00	0.00	0.00	574.57	800.00	581.05	.13	.32	.01	796.24	6.48	79.23
800.00	400.00	0.00	0.00	574.57	920.00	581.48	.14	.32	.01	910.30	6.91	87.38
800.00	400.00	0.00	0.00	574.57	1220.00	582.21	.17	.33	.01	1179.37	7.64	312.20
1200.00	400.00	0.00	0.00	575.08	460.00	580.00	.10	.38	.00	460.00	4.92	55.91
1200.00	400.00	0.00	0.00	575.08	800.00	581.41	.14	.36	.00	797.45	6.33	76.35
1200.00	400.00	0.00	0.00	575.08	920.00	581.83	.15	.36	.01	912.55	6.75	84.35
1200.00	400.00	0.00	0.00	575.08	1220.00	582.58	.19	.38	.01	1189.52	7.50	264.15
1600.00	400.00	0.00	0.00	575.59	460.00	580.41	.11	.41	.00	460.00	4.82	55.14
1600.00	400.00	0.00	0.00	575.59	800.00	581.81	.15	.40	.00	798.19	6.22	74.21
1600.00	400.00	0.00	0.00	575.59	920.00	582.22	.16	.39	.00	914.07	6.63	82.03
1600.00	400.00	0.00	0.00	575.59	1220.00	582.99	.19	.41	.00	1194.85	7.40	228.43
2000.00	400.00	0.00	0.00	576.10	460.00	580.85	.11	.45	.00	460.00	4.75	54.62
2000.00	400.00	0.00	0.00	576.10	800.00	582.24	.15	.43	.00	798.64	6.14	72.67
2000.00	400.00	0.00	0.00	576.10	920.00	582.64	.17	.42	.00	915.08	6.54	80.32
2000.00	400.00	0.00	0.00	576.10	1220.00	583.42	.20	.44	.00	1197.68	7.32	202.61
2125.00	125.00	0.00	0.00	574.98	460.00	581.00	.05	.08	.02	460.00	6.02	59.44
2125.00	125.00	0.00	0.00	574.98	800.00	582.41	.09	.09	.02	800.00	7.43	60.00
2125.00	125.00	0.00	0.00	574.98	920.00	582.81	.10	.09	.02	920.00	7.83	60.00
2125.00	125.00	0.00	0.00	574.98	1220.00	583.60	.14	.10	.02	1220.00	8.62	60.00
2175.00	50.00	0.00	0.00	574.53	460.00	581.00	.12	.03	.03	460.00	6.47	28.00
2175.00	50.00	0.00	0.00	574.53	800.00	582.37	.24	.04	.07	800.00	7.84	28.00
2175.00	50.00	0.00	0.00	574.53	920.00	582.76	.28	.04	.09	920.00	8.23	28.00
2175.00	50.00	0.00	0.00	574.53	1220.00	583.52	.41	.05	.14	1220.00	8.99	28.00
2199.00	24.00	0.00	0.00	574.30	460.00	580.86	.46	.04	.17	460.00	6.56	15.40
2199.00	24.00	0.00	0.00	574.30	800.00	582.09	.94	.06	.35	800.00	7.79	15.40
2199.00	24.00	0.00	0.00	574.30	920.00	582.41	1.13	.07	.42	920.00	8.11	15.40
2199.00	24.00	0.00	0.00	574.30	1220.00	582.97	1.70	.10	.64	1220.00	8.67	15.40
2200.00	1.00	583.30	582.90	574.30	460.00	580.87	.46	.00	.00	460.00	6.57	15.40
2200.00	1.00	583.30	582.90	574.30	800.00	582.09	.94	.01	.00	800.00	7.79	15.40
2200.00	1.00	583.30	582.90	574.30	920.00	582.40	1.15	.01	.02	920.00	8.10	15.40
2200.00	1.00	583.30	582.90	574.30	1220.00	582.92	1.84	.01	.07	1220.00	8.62	15.40

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
2230.00	30.00	583.30	582.90	574.30	460.00	580.98	.45	.08	.01	460.00	6.68	15.40
2230.00	30.00	583.30	582.90	574.30	800.00	582.37	.89	.20	.02	800.00	8.07	15.40
2230.00	30.00	583.30	582.90	574.30	920.00	582.75	1.08	.24	.02	920.00	8.45	15.40
2230.00	30.00	583.30	582.90	574.30	1220.00	583.44	1.84	.52	.00	1219.52	9.14	23.02
2231.00	1.00	0.00	0.00	574.30	460.00	580.98	.45	.00	.00	460.00	6.68	15.40
2231.00	1.00	0.00	0.00	574.30	800.00	582.42	.85	.01	.01	800.00	8.12	15.40
2231.00	1.00	0.00	0.00	574.30	920.00	582.88	.99	.01	.03	920.00	8.58	15.40
2231.00	1.00	0.00	0.00	574.30	1220.00	585.47	.28	.01	.47	788.75	11.17	200.00
2255.00	24.00	0.00	0.00	574.37	460.00	581.53	.03	.01	.12	460.00	7.16	63.72
2255.00	24.00	0.00	0.00	574.37	800.00	583.48	.05	.01	.24	800.00	9.11	64.00
2255.00	24.00	0.00	0.00	574.37	920.00	584.11	.06	.01	.28	920.00	9.74	64.00
2255.00	24.00	0.00	0.00	574.37	1220.00	585.76	.07	.01	.06	1220.00	11.39	64.00
2410.00	155.00	0.00	0.00	574.82	460.00	581.56	.04	.03	.00	460.00	6.74	62.88
2410.00	155.00	0.00	0.00	574.82	800.00	583.51	.06	.04	.00	800.00	8.69	64.00
2410.00	155.00	0.00	0.00	574.82	920.00	584.14	.06	.04	.00	920.00	9.32	64.00
2410.00	155.00	0.00	0.00	574.82	1220.00	585.79	.07	.03	.00	1220.00	10.97	64.00
2565.00	155.00	0.00	0.00	575.27	460.00	581.60	.05	.04	.00	460.00	6.33	62.05
2565.00	155.00	0.00	0.00	575.27	800.00	583.55	.07	.04	.00	800.00	8.28	64.00
2565.00	155.00	0.00	0.00	575.27	920.00	584.18	.07	.04	.00	920.00	8.91	64.00
2565.00	155.00	0.00	0.00	575.27	1220.00	585.82	.08	.04	.00	1220.00	10.55	64.00
2720.00	155.00	0.00	0.00	575.72	460.00	581.65	.06	.06	.00	460.00	5.93	61.25
2720.00	155.00	0.00	0.00	575.72	800.00	583.59	.08	.05	.00	800.00	7.87	64.00
2720.00	155.00	0.00	0.00	575.72	920.00	584.22	.08	.05	.00	920.00	8.50	64.00
2720.00	155.00	0.00	0.00	575.72	1220.00	585.86	.09	.05	.00	1220.00	10.14	64.00
2875.00	155.00	0.00	0.00	576.17	460.00	581.73	.07	.08	.01	460.00	5.56	60.51
2875.00	155.00	0.00	0.00	576.17	800.00	583.65	.09	.07	.01	800.00	7.48	64.00
2875.00	155.00	0.00	0.00	576.17	920.00	584.28	.09	.06	.01	920.00	8.11	64.00
2875.00	155.00	0.00	0.00	576.17	1220.00	585.91	.10	.05	.00	1220.00	9.74	64.00
3030.00	155.00	0.00	0.00	576.62	460.00	581.82	.08	.11	.01	460.00	5.20	58.06
3030.00	155.00	0.00	0.00	576.62	800.00	583.73	.10	.08	.01	800.00	7.11	63.60
3030.00	155.00	0.00	0.00	576.62	920.00	584.35	.10	.08	.01	920.00	7.73	64.00
3030.00	155.00	0.00	0.00	576.62	1220.00	585.97	.11	.06	.01	1220.00	9.35	64.00
3185.00	155.00	0.00	0.00	577.07	460.00	581.94	.10	.13	.01	460.00	4.87	41.00
3185.00	155.00	0.00	0.00	577.07	800.00	583.81	.15	.11	.03	800.00	6.74	41.00
3185.00	155.00	0.00	0.00	577.07	920.00	584.42	.17	.10	.03	920.00	7.35	41.00
3185.00	155.00	0.00	0.00	577.07	1220.00	586.02	.19	.09	.04	1220.00	8.95	41.00
3340.00	155.00	0.00	0.00	577.52	460.00	582.08	.12	.14	.01	460.00	4.56	41.00
3340.00	155.00	0.00	0.00	577.52	800.00	583.95	.17	.14	.01	800.00	6.43	41.00
3340.00	155.00	0.00	0.00	577.52	920.00	584.55	.18	.14	.01	920.00	7.03	41.00
3340.00	155.00	0.00	0.00	577.52	1220.00	586.14	.21	.13	.01	1220.00	8.62	41.00

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
3495.00	155.00	0.00	0.00	577.97	460.00	582.25	.14	.18	.01	460.00	4.28	41.00
3495.00	155.00	0.00	0.00	577.97	800.00	584.10	.19	.16	.01	800.00	6.13	41.00
3495.00	155.00	0.00	0.00	577.97	920.00	584.71	.20	.16	.01	920.00	6.74	41.00
3495.00	155.00	0.00	0.00	577.97	1220.00	586.28	.23	.15	.01	1220.00	8.31	41.00
3650.00	155.00	0.00	0.00	578.42	460.00	582.46	.16	.22	.01	460.00	4.04	41.00
3650.00	155.00	0.00	0.00	578.42	800.00	584.28	.21	.19	.01	800.00	5.86	41.00
3650.00	155.00	0.00	0.00	578.42	920.00	584.88	.22	.19	.01	920.00	6.46	41.00
3650.00	155.00	0.00	0.00	578.42	1220.00	586.43	.24	.16	.01	1220.00	8.01	41.00
3700.00	50.00	0.00	0.00	577.66	460.00	582.59	.10	.05	.02	460.00	4.93	41.00
3700.00	50.00	0.00	0.00	577.66	800.00	584.41	.15	.05	.02	800.00	6.75	41.00
3700.00	50.00	0.00	0.00	577.66	920.00	585.00	.17	.05	.02	920.00	7.34	41.00
3700.00	50.00	0.00	0.00	577.66	1220.00	586.54	.20	.05	.01	1220.00	8.88	41.00
3750.00	50.00	0.00	0.00	576.90	460.00	582.66	.07	.03	.01	460.00	5.76	41.00
3750.00	50.00	0.00	0.00	576.90	800.00	584.48	.12	.03	.01	800.00	7.58	41.00
3750.00	50.00	0.00	0.00	576.90	920.00	585.08	.13	.04	.01	920.00	8.18	41.00
3750.00	50.00	0.00	0.00	576.90	1220.00	586.62	.16	.04	.01	1220.00	9.72	41.00
3775.00	25.00	0.00	0.00	576.50	460.00	582.58	.29	.03	.11	460.00	6.08	25.20
3775.00	25.00	0.00	0.00	576.50	800.00	584.36	.43	.03	.16	800.00	7.86	25.20
3775.00	25.00	0.00	0.00	576.50	920.00	584.95	.47	.04	.17	920.00	8.45	25.20
3775.00	25.00	0.00	0.00	576.50	1220.00	586.63	.21	.03	.02	895.96	10.13	200.00
3844.00	69.00	585.30	582.20	576.50	460.00	582.96	.26	.34	.01	460.00	6.46	25.20
3844.00	69.00	585.30	582.20	576.50	800.00	584.55	.40	.16	0.00	800.00	8.05	25.20
3844.00	69.00	585.30	582.20	576.50	920.00	585.29	.42	.30	0.00	920.00	8.79	30.20
3844.00	69.00	585.30	582.20	576.50	1220.00	586.98	.14	.28	0.00	801.89	10.48	200.00
3869.00	25.00	0.00	0.00	576.60	460.00	583.24	.05	.02	.06	460.00	6.64	41.00
3869.00	25.00	0.00	0.00	576.60	800.00	585.00	.07	.02	.10	721.73	8.40	200.00
3869.00	25.00	0.00	0.00	576.60	920.00	585.79	.06	.02	.11	747.34	9.19	200.00
3869.00	25.00	0.00	0.00	576.60	1220.00	587.11	.05	.01	.03	842.50	10.51	200.00
4047.00	178.00	0.00	0.00	577.49	460.00	583.30	.08	.07	.01	460.00	5.81	46.93
4047.00	178.00	0.00	0.00	577.49	800.00	585.06	.12	.08	.02	798.46	7.57	99.43
4047.00	178.00	0.00	0.00	577.49	920.00	585.83	.11	.07	.03	893.59	8.34	150.00
4047.00	178.00	0.00	0.00	577.49	1220.00	587.14	.10	.06	.03	1078.71	9.65	150.00
4225.00	178.00	0.00	0.00	578.40	460.00	583.41	.12	.13	.02	460.00	5.01	44.79
4225.00	178.00	0.00	0.00	578.40	800.00	585.17	.16	.13	.02	800.00	6.77	49.54
4225.00	178.00	0.00	0.00	578.40	920.00	585.92	.16	.11	.02	919.62	7.52	68.37
4225.00	178.00	0.00	0.00	578.40	1220.00	587.21	.17	.10	.03	1192.53	8.81	87.00
4250.00	25.00	0.00	0.00	578.18	460.00	583.45	.10	.02	.00	460.00	5.27	45.49
4250.00	25.00	0.00	0.00	578.18	800.00	585.21	.14	.02	.00	800.00	7.03	50.20
4250.00	25.00	0.00	0.00	578.18	920.00	585.96	.14	.02	.00	918.75	7.78	61.69
4250.00	25.00	0.00	0.00	578.18	1220.00	587.23	.16	.02	.00	1199.26	9.05	72.00

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
4300.00	50.00	0.00	0.00	577.73	460.00	583.51	.08	.03	.01	460.00	5.78	46.84
4300.00	50.00	0.00	0.00	577.73	800.00	585.28	.12	.03	.01	799.90	7.55	55.40
4300.00	50.00	0.00	0.00	577.73	920.00	586.02	.12	.03	.01	917.85	8.29	60.00
4300.00	50.00	0.00	0.00	577.73	1220.00	587.29	.14	.03	.01	1207.38	9.56	60.00
4325.00	25.00	0.00	0.00	577.50	460.00	583.48	.19	.03	.06	460.00	5.98	24.00
4325.00	25.00	0.00	0.00	577.50	800.00	585.22	.28	.03	.08	800.00	7.72	33.00
4325.00	25.00	0.00	0.00	577.50	920.00	585.95	.29	.02	.09	920.00	8.45	33.00
4325.00	25.00	0.00	0.00	577.50	1220.00	587.25	.25	.02	.05	1076.42	9.75	85.32
4438.00	113.00	587.70	584.20	577.50	460.00	583.80	.17	.29	.01	460.00	6.30	33.00
4438.00	113.00	587.70	584.20	577.50	800.00	585.84	.23	.57	0.00	800.00	8.34	33.00
4438.00	113.00	587.70	584.20	577.50	920.00	586.85	.23	.83	0.00	920.00	9.35	33.00
4438.00	113.00	587.70	584.20	577.50	1220.00	588.76	.13	1.39	0.00	966.55	11.26	227.97
4453.00	15.00	0.00	0.00	577.00	460.00	583.85	.15	.03	.01	460.00	6.85	23.40
4453.00	15.00	0.00	0.00	577.00	800.00	585.85	.27	.03	.02	800.00	8.85	23.40
4453.00	15.00	0.00	0.00	577.00	920.00	587.11	.04	.01	.06	403.30	10.11	149.68
4453.00	15.00	0.00	0.00	577.00	1220.00	588.90	.03	.01	.03	452.34	11.90	200.00
4521.00	68.00	586.70	585.90	577.00	460.00	583.94	.15	.09	.00	460.00	6.94	23.40
4521.00	68.00	586.70	585.90	577.00	800.00	586.72	.03	.63	0.00	358.91	9.72	109.82
4521.00	68.00	586.70	585.90	577.00	920.00	587.73	.03	.61	0.00	382.17	10.73	200.00
4521.00	68.00	586.70	585.90	577.00	1220.00	589.06	.03	.16	0.00	445.43	12.06	200.00
4551.00	30.00	0.00	0.00	577.50	460.00	584.09	.05	.02	.03	460.00	6.59	54.81
4551.00	30.00	0.00	0.00	577.50	800.00	586.73	.03	.01	.00	622.78	9.23	260.00
4551.00	30.00	0.00	0.00	577.50	920.00	587.74	.02	.00	.00	601.27	10.24	260.00
4551.00	30.00	0.00	0.00	577.50	1220.00	589.08	.02	.00	.00	666.15	11.58	260.00
4653.00	102.00	0.00	0.00	579.20	460.00	584.11	.12	.06	.03	460.00	4.91	47.71
4653.00	102.00	0.00	0.00	579.20	800.00	586.72	.11	.03	.04	794.74	7.52	122.07
4653.00	102.00	0.00	0.00	579.20	920.00	587.74	.07	.02	.03	814.35	8.54	288.00
4653.00	102.00	0.00	0.00	579.20	1220.00	589.08	.04	.02	.01	820.65	9.88	288.00
4828.00	175.00	0.00	0.00	579.37	460.00	584.31	.12	.20	.00	460.00	4.94	47.82
4828.00	175.00	0.00	0.00	579.37	800.00	586.82	.11	.10	.00	796.45	7.45	111.86
4828.00	175.00	0.00	0.00	579.37	920.00	587.80	.08	.06	.00	839.28	8.43	200.00
4828.00	175.00	0.00	0.00	579.37	1220.00	589.11	.06	.03	.01	922.33	9.74	200.00
5003.00	175.00	0.00	0.00	579.55	460.00	584.50	.12	.19	.00	460.00	4.95	47.85
5003.00	175.00	0.00	0.00	579.55	800.00	586.93	.11	.11	.00	797.94	7.38	100.07
5003.00	175.00	0.00	0.00	579.55	920.00	587.86	.09	.07	.00	852.18	8.31	300.64
5003.00	175.00	0.00	0.00	579.55	1220.00	589.16	.04	.04	.00	833.14	9.61	350.00
5178.00	175.00	0.00	0.00	579.72	460.00	584.69	.12	.19	.00	460.00	4.97	47.98
5178.00	175.00	0.00	0.00	579.72	800.00	587.04	.12	.11	.00	798.76	7.32	90.98
5178.00	175.00	0.00	0.00	579.72	920.00	587.93	.09	.07	.00	865.89	8.21	240.65
5178.00	175.00	0.00	0.00	579.72	1220.00	589.19	.06	.04	.01	913.50	9.47	254.00

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
5353.00	175.00	0.00	0.00	579.90	460.00	584.89	.12	.19	.00	460.00	4.99	47.97
5353.00	175.00	0.00	0.00	579.90	800.00	587.16	.12	.12	.00	800.00	7.26	58.05
5353.00	175.00	0.00	0.00	579.90	920.00	588.01	.11	.09	.01	919.65	8.11	65.58
5353.00	175.00	0.00	0.00	579.90	1220.00	589.22	.12	.06	.03	1172.82	9.32	160.00
5403.00	50.00	0.00	0.00	578.70	460.00	584.91	.24	.09	.06	460.00	6.21	20.00
5403.00	50.00	0.00	0.00	578.70	800.00	587.10	.39	.07	.13	800.00	8.40	20.00
5403.00	50.00	0.00	0.00	578.70	920.00	588.04	.14	.04	.01	589.73	9.34	96.57
5403.00	50.00	0.00	0.00	578.70	1220.00	589.26	.12	.04	.00	636.10	10.56	134.00
5484.00	81.00	588.30	587.10	578.70	460.00	585.17	.22	.23	.01	460.00	6.47	20.00
5484.00	81.00	588.30	587.10	578.70	800.00	587.20	.38	.09	0.00	800.00	8.50	21.00
5484.00	81.00	588.30	587.10	578.70	920.00	588.55	.10	.48	0.00	545.66	9.85	111.16
5484.00	81.00	588.30	587.10	578.70	1220.00	589.71	.09	.42	0.00	579.30	11.01	134.00
5504.00	20.00	0.00	0.00	579.00	460.00	585.37	.09	.02	.04	460.00	6.37	43.99
5504.00	20.00	0.00	0.00	579.00	800.00	587.61	.07	.02	.09	680.91	8.61	169.69
5504.00	20.00	0.00	0.00	579.00	920.00	588.64	.04	.01	.02	667.90	9.64	171.68
5504.00	20.00	0.00	0.00	579.00	1220.00	589.78	.04	.01	.01	769.59	10.78	177.00
5578.00	74.00	0.00	0.00	580.10	460.00	585.40	.14	.06	.03	460.00	5.30	40.00
5578.00	74.00	0.00	0.00	580.10	800.00	587.61	.15	.04	.04	788.79	7.51	122.37
5578.00	74.00	0.00	0.00	580.10	920.00	588.63	.09	.02	.03	789.01	8.53	173.53
5578.00	74.00	0.00	0.00	580.10	1220.00	589.78	.07	.02	.02	870.17	9.68	175.77
5678.00	100.00	0.00	0.00	579.76	460.00	585.54	.11	.10	.01	460.00	5.78	41.80
5678.00	100.00	0.00	0.00	579.76	800.00	587.74	.11	.07	.01	750.61	7.98	172.45
5678.00	100.00	0.00	0.00	579.76	920.00	588.71	.07	.04	.01	735.84	8.95	174.34
5678.00	100.00	0.00	0.00	579.76	1220.00	589.84	.05	.03	.01	801.09	10.08	300.00
5728.00	50.00	0.00	0.00	579.59	460.00	585.59	.10	.04	.00	460.00	6.00	42.63
5728.00	50.00	0.00	0.00	579.59	800.00	587.80	.09	.03	.01	703.93	8.21	232.90
5728.00	50.00	0.00	0.00	579.59	920.00	588.75	.05	.02	.01	652.21	9.16	234.76
5728.00	50.00	0.00	0.00	579.59	1220.00	589.87	.03	.01	.01	686.80	10.28	300.00
5753.00	25.00	0.00	0.00	579.50	460.00	585.57	.21	.03	.06	460.00	6.07	25.80
5753.00	25.00	0.00	0.00	579.50	800.00	587.80	.11	.02	.01	557.97	8.30	222.77
5753.00	25.00	0.00	0.00	579.50	920.00	588.76	.06	.01	.01	494.71	9.26	224.98
5753.00	25.00	0.00	0.00	579.50	1220.00	589.88	.04	.01	.00	497.77	10.38	247.59
5804.00	51.00	587.10	586.00	579.50	460.00	585.70	.20	.12	.00	460.00	6.20	25.80
5804.00	51.00	587.10	586.00	579.50	800.00	588.01	.09	.19	0.00	530.14	8.51	223.24
5804.00	51.00	587.10	586.00	579.50	920.00	588.84	.05	.08	0.00	484.15	9.34	225.17
5804.00	51.00	587.10	586.00	579.50	1220.00	589.95	.04	.07	0.00	489.20	10.45	250.11
5829.00	25.00	0.00	0.00	579.53	460.00	585.88	.09	.03	.04	460.00	6.35	43.94
5829.00	25.00	0.00	0.00	579.53	800.00	588.05	.07	.01	.01	666.90	8.52	197.51
5829.00	25.00	0.00	0.00	579.53	920.00	588.86	.05	.01	.00	659.41	9.33	199.07
5829.00	25.00	0.00	0.00	579.53	1220.00	589.95	.04	.01	.00	736.72	10.42	200.00

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
6091.00	262.00	0.00	0.00	579.82	460.00	586.04	.09	.16	.00	460.00	6.22	43.44
6091.00	262.00	0.00	0.00	579.82	800.00	588.15	.09	.11	.01	734.23	8.33	149.14
6091.00	262.00	0.00	0.00	579.82	920.00	588.93	.07	.08	.01	758.47	9.11	150.66
6091.00	262.00	0.00	0.00	579.82	1220.00	590.01	.06	.07	.01	865.48	10.19	200.00
6353.00	262.00	0.00	0.00	580.10	460.00	586.21	.05	.11	.01	446.87	6.11	90.28
6353.00	262.00	0.00	0.00	580.10	800.00	588.30	.04	.08	.01	662.91	8.20	199.76
6353.00	262.00	0.00	0.00	580.10	920.00	589.04	.04	.06	.01	690.51	8.94	237.79
6353.00	262.00	0.00	0.00	580.10	1220.00	590.10	.03	.05	.01	783.23	10.00	250.00
6378.00	25.00	0.00	0.00	580.25	460.00	586.22	.05	.01	.00	449.42	5.97	86.61
6378.00	25.00	0.00	0.00	580.25	800.00	588.30	.05	.00	.00	673.66	8.05	196.21
6378.00	25.00	0.00	0.00	580.25	920.00	589.04	.04	.00	.00	705.36	8.79	226.12
6378.00	25.00	0.00	0.00	580.25	1220.00	590.10	.03	.00	.00	798.89	9.85	250.00
6403.00	25.00	0.00	0.00	580.40	460.00	586.16	.20	.02	.07	460.00	5.76	24.60
6403.00	25.00	0.00	0.00	580.40	800.00	588.31	.05	.01	.00	356.66	7.91	142.97
6403.00	25.00	0.00	0.00	580.40	920.00	589.05	.04	.00	.00	363.76	8.65	206.02
6403.00	25.00	0.00	0.00	580.40	1220.00	590.11	.03	.00	.00	401.85	9.71	226.00
6469.00	66.00	588.30	587.30	580.40	460.00	586.30	.19	.12	.00	460.00	5.90	24.60
6469.00	66.00	588.30	587.30	580.40	800.00	588.76	.03	.44	0.00	332.16	8.36	193.54
6469.00	66.00	588.30	587.30	580.40	920.00	589.36	.03	.31	0.00	344.98	8.96	214.20
6469.00	66.00	588.30	587.30	580.40	1220.00	590.23	.03	.12	0.00	393.78	9.83	226.00
6494.00	25.00	0.00	0.00	580.42	460.00	586.53	.01	.01	.05	142.66	6.11	258.61
6494.00	25.00	0.00	0.00	580.42	800.00	588.80	.01	.00	.01	178.75	8.38	300.00
6494.00	25.00	0.00	0.00	580.42	920.00	589.39	.01	.00	.01	193.61	8.97	300.00
6494.00	25.00	0.00	0.00	580.42	1220.00	590.27	.01	.00	.01	238.40	9.85	300.00
6703.00	209.00	0.00	0.00	580.44	460.00	586.56	.01	.02	.00	132.51	6.12	294.84
6703.00	209.00	0.00	0.00	580.44	800.00	588.81	.00	.01	.00	151.21	8.37	587.10
6703.00	209.00	0.00	0.00	580.44	920.00	589.40	.00	.01	.00	157.63	8.96	626.56
6703.00	209.00	0.00	0.00	580.44	1220.00	590.28	.00	.01	.00	184.05	9.84	684.38
6953.00	250.00	0.00	0.00	580.46	460.00	586.57	.01	.02	.00	132.57	6.11	294.70
6953.00	250.00	0.00	0.00	580.46	800.00	588.82	.00	.01	.00	152.98	8.36	586.25
6953.00	250.00	0.00	0.00	580.46	920.00	589.41	.00	.01	.00	159.39	8.95	625.66
6953.00	250.00	0.00	0.00	580.46	1220.00	590.28	.00	.00	.00	185.89	9.82	683.52
7203.00	250.00	0.00	0.00	580.48	460.00	586.59	.01	.02	.00	132.67	6.11	294.49
7203.00	250.00	0.00	0.00	580.48	800.00	588.83	.00	.01	.00	154.74	8.35	585.34
7203.00	250.00	0.00	0.00	580.48	920.00	589.41	.00	.01	.00	161.16	8.93	624.67
7203.00	250.00	0.00	0.00	580.48	1220.00	590.29	.00	.01	.00	187.76	9.81	682.55
7453.00	250.00	0.00	0.00	580.50	460.00	586.60	.01	.02	.00	132.77	6.10	294.28
7453.00	250.00	0.00	0.00	580.50	800.00	588.83	.00	.01	.00	156.44	8.33	584.43
7453.00	250.00	0.00	0.00	580.50	920.00	589.42	.00	.01	.00	162.90	8.92	623.70
7453.00	250.00	0.00	0.00	580.50	1220.00	590.29	.00	.01	.00	189.62	9.79	681.59

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
7703.00	250.00	0.00	0.00	580.52	460.00	586.62	.01	.02	.00	132.86	6.10	294.08
7703.00	250.00	0.00	0.00	580.52	800.00	588.84	.00	.01	.00	158.08	8.32	583.53
7703.00	250.00	0.00	0.00	580.52	920.00	589.42	.00	.01	.00	164.60	8.90	622.73
7703.00	250.00	0.00	0.00	580.52	1220.00	590.30	.00	.01	.00	191.45	9.78	680.61
7963.00	260.00	0.00	0.00	580.54	460.00	586.64	.01	.02	.00	132.93	6.10	293.91
7963.00	260.00	0.00	0.00	580.54	800.00	588.85	.00	.01	.00	159.77	8.31	582.27
7963.00	260.00	0.00	0.00	580.54	920.00	589.43	.00	.01	.00	166.41	8.89	621.55
7963.00	260.00	0.00	0.00	580.54	1220.00	590.30	.00	.01	.00	193.44	9.76	679.64
8223.00	260.00	0.00	0.00	580.70	460.00	586.66	.01	.02	.00	135.94	5.96	285.69
8223.00	260.00	0.00	0.00	580.70	800.00	588.85	.00	.01	.00	166.76	8.15	520.21
8223.00	260.00	0.00	0.00	580.70	920.00	589.43	.00	.01	.00	174.97	8.73	565.70
8223.00	260.00	0.00	0.00	580.70	1220.00	590.31	.00	.01	.00	204.33	9.61	635.02
8483.00	260.00	0.00	0.00	580.90	460.00	586.68	.01	.02	.00	139.96	5.78	275.24
8483.00	260.00	0.00	0.00	580.90	800.00	588.86	.00	.01	.00	170.79	7.96	510.20
8483.00	260.00	0.00	0.00	580.90	920.00	589.44	.00	.01	.00	179.02	8.54	552.75
8483.00	260.00	0.00	0.00	580.90	1220.00	590.32	.00	.01	.00	208.34	9.42	620.36
8743.00	260.00	0.00	0.00	580.70	460.00	586.70	.01	.02	.00	135.09	6.00	287.97
8743.00	260.00	0.00	0.00	580.70	800.00	588.87	.00	.01	.00	169.70	8.17	528.43
8743.00	260.00	0.00	0.00	580.70	920.00	589.45	.00	.01	.00	179.80	8.75	553.26
8743.00	260.00	0.00	0.00	580.70	1220.00	590.32	.00	.01	.00	212.69	9.62	590.18
9003.00	260.00	0.00	0.00	580.60	460.00	586.71	.07	.04	.03	340.08	6.11	120.14
9003.00	260.00	0.00	0.00	580.60	800.00	588.88	.03	.02	.01	403.57	8.28	341.90
9003.00	260.00	0.00	0.00	580.60	920.00	589.45	.03	.02	.01	405.25	8.85	358.15
9003.00	260.00	0.00	0.00	580.60	1220.00	590.33	.02	.01	.01	446.45	9.73	382.75
9103.00	100.00	0.00	0.00	581.64	460.00	586.75	.17	.09	.05	387.74	5.11	79.39
9103.00	100.00	0.00	0.00	581.64	800.00	588.89	.08	.03	.02	490.65	7.25	281.94
9103.00	100.00	0.00	0.00	581.64	920.00	589.46	.06	.02	.02	490.18	7.82	332.34
9103.00	100.00	0.00	0.00	581.64	1220.00	590.34	.04	.02	.01	516.74	8.70	357.70
9178.00	75.00	0.00	0.00	582.42	460.00	586.85	.35	.20	.09	429.58	4.43	75.31
9178.00	75.00	0.00	0.00	582.42	800.00	588.90	.15	.05	.04	560.00	6.48	218.30
9178.00	75.00	0.00	0.00	582.42	920.00	589.48	.11	.04	.03	566.39	7.06	276.20
9178.00	75.00	0.00	0.00	582.42	1220.00	590.35	.07	.03	.02	595.16	7.93	339.41
9216.00	40.00	0.00	0.00	582.50	460.00	587.17	.27	.21	.03	460.00	4.67	41.50
9218.00	40.00	0.00	0.00	582.50	800.00	588.92	.28	.08	.06	800.00	6.42	46.30
9218.00	40.00	0.00	0.00	582.50	920.00	589.55	.08	.04	.01	592.39	7.05	260.97
9218.00	40.00	0.00	0.00	582.50	1220.00	590.39	.06	.03	.00	643.70	7.89	388.11
9228.00	10.00	590.20	587.70	582.50	460.00	587.25	.25	.06	.00	460.00	4.75	41.50
9228.00	10.00	590.20	587.70	582.50	800.00	589.67	.20	.66	0.00	800.00	7.17	46.30
9228.00	10.00	590.20	587.70	582.50	920.00	590.31	.04	.72	0.00	495.19	7.81	387.63
9228.00	10.00	590.20	587.70	582.50	1220.00	590.91	.04	.49	0.00	555.34	8.41	391.67

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
9253.00	25.00	0.00	0.00	583.20	460.00	587.39	.22	.10	.01	460.00	4.19	32.80
9253.00	25.00	0.00	0.00	583.20	800.00	589.92	.01	.01	.06	212.99	6.72	316.55
9253.00	25.00	0.00	0.00	583.20	920.00	590.35	.01	.00	.01	229.50	7.15	319.43
9253.00	25.00	0.00	0.00	583.20	1220.00	590.94	.02	.01	.01	281.46	7.74	323.43
9263.00	10.00	588.80	586.60	583.20	460.00	587.83	.18	.40	0.00	460.00	4.63	32.80
9263.00	10.00	588.80	586.60	583.20	800.00	590.17	.01	.25	0.00	204.69	6.97	318.27
9263.00	10.00	588.80	586.60	583.20	920.00	590.57	.01	.22	0.00	222.29	7.37	320.98
9263.00	10.00	588.80	586.60	583.20	1220.00	591.16	.01	.22	0.00	273.76	7.96	325.02
9288.00	25.00	0.00	0.00	583.26	460.00	587.84	.30	.07	.06	419.94	4.58	76.19
9288.00	25.00	0.00	0.00	583.26	800.00	590.12	.11	.01	.05	526.78	6.86	150.63
9288.00	25.00	0.00	0.00	583.26	920.00	590.53	.11	.01	.05	565.91	7.27	167.25
9288.00	25.00	0.00	0.00	583.26	1220.00	591.12	.11	.01	.05	675.38	7.86	188.41
9428.00	400.00	0.00	0.00	583.61	460.00	588.93	.14	.89	.05	376.96	5.32	80.09
9428.00	400.00	0.00	0.00	583.61	800.00	590.43	.12	.31	.00	530.65	6.82	148.81
9428.00	400.00	0.00	0.00	583.61	920.00	590.79	.11	.26	.00	574.64	7.18	163.55
9428.00	400.00	0.00	0.00	583.61	1220.00	591.36	.13	.24	.01	690.49	7.75	186.04
9502.00	74.00	0.00	0.00	583.80	400.00	589.11	.04	.05	.03	281.09	5.31	111.35
9502.00	74.00	0.00	0.00	583.80	730.00	590.55	.05	.04	.02	414.41	6.75	126.85
9502.00	74.00	0.00	0.00	583.80	855.00	590.90	.05	.04	.02	465.17	7.10	127.15
9502.00	74.00	0.00	0.00	583.80	1145.00	591.47	.07	.04	.02	586.09	7.67	127.62
9503.00	1.00	617.00	613.60	583.80	400.00	589.11	.05	.00	.00	301.60	5.31	104.85
9503.00	1.00	617.00	613.60	583.80	730.00	590.54	.06	.00	.01	478.87	6.74	119.00
9503.00	1.00	617.00	613.60	583.80	855.00	590.89	.07	.00	.01	546.76	7.09	119.00
9503.00	1.00	617.00	613.60	583.80	1145.00	591.45	.10	.00	.02	706.00	7.65	119.00
9557.00	54.00	617.00	613.60	583.80	400.00	589.14	.04	.02	.00	292.44	5.34	104.98
9557.00	54.00	617.00	613.60	583.80	730.00	590.58	.05	.02	.00	447.29	6.78	119.00
9557.00	54.00	617.00	613.60	583.80	855.00	590.93	.06	.02	.00	506.14	7.13	119.00
9557.00	54.00	617.00	613.60	583.80	1145.00	591.50	.08	.02	.01	645.19	7.70	119.00
9558.00	1.00	0.00	0.00	583.80	400.00	589.14	.04	.00	.00	292.43	5.34	104.98
9558.00	1.00	0.00	0.00	583.80	730.00	590.58	.05	.00	.00	447.28	6.78	119.00
9558.00	1.00	0.00	0.00	583.80	855.00	590.93	.06	.00	.00	506.12	7.13	119.00
9558.00	1.00	0.00	0.00	583.80	1145.00	591.50	.08	.00	.00	645.17	7.70	119.00
9582.00	24.00	0.00	0.00	583.16	400.00	589.19	.01	.00	.01	105.48	6.03	169.00
9582.00	24.00	0.00	0.00	583.16	730.00	590.63	.01	.00	.01	171.10	7.47	169.00
9582.00	24.00	0.00	0.00	583.16	855.00	590.99	.02	.00	.01	196.42	7.83	169.00
9582.00	24.00	0.00	0.00	583.16	1145.00	591.59	.02	.01	.02	255.63	8.43	169.00
9657.00	75.00	0.00	0.00	582.60	400.00	589.20	.00	.00	.00	75.45	6.60	333.21
9657.00	75.00	0.00	0.00	582.60	730.00	590.65	.00	.00	.00	119.75	8.05	338.61
9657.00	75.00	0.00	0.00	582.60	855.00	591.01	.00	.00	.00	136.78	8.41	339.70
9657.00	75.00	0.00	0.00	582.60	1145.00	591.61	.01	.01	.01	176.63	9.01	341.53

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
9957.00	300.00	0.00	0.00	583.24	400.00	589.21	.00	.01	.00	82.61	5.97	329.24
9957.00	300.00	0.00	0.00	583.24	730.00	590.66	.00	.01	.00	126.04	7.42	336.71
9957.00	300.00	0.00	0.00	583.24	855.00	591.02	.01	.02	.00	143.13	7.78	337.81
9957.00	300.00	0.00	0.00	583.24	1145.00	591.63	.01	.02	.00	183.37	8.39	339.65
10257.00	300.00	0.00	0.00	583.88	400.00	589.23	.01	.02	.00	93.41	5.35	325.17
10257.00	300.00	0.00	0.00	583.88	730.00	590.68	.01	.01	.00	134.47	6.80	334.46
10257.00	300.00	0.00	0.00	583.88	855.00	591.04	.01	.01	.00	151.46	7.16	335.90
10257.00	300.00	0.00	0.00	583.88	1145.00	591.65	.01	.02	.00	191.96	7.77	337.75
10557.00	300.00	0.00	0.00	583.24	400.00	589.25	.01	.02	.00	304.53	6.01	164.89
10557.00	300.00	0.00	0.00	583.24	730.00	590.69	.02	.02	.00	500.86	7.45	181.54
10557.00	300.00	0.00	0.00	583.24	855.00	591.06	.02	.02	.01	575.02	7.82	186.05
10557.00	300.00	0.00	0.00	583.24	1145.00	591.67	.02	.03	.01	756.04	8.43	188.28
10857.00	300.00	0.00	0.00	584.52	400.00	589.28	.02	.04	.01	339.49	4.76	163.83
10857.00	300.00	0.00	0.00	584.52	730.00	590.73	.03	.04	.01	540.77	6.21	179.92
10857.00	300.00	0.00	0.00	584.52	855.00	591.09	.03	.05	.01	613.67	6.57	186.70
10857.00	300.00	0.00	0.00	584.52	1145.00	591.72	.04	.06	.01	781.87	7.20	200.03
11157.00	300.00	0.00	0.00	585.80	400.00	589.39	.07	.13	.02	374.19	3.59	114.31
11157.00	300.00	0.00	0.00	585.80	730.00	590.81	.07	.10	.02	607.24	5.01	159.14
11157.00	300.00	0.00	0.00	585.80	855.00	591.18	.07	.10	.02	686.47	5.38	161.24
11157.00	300.00	0.00	0.00	585.80	1145.00	591.81	.08	.12	.02	872.13	6.01	164.85
11327.00	170.00	0.00	0.00	586.33	400.00	589.58	.08	.19	.01	259.95	3.25	122.10
11327.00	170.00	0.00	0.00	586.33	730.00	590.93	.08	.12	.00	395.42	4.60	132.16
11327.00	170.00	0.00	0.00	586.33	855.00	591.29	.08	.12	.01	447.51	4.96	134.95
11327.00	170.00	0.00	0.00	586.33	1145.00	591.93	.10	.12	.01	569.34	5.60	139.86
11497.00	170.00	0.00	0.00	586.86	400.00	589.84	.11	.28	.02	273.63	2.98	119.88
11497.00	170.00	0.00	0.00	586.86	730.00	591.09	.10	.17	.01	411.73	4.23	129.31
11497.00	170.00	0.00	0.00	586.86	855.00	591.44	.11	.16	.01	463.94	4.58	132.03
11497.00	170.00	0.00	0.00	586.86	1145.00	592.08	.13	.17	.01	586.15	5.22	136.95
11667.00	170.00	0.00	0.00	587.39	400.00	590.18	.10	.33	.00	286.68	2.79	89.08
11667.00	170.00	0.00	0.00	587.39	730.00	591.30	.13	.23	.01	484.36	3.91	99.90
11667.00	170.00	0.00	0.00	587.39	855.00	591.64	.14	.22	.02	556.30	4.25	102.55
11667.00	170.00	0.00	0.00	587.39	1145.00	592.27	.18	.22	.03	720.85	4.88	107.57
11837.00	170.00	0.00	0.00	587.92	400.00	590.53	.12	.36	.01	290.95	2.61	84.85
11837.00	170.00	0.00	0.00	587.92	730.00	591.58	.16	.29	.01	491.97	3.66	97.96
11837.00	170.00	0.00	0.00	587.92	855.00	591.91	.17	.28	.01	564.56	3.99	100.53
11837.00	170.00	0.00	0.00	587.92	1145.00	592.55	.21	.28	.01	730.29	4.63	105.52
12007.00	170.00	0.00	0.00	588.45	400.00	591.05	.27	.59	.07	400.00	2.60	52.28
12007.00	170.00	0.00	0.00	588.45	730.00	591.98	.37	.51	.11	730.00	3.53	60.73
12007.00	170.00	0.00	0.00	588.45	855.00	592.29	.40	.49	.11	855.00	3.84	63.26
12007.00	170.00	0.00	0.00	588.45	1145.00	592.90	.46	.49	.13	1145.00	4.45	69.98

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
12177.00	170.00	0.00	0.00	588.98	400.00	591.89	.19	.75	.02	400.00	2.91	55.55
12177.00	170.00	0.00	0.00	588.98	730.00	592.83	.29	.74	.02	730.00	3.85	63.37
12177.00	170.00	0.00	0.00	588.98	855.00	593.14	.32	.74	.02	855.00	4.16	66.65
12177.00	170.00	0.00	0.00	588.98	1145.00	593.77	.37	.75	.03	1145.00	4.79	74.36
12347.00	170.00	0.00	0.00	589.50	400.00	592.60	.62	.92	.21	400.00	3.10	24.47
12347.00	170.00	0.00	0.00	589.50	730.00	593.48	1.13	1.07	.42	730.00	3.98	25.93
12347.00	170.00	0.00	0.00	589.50	855.00	593.74	1.33	1.11	.50	855.00	4.24	26.37
12347.00	170.00	0.00	0.00	589.50	1145.00	594.25	1.81	1.19	.72	1145.00	4.75	27.22
12382.00	35.00	0.00	0.00	589.40	400.00	593.11	.40	.23	.06	400.00	3.71	25.49
12382.00	35.00	0.00	0.00	589.40	730.00	594.39	.65	.29	.14	730.00	4.99	27.63
12382.00	35.00	0.00	0.00	589.40	855.00	595.13	.42	.21	.27	742.14	5.73	111.92
12382.00	35.00	0.00	0.00	589.40	1145.00	596.41	.25	.14	.47	793.84	7.01	132.71
12457.00	75.00	0.00	0.00	589.20	400.00	593.45	.64	.45	.12	400.00	4.25	15.96
12457.00	75.00	0.00	0.00	589.20	730.00	594.82	.84	.52	.09	651.49	5.62	77.09
12457.00	75.00	0.00	0.00	589.20	855.00	595.34	.71	.36	.14	688.05	6.14	85.88
12457.00	75.00	0.00	0.00	589.20	1145.00	596.50	.46	.20	.11	726.72	7.30	105.60
12485.00	28.00	596.20	594.50	589.50	400.00	593.65	.68	.22	.02	400.00	4.15	15.96
12485.00	28.00	596.20	594.50	589.50	730.00	596.32	.28	.94	0.00	508.91	6.82	97.59
12485.00	28.00	596.20	594.50	589.50	855.00	597.03	.21	1.19	0.00	517.79	7.53	116.65
12485.00	28.00	596.20	594.50	589.50	1145.00	597.84	.20	1.08	0.00	589.90	8.34	156.01
12510.00	25.00	0.00	0.00	589.56	400.00	594.35	.21	.10	.14	400.00	4.79	27.30
12510.00	25.00	0.00	0.00	589.56	730.00	596.61	.09	.04	.06	483.69	7.05	133.49
12510.00	25.00	0.00	0.00	589.56	855.00	597.23	.07	.03	.04	505.66	7.67	143.14
12510.00	25.00	0.00	0.00	589.56	1145.00	598.02	.08	.03	.04	610.97	8.46	151.55
12660.00	150.00	0.00	0.00	589.92	400.00	594.73	.21	.38	.00	400.00	4.81	27.33
12660.00	150.00	0.00	0.00	589.92	730.00	596.83	.10	.23	.01	495.85	6.91	131.01
12660.00	150.00	0.00	0.00	589.92	855.00	597.44	.08	.21	.00	518.62	7.52	141.05
12660.00	150.00	0.00	0.00	589.92	1145.00	598.23	.09	.21	.00	622.43	8.31	149.91
12907.00	247.00	0.00	0.00	590.50	400.00	595.17	.02	.18	.06	144.55	4.67	171.29
12907.00	247.00	0.00	0.00	590.50	730.00	597.04	.02	.10	.02	207.26	6.54	198.50
12907.00	247.00	0.00	0.00	590.50	855.00	597.61	.02	.09	.02	229.83	7.11	199.25
12907.00	247.00	0.00	0.00	590.50	1145.00	598.41	.02	.09	.02	289.26	7.91	200.31
12957.00	50.00	0.00	0.00	589.10	400.00	595.19	.01	.02	.00	231.93	6.09	167.67
12957.00	50.00	0.00	0.00	589.10	730.00	597.05	.01	.01	.00	334.70	7.95	200.00
12957.00	50.00	0.00	0.00	589.10	855.00	597.62	.01	.01	.00	366.92	8.52	200.00
12957.00	50.00	0.00	0.00	589.10	1145.00	598.42	.02	.01	.00	455.68	9.32	200.00
12967.00	10.00	596.20	594.00	589.10	400.00	595.31	.05	.15	0.00	400.00	6.21	44.00
12967.00	10.00	596.20	594.00	589.10	730.00	597.23	.01	.17	0.00	327.58	8.13	200.00
12967.00	10.00	596.20	594.00	589.10	855.00	597.76	.01	.13	0.00	361.98	8.66	200.00
12967.00	10.00	596.20	594.00	589.10	1145.00	598.55	.02	.13	0.00	450.89	9.45	200.00

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
12987.00	20.00	0.00	0.00	589.15	400.00	595.37	.01	.00	.01	117.66	6.22	198.08
12987.00	20.00	0.00	0.00	589.15	730.00	597.24	.01	.00	.00	182.23	8.09	200.00
12987.00	20.00	0.00	0.00	589.15	855.00	597.76	.01	.00	.00	206.69	8.61	200.00
12987.00	20.00	0.00	0.00	589.15	1145.00	598.56	.01	.00	.00	265.66	9.41	200.00
13322.00	335.00	0.00	0.00	590.02	400.00	595.38	.01	.01	.00	113.74	5.36	231.59
13322.00	335.00	0.00	0.00	590.02	730.00	597.25	.01	.01	.00	165.84	7.23	246.60
13322.00	335.00	0.00	0.00	590.02	855.00	597.77	.01	.01	.00	185.97	7.75	248.24
13322.00	335.00	0.00	0.00	590.02	1145.00	598.57	.01	.01	.00	235.67	8.55	250.72
13657.00	335.00	0.00	0.00	590.90	400.00	595.43	.01	.05	.00	205.12	4.53	207.89
13657.00	335.00	0.00	0.00	590.90	730.00	597.28	.01	.03	.00	320.92	6.38	285.32
13657.00	335.00	0.00	0.00	590.90	855.00	597.80	.01	.03	.00	360.20	6.90	291.79
13657.00	335.00	0.00	0.00	590.90	1145.00	598.60	.01	.03	.00	456.23	7.70	301.65
13756.00	99.00	0.00	0.00	591.40	400.00	595.47	.01	.03	.00	122.18	4.07	288.68
13756.00	99.00	0.00	0.00	591.40	730.00	597.30	.01	.02	.00	178.65	5.90	304.62
13756.00	99.00	0.00	0.00	591.40	855.00	597.82	.01	.01	.00	201.47	6.42	308.22
13756.00	99.00	0.00	0.00	591.40	1145.00	598.62	.01	.01	.00	257.47	7.22	313.73
13757.00	1.00	628.40	619.50	591.40	400.00	595.46	.01	.00	.00	155.81	4.06	205.97
13757.00	1.00	628.40	619.50	591.40	730.00	597.30	.01	.00	.00	236.15	5.90	218.52
13757.00	1.00	628.40	619.50	591.40	855.00	597.82	.01	.00	.00	267.91	6.42	222.12
13757.00	1.00	628.40	619.50	591.40	1145.00	598.62	.02	.00	.00	344.75	7.22	227.63
13832.00	75.00	628.40	619.50	591.40	400.00	595.49	.01	.02	.00	155.38	4.09	206.09
13832.00	75.00	628.40	619.50	591.40	730.00	597.31	.01	.01	.00	236.00	5.91	218.59
13832.00	75.00	628.40	619.50	591.40	855.00	597.83	.01	.01	.00	267.78	6.43	222.18
13832.00	75.00	628.40	619.50	591.40	1145.00	598.63	.02	.01	.00	344.61	7.23	227.70
13833.00	1.00	0.00	0.00	591.40	400.00	595.49	.01	.00	.00	155.37	4.09	206.10
13833.00	1.00	0.00	0.00	591.40	730.00	597.31	.01	.00	.00	236.00	5.91	218.59
13833.00	1.00	0.00	0.00	591.40	855.00	597.83	.01	.00	.00	267.77	6.43	222.18
13833.00	1.00	0.00	0.00	591.40	1145.00	598.63	.02	.00	.00	344.61	7.23	227.70
13882.00	49.00	0.00	0.00	591.42	400.00	595.50	.02	.02	.00	212.87	4.08	194.52
13882.00	49.00	0.00	0.00	591.42	730.00	597.32	.02	.01	.00	335.09	5.90	275.72
13882.00	49.00	0.00	0.00	591.42	855.00	597.84	.02	.01	.00	374.60	6.42	285.81
13882.00	49.00	0.00	0.00	591.42	1145.00	598.64	.02	.01	.00	471.24	7.22	295.70
14097.00	215.00	0.00	0.00	591.50	400.00	595.85	.77	.32	0.00	363.07	4.35	58.30
14097.00	215.00	0.00	0.00	591.50	730.00	597.25	.43	.14	.21	462.57	5.75	96.25
14097.00	215.00	0.00	0.00	591.50	855.00	597.80	.33	.12	.16	472.14	6.30	107.15
14097.00	215.00	0.00	0.00	591.50	1145.00	598.62	.28	.11	.13	532.15	7.12	127.10
14312.00	215.00	0.00	0.00	591.57	400.00	597.45	.11	.75	.20	244.62	5.88	98.90
14312.00	215.00	0.00	0.00	591.57	730.00	598.29	.16	.69	.08	367.57	6.72	116.77
14312.00	215.00	0.00	0.00	591.57	855.00	598.61	.17	.60	.05	403.79	7.04	124.96
14312.00	215.00	0.00	0.00	591.57	1145.00	599.27	.18	.52	.03	477.06	7.70	136.02

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
14527.00	215.00	0.00	0.00	591.65	400.00	597.77	.09	.29	.01	230.75	6.12	103.50
14527.00	215.00	0.00	0.00	591.65	730.00	598.70	.12	.36	.01	343.88	7.05	125.29
14527.00	215.00	0.00	0.00	591.65	855.00	599.01	.13	.36	.01	379.33	7.36	132.44
14527.00	215.00	0.00	0.00	591.65	1145.00	599.67	.14	.35	.01	451.93	8.02	137.49
14742.00	215.00	0.00	0.00	591.72	400.00	598.02	.07	.22	.00	221.11	6.30	107.06
14742.00	215.00	0.00	0.00	591.72	730.00	598.99	.10	.27	.01	329.46	7.27	131.12
14742.00	215.00	0.00	0.00	591.72	855.00	599.32	.11	.27	.01	363.20	7.60	134.88
14742.00	215.00	0.00	0.00	591.72	1145.00	599.97	.12	.28	.01	435.28	8.25	137.97
14957.00	215.00	0.00	0.00	591.80	400.00	598.21	.06	.19	.00	215.20	6.41	109.42
14957.00	215.00	0.00	0.00	591.80	730.00	599.24	.09	.23	.00	319.45	7.44	133.20
14957.00	215.00	0.00	0.00	591.80	855.00	599.56	.09	.23	.00	352.63	7.76	136.63
14957.00	215.00	0.00	0.00	591.80	1145.00	600.23	.11	.24	.00	424.06	8.43	138.33
15257.00	300.00	0.00	0.00	592.97	400.00	598.55	.16	.39	.05	265.27	5.58	93.00
15257.00	300.00	0.00	0.00	592.97	730.00	599.61	.17	.42	.04	373.81	6.64	114.72
15257.00	300.00	0.00	0.00	592.97	855.00	599.94	.18	.42	.04	409.26	6.97	123.19
15257.00	300.00	0.00	0.00	592.97	1145.00	600.60	.18	.42	.04	482.95	7.63	135.29
15557.00	300.00	0.00	0.00	594.14	400.00	599.27	.16	.71	.00	317.64	5.13	79.97
15557.00	300.00	0.00	0.00	594.14	730.00	600.28	.23	.70	.03	512.16	6.14	85.17
15557.00	300.00	0.00	0.00	594.14	855.00	600.60	.25	.70	.03	579.48	6.46	86.77
15557.00	300.00	0.00	0.00	594.14	1145.00	601.24	.28	.68	.05	727.10	7.10	108.98
15857.00	300.00	0.00	0.00	595.31	400.00	600.13	.21	.89	.03	326.54	4.82	52.08
15857.00	300.00	0.00	0.00	595.31	730.00	601.15	.29	.90	.03	530.77	5.84	83.62
15857.00	300.00	0.00	0.00	595.31	855.00	601.47	.31	.90	.03	599.13	6.16	85.22
15857.00	300.00	0.00	0.00	595.31	1145.00	602.10	.35	.90	.03	749.82	6.79	97.77
15957.00	100.00	0.00	0.00	595.70	400.00	600.62	.13	.38	.03	400.00	4.92	42.00
15957.00	100.00	0.00	0.00	595.70	730.00	601.72	.08	.30	.06	480.64	6.02	147.23
15957.00	100.00	0.00	0.00	595.70	855.00	602.05	.08	.30	.07	537.98	6.35	157.47
15957.00	100.00	0.00	0.00	595.70	1145.00	602.73	.09	.29	.08	659.48	7.03	178.42
15967.00	10.00	603.00	600.50	595.70	400.00	601.05	.10	.40	0.00	400.00	5.35	42.00
15967.00	10.00	603.00	600.50	595.70	730.00	603.32	.03	1.55	0.00	388.07	7.62	192.90
15967.00	10.00	603.00	600.50	595.70	855.00	603.68	.03	1.57	0.00	433.51	7.98	199.60
15967.00	10.00	603.00	600.50	595.70	1145.00	604.16	.04	1.38	0.00	539.91	8.46	200.00
16007.00	40.00	0.00	0.00	593.80	400.00	601.15	.04	.02	.02	273.79	7.35	91.32
16007.00	40.00	0.00	0.00	593.80	730.00	603.33	.04	.01	.01	440.21	9.53	108.81
16007.00	40.00	0.00	0.00	593.80	855.00	603.68	.05	.01	.01	506.68	9.88	110.33
16007.00	40.00	0.00	0.00	593.80	1145.00	604.16	.08	.02	.02	663.52	10.36	111.66
16207.00	200.00	0.00	0.00	594.50	400.00	601.21	.05	.06	.01	287.55	6.71	88.03
16207.00	200.00	0.00	0.00	594.50	730.00	603.37	.06	.05	.01	455.14	8.87	102.40
16207.00	200.00	0.00	0.00	594.50	855.00	603.73	.07	.06	.01	523.10	9.23	105.96
16207.00	200.00	0.00	0.00	594.50	1145.00	604.23	.10	.08	.01	683.23	9.73	109.93

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
16407.00	200.00	0.00	0.00	595.20	400.00	601.30	.08	.11	.01	303.34	6.10	84.94
16407.00	200.00	0.00	0.00	595.20	730.00	603.44	.08	.08	.01	472.17	8.24	96.00
16407.00	200.00	0.00	0.00	595.20	855.00	603.80	.09	.08	.01	541.31	8.60	99.64
16407.00	200.00	0.00	0.00	595.20	1145.00	604.33	.13	.11	.01	704.60	9.13	104.85
16607.00	200.00	0.00	0.00	595.90	400.00	601.49	.12	.21	.02	318.95	5.59	82.35
16607.00	200.00	0.00	0.00	595.90	730.00	603.54	.10	.12	.01	489.80	7.64	92.81
16607.00	200.00	0.00	0.00	595.90	855.00	603.92	.12	.13	.01	560.25	8.02	94.72
16607.00	200.00	0.00	0.00	595.90	1145.00	604.48	.16	.17	.02	725.88	8.58	99.40
16807.00	200.00	0.00	0.00	596.60	400.00	601.76	.15	.29	.02	285.97	5.16	73.22
16807.00	200.00	0.00	0.00	596.60	730.00	603.69	.13	.16	.01	429.03	7.09	86.92
16807.00	200.00	0.00	0.00	596.60	855.00	604.07	.15	.17	.02	488.49	7.47	89.64
16807.00	200.00	0.00	0.00	596.60	1145.00	604.67	.20	.21	.02	627.33	8.07	96.30
17007.00	200.00	0.00	0.00	597.30	400.00	602.17	.20	.43	.02	298.39	4.87	71.13
17007.00	200.00	0.00	0.00	597.30	730.00	603.91	.18	.24	.02	446.06	6.61	83.53
17007.00	200.00	0.00	0.00	597.30	855.00	604.30	.19	.25	.02	505.92	7.00	86.30
17007.00	200.00	0.00	0.00	597.30	1145.00	604.94	.25	.29	.02	646.18	7.64	91.45
17207.00	200.00	0.00	0.00	598.00	400.00	602.69	.24	.55	.02	306.56	4.69	69.91
17207.00	200.00	0.00	0.00	598.00	730.00	604.21	.23	.33	.03	462.65	6.21	80.69
17207.00	200.00	0.00	0.00	598.00	855.00	604.60	.24	.33	.03	522.90	6.60	83.46
17207.00	200.00	0.00	0.00	598.00	1145.00	605.28	.30	.36	.03	663.75	7.28	88.22
17497.00	290.00	0.00	0.00	599.26	400.00	603.78	.29	1.11	.03	315.85	4.52	68.65
17497.00	290.00	0.00	0.00	599.26	730.00	604.97	.33	.81	.05	487.54	5.71	77.12
17497.00	290.00	0.00	0.00	599.26	855.00	605.34	.34	.79	.05	548.92	6.08	79.76
17497.00	290.00	0.00	0.00	599.26	1145.00	606.05	.39	.82	.05	689.30	6.79	84.78
17787.00	290.00	0.00	0.00	600.52	400.00	605.00	.31	1.23	.01	317.81	4.48	68.40
17787.00	290.00	0.00	0.00	600.52	730.00	606.02	.38	1.08	.03	499.79	5.50	75.61
17787.00	290.00	0.00	0.00	600.52	855.00	606.35	.41	1.04	.03	563.37	5.83	77.99
17787.00	290.00	0.00	0.00	600.52	1145.00	607.04	.46	1.02	.03	705.59	6.52	82.85
18077.00	290.00	0.00	0.00	601.78	400.00	605.84	.05	.51	.08	142.32	4.06	97.00
18077.00	290.00	0.00	0.00	601.78	730.00	606.95	.08	.54	.09	235.30	5.17	97.00
18077.00	290.00	0.00	0.00	601.78	855.00	607.30	.10	.55	.09	269.60	5.52	97.00
18077.00	290.00	0.00	0.00	601.78	1145.00	608.04	.12	.56	.10	348.10	6.26	97.00
18367.00	290.00	0.00	0.00	603.04	230.00	606.16	.05	.30	.00	95.30	3.12	97.00
18367.00	290.00	0.00	0.00	603.04	415.00	607.28	.05	.29	.01	144.66	4.24	97.00
18367.00	290.00	0.00	0.00	603.04	490.00	607.64	.05	.28	.01	164.91	4.60	97.00
18367.00	290.00	0.00	0.00	603.04	655.00	608.40	.06	.28	.02	208.56	5.36	97.00
18467.00	100.00	0.00	0.00	603.47	230.00	606.29	.08	.15	.02	106.83	2.82	90.00
18467.00	100.00	0.00	0.00	603.47	415.00	607.37	.08	.10	.01	158.29	3.90	90.00
18467.00	100.00	0.00	0.00	603.47	490.00	607.73	.08	.10	.01	179.49	4.26	90.00
18467.00	100.00	0.00	0.00	603.47	655.00	608.47	.09	.09	.01	225.54	5.00	90.00

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
18567.00	100.00	0.00	0.00	603.90	230.00	606.54	.11	.26	.01	112.84	2.64	90.00
18567.00	100.00	0.00	0.00	603.90	415.00	607.52	.10	.16	.01	164.45	3.62	90.00
18567.00	100.00	0.00	0.00	603.90	490.00	607.86	.10	.15	.01	185.50	3.96	90.00
18567.00	100.00	0.00	0.00	603.90	655.00	608.59	.10	.12	.01	231.16	4.69	90.00
18657.00	90.00	0.00	0.00	604.30	230.00	606.85	.34	.42	.12	166.63	2.55	42.00
18657.00	90.00	0.00	0.00	604.30	415.00	607.65	.43	.30	.17	270.11	3.35	42.00
18657.00	90.00	0.00	0.00	604.30	490.00	607.96	.46	.27	.18	310.61	3.66	42.00
18657.00	90.00	0.00	0.00	604.30	655.00	608.62	.51	.23	.20	397.12	4.32	42.00
18706.00	49.00	0.00	0.00	603.00	230.00	607.13	.36	.29	.01	230.00	4.13	14.55
18706.00	49.00	0.00	0.00	603.00	415.00	607.86	.77	.38	.17	415.00	4.86	15.00
18706.00	49.00	0.00	0.00	603.00	490.00	608.11	.95	.40	.24	490.00	5.11	15.00
18706.00	49.00	0.00	0.00	603.00	655.00	608.61	1.35	.41	.42	655.00	5.61	15.00
18707.00	1.00	617.00	612.70	603.00	230.00	607.13	.35	.00	.00	230.00	4.13	14.55
18707.00	1.00	617.00	612.70	603.00	415.00	607.86	.77	.00	.00	415.00	4.86	15.00
18707.00	1.00	617.00	612.70	603.00	490.00	608.11	.95	.00	.00	490.00	5.11	15.00
18707.00	1.00	617.00	612.70	603.00	655.00	608.59	1.39	.00	.02	655.00	5.59	15.00
18803.00	96.00	617.00	612.70	603.00	230.00	607.19	.34	.04	.00	230.00	4.19	14.59
18803.00	96.00	617.00	612.70	603.00	415.00	607.99	.72	.07	.01	415.00	4.99	15.00
18803.00	96.00	617.00	612.70	603.00	490.00	608.28	.89	.08	.02	490.00	5.28	15.00
18803.00	96.00	617.00	612.70	603.00	655.00	608.92	1.22	.11	.05	655.00	5.92	15.00
18804.00	1.00	0.00	0.00	603.00	230.00	607.19	.34	.00	.00	230.00	4.19	14.59
18804.00	1.00	0.00	0.00	603.00	415.00	608.00	.72	.00	.00	415.00	5.00	15.00
18804.00	1.00	0.00	0.00	603.00	490.00	608.32	.86	.00	.01	490.00	5.32	15.00
18804.00	1.00	0.00	0.00	603.00	655.00	609.05	1.13	.00	.03	655.00	6.05	15.00
18828.00	24.00	0.00	0.00	603.08	230.00	607.62	.02	.01	.10	84.13	4.54	65.00
18828.00	24.00	0.00	0.00	603.08	415.00	608.90	.04	.02	.20	141.14	5.82	65.00
18828.00	24.00	0.00	0.00	603.08	490.00	609.40	.04	.02	.25	163.44	6.32	65.00
18828.00	24.00	0.00	0.00	603.08	655.00	610.47	.05	.02	.32	211.62	7.39	65.00
19193.00	365.00	0.00	0.00	604.19	230.00	607.74	.06	.14	.02	105.20	3.55	55.00
19193.00	365.00	0.00	0.00	604.19	415.00	609.02	.08	.14	.02	170.25	4.83	55.00
19193.00	365.00	0.00	0.00	604.19	490.00	609.51	.09	.14	.02	195.81	5.32	55.00
19193.00	365.00	0.00	0.00	604.19	655.00	610.57	.10	.13	.02	251.19	6.38	55.00
19583.00	390.00	0.00	0.00	605.37	230.00	608.08	.03	.29	.01	54.35	2.71	183.84
19583.00	390.00	0.00	0.00	605.37	415.00	609.26	.02	.16	.02	70.71	3.89	191.39
19583.00	390.00	0.00	0.00	605.37	490.00	609.74	.02	.13	.02	77.58	4.37	194.41
19583.00	390.00	0.00	0.00	605.37	655.00	610.77	.02	.10	.02	92.84	5.40	200.98
19973.00	390.00	0.00	0.00	606.55	230.00	608.52	.13	.49	.05	82.84	1.97	135.06
19973.00	390.00	0.00	0.00	606.55	415.00	609.42	.06	.18	.02	91.73	2.87	184.91
19973.00	390.00	0.00	0.00	606.55	490.00	609.86	.05	.13	.02	94.65	3.31	187.66
19973.00	390.00	0.00	0.00	606.55	655.00	610.84	.03	.08	.01	104.81	4.29	193.92

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
20363.00	390.00	0.00	0.00	607.73	230.00	610.00	.06	1.39	.02	68.09	2.27	167.33
20363.00	390.00	0.00	0.00	607.73	415.00	610.27	.11	.88	.02	105.73	2.54	182.82
20363.00	390.00	0.00	0.00	607.73	490.00	610.44	.11	.62	.03	115.26	2.71	183.91
20363.00	390.00	0.00	0.00	607.73	655.00	611.11	.08	.29	.02	124.32	3.38	188.10
20753.00	390.00	0.00	0.00	608.91	230.00	611.37	.03	1.34	.01	57.82	2.46	182.30
20753.00	390.00	0.00	0.00	608.91	415.00	611.92	.04	1.56	.02	78.79	3.01	185.76
20753.00	390.00	0.00	0.00	608.91	490.00	612.04	.05	1.51	.02	88.75	3.13	186.55
20753.00	390.00	0.00	0.00	608.91	655.00	612.18	.07	1.06	.00	113.58	3.27	187.37
21143.00	390.00	0.00	0.00	610.10	230.00	612.42	.01	1.01	.01	98.15	2.32	155.94
21143.00	390.00	0.00	0.00	610.10	415.00	613.05	.02	1.09	.01	175.34	2.95	162.96
21143.00	390.00	0.00	0.00	610.10	490.00	613.25	.02	1.17	.01	206.30	3.15	165.24
21143.00	390.00	0.00	0.00	610.10	655.00	613.65	.03	1.42	.01	273.80	3.55	169.63

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	460.000	579.025	0.000	0.000	0.000	60.211	0.000	-0.000
0.000	800.000	580.466	1.441	0.000	0.000	87.514	-27.303	-0.000
0.000	920.000	580.903	.437	0.000	0.000	213.553	-153.342	-0.000
0.000	1220.000	581.613	.706	0.000	0.000	479.799	-419.587	-0.000
400.000	460.000	579.300	0.000	.275	0.000	58.334	0.000	400.000
400.000	800.000	580.737	1.437	.270	0.000	82.778	-24.444	400.000
400.000	920.000	581.169	.432	.266	0.000	91.067	-32.732	400.000
400.000	1220.000	581.881	.711	.271	0.000	371.212	-312.877	400.000
800.000	460.000	579.626	0.000	.326	0.000	56.980	0.000	400.000
800.000	800.000	581.054	1.428	.317	0.000	79.232	-22.252	400.000
800.000	920.000	581.480	.426	.311	0.000	87.385	-30.405	400.000
800.000	1220.000	582.207	.727	.326	0.000	312.196	-255.216	400.000
1200.000	460.000	579.998	0.000	.372	0.000	55.906	0.000	400.000
1200.000	800.000	581.413	1.416	.360	0.000	76.353	-20.447	400.000
1200.000	920.000	581.831	.418	.351	0.000	84.349	-28.443	400.000
1200.000	1220.000	582.578	.747	.371	0.000	264.155	-208.249	400.000
1600.000	460.000	580.410	0.000	.412	0.000	55.143	0.000	400.000
1600.000	800.000	581.811	1.402	.398	0.000	74.211	-19.068	400.000
1600.000	920.000	582.220	.409	.389	0.000	82.033	-26.890	400.000
1600.000	1220.000	582.986	.766	.408	0.000	228.429	-173.286	400.000
2000.000	460.000	580.856	0.000	.443	0.000	54.621	0.000	400.000
2000.000	800.000	582.241	1.389	.430	0.000	72.671	-18.050	400.000
2000.000	920.000	582.641	.400	.421	0.000	80.321	-25.700	400.000
2000.000	1220.000	583.422	.781	.436	0.000	202.610	-147.988	400.000
2125.000	460.000	581.004	0.000	.152	0.000	59.435	0.000	125.000
2125.000	800.000	582.409	1.405	.168	0.000	59.999	-.564	125.000
2125.000	920.000	582.811	.402	.170	0.000	59.999	-.564	125.000
2125.000	1220.000	583.601	.790	.179	0.000	59.999	-.564	125.000
2175.000	460.000	580.999	0.000	-.005	0.000	27.999	0.000	50.000
2175.000	800.000	582.373	1.374	-.036	0.000	27.999	-.000	50.000
2175.000	920.000	582.762	.389	-.049	0.000	27.999	-.000	50.000
2175.000	1220.000	583.517	.755	-.084	0.000	27.999	-.000	50.000
2199.000	460.000	580.865	0.000	-.135	0.000	15.400	0.000	24.000
2199.000	800.000	582.087	1.222	-.287	0.000	15.400	0.000	24.000
2199.000	920.000	582.413	.327	-.349	0.000	15.400	0.000	24.000
2199.000	1220.000	582.975	.561	-.542	0.000	15.400	0.000	24.000

2200.000	460.000	580.869	0.000	.004	0.000	15.400	0.000	1.000
2200.000	800.000	582.091	1.223	.005	0.000	15.400	0.000	1.000
2200.000	920.000	582.404	.313	-.009	0.000	15.400	0.000	1.000
2200.000	1220.000	582.917	.512	-.058	0.000	15.400	0.000	1.000
2230.000	460.000	580.976	0.000	.107	0.000	15.400	0.000	30.000
2230.000	800.000	582.368	1.393	.277	0.000	15.400	0.000	30.000
2230.000	920.000	582.755	.387	.350	0.000	15.400	0.000	30.000
2230.000	1220.000	583.436	.681	.519	0.000	23.021	-7.621	30.000
2231.000	460.000	580.979	0.000	.004	0.000	15.400	0.000	1.000
2231.000	800.000	582.422	1.443	.054	0.000	15.400	0.000	1.000
2231.000	920.000	582.877	.454	.122	0.000	15.400	0.000	1.000
2231.000	1220.000	585.472	2.595	2.036	0.000	199.999	-184.599	1.000
2255.000	460.000	581.529	0.000	.549	0.000	63.717	0.000	24.000
2255.000	800.000	583.475	1.947	1.053	0.000	63.999	-.282	24.000
2255.000	920.000	584.107	.631	1.230	0.000	63.999	-.282	24.000
2255.000	1220.000	585.757	1.650	.285	0.000	63.999	-.282	24.000
2410.000	460.000	581.559	0.000	.030	0.000	62.878	0.000	155.000
2410.000	800.000	583.507	1.948	.032	0.000	63.999	-1.121	155.000
2410.000	920.000	584.139	.631	.032	0.000	63.999	-1.121	155.000
2410.000	1220.000	585.787	1.648	.030	0.000	63.999	-1.121	155.000
2565.000	460.000	581.599	0.000	.040	0.000	62.046	0.000	155.000
2565.000	800.000	583.546	1.947	.039	0.000	63.999	-1.953	155.000
2565.000	920.000	584.177	.631	.038	0.000	63.999	-1.953	155.000
2565.000	1220.000	585.822	1.645	.035	0.000	63.999	-1.953	155.000
2720.000	460.000	581.653	0.000	.054	0.000	61.251	0.000	155.000
2720.000	800.000	583.595	1.941	.048	0.000	63.999	-2.748	155.000
2720.000	920.000	584.224	.629	.046	0.000	63.999	-2.748	155.000
2720.000	1220.000	585.863	1.639	.041	0.000	63.999	-2.748	155.000
2875.000	460.000	581.726	0.000	.073	0.000	60.512	0.000	155.000
2875.000	800.000	583.655	1.929	.060	0.000	63.999	-3.487	155.000
2875.000	920.000	584.280	.626	.057	0.000	63.999	-3.487	155.000
2875.000	1220.000	585.911	1.631	.048	0.000	63.999	-3.487	155.000
3030.000	460.000	581.824	0.000	.098	0.000	58.063	0.000	155.000
3030.000	800.000	583.730	1.906	.076	0.000	63.603	-5.540	155.000
3030.000	920.000	584.350	.620	.070	0.000	63.999	-5.936	155.000
3030.000	1220.000	585.968	1.617	.056	0.000	63.999	-5.936	155.000
3185.000	460.000	581.941	0.000	.116	0.000	40.999	0.000	155.000
3185.000	800.000	583.813	1.873	.083	0.000	40.999	-.000	155.000
3185.000	920.000	584.423	.610	.072	0.000	40.999	-.000	155.000
3185.000	1220.000	586.015	1.593	.048	0.000	40.999	-.000	155.000
3340.000	460.000	582.076	0.000	.136	0.000	40.999	0.000	155.000
3340.000	800.000	583.946	1.869	.133	0.000	40.999	-.000	155.000
3340.000	920.000	584.554	.609	.131	0.000	40.999	-.000	155.000
3340.000	1220.000	586.137	1.584	.122	0.000	40.999	-.000	155.000
3495.000	460.000	582.247	0.000	.171	0.000	40.999	0.000	155.000
3495.000	800.000	584.101	1.853	.155	0.000	40.999	-.000	155.000
3495.000	920.000	584.705	.605	.152	0.000	40.999	-.000	155.000
3495.000	1220.000	586.275	1.570	.138	0.000	40.999	-.000	155.000
3650.000	460.000	582.460	0.000	.212	0.000	40.999	0.000	155.000
3650.000	800.000	584.283	1.823	.182	0.000	40.999	-.000	155.000
3650.000	920.000	584.881	.598	.175	0.000	40.999	-.000	155.000
3650.000	1220.000	586.431	1.550	.156	0.000	40.999	-.000	155.000

3700.000	800.000	584.405	1.817	.123	0.000	40.999	-.000	50.000
3700.000	920.000	585.002	.597	.122	0.000	40.999	-.000	50.000
3700.000	1220.000	586.541	1.539	.111	0.000	40.999	-.000	50.000
3750.000	460.000	582.655	0.000	.067	0.000	40.999	0.000	50.000
3750.000	800.000	584.484	1.828	.078	0.000	40.999	-.000	50.000
3750.000	920.000	586.083	.599	.060	0.000	40.999	-.000	50.000
3750.000	1220.000	586.621	1.538	.079	0.000	40.999	-.000	50.000
3775.000	460.000	582.575	0.000	-.050	0.000	25.200	0.000	25.000
3775.000	800.000	584.362	1.786	-.122	0.000	25.200	0.000	25.000
3775.000	920.000	584.948	.586	-.134	0.000	25.200	0.000	25.000
3775.000	1220.000	586.627	1.678	.006	0.000	199.999	-174.799	25.000
3844.000	460.000	582.956	0.000	.381	0.000	25.200	0.000	69.000
3844.000	800.000	534.551	1.595	.190	0.000	25.200	0.000	69.000
3844.000	920.000	585.295	.743	.346	0.000	30.200	-5.000	69.000
3844.000	1220.000	586.976	1.681	.349	0.000	199.999	-174.799	69.000
3869.000	460.000	583.239	0.000	.283	0.000	41.000	0.000	25.000
3869.000	800.000	585.005	1.765	.453	0.000	199.999	-158.999	25.000
3869.000	920.000	585.786	.781	.491	0.000	199.999	-158.999	25.000
3869.000	1220.000	587.111	1.325	.135	0.000	199.999	-158.999	25.000
4047.000	460.000	583.297	0.000	.057	0.000	46.931	0.000	178.000
4047.000	800.000	585.061	1.765	.057	0.000	99.434	-52.503	178.000
4047.000	920.000	585.828	.767	.042	0.000	149.999	-103.068	178.000
4047.000	1220.000	587.144	1.315	.033	0.000	149.999	-103.068	178.000
4225.000	460.000	583.408	0.000	.112	0.000	44.785	0.000	178.000
4225.000	800.000	585.172	1.763	.110	0.000	49.545	-4.759	178.000
4225.000	920.000	585.919	.748	.091	0.000	68.373	-23.588	178.000
4225.000	1220.000	587.207	1.288	.063	0.000	86.999	-42.214	178.000
4250.000	460.000	583.450	0.000	.042	0.000	45.490	0.000	25.000
4250.000	800.000	585.212	1.762	.040	0.000	50.202	-4.712	25.000
4250.000	920.000	585.955	.744	.036	0.000	61.694	-16.204	25.000
4250.000	1220.000	587.234	1.279	.027	0.000	71.999	-26.509	25.000
4300.000	460.000	583.513	0.000	.063	0.000	46.843	0.000	50.000
4300.000	800.000	585.279	1.766	.067	0.000	55.403	-8.561	50.000
4300.000	920.000	586.016	.737	.061	0.000	59.999	-13.156	50.000
4300.000	1220.000	587.286	1.270	.052	0.000	59.999	-13.156	50.000
4325.000	460.000	583.481	0.000	-.031	0.000	24.000	0.000	25.000
4325.000	800.000	585.224	1.743	-.055	0.000	33.000	-9.000	25.000
4325.000	920.000	585.954	.730	-.062	0.000	33.000	-9.000	25.000
4325.000	1220.000	587.254	1.300	-.032	0.000	65.323	-61.323	25.000
4438.000	460.000	583.796	0.000	.314	0.000	33.000	0.000	113.000
4438.000	800.000	585.844	2.049	.620	0.000	33.000	0.000	113.000
4438.000	920.000	586.852	1.008	.898	0.000	33.000	0.000	113.000
4438.000	1220.000	588.760	1.907	1.506	0.000	227.968	-194.968	113.000
4453.000	460.000	583.847	0.000	.051	0.000	23.400	0.000	15.000
4453.000	800.000	585.854	2.007	.010	0.000	23.400	0.000	15.000
4453.000	920.000	587.109	1.255	.257	0.000	149.683	-126.283	15.000
4453.000	1220.000	588.898	1.789	.138	0.000	199.999	-176.599	15.000
4521.000	460.000	583.941	0.000	.094	0.000	23.400	0.000	68.000
4521.000	800.000	586.723	2.782	.869	0.000	109.821	-86.421	68.000
4521.000	920.000	587.731	1.007	.622	0.000	199.999	-176.599	68.000
4521.000	1220.000	589.061	1.330	.164	0.000	199.999	-176.599	68.000
4551.000	460.000	584.086	0.000	.145	0.000	54.814	0.000	30.000

4551.000	920.000	587.743	1.013	.015	0.000	259.999	-205.185	30.000
4551.000	1220.000	589.075	1.333	.014	0.000	259.999	-205.185	30.000
4653.000	460.000	584.110	0.000	.024	0.000	47.707	0.000	102.000
4653.000	800.000	586.724	2.614	-.006	0.000	122.066	-74.359	102.000
4653.000	920.000	587.741	1.017	-.002	0.000	287.999	-240.292	102.000
4653.000	1220.000	589.084	1.343	.009	0.000	287.999	-240.292	102.000
4828.000	460.000	584.303	0.000	.198	0.000	47.819	0.000	175.000
4828.000	800.000	586.824	2.515	.099	0.000	111.860	-64.040	175.000
4828.000	920.000	587.796	.972	.054	0.000	199.999	-152.180	175.000
4828.000	1220.000	589.109	1.313	.024	0.000	199.999	-152.180	175.000
5003.000	460.000	584.502	0.000	.194	0.000	47.847	0.000	175.000
5003.000	800.000	586.928	2.426	.105	0.000	100.071	-52.224	175.000
5003.000	920.000	587.859	.930	.063	0.000	300.643	-252.796	175.000
5003.000	1220.000	589.162	1.304	.053	0.000	349.999	-302.152	175.000
5178.000	460.000	584.695	0.000	.193	0.000	47.982	0.000	175.000
5178.000	800.000	587.039	2.344	.111	0.000	90.978	-42.996	175.000
5178.000	920.000	587.928	.889	.070	0.000	240.648	-192.667	175.000
5178.000	1220.000	589.192	1.264	.030	0.000	253.999	-206.017	175.000
5353.000	460.000	584.886	0.000	.191	0.000	47.967	0.000	175.000
5353.000	800.000	587.160	2.273	.120	0.000	58.053	-10.086	175.000
5353.000	920.000	588.008	.848	.080	0.000	65.582	-17.615	175.000
5353.000	1220.000	589.220	1.212	.028	0.000	159.999	-112.032	175.000
5403.000	460.000	584.911	0.000	.024	0.000	19.999	0.000	50.000
5403.000	800.000	587.099	2.188	-.061	0.000	19.999	-.000	50.000
5403.000	920.000	588.037	.938	.030	0.000	96.565	-76.566	50.000
5403.000	1220.000	589.259	1.222	.039	0.000	133.999	-114.000	50.000
5484.000	460.000	585.166	0.000	.256	0.000	19.999	0.000	81.000
5484.000	800.000	587.193	2.031	.099	0.000	20.999	-1.000	81.000
5484.000	920.000	588.550	1.352	.513	0.000	111.158	-91.159	81.000
5484.000	1220.000	589.711	1.161	.452	0.000	133.999	-114.000	81.000
5504.000	460.000	585.365	0.000	.199	0.000	43.993	0.000	20.000
5504.000	800.000	587.614	2.249	.417	0.000	169.694	-125.702	20.000
5504.000	920.000	588.635	1.021	.085	0.000	171.679	-127.686	20.000
5504.000	1220.000	589.781	1.146	.070	0.000	176.999	-133.006	20.000
5578.000	460.000	585.397	0.000	.032	0.000	39.998	0.000	74.000
5578.000	800.000	587.611	2.215	-.003	0.000	122.367	-82.370	74.000
5578.000	920.000	588.633	1.022	-.002	0.000	173.532	-133.534	74.000
5578.000	1220.000	589.783	1.150	.002	0.000	175.773	-135.775	74.000
5678.000	460.000	585.539	0.000	.142	0.000	41.800	0.000	100.000
5678.000	800.000	587.738	2.199	.127	0.000	172.451	-130.651	100.000
5678.000	920.000	588.709	.971	.076	0.000	174.343	-132.543	100.000
5678.000	1220.000	589.840	1.130	.056	0.000	299.999	-258.199	100.000
5728.000	460.000	585.593	0.000	.055	0.000	42.630	0.000	50.000
5728.000	800.000	587.799	2.205	.061	0.000	232.900	-190.270	50.000
5728.000	920.000	588.754	.955	.044	0.000	234.760	-192.130	50.000
5728.000	1220.000	589.874	1.121	.035	0.000	299.999	-257.369	50.000
5753.000	460.000	585.568	0.000	-.026	0.000	25.800	0.000	25.000
5753.000	800.000	587.802	2.234	.003	0.000	222.772	-196.972	25.000
5753.000	920.000	588.756	.954	.003	0.000	224.983	-199.183	25.000
5753.000	1220.000	589.876	1.120	.001	0.000	247.587	-221.787	25.000
5804.000	460.000	585.703	0.000	.136	0.000	25.800	0.000	51.000
5804.000	800.000	588.010	2.306	.208	0.000	223.242	-197.442	51.000

5804.000	1220.000	589.948	1.107	.072	0.000	250.108	-224.308	51.000
5829.000	460.000	585.882	0.000	.178	0.000	43.942	0.000	25.000
5829.000	800.000	588.054	2.172	.044	0.000	197.513	-153.571	25.000
5829.000	920.000	588.858	.805	.018	0.000	199.067	-155.124	25.000
5829.000	1220.000	589.954	1.096	.006	0.000	199.999	-156.057	25.000
6091.000	460.000	586.041	0.000	.159	0.000	43.442	0.000	262.000
6091.000	800.000	588.154	2.113	.100	0.000	149.145	-105.702	262.000
6091.000	920.000	588.928	.773	.069	0.000	150.662	-107.220	262.000
6091.000	1220.000	590.009	1.081	.055	0.000	199.999	-156.557	262.000
6353.000	460.000	586.211	0.000	.170	0.000	90.278	0.000	262.000
6353.000	800.000	588.301	2.089	.146	0.000	199.760	-109.482	262.000
6353.000	920.000	589.037	.736	.109	0.000	237.786	-147.508	262.000
6353.000	1220.000	590.100	1.064	.092	0.000	249.999	-159.721	262.000
6378.000	460.000	586.217	0.000	.006	0.000	86.513	0.000	25.000
6378.000	800.000	588.304	2.086	.003	0.000	196.212	-109.599	25.000
6378.000	920.000	589.039	.735	.002	0.000	226.118	-139.505	25.000
6378.000	1220.000	590.102	1.063	.002	0.000	249.999	-163.386	25.000
6403.000	460.000	586.162	0.000	-.055	0.000	24.600	0.000	25.000
6403.000	800.000	588.312	2.150	.008	0.000	142.966	-118.366	25.000
6403.000	920.000	589.045	.733	.007	0.000	206.021	-181.421	25.000
6403.000	1220.000	590.106	1.060	.004	0.000	225.999	-201.399	25.000
6469.000	460.000	586.295	0.000	.133	0.000	24.600	0.000	66.000
6469.000	800.000	588.765	2.469	.453	0.000	193.541	-168.941	66.000
6469.000	920.000	589.358	.593	.312	0.000	214.202	-189.602	66.000
6469.000	1220.000	590.232	.874	.126	0.000	225.999	-201.399	66.000
6494.000	460.000	586.533	0.000	.238	0.000	258.610	0.000	25.000
6494.000	800.000	588.803	2.270	.039	0.000	299.999	-41.389	25.000
6494.000	920.000	589.391	.588	.034	0.000	299.999	-41.389	25.000
6494.000	1220.000	590.266	.874	.034	0.000	299.999	-41.389	25.000
6703.000	460.000	586.556	0.000	.023	0.000	294.839	0.000	209.000
6703.000	800.000	588.814	2.258	.010	0.000	587.100	-292.261	209.000
6703.000	920.000	589.401	.587	.010	0.000	626.564	-331.725	209.000
6703.000	1220.000	590.277	.876	.011	0.000	684.383	-389.544	209.000
6953.000	460.000	586.572	0.000	.016	0.000	294.697	0.000	250.000
6953.000	800.000	588.820	2.248	.006	0.000	586.254	-291.557	250.000
6953.000	920.000	589.406	.586	.005	0.000	625.659	-330.962	250.000
6953.000	1220.000	590.282	.876	.005	0.000	683.517	-388.820	250.000
7203.000	460.000	586.588	0.000	.016	0.000	294.489	0.000	250.000
7203.000	800.000	588.826	2.238	.006	0.000	585.335	-290.847	250.000
7203.000	920.000	589.411	.585	.005	0.000	624.674	-330.185	250.000
7203.000	1220.000	590.287	.875	.005	0.000	682.550	-388.061	250.000
7453.000	460.000	586.604	0.000	.016	0.000	294.283	0.000	250.000
7453.000	800.000	588.832	2.228	.006	0.000	584.429	-290.145	250.000
7453.000	920.000	589.417	.584	.005	0.000	623.693	-329.415	250.000
7453.000	1220.000	590.292	.875	.005	0.000	681.591	-387.307	250.000
7703.000	460.000	586.621	0.000	.016	0.000	294.081	0.000	250.000
7703.000	800.000	588.839	2.219	.007	0.000	583.534	-289.453	250.000
7703.000	920.000	589.422	.583	.006	0.000	622.733	-328.651	250.000
7703.000	1220.000	590.297	.875	.005	0.000	680.609	-386.528	250.000
7963.000	460.000	586.637	0.000	.017	0.000	293.908	0.000	260.000
7963.000	800.000	588.846	2.209	.007	0.000	582.267	-288.359	260.000
7963.000	920.000	589.428	.582	.006	0.000	621.548	-327.640	260.000

8223.000	460.000	586.655	0.000	.016	0.000	285.686	0.000	260.000
8223.000	800.000	588.854	2.198	.007	0.000	520.206	-234.520	260.000
8223.000	920.000	589.434	.581	.006	0.000	565.698	-280.011	260.000
8223.000	1220.000	590.306	.874	.006	0.000	635.018	-349.332	260.000
8483.000	460.000	586.676	0.000	.021	0.000	275.242	0.000	260.000
8483.000	800.000	588.862	2.186	.009	0.000	510.203	-234.961	260.000
8483.000	920.000	589.442	.579	.007	0.000	552.749	-277.507	260.000
8483.000	1220.000	590.315	.874	.007	0.000	620.365	-345.122	260.000
8743.000	460.000	586.699	0.000	.022	0.000	287.967	0.000	260.000
8743.000	800.000	588.872	2.173	.009	0.000	528.429	-240.462	260.000
8743.000	920.000	589.449	.578	.008	0.000	553.260	-265.294	260.000
8743.000	1220.000	590.323	.873	.007	0.000	590.184	-302.217	260.000
9003.000	460.000	586.709	0.000	.011	0.000	120.136	0.000	260.000
9003.000	800.000	588.876	2.167	.004	0.000	341.905	-221.769	260.000
9003.000	920.000	589.454	.578	.004	0.000	358.147	-238.011	260.000
9003.000	1220.000	590.328	.874	.005	0.000	382.748	-262.613	260.000
9103.000	460.000	586.747	0.000	.038	0.000	79.387	0.000	100.000
9103.000	800.000	588.866	2.119	.010	0.000	281.939	-202.552	100.000
9103.000	920.000	589.443	.577	.009	0.000	332.342	-252.954	100.000
9103.000	1220.000	590.338	.874	.010	0.000	357.697	-278.310	100.000
9178.000	460.000	586.853	0.000	.106	0.000	75.308	0.000	75.000
9178.000	800.000	588.902	2.049	.016	0.000	218.297	-142.989	75.000
9178.000	920.000	589.476	.573	.012	0.000	276.203	-200.895	75.000
9178.000	1220.000	590.349	.873	.011	0.000	339.406	-264.098	75.000
9218.000	460.000	587.173	0.000	.320	0.000	41.500	0.000	40.000
9218.000	800.000	588.923	1.751	.021	0.000	46.300	-4.800	40.000
9218.000	920.000	589.551	.628	.075	0.000	260.973	-219.473	40.000
9218.000	1220.000	590.393	.842	.044	0.000	388.111	-346.611	40.000
9228.000	460.000	587.248	0.000	.076	0.000	41.500	0.000	10.000
9228.000	800.000	589.666	2.417	.742	0.000	46.300	-4.800	10.000
9228.000	920.000	590.313	.648	.762	0.000	387.627	-346.127	10.000
9228.000	1220.000	590.912	.599	.519	0.000	391.667	-350.167	10.000
9253.000	460.000	587.389	0.000	.141	0.000	32.800	0.000	25.000
9253.000	800.000	589.916	2.527	.250	0.000	316.548	-283.748	25.000
9253.000	920.000	590.351	.436	.038	0.000	319.430	-286.630	25.000
9253.000	1220.000	590.943	.592	.031	0.000	323.426	-290.626	25.000
9263.000	460.000	587.834	0.000	.445	0.000	32.800	0.000	10.000
9263.000	800.000	590.165	2.332	.250	0.000	318.265	-285.465	10.000
9263.000	920.000	590.568	.403	.217	0.000	320.984	-288.184	10.000
9263.000	1220.000	591.164	.596	.221	0.000	325.017	-292.217	10.000
9288.000	460.000	587.842	0.000	.008	0.000	76.187	0.000	25.000
9288.000	800.000	590.121	2.279	-.045	0.000	150.629	-74.442	25.000
9288.000	920.000	590.527	.406	-.042	0.000	167.252	-91.065	25.000
9288.000	1220.000	591.120	.594	-.044	0.000	198.415	-112.228	25.000
9428.000	460.000	588.934	0.000	1.092	0.000	80.088	0.000	400.000
9428.000	800.000	590.427	1.492	.306	0.000	148.815	-68.727	400.000
9428.000	920.000	590.786	.360	.260	0.000	163.546	-83.458	400.000
9428.000	1220.000	591.355	.572	.238	0.000	186.036	-105.948	400.000
9502.000	400.000	589.114	0.000	.180	0.000	111.346	0.000	74.000
9502.000	730.000	590.551	1.438	.125	0.000	126.853	-15.507	74.000
9502.000	855.000	590.699	.148	.113	0.000	127.146	-15.800	74.000
9502.000	1145.000	591.468	.769	.109	0.000	127.624	-16.278	74.000

9503.000	400.000	589.114	0.000	-.003	0.000	104.849	0.000	1.000
9503.000	730.000	590.543	1.433	-.008	0.000	118.999	-14.150	1.000
9503.000	855.000	590.890	.346	-.010	0.000	118.999	-14.150	1.000
9503.000	1145.000	591.453	.563	-.015	0.000	118.999	-14.150	1.000
9557.000	400.000	589.137	0.000	.026	0.000	104.977	0.000	54.000
9557.000	730.000	590.576	1.439	.033	0.000	118.999	-14.022	54.000
9557.000	855.000	590.927	.351	.037	0.000	118.999	-14.022	54.000
9557.000	1145.000	591.504	.577	.051	0.000	118.999	-14.022	54.000
9558.000	400.000	589.137	0.000	.000	0.000	104.979	0.000	1.000
9558.000	730.000	590.576	1.439	.000	0.000	118.999	-14.020	1.000
9558.000	855.000	590.927	.351	.000	0.000	118.999	-14.020	1.000
9558.000	1145.000	591.505	.577	.000	0.000	118.999	-14.020	1.000
9582.000	400.000	589.187	0.000	.050	0.000	168.999	0.000	24.000
9582.000	730.000	590.632	1.446	.056	0.000	168.999	-.000	24.000
9582.000	855.000	590.989	.357	.062	0.000	168.999	-.000	24.000
9582.000	1145.000	591.585	.596	.081	0.000	168.999	-.000	24.000
9657.000	400.000	589.199	0.000	.013	0.000	333.214	0.000	75.000
9657.000	730.000	590.650	1.451	.018	0.000	338.607	-5.393	75.000
9657.000	855.000	591.010	.360	.021	0.000	339.699	-6.485	75.000
9657.000	1145.000	591.615	.604	.029	0.000	341.528	-8.314	75.000
9957.000	400.000	589.212	0.000	.013	0.000	329.237	0.000	300.000
9957.000	730.000	590.664	1.451	.013	0.000	336.709	-7.472	300.000
9957.000	855.000	591.025	.361	.014	0.000	337.806	-8.569	300.000
9957.000	1145.000	591.632	.608	.013	0.000	339.651	-10.414	300.000
10257.000	400.000	589.230	0.000	.017	0.000	325.171	0.000	300.000
10257.000	730.000	590.677	1.447	.013	0.000	334.462	-9.290	300.000
10257.000	855.000	591.038	.361	.014	0.000	335.896	-10.724	300.000
10257.000	1145.000	591.649	.610	.016	0.000	337.751	-12.579	300.000
10557.000	400.000	589.251	0.000	.021	0.000	164.886	0.000	300.000
10557.000	730.000	590.694	1.443	.017	0.000	181.536	-16.650	300.000
10557.000	855.000	591.056	.362	.017	0.000	186.045	-21.159	300.000
10557.000	1145.000	591.667	.612	.019	0.000	188.280	-23.394	300.000
10857.000	400.000	589.281	0.000	.030	0.000	163.827	0.000	300.000
10857.000	730.000	590.729	1.448	.035	0.000	179.925	-16.098	300.000
10857.000	855.000	591.094	.365	.039	0.000	186.698	-22.872	300.000
10857.000	1145.000	591.715	.621	.048	0.000	200.029	-36.202	300.000
11157.000	400.000	589.388	0.000	.107	0.000	114.312	0.000	300.000
11157.000	730.000	590.811	1.424	.083	0.000	159.138	-44.826	300.000
11157.000	855.000	591.179	.368	.085	0.000	161.236	-46.924	300.000
11157.000	1145.000	591.813	.633	.097	0.000	164.849	-50.537	300.000
11327.000	400.000	589.576	0.000	.188	0.000	122.105	0.000	170.000
11327.000	730.000	590.930	1.354	.118	0.000	132.165	-10.060	170.000
11327.000	855.000	591.292	.362	.113	0.000	134.951	-12.846	170.000
11327.000	1145.000	591.927	.636	.115	0.000	139.858	-17.753	170.000
11497.000	400.000	589.840	0.000	.264	0.000	119.877	0.000	170.000
11497.000	730.000	591.087	1.248	.157	0.000	129.309	-9.432	170.000
11497.000	855.000	591.442	.355	.150	0.000	132.032	-12.155	170.000
11497.000	1145.000	592.081	.638	.153	0.000	136.949	-17.073	170.000
11667.000	400.000	590.178	0.000	.339	0.000	89.082	0.000	170.000
11667.000	730.000	591.300	1.122	.213	0.000	99.902	-10.820	170.000
11667.000	855.000	591.642	.342	.200	0.000	102.547	-13.465	170.000
11667.000	1145.000	592.275	.632	.194	0.000	107.575	-18.493	170.000

11837.000	730.000	591.560	1.054	.279	0.000	97.962	-13.114	170.000
11837.000	855.000	591.912	.332	.270	0.000	100.533	-15.685	170.000
11837.000	1145.000	592.545	.633	.270	0.000	105.522	-20.675	170.000
12007.000	400.000	591.047	0.000	.521	0.000	52.281	0.000	170.000
12007.000	730.000	591.982	.935	.403	0.000	60.730	-8.448	170.000
12007.000	855.000	592.289	.307	.377	0.000	63.264	-10.983	170.000
12007.000	1145.000	592.902	.613	.357	0.000	69.982	-17.701	170.000
12177.000	400.000	591.887	0.000	.840	0.000	55.554	0.000	170.000
12177.000	730.000	592.831	.944	.849	0.000	63.365	-7.811	170.000
12177.000	855.000	593.135	.304	.846	0.000	66.650	-11.096	170.000
12177.000	1145.000	593.770	.635	.868	0.000	74.364	-18.810	170.000
12347.000	400.000	592.801	0.000	.714	0.000	24.474	0.000	170.000
12347.000	730.000	593.476	.876	.645	0.000	25.932	-1.458	170.000
12347.000	855.000	593.740	.264	.605	0.000	26.372	-1.898	170.000
12347.000	1145.000	594.246	.506	.476	0.000	27.221	-2.748	170.000
12382.000	400.000	593.113	0.000	.512	0.000	25.486	0.000	35.000
12382.000	730.000	594.393	1.280	.916	0.000	27.633	-2.146	35.000
12382.000	855.000	595.127	.734	1.387	0.000	111.925	-86.439	35.000
12382.000	1145.000	596.409	1.282	2.162	0.000	132.713	-107.226	35.000
12457.000	400.000	593.445	0.000	.334	0.000	15.958	0.000	75.000
12457.000	730.000	594.820	1.374	.427	0.000	77.091	-61.133	75.000
12457.000	855.000	595.339	.519	.212	0.000	85.880	-69.922	75.000
12457.000	1145.000	596.499	1.160	.091	0.000	105.599	-89.641	75.000
12485.000	400.000	593.649	0.000	.203	0.000	15.958	0.000	28.000
12485.000	730.000	596.324	2.675	1.504	0.000	97.594	-81.636	28.000
12485.000	855.000	597.026	.702	1.687	0.000	116.649	-100.691	28.000
12485.000	1145.000	597.840	.813	1.340	0.000	156.015	-140.057	28.000
12510.000	400.000	594.353	0.000	.703	0.000	27.302	0.000	25.000
12510.000	730.000	596.605	2.253	.281	0.000	133.489	-106.187	25.000
12510.000	855.000	597.235	.629	.209	0.000	143.141	-115.840	25.000
12510.000	1145.000	598.023	.788	.183	0.000	151.554	-124.252	25.000
12660.000	400.000	594.734	0.000	.381	0.000	27.329	0.000	150.000
12660.000	730.000	596.833	2.099	.228	0.000	131.005	-103.676	150.000
12660.000	855.000	597.438	.605	.203	0.000	141.054	-113.726	150.000
12660.000	1145.000	598.229	.791	.206	0.000	149.913	-122.584	150.000
12907.000	400.000	595.171	0.000	.437	0.000	171.289	0.000	247.000
12907.000	730.000	597.040	1.869	.207	0.000	198.499	-27.210	247.000
12907.000	855.000	597.611	.572	.173	0.000	199.251	-27.962	247.000
12907.000	1145.000	598.406	.795	.177	0.000	200.307	-29.018	247.000
12957.000	400.000	595.194	0.000	.024	0.000	167.672	0.000	50.000
12957.000	730.000	597.054	1.860	.015	0.000	199.999	-32.327	50.000
12957.000	855.000	597.625	.571	.014	0.000	199.999	-32.327	50.000
12957.000	1145.000	598.421	.796	.015	0.000	199.999	-32.327	50.000
12967.000	400.000	595.306	0.000	.112	0.000	44.000	0.000	10.000
12967.000	730.000	597.230	1.924	.176	0.000	199.999	-155.999	10.000
12967.000	855.000	597.755	.525	.130	0.000	199.999	-155.999	10.000
12967.000	1145.000	598.550	.795	.128	0.000	199.999	-155.999	10.000
12987.000	400.000	595.370	0.000	.064	0.000	198.078	0.000	20.000
12987.000	730.000	597.238	1.867	.008	0.000	199.999	-1.921	20.000
12987.000	855.000	597.762	.525	.007	0.000	199.999	-1.921	20.000
12987.000	1145.000	598.558	.795	.008	0.000	199.999	-1.921	20.000
13322.000	400.000	595.383	0.000	.012	0.000	231.590	0.000	335.000

13322.000	730.000	597.247	1.535	.010	0.000	246.603	-15.013	335.000
13322.000	855.000	597.773	.525	.010	0.000	248.236	-16.647	335.000
13322.000	1145.000	598.570	.798	.013	0.000	250.717	-19.128	335.000
13657.000	400.000	595.431	0.000	.049	0.000	207.892	0.000	335.000
13657.000	730.000	597.277	1.845	.029	0.000	285.323	-77.431	335.000
13657.000	855.000	597.800	.524	.028	0.000	291.786	-83.894	335.000
13657.000	1145.000	598.600	.800	.030	0.000	301.648	-93.756	335.000
13756.000	400.000	595.467	0.000	.036	0.000	288.682	0.000	99.000
13756.000	730.000	597.298	1.831	.021	0.000	304.624	-15.942	99.000
13756.000	855.000	597.820	.522	.020	0.000	308.220	-19.539	99.000
13756.000	1145.000	598.621	.801	.021	0.000	313.730	-25.048	99.000
13757.000	400.000	595.464	0.000	-.003	0.000	205.973	0.000	1.000
13757.000	730.000	597.295	1.831	-.003	0.000	218.524	-12.551	1.000
13757.000	855.000	597.817	.522	-.003	0.000	222.121	-16.147	1.000
13757.000	1145.000	598.617	.800	-.004	0.000	227.631	-21.657	1.000
13832.000	400.000	595.487	0.000	.022	0.000	206.093	0.000	75.000
13832.000	730.000	597.308	1.821	.013	0.000	218.589	-12.496	75.000
13832.000	855.000	597.829	.521	.012	0.000	222.181	-16.088	75.000
13832.000	1145.000	598.631	.802	.013	0.000	227.696	-21.603	75.000
13833.000	400.000	595.487	0.000	.000	0.000	206.095	0.000	1.000
13833.000	730.000	597.308	1.821	.000	0.000	218.590	-12.495	1.000
13833.000	855.000	597.829	.521	.000	0.000	222.183	-16.087	1.000
13833.000	1145.000	598.631	.802	.000	0.000	227.697	-21.602	1.000
13882.000	400.000	595.501	0.000	.015	0.000	194.520	0.000	49.000
13882.000	730.000	597.315	1.814	.007	0.000	275.716	-81.195	49.000
13882.000	855.000	597.836	.521	.007	0.000	285.808	-91.288	49.000
13882.000	1145.000	598.639	.802	.008	0.000	295.701	-101.181	49.000
14097.000	400.000	595.851	0.000	.350	0.000	58.296	0.000	215.000
14097.000	730.000	597.248	1.396	-.068	0.000	96.251	-37.955	215.000
14097.000	855.000	597.799	.552	-.037	0.000	107.147	-48.851	215.000
14097.000	1145.000	598.619	.820	-.019	0.000	127.101	-68.805	215.000
14312.000	400.000	597.453	0.000	1.601	0.000	98.904	0.000	215.000
14312.000	730.000	598.291	.838	1.044	0.000	116.771	-17.867	215.000
14312.000	855.000	598.606	.315	.806	0.000	124.957	-26.052	215.000
14312.000	1145.000	599.272	.666	.653	0.000	136.017	-37.113	215.000
14527.000	400.000	597.772	0.000	.319	0.000	103.498	0.000	215.000
14527.000	730.000	598.698	.926	.407	0.000	125.294	-21.796	215.000
14527.000	855.000	599.014	.315	.408	0.000	132.445	-28.947	215.000
14527.000	1145.000	599.668	.655	.396	0.000	137.486	-33.988	215.000
14742.000	400.000	598.015	0.000	.243	0.000	107.060	0.000	215.000
14742.000	730.000	598.995	.980	.297	0.000	131.125	-24.064	215.000
14742.000	855.000	599.316	.321	.302	0.000	134.884	-27.823	215.000
14742.000	1145.000	599.973	.657	.304	0.000	137.970	-30.910	215.000
14957.000	400.000	598.215	0.000	.199	0.000	109.418	0.000	215.000
14957.000	730.000	599.236	1.021	.241	0.000	133.201	-23.783	215.000
14957.000	855.000	599.561	.325	.246	0.000	136.626	-27.209	215.000
14957.000	1145.000	600.225	.664	.253	0.000	138.327	-28.909	215.000
15257.000	400.000	598.554	0.000	.339	0.000	92.996	0.000	300.000
15257.000	730.000	599.610	1.056	.374	0.000	114.725	-21.729	300.000
15257.000	855.000	599.938	.328	.376	0.000	123.188	-30.192	300.000
15257.000	1145.000	600.605	.667	.380	0.000	135.295	-42.299	300.000
15557.000	400.000	599.265	0.000	.711	0.000	79.970	0.000	300.000
15557.000	730.000	600.285	1.020	.675	0.000	85.167	-5.198	300.000

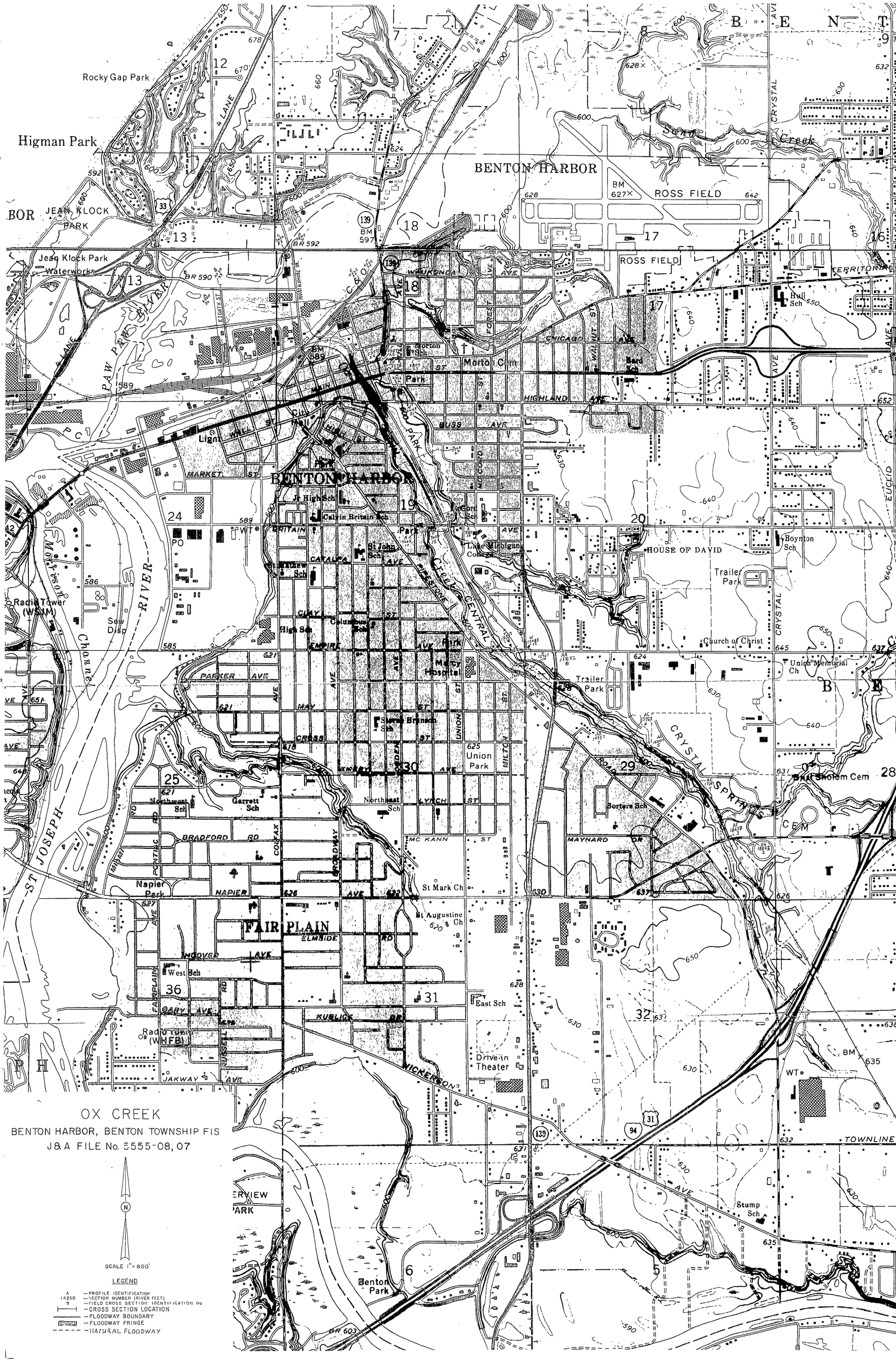
15557.000	1145.000	601.239	.640	.634	0.000	108.981	-29.012	300.000
15857.000	400.000	600.129	0.000	.363	0.000	52.031	0.000	300.000
15857.000	730.000	601.151	1.023	.867	0.000	83.623	-31.542	300.000
15857.000	855.000	601.465	.314	.866	0.000	85.222	-33.141	300.000
15857.000	1145.000	602.104	.639	.865	0.000	97.775	-45.694	300.000
15957.000	400.000	600.619	0.000	.491	0.000	42.000	0.000	100.000
15957.000	730.000	601.722	1.103	.570	0.000	147.231	-105.231	100.000
15957.000	855.000	602.053	.331	.588	0.000	157.473	-115.473	100.000
15957.000	1145.000	602.729	.677	.625	0.000	178.417	-136.417	100.000
15967.000	400.000	601.047	0.000	.429	0.000	42.000	0.000	10.000
15967.000	730.000	603.324	2.276	1.602	0.000	192.896	-150.896	10.000
15967.000	855.000	603.679	.356	1.626	0.000	199.604	-157.604	10.000
15967.000	1145.000	604.163	.484	1.434	0.000	199.999	-157.999	10.000
16007.000	400.000	601.151	0.000	.104	0.000	91.316	0.000	40.000
16007.000	730.000	603.326	2.175	.003	0.000	108.812	-17.496	40.000
16007.000	855.000	603.680	.354	.001	0.000	110.326	-19.010	40.000
16007.000	1145.000	604.159	.480	-.004	0.000	111.663	-20.347	40.000
16207.000	400.000	601.206	0.000	.055	0.000	88.032	0.000	200.000
16207.000	730.000	603.371	2.165	.045	0.000	102.396	-14.364	200.000
16207.000	855.000	603.731	.360	.051	0.000	105.960	-17.928	200.000
16207.000	1145.000	604.232	.500	.072	0.000	109.932	-21.900	200.000
16407.000	400.000	601.300	0.000	.094	0.000	84.944	0.000	200.000
16407.000	730.000	603.437	2.137	.066	0.000	96.003	-11.059	200.000
16407.000	855.000	603.804	.367	.073	0.000	99.638	-14.694	200.000
16407.000	1145.000	604.331	.527	.099	0.000	104.945	-19.901	200.000
16607.000	400.000	601.491	0.000	.191	0.000	32.349	0.000	200.000
16607.000	730.000	603.544	2.052	.107	0.000	92.807	-10.459	200.000
16607.000	855.000	603.918	.375	.114	0.000	94.718	-12.369	200.000
16607.000	1145.000	604.479	.560	.148	0.000	99.403	-17.054	200.000
16807.000	400.000	601.761	0.000	.270	0.000	73.220	0.000	200.000
16807.000	730.000	603.690	1.929	.146	0.000	86.922	-13.702	200.000
16807.000	855.000	604.073	.383	.154	0.000	89.643	-16.423	200.000
16807.000	1145.000	604.670	.598	.192	0.000	96.298	-23.078	200.000
17007.000	400.000	602.166	0.000	.405	0.000	71.127	0.000	200.000
17007.000	730.000	603.913	1.746	.223	0.000	83.534	-12.407	200.000
17007.000	855.000	604.302	.390	.230	0.000	86.303	-15.176	200.000
17007.000	1145.000	604.942	.640	.272	0.000	91.446	-20.319	200.000
17207.000	400.000	602.695	0.000	.529	0.000	69.910	0.000	200.000
17207.000	730.000	604.213	1.518	.300	0.000	80.695	-10.785	200.000
17207.000	855.000	604.603	.390	.300	0.000	83.463	-13.553	200.000
17207.000	1145.000	605.277	.675	.335	0.000	88.217	-18.307	200.000
17497.000	400.000	603.779	0.000	1.084	0.000	68.654	0.000	290.000
17497.000	730.000	604.970	1.191	.757	0.000	77.124	-8.470	290.000
17497.000	855.000	605.342	.371	.739	0.000	79.762	-11.108	290.000
17497.000	1145.000	606.049	.707	.771	0.000	84.784	-16.130	290.000
17787.000	400.000	605.003	0.000	1.225	0.000	68.404	0.000	290.000
17787.000	730.000	606.018	1.015	1.048	0.000	75.613	-7.209	290.000
17787.000	855.000	606.353	.335	1.011	0.000	77.991	-9.587	290.000
17787.000	1145.000	607.036	.683	.988	0.000	82.848	-14.444	290.000
18077.000	400.000	605.842	0.000	.839	0.000	96.999	0.000	290.000
18077.000	730.000	606.949	1.107	.931	0.000	96.999	-.000	290.000
18077.000	855.000	607.305	.356	.952	0.000	96.999	-.000	290.000

18077.000	1145.000	608.039	.734	1.002	0.000	96.999	-.000	290.000
18367.000	230.000	606.156	0.000	.314	0.000	96.999	0.000	290.000
18367.000	415.000	607.278	1.122	.329	0.000	96.999	-.000	290.000
18367.000	490.000	607.643	.365	.358	0.000	96.999	-.000	290.000
18367.000	655.000	608.400	.757	.361	0.000	96.999	-.000	290.000
18467.000	230.000	606.294	0.000	.138	0.000	89.999	0.000	100.000
18467.000	415.000	607.370	1.076	.091	0.000	89.999	-.000	100.000
18467.000	490.000	607.728	.359	.085	0.000	89.999	-.000	100.000
18467.000	655.000	608.475	.746	.075	0.000	89.999	-.000	100.000
18567.000	230.000	606.537	0.000	.243	0.000	89.999	0.000	100.000
18567.000	415.000	607.519	.982	.149	0.000	89.999	-.000	100.000
18567.000	490.000	607.864	.345	.135	0.000	89.999	-.000	100.000
18567.000	655.000	608.590	.726	.115	0.000	89.999	-.000	100.000
18657.000	230.000	606.847	0.000	.310	0.000	41.999	0.000	90.000
18657.000	415.000	607.651	.804	.132	0.000	41.999	-.000	90.000
18657.000	490.000	607.957	.306	.093	0.000	41.999	-.000	90.000
18657.000	655.000	608.620	.664	.031	0.000	41.999	-.000	90.000
18706.000	230.000	607.130	0.000	.283	0.000	14.549	0.000	49.000
18706.000	415.000	607.859	.729	.209	0.000	15.000	-.451	49.000
18706.000	490.000	608.110	.251	.153	0.000	15.000	-.451	49.000
18706.000	655.000	608.609	.499	-.012	0.000	15.000	-.451	49.000
18707.000	230.000	607.133	0.000	.003	0.000	14.553	0.000	1.000
18707.000	415.000	607.860	.728	.001	0.000	15.000	-.447	1.000
18707.000	490.000	608.109	.249	-.001	0.000	15.000	-.447	1.000
18707.000	655.000	608.590	.481	-.019	0.000	15.000	-.447	1.000
18803.000	230.000	607.188	0.000	.056	0.000	14.594	0.000	96.000
18803.000	415.000	607.990	.801	.129	0.000	15.000	-.406	96.000
18803.000	490.000	608.277	.287	.168	0.000	15.000	-.406	96.000
18803.000	655.000	608.920	.643	.330	0.000	15.000	-.406	96.000
18804.000	230.000	607.190	0.000	.001	0.000	14.594	0.000	1.000
18804.000	415.000	607.998	.808	.005	0.000	15.000	-.406	1.000
18804.000	490.000	608.316	.318	.038	0.000	15.000	-.406	1.000
18804.000	655.000	609.045	.729	.125	0.000	15.000	-.406	1.000
18828.000	230.000	607.619	0.000	.429	0.000	64.999	0.000	24.000
18828.000	415.000	608.900	1.282	.902	0.000	64.999	-.000	24.000
18828.000	490.000	609.399	.498	1.083	0.000	64.999	-.000	24.000
18828.000	655.000	610.466	1.068	1.421	0.000	64.999	-.000	24.000
19193.000	230.000	607.739	0.000	.120	0.000	54.999	0.000	365.000
19193.000	415.000	609.020	1.281	.119	0.000	54.999	-.000	365.000
19193.000	490.000	609.513	.493	.114	0.000	54.999	-.000	365.000
19193.000	655.000	610.569	1.055	.102	0.000	54.999	-.000	365.000
19583.000	230.000	608.076	0.000	.337	0.000	183.844	0.000	390.000
19583.000	415.000	609.262	1.186	.242	0.000	191.386	-7.541	390.000
19583.000	490.000	609.738	.476	.225	0.000	194.410	-10.566	390.000
19583.000	655.000	610.772	1.034	.203	0.000	200.980	-17.136	390.000
19973.000	230.000	608.518	0.000	.442	0.000	135.053	0.000	390.000
19973.000	415.000	609.423	.905	.161	0.000	184.909	-49.851	390.000
19973.000	490.000	609.856	.433	.118	0.000	187.662	-52.604	390.000
19973.000	655.000	610.841	.985	.069	0.000	193.922	-58.864	390.000
20363.000	230.000	609.996	0.000	1.475	0.000	167.331	0.000	390.000
20363.000	415.000	610.275	.279	.852	0.000	182.817	-15.485	390.000
20363.000	490.000	610.445	.170	.569	0.000	183.913	-16.582	390.000
20363.000	655.000	611.105	.661	.264	0.000	188.102	-20.770	390.000

20753.000	230.000	611.373	0.000	1.377	0.000	182.304	0.000	390.000
20753.000	415.000	611.923	.550	1.649	0.000	185.762	-3.458	390.000
20753.000	490.000	612.043	.120	1.599	0.000	186.553	-4.249	390.000
20753.000	655.000	612.176	.133	1.071	0.000	187.368	-5.064	390.000
21143.000	230.000	612.419	0.000	1.046	0.000	155.942	0.000	390.000
21143.000	415.000	613.045	.626	1.122	0.000	162.959	-7.017	390.000
21143.000	490.000	613.249	.203	1.205	0.000	165.239	-9.297	390.000
21143.000	655.000	613.648	.400	1.472	0.000	169.633	-13.691	390.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	0.000	56.761	0.000
2	0.000	0.000	86.580	29.819
3	0.000	0.000	94.747	37.986
4	0.000	0.000	111.128	54.366



OX CREEK

BENTON HARBOR, BENTON TOWNSHIP FIS

J&A FILE No. 5555-08, 07

SCALE 1" = 800'

LEGEND

- A — PROFILE IDENTIFICATION
- 14250 — SECTION NUMBER (RIVER FEET)
- 9 — FIELD CROSS SECTION IDENTIFICATION No
- — CROSS SECTION LOCATION
- — FLOODWAY BOUNDARY
- — FLOODWAY FRINGE
- — NATURAL FLOODWAY

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Bridgman City

3) WATERCOURSE: Bedortha Drain

4) DOCUMENT TYPE: 100-YEAR NATURAL

00BREAK00

5.11

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$$$$$$$   $$$$$$$   $$$$$$$$  $$$$$$$$   $$$$$ $  $$$$$$$$  $      $
$$    $$  $$    $$     $$        $$     $$    $   $$        $$    $$
$$    $$  $$    $$     $$        $$     $$   $$$  $$        $$$  $$$
$$$$$$$   $$    $$     $$        $$     $$  $ $$  $$$$$     $$$$$$$$
$$    $$  $$    $$     $$        $$     $$ $$ $$  $$        $$ $$ $$
$$    $$  $$$$$$$      $$        $$     $$ $  $$  $$        $$    $$
$$    $$  $$  $$       $$        $$     $$$   $$  $$        $$    $$
$$    $$  $$   $$      $$     $$ $$      $    $$  $$        $$    $$
$$$$$$$   $$    $$  $$$$$$$$   $$$      $ $$$$$   $$$$$$$$  $$    $$
BRIJOEM  JANDA              02/11/77  09.33.04  7600   JO
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CITY OF BRIDGMAN FIS
J&A FILE NO. 5555-09
BEDORTHA BRAIN
10-50-100- & 500-YR. FLOWS
DNR SUBMITTAL

RECEIVED
FEB 16 1977
WATER MANAGEMENT

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


C
1       CITY OF BRIDGMAN FIS, PROJECT MANAGER: MR. JOHN EMIG
T2       10 YEAR FLOOD
T3      BEDORTHA DRAIN

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
       -0.        2.        -0.        -0. -0.000000      -0.00      -0.0       -0.    609.280     -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       .070       .070       .040       .300       .500     -0.000     -0.000     -0.000     -0.000     -0.000
QT     4.000     92.000    120.000    125.000    135.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1      0.000     10.000    100.000    113.000     -0.000     -0.000     -0.000     -0.000      2.100     -0.000
GR   623.100      0.000    612.900     81.000    608.000     93.000    607.300    100.000    604.900    103.000
GR   604.700    106.000    605.200    109.000    606.400    113.000    607.700    121.000    622.900    148.000

X1    200.000      8.000    114.000    145.000    200.000    200.000    200.000     -0.000     -1.600     -0.000
GR   625.000      0.000    624.300     33.000    616.000     58.000    614.400    114.000    610.500    122.000
GR   609.700    130.000    609.500    137.000    615.000    145.000     -0.000     -0.000     -0.000     -0.000

X1   400.000     -0.000     -0.000     -0.000    200.000    200.000    200.000     -0.000      1.100     -0.000

X1    500.000      8.000    114.000    145.000    100.000    100.000    100.000     -0.000     -0.000     -0.000
GR   625.000      0.000    624.300     33.000    616.000     58.000    614.400    114.000    610.500    122.000
GR   609.700    130.000    609.500    137.000    615.000    145.000     -0.000     -0.000     -0.000     -0.000

X1   550.000     -0.000     -0.000     -0.000     50.000     50.000     50.000     -0.000       .300     -0.000

X1    600.000     -0.000     -0.000     -0.000     50.000     50.000     50.000     -0.000       .300     -0.000

X1   650.000     -0.000     -0.000     -0.000     50.000     50.000     50.000     -0.000       .200     -0.000

X1   667.000     -0.000     -0.000     -0.000     17.000     17.000     17.000     -0.000       .100     -0.000

X1    675.000     -0.000     -0.000     -0.000      8.000      8.000      8.000     -0.000       .100     -0.000
X3     10.000     -0.000     -0.000    121.000     -0.000    139.000     -0.000     -0.000     -0.000     -0.000

X1    688.000     -0.000     -0.000     -0.000     13.000     13.000     13.000     -0.000       .030     -0.000
X3     10.000     -0.000     -0.000    124.000     -0.000    136.000     -0.000     -0.000     -0.000     -0.000

X1    699.000      8.000    171.500    177.000     11.000     11.000     11.000     -0.000     -0.000     -0.000
GR   627.700      0.000    624.100     77.000    621.600    171.500    611.200    171.500    610.600    177.000
GR   621.600    177.000    623.700    277.000    627.300    377.000     -0.000     -0.000     -0.000     -0.000
NC       .070       .070       .024      -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1   700.000     -0.000     -0.000     -0.000      1.000      1.000      1.000     -0.000     -0.000     -0.000
BT     6.000      0.000    627.700      0.000     77.000    624.100      0.000    171.500    621.600    617.100
BT   177.000    621.600    617.100    277.000    623.700      0.000    377.000    627.300      0.000     -0.000

X1   742.000     -0.000     -0.000     -0.000     42.000     42.000     42.000     -0.000     -0.000     -0.000
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X2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	1.000	-0.000	-0.000	-0.000
NC	.070	.070	.040	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	743.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X1	745.000	14.000	164.000	190.000	2.000	2.000	2.000	-0.000	-.900	-0.000
X3	10.000	-0.000	-0.000	174.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	626.600	0.000	625.600	41.000	617.300	82.000	615.100	100.000	614.300	164.000
GR	611.700	172.000	611.500	175.000	612.200	178.000	613.800	180.000	619.200	190.000
GR	620.200	196.000	622.200	200.000	623.600	262.000	628.300	300.000	-0.000	-0.000
X1	747.000	-0.000	-0.000	-0.000	2.000	2.000	2.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	173.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	752.000	-0.000	-0.000	-0.000	5.000	5.000	5.000	-0.000	-.100	-0.000
X3	10.000	-0.000	-0.000	168.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	762.000	-0.000	-0.000	-0.000	10.000	10.000	10.000	-0.000	-.100	-0.000
X3	10.000	-0.000	-0.000	158.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	771.000	-0.000	-0.000	-0.000	9.000	9.000	9.000	-0.000	-.100	-0.000
X3	10.000	-0.000	-0.000	150.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	842.000	14.000	164.000	190.000	71.000	71.000	71.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	166.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	626.600	0.000	625.600	41.000	617.300	82.000	615.100	100.000	614.300	164.000
GR	611.700	172.000	611.500	175.000	612.200	178.000	613.800	180.000	619.200	190.000
GR	620.200	196.000	622.200	200.000	623.600	262.000	628.300	300.000	-0.000	-0.000
X1	852.000	-0.000	-0.000	-0.000	10.000	10.000	10.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	169.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	862.000	-0.000	-0.000	-0.000	10.000	10.000	10.000	-0.000	-.100	-0.000
X3	10.000	-0.000	-0.000	171.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	872.000	-0.000	-0.000	-0.000	10.000	10.000	10.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	174.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	882.000	-0.000	-0.000	-0.000	10.000	10.000	10.000	-0.000	-.130	-0.000
X3	10.000	-0.000	-0.000	176.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	891.000	-0.000	-0.000	-0.000	9.000	9.000	9.000	-0.000	-.240	-0.000
X3	10.000	-0.000	-0.000	177.000	-0.000	181.000	-0.000	-0.000	-0.000	-0.000
X1	892.000	10.000	98.000	102.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
BT	6.000	0.000	620.000	0.000	98.000	620.000	614.200	99.500	620.000	615.700
BT	100.500	620.000	615.700	102.000	620.000	614.200	200.000	620.000	0.000	-0.000
GR	620.000	0.000	620.000	98.000	614.200	98.000	612.700	98.000	611.700	99.500
GR	611.700	100.500	612.700	102.000	614.200	102.000	620.000	102.000	620.000	200.000
X1	1662.000	23.000	791.000	800.000	770.000	770.000	770.000	-0.000	-0.000	-0.000
BT	21.000	0.000	627.900	0.000	100.000	627.800	0.000	200.000	627.500	0.000
BT	300.000	627.500	0.000	400.000	627.400	0.000	500.000	627.200	0.000	600.000
BT	627.100	0.000	700.000	626.900	0.000	791.000	626.900	620.500	795.500	626.900
BT	620.500	800.000	626.900	620.500	847.000	626.900	0.000	862.000	626.900	0.000
BT	900.000	626.800	0.000	1000.000	626.800	0.000	1100.000	626.800	0.000	1200.000
BT	626.900	0.000	1300.000	627.200	0.000	1400.000	627.600	0.000	1500.000	628.200
BT	0.000	1600.000	628.700	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	627.900	0.000	627.800	100.000	627.500	200.000	627.500	300.000	627.400	400.000
GR	627.200	500.000	627.100	600.000	626.900	700.000	626.900	791.000	614.600	791.000
GR	614.500	795.500	614.300	800.000	626.900	800.000	626.900	847.000	626.900	862.000
GR	626.800	900.000	626.800	1000.000	626.800	1100.000	626.900	1200.000	627.200	1300.000
GR	627.600	1400.000	628.200	1500.000	628.700	1600.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.050	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1663.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000

X5	4.000	619.310	622.360	623.010	624.360	-0.000	-0.000	-0.000	-0.000	-0.000
QT	4.000	105.000	165.000	185.000	235.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1687.000	20.000	800.000	813.000	24.000	24.000	24.000	-0.000	-.600	-0.000
X3	10.000	-0.000	-0.000	776.000	-0.000	836.000	-0.000	-0.000	-0.000	-0.000
GR	629.100	0.000	629.000	100.000	628.700	200.000	628.600	300.000	627.800	400.000
GR	627.700	460.000	627.100	500.000	625.900	600.000	624.400	700.000	623.300	757.000
GR	620.400	764.000	619.500	800.000	615.300	806.000	614.900	812.000	617.300	813.000
GR	625.000	900.000	628.800	1000.000	628.900	1100.000	629.200	1200.000	630.100	1300.000
X1	1722.000	-0.000	-0.000	-0.000	35.000	35.000	35.000	-0.000	.100	-0.000
X1	1782.000	-0.000	-0.000	-0.000	60.000	60.000	60.000	-0.000	-0.000	-0.000
X1	1862.000	-0.000	-0.000	-0.000	80.000	80.000	80.000	-0.000	.100	-0.000
X1	1962.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.200	-0.000
X1	2062.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.100	-0.000
X1	2162.000	20.000	800.000	813.000	100.000	100.000	100.000	-0.000	-0.000	-0.000
GR	629.100	0.000	629.000	100.000	628.700	200.000	628.600	300.000	627.800	400.000
GR	627.700	460.000	627.100	500.000	625.900	600.000	624.400	700.000	623.300	757.000
GR	620.400	764.000	619.500	800.000	615.300	806.000	614.900	812.000	617.300	813.000
GR	625.000	900.000	628.800	1000.000	628.900	1100.000	629.200	1200.000	630.100	1300.000
X1	2212.000	-0.000	-0.000	-0.000	50.000	50.000	50.000	-0.000	.400	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
QT	4.000	42.000	71.000	82.000	110.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2262.000	-0.000	-0.000	-0.000	50.000	50.000	50.000	-0.000	.300	-0.000
X3	10.000	-0.000	-0.000	762.000	-0.000	850.000	-0.000	-0.000	-0.000	-0.000
X1	2362.000	18.000	117.000	138.000	100.000	100.000	100.000	-0.000	-1.900	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	634.500	0.000	626.800	40.000	624.800	117.000	618.500	125.000	618.200	126.000
GR	618.700	128.000	624.400	138.000	628.100	238.000	630.400	313.000	630.400	338.000
GR	630.500	438.000	631.400	538.000	631.900	638.000	632.700	681.000	632.900	694.000
GR	632.700	705.000	632.800	738.000	633.500	838.000	-0.000	-0.000	-0.000	-0.000
X1	2462.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.600	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2562.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.700	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2662.000	18.000	117.000	138.000	100.000	100.000	100.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	634.500	0.000	626.800	40.000	624.800	117.000	618.500	125.000	618.200	126.000
GR	618.700	128.000	624.400	138.000	628.100	238.000	630.400	313.000	630.400	338.000
GR	630.500	438.000	631.400	538.000	631.900	638.000	632.700	681.000	632.900	694.000
GR	632.700	705.000	632.800	738.000	633.500	838.000	-0.000	-0.000	-0.000	-0.000
X1	2962.000	90.000	169.200	190.400	300.000	300.000	300.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	635.900	0.000	635.100	5.800	634.300	11.600	633.400	17.500	632.600	23.300
GR	631.800	29.100	631.000	35.000	630.100	40.800	629.300	46.600	628.500	52.500
GR	627.800	58.300	627.700	64.100	627.600	70.000	627.400	75.800	627.300	81.600
GR	627.100	87.500	627.000	93.300	626.900	99.100	626.800	105.000	626.700	110.800
GR	626.600	116.600	626.500	122.500	626.400	128.300	626.300	134.100	626.200	140.000
GR	626.100	145.800	626.000	151.600	625.800	157.500	625.700	163.300	625.600	169.200
GR	625.100	169.900	624.600	170.600	624.000	171.300	623.500	172.000	623.000	172.700
GR	622.500	173.400	622.000	174.100	621.400	174.800	620.900	175.500	620.400	176.200
GR	619.900	176.900	619.500	177.600	619.400	178.300	619.500	179.000	619.700	179.700
GR	619.900	180.500	620.200	181.200	620.500	181.900	620.900	182.600	621.200	183.300
GR	621.600	184.000	621.900	184.700	622.300	185.400	622.600	186.100	623.000	186.800

GR	623.400	187.500	623.900	188.200	624.300	188.900	624.800	189.600	625.300	190.400
GR	626.000	214.300	626.700	238.300	627.400	262.300	628.000	286.300	628.700	310.300
GR	629.200	334.300	629.800	358.300	630.100	382.300	630.200	406.300	630.200	430.300
GR	630.200	454.300	630.300	478.300	630.300	502.300	630.500	526.300	630.700	550.300
GR	630.900	574.300	631.100	598.300	631.200	622.300	631.300	646.300	631.400	670.300
GR	631.500	694.300	631.800	718.300	632.100	742.300	632.300	766.300	632.300	790.300
GR	632.300	814.300	632.500	838.300	632.600	862.300	632.800	886.300	632.900	910.400
X1	3262.000	90.000	221.300	242.800	300.000	300.000	300.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	637.400	0.000	636.500	7.600	635.600	15.200	634.800	22.900	633.900	30.500
GR	633.000	38.100	632.100	45.800	631.300	53.400	630.400	61.000	629.500	68.700
GR	628.900	76.300	628.800	83.900	628.600	91.600	628.400	99.200	628.200	106.800
GR	628.000	114.500	627.900	122.100	627.800	129.700	627.700	137.400	627.600	145.000
GR	627.500	152.600	627.400	160.300	627.300	167.900	627.200	175.500	627.100	183.200
GR	627.000	190.800	626.900	198.400	626.700	206.100	626.600	213.700	626.500	221.300
GR	626.000	222.100	625.500	222.800	625.000	223.500	624.500	224.200	624.000	224.900
GR	623.500	225.600	623.000	226.300	622.500	227.100	622.100	227.800	621.600	228.500
GR	621.100	229.200	620.700	229.900	620.600	230.600	620.700	231.300	620.800	232.000
GR	621.000	232.800	621.300	233.500	621.500	234.200	621.800	234.900	622.100	235.600
GR	622.400	236.300	622.700	237.000	623.000	237.800	623.300	238.500	623.600	239.200
GR	624.000	239.900	624.600	240.600	625.100	241.300	625.700	242.000	626.300	242.800
GR	626.800	267.400	627.300	292.100	627.800	316.700	628.300	341.400	628.800	366.100
GR	629.200	390.700	629.700	415.400	629.900	440.100	630.000	464.700	630.000	489.400
GR	630.100	514.100	630.100	538.700	630.200	563.400	630.300	588.100	630.400	612.700
GR	630.600	637.400	630.800	662.100	631.000	686.700	631.100	711.400	631.200	736.100
GR	631.200	760.700	631.400	785.400	631.700	810.100	631.900	834.700	631.800	859.400
GR	631.900	884.100	632.000	908.700	632.100	933.400	632.300	958.100	632.400	982.800
X1	3562.000	90.000	273.500	295.200	300.000	300.000	300.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	638.800	0.000	637.900	9.400	637.000	18.800	636.100	28.300	635.100	37.700
GR	634.200	47.100	633.300	56.600	632.400	66.000	631.500	75.400	630.600	84.900
GR	630.000	94.300	629.800	103.700	629.600	113.200	629.400	122.600	629.200	132.000
GR	628.900	141.500	628.800	150.900	628.700	160.300	628.600	169.800	628.500	179.200
GR	628.400	188.600	628.400	198.100	628.300	207.500	628.200	216.900	628.000	226.400
GR	627.900	235.800	627.800	245.200	627.600	254.700	627.500	264.100	627.300	273.500
GR	626.900	274.300	626.400	275.000	625.900	275.700	625.500	276.400	625.000	277.100
GR	624.600	277.900	624.100	278.600	623.600	279.300	623.200	280.000	622.700	280.700
GR	622.300	281.500	621.900	282.200	621.800	282.900	621.900	283.600	622.000	284.300
GR	622.100	285.100	622.300	285.800	622.500	286.500	622.700	287.200	623.000	287.900
GR	623.200	288.700	623.500	289.400	623.800	290.100	624.000	290.800	624.300	291.500
GR	624.600	292.300	625.300	293.000	625.900	293.700	626.600	294.400	627.300	295.200
GR	627.600	320.500	627.900	345.800	628.200	371.100	628.500	396.500	628.900	421.800
GR	629.200	447.100	629.500	472.500	629.700	497.800	629.800	523.100	629.900	548.500
GR	629.900	573.800	630.000	599.100	630.000	624.500	630.100	649.800	630.200	675.100
GR	630.400	700.500	630.600	725.800	630.700	751.100	630.800	776.500	630.900	801.800
GR	631.000	827.100	631.100	852.500	631.300	877.800	631.400	903.100	631.400	928.500
GR	631.400	953.800	631.500	979.100	631.700	1004.500	631.800	1029.800	631.900	1055.200
QT	4.000	36.000	58.000	67.000	82.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3862.000	90.000	325.700	347.600	300.000	300.000	300.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	640.300	0.000	639.300	11.200	638.400	22.400	637.400	33.700	636.400	44.900
GR	635.400	56.100	634.500	67.400	633.500	78.600	632.600	89.800	631.600	101.100
GR	631.100	112.300	630.900	123.500	630.600	134.800	630.400	146.000	630.100	157.200
GR	629.800	168.500	629.700	179.700	629.600	190.900	629.500	202.200	629.500	213.400
GR	629.400	224.600	629.300	235.900	629.200	247.100	629.100	258.300	629.000	269.600
GR	628.800	280.800	628.700	292.000	628.500	303.300	628.300	314.500	628.200	325.700
GR	627.800	326.500	627.300	327.200	626.900	327.900	626.500	328.700	626.000	329.400
GR	625.600	330.100	625.200	330.800	624.800	331.600	624.300	332.300	623.900	333.000
GR	623.500	333.700	623.100	334.500	623.000	335.200	623.100	335.900	623.200	336.600
GR	623.200	337.400	623.400	338.100	623.500	338.800	623.600	339.600	623.800	340.300
GR	624.100	341.000	624.300	341.700	624.500	342.500	624.700	343.200	624.900	343.900
GR	625.200	344.600	626.000	345.400	626.700	346.100	627.500	346.800	628.300	347.600
GR	628.400	373.500	628.500	399.500	628.600	425.500	628.700	451.500	629.000	477.500

GR	629.200	503.500	629.400	529.500	629.500	555.500	629.600	581.500	629.700	607.500
GR	629.800	633.500	629.800	659.500	629.900	685.500	629.900	711.500	630.000	737.500
GR	630.100	763.500	630.300	789.500	630.500	815.500	630.600	841.500	630.600	867.500
GR	630.700	893.500	630.800	919.500	630.900	945.500	630.900	971.500	631.000	997.500
GR	631.000	1023.500	631.100	1049.500	631.200	1075.500	631.300	1101.500	631.400	1127.600
X1	4162.000	18.000	378.000	400.000	300.000	300.000	300.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	641.800	0.000	634.000	100.000	632.500	120.000	630.700	200.000	630.100	300.000
GR	629.100	378.000	624.200	387.000	624.600	392.000	625.800	397.000	629.300	400.000
GR	629.000	500.000	629.300	600.000	629.700	700.000	629.800	800.000	630.400	900.000
GR	630.500	1000.000	630.600	1100.000	630.900	1200.000	-0.000	-0.000	-0.000	-0.000
X1	4462.000	-0.000	-0.000	-0.000	300.000	300.000	300.000	-0.000	.500	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4762.000	-0.000	-0.000	-0.000	300.000	300.000	300.000	-0.000	.500	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
QT	4.000	32.000	44.000	47.000	54.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5062.000	23.000	755.000	773.000	300.000	300.000	300.000	-0.000	.400	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	639.500	0.000	638.800	73.000	638.200	173.000	637.900	273.000	636.800	273.000
GR	637.900	297.000	633.100	311.000	632.400	373.000	631.500	473.000	630.700	573.000
GR	630.500	673.000	630.100	755.000	626.000	761.000	626.400	764.000	630.500	773.000
GR	630.400	873.000	631.400	973.000	632.500	1073.000	632.500	1173.000	632.900	1273.000
GR	634.400	1373.000	634.800	1473.000	632.800	1573.000	-0.000	-0.000	-0.000	-0.000
X1	5287.000	23.000	755.000	773.000	225.000	225.000	225.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	639.500	0.000	638.800	73.000	638.200	173.000	637.900	273.000	636.800	273.000
GR	637.900	297.000	633.100	311.000	632.400	373.000	631.500	473.000	630.700	573.000
GR	630.500	673.000	630.100	755.000	626.000	761.000	626.400	764.000	630.500	773.000
GR	630.400	873.000	631.400	973.000	632.500	1073.000	632.500	1173.000	632.900	1273.000
GR	634.400	1373.000	634.800	1473.000	632.800	1573.000	-0.000	-0.000	-0.000	-0.000
NC	.040	.040	.040	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
QT	4.000	23.000	35.000	38.000	45.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5587.000	-0.000	-0.000	-0.000	300.000	300.000	300.000	-0.000	.500	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5597.000	23.000	0.000	1573.000	10.000	10.000	10.000	-0.000	-1.510	-0.000
X3	10.000	-0.000	-0.000	783.000	-0.000	817.000	-0.000	-0.000	-0.000	-0.000
GR	640.000	0.000	639.300	73.000	638.700	173.000	638.400	273.000	637.300	273.000
GR	638.400	297.000	633.600	311.000	632.900	373.000	632.000	473.000	631.200	573.000
GR	631.000	673.000	630.600	755.000	630.600	761.000	630.600	764.000	630.600	773.000
GR	630.400	873.000	631.400	973.000	632.500	1073.000	632.500	1173.000	632.900	1273.000
GR	634.400	1373.000	634.800	1473.000	632.800	1573.000	-0.000	-0.000	-0.000	-0.000
X1	5637.000	9.000	0.000	600.000	40.000	40.000	40.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	243.000	640.000	358.000	640.000	-0.000	-0.000	-0.000
GR	633.400	0.000	632.800	65.000	631.500	100.000	630.800	200.000	630.500	300.000
GR	630.800	400.000	631.000	450.000	632.400	500.000	632.300	600.000	-0.000	-0.000
SB	-0.000	10.000	2.600	-0.000	.100	-0.000	.100	-0.000	630.500	630.500
X1	5662.000	-0.000	-0.000	-0.000	25.000	25.000	25.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	147.000	640.000	440.000	640.000	-0.000	-0.000	-0.000
BT	6.000	65.000	632.800	0.000	100.000	632.300	0.000	200.000	632.000	0.000
BT	300.000	632.000	0.000	400.000	632.000	0.000	500.000	632.400	0.000	-0.000
X1	5797.000	28.000	0.000	1600.000	135.000	135.000	135.000	-0.000	-1.400	-0.000
X3	10.000	-0.000	-0.000	720.000	-0.000	972.000	-0.000	-0.000	-0.000	-0.000
GR	641.000	0.000	640.800	100.000	640.500	200.000	637.800	300.000	635.500	334.000
GR	635.200	341.000	635.200	357.000	634.800	371.000	634.100	381.000	634.800	400.000
GR	632.600	500.000	632.700	518.000	637.600	572.000	637.600	600.000	637.600	649.000

	GR	631.700	709.000	630.500	800.000	630.500	803.000	630.500	810.000	630.700	816.000
	GR	630.400	900.000	631.400	1000.000	632.100	1100.000	632.600	1200.000	632.700	1300.000
	GR	633.600	1400.000	633.000	1500.000	633.100	1600.000	-0.000	-0.000	-0.000	-0.000
	X1	5807.000	28.000	0.000	1600.000	10.000	10.000	10.000	-0.000	-0.000	-0.000
	X3	10.000	-0.000	-0.000	720.000	-0.000	968.000	-0.000	-0.000	-0.000	-0.000
	GR	641.000	0.000	640.800	100.000	640.500	200.000	637.800	300.000	635.500	334.000
	GR	635.200	341.000	635.200	357.000	634.800	371.000	634.100	381.000	634.800	400.000
	GR	632.600	500.000	632.700	518.000	637.600	572.000	637.600	600.000	637.600	649.000
	GR	631.700	709.000	630.500	800.000	627.300	803.000	627.500	810.000	630.700	816.000
	GR	630.400	900.000	631.400	1000.000	632.100	1100.000	632.600	1200.000	632.700	1300.000
	GR	633.600	1400.000	633.000	1500.000	633.100	1600.000	-0.000	-0.000	-0.000	-0.000
	NC	.055	.070	.050	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	QT	4.000	32.000	44.000	47.000	54.000	-0.000	-0.000	-0.000	-0.000	-0.000
	X1	5842.000	28.000	800.000	816.000	35.000	35.000	35.000	-0.000	-.900	-0.000
	X3	10.000	-0.000	-0.000	720.000	-0.000	950.000	-0.000	-0.000	-0.000	-0.000
	GR	642.000	0.000	641.800	100.000	641.500	200.000	638.800	300.000	636.500	334.000
	GR	636.200	341.000	636.200	357.000	635.800	371.000	635.100	381.000	635.800	400.000
	GR	633.600	500.000	633.700	518.000	638.600	572.000	638.600	600.000	638.600	649.000
	GR	632.700	709.000	631.500	800.000	628.300	803.000	628.500	810.000	631.700	816.000
	GR	631.400	900.000	632.400	1000.000	633.100	1100.000	633.600	1200.000	633.700	1300.000
	GR	634.600	1400.000	634.000	1500.000	634.100	1600.000	-0.000	-0.000	-0.000	-0.000
	X1	5972.000	-0.000	-0.000	-0.000	130.000	130.000	130.000	-0.000	.500	-0.000
	X3	10.000	-0.000	-0.000	735.000	-0.000	965.000	-0.000	-0.000	-0.000	-0.000
	X1	6107.000	28.000	800.000	816.000	135.000	135.000	135.000	-0.000	-0.000	-0.000
	X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	GR	642.000	0.000	641.800	100.000	641.500	200.000	638.800	300.000	636.500	334.000
	GR	636.200	341.000	636.200	357.000	635.800	371.000	635.100	381.000	635.800	400.000
	GR	633.600	500.000	633.700	518.000	638.600	572.000	638.600	600.000	638.600	649.000
	GR	632.700	709.000	631.500	800.000	628.300	803.000	628.500	810.000	631.700	816.000
	GR	631.400	900.000	632.400	1000.000	633.100	1100.000	633.600	1200.000	633.700	1300.000
	GR	634.600	1400.000	634.000	1500.000	634.100	1600.000	-0.000	-0.000	-0.000	-0.000
	X1	6207.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.100	-0.000
	X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	X1	6307.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.100	-0.000
	X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	X1	6407.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.100	-0.000
	X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	X1	6507.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.100	-0.000
	X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	X1	6532.000	-0.000	-0.000	-0.000	25.000	25.000	25.000	-0.000	-0.000	-0.000
	X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	X1	6557.000	-0.000	-0.000	-0.000	25.000	25.000	25.000	-0.000	.100	-0.000
	X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	X1	6582.000	-0.000	-0.000	-0.000	25.000	25.000	25.000	-0.000	-0.000	-0.000
	X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	X1	6592.000	-0.000	-0.000	-0.000	10.000	10.000	10.000	-0.000	-0.000	-0.000
	X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	X1	6602.000	-0.000	-0.000	-0.000	10.000	10.000	10.000	-0.000	-0.000	-0.000
	X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	X1	6607.000	-0.000	-0.000	-0.000	5.000	5.000	5.000	-0.000	-0.000	-0.000
	X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	631.700	631.700	-0.000
	SR	-0.000	3.200	2.600	-0.000	2.300	-0.000	3.980	-0.000	629.400	628.800

X1	6727.000	23.000	600.000	602.300	120.000	120.000	120.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	524.000	-0.000	676.000	-0.000	638.580	638.580	-0.000
BT	7.000	524.000	638.900	0.000	600.000	638.600	630.900	600.300	638.600	631.400
BT	601.100	638.600	631.600	601.900	638.600	631.400	602.300	638.600	630.900	676.000
BT	638.900	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	643.100	0.000	641.900	100.000	640.600	200.000	640.300	300.000	638.600	400.000
GR	638.800	450.000	630.900	475.000	630.900	524.000	630.900	600.000	630.100	600.000
GR	629.600	600.300	629.400	601.100	629.600	601.900	630.100	602.300	630.900	602.300
GR	630.900	676.000	630.900	725.000	638.800	750.000	638.600	800.000	640.300	900.000
GR	640.600	1000.000	641.900	1100.000	643.100	1200.000	-0.000	-0.000	-0.000	-0.000
X1	6927.000	22.000	800.000	819.000	200.000	200.000	200.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	784.000	-0.000	836.000	-0.000	-0.000	-0.000	-0.000
GR	640.800	0.000	639.900	100.000	640.000	114.000	637.600	200.000	636.900	300.000
GR	636.100	400.000	634.700	500.000	633.200	607.000	635.300	616.000	635.500	636.000
GR	635.600	655.000	633.100	665.000	634.500	700.000	634.000	800.000	630.900	806.000
GR	629.500	811.000	632.600	819.000	633.200	900.000	634.900	1000.000	635.400	1010.000
GR	642.600	1035.000	643.400	1055.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	7027.000	6.000	99.000	101.000	100.000	100.000	100.000	-0.000	-0.000	-0.000
GR	650.000	0.000	650.000	99.000	629.900	99.000	629.900	101.000	650.000	101.000
GR	650.000	200.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
EJ	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

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HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS-52,53,54,55,56,57,58
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T1      CITY OF BRIDGMAN FIS, PROJECT MANAGER: MR. JOHN EMIG
T2      100 YEAR FLOOD
T3      BEDORTHA DRAIN

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
        -0.         4.         -0.        -0.  -0.000000     -0.00      -0.0       -0.    610.036    -0.000

J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
      3.000     -0.000     -1.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000
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CCHV= .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	3.24	610.04	0.00	610.04	610.22	.19	0.00	0.00	609.40
125.	1.	116.	8.	2.	32.	7.	0.	0.	608.50
0.00	.55	3.59	1.07	.070	.040	.070	0.000	606.80	93.64
.003062	-0.	-0.	-0.	0	0	1	0.00	27.78	121.42
200.00	2.77	610.67	0.00	0.00	610.79	.12	.55	.02	612.80
125.	0.	125.	0.	0.	45.	0.	0.	0.	613.40
.02	0.00	2.80	0.00	.070	.040	.070	.040	607.90	118.39
.002476	200.	200.	200.	1	0	1	0.00	22.63	141.02
400.00	2.32	611.32	0.00	0.00	611.52	.20	.69	.04	613.90
125.	0.	125.	0.	0.	35.	0.	0.	0.	614.50
.04	0.00	3.58	0.00	.070	.040	.070	.040	609.00	119.30
.005053	200.	200.	200.	2	0	1	0.00	21.07	140.37

VALLEY SECTION A

500.00	2.32	611.82	0.00	0.00	612.02	.20	.50	.00	614.40
125.	0.	125.	0.	0.	35.	0.	0.	0.	615.00
.04	0.00	3.57	0.00	.070	.040	.070	.040	609.50	119.29
.005020	100.	100.	100.	2	0	1	0.00	21.08	140.37
550.00	2.28	612.08	0.00	0.00	612.29	.21	.26	.01	614.70
125.	0.	125.	0.	0.	34.	0.	1.	0.	615.30
.05	0.00	3.68	0.00	.070	.040	.070	.040	609.80	119.39
.005471	50.	50.	50.	0	0	1	0.00	20.91	140.30
600.00	2.25	612.35	0.00	0.00	612.57	.22	.28	.00	615.00
125.	0.	125.	0.	0.	33.	0.	1.	0.	615.60
.05	0.00	3.74	0.00	.070	.040	.070	.040	610.10	119.45
.005748	50.	50.	50.	1	0	1	0.00	20.82	140.27

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
650.00	2.35	612.65	0.00	0.00	612.84	.19	.26	.01	615.20
125.	0.	125.	0.	0.	36.	0.	1.	0.	615.80
.05	0.00	3.51	0.00	.070	.040	.070	.040	610.30	119.23
.004772	50.	50.	50.	2	0	1	0.00	21.18	140.42
667.00	2.33	612.73	0.00	0.00	612.92	.19	.08	.00	615.30
125.	0.	125.	0.	0.	35.	0.	1.	0.	615.90
.06	0.00	3.53	0.00	.070	.040	.070	.040	610.40	119.25
.004861	17.	17.	17.	0	0	1	0.00	21.15	140.40

3470 ENCROACHMENT STATIONS= 121.0 139.0 TYPE= 1 TARGET= 18.000

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

675.00	2.25	612.75	0.00	0.00	612.98	.23	.04	.02	100000.00
125.	0.	125.	0.	0.	32.	0.	1.	0.	100000.00
.06	0.00	3.85	0.00	.070	.040	.070	.040	610.50	121.00
.005730	8.	8.	8.	2	0	1	0.00	18.00	139.00

3470 ENCROACHMENT STATIONS= 124.0 136.0 TYPE= 1 TARGET= 12.000

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

688.00	2.26	612.76	0.00	0.00	613.19	.43	.10	.10	100000.00
125.	0.	125.	0.	0.	24.	0.	1.	0.	100000.00
.06	0.00	5.26	0.00	.070	.040	.070	.039	610.50	124.00
.011627	13.	13.	13.	2	0	1	0.00	12.00	136.00

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
699.00	2.81	613.41	613.41	0.00	614.68	1.27	.22	0.00	621.60
125.	0.	125.	0.	0.	14.	0.	1.	0.	621.60
.06	0.00	9.05	0.00	.070	.040	.070	.039	610.60	171.50
.041513	11.	11.	11.	30	11	1	0.00	5.50	177.00

NORMAL BRIDGE,NRD= 6 MIN ELTRD= 621.60 MAX ELLC= 617.10

BRIDGE SECTION B, LAKE STREET CULVERT

42' OF 6.0' DEEP X 5.5' WIDE CONCRETE BOX CULVERT

ENTRANCE DESIGN: CONCRETE HEADWALLS

700.00	3.41	614.01	0.00	0.00	614.83	.82	.02	.13	621.60
125.	0.	125.	0.	0.	17.	0.	1.	0.	621.60
.06	0.00	7.29	0.00	.070	.024	.070	.039	610.60	171.50
.008385	1.	1.	1.	7	0	1	0.00	5.50	177.00

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= 6 MIN ELTRD= 621.60 MAX ELLC= 617.10

742.00	4.00	614.60	0.00	0.00	615.18	.59	.28	.07	621.60
125.	0.	125.	0.	0.	20.	0.	1.	0.	621.60
.06	0.00	6.15	0.00	.070	.024	.070	.038	610.60	171.50
.005386	42.	42.	42.	3	0	1	0.00	5.50	177.00

743.00	4.01	614.61	0.00	0.00	615.19	.58	.01	.00	621.60
125.	0.	125.	0.	0.	20.	0.	1.	0.	621.60
.06	0.00	6.13	0.00	.070	.040	.070	.038	610.60	171.50
.014888	1.	1.	1.	0	0	1	0.00	5.50	177.00

3470 ENCROACHMENT STATIONS= 174.0 300.0 TYPE= 1 TARGET= -174.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 99999.10 ELREA= 618.30

745.00	4.30	614.90	0.00	0.00	615.28	.37	.02	.06	99999.10
125.	0.	125.	0.	0.	25.	0.	1.	0.	618.30
.06	0.00	4.91	0.00	.070	.040	.070	.038	610.60	174.00
.008716	2.	2.	2.	3	0	1	0.00	9.71	183.71

3470 ENCROACHMENT STATIONS= 173.0 300.0 TYPE= 1 TARGET= -173.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 100000.00 ELREA= 618.30

747.00	4.49	615.09	0.00	0.00	615.33	.24	.01	.04	100000.00
125.	0.	125.	0.	0.	32.	0.	1.	0.	618.30
.06	0.00	3.94	0.00	.070	.040	.070	.038	610.60	173.00
.004762	2.	2.	2.	2	0	1	0.00	11.06	184.06

3470 ENCROACHMENT STATIONS= 168.0 300.0 TYPE= 1 TARGET= -168.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 100000.00 ELREA= 618.40

752.00	4.60	615.30	0.00	0.00	615.39	.09	.01	.05	100000.00
125.	0.	125.	0.	0.	52.	0.	1.	0.	618.40
.06	0.00	2.39	0.00	.070	.040	.070	.038	610.70	168.00
.001207	5.	5.	5.	2	0	1	0.00	16.26	184.26

3470 ENCROACHMENT STATIONS= 158.0 300.0 TYPE= 1 TARGET= -158.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 613.60 ELREA= 618.50

762.00	4.55	615.35	0.00	0.00	615.41	.05	.01	.01	613.60
125.	8.	117.	0.	10.	61.	0.	1.	0.	618.50
.06	.79	1.91	0.00	.070	.040	.070	.038	610.80	158.00
.000668	10.	10.	10.	2	0	1	0.00	25.17	184.17

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

3470 ENCROACHMENT STATIONS= 150.0 300.0 TYPE= 1 TARGET= -150.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 613.70 ELREA= 618.60

771.00	4.47	615.37	0.00	0.00	615.41	.05	.01	.00	613.70
125.	16.	109.	0.	22.	59.	0.	1.	0.	618.60
.06	.72	1.84	0.00	.070	.040	.070	.038	610.90	150.00
.000636	9.	9.	9.	0	0	1	0.00	34.00	184.00

3470 ENCROACHMENT STATIONS= 166.0 300.0 TYPE= 1 TARGET= -166.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 100000.00 ELREA= 619.20

VALLEY SECTION C

842.00	3.90	615.40	0.00	0.00	615.52	.12	.07	.03100000.00	
125.	0.	125.	0.	0.	46.	0.	1.	0.	619.20
.07	0.00	2.74	0.00	.070	.040	.070	.038	611.50	166.00
.001813	71.	71.	71.	0	0	1	0.00	16.98	182.98

3470 ENCROACHMENT STATIONS= 169.0 300.0 TYPE= 1 TARGET= -169.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 100000.00 ELREA= 619.20

852.00	3.90	615.40	0.00	0.00	615.56	.16	.02	.02100000.00	
125.	0.	125.	0.	0.	39.	0.	1.	0.	619.20
.07	0.00	3.20	0.00	.070	.040	.070	.038	611.50	169.00
.002635	10.	10.	10.	1	0	1	0.00	13.99	182.99

48" pipe?

C to D

3470 ENCROACHMENT STATIONS= 171.0 300.0 TYPE= 1 TARGET= -171.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 100000.00 ELREA= 619.30

862.00	3.80	615.40	0.00	0.00	615.64	.24	.03	.04100000.00	
125.	0.	125.	0.	0.	32.	0.	1.	0.	619.30
.07	0.00	3.96	0.00	.070	.040	.070	.038	611.60	171.00
.004657	10.	10.	10.	2	0	1	0.00	11.77	182.77

3470 ENCROACHMENT STATIONS= 174.0 300.0 TYPE= 1 TARGET= -174.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 100000.00 ELREA= 619.30

872.00	3.69	615.29	0.00	0.00	615.91	.62	.08	.19100000.00	
125.	0.	125.	0.	0.	20.	0.	1.	0.	619.30
.07	0.00	6.29	0.00	.070	.040	.070	.038	611.60	174.00
.016641	10.	10.	10.	2	0	1	0.00	8.58	182.58

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
TI E	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA

SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 176.0 300.0 TYPE= 1 TARGET= -176.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 100000.00 ELREA= 619.17

882.00	3.81	615.52	615.52	0.00	616.58	1.07	.24	0.00	100000.00
125.	0.	125.	0.	0.	15.	0.	1.	0.	619.17
.07	0.00	8.29	0.00	.070	.040	.070	.038	611.70	176.00
.037137	10.	10.	10.	3	8	1	0.00	7.24	183.24

650' 4 dia pipe

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

3470 ENCROACHMENT STATIONS= 177.0 181.0 TYPE= 1 TARGET= 4.000

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

891.00	4.18	615.87	615.87	0.00	617.45	1.57	.42	0.00	100000.00
125.	0.	125.	0.	0.	12.	0.	1.	0.	100000.00
.07	0.00	10.07	0.00	.070	.040	.070	.038	611.70	177.00
.060293	9.	9.	9.	3	8	1	0.00	4.00	181.00

all of 10 ft.

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 6 MIN ELTRD= 620.00 MAX ELLC= 615.70

892.00	4.23	615.93	615.06	0.00	617.54	1.62	.08	.02	620.00
125.	0.	125.	0.	0.	12.	0.	1.	0.	620.00
.07	0.00	10.20	0.00	.070	.040	.070	.038	611.70	98.00
.099445	1.	1.	1.	0	19	1	-3.18	4.00	102.00

3301 HV CHANGED MORE THAN HVINS

NORMAL BRIDGE,NRD=21 MIN ELTRD= 626.80 MAX ELLC= 620.50

BRIDGE SECTION D, RED ARROW HIGHWAY CULVERT

55.8

120' OF 6.2' DEEPX9' WIDE CONCRETE BOX CULVERT, CONNECTED

UNDER GROUND WITH 650' OF 4' CONCRETE PIPE

120
650
770
892
12

14

ENTRANCE DESIGN: PROJECTING FROM FILL

Area of 48" pipe = 12.6 ft²

1662.00	8.65	622.95	0.00	0.00	623.03	.08	5.03	.46	626.90
125.	0.	125.	0.	0.	54.	0.	1.	1.	626.90
.17	0.00	2.31	0.00	.070	.040	.070	.039	614.30	791.00
.002148	770.	770.	770.	5	0	1	-22.06	9.00	800.00

WATER EL=X5 CARD= 623.010

1663.00	8.71	623.01	0.00	0.00	623.05	.04	.00	.01	626.90
125.	0.	125.	0.	0.	77.	0.	1.	1.	626.90
.17	0.00	1.63	0.00	.080	.050	.080	.039	614.30	791.00
.000712	1.	1.	1.	0	0	1	0.00	9.00	800.00

3470 ENCROACHMENT STATIONS= 776.0 836.0 TYPE= 1 TARGET= 60.000

1687.00	8.76	623.06	0.00	0.00	623.06	.01	.00	.01	618.90
185.	38.	85.	62.	92.	96.	123.	1.	1.	616.70
.18	.41	.88	.51	.080	.050	.080	.039	614.30	776.00
.000080	24.	24.	24.	1	0	1	0.00	60.00	836.00

1722.00	8.66	623.06	0.00	0.00	623.07	.00	.00	.00	619.00
185.	46.	71.	67.	144.	95.	222.	2.	1.	616.80
.20	.32	.75	.30	.080	.050	.080	.039	614.40	743.28
.000059	35.	35.	35.	0	0	1	0.00	140.50	883.78

1782.00	8.67	623.07	0.00	0.00	623.07	.00	.00	.00	619.00
185.	46.	71.	67.	144.	95.	222.	2.	1.	616.80
.23	.32	.75	.30	.080	.050	.080	.040	614.40	743.07
.000059	60.	60.	60.	0	0	1	0.00	140.76	883.83

1862.00	8.57	623.07	0.00	0.00	623.08	.00	.00	.00	619.10
185.	45.	72.	67.	139.	94.	215.	3.	1.	616.90
.28	.33	.77	.31	.080	.050	.080	.040	614.50	748.01
.000063	80.	80.	80.	0	0	1	0.00	134.75	882.75

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

1962.00	8.38	623.08	0.00	0.00	623.08	.01	.01	.00	619.30
185.	44.	74.	66.	130.	92.	202.	4.	1.	617.10
.33	.34	.81	.33	.080	.050	.080	.041	614.70	757.05
.000073	100.	100.	100.	0	0	1	0.00	123.51	880.56

2062.00	8.29	623.09	0.00	0.00	623.09	.01	.01	.00	619.40
185.	44.	75.	66.	126.	90.	196.	5.	2.	617.20
.38	.35	.84	.34	.080	.050	.080	.041	614.80	757.27
.000078	100.	100.	100.	0	0	1	0.00	122.23	879.51

VALLEY SECTION E

2162.00	8.19	623.09	0.00	0.00	623.10	.01	.01	.00	619.50
185	43	76	65	122	89	190	6	2	617.30

.43	.35	.86	.35	.080	.050	.080	.041	614.90	757.50
.000084	100.	100.	100.	0	0	1	0.00	120.97	878.46
2212.00	7.80	623.10	0.00	0.00	623.11	.01	.00	.00	619.90
185.	40.	81.	64.	105.	84.	165.	7.	2.	617.70
.45	.38	.97	.39	.080	.050	.080	.042	615.30	758.45
.000116	50.	50.	50.	0	0	1	0.00	115.54	873.99

3470 ENCROACHMENT STATIONS= 762.0 850.0 TYPE= 1 TARGET= 88.000

2262.00	7.51	623.11	0.00	0.00	623.11	.00	.00	.00	620.20
82.	16.	37.	29.	91.	80.	128.	7.	2.	618.00
.49	.18	.46	.22	.080	.050	.080	.042	615.60	762.00
.000028	50.	50.	50.	0	0	1	0.00	88.00	850.00
2362.00	6.81	623.11	0.00	0.00	623.12	.02	.01	.01	622.90
82.	0.	81.	1.	1.	81.	5.	7.	2.	622.50
.52	.06	1.00	.13	.080	.050	.080	.042	616.30	108.91
.000233	100.	100.	100.	0	0	1	0.00	45.59	154.49

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 623.50 ELREA= 623.10

2462.00	6.23	623.13	0.00	0.00	623.16	.02	.03	.00	623.50
82.	0.	82.	0.	0.	69.	0.	8.	2.	623.10
.55	0.00	1.19	.00	.080	.050	.080	.042	616.90	117.47
.000393	100.	100.	100.	1	0	1	0.00	21.31	138.78

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 624.20 ELREA= 623.80

2562.00	5.58	623.18	0.00	0.00	623.21	.03	.05	.01	624.20
82.	0.	82.	0.	0.	56.	0.	8.	2.	623.80
.56	0.00	1.46	0.00	.080	.050	.080	.043	617.60	118.31
.000683	100.	100.	100.	1	0	1	0.00	18.59	136.89

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 624.80 ELREA= 624.40

VALLEY SECTION F

2662.00	5.06	623.26	0.00	0.00	623.31	.05	.09	.01	624.80
82.	0.	82.	0.	0.	47.	0.	8.	3.	624.40
.58	0.00	1.74	0.00	.080	.050	.080	.043	618.20	118.96
.001093	100.	100.	100.	2	0	1	0.00	17.04	136.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 625.60 ELREA= 625.30

2962.00	4.27	623.67	0.00	0.00	623.74	.07	.42	.01	625.60
82.	0.	82.	0.	0.	39.	0.	8.	3.	625.30
.62	0.00	2.11	0.00	.080	.050	.080	.043	619.40	121.77

.001859	300.	300.	300.	2	0	1	0.00	16.11	187.87

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 626.50 ELREA= 626.30

3262.00	3.73	624.33	0.00	0.00	624.42	.09	.67	.01	626.50
82.	0.	82.	0.	0.	34.	0.	8.	3.	626.30
.66	0.00	2.41	0.00	.080	.050	.080	.044	620.60	224.44
.002742	300.	300.	300.	2	0	1	0.00	15.84	240.28

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 627.30 ELREA= 627.30

3562.00	3.41	625.21	0.00	0.00	625.31	.10	.88	.00	627.30
82.	0.	82.	0.	0.	33.	0.	9.	3.	627.30
.69	0.00	2.51	0.00	.080	.050	.080	.045	621.80	276.81
.003171	300.	300.	300.	2	0	1	0.00	16.09	292.91

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 628.20 ELREA= 628.30

3862.00	3.08	626.08	0.00	0.00	626.15	.07	.84	.01	628.20
67.	0.	67.	0.	0.	31.	0.	9.	3.	628.30
.73	0.00	2.14	0.00	.080	.050	.080	.045	623.00	329.28
.002436	300.	300.	300.	1	0	1	0.00	16.21	345.49

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 629.10 ELREA= 629.30

VALLEY SECTION G

4162.00	2.71	626.91	0.00	0.00	627.00	.09	.84	.01	629.10
67.	0.	67.	0.	0.	28.	0.	9.	3.	629.30
.76	0.00	2.35	0.00	.080	.050	.080	.045	624.20	382.01
.003224	300.	300.	300.	1	0	1	0.00	15.95	397.96

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 629.60 ELREA= 629.80

4462.00	3.01	627.71	0.00	0.00	627.77	.06	.77	.01	629.60
67.	0.	67.	0.	0.	33.	0.	9.	3.	629.80
.80	0.00	2.02	0.00	.080	.050	.080	.046	624.70	381.47
.002074	300.	300.	300.	2	0	1	0.00	16.73	398.21

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 630.10 ELREA= 630.30

4762.00	3.10	628.30	0.00	0.00	628.36	.06	.58	.00	630.10
67.	0.	67.	0.	0.	35.	0.	10.	3.	630.30
.85	0.00	1.93	0.00	.080	.050	.080	.046	625.20	381.31
.001829	300.	300.	300.	2	0	1	0.00	16.97	398.28

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 629.70 ELREA= 630.10

5062.00	3.26	628.86	0.00	0.00	628.91	.05	.55	.00	629.70
47.	0.	47.	0.	0.	26.	0.	10.	3.	630.10
.89	0.00	1.80	0.00	.080	.050	.080	.046	625.60	756.21
.001873	300.	300.	300.	1	0	1	0.00	14.09	770.30

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 630.10 ELREA= 630.50

VALLEY SECTION H

5287.00	3.28	629.28	0.00	0.00	629.33	.05	.42	.00	630.10
47.	0.	47.	0.	0.	26.	0.	10.	3.	630.50
.93	0.00	1.78	0.00	.080	.050	.080	.046	626.00	756.19
.001829	225.	225.	225.	0	0	1	0.00	14.15	770.34

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 630.60 ELREA= 631.00

5587.00	3.18	629.68	0.00	0.00	629.72	.04	.39	.00	630.60
38.	0.	38.	0.	0.	25.	0.	10.	4.	631.00
.98	0.00	1.53	0.00	.040	.040	.040	.046	626.50	756.34
.000893	300.	300.	300.	2	0	1	0.00	13.77	770.11

3470 ENCROACHMENT STATIONS= 783.0 817.0 TYPE= 1 TARGET= 34.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 99998.49 ELREA= 99998.49

5597.00	.69	629.70	0.00	0.00	629.74	.04	.02	.00	99998.49
38.	0.	38.	0.	0.	22.	0.	10.	4.	99998.49
.98	0.00	1.69	0.00	.040	.040	.040	.046	629.00	783.00
.003801	10.	10.	10.	0	0	1	0.00	34.00	817.00

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

3470 ENCROACHMENT STATIONS= 243.0 358.0 TYPE= 1 TARGET= 115.000
ELENCL= 640.00 ELENCR= 640.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 640.00 ELREA= 640.00

5637.00	.24	630.74	630.74	0.00	630.81	.08	.37	0.00	640.00
38.	0.	38.	0.	0.	17.	0.	10.	4.	640.00
.99	0.00	2.22	0.00	.040	.040	.040	.046	630.50	243.00
.045417	40.	40.	40.	30	22	1	0.00	115.00	358.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
8	-0.00	10.00	2.60	-0.00	.10	-0.00	.10	-0.00	630.50	630.50

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
23053.10	630.80	0.00	38.	0.	0.	0.00	632.00	30.00

3470 ENCROACHMENT STATIONS= 147.0 440.0 TYPE= 1 TARGET= 293.000
ELENCL= 640.00 ELENCR= 640.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 640.00 ELREA= 640.00

BRIDGE SECTION I, MANUFACTURING PLANT ACCESS ROAD

220' OF 24" CMP

ENTRANCE DESIGN: PROJECTING FROM FILL

5662.00	1.66	632.16	0.00	0.00	632.16	.00	1.35	0.00	640.00
38.	0.	38.	0.	0.	415.	0.	10.	4.	640.00
1.07	0.00	.09	0.00	.040	.040	.040	.046	630.50	147.00
.000004	25.	25.	25.	0	0	13	0.00	293.00	440.00

3470 ENCROACHMENT STATIONS= 720.0 972.0 TYPE= 1 TARGET= 252.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 99998.60 ELREA= 99998.60

5797.00	3.16	632.16	0.00	0.00	632.16	.00	.00	.00	99998.60
38.	0.	38.	0.	0.	705.	0.	12.	5.	99998.60
1.76	0.00	.05	0.00	.040	.040	.040	.046	629.00	720.00
.000001	135.	135.	135.	2	0	1	0.00	252.00	972.00

3470 ENCROACHMENT STATIONS= 720.0 968.0 TYPE= 1 TARGET= 248.000

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

5807.00	4.86	632.16	0.00	0.00	632.16	.00	.00	.00	100000.00
38.	0.	38.	0.	0.	383.	0.	12.	5.	100000.00
1.79	0.00	.10	0.00	.040	.040	.040	.046	627.30	720.00
.000004	10.	10.	10.	0	0	1	0.00	248.00	968.00

3470 ENCROACHMENT STATIONS= 720.0 950.0 TYPE= 1 TARGET= 230.000

5842.00	4.76	632.16	0.00	0.00	632.16	.00	.00	.00	630.60

	47.	9.	16.	22.	82.	60.	197.	12.	5.	630.80
	1.85	.11	.27	.11	.055	.050	.070	.046	627.40	720.00
	.000016	35.	35.	35.	0	0	1	0.00	230.00	950.00

3470	ENCROACHMENT	STATIONS=		735.0	965.0	TYPE=	1	TARGET=	230.000	
	5972.00	4.26	632.16	0.00	0.00	632.16	.00	.00	.00	631.10
	47.	6.	22.	20.	41.	52.	139.	13.	6.	631.30
	1.98	.14	.42	.14	.055	.050	.070	.046	627.90	735.00
	.000049	130.	130.	130.	0	0	1	0.00	230.00	965.00

VALLEY SECTION J

6107.00	3.87	632.17	0.00	0.00	632.17	.00	.01	.00	631.50
47.	3.	31.	14.	17.	46.	81.	14.	6.	631.70
2.06	.16	.67	.17	.055	.050	.070	.046	628.30	749.70
.000151	135.	135.	135.	0	0	1	0.00	226.62	976.33

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

6207.00	3.79	632.19	0.00	0.00	632.19	.01	.02	.00	631.60
47.	2.	33.	12.	13.	44.	68.	14.	7.	631.80
2.11	.16	.75	.18	.055	.050	.070	.046	628.40	756.05
.000193	100.	100.	100.	1	0	1	0.00	211.91	967.96

6307.00	3.71	632.21	0.00	0.00	632.21	.01	.02	.00	631.70
47.	2.	35.	10.	9.	43.	55.	14.	7.	631.90
2.15	.17	.83	.18	.055	.050	.070	.046	628.50	762.33
.000247	100.	100.	100.	0	0	1	0.00	197.36	959.68

6407.00	3.63	632.23	0.00	0.00	632.24	.01	.03	.00	631.80
47.	1.	38.	8.	7.	42.	45.	15.	8.	632.00
2.18	.17	.90	.18	.055	.050	.070	.046	628.60	767.70
.000305	100.	100.	100.	1	0	1	0.00	184.90	952.60

6507.00	3.57	632.27	0.00	0.00	632.28	.01	.03	.00	631.90
47.	1.	40.	6.	5.	41.	37.	15.	8.	632.10
2.22	.17	.98	.18	.055	.050	.070	.046	628.70	772.74
.000370	100.	100.	100.	1	0	1	0.00	173.22	945.95

6532.00	3.57	632.27	0.00	0.00	632.29	.01	.01	.00	631.90
47.	1.	39.	7.	5.	41.	38.	15.	8.	632.10
2.23	.17	.97	.18	.055	.050	.070	.046	628.70	772.10
.000361	25.	25.	25.	0	0	1	0.00	174.70	946.79

6557.00	3.48	632.28	0.00	0.00	632.30	.02	.01	.00	632.00
47.	0.	42.	4.	3.	39.	26.	15.	8.	632.20
2.23	.16	1.07	.17	.055	.050	.070	.046	628.80	778.99
.000466	25.	25.	25.	0	0	1	0.00	158.72	937.71

6582.00	3.50	632.30	0.00	0.00	632.31	.02	.01	.00	632.00
47.	0.	42.	5.	3.	39.	27.	15.	8.	632.20

2.24	.16	1.06	.17	.055	.050	.070	.046	628.80	778.20
.000453	25.	25.	25.	0	0	1	0.00	160.54	938.74

6592.00	3.50	632.30	0.00	0.00	632.32	.02	.00	.00	632.00
47.	1.	42.	5.	3.	40.	28.	15.	8.	632.20
2.24	.16	1.06	.17	.055	.050	.070	.046	628.80	777.86
.000448	10.	10.	10.	0	0	1	0.00	161.35	939.20

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

6602.00	3.50	632.30	0.00	0.00	632.32	.02	.00	.00	632.00
47.	1.	42.	5.	3.	40.	29.	15.	8.	632.20
2.25	.16	1.05	.17	.055	.050	.070	.046	628.80	777.51
.000442	10.	10.	10.	0	0	1	0.00	162.14	939.65

6607.00	3.51	632.31	0.00	0.00	632.32	.02	.00	.00	632.00
47.	1.	42.	5.	3.	40.	29.	15.	8.	632.20
2.25	.16	1.05	.17	.055	.050	.070	.046	628.80	777.34
.000439	5.	5.	5.	0	0	1	0.00	162.53	939.87

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	3.28	2.60	-0.00	2.30	-0.00	3.98	-0.00	629.40	628.80

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
639.24	633.50	0.00	2.	45.	4.	631.60	638.60	30.00

3470 ENCROACHMENT STATIONS= 524.0 676.0 TYPE= 1 TARGET= 152.000

BRIDGE SECTION K, RAILROAD SIDING CULVERT

120' OF 27" RCP

ENTRANCE DESIGN: CONCRETE HEADWALLS, NO SILT

6727.00	9.31	638.71	0.00	0.00	638.71	.00	6.39	0.00	630.90
47.	26.	1.	20.	594.	21.	576.	17.	9.	630.90
3.08	.04	.03	.03	.055	.050	.070	.046	629.40	524.00
.000000	120.	120.	120.	0	0	6	0.00	152.00	676.00

3470 ENCROACHMENT STATIONS= 784.0 836.0 TYPE= 1 TARGET= 52.000

VALLEY SECTION L

6927.00	9.21	638.71	0.00	0.00	638.71	.00	.00	.00	634.00
47	9	25	12	75	121	103	20	9	632.60

3.44	.13	.18	.12	.055	.050	.070	.046	629.50	784.00
.000003	200.	200.	200.	2	0	1	0.00	52.00	836.00

D/S FACE RAMBO ROAD CULVERT

7027.00	8.76	638.66	0.00	0.00	638.77	.11	.00	.06	650.00
47.	0.	47.	0.	0.	18.	0.	21.	9.	650.00
3.45	0.00	2.68	0.00	.055	.050	.070	.046	629.90	99.00
.009422	100.	100.	100.	2	0	1	0.00	2.00	101.00



1) COUNTY: Berrien

2) STUDY NAME: Bridgman

3) WATERCOURSE: Bedortha Drain

4) DOCUMENT TYPE: Summary



SUMMARY PRINTOUT FOR MULTIPLE PROFILES

BEDORTHA DRAIN

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
0.00	0.00	0.00	0.00	606.80	92.00	609.28	.24	0.00	0.00	90.36	2.48	17.65
0.00	0.00	0.00	0.00	606.80	120.00	609.83	.22	0.00	0.00	114.01	3.03	25.35
0.00	0.00	0.00	0.00	606.80	125.00	610.04	.19	0.00	0.00	116.28	3.24	27.78
0.00	0.00	0.00	0.00	606.80	135.00	610.61	.12	0.00	0.00	117.57	3.81	30.68
200.00	200.00	0.00	0.00	607.90	92.00	610.23	.11	.77	.04	92.00	2.33	21.11
200.00	200.00	0.00	0.00	607.90	120.00	610.58	.12	.63	.03	120.00	2.68	22.35
200.00	200.00	0.00	0.00	607.90	125.00	610.67	.12	.55	.02	125.00	2.77	22.63
200.00	200.00	0.00	0.00	607.90	135.00	610.97	.11	.34	.00	135.00	3.07	23.71
400.00	200.00	0.00	0.00	609.00	92.00	610.95	.18	.75	.03	92.00	1.95	19.78
400.00	200.00	0.00	0.00	609.00	120.00	611.26	.20	.71	.04	120.00	2.26	20.82
400.00	200.00	0.00	0.00	609.00	125.00	611.32	.20	.69	.04	125.00	2.32	21.07
400.00	200.00	0.00	0.00	609.00	135.00	611.48	.19	.55	.04	135.00	2.48	21.64
500.00	100.00	0.00	0.00	609.50	92.00	611.50	.16	.54	.00	92.00	2.00	19.93
500.00	100.00	0.00	0.00	609.50	120.00	611.78	.19	.52	.00	120.00	2.28	20.92
500.00	100.00	0.00	0.00	609.50	125.00	611.82	.20	.50	.00	125.00	2.32	21.08
500.00	100.00	0.00	0.00	609.50	135.00	611.94	.20	.46	.00	135.00	2.44	21.49
550.00	50.00	0.00	0.00	609.80	92.00	611.76	.17	.26	.00	92.00	1.96	19.82
550.00	50.00	0.00	0.00	609.80	120.00	612.04	.20	.26	.01	120.00	2.24	20.77
550.00	50.00	0.00	0.00	609.80	125.00	612.08	.21	.26	.01	125.00	2.28	20.91
550.00	50.00	0.00	0.00	609.80	135.00	612.18	.22	.25	.01	135.00	2.38	21.28
600.00	50.00	0.00	0.00	610.10	92.00	612.04	.18	.28	.00	92.00	1.94	19.72
600.00	50.00	0.00	0.00	610.10	120.00	612.31	.21	.28	.00	120.00	2.21	20.67
600.00	50.00	0.00	0.00	610.10	125.00	612.35	.22	.28	.00	125.00	2.25	20.82
600.00	50.00	0.00	0.00	610.10	135.00	612.45	.22	.27	.00	135.00	2.35	21.19
650.00	50.00	0.00	0.00	610.30	92.00	612.33	.16	.26	.01	92.00	2.03	20.03
650.00	50.00	0.00	0.00	610.30	120.00	612.60	.19	.26	.01	120.00	2.30	21.02
650.00	50.00	0.00	0.00	610.30	125.00	612.65	.19	.26	.01	125.00	2.35	21.18
650.00	50.00	0.00	0.00	610.30	135.00	612.74	.20	.26	.01	135.00	2.44	21.46
667.00	17.00	0.00	0.00	610.40	92.00	612.41	.16	.08	.00	92.00	2.01	20.00
667.00	17.00	0.00	0.00	610.40	120.00	612.68	.19	.08	.00	120.00	2.28	20.99
667.00	17.00	0.00	0.00	610.40	125.00	612.73	.19	.08	.00	125.00	2.33	21.15
667.00	17.00	0.00	0.00	610.40	135.00	612.82	.21	.08	.00	135.00	2.42	21.42
675.00	8.00	0.00	0.00	610.50	92.00	612.44	.18	.04	.01	92.00	1.94	18.00
675.00	8.00	0.00	0.00	610.50	120.00	612.71	.22	.04	.02	120.00	2.21	18.00
675.00	8.00	0.00	0.00	610.50	125.00	612.75	.23	.04	.02	125.00	2.25	18.00
675.00	8.00	0.00	0.00	610.50	135.00	612.84	.24	.04	.02	135.00	2.34	18.00
688.00	13.00	0.00	0.00	610.50	92.00	612.47	.32	.10	.07	92.00	1.97	12.00
688.00	13.00	0.00	0.00	610.50	120.00	612.72	.41	.10	.09	120.00	2.22	12.00
688.00	13.00	0.00	0.00	610.50	125.00	612.76	.43	.10	.10	125.00	2.26	12.00
688.00	13.00	0.00	0.00	610.50	135.00	612.83	.46	.10	.11	135.00	2.34	12.00

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
699.00	11.00	0.00	0.00	610.60	92.00	612.95	1.04	.20	0.00	92.00	2.35	5.50
699.00	11.00	0.00	0.00	610.60	120.00	613.34	1.24	.22	0.00	120.00	2.74	5.50
699.00	11.00	0.00	0.00	610.60	125.00	613.41	1.27	.22	0.00	125.00	2.81	5.50
699.00	11.00	0.00	0.00	610.60	135.00	613.54	1.34	.23	0.00	135.00	2.94	5.50
700.00	1.00	621.60	617.10	610.60	92.00	613.43	.68	.02	.11	92.00	2.83	5.50
700.00	1.00	621.60	617.10	610.60	120.00	613.92	.80	.02	.13	120.00	3.32	5.50
700.00	1.00	621.60	617.10	610.60	125.00	614.01	.82	.02	.13	125.00	3.41	5.50
700.00	1.00	621.60	617.10	610.60	135.00	614.14	.89	.02	.13	135.00	3.54	5.50
742.00	42.00	621.60	617.10	610.60	92.00	613.96	.46	.25	.06	92.00	3.36	5.50
742.00	42.00	621.60	617.10	610.60	120.00	614.51	.57	.28	.07	120.00	3.91	5.50
742.00	42.00	621.60	617.10	610.60	125.00	614.60	.59	.28	.07	125.00	4.00	5.50
742.00	42.00	621.60	617.10	610.60	135.00	614.78	.62	.29	.08	135.00	4.18	5.50
743.00	1.00	0.00	0.00	610.60	92.00	613.97	.46	.01	.00	92.00	3.37	5.50
743.00	1.00	0.00	0.00	610.60	120.00	614.52	.57	.01	.00	120.00	3.92	5.50
743.00	1.00	0.00	0.00	610.60	125.00	614.61	.58	.01	.00	125.00	4.01	5.50
743.00	1.00	0.00	0.00	610.60	135.00	614.80	.62	.01	.00	135.00	4.20	5.50
745.00	2.00	0.00	0.00	610.60	92.00	614.07	.40	.02	.02	92.00	3.47	8.17
745.00	2.00	0.00	0.00	610.60	120.00	614.78	.38	.02	.06	120.00	4.18	9.48
745.00	2.00	0.00	0.00	610.60	125.00	614.90	.37	.02	.06	125.00	4.30	9.71
745.00	2.00	0.00	0.00	610.60	135.00	615.15	.36	.02	.06	135.00	4.55	10.16
747.00	2.00	0.00	0.00	610.60	92.00	614.31	.24	.02	.05	92.00	3.71	9.61
747.00	2.00	0.00	0.00	610.60	120.00	614.97	.24	.01	.04	120.00	4.37	10.85
747.00	2.00	0.00	0.00	610.60	125.00	615.09	.24	.01	.04	125.00	4.49	11.06
747.00	2.00	0.00	0.00	610.60	135.00	615.32	.24	.01	.04	135.00	4.72	11.48
752.00	5.00	0.00	0.00	610.70	92.00	614.52	.08	.01	.05	92.00	3.82	14.81
752.00	5.00	0.00	0.00	610.70	120.00	615.19	.09	.01	.05	120.00	4.49	16.05
752.00	5.00	0.00	0.00	610.70	125.00	615.30	.09	.01	.05	125.00	4.60	16.26
752.00	5.00	0.00	0.00	610.70	135.00	615.53	.09	.01	.05	135.00	4.83	16.68
762.00	10.00	0.00	0.00	610.80	92.00	614.56	.06	.01	.01	88.67	3.76	24.69
762.00	10.00	0.00	0.00	610.80	120.00	615.24	.05	.01	.01	112.65	4.44	25.96
762.00	10.00	0.00	0.00	610.80	125.00	615.35	.05	.01	.01	116.91	4.55	26.17
762.00	10.00	0.00	0.00	610.80	135.00	615.58	.05	.01	.01	125.40	4.78	26.60
771.00	9.00	0.00	0.00	610.90	92.00	614.57	.06	.01	.00	85.96	3.67	32.52
771.00	9.00	0.00	0.00	610.90	120.00	615.25	.05	.01	.00	105.57	4.35	33.79
771.00	9.00	0.00	0.00	610.90	125.00	615.37	.05	.01	.00	109.05	4.47	34.00
771.00	9.00	0.00	0.00	610.90	135.00	615.60	.05	.01	.00	115.95	4.70	34.43
842.00	71.00	0.00	0.00	611.50	92.00	614.64	.12	.10	.03	92.00	3.14	15.55
842.00	71.00	0.00	0.00	611.50	120.00	615.29	.12	.07	.03	120.00	3.79	16.77
842.00	71.00	0.00	0.00	611.50	125.00	615.40	.12	.07	.03	125.00	3.90	16.98
842.00	71.00	0.00	0.00	611.50	135.00	615.63	.12	.07	.04	135.00	4.13	17.39

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
852.00	10.00	0.00	0.00	611.50	92.00	614.65	.16	.03	.02	92.00	3.15	12.58
852.00	10.00	0.00	0.00	611.50	120.00	615.29	.16	.02	.02	120.00	3.79	13.78
852.00	10.00	0.00	0.00	611.50	125.00	615.40	.16	.02	.02	125.00	3.90	13.99
852.00	10.00	0.00	0.00	611.50	135.00	615.63	.16	.02	.02	135.00	4.13	14.40
862.00	10.00	0.00	0.00	611.60	92.00	614.65	.24	.04	.04	92.00	3.05	10.39
862.00	10.00	0.00	0.00	611.60	120.00	615.29	.24	.04	.04	120.00	3.69	11.57
862.00	10.00	0.00	0.00	611.60	125.00	615.40	.24	.03	.04	125.00	3.80	11.77
862.00	10.00	0.00	0.00	611.60	135.00	615.62	.24	.03	.04	135.00	4.02	12.18
872.00	10.00	0.00	0.00	611.60	92.00	614.53	.68	.10	.22	92.00	2.93	7.18
872.00	10.00	0.00	0.00	611.60	120.00	615.18	.63	.08	.19	120.00	3.58	8.37
872.00	10.00	0.00	0.00	611.60	125.00	615.29	.62	.08	.19	125.00	3.69	8.58
872.00	10.00	0.00	0.00	611.60	135.00	615.52	.59	.07	.18	135.00	3.92	8.99
882.00	10.00	0.00	0.00	611.70	92.00	615.04	.94	.29	0.00	92.00	3.34	6.35
882.00	10.00	0.00	0.00	611.70	120.00	615.45	1.05	.25	0.00	120.00	3.75	7.11
882.00	10.00	0.00	0.00	611.70	125.00	615.52	1.07	.24	0.00	125.00	3.81	7.24
882.00	10.00	0.00	0.00	611.70	135.00	615.66	1.08	.22	0.00	135.00	3.96	7.51
891.00	9.00	0.00	0.00	611.70	92.00	615.29	1.29	.41	0.00	92.00	3.60	4.00
891.00	9.00	0.00	0.00	611.70	120.00	615.79	1.53	.42	0.00	120.00	4.09	4.00
891.00	9.00	0.00	0.00	611.70	125.00	615.87	1.57	.42	0.00	125.00	4.18	4.00
891.00	9.00	0.00	0.00	611.70	135.00	616.04	1.66	.42	0.00	135.00	4.34	4.00
892.00	1.00	620.00	615.70	611.70	92.00	615.88	.88	.05	.12	92.00	4.18	4.00
892.00	1.00	620.00	615.70	611.70	120.00	615.92	1.49	.07	.01	120.00	4.22	4.00
892.00	1.00	620.00	615.70	611.70	125.00	615.93	1.62	.08	.02	125.00	4.23	4.00
892.00	1.00	620.00	615.70	611.70	135.00	616.00	1.89	.08	.11	135.00	4.30	4.00
1662.00	770.00	626.80	620.50	614.30	92.00	619.37	.07	2.43	.24	92.00	5.07	9.00
1662.00	770.00	626.80	620.50	614.30	120.00	622.14	.08	4.38	.42	120.00	7.84	9.00
1662.00	770.00	626.80	620.50	614.30	125.00	622.95	.08	5.03	.46	125.00	8.65	9.00
1662.00	770.00	626.80	620.50	614.30	135.00	625.02	.10	6.69	.54	135.00	10.72	9.00
1663.00	1.00	0.00	0.00	614.30	92.00	619.31	.07	.00	.00	92.00	5.01	9.00
1663.00	1.00	0.00	0.00	614.30	120.00	622.36	.04	.00	.01	120.00	8.06	9.00
1663.00	1.00	0.00	0.00	614.30	125.00	623.01	.04	.00	.01	125.00	8.71	9.00
1663.00	1.00	0.00	0.00	614.30	135.00	624.36	.04	.00	.02	135.00	10.06	9.00
1687.00	24.00	0.00	0.00	614.30	105.00	619.38	.03	.02	.01	78.47	5.08	55.28
1687.00	24.00	0.00	0.00	614.30	165.00	622.41	.01	.00	.01	79.91	8.11	60.00
1687.00	24.00	0.00	0.00	614.30	185.00	623.06	.01	.00	.01	85.12	8.76	60.00
1687.00	24.00	0.00	0.00	614.30	235.00	624.40	.01	.00	.01	99.65	10.10	60.00
1722.00	35.00	0.00	0.00	614.40	105.00	619.40	.04	.02	.00	80.96	5.00	59.07
1722.00	35.00	0.00	0.00	614.40	165.00	622.42	.01	.00	.00	70.05	8.02	118.55
1722.00	35.00	0.00	0.00	614.40	185.00	623.06	.00	.00	.00	71.50	8.66	140.50
1722.00	35.00	0.00	0.00	614.40	235.00	624.41	.00	.00	.00	74.76	10.01	233.22

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
1782.00	60.00	0.00	0.00	614.40	105.00	619.45	.03	.04	.00	80.40	5.05	61.25
1782.00	60.00	0.00	0.00	614.40	165.00	622.42	.01	.00	.00	70.00	8.02	118.62
1782.00	60.00	0.00	0.00	614.40	185.00	623.07	.00	.00	.00	71.46	8.67	140.76
1782.00	60.00	0.00	0.00	614.40	235.00	624.41	.00	.00	.00	74.72	10.01	233.46
1862.00	80.00	0.00	0.00	614.50	105.00	619.51	.04	.06	.00	80.94	5.01	59.13
1862.00	80.00	0.00	0.00	614.50	165.00	622.43	.01	.01	.00	71.02	7.93	117.33
1862.00	80.00	0.00	0.00	614.50	185.00	623.07	.00	.00	.00	72.42	8.57	134.75
1862.00	80.00	0.00	0.00	614.50	235.00	624.41	.00	.00	.00	75.84	9.91	225.89
1962.00	100.00	0.00	0.00	614.70	105.00	619.59	.04	.08	.00	82.55	4.89	52.63
1962.00	100.00	0.00	0.00	614.70	165.00	622.44	.01	.01	.00	73.23	7.74	114.70
1962.00	100.00	0.00	0.00	614.70	185.00	623.08	.01	.01	.00	74.45	8.38	123.51
1962.00	100.00	0.00	0.00	614.70	235.00	624.42	.00	.00	.00	78.13	9.72	210.59
2062.00	100.00	0.00	0.00	614.80	105.00	619.68	.04	.09	.00	82.77	4.88	51.67
2062.00	100.00	0.00	0.00	614.80	165.00	622.45	.01	.01	.00	74.34	7.65	113.45
2062.00	100.00	0.00	0.00	614.80	185.00	623.09	.01	.01	.00	75.46	8.29	122.23
2062.00	100.00	0.00	0.00	614.80	235.00	624.42	.00	.00	.00	79.26	9.62	203.12
2162.00	100.00	0.00	0.00	614.90	105.00	619.77	.04	.09	.00	82.91	4.87	51.10
2162.00	100.00	0.00	0.00	614.90	165.00	622.46	.01	.01	.00	75.46	7.56	112.22
2162.00	100.00	0.00	0.00	614.90	185.00	623.09	.01	.01	.00	76.49	8.19	120.97
2162.00	100.00	0.00	0.00	614.90	235.00	624.43	.00	.00	.00	80.40	9.53	195.69
2212.00	50.00	0.00	0.00	615.30	105.00	619.81	.06	.06	.01	87.02	4.51	36.63
2212.00	50.00	0.00	0.00	615.30	165.00	622.46	.01	.01	.00	80.92	7.16	106.81
2212.00	50.00	0.00	0.00	615.30	185.00	623.10	.01	.00	.00	81.30	7.80	115.54
2212.00	50.00	0.00	0.00	615.30	235.00	624.43	.01	.00	.00	85.05	9.13	170.13
2262.00	50.00	0.00	0.00	615.60	42.00	619.91	.01	.04	.01	35.74	4.31	34.21
2262.00	50.00	0.00	0.00	615.60	71.00	622.48	.00	.00	.00	35.79	6.88	88.00
2262.00	50.00	0.00	0.00	615.60	82.00	623.11	.00	.00	.00	37.01	7.51	88.00
2262.00	50.00	0.00	0.00	615.60	110.00	624.43	.00	.00	.00	41.94	8.83	88.00
2362.00	100.00	0.00	0.00	616.30	42.00	619.95	.04	.05	.01	42.00	3.65	12.79
2362.00	100.00	0.00	0.00	616.30	71.00	622.48	.02	.01	.01	71.00	6.18	20.44
2362.00	100.00	0.00	0.00	616.30	82.00	623.11	.02	.01	.01	81.30	6.81	45.59
2362.00	100.00	0.00	0.00	616.30	110.00	624.43	.01	.00	.00	92.58	8.13	132.81
2462.00	100.00	0.00	0.00	616.90	42.00	620.12	.06	.18	.01	42.00	3.22	11.49
2462.00	100.00	0.00	0.00	616.90	71.00	622.51	.02	.04	.00	71.00	5.61	18.70
2462.00	100.00	0.00	0.00	616.90	82.00	623.13	.02	.03	.00	82.00	6.23	21.31
2462.00	100.00	0.00	0.00	616.90	110.00	624.45	.02	.01	.00	102.18	7.55	93.93
2562.00	100.00	0.00	0.00	617.60	42.00	620.43	.10	.33	.02	42.00	2.83	10.31
2562.00	100.00	0.00	0.00	617.60	71.00	622.57	.04	.07	.01	71.00	4.97	16.78
2562.00	100.00	0.00	0.00	617.60	82.00	623.18	.03	.05	.01	82.00	5.58	18.59
2562.00	100.00	0.00	0.00	617.60	110.00	624.47	.03	.03	.01	108.81	6.87	49.10

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
2662.00	100.00	0.00	0.00	618.20	42.00	620.93	.11	.50	.01	42.00	2.73	9.98
2662.00	100.00	0.00	0.00	618.20	71.00	622.68	.05	.11	.01	71.00	4.48	15.28
2662.00	100.00	0.00	0.00	618.20	82.00	623.26	.05	.09	.01	82.00	5.06	17.04
2662.00	100.00	0.00	0.00	618.20	110.00	624.51	.04	.05	.01	109.99	6.31	23.43
2962.00	300.00	0.00	0.00	619.40	42.00	622.24	.08	1.26	.01	42.00	2.84	11.52
2962.00	300.00	0.00	0.00	619.40	71.00	623.22	.08	.55	.01	71.00	3.82	14.79
2962.00	300.00	0.00	0.00	619.40	82.00	623.67	.07	.42	.01	82.00	4.27	16.11
2962.00	300.00	0.00	0.00	619.40	110.00	624.76	.06	.25	.01	110.00	5.36	19.16
3262.00	300.00	0.00	0.00	620.60	42.00	623.28	.08	1.04	.00	42.00	2.68	12.52
3262.00	300.00	0.00	0.00	620.60	71.00	624.03	.09	.81	.01	71.00	3.43	15.06
3262.00	300.00	0.00	0.00	620.60	82.00	624.33	.09	.67	.01	82.00	3.73	15.84
3262.00	300.00	0.00	0.00	620.60	110.00	625.17	.08	.43	.01	110.00	4.57	18.13
3562.00	300.00	0.00	0.00	621.80	42.00	624.33	.07	1.05	.00	42.00	2.53	13.31
3562.00	300.00	0.00	0.00	621.80	71.00	624.99	.09	.96	.00	71.00	3.19	15.55
3562.00	300.00	0.00	0.00	621.80	82.00	625.21	.10	.88	.00	82.00	3.41	16.09
3562.00	300.00	0.00	0.00	621.80	110.00	625.82	.10	.66	.01	110.00	4.02	17.77
3862.00	300.00	0.00	0.00	623.00	36.00	625.29	.05	.94	.00	36.00	2.29	14.06
3862.00	300.00	0.00	0.00	623.00	58.00	625.89	.07	.87	.01	58.00	2.89	15.68
3862.00	300.00	0.00	0.00	623.00	67.00	626.08	.07	.84	.01	67.00	3.08	16.21
3862.00	300.00	0.00	0.00	623.00	82.00	626.55	.07	.69	.01	82.00	3.55	17.36
4162.00	300.00	0.00	0.00	624.20	36.00	626.22	.06	.93	.00	36.00	2.02	14.10
4162.00	300.00	0.00	0.00	624.20	58.00	626.73	.08	.85	.01	58.00	2.53	15.46
4162.00	300.00	0.00	0.00	624.20	67.00	626.91	.09	.84	.01	67.00	2.71	15.95
4162.00	300.00	0.00	0.00	624.20	82.00	627.25	.09	.71	.01	82.00	3.05	16.83
4462.00	300.00	0.00	0.00	624.70	36.00	627.01	.04	.76	.01	36.00	2.31	14.83
4462.00	300.00	0.00	0.00	624.70	58.00	627.52	.06	.76	.01	58.00	2.82	16.24
4462.00	300.00	0.00	0.00	624.70	67.00	627.71	.06	.77	.01	67.00	3.01	16.73
4462.00	300.00	0.00	0.00	624.70	82.00	628.01	.07	.73	.01	82.00	3.31	17.55
4762.00	300.00	0.00	0.00	625.20	36.00	627.56	.04	.55	.00	36.00	2.36	14.97
4762.00	300.00	0.00	0.00	625.20	58.00	628.11	.05	.58	.00	58.00	2.91	16.45
4762.00	300.00	0.00	0.00	625.20	67.00	628.30	.06	.58	.00	67.00	3.10	16.97
4762.00	300.00	0.00	0.00	625.20	82.00	628.60	.07	.58	.00	82.00	3.40	17.79
5062.00	300.00	0.00	0.00	625.60	32.00	628.18	.05	.63	.01	32.00	2.58	11.57
5062.00	300.00	0.00	0.00	625.60	44.00	628.69	.05	.59	.00	44.00	3.09	13.40
5062.00	300.00	0.00	0.00	625.60	47.00	628.86	.05	.55	.00	47.00	3.26	14.09
5062.00	300.00	0.00	0.00	625.60	54.00	629.15	.05	.53	.00	54.00	3.55	15.12
5287.00	225.00	0.00	0.00	626.00	32.00	628.72	.04	.52	.00	32.00	2.72	12.06
5287.00	225.00	0.00	0.00	626.00	44.00	629.16	.05	.46	.00	44.00	3.16	13.68
5287.00	225.00	0.00	0.00	626.00	47.00	629.28	.05	.42	.00	47.00	3.28	14.15
5287.00	225.00	0.00	0.00	626.00	54.00	629.53	.05	.38	.00	54.00	3.53	15.07

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
5587.00	300.00	0.00	0.00	626.50	23.00	629.14	.03	.39	.01	23.00	2.64	11.75
5587.00	300.00	0.00	0.00	626.50	35.00	629.58	.03	.40	.00	35.00	3.08	13.37
5587.00	300.00	0.00	0.00	626.50	38.00	629.68	.04	.39	.00	38.00	3.18	13.77
5587.00	300.00	0.00	0.00	626.50	45.00	629.92	.04	.37	.00	45.00	3.42	14.62
5597.00	10.00	0.00	0.00	629.00	23.00	629.28	.12	.02	0.00	23.00	.28	34.00
5597.00	10.00	0.00	0.00	629.00	35.00	629.58	.05	.02	.01	35.00	.58	34.00
5597.00	10.00	0.00	0.00	629.00	38.00	629.70	.04	.02	.00	38.00	.69	34.00
5597.00	10.00	0.00	0.00	629.00	45.00	629.94	.03	.01	.00	45.00	.94	34.00
5637.00	40.00	0.00	0.00	630.50	23.00	630.71	.04	1.32	.03	23.00	.21	115.00
5637.00	40.00	0.00	0.00	630.50	35.00	630.73	.07	.51	0.00	35.00	.23	115.00
5637.00	40.00	0.00	0.00	630.50	38.00	630.74	.08	.37	0.00	38.00	.24	115.00
5637.00	40.00	0.00	0.00	630.50	45.00	630.75	.09	.21	0.00	45.00	.25	115.00
5662.00	25.00	632.00	0.00	630.50	23.00	632.12	.00	1.37	0.00	23.00	1.62	293.00
5662.00	25.00	632.00	0.00	630.50	35.00	632.15	.00	1.35	0.00	35.00	1.65	293.00
5662.00	25.00	632.00	0.00	630.50	38.00	632.16	.00	1.35	0.00	38.00	1.66	293.00
5662.00	25.00	632.00	0.00	630.50	45.00	632.17	.00	1.34	0.00	45.00	1.67	293.00
5797.00	135.00	0.00	0.00	629.00	23.00	632.12	.00	.00	.00	23.00	3.12	252.00
5797.00	135.00	0.00	0.00	629.00	35.00	632.15	.00	.00	.00	35.00	3.15	252.00
5797.00	135.00	0.00	0.00	629.00	38.00	632.16	.00	.00	.00	38.00	3.16	252.00
5797.00	135.00	0.00	0.00	629.00	45.00	632.17	.00	.00	.00	45.00	3.17	252.00
5807.00	10.00	0.00	0.00	627.30	23.00	632.12	.00	.00	.00	23.00	4.82	248.00
5807.00	10.00	0.00	0.00	627.30	35.00	632.15	.00	.00	.00	35.00	4.85	248.00
5807.00	10.00	0.00	0.00	627.30	38.00	632.16	.00	.00	.00	38.00	4.86	248.00
5807.00	10.00	0.00	0.00	627.30	45.00	632.17	.00	.00	.00	45.00	4.87	248.00
5842.00	35.00	0.00	0.00	627.40	32.00	632.12	.00	.00	.00	11.09	4.72	230.00
5842.00	35.00	0.00	0.00	627.40	44.00	632.15	.00	.00	.00	14.96	4.75	230.00
5842.00	35.00	0.00	0.00	627.40	47.00	632.16	.00	.00	.00	15.91	4.76	230.00
5842.00	35.00	0.00	0.00	627.40	54.00	632.17	.00	.00	.00	18.11	4.77	230.00
5972.00	130.00	0.00	0.00	627.90	32.00	632.12	.00	.00	.00	15.22	4.22	230.00
5972.00	130.00	0.00	0.00	627.90	44.00	632.15	.00	.00	.00	20.35	4.25	230.00
5972.00	130.00	0.00	0.00	627.90	47.00	632.16	.00	.00	.00	21.60	4.26	230.00
5972.00	130.00	0.00	0.00	627.90	54.00	632.18	.00	.00	.00	24.48	4.28	230.00
6107.00	135.00	0.00	0.00	628.30	32.00	632.12	.00	.01	.00	21.71	3.82	218.73
6107.00	135.00	0.00	0.00	628.30	44.00	632.16	.00	.01	.00	28.90	3.86	225.15
6107.00	135.00	0.00	0.00	628.30	47.00	632.17	.00	.01	.00	30.64	3.87	226.62
6107.00	135.00	0.00	0.00	628.30	54.00	632.19	.01	.01	.00	34.63	3.89	229.92
6207.00	100.00	0.00	0.00	628.40	32.00	632.13	.00	.01	.00	23.58	3.73	202.07
6207.00	100.00	0.00	0.00	628.40	44.00	632.18	.01	.02	.00	31.16	3.78	210.14
6207.00	100.00	0.00	0.00	628.40	47.00	632.19	.01	.02	.00	32.99	3.79	211.91
6207.00	100.00	0.00	0.00	628.40	54.00	632.21	.01	.02	.00	37.15	3.81	215.92

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
6307.00	100.00	0.00	0.00	628.50	32.00	632.14	.00	.01	.00	25.48	3.64	186.12
6307.00	100.00	0.00	0.00	628.50	44.00	632.19	.01	.02	.00	33.53	3.69	195.29
6307.00	100.00	0.00	0.00	628.50	47.00	632.21	.01	.02	.00	35.45	3.71	197.36
6307.00	100.00	0.00	0.00	628.50	54.00	632.24	.01	.03	.00	39.59	3.74	203.15
6407.00	100.00	0.00	0.00	628.60	32.00	632.16	.01	.02	.00	27.22	3.56	171.71
6407.00	100.00	0.00	0.00	628.60	44.00	632.22	.01	.02	.00	35.66	3.62	182.36
6407.00	100.00	0.00	0.00	628.60	47.00	632.23	.01	.03	.00	37.64	3.63	184.90
6407.00	100.00	0.00	0.00	628.60	54.00	632.27	.01	.03	.00	41.97	3.67	191.22
6507.00	100.00	0.00	0.00	628.70	32.00	632.18	.01	.02	.00	28.95	3.48	156.88
6507.00	100.00	0.00	0.00	628.70	44.00	632.25	.01	.03	.00	37.68	3.55	170.16
6507.00	100.00	0.00	0.00	628.70	47.00	632.27	.01	.03	.00	39.72	3.57	173.22
6507.00	100.00	0.00	0.00	628.70	54.00	632.31	.01	.04	.00	44.17	3.61	180.36
6532.00	25.00	0.00	0.00	628.70	32.00	632.18	.01	.01	.00	28.85	3.48	157.76
6532.00	25.00	0.00	0.00	628.70	44.00	632.26	.01	.01	.00	37.46	3.56	171.52
6532.00	25.00	0.00	0.00	628.70	47.00	632.27	.01	.01	.00	39.45	3.57	174.70
6532.00	25.00	0.00	0.00	628.70	54.00	632.32	.01	.01	.00	43.82	3.62	182.11
6557.00	25.00	0.00	0.00	628.80	32.00	632.19	.01	.01	.00	31.89	3.39	29.39
6557.00	25.00	0.00	0.00	628.80	44.00	632.26	.01	.01	.00	40.03	3.46	155.42
6557.00	25.00	0.00	0.00	628.80	47.00	632.28	.02	.01	.00	42.22	3.48	158.72
6557.00	25.00	0.00	0.00	628.80	54.00	632.33	.02	.01	.00	47.00	3.53	166.41
6582.00	25.00	0.00	0.00	628.80	32.00	632.19	.01	.01	.00	31.88	3.39	29.90
6582.00	25.00	0.00	0.00	628.80	44.00	632.28	.01	.01	.00	39.78	3.48	157.10
6582.00	25.00	0.00	0.00	628.80	47.00	632.30	.02	.01	.00	41.91	3.50	160.54
6582.00	25.00	0.00	0.00	628.80	54.00	632.34	.02	.01	.00	46.58	3.54	168.53
6592.00	10.00	0.00	0.00	628.80	32.00	632.20	.01	.00	.00	31.87	3.40	30.13
6592.00	10.00	0.00	0.00	628.80	44.00	632.28	.01	.00	.00	39.66	3.48	157.85
6592.00	10.00	0.00	0.00	628.80	47.00	632.30	.02	.00	.00	41.78	3.50	161.35
6592.00	10.00	0.00	0.00	628.80	54.00	632.35	.02	.01	.00	46.39	3.55	169.47
6602.00	10.00	0.00	0.00	628.80	32.00	632.20	.01	.00	.00	31.87	3.40	30.37
6602.00	10.00	0.00	0.00	628.80	44.00	632.28	.01	.00	.00	39.55	3.48	158.58
6602.00	10.00	0.00	0.00	628.80	47.00	632.30	.02	.00	.00	41.64	3.50	162.14
6602.00	10.00	0.00	0.00	628.80	54.00	632.35	.02	.01	.00	46.20	3.55	170.39
6607.00	5.00	0.00	0.00	628.80	32.00	632.20	.01	.00	.00	30.23	3.40	143.85
6607.00	5.00	0.00	0.00	628.80	44.00	632.29	.01	.00	.00	39.49	3.49	158.94
6607.00	5.00	0.00	0.00	628.80	47.00	632.31	.02	.00	.00	41.58	3.51	162.53
6607.00	5.00	0.00	0.00	628.80	54.00	632.35	.02	.00	.00	46.11	3.55	170.84
6727.00	120.00	638.60	631.60	629.40	32.00	635.32	.09	3.20	0.00	32.00	5.92	2.30
6727.00	120.00	638.60	631.60	629.40	44.00	638.28	.08	6.06	0.00	44.00	8.88	2.30
6727.00	120.00	638.60	631.60	629.40	47.00	638.71	.00	6.39	0.00	.72	9.31	152.00
6727.00	120.00	638.60	631.60	629.40	54.00	638.80	.00	6.43	0.00	.83	9.40	152.00

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
6927.00	200.00	0.00	0.00	629.50	32.00	635.45	.00	.01	.03	21.71	5.95	52.00
6927.00	200.00	0.00	0.00	629.50	44.00	638.38	.00	.00	.02	24.15	8.88	52.00
6927.00	200.00	0.00	0.00	629.50	47.00	638.71	.00	.00	.00	25.45	9.21	52.00
6927.00	200.00	0.00	0.00	629.50	54.00	638.80	.00	.00	.00	29.13	9.30	52.00
7027.00	100.00	0.00	0.00	629.90	32.00	635.39	.13	.01	.07	32.00	5.49	2.00
7027.00	100.00	0.00	0.00	629.90	44.00	638.33	.11	.00	.05	44.00	8.43	2.00
7027.00	100.00	0.00	0.00	629.90	47.00	638.66	.11	.00	.06	47.00	8.76	2.00
7027.00	100.00	0.00	0.00	629.90	54.00	638.73	.15	.00	.07	54.00	8.83	2.00

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	92.000	609.280	0.000	0.000	0.000	17.650	0.000	-0.000
0.000	120.000	609.830	.550	0.000	0.000	25.353	-7.703	-0.000
0.000	125.000	610.036	.206	0.000	0.000	27.779	-10.129	-0.000
0.000	135.000	610.609	.573	0.000	0.000	30.684	-13.034	-0.000
200.000	92.000	610.232	0.000	.952	0.000	21.109	0.000	200.000
200.000	120.000	610.582	.350	.752	0.000	22.351	-1.243	200.000
200.000	125.000	610.670	.088	.634	0.000	22.627	-1.519	200.000
200.000	135.000	610.970	.301	.361	0.000	23.713	-2.604	200.000
400.000	92.000	610.948	0.000	.716	0.000	19.775	0.000	200.000
400.000	120.000	611.256	.308	.674	0.000	20.824	-1.049	200.000
400.000	125.000	611.317	.061	.647	0.000	21.070	-1.294	200.000
400.000	135.000	611.480	.164	.510	0.000	21.644	-1.869	200.000
500.000	92.000	611.497	0.000	.549	0.000	19.927	0.000	100.000
500.000	120.000	611.779	.282	.524	0.000	20.919	-.992	100.000
500.000	125.000	611.821	.042	.505	0.000	21.083	-1.156	100.000
500.000	135.000	611.937	.116	.457	0.000	21.493	-1.566	100.000
550.000	92.000	611.758	0.000	.261	0.000	19.815	0.000	50.000
550.000	120.000	612.035	.277	.256	0.000	20.771	-.955	50.000
550.000	125.000	612.077	.042	.256	0.000	20.914	-1.098	50.000
550.000	135.000	612.182	.105	.245	0.000	21.277	-1.462	50.000
600.000	92.000	612.036	0.000	.278	0.000	19.717	0.000	50.000
600.000	120.000	612.310	.274	.275	0.000	20.669	-.952	50.000
600.000	125.000	612.354	.044	.277	0.000	20.818	-1.101	50.000
600.000	135.000	612.451	.097	.268	0.000	21.189	-1.473	50.000
650.000	92.000	612.328	0.000	.292	0.000	20.032	0.000	50.000
650.000	120.000	612.604	.275	.293	0.000	21.025	-.993	50.000
650.000	125.000	612.649	.045	.295	0.000	21.184	-1.152	50.000
650.000	135.000	612.735	.086	.285	0.000	21.462	-1.430	50.000
667.000	92.000	612.410	0.000	.081	0.000	19.998	0.000	17.000
667.000	120.000	612.684	.274	.081	0.000	20.987	-.989	17.000
667.000	125.000	612.730	.045	.081	0.000	21.147	-1.149	17.000
667.000	135.000	612.817	.088	.082	0.000	21.422	-1.424	17.000
675.000	92.000	612.441	0.000	.031	0.000	17.999	0.000	8.000
675.000	120.000	612.709	.268	.025	0.000	17.999	-.000	8.000
675.000	125.000	612.753	.045	.024	0.000	17.999	-.000	8.000
675.000	135.000	612.841	.088	.024	0.000	17.999	-.000	8.000
688.000	92.000	612.467	0.000	.025	0.000	11.999	0.000	13.000
688.000	120.000	612.716	.249	.007	0.000	11.999	-.000	13.000
688.000	125.000	612.756	.041	.003	0.000	11.999	-.000	13.000
688.000	135.000	612.835	.078	.007	0.000	11.999	-.000	13.000

699.000	92.000	612.946	0.000	.479	0.000	5.500	0.000	11.000
699.000	120.000	613.343	.397	.627	0.000	5.500	0.000	11.000
699.000	125.000	613.410	.067	.654	0.000	5.500	0.000	11.000
699.000	135.000	613.543	.132	.708	0.000	5.500	0.000	11.000
700.000	92.000	613.428	0.000	.482	0.000	5.500	0.000	1.000
700.000	120.000	613.923	.495	.581	0.000	5.500	0.000	1.000
700.000	125.000	614.009	.085	.599	0.000	5.500	0.000	1.000
700.000	135.000	614.144	.135	.601	0.000	5.500	0.000	1.000
742.000	92.000	613.962	0.000	.534	0.000	5.500	0.000	42.000
742.000	120.000	614.505	.543	.582	0.000	5.500	0.000	42.000
742.000	125.000	614.597	.092	.588	0.000	5.500	0.000	42.000
742.000	135.000	614.785	.188	.641	0.000	5.500	0.000	42.000
743.000	92.000	613.972	0.000	.010	0.000	5.500	0.000	1.000
743.000	120.000	614.516	.544	.011	0.000	5.500	0.000	1.000
743.000	125.000	614.608	.092	.011	0.000	5.500	0.000	1.000
743.000	135.000	614.796	.188	.012	0.000	5.500	0.000	1.000
745.000	92.000	614.070	0.000	.098	0.000	8.169	0.000	2.000
745.000	120.000	614.782	.713	.266	0.000	9.485	-1.315	2.000
745.000	125.000	614.903	.121	.295	0.000	9.708	-1.539	2.000
745.000	135.000	615.147	.243	.350	0.000	10.158	-1.989	2.000
747.000	92.000	614.306	0.000	.236	0.000	9.611	0.000	2.000
747.000	120.000	614.975	.669	.192	0.000	10.846	-1.234	2.000
747.000	125.000	615.089	.114	.186	0.000	11.057	-1.446	2.000
747.000	135.000	615.320	.230	.173	0.000	11.483	-1.872	2.000
752.000	92.000	614.518	0.000	.212	0.000	14.813	0.000	5.000
752.000	120.000	615.185	.667	.210	0.000	16.048	-1.235	5.000
752.000	125.000	615.299	.113	.209	0.000	16.258	-1.445	5.000
752.000	135.000	615.526	.227	.206	0.000	16.678	-1.865	5.000
762.000	92.000	614.561	0.000	.043	0.000	24.691	0.000	10.000
762.000	120.000	615.238	.677	.053	0.000	25.959	-1.268	10.000
762.000	125.000	615.353	.115	.054	0.000	26.172	-1.481	10.000
762.000	135.000	615.582	.229	.056	0.000	26.596	-1.905	10.000
771.000	92.000	614.571	0.000	.010	0.000	32.525	0.000	9.000
771.000	120.000	615.252	.682	.014	0.000	33.790	-1.265	9.000
771.000	125.000	615.368	.115	.015	0.000	34.002	-1.477	9.000
771.000	135.000	615.598	.230	.016	0.000	34.426	-1.901	9.000
842.000	92.000	614.642	0.000	.071	0.000	15.548	0.000	71.000
842.000	120.000	615.292	.651	.040	0.000	16.769	-1.221	71.000
842.000	125.000	615.404	.112	.037	0.000	16.977	-1.429	71.000
842.000	135.000	615.628	.224	.030	0.000	17.394	-1.846	71.000
852.000	92.000	614.651	0.000	.009	0.000	12.579	0.000	10.000
852.000	120.000	615.294	.643	.001	0.000	13.779	-1.200	10.000
852.000	125.000	615.404	.111	.000	0.000	13.986	-1.406	10.000
852.000	135.000	615.626	.222	-.002	0.000	14.399	-1.819	10.000
862.000	92.000	614.649	0.000	-.001	0.000	10.388	0.000	10.000
862.000	120.000	615.286	.637	-.007	0.000	11.567	-1.179	10.000
862.000	125.000	615.396	.110	-.008	0.000	11.771	-1.383	10.000
862.000	135.000	615.617	.221	-.009	0.000	12.180	-1.792	10.000
872.000	92.000	614.532	0.000	-.118	0.000	7.175	0.000	10.000
872.000	120.000	615.178	.647	-.108	0.000	8.370	-1.195	10.000
872.000	125.000	615.290	.112	-.106	0.000	8.578	-1.402	10.000
872.000	135.000	615.516	.225	-.101	0.000	8.995	-1.819	10.000
882.000	92.000	615.040	0.000	.509	0.000	6.352	0.000	10.000

882.000	120.000	615.448	.408	.270	0.000	7.108	-.756	10.000
882.000	125.000	615.517	.069	.227	0.000	7.235	-.883	10.000
882.000	135.000	615.664	.147	.148	0.000	7.507	-1.155	10.000
891.000	92.000	615.294	0.000	.254	0.000	3.999	0.000	9.000
891.000	120.000	615.788	.494	.340	0.000	3.999	-.000	9.000
891.000	125.000	615.872	.084	.355	0.000	3.999	-.000	9.000
891.000	135.000	616.036	.164	.372	0.000	3.999	-.000	9.000
892.000	92.000	615.884	0.000	.591	0.000	4.000	0.000	1.000
892.000	120.000	615.917	.033	.129	0.000	4.000	0.000	1.000
892.000	125.000	615.927	.010	.055	0.000	4.000	0.000	1.000
892.000	135.000	616.005	.077	-.031	0.000	4.000	0.000	1.000
1662.000	92.000	619.366	0.000	3.481	0.000	9.000	0.000	770.000
1662.000	120.000	622.140	2.774	6.223	0.000	9.000	0.000	770.000
1662.000	125.000	622.951	.812	7.024	0.000	9.000	0.000	770.000
1662.000	135.000	625.017	2.066	9.012	0.000	9.000	0.000	770.000
1663.000	92.000	619.310	0.000	-.056	0.000	9.000	0.000	1.000
1663.000	120.000	622.360	3.050	.220	0.000	9.000	0.000	1.000
1663.000	125.000	623.010	.650	.059	0.000	9.000	0.000	1.000
1663.000	135.000	624.360	1.350	-.657	0.000	9.000	0.000	1.000
1687.000	105.000	619.382	0.000	.072	0.000	55.277	0.000	24.000
1687.000	165.000	622.412	3.030	.052	0.000	59.999	-4.722	24.000
1687.000	185.000	623.057	.646	.047	0.000	59.999	-4.722	24.000
1687.000	235.000	624.400	1.342	.040	0.000	59.999	-4.722	24.000
1722.000	105.000	619.405	0.000	.023	0.000	59.072	0.000	35.000
1722.000	165.000	622.418	3.014	.007	0.000	118.546	-59.474	35.000
1722.000	185.000	623.064	.646	.006	0.000	140.499	-81.426	35.000
1722.000	235.000	624.407	1.343	.007	0.000	233.225	-174.152	35.000
1782.000	105.000	619.451	0.000	.046	0.000	61.252	0.000	60.000
1782.000	165.000	622.423	2.972	.005	0.000	118.617	-57.365	60.000
1782.000	185.000	623.067	.644	.004	0.000	140.762	-79.510	60.000
1782.000	235.000	624.409	1.342	.002	0.000	233.458	-172.205	60.000
1862.000	105.000	619.508	0.000	.058	0.000	59.130	0.000	80.000
1862.000	165.000	622.429	2.921	.006	0.000	117.330	-58.201	80.000
1862.000	185.000	623.072	.643	.005	0.000	134.747	-75.617	80.000
1862.000	235.000	624.412	1.340	.003	0.000	225.889	-166.760	80.000
1962.000	105.000	619.587	0.000	.079	0.000	52.626	0.000	100.000
1962.000	165.000	622.438	2.850	.009	0.000	114.697	-62.070	100.000
1962.000	185.000	623.079	.641	.006	0.000	123.513	-70.887	100.000
1962.000	235.000	624.416	1.337	.004	0.000	210.591	-157.965	100.000
2062.000	105.000	619.676	0.000	.088	0.000	51.674	0.000	100.000
2062.000	165.000	622.447	2.772	.010	0.000	113.449	-61.774	100.000
2062.000	185.000	623.086	.638	.007	0.000	122.235	-70.561	100.000
2062.000	235.000	624.421	1.335	.005	0.000	203.121	-151.447	100.000
2162.000	105.000	619.766	0.000	.090	0.000	51.100	0.000	100.000
2162.000	165.000	622.458	2.692	.011	0.000	112.216	-61.116	100.000
2162.000	185.000	623.094	.636	.008	0.000	120.967	-69.867	100.000
2162.000	235.000	624.425	1.332	.005	0.000	195.686	-144.586	100.000
2212.000	105.000	619.813	0.000	.047	0.000	36.627	0.000	50.000
2212.000	165.000	622.463	2.650	.005	0.000	106.805	-70.178	50.000
2212.000	185.000	623.098	.634	.004	0.000	115.538	-78.910	50.000
2212.000	235.000	624.428	1.330	.002	0.000	170.126	-133.499	50.000
2262.000	42.000	619.913	0.000	.100	0.000	34.209	0.000	50.000
2262.000	71.000	622.473	2.565	.015	0.000	87.999	-53.790	50.000

2262.000	82.000	623.109	.631	.011	0.000	87.999	-53.790	50.000
2262.000	110.000	624.435	1.326	.007	0.000	87.999	-53.790	50.000
2362.000	42.000	619.953	0.000	.039	0.000	12.788	0.000	100.000
2362.000	71.000	622.479	2.526	.001	0.000	20.441	-7.653	100.000
2362.000	82.000	623.108	.629	-.001	0.000	45.585	-32.797	100.000
2362.000	110.000	624.434	1.326	-.000	0.000	132.814	-120.025	100.000
2462.000	42.000	620.123	0.000	.170	0.000	11.488	0.000	100.000
2462.000	71.000	622.514	2.391	.035	0.000	18.699	-7.211	100.000
2462.000	82.000	623.135	.621	.027	0.000	21.312	-9.824	100.000
2462.000	110.000	624.446	1.311	.012	0.000	93.928	-82.440	100.000
2562.000	42.000	620.434	0.000	.312	0.000	10.313	0.000	100.000
2562.000	71.000	622.572	2.138	.058	0.000	16.779	-6.466	100.000
2562.000	82.000	623.180	.608	.045	0.000	18.587	-8.274	100.000
2562.000	110.000	624.468	1.289	.023	0.000	49.101	-38.789	100.000
2662.000	42.000	620.925	0.000	.491	0.000	9.983	0.000	100.000
2662.000	71.000	622.677	1.751	.104	0.000	15.280	-5.297	100.000
2662.000	82.000	623.258	.582	.078	0.000	17.039	-7.056	100.000
2662.000	110.000	624.513	1.255	.045	0.000	23.429	-13.447	100.000
2962.000	42.000	622.237	0.000	1.312	0.000	11.520	0.000	300.000
2962.000	71.000	623.221	.984	.544	0.000	14.793	-3.273	300.000
2962.000	82.000	623.667	.447	.409	0.000	16.108	-4.588	300.000
2962.000	110.000	624.758	1.091	.245	0.000	19.163	-7.643	300.000
3262.000	42.000	623.277	0.000	1.040	0.000	12.523	0.000	300.000
3262.000	71.000	624.025	.748	.805	0.000	15.062	-2.539	300.000
3262.000	82.000	624.328	.302	.661	0.000	15.838	-3.316	300.000
3262.000	110.000	625.173	.845	.414	0.000	18.126	-5.604	300.000
3562.000	42.000	624.335	0.000	1.058	0.000	13.311	0.000	300.000
3562.000	71.000	624.985	.650	.960	0.000	15.553	-2.242	300.000
3562.000	82.000	625.207	.222	.880	0.000	16.095	-2.783	300.000
3562.000	110.000	625.822	.615	.649	0.000	17.770	-4.459	300.000
3862.000	36.000	625.295	0.000	.960	0.000	14.059	0.000	300.000
3862.000	58.000	625.885	.591	.900	0.000	15.684	-1.625	300.000
3862.000	67.000	626.083	.198	.876	0.000	16.208	-2.149	300.000
3862.000	82.000	626.553	.470	.731	0.000	17.359	-3.299	300.000
4162.000	36.000	626.224	0.000	.929	0.000	14.102	0.000	300.000
4162.000	58.000	626.731	.507	.845	0.000	15.461	-1.359	300.000
4162.000	67.000	626.913	.182	.829	0.000	15.948	-1.846	300.000
4162.000	82.000	627.250	.337	.697	0.000	16.832	-2.730	300.000
4462.000	36.000	627.005	0.000	.781	0.000	14.834	0.000	300.000
4462.000	58.000	627.524	.519	.793	0.000	16.235	-1.402	300.000
4462.000	67.000	627.709	.185	.796	0.000	16.733	-1.900	300.000
4462.000	82.000	628.010	.302	.761	0.000	17.546	-2.713	300.000
4762.000	36.000	627.559	0.000	.554	0.000	14.975	0.000	300.000
4762.000	58.000	628.106	.547	.582	0.000	16.453	-1.479	300.000
4762.000	67.000	628.299	.193	.591	0.000	16.974	-2.000	300.000
4762.000	82.000	628.602	.302	.591	0.000	17.790	-2.816	300.000
5062.000	32.000	628.182	0.000	.622	0.000	11.566	0.000	300.000
5062.000	44.000	628.692	.510	.585	0.000	13.399	-1.833	300.000
5062.000	47.000	628.863	.171	.564	0.000	14.092	-2.526	300.000
5062.000	54.000	629.153	.290	.551	0.000	15.121	-3.555	300.000
5287.000	32.000	628.718	0.000	.536	0.000	12.064	0.000	225.000
5287.000	44.000	629.159	.441	.467	0.000	13.679	-1.615	225.000
5287.000	47.000	629.281	.122	.418	0.000	14.152	-2.088	225.000

5287.000	54.000	629.532	.252	.379	0.000	15.070	-3.006	225.000
5587.000	23.000	629.136	0.000	.419	0.000	11.753	0.000	300.000
5587.000	35.000	629.576	.439	.417	0.000	13.369	-1.616	300.000
5587.000	38.000	629.683	.108	.403	0.000	13.766	-2.012	300.000
5587.000	45.000	629.918	.234	.385	0.000	14.624	-2.871	300.000
5597.000	23.000	629.277	0.000	.141	0.000	33.999	0.000	10.000
5597.000	35.000	629.584	.307	.009	0.000	33.999	-.000	10.000
5597.000	38.000	629.695	.111	.012	0.000	33.999	-.000	10.000
5597.000	45.000	629.938	.242	.020	0.000	33.999	-.000	10.000
5637.000	23.000	630.709	0.000	1.432	0.000	114.999	0.000	40.000
5637.000	35.000	630.727	.018	1.143	0.000	114.999	-.000	40.000
5637.000	38.000	630.735	.008	1.040	0.000	114.999	-.000	40.000
5637.000	45.000	630.753	.018	.816	0.000	114.999	-.000	40.000
5662.000	23.000	632.115	0.000	1.407	0.000	292.999	0.000	25.000
5662.000	35.000	632.150	.034	1.422	0.000	292.999	-.000	25.000
5662.000	38.000	632.157	.008	1.422	0.000	292.999	-.000	25.000
5662.000	45.000	632.174	.017	1.421	0.000	292.999	-.000	25.000
5797.000	23.000	632.115	0.000	.000	0.000	251.999	0.000	135.000
5797.000	35.000	632.150	.034	.000	0.000	251.999	-.000	135.000
5797.000	38.000	632.158	.008	.000	0.000	251.999	-.000	135.000
5797.000	45.000	632.175	.017	.000	0.000	251.999	-.000	135.000
5807.000	23.000	632.115	0.000	-.000	0.000	247.999	0.000	10.000
5807.000	35.000	632.150	.034	-.000	0.000	247.999	-.000	10.000
5807.000	38.000	632.157	.008	-.000	0.000	247.999	-.000	10.000
5807.000	45.000	632.175	.017	-.000	0.000	247.999	-.000	10.000
5842.000	32.000	632.115	0.000	.000	0.000	229.999	0.000	35.000
5842.000	44.000	632.150	.034	.000	0.000	229.999	-.000	35.000
5842.000	47.000	632.158	.008	.000	0.000	229.999	-.000	35.000
5842.000	54.000	632.175	.017	.000	0.000	229.999	-.000	35.000
5972.000	32.000	632.117	0.000	.001	0.000	229.999	0.000	130.000
5972.000	44.000	632.152	.035	.003	0.000	229.999	-.000	130.000
5972.000	47.000	632.161	.008	.003	0.000	229.999	-.000	130.000
5972.000	54.000	632.179	.018	.004	0.000	229.999	-.000	130.000
6107.000	32.000	632.122	0.000	.005	0.000	218.733	0.000	135.000
6107.000	44.000	632.160	.039	.008	0.000	225.149	-6.416	135.000
6107.000	47.000	632.170	.009	.009	0.000	226.625	-7.892	135.000
6107.000	54.000	632.190	.020	.011	0.000	229.918	-11.185	135.000
6207.000	32.000	632.130	0.000	.009	0.000	202.074	0.000	100.000
6207.000	44.000	632.175	.045	.015	0.000	210.141	-8.067	100.000
6207.000	47.000	632.186	.011	.016	0.000	211.910	-9.836	100.000
6207.000	54.000	632.210	.024	.020	0.000	215.924	-13.849	100.000
6307.000	32.000	632.142	0.000	.011	0.000	186.124	0.000	100.000
6307.000	44.000	632.194	.052	.019	0.000	195.286	-9.163	100.000
6307.000	47.000	632.207	.013	.021	0.000	197.355	-11.231	100.000
6307.000	54.000	632.236	.029	.025	0.000	203.154	-17.030	100.000
6407.000	32.000	632.157	0.000	.015	0.000	171.706	0.000	100.000
6407.000	44.000	632.218	.061	.024	0.000	182.359	-10.652	100.000
6407.000	47.000	632.233	.015	.026	0.000	184.903	-13.197	100.000
6407.000	54.000	632.267	.034	.031	0.000	191.215	-19.509	100.000
6507.000	32.000	632.176	0.000	.019	0.000	156.884	0.000	100.000
6507.000	44.000	632.248	.072	.030	0.000	170.163	-13.279	100.000
6507.000	47.000	632.265	.018	.032	0.000	173.215	-16.331	100.000
6507.000	54.000	632.305	.040	.038	0.000	180.360	-23.476	100.000

6532.000	32.000	632.181	0.000	.006	0.000	157.759	0.000	25.000
6532.000	44.000	632.256	.075	.009	0.000	171.524	-13.765	25.000
6532.000	47.000	632.275	.019	.010	0.000	174.698	-16.938	25.000
6532.000	54.000	632.317	.042	.011	0.000	182.109	-24.350	25.000
6557.000	32.000	632.186	0.000	.005	0.000	29.390	0.000	25.000
6557.000	44.000	632.264	.078	.008	0.000	155.421	-126.031	25.000
6557.000	47.000	632.283	.019	.008	0.000	158.720	-129.330	25.000
6557.000	54.000	632.326	.043	.010	0.000	166.406	-137.015	25.000
6582.000	32.000	632.194	0.000	.008	0.000	29.899	0.000	25.000
6582.000	44.000	632.275	.082	.011	0.000	157.099	-127.200	25.000
6582.000	47.000	632.295	.020	.012	0.000	160.538	-130.639	25.000
6582.000	54.000	632.341	.045	.014	0.000	168.530	-138.631	25.000
6592.000	32.000	632.197	0.000	.003	0.000	30.135	0.000	10.000
6592.000	44.000	632.279	.083	.004	0.000	157.846	-127.711	10.000
6592.000	47.000	632.300	.021	.005	0.000	161.347	-131.212	10.000
6592.000	54.000	632.346	.046	.006	0.000	169.472	-139.338	10.000
6602.000	32.000	632.200	0.000	.003	0.000	30.369	0.000	10.000
6602.000	44.000	632.284	.084	.004	0.000	158.578	-128.210	10.000
6602.000	47.000	632.305	.021	.005	0.000	162.139	-131.770	10.000
6602.000	54.000	632.352	.047	.006	0.000	170.391	-140.023	10.000
6607.000	32.000	632.203	0.000	.004	0.000	143.854	0.000	5.000
6607.000	44.000	632.286	.083	.002	0.000	158.941	-15.086	5.000
6607.000	47.000	632.307	.021	.002	0.000	162.530	-18.675	5.000
6607.000	54.000	632.354	.047	.003	0.000	170.844	-26.990	5.000
6727.000	32.000	635.323	0.000	3.120	0.000	2.300	0.000	120.000
6727.000	44.000	638.283	2.960	5.998	0.000	2.300	0.000	120.000
6727.000	47.000	638.710	.426	6.403	0.000	151.999	-149.699	120.000
6727.000	54.000	638.802	.092	6.447	0.000	151.999	-149.699	120.000
6927.000	32.000	635.452	0.000	.128	0.000	51.999	0.000	200.000
6927.000	44.000	638.383	2.932	.100	0.000	51.999	-.000	200.000
6927.000	47.000	638.710	.326	-.000	0.000	51.999	-.000	200.000
6927.000	54.000	638.802	.092	-.000	0.000	51.999	-.000	200.000
7027.000	32.000	635.391	0.000	-.060	0.000	2.000	0.000	100.000
7027.000	44.000	638.332	2.940	-.052	0.000	2.000	0.000	100.000
7027.000	47.000	638.655	.323	-.055	0.000	2.000	0.000	100.000
7027.000	54.000	638.731	.076	-.071	0.000	2.000	0.000	100.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	0.000	7.171	0.000
2	0.000	0.000	8.551	1.379
3	0.000	0.000	9.422	2.251
4	0.000	0.000	11.092	3.921

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Bridgman, City

3) WATERCOURSE: Bridgman City Drain

4) DOCUMENT TYPE: 100-YEAR NATURAL

00BREAK00

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BRIJODS JANDA 02/11/77 09.25.56 7600 JO

CITY OF BRIDGMAN FIS
J&A FILE NO. 5555-09
BRIDGMAN CITY DRAIN
10-50-100- & 500-YR. FLOWS
DNR SUBMITTAL

RECEIVED
FEB 16 1977
WATER MANAGEMENT

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HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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C
1       CITY OF BRIDGMAN FIS, PROJECT MANAGER: MR. JOHN EMIG
T2       10 YEAR FLOOD
T3      BRIDGMAN CITY DRAIN
J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
        -0.       2.        -0.        -0. -0.000000      -0.00      -0.0       -0.    619.886    -0.000
J2  NPROF      IPLOT      PREVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
     1.000     -0.000     -1.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000
J3       1.000     10.000     11.000     12.000     14.000      8.000      4.000     -0.000     -0.000     -0.000
NC        .070       .070       .055       .300       .500     -0.000     -0.000     -0.000     -0.000     -0.000
QT       4.000     95.000    120.000    125.000    140.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1       0.000     19.000    600.000    627.000     -0.000     -0.000     -0.000     -0.000     -2.900     -0.000
X3      10.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000
GR     633.900      0.000    633.400    100.000    631.800    200.000    631.700    300.000    631.400    400.000
GR     628.200    500.000    627.400    600.000    619.900    607.000    618.500    611.000    620.200    615.000
GR     627.600    627.000    628.200    700.000    629.800    800.000    630.000    900.000    629.500   1000.000
GR     629.700   1100.000    628.800   1200.000    627.900   1300.000    628.300   1400.000     -0.000     -0.000
QT       4.000     64.000     93.000    100.000    125.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1     225.000     -0.000     -0.000     -0.000    225.000    225.000    225.000     -0.000      1.400     -0.000
X3      10.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1     450.000     -0.000     -0.000     -0.000    225.000    225.000    225.000     -0.000      1.500     -0.000
X3      10.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1     499.000     22.000    798.000    802.000     49.000     49.000     49.000     -0.000     -0.000     -0.000
X3      10.000     -0.000     -0.000    798.000     -0.000    802.000     -0.000     -0.000     -0.000     -0.000
GR     634.900      0.000    634.500    100.000    633.700    200.000    633.100    300.000    632.500    400.000
GR     631.200    500.000    629.500    600.000    628.400    700.000    624.600    798.000    623.100    798.000
GR     622.100    799.000    622.100    801.000    623.100    802.000    624.600    802.000    629.200    900.000
GR     630.400   1000.000    630.900   1100.000    630.400   1200.000    630.100   1300.000    629.400   1400.000
GR     629.300   1500.000    629.200   1600.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000
NC        .070       .070       .015     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1     500.000     -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    798.000     -0.000    802.000     -0.000     -0.000     -0.000     -0.000
SB      -0.000      1.600      2.900     -0.000      3.140     -0.000     12.570     -0.000    622.100    622.100

X1     562.000     -0.000     -0.000     -0.000     62.000     62.000     62.000     -0.000     -0.000     -0.000
X2      -0.000     -0.000      1.000    626.100    628.700     -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    628.400    628.400     -0.000
BT      20.000      0.000    634.900      0.000    100.000    634.500      0.000    200.000    633.700      0.000
BT     300.000    633.100      0.000    400.000    632.500      0.000    500.000    631.200      0.000    600.000
BT     629.500      0.000    700.000    628.400      0.000    798.000    628.700    624.600    799.000    628.700
BT     626.100    801.000    628.700    626.100    802.000    628.700    624.600    900.000    629.200      0.000
BT    1000.000    630.400      0.000   1100.000    630.900      0.000   1200.000    630.400      0.000   1300.000
BT     630.100      0.000   1400.000    629.400      0.000   1500.000    629.300      0.000   1600.000    629.200
BT       0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000
NC        .070       .070       .055     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000
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X1	563.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	628.400	628.400	-0.000
X1	565.000	19.000	600.000	627.000	2.000	2.000	2.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	607.000	-0.000	615.000	-0.000	-0.000	-0.000	-0.000
GR	633.900	0.000	633.400	100.000	631.800	200.000	631.700	300.000	631.400	400.000
GR	628.200	500.000	626.000	600.000	623.500	607.000	622.100	611.000	623.800	615.000
GR	627.600	627.000	628.200	700.000	629.800	800.000	630.000	900.000	629.500	1000.000
GR	629.700	1100.000	628.800	1200.000	627.900	1300.000	628.300	1400.000	-0.000	-0.000
X1	566.000	-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	606.000	-0.000	616.000	-0.000	-0.000	-0.000	-0.000
X1	590.000	-0.000	-0.000	-0.000	24.000	24.000	24.000	-0.000	.200	-0.000
X3	10.000	-0.000	-0.000	583.500	-0.000	643.500	-0.000	-0.000	-0.000	-0.000
X1	601.000	-0.000	-0.000	-0.000	11.000	11.000	11.000	-0.000	-0.000	-0.000
X1	1012.000	26.000	800.000	814.000	411.000	411.000	411.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	1000.000	-0.000	-0.000	-0.000	-0.000
GR	637.400	0.000	637.700	100.000	638.300	200.000	638.200	300.000	637.200	400.000
GR	636.800	500.000	635.900	600.000	633.700	700.000	632.500	800.000	625.400	802.000
GR	624.900	807.000	625.100	811.000	632.700	814.000	633.700	900.000	634.300	1000.000
GR	633.800	1100.000	632.600	1200.000	632.300	1300.000	631.300	1400.000	631.000	1443.000
GR	627.300	1455.000	628.000	1460.000	628.800	1468.000	631.000	1500.000	633.200	1600.000
GR	636.100	1700.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1437.000	26.000	800.000	814.000	425.000	425.000	425.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	1000.000	-0.000	-0.000	-0.000	-0.000
GR	637.400	0.000	637.700	100.000	638.300	200.000	638.200	300.000	637.200	400.000
GR	636.800	500.000	635.900	600.000	633.700	700.000	632.500	800.000	628.000	802.000
GR	627.500	807.000	627.700	811.000	632.700	814.000	633.700	900.000	634.300	1000.000
GR	633.800	1100.000	632.600	1200.000	632.300	1300.000	631.300	1400.000	631.000	1443.000
GR	627.300	1455.000	628.000	1460.000	628.800	1468.000	631.000	1500.000	633.200	1600.000
GR	636.100	1700.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1812.000	26.000	800.000	814.000	375.000	375.000	375.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	1000.000	-0.000	-0.000	-0.000	-0.000
GR	637.400	0.000	637.700	100.000	638.300	200.000	638.200	300.000	637.200	400.000
GR	636.800	500.000	635.900	600.000	633.700	700.000	632.500	800.000	630.300	802.000
GR	629.800	807.000	630.000	811.000	632.700	814.000	633.700	900.000	634.300	1000.000
GR	633.800	1100.000	632.600	1200.000	632.300	1300.000	631.300	1400.000	631.000	1443.000
GR	627.300	1455.000	628.000	1460.000	628.800	1468.000	631.000	1500.000	633.200	1600.000
GR	636.100	1700.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1832.000	26.000	800.000	814.000	20.000	20.000	20.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	798.000	-0.000	815.000	-0.000	-0.000	-0.000	-0.000
GR	637.400	0.000	637.700	100.000	638.300	200.000	638.200	300.000	637.200	400.000
GR	636.800	500.000	635.900	600.000	633.700	700.000	632.500	800.000	629.900	802.000
GR	629.400	807.000	629.600	811.000	632.700	814.000	633.700	900.000	634.300	1000.000
GR	633.800	1100.000	632.600	1200.000	632.300	1300.000	631.300	1400.000	631.000	1443.000
GR	627.300	1455.000	628.000	1460.000	628.800	1468.000	631.000	1500.000	633.200	1600.000
GR	636.100	1700.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
QT	4.000	40.000	47.000	48.000	51.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1862.000	34.000	805.800	808.200	30.000	30.000	30.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	555.000	-0.000	975.000	-0.000	635.000	635.000	-0.000
GR	637.400	0.000	637.700	100.000	638.300	200.000	638.200	300.000	637.200	400.000
GR	636.800	500.000	636.300	555.000	635.900	600.000	633.700	700.000	632.500	800.000
GR	632.400	805.800	630.600	805.800	629.700	805.800	629.100	806.200	628.900	807.000
GR	629.100	807.800	629.700	808.200	630.600	808.200	632.600	808.200	632.700	814.000
GR	633.700	900.000	634.200	975.000	634.300	1000.000	633.800	1100.000	632.600	1200.000
GR	632.300	1300.000	631.300	1400.000	631.000	1443.000	627.300	1455.000	628.000	1460.000
GR	628.800	1468.000	631.000	1500.000	633.200	1600.000	636.100	1700.000	-0.000	-0.000
SB	-0.000	3.300	2.800	-0.000	2.500	-0.000	4.909	-0.000	628.500	628.900

X1	1926.000	34.000	805.800	808.200	64.000	64.000	64.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	631.000	641.500	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	555.000	-0.000	975.000	-0.000	641.550	641.300	-0.000
BT	11.000	555.000	641.900	0.000	600.000	641.800	0.000	700.000	641.600	0.000
BT	805.800	641.500	630.200	806.200	641.500	630.800	807.000	641.500	631.000	807.800
BT	641.500	630.800	808.200	641.500	630.200	814.000	641.500	0.000	900.000	641.400
BT	0.000	975.000	641.300	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	640.000	0.000	637.700	100.000	638.300	200.000	638.200	300.000	637.200	400.000
GR	636.800	500.000	636.300	555.000	635.900	600.000	633.700	700.000	632.500	800.000
GR	632.400	805.800	630.200	805.800	629.300	805.800	628.700	806.200	628.500	807.000
GR	628.700	807.800	629.300	808.200	630.200	808.200	632.600	808.200	632.700	814.000
GR	633.700	900.000	634.200	975.000	634.300	1000.000	633.800	1100.000	632.600	1200.000
GR	632.300	1300.000	631.300	1400.000	631.000	1443.000	627.300	1455.000	628.000	1460.000
GR	628.800	1468.000	631.000	1500.000	633.200	1600.000	640.000	1700.000	-0.000	-0.000
NC	.080	.080	.055	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
QT	4.000	81.000	135.000	150.000	195.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2076.000	21.000	800.000	813.000	160.000	160.000	160.000	-0.000	-5.900	-0.000
X3	10.000	-0.000	-0.000	761.000	-0.000	836.000	-0.000	-0.000	-0.000	-0.000
GR	637.900	0.000	637.600	100.000	640.600	200.000	642.200	300.000	641.700	400.000
GR	641.700	500.000	640.400	600.000	639.400	700.000	637.300	800.000	636.200	802.000
GR	636.300	807.000	636.400	809.000	638.800	813.000	638.700	900.000	642.800	1000.000
GR	643.800	1100.000	645.900	1200.000	650.600	1300.000	650.700	1400.000	649.800	1500.000
GR	652.500	1600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2351.000	-0.000	-0.000	-0.000	265.000	265.000	265.000	-0.000	2.900	-0.000
X3	10.000	-0.000	-0.000	761.000	-0.000	836.000	-0.000	-0.000	-0.000	-0.000
X1	2406.000	-0.000	-0.000	-0.000	55.000	55.000	55.000	-0.000	.600	-0.000
X3	10.000	-0.000	-0.000	761.000	-0.000	836.000	-0.000	-0.000	-0.000	-0.000
X1	2461.000	-0.000	-0.000	-0.000	55.000	55.000	55.000	-0.000	.600	-0.000
X3	10.000	-0.000	-0.000	761.000	-0.000	836.000	-0.000	-0.000	-0.000	-0.000
X1	2516.000	-0.000	-0.000	-0.000	55.000	55.000	55.000	-0.000	.600	-0.000
X3	10.000	-0.000	-0.000	761.000	-0.000	836.000	-0.000	-0.000	-0.000	-0.000
X1	2571.000	-0.000	-0.000	-0.000	55.000	55.000	55.000	-0.000	.600	-0.000
X3	-0.000	-0.000	-0.000	738.000	-0.000	836.000	-0.000	-0.000	-0.000	-0.000
X1	2626.000	21.000	800.000	813.000	55.000	55.000	55.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	737.000	-0.000	836.000	-0.000	-0.000	-0.000	-0.000
GR	637.900	0.000	637.600	100.000	640.600	200.000	642.200	300.000	641.700	400.000
GR	641.700	500.000	640.400	600.000	639.400	700.000	637.300	800.000	636.200	802.000
GR	636.300	807.000	636.400	809.000	638.800	813.000	638.700	900.000	642.800	1000.000
GR	643.800	1100.000	645.900	1200.000	650.600	1300.000	650.700	1400.000	649.800	1500.000
GR	652.500	1600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2751.000	-0.000	-0.000	-0.000	125.000	125.000	125.000	-0.000	1.400	-0.000
X3	10.000	-0.000	-0.000	736.000	-0.000	836.000	-0.000	-0.000	-0.000	-0.000
X1	2876.000	-0.000	-0.000	-0.000	125.000	125.000	125.000	-0.000	1.400	-0.000
X3	-0.000	-0.000	-0.000	737.000	-0.000	836.000	-0.000	-0.000	-0.000	-0.000
X1	3126.000	-0.000	-0.000	-0.000	250.000	250.000	250.000	-0.000	2.700	-0.000
X3	-0.000	-0.000	-0.000	737.000	-0.000	836.000	-0.000	-0.000	-0.000	-0.000
EJ	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

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HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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T1      CITY OF BRIDGMAN F.I.S. PROJECT MANAGER: MR. JOHN EMIG
T2      100 YEAR FLOOD
T3      BRIDGMAN CITY DRAIN

J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
       -0.         4.         -0.        -0.    -0.000000     -0.00      -0.0       -0.    623.103    -0.000

J2   NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
     3.000     -0.000     -1.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000
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CCHV= .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=					624.50	ELREA=	624.70		
0.00	7.50	623.10	0.00	623.10	623.13	.03	0.00	0.00	624.50
125.	0.	125.	0.	0.	99.	0.	0.	0.	624.70
0.00	0.00	1.27	0.00	.070	.055	.070	0.000	615.60	601.30
.000412	-0.	-0.	-0.	0	0	1	0.00	23.11	624.41
OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=					625.90	ELREA=	626.10		
225.00	6.21	623.21	0.00	0.00	623.24	.03	.11	.00	625.90
100.	0.	100.	0.	0.	71.	0.	0.	0.	626.10
.04	0.00	1.42	0.00	.070	.055	.070	.055	617.00	602.52
.000641	225.	225.	225.	1	0	1	0.00	19.79	622.30
OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=					627.40	ELREA=	627.60		
VALLEY SECTION A									
450.00	4.92	623.42	0.00	0.00	623.49	.07	.23	.02	627.40
100.	0.	100.	0.	0.	47.	0.	1.	0.	627.60
.07	0.00	2.11	0.00	.070	.055	.070	.055	618.50	603.71
.001873	225.	225.	225.	2	0	1	0.00	16.51	620.22

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

3470 ENCROACHMENT STATIONS= 798.0 802.0 TYPE= 1 TARGET= 4.000

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=					624.60	ELREA=	100000.00		
499.00	2.93	625.03	625.03	0.00	626.38	1.36	.28	0.00	624.60
100.	0.	100.	0.	0.	11.	0.	1.	0.	100000.00
.08	0.00	9.34	0.00	.070	.055	.070	.055	622.10	798.00
.090446	49.	49.	49.	30	14	1	0.00	4.00	802.00

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

C

3470 ENCROACHMENT STATIONS= 798.0 802.0 TYPE= 1 TARGET= 4.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 624.60 ELREA= 100000.00

500.00	3.50	625.60	0.00	0.00	626.52	.92	.01	.13	624.60
100.	0.	100.	0.	0.	13.	0.	1.	0.	100000.00
.08	0.00	7.72	0.00	.070	.015	.070	.054	622.10	798.00
.004186	1.	1.	1.	6	0	1	0.00	4.00	802.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.60	2.90	-0.00	3.14	-0.00	12.57	-0.00	622.10	622.10

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
627.17	626.52	0.00	0.	100.	13.	626.10	628.70	10.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 628.40 ELREA= 628.40

BRIDGE SECTION B, BALDWIN ROAD CULVERT

62' OF 4" CONCRETE PIPE

ENTRANCE DESIGN : PROJECTING FROM FILL, SILT REMOVED

562.00	4.54	626.64	0.00	0.00	627.17	.53	.65	0.00	624.60
100.	0.	100.	0.	0.	17.	0.	1.	0.	624.60
.08	0.00	5.82	0.00	.070	.015	.070	.050	622.10	798.00
.001651	62.	62.	62.	3	0	1	0.00	4.00	845.54

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 628.40 ELREA= 628.40

563.00	4.55	626.65	0.00	0.00	627.17	.53	.00	.00	624.60
100.	0.	100.	0.	0.	17.	0.	1.	0.	624.60
.08	0.00	5.82	0.00	.070	.055	.070	.050	622.10	798.00
.022150	1.	1.	1.	0	0	1	0.00	4.00	845.61

3470 ENCROACHMENT STATIONS= 607.0 615.0 TYPE= 1 TARGET= 8.000

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

565.00	5.08	627.18	0.00	0.00	627.31	.13	.02	.12	100000.00
100.	0.	100.	0.	0.	34.	0.	1.	0.	100000.00
.08	0.00	2.90	0.00	.070	.055	.070	.050	622.10	607.00
.004028	2.	2.	2.	2	0	1	0.00	8.00	615.00

3470 ENCROACHMENT STATIONS= 606.0 616.0 TYPE= 1 TARGET= 10.000

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

566.00	5.13	627.23	0.00	0.00	627.32	.09	.00	.01100000.00	
100.	0.	100.	0.	0.	42.	0.	1.	0. 100000.00	
.08	0.00	2.40	0.00	.070	.055	.070	.050	622.10	606.00
.002415	1.	1.	1.	2	0	1	0.00	10.00	616.00

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= 583.5 643.5 TYPE= 1 TARGET= 60.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 626.20 ELREA= 627.80

590.00	5.05	627.35	0.00	0.00	627.37	.03	.03	.02	626.20
100.	9.	91.	0.	16.	69.	0.	1.	0.	627.80
.08	.55	1.33	0.00	.070	.055	.070	.050	622.30	583.50
.000702	24.	24.	24.	2	0	1	0.00	42.07	625.57
601.00	5.06	627.36	0.00	0.00	627.38	.02	.01	.00	626.20
100.	12.	88.	0.	31.	69.	0.	1.	0.	627.80
.09	.38	1.28	0.00	.070	.055	.070	.050	622.30	547.12
.000647	11.	11.	11.	0	0	1	0.00	78.50	625.62

3470 ENCROACHMENT STATIONS= .0 1000.0 TYPE= 1 TARGET= 999.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 632.50 ELREA= 632.70

1012.00	3.00	627.90	0.00	0.00	628.10	.20	.64	.09	632.50
100.	0.	100.	0.	0.	28.	0.	1.	1.	632.70
.12	0.00	3.59	0.00	.070	.055	.070	.052	624.90	801.29
.007512	411.	411.	411.	2	0	1	0.00	10.81	812.11

3470 ENCROACHMENT STATIONS= .0 1000.0 TYPE= 1 TARGET= 999.999

1437.00	3.18	630.68	0.00	0.00	630.84	.16	2.72	.01	632.50
100.	0.	100.	0.	0.	31.	0.	2.	1.	632.70
.16	0.00	3.21	0.00	.070	.055	.070	.053	627.50	800.81
.005514	425.	425.	425.	3	0	1	0.00	11.97	812.79

3470 ENCROACHMENT STATIONS= .0 1000.0 TYPE= 1 TARGET= 999.999

VALLEY SECTION C

1812.00	2.94	632.74	0.00	0.00	632.89	.15	2.05	.00	632.50
100.	1.	99.	0.	2.	32.	0.	2.	1.	632.70
.19	.38	3.13	.02	.070	.055	.070	.053	629.80	780.22
.005443	375.	375.	375.	2	0	1	0.00	36.99	817.21

3470 ENCROACHMENT STATIONS= 798.0 815.0 TYPE= 1 TARGET= 17.000

1832.00	3.48	632.88	0.00	0.00	632.99	.10	.08	.01	632.50
100.	0.	99.	0.	1.	38.	0.	2.	1.	632.70
.19	.60	2.60	.37	.070	.055	.070	.053	629.40	798.00
.003052	20.	20.	20.	2	0	1	0.00	17.00	815.00

3470 ENCROACHMENT STATIONS= 555.0 975.0 TYPE= 1 TARGET= 420.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 635.00 ELREA= 635.00

1868.00	3.97	632.87	0.00	0.00	633.31	.45	.16	.17	632.40
48.	0.	48.	0.	0.	9.	0.	2.	1.	632.60
.19	0.00	5.35	0.00	.070	.055	.070	.053	628.90	805.80
.040417	30.	30.	30.	2	0	1	0.00	2.40	808.20

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	3.30	2.80	-0.00	2.50	-0.00	4.91	-0.00	628.50	628.90

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

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
637.77	632.91	0.00	0.	48.	5.	631.00	641.50	10.00

3470 ENCROACHMENT STATIONS= 555.0 975.0 TYPE= 1 TARGET= 420.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 641.55 ELREA= 641.30

BRIDGE SECTION D, RAILROAD CULVERT

64' OF 30" CAST IRON PIPE

ENTRANCE DESIGN : PROJECTING FROM FILL, SILT REMOVED

1926.00	9.19	637.69	0.00	0.00	637.77	.08	4.45	0.00	632.40
48.	0.	48.	0.	0.	21.	0.	2.	1.	632.60
.20	0.00	2.23	0.00	.070	.055	.070	.053	628.50	805.80
.004146	64.	64.	64.	2	0	1	0.00	2.40	808.20

3470 ENCROACHMENT STATIONS= 761.0 836.0 TYPE= 1 TARGET= 75.000

2076.00	7.49	637.79	0.00	0.00	637.80	.00	.01	.02	631.40
150.	74.	44.	32.	233.	90.	113.	3.	1.	632.90
.32	.32	.49	.28	.080	.055	.080	.053	630.30	761.00
.000027	160.	160.	160.	2	0	1	0.00	75.00	836.00

3470 ENCROACHMENT STATIONS= 761.0 836.0 TYPE= 1 TARGET= 75.000
2351.00 4.61 637.81 0.00 0.00 637.82 .01 .02 .00 634.30
150. 75. 54. 22. 121. 53. 46. 5. 2. 635.80
.42 .62 1.02 .46 .080 .055 .080 .054 633.20 761.00
.000244 265. 265. 265. 2 0 1 0.00 75.00 836.00

3470 ENCROACHMENT STATIONS= 761.0 836.0 TYPE= 1 TARGET= 75.000
2406.00 4.02 637.82 0.00 0.00 637.84 .02 .02 .00 634.90
150. 74. 59. 17. 98. 45. 33. 5. 2. 636.40
.44 .76 1.31 .52 .080 .055 .080 .054 633.80 761.00
.000491 55. 55. 55. 0 0 1 0.00 75.00 836.00

3470 ENCROACHMENT STATIONS= 761.0 836.0 TYPE= 1 TARGET= 75.000
2461.00 3.46 637.86 0.00 0.00 637.88 .03 .04 .01 635.50
150. 73. 66. 11. 76. 38. 20. 5. 2. 637.00
.45 .96 1.74 .56 .080 .055 .080 .054 634.40 761.00
.001107 55. 55. 55. 2 0 1 0.00 75.00 836.00

3470 ENCROACHMENT STATIONS= 761.0 836.0 TYPE= 1 TARGET= 75.000
2516.00 2.93 637.93 0.00 0.00 637.99 .06 .09 .02 636.10
150. 70. 76. 4. 56. 31. 8. 6. 2. 637.60
.46 1.26 2.46 .49 .080 .055 .080 .054 635.00 761.00
.002883 55. 55. 55. 2 0 1 0.00 75.00 836.00

3470 ENCROACHMENT STATIONS= 738.0 836.0 TYPE= 1 TARGET= 98.000
2571.00 2.54 638.14 0.00 0.00 638.25 .11 .23 .03 636.70
150. 64. 86. 0. 49. 26. 0. 6. 2. 638.20
.47 1.30 3.36 0.00 .080 .055 .080 .054 635.60 738.00
.006737 55. 55. 55. 2 0 1 0.00 74.90 812.90

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= 737.0 836.0 TYPE= 1 TARGET= 99.000

VALLEY SECTION E

2626.00 2.37 638.57 0.00 0.00 638.74 .17 .46 .03 637.30
150. 54. 96. 0. 38. 24. 0. 6. 2. 638.80
.47 1.42 4.05 0.00 .080 .055 .080 .054 636.20 739.55
.010684 55. 55. 55. 2 0 1 0.00 73.06 812.62

3470 ENCROACHMENT STATIONS= 736.0 836.0 TYPE= 1 TARGET= 100.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 638.70 ELREA= 640.20

2751.00 2.34 639.94 0.00 0.00 640.13 .19 1.38 .01 638.70
150. 53. 97. 0. 37. 23. 0. 6. 2. 640.20
.48 1.45 4.17 0.00 .080 .055 .080 .054 637.60 740.87
.011466 125. 125. 125. 3 0 1 0.00 71.70 812.57

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3470 ENCROACHMENT STATIONS=     737.0     836.0  TYPE=     1  TARGET=     99.000
 2876.00     2.36   641.36      0.00      0.00   641.54      .18     1.40      .00   640.10
     150.      54.      96.        0.       38.      23.       0.       6.       3.   641.60
      .49     1.43     4.10      0.00      .080     .055     .080     .054   639.00   740.08
.010990      125.     125.      125.         2        0        1     0.00    72.51   812.60

3470 ENCROACHMENT STATIONS=     737.0     836.0  TYPE=     1  TARGET=     99.000
 3126.00     2.37   644.07      0.00      0.00   644.24      .17     2.71      .00   642.80
     150.      54.      96.        0.       38.      24.       0.       6.       3.   644.30
      .51     1.42     4.05      0.00      .080     .055     .080     .054   641.70   739.50
.010655      250.     250.      250.         3        0        1     0.00    73.12   812.62
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1) COUNTY: Berrien

2) STUDY NAME: Bridgman City

3) WATERCOURSE: Bridgman City Drain

4) DOCUMENT TYPE: Summary



SUMMARY PRINTOUT FOR MULTIPLE PROFILES

BRIDGMAN CITY DRAIN

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
0.00	0.00	0.00	0.00	615.60	95.00	619.89	.10	0.00	0.00	95.00	4.29	14.89
0.00	0.00	0.00	0.00	615.60	120.00	622.47	.03	0.00	0.00	120.00	6.87	21.49
0.00	0.00	0.00	0.00	615.60	125.00	623.10	.03	0.00	0.00	125.00	7.50	23.11
0.00	0.00	0.00	0.00	615.60	140.00	624.43	.02	0.00	0.00	140.00	8.83	26.50
225.00	225.00	0.00	0.00	617.00	64.00	620.63	.08	.72	.01	64.00	3.63	13.18
225.00	225.00	0.00	0.00	617.00	93.00	622.62	.04	.15	.00	93.00	5.62	18.30
225.00	225.00	0.00	0.00	617.00	100.00	623.21	.03	.11	.00	100.00	6.21	19.79
225.00	225.00	0.00	0.00	617.00	125.00	624.50	.03	.07	.00	125.00	7.50	23.07
450.00	225.00	0.00	0.00	618.50	64.00	621.60	.14	1.00	.03	64.00	3.10	11.84
450.00	225.00	0.00	0.00	618.50	93.00	622.92	.09	.32	.02	93.00	4.42	15.22
450.00	225.00	0.00	0.00	618.50	100.00	623.42	.07	.23	.02	100.00	4.92	16.51
450.00	225.00	0.00	0.00	618.50	125.00	624.62	.05	.14	.01	125.00	6.12	19.58
499.00	49.00	0.00	0.00	622.10	64.00	624.34	1.01	.78	0.00	64.00	2.24	4.00
499.00	49.00	0.00	0.00	622.10	93.00	624.90	1.29	.38	0.00	93.00	2.80	4.00
499.00	49.00	0.00	0.00	622.10	100.00	625.03	1.36	.28	0.00	100.00	2.93	4.00
499.00	49.00	0.00	0.00	622.10	125.00	625.46	1.57	.17	0.00	125.00	3.36	4.00
500.00	1.00	0.00	0.00	622.10	64.00	624.78	.68	.01	.10	64.00	2.68	4.00
500.00	1.00	0.00	0.00	622.10	93.00	625.45	.88	.01	.12	93.00	3.35	4.00
500.00	1.00	0.00	0.00	622.10	100.00	625.60	.92	.01	.13	100.00	3.50	4.00
500.00	1.00	0.00	0.00	622.10	125.00	626.14	1.06	.01	.15	125.00	4.04	4.00
562.00	62.00	628.70	626.10	622.10	64.00	625.12	.57	.21	.03	64.00	3.02	4.00
562.00	62.00	628.70	626.10	622.10	93.00	626.26	.55	.48	0.00	93.00	4.16	4.00
562.00	62.00	628.70	626.10	622.10	100.00	626.64	.53	.65	0.00	100.00	4.54	4.00
562.00	62.00	628.70	626.10	622.10	125.00	628.59	.01	1.40	0.00	36.85	6.49	204.34
563.00	1.00	0.00	0.00	622.10	64.00	625.26	.47	.01	.03	64.00	3.16	4.00
563.00	1.00	0.00	0.00	622.10	93.00	626.26	.55	.00	.00	93.00	4.16	4.00
563.00	1.00	0.00	0.00	622.10	100.00	626.65	.53	.00	.00	100.00	4.55	4.00
563.00	1.00	0.00	0.00	622.10	125.00	628.60	.00	.00	.00	12.78	6.50	204.59
565.00	2.00	0.00	0.00	622.10	64.00	625.73	.12	.02	.10	64.00	3.63	8.00
565.00	2.00	0.00	0.00	622.10	93.00	626.82	.13	.02	.12	93.00	4.72	8.00
565.00	2.00	0.00	0.00	622.10	100.00	627.18	.13	.02	.12	100.00	5.08	8.00
565.00	2.00	0.00	0.00	622.10	125.00	628.54	.12	.00	.06	125.00	6.44	8.00
566.00	1.00	0.00	0.00	622.10	64.00	625.78	.09	.00	.01	64.00	3.68	10.00
566.00	1.00	0.00	0.00	622.10	93.00	626.88	.09	.00	.01	93.00	4.78	10.00
566.00	1.00	0.00	0.00	622.10	100.00	627.23	.09	.00	.01	100.00	5.13	10.00
566.00	1.00	0.00	0.00	622.10	125.00	628.59	.08	.00	.01	125.00	6.49	10.00
590.00	24.00	0.00	0.00	622.30	64.00	625.89	.05	.07	.01	64.00	3.59	20.07
590.00	24.00	0.00	0.00	622.30	93.00	626.99	.03	.04	.02	88.18	4.69	40.95
590.00	24.00	0.00	0.00	622.30	100.00	627.35	.03	.03	.02	91.26	5.05	42.07
590.00	24.00	0.00	0.00	622.30	125.00	628.69	.01	.01	.02	100.13	6.39	60.00

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
601.00	11.00	0.00	0.00	622.30	64.00	625.92	.05	.03	.00	64.00	3.62	20.26
601.00	11.00	0.00	0.00	622.30	93.00	627.00	.03	.01	.00	87.64	4.70	61.43
601.00	11.00	0.00	0.00	622.30	100.00	627.36	.02	.01	.00	88.43	5.06	78.50
601.00	11.00	0.00	0.00	622.30	125.00	628.70	.00	.00	.00	71.31	6.40	395.18
1012.00	411.00	0.00	0.00	624.90	64.00	627.34	.13	1.46	.04	64.00	2.44	10.43
1012.00	411.00	0.00	0.00	624.90	93.00	627.77	.19	.85	.08	93.00	2.87	10.72
1012.00	411.00	0.00	0.00	624.90	100.00	627.90	.20	.64	.09	100.00	3.00	10.81
1012.00	411.00	0.00	0.00	624.90	125.00	628.76	.17	.14	.08	125.00	3.86	11.39
1437.00	425.00	0.00	0.00	627.50	64.00	629.91	.13	2.56	.00	64.00	2.41	11.18
1437.00	425.00	0.00	0.00	627.50	93.00	630.55	.15	2.72	.01	93.00	3.05	11.84
1437.00	425.00	0.00	0.00	627.50	100.00	630.68	.16	2.72	.01	100.00	3.18	11.97
1437.00	425.00	0.00	0.00	627.50	125.00	631.06	.19	2.31	.01	125.00	3.56	12.39
1812.00	375.00	0.00	0.00	629.80	64.00	632.10	.12	2.18	.00	64.00	2.30	12.98
1812.00	375.00	0.00	0.00	629.80	93.00	632.63	.15	2.08	.00	92.82	2.83	24.71
1812.00	375.00	0.00	0.00	629.80	100.00	632.74	.15	2.05	.00	99.11	2.94	36.99
1812.00	375.00	0.00	0.00	629.80	125.00	633.06	.14	1.94	.01	114.44	3.26	91.25
1832.00	20.00	0.00	0.00	629.40	64.00	632.24	.07	.08	.01	64.00	2.84	13.36
1832.00	20.00	0.00	0.00	629.40	93.00	632.77	.10	.08	.01	92.75	3.37	17.00
1832.00	20.00	0.00	0.00	629.40	100.00	632.88	.10	.08	.01	99.49	3.48	17.00
1832.00	20.00	0.00	0.00	629.40	125.00	633.15	.13	.08	.00	123.46	3.75	17.00
1862.00	30.00	0.00	0.00	628.90	40.00	632.22	.45	.17	.19	40.00	3.32	2.40
1862.00	30.00	0.00	0.00	628.90	47.00	632.76	.45	.16	.18	47.00	3.86	2.40
1862.00	30.00	0.00	0.00	628.90	48.00	632.87	.45	.16	.17	48.00	3.97	2.40
1862.00	30.00	0.00	0.00	628.90	51.00	633.16	.43	.16	.15	51.00	4.26	2.40
1926.00	64.00	641.50	631.00	628.50	40.00	635.53	.09	2.95	0.00	40.00	7.03	2.40
1926.00	64.00	641.50	631.00	628.50	47.00	637.37	.08	4.24	0.00	47.00	8.87	2.40
1926.00	64.00	641.50	631.00	628.50	48.00	637.69	.08	4.45	0.00	48.00	9.19	2.40
1926.00	64.00	641.50	631.00	628.50	51.00	638.62	.07	5.10	0.00	51.00	10.12	2.40
2076.00	160.00	0.00	0.00	630.30	81.00	635.66	.00	.01	.03	26.96	5.36	75.00
2076.00	160.00	0.00	0.00	630.30	135.00	637.48	.00	.01	.02	40.16	7.18	75.00
2076.00	160.00	0.00	0.00	630.30	150.00	637.79	.00	.01	.02	44.04	7.49	75.00
2076.00	160.00	0.00	0.00	630.30	195.00	638.72	.00	.01	.02	55.43	8.42	75.00
2351.00	265.00	0.00	0.00	633.20	81.00	635.67	.04	.03	.02	48.23	2.47	51.79
2351.00	265.00	0.00	0.00	633.20	135.00	637.50	.01	.02	.00	50.56	4.30	75.00
2351.00	265.00	0.00	0.00	633.20	150.00	637.81	.01	.02	.00	53.89	4.61	75.00
2351.00	265.00	0.00	0.00	633.20	195.00	638.73	.01	.02	.00	63.96	5.53	75.00
2406.00	55.00	0.00	0.00	633.80	81.00	635.84	.11	.21	.04	59.44	2.04	51.07
2406.00	55.00	0.00	0.00	633.80	135.00	637.51	.02	.02	.00	55.96	3.71	75.00
2406.00	55.00	0.00	0.00	633.80	150.00	637.82	.02	.02	.00	58.68	4.02	75.00
2406.00	55.00	0.00	0.00	633.80	195.00	638.74	.01	.01	.00	67.52	4.94	75.00

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
2461.00	55.00	0.00	0.00	634.40	81.00	636.30	.16	.49	.03	64.57	1.90	50.12
2461.00	55.00	0.00	0.00	634.40	135.00	637.56	.03	.05	.01	63.94	3.16	75.00
2461.00	55.00	0.00	0.00	634.40	150.00	637.86	.03	.04	.01	65.66	3.46	75.00
2461.00	55.00	0.00	0.00	634.40	195.00	638.76	.02	.02	.00	72.43	4.36	75.00
2516.00	55.00	0.00	0.00	635.00	81.00	636.91	.16	.61	.00	64.37	1.91	50.44
2516.00	55.00	0.00	0.00	635.00	135.00	637.66	.08	.13	.02	75.07	2.66	75.00
2516.00	55.00	0.00	0.00	635.00	150.00	637.93	.06	.09	.02	76.06	2.93	75.00
2516.00	55.00	0.00	0.00	635.00	195.00	638.79	.03	.04	.01	79.53	3.79	75.00
2571.00	55.00	0.00	0.00	635.60	81.00	637.51	.16	.60	.00	64.15	1.91	50.80
2571.00	55.00	0.00	0.00	635.60	135.00	637.95	.15	.33	.03	86.60	2.35	72.40
2571.00	55.00	0.00	0.00	635.60	150.00	638.14	.11	.23	.03	86.47	2.54	74.90
2571.00	55.00	0.00	0.00	635.60	195.00	638.87	.04	.08	.01	80.05	3.27	98.00
2626.00	55.00	0.00	0.00	636.20	81.00	638.10	.16	.59	.00	64.29	1.90	50.56
2626.00	55.00	0.00	0.00	636.20	135.00	638.48	.17	.54	.01	89.72	2.28	68.73
2626.00	55.00	0.00	0.00	636.20	150.00	638.57	.17	.46	.03	95.61	2.37	73.06
2626.00	55.00	0.00	0.00	636.20	195.00	639.02	.10	.17	.03	97.01	2.82	99.00
2751.00	125.00	0.00	0.00	637.60	81.00	639.49	.17	1.39	.00	64.85	1.89	49.66
2751.00	125.00	0.00	0.00	637.60	135.00	639.87	.18	1.39	.00	90.49	2.27	67.86
2751.00	125.00	0.00	0.00	637.60	150.00	639.94	.19	1.38	.01	96.87	2.34	71.70
2751.00	125.00	0.00	0.00	637.60	195.00	640.03	.26	1.09	.08	121.11	2.43	75.78
2876.00	125.00	0.00	0.00	639.00	81.00	640.91	.16	1.41	.00	64.46	1.91	50.30
2876.00	125.00	0.00	0.00	639.00	135.00	641.27	.18	1.40	.00	90.06	2.27	68.35
2876.00	125.00	0.00	0.00	639.00	150.00	641.36	.18	1.40	.00	96.11	2.36	72.51
2876.00	125.00	0.00	0.00	639.00	195.00	641.63	.15	1.46	.03	107.21	2.63	99.00
3126.00	250.00	0.00	0.00	641.70	81.00	643.62	.16	2.70	.00	64.05	1.92	50.96
3126.00	250.00	0.00	0.00	641.70	135.00	643.99	.17	2.71	.00	89.32	2.29	69.19
3126.00	250.00	0.00	0.00	641.70	150.00	644.07	.17	2.71	.00	95.56	2.37	73.12
3126.00	250.00	0.00	0.00	641.70	195.00	644.21	.20	2.61	.02	114.24	2.51	75.86

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	95.000	619.886	0.000	0.000	0.000	14.887	0.000	-0.000
0.000	120.000	622.471	2.585	0.000	0.000	21.492	-6.605	-0.000
0.000	125.000	623.103	.632	0.000	0.000	23.106	-8.219	-0.000
0.000	140.000	624.431	1.328	0.000	0.000	26.499	-11.612	-0.000
225.000	64.000	620.629	0.000	.743	0.000	13.184	0.000	225.000
225.000	93.000	622.621	1.992	.150	0.000	18.299	-5.115	225.000
225.000	100.000	623.211	.590	.108	0.000	19.787	-6.603	225.000
225.000	125.000	624.496	1.284	.065	0.000	23.074	-9.890	225.000
450.000	64.000	621.596	0.000	.967	0.000	11.843	0.000	225.000
450.000	93.000	622.916	1.320	.294	0.000	15.219	-3.375	225.000
450.000	100.000	623.422	.506	.211	0.000	16.512	-4.669	225.000
450.000	125.000	624.624	1.202	.129	0.000	19.584	-7.741	225.000
499.000	64.000	624.337	0.000	2.740	0.000	3.999	0.000	49.000
499.000	93.000	624.899	.563	1.984	0.000	3.999	-.000	49.000
499.000	100.000	625.026	.127	1.604	0.000	3.999	-.000	49.000
499.000	125.000	625.459	.433	.834	0.000	3.999	-.000	49.000
500.000	64.000	624.776	0.000	.440	0.000	3.999	0.000	1.000
500.000	93.000	625.448	.671	.548	0.000	3.999	-.000	1.000
500.000	100.000	625.597	.150	.571	0.000	3.999	-.000	1.000
500.000	125.000	626.139	.541	.680	0.000	3.999	-.000	1.000

562.000	64.000	625.124	0.000	.348	0.000	4.000	0.000	62.000
562.000	93.000	626.258	1.134	.811	0.000	4.000	0.000	62.000
562.000	100.000	626.644	.385	1.046	0.000	4.000	0.000	62.000
562.000	125.000	628.585	1.942	2.446	0.000	204.338	-200.338	62.000
563.000	64.000	625.263	0.000	.138	0.000	4.000	0.000	1.000
563.000	93.000	626.264	1.001	.006	0.000	4.000	0.000	1.000
563.000	100.000	626.649	.385	.005	0.000	4.000	0.000	1.000
563.000	125.000	628.597	1.948	.012	0.000	204.591	-200.591	1.000
565.000	64.000	625.732	0.000	.470	0.000	7.999	0.000	2.000
565.000	93.000	626.820	1.087	.556	0.000	7.999	-.000	2.000
565.000	100.000	627.178	.358	.529	0.000	7.999	-.000	2.000
565.000	125.000	628.539	1.361	-.058	0.000	7.999	-.000	2.000
566.000	64.000	625.782	0.000	.049	0.000	9.999	0.000	1.000
566.000	93.000	626.878	1.096	.058	0.000	9.999	-.000	1.000
566.000	100.000	627.235	.357	.057	0.000	9.999	-.000	1.000
566.000	125.000	628.592	1.357	.053	0.000	9.999	-.000	1.000
590.000	64.000	625.892	0.000	.110	0.000	20.073	0.000	24.000
590.000	93.000	626.992	1.100	.115	0.000	40.949	-20.876	24.000
590.000	100.000	627.346	.354	.111	0.000	42.067	-21.993	24.000
590.000	125.000	628.691	1.345	.099	0.000	59.999	-39.926	24.000
601.000	64.000	625.920	0.000	.028	0.000	20.258	0.000	11.000
601.000	93.000	627.004	1.084	.012	0.000	61.429	-41.171	11.000
601.000	100.000	627.357	.353	.011	0.000	78.497	-58.239	11.000
601.000	125.000	628.703	1.346	.012	0.000	395.184	-374.926	11.000
1012.000	64.000	627.341	0.000	1.420	0.000	10.429	0.000	411.000
1012.000	93.000	627.771	.430	.767	0.000	10.723	-.294	411.000
1012.000	100.000	627.904	.133	.547	0.000	10.813	-.384	411.000
1012.000	125.000	628.758	.854	.055	0.000	11.394	-.965	411.000
1437.000	64.000	629.912	0.000	2.571	0.000	11.176	0.000	425.000
1437.000	93.000	630.546	.635	2.776	0.000	11.839	-.663	425.000
1437.000	100.000	630.676	.130	2.772	0.000	11.975	-.799	425.000
1437.000	125.000	631.062	.386	2.304	0.000	12.386	-1.210	425.000
1812.000	64.000	632.103	0.000	2.192	0.000	12.978	0.000	375.000
1812.000	93.000	632.631	.527	2.085	0.000	24.706	-11.728	375.000
1812.000	100.000	632.741	.111	2.065	0.000	36.988	-24.010	375.000
1812.000	125.000	633.058	.317	1.996	0.000	91.255	-78.276	375.000
1832.000	64.000	632.242	0.000	.138	0.000	13.358	0.000	20.000
1832.000	93.000	632.774	.533	.143	0.000	16.999	-3.641	20.000
1832.000	100.000	632.882	.108	.140	0.000	16.999	-3.641	20.000
1832.000	125.000	633.152	.270	.094	0.000	16.999	-3.641	20.000
1862.000	40.000	632.218	0.000	-.024	0.000	2.400	0.000	30.000
1862.000	47.000	632.757	.539	-.017	0.000	2.400	0.000	30.000
1862.000	48.000	632.868	.111	-.014	0.000	2.400	0.000	30.000
1862.000	51.000	633.162	.294	-.010	0.000	2.400	0.000	30.000
1926.000	40.000	635.527	0.000	3.309	0.000	2.400	0.000	64.000
1926.000	47.000	637.374	1.847	4.617	0.000	2.400	0.000	64.000
1926.000	48.000	637.690	.316	4.822	0.000	2.400	0.000	64.000
1926.000	51.000	638.621	.931	5.459	0.000	2.400	0.000	64.000
2076.000	81.000	635.658	0.000	.131	0.000	74.999	0.000	160.000
2076.000	135.000	637.483	1.825	.108	0.000	74.999	-.000	160.000
2076.000	150.000	637.795	.312	.105	0.000	74.999	-.000	160.000
2076.000	195.000	638.718	.923	.097	0.000	74.999	-.000	160.000
2351.000	81.000	635.668	0.000	.010	0.000	51.789	0.000	265.000

2351.000	135.000	637.495	1.827	.013	0.000	74.999	-23.210	265.000
2351.000	150.000	637.808	.312	.013	0.000	74.999	-23.210	265.000
2351.000	195.000	638.730	.922	.012	0.000	74.999	-23.210	265.000
2406.000	81.000	635.841	0.000	.172	0.000	51.070	0.000	55.000
2406.000	135.000	637.513	1.673	.018	0.000	74.999	-23.929	55.000
2406.000	150.000	637.823	.310	.015	0.000	74.999	-23.929	55.000
2406.000	195.000	638.740	.917	.010	0.000	74.999	-23.929	55.000
2461.000	81.000	636.302	0.000	.461	0.000	50.116	0.000	55.000
2461.000	135.000	637.555	1.253	.042	0.000	74.999	-24.883	55.000
2461.000	150.000	637.856	.300	.033	0.000	74.999	-24.883	55.000
2461.000	195.000	638.758	.903	.018	0.000	74.999	-24.883	55.000
2516.000	81.000	636.913	0.000	.611	0.000	50.439	0.000	55.000
2516.000	135.000	637.663	.751	.108	0.000	74.999	-24.560	55.000
2516.000	150.000	637.933	.269	.077	0.000	74.999	-24.560	55.000
2516.000	195.000	638.794	.861	.035	0.000	74.999	-24.560	55.000
2571.000	81.000	637.512	0.000	.599	0.000	50.804	0.000	55.000
2571.000	135.000	637.954	.442	.291	0.000	72.400	-21.595	55.000
2571.000	150.000	638.138	.184	.205	0.000	74.898	-24.094	55.000
2571.000	195.000	638.870	.732	.077	0.000	97.999	-47.195	55.000
2626.000	81.000	638.104	0.000	.592	0.000	50.563	0.000	55.000
2626.000	135.000	638.481	.377	.527	0.000	68.734	-18.171	55.000
2626.000	150.000	638.568	.087	.430	0.000	73.062	-22.499	55.000
2626.000	195.000	639.016	.449	.146	0.000	98.999	-48.436	55.000
2751.000	81.000	639.494	0.000	1.390	0.000	49.655	0.000	125.000
2751.000	135.000	639.865	.371	1.384	0.000	67.861	-18.206	125.000
2751.000	150.000	639.945	.080	1.377	0.000	71.696	-22.041	125.000
2751.000	195.000	640.028	.083	1.012	0.000	75.776	-26.120	125.000
2876.000	81.000	640.907	0.000	1.413	0.000	50.299	0.000	125.000
2876.000	135.000	641.273	.366	1.408	0.000	68.349	-18.050	125.000
2876.000	150.000	641.357	.084	1.412	0.000	72.515	-22.216	125.000
2876.000	195.000	641.628	.271	1.600	0.000	98.999	-48.700	125.000
3126.000	81.000	643.618	0.000	2.711	0.000	50.963	0.000	250.000
3126.000	135.000	643.989	.371	2.716	0.000	69.194	-18.231	250.000
3126.000	150.000	644.069	.080	2.712	0.000	73.115	-22.152	250.000
3126.000	195.000	644.214	.145	2.586	0.000	75.861	-24.898	250.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	99.000	1.961	0.000
2	0.000	99.000	2.712	.751
3	0.000	99.000	2.921	.960
4	0.000	99.000	5.121	3.160



1) COUNTY: Berrien

2) STUDY NAME: Bridgman City

3) WATERCOURSE:

4) DOCUMENT TYPE: Report



RECEIVED
FEB 16 1977
WATER MANAGEMENT

CITY OF BRIDGMAN FIS
HYDRAULIC ANALYSIS
TANNER CREEK AND WILLIAM & ESSEG DRAIN
BEDORTHA DRAIN
BRIDGMAN CITY DRAIN

J&A File No. 5555-09-1

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

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



Johnson&Anderson,Inc.
CONSULTANTS
P. O. Box 1166 ▫ 2300 Dixie Highway ▫ Pontiac, Mich. 48056

February 14, 1977

RECEIVED
FEB 16 1977
WATER MANAGEMENT

Water Management Division
Michigan Dept. of Natural Resources
Post Office Box 30028
Lansing, Michigan 48909

Attention: Mr. Daniel H. Morgan, Acting Chief
Flood Insurance Unit

Re: Flood Insurance Study - City of Bridgman
Hydraulic Investigation
Tanner Creek and William & Esseg Drain,
Bedortha Drain, and Bridgman City Drain

Ref: J&A File No. 5555-09

Gentlemen:

We have completed the hydraulic investigations of the three referenced streams in the City of Bridgman. In compliance with Flood Insurance Study requirements, flows with recurrence intervals of 10-, 50-, 100-, and 500-years were selected for study. Flow magnitude determination has been coordinated with the Department of Natural Resources.

Enclosed with this submittal are:

1. HEC-2 computer run, 4 flow, final model for each stream
2. HEC-2 computer run, natural floodway, Tanner Creek and Bridgman City Drain
3. J&A "I-PLOT" of 100-year profile for each stream
4. Plan view and profiles
5. Hydraulic analysis report and support data

If you have any questions, please call John Emig, project leader for this study.

Sincerely,

Gerald A. Cleary

Gerald A. Cleary, P.E.
Vice President

JJE/dp
encl.
cc: File



HYDRAULIC ANALYSIS

Introduction

The streams being studied are Tanner Creek and William & Esseg Drain, Bedortha Drain, and the Bridgman City Drain in the City of Bridgman, Berrien County, Michigan. Tanner Creek and William & Esseg Drain is a continuous watercourse with Tanner Creek changing to William & Esseg Drain upstream of I-94. The study limits of Tanner Creek and William & Esseg Drain are from its mouth at Lake Michigan to a point approximately 30 feet north of the northern city limit of Bridgman. The study limits of the Bedortha Drain are from its confluence with William & Esseg Drain to Rambo Road. The study limits of Bridgman City Drain are from its confluence with the Bedortha Drain to the eastern city limit of Bridgman. The date of field survey was February, 1976. The flows were computed by the SCS method and have been approved by the Michigan Department of Natural Resources. The project manager for this analysis was John Emig.

Method of Analysis

Water-surface profiles were computed through use of the COE HEC-2 step-backwater computer program. Culverts which were under low flow conditions for all four flows were coded according to the "normal bridge" routine requirements. For those culverts which experienced pressure or weir flow for any of the four flows, the "special bridge" routine and hand calculations were used to determine the upstream water-surface elevation.

The hydraulic model was developed for the 100-year flow. Valley sections upstream and downstream of culverts were located where full cross-section flow would be developed out of the influence of the bridge constriction. The criteria for placement of these sections was that outlined on pages 18-21 of the HEC Training Document No. 6, Application of the HEC-2 Bridge Routines. Accordingly, the downstream section was placed at a distance of about four times the average length of the side constriction caused by the bridge abutment. The upstream section was placed at a distance about equal to the bridge constriction. If additional sections were found necessary within this distance or if the actual field-surveyed cross section fell within this distance, the intermediate sections were encroached as appropriate.

Unusual Situations

For valley section D on Tanner Creek and William & Esseg Drain, the 100-year water-surface elevation tops the centerline elevation of Lake Street. The road elevations along Lake Street are known from field survey data. Sections similar to valley section D were repeated with an adjusted Lake Street elevation. An initial computer run was made to define the water-surface elevations of the natural floodway. A second computer run, encroached to the banks, produced less than 0.10 ft. rise in water surface at any point. The computer run showing the natural floodway and the comparison sheet showing the natural floodway and encroached floodway water-surface elevations are included with this submittal.

The I-94 culvert (section M) on Tanner Creek and William & Esseg Drain, which

normal bridge w/ BS section through out the length of the culvert. How many sections?

is 381' in length, is modeled following the procedure for very long culverts outlined in the manual Application of HEC-2 Bridge Routines, page 27. A series of computer runs was made increasing the number of sections through the pipe until the headwater elevation converged on a value. Using this procedure, it was how determined that sections placed 58' apart would be the optimum spacing for an accurate headwater. why was silt removed?

For the sand pit access road culvert (section P) on Tanner Creek and William & Esseg Drain, it was determined using preliminary HEC-2 runs and hand calculations that the normal bridge routine should be used for the 10-year flow. Hand calculations, included with this submittal, were used to determine the headwater elevation for the 50-, 100-, and 500-year flows and an X-5 card was used to input headwater elevations, adjusted for velocity head, into the HEC-2 program.

There is a natural ground restriction on the right bank of the Bedortha Drain upstream from the Lake Street culvert to the outlet of the 48" underground pipe (section 892). Accordingly, expansion and contraction of flow occurs only in the left overbank, causing topwidths of valley sections in this reach to be less than what would be expected if the flow remained unrestricted. OK

Bedortha Drain, at Red Arrow Highway (section D), is enclosed for a total length of 770', 650' of which is a 4' concrete pipe, with the remaining 120' being a 6.2' x 9.0' concrete box culvert. An equivalent length of 4' concrete pipe was found to be 668'. Hand calculations, included with this submittal, were used to determine the headwater elevations at Red Arrow Highway. Headwater

elevations, adjusted for velocity head, were input with an X5 card.

Bedortha Drain at section I is enclosed by a 24" CMP, 220' in length. Because of the small diameter, a maximum of approximately 9 cfs can be carried through the pipe before weir flow begins. For this reason, the manufacturing plant access road is treated as a dam by entering negligible flow areas into the "special bridge" routine, as outlined in the manual Application of HEC-2 Bridge Routines, page 55. The flow passing overland is reduced by 9 cfs. Supporting calculations are included.

For the Baldwin Road culvert (section B) on the Bridgman City Drain, crossing water surfaces were caused by the "special bridge" routine treatment of the channel "n" value. Since the "special bridge" routine uses the downstream channel "n" value on low flow calculations through the bridge, utilizing the culvert "n" value only in pressure flow calculations, the calculated losses in low flow are high. Normally, this error toward conservativeness would be considered insignificant. However, in this case, since the water surfaces are crossing, cross sections were placed one foot upstream and downstream to change the channel "n" value to the culvert value.

Upstream of bridge section D on Bridgman City Drain, an initial computer run was made to determine water-surface elevations for the natural floodway. A second computer run with varying topwidths was made to determine how much encroachment could be made upon the natural floodway without raising the water-surface elevation at any point more than 0.1'. The natural floodway computer run is included with this submittal.

HEC-2 was indicating critical depth at the downstream face of the railroad culvert (section W) on William & Essig Drain and the Lake Street culvert (section B) on the Bedortha Drain. Both culverts were checked with hand calculations for inlet control. On the Lake Street culvert, HEC-2 answers were used. For the railroad culvert, since the upstream end of the pipe is not submerged, inlet control headwaters were determined by the procedure outlined in the Handbook of Concrete Culvert Hydraulics, Portland Cement Association, 1964, fourth printing, pages 115 and 116. The hand calculations indicated that inlet conditions controlled at this culvert for all four flows. Appropriate calculations and copies of pages 115 and 116 are included with this submittal.

Crossing water-surface elevations were encountered at section 135 on Tanner Creek and William & Esseg Drain.. Due to the fact that the difference in elevations is small and the Lake Michigan flood elevations supercede any floodway elevations at this point on the profile, this crossing of water surfaces was considered insignificant.

The downstream section of the railroad siding culvert on Bedortha Drain represents a valley section with a channel width of 16', while the upstream bridge section indicates the culvert width of 2'. This limitation of the coding of the HEC-2 "Special Bridge" routine causes apparent peculiarity of flow distribution at this bridge.

appropriate invert adjustment does not insure correct invert elevations.

Synthetic Cross Sections

Synthetic cross sections utilized in the hydraulic analysis were developed in three ways. The three methods used were direct manufacturing (in conjunction with USGS topographic information), repetition of a field-surveyed cross section with appropriate invert adjustment, or interpolating between two field-surveyed cross sections using the Johnson & Anderson, Inc., AVSEC computer program. The AVSEC program develops an average cross section by averaging the overbanks and channel of the two known cross sections. All cross sections and their origins are listed in the SECNO Table (Appendix A).

Since inverts are known only at field sections, a straight line is assumed between these known points, with the inverts of synthetic cross sections adjusted accordingly.

Starting Point

Profile computations for Tanner Creek and William & Esseg Drain were begun at Lake Michigan at mean flood elevation; Bedortha Drain profiles were begun at the corresponding William & Esseg Drain flood elevations at the confluence; Bridgman City Drain profiles were begun at the corresponding Bedortha Drain flood elevations at the confluence. Bedortha Drain and Bridgman City Drain were begun at the corresponding profile elevations due to their hydrographs peaking at the same time.

ok only if times of concentration are the same.

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. In general, the following range of values was used:

Description	Manning's "n"
1. Channel	
a. Sand bottom	0.030
b. Sand bottom with medium brush or debris	0.040 - 0.050
c. Sand bottom with heavy brush or debirs	0.050 - 0.055
2. Flood Plains	
a. Sand	0.030
b. Light to medium woods, brush	0.055 - 0.065
c. Medium to heavy woods, dense brush	0.065 - 0.08

This range was considered for summertime conditions.

The contraction and expansion coefficients used were 0.30 and 0.50, respectively. These values were used throughout the study. References used in the selection of these values were the HEC-2 Users Manual, Exhibit 2, page 2, and Open-Channel Hydraulics, Ven Te Chow, pages 311 and 468.

The loss coefficients used in the HEC-2 "special bridge" routine were determined as outlined in Exhibit 2 of the HEC-2 Users Manual. Calculations are included in Appendix B.

City of Bridgman FIS
Berrien County
5555-09

Tanner Creek and William & Esseg Drain

Cross Section	SECNO	Location & Origin
	0	At confluence with Lake Michigan, manufactured section on beach
	50	50' u/s of confluence with Lake Michigan, Secno 0 repeated
	100	100' u/s of confluence with Lake Michigan, Secno 0 repeated
	115	115' u/s of confluence with Lake Michigan, Secno 0 repeated
	135	135' u/s of confluence with Lake Michigan, Secno 0 repeated
A	150	150' u/s of confluence with Lake Michigan, cross section A repeated Impact of this location
	163	163' u/s of confluence with Lake Michigan, cross section A repeated
	177	223' d/s of cross section A, cross section A repeated
	205	195' d/s of cross section A, cross section A repeated
	233	167' d/s of cross section A, cross section A repeated
	316	84' d/s of cross section A, cross section A repeated
A	400	400' u/s of confluence with Lake Michigan field valley section 21
	650	250' u/s of cross section A, AVSEC between cross sections A and B
	900	500' u/s of cross section A, AVSEC between cross sections A and B

Cross Section	SECNO	Location & Origin
	1125	225' d/s of cross section B, AVSEC between cross sections A and B
B	1350	250' d/s of Lake Street culvert, field valley section 20
	1412	62' u/s of cross section B, AVSEC between cross sections B and C
	1474	124' u/s of cross section B, AVSEC between cross sections B and C
	1537	63' d/s of Lake Street culvert, AVSEC between cross sections B and C
	1570	30' d/s of Lake Street culvert, repeat Secno 1537
	1580	20' d/s of Lake Street culvert, repeat Secno 1537
	1590	10' d/s of Lake Street culvert, Secno 1537 repeated
	1600	d/s face Lake Street culvert
C	1870	u/s face Lake Street culvert, field bridge section 19
	1875	5' u/s of Lake Street culvert, cross section D repeated
	1879	9' u/s of Lake Street culvert, cross section D repeated
	1931	61' u/s of Lake Street culvert, cross section D repeated
	1970	100' u/s of Lake Street culvert, cross section D repeated
	2070	200' u/s of Lake Street culvert, cross section D repeated
	2170	400' u/s of Lake Street culvert, cross section D repeated
	2270	100' d/s of cross section D, cross section D repeated

Cross Section	SECNO	Location & Origin
D	2370	500' u/s of Lake Street culvert, field valley section 18
	2455	85' u/s of cross section D, cross section D repeated
	2540	170' u/s of cross section D, cross section D repeated
	2620	100' d/s of private driveway culvert, cross section D repeated
	2700	20' d/s of private driveway culvert, cross section D repeated
	2720	d/s face private driveway culvert, cross section E repeated, no bridge table
E	2746	u/s face private driveway culvert, field bridge section 17
	2846	100' u/s of private driveway culvert, cross section F repeated
	2946	200' u/s of private driveway culvert, cross section F repeated
	3046	175' d/s of cross section F, cross section F repeated
	3146	75' d/s of cross section F, cross section F repeated
F	3221	475' u/s of private driveway culvert, field valley section 16
	3321	100' u/s cross section F, cross section F repeated
	3421	200' u/s cross section F, cross section F repeated
	3446	50' d/s of driveway culvert, cross section F repeated
	3471	25' d/s of driveway culvert, cross section F repeated

Cross Section	SECNO	Location & Origin
	3480	16' d/s of driveway culvert, cross section F repeated
	3488	8' d/s of driveway culvert, cross section F repeated
	3492	4' d/s of driveway culvert, cross section F repeated
	3496	d/s face driveway culvert, cross section G repeated
G	3539	u/s face driveway culvert, field bridge section 15
	3543	4' u/s of driveway culvert, cross section F repeated
	3547	8' u/s of driveway culvert, cross section F repeated
	3714	175' u/s of driveway culvert, cross section F repeated
	3889	350' u/s of driveway culvert, cross section F repeated
	4064	175' d/s of cross section H, cross section H repeated
H	4239	151' d/s Beechnut Drive culvert, field valley section 14
	4339	100' u/s cross section H, cross section H repeated
	4369	21' d/s of Beechnut Drive culvert, cross section H repeated
	4381	9' d/s of Beechnut Drive culvert, cross section H repeated
	4389	1' d/s of Beechnut Drive culvert, cross section I repeated, no bridge table
I	4390	d/s face Beechnut Drive culvert, field bridge section 13

Cross Section	SECNO	Location & Origin
	4410	u/s face Beechnut Drive culvert, cross section I and bridge table repeated
	4411	1' u/s of Beechnut Drive culvert, cross section I repeated, no bridge table
	4415	5' u/s of Beechnut Drive culvert, cross section H repeated
	4510	100' u/s of Beechnut Drive culvert, cross section H repeated
	4610	200' u/s of Beechnut Drive culvert, cross section H repeated
	4709	1' d/s of driveway bridge, cross section J repeated, no bridge table
J	4710	d/s face driveway bridge, field bridge section 12
	4722	u/s face driveway bridge, cross section J and bridge table repeated
	4723	1' u/s of driveway bridge, cross section J repeated, no bridge table
	4797	75' u/s of driveway bridge, cross section H repeated
	4803	81' u/s of driveway bridge, cross section H repeated
	4809	87' u/s of driveway bridge, cross section H repeated
	4815	12' d/s of driveway culvert, cross section H repeated
	4821	6' d/s of driveway culvert, cross section H repeated
	4824	3' d/s of driveway culvert, cross section H repeated
	4826	1' d/s of Driveway culvert, cross section K repeated, no bridge table

Cross Section	SECNO	Location & Origin
K	4827	d/s face driveway culvert, field bridge section 11
	4852	u/s face driveway culvert, cross section K and bridge table repeated
	4853	1' u/s of driveway culvert, cross section K repeated, no bridge table
	4854	2' u/s of driveway culvert, cross section L repeated
	4860	8' u/s of driveway culvert, cross section L repeated
	4866	14' u/s of driveway culvert, cross section L repeated
L	5077	225' u/s of driveway culvert, 150' d/s of I-94 culvert, field valley section 10
	5127	100' d/s of I-94 culvert, cross section L repeated
	5177	50' u/s of I-94 culvert, cross section L repeated
	5197	30' d/s of I-94 culvert, cross section L repeated
	5226	1' d/s of I-94 culvert, cross section M repeated, no bridge table
M	5227	d/s face I-94 culvert, field bridge section 8
	5285	Intermediate section inside I-94 culvert, 58' from d/s face, cross section M and bridge table repeated
	5343	116' from d/s face I-94 culvert, cross section M and bridge table repeated
	5401	174' from d/s face I-94 culvert, cross section M and bridge table repeated

Cross Section	SECNO	Location & Origin
	5459	232' from d/s face I-94 culvert, cross section M and bridge table repeated
	5517	91' from u/s face I-94 culvert, cross section M and bridge table repeated
	5575	33' from u/s face I-94 culvert, cross section M and bridge table repeated
	5608	u/s face I-94 culvert, cross section M and bridge table repeated
	5609	1' u/s of I-94 culvert, cross section M repeated, no bridge table
	5615	7' u/s of I-94 culvert, cross section N repeated
	5622	14' u/s of I-94 culvert, cross section N repeated
N	5658	50' u/s of I-94 culvert, 200' d/s of confluence with Bedortha Drain, field valley section 7
	5763	105' u/s of cross section N, AVSEC between cross sections N and O
	5858	200' u/s of cross section N, at confluence with Bedortha Drain, AVSEC between cross sections N and O
	5973	210' d/s of cross section O, AVSEC between cross sections N and O
	6078	105' d/s of cross section O, AVSEC between cross sections N and O
O	6183	50' d/s of sand pit access road, field valley section 6C
	6193	10' u/s cross section O, cross section O repeated
	6207	24' u/s cross section O, cross section O repeated

Cross Section	SECNO	Location & Origin
	6222	11' d/s of sand pit access road, cross section O repeated
	6232	1' d/s of sand pit access road, section P repeated, no bridge table
P	6233	d/s face sand pit access road, field bridge section 6B
	6281	u/s face sand pit access road, cross section P and bridge table repeated
	6282	1' u/s sand pit access road, cross section P repeated, no bridge table
	6285	4' u/s of sand pit access road cross section Q repeated
	6381	100' u/s of sand pit access road, cross section Q repeated
	6481	200' u/s of sand pit access road, cross section Q repeated
	6581	300' d/s of cross section Q, cross section Q repeated
	6681	200' d/s of cross section Q, cross section Q repeated
	6781	100' d/s of cross section Q, cross section Q repeated
Q	6881	50' d/s of access road, field valley section 6A
	6927	4' d/s of access road, cross section Q repeated
	6930	1' d/s of access road, cross section P repeated, no bridge table
R	6931	d/s face access road, field bridge section 6
	6963	u/s face access road cross section R and bridge table repeated

Cross Section	SECNO	Location & Origin
	6964	1' u/s of access road, cross section R repeated, no bridge table
	7163	200' us/ of access road, cross section S repeated
	7363	400' u/s of access road, cross section S repeated
	7563	200' d/s cross section S, cross section S repeated
S	7763	800' u/s access road, field valley section 5A
	7876	113' u/s cross section S, AVSEC between cross sections S and T
	7988	225' u/s cross section S, AVSEC between cross sections S and T
	8101	112' d/s cross section T, AVSEC between cross-sections S and T
	8138	75' d/s cross section T, AVSEC between cross-sections S and T
	8175	38' d/s cross section T, AVSEC between cross sections S and T
T	8213	150' d/s Red Arrow Highway bridge, field valley section 5
	8263	50' u/s cross section T, cross section T repeated
	8313	50' d/s of Red Arrow Highway bridge, cross section T repeated
	8362	1' d/s of Red Arrow Highway bridge, cross section U repeated, no bridge table
U	8363	d/s face Red Arrow Highway bridge, field bridge section 4
	8431	u/s face Red Arrow Highway bridge, cross section U and bridge table repeated

Cross Section	SECNO	Location & Origin
	8432	1' u/s of Red Arrow Highway bridge, cross section U repeated, no bridge table
	8456	25' u/s of Red Arrow Highway bridge, manufactured section from USGS map
	8481	50' u/s of Red Arrow Highway bridge Secno 8456 repeated
	8503	72' u/s of Red Arrow Highway bridge, Secno 8456 repeated
	8560	129' u/s of Red Arrow Highway bridge, Secno 8456 repeated
	8617	114' d/s cross section V, Secno 8456 repeated
	8674	57' d/s cross section V, Secno 8456 repeated
V	8731	300' u/s of Red Arrow Highway bridge, field valley-section 3
	8806	75' u/s cross-section V, cross section V repeated
	8881	150' u/s cross-section V, cross section V repeated
	8956	225' u/s cross section V, cross section V repeated
	9031	300' us/ cross section V, cross section V repeated
	9106	175' d/s of railroad culvert, cross section V repeated
	9181	100' d/s of railroad culvert, cross section V repeated
	9231	50' d/s of railroad culvert, cross section V repeated
	9261	20' d/s of railroad culvert, cross section V repeated

Cross Section	SECNO	Location & Origin
	9276	5' d/s of railroad culvert, cross section V repeated
	9280	1' d/s of railroad culvert, cross section W repeated, no bridge table
W	9281	d/s face railroad culvert, field bridge section 2
	9322	u/s face railroad culvert, cross section W and bridge table repeated
	9323	1' u/s of railroad culvert, cross section W repeated, no bridge table
	9326	4' u/s of railroad culvert, cross section X repeated
	9332	10' u/s of railroad culvert, cross section X repeated
	9422	100' u/s of railroad culvert, cross section X repeated
	9522	200' u/s of railroad culvert, cross section X repeated
	9622	50' d/s cross section X, cross section X repeated
X	9672	350' u/s of railroad culvert, field valley section 1

Note: Since inverts are known only at field sections, a straight line is assumed between these known points, with the inverts of repeated sections adjusted accordingly.

Bedortha Drain

Cross Section	SECNO	Location & Origin
	0	At confluence with William & Esseg Drain, field valley section 7 from William & Esseg Drain repeated
	200	200' u/s of confluence with William & Esseg Drain, cross section A repeated
	400	400' u/s of confluence with William & Esseg Drain, cross section A repeated
A	500	200' d/s of Lake Street culvert, field valley section 12
	550	50' u/s of cross section A, cross section A repeated
	600	100' u/s of cross section A, cross section A repeated
	650	50' d/s of Lake Street culvert, cross section A repeated
	675	25' d/s of Lake Street culvert, cross section A repeated
	688	12' d/s of Lake Street culvert, cross section A repeated
	699	1' d/s of Lake Street culvert, cross section B repeated, no bridge table
B	700	d/s face Lake Street culvert, field bridge section 11
	742	u/s face Lake Street culvert, cross section B and bridge table repeated
	743	1' u/s of Lake Street culvert, cross section B repeated, no bridge table

Cross Section	SECNO	Location & Origin
	745	3' u/s of Lake Street culvert, cross section C repeated
	747	5' u/s of Lake Street culvert, cross section C repeated
	752	10' u/s of Lake Street culvert, cross section C repeated
	762	20' u/s of Lake Street culvert, cross section C repeated
	782	40' u/s of Lake Street culvert, cross section C repeated
C	842	100' u/s of Lake Street culvert, 50' d/s of 48" outlet, field valley section 10
	892	Outlet of 48" culvert
D	1662	u/s face Red Arrow Highway bridge, field bridge section 9
	1663	1' u/s of Red Arrow Highway bridge, cross section D repeated, no bridge table
	1687	25' u/s of Red Arrow Highway bridge, cross section E repeated
	1722	60' u/s of Red Arrow Highway bridge, cross section E repeated
	1782	120' u/s of Red Arrow Highway bridge, cross section E repeated
	1862	200' u/s of Red Arrow Highway bridge, cross section E repeated
	1962	300' u/s of Red Arrow Highway bridge, cross section E repeated
	2062	400' u/s of Red Arrow Highway bridge, cross section E repeated
E	2162	500' u/s of Red Arrow Highway bridge, field valley section 8

Cross Section	SECNO	Location & Origin
	2212	50' u/s cross section E, cross section E repeated
	2262	At confluence with Bridgman City Drain, cross section E repeated
	2362	100' u/s of confluence with Bridgman City Drain, cross section E repeated
	2462	200' d/s cross section F, cross section F repeated
	2562	100' d/s cross section F, cross section F repeated
F	2662	400' u/s of confluence with Bridgman City Drain, field valley section 7
	2962	300' u/s of cross section F, AVSEC between cross sections F and G
	3262	600' u/s of cross section F, AVSEC between cross sections F and G
	3562	600' d/s of cross section G, AVSEC between cross sections F and G
	3862	300' d/s of cross section G, AVSEC between cross sections F and G
G	4162	At Vista Drive extended, field valley section 6
	4462	300' u/s of cross section G, cross section G repeated
	4762	600' u/s of cross section G, cross section G repeated
	5062	525' d/s of manufacturing plant access road culvert, cross section H repeated
H	5287	300' d/s of manufacturing plant access road culvert, field valley section 5
	5587	d/s face manufacturing plant access road culvert, cross section H repeated

Cross Section	SECNO	Location & Origin
	5597	10' u/s of d/s face manufacturing plant access road culvert, manufactured from USGS map
	5637	d/s edge manufacturing plant access road, manufactured from USGS map
I	5662	u/s edge manufacturing plant access road, repeat Secno 5525, bridge table from road profile, field bridge section 4
	5797	10' d/s of u/s face manufacturing plant access road culvert, manufactured from USGS map
	5807	u/s face manufacturing plant access road culvert
	5842	35' u/s of manufacturing plant access road culvert, cross section J repeated
	5972	135' d/s of cross section J, cross section J repeated
J	6107	500' d/s of railroad siding culvert, field valley section 3
	6207	100' u/s of cross section J, cross section J repeated
	6307	200' u/s of cross section J, cross section J repeated
	6407	300' u/s of cross section J, cross section J repeated
	6507	100' d/s of railroad siding culvert, cross section J repeated
	6532	75' d/s of railroad siding culvert, cross section J repeated
	6557	50' d/s of railroad siding culvert, cross section J repeated
	6582	25' d/s of railroad siding culvert, cross section J repeated

Cross Section	SECNO	Location & Origin
	6592	15' d/s of railroad siding culvert, cross section J repeated
	6602	5' d/s of railroad siding culvert, cross section J repeated
	6607	d/s face railroad siding culvert, cross section J repeated
K	6727	u/s face railroad siding culvert, field bridge section 2
L	6927	200' u/s of railroad siding culvert, field valley section 1
	7027	d/s face Rambo Road culvert, manufactured section

Note: Since inverts are known only at field sections, a straight line is assumed between known points, with the inverts of repeated sections adjusted accordingly.

Bridgman City Drain

Cross Section	SECNO	Location & Origin
	0	At confluence with Bedortha Drain, cross section A repeated
	225	225' u/s of confluence with Bedortha Drain, cross section A repeated
A	450	50' d/s of Baldwin Road culvert, field valley section 5
	499	1' d/s of Baldwin Road culvert, cross section B repeated, no bridge table
	500	d/s face Baldwin Road culvert, cross section B repeated, no bridge table
B	562	u/s face Baldwin Road culvert, field bridge section 4
	563	1' u/s of Baldwin Road culvert, cross section B repeated, no bridge table
	565	3' u/s of Baldwin Road culvert, cross section A repeated
	566	4' u/s of Baldwin Road culvert, cross section A repeated
	590	28' u/s of Baldwin Road culvert, cross section A repeated
	601	39' u/s of Baldwin Road culvert, cross section A repeated
	1012	800' d/s of cross section C, cross section C repeated
	1437	375' d/s of cross section C, cross section C repeated
C	1812	50' d/s of railroad culvert, field valley section 3
	1832	30' d/s of railroad culvert, cross section C repeated

Cross Section	SECNO	Location & Origin
	1862	d/s face railroad culvert, cross section D repeated, no bridge table
D	1926	u/s face railroad culvert, field bridge section 2
	2076	150' u/s of railroad culvert, cross section E repeated
	2351	425' u/s of railroad culvert, cross section E repeated
	2406	480' u/s of railroad culvert cross section E repeated
	2461	165' d/s of cross section E, cross section E repeated
	2516	110' d/s of cross section E, cross section E repeated
	2571	55' d/s of cross section E, cross section E repeated
E	2626	700' u/s of railroad culvert, field valley section 1
	2876	250' u/s of cross section E, cross section E repeated
	3126	500' u/s of cross section E, cross section E repeated

Note: Since inverts are known only at field sections, a straight line is assumed between these known points, with the inverts of repeated sections adjusted accordingly.

JOHNSON & ANDERSON, INC.
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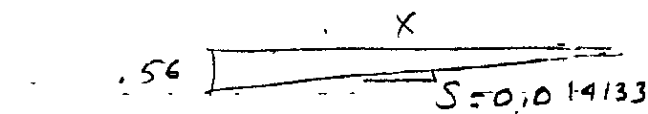
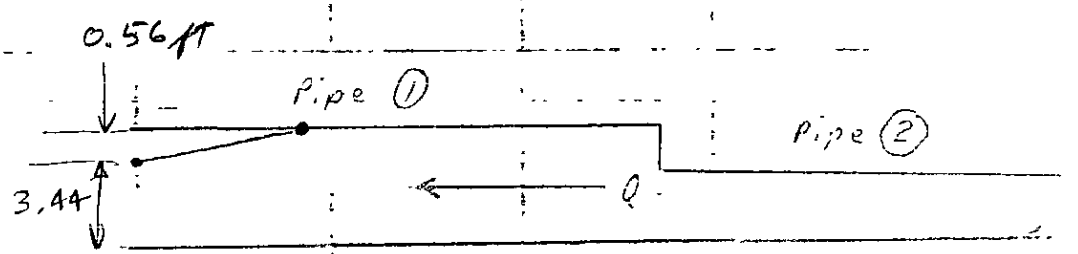
BY _____ DATE _____ JOB DESCRIPTION City of Coldman FIS SHEET 1 OF 2
SUBJECT Tanner Creek, Lake Street Culvert JOB NO. 5555-09-1



$\therefore (X)0.014133 = 0.56$

$X = \frac{0.56}{0.014133} = 39.62$ ft



Pipe (1) Pipe (2)

4'x7' Concrete Box

Length = 150'

Exit $K_e = 1.0$

72"x44" CMP Arch

Length = 120'

Entrance Fin concrete

$K_e = 0.5$

Enlargement $K = 0.1$

Head Loss Determination

For Pipe (1)

$$H_f = \left[\frac{29.1(n^2)L}{R^{4/3}}\right]\frac{V^2}{2g}$$

$$H_f = \left[\frac{29.1(0.02^2)150}{1.38}\right]\frac{(5.89)^2}{64.4}$$

$$H_f = 0.68$$
$$= 0.45$$
$$.23$$

yes but it does not appear to be flowing full for 150 ft say 100 ft.

$A = 28\ ft^2$
$P = 22\ ft$
$R = 1.27\ ft$
$R^{4/3} = 1.38\ ft$

$V = \frac{Q}{A} = \frac{165}{28} = 5.89\ fps$

$L = 150\ ft$

$$n_T = \frac{\left[(n_1^2)P_1 + (n_2^2)P_2\right]^{1/2}}{(P_T)^{1/2}}$$

$$n_T = \frac{\left[(0.02)^2 7 - (.013)^2 15\right]^{1/2}}{(22)^{1/2}}$$

$n_T = 0.020$

For Pipe (2)

$$H_f = \left[\frac{29.1(0.0325^2)120}{1.16}\right]\frac{(9.38)^2}{64.4}$$

$H_f = 4.34$

$A = 17.6\ ft^2$
$P = 15.7\ ft$
$R = 1.12\ ft$
$R^{4/3} = 1.16\ ft$

$V = \frac{Q}{A} = \frac{165}{17.6} = 9.38\ fps$

$n = 0.0325$

$H_{friction} = 0.68 + 4.34 = 5.02$

$H_{entr.} = 0.5\left(\frac{9.38^2}{64.4}\right) = 0.68$

$H_{exit} = 1.0\left(\frac{5.89^2}{64.4}\right) = 0.54$

$H_{enlarg.} = 0.1\left(\frac{5.89^2}{64.4}\right) = 0.05$

Total System Loss = 5.29 ft.

XKOR = $k_e + k_f + k_{exit}$

XKOR Determination

OK XKOR $\left(\frac{V^2}{2g}\right) = 6.29$

$$XKOR = \frac{6.29}{\left(\frac{5.89^2}{64.4}\right)}$$

XKOR = 11.58

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BY ESM DATE 10-28-76 JOB DESCRIPTION BRIDGMAN FIS SHEET ____ OF ____
SUBJECT TANNER CREEK, BRIDGE #17 JOB NO. 5555-09

PRIVATE DRIVEWAY CULVERT

7.1' X 4.5' MULTIPLATE ARCH PIPE

$A = 25.3\ ft^2$

$C = 26'$

ENTRANCE DESIGN: CONCRETE HEADWALLS

$R = 1.342$

ΣK_{OR} = EXIT LOSS + ENTRANCE LOSS + FRICTION LOSS

ASSUME:

EXIT LOSS = 1.0

ENTRANCE LOSS = 0.5

$$K_F = \frac{29.1\, n^2 L}{R^{4/3}} = \frac{29.1(.035)^2 25}{1.342^{4/3}} = .63$$

$\Sigma K_{OR_{TOTAL}} = 2.13$

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RSM DATE 10-29-76 JOB DESCRIPTION BRIDGMAN FIS SHEET ____ OF ____
SUBJECT TANNER CREEK BRIDGE #15 JOB NO. 5555-09

DRIVEWAY CULVERT

Section & Location

2-48" CMP

A = 25.14

L = 43'

ENTRANCE DESIGN: CONCRETE HEADWALL

R = 1

XKOR = EXIT LOSS + ENTRANCE LOSS + FRICTION LOSS

ASSUME:

EXIT LOSS = 1.0

ENTRANCE LOSS = 0.5

$$K_F = \frac{29.1\, n^2 L}{R^{4/3}} = \frac{29.1 (.0332)^2 43}{1} = 1.38$$

$$XKOR_{TOTAL} = 2.88$$ ✓

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CONSULTING ENGINEERS

where on map

#68

BY RSM DATE 1-13-77 JOB DESCRIPTION XKOR for SAND PIT ACCESS ROAD SHEET ____ OF ____
SUBJECT STREAM: WILLIAM & ESSEG COMMUNITY: BRIDGMAN JOB NO. SSSS-09

BRIDGE # ( ) " P ?

CULVERT SIZE: 48"
MATERIAL: RCP
LENGTH: 48'
ENTRANCE DESIGN: PROJECTING FROM FILL (GROOVE END)
"n" VALUE: 0.015
ENTRANCE LOSS: 0.2

	U/S	D/S
ELLC	613.0	612.4
INV	609.0	608.4
SILT DEPTH	1.4	1.8
ELTRD	619.4	619.4

COMPOSITE "n"

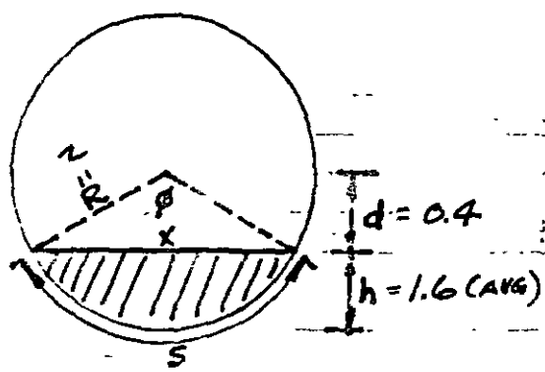
Conduit "n": .015
bottom "n": .030

$$\text{Composite} = \frac{[(7.09)(.015)^2 + (3.92)(.03)^2]}{(11.01)^{1/2}}$$

$= 0.0215$

100 YEAR FLOW: 35
100 YR VELOCITY W/SILT: 35/7.87 = 4.
100 YR VELOCITY W/O SILT: 35/12.57 = 2.
SCOUR: NO

GEOMETRIC PROPERTIES OF A CIRCLE



$d = R \cos \frac{\phi(\text{Radians})}{2}$

$0.4 = 2 \cos \phi/2$

$0.2 = \cos \phi/2 \quad \phi/2 = 1.37$

$\phi = 2.74$

$S = R\phi \quad 2(2.74) = 5.48'$

$x = 2R \sin \phi/2 \quad 2(2) \sin 1.37 = 3.92'$

CONDUIT AREA: 12.57

$C = \pi D = \pi(4) = 12.57$

$12.57 - 5.48 = 7.09'$

SILT AREA SEGMENT $= \frac{1}{2}(Rs - dx)$

$\frac{1}{2}[2(5.48) - .4(3.92)] = 4.70$

WETTED PERIMETER $= \pi D - S + X$

$12.57 - 5.48 + 3.92 = 11.01$

NET AREA $= 12.57 - 4.70$

$= 7.87 \text{ ft}^2$

HYD RAD $= \frac{CA}{WP} = \frac{7.87}{11.01} =$

$R = 0.715$

TOTAL LOSS

TOTAL LOSS = ENTRANCE LOSS + EXIT LOSS + FRICTION LOSS (Kf)

$$K_f = \frac{29.1\, n^2 L}{R^{4/3}} \qquad \frac{29.1\,(.0215)^2\, 48}{.715^{4/3}} = \frac{0.646}{0.6394}$$

$= 1.01$

TOTAL LOSS (XKOR) = $1.0 + 0.2 + 1.01 = 2.21$

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RSM DATE 12-16-76 JOB DESCRIPTION BRIDGMAN-FIS SHEET ____ OF ____
SUBJECT BEDDETHA DRAIN JOB NO. 5555-09

MANUFACTURING PLANT ACCESS ROAD

24" CMP

L = 220'

ENTRANCE DESIGN: PROJECTING FROM FILL

A = 3.142 ft² C = 6.283

R = A/P = 0.5

XKOR = EXIT LOSS + ENTRANCE LOSS + FRICTION LOSS

ASSUME:

EXIT LOSS = 1.0

ENTRANCE LOSS = 0.9

$$K_F = \frac{29.1\, n^2 L}{R^{4/3}} = \frac{29.1\,(.0316)^2\, 220}{0.5^{4/3}}$$

$$= \frac{6.392}{.397} = 16.1$$

XKOR = 1.0 + 0.9 + 16.1

X-KOR TOTAL = 18.0

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RSM DATE 12-16-76 JOB DESCRIPTION BRIDGMAN FIS SHEET ____ OF ____
SUBJECT REDORTHA DRAIN JOB NO. 5555-09

RAILROAD SIDING CULVERT

27" RCP

$L = 120'$

ENTRANCE DESIGN: CONCRETE HEADWALL

$A = 3.976$

$P = 7.069$

$R = A/P = 0.562$

ΣK_{OR} = EXIT LOSS + ENTRANCE LOSS + FRICTION LOSS

ASSUME:

EXIT LOSS = 1.0

ENTRANCE LOSS = 0.5

$$K_F = \frac{29.1\, n^2 L}{R^{4/3}} = \frac{29.1 (.015)^2 120}{0.562^{4/3}} = \frac{.786}{.464}$$

$$= 1.70$$

$\Sigma K_{OR} = 1.0 + 0.5 + 1.70$

$\Sigma K_{OR\,TOTAL} = 3.2$

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RSM DATE 12-14-76 JOB DESCRIPTION XKOR for BALDWIN ROAD SHEET ___ OF ___
SUBJECT STORM BRIDGMAN City of COMMUNITY: BRIDGMAN JOB NO 5555-09

BRIDGE

CULVERT SIZE: 48"
MATERIAL: CONCRETE
LENGTH: 62'
ENTRANCE DESIGN: PROJECTING FROM FILL, GROOVE END
"n" VALUE: 0.015
ENTRANCE LOSS: 0.7

	U/S	D/S
ELLC	626.1	626.1
INV	627.1	627.1
SILT DEPTH	0.4	0
ELTRD	628.7	628.7

COMPOSITE "n"

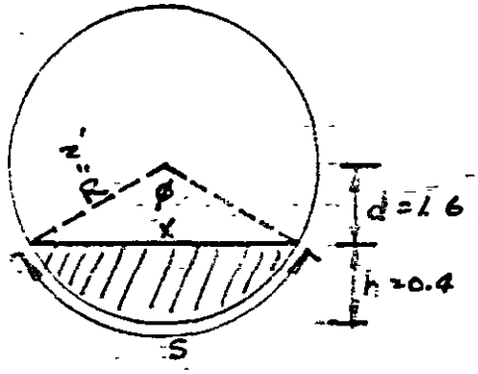
Conduit "n": .015
bottom "n": .04

$$\text{Composite} = \frac{\left[(9.99)(.015)^2 + (2.4)(.04)^2\right]^{1/2}}{(12.39)^{1/2}}$$

0.22

100 YEAR FLOW: 100
100 YR VELOCITY W/SILT: $100/10.97 = 9.11$
100 YR VELOCITY W/O SILT: $100/12.57 = 7.95$
SCOUR: YES

GEOMETRIC PROPERTIES OF A CIRCLE



CONDUIT AREA: 12.57

$d = R\cos\frac{\phi(\text{Radians})}{2} - 1.6 = 2\cos\phi/2$

$0.8 = \cos\phi/2 \quad \phi/2 = .644 \quad \phi = 1.288$

$S = 2\phi \quad 2(1.288) = 2.58'$

$x = 2R\sin\frac{\phi}{2} = 2(2)(.6) = 2.4'$

$C = \pi D = 12.57$

$12.57 - 2.58 = 9.99'$

S.H. AREA SEGMENT $= \frac{1}{2}(RS - dx)$

$\frac{1}{2}[2(2.58) - 1.6(2.4)] = 0.66$

NET AREA $= 12.57 - 0.66$
$= 11.91$

WETTED PERIMETER $= \pi D - S + x$
$9.99 + 2.4 = 12.39$

HYD RAD $= \frac{A}{WP}$

$\frac{11.91}{12.39} = 0.96$

TOTAL LOSS

TOTAL LOSS = ENTRANCE LOSS + EXIT LOSS + FRICTION LOSS (K's)

$$K_S = \frac{29.1\, n^2 L}{R^{4/3}} = \frac{29.1\,(.015)^2\,62}{1} = 0.40$$

TOTAL LOSS (XKOR) = 1.6

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BY RSM DATE 12-14-76 JOB DESCRIPTION XKOR for RAILROAD CULVERT SHEET ____ OF ____
SUBJECT STREAM: BRIDGMAN CITY DRAIN COMMUNITY: BRIDGMAN FIS JOB NO 5555-09

BRIDGE #

CULVERT SIZE: 30"
MATERIAL: CAST IRON
LENGTH: 64'
ENTRANCE DESIGN: PROJECTING FROM FILL
"n" VALUE: .02
ENTRANCE LOSS: 0.9

	U/S	D/S
ELLC	631.0	631.4
INV	628.5	628.9
SILT DEPTH	0.3	0.6
ELTRD	641.5	641.5

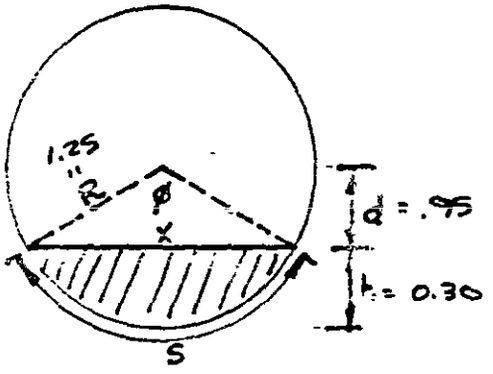
COMPOSITE "n"

Conduit "n": .02
bottom "n": .04

$$\text{Composite} = \frac{\left[(2.16)(.02)^2 + (1.63)(.04)^2\right]^{1/2}}{(3.79)^{1/2}}$$

100 YEAR FLOW: 48
100 YR VELOCITY W/SILT: 48/4.58 = 10.48
100 YR VELOCITY W/O SILT: 48/4.91 = 9.78
SCOUR: YES

GEOMETRIC PROPERTIES OF A CIRCLE



CONDUIT AREA: 4.909

$$d = R\cos\frac{\phi(\text{Radians})}{2} = .95 = 1.25\cos\phi/2$$

$$0.76 = \cos\phi/2 \qquad \phi/2 = .707 \qquad \phi = 1.414$$

$$S = R\phi = 1.25(1.414) = 1.77$$

$$x = 2R\sin\phi/2 = 2(1.25)(.65) = 1.63$$

$$C = \pi D = \pi(1.25) = 3.93$$

$$3.93 - 1.77 = 2.16$$

WETTED PERIMETER = $\pi D - S + X$

$$2.16 + 1.63 = 3.79$$

$$\text{HYD RAD} = \frac{CA}{WP} = \frac{4.58}{3.79} = 1.21$$

S.F. AREA SEGMENT = $\frac{1}{2}(RS - dx)$

$$\frac{1}{2}\left[1.25(1.77) - .95(1.63)\right] = 0.33$$

NET AREA =

$$4.909 - 0.33 = 4.58$$

TOTAL LOSS

TOTAL LOSS = ENTRANCE LOSS + EXIT LOSS + FRICTION LOSS (K_f)

$$K_f = \frac{29.1\, n^2 L}{R^{4/3}} = \frac{29.1\,(.020)^2 64}{.534} = 1.4$$

$R = .625$

TOTAL LOSS (XKOR) = 3.3

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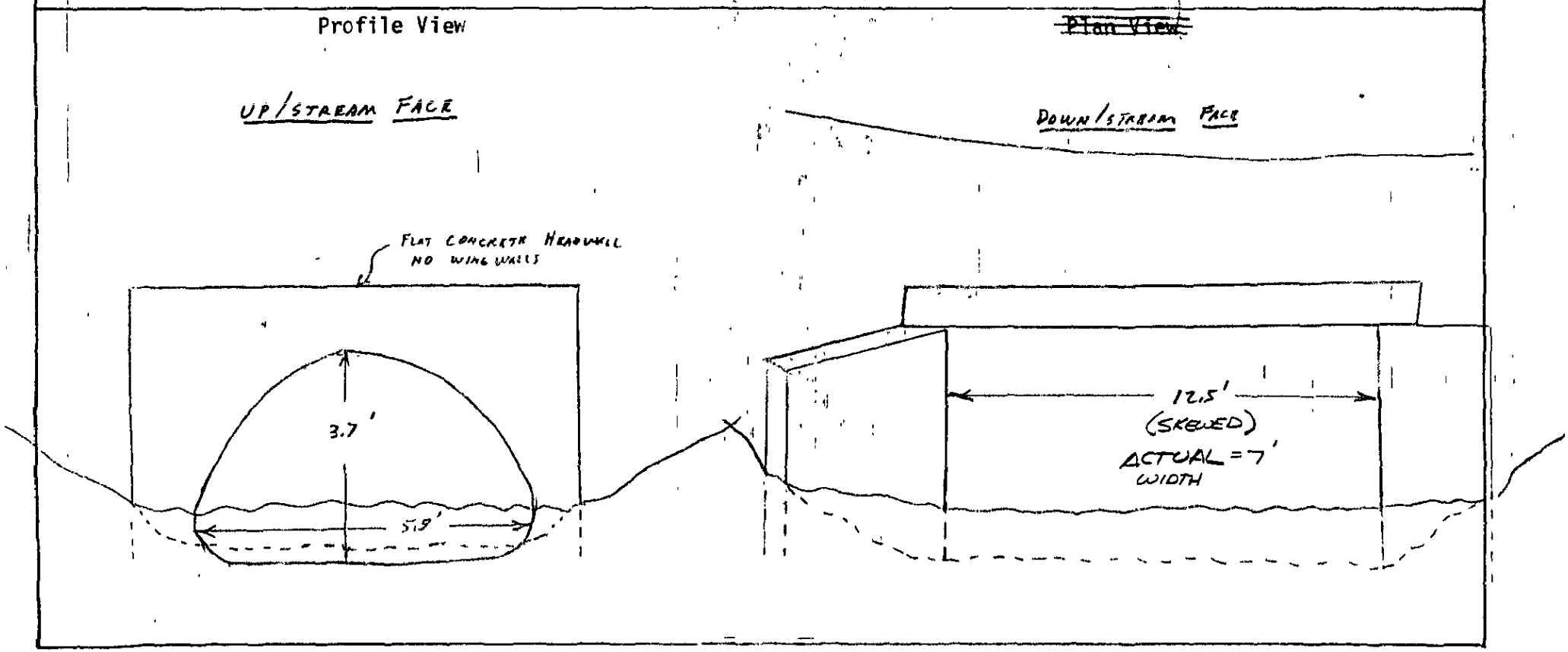
HYDRAULIC STRUCTURAL DATA

Code No. 09-01-19

Job Name: CITY OF BRIDGEMAN F.I.S.			By: P. SHUNCK
Date: 3 FEBRUARY 1976	Feature: LAKE STREET CULVERT		Water Course: TANNER CREEK
Remarks: PHOTOS 1 B-15 UP/S FACE; B-17 RIGHT; B-19 DOWN/S; B-16 UP/S; B-18 LEAD; B-20 DOWN/S FACE			
Width of Piers: N/A	Pier Shape: N/A	No. of Piers: NONE	Area:
Water Elevation: UP/S = 588.0 DOWN/S = 587.7	Length OF CULVERTS: 270±	Width of ~~Deck~~: CULVERT: UP/S = 3.7 X 5.9' D/S = 7' WIDE	Skew: 90° - UP/STREAM SKEW BACK - DOWN/STREAM

FIELD SKETCH

Profile View ~~Plan View~~



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HYDRAULIC STRUCTURAL DATA

Code No. [illegible]-17

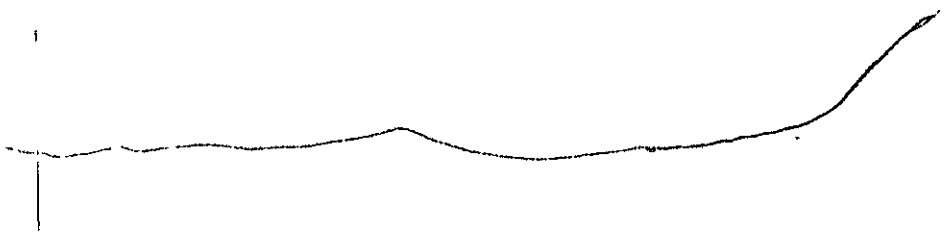
Job Name: CITY OF BRIDGEMAN F.I.S.		By: P. SHUNCK
Date: 4 FEBRUARY 1976	Feature: CULVERT ON NORTH SIDE OF LAKE ST — ACROSS FROM PRIVATE DR.	Water Course: TANNER CREEK

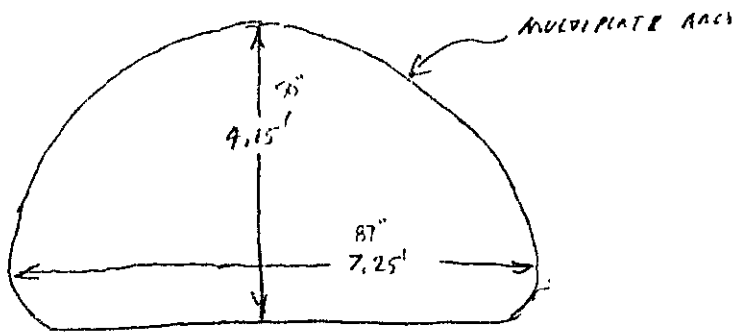
Remarks: PHOTOS: B-25 UP/S FACE B-27 RIGHT B-29 DOWN/S
B-26 UP/S B-28 LEFT B-30 DOWN/S FACE

Width of Piers: N/A	Pier Shape: N/A	No. of Piers: NONE	Area:
Water Elevation: 590.71	Length: OF CULVERT = 26'	Width of ~~Deck~~ CULVERT: 7.25' x 4.15'	Skew: 90°

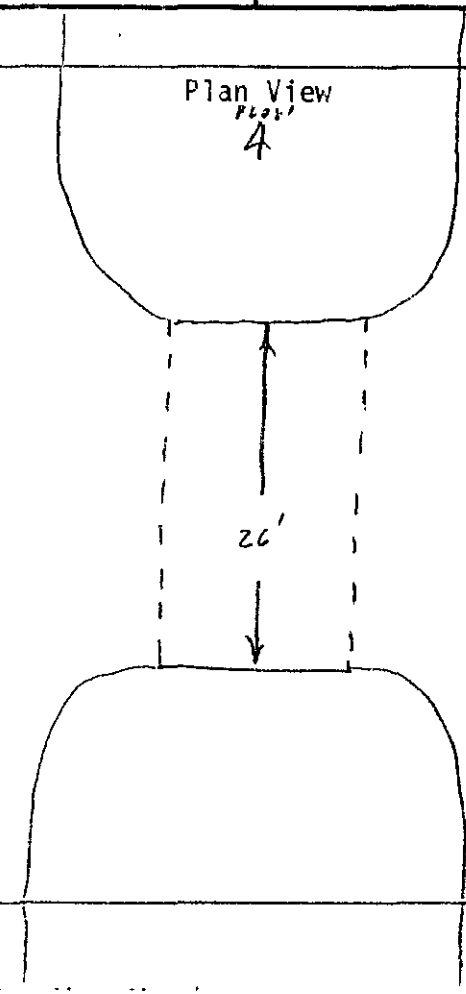
FIELD SKETCH

Profile View





Plan View



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HYDRAULIC STRUCTURAL DATA

Code No. 09-01-15

Job Name: CITY OF BRIDGEMAN F.I.S.		By: TANNER CREEK
Date: 4 FEBRUARY 1976	Feature: TWIN CULVERT 130'± WEST OF ℄ ZIELKE ROAD	Water Course: TANNER CREEK

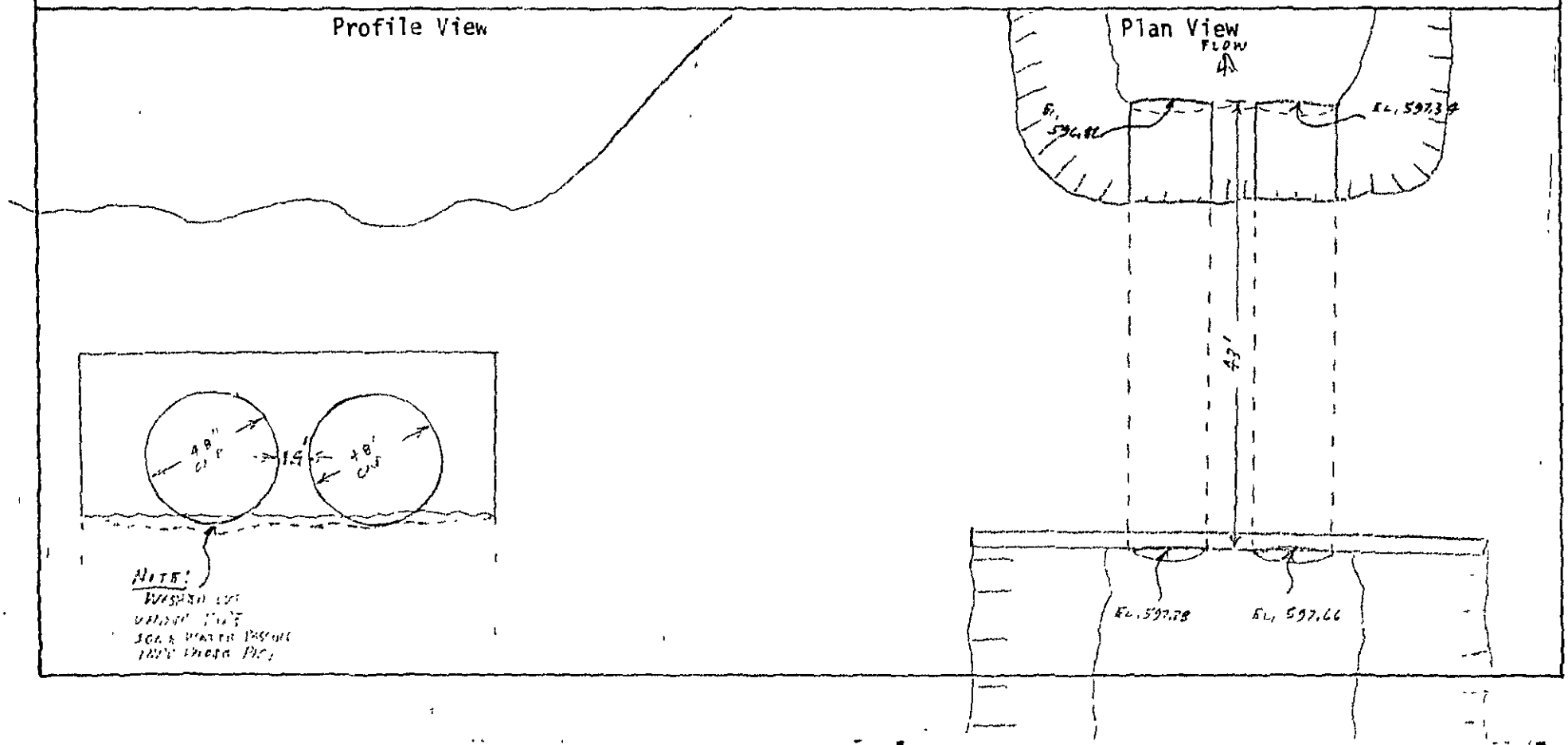
Remarks: A. SAND BOTTOM ; FLAT HEADWALL UPSTREAM FACE ; NO HEADWALL DOWNSTREAM

B. PHOTOS: B-35 UP/STREAM FACE C-1 RIGHT C-3 DOWN/STREAM

B-36 UP/STREAM C-2 LEFT C-4 DOWN/STREAM FACE

Width of Piers: N/A	Pier Shape: N/A	No. of Piers: NONE	Area:
Water Elevation: UP/S = 594.2 DOWN/S = 593.6	Length OF CULVERT: 43'	Width of ~~Deck:~~ OF CULVERT: TWO 48" CMP	Skew: 90°

FIELD SKETCH



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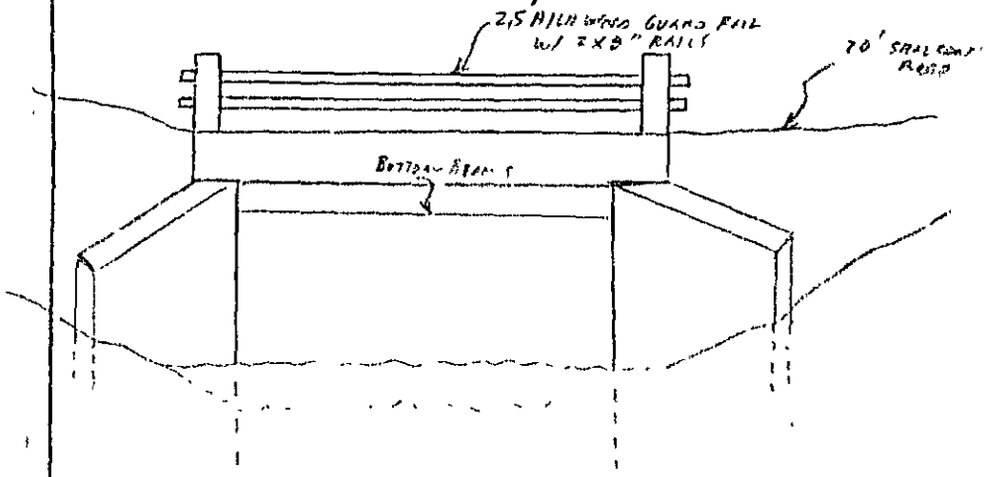
HYDRAULIC STRUCTURAL DATA

Code No. 09-01-13

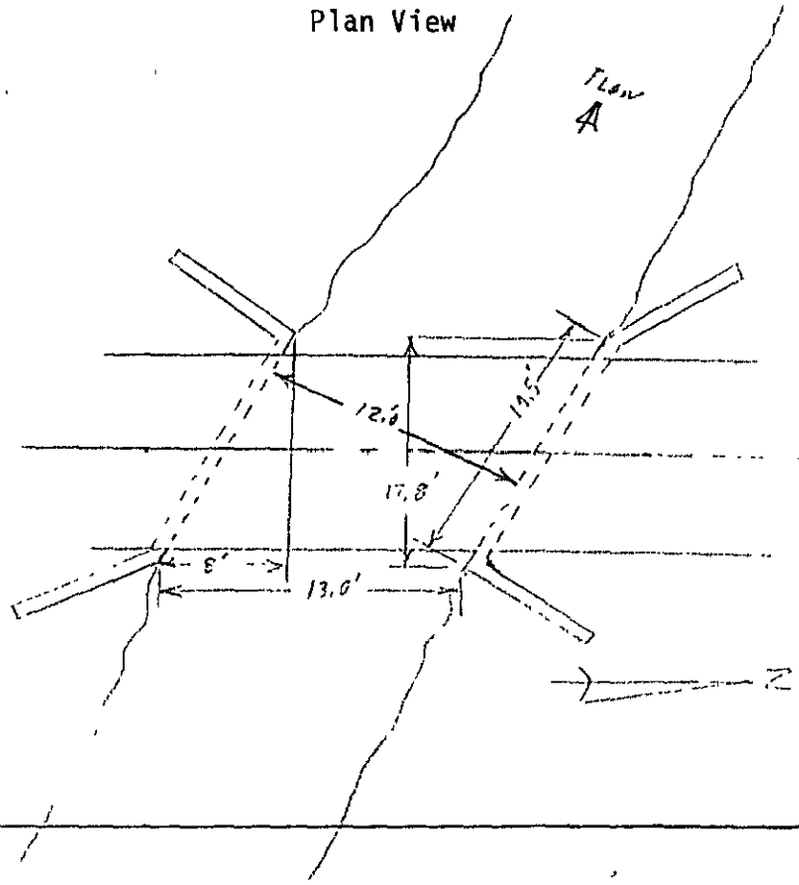
Job Name: CITY OF BIRMINGHAM F.I.S.			By: P. SHUNICK
Date: 5 FEBRUARY 1976	Feature: CONCRETE BOX CULVERT ON BRECKENRIDGE DRIVE NORTH OF LAKE ST.		Water Course: TAHMER CREEK
Remarks: A. BOTTOM: SAND WITH NUMEROUS PIECES OF BROKEN CONCRETE			
B. PHOTOS: C-13 UP/S FACE	C-15 RIGHT	C-17 DOWN/S	
C-19 UP/S	C-14 LEFT	C-18 DOWN/S FACE	
Width of Piers: N/A	Pier Shape: N/A	No. of Piers: NONE	Area:
Water Elevation: UP/S = 597.40 DOWN/S = 597.30	Length: 12.0' AT RIGHT ANGLES	Width of Deck: 17.8'	Skew: SEE BELOW

FIELD SKETCH

Profile View



Plan View



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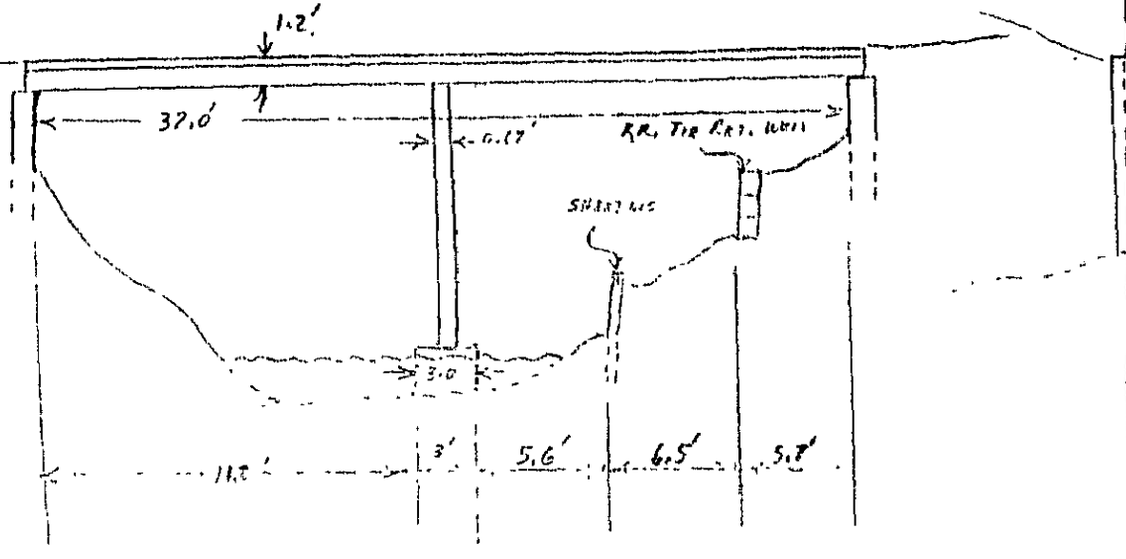
HYDRAULIC STRUCTURAL DATA

Code No. 09-01-12

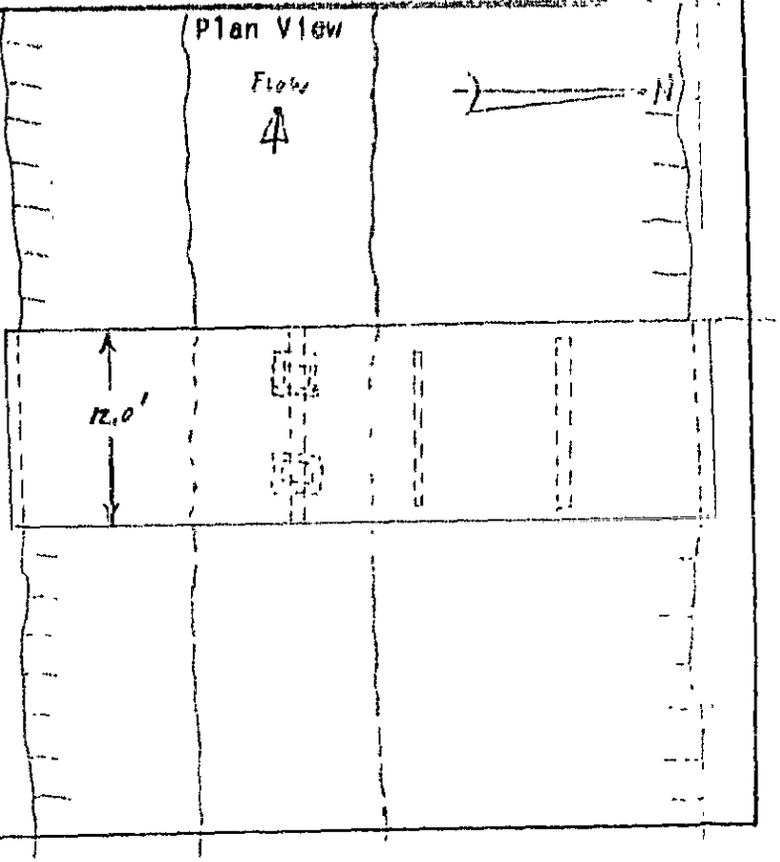
Job Name: CITY OF BRIDGEMAN F.I.S.			By: P. SHUNCK
Date: 5 FEBRUARY 1976	Feature: BRIDGE FOR HOUSE DRIVE 50' ± WEST OF ℄ KAREN COURT		Water Course: TANNER CREEK
Remarks: A. BOTTOM : SAND			
B. PHOTOS: C-19 UP/S BACK RIGHT	C-21 UP/S	C-23 LEAF	C-25 DOWN/S RIGHT
C-20 UP/S FACE LEFT	C-22 RIGHT	C-24 DOWN/S	
Width of Piers: 8" "I" BEAMS	Pier Shape: FLAT SIDE OF "I" BEAM	No. of Piers: 1	Area:
Water Elevation: 598.57	Length: 32'	Width of Deck: 12'	Skew: 90°

FIELD SKETCH

Profile View



Plan View



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HYDRAULIC STRUCTURAL DATA

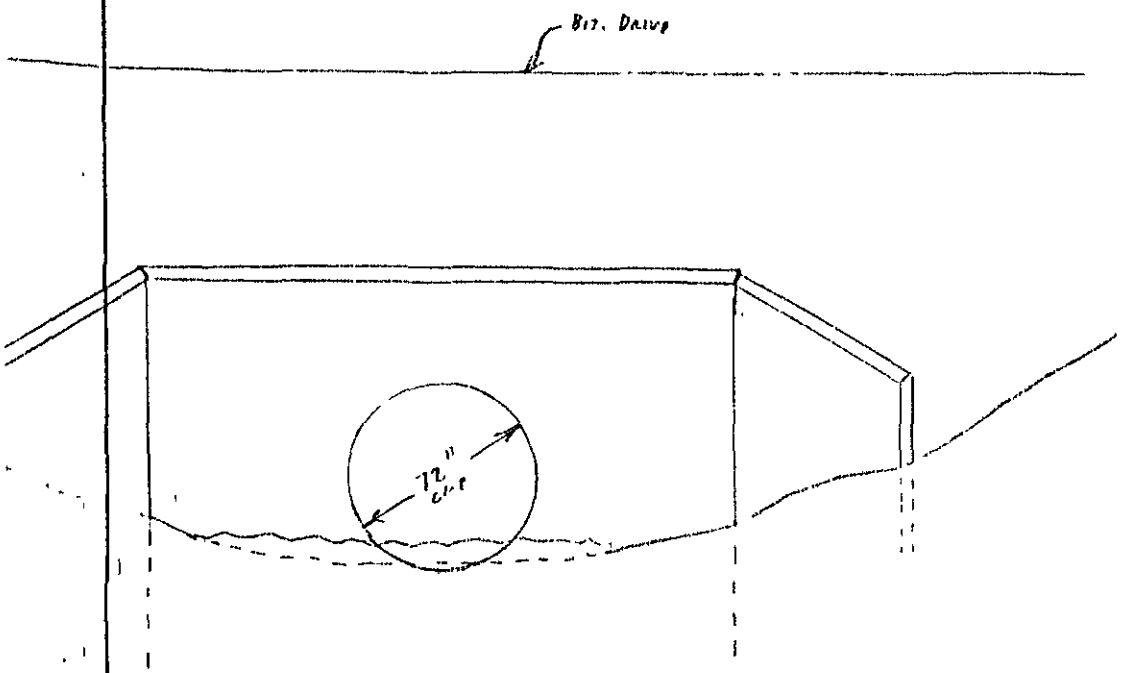
Code No. 09-01-11

Job Name: CITY OF BRIDGEMAN F.I.S.		By: P. SHUNCK
Date: 6 FEBRUARY 1976	Feature: DRIVE CULVERT 55' EAST OF ℄ KAREN CT	Water Course: TANNER CREEK
Remarks: A. GRAVEL BOTTOM		
B. PHOTOS: C-26 UP/S FACE	C-28 RIGHT	C-30 DOWN/S
C-27 UP/S	C-29 LEFT	C-31 DOWN/S FACE

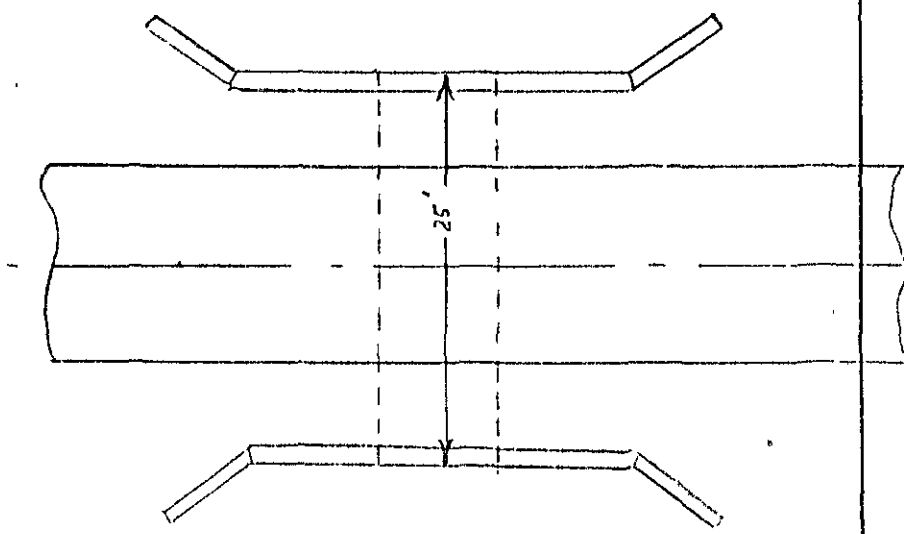
Width of Piers: N/A	Pier Shape: N/A	No. of Piers: NONE	Area:
Water Elevation: UP/S 598.6 DOWN/S 598.5	Length OF CULVERT: 25'	Width of ~~Deck~~ CULVERT: 72" CMP.	Skew: 90°

FIELD SKETCH

Profile View



Plan View



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HYDRAULIC STRUCTURAL DATA

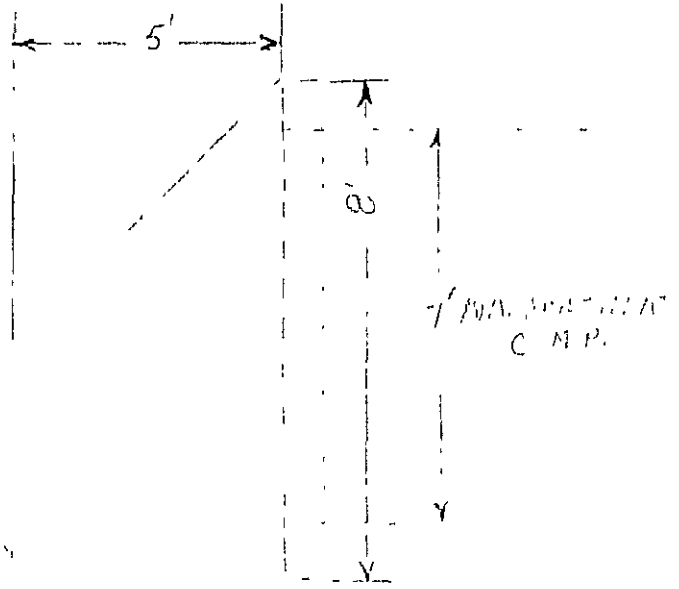
Code No. 09-01-1[illegible]

Job Name: BRIDGMAN TWP F.I.S.		By: DINETT & L.T. SCAD[illegible]
Date: FEB 76	Feature: 7' [illegible]	Water Course:
Remarks:		

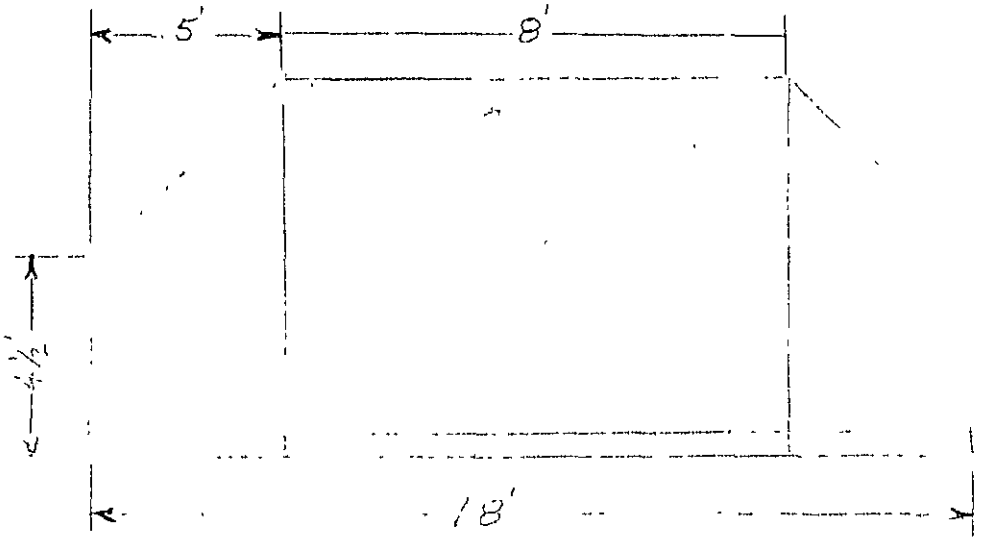
Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation: 601.7	Length: 381' OF 84" MULTIPLATE	Width of Deck: 8	Skew:)

FIELD SKETCH

Profile View



Plan View



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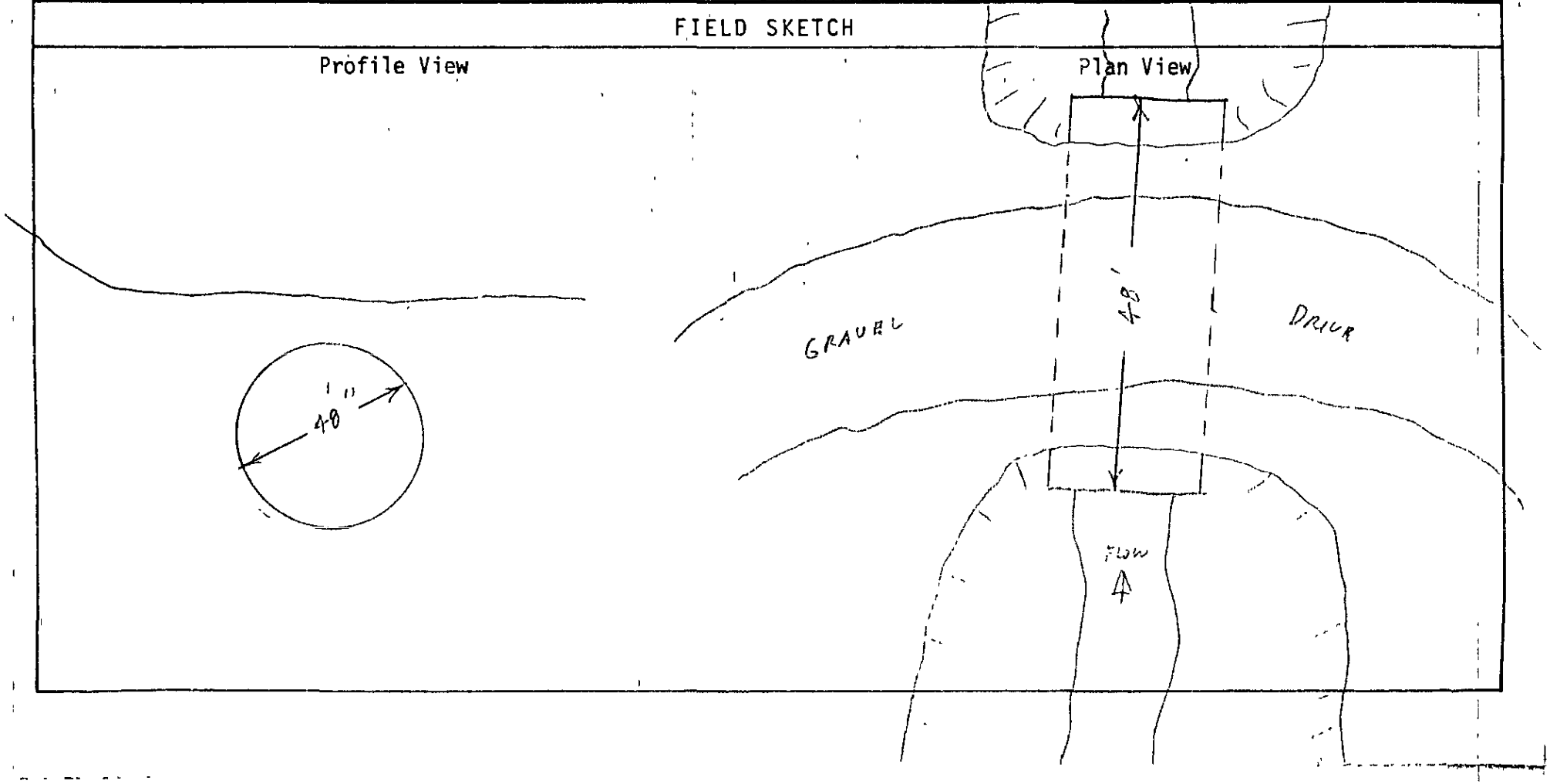
HYDRAULIC STRUCTURAL DATA

Code No. 09-01-68

Job Name: CITY OF BRIDGEMAN F.I.S.			By: P. SHOWERS
Date: 14 DECEMBER 1976	Feature: SAND PIT ACCESS DRIVE		Water Course: TANNER CREEK
Remarks: BOTTOM: SAND W/ DEBRIS			
PHOTOS: X-1 U/S FACE X-2 U/S	X-3 RIGHT X-4 LEFT	X-5 DOWN S X-6 DOWN S FACE	
Width of Piers: N/A	Pier Shape: N/A	No. of Piers: NONE	Area:
Water Elevation:	Length: 48'	Width of ~~Deck~~: CULVERT: 48" RCP	Skew: 90°

FIELD SKETCH



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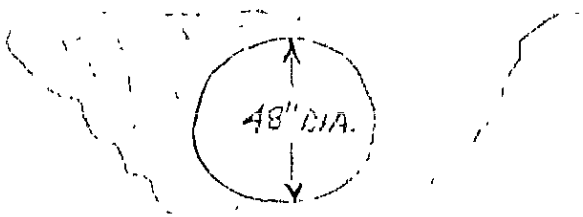
HYDRAULIC STRUCTURAL DATA

Code No. 09-01-[illegible]

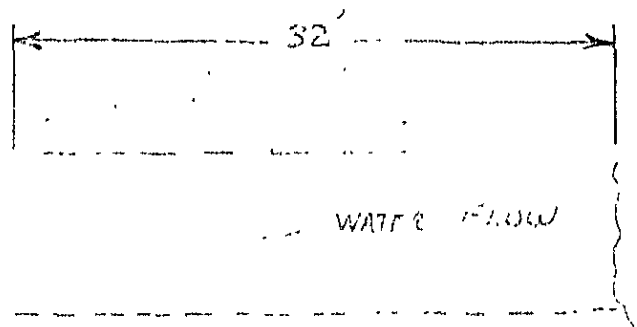
Job Name: CITY OF BRIDGMAN			By: L. T. SCHMIT
Date: FEB 76	Feature:		Water Course: TRIBUTARY CREEK
Remarks:			
Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation: 613.6	Length: 32' OF 48" C.M.P.	Width of Deck:	Skew:

FIELD SKETCH

Profile View



Plan View



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HYDRAULIC STRUCTURAL DATA

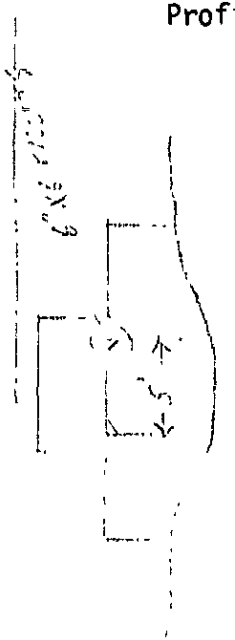
Code No. [illegible]

Job Name: CITY OF BRIDGMAN FES		By: L. T. SLAM
Date: FEB , 76	Feature: ON RED ARROW HIGH	Water Course: TANNERS CREEK
Remarks:		

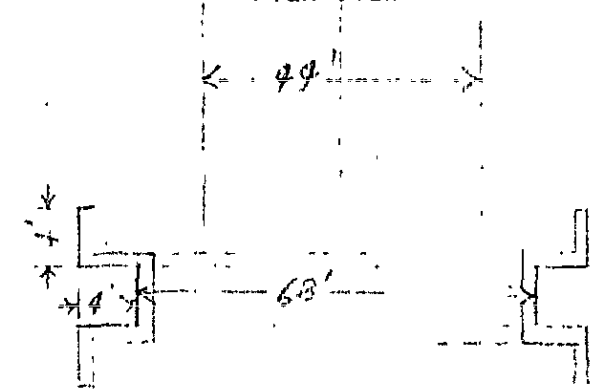
Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation: 622.8	Length:	Width of Deck:	Skew:

FIELD SKETCH

Profile View



Plan View



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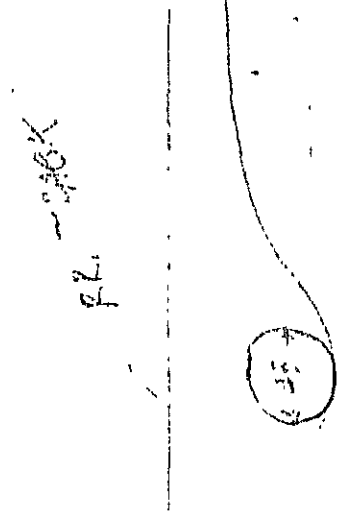
HYDRAULIC STRUCTURAL DATA

Code No. 09-01-[illegible]

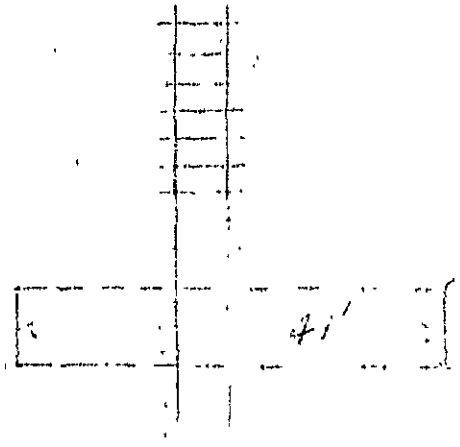
Job Name: CITY OF BRIDGMAN FTS		By: L.T. SLADE	
Date: FEB. 76	Feature:	Water Course: TANNERS CR	
Remarks:			
Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation: 628.0	Length: 41' OF 48" RCP	Width of Deck:	Skew:

FIELD SKETCH

Profile View



Plan View



RED ARROW [illegible]

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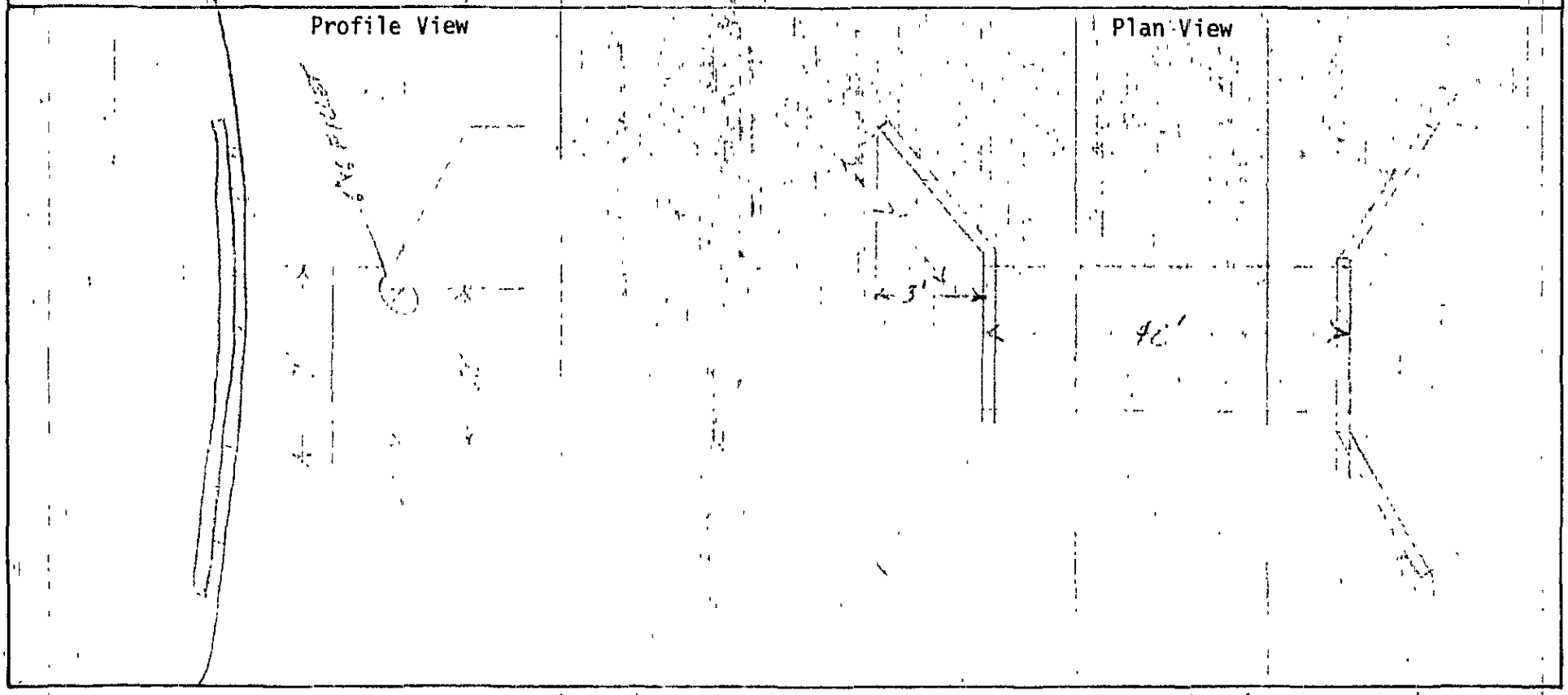
HYDRAULIC STRUCTURAL DATA

Code No. 09-[illegible]

Job Name: CITY OF BRIDGMAN FIS		By: L. T. SLAVE
Date: 6 FEB 76	Feature: ON LAKE ST	Water Course: [illegible] DRAIN
Remarks: CONCRETE BOX CULVERT		

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

FIELD SKETCH



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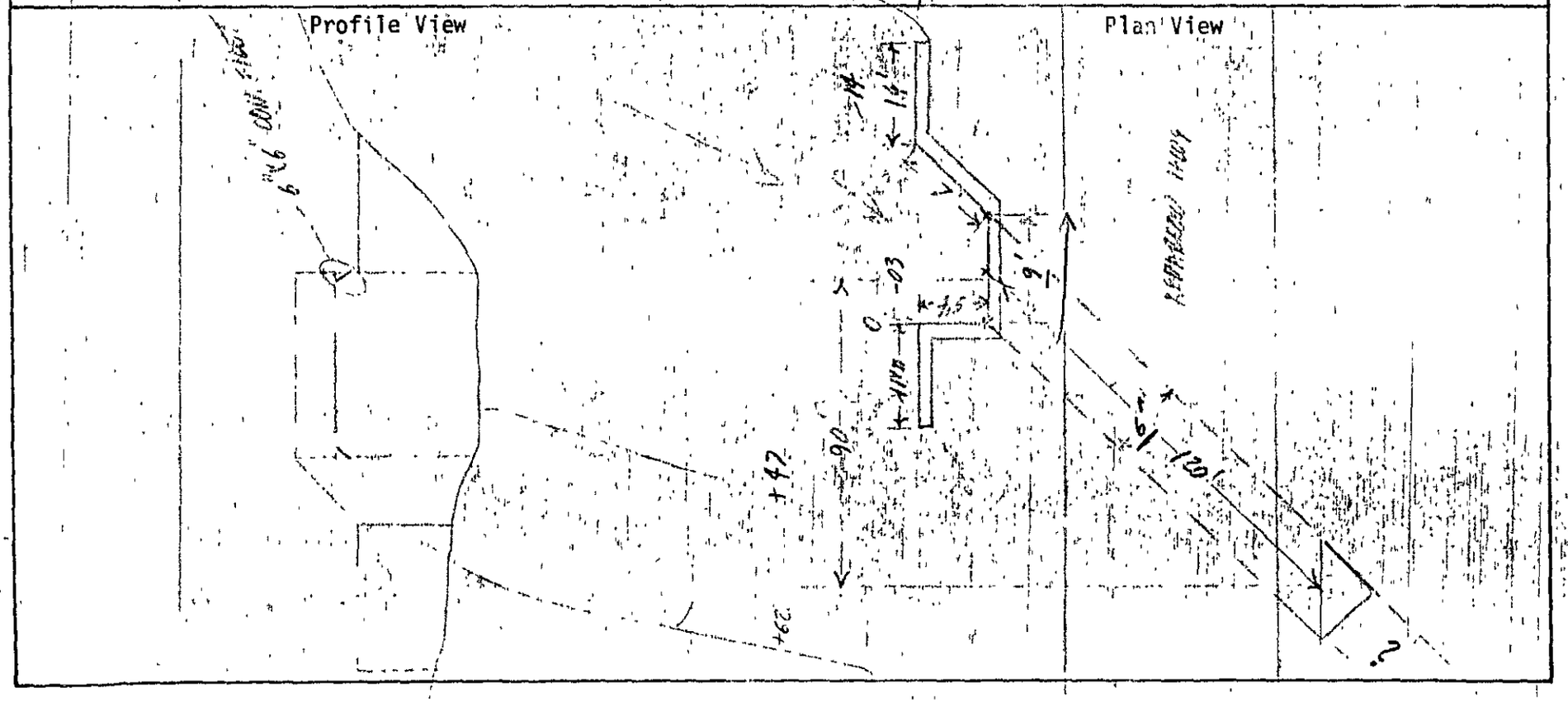
HYDRAULIC STRUCTURAL DATA

Code No. 09-02-B.S.#9

Job Name: CITY OF BRIDGMAN F.I.S.		By: L.T. SLAM	
Date: 5 FEB 76	Feature: ON RED ARROW HWY	Water Course: BENDOCTHA DRAIN	
Remarks:			
Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation:	Length:	Width of Deck:	Skew:

FIELD SKETCH



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HYDRAULIC STRUCTURAL DATA

U/S-13
U/S FACE-14
D/S-15
D/S FACE-16
R/B-17
L/B-18

Code No. 09-02-854

Job Name: CITY OF BRIDGMAN FDS			By: L. T. SCHAFE
Date: 3 FEB 76	Feature: ON ACCESS RD TO INDUSTRIAL PARK		Water Course: BEDORTHA DRAIN
Remarks: 200'± OF 24" CMP			
Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation:	Length:	Width of Deck:	Skew:

FIELD SKETCH

Profile View

Plan View

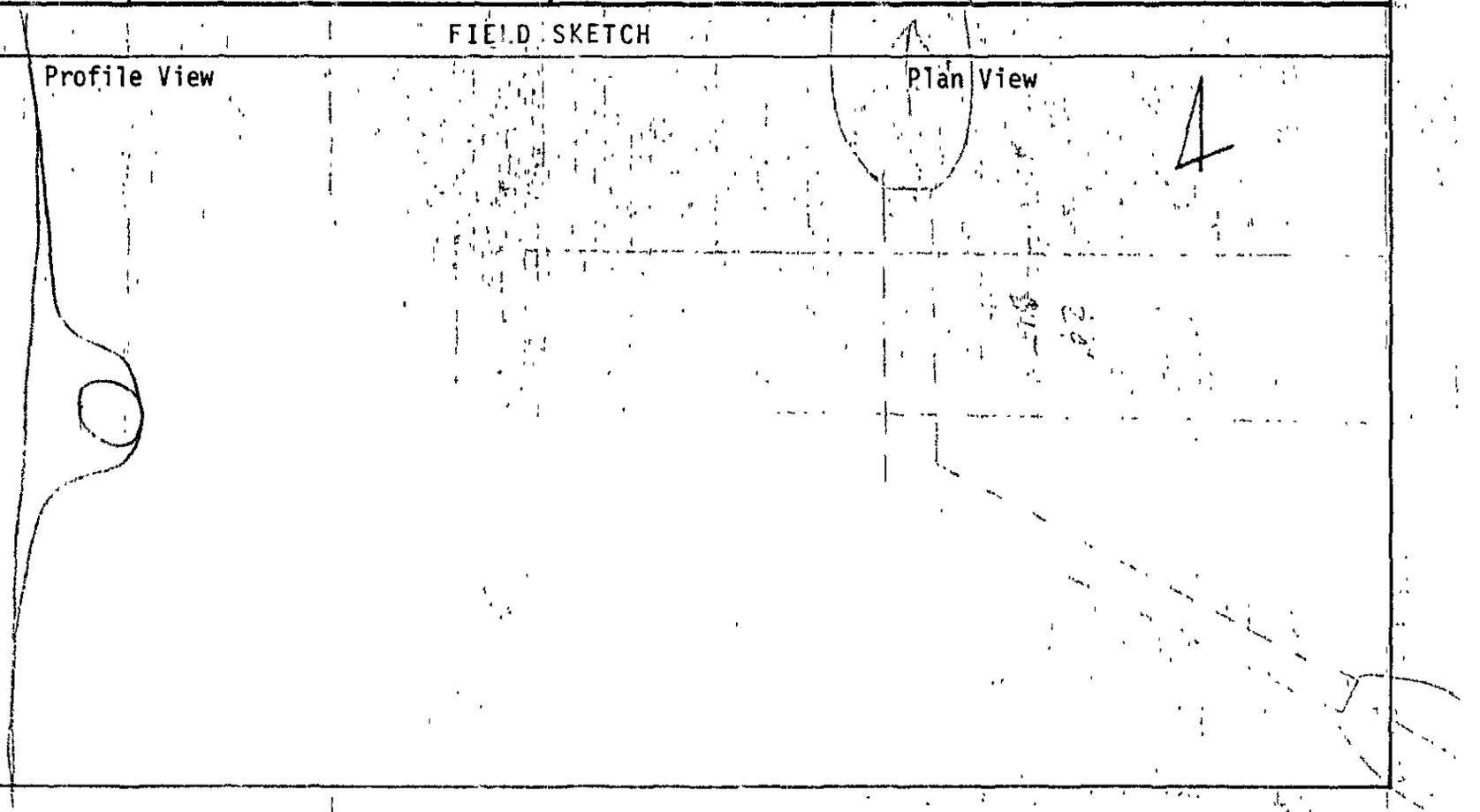

PHOTO: U/S FACE - 10
"T" D/S - 11
D/S FACE - 12
R/B - 13
L/B - 14
U/S - 9

Code No. 39-00-85

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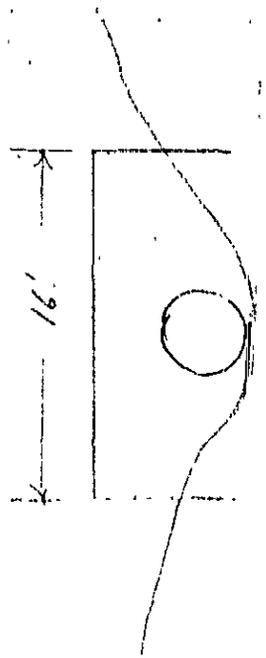
HYDRAULIC STRUCTURAL DATA

Job Name: CITY OF BRIDGMAN		By: C.P. SMITH
Date: 3 FEB 76	Feature: 300'± D.S. FROM RAILROAD ED ON NEW RR GRADE	Water Course: BEDDOTHA DRAIN
Remarks: 120' OF 27" RCP W/ 16' CON. HD. CURLS		

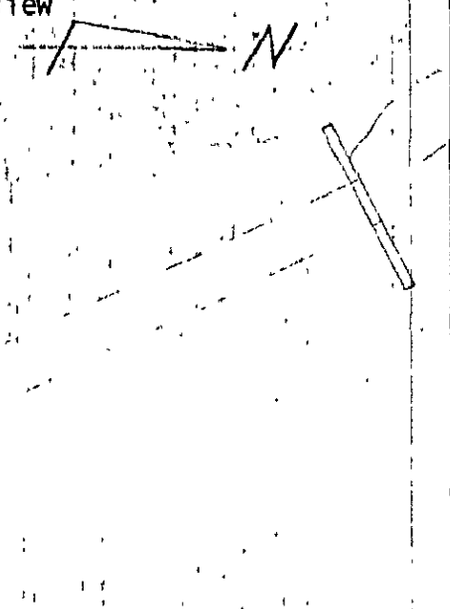
Width of Piers:	Pier Shape:	No. of Piers:	Area:
Water Elevation:	Length:	Width of Deck:	Skew:

FIELD SKETCH

Profile View



Plan View



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HYDRAULIC STRUCTURAL DATA

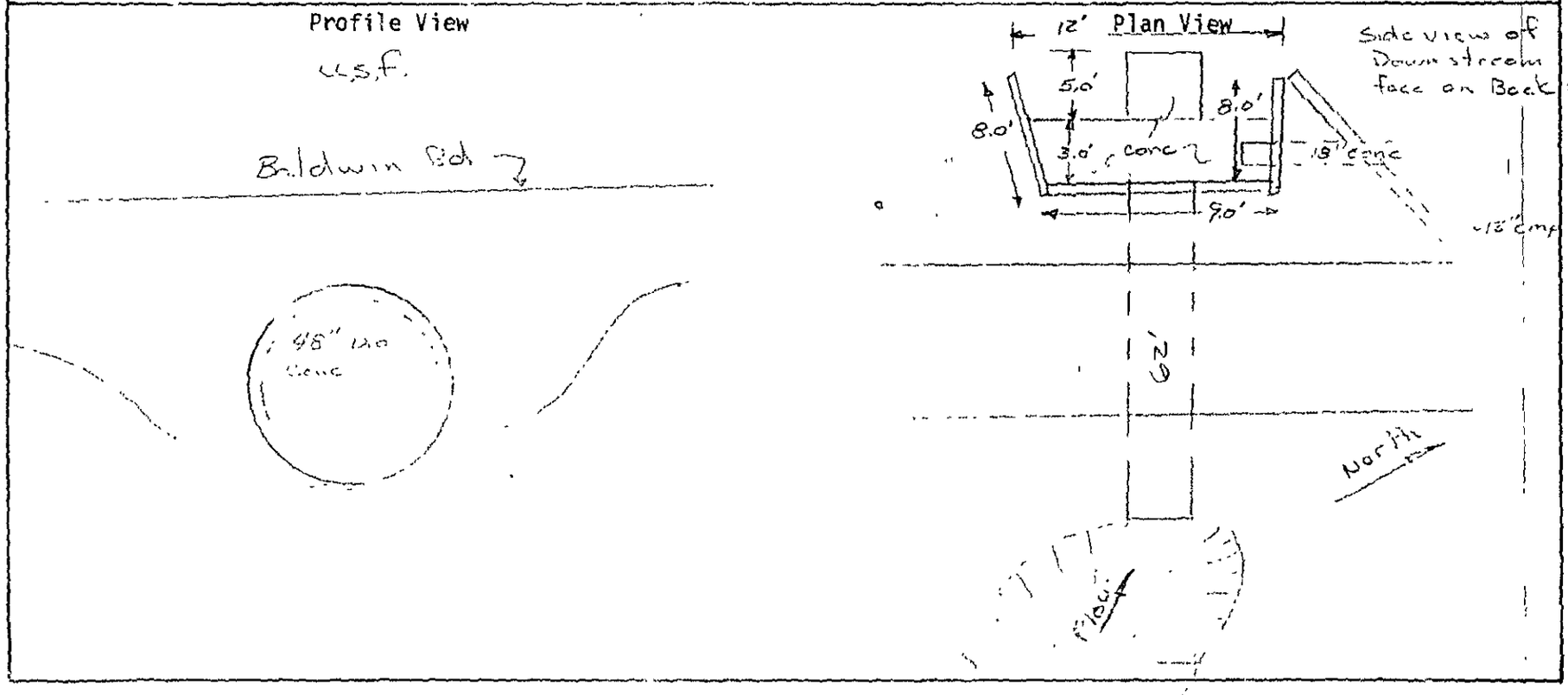
Code No. 09-03-BS

Job Name: City of Bridgeman Haller Drain		By: G. Norberg
Date: 2-11-76	Feature: 48" Dia Conc. Culv.	Water Course: BRIDGMAN CITY DRAIN
Remarks:		

	Lt	Rt	US	USF	DS	DSF
Photo "0"	19	20	21	22	23	24

Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: 623.5	Length: 62'	Width of Deck: —	Skew: —

FIELD SKETCH



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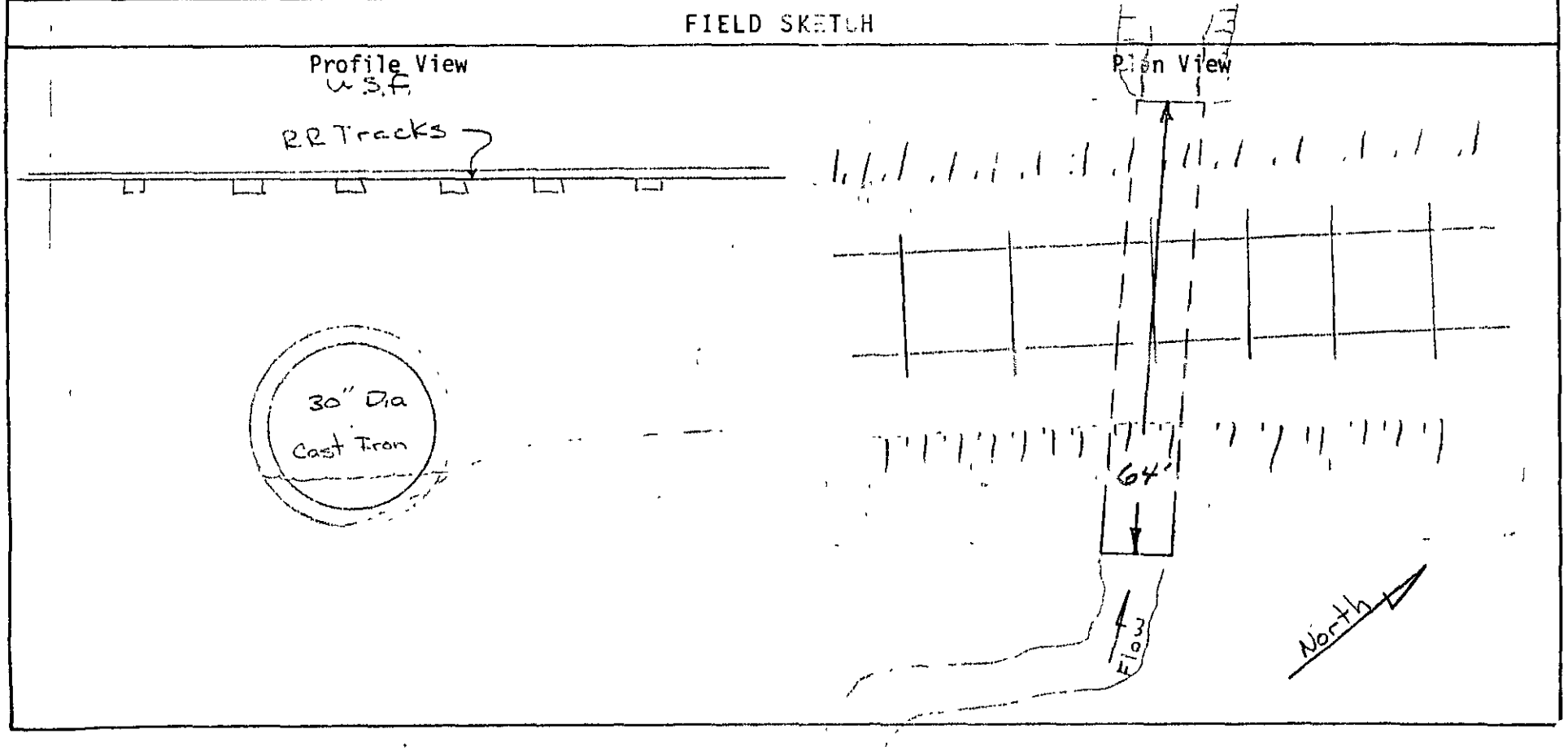
HYDRAULIC STRUCTURAL DATA

Code No. 09-03-BS#2

Job Name: City of Bridgeman		By: G. Norberg
Date: 2-10-76	Feature: 30" Dia. Cast Iron	Water Course: BRIDGMAN CITY DRAIN
Remarks:		
Notes: USF 9, US 10, RT 11, LT 12, DS 13, [illegible] 14		

Width of Piers: —	Pier Shape: —	No. of Piers: —	Area: —
Water Elevation: See Notes	Length: 64'	Width of Deck: —	Skew: —

FIELD SKETCH



COMPARISON SHEET
NATURAL FLOODWAY - ENCROACHED FLOODWAY
SECT. 1600 - 2720

BY: RSM COMMUNITY: BRIDGMAN FIS STREAM: TANNER CREEK 5955-09

STATION	100 YR. WSEL NATURAL FLOODWAY	100 YR. WSEL ENCROACHED TO BANK
TANNER CREEK		
1600	590.24	590.24
C 1870	596.39	596.39
1875	596.56	596.55
1879	596.56	596.56
1931	596.57	596.57
1970	596.57	596.57
2070	596.58	596.58
2170	596.59	596.59
2270	596.59	596.60
D 2370	596.60	596.60
2455	596.60	596.61
2540	596.61	596.61
2620	596.61	596.62
2700	596.63	596.63
2720	596.62	596.62

JOB NAME: BRIDGMAN F15 JOB NO. 5555 09

WATERCOURSE: TANNER CREEK AND WILLIAM B ESSEG CULVERT LOCATION: BRIDGE SECTION #6B

CULVERT DESCRIPTION: 4' DIA. RCP, WITH 1.8' SILT D/S & 1.4' U/S. BY RSM DATE 1-13-77

n = 0.0215 Q_{10} = ____ TW_{10} = ____

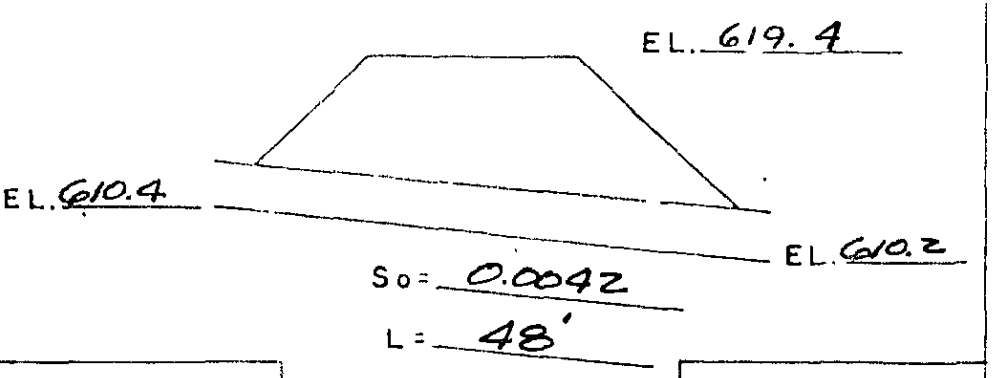
A = 7.87 (AVG.) Q_{50} = 28 TW_{50} = 1.23

R = 0.715 Q_{100} = 35 TW_{100} = 1.33

Ke = 0.2 Q_{500} = 56 TW_{500} = 1.82

D = 2.4 (AVG.) D_{INLET} = 2.6 D_{OUTLET} = 2.2

LSo = 0.2 A_{INLET} = 8.64 A_{OUTLET} = 7.09



Sta. 6281 Sta 6233

Q	HEADWATER ANALYSIS: INLET CONT. HW/D	INLET CONT. HW	OUTLET CONT. HW = H + ho − LSo: H	dc	(dc+D)/2	ho	HW	HEC-2: D+(1+Ke) V²/2g	HEC-2: EGL HW	FINAL HW EGL	FINAL HW EGL	FINAL HW ELEV.
28	0.725	1.89	0.53	1.15	1.68	1.68	2.01	2.56	2.42	1.89	612.29	611.99
35	0.82	2.13	0.84	1.40	1.80	1.80	2.29	2.66	2.88	2.13	612.53	612.14
56	1.125	2.93	2.14	2.08	2.14	2.14	3.69	3.36	4.71	3.69	614.09	613.83

CALCULATIONS AND COMMENTS

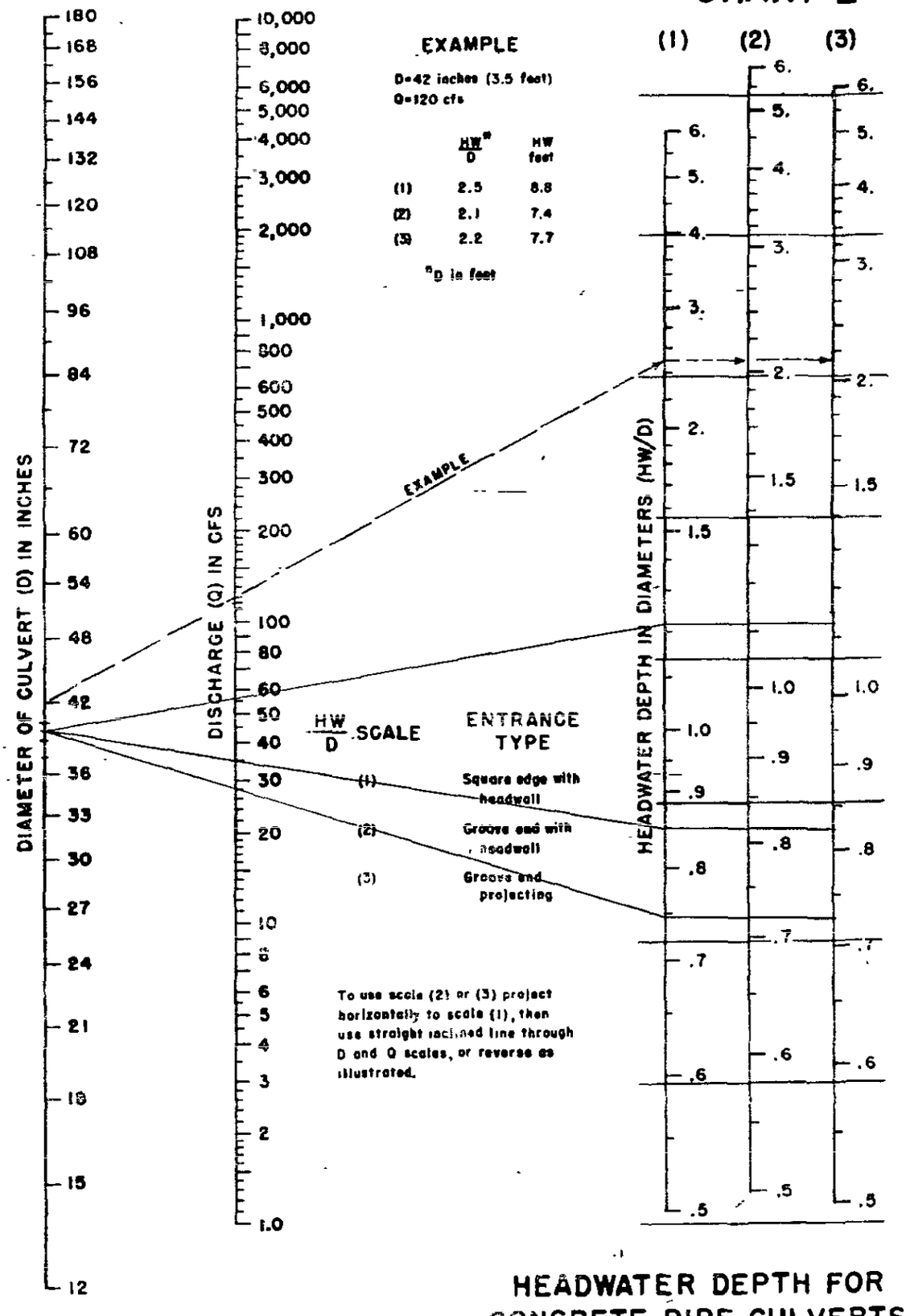
$Q = VA \therefore V = \frac{Q}{A}$

50 YR. V = 3.95 $V^2/2g$ = 0.24

100 YR. V = 4.93 $V^2/2g$ = 0.38

500 YR. V = 7.90 $V^2/2g$ = 0.97

CHART 2



HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH INLET CONTROL

HEADWATER SCALES 2&3
REVISED MAY 1964

BUREAU OF PUBLIC ROADS JAN. 1963

RAILROAD CULVERT

41' of 48" RCP, $S_o = 0.0073$

ENTRANCE DESIGN: PROJECTING FROM FILL, GROOVE END.

$A = 12.57$	$Q_{10} = 10$	$d_{c10} = 0.94$
$R = 1$	$Q_{50} = 24$	$d_{c50} = 1.41$
$D = 4'$ = DIAMETER OF PIPE	$Q_{100} = 30$	$d_{c100} = 1.57$
$K_e = 0.2$	$Q_{500} = 48$	$d_{c500} = 2.01$

$H = H_w$ (EGL)

REFERENCE: HANDBOOK OF CONCRETE CULVERT PIPE HYDR., PORTLAND CEMENT ASSOCIATION. 1964

EQUATION FOR INLET CONTROL, SUBMERGED INLETS:

$$\frac{H}{D} + 0.5S_o = \frac{H_c}{D} + \frac{H_e}{D}$$

H_c = SPECIFIC ENERGY

H_e = HEAD INCREMENT

$$\frac{H_e}{D} = K\left(1.273\,\frac{Q}{D^{5/2}}\right)^M$$

$$\frac{H_e}{D} = K\left(1.273\ \frac{Q}{D^{5/2}}\right)^M$$

$K = .0045$

$M = 2.0$

$Q = 10$ CFS

$$\frac{H_e}{D} = .0045\left(1.273\ \frac{10}{4^{5/2}}\right)^2$$

$$\frac{H_e}{D} = .00179 < 0.049 \quad \checkmark$$

$$H_c = 0.94 + \frac{V_c^2}{29} = 0.94 + 0.30 = 1.24$$

$\frac{H_e}{D} = 0.00179$

$S_o = 0.0073$

$H_c = 1.25$

$D = 4$

$$\frac{H}{4} + 0.5(.0073) = \frac{1.24}{4} + .00179$$

$$\frac{H}{4} = 0.314$$

$H = 1.26$ ⟶ INLET CONTROL HEADWATER

$Q = 24$ CFS

$$\frac{H_c}{D} = .0045\left(1.273\,\frac{24}{4^{5/2}}\right)^2$$

$$\frac{H_c}{D} = 0.00410 < 0.049 \quad \checkmark$$

$$H_c = 1.41 + \frac{V_c^2}{29} = 1.41 + 0.53 = 1.94$$

$$\frac{H_c}{D} = 0.0041$$

$$S_o = 0.0073$$

$$H_c = 1.94$$

$$D = 4$$

$$\frac{H}{4} + 0.5(.0073) = \frac{1.94}{4} + .0041$$

$$\frac{H}{4} = 0.485$$

$H = 1.94$ ⟶ INLET CONTROL HEADWATER

$Q = 30$ CFS

$$\frac{H_e}{D} = 0.0045 \left(1.273 \frac{30}{4^{5/2}}\right)^2$$

$$\frac{H_c}{D} = 0.00641 < 0.049 \checkmark$$

$$H_c = 1.57 + 0.61 = 2.18$$

$$\frac{H_e}{D} = 0.00641$$

$S_o = 0.0073$

$H_c = 2.18$

$D = 4'$

$$\frac{H}{4} + 0.5(.0073) = \frac{2.18}{4} + 0.00641$$

$$\frac{H}{4} = 0.548$$

$H = 2.19$

$Q = 48$ CFS

$$\frac{H_c}{D} = 0.0045 \left(1.273 \frac{48}{A^{5/2}} \right)^2$$

$$\frac{H_e}{D} = 0.0164 < 0.049 \checkmark$$

$H_c = 2.01 + 0.832 = 2.84$

$\frac{H_e}{D} = 0.0164$

$S_o = 0.0073$

$H_c = 2.84$

$D = 4$

$$\frac{H}{4} + 0.5(.0073) = \frac{2.84}{4} + 0.00641$$

$\frac{H}{4} = 0.713$

$H = 2.85$

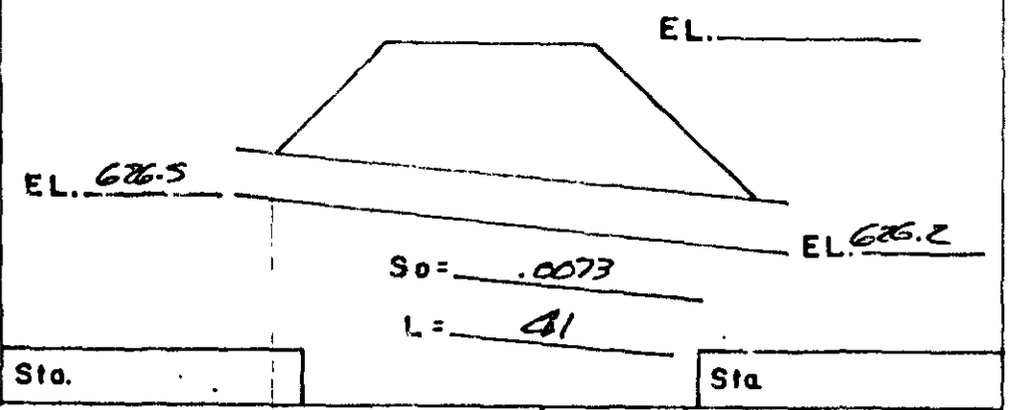
JOB NAME: BRIDGMAN FIS JOB NO. 5555 09

WATERCOURSE: TALMER CREEK, WILLIAM & ESSEX CULVERT LOCATION: RAILROAD CULVERT B.S #2.

CULVERT DESCRIPTION: 41' of 48" RCP BY RSM DATE 1-18-77

ENTRANCE DESIGN: PROTECTING FROM FILL, GROOVE END

n= 0.015	Q_{10}= 10	TW_{10}= 0.94
A= 12.57	Q_{50}= 24	TW_{50}= 1.41
R= 1	Q_{100}= 30	TW_{100}= 1.57
Ke= 0.2	Q_{500}= 48	TW_{500}= 2.01
D= 4		
LSo= 0.3		



HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL HW	FINAL HW El. EV. E.G.	ΔH HEC-2
	HW/D	HW	H	dc	(dc+D)/2	ho	HW	$D+(1+K_e)\frac{V^2}{2g}$	HW			
10		1.26	.013	.94	2.47	2.47	2.18	4.01	1.10	1.26	627.76	
24		1.94	.082	1.41	2.71	2.71	2.49	4.07	1.68	1.94	628.44	
30		2.19	.131	1.57	2.79	2.79	2.62	4.11	1.81	2.19	628.69	
48		2.85	.334	2.01	3.01	3.01	3.04	4.27	2.27	2.85	629.35	

CALCULATIONS AND COMMENTS

10 VR: V = 0.80, $V^2/2g$ = 0.009

50 VR: V = 1.91, $V^2/2g$ = 0.056

100 VR: V = 2.39, $V^2/2g$ = .089

500 VR: V = 3.82, $V^2/2g$ = 0.227

$$H = \left[1 + K_e + \frac{29.1 n^2 L}{R^{4/3}}\right]\frac{V^2}{2g}$$

$$= 1.47\,\frac{V^2}{2g}$$

pipe size on the basis of permissible values. The operating conditions for the selected pipe are also indicated.

Inlet Control Relationships

Relationships describing inlet control operation in the original pipe culvert investigations were confined to graphical representations. The introduction of the generalized relationships involving H/D and $Q/D^{5/2}$ was a significant contribution. This still provides an expedient method of establishing the design of pipe culverts operating with inlet control. Further investigation by French[3] established mathematical relationships explaining inlet control operation and permitting the construction of inlet control curves for various entrance shapes without recourse to experimental investigation.

Experimental work has revealed that the operating characteristics of culverts with inlet control change when the entrance becomes submerged. With the entrance unsubmerged, flow can be assumed to be controlled by the requirements of minimum energy; that is, flow will pass through critical depth. French[3] found that this assumption is generally correct but requires the addition of correction factors. There is a correction also for the effect of slope and an experimental head increment related to the discharge factor. The equation for inlet control flow for unsubmerged inlets is given as

$$\frac{H}{D} + 0.5S_o = \frac{H_c}{D} + \frac{H_e}{D}$$

where in addition to previously defined symbols

H_c = specific energy

H_e = head increment

The above relationship is valid until a limiting upper value of H_c, corresponding to a discharge factor of about 3.25, is reached. This value has been experimentally determined and is given in Table 8 in this chapter. The empirical relationship between the head increment H_e and the discharge factor $Q/D^{5/2}$ is given by

$$\frac{H_e}{D} = k\left(1.273\,\frac{Q}{D^{5/2}}\right)^m$$

The values of k and m have been experimentally determined and are given in Table 8 for the various entrance shapes.

With the entrance submerged, the operating characteristics of pipe culverts flowing with inlet control are defined by the expression $H/D + 0.5S_o = h_1/D + k_1(Q/D^{5/2})^2$ for values of the discharge factor $Q/D^{5/2}$ exceeding an experimentally determined minimum given in Table 8. The

*TABLE 8. Inlet Control Performance Coefficients**

Entrance shape	Submerged inlet flow			Nonsubmerged inlet flow		
	h_1/D	k_1	$Q/D^{5/2}$**	k	m	H_c/D†
With headwall						
Groove edge, .05Dx 07D	0 74	0 0468	3 3	0 0018	2 5	0 035
Rounded edge, .15D radius	0 74	0.0419	2.58	0.00065	2.67	0.016
Square edge	0 67	0.0645	2 58	0 0098	2 0	0 105
Headwall and 45° wingwalls						
Groove edge, .05Dx.07D	0 73	0 0172	3.0	0 0018	2 50	0 035
Square edge	0 70	0.0501	3 5	0.0030	2 67	0.072
Headwall and parallel wingwalls						
Groove edge, 05Dx.07D	0 74	0 0328	4 0	0 0020	2 67	0 048
Miter (square edge)						
2:1 embankment slope	0.74	0 0750	4.0	0 0210	1 33	0 091
Projecting entrance						
Groove edge, 05Dx.07D	0 70	0 0514	2.58	0 0045	2 0	0 049
Square edge (thick wall)	0.64	0.0668	3 5	0 0145	1.75	0 116
Thin edge	0.53	0.0924	4 0	0 0420	1 33	0.205

*Taken from Reference 1.

**The equation for inlet control with submerged inlet only applies when $Q/D^{5/2}$ is larger than the listed values.

†The equation for inlet control with nonsubmerged inlet only applies when H_c/D is less than the listed values.

factor k_1 and the quantity h_1/D are also empirical and are given in Table 8 for various entrance shapes.

The inlet control operation curve can be constructed for each entrance shape from the above relationship. In several cases, an undefined region will exist which is not described by either equation. This transition region will not be extensive and may be defined by a smooth connecting curve tangent to the mathematical curves for the unsubmerged and submerged entrances.

Inlet Control Nomographs

The inlet control operation curve may be placed in the form of a nomograph. This has been done for several entrance shapes and the resulting nomographs have been included in Appendix B. The nomographs will give the same results as the inlet control curves developed from the above relationships. The inlet control curves in the BPR Culvert Capacity

JOB NAME: BRIDGMAN FIS | JOB NO. 5555 | 09

WATERCOURSE: BEDORTHA DRAIN | CULVERT LOCATION: LAKE STREET B.S. #11

CULVERT DESCRIPTION: 6'D x 5.5'W CONCRETE BOX CULVERT | BY RSM | DATE 1-18-77

n= 0.024 | Q_{10}= 92 | TW_{10}= 2.35

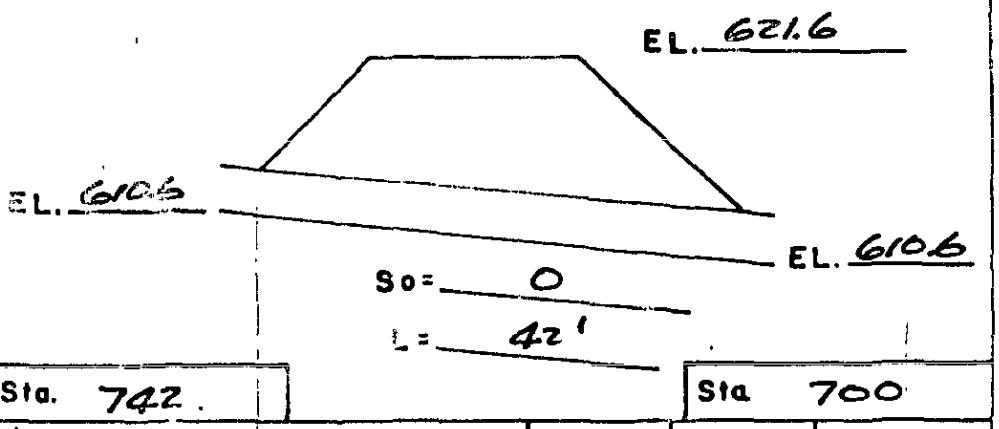
A= 33 | Q_{50}= 120 | TW_{50}= 2.74

R= 1.43 | Q_{100}= 125 | TW_{100}= 2.81

Ke= 0.5 | Q_{500}= 135 | TW_{500}= 2.94

D= 6.0

LSo= 0



HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL HW	FINAL HW ELEV.	ΔH HEC-2
	HW/D	HW EGL	H	dc	(dc+D)/2	ho	HW EGL	D+(1+Ke) V²/2g EGL	HW EGL			
92	.520	3.12	.23	2.35	4.18	4.18	4.41	6.20	3.37	3.37	613.97	
120	.625	3.75	.40	2.74	4.37	4.37	4.77	6.32	3.92	3.92	614.52	
125	.645	3.87	.43	2.81	4.41	4.41	4.83	6.33	4.01	4.01	614.61	
135	.680	4.08	.50	2.94	4.47	4.47	4.97	6.42	4.20	4.20	614.80	

CALCULATIONS AND COMMENTS

$R = \frac{A}{P} = \frac{33}{23} = 1.43$

	10	50	100	500
V=	2.79	3.64	3.79	4.09
$V^2/2g$ =	.12	.21	.22	.26

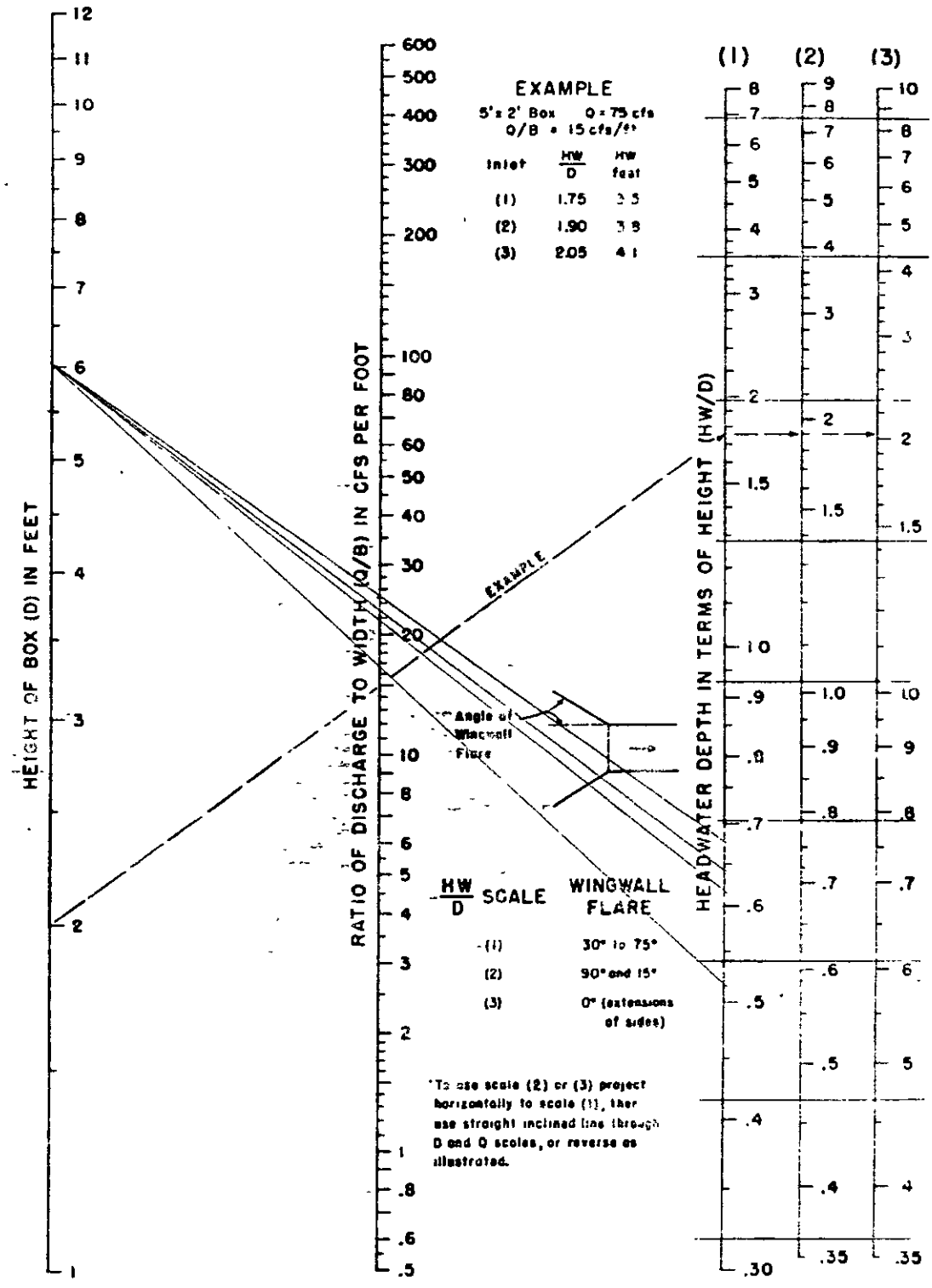
$H = \left[1 + Ke + \frac{29.1 n^2 L}{R^{4/3}}\right]\frac{V^2}{2g}$

$H = 1.94\left(\frac{V^2}{2g}\right)$

B

50 - 21.8
100 - 22.7
500 - 24.5

CHART 1



HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN 1963

JOB NAME: CITY OF BRIDGMAN FIS | JOB NO. 5555 09

WATERCOURSE: BEDORTHA DRAIN | CULVERT LOCATION: BETWEEN CAKE ST. & REED ARROW

CULVERT DESCRIPTION: 668' CONC, 48" DIAMETER CONCRETE PIPE | BY RSM | DATE 1-19-77

n= 0.013 | Q_{10}= 92 | TW_{10}= 3.60

A= 12.57 | Q_{50}= 120 | TW_{50}= 4.09

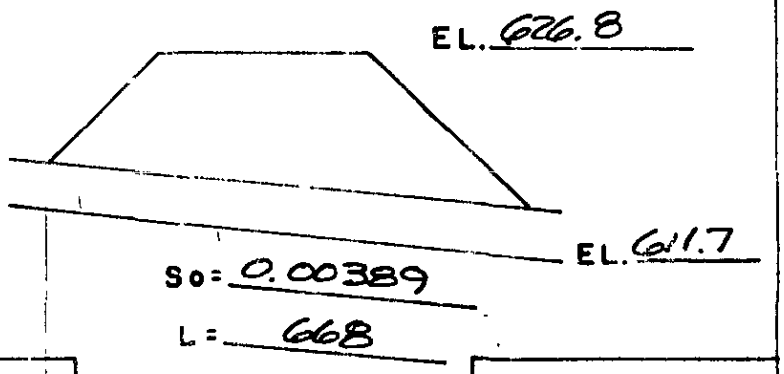
R= 1.0 | Q_{100}= 125 | TW_{100}= 4.18 ~~4.23~~

Ke= 0.5 | Q_{500}= 135 | TW_{500}= 4.34

D= 4.0

LSo= 2.6

ho = $\frac{dc+D}{2}$ or TW which ever is greater



HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho - LSo					HEC-2		FINAL	FINAL HW	FINAL HW ΔH
	$\frac{HW}{D}$	HW	H	dc	$\frac{dc+D}{2}$	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW	~~HW~~ EGL.	~~ELEV.~~ E.G.L.	~~HEC-2~~ ELEV.
92	1.12	4.48	3.88	2.8	3.40	3.30	5.28			5.08	619.38	619.31
120	1.45	5.80	6.61	3.25	3.63	4.09	8.10			8.10	622.40	622.36
125	1.50	6.00	7.17	3.30	3.65	4.18	8.75			8.75	623.05	623.01
135	1.65	6.60	8.36	3.40	3.70	4.34	10.10			10.10	624.40	624.36

CALCULATIONS AND COMMENTS



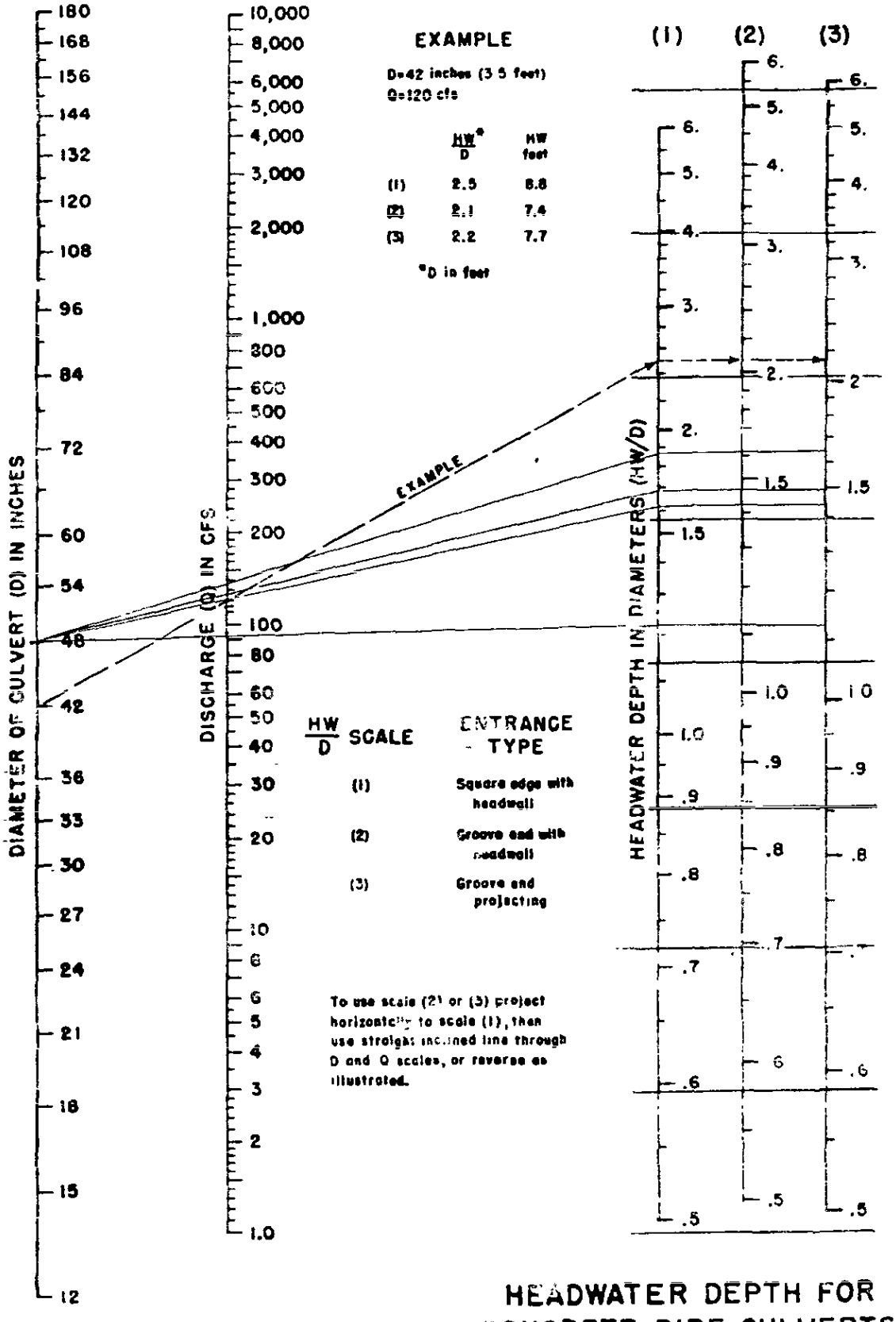
$K_c = \frac{29.1 n^2 c}{R^{4/3}} = 3.27$

$H = [1 + Ke + K_c]\frac{V^2}{2g}$

$= [1 + 0.4 + 3.27]\frac{Q^2}{2g A^2}$

$= \frac{Q^2}{2179}$

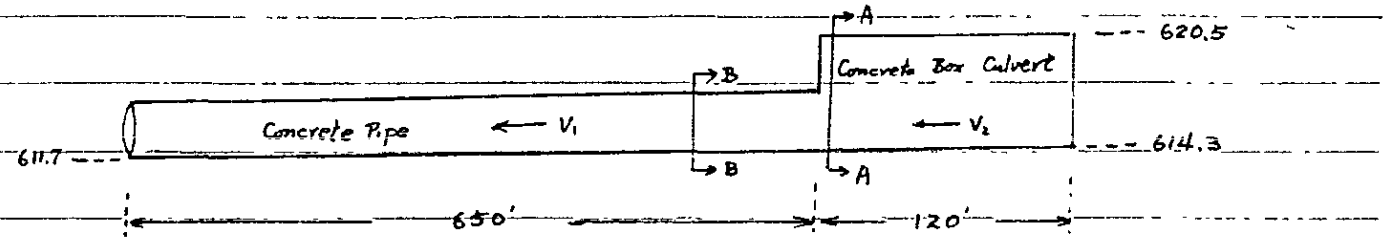
CHART 2



HEADWATER DEPTH FOR CONCRETE PIPE CULVERTS WITH INLET CONTROL

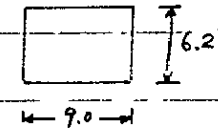
HEADWATER SCALES 2&3
REVISED MAY 1964

BUREAU OF PUBLIC ROADS JAN. 1963





Section B-B



Section A-A

(1) Original Condition :-

$$\text{Total Losses} = \left(1 + \frac{29 n_1^2 L_1}{R_1^{4/3}} + K_c\right)\frac{V_1^2}{2g} + \left(\frac{29 n_2^2 L_2}{R_2^{4/3}} + K_e\right)\frac{V_2^2}{2g} \qquad \text{---(1)}$$

(2) Equivalent Condition :-

$$\text{Total Losses} = \left(1 + K_e + \frac{29 n_1^2 (L_1 + L_e)}{R_1^{4/3}}\right)\frac{V_1^2}{2g} \qquad \text{---(2)}$$

where :- K_c :- Contraction coefficient (from cross section A-A to cross section B-B)

L_e :- equivalent length

Equate above two equations and simplify :-

$$L_e = (K_c - K_e)\frac{R_1^{4/3}}{29 n_1^2} + \left(\frac{29 n^2 L_2}{R_2^{4/3}} + K_e\right)\frac{A_1^2}{A_2^2}\cdot\frac{R_1^{4/3}}{29 n_1^2} \qquad \text{---(3)}$$

Here $K_c = 0.45$

$K_e = 0.40$

$A_1 = \frac{\pi}{4} R_a^2 = 12.57 \text{ ft}^2$

$A_2 = 9.0 \times 6.2 = 55.8 \text{ ft}^2$

$R_1 = R_a/4 = 4/4 = 1.0 \text{ ft.}$

$R_2 = A/P = 558 / [(9+6.2) \times 2] = 1.84 \text{ ft.}$

$n = 0.013$

Then,

$$L_e = (0.45 - 0.4) \frac{1}{29(0.013)^2} + \left[\frac{29(0.013)^2 \times 120}{(1.84)^{4/3}} + 0.5 \right] \left(\frac{12.57}{55.8} \right)^2 \frac{1}{29(0.013)^2}$$

$= 10.20 + 7.88$

$= 18.08 \text{ ft.}$

Total length of 48" concrete pipe $= 650 + 18.08 = 668 \text{ ft.}$

$L = 668 \text{ ft.}$

$n = 0.013$

$A = 12.57 \text{ ft}^2$

$R = 1.0 \text{ ft.}$

$K_e = 0.40$

$K_f = \frac{29 n^2 L}{R^{4/3}} = 3.27$

$K = 1 + K_e + K_f = 1 + 0.4 + 3.27 = 4.67$

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RSM DATE 12-17-76 JOB DESCRIPTION BRIDGMAN FIS SHEET 1 OF 3
SUBJECT BEDORTHA DRAIN B.S. #4 JOB NO. 5555-09

MANUFACTURING PLANT ACCESS ROAD

ASSUMING OUTLET CONTROL:

$$H = \left[1 + K_e + \frac{29.1 n^2 L}{R^{4/3}}\right] \frac{V^2}{29}$$

$$H = 18.0 \frac{V^2}{29}, \quad V = \sqrt{\frac{29(H)}{18}}$$

$H_w = H + h_o - LS_o$ ∴

$H = H_w - h_o + LS_o$

D = 2'
L = 220'
n = 0.0316
Ke = 0.9
A = 3.142
P = 6.283
R = 0.5'
U/S INVERT = 627.3
D/S INVERT = 626.5
LSo = 0.8

$h_o = \frac{D_c + D}{2}$ OR T_w (>)

$\frac{D_c + D}{2} = 1.5$

$T_w = 3.19$

$h_o = 3.19$

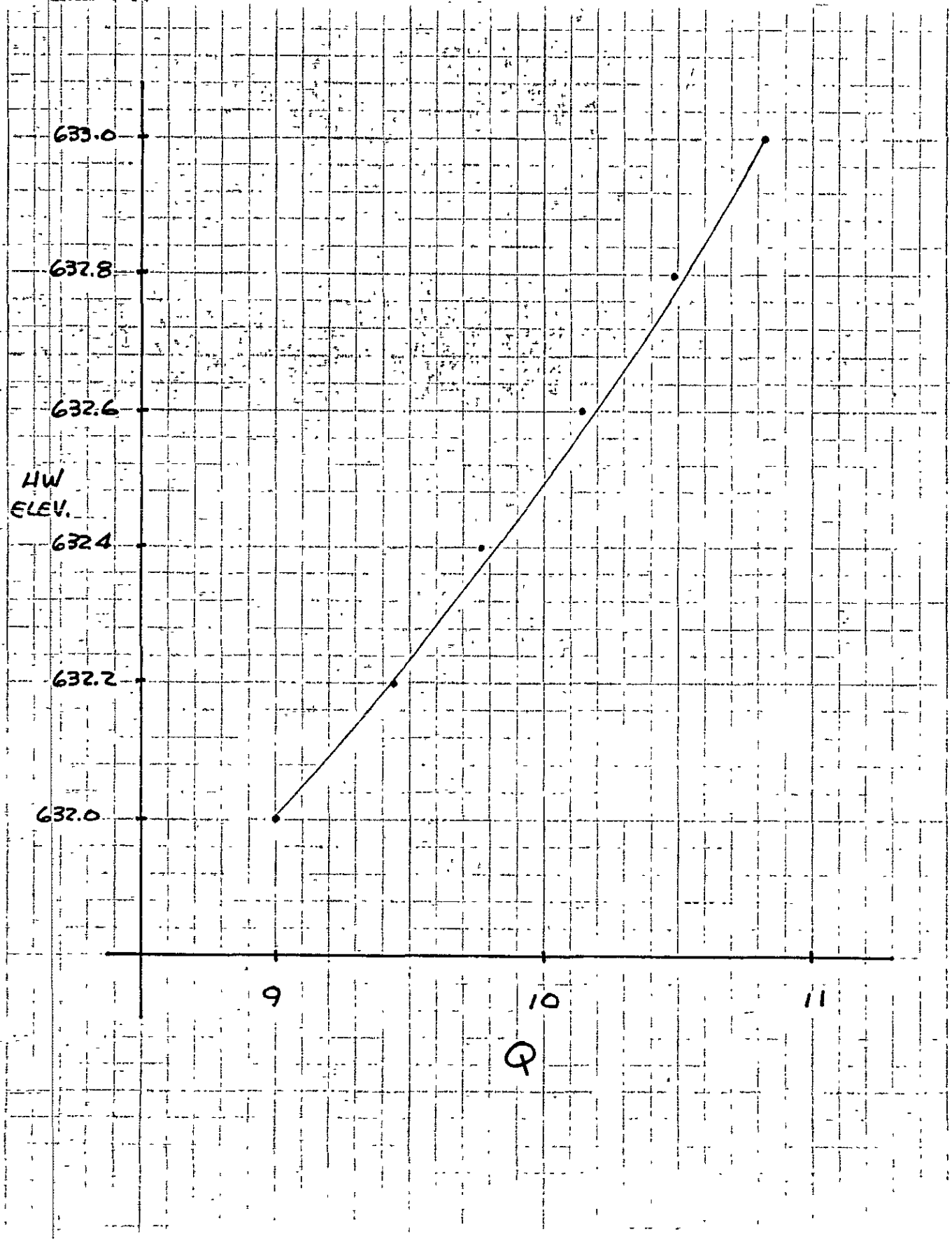
TRIAL H_w	H	V	Q
4.7	2.31	2.87	9.03
4.9	2.51	3.00	9.43
5.1	2.71	3.11	9.77
5.3	2.91	3.23	10.14
5.5	3.11	3.34	10.49
5.7	3.31	3.44	10.81

SEE ATTACHED RATING CURVE

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RSM DATE 12-17-76 JOB DESCRIPTION BRIDGMAN FIS SHEET 2 OF 3

SUBJECT BERRIEN DRAIN B.S. #4 JOB NO. 5555-09



JOB NAME: BRIDGMAN FIS JOB NO. 5555 09

WATERCOURSE: BEDORTHA DRAIN CULVERT LOCATION: MANUFACTURING PLANT ACCESS

CULVERT DESCRIPTION: 2' DIA. CMP. BY RSM DATE 12-17-76

220' IN LENGTH, PROJECTING FROM FILL

n= 0.0316 Q_{10}= TW_{10}=

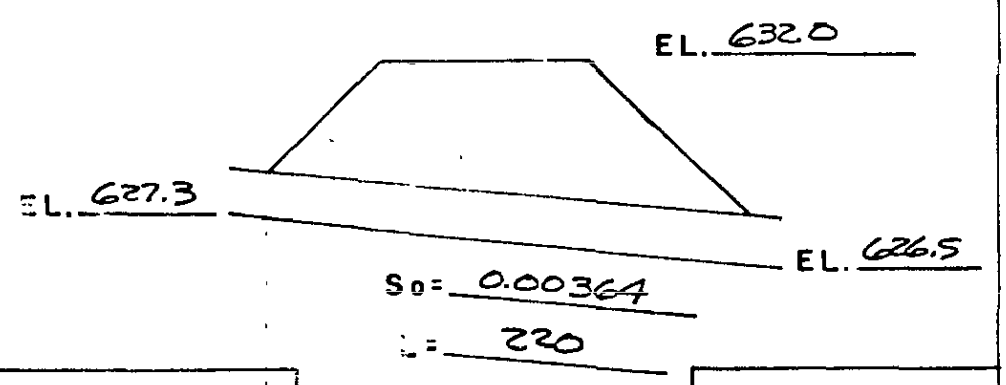
A= 3.142 Q_{50}= TW_{50}=

R= 0.5 Q_{100}= 9 TW_{100}= 3.19

Ke= 0.9 Q_{500}= TW_{500}=

D= 2'

LSo= 0.8



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	hc	HW	$D+(1+K_e)\frac{V^2}{2g}$	HW			
9	0.85	1.70	2.28	1.0	1.5	3.19	4.67	OUTLET CONTROL				

CALCULATIONS AND COMMENTS

$$H=\left[1+K_e+\frac{29.1n^2L}{R^{4/3}}\right]\frac{V^2}{2g} = 1.8\frac{(2.86)^2}{2g} = 2.28$$

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Bridgeman City

3) WATERCOURSE: Tanner CK William & Esseg Dr.

4) DOCUMENT TYPE: 100-year NATURAL

00BREAK00

11.76

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$$$$$$$   $$$$$$$   $$$$$$$$  $$$$$$$$   $$$$$ $  $$$$$$$    $$$$$$
$$    $$  $$    $$     $$        $$      $$    $   $$    $$  $$    $$
$$    $$  $$    $$     $$        $$      $$   $$$  $$    $$  $$    $$
$$$$$$$   $$    $$     $$        $$      $$  $ $$  $$    $$   $$$$$$
$$    $$  $$    $$     $$        $$      $$ $$ $$  $$    $$  $$    $$
$$    $$  $$$$$$$      $$        $$      $$ $  $$  $$    $$  $$    $$
$$    $$  $$  $$       $$        $$      $$$   $$  $$    $$  $$    $$
$$    $$  $$   $$      $$     $$ $$       $    $$  $$    $$  $$    $$
$$$$$$$   $$    $$  $$$$$$$$   $$$       $ $$$$$   $$$$$$$    $$$$$$
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CITY OF BRIDGMAN FIS
JA& FILE NO. 5555-09
TANNER CREEK AND WILLIAM & ESSEG DRAIN
10-50-100-/& 500-YR. FLOWS
DNR SUBMITTAL

RECEIVED
FEB 16 1977
WATER MANAGEMENT

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

C
1       CITY OF BRIDGMAN FIS, PROJECT MANAGER: MR. JOHN EMIG
T2       10 YEAR FLOOD
T3      TANNER CREEK AND WILLIAM & ESSEG DRAIN
J1   ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
        -0.        2.        -0.        -0. -0.000000      -0.00      -0.0       -0.    581.310     -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       .030       .300       .500     -0.000     -0.000     -0.000     -0.000     -0.000
QT      4.000    105.000    150.000    165.000    200.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1       0.000      2.000      0.000    150.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000
X3      10.000     -0.000     -0.000     32.000     -0.000    119.000     -0.000     -0.000     -0.000     -0.000
GR     579.500      0.000    579.500    150.000     -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     -0.000     -0.000
X3      10.000     -0.000     -0.000     44.000     -0.000    106.000     -0.000     -0.000     -0.000     -0.000

X1     100.000     -0.000     -0.000     -0.000     50.000     50.000     50.000     -0.000     -0.000     -0.000
X3      10.000     -0.000     -0.000     56.000     -0.000     94.000     -0.000     -0.000     -0.000     -0.000

X1     115.000     -0.000     -0.000     -0.000     15.000     15.000     15.000     -0.000     -0.000     -0.000
X3      10.000     -0.000     -0.000     60.000     -0.000     90.000     -0.000     -0.000     -0.000     -0.000

X1     135.000     -0.000     -0.000     -0.000     20.000     20.000     20.000     -0.000     -0.000     -0.000
X3      10.000     -0.000     -0.000     65.000     -0.000     85.000     -0.000     -0.000     -0.000     -0.000
NC        .060       .060       .040     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1     150.000     10.000     38.000     51.000     15.000     15.000     15.000     -0.000     -0.000     -0.000
X3      10.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000
GR     601.800      0.000    584.000     30.000    584.500     35.000    582.500     38.000    580.500     40.000
GR     579.500     44.000    579.700     49.000    583.000     51.000    584.800     54.000    595.700     73.000

X1     163.000     -0.000     -0.000     -0.000     13.000     13.000     13.000     -0.000      .100      -0.000
X3      10.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1     177.000     -0.000     -0.000     -0.000     14.000     14.000     14.000     -0.000      .100      -0.000
X3      10.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1     205.000     -0.000     -0.000     -0.000     28.000     28.000     28.000     -0.000      .100      -0.000
X3      10.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1     233.000     -0.000     -0.000     -0.000     28.000     28.000     28.000     -0.000      .200      -0.000
X3      10.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1     316.000     -0.000     -0.000     -0.000     83.000     83.000     83.000     -0.000      .400      -0.000
X3      10.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000

X1     400.000     10.000     38.000     51.000     84.000     84.000     84.000     -0.000     -0.000     -0.000
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X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	601.800	0.000	584.000	30.000	584.500	35.000	582.900	38.000	581.900	40.000
GR	580.900	44.000	581.100	49.000	582.600	51.000	584.800	54.000	595.700	73.000
X1	650.000	90.000	113.500	126.200	300.000	200.000	250.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	603.500	0.000	602.300	3.900	601.000	7.800	599.700	11.700	598.700	15.600
GR	598.100	19.500	597.500	23.400	596.900	27.300	596.300	31.300	595.700	35.200
GR	595.200	39.100	594.600	43.000	594.000	46.900	593.400	50.800	592.800	54.700
GR	592.200	58.700	591.600	62.600	591.000	66.500	590.400	70.400	589.800	74.300
GR	589.200	78.200	588.500	82.100	587.600	86.100	586.800	90.000	586.500	93.900
GR	586.300	97.800	586.200	101.700	586.100	105.600	585.700	109.500	583.800	113.500
GR	583.500	113.900	583.400	114.300	583.200	114.700	583.000	115.100	582.900	115.600
GR	582.800	116.000	582.800	116.400	582.700	116.800	582.600	117.300	582.500	117.700
GR	582.500	118.100	582.400	118.500	582.300	119.000	582.300	119.400	582.300	119.800
GR	582.300	120.200	582.300	120.700	582.300	121.100	582.400	121.500	582.400	121.900
GR	582.400	122.400	582.500	122.800	582.500	123.200	582.500	123.600	582.600	124.100
GR	582.900	124.500	583.500	124.900	584.000	125.300	584.500	125.800	585.000	126.200
GR	585.300	127.100	585.500	128.000	585.800	128.800	586.100	129.700	586.500	130.600
GR	587.000	131.500	587.400	132.400	587.900	133.300	588.400	134.100	588.900	135.000
GR	589.400	135.900	589.900	136.800	590.400	137.700	591.000	138.600	591.500	139.400
GR	592.000	140.300	592.500	141.200	593.100	142.100	593.500	143.000	594.100	143.900
GR	594.600	144.700	595.100	145.600	595.600	146.500	596.200	147.400	596.700	148.300
GR	597.200	149.200	597.700	150.000	598.200	150.900	598.700	151.800	599.300	152.700
X1	900.000	90.000	189.000	201.500	250.000	250.000	250.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	605.300	0.000	603.600	6.500	601.800	13.000	600.100	19.500	598.800	26.000
GR	598.400	32.500	598.000	39.100	597.600	45.600	597.200	52.100	596.800	58.600
GR	596.400	65.100	596.000	71.600	595.600	78.200	595.200	84.700	594.800	91.200
GR	594.400	97.700	593.900	104.200	593.500	110.700	593.000	117.300	592.600	123.800
GR	592.200	130.300	591.600	136.800	590.600	143.300	589.600	149.800	589.000	156.400
GR	588.400	162.900	588.000	169.400	588.100	175.900	587.900	182.400	584.700	189.000
GR	584.500	189.400	584.400	189.800	584.300	190.200	584.100	190.600	584.000	191.000
GR	584.000	191.400	584.000	191.900	583.900	192.300	583.900	192.700	583.900	193.100
GR	583.800	193.500	583.800	193.900	583.800	194.400	583.700	194.800	583.800	195.200
GR	583.800	195.600	583.800	196.000	583.800	196.400	583.900	196.900	583.900	197.300
GR	583.900	197.700	584.000	198.100	584.000	198.500	584.100	198.900	584.100	199.400
GR	584.600	199.800	585.400	200.200	586.100	200.600	586.800	201.000	587.500	201.500
GR	587.500	202.500	587.500	203.500	587.500	204.500	587.500	205.600	587.900	206.600
GR	588.400	207.600	588.900	208.700	589.400	209.700	590.000	210.700	590.600	211.800
GR	591.200	212.800	591.800	213.800	592.400	214.900	593.000	215.900	593.700	216.900
GR	594.300	218.000	594.900	219.000	595.500	220.000	596.100	221.100	596.700	222.100
GR	597.300	223.100	597.900	224.200	598.600	225.200	599.200	226.200	599.800	227.300
GR	600.400	228.300	601.000	229.300	601.600	230.400	602.200	231.400	602.900	232.500
X1	1125.000	90.000	264.500	276.700	175.000	275.000	225.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	607.000	0.000	604.800	9.100	602.600	18.200	600.400	27.300	598.900	36.400
GR	598.600	45.600	598.400	54.700	598.200	63.800	598.000	72.900	597.800	82.000
GR	597.600	91.200	597.400	100.300	597.200	109.400	597.000	118.500	596.700	127.600
GR	596.500	136.800	596.200	145.900	595.900	155.000	595.600	164.100	595.400	173.200
GR	595.100	182.400	594.700	191.500	593.500	200.600	592.400	209.700	591.400	218.800
GR	590.400	228.000	589.800	237.100	590.000	246.200	590.100	255.300	585.600	264.500
GR	585.400	264.900	585.400	265.300	585.300	265.700	585.200	266.100	585.100	266.500
GR	585.100	266.900	585.100	267.300	585.100	267.700	585.100	268.100	585.100	268.500
GR	585.100	268.900	585.100	269.300	585.200	269.800	585.100	270.200	585.200	270.600
GR	585.200	271.000	585.200	271.400	585.300	271.800	585.300	272.200	585.400	272.600
GR	585.400	273.000	585.400	273.400	585.500	273.800	585.600	274.200	585.700	274.700
GR	586.000	275.100	586.500	275.500	586.900	275.900	587.300	276.300	587.700	276.700
GR	587.900	277.900	588.200	279.100	588.500	280.200	588.800	281.400	589.300	282.600
GR	589.800	283.800	590.400	285.000	590.900	286.200	591.600	287.300	592.300	288.500
GR	593.000	289.700	593.700	290.900	594.400	292.100	595.100	293.300	595.800	294.400
GR	596.500	295.600	597.200	296.800	597.900	298.000	598.600	299.200	599.300	300.400
GR	600.100	301.500	600.700	302.700	601.500	303.900	602.200	305.100	602.900	306.300
GR	603.600	307.500	604.300	308.600	605.000	309.800	605.700	311.000	606.500	312.200

Locating of A

X1	1350.000	13.000	340.000	352.000	175.000	275.000	225.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	608.900	0.000	599.200	12.000	598.900	52.000	598.900	152.000	598.100	244.000
GR	591.600	302.000	592.400	329.000	586.500	340.000	586.300	342.000	587.000	349.000
GR	587.900	352.000	592.600	363.000	610.100	392.000	-0.000	-0.000	-0.000	-0.000
X1	1412.000	90.000	340.700	351.500	62.000	62.000	62.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	608.900	0.000	606.100	11.700	603.400	23.500	600.700	35.200	599.000	47.000
GR	598.900	58.700	598.900	70.500	598.900	82.200	598.900	93.900	598.900	105.700
GR	598.900	117.400	598.900	129.200	598.800	140.900	598.800	152.700	598.700	164.400
GR	598.600	176.200	598.500	187.900	598.400	199.700	598.300	211.400	598.200	223.200
GR	598.100	234.900	597.700	246.700	596.400	258.400	595.100	270.200	593.800	281.900
GR	592.800	293.700	592.000	305.400	592.300	317.200	592.000	328.900	586.800	340.700
GR	586.500	341.100	586.400	341.400	586.400	341.800	586.400	342.100	586.400	342.500
GR	586.400	342.800	586.400	343.200	586.500	343.600	586.500	343.900	586.500	344.300
GR	586.600	344.600	586.600	345.000	586.600	345.400	586.600	345.700	586.700	346.100
GR	586.700	346.400	586.700	346.800	586.800	347.100	586.800	347.500	586.900	347.900
GR	586.900	348.200	586.900	348.600	587.000	348.900	587.100	349.300	587.200	349.700
GR	587.300	350.000	587.400	350.400	587.400	350.700	587.500	351.100	587.900	351.500
GR	588.400	352.800	589.000	354.200	589.600	355.500	590.200	356.800	590.700	358.200
GR	591.300	359.500	591.900	360.900	592.400	362.200	593.100	363.600	593.900	364.900
GR	594.700	366.300	595.500	367.600	596.300	369.000	597.100	370.300	597.900	371.700
GR	598.700	373.000	599.500	374.400	600.400	375.700	601.100	377.100	601.900	378.400
GR	602.800	379.800	603.600	381.100	604.400	382.500	605.200	383.800	606.000	385.200
GR	606.800	386.500	607.600	387.900	608.400	389.200	609.200	390.600	610.100	392.000
X1	1474.000	90.000	341.500	351.000	62.000	62.000	62.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	608.900	0.000	606.100	11.700	603.400	23.500	600.700	35.300	599.000	47.100
GR	598.900	58.800	598.900	70.600	598.900	82.400	598.900	94.200	598.900	105.900
GR	598.900	117.700	598.900	129.500	598.900	141.300	598.800	153.000	598.700	164.800
GR	598.600	176.600	598.500	188.400	598.400	200.100	598.300	211.900	598.200	223.700
GR	598.100	235.500	597.700	247.200	596.400	259.000	595.100	270.800	593.800	282.600
GR	593.100	294.300	592.500	306.100	592.600	317.900	591.800	329.700	587.200	341.500
GR	586.600	341.700	586.600	342.000	586.500	342.300	586.500	342.600	586.500	342.900
GR	586.500	343.300	586.600	343.600	586.600	343.900	586.600	344.200	586.600	344.600
GR	586.700	344.900	586.700	345.200	586.700	345.500	586.700	345.900	586.700	346.200
GR	586.800	346.500	586.800	346.800	586.800	347.200	586.900	347.500	586.900	347.800
GR	586.900	348.100	586.900	348.500	587.000	348.800	587.100	349.100	587.100	349.400
GR	587.200	349.800	587.300	350.100	587.300	350.400	587.400	350.700	587.900	351.000
GR	588.500	352.300	589.000	353.700	589.600	355.000	590.200	356.400	590.700	357.800
GR	591.300	359.100	591.900	360.500	592.400	361.900	593.100	363.200	593.800	364.600
GR	594.700	366.000	595.500	367.300	596.300	368.700	597.100	370.100	597.900	371.400
GR	598.700	372.800	599.500	374.200	600.300	375.500	601.100	376.900	601.900	378.300
GR	602.800	379.600	603.600	381.000	604.400	382.400	605.200	383.700	606.000	385.100
GR	606.800	386.500	607.600	387.800	608.400	389.200	609.200	390.600	610.100	392.000
X1	1537.000	90.000	342.200	350.500	63.000	63.000	63.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	608.900	0.000	606.100	11.800	603.400	23.600	600.700	35.400	599.000	47.200
GR	598.900	59.000	598.900	70.800	598.900	82.600	598.900	94.400	598.900	106.200
GR	598.900	118.000	598.900	129.800	598.800	141.600	598.800	153.400	598.700	165.200
GR	598.600	177.000	598.500	188.800	598.400	200.600	598.300	212.400	598.200	224.200
GR	598.100	236.000	597.600	247.800	596.300	259.600	595.000	271.400	593.800	283.200
GR	593.300	295.000	592.900	306.800	592.900	318.600	591.500	330.400	587.600	342.200
GR	586.700	342.400	586.600	342.600	586.600	342.900	586.600	343.200	586.600	343.500
GR	586.600	343.800	586.700	344.100	586.700	344.300	586.700	344.600	586.700	344.900
GR	586.700	345.200	586.700	345.500	586.700	345.800	586.700	346.000	586.800	346.300
GR	586.800	346.600	586.800	346.900	586.800	347.200	586.900	347.500	586.900	347.700
GR	586.900	348.000	586.900	348.300	587.000	348.600	587.000	348.900	587.000	349.200
GR	587.100	349.400	587.100	349.700	587.100	350.000	587.200	350.300	587.900	350.500
GR	588.500	351.800	589.000	353.200	589.600	354.600	590.200	356.000	590.700	357.400
GR	591.300	358.700	591.900	360.100	592.400	361.500	593.000	362.900	593.800	364.300
GR	594.600	365.700	595.400	367.000	596.200	368.400	597.000	369.800	597.900	371.200

GR	598.700	372.600	599.500	374.000	600.300	375.300	601.100	376.700	601.900	378.100
GR	602.800	379.500	603.600	380.900	604.400	382.300	605.200	383.600	606.000	385.000
GR	606.800	386.400	607.600	387.800	608.400	389.200	609.200	390.600	610.100	392.000
X1	1570.000	-0.000	-0.000	-0.000	33.000	33.000	33.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1580.000	-0.000	-0.000	-0.000	10.000	10.000	10.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	337.900	-0.000	354.900	-0.000	-0.000	-0.000	-0.000
X1	1590.000	-0.000	-0.000	-0.000	10.000	10.000	10.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	340.400	-0.000	352.400	-0.000	-0.000	-0.000	-0.000
X1	1600.000	14.000	343.000	350.000	10.000	10.000	10.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	590.600	590.600	-0.000
GR	608.900	0.000	599.200	42.000	598.900	52.000	598.900	152.000	598.100	244.000
GR	593.900	282.000	593.100	325.000	588.000	343.000	586.800	343.000	586.900	346.500
GR	587.100	350.000	588.000	350.000	593.200	363.000	610.100	392.000	-0.000	-0.000
SB	-0.000	11.680	2.500	-0.000	6.000	-0.000	28.000	-0.000	587.300	586.800
X1	1870.000	16.000	70.000	76.000	270.000	270.000	270.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	590.800	597.800	-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	597.800	597.800	-0.000
BT	13.000	0.000	616.300	0.000	24.000	597.800	0.000	44.000	597.800	0.000
BT	62.000	597.800	0.000	70.000	597.800	588.800	71.000	597.800	590.300	73.000
BT	597.800	590.800	75.000	597.800	590.300	76.000	597.800	588.800	126.000	600.000
BT	0.000	176.000	602.100	0.000	276.000	606.000	0.000	326.000	608.000	0.000
GR	616.300	0.000	597.800	24.000	597.800	44.000	597.800	55.000	588.700	70.000
GR	587.800	70.000	587.300	71.000	587.300	73.000	587.300	75.000	587.800	76.000
GR	588.800	76.000	598.500	92.000	600.000	126.000	602.100	176.000	606.000	276.000
GR	608.000	326.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	3.000	.065	70.000	.042	83.000	.065	130.000	-0.000	-0.000	-0.000
X1	1875.000	11.000	62.000	90.000	5.000	5.000	5.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	68.000	-0.000	84.000	-0.000	-0.000	-0.000	-0.000
GR	618.900	0.000	597.300	31.000	597.500	44.000	597.000	62.000	587.300	70.000
GR	587.400	75.000	587.700	78.000	590.200	83.000	596.300	90.000	596.800	100.000
GR	618.200	130.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1879.000	-0.000	-0.000	-0.000	4.000	4.000	4.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	62.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1931.000	11.000	62.000	90.000	52.000	52.000	52.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	62.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	618.900	0.000	596.100	31.000	596.300	44.000	595.800	62.000	587.500	70.000
GR	587.600	75.000	587.900	78.000	590.400	83.000	595.100	90.000	595.600	100.000
GR	618.200	130.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1970.000	11.000	62.000	90.000	39.000	39.000	39.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	62.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	618.900	0.000	595.300	31.000	595.500	44.000	595.000	62.000	587.600	70.000
GR	587.700	75.000	588.000	78.000	590.500	83.000	594.300	90.000	594.800	100.000
GR	618.200	130.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2070.000	11.000	62.000	90.000	100.000	100.000	100.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	62.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	618.900	0.000	594.600	31.000	594.800	44.000	594.300	62.000	587.900	70.000
GR	588.000	75.000	588.300	78.000	590.800	83.000	593.600	90.000	594.700	100.000
GR	618.200	130.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2170.000	12.000	62.000	90.000	100.000	100.000	100.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	62.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	618.900	0.000	594.500	31.000	594.400	44.000	593.900	62.000	588.100	70.000
GR	588.200	75.000	588.500	78.000	591.000	83.000	593.300	90.000	593.200	110.000
GR	594.000	125.000	618.200	140.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

X1	2270.000	12.000	62.000	90.000	100.000	100.000	100.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	62.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	618.900	0.000	594.500	31.000	594.700	44.000	594.200	62.000	588.400	70.000
GR	588.500	75.000	588.800	78.000	591.300	83.000	593.500	90.000	593.400	110.000
GR	594.200	125.000	618.200	140.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2370.000	12.000	62.000	90.000	100.000	100.000	100.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	62.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	618.900	0.000	595.000	31.000	595.200	44.000	594.700	62.000	588.700	70.000
GR	588.800	75.000	589.100	78.000	591.600	83.000	594.000	90.000	593.900	112.000
GR	594.700	142.000	618.200	176.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2455.000	12.000	62.000	90.000	85.000	85.000	85.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	62.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	618.900	0.000	595.400	31.000	595.600	44.000	595.100	62.000	588.900	70.000
GR	589.000	75.000	589.300	78.000	591.800	83.000	594.400	90.000	594.300	112.000
GR	595.100	142.000	618.200	176.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2540.000	12.000	62.000	90.000	85.000	85.000	85.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	62.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	618.900	0.000	596.800	31.000	596.000	44.000	595.500	62.000	589.200	70.000
GR	589.300	75.000	589.600	78.000	592.100	83.000	594.800	90.000	594.700	110.000
GR	595.500	125.000	618.200	140.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2620.000	12.000	62.000	90.000	80.000	80.000	80.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	62.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	618.900	0.000	596.500	31.000	596.700	44.000	596.200	62.000	589.400	70.000
GR	589.500	75.000	589.800	78.000	592.300	83.000	595.500	90.000	595.600	96.000
GR	596.400	105.000	618.200	115.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2700.000	-0.000	-0.000	-0.000	80.000	80.000	80.000	-0.000	.200	-0.000
X3	10.000	-0.000	-0.000	62.000	-0.000	98.000	-0.000	-0.000	-0.000	-0.000
NC	.065	.065	.035	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2720.000	19.000	91.500	98.500	20.000	20.000	20.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	594.200	594.200	-0.000
GR	619.600	0.000	598.200	42.000	597.700	61.000	597.100	78.000	594.000	85.000
GR	591.200	91.500	590.500	91.500	590.200	91.800	589.900	92.600	589.800	93.600
GR	589.700	95.000	589.800	96.400	589.900	97.400	590.200	98.200	590.500	98.500
GR	591.200	98.500	596.000	110.000	596.300	130.000	617.000	162.000	-0.000	-0.000
SB	-0.000	2.130	2.650	-0.000	7.000	-0.000	25.300	-0.000	589.700	589.700
X1	2746.000	-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	594.200	595.900	-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	595.900	595.900	-0.000
BT	16.000	0.000	619.600	0.000	42.000	598.200	0.000	61.000	597.700	0.000
BT	78.000	597.100	0.000	85.000	596.500	0.000	91.500	595.900	591.200	91.800
BT	595.900	592.200	92.600	595.900	593.200	93.600	595.900	593.900	95.000	595.900
BT	594.200	96.400	595.900	593.900	97.400	595.900	593.200	98.200	595.900	592.200
BT	98.500	595.900	591.200	130.000	596.300	0.000	162.000	617.000	0.000	-0.000
NH	3.000	.065	113.000	.042	125.000	.065	164.000	-0.000	-0.000	-0.000
X1	2846.000	13.000	107.000	132.000	100.000	100.000	100.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	612.700	0.000	603.800	19.000	603.200	23.000	604.400	37.000	603.300	58.000
GR	603.200	83.000	598.600	91.000	598.100	107.000	590.800	113.000	590.100	119.000
GR	590.700	125.000	597.900	132.000	622.900	164.000	-0.000	-0.000	-0.000	-0.000
X1	2946.000	14.000	107.000	132.000	100.000	100.000	100.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	612.700	0.000	603.800	19.000	603.200	23.000	603.400	37.000	603.300	58.000
GR	608.100	70.000	599.000	91.000	598.500	107.000	591.200	113.000	590.500	119.000
GR	591.100	125.000	598.300	132.000	598.800	152.000	622.900	184.000	-0.000	-0.000
X1	3046.000	14.000	107.000	132.000	100.000	100.000	100.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

GR	612.700	0.000	603.800	19.000	603.200	23.000	603.400	37.000	603.300	58.000
GR	608.100	70.000	599.500	91.000	599.000	107.000	591.700	113.000	591.000	119.000
GR	591.600	125.000	598.800	132.000	599.800	200.000	622.900	232.000	-0.000	-0.000
X1	3146.000	14.000	107.000	132.000	100.000	100.000	100.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	612.700	0.000	603.800	19.000	603.200	23.000	603.400	37.000	603.300	58.000
GR	608.100	70.000	599.900	91.000	599.400	107.000	592.100	113.000	591.400	119.000
GR	592.000	125.000	599.200	132.000	599.700	152.000	622.900	184.000	-0.000	-0.000
X1	3221.000	13.000	107.000	132.000	75.000	75.000	75.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	612.700	0.000	603.800	19.000	603.200	23.000	603.400	37.000	603.300	58.000
GR	608.100	70.000	600.200	91.000	599.700	107.000	592.400	113.000	591.700	119.000
GR	592.300	125.000	599.500	132.000	622.900	164.000	-0.000	-0.000	-0.000	-0.000
X1	3321.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.400	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3421.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.400	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3446.000	-0.000	-0.000	-0.000	25.000	25.000	25.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3471.000	-0.000	-0.000	-0.000	25.000	25.000	25.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3480.000	-0.000	-0.000	-0.000	9.000	9.000	9.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3488.000	-0.000	-0.000	-0.000	8.000	8.000	8.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	114.000	-0.000	126.000	-0.000	-0.000	-0.000	-0.000
X1	3488.000	-0.000	-0.000	-0.000	8.000	8.000	8.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	114.000	-0.000	126.000	-0.000	-0.000	-0.000	-0.000
X1	3492.000	-0.000	-0.000	-0.000	4.000	4.000	4.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	115.000	-0.000	125.000	-0.000	-0.000	-0.000	-0.000
NC	.065	.065	.033	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3496.000	24.000	185.300	194.700	4.000	4.000	4.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	597.900	597.900	-0.000
GR	611.700	0.000	602.000	19.000	601.700	42.000	601.800	90.000	603.100	153.000
GR	602.800	172.000	600.000	179.000	595.300	185.300	593.800	185.300	592.800	186.800
GR	592.800	187.800	593.800	189.300	595.300	189.300	600.700	189.300	600.700	190.700
GR	595.800	190.700	594.300	190.700	593.300	192.200	593.300	193.200	594.300	194.700
GR	595.800	194.700	600.700	194.700	600.700	196.000	624.300	233.000	-0.000	-0.000
SB	-0.000	2.880	2.800	-0.000	8.000	-0.000	25.140	-0.000	593.700	592.800
X1	3539.000	24.000	185.300	194.700	43.000	43.000	43.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	597.900	600.700	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	600.700	600.700	-0.000
BT	16.000	0.000	611.700	0.000	19.000	602.000	0.000	42.000	601.700	0.000
BT	90.000	601.800	0.000	153.000	603.100	0.000	172.000	602.800	0.000	185.300
BT	600.800	596.200	186.800	600.800	597.700	187.800	600.700	597.700	189.300	600.700
BT	596.200	190.700	600.700	596.400	192.200	600.700	597.900	193.200	600.700	597.900
BT	194.700	600.700	596.400	196.000	600.500	0.000	233.000	624.300	0.000	-0.000
GR	611.700	0.000	602.000	19.000	601.700	42.000	601.800	90.000	603.100	153.000
GR	602.800	172.000	600.000	179.000	596.200	185.300	594.700	185.300	593.700	186.800
GR	593.700	187.800	594.700	189.300	596.200	189.300	600.700	189.300	600.700	190.700
GR	596.400	190.700	594.900	190.700	593.900	192.200	593.900	193.200	594.900	194.700
GR	596.400	194.700	600.700	194.700	600.700	196.000	624.300	233.000	-0.000	-0.000
NH	3.000	.065	113.000	.042	125.000	.065	164.000	-0.000	-0.000	-0.000
X1	3543.000	13.000	107.000	132.000	4.000	4.000	4.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	112.000	-0.000	128.000	-0.000	-0.000	-0.000	-0.000
GR	612.700	0.000	603.800	19.000	603.200	23.000	603.400	37.000	603.300	58.000
GR	608.100	70.000	600.200	91.000	599.700	107.000	594.400	113.000	593.700	119.000

GR	594.300	125.000	599.500	132.000	622.900	164.000	-0.000	-0.000	-0.000	-0.000
X1	3547.000	-0.000	-0.000	-0.000	4.000	4.000	4.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	108.000	-0.000	132.000	-0.000	-0.000	-0.000	-0.000
X1	3714.000	-0.000	-0.000	-0.000	167.000	167.000	167.000	-0.000	.500	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3889.000	-0.000	-0.000	-0.000	175.000	175.000	175.000	-0.000	.400	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	3.000	.065	206.000	.042	217.000	.065	357.000	-0.000	-0.000	-0.000
X1	4064.000	15.000	183.000	228.000	175.000	175.000	175.000	-0.000	-.400	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	612.600	0.000	611.800	100.000	608.600	124.000	608.900	137.000	608.600	153.000
GR	606.200	183.000	599.200	200.000	595.700	206.000	595.500	211.000	595.600	217.000
GR	604.400	228.000	603.600	250.000	602.400	300.000	602.400	319.000	627.000	357.000
X1	4239.000	15.000	183.000	228.000	175.000	175.000	175.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	612.600	0.000	611.800	100.000	608.600	124.000	608.900	137.000	608.600	153.000
GR	606.200	183.000	599.200	200.000	595.700	206.000	595.500	211.000	595.600	217.000
GR	604.400	228.000	603.600	250.000	602.400	300.000	602.400	319.000	627.000	357.000
X1	4339.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.700	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4369.000	-0.000	-0.000	-0.000	30.000	30.000	30.000	-0.000	.200	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4381.000	-0.000	-0.000	-0.000	12.000	12.000	12.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	202.000	-0.000	218.000	-0.000	-0.000	-0.000	-0.000
NC	.065	.065	.042	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4389.000	19.000	398.000	410.000	8.000	8.000	8.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	615.500	0.000	611.900	100.000	612.300	200.000	612.000	238.000	608.500	300.000
GR	606.600	350.000	605.600	389.500	605.600	390.500	605.600	398.000	598.800	398.000
GR	597.200	400.000	596.500	404.000	597.100	409.000	597.700	410.000	605.400	410.000
GR	605.300	450.000	605.600	500.000	608.700	600.000	615.900	698.000	-0.000	-0.000
NC	.065	.065	.032	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4390.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
BT	17.000	0.000	615.500	0.000	100.000	611.900	0.000	200.000	612.300	0.000
BT	238.000	612.000	0.000	300.000	608.500	0.000	350.000	606.600	0.000	389.500
BT	605.600	0.000	390.500	605.600	0.000	398.000	605.600	602.700	400.000	605.600
BT	602.700	404.000	605.500	602.700	409.000	605.400	602.800	410.000	605.400	602.800
BT	450.000	605.300	0.000	500.000	605.600	0.000	600.000	608.700	0.000	698.000
BT	615.900	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4410.000	18.000	390.000	402.000	20.000	20.000	20.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
BT	16.000	0.000	615.500	0.000	100.000	611.900	0.000	200.000	612.300	0.000
BT	238.000	612.000	0.000	300.000	608.500	0.000	350.000	606.600	0.000	390.000
BT	605.600	602.700	390.500	605.600	602.700	396.000	605.600	602.700	401.000	605.500
BT	602.800	402.000	605.500	602.800	410.500	605.400	0.000	450.000	605.300	0.000
BT	500.000	605.600	0.000	600.000	608.700	0.000	698.000	615.900	0.000	-0.000
GR	615.500	0.000	611.900	100.000	612.300	200.000	612.000	238.000	608.500	300.000
GR	606.600	350.000	605.600	390.000	598.300	390.000	597.400	390.500	596.900	396.000
GR	597.100	401.000	597.800	402.000	605.500	402.000	605.400	410.500	605.300	450.000
GR	605.600	500.000	608.700	600.000	615.900	698.000	-0.000	-0.000	-0.000	-0.000
NC	.065	.065	.045	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4411.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

NH	3.000	.065	206.000	.045	1217.000	.065	357.000	-0.000	-0.000	-0.000
X1	4415.000	15.000	183.000	228.000	4.000	4.000	4.000	-0.000	1.400	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	612.600	0.000	611.800	100.000	608.600	124.000	608.900	137.000	608.600	153.000
GR	606.200	183.000	599.200	200.000	595.700	206.000	595.500	211.000	595.600	217.000
GR	604.400	228.000	603.600	250.000	602.400	300.000	602.400	319.000	627.000	357.000
X1	4510.000	-0.000	-0.000	-0.000	95.000	95.000	95.000	-0.000	.300	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4610.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.200	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.065	.065	.045	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4709.000	20.000	138.000	170.000	99.000	99.000	99.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	615.900	0.000	610.600	70.000	609.500	105.000	608.800	138.000	603.000	138.000
GR	598.200	146.000	597.800	149.200	597.700	152.200	598.300	157.800	600.300	157.800
GR	602.600	164.400	605.000	164.400	606.700	170.000	608.100	170.000	608.000	210.000
GR	609.000	260.000	609.100	283.000	612.100	370.000	612.700	384.000	630.700	423.000
NC	.070	.070	.035	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4710.000	26.000	138.000	170.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
BT	18.000	0.000	615.900	0.000	70.000	610.600	0.000	105.000	609.500	0.000
BT	138.000	608.800	607.500	146.000	608.600	607.400	149.200	608.500	607.300	150.400
BT	608.500	607.300	151.100	608.500	607.200	152.200	608.500	607.200	157.800	608.400
BT	607.100	164.400	608.200	607.000	170.000	608.100	606.900	210.000	608.000	0.000
BT	260.000	609.000	0.000	283.000	609.100	0.000	370.000	612.100	0.000	384.000
BT	612.700	0.000	423.000	630.700	0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	615.900	0.000	610.600	70.000	609.500	105.000	608.800	138.000	603.000	138.000
GR	598.200	146.000	597.800	149.200	598.600	149.200	598.600	150.400	607.300	150.400
GR	607.200	151.100	598.600	151.100	598.600	152.200	597.700	152.200	598.300	157.800
GR	600.300	157.800	602.600	164.400	605.000	164.400	606.700	170.000	608.100	170.000
GR	608.000	210.000	609.000	260.000	609.100	283.000	612.100	370.000	612.700	384.000
GR	630.700	423.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4722.000	-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	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.070	.070	.045	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4723.000	20.000	138.000	170.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	615.900	0.000	610.600	70.000	609.500	105.000	608.800	138.000	603.000	138.000
GR	598.200	146.000	597.800	149.200	597.700	152.200	598.300	157.800	600.300	157.800
GR	602.600	164.400	605.000	164.400	606.700	170.000	608.100	170.000	608.000	210.000
GR	609.000	260.000	609.100	283.000	612.100	370.000	612.700	384.000	630.700	423.000
X1	4797.000	15.000	183.000	228.000	74.000	74.000	74.000	-0.000	2.200	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	612.600	0.000	611.800	100.000	608.600	124.000	608.900	137.000	608.600	153.000
GR	606.200	183.000	599.200	200.000	595.700	206.000	595.500	211.000	595.600	217.000
GR	604.400	228.000	603.600	250.000	602.400	300.000	602.400	319.000	627.000	357.000
X1	4803.000	-0.000	-0.000	-0.000	6.000	6.000	6.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	200.000	-0.000	218.000	-0.000	-0.000	-0.000	-0.000
X1	4809.000	-0.000	-0.000	-0.000	6.000	6.000	6.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	200.000	-0.000	215.000	-0.000	-0.000	-0.000	-0.000
X1	4815.000	-0.000	-0.000	-0.000	6.000	6.000	6.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	200.000	-0.000	212.000	-0.000	-0.000	-0.000	-0.000
X1	4821.000	-0.000	-0.000	-0.000	6.000	6.000	6.000	-0.000	-0.000	-0.000

X3	10.000	-0.000	-0.000	202.000	-0.000	211.000	-0.000	-0.000	-0.000	-0.000
X1	4824.000	-0.000	-0.000	-0.000	3.000	3.000	3.000	-0.000	-.040	-0.000
X3	10.000	-0.000	-0.000	203.000	-0.000	210.000	-0.000	-0.000	-0.000	-0.000
NC	.070	.070	.050	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4826.000	18.000	138.000	144.000	2.000	2.000	2.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	614.400	0.000	612.100	41.000	609.200	81.000	609.700	104.000	610.300	138.000
GR	600.700	138.000	599.700	138.000	598.200	139.000	597.700	140.000	597.700	142.000
GR	598.200	143.000	599.700	144.000	600.700	144.000	610.300	144.000	611.500	191.000
GR	616.200	233.000	616.500	261.000	617.500	279.000	-0.000	-0.000	-0.000	-0.000
NC	.070	.070	.030	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4827.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
BT	14.000	0.000	614.400	0.000	41.000	612.100	0.000	81.000	609.200	0.000
BT	104.000	609.700	0.000	138.000	610.300	600.700	139.000	610.300	603.200	140.000
BT	610.300	603.700	142.000	610.300	603.700	143.000	610.300	603.200	144.000	610.300
BT	600.700	191.000	611.500	0.000	233.000	616.200	0.000	261.000	616.500	0.000
BT	279.000	617.500	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4852.000	-0.000	-0.000	-0.000	25.000	25.000	25.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.045	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4853.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4854.000	13.000	202.000	247.000	1.000	1.000	1.000	-0.000	-1.900	-0.000
X3	10.000	-0.000	-0.000	221.000	-0.000	229.000	-0.000	-0.000	-0.000	-0.000
GR	626.900	0.000	614.500	25.000	614.600	41.000	614.800	93.000	612.600	152.000
GR	612.500	182.000	612.000	202.000	599.600	222.000	600.000	231.000	599.400	238.000
GR	606.600	247.000	608.700	302.000	618.800	320.000	-0.000	-0.000	-0.000	-0.000
X1	4860.000	-0.000	-0.000	-0.000	6.000	6.000	6.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	215.000	-0.000	235.000	-0.000	-0.000	-0.000	-0.000
X1	4866.000	-0.000	-0.000	-0.000	6.000	6.000	6.000	-0.000	.200	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5077.000	13.000	202.000	247.000	211.000	211.000	211.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	626.900	0.000	614.500	25.000	614.600	41.000	614.800	93.000	612.600	152.000
GR	612.500	182.000	612.000	202.000	599.600	222.000	600.000	231.000	599.400	238.000
GR	606.600	247.000	608.700	302.000	618.800	320.000	-0.000	-0.000	-0.000	-0.000
X1	5127.000	-0.000	-0.000	-0.000	50.000	50.000	50.000	-0.000	.800	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5177.000	-0.000	-0.000	-0.000	50.000	50.000	50.000	-0.000	.900	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5197.000	-0.000	-0.000	-0.000	20.000	20.000	20.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.045	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5226.000	15.000	296.500	303.500	29.000	29.000	29.000	-0.000	-0.000	-0.000
GR	654.500	0.000	654.600	100.000	654.600	200.000	654.200	296.500	606.600	296.500
GR	604.200	296.500	602.400	298.000	601.900	300.000	602.400	302.000	604.200	303.500
GR	606.600	303.500	654.200	303.500	653.900	400.000	653.800	500.000	653.600	600.000
NC	.080	.080	.032	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5227.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
BT	11.000	0.000	654.500	0.000	100.000	654.600	0.000	200.000	654.600	0.000

BT	296.500	654.200	606.600	298.000	654.200	608.400	300.000	654.200	608.900	302.000
BT	654.200	608.400	303.500	654.200	606.600	400.000	653.900	0.000	500.000	653.800
BT	0.000	600.000	653.600	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5285.000	-0.000	-0.000	-0.000	58.000	58.000	58.000	-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
X1	5343.000	-0.000	-0.000	-0.000	58.000	58.000	58.000	-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
X1	5401.000	-0.000	-0.000	-0.000	58.000	58.000	58.000	-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
X1	5459.000	-0.000	-0.000	-0.000	58.000	58.000	58.000	-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
X1	5517.000	-0.000	-0.000	-0.000	58.000	58.000	58.000	-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
X1	5575.000	-0.000	-0.000	-0.000	58.000	58.000	58.000	-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
X1	5608.000	15.000	296.500	303.500	33.000	33.000	33.000	-0.000	-0.000	-0.000
BT	11.000	0.000	654.500	0.000	100.000	654.600	0.000	200.000	654.600	0.000
BT	296.500	654.200	607.900	298.000	654.200	609.700	300.000	654.200	610.200	302.000
BT	654.200	609.700	303.500	654.200	607.900	400.000	653.900	0.000	500.000	653.800
BT	0.000	600.000	653.600	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	654.500	0.000	654.600	100.000	654.600	200.000	654.200	296.500	607.900	296.500
GR	605.500	296.500	603.700	298.000	603.200	300.000	603.700	302.000	605.500	303.500
GR	607.900	303.500	654.200	303.500	653.900	400.000	653.800	500.000	653.600	600.000
X1	5609.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
NH	3.000	.080	103.000	.050	109.000	.080	148.000	-0.000	-0.000	-0.000
X1	5615.000	10.000	100.000	113.000	6.000	6.000	6.000	-0.000	-1.300	-0.000
X3	10.000	-0.000	-0.000	96.000	-0.000	117.000	-0.000	-0.000	-0.000	-0.000
GR	623.100	0.000	612.900	81.000	608.000	93.000	607.300	100.000	604.900	103.000
GR	604.700	106.000	605.200	109.000	606.400	113.000	607.700	121.000	622.900	148.000
X1	5622.000	-0.000	-0.000	-0.000	7.000	7.000	7.000	-0.000	.200	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5658.000	10.000	100.000	113.000	36.000	36.000	36.000	-0.000	-0.000	-0.000
GR	623.100	0.000	612.900	81.000	608.000	93.000	607.300	100.000	604.900	103.000
GR	604.700	106.000	605.200	109.000	606.400	113.000	607.700	121.000	622.900	148.000
NH	3.000	.080	107.000	.050	110.000	.080	188.400	-0.000	-0.000	-0.000
X1	5763.000	90.000	100.000	117.000	105.000	105.000	105.000	-0.000	-0.000	-0.000
GR	623.800	0.000	623.400	3.400	623.000	6.800	622.500	10.300	622.100	13.700
GR	621.700	17.200	621.200	20.600	620.800	24.100	620.400	27.500	619.900	31.000
GR	619.500	34.400	618.800	37.900	618.000	41.300	617.300	44.800	616.500	48.200
GR	616.100	51.700	615.700	55.100	615.400	58.600	615.100	62.000	614.700	65.500
GR	614.400	68.900	614.100	72.400	613.700	75.800	613.400	79.300	612.600	82.700
GR	611.500	86.200	610.400	89.600	609.300	93.100	609.100	96.500	608.800	100.000
GR	608.400	100.500	608.000	101.100	607.700	101.600	607.300	102.200	606.900	102.800
GR	606.500	103.300	606.200	103.900	606.100	104.500	605.900	105.000	605.900	105.600
GR	605.800	106.200	605.800	106.700	605.800	107.300	605.700	107.900	605.800	108.400
GR	605.800	109.000	605.900	109.600	606.000	110.100	606.300	110.700	606.400	111.300
GR	606.500	111.800	606.600	112.400	606.800	113.000	606.900	113.500	607.200	114.100
GR	607.400	114.700	607.700	115.200	607.900	115.800	608.100	116.400	608.400	117.000
GR	608.500	119.300	608.700	121.700	608.800	124.100	609.000	126.500	609.100	128.800
GR	609.300	131.200	609.500	133.600	610.000	136.000	610.500	138.400	611.100	140.700
GR	611.600	143.100	612.100	145.500	612.600	147.900	613.100	150.300	613.600	152.600
GR	614.100	155.000	614.700	157.400	615.200	159.800	615.700	162.200	616.200	164.500
GR	616.700	166.900	617.200	169.300	617.800	171.700	618.300	174.100	618.800	176.400
GR	619.300	178.800	619.800	181.200	621.200	183.600	622.500	186.000	623.900	188.400

I 94 culvert

QT	4.000	12.000	28.000	35.000	56.000	-0.000	-0.000	-0.000	-0.000	-0.000
NH	3.000	.080	105.000	.050	116.000	.080	228.800	-0.000	-0.000	-0.000
X1	5858.000	90.000	100.000	121.000	95.000	95.000	95.000	-0.000	-0.000	-0.000
GR	624.600	0.000	624.200	3.400	623.700	6.800	623.300	10.300	622.900	13.700
GR	622.400	17.200	622.000	20.600	621.600	24.100	621.100	27.500	620.700	31.000
GR	620.300	34.400	619.300	37.900	618.200	41.300	617.100	44.800	616.100	48.200
GR	615.600	51.700	615.400	55.100	615.200	58.600	614.900	62.000	614.700	65.500
GR	614.400	68.900	614.200	72.400	613.900	75.800	613.700	79.300	613.200	82.700
GR	612.300	86.200	611.500	89.600	610.700	93.100	610.500	96.500	610.300	100.000
GR	609.900	100.600	609.500	101.300	609.100	102.000	608.700	102.700	608.300	103.400
GR	607.900	104.100	607.500	104.800	607.300	105.500	607.100	106.200	607.000	106.900
GR	607.000	107.600	606.900	108.300	606.900	109.000	606.800	109.700	606.800	110.400
GR	606.900	111.100	606.900	111.800	607.000	112.500	607.600	113.200	607.800	113.900
GR	607.900	114.600	608.000	115.300	608.100	116.000	608.300	116.700	608.700	117.400
GR	609.000	118.100	609.400	118.800	609.700	119.500	610.100	120.200	610.400	121.000
GR	610.500	124.500	610.600	128.100	610.800	131.700	610.900	135.300	611.000	138.900
GR	611.100	142.500	611.200	146.100	611.600	149.700	612.000	153.300	612.400	156.900
GR	612.800	160.500	613.100	164.100	613.500	167.700	613.900	171.300	614.300	174.800
GR	614.600	178.400	615.000	182.000	615.400	185.600	615.800	189.200	616.100	192.800
GR	616.500	196.400	616.900	200.000	617.300	203.600	617.600	207.200	618.000	210.800
GR	618.400	214.400	618.800	218.000	620.800	221.600	622.900	225.200	624.900	228.800
NH	3.000	.080	105.000	.050	120.000	.080	269.200	-0.000	-0.000	-0.000
X1	5973.000	90.000	100.000	125.000	115.000	115.000	115.000	-0.000	-0.000	-0.000
GR	625.400	0.000	625.000	3.400	624.500	6.800	624.100	10.300	623.700	13.700
GR	623.200	17.200	622.800	20.600	622.400	24.100	621.900	27.500	621.500	31.000
GR	621.100	34.400	619.800	37.900	618.400	41.300	617.000	44.800	615.600	48.200
GR	615.200	51.700	615.000	55.100	614.900	58.600	614.800	62.000	614.600	65.500
GR	614.500	68.900	614.300	72.400	614.200	75.800	614.000	79.300	613.700	82.700
GR	613.100	86.200	612.600	89.600	612.100	93.100	612.000	96.500	611.900	100.000
GR	611.400	100.800	611.000	101.600	610.600	102.400	610.100	103.300	609.700	104.100
GR	609.300	104.900	608.800	105.800	608.500	106.600	608.200	107.400	608.100	108.300
GR	608.100	109.100	608.000	109.900	608.000	110.800	607.900	111.600	607.900	112.400
GR	607.900	113.300	607.900	114.100	608.000	114.900	608.900	115.800	609.100	116.600
GR	609.200	117.400	609.300	118.300	609.400	119.100	609.700	119.900	610.100	120.800
GR	610.600	121.600	611.100	122.400	611.500	123.300	612.000	124.100	612.500	125.000
GR	612.500	129.800	612.600	134.600	612.700	139.400	612.700	144.200	612.800	149.000
GR	612.900	153.800	613.000	158.600	613.200	163.400	613.500	168.200	613.700	173.000
GR	614.000	177.800	614.200	182.600	614.400	187.400	614.700	192.200	614.900	197.000
GR	615.100	201.900	615.400	206.700	615.600	211.500	615.800	216.300	616.100	221.100
GR	616.300	225.900	616.500	230.700	616.800	235.500	617.000	240.300	617.200	245.100
GR	617.400	249.900	617.800	254.700	620.500	259.500	623.200	264.300	625.900	269.200
NH	3.000	.080	105.000	.050	124.000	.080	309.600	-0.000	-0.000	-0.000
X1	6078.000	90.000	100.000	129.000	105.000	105.000	105.000	-0.000	-0.000	-0.000
GR	626.200	0.000	625.700	3.400	625.300	6.800	624.900	10.300	624.400	13.700
GR	624.000	17.200	623.600	20.600	623.100	24.100	622.700	27.500	622.300	31.000
GR	621.800	34.400	620.300	37.900	618.600	41.300	616.900	44.800	615.100	48.200
GR	614.700	51.700	614.700	55.100	614.600	58.600	614.600	62.000	614.500	65.500
GR	614.500	68.900	614.400	72.400	614.400	75.800	614.300	79.300	614.200	82.700
GR	614.000	86.200	613.700	89.600	613.500	93.100	613.400	96.500	613.400	100.000
GR	612.900	100.900	612.500	101.900	612.000	102.800	611.500	103.800	611.100	104.800
GR	610.600	105.700	610.200	106.700	609.800	107.700	609.400	108.600	609.300	109.600
GR	609.200	110.600	609.100	111.500	609.000	112.500	609.000	113.500	608.900	114.400
GR	608.900	115.400	608.900	116.400	609.000	117.300	610.200	118.300	610.400	119.300
GR	610.500	120.200	610.600	121.200	610.800	122.200	611.000	123.100	611.600	124.100
GR	612.200	125.100	612.800	126.000	613.400	127.000	613.900	128.000	614.500	129.000
GR	614.500	135.000	614.600	141.000	614.600	147.000	614.600	153.000	614.700	159.000
GR	614.700	165.100	614.700	171.100	614.900	177.100	615.000	183.100	615.100	189.100
GR	615.200	195.200	615.300	201.200	615.300	207.200	615.400	213.200	615.500	219.200
GR	615.600	225.300	615.700	231.300	615.800	237.300	615.900	243.300	616.000	249.300
GR	616.100	255.400	616.200	261.400	616.300	267.400	616.300	273.400	616.400	279.400
GR	616.500	285.500	616.800	291.500	620.100	297.500	623.500	303.500	626.900	309.600
NC	.080	.080	.050	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

X1	6183.000	14.000	100.000	133.000	105.000	105.000	105.000	-0.000	-0.000	-0.000
GR	627.000	0.000	622.600	35.000	614.300	49.000	615.000	100.000	610.500	110.000
GR	610.000	117.000	610.000	120.000	611.700	121.000	612.200	126.000	616.600	133.000
GR	616.500	200.000	615.800	300.000	615.600	328.000	628.000	350.000	-0.000	-0.000
X1	6193.000	-0.000	-0.000	-0.000	10.000	10.000	10.000	-0.000	-0.000	-0.000
X1	6207.000	-0.000	-0.000	-0.000	14.000	14.000	14.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6222.000	-0.000	-0.000	-0.000	15.000	15.000	15.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	111.000	-0.000	120.000	-0.000	-0.000	-0.000	-0.000
X1	6232.000	14.000	143.000	147.000	10.000	10.000	10.000	-0.000	-0.000	-0.000
X3	10.000	610.200	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	630.000	0.000	626.000	45.000	619.400	143.000	610.900	143.000	609.400	143.000
GR	608.400	144.500	608.400	145.500	609.400	147.000	610.900	147.000	619.400	147.000
GR	616.900	245.000	616.200	345.000	616.500	370.000	624.700	385.000	-0.000	-0.000
NC	.080	.030	.022	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6233.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
BT	10.000	0.000	630.000	0.000	45.000	626.000	0.000	143.000	619.400	610.900
BT	144.500	619.400	612.400	145.500	619.400	612.400	147.000	619.400	610.900	245.000
BT	616.900	0.000	345.000	616.200	0.000	370.000	616.500	0.000	385.000	624.700
BT	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6281.000	14.000	143.000	147.000	48.000	48.000	48.000	-0.000	-0.000	-0.000
X3	10.000	610.400	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
BT	10.000	0.000	630.000	0.000	45.000	626.000	0.000	143.000	619.400	611.500
BT	144.500	619.400	613.000	145.500	619.400	613.000	147.000	619.400	611.500	245.000
BT	616.900	0.000	345.000	616.200	0.000	370.000	616.500	0.000	385.000	624.700
BT	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	630.000	0.000	626.000	45.000	619.400	143.000	611.500	143.000	610.000	143.000
GR	609.000	144.500	609.000	145.500	610.000	147.000	611.500	147.000	619.400	147.000
GR	616.900	245.000	616.200	345.000	616.500	370.000	624.700	385.000	-0.000	-0.000
NC	.080	.080	.050	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6282.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X5	3.000	-0.000	611.990	612.140	613.830	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6285.000	13.000	130.000	155.000	3.000	3.000	3.000	-0.000	-2.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	628.700	0.000	625.900	30.000	622.700	42.000	621.800	113.000	618.700	130.000
GR	612.600	136.000	612.400	139.000	612.500	142.000	620.100	155.000	620.000	180.000
GR	620.300	230.000	620.200	314.000	628.800	330.000	-0.000	-0.000	-0.000	-0.000
X1	6381.000	-0.000	-0.000	-0.000	96.000	96.000	96.000	-0.000	.300	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6481.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.400	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
QT	4.000	10.000	24.000	30.000	48.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6581.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.300	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6681.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.300	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6781.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.400	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6881.000	13.000	130.000	155.000	100.000	100.000	100.000	-0.000	-0.000	-0.000
GR	628.700	0.000	625.900	30.000	622.700	42.000	621.800	113.000	618.700	130.000
GR	612.600	136.000	612.400	139.000	612.500	142.000	620.100	155.000	620.000	180.000
GR	620.300	230.000	620.200	314.000	628.800	330.000	-0.000	-0.000	-0.000	-0.000

X1	6927.000	-0.000	-0.000	-0.000	46.000	46.000	46.000	-0.000	-.100	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.050	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6930.000	15.000	298.000	302.000	3.000	3.000	3.000	-0.000	-0.000	-0.000
X3	10.000	612.300	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	631.000	0.000	629.100	100.000	624.100	200.000	618.500	298.000	614.500	298.000
GR	613.000	298.000	612.000	299.500	612.000	300.500	613.000	302.000	614.500	302.000
GR	618.500	302.000	620.700	400.000	620.600	500.000	620.700	575.000	632.900	590.000
NC	.080	.080	.033	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6931.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
BT	11.000	0.000	631.000	0.000	100.000	629.100	0.000	200.000	624.100	0.000
BT	298.000	618.500	614.500	299.500	618.500	616.000	300.500	618.500	616.000	302.000
BT	618.500	614.500	400.000	620.700	0.000	500.000	620.600	0.000	575.000	620.700
BT	0.000	590.000	632.900	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6963.000	15.000	298.000	302.000	32.000	32.000	32.000	-0.000	-0.000	-0.000
X3	10.000	612.500	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
BT	11.000	0.000	631.000	0.000	100.000	629.100	0.000	200.000	624.100	0.000
BT	298.000	618.500	614.700	299.500	618.500	616.200	300.500	618.500	616.200	302.000
BT	618.500	614.700	400.000	620.700	0.000	500.000	620.600	0.000	575.000	620.700
BT	0.000	590.000	632.900	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	631.000	0.000	629.100	100.000	624.100	200.000	618.500	298.000	614.700	298.000
GR	613.200	298.000	612.200	299.500	612.200	300.500	613.200	302.000	614.700	302.000
GR	618.500	302.000	620.700	400.000	620.600	500.000	620.700	575.000	632.900	590.000
NC	.080	.080	.050	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6964.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X1	7163.000	15.000	200.000	227.000	199.000	199.000	199.000	-0.000	-6.300	-0.000
GR	641.700	0.000	638.800	100.000	638.000	147.000	626.100	169.000	625.800	200.000
GR	621.400	207.000	620.900	209.000	622.000	212.000	623.900	219.000	625.500	227.000
GR	625.800	239.000	631.500	251.000	631.400	300.000	632.600	400.000	639.700	500.000
X1	7363.000	-0.000	-0.000	-0.000	200.000	200.000	200.000	-0.000	2.100	-0.000
X1	7563.000	-0.000	-0.000	-0.000	200.000	200.000	200.000	-0.000	2.100	-0.000
X1	7763.000	15.000	200.000	227.000	200.000	200.000	200.000	-0.000	-0.000	-0.000
GR	641.700	0.000	638.800	100.000	638.000	147.000	626.100	169.000	625.800	200.000
GR	621.400	207.000	620.900	209.000	622.000	212.000	623.900	219.000	625.500	227.000
GR	625.800	239.000	631.500	251.000	631.400	300.000	632.600	400.000	639.700	500.000
X1	7876.000	90.000	350.000	372.700	113.000	113.000	113.000	-0.000	-0.000	-0.000
GR	638.100	0.000	638.000	12.000	637.900	24.100	637.700	36.200	637.600	48.200
GR	637.500	60.300	637.400	72.400	637.300	84.400	637.200	96.500	637.100	108.600
GR	637.000	120.600	636.900	132.700	636.900	144.800	636.800	156.800	636.700	168.900
GR	636.600	181.000	636.600	193.100	636.600	205.100	636.600	217.200	636.300	229.300
GR	636.100	241.300	635.800	253.400	633.700	265.500	630.900	277.500	628.100	289.600
GR	626.600	301.700	626.500	313.700	626.500	325.800	625.400	337.900	624.900	350.000
GR	624.500	350.700	624.000	351.500	623.500	352.200	623.000	353.000	622.600	353.700
GR	622.100	354.500	621.600	355.300	621.200	356.000	621.000	356.800	620.900	357.500
GR	621.100	358.300	621.300	359.000	621.600	359.800	621.800	360.600	622.000	361.300
GR	622.200	362.100	622.400	362.800	622.600	363.600	622.800	364.400	623.000	365.100
GR	623.200	365.900	623.400	366.600	623.600	367.400	623.700	368.100	623.900	368.900
GR	624.000	369.700	624.200	370.400	624.400	371.200	624.500	371.900	624.700	372.700
GR	624.800	382.100	627.100	391.500	629.100	401.000	629.100	410.400	629.100	419.800
GR	629.000	429.200	629.000	438.700	629.000	448.100	629.000	457.500	629.100	466.900
GR	629.200	476.400	629.400	485.800	629.500	495.200	630.000	504.600	630.200	514.100
GR	630.400	523.500	630.600	532.900	630.800	542.300	630.800	551.800	631.300	561.200
GR	631.700	570.600	632.100	580.000	632.500	589.500	633.000	598.900	633.400	608.300
GR	633.800	617.700	634.300	627.200	635.500	636.600	637.200	646.000	638.700	655.500
X1	7988.000	90.000	500.000	518.500	112.000	112.000	112.000	-0.000	-0.000	-0.000

GR	634.600	0.000	634.500	17.200	634.500	34.400	634.400	51.700	634.300	68.900
GR	634.400	86.200	634.400	103.400	634.400	120.600	634.400	137.900	634.400	155.100
GR	634.400	172.400	634.400	189.600	634.500	206.800	634.500	224.100	634.500	241.300
GR	634.600	258.600	634.700	275.800	634.700	293.100	634.800	310.300	634.500	327.500
GR	634.000	344.800	633.600	362.000	632.000	379.300	630.200	396.500	628.300	413.700
GR	627.200	431.000	627.100	448.200	627.100	465.500	625.000	482.700	624.100	500.000
GR	623.700	500.600	623.300	501.200	623.000	501.800	622.600	502.400	622.200	503.000
GR	621.800	503.600	621.500	504.300	621.200	504.900	621.000	505.500	620.900	506.100
GR	621.000	506.700	621.100	507.300	621.300	508.000	621.500	508.600	621.600	509.200
GR	621.800	509.800	622.000	510.400	622.100	511.000	622.300	511.700	622.500	512.300
GR	622.600	512.900	622.800	513.500	622.900	514.100	623.100	514.700	623.200	515.400
GR	623.300	516.000	623.500	516.600	623.600	517.200	623.800	517.800	623.900	518.500
GR	624.000	528.200	625.500	538.000	626.800	547.700	626.700	557.400	626.700	567.200
GR	626.700	576.900	626.600	586.700	626.600	596.400	626.600	606.200	626.700	615.900
GR	626.800	625.700	626.900	635.400	627.100	645.200	628.100	654.900	628.400	664.700
GR	628.600	674.400	628.900	684.200	629.100	693.900	629.100	703.700	629.300	713.400
GR	629.500	723.200	629.800	732.900	630.000	742.700	630.200	752.400	630.400	762.200
GR	630.600	771.900	630.900	781.700	632.600	791.400	635.300	801.200	637.800	811.000
X1	8101.000	90.000	650.000	664.200	113.000	113.000	113.000	-0.000	-.100	-0.000
GR	631.100	0.000	631.100	22.400	631.100	44.800	631.000	67.200	631.100	89.600
GR	631.200	112.000	631.300	134.400	631.400	156.800	631.500	179.300	631.700	201.700
GR	631.800	224.100	631.900	246.500	632.100	268.900	632.200	291.300	632.400	313.700
GR	632.500	336.200	632.700	358.600	632.900	381.000	633.100	403.400	632.600	425.800
GR	632.000	448.200	631.400	470.600	630.300	493.100	629.500	515.500	628.400	537.900
GR	627.800	560.300	627.700	582.700	627.700	605.100	624.600	627.500	623.300	650.000
GR	623.000	650.400	622.700	650.900	622.400	651.400	622.100	651.800	621.800	652.300
GR	621.500	652.800	621.300	653.300	621.100	653.700	621.000	654.200	620.900	654.700
GR	620.900	655.200	620.900	655.600	621.000	656.100	621.100	656.600	621.300	657.100
GR	621.400	657.500	621.500	658.000	621.700	658.500	621.800	659.000	621.900	659.400
GR	622.000	659.900	622.200	660.400	622.300	660.900	622.400	661.300	622.500	661.800
GR	622.600	662.300	622.800	662.800	622.900	663.200	623.000	663.700	623.100	664.200
GR	623.100	674.300	623.800	684.300	624.500	694.400	624.400	704.500	624.400	714.600
GR	624.300	724.600	624.200	734.700	624.200	744.800	624.200	754.900	624.300	764.900
GR	624.400	775.000	624.500	785.100	624.700	795.200	626.100	805.200	626.500	815.300
GR	626.800	825.400	627.100	835.500	627.400	845.500	627.400	855.600	627.400	865.700
GR	627.400	875.800	627.400	885.800	627.400	895.900	627.400	906.000	627.400	916.100
GR	627.400	926.100	627.500	936.200	629.700	946.300	633.500	956.400	636.900	966.500
X1	8138.000	90.000	699.900	712.700	37.000	37.000	37.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	800.000	-0.000	-0.000	-0.000	-0.000
GR	629.900	0.000	629.900	24.100	629.900	48.200	629.900	72.400	630.000	96.500
GR	630.100	120.600	630.300	144.800	630.400	168.900	630.500	193.000	630.700	217.200
GR	630.900	241.300	631.000	265.400	631.300	289.600	631.400	313.700	631.600	337.900
GR	631.800	362.000	632.000	386.100	632.200	410.300	632.500	434.400	631.900	458.500
GR	631.300	482.700	630.600	506.800	629.700	530.900	629.200	555.100	628.400	579.200
GR	628.000	603.400	627.900	627.500	627.900	651.600	624.400	675.800	623.000	699.900
GR	622.700	700.300	622.400	700.800	622.200	701.200	621.900	701.600	621.600	702.000
GR	621.400	702.500	621.200	702.900	621.000	703.300	620.900	703.700	620.900	704.200
GR	620.800	704.600	620.800	705.000	620.900	705.400	621.000	705.900	621.100	706.300
GR	621.200	706.700	621.300	707.200	621.500	707.600	621.600	708.000	621.700	708.400
GR	621.800	708.900	622.000	709.300	622.000	709.700	622.200	710.100	622.300	710.600
GR	622.400	711.000	622.500	711.400	622.600	711.800	622.700	712.300	622.800	712.700
GR	622.800	722.900	623.200	733.100	623.700	743.300	623.600	753.400	623.600	763.600
GR	623.500	773.800	623.400	784.000	623.400	794.200	623.400	804.400	623.500	814.500
GR	623.600	824.700	623.700	834.900	623.900	845.100	625.400	855.300	625.900	865.500
GR	626.200	875.700	626.500	885.800	626.800	896.000	626.800	906.200	626.700	916.400
GR	626.700	926.600	626.600	936.800	626.500	946.900	626.400	957.100	626.400	967.300
GR	626.300	977.500	626.400	987.700	628.700	997.900	632.900	1008.000	636.600	1018.200
X1	8175.000	90.000	750.000	761.400	37.000	37.000	37.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	832.000	-0.000	-0.000	-0.000	-0.000
GR	628.700	0.000	628.800	25.800	628.800	51.700	628.800	77.500	628.900	103.400
GR	629.100	129.300	629.300	155.100	629.400	181.000	629.600	206.900	629.800	232.700
GR	630.000	258.600	630.200	284.500	630.500	310.300	630.700	336.200	630.900	362.000
GR	631.100	387.900	631.400	413.800	631.600	439.600	631.900	465.500	631.300	491.400

GR	630.600	517.200	629.900	543.100	629.200	569.000	629.000	594.800	628.500	620.700
GR	628.200	646.500	628.100	672.400	628.100	698.300	624.300	724.100	622.700	750.000
GR	622.500	750.400	622.200	750.800	622.000	751.100	621.800	751.500	621.500	751.900
GR	621.300	752.300	621.200	752.700	621.000	753.000	620.900	753.400	620.900	753.800
GR	620.800	754.200	620.700	754.600	620.800	754.900	620.900	755.300	621.000	755.700
GR	621.100	756.100	621.200	756.500	621.300	756.800	621.400	757.200	621.500	757.600
GR	621.600	758.000	621.800	758.400	621.800	758.700	622.000	759.100	622.100	759.500
GR	622.200	759.900	622.300	760.300	622.400	760.600	622.500	761.000	622.600	761.400
GR	622.500	771.700	622.700	782.000	622.900	792.300	622.800	802.600	622.800	812.900
GR	622.700	823.200	622.600	833.400	622.600	843.700	622.600	854.000	622.700	864.300
GR	622.800	874.600	622.900	884.900	623.100	895.200	624.800	905.500	625.300	915.800
GR	625.600	926.100	625.900	936.400	626.300	946.700	626.200	957.000	626.100	967.200
GR	625.900	977.500	625.800	987.800	625.700	998.100	625.500	1008.400	625.400	1018.700
GR	625.200	1029.000	625.200	1039.300	627.800	1049.600	632.300	1059.900	636.200	1070.200
X1	8213.000	24.000	800.000	810.000	38.000	38.000	38.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	855.000	-0.000	-0.000	-0.000	-0.000
GR	627.600	0.000	627.800	100.000	628.600	200.000	629.400	300.000	630.400	400.000
GR	631.400	500.000	628.700	600.000	628.800	639.000	628.400	700.000	628.300	760.000
GR	622.400	778.000	622.500	800.000	621.300	802.000	620.700	804.000	621.500	807.000
GR	622.400	810.000	621.800	900.000	622.200	944.000	624.400	957.000	625.900	1000.000
GR	624.000	1090.000	626.300	1100.000	633.300	1115.000	636.000	1122.000	-0.000	-0.000
X1	8263.000	-0.000	-0.000	-0.000	50.000	50.000	50.000	-0.000	.400	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	832.000	-0.000	-0.000	-0.000	-0.000
X1	8313.000	-0.000	-0.000	-0.000	50.000	50.000	50.000	-0.000	.500	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	807.000	-0.000	-0.000	-0.000	-0.000
X1	8362.000	20.000	800.000	805.000	49.000	49.000	49.000	-0.000	-0.000	-0.000
GR	627.600	0.000	627.600	100.000	627.700	200.000	627.900	300.000	628.200	400.000
GR	628.500	500.000	628.800	600.000	629.000	700.000	629.300	800.000	622.000	800.000
GR	622.100	805.000	629.300	805.000	629.500	900.000	629.800	1000.000	630.200	1100.000
GR	630.900	1200.000	631.800	1300.000	633.000	1400.000	633.800	1500.000	633.300	1600.000
NC	.070	.070	.020	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	8363.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
BT	18.000	0.000	627.600	0.000	100.000	627.600	0.000	200.000	627.700	0.000
BT	300.000	627.900	0.000	400.000	628.200	0.000	500.000	628.500	0.000	600.000
BT	628.800	0.000	700.000	629.000	0.000	800.000	629.300	625.800	805.000	629.300
BT	625.800	900.000	629.500	0.000	1000.000	629.800	0.000	1100.000	630.200	0.000
BT	1200.000	630.900	0.000	1300.000	631.800	0.000	1400.000	633.000	0.000	1500.000
BT	633.800	0.000	1600.000	633.300	0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	8431.000	20.000	800.000	805.000	68.000	68.000	68.000	-0.000	-0.000	-0.000
BT	18.000	0.000	627.600	0.000	100.000	627.600	0.000	200.000	627.700	0.000
BT	300.000	627.900	0.000	400.000	628.200	0.000	500.000	628.500	0.000	600.000
BT	628.800	0.000	700.000	629.000	0.000	800.000	629.300	626.000	805.000	629.300
BT	626.100	900.000	629.500	0.000	1000.000	629.800	0.000	1100.000	630.200	0.000
BT	1200.000	630.900	0.000	1300.000	631.800	0.000	1400.000	633.000	0.000	1500.000
BT	633.800	0.000	1600.000	633.300	0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	627.600	0.000	627.600	100.000	627.700	200.000	627.900	300.000	628.200	400.000
GR	628.500	500.000	628.800	600.000	629.000	700.000	629.300	800.000	621.700	800.000
GR	622.100	805.000	629.300	805.000	629.500	900.000	629.800	1000.000	630.200	1100.000
GR	630.900	1200.000	631.800	1300.000	633.000	1400.000	633.800	1500.000	633.300	1600.000
NC	.090	.090	.055	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	8432.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X1	8456.000	27.000	756.000	770.000	24.000	24.000	24.000	-0.000	-1.200	-0.000
X3	10.000	-0.000	-0.000	748.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	631.600	0.000	631.300	100.000	631.100	200.000	630.700	300.000	631.000	400.000
GR	630.800	500.000	629.100	600.000	628.100	637.000	625.200	650.000	624.800	689.000
GR	624.400	756.000	623.900	759.000	623.000	763.000	623.000	768.000	624.200	770.000
GR	624.300	790.000	629.900	850.000	630.300	870.000	629.700	927.000	630.000	947.000
GR	629.600	967.000	631.700	1070.000	632.500	1170.000	633.300	1270.000	631.500	1370.000

GR	631.500	1396.000	637.800	1408.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	8481.000	-0.000	-0.000	-0.000	25.000	25.000	25.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	697.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	8503.000	-0.000	-0.000	-0.000	22.000	22.000	22.000	-0.000	.100	-0.000
X1	8560.000	-0.000	-0.000	-0.000	57.000	57.000	57.000	-0.000	.300	-0.000
X1	8617.000	-0.000	-0.000	-0.000	57.000	57.000	57.000	-0.000	.200	-0.000
X1	8674.000	-0.000	-0.000	-0.000	57.000	57.000	57.000	-0.000	.300	-0.000
X1	8731.000	27.000	786.000	800.000	57.000	57.000	57.000	-0.000	-0.000	-0.000
GR	631.600	0.000	631.300	100.000	631.100	200.000	630.700	300.000	631.000	400.000
GR	630.800	500.000	629.100	600.000	628.100	637.000	625.200	650.000	624.800	700.000
GR	624.400	786.000	623.900	789.000	623.000	793.000	623.000	798.000	624.200	800.000
GR	624.300	820.000	629.900	880.000	630.300	900.000	629.700	957.000	630.000	977.000
GR	629.600	997.000	631.700	1100.000	632.500	1200.000	633.300	1300.000	631.500	1400.000
GR	631.500	1426.000	637.800	1438.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	8806.000	-0.000	-0.000	-0.000	75.000	75.000	75.000	-0.000	.400	-0.000
X1	8881.000	-0.000	-0.000	-0.000	75.000	75.000	75.000	-0.000	.500	-0.000
X1	8956.000	-0.000	-0.000	-0.000	75.000	75.000	75.000	-0.000	.400	-0.000
X1	9031.000	-0.000	-0.000	-0.000	75.000	75.000	75.000	-0.000	.400	-0.000
X1	9106.000	-0.000	-0.000	-0.000	75.000	75.000	75.000	-0.000	.500	-0.000
X1	9181.000	-0.000	-0.000	-0.000	75.000	75.000	75.000	-0.000	.400	-0.000
X1	9231.000	-0.000	-0.000	-0.000	50.000	50.000	50.000	-0.000	.300	-0.000
X3	10.000	-0.000	-0.000	788.000	-0.000	817.000	-0.000	-0.000	-0.000	-0.000
X1	9261.000	-0.000	-0.000	-0.000	30.000	30.000	30.000	-0.000	.200	-0.000
X3	10.000	-0.000	-0.000	786.000	-0.000	800.000	-0.000	-0.000	-0.000	-0.000
X1	9276.000	-0.000	-0.000	-0.000	15.000	15.000	15.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	790.000	-0.000	797.000	-0.000	-0.000	-0.000	-0.000
X1	9280.000	24.000	798.000	802.000	4.000	4.000	4.000	-0.000	-0.000	-0.000
GR	641.000	0.000	640.100	100.000	639.400	200.000	638.900	300.000	638.100	400.000
GR	637.000	500.000	636.200	600.000	635.300	700.000	634.600	798.000	628.700	798.000
GR	627.200	798.000	626.200	799.500	626.200	800.500	627.200	802.000	628.700	802.000
GR	634.600	802.000	634.500	900.000	634.000	1000.000	634.000	1100.000	634.300	1200.000
GR	634.400	1300.000	634.900	1400.000	634.400	1500.000	633.800	1600.000	-0.000	-0.000
NC	.070	.070	.015	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9281.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
BT	20.000	0.000	641.000	0.000	100.000	640.100	0.000	200.000	639.400	0.000
BT	300.000	638.900	0.000	400.000	638.100	0.000	500.000	637.000	0.000	600.000
BT	636.200	0.000	700.000	635.300	0.000	798.000	634.600	628.700	799.500	634.600
BT	630.200	800.500	634.600	630.200	802.000	634.600	628.700	900.000	634.500	0.000
BT	1000.000	634.000	0.000	1100.000	634.000	0.000	1200.000	634.300	0.000	1300.000
BT	634.400	0.000	1400.000	634.900	0.000	1500.000	634.400	0.000	1600.000	633.800
BT	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9322.000	24.000	798.000	802.000	41.000	41.000	41.000	-0.000	-0.000	-0.000
BT	20.000	0.000	641.000	0.000	100.000	640.100	0.000	200.000	639.400	0.000
BT	300.000	638.900	0.000	400.000	638.100	0.000	500.000	637.000	0.000	600.000
BT	636.200	0.000	700.000	635.300	0.000	798.000	634.600	629.000	799.500	634.600
BT	630.500	800.500	634.600	630.500	802.000	634.600	629.000	900.000	634.500	0.000
BT	1000.000	634.000	0.000	1100.000	634.000	0.000	1200.000	634.300	0.000	1300.000
BT	634.400	0.000	1400.000	634.900	0.000	1500.000	634.400	0.000	1600.000	633.800

BT	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	641.000	0.000	640.100	100.000	639.400	200.000	638.900	300.000	638.100	400.000
GR	637.000	500.000	636.200	600.000	635.300	700.000	634.600	798.000	629.000	798.000
GR	627.500	798.000	626.500	799.500	626.500	800.500	627.500	802.000	629.000	802.000
GR	634.600	802.000	634.500	900.000	634.000	1000.000	634.000	1100.000	634.300	1200.000
GR	634.400	1300.000	634.900	1400.000	634.400	1500.000	633.800	1600.000	-0.000	-0.000
NC	.100	.100	.055	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9323.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X5	4.000	627.550	628.000	628.160	628.600	-0.000	-0.000	-0.000	-0.000	-0.000
QT	4.000	6.000	16.000	20.000	32.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9326.000	23.000	786.000	800.000	3.000	3.000	3.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	641.200	0.000	642.800	0.000	640.600	100.000	638.300	200.000	637.400	300.000
GR	636.400	400.000	634.200	500.000	629.900	600.000	630.200	700.000	629.900	786.000
GR	627.200	788.000	626.500	794.000	627.100	798.000	629.300	800.000	629.700	818.000
GR	633.400	835.000	634.300	867.000	633.600	898.000	630.500	939.000	632.400	1000.000
GR	635.000	1100.000	637.600	1178.000	644.800	1202.000	-0.000	-0.000	-0.000	-0.000
X1	9332.000	-0.000	-0.000	-0.000	6.000	6.000	6.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9422.000	23.000	786.000	800.000	90.000	90.000	90.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	641.200	0.000	642.800	0.000	640.600	100.000	638.300	200.000	637.400	300.000
GR	636.400	400.000	634.200	500.000	629.900	600.000	630.200	700.000	629.900	786.000
GR	627.500	788.000	626.800	794.000	627.400	798.000	629.300	800.000	629.700	818.000
GR	633.400	835.000	634.300	867.000	633.600	898.000	630.500	939.000	632.400	1000.000
GR	635.000	1100.000	637.600	1178.000	644.800	1202.000	-0.000	-0.000	-0.000	-0.000
X1	9522.000	23.000	786.000	800.000	100.000	100.000	100.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	641.200	0.000	642.800	0.000	640.600	100.000	638.300	200.000	637.400	300.000
GR	636.400	400.000	634.200	500.000	629.900	600.000	630.200	700.000	629.900	786.000
GR	627.800	788.000	627.100	794.000	627.700	798.000	629.300	800.000	629.700	818.000
GR	633.400	835.000	634.300	867.000	633.600	898.000	630.500	939.000	632.400	1000.000
GR	635.000	1100.000	637.600	1178.000	644.800	1202.000	-0.000	-0.000	-0.000	-0.000
X1	9622.000	23.000	786.000	800.000	100.000	100.000	100.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	641.200	0.000	642.800	0.000	640.600	100.000	638.300	200.000	637.400	300.000
GR	636.400	400.000	634.200	500.000	629.900	600.000	630.200	700.000	629.900	786.000
GR	628.100	788.000	627.400	794.000	628.000	798.000	629.300	800.000	629.700	818.000
GR	633.400	835.000	634.300	867.000	633.600	898.000	630.500	939.000	632.400	1000.000
GR	635.000	1100.000	637.600	1178.000	644.800	1202.000	-0.000	-0.000	-0.000	-0.000
X1	9672.000	23.000	786.000	800.000	50.000	50.000	50.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	641.200	0.000	642.800	0.000	640.600	100.000	638.300	200.000	637.400	300.000
GR	636.400	400.000	634.200	500.000	629.900	600.000	630.200	700.000	629.900	786.000
GR	628.300	788.000	627.600	794.000	628.200	798.000	629.300	800.000	629.700	818.000
GR	633.400	835.000	634.300	867.000	633.600	898.000	630.500	939.000	632.400	1000.000
GR	635.000	1100.000	637.600	1178.000	644.800	1202.000	-0.000	-0.000	-0.000	-0.000
EJ	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

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HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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T1      CITY OF BRIDGMAN FIS, PROJECT MANAGER: MR. JOHN EMIG
T2      100 YEAR FLOOD
T3      TANNER CREEK AND WILLIAM & ESSEG DRAIN
J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
        -0.         4.         -0.        -0.   -0.000000     -0.00      -0.0       -0.    581.310     -0.000
J2  NPROF      IPLOT      PRFVS      XSECV      XSECH      FN         ALLDC      IBW        CHNIM      ITRACE
      3.000     -0.000     -1.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000     -0.000
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CCHV= .300 CEHV= .500
3280 CROSS SECTION 0.00 EXTENDED 1.81 FEET

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
0.00	1.81	581.31	0.00	581.31	581.33	.02	0.00	0.00	100000.00
165.	0.	165.	0.	0.	157.	0.	0.	0.	100000.00
0.00	0.00	1.05	0.00	.030	.030	.030	0.000	579.50	32.00
.000214	-0.	-0.	-0.	0	0	1	0.00	87.00	119.00

3470 ENCROACHMENT STATIONS= 32.0 119.0 TYPE= 1 TARGET= 87.000

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

3280 CROSS SECTION 50.00 EXTENDED 1.82 FEET

50.00	1.82	581.32	0.00	0.00	581.35	.03	.01	.01	100000.00
165.	0.	165.	0.	0.	113.	0.	0.	0.	100000.00
.01	0.00	1.46	0.00	.030	.030	.030	.029	579.50	44.00
.000423	50.	50.	50.	0	0	1	0.00	62.00	106.00

3470 ENCROACHMENT STATIONS= 44.0 106.0 TYPE= 1 TARGET= 62.000

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

3280 CROSS SECTION 100.00 EXTENDED 1.83 FEET

100.00	1.82	581.32	0.00	0.00	581.41	.09	.03	.03	100000.00
165.	0.	165.	0.	0.	70.	0.	0.	0.	100000.00
.02	0.00	2.37	0.00	.030	.030	.030	.029	579.50	56.00
.001160	50.	50.	50.	1	0	1	0.00	38.00	94.00

3470 ENCROACHMENT STATIONS= 56.0 94.0 TYPE= 1 TARGET= 38.000

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

3280 CROSS SECTION 115.00 EXTENDED 1.82 FEET

115.00	1.82	581.32	0.00	0.00	581.46	.14	.02	.03	100000.00
165.	0.	165.	0.	0.	55.	0.	0.	0.	100000.00
.02	0.00	3.03	0.00	.030	.030	.030	.029	579.50	60.00
.001961	15.	15.	15.	2	0	1	0.00	30.00	90.00

3470 ENCROACHMENT STATIONS= 60.0 90.0 TYPE= 1 TARGET= 30.000

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

3280 CROSS SECTION 135.00 EXTENDED 1.78 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
135.00	1.78	581.28	0.00	0.00	581.61	.33	.06	.10	00000.00
165.	0.	165.	0.	0.	36.	0.	0.	0.	100000.00
.02	0.00	4.63	0.00	.030	.030	.030	.029	579.50	65.00
.005036	20.	20.	20.	2	0	1	0.00	20.00	85.00

3470 ENCROACHMENT STATIONS= 65.0 85.0 TYPE= 1 TARGET= 20.000

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

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.50 ELREA= 583.00

150.00	2.39	581.89	581.89	0.00	582.81	.92	.14	0.00	582.50
165.	0.	165.	0.	0.	21.	0.	0.	0.	583.00
.02	0.00	7.71	0.00	.060	.040	.060	.030	579.50	38.61
.023664	15.	15.	15.	30	11	1	0.00	11.71	50.33

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.60 ELREA= 583.10

163.00	3.03	582.63	0.00	0.00	583.13	.49	.19	.13	582.60
165.	0.	165.	0.	0.	29.	0.	0.	0.	583.10
.02	.02	5.64	0.00	.060	.040	.060	.031	579.60	37.95
.009675	13.	13.	13.	4	0	1	0.00	12.76	50.72

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.70 ELREA= 583.20

177.00	3.10	582.80	0.00	0.00	583.26	.46	.13	.01	582.70
165.	0.	165.	0.	0.	30.	0.	0.	0.	583.20
.02	.02	5.47	0.00	.060	.040	.060	.031	579.70	37.85
.008816	14.	14.	14.	2	0	1	0.00	12.91	50.76

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.80 ELREA= 583.30

205.00	3.31	583.11	0.00	0.00	583.50	.39	.22	.02	582.80
165.	0.	165.	0.	0.	33.	0.	0.	0.	583.30
.02	.02	5.02	0.00	.060	.040	.060	.032	579.80	37.53

.006771	28.	28.	28.	2	0	1	0.00	13.35	50.89

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.00 ELREA= 583.50

233.00	3.30	583.30	0.00	0.00	583.70	.40	.19	.00	583.00
165.	0.	165.	0.	0.	33.	0.	0.	0.	583.50
.02	.02	5.05	0.00	.060	.040	.060	.033	580.00	37.56
.006894	28.	28.	28.	2	0	1	0.00	13.32	50.88

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.40 ELREA= 583.90

316.00	3.48	583.88	0.00	0.00	584.23	.35	.51	.02	583.40
165.	0.	165.	0.	0.	35.	0.	0.	0.	583.90
.03	.63	4.72	0.00	.060	.040	.060	.035	580.40	37.29
.005603	83.	83.	83.	1	0	1	0.00	13.69	50.98

3265 DIVIDED FLOW

VALLEY SECTION A

400.00	3.44	584.34	0.00	0.00	584.62	.28	.37	.02	582.90
165.	2.	160.	2.	3.	37.	2.	1.	0.	582.60
.03	.91	4.30	1.17	.060	.040	.060	.036	580.90	29.43
.003574	84.	84.	84.	2	0	1	0.00	22.01	53.37

650.00	3.11	585.41	0.00	0.00	585.77	.36	1.11	.04	583.80
165.	4.	161.	0.	3.	33.	0.	1.	0.	585.00
.05	1.50	4.90	.65	.060	.040	.060	.037	582.30	110.12
.005643	300.	250.	200.	2	0	1	0.00	17.46	127.58

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.70 ELREA= 587.50

900.00	3.13	586.83	0.00	0.00	587.19	.36	1.42	.00	584.70
165.	8.	157.	0.	5.	32.	0.	1.	0.	587.50
.06	1.81	4.91	0.00	.060	.040	.060	.038	583.70	184.62
.005699	250.	250.	250.	2	0	1	0.00	16.40	201.02

1125.00	2.97	588.07	0.00	0.00	588.41	.34	1.22	.01	585.60
165.	12.	153.	0.	6.	32.	0.	1.	1.	587.70
.08	1.94	4.83	.65	.060	.040	.060	.038	585.10	259.42
.005299	175.	225.	275.	1	0	1	0.00	19.21	278.64

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

VALLEY SECTION B

1350.00	2.97	589.27	0.00	0.00	589.62	.35	1.20	.01	586.50
165.	15.	147.	3.	7.	29.	2.	1.	1.	587.90
.09	2.10	4.99	1.35	.060	.040	.060	.039	586.30	334.84
.005538	175.	225.	275.	2	0	1	0.00	20.35	355.20
1412.00	3.24	589.64	0.00	0.00	589.93	.29	.29	.02	586.80
165.	17.	142.	6.	9.	31.	4.	1.	1.	587.90
.09	1.87	4.62	1.62	.060	.040	.060	.039	586.40	334.27
.004027	62.	62.	62.	2	0	1	0.00	21.31	355.58
1474.00	3.38	589.88	0.00	0.00	590.19	.31	.26	.01	587.20
165.	17.	140.	8.	9.	29.	5.	1.	1.	587.90
.10	1.88	4.81	1.77	.060	.040	.060	.039	586.50	334.62
.004264	62.	62.	62.	2	0	1	0.00	21.04	355.66
1537.00	3.55	590.15	0.00	0.00	590.47	.32	.27	.00	587.60
165.	18.	135.	12.	10.	27.	6.	2.	1.	587.90
.10	1.86	4.92	1.95	.060	.040	.060	.039	586.60	334.51
.004371	63.	63.	63.	0	0	1	0.00	21.36	355.87
1570.00	3.61	590.31	0.00	0.00	590.61	.30	.14	.01	587.70
165.	19.	134.	12.	10.	28.	6.	2.	1.	588.00
.10	1.81	4.78	1.91	.060	.040	.060	.039	586.70	334.29
.004005	33.	33.	33.	2	0	1	0.00	21.75	356.04

3470 ENCROACHMENT STATIONS= 337.9 354.9 TYPE= 1 TARGET= 17.000

1580.00	3.66	590.36	0.00	0.00	590.65	.29	.04	.00	587.70
165.	19.	133.	12.	8.	28.	6.	2.	1.	588.00
.10	2.30	4.70	1.96	.060	.040	.060	.039	586.70	337.90
.003807	10.	10.	10.	0	0	1	0.00	17.00	354.90

3470 ENCROACHMENT STATIONS= 340.4 352.4 TYPE= 1 TARGET= 12.000

1590.00	3.56	590.36	0.00	0.00	590.75	.39	.04	.05	587.80
165.	12.	145.	9.	4.	28.	3.	2.	1.	588.10
.10	2.90	5.25	2.47	.060	.040	.060	.039	586.80	340.40
.004938	10.	10.	10.	2	0	1	0.00	12.00	352.40

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 590.60 ELREA= 590.60

1600.00	3.44	590.24	0.00	0.00	591.02	.79	.08	.20	588.00
165.	0.	165.	0.	0.	23.	0.	2.	1.	588.00
.10	0.00	7.11	0.00	.060	.040	.060	.039	586.80	343.00
.014133	10.	10.	10.	2	0	1	0.00	7.00	355.60

SPECIAL BRIDGE Loss in terms of the large pipe Area of the d/s culvert 9'X7' = 28

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	11.68	2.50	0.00	6.00	0.00	28.00	0.00	587.30	586.80

3301 HV CHANGED MORE THAN HVTNS

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

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
596.53	591.78	0.00	0.	165.	28.	590.80	597.80	10.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 597.80 ELREA= 597.80

BRIDGE SECTION C, LAKE STREET CULVERT

TOTAL LENGTH=270' NORTH SIDE OF LAKE STREET=150' OF 7'X3.5' BOX

CULVERT WITH OPEN BOTTOM, PASSING UNDER LAKE STREET IS 120' OF

3.7'X5.9' MULTIPLATE ARCH PIPE

ENTRANCE DESIGN:CONCRETE HEADWALL, SILT REMOVED.

This does not agree with the size noted and used in the analysis appendix B

1870.00	9.09	596.39	0.00	0.00	596.53	.14	5.51	0.00	588.70
165.	0.	165.	0.	0.	54.	0.	2.	1.	588.80
.13	0.00	3.05	0.00	.060	.040	.060	.039	587.30	70.00
.001313	270.	270.	270.	2	0	1	0.00	6.00	88.52

This may be .2 to .3' high due to neglecting the non pressure flow in the lower reach of the pipe.

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 68.0 84.0 TYPE= 1 TARGET= 16.000

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

1875.00	9.25	596.55	0.00	0.00	596.57	.02	.00	.04	100000.00
165.	0.	165.	0.	0.	133.	0.	2.	1.	100000.00
.13	0.00	1.24	0.00	.060	.044	.060	.039	587.30	68.00
.000088	5.	5.	5.	2	0	1	0.00	16.00	84.00

3470 ENCROACHMENT STATIONS= 62.0 130.0 TYPE= 1 TARGET= -62.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 597.00 ELREA= 596.30

1879.00	9.26	596.56	0.00	0.00	596.58	.01	.00	.00	597.00
165.	0.	165.	0.	0.	169.	1.	2.	1.	596.30
.13	0.00	.97	.05	.060	.045	.065	.039	587.30	62.37
.000078	4.	4.	4.	0	0	1	0.00	32.65	95.02

3470 ENCROACHMENT STATIONS= 62.0 130.0 TYPE= 1 TARGET= -62.000

1931.00	9.07	596.57	0.00	0.00	596.58	.01	.00	.00	595.80
165	0	162	3	0	175	13	2	1	595.10

.15	.00	.93	.22	.065	.046	.065	.039	587.50	62.00
.000074	52.	52.	52.	1	0	1	0.00	39.28	101.28

3470 ENCROACHMENT STATIONS= 62.0 130.0 TYPE= 1 TARGET= -62.000

1970.00	8.97	596.57	0.00	0.00	596.58	.01	.00	.00	595.00
165.	0.	159.	6.	0.	179.	22.	2.	1.	594.30
.16	.00	.89	.29	.065	.047	.065	.039	587.60	62.00
.000069	39.	39.	39.	0	0	1	0.00	40.26	102.26

3470 ENCROACHMENT STATIONS= 62.0 130.0 TYPE= 1 TARGET= -62.000

2070.00	8.68	596.58	0.00	0.00	596.59	.01	.01	.00	594.30
165.	0.	156.	9.	0.	178.	26.	3.	1.	593.60
.19	.00	.88	.33	.065	.047	.065	.039	587.90	62.00
.000070	100.	100.	100.	0	0	1	0.00	40.39	102.39

SECNO	DEPTH	GWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 62.0 140.0 TYPE= 1 TARGET= -62.000

2170.00	8.49	596.59	0.00	0.00	596.60	.01	.01	.00	593.90
165.	0.	127.	38.	0.	177.	114.	3.	1.	593.30
.24	.00	.72	.34	.065	.048	.065	.039	588.10	62.00
.000047	100.	100.	100.	1	0	1	0.00	64.60	126.60

3470 ENCROACHMENT STATIONS= 62.0 140.0 TYPE= 1 TARGET= -62.000

2270.00	8.20	596.60	0.00	0.00	596.60	.01	.01	.00	594.20
165.	0.	128.	37.	0.	169.	106.	4.	1.	593.50
.28	.00	.76	.35	.065	.048	.065	.039	588.40	62.00
.000055	100.	100.	100.	0	0	1	0.00	64.49	126.49

3470 ENCROACHMENT STATIONS= 62.0 176.0 TYPE= 1 TARGET= -62.000

VALLEY SECTION D

2370.00	7.90	596.60	0.00	0.00	596.61	.01	.01	.00	594.70
165.	0.	123.	42.	0.	159.	130.	5.	1.	594.00
.32	.00	.77	.32	.065	.047	.065	.039	588.70	62.00
.000061	100.	100.	100.	0	0	1	0.00	82.74	144.74

3470 ENCROACHMENT STATIONS= 62.0 176.0 TYPE= 1 TARGET= -62.000

2455.00	7.71	596.61	0.00	0.00	596.62	.01	.01	.00	595.10
165.	0.	130.	35.	0.	152.	108.	5.	2.	594.40
.35	.00	.85	.32	.065	.047	.065	.039	588.90	62.00
.000077	85.	85.	85.	0	0	1	0.00	82.21	144.21

3470 ENCROACHMENT STATIONS= 62.0 140.0 TYPE= 1 TARGET= -62.000

2540.00	7.41	596.61	0.00	0.00	596.63	.01	.01	.00	595.50
165.	0.	144.	21.	0.	143.	60.	6.	2.	594.80
.38	.00	1.01	.35	.065	.047	.065	.039	589.20	62.00

.000113	85.	85.	85.	0	0	1	0.00	63.73	125.73

3470 ENCROACHMENT STATIONS= 62.0 115.0 TYPE= 1 TARGET= -62.000

2620.00	7.22	596.62	0.00	0.00	596.64	.02	.01	.00	596.20
165.	0.	162.	3.	0.	134.	12.	6.	2.	595.50
.40	.00	1.21	.26	.065	.046	.065	.039	589.40	62.00
.000168	80.	80.	80.	0	0	1	0.00	43.10	105.10

3470 ENCROACHMENT STATIONS= 62.0 98.0 TYPE= 1 TARGET= 36.000

2700.00	7.03	596.63	0.00	0.00	596.66	.02	.01	.00	596.40
165.	0.	163.	2.	0.	129.	7.	6.	2.	595.70
.41	.00	1.27	.28	.065	.046	.065	.039	589.60	62.00
.000191	80.	80.	80.	0	0	1	0.00	36.00	98.00

2720.00	6.92	596.62	0.00	0.00	596.68	.05	.00	.02	591.20
165.	28.	107.	30.	34.	47.	44.	6.	2.	591.20
.42	.84	2.27	.67	.065	.035	.065	.039	589.70	79.06
.000303	20.	20.	20.	0	0	1	0.00	51.44	130.51

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.13	2.65	-0.00	7.00	-0.00	25.30	-0.00	589.70	589.70

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
598.03	596.68	0.00	89.	76.	25.	594.20	595.90	30.00

$\frac{76}{25} = 3.04$ ft/sec

BRIDGE SECTION E, PRIVATE DRIVEWAY CULVERT

26' OF 7.1'X4.5' MULTIPLATE ARCH PIPE

ENTRANCE DESIGN:CONCRETE HEADWALL, SILT REMOVED

How deep was the silt removed? why is vel is only 2.11 ft/sec when vel for the access road to the Sand Pit it appears that a 5 ft/sec vel was used as the criteria

2746.00	7.18	596.88	0.00	0.00	596.92	.05	.25	0.00	591.20
165.	29.	103.	33.	37.	49.	52.	6.	2.	591.20
.42	.78	2.11	.62	.065	.035	.065	.039	589.70	78.50
.000250	26.	26.	26.	2	0	4	0.00	52.39	130.89

1490 NH CARD USED

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 596.10 ELREA= 597.90

2846.00	6.82	596.92	0.00	0.00	596.95	.03	.02	.00	598.10
165	0	165	0	0	112	0	7	2	597.90

.44	0.00	1.47	0.00	.065	.045	.065	.039	590.10	107.98
.000233	100.	100.	100.	1	0	1	0.00	23.06	131.04

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 598.50 ELREA= 598.30

2946.00	6.44	596.94	0.00	0.00	596.98	.04	.03	.00	598.50
165.	0.	165.	0.	0.	103.	0.	7.	2.	598.30
.46	0.00	1.60	0.00	.065	.045	.065	.039	590.50	108.29
.000289	100.	100.	100.	0	0	1	0.00	22.39	130.67

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 599.00 ELREA= 598.80

3046.00	5.97	596.97	0.00	0.00	597.02	.05	.03	.00	599.00
165.	0.	165.	0.	0.	93.	0.	7.	2.	598.80
.47	0.00	1.77	0.00	.065	.044	.065	.039	591.00	108.68
.000386	100.	100.	100.	0	0	1	0.00	21.54	130.21

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 599.40 ELREA= 599.20

3146.00	5.61	597.01	0.00	0.00	597.07	.06	.04	.00	599.40
165.	0.	165.	0.	0.	85.	0.	7.	2.	599.20
.49	0.00	1.93	0.00	.065	.044	.065	.038	591.40	108.97
.000488	100.	100.	100.	1	0	1	0.00	20.89	129.86

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 599.70 ELREA= 599.50

VALLEY SECTION F

3221.00	5.34	597.04	0.00	0.00	597.11	.07	.04	.00	599.70
165.	0.	165.	0.	0.	80.	0.	7.	2.	599.50
.50	0.00	2.07	0.00	.065	.044	.065	.038	591.70	109.19
.000587	75.	75.	75.	0	0	1	0.00	20.41	129.60

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

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 600.10 ELREA= 599.90

3321.00	5.00	597.10	0.00	0.00	597.18	.08	.07	.01	600.10
165.	0.	165.	0.	0.	73.	0.	8.	2.	599.90
.51	0.00	2.26	0.00	.065	.044	.065	.038	592.10	109.47
.000752	100.	100.	100.	1	0	1	0.00	19.80	129.27

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 600.50 ELREA= 600.30

3421.00	4.68	597.18	0.00	0.00	597.28	.10	.08	.01	600.50
165.	0.	165.	0.	0.	67.	0.	8.	2.	600.30
.52	0.00	2.47	0.00	.065	.044	.065	.038	592.50	109.74
.000969	100.	100.	100.	1	0	1	0.00	19.22	128.96

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.60 ELREA= 600.40

3446.00	4.60	597.20	0.00	0.00	597.30	.10	.02	.00	600.60
165.	0.	165.	0.	0.	65.	0.	8.	2.	600.40
.52	0.00	2.53	0.00	.065	.044	.065	.038	592.60	109.80
.001028	25.	25.	25.	1	0	1	0.00	19.09	128.89

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.70 ELREA= 600.50

3471.00	4.53	597.23	0.00	0.00	597.33	.10	.03	.00	600.70
165.	0.	165.	0.	0.	64.	0.	8.	2.	600.50
.53	0.00	2.58	0.00	.065	.044	.065	.038	592.70	109.86
.001095	25.	25.	25.	0	0	1	0.00	18.96	128.81

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.70 ELREA= 600.50

3480.00	4.54	597.24	0.00	0.00	597.34	.10	.01	.00	600.70
165.	0.	165.	0.	0.	64.	0.	8.	2.	600.50
.53	0.00	2.58	0.00	.065	.044	.065	.038	592.70	109.85
.001086	9.	9.	9.	0	0	1	0.00	18.97	128.82

3470 ENCROACHMENT STATIONS= 114.0 126.0 TYPE= 1 TARGET= 12.000

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

3488.00	4.41	597.21	0.00	0.00	597.39	.18	.01	.04	100000.00
165.	0.	165.	0.	0.	49.	0.	8.	2.	100000.00
.53	0.00	3.40	0.00	.065	.043	.065	.038	592.80	114.00
.001524	8.	8.	8.	2	0	1	0.00	12.00	126.00

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= 115.0 125.0 TYPE= 1 TARGET= 10.000

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

3492.00	4.38	597.18	0.00	0.00	597.43	.25	.01	.04	100000.00
165.	0.	165.	0.	0.	41.	0.	8.	2.	100000.00
.53	0.00	4.02	0.00	.065	.042	.065	.038	592.80	115.00
.001974	4.	4.	4.	2	0	1	0.00	10.00	125.00

3265 DIVIDED FLOW

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 597.90 ELREA= 597.90

3496.00	4.27	597.07	0.00	0.00	597.57	.50	.02	.12	595.30
165.	0.	165.	0.	0.	29.	0.	8.	2.	600.70
.53	0.00	5.65	0.00	.065	.033	.065	.038	592.80	185.30
.010476	4	4	4	2	0	1	0.00	8.00	194.70

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.88	2.80	-0.00	8.00	-0.00	25.14	-0.00	593.70	592.80

3265 DIVIDED FLOW

PRESSURE FLOW

EGPRS	EGLWC	H3	QVEIR	QPR	BAREA	ELLC	ELTRD	CLASS
599.00	598.43	0.00	0.	165.	25.	597.90	600.70	10.00

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 600.70 ELREA= 600.70

BRIDGE SECTION 6, DRIVEWAY CULVERT

43' OF 2-48" CMP

ENTRANCE DESIGN:CONCRETE HEADWALL SILT REMOVED

Avg vel = $\frac{QPR}{A} = \frac{165}{25} = 6.6$

OK

3539.00	4.97	598.67	0.00	0.00	599.00	.33	1.43	0.00	596.20
165.	0.	165.	0.	0.	36.	0.	8.	2.	600.70
.53	0.00	4.58	0.00	.065	.033	.065	.038	593.70	185.30
.006342	43.	43.	43.	2	0	1	0.00	8.00	194.70

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 112.0 128.0 TYPE= 1 TARGET= 16.000

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 100000.00 ELREA= 100000.00

3543.00	5.31	599.01	0.00	0.00	599.08	.08	.01	.08	100000.00
165.	0.	165.	0.	0.	75.	0.	8.	2.	100000.00
.53	0.00	2.21	0.00	.065	.044	.065	.038	593.70	112.00
.000581	4.	4.	4.	2	0	1	0.00	16.00	128.00

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= 108.0 132.0 TYPE= 1 TARGET= 24.000

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

3547.00	5.33	599.03	0.00	0.00	599.09	.06	.00	.01	100000.00
165.	0.	165.	0.	0.	87.	0.	8.	2.	100000.00
.53	0.00	1.89	0.00	.065	.045	.065	.038	593.70	108.00
.000536	4.	4.	4.	1	0	1	0.00	23.36	131.36

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.20 ELREA= 600.00

3714.00	4.93	599.13	0.00	0.00	599.20	.07	.10	.01	600.20
165.	0.	165.	0.	0.	78.	0.	8.	2.	600.00
.56	0.00	2.12	0.00	.065	.045	.065	.038	594.20	108.22
.000729	167.	167.	167.	1	0	1	0.00	22.61	130.82

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.60 ELREA= 600.40

3889.00	4.67	599.27	0.00	0.00	599.35	.08	.14	.01	600.60
165.	0.	165.	0.	0.	72.	0.	8.	3.	600.40
.58	0.00	2.29	0.00	.065	.045	.065	.037	594.60	108.51
.000899	175.	175.	175.	2	0	1	0.00	21.96	130.47

1490 NH CARD USED

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 605.80 ELREA= 604.00

4064.00	4.33	599.43	0.00	0.00	599.51	.08	.16	.00	605.80
165.	0.	165.	0.	0.	73.	0.	9.	3.	604.00
.60	0.00	2.27	0.00	.065	.046	.065	.037	595.10	198.46
.000989	175.	175.	175.	2	0	1	0.00	23.83	222.29

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.20 ELREA= 604.40

VALLEY SECTION H

4239.00	4.12	599.62	0.00	0.00	599.71	.09	.19	.01	606.20
165.	0.	165.	0.	0.	68.	0.	9.	3.	604.40
.62	0.00	2.44	0.00	.065	.046	.065	.037	595.50	199.01
.001212	175.	175.	175.	1	0	1	0.00	23.00	222.01

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.90 ELREA= 605.10

4339.00	3.55	599.75	0.00	0.00	599.89	.14	.16	.02	606.90
165.	0.	165.	0.	0.	55.	0.	9.	3.	605.10
.63	0.00	2.98	0.00	.065	.045	.065	.037	596.20	200.25
.002104	100.	100.	100.	2	0	1	0.00	21.06	221.31

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 607.10 ELREA= 605.30

4369.00	3.41	599.81	0.00	0.00	599.97	.16	.07	.01	607.10
165.	0.	165.	0.	0.	52.	0.	9.	3.	605.30
.63	0.00	3.16	0.00	.065	.045	.065	.037	596.40	200.51
.002469	30.	30.	30.	0	0	1	0.00	20.61	221.13

3470 ENCROACHMENT STATIONS= 202.0 218.0 TYPE= 1 TARGET= 16.000

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

4381.00	3.43	599.83	0.00	0.00	600.01	.18	.03	.01	100000.00
165.	0.	165.	0.	0.	48.	0.	9.	3.	100000.00
.63	0.00	3.43	0.00	.065	.045	.065	.037	596.40	202.00
.002470	12.	12.	12.	0	0	1	0.00	16.00	218.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 605.60 ELREA= 605.40

4389.00	3.25	599.75	0.00	0.00	600.16	.41	.03	.11	605.60
165.	0.	165.	0.	0.	32.	0.	9.	3.	605.40
.63	0.00	5.13	0.00	.065	.042	.065	.037	596.50	398.00
.008156	8.	8.	8.	2	0	1	0.00	12.00	410.00

NORMAL BRIDGE,NRD=17 MIN ELTRD= 605.30 MAX ELLC= 602.80

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 605.60 ELREA= 605.40

BRIDGE SECTION 1, BEECHNUT DRIVE CULVERT

20' OF 12' WIDE OPENING, CONCRETE ABUTMENTS

ENTRANCE DESIGN:CONCRETE WINGWALLS

4390.00	3.26	599.76	0.00	0.00	600.16	.41	.01	.00	605.60
165.	0.	165.	0.	0.	32.	0.	9.	3.	605.40
.63	0.00	5.12	0.00	.065	.032	.065	.037	596.50	398.00
.004708	1.	1.	1.	0	0	1	0.00	12.00	410.00

NORMAL BRIDGE,NRD=16 MIN ELTRD= 605.30 MAX ELLC= 602.80

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 605.60 ELREA= 605.50

4410.00	2.97	599.87	0.00	0.00	600.26	.39	.09	.00	605.60
165.	0.	165.	0.	0.	33.	0.	9.	3.	605.50
.63	0.00	5.03	0.00	.065	.032	.065	.037	596.90	390.00
.004666	20.	20.	20.	1	0	1	0.00	12.00	402.00

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 605.60 ELREA= 605.50

4411.00	2.98	599.88	0.00	0.00	600.27	.39	.01	.00	605.60
165.	0.	165.	0.	0.	33.	0.	9.	3.	605.50
.63	0.00	5.02	0.00	.065	.045	.065	.037	596.90	390.00
.009181	1.	1.	1.	0	0	1	0.00	12.00	402.00

1490 NH CARD USED

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 607.60 ELREA= 605.80

4415.00	3.28	600.18	0.00	0.00	600.35	.17	.02	.07	607.60
165.	0.	165.	0.	0.	50.	0.	9.	3.	605.80
.63	0.00	3.31	0.00	.065	.048	.065	.037	596.90	200.70
.003150	4.	4.	4.	2	0	1	0.00	20.28	220.99

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 607.90 ELREA= 606.10

4510.00	3.28	600.48	0.00	0.00	600.65	.17	.30	.00	607.90
165.	0.	165.	0.	0.	50.	0.	9.	3.	606.10
.64	0.00	3.31	0.00	.065	.048	.065	.037	597.20	200.71
.003167	95.	95.	95.	2	0	1	0.00	20.27	220.98

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 608.10 ELREA= 606.30

4610.00	3.40	600.80	0.00	0.00	600.95	.16	.30	.00	608.10
165.	0.	165.	0.	0.	52.	0.	9.	3.	606.30
.65	0.00	3.16	0.00	.065	.048	.065	.037	597.40	200.51
.002785	100.	100.	100.	0	0	1	0.00	20.61	221.13

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 608.80 ELREA= 608.10

4709.00	3.42	601.12	0.00	0.00	601.32	.20	.35	.02	608.80
165.	0.	165.	0.	0.	46.	0.	10.	3.	608.10
.66	0.00	3.61	0.00	.065	.045	.065	.037	597.70	141.13
.004526	99.	99.	99.	2	0	1	0.00	19.03	160.16

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=18 MIN ELTRD= 608.00 MAX ELLC= 607.50

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 608.80 ELREA= 608.10

BRIDGE SECTION J, DRIVEWAY BRIDGE

12' OF 32' WIDE OPENING, WOODEN ABUTMENTS WITH I-BEAM PIERS

4710.00	3.40	601.10	0.00	0.00	601.35	.25	.00	.02	608.80
165.	0.	165.	0.	0.	41.	0.	10.	3.	608.10
.66	0.00	4.02	0.00	.070	.035	.070	.037	597.70	141.16
.005385	1.	1.	1.	2	0	1	0.00	18.24	160.10

NORMAL BRIDGE,NRD=18 MIN ELTRD= 608.00 MAX ELLC= 607.50

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 608.80 ELREA= 608.10

4722.00	3.49	601.19	0.00	0.00	601.42	.23	.06	.01	608.80
165.	0.	165.	0.	0.	43.	0.	10.	3.	608.10
.66	0.00	3.87	0.00	.070	.035	.070	.037	597.70	141.02
.004886	12.	12.	12.	2	0	1	0.00	18.63	160.35

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 608.80 ELREA= 608.10

4723.00	3.56	601.26	0.00	0.00	601.44	.18	.00	.02	608.80
165.	0.	165.	0.	0.	48.	0.	10.	3.	608.10
.66	0.00	3.41	0.00	.070	.045	.070	.037	597.70	140.90
.003901	1.	1.	1.	2	0	1	0.00	19.66	160.56

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 608.40 ELREA= 606.60

4797.00	3.85	601.55	0.00	0.00	601.66	.11	.19	.02	608.40
165.	0.	165.	0.	0.	62.	0.	10.	3.	606.60
.67	0.00	2.68	0.00	.070	.045	.070	.037	597.70	199.65
.001898	74.	74.	74.	2	0	1	0.00	22.04	221.68

3470 ENCROACHMENT STATIONS= 200.0 218.0 TYPE= 1 TARGET= 18.000

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

4803.00	3.85	601.55	0.00	0.00	601.68	.13	.01	.01	100000.00
165.	0.	165.	0.	0.	56.	0.	10.	3.	100000.00
.67	0.00	2.93	0.00	.070	.045	.070	.037	597.70	200.00
.002283	6.	6.	6.	1	0	1	0.00	18.00	218.00

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= 200.0 215.0 TYPE= 1 TARGET= 15.000

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

4809.00	3.83	601.53	0.00	0.00	601.74	.21	.02	.04	100000.00
165.	0.	165.	0.	0.	45.	0.	10.	3.	100000.00
.67	0.00	3.66	0.00	.070	.045	.070	.037	597.70	200.00
.004111	6.	6.	6.	2	0	1	0.00	15.00	215.00

3470 ENCROACHMENT STATIONS= 200.0 212.0 TYPE= 1 TARGET= 12.000

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

4815.00	3.77	601.47	0.00	0.00	601.86	.39	.04	.09	100000.00
165	0	165	0	0	33	0	10	3	100000.00

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      .67       0.00      4.99      0.00      .070      .045      .070      .037    597.70    200.00
  .009227          6.        6.        6.         2         0         1      0.00     12.00    212.00

3470 ENCROACHMENT STATIONS=     202.0     211.0  TYPE=       1  TARGET=       9.000

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

  4821.00      3.76    601.46      0.00      0.00    602.01       .54       .07       .08100000.00
     165.         0.       165.        0.        0.       28.        0.       10.         3. 100000.00
      .67      0.00      5.92      0.00      .070      .045      .070      .037    597.70    202.00
  .013568          6.        6.        6.         2         0         1      0.00      9.00    211.00


3470 ENCROACHMENT STATIONS=     203.0     210.0  TYPE=       1  TARGET=       7.000

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

  4824.00      3.66    601.36      0.00      0.00    602.22       .86       .05       .16100000.00
     165.         0.       165.        0.        0.       22.        0.       10.         3. 100000.00
      .67      0.00      7.44      0.00      .070      .045      .070      .037    597.70    203.00
  .024564          3.        3.        3.         2         0         1      0.00      7.00    210.00


OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       610.30 ELREA=       610.30

  4826.00      3.51    601.21      0.00      0.00    602.50      1.30       .07       .22    610.30
     165.         0.       165.        0.        0.       18.        0.       10.         3.    610.30
      .67      0.00      9.13      0.00      .070      .050      .070      .037    597.70    138.00
  .047924          2.        2.        2.         2         0         1      0.00      6.00    144.00


NORMAL BRIDGE,NRD=14 MIN ELTRD=   609.20 MAX ELLC=   603.70

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       610.30 ELREA=       610.30

                BRIDGE SECTION K, DRIVEWAY CULVERT

                25' OF 72" CMP

                ENTRANCE DESIGN:CONCRETE WINGWALLS, SILT REMOVED

  4827.00      3.49    601.19    600.93      0.00    602.58      1.39       .03       .05    610.30
     165.         0.       165.        0.        0.       17.        0.       10.         3.    610.30
      .67      0.00      9.45      0.00      .070      .030      .070      .037    597.70    138.00
  .021640          1.        1.        1.         4        12         1      -.49      6.00    144.00


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
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NORMAL BRIDGE,NRD=14 MIN ELTRD= 609.20 MAX ELLC= 603.70

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 610.30 ELREA= 610.30

4852.00	4.65	602.35	0.00	0.00	603.13	.78	.37	.10	610.30
165.	0.	165.	0.	0.	23.	0.	10.	3.	610.30
.67	0.00	7.09	0.00	.070	.030	.070	.037	597.70	138.00
.010561	25.	25.	25.	2	0	1	-1.65	6.00	144.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 610.30 ELREA= 610.30

4853.00	4.88	602.58	0.00	0.00	603.19	.61	.01	.05	610.30
165.	0.	165.	0.	0.	26.	0.	10.	3.	610.30
.67	0.00	6.27	0.00	.080	.045	.080	.037	597.70	138.00
.015000	1.	1.	1.	2	0	1	0.00	6.00	144.00

3470 ENCROACHMENT STATIONS= 221.0 229.0 TYPE= 1 TARGET= 8.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 99998.10 ELREA= 99998.10

4854.00	5.36	603.06	0.00	0.00	603.31	.25	.01	.11	99998.10
165.	0.	165.	0.	0.	42.	0.	10.	3.	99998.10
.67	0.00	3.97	0.00	.080	.045	.080	.037	597.70	221.00
.004740	1.	1.	1.	2	0	1	0.00	8.00	229.00

3470 ENCROACHMENT STATIONS= 215.0 235.0 TYPE= 1 TARGET= 20.000

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

4860.00	5.52	603.32	0.00	0.00	603.37	.05	.01	.06	100000.00
165.	0.	165.	0.	0.	93.	0.	10.	3.	100000.00
.67	0.00	1.78	0.00	.080	.045	.080	.037	597.80	215.00
.000589	6.	6.	6.	2	0	1	0.00	20.00	235.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 610.40 ELREA= 605.00

4866.00	5.56	603.36	0.00	0.00	603.38	.03	.00	.01	610.40
165.	0.	165.	0.	0.	125.	0.	10.	3.	605.00
.67	0.00	1.32	0.00	.080	.045	.080	.037	597.80	213.37
.000290	6.	6.	6.	1	0	1	0.00	31.56	244.94

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 612.00 ELREA= 606.60

VALLEY SECTION L

5077.00	4.04	603.44	0.00	0.00	603.50	.06	.10	.02	612.00
165.	0.	165.	0.	0.	81.	0.	10.	3.	606.60
.70	0.00	2.04	0.00	.080	.045	.080	.038	599.40	215.81

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.001000    211.    211.    211.       0       0       1    0.00    27.25   243.05

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      612.80 ELREA=      607.40

 5127.00    3.29   603.49    0.00    0.00   603.60     .11     .07     .02   612.80
    165.      0.     165.      0.      0.      61.      0.     10.      3.    607.40
     .70    0.00    2.70    0.00    .080     .045    .080    .038   600.20   217.03
 .002257     50.     50.     50.       1       0       1    0.00    25.07   242.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      613.70 ELREA=      608.30

 5177.00    2.51   603.61    0.00    0.00   603.84     .23     .18     .06   613.70
    165.      0.     165.      0.      0.      43.      0.     10.      3.    608.30
     .71    0.00    3.87    0.00    .080     .045    .080    .038   601.10   218.28
 .006528     50.     50.     50.       2       0       1    0.00    22.86   241.13

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      613.80 ELREA=      608.40

 5197.00    2.55   603.75    0.00    0.00   603.97     .22     .13     .00   613.80
    165.      0.     165.      0.      0.      43.      0.     10.      3.    608.40
     .71    0.00    3.80    0.00    .080     .045    .080    .038   601.20   218.22
 .006174     20.     20.     20.       2       0       1    0.00    22.96   241.18

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

 5226.00    3.31   605.21   605.21    0.00   606.52    1.31     .37     0.00   654.20
    165.      0.     165.      0.      0.      18.      0.     10.      3.    654.20
     .71    0.00    9.17    0.00    .080     .045    .080    .038   601.90   296.50
 .039188     29.     29.     29.      30      11       1    0.00     7.00   303.50

   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

NORMAL BRIDGE,NRD=11 MIN ELTRD=  653.60 MAX ELLC=  608.90

          BRIDGE SECTION M, I-94 CULVERT

          381' OF 34" MULTIPLATE PIPE

          ENTRANCE DESIGN:CONCRETE WINGWALLS  SILT REMOVED
```

=7'

OXA+B

sustained flow? will the flood last long enough to get all this sand out? what is the grain size? why was silt considered to be removed. at upstream end vel 100yr is only 5.04 ft/sec.

5227.00	3.93	605.83	0.00	0.00	606.68	.85	.02	.14	654.20
165.	0.	165.	0.	0.	22.	0.	10.	3.	654.20
.71	0.00	7.38	0.00	.080	.032	.080	.038	601.90	296.50
.011116	1.	1.	1.	7	0	1	0.00	7.00	303.50

NORMAL BRIDGE,NRD=11 MIN ELTRD= 653.60 MAX ELLC= 609.10

5285.00	4.56	606.66	0.00	0.00	607.26	.59	.50	.08	654.40
165.	0.	165.	0.	0.	27.	0.	10.	3.	654.40
.71	0.00	6.18	0.00	.080	.032	.080	.038	602.10	296.50
.006995	58.	58.	58.	3	0	1	0.00	7.00	303.50

NORMAL BRIDGE,NRD=11 MIN ELTRD= 653.60 MAX ELLC= 609.30

5343.00	4.86	607.16	0.00	0.00	607.68	.52	.40	.02	654.60
165.	0.	165.	0.	0.	29.	0.	11.	3.	654.60
.72	0.00	5.77	0.00	.080	.032	.080	.038	602.30	296.50
.006790	58.	58.	58.	2	0	1	-.24	7.00	303.50

NORMAL BRIDGE,NRD=11 MIN ELTRD= 653.60 MAX ELLC= 609.50

5401.00	5.09	607.59	0.00	0.00	608.06	.47	.37	.01	654.80
165.	0.	165.	0.	0.	30.	0.	11.	3.	654.80
.72	0.00	5.53	0.00	.080	.032	.080	.038	602.50	296.50
.006114	58.	58.	58.	2	0	1	-.59	7.00	303.50

NORMAL BRIDGE,NRD=11 MIN ELTRD= 653.60 MAX ELLC= 609.70

5459.00	5.27	607.97	0.00	0.00	608.41	.45	.34	.01	655.00
165.	0.	165.	0.	0.	31.	0.	11.	3.	655.00
.72	0.00	5.36	0.00	.080	.032	.080	.038	602.70	296.50
.005665	58.	58.	58.	0	0	1	-.85	7.00	303.50

NORMAL BRIDGE,NRD=11 MIN ELTRD= 653.60 MAX ELLC= 609.90

5517.00	5.42	608.32	0.00	0.00	608.74	.42	.32	.01	655.20
165.	0.	165.	0.	0.	32.	0.	11.	3.	655.20
.73	0.00	5.22	0.00	.080	.032	.080	.038	602.90	296.50
.005323	58.	58.	58.	1	0	1	-1.07	7.00	303.50

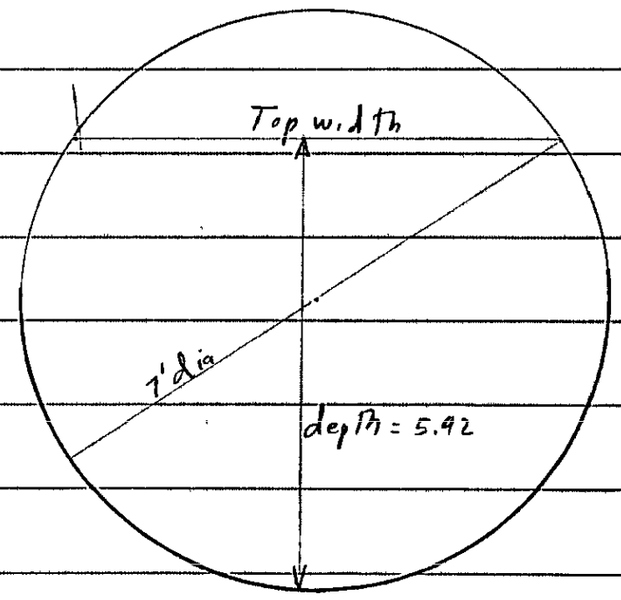
SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

NORMAL BRIDGE,NRD=11 MIN ELTRD= 653.60 MAX ELLC= 610.10

5575.00	5.54	608.64	0.00	0.00	609.05	.41	.30	.01	655.40
165.	0.	165.	0.	0.	32.	0.	11.	3.	655.40
.73	0.00	5.11	0.00	.080	.032	.080	.037	603.10	296.50
.005057	58.	58.	58.	1	0	1	-1.25	7.00	303.50

What are the present depths of sediment? Sand 2 to 4 ft/sec but silty sand having a suspended load is up to 5.5 ft/sec

How was 58' length selected as being the optimum ref. page 3 of report?



5.8' max does not appear that they used a circular model.

NORMAL BRIDGE,NRD=11 MIN ELTRD= 653.60 MAX ELLC= 610.20

5608.00	5.62	608.82	0.00	0.00	609.21	.39	.16	.00	654.20
165.	0.	165.	0.	0.	33.	0.	11.	3.	654.20
.73	0.00	5.04	0.00	.080	.032	.080	.037	603.20	296.50
.004901	33.	33.	33.	1	0	1	-1.37	7.00	303.50

OK, since d=5.62 ft is less than 84" dia

5609.00	5.68	608.88	0.00	0.00	609.23	.35	.00	.01	654.20
165.	0.	165.	0.	0.	35.	0.	11.	3.	654.20
.73	0.00	4.78	0.00	.080	.032	.080	.037	603.20	296.50
.003659	1.	1.	1.	2	0	1	0.00	7.00	303.50

1490 NH CARD USED

3470 ENCROACHMENT STATIONS= 96.0 117.0 TYPE= 1 TARGET= 21.000

5615.00	5.88	609.28	0.00	0.00	609.33	.05	.01	.09	606.00
165.	13.	132.	19.	12.	67.	15.	11.	3.	605.10
.73	1.08	1.98	1.25	.080	.060	.080	.037	603.40	96.00
.000766	6.	6.	6.	2	0	1	0.00	21.00	117.00

5622.00	5.70	609.30	0.00	0.00	609.34	.04	.00	.01	606.20
165.	21.	113.	31.	26.	64.	33.	11.	3.	605.30
.73	.80	1.75	.93	.080	.060	.080	.037	603.60	87.13
.000627	7.	7.	7.	1	0	1	0.00	38.66	125.79

VALLEY SECTION N

5658.00	4.62	609.32	0.00	0.00	609.39	.08	.03	.02	607.30
165.	14.	126.	25.	14.	50.	21.	11.	3.	606.40
.74	.99	2.50	1.23	.080	.059	.080	.037	604.70	89.76
.001700	36.	36.	36.	0	0	1	0.00	34.12	123.88

1490 NH CARD USED

5763.00	3.87	609.57	0.00	0.00	609.71	.14	.28	.03	608.80
165.	3.	150.	12.	4.	48.	11.	11.	3.	608.40
.75	.83	3.10	1.11	.080	.069	.080	.037	605.70	92.24
.004946	105.	105.	105.	2	0	1	0.00	41.70	133.94

1490 NH CARD USED

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

5858.00	3.14	609.94	0.00	0.00	609.95	.01	.21	.04	610.30
35.	0.	35.	0.	0.	39.	0.	11.	3.	610.40
.78	0.00	.89	0.00	.080	.053	.080	.037	606.80	100.54
.000325	95.	95.	95.	2	0	1	0.00	19.38	119.92

1490 NH CARD USED

5973.00	2.10	610.00	0.00	0.00	610.03	.04	.07	.01	611.90
35.	0.	35.	0.	0.	23.	0.	11.	4.	612.50
.80	0.00	1.50	0.00	.080	.050	.080	.037	607.90	103.51
.001370	115.	115.	115.	2	0	1	0.00	17.06	120.57

1490 NH CARD USED

6078.00	1.34	610.24	0.00	0.00	610.38	.14	.30	.05	613.40
35.	0.	35.	0.	0.	12.	0.	11.	4.	614.50
.81	0.00	2.97	0.00	.080	.050	.080	.037	608.90	106.59
.008855	105.	105.	105.	2	0	1	0.00	11.93	118.52

VALLEY SECTION 0

6183.00	1.28	611.28	0.00	0.00	611.41	.13	1.03	.00	615.00
35.	0.	35.	0.	0.	12.	0.	11.	4.	616.60
.82	0.00	2.89	0.00	.080	.050	.080	.037	610.00	108.29
.010825	105.	105.	105.	3	0	1	0.00	12.46	120.75

6193.00	1.40	611.40	0.00	0.00	611.50	.10	.09	.01	615.00
35.	0.	35.	0.	0.	14.	0.	11.	4.	616.60
.82	0.00	2.54	0.00	.080	.050	.080	.037	610.00	107.99
.007382	10.	10.	10.	2	0	1	0.00	12.83	120.83

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 615.10 ELREA= 616.70

6207.00	1.41	611.51	0.00	0.00	611.61	.10	.10	.00	615.10
35.	0.	35.	0.	0.	14.	0.	11.	4.	616.70
.82	0.00	2.53	0.00	.080	.050	.080	.037	610.10	107.99
.007308	14.	14.	14.	2	0	1	0.00	12.84	120.83

3470 ENCROACHMENT STATIONS= 111.0 120.0 TYPE= 1 TARGET= 9.000

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

6222.00	1.41	611.61	0.00	0.00	611.76	.14	.13	.02	100000.00
35.	0.	35.	0.	0.	11.	0.	11.	4.	100000.00
.82	0.00	3.05	0.00	.080	.050	.080	.037	610.20	111.00
.010503	15.	15.	15.	0	0	1	0.00	9.00	120.00

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 619.40 ELREA= 619.40

6232.00	1.39	611.59	0.00	0.00	612.20	.62	.21	.24	619.40
35.	0.	35.	0.	0.	6.	0.	11.	4.	619.40
.82	0.00	6.30	0.00	.080	.050	.080	.037	610.20	143.00
.058574	10.	10.	10.	2	0	1	0.00	4.00	147.00

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=10 MIN_EL,TRD= 616.20 MAX_EL,LC= 612.40

BRIDGE SECTION P, SAND PIT ACCESS DRIVE

48" OF 48" RCP

ENTRANCE DESIGN:PROJECTING FROM FILL, SILT NOT REMOVED

OK based upon a vel of 4.4 ft/sec

6233.00	1.40	611.60	611.60	0.00	612.52	.92	.04	0.00	619.40
35.	0.	35.	0.	0.	5.	0.	11.	4.	619.40
.82	0.00	7.68	0.00	.080	.022	.030	.037	610.20	143.00
.027466	1.	1.	1.	4	16	1	-1.06	4.00	147.00

3301 HV CHANGED MORE THAN HVINS

NORMAL BRIDGE,NRD=10 MIN_EL,TRD= 616.20 MAX_EL,LC= 613.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 619.40 ELREA= 619.40

6281.00	2.53	612.93	0.00	0.00	613.23	.30	.53	.18	619.40
35.	0.	35.	0.	0.	8.	0.	11.	4.	619.40
.83	0.00	4.40	0.00	.080	.022	.030	.037	610.40	143.00
.005902	48.	48.	48.	0	0	1	-2.13	4.00	147.00

WATER EL=X5 CARD= 612.140

6282.00	1.74	612.14	0.00	0.00	612.53	.39	.01	.05	619.40
35.	0.	35.	0.	0.	7.	0.	11.	4.	619.40
.83	0.00	5.03	0.00	.080	.050	.080	.037	610.40	143.00
.031514	1.	1.	1.	0	0	1	0.00	4.00	147.00

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 616.70 ELREA= 618.10

6285.00	2.20	612.60	0.00	0.00	612.65	.06	.02	.10	616.70
35.	0.	35.	0.	0.	19.	0.	11.	4.	618.10
.83	0.00	1.89	0.00	.080	.050	.080	.037	610.40	134.03
.002507	3.	3.	3.	2	0	1	0.00	11.57	145.60

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 617.00 ELREA= 618.40

6381.00	2.15	612.85	0.00	0.00	612.91	.06	.25	.00	617.00
35.	0.	35.	0.	0.	18.	0.	11.	4.	618.40
.84	0.00	1.95	0.00	.080	.050	.080	.037	610.70	134.08
.002765	96.	96.	96.	3	0	1	0.00	11.42	145.5

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 617.40 ELREA= 618.80

6481.00	2.05	613.15	0.00	0.00	613.21	.07	.30	.00	617.40
35.	0.	35.	0.	0.	17.	0.	11.	4.	618.80
.85	0.00	2.09	0.00	.080	.050	.080	.037	611.10	134.18
.003335	100.	100.	100.	2	0	1	0.00	11.14	145.33

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 617.70 ELREA= 619.10

6581.00	2.06	613.46	0.00	0.00	613.51	.05	.29	.01	617.70
30.	0.	30.	0.	0.	17.	0.	11.	4.	619.10
.87	0.00	1.79	0.00	.080	.050	.080	.038	611.40	134.18
.002428	100.	100.	100.	0	0	1	0.00	11.16	145.34

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 618.00 ELREA= 619.40

6681.00	2.01	613.71	0.00	0.00	613.76	.05	.25	.00	618.00
30.	0.	30.	0.	0.	16.	0.	11.	4.	619.40
.88	0.00	1.84	0.00	.080	.050	.080	.038	611.70	134.22
.002634	100.	100.	100.	2	0	1	0.00	11.04	145.26

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 618.40 ELREA= 619.80

6781.00	1.90	614.00	0.00	0.00	614.06	.06	.29	.00	618.40
30.	0.	30.	0.	0.	15.	0.	11.	4.	619.80
.90	0.00	1.99	0.00	.080	.050	.080	.038	612.10	134.33
.003272	100.	100.	100.	2	0	1	0.00	10.74	145.07

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

6881.00	1.92	614.32	0.00	0.00	614.38	.06	.32	.00	618.70
30.	0.	30.	0.	0.	15.	0.	12.	4.	620.10
.91	0.00	1.96	0.00	.080	.050	.080	.038	612.40	134.31
.003130	100.	100.	100.	2	0	1	0.00	10.80	145.11

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 618.60 ELREA= 620.00

6927.00	2.15	614.45	0.00	0.00	614.50	.04	.11	.00	618.60
30.	0.	30.	0.	0.	18.	0.	12.	4.	620.00
.92	0.00	1.67	0.00	.080	.050	.080	.038	612.30	134.07
.001997	46.	46.	46.	1	0	1	0.00	11.45	145.52

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 618.50 ELREA= 618.50

6930.00	2.05	614.35	0.00	0.00	614.62	.27	.01	.11	618.50

	30.	0.	30.	0.	0.	7.	0.	12.	4.	618.50
	.92	0.00	4.19	0.00	.080	.050	.080	.038	612.30	298.00
.019329		3.	3.	3.	2	0	1	0.00	4.00	302.00

NORMAL BRIDGE,NRD=11 MIN ELTRD= 618.50 MAX ELLC= 616.00

BRIDGE SECTION R, ACCESS ROAD.

32' OF 48" CMP

ENTRANCE DESIGN:PROJECTING FROM FILL, SILT NOT REMOVED

6931.00	2.07	614.37	0.00	0.00	614.64	.27	.01	.00	618.50	
	30.	0.	30.	0.	0.	7.	0.	12.	4.	618.50
	.92	0.00	4.16	0.00	.080	.033	.080	.038	612.30	298.00
.008288		1.	1.	1.	0	0	1	0.00	4.00	302.00

NORMAL BRIDGE,NRD=11 MIN ELTRD= 618.50 MAX ELLC= 616.20

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 618.50 ELREA= 618.50

6963.00	2.15	614.65	0.00	0.00	614.89	.25	.25	.01	618.50	
	30.	0.	30.	0.	0.	8.	0.	12.	4.	618.50
	.92	0.00	3.98	0.00	.080	.033	.080	.038	612.50	298.00
.007342		32.	32.	32.	4	0	1	0.00	4.00	302.00

6964.00	2.16	614.66	0.00	0.00	614.91	.24	.01	.00	618.50	
	30.	0.	30.	0.	0.	8.	0.	12.	4.	618.50
	.92	0.00	3.96	0.00	.080	.050	.080	.038	612.50	298.00
.016672		1.	1.	1.	0	0	1	0.00	4.00	302.00

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	
7163.00	2.14	616.74	0.00	0.00	616.82	.09	1.87	.05	619.50	
	30.	0.	30.	0.	0.	13.	0.	12.	4.	619.20
	.95	0.00	2.36	0.00	.080	.050	.080	.039	614.60	204.38
.006024		199.	199.	199.	3	0	1	0.00	11.46	215.85
7363.00	1.79	618.49	0.00	0.00	618.66	.17	1.80	.04	621.60	
	30.	0.	30.	0.	0.	9.	0.	12.	4.	621.30
	.96	0.00	3.32	0.00	.080	.050	.080	.039	616.70	204.94
.014875		200.	200.	200.	3	0	1	0.00	9.62	214.56
7563.00	2.00	620.80	0.00	0.00	620.91	.11	2.23	.02	623.70	
	30.	0.	30.	0.	0.	11.	0.	12.	4.	623.40
	.98	0.00	2.70	0.00	.080	.050	.080	.039	618.80	204.62
.008657		200.	200.	200.	4	0	1	0.00	10.69	215.31

VALLEY SECTIONS

7763.00	1.88	622.78	0.00	0.00	622.92	.14	2.00	.01	625.80
30.	0.	30.	0.	0.	10.	0.	12.	4.	625.50
1.00	0.00	3.02	0.00	.080	.050	.080	.039	620.90	204.80
.011648	200.	200.	200.	3	0	1	0.00	10.09	214.89
7876.00	2.50	623.40	0.00	0.00	623.44	.04	.48	.03	624.90
30.	0.	30.	0.	0.	19.	0.	12.	4.	624.70
1.02	0.00	1.60	0.00	.080	.050	.080	.040	620.90	352.36
.002201	113.	113.	113.	3	0	1	0.00	14.23	366.59
7988.00	2.70	623.60	0.00	0.00	623.63	.03	.14	.00	624.10
30.	0.	30.	0.	0.	23.	0.	12.	4.	623.90
1.04	0.00	1.30	0.00	.080	.050	.080	.040	620.90	500.75
.001325	112.	112.	112.	2	0	1	0.00	16.43	517.19
8101.00	2.91	623.71	0.00	0.00	623.72	.01	.09	.00	623.20
30.	0.	27.	3.	2.	27.	11.	12.	4.	623.00
1.08	.17	.98	.29	.080	.050	.080	.040	620.80	641.25
.000504	113.	113.	113.	2	0	1	0.00	43.14	684.38

3470 ENCROACHMENT STATIONS= .0 800.0 TYPE= 1 TARGET= 799.999

8138.00	2.93	623.73	0.00	0.00	623.74	.01	.02	.00	623.00
30.	1.	22.	7.	5.	26.	32.	12.	4.	622.80
1.09	.18	.84	.23	.080	.050	.080	.040	620.80	687.27
.000346	37.	37.	37.	1	0	1	0.00	112.73	800.00

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= .0 832.0 TYPE= 1 TARGET= 831.999

8175.00	3.04	623.74	0.00	0.00	623.75	.00	.01	.00	622.70
30.	1.	13.	16.	9.	25.	73.	12.	4.	622.60
1.12	.14	.53	.21	.080	.050	.080	.040	620.70	733.01
.000126	37.	37.	37.	0	0	1	0.00	98.99	832.00

3470 ENCROACHMENT STATIONS= .0 855.0 TYPE= 1 TARGET= 854.999

VALLEY SECTION T

8213.00	3.05	623.75	0.00	0.00	623.75	.00	.00	.00	622.50
30.	6.	10.	14.	31.	23.	68.	12.	4.	622.40
1.16	.19	.43	.21	.080	.050	.080	.040	620.70	773.87
.000077	38.	38.	38.	1	0	1	0.00	81.13	855.00

3470 ENCROACHMENT STATIONS= .0 832.0 TYPE= 1 TARGET= 831.999

8263.00	2.65	623.75	0.00	0.00	623.76	.01	.01	.00	622.90
30.	7.	15.	8.	21.	19.	23.	12.	4.	622.80
1.19	.32	.81	.36	.080	.050	.080	.040	621.10	775.08
.000353	50.	50.	50.	0	0	1	0.00	56.92	832.00

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 3470 ENCROACHMENT STATIONS=        .0     807.0  TYPE=     1  TARGET=     806.999
    8313.00      2.17    623.77      0.00      0.00    623.83       .06       .04       .03    623.40
         30.        6.        24.        0.        10.        11.        0.        12.        4. 100000.00
       1.19       .65      2.17      0.00      .080      .050      .080      .040    621.60    776.57
    .004011        50.        50.        50.         0         0         1      0.00     30.43    807.00

    8362.00      2.01    624.01      0.00      0.00    624.16       .15       .29       .04    629.30
         30.        0.        30.        0.        0.        10.        0.        12.        4.    629.30
       1.20       0.00      3.06      0.00      .080      .050      .080      .040    622.00    800.00
    .009336        49.        49.        49.         2         0         1      0.00      5.00    805.00

NORMAL BRIDGE,NRD=18 MIN ELTRD=  627.60 MAX ELLC=  625.80

                BRIDGE SECTION U, RED ARROW HIGHWAY BRIDGE

                68' OF 5' BOX CULVERT

                ENTRANCE DESIGN:CONCRETE WINGWALLS, 90 DEG. FROM HEADWALL

    8363.00      2.02    624.02      0.00      0.00    624.16       .14       .00       .00    629.30
         30.        0.        30.        0.        0.        10.        0.        12.        4.    629.30
       1.20       0.00      3.05      0.00      .070      .020      .070      .040    622.00    800.00
    .001480          1.         1.         1.         0         0         1      0.00      5.00    805.00


NORMAL BRIDGE,NRD=18 MIN ELTRD=  627.60 MAX ELLC=  626.10

    8431.00      2.44    624.14      0.00      0.00    624.25       .11       .08       .01    629.30
         30.        0.        30.        0.        0.        11.        0.        12.        4.    629.30
       1.21       0.00      2.67      0.00      .070      .020      .070      .040    621.70    800.00
    .001037         68.        68.        68.         2         0         1      0.00      5.00    805.00

     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       XNGH      XNR       WTN       ELMIN       SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

    8432.00      2.45    624.15      0.00      0.00    624.26       .11       .00       .00    629.30
         30.        0.        30.        0.        0.        11.        0.        12.        4.    629.30
       1.21       0.00      2.67      0.00      .090      .055      .090      .040    621.70    800.00
    .007833          1.         1.         1.         0         0         1      0.00      5.00    805.00


 3470 ENCROACHMENT STATIONS=      748.0    1408.0  TYPE=     1  TARGET=    -748.000
    8456.00      2.50    624.30      0.00      0.00    624.30       .00       .02       .03    623.20
         30.        2.        19.        9.        9.        29.        33.        12.        5.    623.00
       1.22       .27       .66       .27      .090      .055      .090      .040    621.80    748.00
    .000241         24.        24.        24.         2         0         1      0.00     54.86    802.86


 3470 ENCROACHMENT STATIONS=      697.0    1408.0  TYPE=     1  TARGET=    -697.000
    8481.00      2.41    624.31      0.00      0.00    624.31       .00       .00       .00    623.30
         30.        9.        14.        6.        49.        27.        30.        12.        5.    623.10
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1.24	.19	.53	.21	.090	.055	.090	.040	621.90	697.00
.000165	25.	25.	25.	2	0	1	0.00	104.87	801.87
8503.00	2.31	624.31	0.00	0.00	624.31	.00	.00	.00	623.40
30.	10.	14.	6.	60.	26.	27.	12.	5.	623.20
1.25	.17	.55	.22	.090	.055	.090	.040	622.00	649.50
.000190	22.	22.	22.	0	0	1	0.00	151.35	800.85
8560.00	2.03	624.33	0.00	0.00	624.33	.01	.02	.00	623.70
30.	6.	18.	6.	31.	22.	18.	13.	5.	623.50
1.28	.21	.83	.30	.090	.055	.090	.040	622.30	667.30
.000542	57.	57.	57.	0	0	1	0.00	130.44	797.74
8617.00	1.87	624.37	0.00	0.00	624.38	.01	.04	.00	623.90
30.	4.	21.	5.	18.	20.	14.	13.	5.	623.70
1.30	.22	1.07	.37	.090	.055	.090	.040	622.50	662.63
.001035	57.	57.	57.	2	0	1	0.00	113.43	796.06
8674.00	1.65	624.45	0.00	0.00	624.48	.03	.09	.01	624.20
30.	1.	25.	4.	5.	17.	9.	13.	5.	624.00
1.31	.21	1.52	.44	.090	.055	.090	.040	622.80	714.85
.002628	57.	57.	57.	2	0	1	0.00	78.86	793.70

VALLEY SECTION V

8731.00	1.61	624.61	0.00	0.00	624.64	.03	.16	.00	624.40
30.	1.	26.	3.	5.	16.	8.	13.	5.	624.20
1.32	.20	1.60	.45	.090	.055	.090	.040	623.00	741.86
.003075	57.	57.	57.	2	0	1	0.00	81.41	823.27

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
8806.00	1.49	624.89	0.00	0.00	624.94	.05	.29	.01	624.80
30.	0.	28.	2.	1.	14.	5.	13.	5.	624.60
1.33	.15	1.92	.45	.090	.055	.090	.041	623.40	766.99
.005105	75.	75.	75.	2	0	1	0.00	55.03	822.02
8881.00	1.42	625.32	0.00	0.00	625.39	.07	.44	.01	625.30
30.	0.	29.	1.	0.	13.	4.	13.	5.	625.10
1.34	.01	2.12	.41	.090	.055	.090	.041	623.90	781.12
.006773	75.	75.	75.	2	0	1	0.00	40.19	821.31
8956.00	1.48	625.78	0.00	0.00	625.84	.05	.45	.00	625.70
30.	0.	28.	2.	1.	14.	5.	13.	5.	625.50
1.36	.14	1.95	.44	.090	.055	.090	.041	624.30	768.73
.005286	75.	75.	75.	1	0	1	0.00	53.20	821.93
9031.00	1.48	626.18	0.00	0.00	626.23	.05	.40	.00	626.10
30.	0.	28.	2.	1.	14.	5.	13.	6.	625.90
1.37	.14	1.95	.44	.090	.055	.090	.041	624.70	768.85
.005298	75.	75.	75.	2	0	1	0.00	53.08	821.93

9106.00	1.42	626.62	0.00	0.00	626.69	.07	.45	.01	626.60
30.	0.	29.	1.	0.	13.	4.	13.	6.	626.40
1.38	.01	2.12	.41	.090	.055	.090	.041	625.20	781.21
.006784	75.	75.	75.	2	0	1	0.00	40.10	821.31

9181.00	1.48	627.08	0.00	0.00	627.14	.05	.45	.00	627.00
30.	0.	28.	2.	1.	14.	5.	13.	6.	626.80
1.39	.14	1.94	.44	.090	.055	.090	.041	625.60	768.37
.005248	75.	75.	75.	1	0	1	0.00	53.58	821.95

3470 ENCROACHMENT STATIONS= 788.0 817.0 TYPE= 1 TARGET= 29.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 100000.00 ELREA= 627.10

9231.00	1.45	627.35	0.00	0.00	627.42	.07	.27	.01100000.00	
30.	0.	28.	2.	0.	13.	4.	13.	6.	627.10
1.40	0.00	2.11	.44	.090	.055	.090	.041	625.90	788.00
.005754	50.	50.	50.	2	0	1	0.00	29.00	817.00

3470 ENCROACHMENT STATIONS= 786.0 800.0 TYPE= 1 TARGET= 14.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 627.50 ELREA= 100000.00

9261.00	1.44	627.54	0.00	0.00	627.62	.07	.19	.00	627.50
30.	0.	30.	0.	0.	14.	0.	13.	6.	100000.00
1.40	0.00	2.19	0.00	.090	.055	.090	.041	626.10	786.00
.007215	30.	30.	30.	2	0	1	0.00	14.00	800.00

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= 790.0 797.0 TYPE= 1 TARGET= 7.000

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

9276.00	1.45	627.65	0.00	0.00	627.82	.17	.15	.05100000.00	
30.	0.	30.	0.	0.	9.	0.	13.	6.	100000.00
1.40	0.00	3.31	0.00	.090	.055	.090	.041	626.20	790.00
.015538	15.	15.	15.	0	0	1	0.00	7.00	797.00

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

9280.00	1.57	627.77	627.77	0.00	628.38	.61	.11	0.00	634.60

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     30.       0.      30.       0.      0.       5.       0.      13.       6.    634.60
    1.40     0.00     6.26     0.00    .090     .055     .090     .041   626.20   798.00
 .068459       4.       4.       4.      30        8        1     0.00     4.00   802.00

NORMAL BRIDGE,NRD=20 MIN ELTRD=  633.80 MAX ELLC=  630.20

              BRIDGE SECTION W, RAILROAD CULVERT

              41' OF 48" RCP

              ENTRANCE DESIGN:PROJECTING FROM FILL, SILT REMOVED

 9281.00     1.85   628.05     0.00     0.00   628.45      .40      .01      .06   634.60
     30.       0.      30.       0.       0.       6.       0.      13.       6.    634.60
    1.40     0.00     5.10     0.00    .070     .015     .070     .041   626.20   798.00
 .002905       1.       1.       1.       5        0        1     0.00     4.00   802.00

NORMAL BRIDGE,NRD=20 MIN ELTRD=  633.80 MAX ELLC=  630.50

 9322.00     1.61   628.11     0.00     0.00   628.68      .57      .15      .08   634.60
     30.       0.      30.       0.       0.       5.       0.      13.       6.    634.60
    1.40     0.00     6.08     0.00    .070     .015     .070     .041   626.50   798.00
 .004691      41.      41.      41.       4        0        1     0.00     4.00   802.00

WATER EL=X5 CARD=    628.160
 9323.00     1.66   628.16     0.00     0.00   628.69      .53      .01      .01   634.60
     30.       0.      30.       0.       0.       5.       0.      13.       6.    634.60
    1.40     0.00     5.84     0.00    .100     .055     .100     .041   626.50   798.00
 .056402       1.       1.       1.       0        0        1     0.00     4.00   802.00

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      629.90 ELREA=      629.30

 9326.00     2.34   628.84     0.00     0.00   628.85      .01      .01      .15   629.90
     20.       0.      20.       0.       0.      22.       0.      13.       6.    629.30
    1.40     0.00      .89     0.00    .100     .055     .100     .041   626.50   786.78
 .000603       3.       3.       3.       2        0        1     0.00    12.80   799.58

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      629.90 ELREA=      629.30

 9332.00     2.34   628.84     0.00     0.00   628.86      .01      .00      .00   629.90
     20.       0.      20.       0.       0.      23.       0.      13.       6.    629.30
    1.41     0.00      .89     0.00    .100     .055     .100     .041   626.50   786.78
 .000600       6.       6.       6.       2        0        1     0.00    12.80   799.59
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OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 629.90 ELREA= 629.30

9422.00	2.11	628.91	0.00	0.00	628.92	.02	.07	.00	629.90
20.	0.	20.	0.	0.	20.	0.	13.	6.	629.30
1.43	0.00	1.02	0.00	.100	.055	.100	.041	626.80	786.84
.000906	90.	90.	90.	0	0	1	0.00	12.74	799.58

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 629.90 ELREA= 629.30

9522.00	1.91	629.01	0.00	0.00	629.03	.02	.11	.00	629.90
20.	0.	20.	0.	0.	18.	0.	13.	6.	629.30
1.46	0.00	1.14	0.00	.100	.055	.100	.041	627.10	786.85
.001286	100.	100.	100.	2	0	1	0.00	12.80	799.64

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 629.90 ELREA= 629.30

9622.00	1.76	629.16	0.00	0.00	629.18	.02	.15	.00	629.90
20.	0.	20.	0.	0.	16.	0.	13.	6.	629.30
1.48	0.00	1.25	0.00	.100	.055	.100	.041	627.40	786.82
.001771	100.	100.	100.	2	0	1	0.00	12.96	799.79

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 629.90 ELREA= 629.30

VALLEY SECTION X

9672.00	1.66	629.26	0.00	0.00	629.29	.03	.10	.00	629.90
20.	0.	20.	0.	0.	15.	0.	13.	6.	629.30
1.49	0.00	1.35	0.00	.100	.055	.100	.042	627.60	786.80
.002247	50.	50.	50.	2	0	1	0.00	13.12	799.92



1) COUNTY: Berrien

2) STUDY NAME: Bridgman City

3) WATERCOURSE: Tanner Ck Williams & Esseg Dr.

4) DOCUMENT TYPE: Summary



SUMMARY PRINTOUT FOR MULTIPLE PROFILES

TANNER CREEK AND WILLIAM

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
0.00	0.00	0.00	0.00	579.50	105.00	581.31	.01	0.00	0.00	105.00	1.81	87.00
0.00	0.00	0.00	0.00	579.50	150.00	581.31	.01	0.00	0.00	150.00	1.81	87.00
0.00	0.00	0.00	0.00	579.50	165.00	581.31	.02	0.00	0.00	165.00	1.81	87.00
0.00	0.00	0.00	0.00	579.50	200.00	581.31	.03	0.00	0.00	200.00	1.81	87.00
50.00	50.00	0.00	0.00	579.50	105.00	581.31	.01	.01	.00	105.00	1.81	62.00
50.00	50.00	0.00	0.00	579.50	150.00	581.32	.03	.01	.01	150.00	1.82	62.00
50.00	50.00	0.00	0.00	579.50	165.00	581.32	.03	.01	.01	165.00	1.82	62.00
50.00	50.00	0.00	0.00	579.50	200.00	581.32	.05	.02	.01	200.00	1.82	62.00
100.00	50.00	0.00	0.00	579.50	105.00	581.32	.04	.01	.01	105.00	1.82	38.00
100.00	50.00	0.00	0.00	579.50	150.00	581.32	.07	.03	.02	150.00	1.82	38.00
100.00	50.00	0.00	0.00	579.50	165.00	581.32	.09	.03	.03	165.00	1.82	38.00
100.00	50.00	0.00	0.00	579.50	200.00	581.33	.13	.05	.04	200.00	1.83	38.00
115.00	15.00	0.00	0.00	579.50	105.00	581.31	.06	.01	.01	105.00	1.81	30.00
115.00	15.00	0.00	0.00	579.50	150.00	581.32	.12	.02	.02	150.00	1.82	30.00
115.00	15.00	0.00	0.00	579.50	165.00	581.32	.14	.02	.03	165.00	1.82	30.00
115.00	15.00	0.00	0.00	579.50	200.00	581.32	.21	.03	.04	200.00	1.82	30.00
135.00	20.00	0.00	0.00	579.50	105.00	581.30	.13	.02	.04	105.00	1.80	20.00
135.00	20.00	0.00	0.00	579.50	150.00	581.29	.27	.05	.08	150.00	1.79	20.00
135.00	20.00	0.00	0.00	579.50	165.00	581.28	.33	.06	.10	165.00	1.78	20.00
135.00	20.00	0.00	0.00	579.50	200.00	581.26	.50	.09	.15	200.00	1.76	20.00
150.00	15.00	0.00	0.00	579.50	105.00	581.36	.72	.07	0.00	105.00	1.86	10.86
150.00	15.00	0.00	0.00	579.50	150.00	581.76	.88	.12	0.00	150.00	2.26	11.51
150.00	15.00	0.00	0.00	579.50	165.00	581.89	.92	.14	0.00	165.00	2.39	11.71
150.00	15.00	0.00	0.00	579.50	200.00	582.15	1.03	.19	0.00	200.00	2.65	12.14
163.00	13.00	0.00	0.00	579.60	105.00	582.00	.37	.19	.10	105.00	2.40	11.72
163.00	13.00	0.00	0.00	579.60	150.00	582.49	.46	.19	.12	150.00	2.89	12.52
163.00	13.00	0.00	0.00	579.60	165.00	582.63	.49	.19	.13	165.00	3.03	12.76
163.00	13.00	0.00	0.00	579.60	200.00	582.94	.56	.19	.14	200.00	3.34	13.41
177.00	14.00	0.00	0.00	579.70	105.00	582.16	.35	.13	.01	105.00	2.46	11.83
177.00	14.00	0.00	0.00	579.70	150.00	582.65	.44	.13	.01	150.00	2.95	12.62
177.00	14.00	0.00	0.00	579.70	165.00	582.80	.46	.13	.01	165.00	3.10	12.91
177.00	14.00	0.00	0.00	579.70	200.00	583.12	.53	.13	.01	199.91	3.42	13.57
205.00	28.00	0.00	0.00	579.80	105.00	582.45	.29	.21	.02	105.00	2.65	12.13
205.00	28.00	0.00	0.00	579.80	150.00	582.96	.37	.21	.02	150.00	3.16	13.04
205.00	28.00	0.00	0.00	579.80	165.00	583.11	.39	.22	.02	165.00	3.31	13.35
205.00	28.00	0.00	0.00	579.80	200.00	583.43	.45	.21	.02	199.75	3.63	14.17
233.00	28.00	0.00	0.00	580.00	105.00	582.63	.29	.19	.00	105.00	2.63	12.09
233.00	28.00	0.00	0.00	580.00	150.00	583.15	.37	.19	.00	150.00	3.15	13.00
233.00	28.00	0.00	0.00	580.00	165.00	583.30	.40	.19	.00	165.00	3.30	13.32
233.00	28.00	0.00	0.00	580.00	200.00	583.62	.46	.19	.00	199.76	3.62	14.12

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
316.00	83.00	0.00	0.00	580.40	105.00	583.18	.25	.50	.01	105.00	2.78	12.33
316.00	83.00	0.00	0.00	580.40	150.00	583.72	.32	.51	.01	150.00	3.32	13.36
316.00	83.00	0.00	0.00	580.40	165.00	583.88	.35	.51	.02	164.90	3.48	13.69
316.00	83.00	0.00	0.00	580.40	200.00	584.21	.40	.51	.02	199.56	3.81	14.72
400.00	84.00	0.00	0.00	580.90	105.00	583.62	.21	.39	.01	104.04	2.72	15.74
400.00	84.00	0.00	0.00	580.90	150.00	584.17	.26	.37	.02	146.55	3.27	19.54
400.00	84.00	0.00	0.00	580.90	165.00	584.34	.28	.37	.02	160.22	3.44	22.01
400.00	84.00	0.00	0.00	580.90	200.00	584.69	.31	.36	.03	190.11	3.79	25.02
650.00	250.00	0.00	0.00	582.30	105.00	584.77	.27	1.18	.03	103.90	2.47	14.59
650.00	250.00	0.00	0.00	582.30	150.00	585.26	.34	1.13	.04	146.77	2.96	16.56
650.00	250.00	0.00	0.00	582.30	165.00	585.41	.36	1.11	.04	160.75	3.11	17.46
650.00	250.00	0.00	0.00	582.30	200.00	585.72	.41	1.08	.05	192.63	3.42	19.22
900.00	250.00	0.00	0.00	583.70	105.00	586.19	.26	1.41	.00	101.78	2.49	14.72
900.00	250.00	0.00	0.00	583.70	150.00	586.69	.33	1.42	.00	143.03	2.99	16.02
900.00	250.00	0.00	0.00	583.70	165.00	586.83	.36	1.42	.00	156.54	3.13	16.40
900.00	250.00	0.00	0.00	583.70	200.00	587.15	.41	1.42	.00	187.64	3.45	17.28
1125.00	225.00	0.00	0.00	585.10	105.00	587.43	.26	1.24	.00	99.36	2.33	15.69
1125.00	225.00	0.00	0.00	585.10	150.00	587.93	.32	1.22	.00	139.44	2.83	18.33
1125.00	225.00	0.00	0.00	585.10	165.00	588.07	.34	1.22	.01	152.51	2.97	19.21
1125.00	225.00	0.00	0.00	585.10	200.00	588.40	.38	1.22	.01	182.19	3.30	21.03
1350.00	225.00	0.00	0.00	586.30	105.00	588.69	.26	1.27	.00	96.11	2.39	17.92
1350.00	225.00	0.00	0.00	586.30	150.00	589.14	.33	1.21	.00	134.53	2.84	19.80
1350.00	225.00	0.00	0.00	586.30	165.00	589.27	.35	1.20	.01	147.05	2.97	20.35
1350.00	225.00	0.00	0.00	586.30	200.00	589.56	.39	1.17	.01	175.68	3.26	21.58
1412.00	62.00	0.00	0.00	586.40	105.00	589.05	.21	.29	.02	94.13	2.65	18.70
1412.00	62.00	0.00	0.00	586.40	150.00	589.50	.27	.29	.02	130.32	3.10	20.71
1412.00	62.00	0.00	0.00	586.40	165.00	589.64	.29	.29	.02	142.00	3.24	21.31
1412.00	62.00	0.00	0.00	586.40	200.00	589.94	.33	.29	.02	168.52	3.54	22.64
1474.00	62.00	0.00	0.00	586.50	105.00	589.29	.23	.24	.01	93.56	2.79	18.17
1474.00	62.00	0.00	0.00	586.50	150.00	589.74	.29	.25	.01	128.37	3.24	20.36
1474.00	62.00	0.00	0.00	586.50	165.00	589.88	.31	.26	.01	139.53	3.38	21.04
1474.00	62.00	0.00	0.00	586.50	200.00	590.18	.35	.26	.01	164.67	3.68	22.52
1537.00	63.00	0.00	0.00	586.60	105.00	589.53	.23	.25	.00	91.98	2.93	18.08
1537.00	63.00	0.00	0.00	586.60	150.00	590.01	.30	.27	.00	124.75	3.41	20.61
1537.00	63.00	0.00	0.00	586.60	165.00	590.15	.32	.27	.00	135.11	3.55	21.36
1537.00	63.00	0.00	0.00	586.60	200.00	590.46	.36	.28	.00	158.28	3.86	23.15
1570.00	33.00	0.00	0.00	586.70	105.00	589.67	.23	.13	.00	91.67	2.97	18.25
1570.00	33.00	0.00	0.00	586.70	150.00	590.17	.28	.14	.01	123.84	3.47	20.96
1570.00	33.00	0.00	0.00	586.70	165.00	590.31	.30	.14	.01	134.05	3.61	21.75
1570.00	33.00	0.00	0.00	586.70	200.00	590.63	.33	.14	.01	156.97	3.93	23.58

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
1580.00	10.00	0.00	0.00	586.70	105.00	589.73	.21	.04	.01	90.33	3.03	16.77
1580.00	10.00	0.00	0.00	586.70	150.00	590.22	.27	.04	.00	122.90	3.52	17.00
1580.00	10.00	0.00	0.00	586.70	165.00	590.36	.29	.04	.00	133.41	3.66	17.00
1580.00	10.00	0.00	0.00	586.70	200.00	590.67	.34	.04	.00	157.61	3.97	17.00
1590.00	10.00	0.00	0.00	586.80	105.00	589.75	.25	.04	.02	94.58	2.95	12.00
1590.00	10.00	0.00	0.00	586.80	150.00	590.22	.35	.04	.04	132.20	3.42	12.00
1590.00	10.00	0.00	0.00	586.80	165.00	590.36	.39	.04	.05	144.64	3.56	12.00
1590.00	10.00	0.00	0.00	586.80	200.00	590.65	.47	.05	.07	173.55	3.85	12.00
1600.00	10.00	0.00	0.00	586.80	105.00	589.71	.45	.06	.10	105.00	2.91	7.00
1600.00	10.00	0.00	0.00	586.80	150.00	590.12	.70	.07	.17	150.00	3.32	7.00
1600.00	10.00	0.00	0.00	586.80	165.00	590.24	.79	.08	.20	165.00	3.44	7.00
1600.00	10.00	0.00	0.00	586.80	200.00	590.85	.35	.05	.04	148.26	4.05	24.22
1870.00	270.00	597.80	590.80	587.30	105.00	592.04	.22	2.10	0.00	105.00	4.74	6.00
1870.00	270.00	597.80	590.80	587.30	150.00	595.17	.16	4.51	0.00	150.00	7.87	6.00
1870.00	270.00	597.80	590.80	587.30	165.00	596.39	.14	5.51	0.00	165.00	9.09	6.00
1870.00	270.00	597.80	590.80	587.30	200.00	598.09	.02	6.91	0.00	101.70	10.79	67.69
1875.00	5.00	0.00	0.00	587.30	105.00	592.28	.04	.00	.05	105.00	4.98	16.00
1875.00	5.00	0.00	0.00	587.30	150.00	595.34	.03	.00	.04	150.00	8.04	16.00
1875.00	5.00	0.00	0.00	587.30	165.00	596.55	.02	.00	.04	165.00	9.25	16.00
1875.00	5.00	0.00	0.00	587.30	200.00	598.09	.02	.00	.00	200.00	10.79	16.00
1879.00	4.00	0.00	0.00	587.30	105.00	592.28	.04	.00	.00	105.00	4.98	19.50
1879.00	4.00	0.00	0.00	587.30	150.00	595.35	.02	.00	.00	150.00	8.05	25.54
1879.00	4.00	0.00	0.00	587.30	165.00	596.56	.01	.00	.00	164.97	9.26	32.65
1879.00	4.00	0.00	0.00	587.30	200.00	598.10	.01	.00	.00	196.27	10.80	39.81
1931.00	52.00	0.00	0.00	587.50	105.00	592.30	.04	.02	.00	105.00	4.80	20.46
1931.00	52.00	0.00	0.00	587.50	150.00	595.36	.02	.01	.00	149.96	7.86	32.59
1931.00	52.00	0.00	0.00	587.50	165.00	596.57	.01	.00	.00	162.23	9.07	39.28
1931.00	52.00	0.00	0.00	587.50	200.00	598.11	.01	.00	.00	190.29	10.61	41.32
1970.00	39.00	0.00	0.00	587.60	105.00	592.32	.04	.02	.00	105.00	4.72	21.44
1970.00	39.00	0.00	0.00	587.60	150.00	595.37	.02	.00	.00	148.29	7.77	38.72
1970.00	39.00	0.00	0.00	587.60	165.00	596.57	.01	.00	.00	158.63	8.97	40.26
1970.00	39.00	0.00	0.00	587.60	200.00	598.11	.01	.00	.00	185.43	10.51	42.24
2070.00	100.00	0.00	0.00	587.90	105.00	592.36	.04	.05	.00	105.00	4.46	22.47
2070.00	100.00	0.00	0.00	587.90	150.00	595.38	.02	.01	.00	146.57	7.48	38.86
2070.00	100.00	0.00	0.00	587.90	165.00	596.58	.01	.01	.00	156.36	8.68	40.39
2070.00	100.00	0.00	0.00	587.90	200.00	598.12	.01	.00	.00	182.77	10.22	42.35
2170.00	100.00	0.00	0.00	588.10	105.00	592.42	.04	.05	.00	105.00	4.32	23.24
2170.00	100.00	0.00	0.00	588.10	150.00	595.40	.01	.01	.00	126.18	7.30	63.86
2170.00	100.00	0.00	0.00	588.10	165.00	596.59	.01	.01	.00	126.75	8.49	64.60
2170.00	100.00	0.00	0.00	588.10	200.00	598.13	.01	.00	.00	141.12	10.03	65.55

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
2270.00	100.00	0.00	0.00	588.40	105.00	592.48	.05	.06	.00	105.00	4.08	22.34
2270.00	100.00	0.00	0.00	588.40	150.00	595.40	.01	.01	.00	127.80	7.00	63.75
2270.00	100.00	0.00	0.00	588.40	165.00	596.60	.01	.01	.00	127.76	8.20	64.49
2270.00	100.00	0.00	0.00	588.40	200.00	598.13	.01	.00	.00	141.67	9.73	65.45
2370.00	100.00	0.00	0.00	588.70	105.00	592.55	.06	.08	.01	105.00	3.85	20.88
2370.00	100.00	0.00	0.00	588.70	150.00	595.42	.01	.01	.00	129.52	6.72	81.03
2370.00	100.00	0.00	0.00	588.70	165.00	596.60	.01	.01	.00	123.25	7.90	82.74
2370.00	100.00	0.00	0.00	588.70	200.00	598.13	.00	.00	.00	130.32	9.43	84.96
2455.00	85.00	0.00	0.00	588.90	105.00	592.63	.07	.08	.00	105.00	3.73	20.02
2455.00	85.00	0.00	0.00	588.90	150.00	595.43	.02	.01	.00	137.30	6.53	80.47
2455.00	85.00	0.00	0.00	588.90	165.00	596.61	.01	.01	.00	130.08	7.71	82.21
2455.00	85.00	0.00	0.00	588.90	200.00	598.14	.01	.00	.00	135.90	9.24	84.46
2540.00	85.00	0.00	0.00	589.20	105.00	592.73	.09	.10	.01	105.00	3.53	19.07
2540.00	85.00	0.00	0.00	589.20	150.00	595.44	.03	.02	.00	145.32	6.24	61.66
2540.00	85.00	0.00	0.00	589.20	165.00	596.61	.01	.01	.00	144.11	7.41	63.73
2540.00	85.00	0.00	0.00	589.20	200.00	598.14	.01	.00	.00	155.65	8.94	64.74
2620.00	80.00	0.00	0.00	589.40	105.00	592.84	.09	.11	.00	105.00	3.44	18.22
2620.00	80.00	0.00	0.00	589.40	150.00	595.46	.03	.02	.00	150.00	6.06	27.01
2620.00	80.00	0.00	0.00	589.40	165.00	596.62	.02	.01	.00	161.85	7.22	43.10
2620.00	80.00	0.00	0.00	589.40	200.00	598.14	.02	.01	.00	186.02	8.74	43.80
2700.00	80.00	0.00	0.00	589.60	105.00	592.96	.10	.13	.00	105.00	3.36	17.93
2700.00	80.00	0.00	0.00	589.60	150.00	595.48	.04	.03	.00	150.00	5.88	26.42
2700.00	80.00	0.00	0.00	589.60	165.00	596.63	.02	.01	.00	163.10	7.03	36.00
2700.00	80.00	0.00	0.00	589.60	200.00	598.15	.02	.01	.00	191.78	8.55	36.00
2720.00	20.00	0.00	0.00	589.70	105.00	592.87	.40	.06	.15	105.00	3.17	7.00
2720.00	20.00	0.00	0.00	589.70	150.00	595.46	.09	.01	.03	109.83	5.76	27.01
2720.00	20.00	0.00	0.00	589.70	165.00	596.62	.05	.00	.02	106.74	6.92	51.44
2720.00	20.00	0.00	0.00	589.70	200.00	598.15	.03	.00	.00	103.32	8.45	88.77
2746.00	26.00	595.90	594.20	589.70	105.00	593.03	.41	.17	.01	105.00	3.33	7.00
2746.00	26.00	595.90	594.20	589.70	150.00	596.30	.06	.80	0.00	101.41	6.60	49.89
2746.00	26.00	595.90	594.20	589.70	165.00	596.88	.05	.25	0.00	103.10	7.18	52.39
2746.00	26.00	595.90	594.20	589.70	200.00	598.20	.03	.06	0.00	102.36	8.50	90.95
2846.00	100.00	0.00	0.00	590.10	105.00	593.68	.08	.22	.10	105.00	3.58	17.26
2846.00	100.00	0.00	0.00	590.10	150.00	596.35	.04	.03	.01	150.00	6.25	22.05
2846.00	100.00	0.00	0.00	590.10	165.00	596.92	.03	.02	.00	165.00	6.82	23.06
2846.00	100.00	0.00	0.00	590.10	200.00	598.22	.03	.02	.00	199.99	8.12	29.13
2946.00	100.00	0.00	0.00	590.50	105.00	593.80	.10	.13	.01	105.00	3.30	16.76
2946.00	100.00	0.00	0.00	590.50	150.00	596.38	.04	.03	.00	150.00	5.88	21.39
2946.00	100.00	0.00	0.00	590.50	165.00	596.94	.04	.03	.00	165.00	6.44	22.39
2946.00	100.00	0.00	0.00	590.50	200.00	598.23	.03	.02	.00	200.00	7.73	24.71

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
3046.00	100.00	0.00	0.00	591.00	105.00	593.96	.13	.18	.02	105.00	2.96	16.16
3046.00	100.00	0.00	0.00	591.00	150.00	596.41	.05	.04	.01	150.00	5.41	20.54
3046.00	100.00	0.00	0.00	591.00	165.00	596.97	.05	.03	.00	165.00	5.97	21.54
3046.00	100.00	0.00	0.00	591.00	200.00	598.25	.04	.02	.00	200.00	7.25	23.85
3146.00	100.00	0.00	0.00	591.40	105.00	594.20	.15	.25	.01	105.00	2.80	15.87
3146.00	100.00	0.00	0.00	591.40	150.00	596.46	.06	.05	.01	150.00	5.06	19.91
3146.00	100.00	0.00	0.00	591.40	165.00	597.01	.06	.04	.00	165.00	5.61	20.89
3146.00	100.00	0.00	0.00	591.40	200.00	598.28	.05	.03	.00	200.00	6.88	23.18
3221.00	75.00	0.00	0.00	591.70	105.00	594.41	.16	.22	.01	105.00	2.71	15.71
3221.00	75.00	0.00	0.00	591.70	150.00	596.50	.07	.05	.00	150.00	4.80	19.45
3221.00	75.00	0.00	0.00	591.70	165.00	597.04	.07	.04	.00	165.00	5.34	20.41
3221.00	75.00	0.00	0.00	591.70	200.00	598.30	.05	.03	.00	200.00	6.60	22.68
3321.00	100.00	0.00	0.00	592.10	105.00	594.74	.17	.33	.01	105.00	2.64	15.58
3321.00	100.00	0.00	0.00	592.10	150.00	596.58	.09	.08	.01	150.00	4.48	18.86
3321.00	100.00	0.00	0.00	592.10	165.00	597.10	.08	.07	.01	165.00	5.00	19.80
3321.00	100.00	0.00	0.00	592.10	200.00	598.34	.06	.04	.00	200.00	6.24	22.03
3421.00	100.00	0.00	0.00	592.50	105.00	595.10	.18	.36	.00	105.00	2.60	15.50
3421.00	100.00	0.00	0.00	592.50	150.00	596.68	.11	.11	.01	150.00	4.18	18.34
3421.00	100.00	0.00	0.00	592.50	165.00	597.18	.10	.08	.01	165.00	4.68	19.22
3421.00	100.00	0.00	0.00	592.50	200.00	598.39	.07	.05	.01	200.00	5.89	21.40
3446.00	25.00	0.00	0.00	592.60	105.00	595.19	.18	.09	.00	105.00	2.59	15.48
3446.00	25.00	0.00	0.00	592.60	150.00	596.71	.11	.03	.00	150.00	4.11	18.20
3446.00	25.00	0.00	0.00	592.60	165.00	597.20	.10	.02	.00	165.00	4.60	19.09
3446.00	25.00	0.00	0.00	592.60	200.00	598.40	.08	.02	.00	200.00	5.80	21.24
3471.00	25.00	0.00	0.00	592.70	105.00	595.28	.18	.10	.00	105.00	2.58	15.47
3471.00	25.00	0.00	0.00	592.70	150.00	596.74	.12	.03	.00	150.00	4.04	18.08
3471.00	25.00	0.00	0.00	592.70	165.00	597.23	.10	.03	.00	165.00	4.53	18.96
3471.00	25.00	0.00	0.00	592.70	200.00	598.42	.08	.02	.00	200.00	5.72	21.09
3480.00	9.00	0.00	0.00	592.70	105.00	595.33	.18	.03	.00	105.00	2.63	15.54
3480.00	9.00	0.00	0.00	592.70	150.00	596.75	.12	.01	.00	150.00	4.05	18.10
3480.00	9.00	0.00	0.00	592.70	165.00	597.24	.10	.01	.00	165.00	4.54	18.97
3480.00	9.00	0.00	0.00	592.70	200.00	598.42	.08	.01	.00	200.00	5.72	21.10
3488.00	8.00	0.00	0.00	592.80	105.00	595.32	.26	.03	.04	105.00	2.52	12.00
3488.00	8.00	0.00	0.00	592.80	150.00	596.73	.19	.01	.04	150.00	3.93	12.00
3488.00	8.00	0.00	0.00	592.80	165.00	597.21	.18	.01	.04	165.00	4.41	12.00
3488.00	8.00	0.00	0.00	592.80	200.00	598.39	.16	.01	.04	200.00	5.59	12.00
3492.00	4.00	0.00	0.00	592.80	105.00	595.30	.35	.02	.05	105.00	2.50	10.00
3492.00	4.00	0.00	0.00	592.80	150.00	596.70	.27	.01	.04	150.00	3.90	10.00
3492.00	4.00	0.00	0.00	592.80	165.00	597.18	.25	.01	.04	165.00	4.38	10.00
3492.00	4.00	0.00	0.00	592.80	200.00	598.36	.22	.00	.03	200.00	5.56	10.00

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
3496.00	4.00	0.00	0.00	592.80	105.00	595.16	.89	.05	0.00	105.00	2.36	8.00
3496.00	4.00	0.00	0.00	592.80	150.00	596.57	.55	.02	.14	150.00	3.77	8.00
3496.00	4.00	0.00	0.00	592.80	165.00	597.07	.50	.02	.12	165.00	4.27	8.00
3496.00	4.00	0.00	0.00	592.80	200.00	598.31	.34	.01	.06	188.01	5.51	12.04
3539.00	43.00	600.70	597.90	593.70	105.00	596.59	.50	.93	.11	105.00	2.89	8.00
3539.00	43.00	600.70	597.90	593.70	150.00	597.74	.43	1.04	0.00	150.00	4.04	8.00
3539.00	43.00	600.70	597.90	593.70	165.00	598.67	.33	1.43	0.00	165.00	4.97	8.00
3539.00	43.00	600.70	597.90	593.70	200.00	600.84	.13	2.32	0.00	166.71	7.14	19.31
3543.00	4.00	0.00	0.00	593.70	105.00	597.15	.08	.01	.13	105.00	3.45	16.00
3543.00	4.00	0.00	0.00	593.70	150.00	598.18	.09	.01	.10	150.00	4.48	16.00
3543.00	4.00	0.00	0.00	593.70	165.00	599.01	.08	.01	.08	165.00	5.31	16.00
3543.00	4.00	0.00	0.00	593.70	200.00	600.94	.06	.00	.02	200.00	7.24	16.00
3547.00	4.00	0.00	0.00	593.70	105.00	597.16	.08	.00	.00	105.00	3.46	18.98
3547.00	4.00	0.00	0.00	593.70	150.00	598.21	.07	.00	.01	150.00	4.51	21.56
3547.00	4.00	0.00	0.00	593.70	165.00	599.03	.06	.00	.01	165.00	5.33	23.36
3547.00	4.00	0.00	0.00	593.70	200.00	600.97	.03	.00	.01	200.00	7.27	24.00
3714.00	167.00	0.00	0.00	594.20	105.00	597.38	.10	.23	.01	105.00	3.18	18.28
3714.00	167.00	0.00	0.00	594.20	150.00	598.37	.09	.17	.01	150.00	4.17	20.71
3714.00	167.00	0.00	0.00	594.20	165.00	599.13	.07	.10	.01	165.00	4.93	22.61
3714.00	167.00	0.00	0.00	594.20	200.00	601.01	.04	.04	.00	197.45	6.81	43.22
3889.00	175.00	0.00	0.00	594.60	105.00	597.68	.11	.30	.00	105.00	3.08	18.02
3889.00	175.00	0.00	0.00	594.60	150.00	598.58	.11	.22	.01	150.00	3.98	20.26
3889.00	175.00	0.00	0.00	594.60	165.00	599.27	.08	.14	.01	165.00	4.67	21.96
3889.00	175.00	0.00	0.00	594.60	200.00	601.06	.05	.06	.00	199.40	6.46	40.56
4064.00	175.00	0.00	0.00	595.10	105.00	598.01	.10	.32	.00	105.00	2.91	19.15
4064.00	175.00	0.00	0.00	595.10	150.00	598.83	.10	.25	.00	150.00	3.73	21.62
4064.00	175.00	0.00	0.00	595.10	165.00	599.43	.08	.16	.00	165.00	4.33	23.83
4064.00	175.00	0.00	0.00	595.10	200.00	601.13	.04	.07	.00	200.00	6.03	30.05
4239.00	175.00	0.00	0.00	595.50	105.00	598.33	.10	.33	.00	105.00	2.83	18.90
4239.00	175.00	0.00	0.00	595.50	150.00	599.10	.11	.27	.01	150.00	3.60	21.18
4239.00	175.00	0.00	0.00	595.50	165.00	599.62	.09	.19	.01	165.00	4.12	23.00
4239.00	175.00	0.00	0.00	595.50	200.00	601.21	.05	.08	.00	200.00	5.71	28.86
4339.00	100.00	0.00	0.00	596.20	105.00	598.57	.16	.27	.03	105.00	2.37	17.55
4339.00	100.00	0.00	0.00	596.20	150.00	599.29	.17	.22	.03	150.00	3.09	19.69
4339.00	100.00	0.00	0.00	596.20	165.00	599.75	.14	.16	.02	165.00	3.55	21.06
4339.00	100.00	0.00	0.00	596.20	200.00	601.26	.08	.06	.01	200.00	5.06	26.48
4369.00	30.00	0.00	0.00	596.40	105.00	598.68	.18	.12	.01	105.00	2.28	17.29
4369.00	30.00	0.00	0.00	596.40	150.00	599.37	.18	.09	.01	150.00	2.97	19.32
4369.00	30.00	0.00	0.00	596.40	165.00	599.81	.16	.07	.01	165.00	3.41	20.61
4369.00	30.00	0.00	0.00	596.40	200.00	601.28	.08	.03	.00	200.00	4.88	25.82

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
4381.00	12.00	0.00	0.00	596.40	105.00	598.73	.18	.05	.00	105.00	2.33	15.65
4381.00	12.00	0.00	0.00	596.40	150.00	599.40	.21	.04	.01	150.00	3.00	16.00
4381.00	12.00	0.00	0.00	596.40	165.00	599.83	.16	.03	.01	165.00	3.43	16.00
4381.00	12.00	0.00	0.00	596.40	200.00	601.27	.12	.01	.02	200.00	4.87	16.00
4389.00	8.00	0.00	0.00	596.50	105.00	598.64	.48	.06	.15	105.00	2.14	11.80
4389.00	8.00	0.00	0.00	596.50	150.00	599.31	.48	.04	.14	150.00	2.81	12.00
4389.00	8.00	0.00	0.00	596.50	165.00	599.75	.41	.03	.11	165.00	3.25	12.00
4389.00	8.00	0.00	0.00	596.50	200.00	601.22	.25	.01	.06	200.00	4.72	12.00
4390.00	1.00	605.30	602.80	596.50	105.00	598.66	.47	.01	.00	105.00	2.16	11.81
4390.00	1.00	605.30	602.80	596.50	150.00	599.32	.48	.01	.00	150.00	2.82	12.00
4390.00	1.00	605.30	602.80	596.50	165.00	599.76	.41	.01	.00	165.00	3.26	12.00
4390.00	1.00	605.30	602.80	596.50	200.00	601.23	.25	.00	.00	200.00	4.73	12.00
4410.00	20.00	605.30	602.80	596.90	105.00	598.95	.36	.15	.03	105.00	2.05	12.00
4410.00	20.00	605.30	602.80	596.90	150.00	599.50	.44	.12	.01	150.00	2.60	12.00
4410.00	20.00	605.30	602.80	596.90	165.00	599.87	.39	.09	.00	165.00	2.97	12.00
4410.00	20.00	605.30	602.80	596.90	200.00	601.27	.25	.04	.00	200.00	4.37	12.00
4411.00	1.00	0.00	0.00	596.90	105.00	598.96	.36	.01	.00	105.00	2.06	12.00
4411.00	1.00	0.00	0.00	596.90	150.00	599.51	.44	.01	.00	150.00	2.61	12.00
4411.00	1.00	0.00	0.00	596.90	165.00	599.88	.39	.01	.00	165.00	2.98	12.00
4411.00	1.00	0.00	0.00	596.90	200.00	601.27	.25	.00	.00	200.00	4.37	12.00
4415.00	4.00	0.00	0.00	596.90	105.00	599.25	.16	.03	.06	105.00	2.35	17.51
4415.00	4.00	0.00	0.00	596.90	150.00	599.86	.19	.02	.08	150.00	2.96	19.31
4415.00	4.00	0.00	0.00	596.90	165.00	600.18	.17	.02	.07	165.00	3.28	20.28
4415.00	4.00	0.00	0.00	596.90	200.00	601.48	.10	.01	.05	200.00	4.58	24.73
4510.00	95.00	0.00	0.00	597.20	105.00	599.65	.15	.38	.00	105.00	2.45	17.80
4510.00	95.00	0.00	0.00	597.20	150.00	600.22	.17	.35	.00	150.00	3.02	19.50
4510.00	95.00	0.00	0.00	597.20	165.00	600.48	.17	.30	.00	165.00	3.28	20.27
4510.00	95.00	0.00	0.00	597.20	200.00	601.61	.11	.13	.01	200.00	4.41	24.10
4610.00	100.00	0.00	0.00	597.40	105.00	600.01	.13	.33	.01	105.00	2.61	18.28
4610.00	100.00	0.00	0.00	597.40	150.00	600.58	.15	.32	.01	150.00	3.18	19.94
4610.00	100.00	0.00	0.00	597.40	165.00	600.80	.16	.30	.00	165.00	3.40	20.61
4610.00	100.00	0.00	0.00	597.40	200.00	601.76	.12	.16	.00	200.00	4.36	23.91
4709.00	99.00	0.00	0.00	597.70	105.00	600.35	.16	.36	.02	105.00	2.65	15.52
4709.00	99.00	0.00	0.00	597.70	150.00	600.92	.20	.37	.02	150.00	3.22	18.06
4709.00	99.00	0.00	0.00	597.70	165.00	601.12	.20	.35	.02	165.00	3.42	19.03
4709.00	99.00	0.00	0.00	597.70	200.00	601.95	.16	.21	.02	200.00	4.25	22.77
4710.00	1.00	608.00	607.50	597.70	105.00	600.33	.21	.00	.02	105.00	2.63	14.80
4710.00	1.00	608.00	607.50	597.70	150.00	600.90	.25	.01	.02	150.00	3.20	17.35
4710.00	1.00	608.00	607.50	597.70	165.00	601.10	.25	.00	.02	165.00	3.40	18.24
4710.00	1.00	608.00	607.50	597.70	200.00	601.94	.19	.00	.01	200.00	4.24	22.05

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
4722.00	12.00	608.00	607.50	597.70	105.00	600.42	.20	.06	.00	105.00	2.72	15.10
4722.00	12.00	608.00	607.50	597.70	150.00	600.98	.23	.06	.00	150.00	3.28	17.66
4722.00	12.00	608.00	607.50	597.70	165.00	601.19	.23	.06	.01	165.00	3.49	18.63
4722.00	12.00	608.00	607.50	597.70	200.00	601.98	.18	.04	.00	200.00	4.28	22.22
4723.00	1.00	0.00	0.00	597.70	105.00	600.49	.14	.00	.02	105.00	2.79	16.17
4723.00	1.00	0.00	0.00	597.70	150.00	601.06	.18	.00	.02	150.00	3.36	18.76
4723.00	1.00	0.00	0.00	597.70	165.00	601.26	.18	.00	.02	165.00	3.56	19.66
4723.00	1.00	0.00	0.00	597.70	200.00	602.02	.15	.00	.01	200.00	4.32	23.12
4797.00	74.00	0.00	0.00	597.70	105.00	600.76	.08	.19	.02	105.00	3.06	19.59
4797.00	74.00	0.00	0.00	597.70	150.00	601.35	.11	.20	.02	150.00	3.65	21.35
4797.00	74.00	0.00	0.00	597.70	165.00	601.55	.11	.19	.02	165.00	3.85	22.04
4797.00	74.00	0.00	0.00	597.70	200.00	602.23	.10	.14	.01	200.00	4.53	24.58
4803.00	6.00	0.00	0.00	597.70	105.00	600.76	.09	.01	.01	105.00	3.06	16.92
4803.00	6.00	0.00	0.00	597.70	150.00	601.35	.12	.01	.01	150.00	3.65	17.93
4803.00	6.00	0.00	0.00	597.70	165.00	601.55	.13	.01	.01	165.00	3.85	18.00
4803.00	6.00	0.00	0.00	597.70	200.00	602.22	.13	.01	.02	200.00	4.52	18.00
4809.00	6.00	0.00	0.00	597.70	105.00	600.75	.15	.02	.03	105.00	3.05	13.89
4809.00	6.00	0.00	0.00	597.70	150.00	601.34	.20	.02	.04	150.00	3.64	14.89
4809.00	6.00	0.00	0.00	597.70	165.00	601.53	.21	.02	.04	165.00	3.83	15.00
4809.00	6.00	0.00	0.00	597.70	200.00	602.20	.20	.01	.04	200.00	4.50	15.00
4815.00	6.00	0.00	0.00	597.70	105.00	600.71	.29	.03	.07	105.00	3.01	10.82
4815.00	6.00	0.00	0.00	597.70	150.00	601.29	.37	.04	.09	150.00	3.59	11.80
4815.00	6.00	0.00	0.00	597.70	165.00	601.47	.39	.04	.09	165.00	3.77	12.00
4815.00	6.00	0.00	0.00	597.70	200.00	602.15	.37	.03	.08	200.00	4.45	12.00
4821.00	6.00	0.00	0.00	597.70	105.00	600.73	.38	.06	.04	105.00	3.03	9.00
4821.00	6.00	0.00	0.00	597.70	150.00	601.28	.51	.07	.07	150.00	3.58	9.00
4821.00	6.00	0.00	0.00	597.70	165.00	601.46	.54	.07	.08	165.00	3.76	9.00
4821.00	6.00	0.00	0.00	597.70	200.00	602.12	.54	.05	.09	200.00	4.42	9.00
4824.00	3.00	0.00	0.00	597.70	105.00	600.68	.56	.04	.09	105.00	2.98	7.00
4824.00	3.00	0.00	0.00	597.70	150.00	601.19	.79	.05	.14	150.00	3.49	7.00
4824.00	3.00	0.00	0.00	597.70	165.00	601.36	.86	.05	.16	165.00	3.66	7.00
4824.00	3.00	0.00	0.00	597.70	200.00	602.00	.87	.05	.16	200.00	4.30	7.00
4826.00	2.00	0.00	0.00	597.70	105.00	600.60	.82	.05	.13	105.00	2.90	6.00
4826.00	2.00	0.00	0.00	597.70	150.00	601.06	1.18	.06	.20	150.00	3.36	6.00
4826.00	2.00	0.00	0.00	597.70	165.00	601.21	1.30	.07	.22	165.00	3.51	6.00
4826.00	2.00	0.00	0.00	597.70	200.00	601.85	1.29	.06	.21	200.00	4.15	6.00
4827.00	1.00	609.20	603.70	597.70	105.00	600.72	.75	.02	.02	105.00	3.02	6.00
4827.00	1.00	609.20	603.70	597.70	150.00	601.06	1.24	.03	.03	150.00	3.36	6.00
4827.00	1.00	609.20	603.70	597.70	165.00	601.19	1.39	.03	.05	165.00	3.49	6.00
4827.00	1.00	609.20	603.70	597.70	200.00	601.78	1.49	.03	.10	200.00	4.08	6.00

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
4852.00	25.00	609.20	603.70	597.70	105.00	601.24	.55	.26	.06	105.00	3.54	6.00
4852.00	25.00	609.20	603.70	597.70	150.00	602.06	.73	.35	.15	150.00	4.36	6.00
4852.00	25.00	609.20	603.70	597.70	165.00	602.35	.78	.37	.18	165.00	4.65	6.00
4852.00	25.00	609.20	603.70	597.70	200.00	602.92	.91	.39	.17	200.00	5.22	6.00
4853.00	1.00	0.00	0.00	597.70	105.00	601.33	.49	.01	.02	105.00	3.63	6.00
4853.00	1.00	0.00	0.00	597.70	150.00	602.26	.59	.01	.04	150.00	4.56	6.00
4853.00	1.00	0.00	0.00	597.70	165.00	602.58	.61	.01	.05	165.00	4.88	6.00
4853.00	1.00	0.00	0.00	597.70	200.00	603.24	.68	.01	.07	200.00	5.54	6.00
4854.00	1.00	0.00	0.00	597.70	105.00	601.73	.18	.01	.09	105.00	4.03	8.00
4854.00	1.00	0.00	0.00	597.70	150.00	602.73	.23	.01	.11	150.00	5.03	8.00
4854.00	1.00	0.00	0.00	597.70	165.00	603.06	.25	.01	.11	165.00	5.36	8.00
4854.00	1.00	0.00	0.00	597.70	200.00	603.77	.28	.01	.12	200.00	6.07	8.00
4860.00	6.00	0.00	0.00	597.80	105.00	601.92	.04	.01	.04	105.00	4.12	19.65
4860.00	6.00	0.00	0.00	597.80	150.00	602.98	.05	.01	.05	150.00	5.18	20.00
4860.00	6.00	0.00	0.00	597.80	165.00	603.32	.05	.01	.06	165.00	5.52	20.00
4860.00	6.00	0.00	0.00	597.80	200.00	604.07	.05	.01	.07	200.00	6.27	20.00
4866.00	6.00	0.00	0.00	597.80	105.00	601.95	.02	.00	.00	105.00	4.15	27.52
4866.00	6.00	0.00	0.00	597.80	150.00	603.01	.03	.00	.01	150.00	5.21	30.57
4866.00	6.00	0.00	0.00	597.80	165.00	603.36	.03	.00	.01	165.00	5.56	31.56
4866.00	6.00	0.00	0.00	597.80	200.00	604.10	.03	.00	.01	200.00	6.30	33.69
5077.00	211.00	0.00	0.00	599.40	105.00	602.07	.08	.15	.03	105.00	2.67	23.33
5077.00	211.00	0.00	0.00	599.40	150.00	603.10	.07	.11	.02	150.00	3.70	26.27
5077.00	211.00	0.00	0.00	599.40	165.00	603.44	.06	.10	.02	165.00	4.04	27.25
5077.00	211.00	0.00	0.00	599.40	200.00	604.17	.06	.09	.02	200.00	4.77	29.36
5127.00	50.00	0.00	0.00	600.20	105.00	602.19	.17	.17	.05	105.00	1.99	21.39
5127.00	50.00	0.00	0.00	600.20	150.00	603.16	.12	.09	.03	150.00	2.96	24.16
5127.00	50.00	0.00	0.00	600.20	165.00	603.49	.11	.07	.02	165.00	3.29	25.07
5127.00	50.00	0.00	0.00	600.20	200.00	604.21	.10	.05	.02	200.00	4.01	27.14
5177.00	50.00	0.00	0.00	601.10	105.00	602.64	.35	.53	.09	105.00	1.54	20.11
5177.00	50.00	0.00	0.00	601.10	150.00	603.32	.27	.23	.07	150.00	2.22	22.03
5177.00	50.00	0.00	0.00	601.10	165.00	603.61	.23	.18	.06	165.00	2.51	22.86
5177.00	50.00	0.00	0.00	601.10	200.00	604.28	.18	.11	.04	200.00	3.18	24.75
5197.00	20.00	0.00	0.00	601.20	105.00	603.08	.20	.25	.04	105.00	1.88	21.07
5197.00	20.00	0.00	0.00	601.20	150.00	603.52	.24	.16	.01	150.00	2.32	22.32
5197.00	20.00	0.00	0.00	601.20	165.00	603.75	.22	.13	.00	165.00	2.55	22.96
5197.00	20.00	0.00	0.00	601.20	200.00	604.35	.18	.08	.00	200.00	3.15	24.71
5226.00	29.00	0.00	0.00	601.90	105.00	604.55	.96	.45	0.00	105.00	2.65	7.00
5226.00	29.00	0.00	0.00	601.90	150.00	605.06	1.22	.41	0.00	150.00	3.16	7.00
5226.00	29.00	0.00	0.00	601.90	165.00	605.21	1.31	.37	0.00	165.00	3.31	7.00
5226.00	29.00	0.00	0.00	601.90	200.00	605.58	1.47	.26	0.00	200.00	3.68	7.00

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
5227.00	1.00	653.60	608.90	601.90	105.00	604.99	.64	.02	.10	105.00	3.09	7.00
5227.00	1.00	653.60	608.90	601.90	150.00	605.62	.80	.02	.12	150.00	3.72	7.00
5227.00	1.00	653.60	608.90	601.90	165.00	605.83	.85	.02	.14	165.00	3.93	7.00
5227.00	1.00	653.60	608.90	601.90	200.00	606.24	.98	.02	.15	200.00	4.34	7.00
5285.00	58.00	653.60	609.10	602.10	105.00	605.71	.42	.45	.06	105.00	3.61	7.00
5285.00	58.00	653.60	609.10	602.10	150.00	606.44	.55	.49	.07	150.00	4.34	7.00
5285.00	58.00	653.60	609.10	602.10	165.00	606.66	.59	.50	.08	165.00	4.56	7.00
5285.00	58.00	653.60	609.10	602.10	200.00	607.21	.69	.60	.09	200.00	5.11	7.00
5343.00	58.00	653.60	609.30	602.30	105.00	606.09	.37	.32	.01	105.00	3.79	7.00
5343.00	58.00	653.60	609.30	602.30	150.00	606.89	.48	.36	.02	150.00	4.59	7.00
5343.00	58.00	653.60	609.30	602.30	165.00	607.16	.52	.40	.02	165.00	4.86	7.00
5343.00	58.00	653.60	609.30	602.30	200.00	607.79	.60	.47	.03	200.00	5.49	7.00
5401.00	58.00	653.60	609.50	602.50	105.00	606.41	.35	.28	.01	105.00	3.91	7.00
5401.00	58.00	653.60	609.50	602.50	150.00	607.28	.44	.33	.01	150.00	4.78	7.00
5401.00	58.00	653.60	609.50	602.50	165.00	607.59	.47	.37	.01	165.00	5.09	7.00
5401.00	58.00	653.60	609.50	602.50	200.00	608.28	.55	.41	.02	200.00	5.78	7.00
5459.00	58.00	653.60	609.70	602.70	105.00	606.69	.33	.26	.01	105.00	3.99	7.00
5459.00	58.00	653.60	609.70	602.70	150.00	607.64	.42	.33	.01	150.00	4.94	7.00
5459.00	58.00	653.60	609.70	602.70	165.00	607.97	.45	.34	.01	165.00	5.27	7.00
5459.00	58.00	653.60	609.70	602.70	200.00	608.70	.51	.38	.01	200.00	6.00	7.00
5517.00	58.00	653.60	609.90	602.90	105.00	606.95	.32	.24	.00	105.00	4.05	7.00
5517.00	58.00	653.60	609.90	602.90	150.00	607.97	.40	.31	.01	150.00	5.07	7.00
5517.00	58.00	653.60	609.90	602.90	165.00	608.32	.42	.32	.01	165.00	5.42	7.00
5517.00	58.00	653.60	609.90	602.90	200.00	609.09	.48	.35	.01	200.00	6.19	7.00
5575.00	58.00	653.60	610.10	603.10	105.00	607.19	.31	.23	.00	105.00	4.09	7.00
5575.00	58.00	653.60	610.10	603.10	150.00	608.28	.38	.29	.00	150.00	5.18	7.00
5575.00	58.00	653.60	610.10	603.10	165.00	608.64	.41	.30	.01	165.00	5.54	7.00
5575.00	58.00	653.60	610.10	603.10	200.00	609.44	.46	.33	.01	200.00	6.34	7.00
5608.00	33.00	653.60	610.20	603.20	105.00	607.33	.30	.13	.00	105.00	4.13	7.00
5608.00	33.00	653.60	610.20	603.20	150.00	608.45	.37	.16	.00	150.00	5.25	7.00
5608.00	33.00	653.60	610.20	603.20	165.00	608.82	.39	.16	.00	165.00	5.62	7.00
5608.00	33.00	653.60	610.20	603.20	200.00	609.64	.45	.18	.00	200.00	6.44	7.00
5609.00	1.00	0.00	0.00	603.20	105.00	607.33	.30	.00	.00	105.00	4.13	7.00
5609.00	1.00	0.00	0.00	603.20	150.00	608.49	.35	.00	.01	150.00	5.29	7.00
5609.00	1.00	0.00	0.00	603.20	165.00	608.88	.35	.00	.01	165.00	5.68	7.00
5609.00	1.00	0.00	0.00	603.20	200.00	609.73	.38	.00	.02	200.00	6.53	7.00
5615.00	6.00	0.00	0.00	603.40	105.00	607.67	.05	.01	.07	90.40	4.27	21.00
5615.00	6.00	0.00	0.00	603.40	150.00	608.87	.05	.01	.09	122.02	5.47	21.00
5615.00	6.00	0.00	0.00	603.40	165.00	609.28	.05	.01	.09	132.36	5.88	21.00
5615.00	6.00	0.00	0.00	603.40	200.00	610.16	.05	.01	.10	156.48	6.76	21.00

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
5622.00	7.00	0.00	0.00	603.60	105.00	607.68	.05	.01	.00	85.52	4.08	31.87
5622.00	7.00	0.00	0.00	603.60	150.00	608.90	.04	.01	.00	106.72	5.30	36.95
5622.00	7.00	0.00	0.00	603.60	165.00	609.30	.04	.00	.01	113.04	5.70	38.66
5622.00	7.00	0.00	0.00	603.60	200.00	610.20	.03	.00	.01	127.37	6.60	42.42
5658.00	36.00	0.00	0.00	604.70	105.00	607.71	.17	.08	.06	99.11	3.01	25.09
5658.00	36.00	0.00	0.00	604.70	150.00	608.91	.09	.04	.03	120.16	4.21	32.42
5658.00	36.00	0.00	0.00	604.70	165.00	609.32	.08	.03	.02	125.96	4.62	34.12
5658.00	36.00	0.00	0.00	604.70	200.00	610.21	.06	.02	.01	139.41	5.51	37.86
5763.00	105.00	0.00	0.00	605.70	105.00	608.46	.20	.77	.01	105.00	2.76	18.04
5763.00	105.00	0.00	0.00	605.70	150.00	609.24	.17	.37	.04	143.20	3.54	36.52
5763.00	105.00	0.00	0.00	605.70	165.00	609.57	.14	.28	.03	149.80	3.87	41.70
5763.00	105.00	0.00	0.00	605.70	200.00	610.36	.08	.17	.01	157.94	4.66	48.01
5858.00	95.00	0.00	0.00	606.80	12.00	609.04	.00	.32	.06	12.00	2.24	16.05
5858.00	95.00	0.00	0.00	606.80	28.00	609.69	.01	.25	.05	28.00	2.89	18.53
5858.00	95.00	0.00	0.00	606.80	35.00	609.94	.01	.21	.04	35.00	3.14	19.38
5858.00	95.00	0.00	0.00	606.80	56.00	610.58	.02	.13	.02	55.88	3.78	32.41
5973.00	115.00	0.00	0.00	607.90	12.00	609.07	.02	.04	.01	12.00	1.17	11.19
5973.00	115.00	0.00	0.00	607.90	28.00	609.75	.03	.06	.01	28.00	1.85	16.01
5973.00	115.00	0.00	0.00	607.90	35.00	610.00	.04	.07	.01	35.00	2.10	17.06
5973.00	115.00	0.00	0.00	607.90	56.00	610.64	.04	.07	.01	56.00	2.74	19.35
6078.00	105.00	0.00	0.00	608.90	12.00	609.49	.14	.48	.06	12.00	.59	9.33
6078.00	105.00	0.00	0.00	608.90	28.00	610.03	.14	.34	.05	28.00	1.13	11.06
6078.00	105.00	0.00	0.00	608.90	35.00	610.24	.14	.30	.05	35.00	1.34	11.93
6078.00	105.00	0.00	0.00	608.90	56.00	610.82	.12	.22	.04	56.00	1.92	17.00
6183.00	105.00	0.00	0.00	610.00	12.00	610.85	.04	1.23	.03	12.00	.85	11.29
6183.00	105.00	0.00	0.00	610.00	28.00	611.17	.11	1.10	.01	28.00	1.17	12.16
6183.00	105.00	0.00	0.00	610.00	35.00	611.28	.13	1.03	.00	35.00	1.28	12.46
6183.00	105.00	0.00	0.00	610.00	56.00	611.58	.19	.79	.04	56.00	1.58	13.32
6193.00	10.00	0.00	0.00	610.00	12.00	610.92	.04	.05	.00	12.00	.92	11.47
6193.00	10.00	0.00	0.00	610.00	28.00	611.28	.08	.08	.01	28.00	1.28	12.47
6193.00	10.00	0.00	0.00	610.00	35.00	611.40	.10	.09	.01	35.00	1.40	12.83
6193.00	10.00	0.00	0.00	610.00	56.00	611.73	.15	.10	.01	56.00	1.73	14.05
6207.00	14.00	0.00	0.00	610.10	12.00	610.98	.04	.07	.00	12.00	.88	11.40
6207.00	14.00	0.00	0.00	610.10	28.00	611.38	.08	.10	.00	28.00	1.28	12.50
6207.00	14.00	0.00	0.00	610.10	35.00	611.51	.10	.10	.00	35.00	1.41	12.84
6207.00	14.00	0.00	0.00	610.10	56.00	611.86	.14	.12	.00	56.00	1.76	14.51
6222.00	15.00	0.00	0.00	610.20	12.00	611.07	.05	.09	.01	12.00	.87	9.00
6222.00	15.00	0.00	0.00	610.20	28.00	611.48	.12	.12	.02	28.00	1.28	9.00
6222.00	15.00	0.00	0.00	610.20	35.00	611.61	.14	.13	.02	35.00	1.41	9.00
6222.00	15.00	0.00	0.00	610.20	56.00	611.97	.23	.15	.04	56.00	1.77	9.00

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
6232.00	10.00	0.00	0.00	610.20	12.00	611.13	.16	.11	.05	12.00	.93	4.00
6232.00	10.00	0.00	0.00	610.20	28.00	611.48	.46	.18	.17	28.00	1.28	4.00
6232.00	10.00	0.00	0.00	610.20	35.00	611.59	.62	.21	.24	35.00	1.39	4.00
6232.00	10.00	0.00	0.00	610.20	56.00	612.02	.92	.25	0.00	56.00	1.82	4.00
6233.00	1.00	616.20	612.40	610.20	12.00	611.12	.20	.01	.02	12.00	.92	4.00
6233.00	1.00	616.20	612.40	610.20	28.00	611.36	.78	.03	.16	28.00	1.16	4.00
6233.00	1.00	616.20	612.40	610.20	35.00	611.60	.92	.04	0.00	35.00	1.40	4.00
6233.00	1.00	616.20	612.40	610.20	56.00	612.28	1.24	.04	0.00	56.00	2.08	4.00
6281.00	48.00	616.20	613.00	610.40	12.00	611.43	.14	.22	.02	12.00	1.03	4.00
6281.00	48.00	616.20	613.00	610.40	28.00	612.52	.25	.48	.16	28.00	2.12	4.00
6281.00	48.00	616.20	613.00	610.40	35.00	612.93	.30	.53	.18	35.00	2.53	4.00
6281.00	48.00	616.20	613.00	610.40	56.00	614.22	.73	1.27	.15	56.00	3.82	4.00
6282.00	1.00	0.00	0.00	610.40	12.00	611.44	.13	.01	.00	12.00	1.04	4.00
6282.00	1.00	0.00	0.00	610.40	28.00	611.99	.30	.01	.02	28.00	1.59	4.00
6282.00	1.00	0.00	0.00	610.40	35.00	612.14	.39	.01	.05	35.00	1.74	4.00
6282.00	1.00	0.00	0.00	610.40	56.00	613.83	.26	.02	.14	56.00	3.43	4.00
6285.00	3.00	0.00	0.00	610.40	12.00	611.58	.03	.02	.03	12.00	1.18	8.82
6285.00	3.00	0.00	0.00	610.40	28.00	612.33	.05	.02	.08	28.00	1.93	10.85
6285.00	3.00	0.00	0.00	610.40	35.00	612.60	.06	.02	.10	35.00	2.20	11.57
6285.00	3.00	0.00	0.00	610.40	56.00	614.13	.03	.01	.07	56.00	3.73	15.69
6381.00	96.00	0.00	0.00	610.70	12.00	611.88	.03	.30	.00	12.00	1.18	8.81
6381.00	96.00	0.00	0.00	610.70	28.00	612.59	.05	.26	.00	28.00	1.89	10.74
6381.00	96.00	0.00	0.00	610.70	35.00	612.85	.06	.25	.00	35.00	2.15	11.42
6381.00	96.00	0.00	0.00	610.70	56.00	614.22	.04	.09	.00	56.00	3.52	15.10
6481.00	100.00	0.00	0.00	611.10	12.00	612.22	.04	.34	.00	12.00	1.12	8.64
6481.00	100.00	0.00	0.00	611.10	28.00	612.90	.06	.31	.00	28.00	1.80	10.49
6481.00	100.00	0.00	0.00	611.10	35.00	613.15	.07	.30	.00	35.00	2.05	11.14
6481.00	100.00	0.00	0.00	611.10	56.00	614.33	.05	.12	.01	56.00	3.23	14.34
6581.00	100.00	0.00	0.00	611.40	10.00	612.54	.03	.30	.00	10.00	1.14	8.72
6581.00	100.00	0.00	0.00	611.40	24.00	613.22	.04	.29	.01	24.00	1.82	10.53
6581.00	100.00	0.00	0.00	611.40	30.00	613.46	.05	.29	.01	30.00	2.06	11.16
6581.00	100.00	0.00	0.00	611.40	48.00	614.48	.04	.14	.00	48.00	3.08	13.93
6681.00	100.00	0.00	0.00	611.70	10.00	612.80	.03	.26	.00	10.00	1.10	8.58
6681.00	100.00	0.00	0.00	611.70	24.00	613.47	.05	.26	.00	24.00	1.77	10.41
6681.00	100.00	0.00	0.00	611.70	30.00	613.71	.05	.25	.00	30.00	2.01	11.04
6681.00	100.00	0.00	0.00	611.70	48.00	614.62	.05	.14	.00	48.00	2.92	13.49
6781.00	100.00	0.00	0.00	612.10	10.00	613.12	.03	.32	.00	10.00	1.02	8.37
6781.00	100.00	0.00	0.00	612.10	24.00	613.77	.06	.30	.00	24.00	1.67	10.13
6781.00	100.00	0.00	0.00	612.10	30.00	614.00	.06	.29	.00	30.00	1.90	10.74
6781.00	100.00	0.00	0.00	612.10	48.00	614.80	.06	.18	.01	48.00	2.70	12.90

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
6881.00	100.00	0.00	0.00	612.40	10.00	613.47	.03	.35	.00	10.00	1.07	8.49
6881.00	100.00	0.00	0.00	612.40	24.00	614.10	.05	.33	.00	24.00	1.70	10.21
6881.00	100.00	0.00	0.00	612.40	30.00	614.32	.06	.32	.00	30.00	1.92	10.80
6881.00	100.00	0.00	0.00	612.40	48.00	615.03	.06	.23	.00	48.00	2.63	12.70
6927.00	46.00	0.00	0.00	612.30	10.00	613.58	.02	.10	.00	10.00	1.28	9.09
6927.00	46.00	0.00	0.00	612.30	24.00	614.23	.04	.11	.00	24.00	1.93	10.86
6927.00	46.00	0.00	0.00	612.30	30.00	614.45	.04	.11	.00	30.00	2.15	11.45
6927.00	46.00	0.00	0.00	612.30	48.00	615.14	.05	.10	.00	48.00	2.84	13.26
6930.00	3.00	0.00	0.00	612.30	10.00	613.55	.10	.01	.04	10.00	1.25	4.00
6930.00	3.00	0.00	0.00	612.30	24.00	614.15	.22	.01	.09	24.00	1.85	4.00
6930.00	3.00	0.00	0.00	612.30	30.00	614.35	.27	.01	.11	30.00	2.05	4.00
6930.00	3.00	0.00	0.00	612.30	48.00	614.98	.38	.01	.16	48.00	2.68	4.00
6931.00	1.00	618.50	616.00	612.30	10.00	613.56	.10	.01	.00	10.00	1.26	4.00
6931.00	1.00	618.50	616.00	612.30	24.00	614.17	.22	.01	.00	24.00	1.87	4.00
6931.00	1.00	618.50	616.00	612.30	30.00	614.37	.27	.01	.00	30.00	2.07	4.00
6931.00	1.00	618.50	616.00	612.30	48.00	614.97	.45	.02	.03	48.00	2.67	4.00
6963.00	32.00	618.50	616.20	612.50	10.00	613.72	.11	.16	.01	10.00	1.22	4.00
6963.00	32.00	618.50	616.20	612.50	24.00	614.41	.21	.22	.00	24.00	1.91	4.00
6963.00	32.00	618.50	616.20	612.50	30.00	614.65	.25	.25	.01	30.00	2.15	4.00
6963.00	32.00	618.50	616.20	612.50	48.00	615.53	.37	.46	.02	48.00	3.03	4.00
6964.00	1.00	0.00	0.00	612.50	10.00	613.73	.11	.01	.00	10.00	1.23	4.00
6964.00	1.00	0.00	0.00	612.50	24.00	614.42	.20	.01	.00	24.00	1.92	4.00
6964.00	1.00	0.00	0.00	612.50	30.00	614.66	.24	.01	.00	30.00	2.16	4.00
6964.00	1.00	0.00	0.00	612.50	48.00	615.68	.26	.01	.03	48.00	3.18	4.00
7163.00	199.00	0.00	0.00	614.60	10.00	615.87	.07	2.09	.01	10.00	1.27	6.83
7163.00	199.00	0.00	0.00	614.60	24.00	616.52	.08	1.94	.04	24.00	1.92	10.28
7163.00	199.00	0.00	0.00	614.60	30.00	616.74	.09	1.87	.05	30.00	2.14	11.46
7163.00	199.00	0.00	0.00	614.60	48.00	617.34	.08	1.43	.05	48.00	2.74	14.62
7363.00	200.00	0.00	0.00	616.70	10.00	617.91	.08	2.05	.01	10.00	1.21	6.55
7363.00	200.00	0.00	0.00	616.70	24.00	618.36	.14	1.88	.03	24.00	1.66	8.94
7363.00	200.00	0.00	0.00	616.70	30.00	618.49	.17	1.80	.04	30.00	1.79	9.62
7363.00	200.00	0.00	0.00	616.70	48.00	618.80	.24	1.53	.08	48.00	2.10	11.25
7563.00	200.00	0.00	0.00	618.80	10.00	620.05	.07	2.13	.00	10.00	1.25	6.74
7563.00	200.00	0.00	0.00	618.80	24.00	620.62	.10	2.20	.01	24.00	1.82	9.74
7563.00	200.00	0.00	0.00	618.80	30.00	620.80	.11	2.23	.02	30.00	2.00	10.69
7563.00	200.00	0.00	0.00	618.80	48.00	621.22	.14	2.29	.03	48.00	2.42	12.93
7763.00	200.00	0.00	0.00	620.90	10.00	622.12	.08	2.08	.00	10.00	1.22	6.62
7763.00	200.00	0.00	0.00	620.90	24.00	622.63	.13	2.02	.01	24.00	1.73	9.27
7763.00	200.00	0.00	0.00	620.90	30.00	622.78	.14	2.00	.01	30.00	1.88	10.09
7763.00	200.00	0.00	0.00	620.90	48.00	623.16	.18	1.96	.02	48.00	2.26	12.07

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	HV	HL	OLOSS	QCH	DEPTH	TOPWID
7876.00	113.00	0.00	0.00	620.90	10.00	622.59	.02	.39	.02	10.00	1.69	9.91
7876.00	113.00	0.00	0.00	620.90	24.00	623.21	.03	.46	.03	24.00	2.31	13.28
7876.00	113.00	0.00	0.00	620.90	30.00	623.40	.04	.48	.03	30.00	2.50	14.23
7876.00	113.00	0.00	0.00	620.90	48.00	623.85	.05	.53	.04	48.00	2.95	16.95
7988.00	112.00	0.00	0.00	620.90	10.00	622.74	.01	.14	.00	10.00	1.84	11.13
7988.00	112.00	0.00	0.00	620.90	24.00	623.40	.02	.18	.00	24.00	2.50	15.23
7988.00	112.00	0.00	0.00	620.90	30.00	623.60	.03	.19	.00	30.00	2.70	16.43
7988.00	112.00	0.00	0.00	620.90	48.00	624.08	.04	.20	.01	47.78	3.18	28.69
8101.00	113.00	0.00	0.00	620.80	10.00	622.82	.01	.07	.00	10.00	2.02	12.77
8101.00	113.00	0.00	0.00	620.80	24.00	623.50	.01	.09	.00	22.24	2.70	36.74
8101.00	113.00	0.00	0.00	620.80	30.00	623.71	.01	.09	.00	26.53	2.91	43.14
8101.00	113.00	0.00	0.00	620.80	48.00	624.19	.01	.08	.01	37.06	3.39	96.78
8138.00	37.00	0.00	0.00	620.80	10.00	622.84	.01	.02	.00	9.97	2.04	24.00
8138.00	37.00	0.00	0.00	620.80	24.00	623.52	.01	.02	.00	19.68	2.72	78.35
8138.00	37.00	0.00	0.00	620.80	30.00	623.73	.01	.02	.00	21.79	2.93	112.73
8138.00	37.00	0.00	0.00	620.80	48.00	624.21	.01	.01	.00	25.45	3.41	121.08
8175.00	37.00	0.00	0.00	620.70	10.00	622.86	.00	.01	.00	8.73	2.16	79.24
8175.00	37.00	0.00	0.00	620.70	24.00	623.54	.00	.01	.00	11.81	2.84	95.71
8175.00	37.00	0.00	0.00	620.70	30.00	623.74	.00	.01	.00	13.20	3.04	98.99
8175.00	37.00	0.00	0.00	620.70	48.00	624.22	.00	.01	.00	17.29	3.52	106.79
8213.00	38.00	0.00	0.00	620.70	10.00	622.87	.00	.01	.00	5.03	2.17	78.44
8213.00	38.00	0.00	0.00	620.70	24.00	623.55	.00	.00	.00	8.27	2.85	80.51
8213.00	38.00	0.00	0.00	620.70	30.00	623.75	.00	.00	.00	9.68	3.05	81.13
8213.00	38.00	0.00	0.00	620.70	48.00	624.23	.00	.00	.00	13.82	3.53	82.59
8263.00	50.00	0.00	0.00	621.10	10.00	622.87	.01	.01	.01	9.35	1.77	49.60
8263.00	50.00	0.00	0.00	621.10	24.00	623.55	.01	.01	.00	13.26	2.45	56.31
8263.00	50.00	0.00	0.00	621.10	30.00	623.75	.01	.01	.00	15.09	2.65	56.92
8263.00	50.00	0.00	0.00	621.10	48.00	624.23	.01	.01	.00	20.61	3.13	58.39
8313.00	50.00	0.00	0.00	621.60	10.00	622.96	.05	.11	.02	10.00	1.36	6.27
8313.00	50.00	0.00	0.00	621.60	24.00	623.57	.07	.05	.03	21.64	1.97	29.82
8313.00	50.00	0.00	0.00	621.60	30.00	623.77	.06	.04	.03	23.79	2.17	30.43
8313.00	50.00	0.00	0.00	621.60	48.00	624.25	.04	.03	.02	29.45	2.65	31.89
8362.00	49.00	0.00	0.00	622.00	10.00	623.21	.05	.24	.00	10.00	1.21	5.00
8362.00	49.00	0.00	0.00	622.00	24.00	623.85	.11	.30	.02	24.00	1.85	5.00
8362.00	49.00	0.00	0.00	622.00	30.00	624.01	.15	.29	.04	30.00	2.01	5.00
8362.00	49.00	0.00	0.00	622.00	48.00	624.40	.26	.26	.11	48.00	2.40	5.00
8363.00	1.00	627.60	625.80	622.00	10.00	623.21	.05	.00	.00	10.00	1.21	5.00
8363.00	1.00	627.60	625.80	622.00	24.00	623.85	.11	.00	.00	24.00	1.85	5.00
8363.00	1.00	627.60	625.80	622.00	30.00	624.02	.14	.00	.00	30.00	2.02	5.00
8363.00	1.00	627.60	625.80	622.00	48.00	624.41	.26	.00	.00	48.00	2.41	5.00

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
8431.00	68.00	627.60	626.10	621.70	10.00	623.27	.03	.04	.00	10.00	1.57	5.00
8431.00	68.00	627.60	626.10	621.70	24.00	623.95	.08	.07	.01	24.00	2.25	5.00
8431.00	68.00	627.60	626.10	621.70	30.00	624.14	.11	.08	.01	30.00	2.44	5.00
8431.00	68.00	627.60	626.10	621.70	48.00	624.62	.19	.13	.02	48.00	2.92	5.00
8432.00	1.00	0.00	0.00	621.70	10.00	623.27	.03	.00	.00	10.00	1.57	5.00
8432.00	1.00	0.00	0.00	621.70	24.00	623.95	.08	.00	.00	24.00	2.25	5.00
8432.00	1.00	0.00	0.00	621.70	30.00	624.15	.11	.00	.00	30.00	2.45	5.00
8432.00	1.00	0.00	0.00	621.70	48.00	624.62	.19	.00	.00	48.00	2.92	5.00
8456.00	24.00	0.00	0.00	621.80	10.00	623.33	.01	.02	.01	9.07	1.53	44.40
8456.00	24.00	0.00	0.00	621.80	24.00	624.08	.00	.02	.02	16.02	2.28	52.46
8456.00	24.00	0.00	0.00	621.80	30.00	624.30	.00	.02	.03	18.84	2.50	54.86
8456.00	24.00	0.00	0.00	621.80	48.00	624.88	.01	.02	.06	26.69	3.08	61.10
8481.00	25.00	0.00	0.00	621.90	10.00	623.34	.01	.01	.00	9.42	1.44	43.05
8481.00	25.00	0.00	0.00	621.90	24.00	624.08	.00	.01	.00	13.12	2.18	102.47
8481.00	25.00	0.00	0.00	621.90	30.00	624.31	.00	.00	.00	14.43	2.41	104.87
8481.00	25.00	0.00	0.00	621.90	48.00	624.89	.00	.00	.00	18.41	2.99	111.12
8503.00	22.00	0.00	0.00	622.00	10.00	623.36	.01	.02	.00	9.75	1.36	34.36
8503.00	22.00	0.00	0.00	622.00	24.00	624.09	.00	.01	.00	13.66	2.09	137.67
8503.00	22.00	0.00	0.00	622.00	30.00	624.31	.00	.00	.00	14.24	2.31	151.35
8503.00	22.00	0.00	0.00	622.00	48.00	624.89	.00	.00	.00	16.21	2.89	160.20
8560.00	57.00	0.00	0.00	622.30	10.00	623.44	.02	.08	.00	10.00	1.14	12.31
8560.00	57.00	0.00	0.00	622.30	24.00	624.11	.01	.03	.00	17.82	1.81	106.66
8560.00	57.00	0.00	0.00	622.30	30.00	624.33	.01	.02	.00	18.11	2.03	130.44
8560.00	57.00	0.00	0.00	622.30	48.00	624.90	.00	.01	.00	18.80	2.60	155.73
8617.00	57.00	0.00	0.00	622.50	10.00	623.57	.02	.13	.00	10.00	1.07	11.80
8617.00	57.00	0.00	0.00	622.50	24.00	624.17	.02	.06	.00	19.76	1.67	83.43
8617.00	57.00	0.00	0.00	622.50	30.00	624.37	.01	.04	.00	20.97	1.87	113.43
8617.00	57.00	0.00	0.00	622.50	48.00	624.92	.00	.02	.00	21.23	2.42	152.82
8674.00	57.00	0.00	0.00	622.80	10.00	623.75	.03	.19	.00	10.00	.95	10.90
8674.00	57.00	0.00	0.00	622.80	24.00	624.29	.03	.12	.01	22.18	1.49	50.33
8674.00	57.00	0.00	0.00	622.80	30.00	624.45	.03	.09	.01	25.16	1.65	78.86
8674.00	57.00	0.00	0.00	622.80	48.00	624.94	.01	.03	.00	26.31	2.14	142.50
8731.00	57.00	0.00	0.00	623.00	10.00	623.98	.03	.22	.00	10.00	.98	11.10
8731.00	57.00	0.00	0.00	623.00	24.00	624.48	.04	.19	.00	22.26	1.48	52.47
8731.00	57.00	0.00	0.00	623.00	30.00	624.61	.03	.16	.00	25.70	1.61	81.41
8731.00	57.00	0.00	0.00	623.00	48.00	625.00	.02	.06	.00	27.90	2.00	152.88
8806.00	75.00	0.00	0.00	623.40	10.00	624.30	.03	.33	.00	10.00	.90	10.47
8806.00	75.00	0.00	0.00	623.40	24.00	624.78	.05	.31	.01	23.19	1.38	34.77
8806.00	75.00	0.00	0.00	623.40	30.00	624.89	.05	.29	.01	27.67	1.49	55.03
8806.00	75.00	0.00	0.00	623.40	48.00	625.15	.05	.16	.02	36.46	1.75	114.15

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
8881.00	75.00	0.00	0.00	623.90	10.00	624.74	.04	.44	.00	10.00	.84	10.11
8881.00	75.00	0.00	0.00	623.90	24.00	625.21	.06	.44	.01	23.74	1.31	33.60
8881.00	75.00	0.00	0.00	623.90	30.00	625.32	.07	.44	.01	28.54	1.42	40.19
8881.00	75.00	0.00	0.00	623.90	48.00	625.53	.08	.40	.02	40.26	1.63	87.71
8956.00	75.00	0.00	0.00	624.30	10.00	625.19	.03	.44	.00	10.00	.89	10.45
8956.00	75.00	0.00	0.00	624.30	24.00	625.67	.05	.45	.00	23.31	1.37	34.53
8956.00	75.00	0.00	0.00	624.30	30.00	625.78	.05	.45	.00	27.78	1.48	53.20
8956.00	75.00	0.00	0.00	624.30	48.00	626.00	.06	.45	.01	38.02	1.70	103.43
9031.00	75.00	0.00	0.00	624.70	10.00	625.59	.03	.40	.00	10.00	.89	10.43
9031.00	75.00	0.00	0.00	624.70	24.00	626.07	.05	.40	.00	23.26	1.37	34.64
9031.00	75.00	0.00	0.00	624.70	30.00	626.18	.05	.40	.00	27.79	1.48	53.08
9031.00	75.00	0.00	0.00	624.70	48.00	626.39	.06	.39	.00	38.35	1.69	101.15
9106.00	75.00	0.00	0.00	625.20	10.00	626.04	.04	.45	.00	10.00	.84	10.09
9106.00	75.00	0.00	0.00	625.20	24.00	626.51	.06	.44	.01	23.74	1.31	33.59
9106.00	75.00	0.00	0.00	625.20	30.00	626.62	.07	.45	.01	28.55	1.42	40.10
9106.00	75.00	0.00	0.00	625.20	48.00	626.84	.08	.45	.01	40.09	1.64	88.90
9181.00	75.00	0.00	0.00	625.60	10.00	626.49	.03	.45	.00	10.00	.89	10.42
9181.00	75.00	0.00	0.00	625.60	24.00	626.97	.05	.45	.00	23.30	1.37	34.55
9181.00	75.00	0.00	0.00	625.60	30.00	627.08	.05	.45	.00	27.76	1.48	53.58
9181.00	75.00	0.00	0.00	625.60	48.00	627.30	.06	.44	.01	38.06	1.70	103.13
9231.00	50.00	0.00	0.00	625.90	10.00	626.77	.03	.27	.00	10.00	.87	10.35
9231.00	50.00	0.00	0.00	625.90	24.00	627.24	.06	.27	.00	23.56	1.34	29.00
9231.00	50.00	0.00	0.00	625.90	30.00	627.35	.07	.27	.01	28.42	1.45	29.00
9231.00	50.00	0.00	0.00	625.90	48.00	627.58	.09	.29	.02	41.96	1.68	29.00
9261.00	30.00	0.00	0.00	626.10	10.00	626.95	.04	.18	.00	10.00	.85	10.14
9261.00	30.00	0.00	0.00	626.10	24.00	627.42	.06	.18	.00	24.00	1.32	13.49
9261.00	30.00	0.00	0.00	626.10	30.00	627.54	.07	.19	.00	30.00	1.44	14.00
9261.00	30.00	0.00	0.00	626.10	48.00	627.80	.12	.23	.01	48.00	1.70	14.00
9276.00	15.00	0.00	0.00	626.20	10.00	627.06	.06	.12	.01	10.00	.86	7.00
9276.00	15.00	0.00	0.00	626.20	24.00	627.53	.13	.14	.04	24.00	1.33	7.00
9276.00	15.00	0.00	0.00	626.20	30.00	627.65	.17	.15	.05	30.00	1.45	7.00
9276.00	15.00	0.00	0.00	626.20	48.00	627.91	.30	.20	.09	48.00	1.71	7.00
9280.00	4.00	0.00	0.00	626.20	10.00	627.14	.30	.08	0.00	10.00	.94	3.83
9280.00	4.00	0.00	0.00	626.20	24.00	627.61	.53	.10	0.00	24.00	1.41	4.00
9280.00	4.00	0.00	0.00	626.20	30.00	627.77	.61	.11	0.00	30.00	1.57	4.00
9280.00	4.00	0.00	0.00	626.20	48.00	628.21	.83	.15	0.00	48.00	2.01	4.00
9281.00	1.00	633.80	630.20	626.20	10.00	627.28	.20	.01	.03	10.00	1.08	4.00
9281.00	1.00	633.80	630.20	626.20	24.00	627.84	.35	.01	.05	24.00	1.64	4.00
9281.00	1.00	633.80	630.20	626.20	30.00	628.05	.40	.01	.06	30.00	1.85	4.00
9281.00	1.00	633.80	630.20	626.20	48.00	628.57	.56	.01	.08	48.00	2.37	4.00

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
9322.00	41.00	633.80	630.50	626.50	10.00	627.44	.30	.14	0.00	10.00	.94	3.83
9322.00	41.00	633.80	630.50	626.50	24.00	627.91	.53	.15	0.00	24.00	1.41	4.00
9322.00	41.00	633.80	630.50	626.50	30.00	628.11	.57	.15	.08	30.00	1.61	4.00
9322.00	41.00	633.80	630.50	626.50	48.00	628.66	.70	.16	.07	48.00	2.16	4.00
9323.00	1.00	0.00	0.00	626.50	10.00	627.55	.21	.01	.03	10.00	1.05	4.00
9323.00	1.00	0.00	0.00	626.50	24.00	628.00	.44	.01	.03	24.00	1.50	4.00
9323.00	1.00	0.00	0.00	626.50	30.00	628.16	.53	.01	.01	30.00	1.66	4.00
9323.00	1.00	0.00	0.00	626.50	48.00	628.60	.75	.01	.02	48.00	2.10	4.00
9326.00	3.00	0.00	0.00	626.50	6.00	627.83	.01	.01	.06	6.00	1.33	11.13
9326.00	3.00	0.00	0.00	626.50	16.00	628.57	.01	.01	.13	16.00	2.07	12.35
9326.00	3.00	0.00	0.00	626.50	20.00	628.84	.01	.01	.15	20.00	2.34	12.80
9326.00	3.00	0.00	0.00	626.50	32.00	629.56	.02	.01	.22	31.85	3.06	25.83
9332.00	6.00	0.00	0.00	626.50	6.00	627.83	.01	.00	.00	6.00	1.33	11.13
9332.00	6.00	0.00	0.00	626.50	16.00	628.57	.01	.00	.00	16.00	2.07	12.36
9332.00	6.00	0.00	0.00	626.50	20.00	628.84	.01	.00	.00	20.00	2.34	12.80
9332.00	6.00	0.00	0.00	626.50	32.00	629.57	.02	.00	.00	31.86	3.07	25.81
9422.00	90.00	0.00	0.00	626.80	6.00	627.90	.01	.07	.00	6.00	1.10	10.86
9422.00	90.00	0.00	0.00	626.80	16.00	628.64	.01	.07	.00	16.00	1.84	12.24
9422.00	90.00	0.00	0.00	626.80	20.00	628.91	.02	.07	.00	20.00	2.11	12.74
9422.00	90.00	0.00	0.00	626.80	32.00	629.62	.02	.05	.00	31.74	2.82	27.96
9522.00	100.00	0.00	0.00	627.10	6.00	628.07	.01	.17	.00	6.00	.97	10.71
9522.00	100.00	0.00	0.00	627.10	16.00	628.76	.02	.12	.00	16.00	1.66	12.24
9522.00	100.00	0.00	0.00	627.10	20.00	629.01	.02	.11	.00	20.00	1.91	12.80
9522.00	100.00	0.00	0.00	627.10	32.00	629.70	.02	.08	.00	31.46	2.60	31.71
9622.00	100.00	0.00	0.00	627.40	6.00	628.33	.02	.26	.00	6.00	.93	10.76
9622.00	100.00	0.00	0.00	627.40	16.00	628.93	.02	.17	.00	16.00	1.53	12.35
9622.00	100.00	0.00	0.00	627.40	20.00	629.16	.02	.15	.00	20.00	1.76	12.96
9622.00	100.00	0.00	0.00	627.40	32.00	629.80	.02	.10	.00	30.87	2.40	32.28
9672.00	50.00	0.00	0.00	627.60	6.00	628.49	.02	.16	.00	6.00	.89	10.77
9672.00	50.00	0.00	0.00	627.60	16.00	629.04	.03	.12	.00	16.00	1.44	12.46
9672.00	50.00	0.00	0.00	627.60	20.00	629.26	.03	.10	.00	20.00	1.66	13.12
9672.00	50.00	0.00	0.00	627.60	32.00	629.86	.03	.06	.00	30.30	2.26	32.62

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	105.000	581.310	0.000	0.000	0.000	86.999	0.000	-0.000
0.000	150.000	581.310	0.000	0.000	0.000	86.999	0.000	-0.000
0.000	165.000	581.310	0.000	0.000	0.000	86.999	0.000	-0.000
0.000	200.000	581.310	0.000	0.000	0.000	86.999	0.000	-0.000
50.000	105.000	581.313	0.000	.003	0.000	61.999	0.000	50.000
50.000	150.000	581.315	.003	.005	0.000	61.999	-.000	50.000
50.000	165.000	581.317	.001	.007	0.000	61.999	-.000	50.000
50.000	200.000	581.320	.003	.010	0.000	61.999	-.000	50.000
100.000	105.000	581.315	0.000	.002	0.000	37.999	0.000	50.000
100.000	150.000	581.320	.005	.005	0.000	37.999	-.000	50.000
100.000	165.000	581.322	.002	.006	0.000	37.999	-.000	50.000
100.000	200.000	581.328	.005	.008	0.000	37.999	-.000	50.000
115.000	105.000	581.313	0.000	-.002	0.000	29.999	0.000	15.000
115.000	150.000	581.317	.003	-.004	0.000	29.999	-.000	15.000
115.000	165.000	581.317	.001	-.005	0.000	29.999	.000	15.000
115.000	200.000	581.321	.003	-.007	0.000	29.999	-.000	15.000

135.000	105.000	581.300	0.000	-.014	0.000	19.999	0.000	20.000
135.000	150.000	581.286	-.013	-.030	0.000	19.999	.000	20.000
135.000	165.000	581.281	-.005	-.036	0.000	19.999	.000	20.000
135.000	200.000	581.263	-.018	-.057	0.000	19.999	.000	20.000
150.000	105.000	581.357	0.000	.057	0.000	10.861	0.000	15.000
150.000	150.000	581.761	.404	.475	0.000	11.510	-.649	15.000
150.000	165.000	581.887	.126	.606	0.000	11.712	-.852	15.000
150.000	200.000	582.154	.267	.891	0.000	12.142	-1.281	15.000
163.000	105.000	581.999	0.000	.643	0.000	11.722	0.000	13.000
163.000	150.000	582.489	.490	.728	0.000	12.516	-.794	13.000
163.000	165.000	582.633	.144	.746	0.000	12.761	-1.039	13.000
163.000	200.000	582.944	.311	.789	0.000	13.409	-1.687	13.000
177.000	105.000	582.159	0.000	.160	0.000	11.830	0.000	14.000
177.000	150.000	582.653	.494	.164	0.000	12.624	-.793	14.000
177.000	165.000	582.800	.146	.167	0.000	12.908	-1.078	14.000
177.000	200.000	583.116	.316	.172	0.000	13.574	-1.743	14.000
205.000	105.000	582.445	0.000	.286	0.000	12.127	0.000	28.000
205.000	150.000	582.960	.515	.307	0.000	13.035	-.908	28.000
205.000	165.000	583.110	.150	.310	0.000	13.351	-1.223	28.000
205.000	200.000	583.433	.323	.317	0.000	14.173	-2.045	28.000
233.000	105.000	582.628	0.000	.182	0.000	12.093	0.000	28.000
233.000	150.000	583.149	.521	.188	0.000	13.002	-.909	28.000
233.000	165.000	583.299	.151	.189	0.000	13.319	-1.226	28.000
233.000	200.000	583.622	.323	.189	0.000	14.124	-2.032	28.000
316.000	105.000	583.181	0.000	.553	0.000	12.333	0.000	83.000
316.000	150.000	583.722	.541	.574	0.000	13.363	-1.029	83.000
316.000	165.000	583.879	.157	.580	0.000	13.688	-1.355	83.000
316.000	200.000	584.208	.329	.586	0.000	14.725	-2.391	83.000
400.000	105.000	583.619	0.000	.438	0.000	15.738	0.000	84.000
400.000	150.000	584.172	.553	.450	0.000	19.538	-3.799	84.000
400.000	165.000	584.338	.166	.459	0.000	22.015	-6.276	84.000
400.000	200.000	584.691	.353	.483	0.000	25.016	-9.278	84.000
650.000	105.000	584.775	0.000	1.156	0.000	14.585	0.000	250.000
650.000	150.000	585.261	.487	1.090	0.000	16.560	-1.975	250.000
650.000	165.000	585.406	.145	1.069	0.000	17.458	-2.873	250.000
650.000	200.000	585.715	.309	1.025	0.000	19.224	-4.639	250.000
900.000	105.000	586.188	0.000	1.413	0.000	14.724	0.000	250.000
900.000	150.000	586.687	.499	1.426	0.000	16.017	-1.293	250.000
900.000	165.000	586.832	.145	1.426	0.000	16.402	-1.678	250.000
900.000	200.000	587.147	.315	1.432	0.000	17.275	-2.551	250.000
1125.000	105.000	587.429	0.000	1.241	0.000	15.692	0.000	225.000
1125.000	150.000	587.929	.499	1.242	0.000	18.330	-2.638	225.000
1125.000	165.000	588.074	.146	1.242	0.000	19.213	-3.521	225.000
1125.000	200.000	588.395	.321	1.248	0.000	21.030	-5.338	225.000
1350.000	105.000	588.695	0.000	1.266	0.000	17.917	0.000	225.000
1350.000	150.000	589.135	.441	1.207	0.000	19.802	-1.884	225.000
1350.000	165.000	589.268	.132	1.193	0.000	20.354	-2.437	225.000
1350.000	200.000	589.562	.294	1.167	0.000	21.582	-3.664	225.000
1412.000	105.000	589.051	0.000	.357	0.000	18.696	0.000	62.000
1412.000	150.000	589.499	.448	.364	0.000	20.706	-2.011	62.000
1412.000	165.000	589.635	.136	.368	0.000	21.311	-2.615	62.000
1412.000	200.000	589.936	.300	.374	0.000	22.644	-3.948	62.000
1474.000	105.000	589.285	0.000	.234	0.000	18.167	0.000	62.000

1474.000	150.000	589.744	.458	.244	0.000	20.360	-2.193	62.000
1474.000	165.000	589.882	.138	.247	0.000	21.038	-2.871	62.000
1474.000	200.000	590.184	.303	.249	0.000	22.520	-4.353	62.000
1537.000	105.000	589.532	0.000	.247	0.000	18.080	0.000	63.000
1537.000	150.000	590.009	.476	.265	0.000	20.606	-2.526	63.000
1537.000	165.000	590.151	.142	.269	0.000	21.362	-3.282	63.000
1537.000	200.000	590.460	.309	.275	0.000	23.148	-5.068	63.000
1570.000	105.000	589.671	0.000	.139	0.000	18.248	0.000	33.000
1570.000	150.000	590.168	.497	.160	0.000	20.961	-2.713	33.000
1570.000	165.000	590.315	.147	.164	0.000	21.754	-3.506	33.000
1570.000	200.000	590.629	.314	.169	0.000	23.582	-5.334	33.000
1580.000	105.000	589.732	0.000	.061	0.000	16.775	0.000	10.000
1580.000	150.000	590.219	.487	.051	0.000	16.999	-.224	10.000
1580.000	165.000	590.363	.144	.048	0.000	16.999	-.224	10.000
1580.000	200.000	590.668	.305	.039	0.000	16.999	-.224	10.000
1590.000	105.000	589.747	0.000	.015	0.000	11.999	0.000	10.000
1590.000	150.000	590.220	.473	.001	0.000	11.999	-.000	10.000
1590.000	165.000	590.357	.137	-.006	0.000	11.999	-.000	10.000
1590.000	200.000	590.646	.288	-.022	0.000	11.999	-.000	10.000
1600.000	105.000	589.709	0.000	-.038	0.000	7.000	0.000	10.000
1600.000	150.000	590.122	.414	-.098	0.000	7.000	0.000	10.000
1600.000	165.000	590.237	.114	-.120	0.000	7.000	0.000	10.000
1600.000	200.000	590.852	.616	.207	0.000	24.225	-17.225	10.000
1870.000	105.000	592.040	0.000	2.331	0.000	6.000	0.000	270.000
1870.000	150.000	595.167	3.128	5.045	0.000	6.000	0.000	270.000
1870.000	165.000	596.390	1.223	6.153	0.000	6.000	0.000	270.000
1870.000	200.000	598.086	1.696	7.234	0.000	67.689	-61.689	270.000
1875.000	105.000	592.275	0.000	.236	0.000	15.999	0.000	5.000
1875.000	150.000	595.342	3.066	.175	0.000	15.999	-.000	5.000
1875.000	165.000	596.548	1.207	.158	0.000	15.999	-.000	5.000
1875.000	200.000	598.086	1.537	-.001	0.000	15.999	-.000	5.000
1879.000	105.000	592.282	0.000	.007	0.000	19.499	0.000	4.000
1879.000	150.000	595.353	3.071	.012	0.000	25.540	-6.040	4.000
1879.000	165.000	596.561	1.207	.012	0.000	32.655	-13.155	4.000
1879.000	200.000	598.102	1.541	.016	0.000	39.812	-20.313	4.000
1931.000	105.000	592.302	0.000	.019	0.000	20.460	0.000	52.000
1931.000	150.000	595.360	3.059	.007	0.000	32.595	-12.135	52.000
1931.000	165.000	596.567	1.206	.006	0.000	39.276	-18.816	52.000
1931.000	200.000	598.107	1.540	-.005	0.000	41.320	-20.860	52.000
1970.000	105.000	592.318	0.000	.016	0.000	21.445	0.000	39.000
1970.000	150.000	595.367	3.049	.006	0.000	38.720	-17.275	39.000
1970.000	165.000	596.571	1.204	.005	0.000	40.262	-18.817	39.000
1970.000	200.000	598.110	1.539	.003	0.000	42.235	-20.790	39.000
2070.000	105.000	592.363	0.000	.045	0.000	22.467	0.000	100.000
2070.000	150.000	595.379	3.016	.012	0.000	38.858	-16.392	100.000
2070.000	165.000	596.579	1.200	.007	0.000	40.389	-17.922	100.000
2070.000	200.000	598.115	1.537	.005	0.000	42.351	-19.884	100.000
2170.000	105.000	592.416	0.000	.053	0.000	23.237	0.000	100.000
2170.000	150.000	595.395	2.980	.017	0.000	63.861	-40.624	100.000
2170.000	165.000	596.591	1.195	.012	0.000	64.602	-41.365	100.000
2170.000	200.000	598.125	1.535	.010	0.000	65.553	-42.317	100.000
2270.000	105.000	592.476	0.000	.060	0.000	22.336	0.000	100.000
2270.000	150.000	595.404	2.929	.009	0.000	63.750	-41.413	100.000

2270.000	165.000	596.595	1.191	.005	0.000	64.494	-42.157	100.000
2270.000	200.000	598.128	1.533	.003	0.000	65.452	-43.116	100.000
2370.000	105.000	592.551	0.000	.076	0.000	20.875	0.000	100.000
2370.000	150.000	595.415	2.864	.011	0.000	81.026	-60.151	100.000
2370.000	165.000	596.601	1.186	.006	0.000	82.742	-61.867	100.000
2370.000	200.000	598.133	1.532	.004	0.000	84.958	-64.082	100.000
2455.000	105.000	592.632	0.000	.061	0.000	20.019	0.000	85.000
2455.000	150.000	595.426	2.794	.011	0.000	80.470	-60.452	85.000
2455.000	165.000	596.606	1.180	.005	0.000	82.208	-62.189	85.000
2455.000	200.000	598.135	1.529	.003	0.000	84.459	-64.440	85.000
2540.000	105.000	592.727	0.000	.095	0.000	19.066	0.000	85.000
2540.000	150.000	595.440	2.713	.014	0.000	61.656	-42.590	85.000
2540.000	165.000	596.612	1.172	.006	0.000	63.731	-44.665	85.000
2540.000	200.000	598.138	1.526	.002	0.000	64.739	-45.674	85.000
2620.000	105.000	592.836	0.000	.110	0.000	18.215	0.000	80.000
2620.000	150.000	595.457	2.621	.018	0.000	27.007	-8.791	80.000
2620.000	165.000	596.618	1.161	.007	0.000	43.098	-24.883	80.000
2620.000	200.000	598.140	1.522	.003	0.000	43.797	-25.581	80.000
2700.000	105.000	592.959	0.000	.123	0.000	17.927	0.000	80.000
2700.000	150.000	595.482	2.522	.024	0.000	26.425	-8.498	80.000
2700.000	165.000	596.632	1.150	.013	0.000	35.999	-18.072	80.000
2700.000	200.000	598.148	1.516	.007	0.000	35.999	-18.072	80.000
2720.000	105.000	592.868	0.000	-.091	0.000	7.000	0.000	20.000
2720.000	150.000	595.462	2.594	-.020	0.000	27.012	-20.012	20.000
2720.000	165.000	596.621	1.159	-.010	0.000	51.444	-44.444	20.000
2720.000	200.000	598.145	1.524	-.002	0.000	88.768	-81.768	20.000
2746.000	105.000	593.026	0.000	.158	0.000	7.000	0.000	26.000
2746.000	150.000	596.296	3.269	.834	0.000	49.893	-42.893	26.000
2746.000	165.000	596.877	.582	.256	0.000	52.389	-45.389	26.000
2746.000	200.000	598.202	1.325	.057	0.000	90.945	-83.945	26.000
2846.000	105.000	593.682	0.000	.655	0.000	17.257	0.000	100.000
2846.000	150.000	596.353	2.671	.057	0.000	22.050	-4.793	100.000
2846.000	165.000	596.917	.565	.040	0.000	23.061	-5.804	100.000
2846.000	200.000	598.216	1.299	.014	0.000	29.131	-11.874	100.000
2946.000	105.000	593.798	0.000	.116	0.000	16.758	0.000	100.000
2946.000	150.000	596.379	2.581	.027	0.000	21.385	-4.628	100.000
2946.000	165.000	596.940	.561	.023	0.000	22.387	-5.629	100.000
2946.000	200.000	598.233	1.293	.017	0.000	24.714	-7.956	100.000
3046.000	105.000	593.962	0.000	.164	0.000	16.156	0.000	100.000
3046.000	150.000	596.413	2.451	.034	0.000	20.542	-4.387	100.000
3046.000	165.000	596.969	.556	.029	0.000	21.537	-5.381	100.000
3046.000	200.000	598.254	1.285	.020	0.000	23.852	-7.696	100.000
3146.000	105.000	594.200	0.000	.238	0.000	15.865	0.000	100.000
3146.000	150.000	596.460	2.260	.047	0.000	19.908	-4.043	100.000
3146.000	165.000	597.008	.548	.039	0.000	20.891	-5.026	100.000
3146.000	200.000	598.280	1.273	.026	0.000	23.177	-7.312	100.000
3221.000	105.000	594.415	0.000	.215	0.000	15.712	0.000	75.000
3221.000	150.000	596.504	2.089	.044	0.000	19.451	-3.738	75.000
3221.000	165.000	597.044	.539	.036	0.000	20.411	-4.699	75.000
3221.000	200.000	598.304	1.260	.024	0.000	22.679	-6.967	75.000
3321.000	105.000	594.740	0.000	.325	0.000	15.577	0.000	100.000
3321.000	150.000	596.579	1.839	.075	0.000	18.864	-3.287	100.000
3321.000	165.000	597.103	.524	.060	0.000	19.804	-4.227	100.000

3321.000	200.000	598.342	1.239	.038	0.000	22.026	-6.449	100.000
3421.000	105.000	595.097	0.000	.357	0.000	15.500	0.000	100.000
3421.000	150.000	596.677	1.580	.098	0.000	18.335	-2.835	100.000
3421.000	165.000	597.180	.503	.077	0.000	19.222	-3.722	100.000
3421.000	200.000	598.390	1.210	.048	0.000	21.397	-5.897	100.000
3446.000	105.000	595.190	0.000	.093	0.000	15.483	0.000	25.000
3446.000	150.000	596.706	1.516	.029	0.000	18.205	-2.722	25.000
3446.000	165.000	597.203	.497	.023	0.000	19.091	-3.608	25.000
3446.000	200.000	598.404	1.201	.014	0.000	21.242	-5.759	25.000
3471.000	105.000	595.284	0.000	.094	0.000	15.472	0.000	25.000
3471.000	150.000	596.737	1.453	.031	0.000	18.082	-2.610	25.000
3471.000	165.000	597.227	.490	.024	0.000	18.956	-3.484	25.000
3471.000	200.000	598.418	1.191	.015	0.000	21.090	-5.618	25.000
3480.000	105.000	595.327	0.000	.043	0.000	15.543	0.000	9.000
3480.000	150.000	596.751	1.424	.014	0.000	18.104	-2.561	9.000
3480.000	165.000	597.238	.487	.011	0.000	18.973	-3.430	9.000
3480.000	200.000	598.425	1.187	.006	0.000	21.101	-5.558	9.000
3488.000	105.000	595.321	0.000	-.006	0.000	11.999	0.000	8.000
3488.000	150.000	596.726	1.404	-.025	0.000	11.999	-.000	8.000
3488.000	165.000	597.210	.484	-.028	0.000	11.999	-.000	8.000
3488.000	200.000	598.392	1.182	-.032	0.000	11.999	-.000	8.000
3492.000	105.000	595.298	0.000	-.023	0.000	9.999	0.000	4.000
3492.000	150.000	596.697	1.399	-.029	0.000	9.999	-.000	4.000
3492.000	165.000	597.181	.484	-.029	0.000	9.999	-.000	4.000
3492.000	200.000	598.365	1.183	-.028	0.000	9.999	-.000	4.000
3496.000	105.000	595.162	0.000	-.136	0.000	8.000	0.000	4.000
3496.000	150.000	596.574	1.412	-.123	0.000	8.000	0.000	4.000
3496.000	165.000	597.074	.500	-.107	0.000	8.000	0.000	4.000
3496.000	200.000	598.314	1.240	-.050	0.000	12.041	-4.041	4.000
3539.000	105.000	596.590	0.000	1.428	0.000	8.000	0.000	43.000
3539.000	150.000	597.738	1.148	1.164	0.000	8.000	0.000	43.000
3539.000	165.000	598.675	.937	1.600	0.000	8.000	0.000	43.000
3539.000	200.000	600.838	2.163	2.523	0.000	19.312	-11.312	43.000
3543.000	105.000	597.146	0.000	.556	0.000	15.999	0.000	4.000
3543.000	150.000	598.183	1.037	.445	0.000	15.999	-.000	4.000
3543.000	165.000	599.005	.822	.331	0.000	15.999	-.000	4.000
3543.000	200.000	600.943	1.937	.105	0.000	15.999	-.000	4.000
3547.000	105.000	597.162	0.000	.016	0.000	18.978	0.000	4.000
3547.000	150.000	598.210	1.048	.027	0.000	21.564	-2.586	4.000
3547.000	165.000	599.034	.824	.028	0.000	23.362	-4.384	4.000
3547.000	200.000	600.971	1.937	.028	0.000	23.999	-5.021	4.000
3714.000	105.000	597.379	0.000	.217	0.000	18.278	0.000	167.000
3714.000	150.000	598.365	.986	.156	0.000	20.705	-2.427	167.000
3714.000	165.000	599.130	.765	.097	0.000	22.606	-4.327	167.000
3714.000	200.000	601.011	1.881	.041	0.000	43.217	-24.939	167.000
3889.000	105.000	597.676	0.000	.297	0.000	18.024	0.000	175.000
3889.000	150.000	598.580	.904	.215	0.000	20.263	-2.240	175.000
3889.000	165.000	599.266	.686	.135	0.000	21.963	-3.939	175.000
3889.000	200.000	601.064	1.798	.053	0.000	40.563	-22.540	175.000
4064.000	105.000	598.006	0.000	.330	0.000	19.147	0.000	175.000
4064.000	150.000	598.834	.828	.254	0.000	21.625	-2.478	175.000
4064.000	165.000	599.433	.599	.167	0.000	23.828	-4.681	175.000
4064.000	200.000	601.135	1.702	.070	0.000	30.053	-10.905	175.000

4239.000	105.000	598.331	0.000	.325	0.000	18.902	0.000	175.000
4239.000	150.000	599.100	.768	.266	0.000	21.176	-2.274	175.000
4239.000	165.000	599.617	.518	.185	0.000	23.001	-4.099	175.000
4239.000	200.000	601.209	1.592	.075	0.000	28.860	-9.959	175.000
4339.000	105.000	598.568	0.000	.237	0.000	17.552	0.000	100.000
4339.000	150.000	599.288	.720	.189	0.000	19.687	-2.135	100.000
4339.000	165.000	599.751	.463	.134	0.000	21.060	-3.508	100.000
4339.000	200.000	601.261	1.509	.051	0.000	26.479	-8.927	100.000
4369.000	105.000	598.681	0.000	.113	0.000	17.293	0.000	30.000
4369.000	150.000	599.373	.692	.085	0.000	19.321	-2.028	30.000
4369.000	165.000	599.811	.438	.060	0.000	20.614	-3.321	30.000
4369.000	200.000	601.282	1.471	.022	0.000	25.815	-8.522	30.000
4381.000	105.000	598.729	0.000	.048	0.000	15.650	0.000	12.000
4381.000	150.000	599.403	.674	.030	0.000	15.999	-.349	12.000
4381.000	165.000	599.827	.424	.016	0.000	15.999	-.349	12.000
4381.000	200.000	601.275	1.448	-.008	0.000	15.999	-.349	12.000
4389.000	105.000	598.638	0.000	-.091	0.000	11.800	0.000	8.000
4389.000	150.000	599.309	.671	-.094	0.000	12.000	-.200	8.000
4389.000	165.000	599.747	.438	-.080	0.000	12.000	-.200	8.000
4389.000	200.000	601.225	1.478	-.050	0.000	12.000	-.200	8.000
4390.000	105.000	598.657	0.000	.019	0.000	11.812	0.000	1.000
4390.000	150.000	599.321	.664	.012	0.000	12.000	-.188	1.000
4390.000	165.000	599.755	.434	.008	0.000	12.000	-.188	1.000
4390.000	200.000	601.228	1.473	.003	0.000	12.000	-.188	1.000
4410.000	105.000	598.952	0.000	.295	0.000	12.000	0.000	20.000
4410.000	150.000	599.499	.547	.178	0.000	12.000	0.000	20.000
4410.000	165.000	599.867	.368	.112	0.000	12.000	0.000	20.000
4410.000	200.000	601.268	1.400	.040	0.000	12.000	0.000	20.000
4411.000	105.000	598.964	0.000	.013	0.000	12.000	0.000	1.000
4411.000	150.000	599.510	.546	.011	0.000	12.000	0.000	1.000
4411.000	165.000	599.875	.365	.008	0.000	12.000	0.000	1.000
4411.000	200.000	601.271	1.396	.003	0.000	12.000	0.000	1.000
4415.000	105.000	599.245	0.000	.281	0.000	17.509	0.000	4.000
4415.000	150.000	599.860	.615	.350	0.000	19.306	-1.797	4.000
4415.000	165.000	600.184	.323	.308	0.000	20.282	-2.773	4.000
4415.000	200.000	601.477	1.294	.206	0.000	24.730	-7.220	4.000
4510.000	105.000	599.651	0.000	.406	0.000	17.797	0.000	95.000
4510.000	150.000	600.224	.573	.364	0.000	19.502	-1.705	95.000
4510.000	165.000	600.483	.259	.300	0.000	20.268	-2.471	95.000
4510.000	200.000	601.606	1.123	.129	0.000	24.097	-6.300	95.000
4610.000	105.000	600.014	0.000	.363	0.000	18.281	0.000	100.000
4610.000	150.000	600.575	.561	.351	0.000	19.944	-1.663	100.000
4610.000	165.000	600.800	.225	.316	0.000	20.611	-2.330	100.000
4610.000	200.000	601.760	.960	.154	0.000	23.906	-5.625	100.000
4709.000	105.000	600.353	0.000	.339	0.000	15.517	0.000	99.000
4709.000	150.000	600.918	.565	.343	0.000	18.058	-2.542	99.000
4709.000	165.000	601.122	.204	.323	0.000	19.031	-3.514	99.000
4709.000	200.000	601.947	.825	.187	0.000	22.771	-7.255	99.000
4710.000	105.000	600.335	0.000	-.019	0.000	14.797	0.000	1.000
4710.000	150.000	600.899	.565	-.019	0.000	17.349	-2.551	1.000
4710.000	165.000	601.103	.204	-.019	0.000	18.242	-3.445	1.000
4710.000	200.000	601.936	.833	-.011	0.000	22.052	-7.255	1.000

4722.000	105.000	600.417	0.000	.082	0.000	15.097	0.000	12.000
4722.000	150.000	600.984	.567	.084	0.000	17.662	-2.564	12.000
4722.000	165.000	601.188	.204	.085	0.000	18.629	-3.531	12.000
4722.000	200.000	601.981	.792	.045	0.000	22.218	-7.121	12.000
4723.000	105.000	600.492	0.000	.075	0.000	16.171	0.000	1.000
4723.000	150.000	601.062	.571	.079	0.000	18.761	-2.590	1.000
4723.000	165.000	601.261	.198	.072	0.000	19.659	-3.488	1.000
4723.000	200.000	602.024	.764	.044	0.000	23.123	-6.952	1.000
4797.000	105.000	600.757	0.000	.265	0.000	19.592	0.000	74.000
4797.000	150.000	601.351	.594	.288	0.000	21.354	-1.761	74.000
4797.000	165.000	601.546	.195	.286	0.000	22.037	-2.445	74.000
4797.000	200.000	602.229	.683	.204	0.000	24.584	-4.992	74.000
4803.000	105.000	600.763	0.000	.006	0.000	16.916	0.000	6.000
4803.000	150.000	601.354	.591	.003	0.000	17.932	-1.017	6.000
4803.000	165.000	601.548	.194	.002	0.000	17.999	-1.083	6.000
4803.000	200.000	602.224	.676	-.005	0.000	17.999	-1.083	6.000
4809.000	105.000	600.751	0.000	-.011	0.000	13.887	0.000	6.000
4809.000	150.000	601.336	.585	-.018	0.000	14.889	-1.003	6.000
4809.000	165.000	601.528	.192	-.020	0.000	14.999	-1.112	6.000
4809.000	200.000	602.203	.675	-.021	0.000	14.999	-1.112	6.000
4815.000	105.000	600.714	0.000	-.037	0.000	10.824	0.000	6.000
4815.000	150.000	601.286	.571	-.050	0.000	11.804	-.980	6.000
4815.000	165.000	601.474	.189	-.054	0.000	11.999	-1.175	6.000
4815.000	200.000	602.151	.676	-.053	0.000	11.999	-1.175	6.000
4821.000	105.000	600.730	0.000	.015	0.000	8.999	0.000	6.000
4821.000	150.000	601.282	.553	-.003	0.000	8.999	-.000	6.000
4821.000	165.000	601.462	.180	-.012	0.000	8.999	-.000	6.000
4821.000	200.000	602.116	.654	-.035	0.000	8.999	-.000	6.000
4824.000	105.000	600.681	0.000	-.048	0.000	6.999	0.000	3.000
4824.000	150.000	601.192	.511	-.090	0.000	6.999	-.000	3.000
4824.000	165.000	601.358	.166	-.104	0.000	6.999	-.000	3.000
4824.000	200.000	601.999	.641	-.117	0.000	6.999	-.000	3.000
4826.000	105.000	600.602	0.000	-.080	0.000	6.000	0.000	2.000
4826.000	150.000	601.058	.457	-.134	0.000	6.000	0.000	2.000
4826.000	165.000	601.207	.149	-.152	0.000	6.000	0.000	2.000
4826.000	200.000	601.849	.642	-.150	0.000	6.000	0.000	2.000
4827.000	105.000	600.718	0.000	.117	0.000	6.000	0.000	1.000
4827.000	150.000	601.061	.343	.003	0.000	6.000	0.000	1.000
4827.000	165.000	601.192	.131	-.015	0.000	6.000	0.000	1.000
4827.000	200.000	601.779	.587	-.070	0.000	6.000	0.000	1.000
4852.000	105.000	601.238	0.000	.519	0.000	6.000	0.000	25.000
4852.000	150.000	602.061	.823	1.000	0.000	6.000	0.000	25.000
4852.000	165.000	602.345	.284	1.153	0.000	6.000	0.000	25.000
4852.000	200.000	602.922	.577	1.144	0.000	6.000	0.000	25.000
4853.000	105.000	601.328	0.000	.090	0.000	6.000	0.000	1.000
4853.000	150.000	602.265	.937	.204	0.000	6.000	0.000	1.000
4853.000	165.000	602.578	.313	.233	0.000	6.000	0.000	1.000
4853.000	200.000	603.240	.662	.318	0.000	6.000	0.000	1.000
4854.000	105.000	601.733	0.000	.405	0.000	7.999	0.000	1.000
4854.000	150.000	602.735	1.001	.470	0.000	7.999	-.000	1.000
4854.000	165.000	603.062	.327	.484	0.000	7.999	-.000	1.000
4854.000	200.000	603.766	.703	.525	0.000	7.999	-.000	1.000
4860.000	105.000	601.921	0.000	.188	0.000	19.646	0.000	6.000

4860.000	150.000	602.981	1.059	.246	0.000	19.999	-.353	6.000
4860.000	165.000	603.324	.344	.262	0.000	19.999	-.353	6.000
4860.000	200.000	604.066	.742	.301	0.000	19.999	-.353	6.000
4866.000	105.000	601.946	0.000	.025	0.000	27.518	0.000	6.000
4866.000	150.000	603.010	1.065	.030	0.000	30.574	-3.056	6.000
4866.000	165.000	603.356	.345	.032	0.000	31.561	-4.043	6.000
4866.000	200.000	604.102	.746	.036	0.000	33.693	-6.174	6.000
5077.000	105.000	602.072	0.000	.126	0.000	23.328	0.000	211.000
5077.000	150.000	603.103	1.031	.093	0.000	26.271	-2.943	211.000
5077.000	165.000	603.441	.337	.085	0.000	27.246	-3.918	211.000
5077.000	200.000	604.174	.733	.072	0.000	29.361	-6.033	211.000
5127.000	105.000	602.195	0.000	.122	0.000	21.388	0.000	50.000
5127.000	150.000	603.162	.967	.058	0.000	24.157	-2.768	50.000
5127.000	165.000	603.488	.327	.048	0.000	25.070	-3.681	50.000
5127.000	200.000	604.208	.719	.034	0.000	27.144	-5.756	50.000
5177.000	105.000	602.639	0.000	.445	0.000	20.109	0.000	50.000
5177.000	150.000	603.318	.679	.156	0.000	22.029	-1.919	50.000
5177.000	165.000	603.608	.289	.119	0.000	22.857	-2.748	50.000
5177.000	200.000	604.279	.671	.071	0.000	24.755	-4.645	50.000
5197.000	105.000	603.079	0.000	.440	0.000	21.068	0.000	20.000
5197.000	150.000	603.519	.440	.201	0.000	22.320	-1.252	20.000
5197.000	165.000	603.746	.227	.138	0.000	22.958	-1.890	20.000
5197.000	200.000	604.354	.609	.075	0.000	24.708	-3.640	20.000
5226.000	105.000	604.552	0.000	1.472	0.000	7.000	0.000	29.000
5226.000	150.000	605.062	.510	1.543	0.000	7.000	0.000	29.000
5226.000	165.000	605.214	.152	1.468	0.000	7.000	0.000	29.000
5226.000	200.000	605.581	.367	1.227	0.000	7.000	0.000	29.000
5227.000	105.000	604.987	0.000	.436	0.000	7.000	0.000	1.000
5227.000	150.000	605.621	.634	.560	0.000	7.000	0.000	1.000
5227.000	165.000	605.830	.209	.616	0.000	7.000	0.000	1.000
5227.000	200.000	606.235	.405	.654	0.000	7.000	0.000	1.000
5285.000	105.000	605.712	0.000	.725	0.000	7.000	0.000	58.000
5285.000	150.000	606.439	.727	.818	0.000	7.000	0.000	58.000
5285.000	165.000	606.664	.225	.834	0.000	7.000	0.000	58.000
5285.000	200.000	607.207	.543	.972	0.000	7.000	0.000	58.000
5343.000	105.000	606.095	0.000	.383	0.000	7.000	0.000	58.000
5343.000	150.000	606.891	.796	.452	0.000	7.000	0.000	58.000
5343.000	165.000	607.161	.270	.497	0.000	7.000	0.000	58.000
5343.000	200.000	607.794	.633	.587	0.000	7.000	0.000	58.000
5401.000	105.000	606.411	0.000	.316	0.000	7.000	0.000	58.000
5401.000	150.000	607.276	.865	.385	0.000	7.000	0.000	58.000
5401.000	165.000	607.590	.314	.429	0.000	7.000	0.000	58.000
5401.000	200.000	608.278	.688	.484	0.000	7.000	0.000	58.000
5459.000	105.000	606.690	0.000	.279	0.000	7.000	0.000	58.000
5459.000	150.000	607.637	.947	.361	0.000	7.000	0.000	58.000
5459.000	165.000	607.969	.333	.379	0.000	7.000	0.000	58.000
5459.000	200.000	608.703	.734	.425	0.000	7.000	0.000	58.000
5517.000	105.000	606.943	0.000	.258	0.000	7.000	0.000	58.000
5517.000	150.000	607.967	1.019	.330	0.000	7.000	0.000	58.000
5517.000	165.000	608.317	.350	.348	0.000	7.000	0.000	58.000
5517.000	200.000	609.088	.771	.385	0.000	7.000	0.000	58.000
5575.000	105.000	607.192	0.000	.244	0.000	7.000	0.000	58.000
5575.000	150.000	608.276	1.084	.309	0.000	7.000	0.000	58.000

5575.000	165.000	608.641	.364	.324	0.000	7.000	0.000	58.000
5575.000	200.000	609.444	.803	.356	0.000	7.000	0.000	58.000
5608.000	105.000	607.329	0.000	.137	0.000	7.000	0.000	33.000
5608.000	150.000	608.447	1.119	.171	0.000	7.000	0.000	33.000
5608.000	165.000	608.819	.371	.178	0.000	7.000	0.000	33.000
5608.000	200.000	609.639	.820	.194	0.000	7.000	0.000	33.000
5609.000	105.000	607.334	0.000	.005	0.000	7.000	0.000	1.000
5609.000	150.000	608.485	1.152	.038	0.000	7.000	0.000	1.000
5609.000	165.000	608.875	.390	.057	0.000	7.000	0.000	1.000
5609.000	200.000	609.735	.860	.096	0.000	7.000	0.000	1.000
5615.000	105.000	607.670	0.000	.337	0.000	20.999	0.000	6.000
5615.000	150.000	608.874	1.204	.389	0.000	20.999	-.000	6.000
5615.000	165.000	609.276	.401	.400	0.000	20.999	-.000	6.000
5615.000	200.000	610.164	.888	.429	0.000	20.999	-.000	6.000
5622.000	105.000	607.683	0.000	.013	0.000	31.868	0.000	7.000
5622.000	150.000	608.898	1.215	.024	0.000	36.946	-5.078	7.000
5622.000	165.000	609.302	.404	.027	0.000	38.661	-6.793	7.000
5622.000	200.000	610.196	.894	.032	0.000	42.423	-10.555	7.000
5658.000	105.000	607.708	0.000	.025	0.000	25.094	0.000	36.000
5658.000	150.000	608.914	1.206	.016	0.000	32.419	-7.325	36.000
5658.000	165.000	609.316	.402	.014	0.000	34.119	-9.026	36.000
5658.000	200.000	610.206	.890	.010	0.000	37.860	-12.766	36.000
5763.000	105.000	608.464	0.000	.756	0.000	18.038	0.000	105.000
5763.000	150.000	609.245	.781	.331	0.000	36.519	-18.482	105.000
5763.000	165.000	609.571	.326	.255	0.000	41.703	-23.665	105.000
5763.000	200.000	610.361	.791	.156	0.000	48.013	-29.975	105.000
5858.000	12.000	609.038	0.000	.574	0.000	16.054	0.000	95.000
5858.000	28.000	609.695	.656	.450	0.000	18.528	-2.474	95.000
5858.000	35.000	609.940	.245	.369	0.000	19.379	-3.325	95.000
5858.000	56.000	610.583	.643	.222	0.000	32.409	-16.355	95.000
5973.000	12.000	609.072	0.000	.034	0.000	11.187	0.000	115.000
5973.000	28.000	609.748	.676	.053	0.000	16.005	-4.818	115.000
5973.000	35.000	609.996	.248	.056	0.000	17.059	-5.872	115.000
5973.000	56.000	610.642	.646	.059	0.000	19.351	-8.165	115.000
6078.000	12.000	609.493	0.000	.421	0.000	9.328	0.000	105.000
6078.000	28.000	610.032	.539	.284	0.000	11.059	-1.731	105.000
6078.000	35.000	610.242	.210	.246	0.000	11.930	-2.602	105.000
6078.000	56.000	610.821	.580	.179	0.000	16.998	-7.670	105.000
6183.000	12.000	610.853	0.000	1.360	0.000	11.286	0.000	105.000
6183.000	28.000	611.168	.316	1.136	0.000	12.157	-.870	105.000
6183.000	35.000	611.276	.107	1.034	0.000	12.462	-1.176	105.000
6183.000	56.000	611.577	.302	.756	0.000	13.319	-2.032	105.000
6193.000	12.000	610.917	0.000	.064	0.000	11.467	0.000	10.000
6193.000	28.000	611.279	.362	.111	0.000	12.466	-.999	10.000
6193.000	35.000	611.403	.124	.127	0.000	12.831	-1.364	10.000
6193.000	56.000	611.732	.330	.155	0.000	14.053	-2.587	10.000
6207.000	12.000	610.985	0.000	.068	0.000	11.402	0.000	14.000
6207.000	28.000	611.376	.391	.097	0.000	12.495	-1.093	14.000
6207.000	35.000	611.506	.130	.104	0.000	12.841	-1.439	14.000
6207.000	56.000	611.860	.354	.128	0.000	14.509	-3.107	14.000
6222.000	12.000	611.068	0.000	.083	0.000	8.999	0.000	15.000
6222.000	28.000	611.477	.409	.101	0.000	8.999	-.000	15.000
6222.000	35.000	611.614	.137	.108	0.000	8.999	-.000	15.000

6222.000	56.000	611.968	.354	.108	0.000	8.999	-.000	15.000
6232.000	12.000	611.128	0.000	.060	0.000	4.000	0.000	10.000
6232.000	28.000	611.483	.355	.006	0.000	4.000	0.000	10.000
6232.000	35.000	611.586	.103	-.028	0.000	4.000	0.000	10.000
6232.000	56.000	612.019	.433	.051	0.000	4.000	0.000	10.000
6233.000	12.000	611.121	0.000	-.007	0.000	4.000	0.000	1.000
6233.000	28.000	611.360	.239	-.123	0.000	4.000	0.000	1.000
6233.000	35.000	611.603	.244	.018	0.000	4.000	0.000	1.000
6233.000	56.000	612.285	.681	.265	0.000	4.000	0.000	1.000
6281.000	12.000	611.425	0.000	.304	0.000	4.000	0.000	48.000
6281.000	28.000	612.524	1.099	1.164	0.000	4.000	0.000	48.000
6281.000	35.000	612.931	.408	1.328	0.000	4.000	0.000	48.000
6281.000	56.000	614.215	1.284	1.930	0.000	4.000	0.000	48.000
6282.000	12.000	611.435	0.000	.010	0.000	4.000	0.000	1.000
6282.000	28.000	611.990	.555	-.534	0.000	4.000	0.000	1.000
6282.000	35.000	612.140	.150	-.791	0.000	4.000	0.000	1.000
6282.000	56.000	613.830	1.690	-.385	0.000	4.000	0.000	1.000
6285.000	12.000	611.581	0.000	.146	0.000	8.817	0.000	3.000
6285.000	28.000	612.334	.753	.344	0.000	10.855	-2.038	3.000
6285.000	35.000	612.597	.263	.457	0.000	11.573	-2.756	3.000
6285.000	56.000	614.132	1.535	.302	0.000	15.687	-6.871	3.000
6381.000	12.000	611.876	0.000	.295	0.000	8.809	0.000	96.000
6381.000	28.000	612.594	.718	.260	0.000	10.741	-1.932	96.000
6381.000	35.000	612.847	.253	.251	0.000	11.423	-2.614	96.000
6381.000	56.000	614.217	1.369	.085	0.000	15.096	-6.287	96.000
6481.000	12.000	612.216	0.000	.339	0.000	8.638	0.000	100.000
6481.000	28.000	612.903	.687	.309	0.000	10.489	-1.852	100.000
6481.000	35.000	613.146	.243	.299	0.000	11.145	-2.507	100.000
6481.000	56.000	614.334	1.188	.117	0.000	14.344	-5.707	100.000
6581.000	10.000	612.537	0.000	.322	0.000	8.719	0.000	100.000
6581.000	24.000	613.218	.681	.315	0.000	10.529	-1.810	100.000
6581.000	30.000	613.456	.238	.310	0.000	11.158	-2.440	100.000
6581.000	48.000	614.481	1.024	.147	0.000	13.932	-5.213	100.000
6681.000	10.000	612.795	0.000	.258	0.000	8.582	0.000	100.000
6681.000	24.000	613.473	.678	.256	0.000	10.410	-1.828	100.000
6681.000	30.000	613.707	.234	.251	0.000	11.041	-2.459	100.000
6681.000	48.000	614.620	.913	.140	0.000	13.492	-4.911	100.000
6781.000	10.000	613.116	0.000	.321	0.000	8.369	0.000	100.000
6781.000	24.000	613.770	.654	.297	0.000	10.131	-1.762	100.000
6781.000	30.000	613.996	.226	.288	0.000	10.740	-2.371	100.000
6781.000	48.000	614.799	.803	.179	0.000	12.904	-4.535	100.000
6881.000	10.000	613.466	0.000	.350	0.000	8.486	0.000	100.000
6881.000	24.000	614.100	.634	.330	0.000	10.211	-1.726	100.000
6881.000	30.000	614.318	.219	.322	0.000	10.800	-2.314	100.000
6881.000	48.000	615.025	.707	.226	0.000	12.704	-4.219	100.000
6927.000	10.000	613.582	0.000	.116	0.000	9.085	0.000	46.000
6927.000	24.000	614.232	.650	.132	0.000	10.860	-1.775	46.000
6927.000	30.000	614.453	.221	.135	0.000	11.449	-2.364	46.000
6927.000	48.000	615.136	.683	.111	0.000	13.257	-4.172	46.000
6930.000	10.000	613.552	0.000	-.030	0.000	4.000	0.000	3.000
6930.000	24.000	614.152	.601	-.079	0.000	4.000	0.000	3.000
6930.000	30.000	614.352	.200	-.101	0.000	4.000	0.000	3.000
6930.000	48.000	614.985	.633	-.151	0.000	4.000	0.000	3.000

6931.000	10.000	613.560	0.000	.008	0.000	4.000	0.000	1.000
6931.000	24.000	614.166	.606	.014	0.000	4.000	0.000	1.000
6931.000	30.000	614.368	.202	.016	0.000	4.000	0.000	1.000
6931.000	48.000	614.970	.601	-.015	0.000	4.000	0.000	1.000
6963.000	10.000	613.716	0.000	.156	0.000	4.000	0.000	32.000
6963.000	24.000	614.406	.690	.240	0.000	4.000	0.000	32.000
6963.000	30.000	614.648	.242	.280	0.000	4.000	0.000	32.000
6963.000	48.000	615.529	.881	.560	0.000	4.000	0.000	32.000
6964.000	10.000	613.727	0.000	.011	0.000	4.000	0.000	1.000
6964.000	24.000	614.418	.691	.012	0.000	4.000	0.000	1.000
6964.000	30.000	614.662	.244	.013	0.000	4.000	0.000	1.000
6964.000	48.000	615.684	1.023	.155	0.000	4.000	0.000	1.000
7163.000	10.000	615.867	0.000	2.140	0.000	6.834	0.000	199.000
7163.000	24.000	616.519	.652	2.101	0.000	10.280	-3.446	199.000
7163.000	30.000	616.737	.217	2.075	0.000	11.464	-4.630	199.000
7163.000	48.000	617.341	.604	1.657	0.000	14.617	-7.783	199.000
7363.000	10.000	617.911	0.000	2.044	0.000	6.550	0.000	200.000
7363.000	24.000	618.365	.453	1.845	0.000	8.941	-2.392	200.000
7363.000	30.000	618.494	.130	1.757	0.000	9.620	-3.071	200.000
7363.000	48.000	618.798	.304	1.457	0.000	11.252	-4.703	200.000
7563.000	10.000	620.050	0.000	2.139	0.000	6.735	0.000	200.000
7563.000	24.000	620.617	.567	2.252	0.000	9.737	-3.002	200.000
7563.000	30.000	620.797	.180	2.303	0.000	10.688	-3.953	200.000
7563.000	48.000	621.221	.424	2.423	0.000	12.926	-6.190	200.000
7763.000	10.000	622.125	0.000	2.075	0.000	6.617	0.000	200.000
7763.000	24.000	622.626	.501	2.009	0.000	9.274	-2.658	200.000
7763.000	30.000	622.780	.155	1.983	0.000	10.090	-3.473	200.000
7763.000	48.000	623.158	.378	1.937	0.000	12.073	-5.457	200.000
7876.000	10.000	622.593	0.000	.469	0.000	9.911	0.000	113.000
7876.000	24.000	623.210	.616	.584	0.000	13.280	-3.368	113.000
7876.000	30.000	623.396	.187	.616	0.000	14.229	-4.317	113.000
7876.000	48.000	623.851	.454	.692	0.000	16.949	-7.037	113.000
7988.000	10.000	622.740	0.000	.147	0.000	11.134	0.000	112.000
7988.000	24.000	623.404	.663	.194	0.000	15.226	-4.093	112.000
7988.000	30.000	623.602	.198	.206	0.000	16.432	-5.298	112.000
7988.000	48.000	624.079	.477	.228	0.000	28.686	-17.552	112.000
8101.000	10.000	622.821	0.000	.080	0.000	12.771	0.000	113.000
8101.000	24.000	623.504	.683	.100	0.000	36.745	-23.974	113.000
8101.000	30.000	623.706	.202	.104	0.000	43.136	-30.365	113.000
8101.000	48.000	624.190	.484	.111	0.000	96.777	-84.006	113.000
8138.000	10.000	622.839	0.000	.018	0.000	23.996	0.000	37.000
8138.000	24.000	623.524	.686	.021	0.000	78.355	-54.359	37.000
8138.000	30.000	623.728	.204	.022	0.000	112.730	-88.734	37.000
8138.000	48.000	624.213	.486	.023	0.000	121.080	-97.084	37.000
8175.000	10.000	622.856	0.000	.018	0.000	79.241	0.000	37.000
8175.000	24.000	623.541	.685	.017	0.000	95.714	-16.473	37.000
8175.000	30.000	623.743	.201	.015	0.000	98.988	-19.746	37.000
8175.000	48.000	624.223	.481	.010	0.000	106.792	-27.550	37.000
8213.000	10.000	622.867	0.000	.011	0.000	78.444	0.000	38.000
8213.000	24.000	623.547	.679	.005	0.000	80.514	-2.070	38.000
8213.000	30.000	623.748	.201	.005	0.000	81.127	-2.683	38.000
8213.000	48.000	624.228	.480	.004	0.000	82.591	-4.147	38.000

8263.000	10.000	622.874	0.000	.007	0.000	49.600	0.000	50.000
8263.000	24.000	623.552	.678	.005	0.000	56.310	-6.710	50.000
8263.000	30.000	623.753	.201	.005	0.000	56.922	-7.322	50.000
8263.000	48.000	624.232	.480	.005	0.000	58.385	-8.785	50.000
8313.000	10.000	622.961	0.000	.087	0.000	6.268	0.000	50.000
8313.000	24.000	623.567	.606	.016	0.000	29.821	-23.553	50.000
8313.000	30.000	623.768	.200	.015	0.000	30.430	-24.162	50.000
8313.000	48.000	624.248	.480	.015	0.000	31.889	-25.621	50.000
8362.000	10.000	623.212	0.000	.251	0.000	5.000	0.000	49.000
8362.000	24.000	623.849	.637	.281	0.000	5.000	0.000	49.000
8362.000	30.000	624.012	.163	.244	0.000	5.000	0.000	49.000
8362.000	48.000	624.400	.389	.153	0.000	5.000	0.000	49.000
8363.000	10.000	623.214	0.000	.002	0.000	5.000	0.000	1.000
8363.000	24.000	623.852	.638	.003	0.000	5.000	0.000	1.000
8363.000	30.000	624.016	.164	.004	0.000	5.000	0.000	1.000
8363.000	48.000	624.408	.392	.007	0.000	5.000	0.000	1.000
8431.000	10.000	623.269	0.000	.055	0.000	5.000	0.000	68.000
8431.000	24.000	623.953	.684	.101	0.000	5.000	0.000	68.000
8431.000	30.000	624.143	.190	.127	0.000	5.000	0.000	68.000
8431.000	48.000	624.620	.477	.213	0.000	5.000	0.000	68.000
8432.000	10.000	623.270	0.000	.001	0.000	5.000	0.000	1.000
8432.000	24.000	623.955	.685	.002	0.000	5.000	0.000	1.000
8432.000	30.000	624.145	.190	.002	0.000	5.000	0.000	1.000
8432.000	48.000	624.624	.479	.004	0.000	5.000	0.000	1.000
8456.000	10.000	623.331	0.000	.061	0.000	44.402	0.000	24.000
8456.000	24.000	624.076	.745	.121	0.000	52.461	-8.059	24.000
8456.000	30.000	624.300	.224	.155	0.000	54.858	-10.456	24.000
8456.000	48.000	624.883	.583	.259	0.000	61.104	-16.702	24.000
8481.000	10.000	623.345	0.000	.014	0.000	43.046	0.000	25.000
8481.000	24.000	624.084	.740	.008	0.000	102.474	-59.428	25.000
8481.000	30.000	624.308	.224	.008	0.000	104.871	-61.825	25.000
8481.000	48.000	624.891	.583	.008	0.000	111.118	-68.072	25.000
8503.000	10.000	623.361	0.000	.017	0.000	34.364	0.000	22.000
8503.000	24.000	624.089	.728	.005	0.000	137.670	-103.306	22.000
8503.000	30.000	624.312	.223	.004	0.000	151.352	-116.988	22.000
8503.000	48.000	624.894	.582	.003	0.000	160.198	-125.834	22.000
8560.000	10.000	623.436	0.000	.075	0.000	12.313	0.000	57.000
8560.000	24.000	624.111	.674	.022	0.000	106.665	-94.352	57.000
8560.000	30.000	624.327	.216	.015	0.000	130.443	-118.130	57.000
8560.000	48.000	624.901	.574	.007	0.000	155.730	-143.418	57.000
8617.000	10.000	623.570	0.000	.133	0.000	11.802	0.000	57.000
8617.000	24.000	624.171	.601	.061	0.000	83.431	-71.630	57.000
8617.000	30.000	624.365	.194	.039	0.000	113.430	-101.629	57.000
8617.000	48.000	624.915	.550	.014	0.000	152.822	-141.021	57.000
8674.000	10.000	623.753	0.000	.183	0.000	10.904	0.000	57.000
8674.000	24.000	624.286	.533	.114	0.000	50.330	-39.426	57.000
8674.000	30.000	624.446	.160	.080	0.000	78.857	-67.952	57.000
8674.000	48.000	624.943	.497	.027	0.000	142.502	-131.598	57.000
8731.000	10.000	623.979	0.000	.226	0.000	11.102	0.000	57.000
8731.000	24.000	624.477	.498	.192	0.000	52.473	-41.371	57.000
8731.000	30.000	624.605	.128	.160	0.000	81.415	-70.313	57.000
8731.000	48.000	625.003	.397	.060	0.000	152.882	-141.780	57.000
8806.000	10.000	624.303	0.000	.324	0.000	10.467	0.000	75.000

8806.000	24.000	624.782	.479	.304	0.000	34.766	-24.299	75.000
8806.000	30.000	624.888	.107	.283	0.000	55.031	-44.564	75.000
8806.000	48.000	625.150	.262	.147	0.000	114.151	-103.684	75.000
8881.000	10.000	624.741	0.000	.438	0.000	10.108	0.000	75.000
8881.000	24.000	625.212	.471	.430	0.000	33.597	-23.490	75.000
8881.000	30.000	625.321	.109	.432	0.000	40.193	-30.085	75.000
8881.000	48.000	625.532	.211	.382	0.000	87.709	-77.601	75.000
8956.000	10.000	625.193	0.000	.452	0.000	10.449	0.000	75.000
8956.000	24.000	625.673	.480	.461	0.000	34.534	-24.085	75.000
8956.000	30.000	625.783	.111	.462	0.000	53.200	-42.750	75.000
8956.000	48.000	626.003	.220	.471	0.000	103.434	-92.985	75.000
9031.000	10.000	625.589	0.000	.397	0.000	10.430	0.000	75.000
9031.000	24.000	626.074	.484	.401	0.000	34.637	-24.206	75.000
9031.000	30.000	626.180	.106	.397	0.000	53.077	-42.647	75.000
9031.000	48.000	626.395	.215	.392	0.000	101.153	-90.723	75.000
9106.000	10.000	626.036	0.000	.447	0.000	10.089	0.000	75.000
9106.000	24.000	626.511	.475	.438	0.000	33.588	-23.499	75.000
9106.000	30.000	626.622	.111	.442	0.000	40.104	-30.015	75.000
9106.000	48.000	626.838	.217	.444	0.000	88.898	-78.809	75.000
9181.000	10.000	626.495	0.000	.459	0.000	10.424	0.000	75.000
9181.000	24.000	626.972	.477	.461	0.000	34.551	-24.127	75.000
9181.000	30.000	627.084	.111	.462	0.000	53.583	-43.159	75.000
9181.000	48.000	627.303	.220	.465	0.000	103.131	-92.707	75.000
9231.000	10.000	626.768	0.000	.273	0.000	10.354	0.000	50.000
9231.000	24.000	627.241	.473	.269	0.000	28.999	-18.645	50.000
9231.000	30.000	627.352	.111	.269	0.000	28.999	-18.645	50.000
9231.000	48.000	627.582	.230	.279	0.000	28.999	-18.645	50.000
9261.000	10.000	626.948	0.000	.180	0.000	10.136	0.000	30.000
9261.000	24.000	627.423	.474	.182	0.000	13.487	-3.351	30.000
9261.000	30.000	627.541	.118	.189	0.000	13.999	-3.863	30.000
9261.000	48.000	627.799	.259	.217	0.000	13.999	-3.863	30.000
9276.000	10.000	627.059	0.000	.111	0.000	6.999	0.000	15.000
9276.000	24.000	627.526	.467	.104	0.000	6.999	-.000	15.000
9276.000	30.000	627.646	.119	.105	0.000	6.999	-.000	15.000
9276.000	48.000	627.912	.266	.112	0.000	6.999	-.000	15.000
9280.000	10.000	627.142	0.000	.083	0.000	3.827	0.000	4.000
9280.000	24.000	627.606	.463	.079	0.000	4.000	-.173	4.000
9280.000	30.000	627.773	.168	.127	0.000	4.000	-.173	4.000
9280.000	48.000	628.214	.440	.302	0.000	4.000	-.173	4.000
9281.000	10.000	627.283	0.000	.140	0.000	4.000	0.000	1.000
9281.000	24.000	627.838	.555	.233	0.000	4.000	0.000	1.000
9281.000	30.000	628.047	.208	.273	0.000	4.000	0.000	1.000
9281.000	48.000	628.571	.525	.358	0.000	4.000	0.000	1.000
9322.000	10.000	627.442	0.000	.159	0.000	3.825	0.000	41.000
9322.000	24.000	627.906	.464	.067	0.000	4.000	-.175	41.000
9322.000	30.000	628.111	.206	.065	0.000	4.000	-.175	41.000
9322.000	48.000	628.658	.547	.087	0.000	4.000	-.175	41.000
9323.000	10.000	627.550	0.000	.108	0.000	4.000	0.000	1.000
9323.000	24.000	628.000	.450	.094	0.000	4.000	0.000	1.000
9323.000	30.000	628.160	.160	.049	0.000	4.000	0.000	1.000
9323.000	48.000	628.600	.440	-.058	0.000	4.000	0.000	1.000
9326.000	6.000	627.828	0.000	.278	0.000	11.126	0.000	3.000
9326.000	16.000	628.568	.740	.568	0.000	12.349	-1.223	3.000

9326.000	20.000	628.840	.272	.680	0.000	12.799	-1.672	3.000
9326.000	32.000	629.565	.725	.965	0.000	25.827	-14.700	3.000
9332.000	6.000	627.831	0.000	.003	0.000	11.133	0.000	6.000
9332.000	16.000	628.572	.741	.004	0.000	12.355	-1.222	6.000
9332.000	20.000	628.844	.271	.004	0.000	12.803	-1.670	6.000
9332.000	32.000	629.568	.724	.003	0.000	25.812	-14.679	6.000
9422.000	6.000	627.901	0.000	.070	0.000	10.862	0.000	90.000
9422.000	16.000	628.640	.739	.068	0.000	12.245	-1.383	90.000
9422.000	20.000	628.907	.267	.064	0.000	12.742	-1.880	90.000
9422.000	32.000	629.621	.713	.053	0.000	27.960	-17.098	90.000
9522.000	6.000	628.069	0.000	.167	0.000	10.715	0.000	100.000
9522.000	16.000	628.758	.690	.118	0.000	12.235	-1.520	100.000
9522.000	20.000	629.013	.254	.105	0.000	12.795	-2.080	100.000
9522.000	32.000	629.698	.685	.077	0.000	31.714	-20.999	100.000
9622.000	6.000	628.330	0.000	.261	0.000	10.761	0.000	100.000
9622.000	16.000	628.930	.600	.172	0.000	12.352	-1.592	100.000
9622.000	20.000	629.160	.231	.148	0.000	12.963	-2.203	100.000
9622.000	32.000	629.797	.637	.099	0.000	32.278	-21.517	100.000
9672.000	6.000	628.491	0.000	.161	0.000	10.767	0.000	50.000
9672.000	16.000	629.044	.553	.114	0.000	12.463	-1.697	50.000
9672.000	20.000	629.258	.214	.098	0.000	13.121	-2.354	50.000
9672.000	32.000	629.858	.600	.061	0.000	32.617	-21.850	50.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	0.000	3.336	0.000
2	0.000	0.000	5.295	1.959
3	0.000	0.000	5.897	2.560
4	0.000	0.000	7.858	4.522

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WATER MANAGEMENT

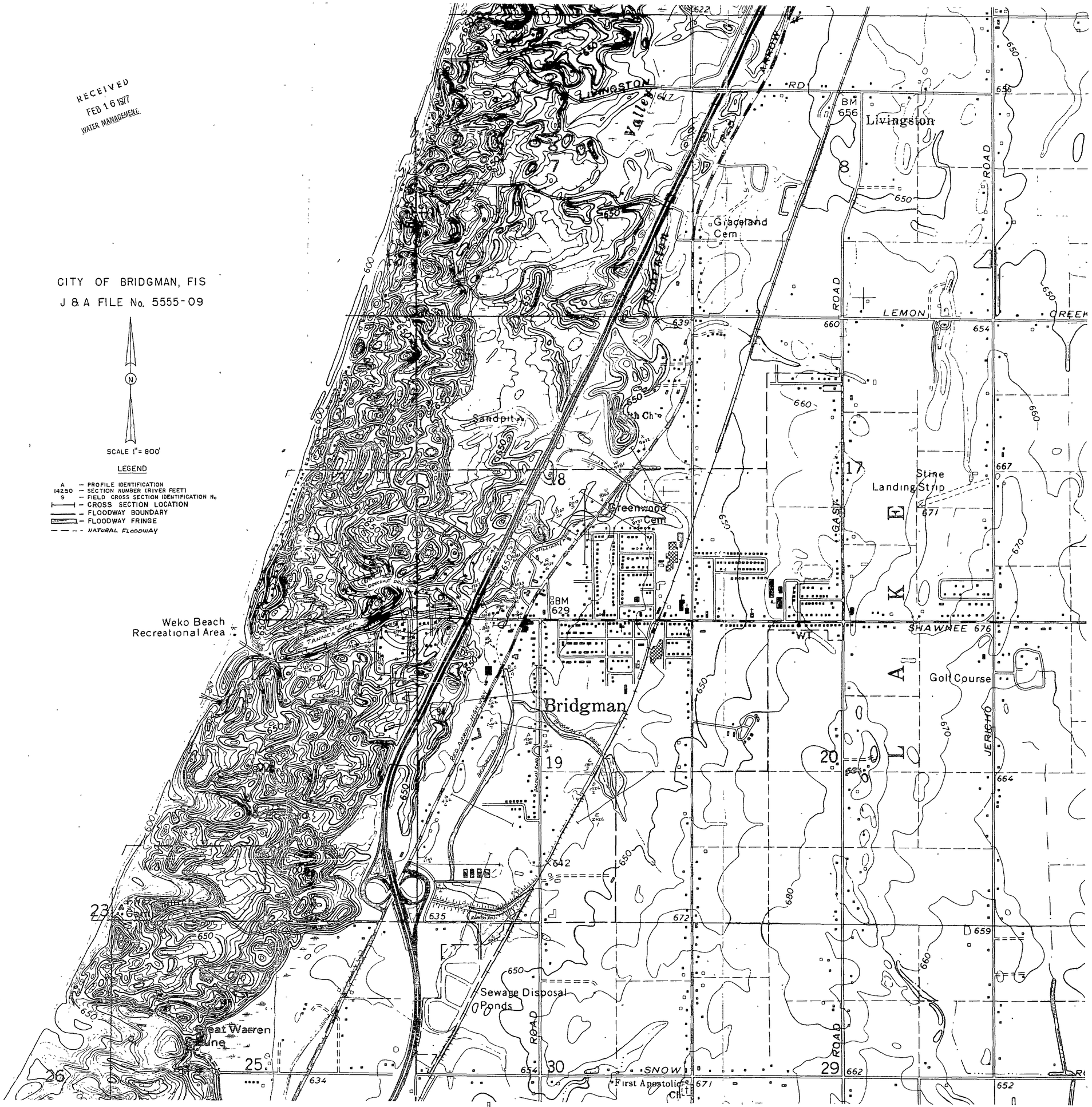
CITY OF BRIDGMAN, FIS

J & A FILE No. 5555-09

SCALE 1" = 800'

LEGEND

A — PROFILE IDENTIFICATION
14250 — SECTION NUMBER (RIVER FEET)
9 — FIELD CROSS SECTION IDENTIFICATION No
— CROSS SECTION LOCATION
— FLOODWAY BOUNDARY
— FLOODWAY FRINGE
— — — NATURAL FLOODWAY



00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Floodplain Management Study

3) WATERCOURSE: Paw Paw River

4) DOCUMENT TYPE: Summary

00BREAK00

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-----------------------------80/80 LIST OF INPUT DATA-----------------------------
WSP2                                                                          1
TITLE     RAW RAW RIVER F.H.S.-MICHIGAN                                       2
TITLE     50,100, AND 500 YR. BELOW THE DAM
DISCHARGE 400.      5.75      10.25     17.5
STARTE    9.97      582.8     582.8     582.8                                 7XXX
TRIB      19.8                                                                10
OUTPUT    PPSKP                                                               7
REACH     9.97      400       0         0                                     12
REACH 2   10.1      0                                                         13
REACH     9.98      4 5       490       490                                   14
REACH 2   10.1      0                                                         15
ROAD      10.0      2.7       160       160                                   16
BRP       10.0      3         3         3                                     17
PIER      572       5.6       571.5     7         571.2     7                 18
GIRDER    586.6     584.6     36        .6        2.5                         19
          -92.8     588.2     -92.8     586       -48.4     585.4             20
          -48.4     586       .3        585.3     92.8      584.5             21
          92.8      587.6                                                     22
ENDTABLE                                                                      23
SECTION   10.0                                                                24
          -1100     593       -1100     584.5     -1000     584.6             25
          -900      583.5     -800      583.7     -700      583.9             26
          -600      584.1     -500      584.3     -400      584.9             27
          -300      585.9     -200      586.7     -100      587.8             28
          -92.8     588.2     -92.8     581       -91.8     581               29
          -91.8     578.8     -84.5     578.5     -65.1     571.5             30
          -49       567.8     -32.8     571.1     -21       571.4             31
          -13.1     571.3     1         571.2     11.2      571.6             32
          24.1      572.1     36        571.2     46.9      571.9             33
          59.2      578.7     71.9      570.6     82.4      573.8             34
          [illegible]  575.1     92.8      587.6     [illegible]  587.1             35
          200       585.7     300       584.5     400       584.1             36
          500       583.8     600       583.3     700       584.4             37
          800       585.6     900       583.7     1000      584.3             38
          1000      593                                                       39
ENDTABLE                                                                      40
REACH     10.1      400       200       200                                   41
SEGMENT   10.1      1         N         -200                                  42
NVALUE    .08                                                                 43
SEGMENT   10.1      2         C         120                                   44
NVALUE    .05                                                                 45
SEGMENT   10.1      3         N         1500      595                         46
NVALUE    .08                                                                 47
SECTION   10.1                                                                48
          -1770     595       -1770     584.9     -1150     584.6             49
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PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

80/80 LIST OF INPUT DATA

```
          -1150     583.1     -1080     583.2     -1060     584.4     50
          -1047     584.6     -987      584.4     -975      585.8     51
          -870      586.6     -735      585.7     -695      584.9     52
          -625      584.5     -615      583.4     -475      586.8     53
          -450      579.6     -400      579.4     -350      579.4     54
          -300      579.7     -250      579.9     -225      579.5     55
          -200      578.4     -175      574.9     -150      572.5     56
          -125      571.9     -100      579.4     -75       576.9     57
          -50       573.2     -25.      574.3     0         575.1     58
          25        573.1     50        573.2     75        572.7     59
          90        577.3     100       582.9     143       583.6     60
          135       584.1     115       584.1     120       586.5     61
          127       586.4     136       583.8     530       583.5     62
          730       584.2     930       585.1     1130      585.2     63
          1310      583.7     1500      584.8     1500      595       64
ENDTABLE                                                              65
REACH     10.9      400       836       836                           66
REACH 2   11.1      3                                                 67
ROAD      11.0      2.7       64        64                            68
BPR       11.2      A         3         7                             69
PIER      559.6     7                                                 70
GIRDER    585.5     583.3     L         .8        2.5                 71
          -44.8     590       -44.8     585.5     -25       586.5     72
          -25       584.5     -8        584.8     -3        585.5     73
          -3        583.2     47.8      583.2     47.8      590.1     74
ENDTABLE                                                              76
SECTION   11.0                                                        77
          -2500     593       -2500     587.9     -2300     587.2     78
          -2100     586.3     -1900     585.9     -1700     586       79
          -1500     585.9     -1300     586       -1100     586.4     80
          -900      586.6     -700      586.9     -500      587.1     81
          -300      588       -100      589.2     -44.8     590       82
          -44.8     570.9     -25       569       -3        567.9     83
          4         571.2     25        575.1     47.8      577.6     84
          47.8      590.1     100       591.2     310       589.1     85
          500       588.1     700       588.4     910       588.4     86
          1100      588.5     1300      588.9     1500      589.4     87
          1700      589.7     1900      591       2100      591.7     88
          2100      593                                               89
ENDTABLE                                                              90
REACH     11.1      410       380       380                           91
SEGMENT   11.1      1         N         0                             92
NVALUE    .035                                                        93
SEGMENT   11.1      2         C         175                           94
NVALUE    .05                                                         95
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PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

----------80/80 LIST OF INPUT DATA----------

```
SEGMENT   11.1      3         N         1235      600                 96
NVALUE    .035                                                        97
SECTION   11.1                                                        98
          -1500     600       -1500     583.5     -910      583.5     99
          -700      583       -500      582.5     -450      581.5     100
          -400      582.5     -350      582.4     -300      582       101
          -250      582.3     -200      583.2     -150      583.8     102
          -100      584.3     -50       583.8     0         584.3     103
          5         577.3     45        574.5     90        576.1     104
          135       574.8     175       587.5     180       583.8     105
          300       584.7     400       584.7     500       584.2     106
          600       584.2     700       584.2     800       584.1     107
          900       584.2     1000      586.5     1100      587.4     108
          1200      584.8     1235      591.3     1235      600       109
ENDTABLE                                                              110
REACH     11.9      400       2370      2370                          111
SEGMENT   11.9      1         N         -65                           112
NVALUE    .035                                                        113
SEGMENT   11.9      2         C         67                            114
NVALUE    .05                                                         115
SEGMENT   11.9      3         N         980       597                 116
NVALUE    .035                                                        117
SECTION   11.9                                                        118
          -1400     597       -1400     584       -1300     584.1     119
          -1200     584       -1100     583.1     -1000     583.5     120
          -900      581       -700      581       -600      581.7     121
          -500      581.8     -400      581.7     -300      582.4     122
          -200      582.8     -150      583       -100      583       123
          -55       584.4     -55       575.5     -30       575.1     124
          0         572.9     30        572       60        573.1     125
          67        581.4     77        585.9     175       585.8     126
          275       586.2     384       588       485       594.3     127
          595       583.3     680       583       780       582.2     128
          880       584.5     980       588       980       597       129
ENDTABLE                                                              130
ROAD      12.0      2.7       170       170                           131
BPR       12.0      A         3         7                             132
PIER      575.1     3         572.1     3                             133
GIRDER    588.4     586.6     12        .8        2                   134
          -88       591.1     -88       586.6     88        586.6     135
          88        591.1                                             136
ENDTABLE                                                              137
SECTION   12.0                                                        138
          -1000     598       -1300     583.8     -900      583.6     139
          -800      583.5     -700      583.4     -600      583.3     140
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PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

----------80/80 LIST OF INPUT DATA----------

```
          -500       583.7      -400       584        -300       585.2      141
          -200       587.5      -100       589.9      -88        590.1      142
          -88        584        -73        581.9      -49        576.9      143
          -30        575.4      0          573.1      30         572.9      144
          33         575        76         581.8      88         584.2      145
          88         590.1      160        588.9      260        589.6      146
          350        592.7      350        598        30.5       571.8      147A
          31         572.9                                                  147B
ENDTABLE                                                                   148
```

----------DATA POINTS REORDERED BY PROGRAM ACCORDING TO X VALUES
DUPLICATE X POINTS NOT CHANGED----------

```
COMMENT   LOW POINT ADDED UNDER BRIDGE TO MATCH SECTION 12.1               148A
REACH     12.1      400        92.5       92.5                           149
SEGMENT   12.1      1          N          940                            150
NVALUE    .035                                                           151
SEGMENT   12.1      2          C          1080                           152
NVALUE    .05                                                            153
SEGMENT   12.1      3          N          1390       660                 154
NVALUE    .085                                                           155
SECTION   12.1                                                           156
          0         600        C          584        170        581      157
          300       581        600        581.8      660        588      158
          890       588        890        585        940        584.2    159
          945       575.3      970        574.8      1000       572.8    160
          1030      571.8      1060       575        1080       585.8    161
          1280      586        1390       587.3      1390       600      162
ENDTABLE                                                                 163
REACH     12.2      400        917.5      880                            164
SEGMENT   12.2      1          N          893                            165
NVALUE    .035                                                           166
SEGMENT   12.2      2          C          1041                           167
NVALUE    .05                                                            168
SEGMENT   12.2      3          N          1420       589                 169
NVALUE    .085                                                           170
SECTION   12.2                                                           171
          0         589        0          583.4      100        582.5    172X
          200       582.2      300        582.3      332        586.1    173
          400       583        450        584.9      500        584.8    174
          510       582.5      700        582.3      800        583.3    175
          850       585.1      863        586.2      881        584.7    176
          893       584.8      898        582.2      942        575.6    177
          932       574.7      965        574.5      1000       573.8    178
          1024      575.4      1034       581.8      1.36       582.8    179
          1041      593.6      1051       583.9      1098       585      180
          1152      584.9      1248       586.9      1391       587.3    181
          1420      589                                                  182
ENDTABLE                                                                 183
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PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

----------80/80 LIST OF INPUT DATA----------

```
REACH     12.9      400       1620      1600                          184
SEGMENT   12.9      1         N         -90                           185
NVALUE    .085                                                        186
SEGMENT   12.9      2         C         84                            187
NVALUE    .05                                                         188
SEGMENT   12.9      3         N         420       598                 189
NVALUE    .085                                                        190
SECTION   12.9                                                        191
          -1022     598       -1022     583.8     -967      585.3     192
          -807      582.7     -147      582.6     -122      585.4     193
          -92       584.3     -90       582.4     -80       573.7     194
          -55       573.4     -30       574.6     0         576.7     195
          25        577.1     50        573       75        577.9     196
          80        582.4     84        584.6     130       587.3     197
          190       587.5     230       588.3     280       588.8     198
          330       589.3     380       590       410       590.9     199
          420       592.3     420       598                           200
ENDTABLE                                                              201
ROAD      13.0      2.7       260       260                           202
BPR       13.0      A         3         7                             203
PIER      575       4         573.8     4                             204
GIRDER    589.4     587.7     35        .8        2.2                 205
          -81       591.2     -81       577.7     81        577.7     206
          81        591.3                                             207
ENDTABLE                                                              208
SECTION   13.0                                                        209
          -1450     597       -1450     585.4     -1250     584.6     210
          -1250     584       -850      583.1     -650      584.3     211
          -450      586       -250      587.9     -150      588.9     212
          -81       591.2     -81       579.8     -56       578.4     213
          -30.5     575.1     -25       575.1     0         572.1     214
          25        572.5     30.5      575       55        576.1     215
          81        591.3     180       589.9     280       590.9     216
          380       593       420       595       420       597       217
ENDTABLE                                                              218
REACH     13.1      400       140       140                           219
SEGMENT   13.1      1         N         -71                           220
NVALUE    .085                                                        221
SEGMENT   13.1      2         C         150                           222
NVALUE    .05                                                         223
SEGMENT   13.1      3         N         400       600                 224
NVALUE    .085                                                        225
SECTION   13.1                                                        226
          -1800     600       -1800     586       -1600     586.1     227
          -1485     586.5     -1475     577.5     -1465     586.2     228
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PAW PAW PIVER F.H.S.-MICHIGAN
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80/80 LIST OF INPUT DATA

	-1400	585.9	-1300	585	-1100	584.4	229
	-900	583.5	-700	584.8	-500	586.3	230
	-300	587.9	-200	589.5	-100	588.6	231
	-71	588.3	-60	582.6	-50	576.2	232
	-30	575.4	0	575.6	30	575.6	233
	61	575.6	90	574.9	120	577.6	234
	138	582.6	150	585	200	585.6	235
	250	587	300	587.7	318	588.4	236
	330	591.3	400	593	400	600	237
ENDTABLE							238
REACH	13.9	400	3220	1680			239
SEGMENT	13.9	1	N	-53			240
NVALUE	.035						241
SEGMENT	13.9	2	C	61			242
NVALUE	.05						243
SEGMENT	13.9	3	N	1250	597		244
NVALUE	.06						245
SECTION	13.9						246
	-573	597	-573	589.5	-493	590.3	247
	-453	586	-353	587.8	-253	587	248
	-153	588	-53	587.9	-45	582.4	249
	-39	576.7	-25	572.8	0	572.5	250
	25	572.7	40	579.2	50	582.6	251
	61	589	76	589.6	100	590.2	252
	200	590	300	589.1	400	588.8	253
	500	587.9	600	588.3	700	587.4	254
	800	587.3	835	585.4	935	587.5	255
	1000	589.3	1100	591.6	1130	592.9	256
	1200	593.8	1250	595.2	1250	597	257
ENDTABLE							258
ROAD	14.0	2.7	130	130			259
BPR	14.0	A	3	7			260
PIER	574.5	4	577	4			261
GIRDER	589.9	588.3	0	.8	2		262
	-57.5	592.6	-57.5	588.3	57.5	588.3	263
	57.5	591.5					264
ENDTABLE							265
SECTION	14.0						266
	-800	598	-800	596.3	-700	595.4	267
	-600	595	-500	594.5	-400	593.6	268
	-300	593.5	-200	593.6	-100	592.6	269
	-70	592.6	-57.5	592.6	-47.5	582.5	270
	-40.5	577.1	-26.5	576	-22.5	573	271
	0	573.2	22.5	573.2	26.5	580	272
	47.5	582.2	47.5	580.9	57.5	584	273

PAW PAW RIVER F.H.S.-MICHIGAN
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----------80/80 LIST OF INPUT DATA----------

	37.5	591.5	70	591.4	100	590.7	274
	200	589.7	300	588.4	400	587.4	275
	500	586.7	600	585.8	700	585.8	276
	800	586.9	900	589.3	1000	592.2	277
	1000	598					278
ENDTABLE							279
REACH	14.5	400	60	60			280
SEGMENT	14.5	1	N	1077.6			281
NVALUE	.085						282
SEGMENT	14.5	2	C	1176			283
NVALUE	.05						284
SEGMENT	14.5	3	N	1270	605		285
NVALUE	.085						286
SECTION	14.5						287
	800	605	800	591.3	900	592.5	288
	1000	593.8	1040	590.5	1077.6	588.1	289
	1090	576.6	1100	573	1150	573	290
	1176	595	1200	589.7	1240	590.5	291
	1270	590	1270	605			292
ENDTABLE							293
ROAD	15.0	2.7	60	60			294
BFR	15.0	A	3	7			295
PIER	577	6.4					296
GIRDER	589.5	586.1	25	.8	2.7		297
	-22.4	593	-22.4	587.4	15.6	587.4	298
	22.6	588.5	29.1	589.4	37.9	589.4	299
	43.8	586.1	76	586.1	76	593.1	300
ENDTABLE							301
SECTION	15.0						302
	-1100	594	-1100	589.2	-930	589.9	303
	-700	591	-500	591.3	-300	592.3	304
	-200	593.5	-100	592.6	-60	592.8	305
	-22.4	593	-22.4	579.6	0	568.5	306
	22.5	570	29	570.5	52.5	575.6	307
	76	582.5	76	593.1	100	592.5	308
	300	592.4	500	592.4	700	592.3	309
	900	592.7	1100	593.3	1230	594	310
ENDTABLE							311
REACH	15.05	400	63	63			312
SEGMENT	15.05	1	N	1077			313
NVALUE	.085						314
SEGMENT	15.05	2	C	1160			315
NVALUE	.05						316
SEGMENT	15.05	3	N	1230	605		317
NVALUE	.085						318

PAW PAW RIVER F.H.S.-MICHIGAN
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----------80/80 LIST OF INPUT DATA----------

SECTION	15.05						319
	800	605	800	597.5	900	597.4	320
	1000	594.6	1077	588.5	1088	577	321
	1100	573.6	1130	573	1155	573.3	322
	1160	581	1176.1	581	1200	581	323
	1230	581	1230	605			324
ENDTABLE							325
			MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS				20. FEET
REACH	15.1	400	2357	1040			326
SEGMENT	15.1	1	N	-1120			327
NVALUE	.085						328
SEGMENT	15.1	2	C	-960			329
NVALUE	.05						330
SEGMENT	15.1	3	N	180	599		331
NVALUE	.085						332
SECTION	15.1						333
	-1210	599	-1210	591.6	-1120	587.4	334
	-1105	581.3	-1075	579.9	-1065	578.2	335
	-1040	576.6	-1020	575.4	-1000	575.4	336
	-970	573.9	-950	583	-900	582.4	337
	-750	581.9	-550	581.7	-380	580.7	338
	-260	580.4	-160	580.9	-60	581	339
	-48	582.4	-32	590.1	-15	592.6	340
	0	592.5	16	592.6	32	591	341
	42	585.8	92	586.1	142	586.9	342
	180	590.3	180	599			343
ENDTABLE	(SEC NO)	(DA)	(CHANNEL LENGTH)	(FLOOD LENGTH)			344
REACH	15.15	400	2450	2320			345
SEGMENT	15.15	1	N	-50			346
NVALUE	.150						347
SEGMENT	15.15	2	C	50			348
NVALUE	.05						349
SEGMENT	15.15	3	N	623	601		350
NVALUE	.150						351
SECTION	15.15						352
	~~-1500~~ (0)	601	~~-1500~~ (0)	600.2	~~-1450~~ (50)	583.5	353
	~~-1350~~ (150)	582.5	~~-1200~~ (500)	580.5	~~-1000~~ 500	580.5	354
	-900 (600)	580.5	-800 (700)	579.9	-700 (800)	580.3	355
	-600 (900)	580.3	-500 (1000)	580.6	-400 (1100)	580.5	356
	-300 (1200)	581.1	-200 (1300)	581.8	-100 (1400)	581.9	357
	-50 (1450)	581.4	-45 (1455)	575.9	-25 (1475)	576.5	358
	0 (1500)	576.4	25 (1525)	576.1	40 (1540)	575.5	359
	50 (1550)	582.1	65 (1565)	582.4	115 (1615)	581.7	360
	215 (1715)	581.7	315 (1815)	582.2	350 (1850)	596.7	361
	362 (1862)	598.2	385 (1885)	597.9	413 (1913)	583.1	362
	463 (1963)	582.3	513 (2013)	581.9	543 (2043)	583.1	363

PAW PAW RIVER F.H.S.-MICHIGAN
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----------80/80 LIST OF INPUT DATA----------

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            353         583.7       623         600.2       623         601         364
ENDTABLE                                                                            365
REACH       15.25       400         7310        3680                                366
SEGMENT     15.25       1           N           -12                                 367
NVALUE      .150                                                                    368
SEGMENT     15.25       2           C           57                                  369
NVALUE      .05                                                                     370
SEGMENT     15.25       3           N           2020        636                     371
NVALUE      .150                                                                    372
SECTION     15.25                                                                   373
            -230(10)    636         -230(70)    591.1       -218(82)    582.2       374
            -187(113)   585.2       -157(143)   585.2       -127(173)   585.7       375
            -87(203)    581.8       -87(213)    581.9       -77(223)    585         376
            -47(233)    585.6       -58(242     585.6       -47(253)    585.4       377
            -24(276)    582.6       -12(288)    582.3       0(300)      579.4       378
            12(312)     576         24(324)     577.5       47(347)     582.6       379
            37(357)     585.2       68(368)     585.3       78(378)     586         380
            88(388)     585.6       97(397)     585.3       108(408)    585.1       381
            117(417)    585.1       127(427)    585.1       227(527)    585.1       382
            327(627)    584.9       427(727)    585         528(828)    583.8       383
            629(929)    584.9       728(1028)   585         828(1128)   586         384
            927(1227)   584.2       1030(1330)  584.1       1139(1439)  585.3       385
            1239(1539)  585.6       1630(1930)  585.9       1730(2030)  586         386
            1810(2110)  588.1       1895(2195   603.1       1977(2277)  617.5       387
            1984        626.8       2012        635.9       2020        635.2       388
            2020        636                                                         389
ENDTABLE                                                                            390
                                MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH       15.4        400         10700       6920                                391
SEGMENT     15.4        1           N           -43                                 392
NVALUE      .15                                                                     393
SEGMENT     15.4        2           C           27                                  394
NVALUE      .05                                                                     395
SEGMENT     15.4        3           N           949         604                     396
NVALUE      .15                                                                     397
SECTION     15.4                                                                    398
            -1835       604         -1835       591.8       -1830       590.2       399
            -1810       588.2       -1720       587.8       -1630       587.2       400
            -1510       587         -1410       585.2       -1310       586.7       401
            -710        586.3       -610        585.6       -510        586.3       402
            -410        583.7       -360        585.7       -340        586         403
            -265        586.5       -235        587.2       -55         587.1       404
            -43         589.3       -37         586.5       -27         580.4       405
            -12         579.2       0           579.1       12          579.3       406
            27          583.2       37          581.1       147         581.2       407
            237         586.1       267         585.7       357         586.1       408
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PAW PAW RIVER F.H.S.-MICHIGAN
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----------80/80 LIST OF INPUT DATA----------

	337	584.9	417	586	477	586.1	409
	516	585.6	537	585.5	567	585	410
	617	585.1	627	584.8	657	585	411
	857	585	882	585.3	897	586.7	412
	927	594.8	949	598.1	949	604	413
ENDTABLE							414
REACH	15.5	400	6830	4600			415
SEGMENT	15.5	1	N	2052			416
NVALUE	.15						417
SEGMENT	15.5	2	C	2152			418
NVALUE	.05						419
SEGMENT	15.5	3	N	2264	620		420
NVALUE	.15						421
SECTION	15.5						422
	81	620	170	594.1	300	593.1	423
	500	589.6	700	588.9	800	587	424
	1100	587.3	1150	584.4	1200	586.4	425
	1300	587.2	1700	586.8	1887	587.2	426
	1953	588.3	2047	589.3	2052	588.7	427
	2060	583.1	2075	582.3	2100	582.6	428
	2125	583.9	2140	584.4	2148	588.7	429
	2152	589.9	2154	590.2	2239	592.4	430
	2264	595.4	2264	620			431
ENDTABLE							432

MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS 20. FEET

REACH	15.8	400	6190	5200			433
SEGMENT	15.8	1	N	-42			434
NVALUE	.15						435
SEGMENT	15.8	2	C	43			436
NVALUE	.05						437
SEGMENT	15.8	3	N	310	610		438
NVALUE	.15						439
SECTION	15.8						440
	-2050	610	-2050	595.4	-2000	594.3	441
	-1600	592	-1210	588.8	-900	588.1	442
	-677	587.4	-377	587.5	-77	589.1	443
	-42.	590.3	-32	584.9	-7	585	444
	3	584.8	8	585.1	33	585.8	445
	43	590.1	53	591.7	93	590.2	446
	123	589.9	153	589.3	183	588.8	447
	213	588.8	243	588.6	300	593.9	448
	310	595.4	310	610			449
ENDTABLE							450
REACH	15.9	400	4960	3200			451
SEGMENT	15.9	1	N	-1222			452
NVALUE	.15						453

PAW PAW RIVER F.H.S.-MICHIGAN
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-----------------------------80/80 LIST OF INPUT DATA-----------------------------
SEGMENT   15.9      2         C         -1068                                  454
NVALUE    .05                                                                  455
SEGMENT   15.9      3         N         0         620                          456
NVALUE    .15                                                                  457
SECTION   15.9                                                                 458
          -1720     620       -1720     619.7     -1675     599.3              459
          -1645     593.3     -1580     592.7     -1485     592.3              460
          -1390     592.2     -1294     591.7     -1269     595.6              461
          -1244     597.7     -1222     596.5     -1197     591.8              462
          -1186     586.2     -1174     586.5     -1156     586.6              463
          -1125     588.5     -1104     589.2     -1093     591.8              464
          -1080     599.2     -1068     601.9     -1060     597.4              465
          -970      597       -865      602.3     -740      602.8              466
          -645      601.6     -550      601.3     -450      601.6              467
          -345      601.3     -245      602.9     -140      603.8              468
          -45       609.7     0         615.4     0         620                469
ENDTABLE                                                                       470
                          MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH     16.0      400       410       410                                    471
SEGMENT   16.0      1         N         -99       617.9                        472
NVALUE    .15                                                                  473
SEGMENT   16.0      2         C         99        613.3                        474
NVALUE    .05                                                                  475
SEGMENT   16.0      3         N         1400      639                          476
NVALUE    .15                                                                  477
SECTION   16.0                                                                 478
          -1100     639       -1050     638.3     -950      637.2              479
          -850      635.5     -750      631.7     -650      631.7              480
          -600      631.3     -500      629       -400      626.6              481
          -300      624       -250      622.7     -200      621.2              482
          -99       617.9     -99       611.9     -92.2     611.5              483
          -84.4     608.2     -76.6     604.9     -68.8     601                484
          -61       597.2     -53.2     594.2     -45.4     588.5              485
          -35.6     588.4     -33       589.2     0         587.8              486
          33.2      587.1     36        587.7     45.4      587.3              487
          53.2      587.8     61        592       66.8      595.9              488
          76.6      599.5     84.4      603.4     92.2      607                489
          99        607.2     99        613.3     200       611.5              490
          300       610.4     400       609.4     500       609.1              491
          600       609.2     700       609.7     800       610.6              492
          1000      613       1100      614.9     1200      617.2              493
          1300      619.6     1400      622.4     1400      639                494
ENDTABLE                                                                       495
REACH     16.1      400       520       520                                    496
SEGMENT   16.1      1         N         -47                                    497
NVALUE    .15                                                                  498
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PAW PAW RIVER F.H.S.-MICHIGAN
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----------80/80 LIST OF INPUT DATA----------

SEGMENT	16.1	2	C	60			499
NVALUE	.05						500
SEGMENT	16.1	3	N	1100	610		501
NVALUE	.15						502
SECTION	16.1						503
	-110	610	-110	599.6	-100	597.3	504
	-90	594.2	-60	593.3	-47	591.9	505
	-37	586.5	-17	585.9	0	584.7	506
	18	586.6	37	585.8	47	591.9	507
	60	596.3	100	595.7	175	592.7	508
	200	590.7	300	589.4	400	591.3	509
	475	590.5	500	589.6	600	590.5	510
	700	590.3	800	591.4	900	592.1	511
	1000	591.2	1012	592.7	1050	593.2	512
	1075	594.1	1100	600.3	1100	610	513
ENDTABLE							514
REACH	16.7	400	6490	4400			515
SEGMENT	16.7	1	N	-1110			516
NVALUE	.15						517
SEGMENT	16.7	2	C	-936			518
NVALUE	.05						519
SEGMENT	16.7	3	N	0	631		520
NVALUE	.15						521
SECTION	16.7						522
	-2110	631	-2110	594.8	-1910	594.9	523
	-1840	593.9	-1740	593.3	-1640	593.2	524
	-1540	593.1	-1440	593	-1340	593.6	525
	-1240	593.9	-1140	594.7	-1140	595.4	526
	-1130	594.2	-1110	595	-1091	588.3	527
	-986	586.5	-971	587.2	-956	589.2	528
	-946	589.9	-936	594.8	-855	593.7	529
	-755	593.7	-655	594.5	-555	593.8	530
	-455	593.4	-355	594.5	-625	595.1	531
	-175	597.3	-55	599.3	-30	612.7	532
	0	630.5	0	631			533
ENDTABLE							534

MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS 20. FEET

REACH	16.9	400	2740	1840			535
SEGMENT	16.9	1	N	-46			536
NVALUE	.15						537
SEGMENT	16.9	2	C	48			538
NVALUE	.05						539
SEGMENT	16.9	3	N	1450	613		540
NVALUE	.150						541
SECTION	16.9						542
	-260	613	-260	601.2	-245	596.2	543

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----------80/80 LIST OF INPUT DATA----------

	-185	595.4	-154	595	-94	595	544
	-61	595.9	-46	595.8	-44	594.6	546
	-34	590.2	-25	587.6	0	587.9	547
	25	588.1	34	589.1	44	594.6	548
	48	596.6	62	596.6	95	595.1	549
	135	593.5	255	593.3	350	593.1	550
	435	593.8	550	592.2	650	593.5	551
	750	592.7	950	593.9	1150	594.7	552
	1350	594.8	1410	595.1	1440	596.2	553
	1450	601.2	1450	613			554
ENDTABLE							555
REACH	17.0	400	350	320			556
SEGMENT	17.0	1	N	-119.8	629.6		557
NVALUE	.15						558
SEGMENT	17.0	2	C	119.8	629.8		559
NVALUE	.05						560
SEGMENT	17.0	3	N	850	633		561
NVALUE	.15						562
SECTION	17.0						563
	-900	633	-800	632.8	-700	632.3	564
	-630	631.5	-500	630.9	-400	630.3	565
	-300	629.7	-200	629.3	-119.8	629.6	566
	-119.8	621.7	-111	621.3	-100	614.8	567
	-86	610.1	-70	601.4	-52	597.4	568
	-36	595.6	-29	594.1	-21	597.9	569
	3	595.9	23	588.4	36	592.7	570
	45	595.9	52.8	597.9	64	597.9	571
	85	614.6	91	613.1	99	613.7	572
	112	621.6	119.8	622	129.8	629.8	573
	200	629.2	400	629.3	600	630.8	574
	800	632.2	850	632.9	850	633	575
ENDTABLE							576
REACH	17.9	400	1300	1300			577
SEGMENT	17.9	1	N	142			578
NVALUE	.15						579
SEGMENT	17.9	2	C	236			580
NVALUE	.05						581
SEGMENT	17.9	3	N	938	619		582
NVALUE	.15						583
SECTION	17.9						584
	3	619	0	611.6	22	599.3	585
	72	597.4	102	596.8	107	598	586
	142	597.3	143	595.2	153	590.7	587
	168	589.7	188	588.4	213	589.6	588
	223	590.3	233	595.2	236	596.4	589

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

----------80/80 LIST OF INPUT DATA----------

	436	596.3	536	596.5	636	597.5	591
	736	597.8	886	601.2	926	616.7	591
	938	618.3	938	619			592
ENDTABLE							593
ROAD	19.0	2.7	75	75			594
BFR	19.0	A	3	7			595
PIER	586.2	2	589	2			596
GIRDER	585.6	603.7	24	.8	2.3		597
	-79	606.4	-79	603.7	79	603.7	598
	79	607.4					599
ENDTABLE							600
SECTION	19.0						601
	-630	619	-630	618.3	-580	616.5	602
	-480	613.5	-380	610.7	-280	608.4	603
	-178	606.9	-79	606.4	-79	600.2	604
	-71.2	599.5	-63.4	595.7	-59	593.6	605
	-44	589.6	-36	588.9	-27.8	585.3	606
	-20	586.5	-12.5	586.6	-5	587	607
	2.5	587.5	10	587.8	17.5	587.3	608
	27.5	585.3	29.8	593.5	40	593.6	609
	53	592.3	64	592.6	66.2	594.2	610
	72.8	599.1	79	600.1	79	607.4	611
	178	608.9	280	611.7	380	615.5	612
	430	617.8	430	619			613
ENDTABLE							614
REACH	18.1	400	210	200			615
SEGMENT	18.1	1	N	225			616
NVALUE	.15						617
SEGMENT	18.1	2	C	325			618
NVALUE	.35						619
SEGMENT	18.1	3	N	896	620		620
NVALUE	.15						617
SECTION	18.1						621
	0	620	0	614.6	140	595.1	622
	150	596.3	225	597.3	235	594.6	623
	245	590.6	250	586.7	280	585.9	624
	310	588.5	315	592.3	325	596.1	625
	340	596.6	440	596.5	540	596.7	626
	640	596.4	740	597.8	840	601	627
	830	615.1	896	619.7	896	620	628
ENDTABLE							629
REACH	18.3	400	5275	3680			630
SEGMENT	18.3	1	N	52			631
NVALUE	.15						632
SEGMENT	18.3	2	C	120			633

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

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-----------------------------80/80 LIST OF INPUT DATA-----------------------------
NVALUE    .05                                                                634
SEGMENT   18.3      3         N         890       633                        635
NVALUE    .15                                                                636
SECTION   18.3                                                               637
          0         633       0         632.5     52        615.3            638
          62        593.5     72        590.1     90        589.5            639
          100       590.6     110       591.4     120       600.3            640
          150       596.2     250       596.8     350       595.8            641
          450       596.1     550       596.1     650       595.8            642
          750       595.7     850       596.2     890       598.1            643
          890       633                                                      644
ENDTABLE                                                                     645
                        MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH     18.6      400       4140      3040                                 646
SEGMENT   18.6      1         N         956                                  647
NVALUE    .15                                                                648
SEGMENT   18.6      2         C         1031                                 649
NVALUE    .05                                                                650
SEGMENT   18.6      3         N         1421      634                        651
NVALUE    .15                                                                652
SECTION   18.6                                                               653
          0         634       0         633.2     66        617              654
          216       599.2     256       597.8     356       597.4            655
          456       597.5     556       597.      656       597.6            656
          756       597.8     856       596.6     956       598.3            657
          966       593       981       588.9     996       590.8            658
          1011      592.6     1021      591.8     1031      597.6            659
          1061      597.5     1161      597.9     1261      597.1            660
          1361      597       1391      597.7     1421      599.2            661
          1421      634                                                      662
ENDTABLE                                                                     663
                        MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH     18.9      400       2960      2080                                 664
SEGMENT   18.9      1         N         53                                   666
NVALUE    .15                                                                667
SEGMENT   18.9      2         C         138                                  668
NVALUE    .05                                                                669
SEGMENT   18.9      3         N         1220      636                        700
NVALUE    .15                                                                701
SECTION   18.9                                                               702
          5         636       10        627.5     53        603              703
          70        594       72        592.8     86        592              704
          100       591.9     110       590.9     126       592.2            705
          138       598.8     149       598.9     160       599              706
          175       598.9     273       599.8     380       598.1            707
          830       597.4     880       598.1     1059      596.8            708
          1140      598       1220      636                                  709
```

FAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

----------80/80 LIST OF INPUT DATA----------

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ENDTABLE                                                              710
                        MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
ROAD      19.0      2.7       140       140                           711
BPR       19.0      A         3                                       712
GIRDER    608.3     608.1     0         .8        2.2                 713
          -48       609.2     -48       608.1     48        608.1     714
          48        609.2                                             715
ENDTABLE                                                              716
SECTION   19.0                                                        718
          -649      635       -649      634.5     -549      633.2     719
          -449      632.3     -349      629       -249      622.2     720
          -149      616       -48       609.2     -48       608.3     721
          -33       594.2     -16       597.8     0         590.2     722
          16        592       33        594.1     48        597.8     723
          48        609.2     149       606.8     249       603.4     724
          349       602.8     449       602.8     549       603       725
          649       603.1     749       603.8     849       614.5     726
          949       608       1049      614       1139      620.5     727
          1179      635                                               728
ENDTABLE                                                              729
REACH     19.1      40        940       940                           730
SEGMENT   19.1      1         N         1468                          731
NVALUE    .15                                                         732
SEGMENT   19.1      2         C         1540                          733
NVALUE    .05                                                         734
SEGMENT   19.1      3         N         1928      630                 735X
NVALUE    .15                                                         736
SECTION   19.1                                                        737
          61        630       80        628       103       609.6     738
          195       602.9     279       603       320       601.1     739
          419       603.7     565       598.3     930       6.0       741
          1100      598.1     1439      601.2     1468      599.3     741
          1478      595.1     1494      591.9     1502      590.6     742
          1515      595.3     1526      592.8     1532      598.3     743
          1549      60        1556      539.9     1564      599       744
          1750      599.1     1824      599.8     1854      601.1     745
          1902      623.7     1928      630                           746X
ENDTABLE                                                              747
                        MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH     19.25     400       7320      3280                          748
SEGMENT   19.25     1         N         455                           749
NVALUE    .13                                                         750
SEGMENT   19.25     2         C         543                           751
NVALUE    .05                                                         752
SEGMENT   19.25     3         N         2548      630                 753
NVALUE    .15                                                         754
SECTION   19.25                                                       755
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PAW PAW RIVER P.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

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-----------------------------80/80 LIST OF INPUT DATA-----------------------------
          0        632.8     230       603.6     285       603       756
          455      603       465       601.7     472       596       757
          496      592.7     502       592.9     510       595.2     758
          528      596.1     533       601.6     543       602.4     759
          550      602       578       602.8     1212      602.9     760
          1845     609.8     2450      610       2548      630       761
ENDTABLE                                                              762
                        MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH     19.3     400       1620      1120                          763
SEGMENT   19.3     1         N         160                           764
NVALUE    .15                                                         765
SEGMENT   19.3     2         C         229                           766
NVALUE    .05                                                         767
SEGMENT   19.3     3         N         1060      636                 768
NVALUE    .15                                                         769
SECTION   19.3                                                        770
          80       636.2     135       605.3     150       602.8     771
          160      602.8     170       595.1     180       592.2     772
          194      592.2     218       596.3     229       602.8     773
          255      603       328       601.8     605       602       774
          675      602.9     742       602       990       602       775
          1078     603.3     1060      626.9     1060      636       776
ENDTABLE                                                              777
                        MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH     19.4     400       1650      840                           778
SEGMENT   19.4     1         N         855                           779
NVALUE    .15                                                         780
SEGMENT   19.4     2         C         943                           781
NVALUE    .05                                                         782
SEGMENT   19.4     3         N         2385      630                 783
NVALUE    .15                                                         784
SECTION   19.4                                                        785
          20       636.2     140       610       190       604       786
          240      602.6     500       601.5     625       602.6     787
          800      602       830       602.3     855       602.1     788
          870      598       886       594.6     918       592.4     789
          935      594.5     943       602       960       602.4     790
          1010     601.2     1455      601       1930      605.7     791
          2240     610       2385      630                           792
ENDTABLE                                                              793
                        MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH     19.7     400       4030      2640                          794
SEGMENT   19.7     1         N         1457                          795
NVALUE    .15                                                         796
SEGMENT   19.7     2         C         1550                          797
NVALUE    .05                                                         798
SEGMENT   19.7     3         N         1725      638                 799
NVALUE    .15                                                         800
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PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

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-----------------------------80/80 LIST OF INPUT DATA-----------------------------
SECTION   19.7                                                                  801
          70        638       212       610.6     240       608                 802
          350       608       370       605       640       604.2               803
          651       606.3     665       606.2     680       604.1               804
          940       604.4     990       606       1100      606.4               805
          1320      603       1425      604.1     1447      604.2               806
          1457      604.7     1467      600.5     1500      596.8               807
          1518      595.7     1536      598.6     1545      604.8               808
          1550      605.1     1575      604.8     1620      606.4               809
          1560      608       1725      638                                     810
ENDTABLE                                                                        811
                          MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH     19.8      400       4460      2080                                    812
SEGMENT   19.8      1         N         438                                     813
NVALUE    .15                                                                   814
SEGMENT   19.8      2         C         550                                     815
NVALUE    .05                                                                   816
SEGMENT   19.8      3         N         2370      640                           817
NVALUE    .15                                                                   818
SECTION   19.8                                                                  819
          40        640.8     70        613       120       605.3               820
          340       604.8     390       604.3     410       605.3               821
          425       607       438       607.2     460       600.9               822
          478       598       520       599       540       600                 823
          550       606.2     560       606.8     668       605.5               824
          690       604.2     750       604.7     790       607.9               825
          830       607.4     893       605.9     1145      605.1               826
          1190      620       1207      622.7     1226      623.6               827
          1250      620.4     1310      605.1     2295      605.5               828
          2370      624       2370      640                                     829
ENDTABLE                                                                        830
                          MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
COMPUTE   9.97      19.8      9.97                                              831
-----------------------------END OF 80/80 LIST-----------------------------
```

COMPUTE 9.97 19.8 9.97 831

----------STARTING DATA FROM GIVEN ELEVATION----------

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 9.97

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	570.40	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	578.40	1485.83	2258.06	.00	.00	.00		
1	582.80	3804.12	3500.00	.00	.00	.00	8.75	574.56
2	582.80	3804.12	4100.00	.00	.00	.00	10.25	574.79
3	582.80	3804.12	7000.00	.00	.00	.00	17.50	575.71

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 9.97

ELEVATION	KD	AREA
570.40	0.00	0.00
571.00	168.41	11.80
572.00	1755.17	61.78
573.00	5354.05	157.66
574.00	13231.65	323.06
575.00	27428.54	550.95
576.00	50360.05	812.08
577.00	79536.31	1086.50
578.00	114519.64	1371.47
579.00	156201.81	1668.36
580.00	206218.22	2096.77
581.00	266115.75	2648.92
582.00	336157.66	3260.17
583.00	413976.54	3949.60
584.00	495836.29	5121.59
585.00	593604.04	6876.01
586.00	771498.15	9792.76
587.00	1012098.32	13317.50
588.00	1325045.16	16278.45
589.00	1647130.93	19548.45
590.00	2032270.64	22918.45
591.00	2446589.80	26088.45
592.00	2900295.76	29358.45
593.00	3390488.70	32628.45
594.00	3909799.44	35898.45
595.00	4481554.26	39168.45
596.00	5109056.17	42438.45
597.00	5795242.52	45708.45

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

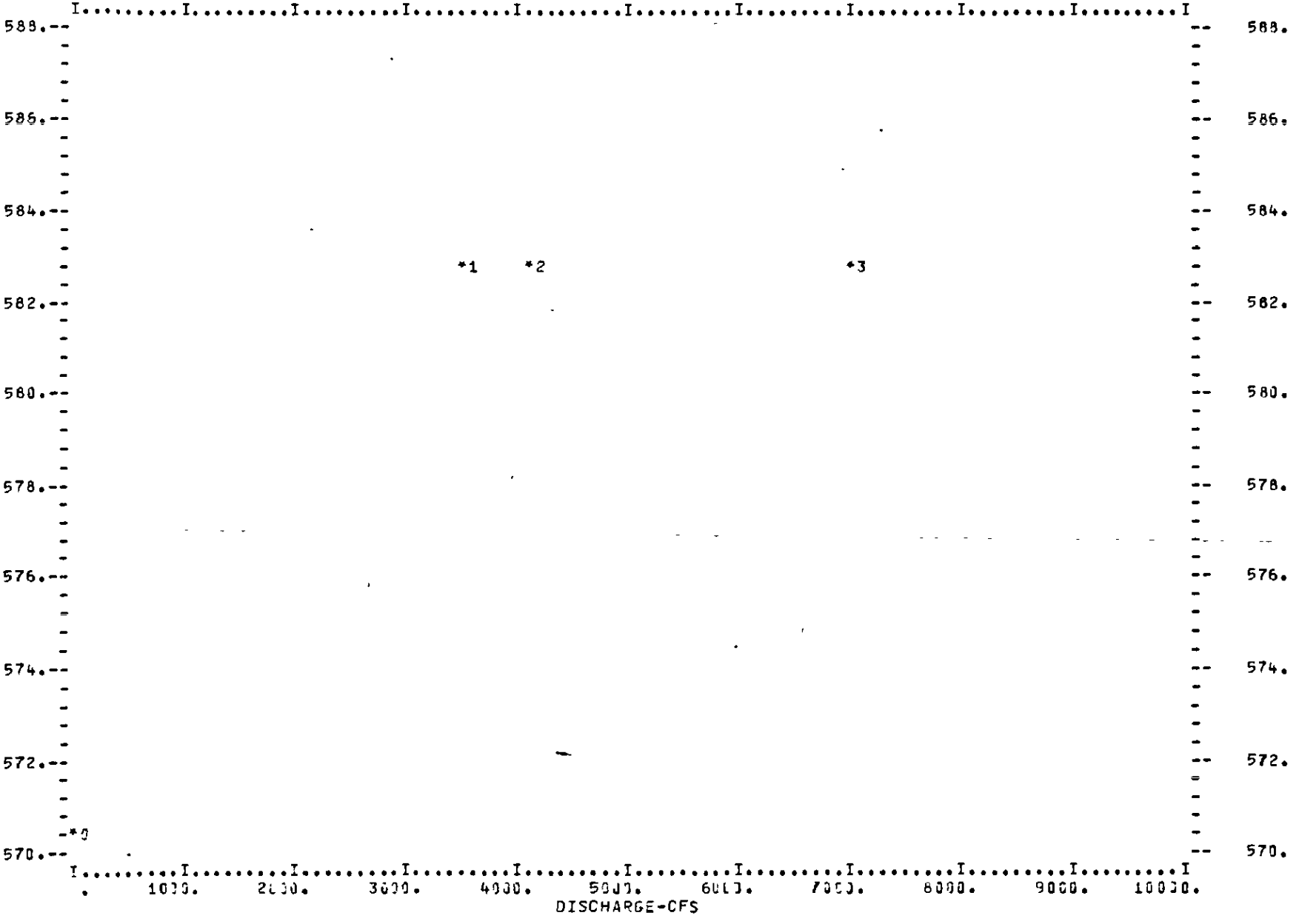
SEGMENT TABLE
CROSS SECTION 9.97
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	304.74	3195.20	.06
8.75	VELOCITY FPS	1.10	.30	1.15	.02
CORRECT WEIGHTED VEL =		1.10			
	DISCHARGE CFS	4100.00	356.98	3742.94	.08
10.25	VELOCITY FPS	1.29	.35	1.34	.33
CORRECT WEIGHTED VEL =		1.29			
	DISCHARGE CFS	7000.00	609.48	6390.39	.13
17.50	VELOCITY FPS	2.20	.60	2.29	.05
CORRECT WEIGHTED VEL =		2.20			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 9.97

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 9.98

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	570.40	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	578.40	1485.83	2251.18	.00	.00	.00		
1	582.84	3831.69	3500.00	.00	.00	.00	8.75	574.56
2	582.85	3841.96	4100.00	.00	.00	.00	10.25	574.79
3	582.95	3911.96	7000.00	.00	.00	.00	17.50	575.71

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 9.98

ELEVATION	KD	AREA
570.40	0.00	0.00
571.00	168.41	11.80
572.00	1755.17	61.78
573.00	5354.05	157.66
574.00	13231.65	323.06
575.00	27428.54	550.95
576.00	50360.05	812.08
577.00	79536.01	1086.50
578.00	114519.64	1370.47
579.00	156201.81	1668.36
580.00	206218.22	2096.77
581.00	266115.75	2648.92
582.00	336157.66	3260.17
583.00	413970.64	3949.50
584.00	495836.29	5021.59
585.00	593604.34	6876.01
586.00	771498.15	9792.76
587.00	1012098.32	13317.50
588.00	1305945.16	16278.45
589.00	1647030.93	19548.45
590.00	2032278.64	22818.45
591.00	2446589.80	26038.45
592.00	2900295.76	29358.45
593.00	3390888.70	32628.45
594.00	3909799.44	35838.45
595.00	4481554.26	39168.45
596.00	5129156.17	42438.45
597.00	5795242.52	45708.45

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

SEGMENT TABLE
CROSS SECTION 9.98
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	309.26	3191.67	.07
8.75	VELOCITY FPS	1.10	.30	1.14	.02
CORRECT WEIGHTED VEL =		1.09			
	DISCHARGE CFS	4100.00	362.62	3737.29	.08
10.25	VELOCITY FPS	1.28	.35	1.33	.03
CORRECT WEIGHTED VEL =		1.28			
	DISCHARGE CFS	7000.00	636.42	6363.41	.17
17.50	VELOCITY FPS	2.16	.59	2.25	.05
CORRECT WEIGHTED VEL =		2.15			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 10.0

NO.	HW	CFS	HL	TW	CSM
0	567.80	0.00	0.00	0.00	0.00
1	582.95	3500.00	.10	582.85	8.75
2	583.01	4100.00	.14	582.87	10.25
3	583.47	7000.00	.47	583.01	17.50

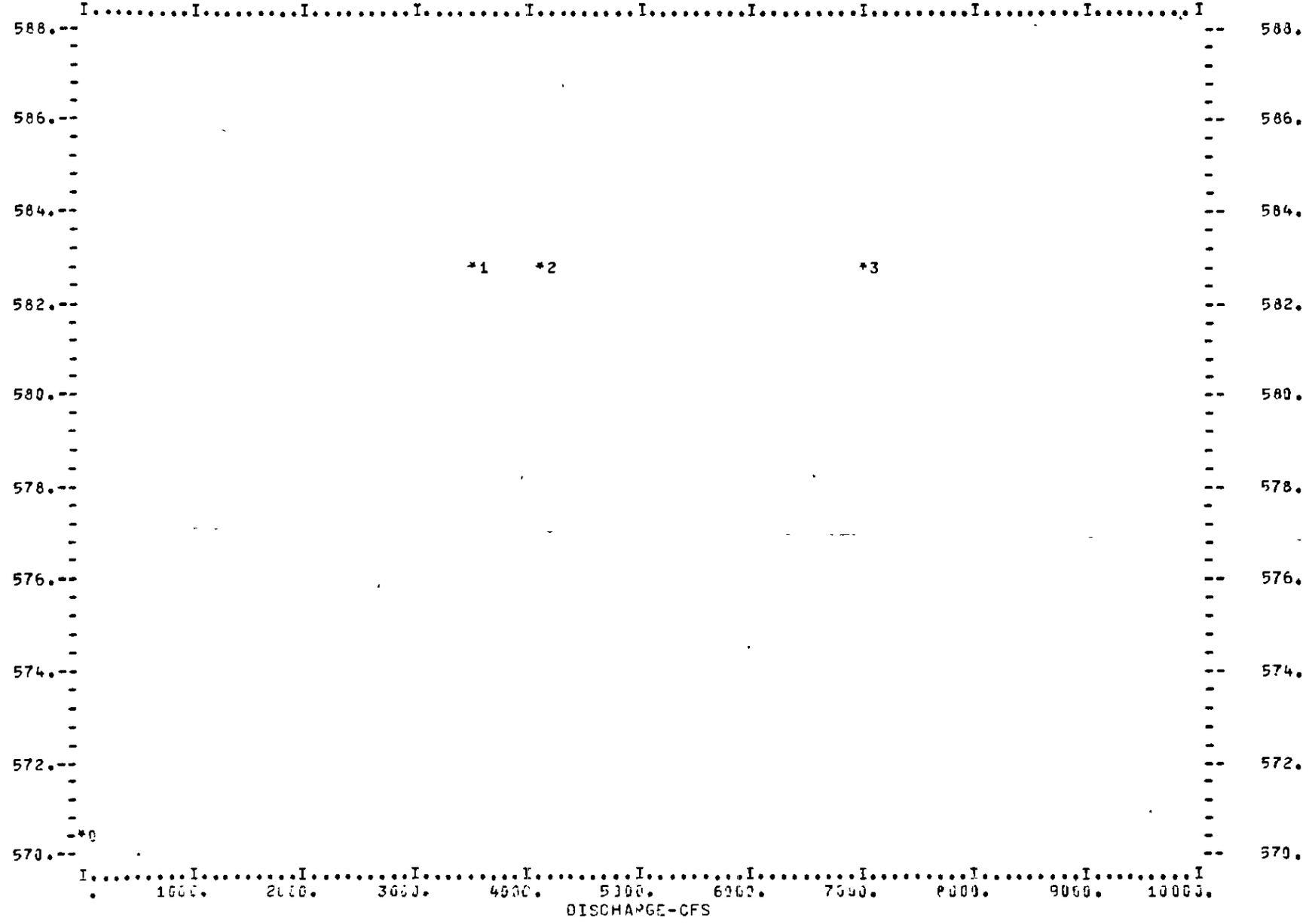
MIN ROAD ELEVATION 583.50

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 584.60 OPENING NO.= 1

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 9.98

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION

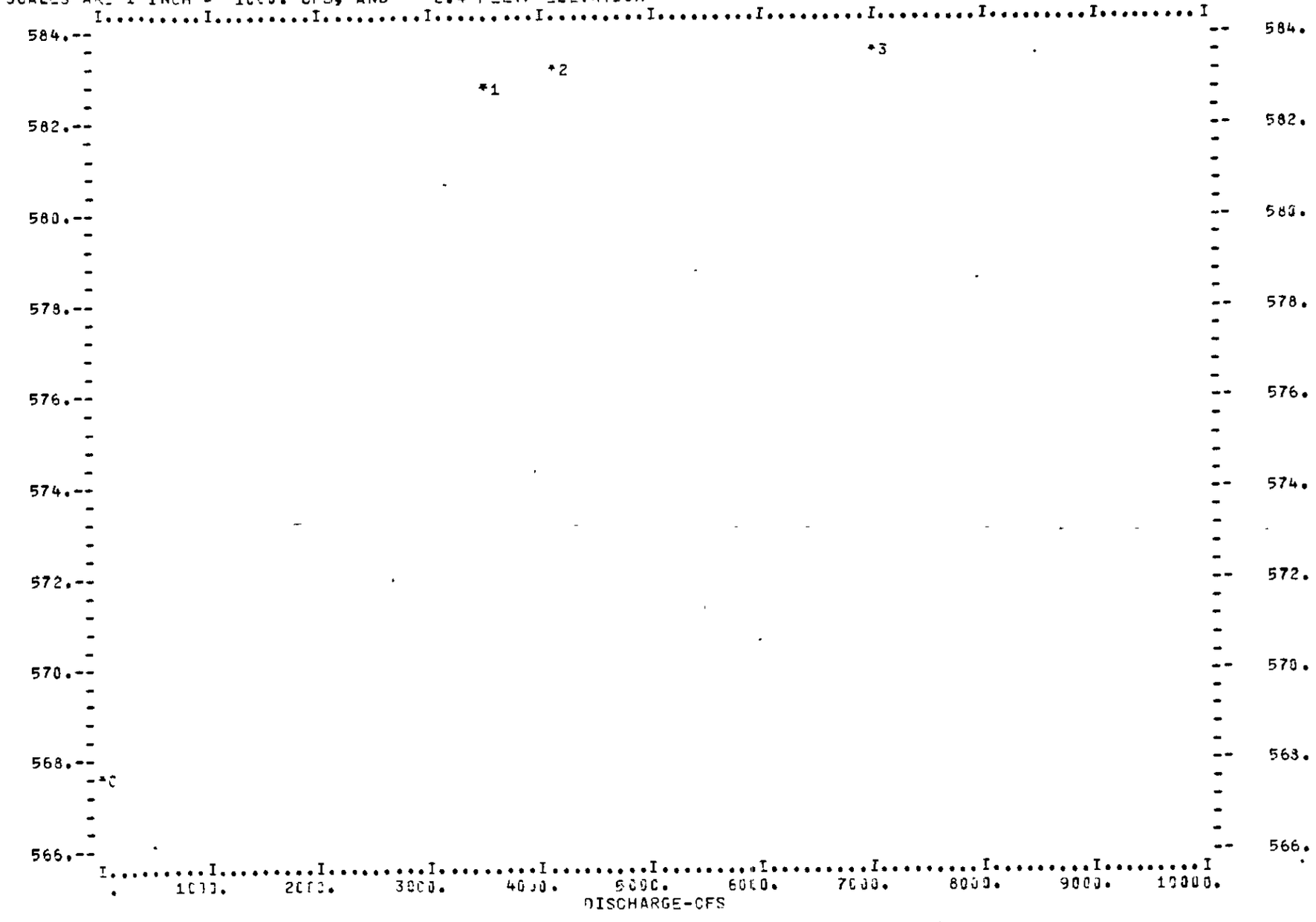


COEFK	AKB	DLTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
1.4537	1.1179	.3373	.7391	.0000	-.0015	.5477	1.0000	1.0000	2631.7713	8547.9527	8197.9425
DCRIT	573.41 KBCRIT =										
1.4621	1.1323	.3356	.7354	.0000	-.0058	.5438	1.0000	1.0000	2635.4140	8722.9578	8255.5174
DCRIT	573.70 KBCRIT =										
1.5298	1.2453	.3217	.7051	.0000	-.0387	.5139	1.0000	1.0000	2660.3150	10093.3744	8649.0569
DCRIT	574.34 KBCRIT =										

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 15.0

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 10.1

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
1	570.40	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	578.40	1495.83	2227.81	.00	.00	.00		
1	582.97	3926.62	3500.00	.00	.00	.00	8.75	574.56
2	583.03	3974.27	4100.00	.00	.00	.00	10.25	574.79
3	583.53	4335.86	7000.00	.00	.00	.00	17.50	575.71

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 10.1

ELEVATION	KO	AREA
570.40	0.00	0.00
571.00	168.41	11.80
572.00	1755.17	61.78
573.00	5354.05	157.66
574.00	13231.65	323.06
575.00	27428.54	550.95
576.00	50366.05	812.08
577.00	79536.01	1086.50
578.00	114519.64	1370.47
579.00	156201.81	1668.36
580.00	206218.22	2096.77
581.00	266115.75	2648.92
582.00	336157.66	3260.17
583.00	413971.64	3349.60
584.00	495636.29	5021.59
585.00	593604.24	6876.01
586.00	771498.15	9732.76
587.00	1012698.32	13317.50
588.00	1305[illegible]5.16	16278.45
589.00	1647030.93	19548.45
590.00	2032271.04	22818.45
591.00	2446589.80	26188.45
592.00	2900295.76	29358.45
593.00	3390888.72	32528.45
594.00	3909799.44	35898.45
595.00	4481554.26	39168.45
596.00	5109056.17	42438.45
597.00	5795242.52	45708.45

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

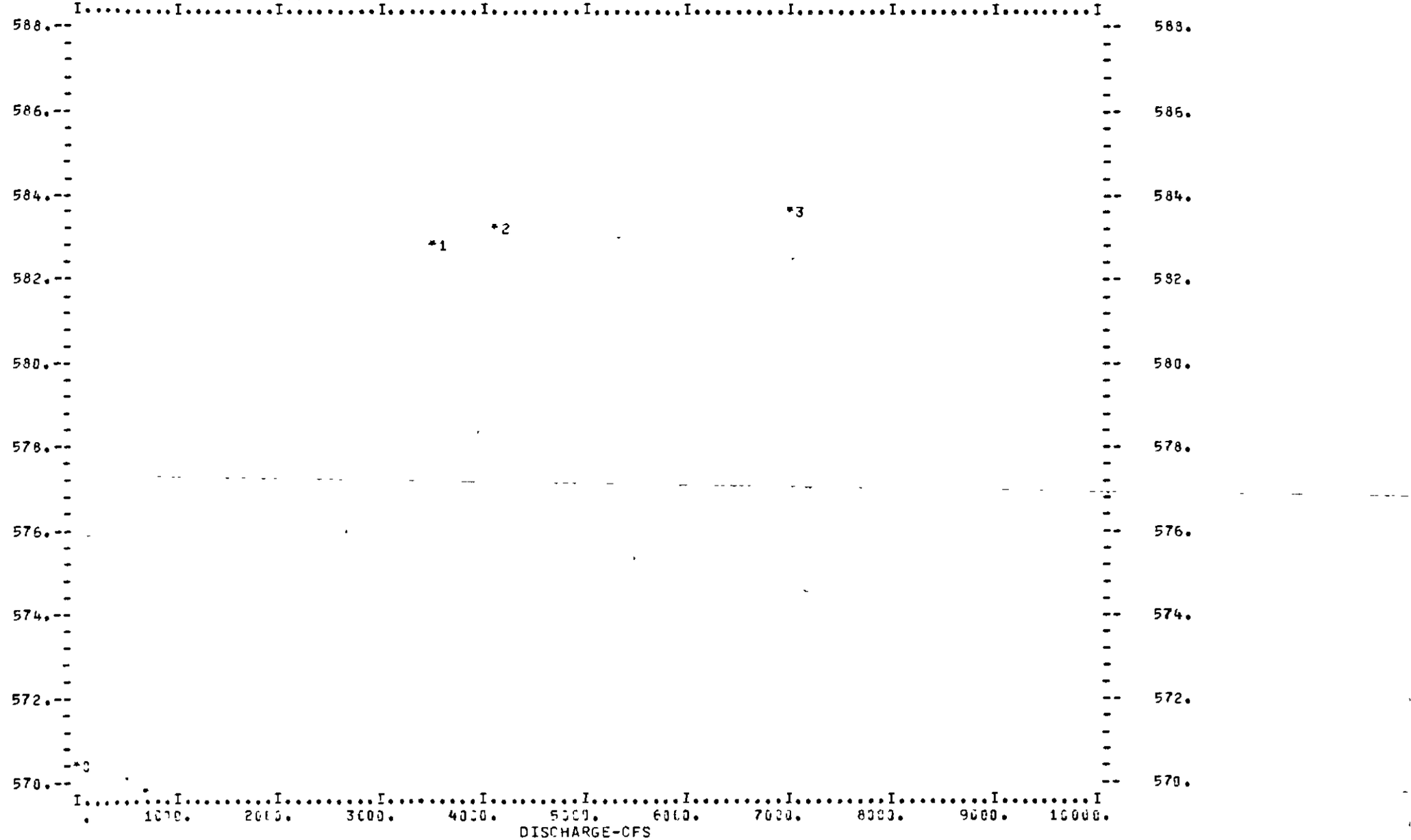
SEGMENT TABLE
CROSS SECTION 10.1
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3900.00	319.98	3179.93	.09
8.75	VELOCITY FPS	1.08	.30	1.12	.02
CORRECT WEIGHTED VEL =		1.07			
	DISCHARGE CFS	4100.00	381.47	3718.43	.11
10.25	VELOCITY FPS	1.25	.34	1.30	.03
CORRECT WEIGHTED VEL =		1.24			
	DISCHARGE CFS	7000.00	728.63	6271.08	.29
17.50	VELOCITY FPS	1.98	.55	2.08	.04
CORRECT WEIGHTED VEL =		1.98			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 10.1

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 10.9

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	571.40	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	578.40	1485.83	2217.14	.00	.00	.00		
1	583.63	3970.63	3500.00	.00	.00	.00	8.75	574.56
2	593.11	4033.14	4100.00	.00	.00	.00	10.25	574.79
3	593.72	4576.53	7000.00	.00	.00	.00	17.50	575.71

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

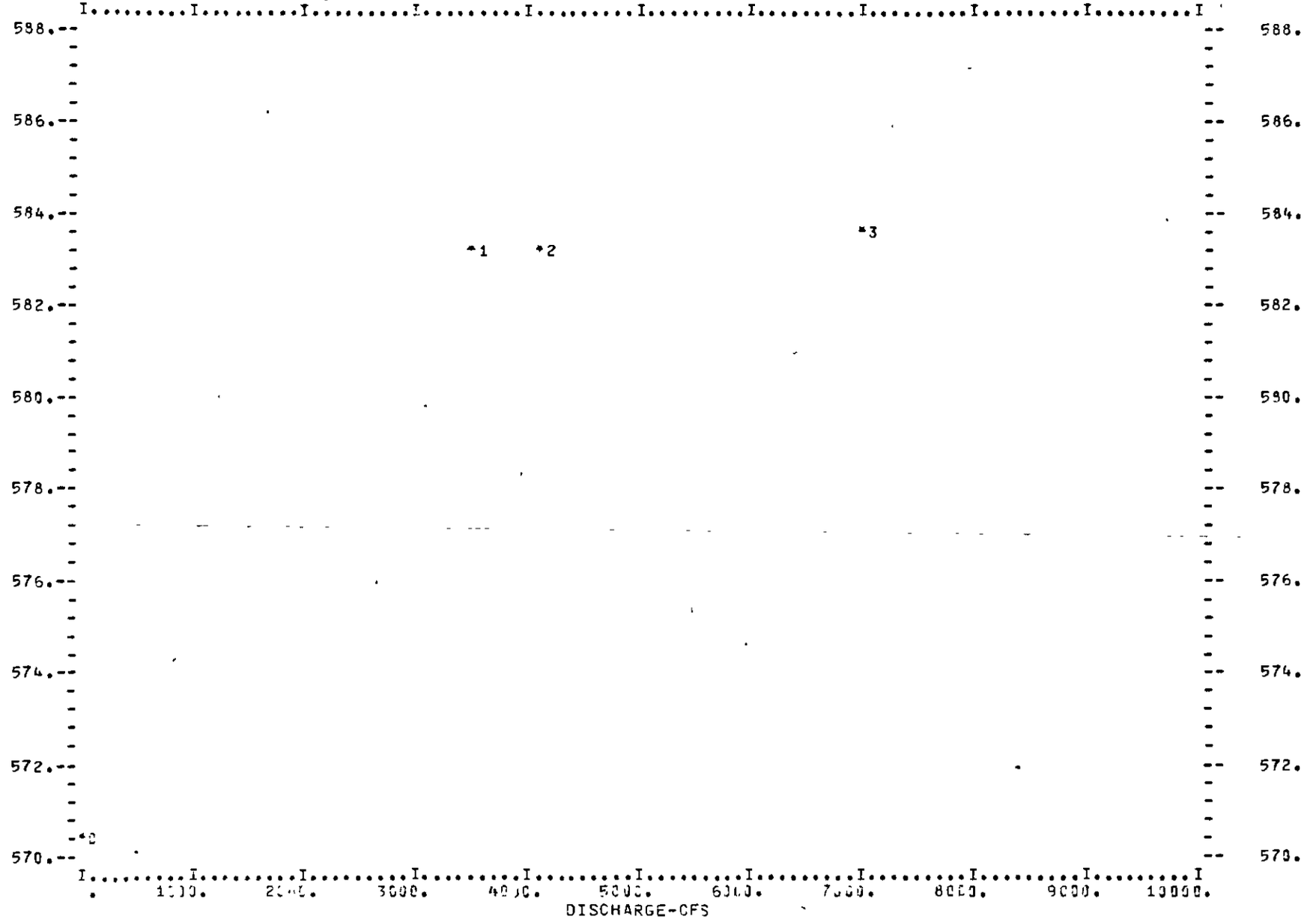
PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 10.9

ELEVATION	KD	AREA
570.40	0.00	0.00
571.00	168.41	11.80
572.00	1755.17	61.78
573.00	5354.05	157.66
574.00	13231.65	323.06
575.00	27428.54	550.95
576.00	50360.05	812.08
577.00	79536.01	1096.50
578.00	114519.64	1370.47
579.00	155201.81	1668.35
580.00	206218.22	2096.77
581.00	266115.75	2648.92
582.00	336157.66	3260.17
583.00	413970.64	3949.50
584.00	499836.29	5021.59
585.00	593604.04	6876.01
586.00	771498.15	9792.76
587.00	1012098.32	13017.50
588.00	1305645.16	16278.45
589.00	1647[illegible].93	19548.45
590.00	2032271.24	22818.45
591.00	2446589.80	26088.45
592.00	2880295.75	29358.45
593.00	3330888.70	32628.45
594.00	3809799.44	35898.45
595.00	4481554.25	39168.45
596.00	5109[illegible]56.17	42438.45
597.00	5795242.52	45708.45

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 10.9
SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

SEGMENT TABLE
CROSS SECTION 10.9
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	325.21	3174.69	.09
8.75 VELOCITY FPS	1.07	.29	1.11	.02
CORRECT WEIGHTED VEL =	1.06			
DISCHARGE CFS	4100.00	389.43	3710.45	.12
10.25 VELOCITY FPS	1.23	.34	1.29	.03
CORRECT WEIGHTED VEL =	1.23			
DISCHARGE CFS	7000.00	737.04	6242.03	20.93
17.50 VELOCITY FPS	1.93	.52	2.04	.22
CORRECT WEIGHTED VEL =	1.93			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 11.0

NO.	HW	CFS	HL	TW	CSM
0	567.90	0.00	0.00	0.00	0.00
1	583.58	3500.00	.54	583.04	8.75
2	583.85	4100.00	.73	583.13	10.25
3	585.48	7000.00	1.72	583.76	17.50

MIN ROAD ELEVATION 585.90

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 583.30 OPENING NO.= 1

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 11.1

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
J	574.50	0.00	0.00	0.00	0.00	0.00	0.00	
1	583.72	2127.69	3500.00	.00	.00	.00	8.75	578.28
2	584.02	2649.97	4100.00	.00	.00	.00	10.25	578.59
BANK FULL	584.30	3145.59	4603.55	.00	.00	.00		
3	585.65	6273.84	7000.00	.00	.00	.00	17.50	579.88

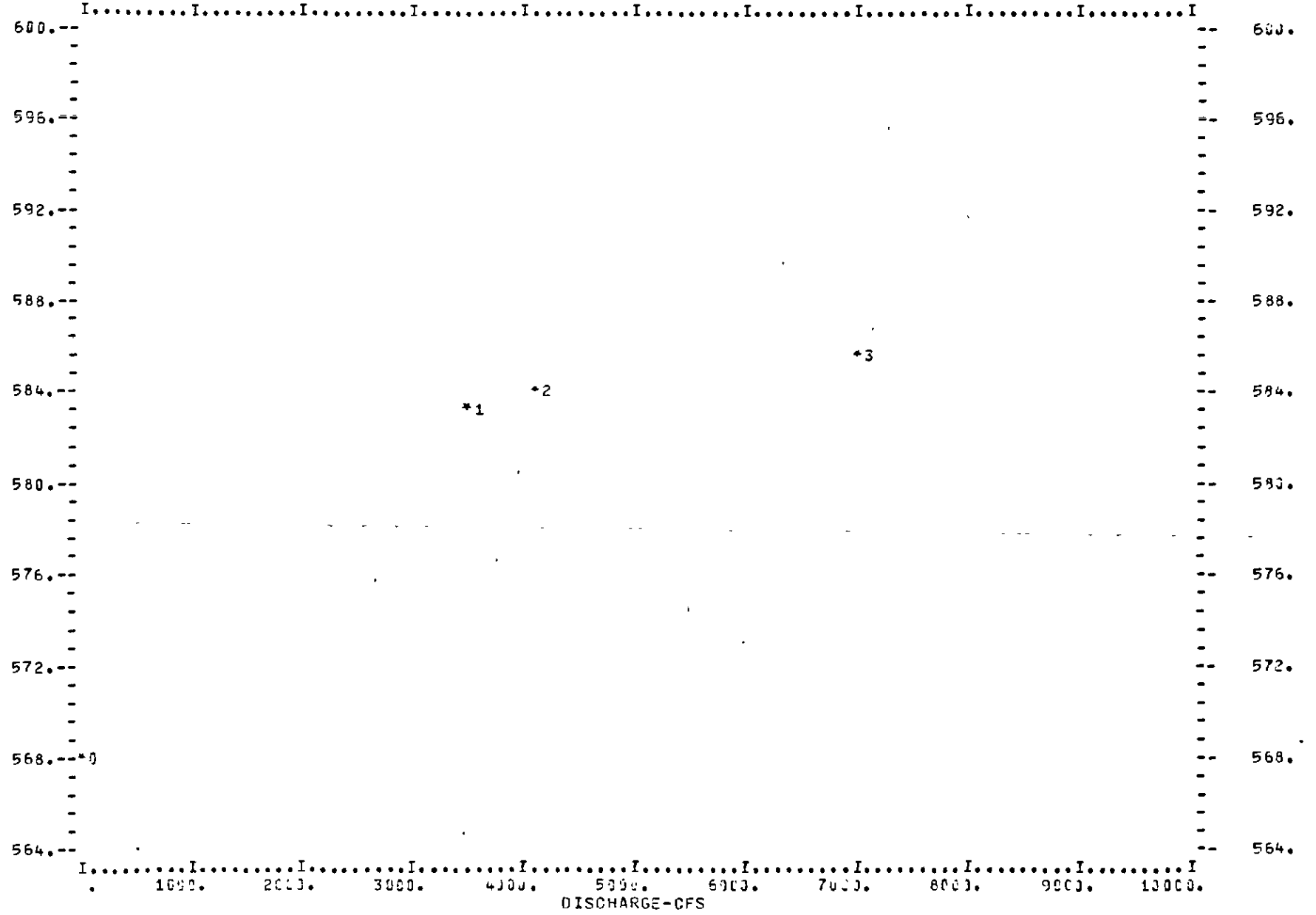
**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

COEFK	AKP	DLTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
2.9638	2.8963	.0774	.4288	.0000	.0000	.1660	1.0000	1.0000	1032.6124	18428.1153	8453.5245
DCRIT	574.61 KRCRIT =										
2.9902	2.9139	.0763	.4232	.0000	.0000	.1610	1.0000	1.0000	1040.9575	19193.0106	8716.3842
DCRIT	575.16 KRCRIT =										
3.1042	3.0317	.0735	.3997	.0000	.0000	.1399	1.0000	1.0000	1147.5900	23566.3641	10638.2475
DCRIT	577.44 KRCRIT =										

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 11.0

SCALES ARE 1 INCH = 1000. CFS, AND 4.8 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 11.1

ELEVATION	KO	AREA
574.50	0.00	0.00
575.00	66.66	6.46
576.00	1730.52	76.11
577.00	7690.61	198.91
578.00	17782.49	336.65
579.00	31393.84	479.24
580.00	48112.42	625.57
581.00	67416.12	776.06
582.00	89696.15	963.61
583.00	118362.75	1419.41
584.00	165373.30	2520.15
585.00	250468.84	4699.68
586.00	381955.23	7165.55
587.00	551232.81	9757.62
588.00	758972.26	12435.30
589.00	1007931.34	15154.79
590.00	1286350.08	17880.10
591.00	1592897.35	20611.22
592.00	1927953.05	23345.25
593.00	2293440.30	26080.25
594.00	2684459.18	28815.25
595.00	3096743.11	31550.25
596.00	3535564.25	34285.25
597.00	3999416.24	37020.25
598.00	4481542.19	39755.25
599.00	4998021.76	42490.25
600.00	5549750.44	45225.25
601.00	6137609.81	47960.25

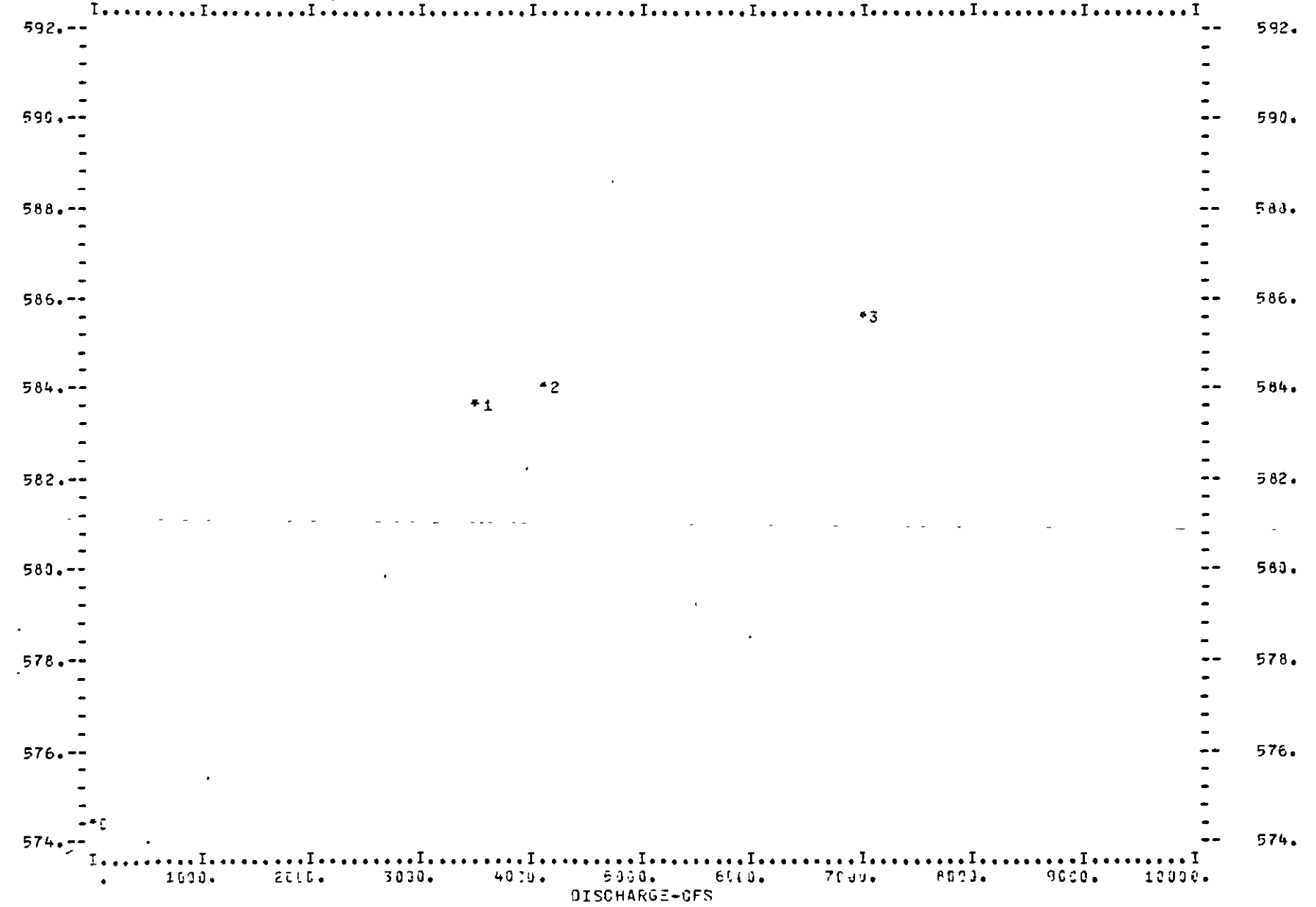
PAW PAW RIVER F.H.S.-MICHIGAN
, 50,100, AND 500 YR. BELOW THE DAM

SEGMENT TABLE
CROSS SECTION 11.1
VELOCITY INCREMENT= .00 FPS

CSH		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	372.47	3120.44	7.08
8.75	VELOCITY FPS	2.48	.42	2.59	.19
CORRECT WEIGHTED VEL =		2.45			
	DISCHARGE CFS	4100.00	629.34	3453.27	17.38
10.25	VELOCITY FPS	2.58	.48	2.76	.19
CORRECT WEIGHTED VEL =		2.54			
	DISCHARGE CFS	7000.00	2511.58	4029.30	459.11
17.50	VELOCITY FPS	2.08	.68	2.64	.44
CORRECT WEIGHTED VEL =		2.05			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 11.1
SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 11.9

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
J	572.00	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	581.40	1057.03	2682.17	.00	.00	.00		
1	584.27	4074.75	3500.00	.00	.00	.00	8.75	576.83
2	584.61	4697.26	4100.00	.00	.00	.00	13.25	577.16
3	586.21	7824.21	7000.00	.00	.00	.00	17.50	578.61

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 11.9

ELEVATION	KO	AREA
572.00	0.00	0.00
573.00	411.70	21.92
574.00	2417.76	74.10
575.00	6376.85	150.12
576.00	12898.09	258.18
577.00	23796.53	375.90
578.00	37175.93	495.86
579.00	52878.94	617.97
580.00	70743.29	742.22
581.00	90589.29	868.83
582.00	117123.60	1339.31
583.00	158969.03	2219.11
584.00	222416.86	3586.79
585.00	317304.58	5420.05
586.00	441641.17	7439.82
587.00	599412.61	9579.52
588.00	791219.81	11886.56
589.00	1015656.09	14260.35
590.00	1268314.27	16640.35
591.00	1544548.32	19120.35
592.00	1847169.71	21400.35
593.00	2174485.38	23780.35
594.00	2518154.57	26160.35
595.00	2884768.57	28540.35
596.00	3276501.42	30920.35
597.00	3692132.72	33300.35
598.00	4131663.16	35680.35
599.00	4660692.96	38360.35

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

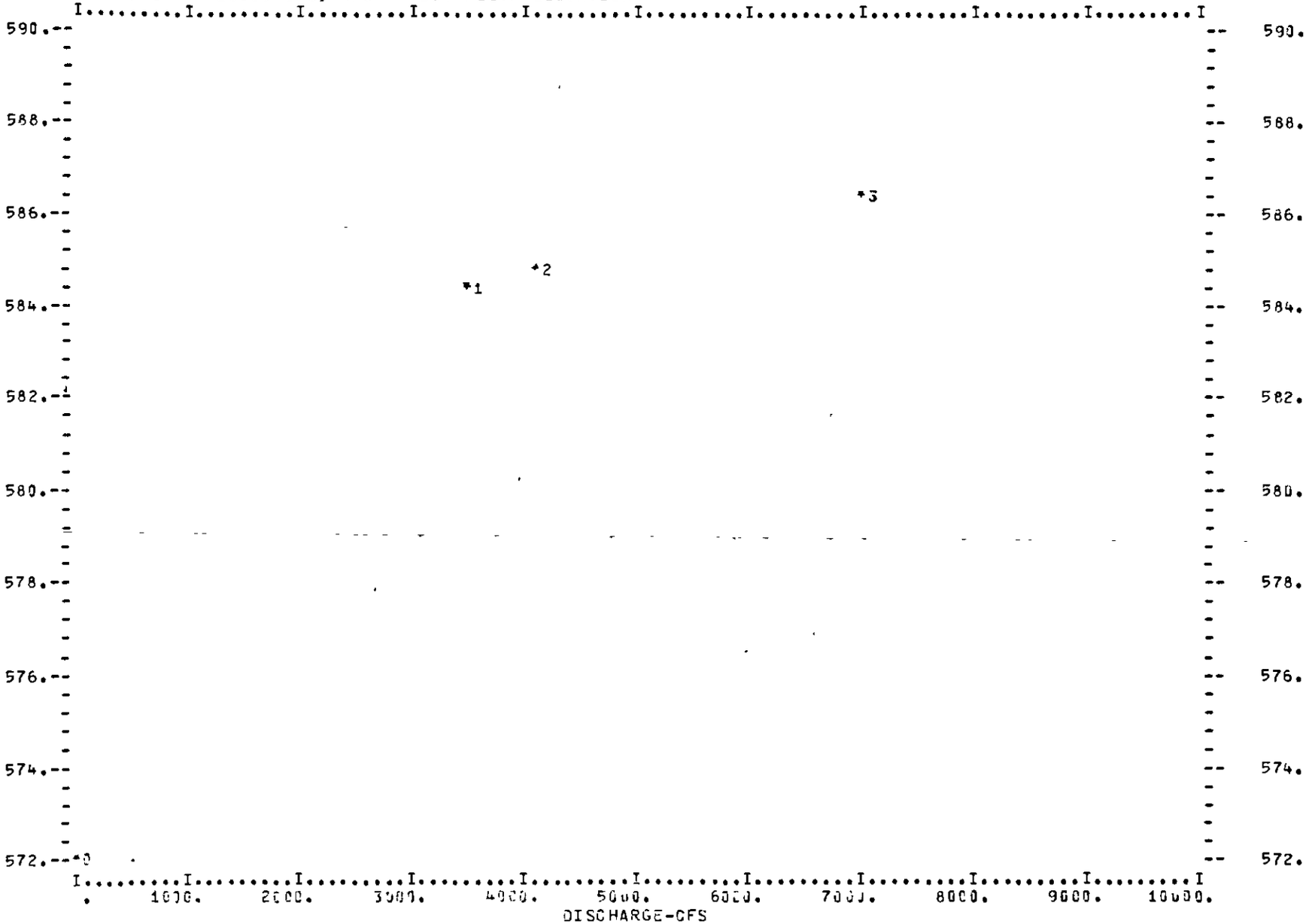
SEGMENT TABLE
CROSS SECTION 11.9
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	957.47	2417.61	124.92
8.75	VELOCITY FPS	1.60	.41	1.87	.29
CORRECT WEIGHTED VEL =		1.57			
	DISCHARGE CFS	4100.00	1262.15	2643.64	194.20
10.25	VELOCITY FPS	1.65	.45	1.98	.34
CORRECT WEIGHTED VEL =		1.61			
	DISCHARGE CFS	7000.00	3024.44	3407.50	568.06
17.50	VELOCITY FPS	1.61	.62	2.20	.41
COPRECT WEIGHTED VEL =		1.59			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 11.9

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



CDFFK	AK2	DLTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
.0808	.0000	.0808	.9989	.0000	.0000	.9999	1.0000	1.0000	1346.7140	3104.0531	4506.6868
DCRIT	577.27 K9CRIT =										
.0795	.0000	.0795	.9989	.0000	.0000	.9999	1.0000	1.0000	1406.9408	3370.5030	5134.0255
DCRIT	577.61 K9CRIT =										
.9431	.8631	.0633	.8481	.0000	.0168	.6196	1.0000	1.0000	1688.2292	4871.3880	8316.9218
DCRIT	578.18 K9CRIT =										

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 12.0

NO.	HW	CFS	HL	TW	CSM
0	571.80	0.00	0.00	0.00	0.00
1	584.30	3500.00	.00	584.30	8.75
2	584.64	4100.00	.00	584.64	10.25
3	586.34	7000.00	.10	586.24	17.50

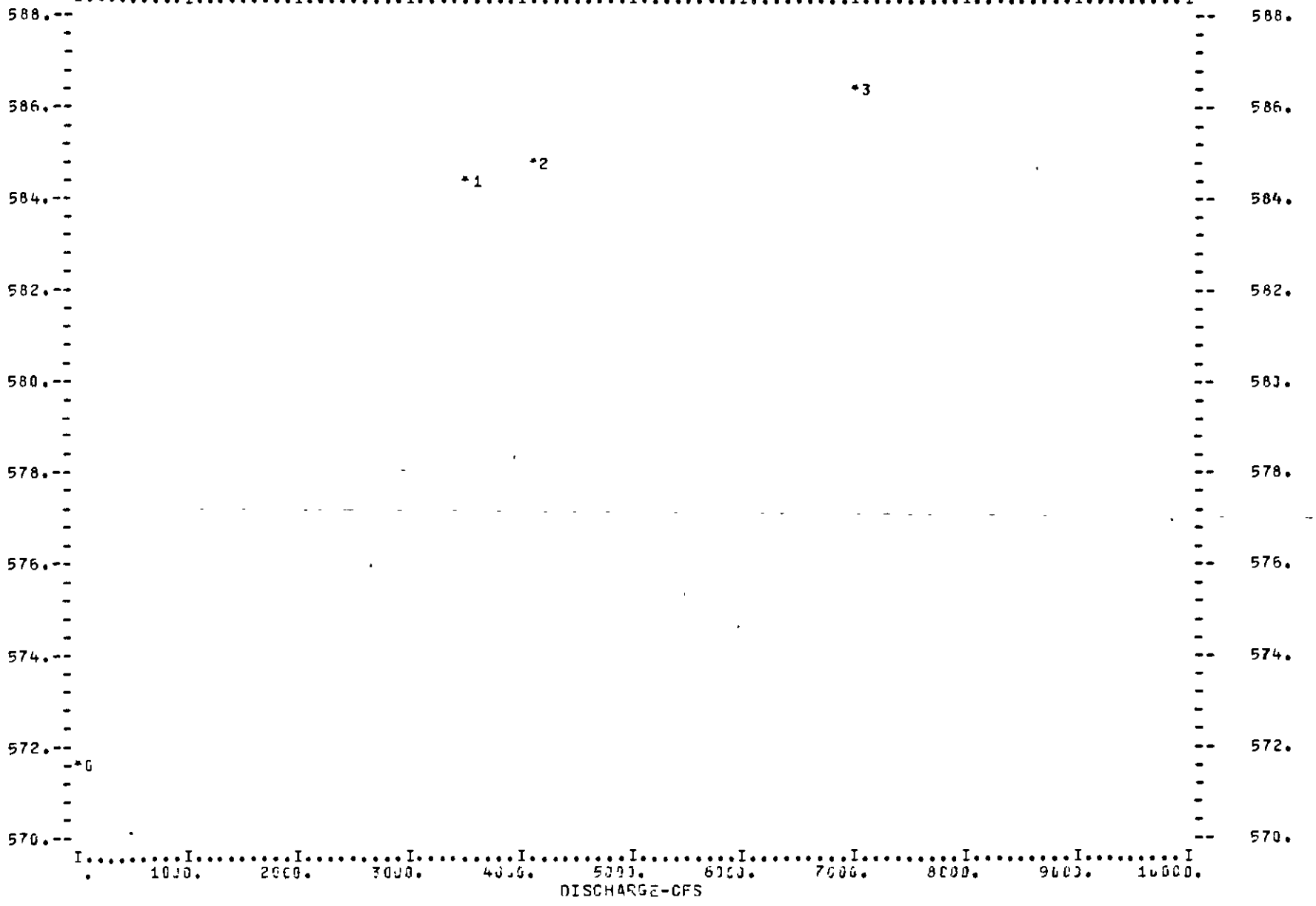
MIN ROAD ELEVATION 583.30

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 586.60 OPENING NO.= 1

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 12.J

SCALES ARE 1 INCH = 1000. CFS, AND 2.0 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 12.1

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	571.80	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	584.20	3909.23	7467.40	.00	.00	.00		
1	584.32	3100.00	3500.00	.00	.00	.00	8.75	576.64
2	594.50	3364.35	4100.00	.00	.00	.00	10.25	576.97
3	586.34	4647.69	7000.00	.00	.00	.00	17.50	578.43

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 12.1

ELEVATION	KD	AREA
571.80	0.00	0.00
572.00	7.03	.79
573.00	616.27	28.05
574.00	2883.16	84.98
575.00	7107.31	166.09
576.00	14780.37	279.81
577.00	26043.91	398.46
578.00	39893.47	519.28
579.00	56021.93	642.41
580.00	74162.83	768.30
581.00	94968.01	954.54
582.00	122624.18	1427.22
583.00	163925.74	2116.93
584.00	216521.11	2853.50
585.00	278792.75	3632.14
586.00	355800.98	4515.44
587.00	447893.12	5576.32
588.00	541921.69	6738.22
589.00	652641.71	8114.30
590.00	804695.49	9504.00
591.00	969626.65	10894.00
592.00	1149011.12	12284.00
593.00	1343833.07	13674.00
594.00	1550741.96	15064.00
595.00	1769122.38	16454.00
596.00	2002106.56	17844.00
597.00	2244972.10	19234.00
598.00	2499786.34	20624.00
599.00	2767758.40	22014.00
600.00	3050208.99	23404.00
601.00	3356597.53	24794.00
602.00	3678378.93	26184.00

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

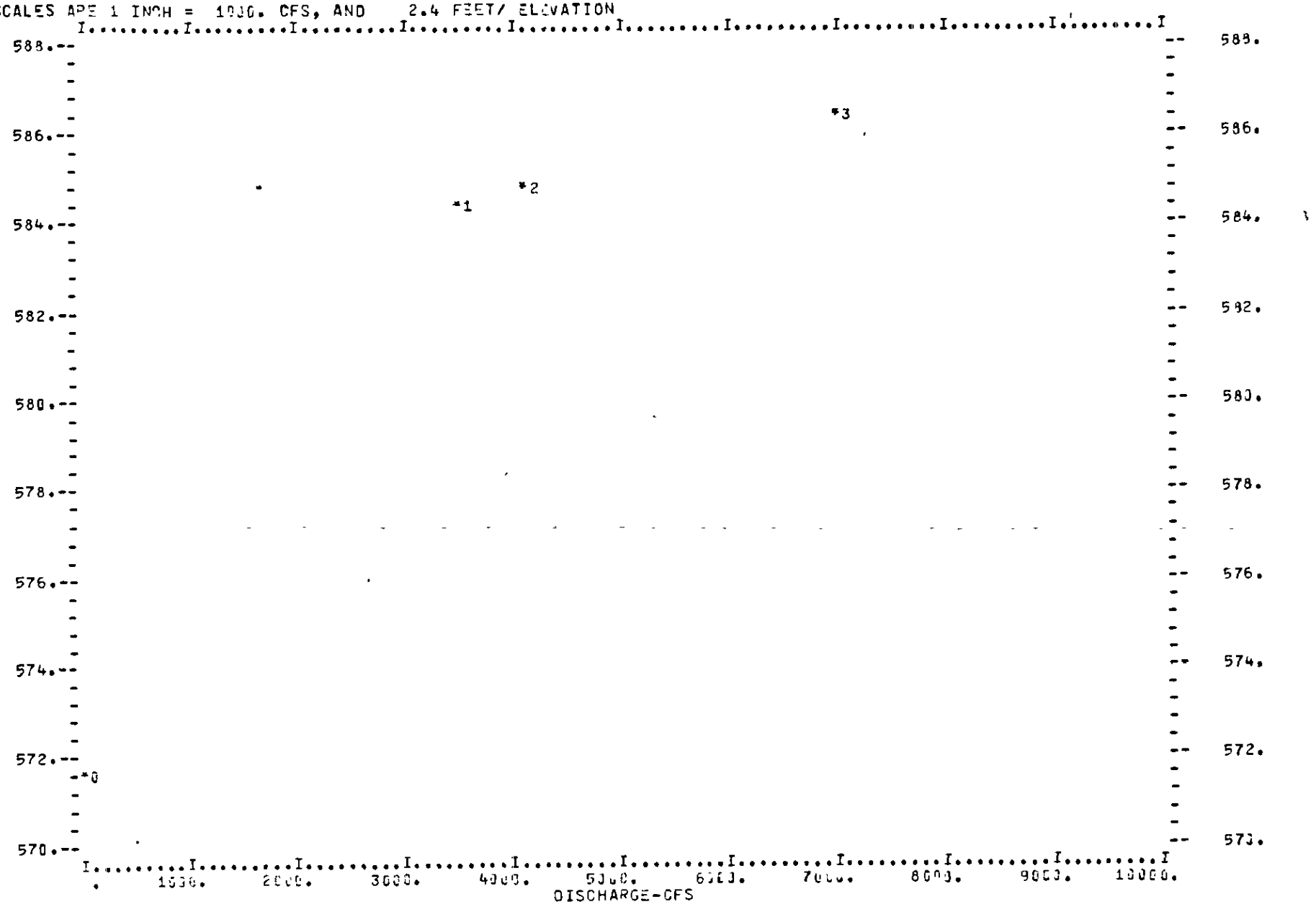
SEGMENT TABLE
CROSS SECTION 12.1
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	904.43	2595.57	.01
8.75	VELOCITY FPS	1.71	.51	1.94	.00
CORRECT WEIGHTED VEL =		1.69			
	DISCHARGE CFS	4100.00	1153.85	2946.15	.00
10.25	VELOCITY FPS	1.84	.58	2.13	.00
CORRECT WEIGHTED VEL =		1.83			
	DISCHARGE CFS	7000.00	2676.80	4300.13	23.07
17.50	VELOCITY FPS	2.15	.85	2.65	.24
CORRECT WEIGHTED VEL =		2.15			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 12.1

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 12.2

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	573.80	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	583.60	1729.56	3174.30	.00	.10	.00		
1	584.61	2555.95	3500.00	.00	.00	.00	8.75	577.64
2	584.98	2920.57	4100.00	.00	.00	.00	10.25	577.97
3	586.69	4926.64	7000.00	.00	.00	.00	17.50	579.38

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

FAW PAW PIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 12.2

ELEVATION	KO	AREA
573.80	0.00	0.00
574.00	9.08	1.10
575.00	970.87	49.60
576.00	5786.40	161.10
577.00	14490.65	282.11
578.00	26149.20	405.74
579.00	40315.13	532.50
580.00	56935.88	661.78
581.00	75821.56	793.74
582.00	97137.41	959.80
583.00	122898.39	1327.29
584.00	161416.45	2035.53
585.00	215524.93	2945.78
586.00	293874.42	4086.84
587.00	387693.14	5302.46
588.00	501899.49	6622.12
589.00	638427.37	7941.77
590.00	799734.56	9261.43
591.00	988367.08	10581.09

0

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

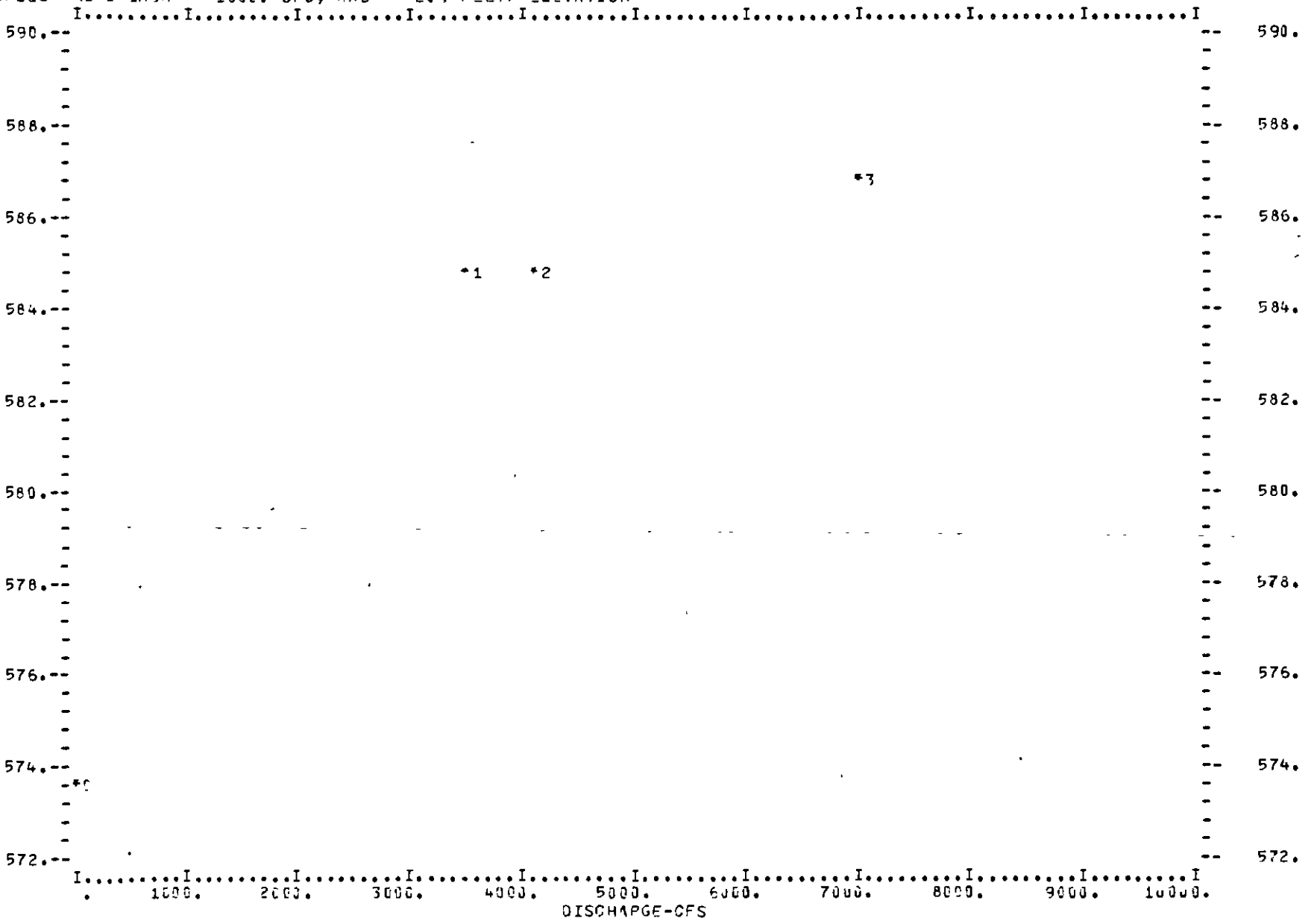
SEGMENT TABLE
CROSS SECTION 12.2
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	572.26	2922.77	5.03
8.75	VELOCITY FPS	2.07	.46	2.25	.22
CORRECT WEIGHTED VEL =		2.06			
	DISCHARGE CFS	4100.00	813.40	3275.41	14.19
10.25	VELOCITY FPS	2.19	.53	2.42	.29
CORRECT WEIGHTED VEL =		2.17			
	DISCHARGE CFS	7000.00	2382.96	4468.88	148.16
17.50	VELOCITY FPS	2.29	.79	2.78	.47
CORRECT WEIGHTED VEL =		2.27			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 12.2

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 12.9

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	573.00	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	582.40	1277.61	2755.20	.00	.00	.00		
1	584.94	3349.96	3500.00	.00	.00	.00	8.75	577.58
2	585.34	3792.16	4100.00	.00	.00	.00	10.25	577.87
3	587.10	5782.02	7000.00	.00	.00	.00	17.50	579.05

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 12.9

ELEVATION	KD	AREA
573.00	0.00	0.00
574.00	324.26	21.32
575.00	2660.97	85.76
576.00	7405.17	178.69
577.00	14555.31	303.10
578.00	27107.98	457.53
579.00	44138.53	618.75
580.00	64575.98	782.15
581.00	88,30.88	947.72
582.00	114211.83	1115.68
583.00	145384.94	1520.50
584.00	194847.38	2411.66
585.00	260106.64	3408.73
586.00	346056.91	4525.67
587.00	448546.51	5664.62
588.00	556990.13	6862.73
589.00	701282.95	8138.66
590.00	852075.21	9493.33
591.00	1020307.56	10915.62
592.00	1204617.51	12345.20
593.00	1405363.96	13785.35
594.00	1621710.39	15227.35
595.00	1849299.81	16659.35
596.00	2090803.16	18111.35
597.00	2347316.38	19553.35
598.00	2622878.50	20995.35
599.00	2918056.99	22437.35
600.00	3233413.03	23879.35

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

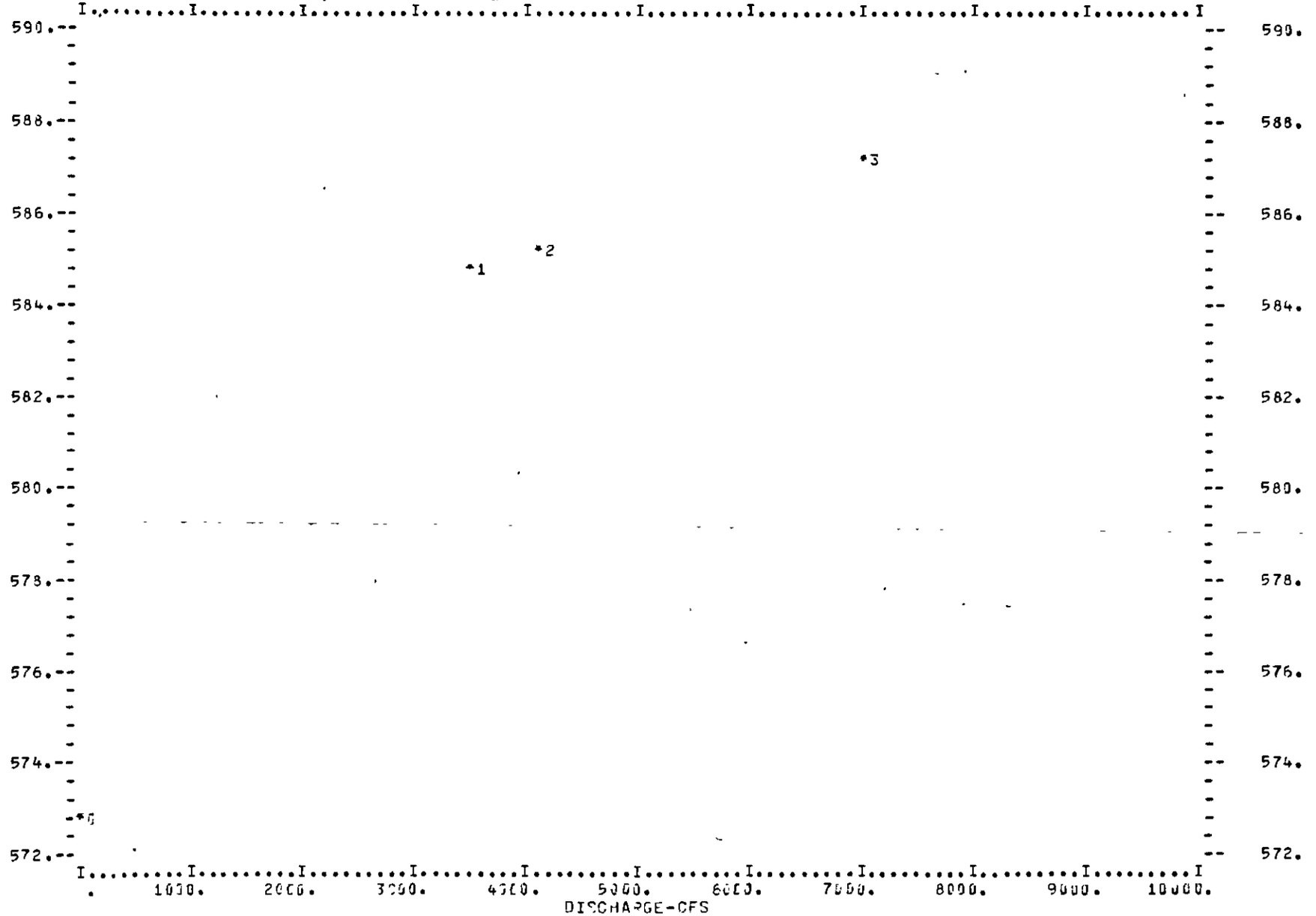
SEGMENT TABLE
CROSS SECTION 12.9
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	652.13	2847.77	.11
8.75 VELOCITY FPS	1.60	.38	1.76	.08
CORRECT WEIGHTED VEL =	1.59			
DISCHARGE CFS	4100.00	934.62	3163.97	1.42
10.25 VELOCITY FPS	1.68	.45	1.87	.20
CORRECT WEIGHTED VEL =	1.66			
DISCHARGE CFS	7000.00	2517.07	4468.49	14.44
17.50 VELOCITY FPS	1.85	.58	2.24	.26
CORRECT WEIGHTED VEL =	1.83			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 12.9

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



*****SECT.13.1 KO VALUES REVERSED ON SEGMENT 1 AT ELEVATION 583.90 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****

COEFK	AKB	DLTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
1.4236	1.4417	.0820	.7279	.0000	-.1001	.4654	1.0000	1.0000	1376.6981	6533.4564	4397.5595
DCRIT	576.58 KBCRIT =										
1.4798	1.5311	.0793	.7094	.0000	-.1297	.4443	1.0000	1.0000	1438.2802	7325.9616	4853.9605
DCRIT	576.73 KBCRIT =										
1.7069	1.3852	.0689	.6351	.0000	-.2472	.3642	1.0000	1.0000	1709.3809	11103.9878	6935.3798
DCRIT	576.94 KBCRIT =										

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 13.0

NO.	HW	CFS	HL	TW	CSM
0	572.10	0.00	0.00	0.00	0.00
1	585.11	3500.00	.12	584.99	8.75
2	585.51	4100.00	.12	585.39	10.25
3	587.32	7000.00	.16	587.16	17.50

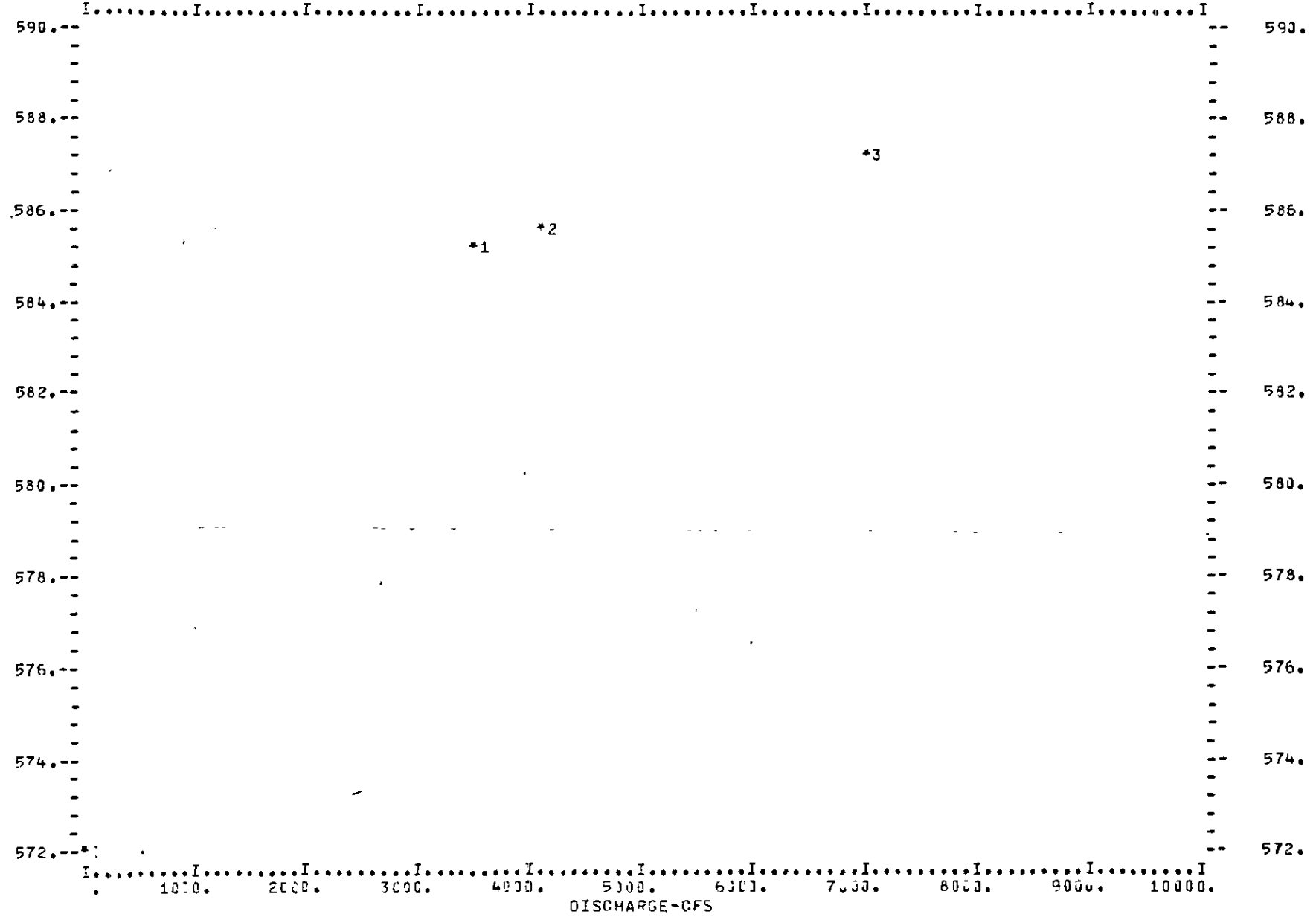
MIN ROAD ELEVATION 583.10

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 587.70 OPENING NO.= 1

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 13.0

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 13.1

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	574.90	0.00	0.00	.00	0.00	0.00	0.00	
BANK FULL	595.00	2273.77	3456.76	.00	.00	.00		
1	585.13	2398.63	3500.00	.00	.00	.00	8.75	578.02
2	585.53	2800.31	4100.00	.00	.00	.00	10.25	578.29
3	587.34	5482.70	7000.00	.00	.00	.00	17.50	579.41

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 13.1

ELEVATION	KO	AREA
574.90	0.00	0.00
575.00	5.37	.54
576.00	1258.40	73.26
577.00	8541.15	230.69
578.00	20679.63	401.29
579.00	37294.47	580.39
580.00	57753.79	767.27
581.00	81893.81	961.21
582.00	109558.64	1162.28
583.00	140307.05	1374.37
584.00	173974.32	1654.47
585.00	217276.34	2273.77
586.00	280938.86	3315.31
587.00	367150.31	4865.17
588.00	486391.31	6568.13
589.00	634559.66	8703.63
590.00	818220.02	10808.97
591.00	1032334.37	12936.89
592.00	1269509.65	15981.59
593.00	1529165.07	17256.74
594.00	1814310.07	19454.25
595.00	2124.75.15	21654.25
596.00	2456416.27	23854.25
597.00	2805999.75	26054.25
598.00	3174947.41	28254.25
599.00	3568197.91	30454.25
600.00	3991161.24	32654.25
601.00	4444764.69	34854.25
602.00	4929924.14	37054.25

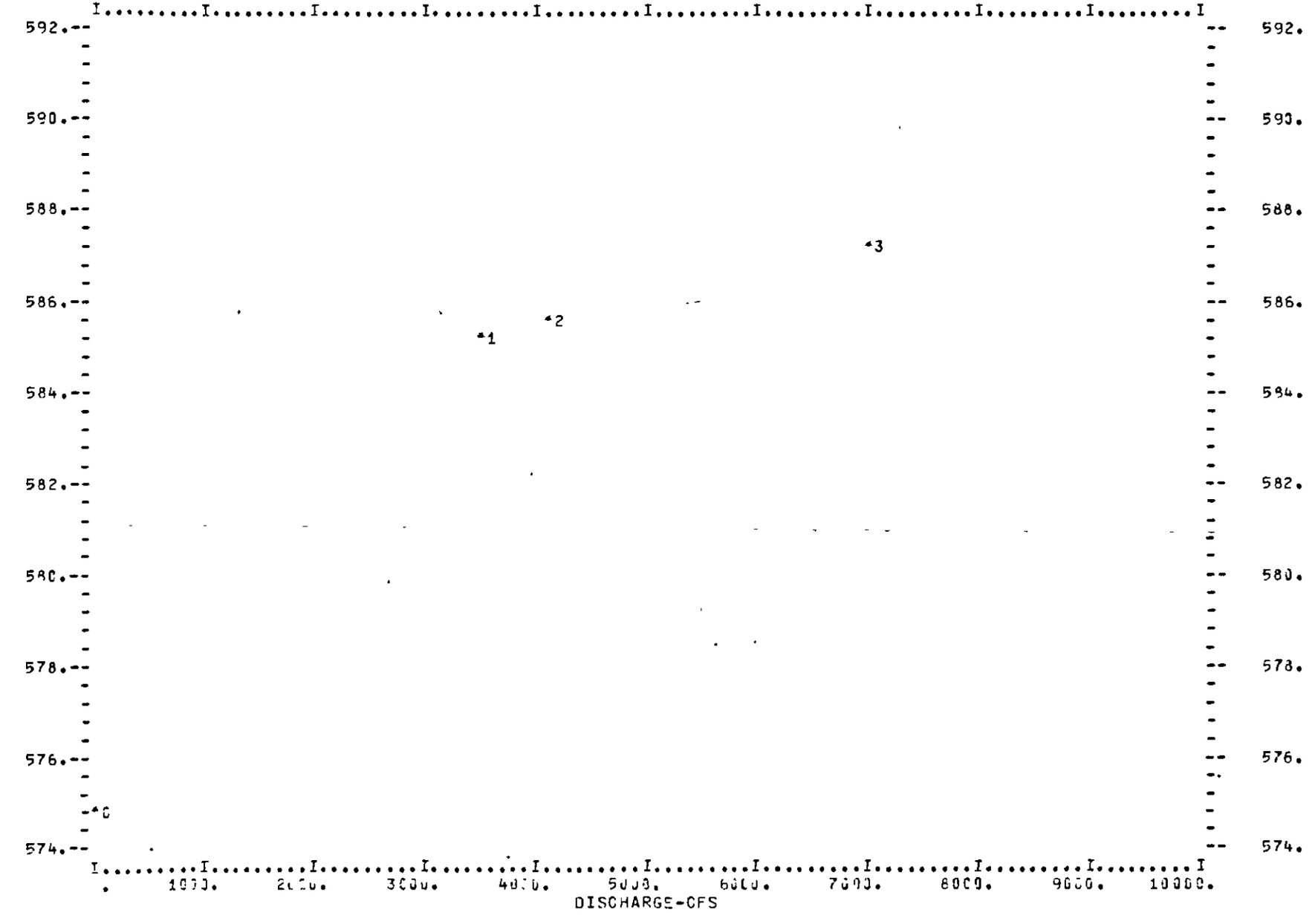
PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

SEGMENT TABLE
CROSS SECTION 13.1
VELOCITY INCREMENT= .05 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	165.45	3333.28	1.27
8.75	VELOCITY FPS	1.84	.27	1.87	.18
CORRECT WEIGHTED VEL =		1.83			
	DISCHARGE CFS	4100.00	331.39	3794.90	3.71
10.25	VELOCITY FPS	1.97	.33	2.03	.19
CORRECT WEIGHTED VEL =		1.96			
	DISCHARGE CFS	7000.00	1545.72	5389.53	64.75
17.50	VELOCITY FPS	2.13	.51	2.38	.38
CORRECT WEIGHTED VEL =		2.11			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 13.1
SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 13.9

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	572.50	0.00	0.00	0.00	0.00	0.00	0.00	
1	586.59	1224.08	3500.00	.00	.00	.00	8.75	577.46
2	587.18	1434.85	4100.00	.00	.00	.00	10.25	577.94
BANK FULL	587.90	1833.48	5172.97	.00	.00	.00		
3	589.13	3101.61	7000.00	.00	.00	.00	17.50	579.94

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

$v = 2.56$

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 13.9

ELEVATION	KD	AREA
572.50	0.00	0.00
573.00	287.19	18.96
574.00	2553.56	73.37
575.00	6485.66	133.69
576.00	11919.82	199.84
577.00	18910.68	271.78
578.00	27570.21	347.67
579.00	37588.51	426.96
580.00	48827.83	509.97
581.00	61371.92	597.00
582.00	75269.14	697.81
583.00	90726.74	782.50
584.00	107811.16	880.64
585.00	126510.92	983.36
586.00	146749.75	1113.86
587.00	171890.87	1338.39
588.00	204947.03	1888.49
589.00	273983.06	2951.61
590.00	378110.54	4322.35
591.00	523838.73	5855.80
592.00	724484.75	7518.29
593.00	952853.51	9221.49
594.00	1218688.87	10968.32
595.00	1522852.25	12757.86
596.00	1865758.91	14579.85
597.00	2266612.53	16401.85
598.00	2732229.99	18223.84
599.00	3269909.83	20045.84

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

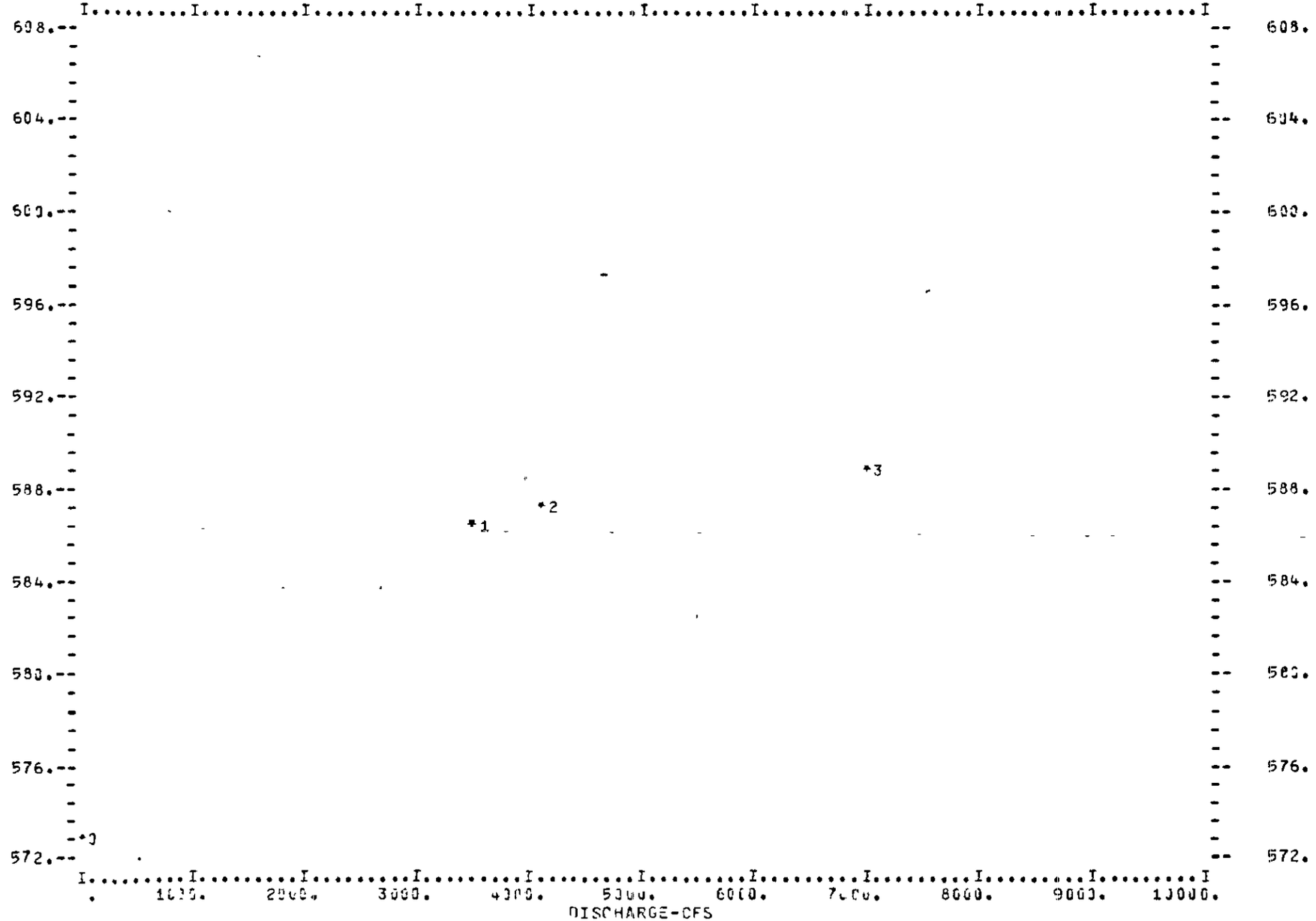
SEGMENT TABLE
CROSS SECTION 13.9
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	6.01	3460.01	33.98
8.75	VELOCITY FPS	3.00	.31	3.01	.61
CORRECT WEIGHTED VEL =		2.99			
	DISCHARGE CFS	4100.00	35.05	3971.90	93.05
10.25	VELOCITY FPS	3.23	.41	3.27	.69
CORRECT WEIGHTED VEL =		3.22			
	DISCHARGE CFS	7000.00	628.24	5385.74	986.03
17.50	VELOCITY FPS	3.36	.87	3.75	1.15
CORRECT WEIGHTED VEL =		3.33			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 13.9

SCALES ARE 1 INCH = 1000. CFS, AND 4.8 FEET/ ELEVATION



COEFK	AK2	DLTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
.1483	.0000	.1483	.9989	.0000	.0000	.9999	1.0000	1.0000	1129.4532	1063.4593	1140.3150
DCRIT	578.51 K8CRIT =										
.1473	.0000	.1473	.9989	.0000	.0000	.9999	1.0000	1.0000	1197.5909	1126.3768	1251.9172
DCRIT	578.99 K8CRIT =										
.1634	.0076	.1578	.9984	.0000	.0000	.9933	1.0000	1.0000	1320.3000	1361.3317	2583.5737
DCRIT	581.26 K8CRIT =										

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 14.0

NO.	HW	CFS	HL	TW	CSM
0	573.00	0.00	0.00	0.00	0.00
1	586.64	3503.00	.00	586.64	8.75
2	587.23	4103.00	.00	587.23	10.25
3	589.17	7000.00	.00	589.17	17.50

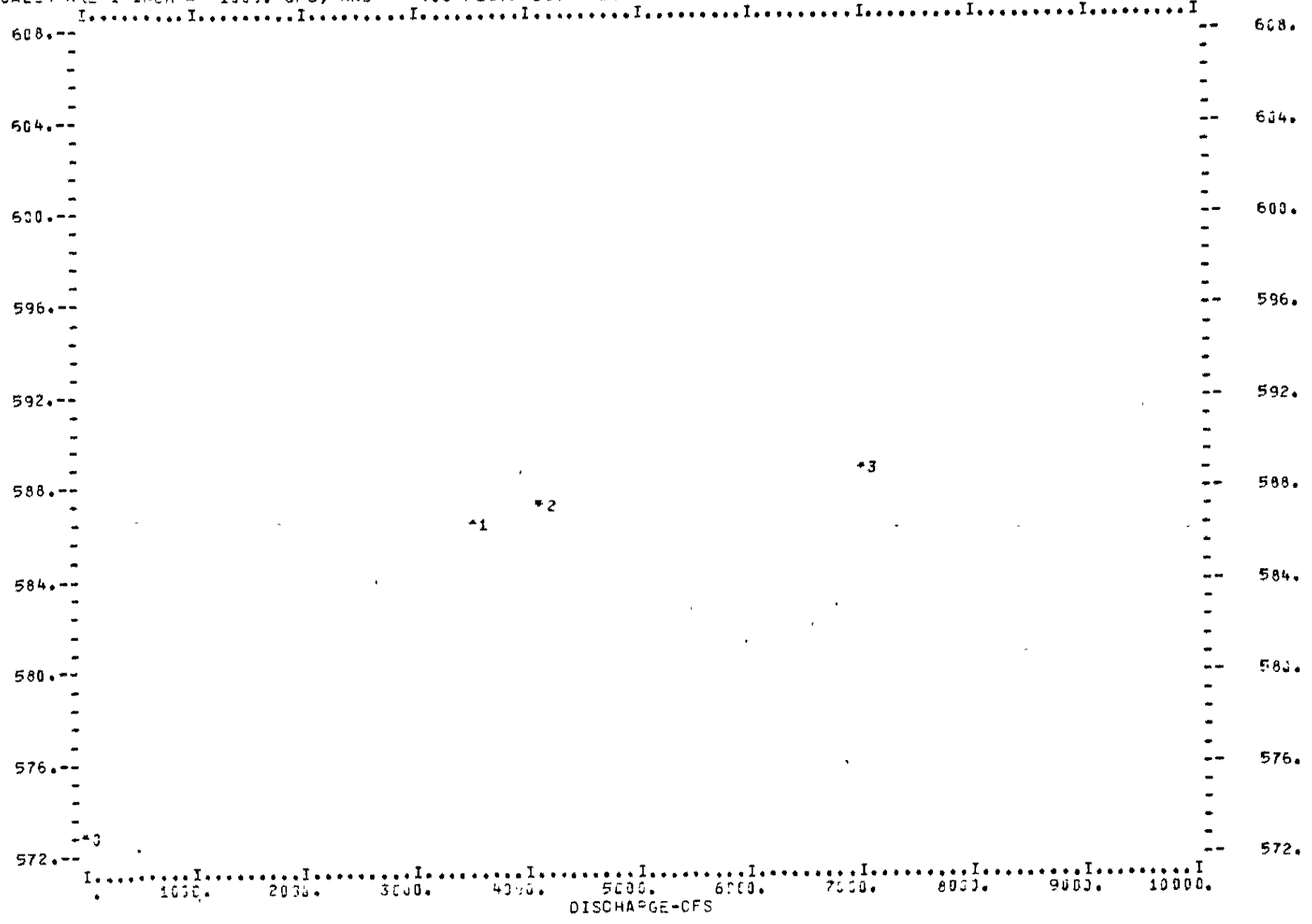
MIN ROAD ELEVATION 585.90

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 588.30 OPENING NO.= 1

FAN PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 14.0

SCALES ARE 1 INCH = 1000. CFS, AND 4.8 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 14.5

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	573.00	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	585.10	896.04	3778.52	.00	.00	.00		
1	586.64	1061.60	3500.00	.00	.00	.00	8.75	577.87
2	587.22	1123.33	4100.00	.00	.00	.00	13.25	578.37
3	588.97	1330.54	7000.00	.00	.00	.00	17.50	580.43

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 14.5

ELEVATION	KD	AREA
573.00	0.00	0.00
574.00	1907.75	52.57
575.00	4855.34	109.89
576.00	9707.57	172.25
577.00	16043.11	239.55
578.00	23840.31	310.33
579.00	32928.98	384.36
580.00	43279.92	461.51
581.00	54876.76	541.77
582.00	67719.01	625.47
583.00	81696.73	712.42
584.00	97146.21	802.61
585.00	113747.22	896.04
586.00	133410.73	994.81
587.00	154475.38	1099.51
588.00	177371.41	1211.07
589.00	202494.43	1335.05
590.00	230168.73	1487.07
591.00	260624.45	1698.05
592.00	295287.91	1974.97
593.00	334756.51	2319.37
594.00	380164.80	2740.28
595.00	434830.75	3210.28
596.00	494913.00	3636.28
597.00	559493.00	4150.28
598.00	630701.43	4620.28
599.00	705769.95	5090.28
600.00	785352.60	5560.28
601.00	868783.70	6030.28
602.00	956736.06	6500.28
603.00	1048054.87	6970.28
604.00	1144662.83	7440.28
605.00	1246686.71	7910.28
606.00	1354228.28	8380.28

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

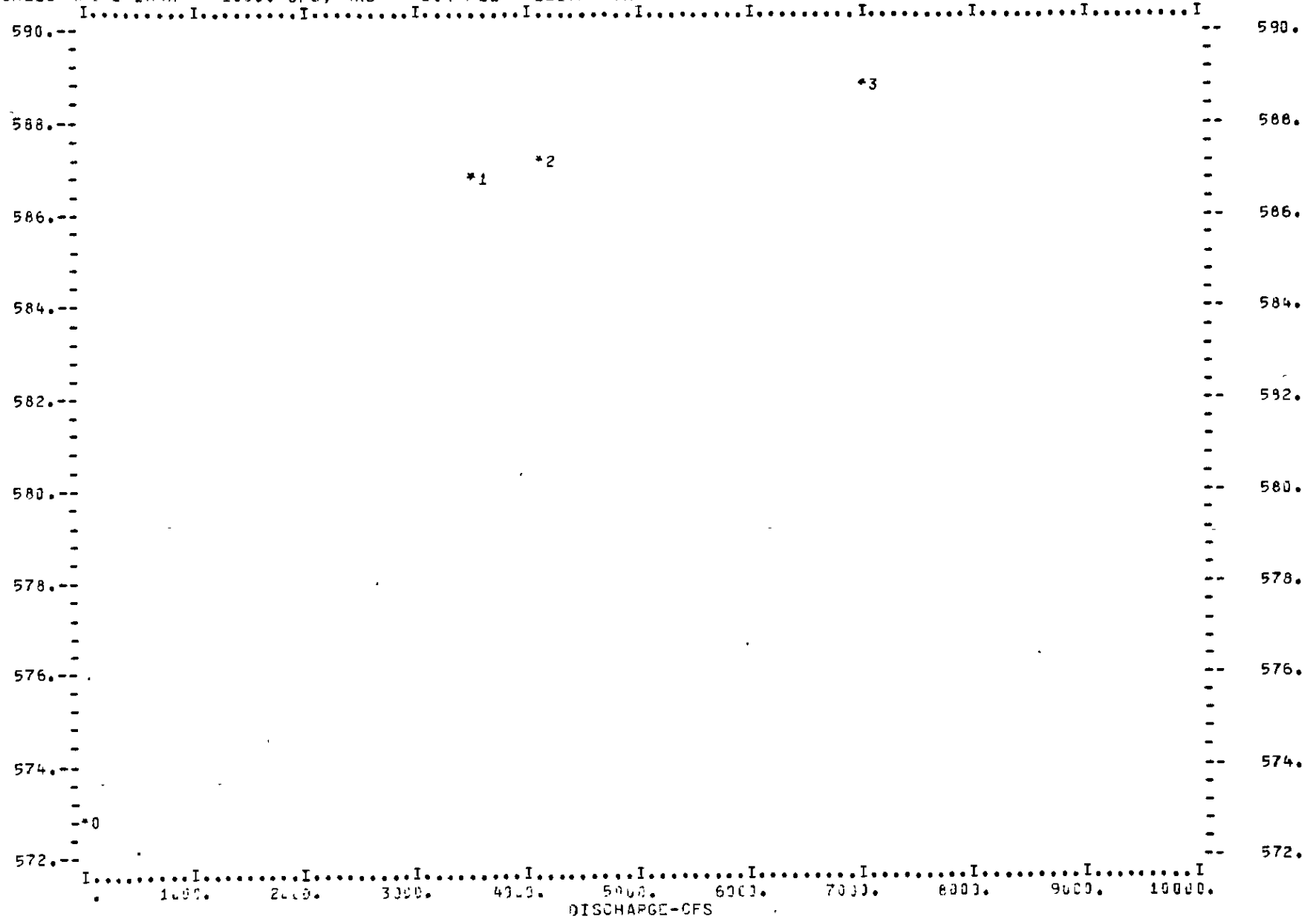
SEGMENT TABLE
CROSS SECTION 14.5
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3502.00	.00	3496.80	3.20
8.75	VELOCITY FPS	3.32	.00	3.32	.41
CORRECT WEIGHTED VEL =		3.32			
	DISCHARGE CFS	4100.00	.00	4093.54	6.46
10.25	VELOCITY FPS	3.69	.00	3.69	.49
CORRECT WEIGHTED VEL =		3.68			
	DISCHARGE CFS	7000.00	4.09	6958.15	37.76
17.50	VELOCITY FPS	5.42	.49	5.43	.92
CORRECT WEIGHTED VEL =		5.42			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 14.5

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



COEFK	FKS	DLTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
.3745	.1794	.1619	.9774	.0000	.0346	.8801	1.0000	1.0000	1266.7760	2146.4294	1753.5832
DCRIT	575.69 KRCRIT =										
.3907	.1918	.1625	.9752	.0000	.0363	.8729	1.0000	1.0000	1305.8076	2272.8147	1931.1164
DCRIT	576.24 KRCRIT =										
.0000	.0000	.0000	.0000	.0000	.0000	.0000	1.0000	1.0000	1344.9700	2272.8147	1931.1164
DCRIT	-1.00 KRCRIT =										

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 15.0

NO.	HW	CFS	HL	TW	CSM
0	568.50	0.00	0.00	0.00	0.00
1	586.91	3500.00	.16	586.75	8.75
2	587.55	4100.00	.20	587.35	10.25
3	589.87	7000.00	.62	589.25	17.50

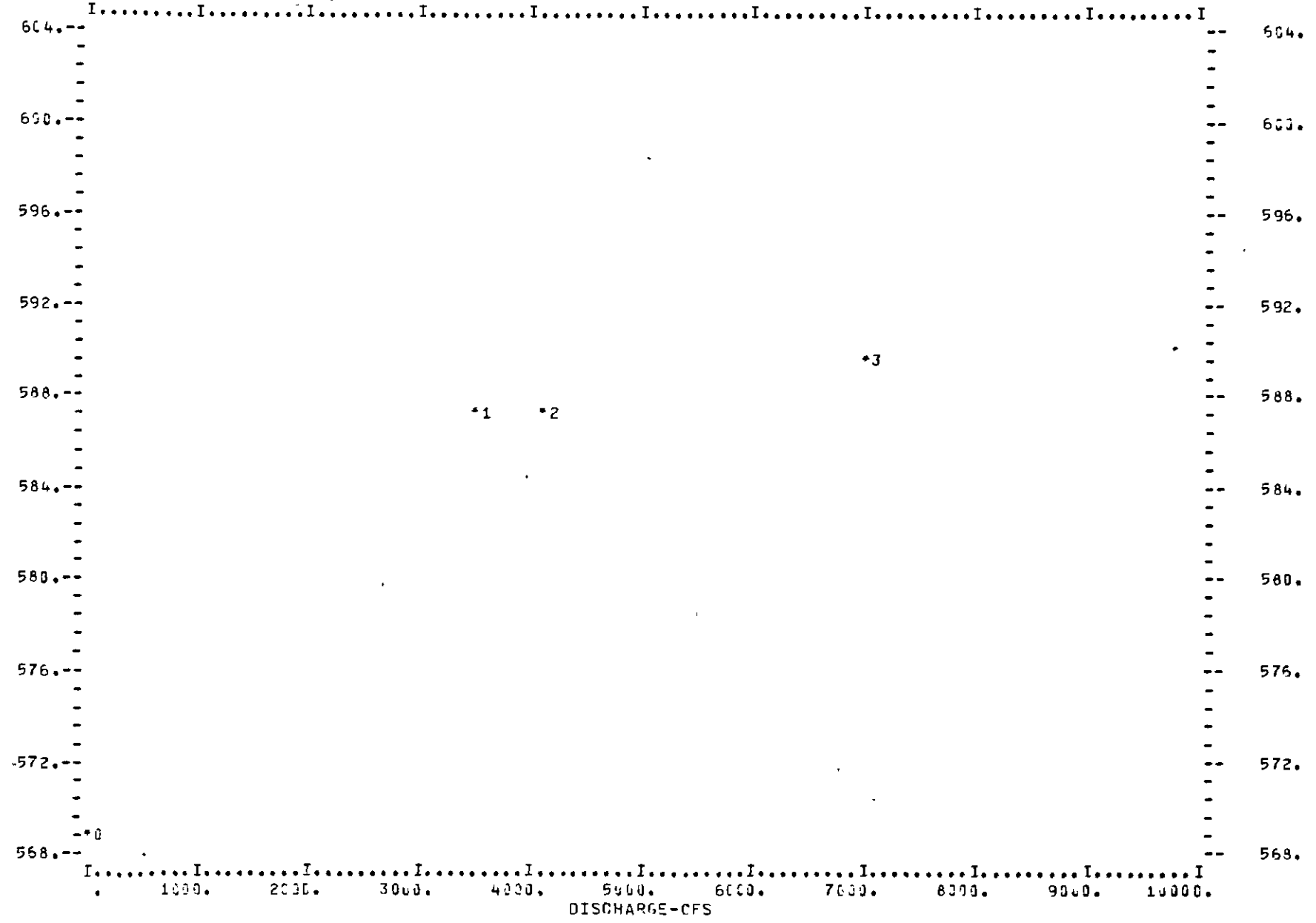
MIN ROAD ELEVATION 589.20

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 586.10 OPENING NO.= 1

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 15.0

SCALES ARE 1 INCH = 1000. CFS, AND 4.8 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 15.05

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	573.00	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	581.00	522.55	2003.62	.00	.00	.00		
1	586.97	1411.05	3500.00	.00	.00	.00	8.75	577.96
2	587.64	1511.76	4100.00	.00	.00	.00	10.25	578.45
3	590.09	1904.20	7000.00	.00	.00	.00	17.50	580.51

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 15.05

ELEVATION	KD	AREA
573.00	0.00	0.00
574.00	1331.09	42.78
575.00	4195.30	101.65
576.00	8924.96	164.78
577.00	15113.19	232.23
578.00	22864.56	312.40
579.00	31889.72	374.24
580.00	42065.93	447.63
581.00	53331.10	522.55
582.00	67404.85	668.86
583.00	83963.37	816.12
584.00	102592.64	964.33
585.00	123096.56	1113.51
586.00	145317.82	1263.73
587.00	169185.21	1414.89
588.00	194709.23	1566.97
589.00	222475.98	1723.25
590.00	252963.73	1888.37
591.00	285327.20	2066.61
592.00	319732.48	2259.00
593.00	356249.10	2461.98
594.00	394933.05	2675.57
595.00	435272.42	2912.11
596.00	478345.91	3179.01
597.00	524063.52	3466.16
598.00	574544.44	3966.25
599.00	630693.69	4278.30
600.00	694877.24	4708.30
601.00	763302.12	5138.30
602.00	835739.41	5568.30
603.00	911921.17	5998.30
604.00	992204.77	6428.30
605.00	1076008.03	6858.30
606.00	1165387.75	7288.30

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

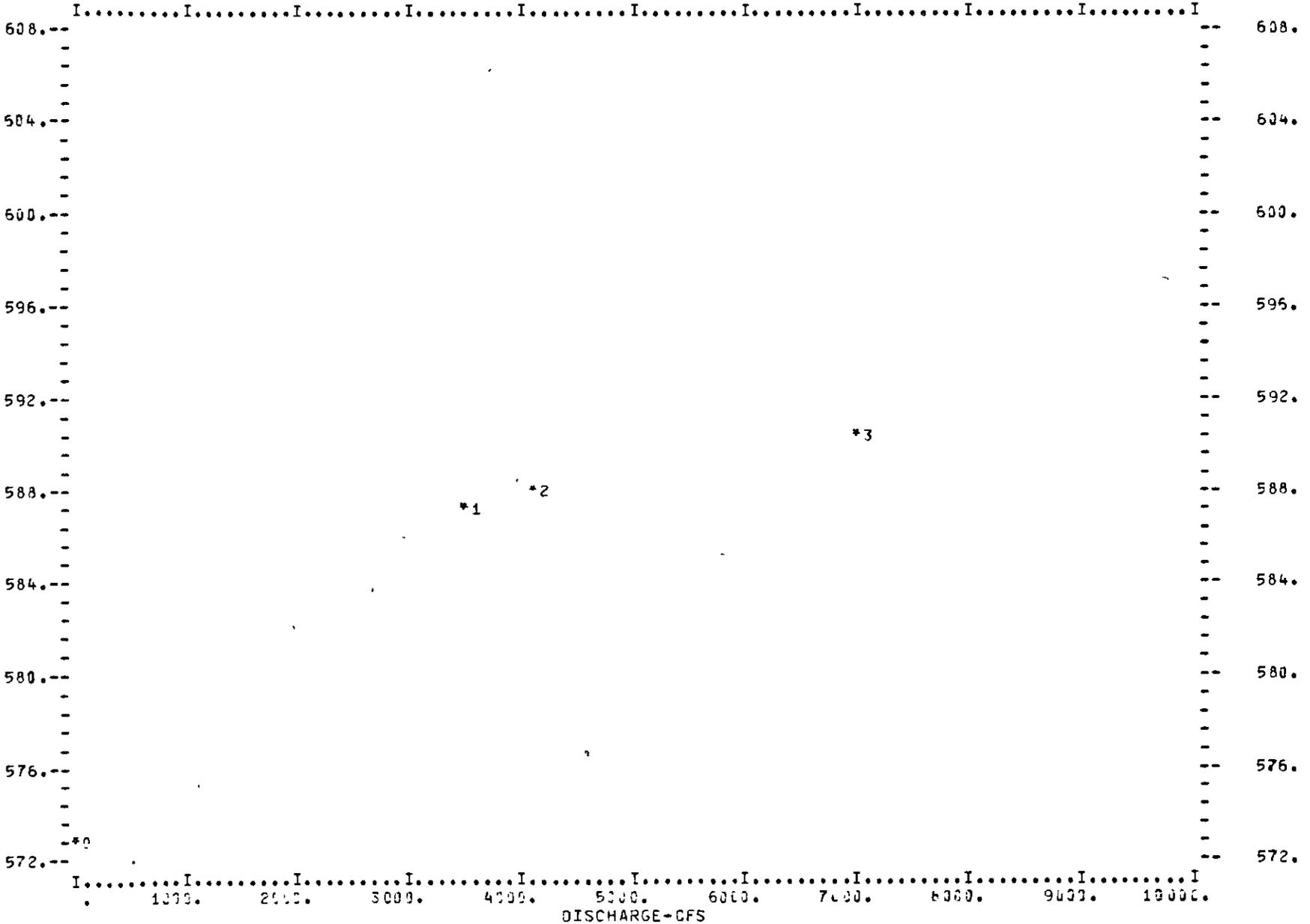
SEGMENT TABLE
CROSS SECTION 15.05
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	.00	3025.18	474.82
8.75	VELOCITY FPS	2.87	.00	3.05	1.14
CORRECT WEIGHTED VEL =		2.86			
	DISCHARGE CFS	4100.00	.01	3501.21	598.79
10.25	VELOCITY FPS	3.13	.00	3.34	1.29
CORRECT WEIGHTED VEL =		3.13			
	DISCHARGE CFS	7000.00	9.56	5767.93	1223.51
17.50	VELOCITY FPS	4.27	.48	4.61	1.92
CORRECT WEIGHTED VEL =		4.27			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 15.05

SCALES ARE 1 INCH = 1000. CFS, AND 4.8 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 15.1

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	573.00	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	583.00	2285.19	2398.97	.00	.00	.00		
1	587.18	6860.32	3500.00	.00	.00	.00	8.75	579.23
2	587.86	7684.72	4100.00	.00	.00	.00	10.25	579.63
3	590.44	10917.90	7000.00	.00	.00	.00	17.50	581.63

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 15.1

ELEVATION	KO	AREA
573.90	0.00	0.00
574.00	3.90	.21
575.00	254.74	13.08
576.00	1614.85	58.19
577.00	5225.39	129.45
578.00	10951.16	217.47
579.00	19496.33	319.20
580.00	29889.07	428.78
581.00	42792.87	675.64
582.00	71665.93	1302.90
583.00	129547.35	2285.19
584.00	217625.46	3349.43
585.00	328047.22	4418.74
586.00	454476.3[illegible]	5500.69
587.00	591607.31	6652.75
588.00	759797.48	7850.43
589.00	950711.83	9083.43
590.00	1161479.98	10351.31
591.00	1391292.15	11653.88
592.00	1639565.60	12986.26
593.00	1897334.22	14359.93
594.00	2164154.92	15744.05
595.00	2503695.12	17134.05
596.00	2838163.14	19524.05
597.00	3189211.79	19914.05
598.00	3561415.55	21304.05
599.00	3959247.4[illegible]	22694.05
600.00	4383345.25	24084.05
601.00	4834337.05	25474.05

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

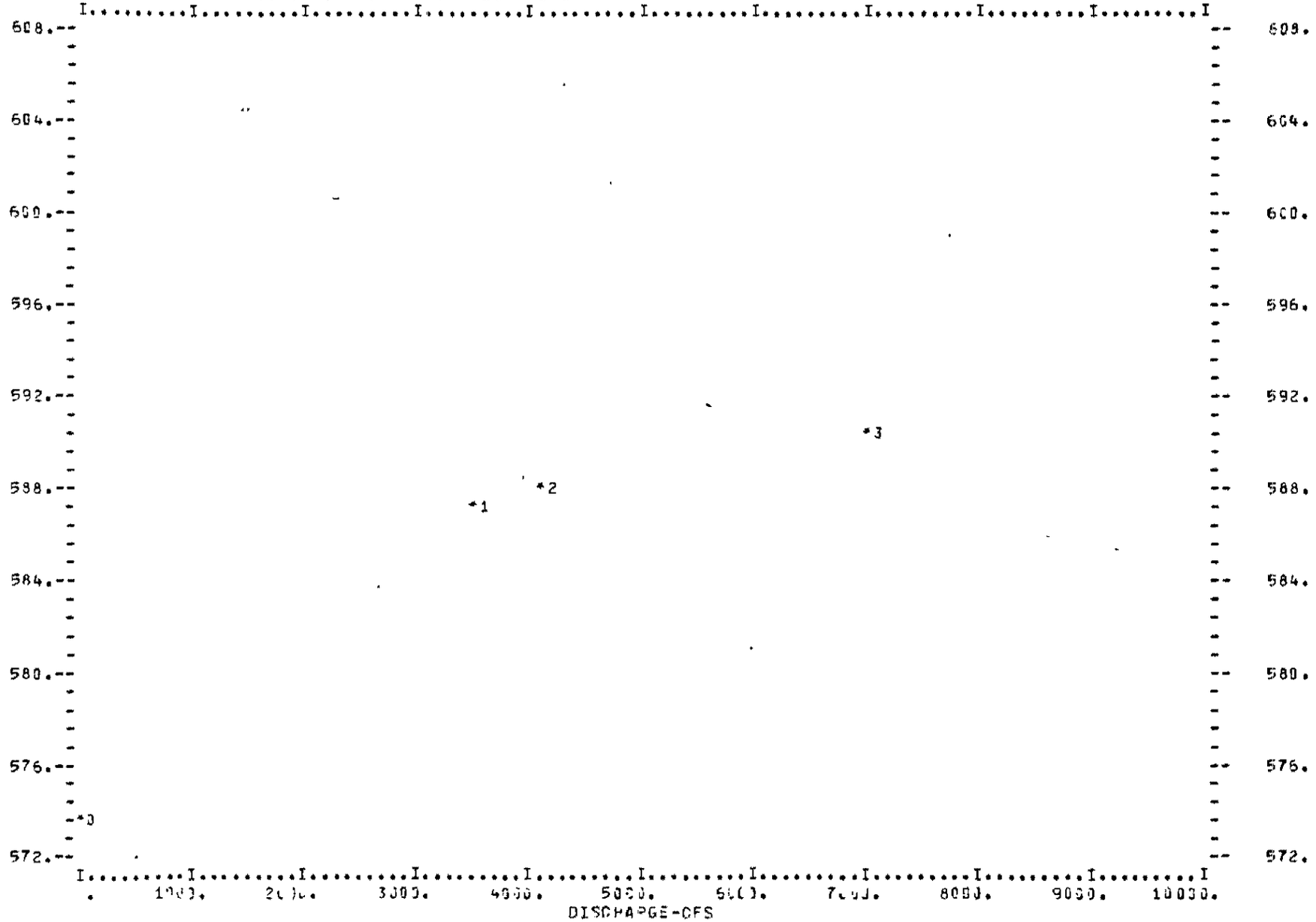
SEGMENT TABLE
CROSS SECTION 15.1
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	.36	1086.57	2413.38
8.75 VELOCITY FPS	.55	.10	.73	.45
CORRECT WEIGHTED VEL =	.55			
DISCHARGE CFS	4100.00	.48	1199.21	2900.32
10.25 VELOCITY FPS	.57	.09	.75	.48
CORRECT WEIGHTED VEL =	.57			
DISCHARGE CFS	7000.00	20.16	1753.69	5226.15
17.50 VELOCITY FPS	.68	.26	.87	.59
CORRECT WEIGHTED VEL =	.67			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 15.1

SCALES ARE 1 INCH = 1000. CFS, AND 4.8 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 15.15

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	575.50	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	581.40	1419.73	1751.71	.00	.00	.00		
(50) 1	587.29	12179.65	3500.00	.00	.00	.00	8.75	580.46
(100) 2	587.97	13527.31	4100.00	.00	.00	.00	10.25	580.60
(500) 3	590.56	18653.67	7000.00	.00	.00	.00	17.50	581.20

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 15.15

ELEVATION	KD	AREA
575.50	0.00	0.00
576.00	40.78	3.79
577.00	1677.48	68.79
578.00	6713.62	158.30
579.00	14159.49	256.21
580.00	23596.51	361.26
581.00	38827.69	982.30
582.00	67033.55	2179.28
583.00	115901.46	3937.89
584.00	183737.67	5795.38
585.00	270384.44	7724.18
586.00	372047.14	9664.22
587.00	487572.46	11615.20
588.00	615875.36	13577.66
589.00	757202.44	15550.07
590.00	910624.96	17532.98
591.00	1075126.77	19527.70
592.00	1250523.06	21534.23
593.00	1436736.88	23552.02
594.00	1634469.47	25578.68
595.00	1842513.02	27616.05
596.00	2059912.38	29667.20
597.00	2286886.48	31728.97
598.00	2522736.98	33803.81
599.00	2765567.73	35914.49
600.00	3021695.02	38025.15
601.00	3286618.58	40135.83
602.00	3564832.16	42246.51

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

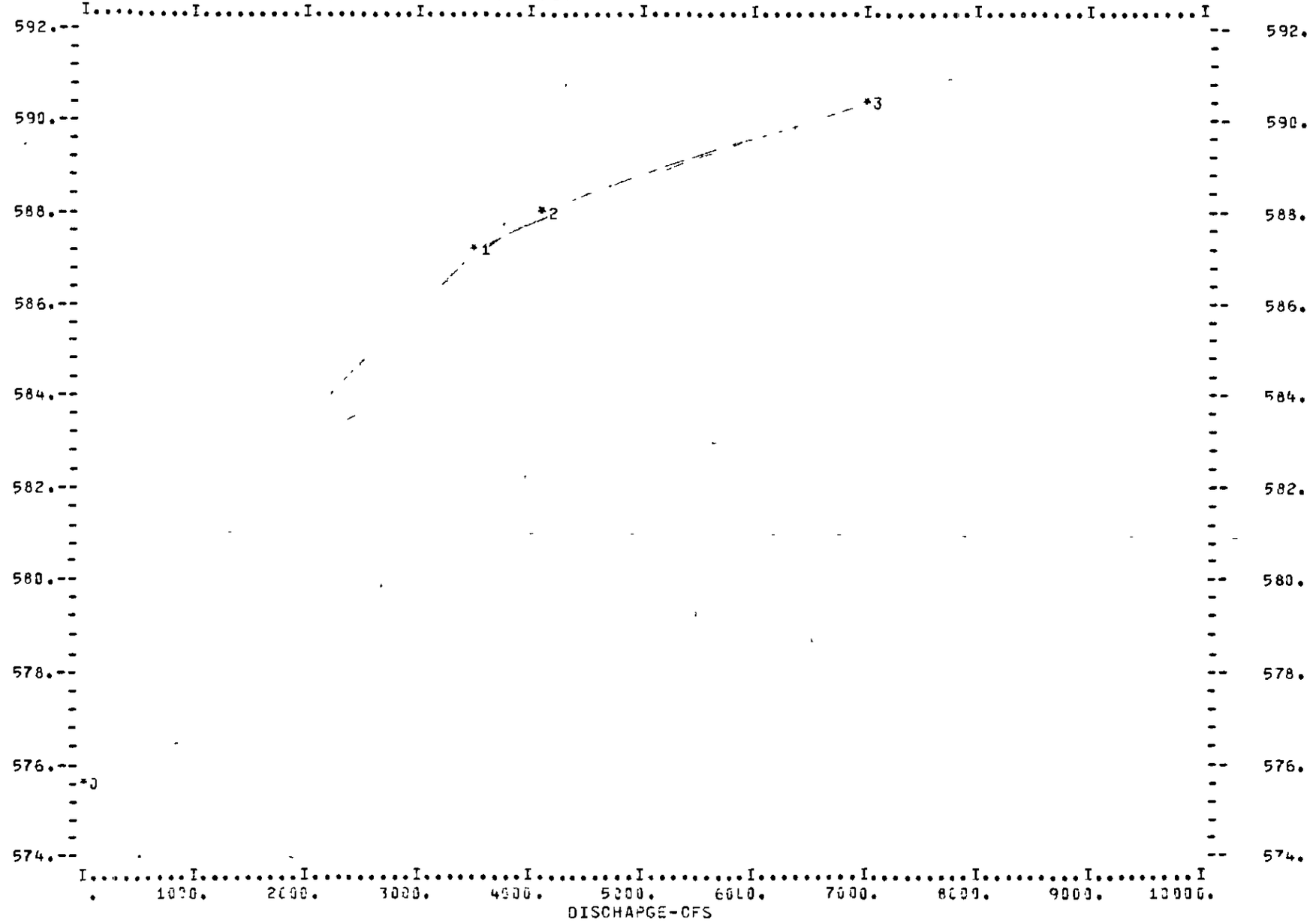
SEGMENT TABLE
CROSS SECTION 15.15
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	2065.30	999.72	434.98
8.75 VELOCITY FPS	.54	.23	.94	.20
CORRECT WEIGHTED VEL =	.54			
DISCHARGE CFS	4100.00	2453.60	1109.07	537.33
10.25 VELOCITY FPS	.55	.25	.97	.21
CORRECT WEIGHTED VEL =	.55			
DISCHARGE CFS	7000.00	4326.28	1633.23	1040.48
17.50 VELOCITY FPS	.63	.32	1.17	.28
CORRECT WEIGHTED VEL =	.63			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 15.15

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 15.25

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
	576.[illegible]	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	582.33	198.57	1772.98	.00	.00	.00		
1	589.44	7121.07	3500.00	.00	.00	.00	8.75	584.21
2	5[illegible]9.00	8271.45	4100.00	.00	.00	.00	10.25	584.76
3	591.32	13122.26	7000.00	.00	.00	.00	17.50	585.28

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 15.25

ELEVATION	KD	AREA
576.00	0.00	0.00
577.00	109.91	6.00
578.00	693.25	22.62
579.00	1950.45	47.96
580.00	3982.00	81.78
581.00	6944.57	124.64
582.00	11044.41	179.00
583.00	16982.55	261.14
584.00	25046.77	373.35
585.00	37359.96	501.97
586.00	57331.12	2251.75
587.00	135720.10	4221.44
588.00	228403.76	6231.26
589.00	343617.78	8268.98
590.00	479363.21	10313.99
591.00	635587.36	12366.40
592.00	810321.05	14425.30
593.00	1002310.49	16490.01
594.00	1209619.44	18560.61
595.00	1432109.95	20637.56
596.00	1671224.29	22719.26
597.00	1926160.96	24805.73
598.00	2191991.50	26900.13
599.00	2472866.05	28999.63
600.00	2770082.25	31102.53
601.00	3076422.52	33214.50
602.00	3398398.20	35336.39
603.00	3733178.48	37451.12
604.00	4079029.59	39579.43
605.00	4439135.92	41711.49
606.00	4809390.40	43851.30
607.00	5193242.92	45995.20
608.00	5588334.76	48145.26
609.00	5994904.48	50301.46
610.00	6414052.28	52461.77
611.00	6842839.91	54630.27
612.00	7285359.82	56800.83
613.00	7735558.11	58982.20
614.00	8203452.15	61163.58
615.00	8672678.82	63356.34
616.00	9159105.89	65549.11
617.00	9655990.55	67752.95
618.00	*166879.32	69956.79
619.00	*694367.40	72164.92
620.00	*236148.96	74373.05
621.00	*784348.67	76582.76
622.00	*346361.65	78792.47
623.00	*916741.47	81003.51
624.00	*497584.29	83214.87
625.00	*088196.19	85427.23
626.00	*688967.31	87640.25
627.00	*298574.70	89854.38

628.00	*814533.81	92070.17
629.00	*541569.42	94286.87
630.00	*175627.50	96507.23
631.00	*821604.67	98727.53
632.00	*474951.21	100951.66
633.00	*138733.74	103176.74
634.00	*794735.45	105405.06
635.00	*431548.19	107638.25
636.00	*177627.29	109871.45
637.00	*732949.79	112104.65
638.00	*397493.14	114337.84

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

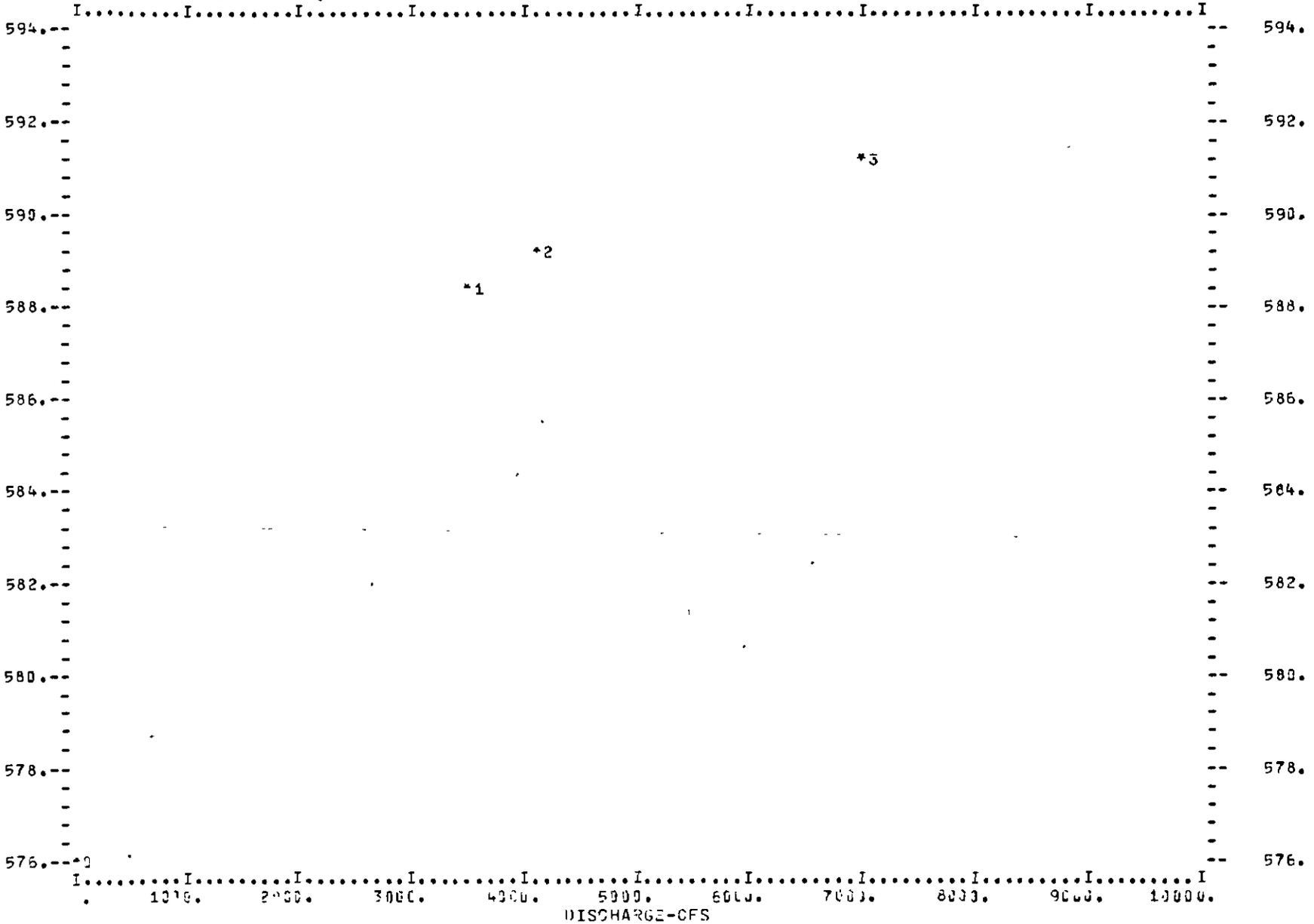
SEGMENT TABLE
CROSS SECTION 15.25
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	352.94	924.66	2222.39
8.75	VELOCITY FPS	.89	.43	1.55	.39
CORRECT WEIGHTED VEL =		.86			
	DISCHARGE CFS	4100.00	415.19	970.11	2714.70
10.25	VELOCITY FPS	.83	.44	1.52	.41
CORRECT WEIGHTED VEL =		.82			
	DISCHARGE CFS	7000.00	714.89	1202.86	5086.24
17.50	VELOCITY FPS	.76	.49	1.51	.47
CORRECT WEIGHTED VEL =		.76			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 15.25

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 15.4

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	579.10	0.00	0.00	.00	0.00	0.00	0.00	
BANK FULL	583.20	456.59	1380.82	.00	.00	.00		
1	589.49	10123.28	3500.00	.00	.00	.00	8.75	583.07
2	589.99	11475.81	4100.00	.00	.00	.00	13.25	583.33
3	592.16	17436.95	7000.00	.00	.00	.00	17.50	584.43

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 15.4

ELEVATION	KO	AREA
579.10	0.00	0.00
580.00	566.78	24.99
581.00	2564.14	67.73
582.00	6953.23	218.96
583.00	14795.11	414.59
584.00	25368.12	640.28
585.00	37856.60	1012.69
586.00	55191.94	1845.33
587.00	99157.62	3590.73
588.00	176818.51	6033.23
589.00	287793.96	8782.27
590.00	427208.23	11508.37
591.00	591813.20	14249.60
592.00	777798.04	16998.76
593.00	985998.31	19752.20
594.00	1214822.50	22509.38
595.00	1462394.36	25270.57
596.00	1728769.52	28036.78
597.00	2010622.90	30810.78
598.00	2311157.33	33590.72
599.00	2630796.24	36373.65
600.00	2968152.85	39157.65
601.00	3319602.26	41941.65
602.00	3687564.53	44725.65
603.00	4072158.38	47509.65
604.00	4473633.22	50293.65
605.00	4897248.78	53077.65
615.00	5358296.98	55861.65

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

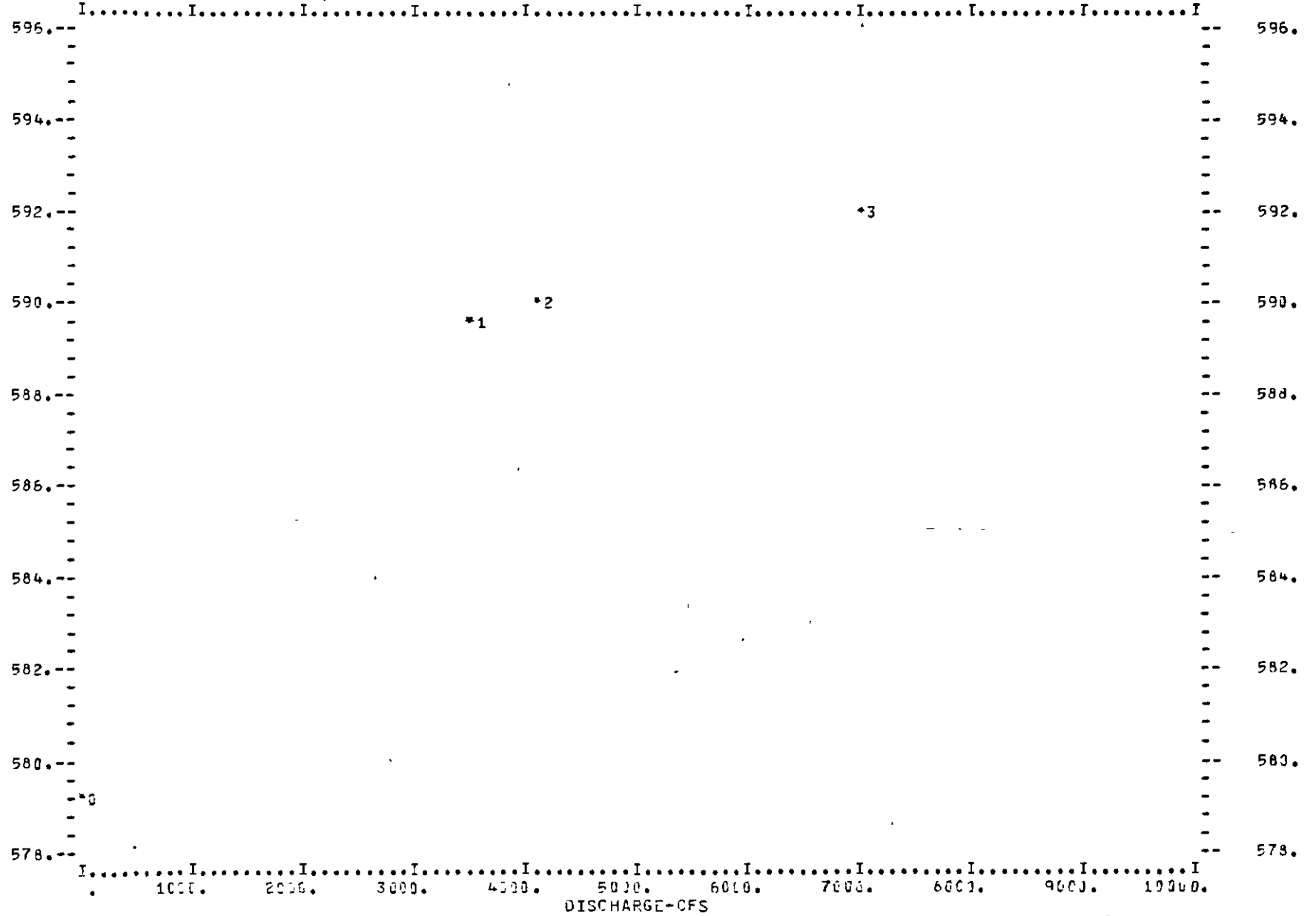
SEGMENT TABLE
CROSS SECTION 15.4
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	1348.71	688.42	1462.88
8.75	VELOCITY FPS	.60	.25	1.18	.35
CORRECT WEIGHTED VEL =		.59			
	DISCHARGE CFS	4100.00	1683.64	738.89	1677.47
10.25	VELOCITY FPS	.59	.27	1.19	.36
CORRECT WEIGHTED VEL =		.58			
	DISCHARGE CFS	7000.00	3386.64	934.91	2658.44
17.50	VELOCITY FPS	.57	.34	1.24	.40
CORRECT WEIGHTED VEL =		.57			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 15.4

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 15.5

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
1	582.33	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	588.70	2597.02	2573.60	.00	.00	.00		
1	591.00	6359.25	3500.00	.00	.00	.00	8.75	587.18
2	591.50	7238.66	4100.00	.00	.00	.00	10.25	587.25
3	593.47	11000.67	7000.00	.00	.00	.00	17.50	587.59

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 15.5

ELEVATION	KD	AREA
582.30	0.00	0.00
583.00	340.12	20.07
584.00	2494.91	78.20
585.00	7112.00	167.32
586.00	14728.90	298.43
587.00	24550.64	555.73
588.00	49276.12	1673.37
589.00	91285.96	3043.81
590.00	150359.01	4624.12
591.00	231099.57	6352.64
592.00	328914.25	8169.53
593.00	441456.06	10071.37
594.00	566685.45	12076.72
595.00	716137.64	14153.27
596.00	887447.97	16250.03
597.00	1074277.21	18352.23
598.00	1275680.00	20457.77
599.00	1490352.44	22567.06
600.00	1717526.21	24680.41
601.00	1958863.58	26736.65
602.00	2213622.21	28915.81
603.00	2479400.45	31039.35
604.00	2757510.03	33166.29
605.00	3048038.29	35296.25
606.00	3349848.67	37429.87
607.00	3662717.54	39567.37
608.00	3988024.84	41707.10
609.00	4322758.57	43851.84
610.00	4669078.52	45999.35
611.00	5026582.31	48149.64
612.00	5393074.38	50305.25
613.00	5771771.45	52462.08
614.00	6158977.21	54624.54
615.00	6557540.63	56788.87
616.00	6965358.03	58957.58
617.00	7383352.63	61129.42
618.00	7811247.42	63304.38
619.00	8251087.87	65479.35
620.00	8702868.36	67654.31
621.00	9166583.39	69829.28

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

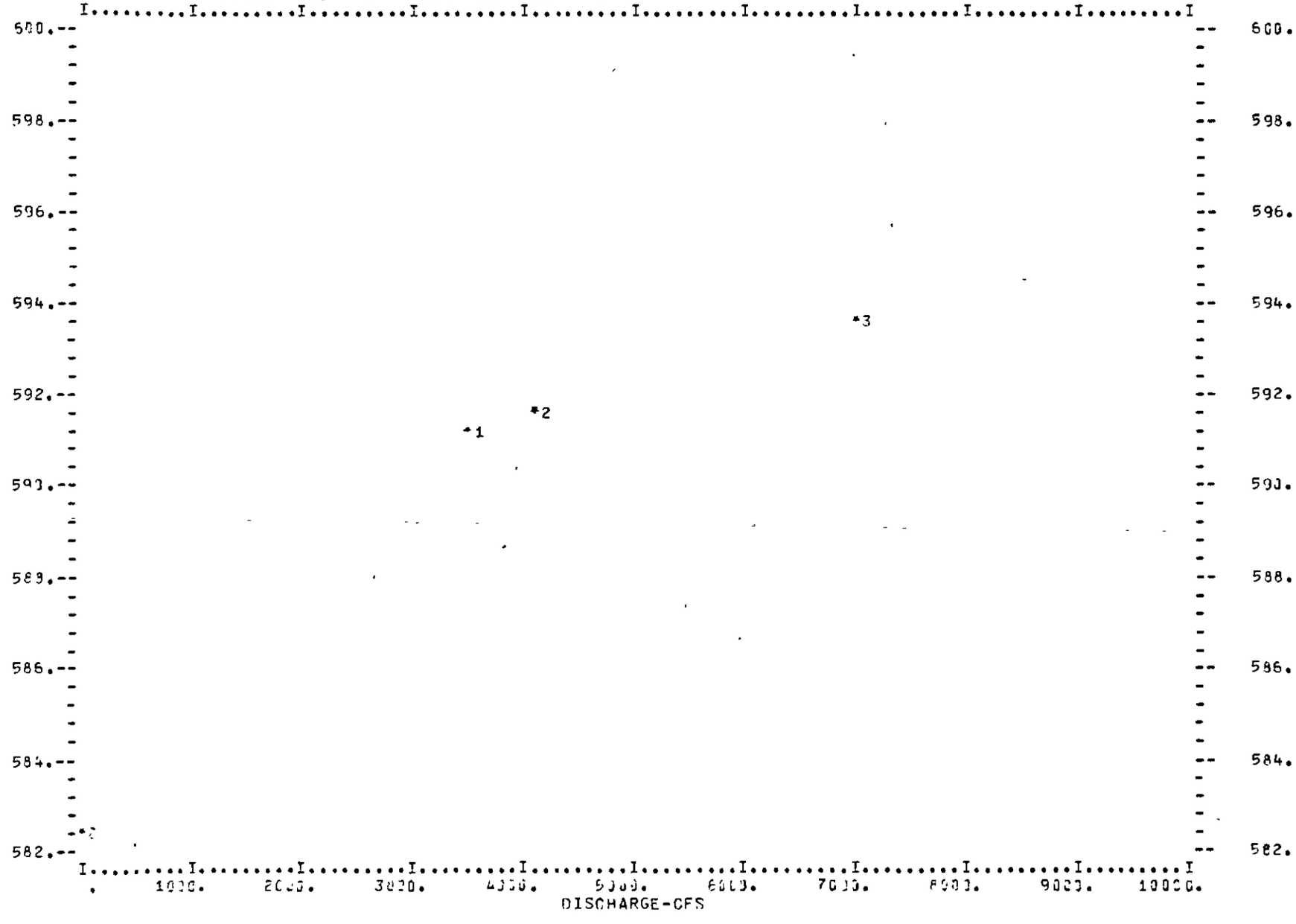
SEGMENT TABLE
CROSS SECTION 15.5
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	2329.25	1168.06	3.69
8.75	VELOCITY FPS	1.01	.41	1.63	.14
CORRECT WEIGHTED VEL =		1.00			
	DISCHARGE CFS	4100.00	2814.16	1277.73	8.11
10.25	VELOCITY FPS	1.00	.44	1.66	.17
CORRECT WEIGHTED VEL =		1.00			
	DISCHARGE CFS	7000.00	5156.20	1733.75	60.05
17.50	VELOCITY FPS	1.04	.52	1.85	.29
CORRECT WEIGHTED VEL =		1.04			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 15.5

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 15.8

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
1	584.80	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	590.10	3004.39	2407.41	.00	.00	.00		
1	592.51	7280.26	3500.00	.00	.00	.00	8.75	588.30
2	592.93	8121.63	4100.00	.00	.00	.00	10.25	588.42
3	594.83	12343.09	7000.00	.00	.00	.00	17.50	588.81

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 15.8

ELEVATION	KD	AREA
584.80	0.00	0.00
585.00	14.32	2.49
586.00	1522.29	57.27
587.00	5471.77	126.94
588.00	12889.52	468.47
589.00	38902.35	1417.82
590.00	66520.8.	2851.25
591.00	119122.78	4490.56
592.00	189031.63	6293.01
593.00	271261.33	8279.69
594.00	370787.06	10432.71
595.00	493593.19	12732.11
596.00	640686.57	15084.60
597.00	816764.24	17444.60
598.00	998846.95	19804.60
599.00	1184026.13	22164.60
600.00	1393592.26	24524.60
601.00	1616927.37	26884.60
602.00	1853333.42	29244.60
603.00	2103368.38	31604.60
604.00	2363873.35	33964.60
605.00	2637216.51	36324.60
606.00	2922876.55	38684.60
607.00	3219461.70	41044.60
608.00	3526052.39	43404.60
609.00	3947143.75	45764.60
610.00	4182003.23	48124.60
611.00	4531266.47	50484.60
612.00	4894967.80	52844.60

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

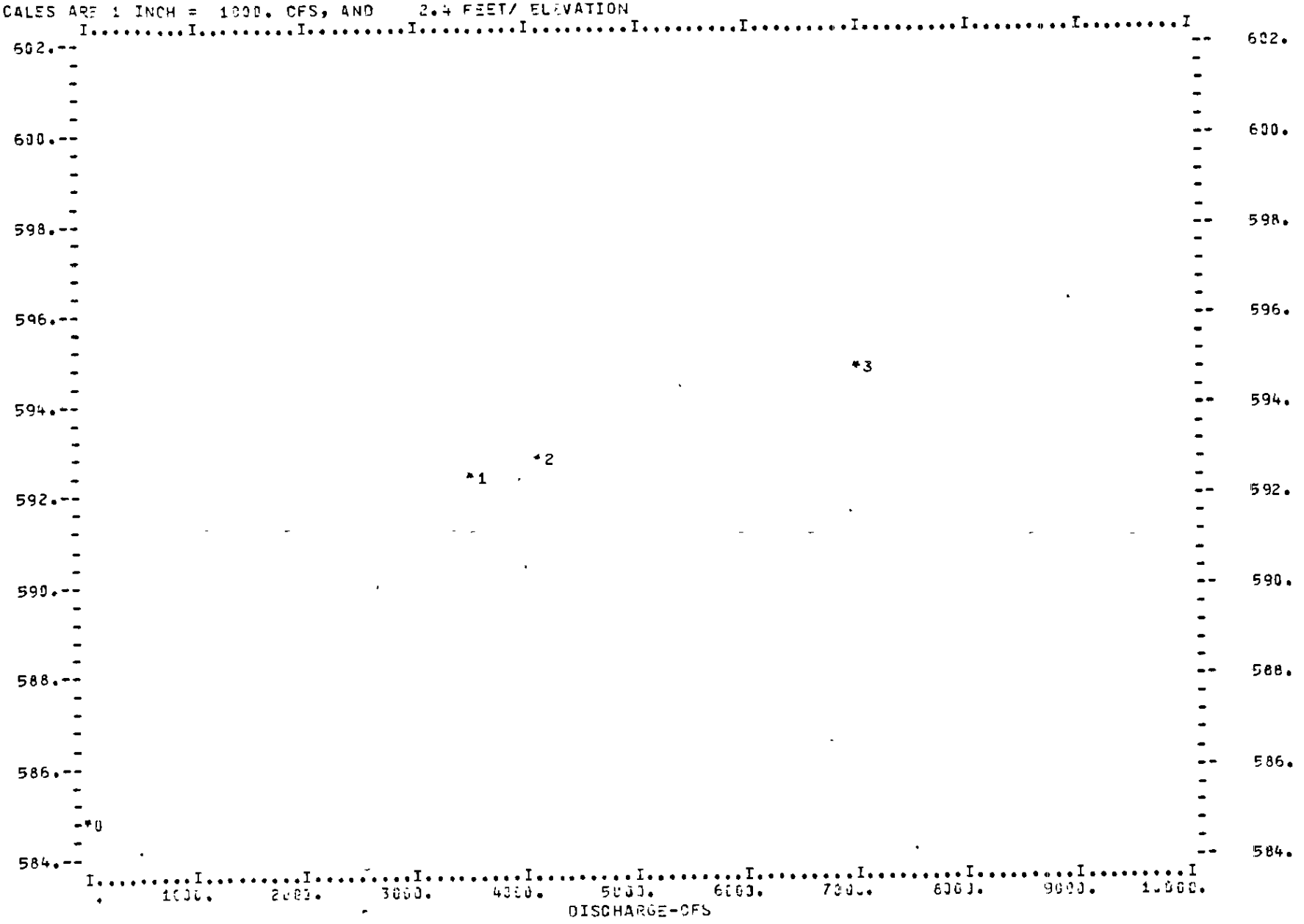
SEGMENT TABLE
CROSS SECTION 15.8
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	2364.94	912.75	222.32
8.75	VELOCITY FPS	.88	.39	1.59	.33
CORRECT WEIGHTED VEL =		.88			
	DISCHARGE CFS	4100.00	2796.84	1022.60	280.56
10.25	VELOCITY FPS	.91	.42	1.68	.36
CORRECT WEIGHTED VEL =		.91			
	DISCHARGE CFS	7000.00	4965.37	1455.78	578.85
17.50	VELOCITY FPS	.96	.48	1.89	.46
CORRECT WEIGHTED VEL =		.96			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 15.8

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 15.9

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	586.25	0.00	0.00	0.00	0.00	0.00	0.00	
1	596.04	2270.31	3500.00	.00	.00	.00	9.75	591.26
BANK FULL	596.51	2520.32	4341.33	.00	.00	.00		
2	596.59	2547.97	4100.00	.00	.00	.00	10.25	591.94
3	598.59	3271.41	7000.00	.00	.00	.00	17.50	593.27

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 15.9

ELEVATION	KO	AREA
586.20	0.00	0.00
587.00	320.79	17.83
588.00	2117.32	65.44
589.00	5436.16	133.58
590.00	11646.47	221.78
591.00	20327.50	317.48
592.00	31132.11	448.04
593.00	46038.03	768.25
594.00	68041.92	1234.46
595.00	96775.12	1732.89
596.00	131248.92	2250.22
597.00	171871.09	2796.74
598.00	220664.51	3431.73
599.00	277845.04	4163.92
600.00	341670.87	4904.31
601.00	409685.98	5716.15
602.00	484280.09	6675.37
603.00	579180.98	7967.98
604.00	693404.73	9488.09
605.00	822182.78	11037.37
606.00	965562.55	12611.22
607.00	1121978.77	14205.58
608.00	1288879.32	15820.44
609.00	1467348.85	17451.16
610.00	1658635.94	19097.97
611.00	1861024.99	20760.18
612.00	2076072.97	22429.49
613.00	2300481.58	24111.72
614.00	2535636.36	25805.65
615.00	2782113.88	27502.05
616.00	3039143.39	29213.31
617.00	3308945.45	30925.44
618.00	3587353.53	32641.33
619.00	3879469.67	34356.62
620.00	4185520.00	36072.21
621.00	4505727.41	37787.80

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

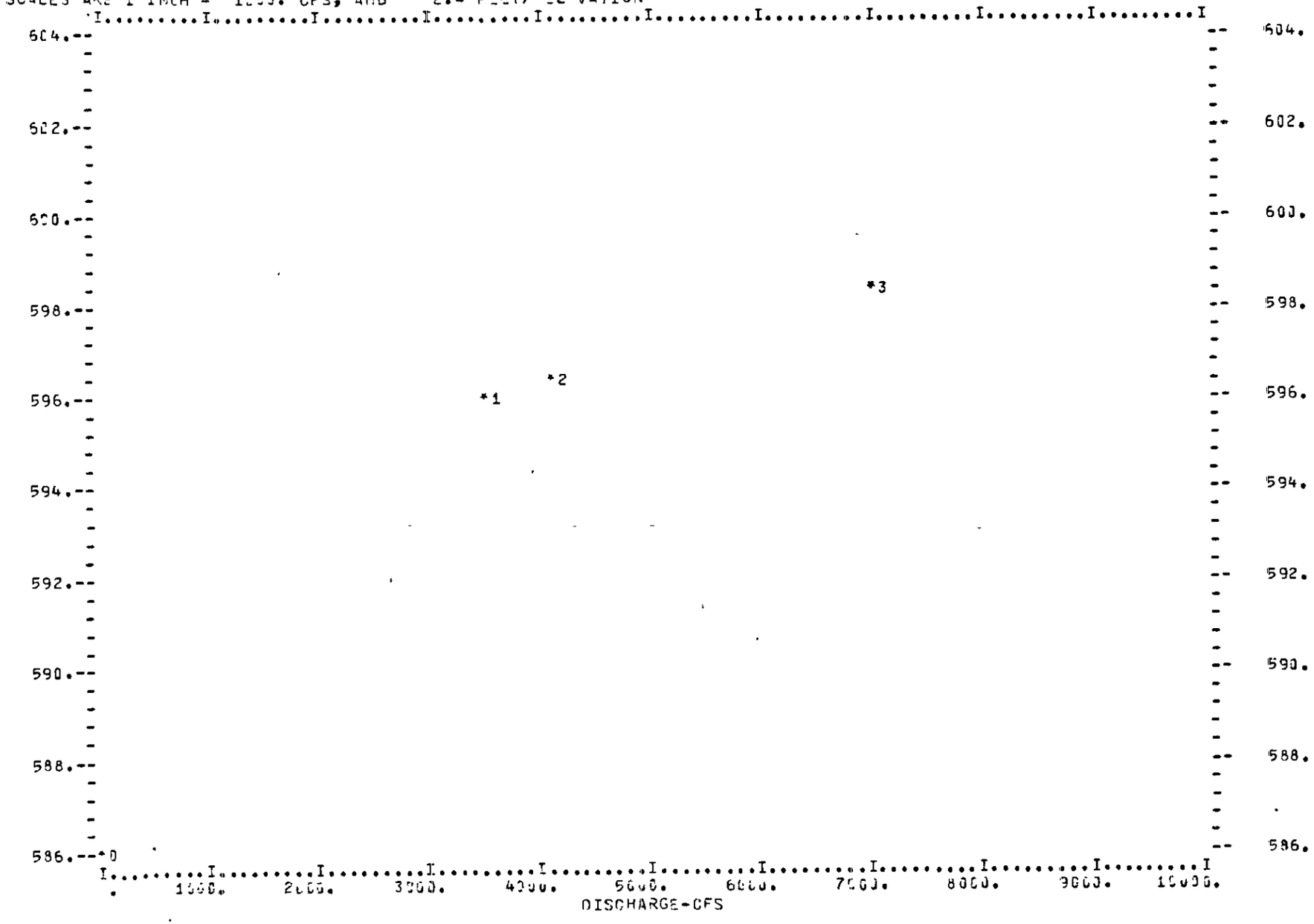
SEGMENT TABLE
CROSS SECTION 15.9
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	1017.41	2482.59	.00
8.75 VELOCITY FPS	2.36	.74	2.75	.00
CORRECT WEIGHTED VEL =	2.35			
DISCHARGE CFS	4100.00	1278.55	2821.30	.14
10.25 VELOCITY FPS	2.46	.81	2.90	.08
CORRECT WEIGHTED VEL =	2.45			
DISCHARGE CFS	7000.00	2596.58	4338.12	65.30
17.50 VELOCITY FPS	2.81	1.05	3.45	.42
CORRECT WEIGHTED VEL =	2.79			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 15.9

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 16.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	587.10	0.00	0.00	0.00	0.00	0.00	0.00	
1	596.38	947.25	3500.00	.00	.00	.00	8.75	591.29
2	596.91	1016.28	4100.00	.00	.00	.00	10.25	591.65
3	599.10	1299.48	7000.00	.00	.00	.00	17.50	593.19

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 16.0

ELEVATION	KD	AREA
587.10	[illegible]	0.00
588.00	519.96	29.04
589.00	3329.28	106.26
590.00	9689.13	208.47
591.00	14848.86	314.89
592.00	30350.68	424.44
593.00	43962.19	537.45
594.00	59605.43	653.69
595.00	76986.38	775.60
596.00	96205.03	898.23
597.00	117329.21	1027.52
598.00	140649.48	1161.36
599.00	165984.71	1299.47
600.00	193356.31	1442.13
601.00	222743.45	1588.66
602.00	254133.01	1739.35
603.00	287493.68	1893.30
604.00	322768.79	2051.45
605.00	359866.18	2214.47
606.00	398809.05	2381.84
607.00	438511.77	2554.16
608.00	476292.21	2733.65
609.00	523650.35	2962.62
610.00	576447.86	3400.03
611.00	634328.75	4041.38
612.00	697416.45	4936.35
613.00	769008.99	5918.85
614.00	860899.24	7036.99
615.00	961832.28	8217.10
616.00	1071842.56	9431.25
617.00	1190322.24	10712.73
618.00	1317919.32	12023.50
619.00	1455921.86	13402.60
620.00	1603487.37	14844.18
621.00	1760963.82	16348.26
622.00	1930057.09	17934.57
623.00	2110565.76	19556.13
624.00	2305425.75	21251.75
625.00	2511790.22	22955.59
626.00	2726530.35	24728.85
627.00	2952943.19	26509.82
628.00	3187265.09	28364.17
629.00	3433299.23	30226.68
630.00	3687595.67	32165.97
631.00	3953263.57	34113.80
632.00	4225391.94	36224.28
633.00	4508891.17	38352.83
634.00	4807985.10	40546.13
635.00	5121456.29	42757.18
636.00	5441695.82	45035.97
637.00	5768807.33	47352.50
638.00	6106824.65	49669.03

639.00	6458368.10	51385.56
640.00	6822856.44	54302.09

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

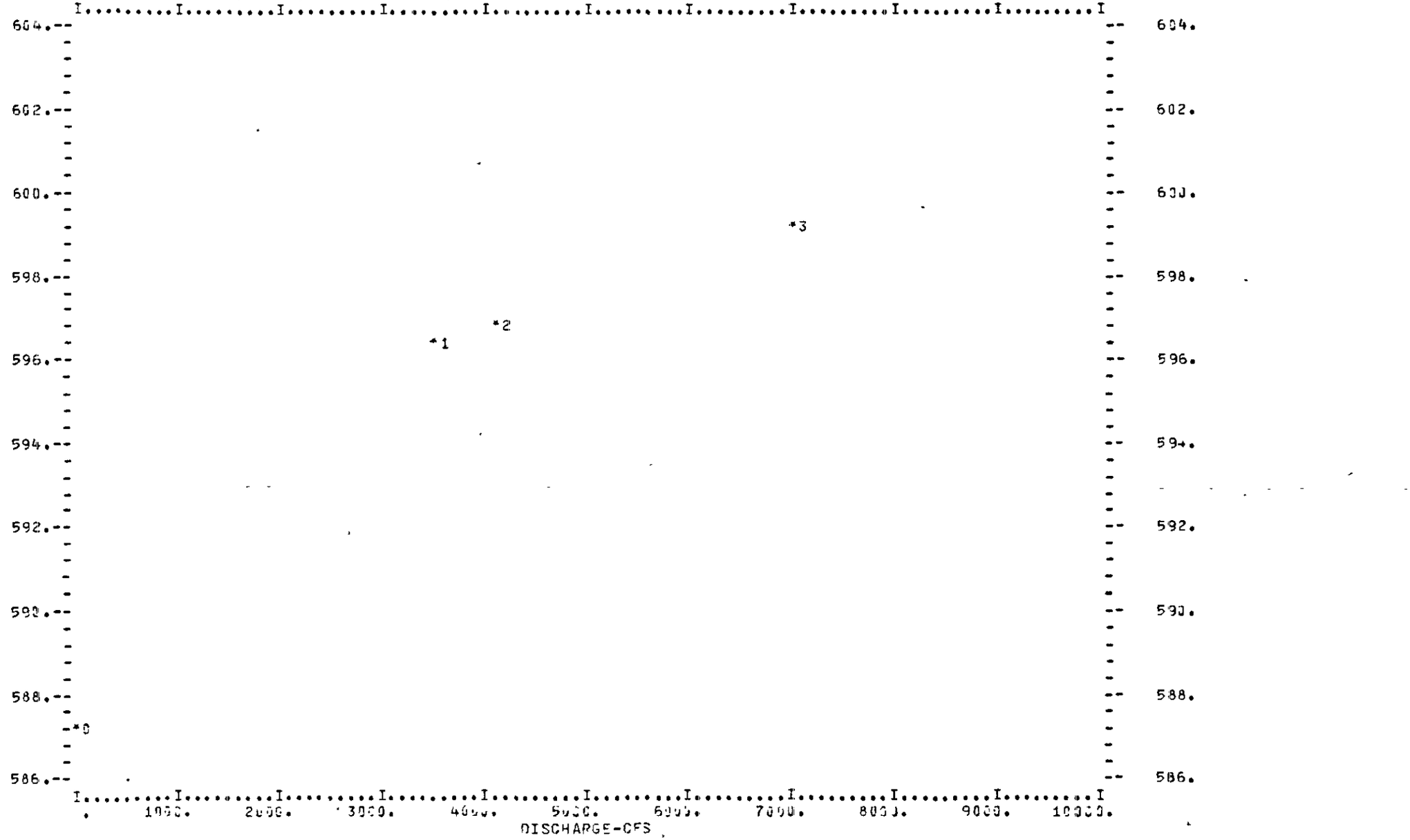
SEGMENT TABLE
CROSS SECTION 16.0
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	.00	3500.00	.00
8.75 VELOCITY FPS	3.70	.00	3.69	.00
CORRECT WEIGHTED VEL =	3.69			
DISCHARGE CFS	4100.00	.00	4100.00	.00
10.25 VELOCITY FPS	4.04	.00	4.03	.00
CORRECT WEIGHTED VEL =	4.03			
DISCHARGE CFS	7000.00	.00	7000.00	.00
17.50 VELOCITY FPS	5.39	.00	5.39	.00
CORRECT WEIGHTED VEL =	5.39			

PAW PAW RIVER F.H.S.-MICHIGAN
[illegible]C,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 16.0

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

SEGMENT TABLE
CROSS SECTION 16.1
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	36.67	1520.51	1942.82
8.75 VELOCITY FPS	1.05	.25	1.54	.36
CORRECT WEIGHTED VEL =	1.05			
DISCHARGE CFS	4100.00	49.49	1704.97	2345.54
10.25 VELOCITY FPS	1.10	.27	1.63	.39
CORRECT WEIGHTED VEL =	1.09			
DISCHARGE CFS	7000.00	117.82	2570.78	4311.39
17.50 VELOCITY FPS	1.28	.38	1.99	.52
CORRECT WEIGHTED VEL =	1.27			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 15.1

ELEVATION	KD	AREA
584.70	0.00	0.00
585.00	11.65	1.18
586.00	426.57	21.60
587.00	2700.86	85.86
588.00	7760.92	164.61
589.00	14832.24	246.78
590.00	23893.38	386.77
591.00	37274.49	807.86
592.00	58675.23	1553.92
593.00	91218.16	2496.86
594.00	132874.30	3514.99
595.00	184381.13	4603.28
596.00	244718.60	5735.34
597.00	314514.46	6908.93
598.00	396753.80	8097.99
599.00	486505.58	9295.95
600.00	583797.26	10502.16
601.00	689237.04	11711.30
602.00	802644.28	12921.30
603.00	922303.04	14131.30
604.00	1048313.05	15341.30
605.00	1180849.63	16551.30
606.00	1320043.73	17761.30
607.00	1463279.84	18971.30
608.00	1615638.52	20181.30
609.00	1773718.55	21391.30
610.00	1939947.91	22601.30
611.00	2114399.67	23811.30
612.00	2297144.72	25021.30

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 16.1

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
1	584.70	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	591.90	1451.79	2108.05	.00	.00	.00		
1	596.65	6499.03	3500.00	.00	.00	.00	8.75	590.43
2	597.23	7180.32	4100.00	.00	.00	.00	10.25	590.62
3	599.52	9918.85	7000.00	.00	.00	.00	17.50	591.31

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

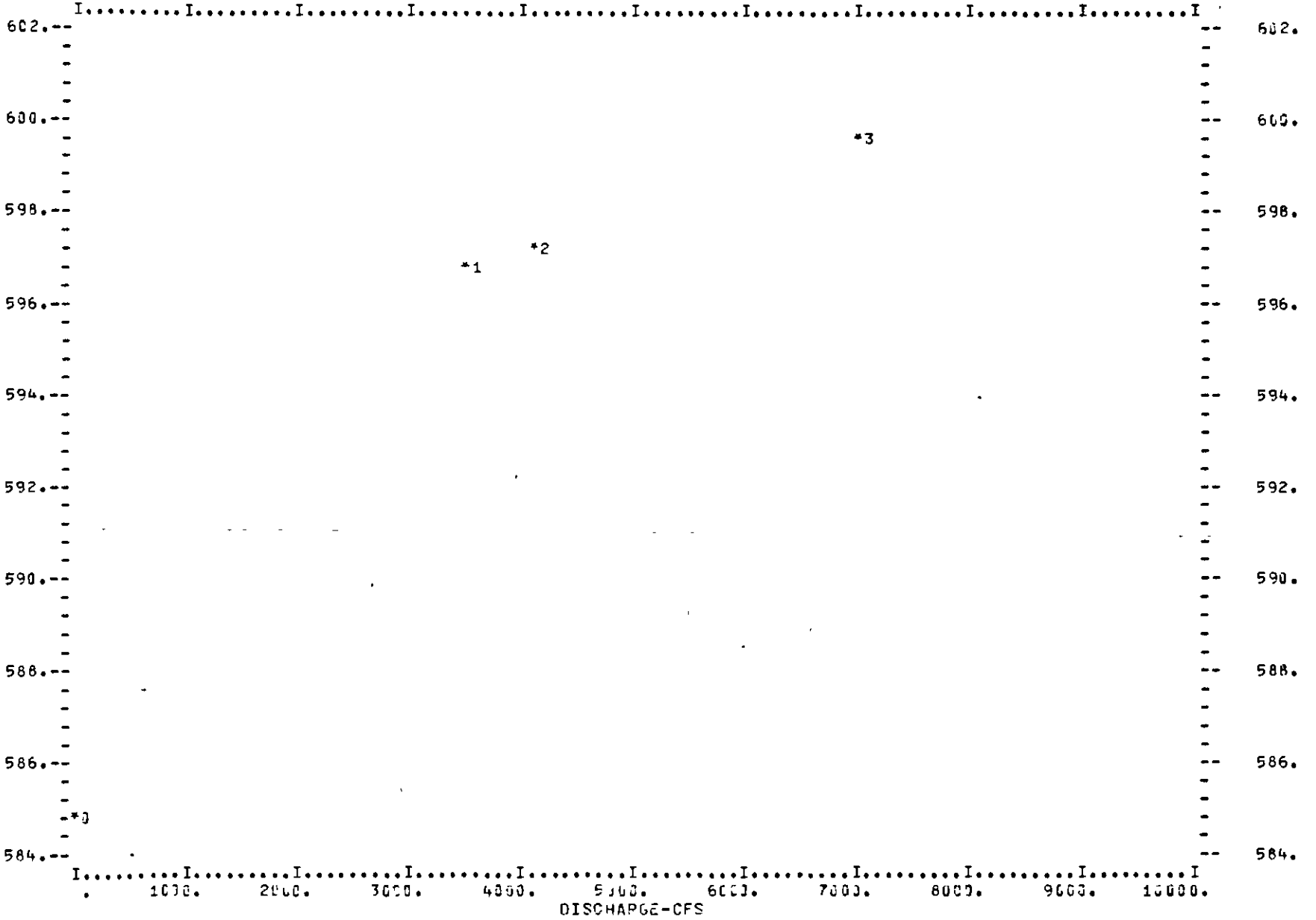
PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

SEGMENT TABLE
CROSS SECTION 16.1
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	36.67	1520.51	1942.82
8.75	VELOCITY FPS	1.05	.25	1.54	.36
CORRECT WEIGHTED VEL =		1.05			
	DISCHARGE CFS	4100.00	43.49	1704.97	2345.54
10.25	VELOCITY FPS	1.10	.27	1.63	.39
CORRECT WEIGHTED VEL =		1.09			
	DISCHARGE CFS	7000.00	117.82	2570.78	4311.39
17.50	VELOCITY FPS	1.28	.38	1.99	.52
CORRECT WEIGHTED VEL =		1.27			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 16.1
SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 16.7

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	586.50	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	594.80	2638.44	2581.45	.00	.00	.00		
1	597.33	7265.94	3500.00	.00	.00	.00	8.75	590.19
2	597.88	8330.12	4100.00	.00	.00	.00	10.25	590.48
3	600.13	12888.99	7000.00	.00	.00	.00	17.50	591.72

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 16.7

ELEVATION	KD	AREA
586.50	0.00	0.00
587.00	120.30	10.37
588.00	2158.65	86.26
589.00	8512.00	213.40
590.00	18814.70	356.14
591.00	33201.94	508.54
592.00	50941.93	665.83
593.00	71907.13	857.47
594.00	100318.02	1536.24
595.00	147600.63	2977.06
596.00	219307.67	4746.79
597.00	314312.76	6627.16
598.00	428295.06	8572.85
599.00	560627.91	10580.91
600.00	712634.91	12625.36
601.00	884160.49	14682.45
602.00	1070680.60	16741.55
603.00	1271707.80	18802.67
604.00	1487099.07	20865.71
605.00	1717736.89	22930.27
606.00	1961814.48	24996.65
607.00	2217560.54	27065.38
608.00	2487075.25	29135.68
609.00	2769742.43	31207.56
610.00	3062795.67	33281.96
611.00	3368873.68	35357.86
612.00	3687351.86	37435.25
613.00	4015556.87	39515.27
614.00	4356531.24	41596.40
615.00	4708017.70	43679.44
616.00	5069793.69	45764.48
617.00	5443887.95	47850.37
618.00	5826473.71	49939.00
619.00	6221494.37	52028.24
620.00	6624784.20	54120.21
621.00	7039608.37	56213.08
622.00	7463566.36	58308.08
623.00	7897596.36	60404.68
624.00	8341383.09	62502.89
625.00	8794856.60	64602.77
626.00	9257749.56	66704.35
627.00	9730103.38	68807.61
628.00	*211661.78	70912.55
629.00	*702483.69	73019.18
630.00	*202329.13	75127.49
631.00	*713360.32	77235.81
632.00	*235567.76	79344.12
633.00	*768942.20	81452.44

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

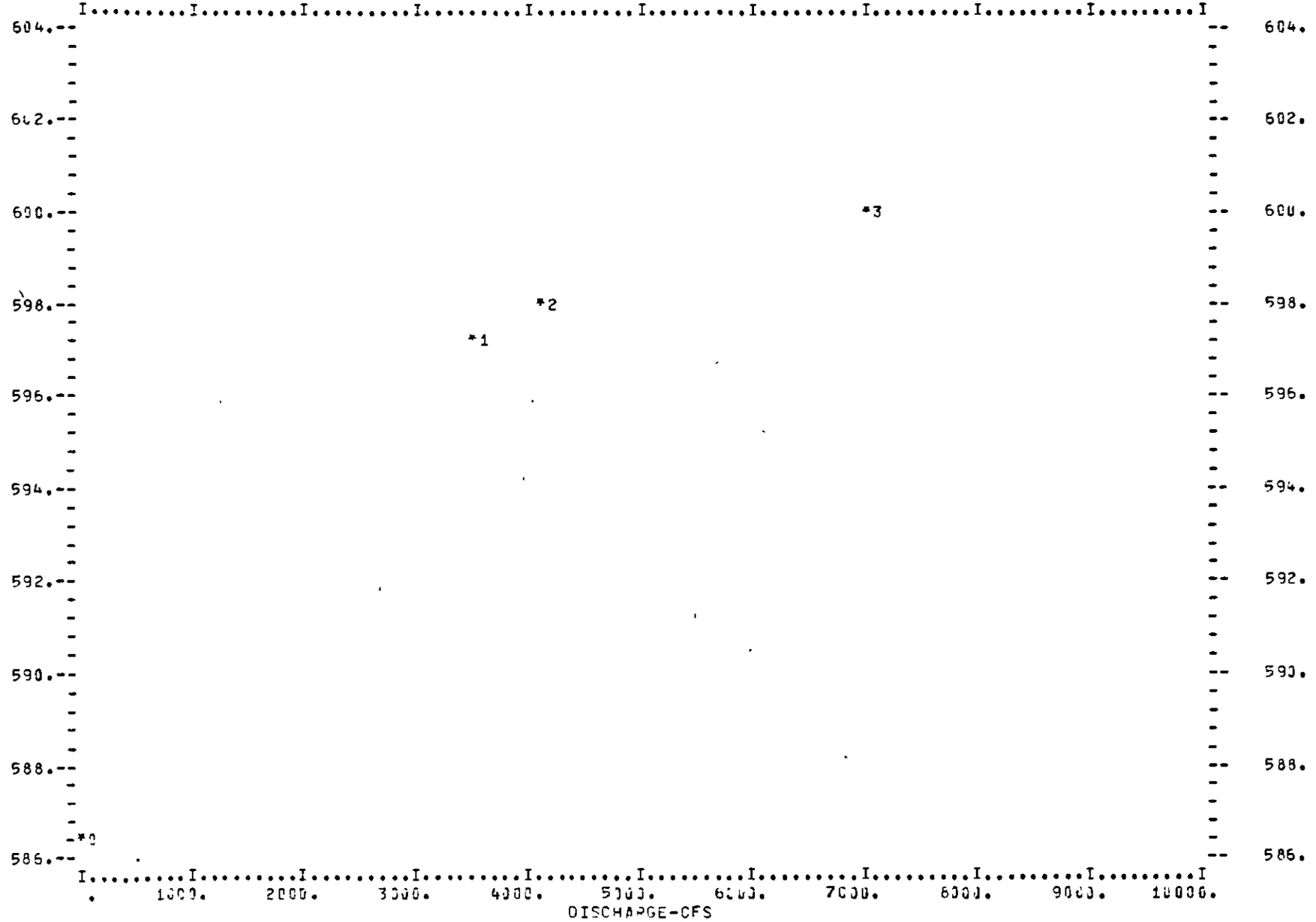
SEGMENT TABLE
CROSS SECTION 16.7
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3800.00	957.52	1999.47	543.03
8.75	VELOCITY FPS	.98	.28	1.27	.24
CORRECT WEIGHTED VEL =		.98			
	DISCHARGE CFS	4100.00	1211.29	2186.53	702.38
10.25	VELOCITY FPS	.99	.30	1.31	.27
CORRECT WEIGHTED VEL =		.98			
	DISCHARGE CFS	7000.00	2437.74	2995.04	1567.22
17.51	VELOCITY FPS	1.00	.39	1.45	.34
CORRECT WEIGHTED VEL =		.99			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 16.7

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 16.9

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
J	587.60	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	595.80	3423.40	2807.86	.00	.00	.00		
1	597.82	6796.33	3500.00	.00	.00	.00	8.75	593.33
2	598.33	7657.62	4100.00	.00	.00	.00	10.25	593.46
3	600.53	11390.44	7000.00	.00	.00	.00	17.50	594.05

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 16.9

ELEVATION	KD	AREA
587.60	0.00	0.00
588.00	71.08	7.15
589.00	1883.76	63.52
590.00	5831.59	129.56
591.00	11566.12	210.92
592.00	18916.35	277.15
593.00	28197.80	437.21
594.00	44557.88	1078.67
595.00	74058.92	2214.19
596.00	125662.97	3750.52
597.00	197647.38	5407.65
598.00	288359.97	7099.15
599.00	394678.47	8795.65
600.00	514791.24	10497.35
601.00	648977.01	12203.28
602.00	796250.96	13912.95
603.00	954419.89	15622.95
604.00	1124513.55	17332.95
605.00	1304698.50	19042.95
606.00	1498638.16	20752.95
607.00	1701281.42	22462.95
608.00	1913616.55	24172.95
609.00	2136514.49	25882.95
610.00	2369536.56	27592.95
611.00	2610086.14	29302.95
612.00	2863444.55	31012.95
613.00	3129726.97	32722.95
614.00	3409044.87	34432.95

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

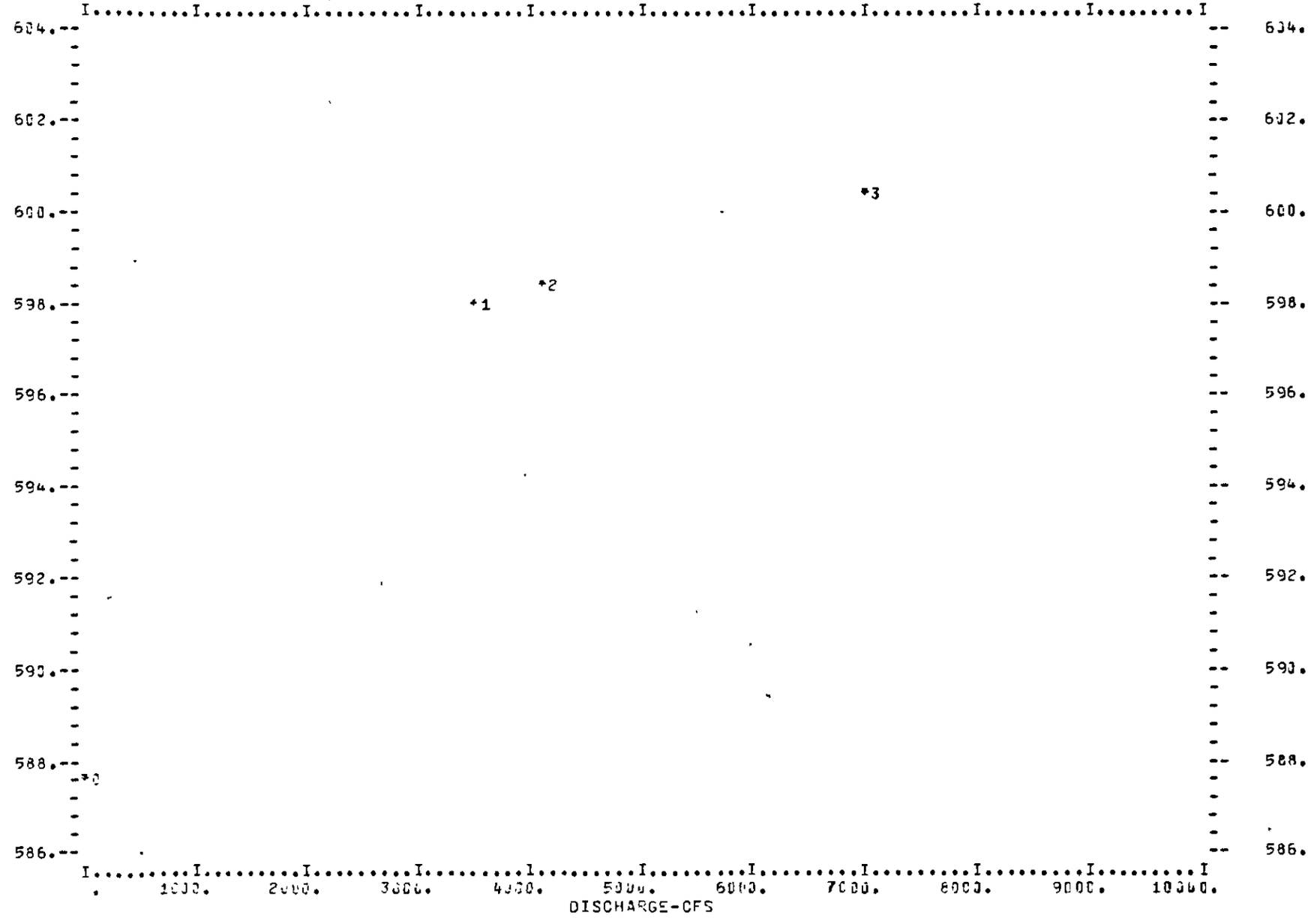
SEGMENT TABLE
CROSS SECTION 15.9
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	135.24	1211.40	2153.35
8.75 VELOCITY FPS	.96	.28	1.54	.39
CORRECT WEIGHTED VEL =	.96			
DISCHARGE CFS	4100.00	183.23	1319.16	2597.60
10.25 VELOCITY FPS	.96	.31	1.58	.42
CORRECT WEIGHTED VEL =	.96			
DISCHARGE CFS	7000.00	439.38	1798.72	4761.90
17.50 VELOCITY FPS	.98	.42	1.72	.51
CORRECT WEIGHTED VEL =	.98			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 16.9

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 17.0

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
3	585.97	0.00	0.00	0.00	0.00	0.00	0.00	
1	598.63	657.77	3500.00	.00	.00	.00	8.75	594.29
2	599.17	724.13	4100.00	.00	.00	.00	10.25	595.03
3	6 1.27	1003.17	7000.00	.00	.00	.00	17.50	597.60

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 17.0

ELEVATION	KD	AREA
585.00	0.00	0.00
586.00	2.60	.11
587.00	131.97	6.79
588.00	729.36	24.31
589.00	2130.56	51.62
590.00	4362.16	84.25
591.00	7368.17	121.89
592.00	11198.40	164.06
593.00	15910.27	210.80
594.00	21447.64	262.61
595.00	26767.99	321.57
596.00	33104.86	392.29
597.00	40462.52	478.18
598.00	50841.77	580.71
599.00	64088.30	702.65
600.00	81573.84	831.24
601.00	101622.87	965.72
602.00	124382.51	1105.19
603.00	149099.09	1248.78
604.00	177533.49	1395.56
605.00	206976.97	1546.73
606.00	238614.42	1700.84
607.00	272380.39	1857.88
608.00	307960.18	2019.32
609.00	345556.40	2184.43
610.00	385251.58	2351.76
611.00	425131.16	2524.91
612.00	466963.13	2702.31
613.00	510703.27	2883.94
614.00	552508.62	3077.90
615.00	598[illegible]4.78	3275.68
616.00	653121.40	3479.16
617.00	710619.51	3685.54
618.00	770494.51	3895.13
619.00	832515.19	4108.82
620.00	897.81.82	4324.32
621.00	947273.26	4547.23
622.00	999178.53	4772.55
623.00	1375209.84	5012.10
624.00	1154676.76	5251.66
625.00	1236822.96	5491.26
626.00	1322177.17	5730.86
627.00	1407891.90	5970.46
628.00	1496738.77	6223.34
629.00	1587374.93	6595.59
630.00	1682961.45	7045.16
631.00	1798357.03	8188.74
632.00	1918871.96	9332.33
633.00	2044614.90	10475.91
634.00	2175694.41	11619.49

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

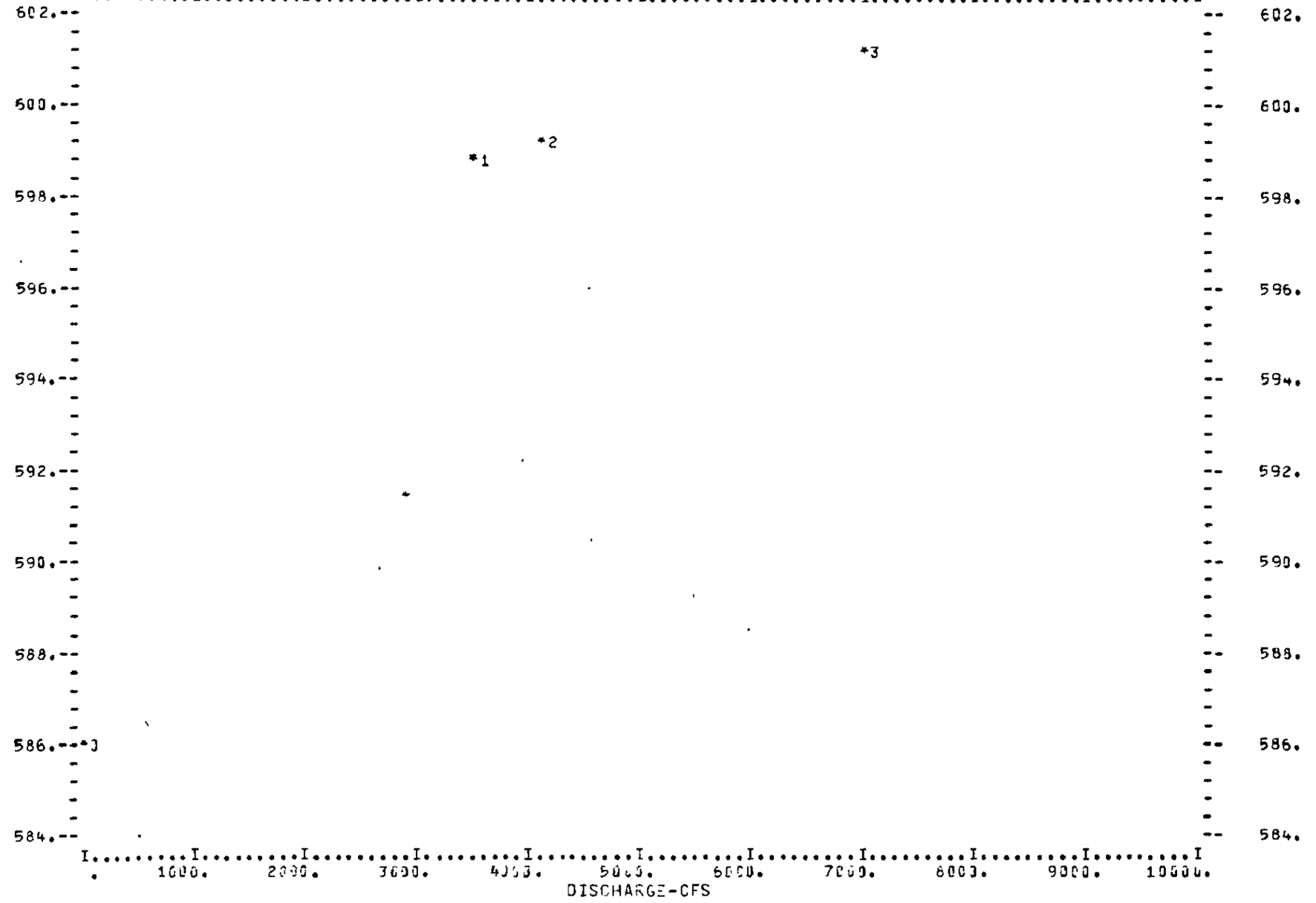
SEGMENT TABLE
CROSS SECTION 17.0
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	.00	3500.00	.00
8.75	VELOCITY FPS	5.34	.00	5.32	.00
CORRECT WEIGHTED VEL =		5.32			
	DISCHARGE CFS	4100.00	.00	4100.00	.00
10.25	VELOCITY FPS	5.67	.00	5.66	.00
CORRECT WEIGHTED VEL =		5.66			
	DISCHARGE CFS	7000.00	.00	7000.00	.00
17.50	VELOCITY FPS	6.99	.00	6.98	.00
CORRECT WEIGHTED VEL =		6.98			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 17.0

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 17.9

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	588.40	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	596.40	164.81	2469.81	.00	.00	.00		
1	599.74	2671.29	3500.00	.00	.00	.00	8.75	593.74
2	600.33	3149.37	4100.00	.00	.00	.00	10.25	594.19
3	612.66	5161.13	7000.00	.00	.00	.00	17.50	597.17

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 17.9

ELEVATION	KD	AREA
588.40	0.00	0.00
589.00	68.71	5.02
590.00	887.77	36.96
591.00	3802.69	102.77
592.00	9138.80	176.83
593.00	16183.53	255.49
594.00	24926.34	338.07
595.00	35253.62	425.32
596.00	47295.40	522.02
597.00	63195.29	624.43
598.00	85778.29	1397.38
599.00	116293.15	2098.43
600.00	154549.19	2883.81
601.00	200149.69	3720.17
602.00	253489.58	4582.14
603.00	314511.23	5454.96
604.00	381730.22	6331.97
605.00	454269.82	7214.23
606.00	532344.51	8101.02
607.00	616269.85	8991.40
608.00	705730.62	9885.45
609.00	799441.95	10785.62
610.00	898582.56	11689.46
611.00	1002717.12	12596.98
612.00	1111469.11	13509.47
613.00	1225195.18	14424.64
614.00	1343943.64	15341.51
615.00	1466284.06	16262.70
616.00	1592948.22	17185.61
617.00	1723147.24	18111.22
618.00	1856771.74	19044.72
619.00	1995220.86	19980.20
620.00	2139.40.48	20915.68
621.00	2288259.06	21851.16
622.00	2442904.34	22786.64

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

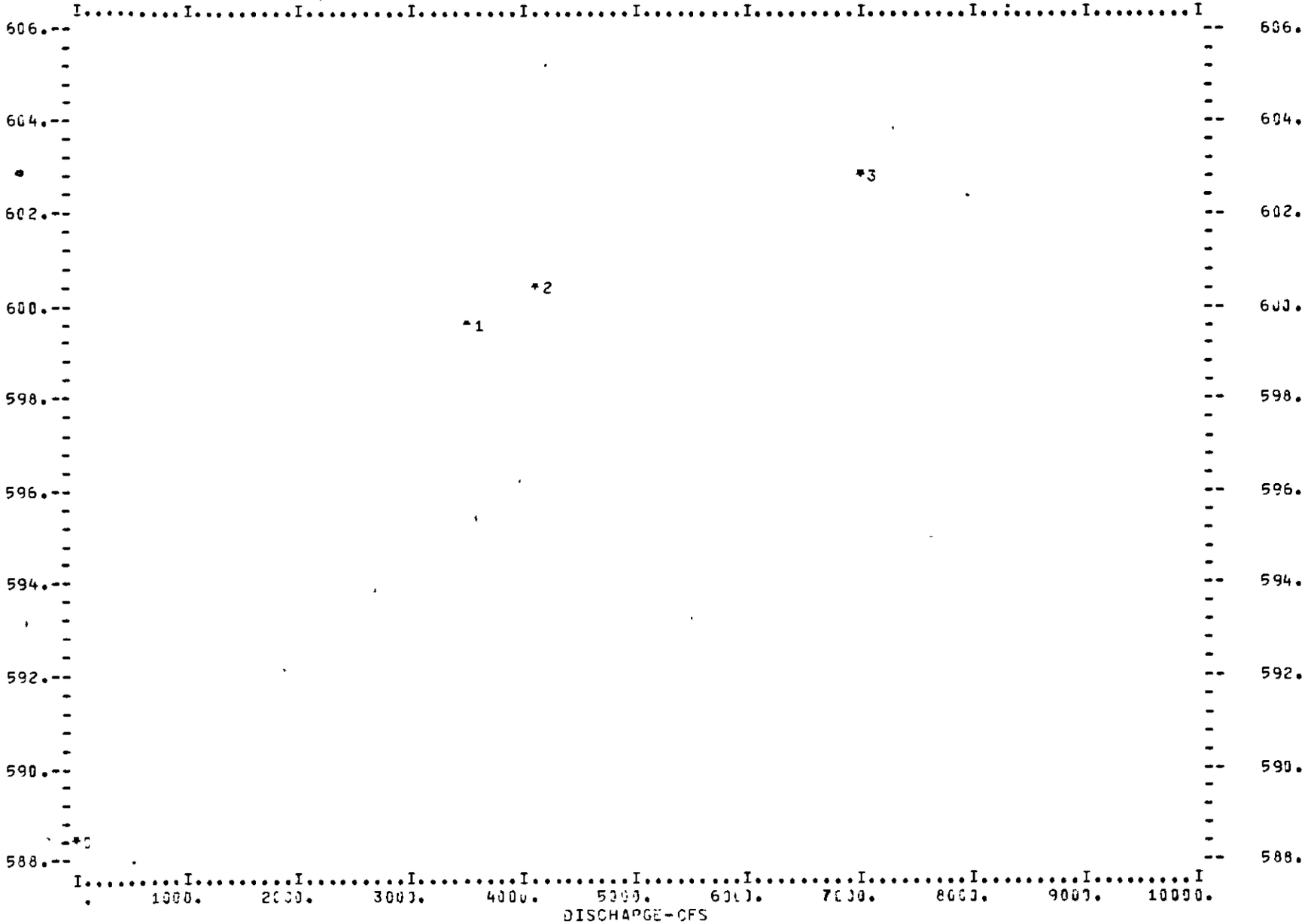
SEGMENT TABLE
CROSS SECTION 17.9
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	89.43	2674.98	735.59
8.75 VELOCITY FPS	2.73	.38	3.09	.47
CORRECT WEIGHTED VEL =	2.71			
DISCHARGE CFS	4100.00	135.73	2970.89	993.38
10.25 VELOCITY FPS	2.76	.44	3.22	.52
CORRECT WEIGHTED VEL =	2.76			
DISCHARGE CFS	7000.00	393.79	4162.83	2443.38
17.50 VELOCITY FPS	2.86	.66	3.65	.71
CORRECT WEIGHTED VEL =	2.85			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 17.9

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



COSEK	AKP	DLTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
.5442	.4413	.0498	.9315	.0000	.0531	.7618	1.0010	1.0000	1369.6905	3398.3885	5395.8272
DCRIT	591.34 KPCRIT =										
.6213	.5182	.0477	.9169	.0000	.0554	.7328	1.0010	1.0000	1462.2972	3865.0082	5915.2648
DCRIT	591.80 KPCRIT =										
.8730	.7890	.0410	.8632	.0000	.0430	.6421	1.0010	1.0000	1830.7403	5798.7850	7973.8480
DCRIT	594.00 KPCRIT =										

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 18.0

NO.	HW	CFS	HL	TW	CSM
0	595.30	0.00	0.00	0.00	0.00
1	599.93	3500.00	.10	599.83	8.75
2	600.54	4100.00	.12	600.42	10.25
3	603.02	7000.00	.26	602.76	17.50

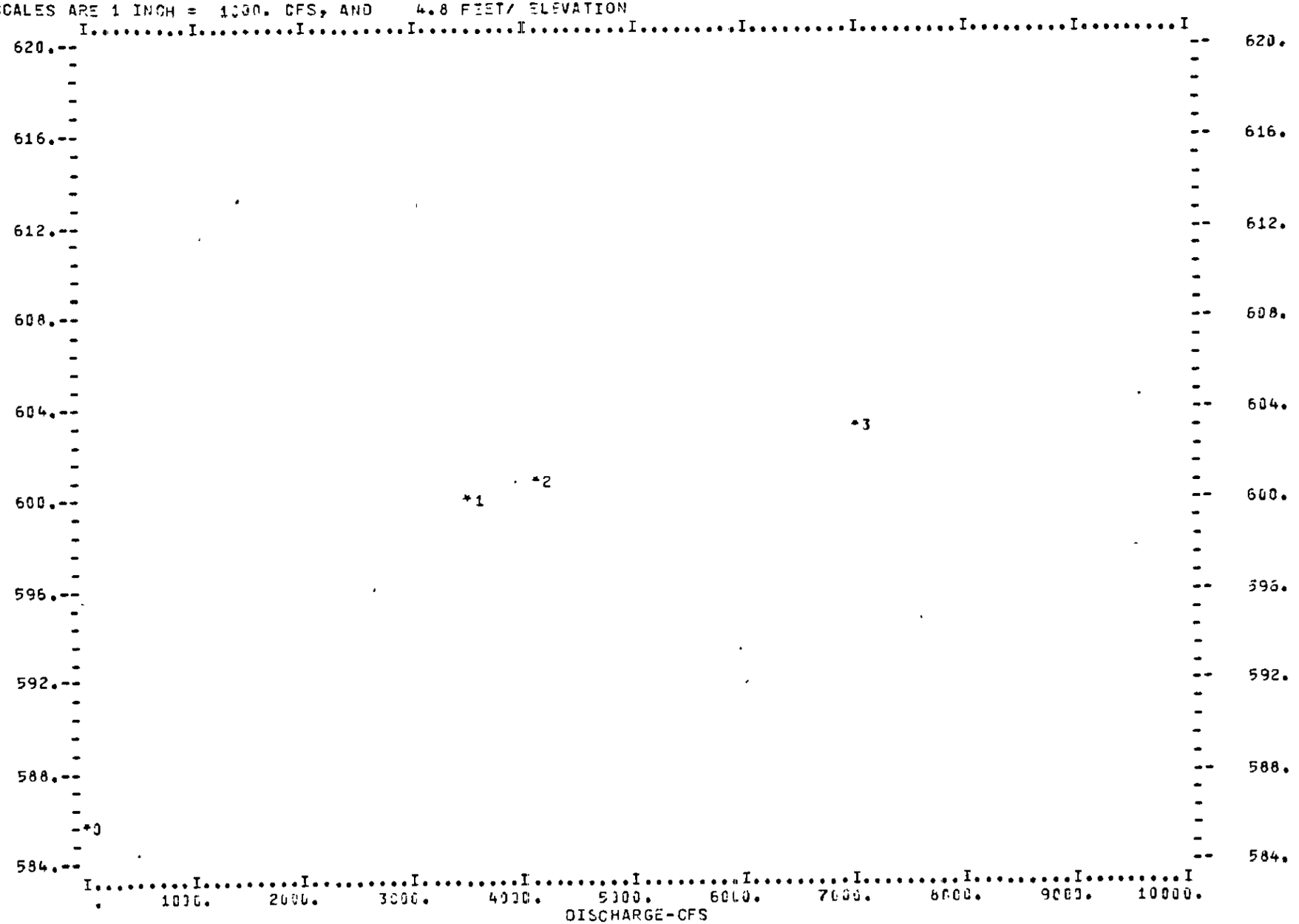
MIN ROAD ELEVATION 606.40

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 603.70 OPENING NO.= 1

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 18.0

SCALES ARE 1 INCH = 1000. CFS, AND 4.8 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 18.1

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
1	585.90	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	596.10	681.53	2525.07	.00	.00	.00		
1	600.04	3016.24	3500.00	.00	.00	.00	8.75	592.23
2	600.65	3472.90	4100.00	.00	.00	.00	10.25	592.73
3	603.12	5387.07	7000.00	.00	.00	.00	17.50	594.79

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 18.1

ELEVATION	KD	AREA
585.90	0.00	0.00
586.00	4.05	.33
587.00	407.49	19.00
588.00	1927.41	54.38
589.00	4684.57	100.86
590.00	8768.78	155.58
591.00	14208.23	218.27
592.00	21101.39	287.36
593.00	29556.68	362.27
594.00	39481.72	442.74
595.00	50711.20	529.92
596.00	63443.99	653.47
597.00	80264.73	967.71
598.00	106115.78	1590.69
599.00	140210.74	2270.00
600.00	180521.43	2988.60
601.00	227365.61	3746.10
602.00	280873.63	4511.87
603.00	340688.95	5295.05
604.00	406156.47	6086.12
605.00	476322.22	6888.13
606.00	552080.21	7697.42
607.00	632972.17	8514.00
608.00	718242.90	9341.50
609.00	808250.12	10178.12
610.00	903666.92	11020.02
611.00	1002874.46	11874.42
612.00	1107044.37	12735.76
613.00	1215983.71	13604.33
614.00	1328834.05	14484.79
615.00	1447531.93	15369.45
616.00	1572641.37	16260.00
617.00	1702393.17	17151.78
618.00	1836589.48	18044.78
619.00	1976757.29	18937.79
620.00	2122969.88	19830.78
621.00	2275299.19	20723.78

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

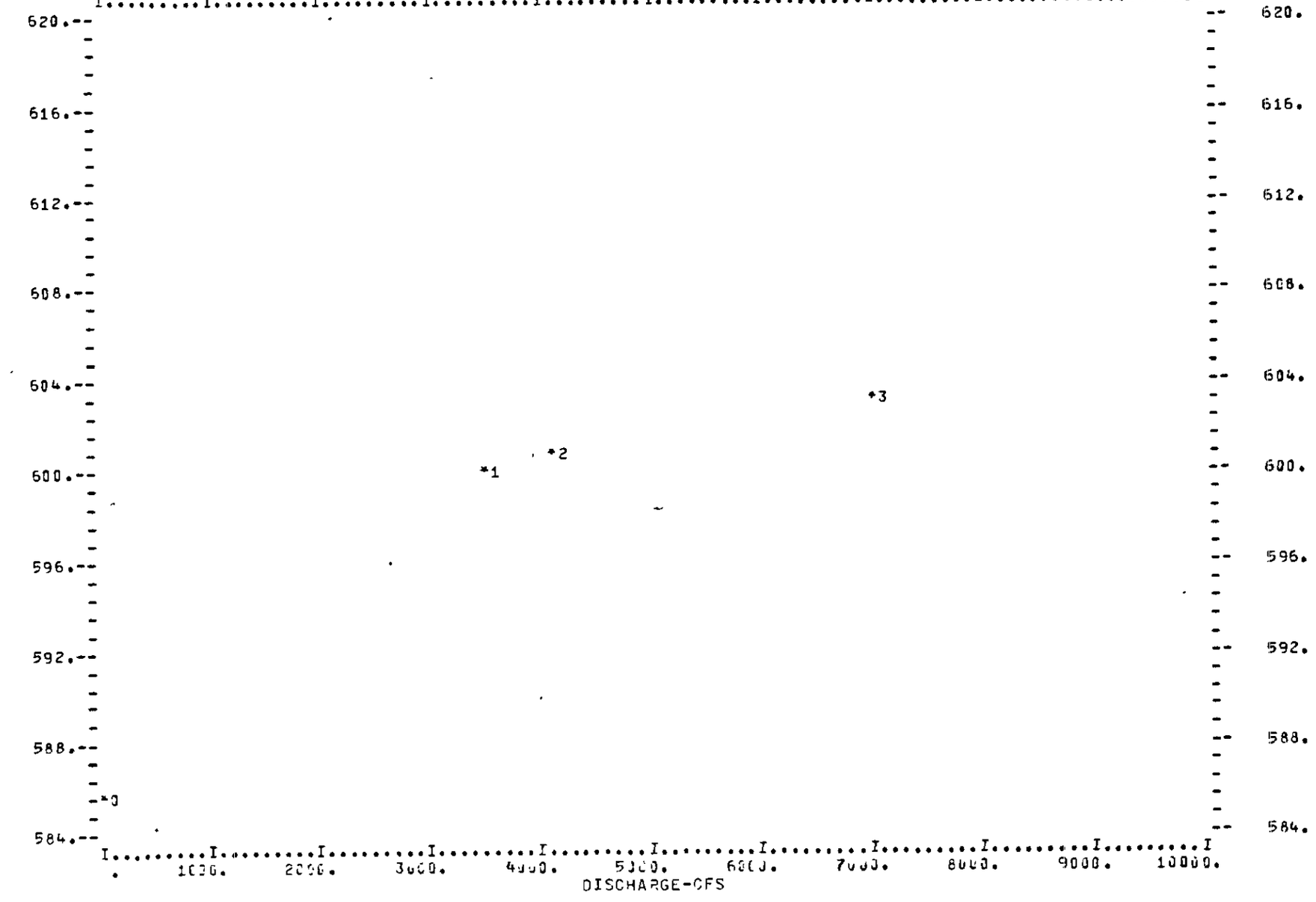
SEGMENT TABLE
CROSS SECTION 18.1
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
8.75	DISCHARGE CFS	3500.00	228.95	2680.38	590.67
	VELOCITY FPS	2.32	.44	2.63	.40
	CORRECT WEIGHTED VEL =	2.31			
10.25	DISCHARGE CFS	4100.00	300.66	2997.53	801.81
	VELOCITY FPS	2.40	.49	2.77	.45
	CORRECT WEIGHTED VEL =	2.38			
17.50	DISCHARGE CFS	7000.00	668.99	4358.58	1972.43
	VELOCITY FPS	2.63	.66	3.28	.65
	CORRECT WEIGHTED VEL =	2.62			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 18.1

SCALES ARE 1 INCH = 1000. CFS, AND 4.8 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 18.3

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	589.50	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	600.30	3672.68	3154.27	.00	.00	.00		
1	601.45	4624.78	3500.00	.00	.00	.00	8.75	596.44
2	602.07	5147.89	4100.00	.00	.00	.00	10.25	596.62
3	604.58	7230.91	7000.00	.00	.00	.00	17.50	597.05

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 18.3

ELEVATION	KD	AREA
589.51	0.00	0.00
590.00	60.28	5.08
591.00	943.24	33.52
592.00	3165.57	74.71
593.00	6513.91	121.01
594.00	11066.73	171.03
595.00	16692.50	222.95
596.00	23642.18	352.07
597.00	38034.57	993.69
598.00	63420.17	1787.08
599.00	98036.17	2660.28
600.00	140773.75	3424.20
601.00	191328.60	4254.06
602.00	249048.56	5285.75
603.00	313379.56	5917.86
604.00	383722.46	6750.41
605.00	459428.55	7533.46
606.00	540363.05	8417.00
607.00	626489.56	9251.01
608.00	718132.57	10285.43
609.00	814624.05	10920.23
610.00	915324.10	11755.65
611.00	1020989.87	12591.44
612.00	1131390.50	13427.63
613.00	1245530.40	14264.44
614.00	1364346.35	15101.61
615.00	1487607.96	15939.16
616.00	1616352.56	16778.77
617.00	1750205.49	17620.06
618.00	1888253.92	18464.71
619.00	2030236.34	19312.96
620.00	2176889.49	20162.75
621.00	2326859.93	21017.44
622.00	2481654.84	21873.21
623.00	2639518.77	22733.99
624.00	2801900.25	23596.20
625.00	2967871.68	24462.31
626.00	3137756.85	25331.30
627.00	3311477.58	26203.16
628.00	3488993.60	27078.04
629.00	3670218.31	27955.95
630.00	3855172.53	28836.88
631.00	4043779.20	29720.83
632.00	4236791.63	30604.79
633.00	4434285.46	31488.74
634.00	4636016.39	32372.70

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

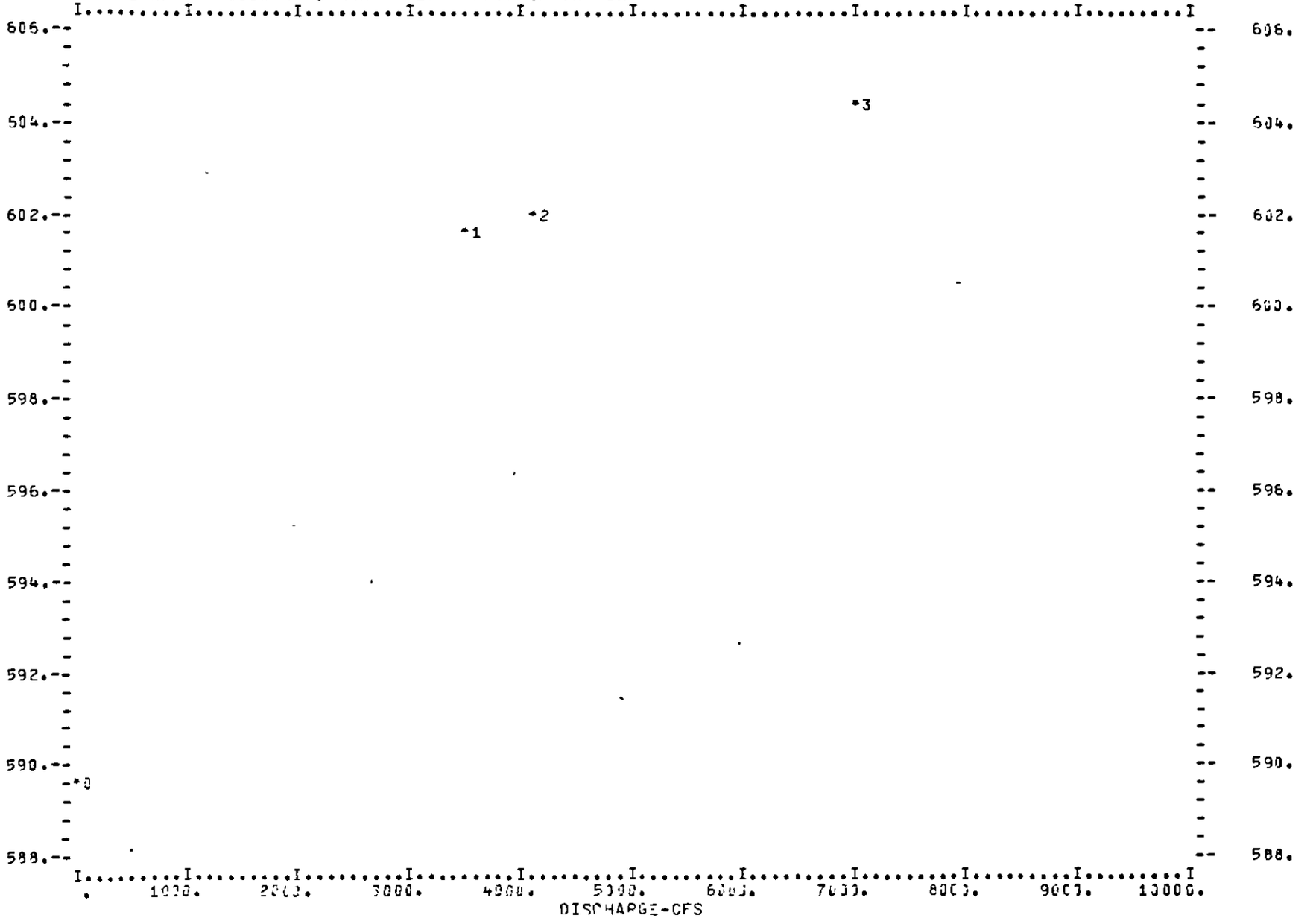
SEGMENT TABLE
CROSS SECTION 18.3
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	.00	1179.93	2320.07
8.75 VELOCITY FPS	1.25	.00	1.98	.58
CORRECT WEIGHTED VEL =	1.24			
DISCHARGE CFS	4100.00	.00	1298.34	2801.66
10.25 VELOCITY FPS	1.27	.00	2.05	.62
CORRECT WEIGHTED VEL =	1.26			
DISCHARGE CFS	7000.00	.00	1862.50	5137.50
17.50 VELOCITY FPS	1.40	.00	2.36	.80
CORRECT WEIGHTED VEL =	1.39			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 18.3

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 18.6

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	588.90	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	597.60	768.28	2294.11	.00	.00	.00		
1	602.17	6082.74	3500.00	.00	.00	.00	8.75	596.02
2	602.78	6826.54	4100.00	.00	.00	.00	10.25	597.24
3	605.26	9920.96	7000.00	.00	.00	.00	17.50	598.09

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 18.6

ELEVATION	KD	AREA
588.90	0.00	0.00
589.00	2.79	.12
590.00	146.47	7.16
591.00	774.66	25.66
592.00	2119.08	56.77
593.00	4758.19	106.89
594.00	9398.17	165.89
595.00	15393.41	228.37
596.00	22642.23	294.32
597.00	31407.06	421.04
598.00	46162.98	1058.03
599.00	79153.71	2223.67
600.00	126096.29	3429.58
601.00	186738.11	4645.62
602.00	257306.54	5870.00
603.00	337399.46	7103.48
604.00	427194.98	8345.05
605.00	526140.45	9594.72
606.00	633668.46	10852.72
607.00	749724.52	12118.40
608.00	872676.42	13394.69
609.00	1004144.95	14678.06
610.00	1143704.03	15968.51
611.00	1289858.38	17269.58
612.00	1442811.37	18579.49
613.00	1604269.05	19894.55
614.00	1771338.07	21221.74
615.00	1945956.17	22555.67
616.00	2127782.34	23896.35
617.00	2316727.32	25248.55
618.00	2514014.69	26604.45
619.00	2718936.32	27965.97
620.00	2930689.69	29331.16
621.00	3148979.24	30700.01
622.00	3373637.63	32073.99
623.00	3604280.42	33450.18
624.00	3840357.50	34832.96
625.00	4083836.80	36217.26
626.00	4331626.18	37608.52
627.00	4587336.44	39000.59
628.00	4847220.66	40403.00
629.00	5114360.09	41800.22
630.00	5385867.66	43207.78
631.00	5664419.25	44616.15
632.00	5947331.63	46031.85
633.00	6237397.23	47447.55
634.00	6534628.55	48863.26
635.00	6839037.83	50278.96

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

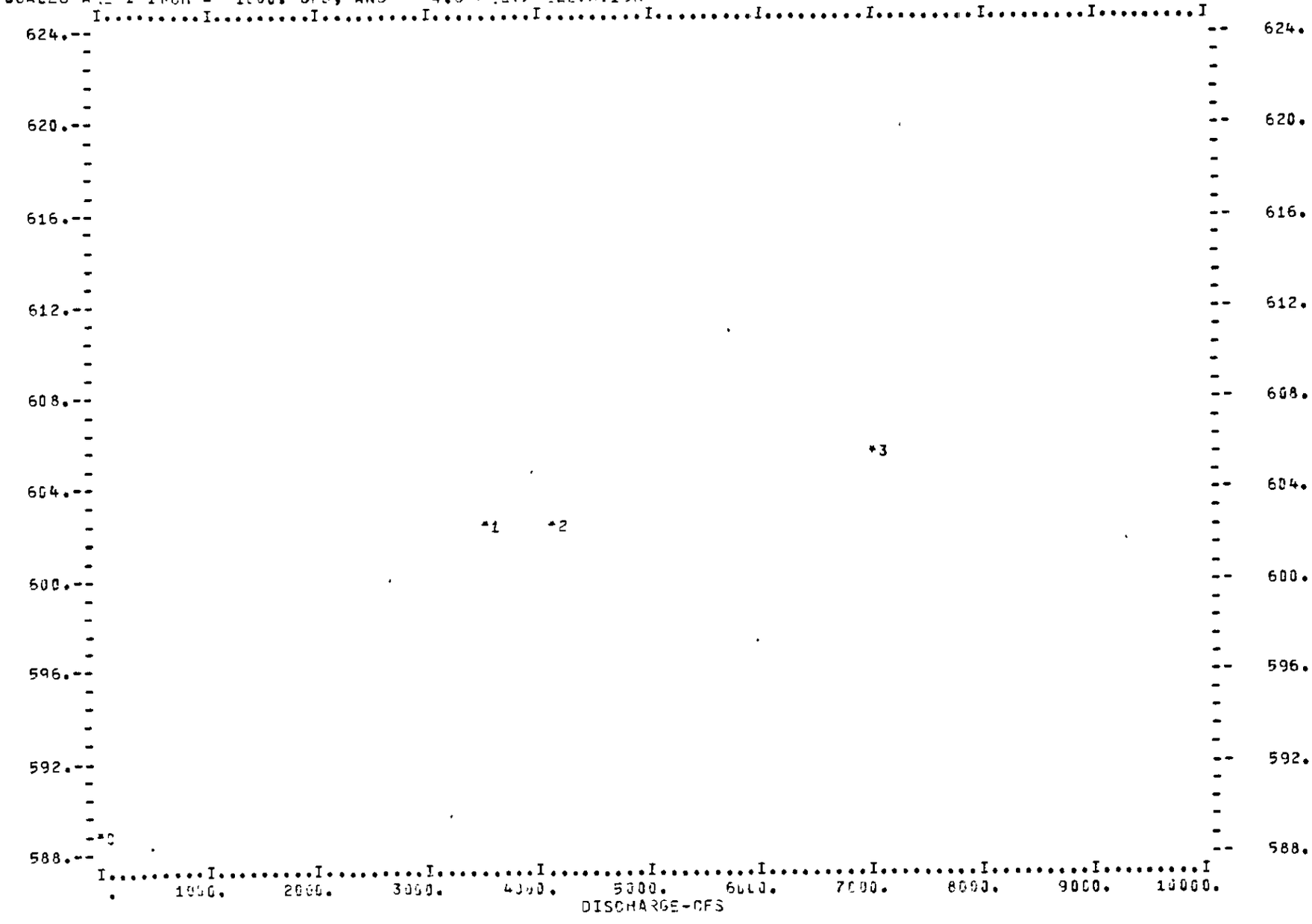
SEGMENT TABLE
CROSS SECTION 18.6
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3510.10	1448.81	1293.93	757.26
8.75 VELOCITY FPS	1.19	.41	1.73	.42
CORRECT WEIGHTED VEL =	1.10			
DISCHARGE CFS	4100.00	1764.40	1414.22	921.38
10.25 VELOCITY FPS	1.12	.44	1.78	.45
CORRECT WEIGHTED VEL =	1.10			
DISCHARGE CFS	7000.00	3303.58	1980.56	1715.86
17.50 VELOCITY FPS	1.18	.56	2.62	.57
CORRECT WEIGHTED VEL =	1.17			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 18.6

SCALES ARE 1 INCH = 1000. CFS, AND 4.8 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
5L,1JJ, AND 5JL YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 18.9

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
J	590.90	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	598.80	1346.68	2335.05	.00	.00	.00		
1	602.74	5544.80	3500.00	.00	.00	.00	8.75	597.73
2	613.34	6202.38	4101.00	.00	.00	.00	10.25	598.12
3	625.80	8922.65	7000.00	.00	.00	.00	17.50	598.49

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 18.9

ELEVATION	KD	AREA
590.00	0.00	0.00
591.00	3.57	.22
592.00	254.57	15.32
593.00	2004.68	62.97
594.00	5674.45	120.54
595.00	10765.13	181.65
596.00	17165.04	246.68
597.00	24915.24	331.25
598.00	35850.94	695.08
599.00	58755.36	1534.20
600.00	93793.54	2553.94
601.00	143527.43	3641.48
602.00	203700.19	4733.02
603.00	273500.64	5828.58
604.00	353625.06	6928.03
605.00	442108.23	8031.66
606.00	539060.76	9138.99
607.00	644064.11	10250.03
608.00	756695.75	11364.89
609.00	876919.98	12483.26
610.00	1003485.13	13606.50
611.00	1137607.47	14732.98
612.00	1278956.88	15862.70
613.00	1426236.81	16997.28
614.00	1580031.73	18135.92
615.00	1741168.76	19276.92
616.00	1907592.48	20423.47
617.00	2080748.25	21573.11
618.00	2260369.95	22725.84
619.00	2445218.65	23884.13
620.00	2636667.14	25045.00
621.00	2833625.56	26210.47
622.00	3036637.81	27379.42
623.00	3245501.26	28551.83
624.00	3459717.57	29729.12
625.00	3680191.03	30908.48
626.00	3905410.63	32094.10
627.00	4137012.28	33281.09
628.00	4373073.88	34474.17
629.00	4616170.93	35667.80
630.00	4863372.82	36866.37
631.00	5116830.58	38065.47
632.00	5374560.21	39269.43
633.00	5638385.50	40473.93
634.00	5906455.40	41683.27
635.00	6180651.83	42892.61
636.00	6461061.75	44101.96
637.00	6747592.23	45311.30

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

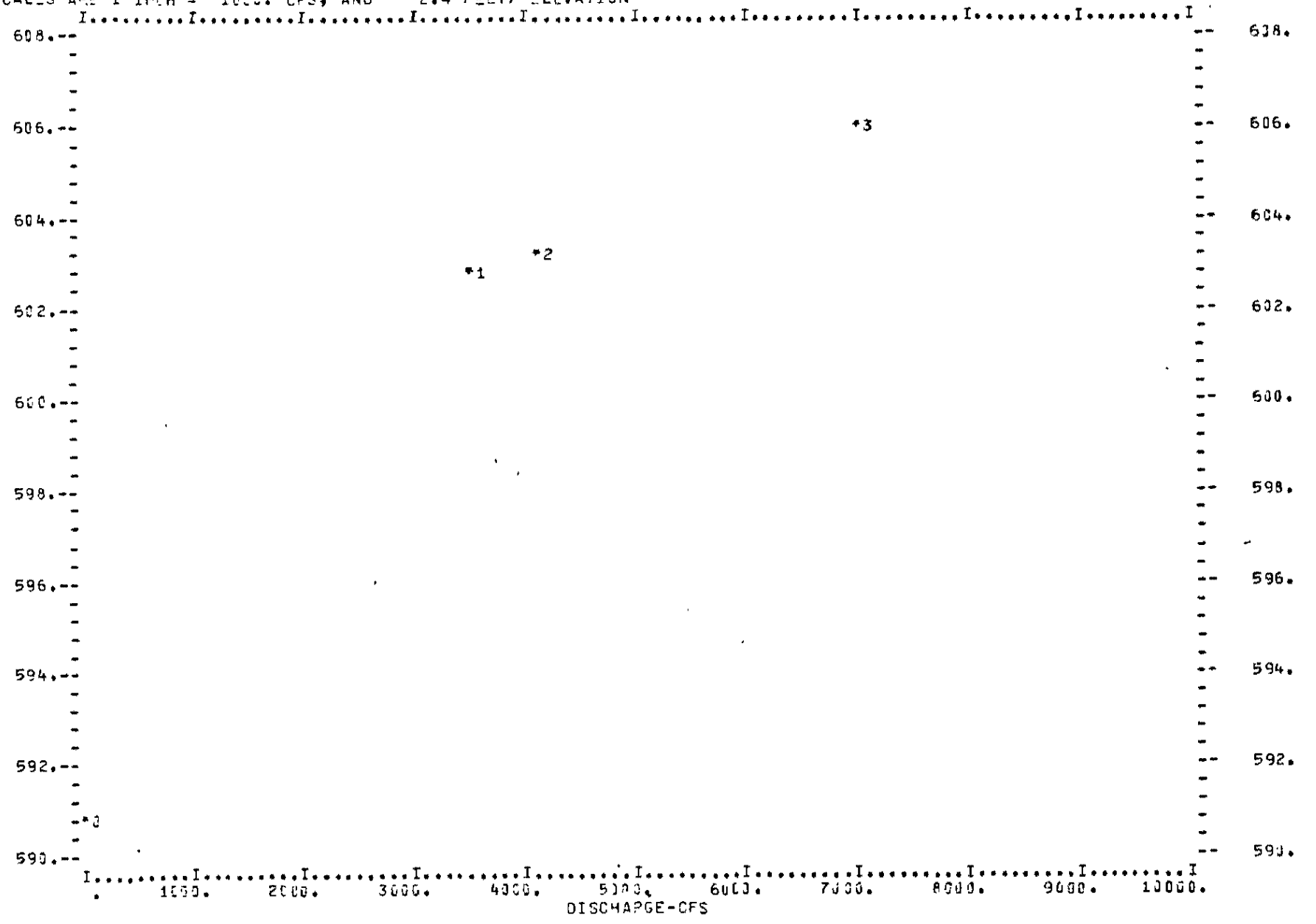
SEGMENT TABLE
CROSS SECTION 18.9
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	.00	1314.13	2185.87
8.75 VELOCITY FPS	1.12	.00	1.72	.46
CORRECT WEIGHTED VEL =	1.11			
DISCHARGE CFS	4100.00	.00	1448.38	2651.62
10.25 VELOCITY FPS	1.13	.00	1.77	.49
CORRECT WEIGHTED VEL =	1.13			
DISCHARGE CFS	7000.00	1.37	2087.89	4910.73
17.50 VELOCITY FPS	1.23	.19	2.03	.62
CORRECT WEIGHTED VEL =	1.23			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 18.9

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



CORFK	AKS	DLTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
1.6373	1.6373	.0000	.0000	.0000	.0000	.4194	1.0000	1.0000	791.9797	6226.2253	6339.7078
DCRIT	597.67 KSCRIT =										
1.7818	1.7818	.0000	.0000	.0000	.0000	.3868	1.0000	1.0000	849.4595	7142.3823	6998.0049
DCRIT	597.67 KSCRIT =										
2.1936	2.1936	.0000	.0000	.0000	.0000	.2994	1.0000	1.0000	1086.1173	11085.9113	9725.4466
DCRIT	597.09 KSCRIT =										

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 19.0

NO.	HW	CFS	HL	TW	CSM
0	599.20	0.00	0.00	0.00	0.00
1	603.18	3500.00	.42	602.76	8.75
2	603.74	4100.00	.38	603.36	10.25
3	606.07	7000.00	.24	605.83	17.50

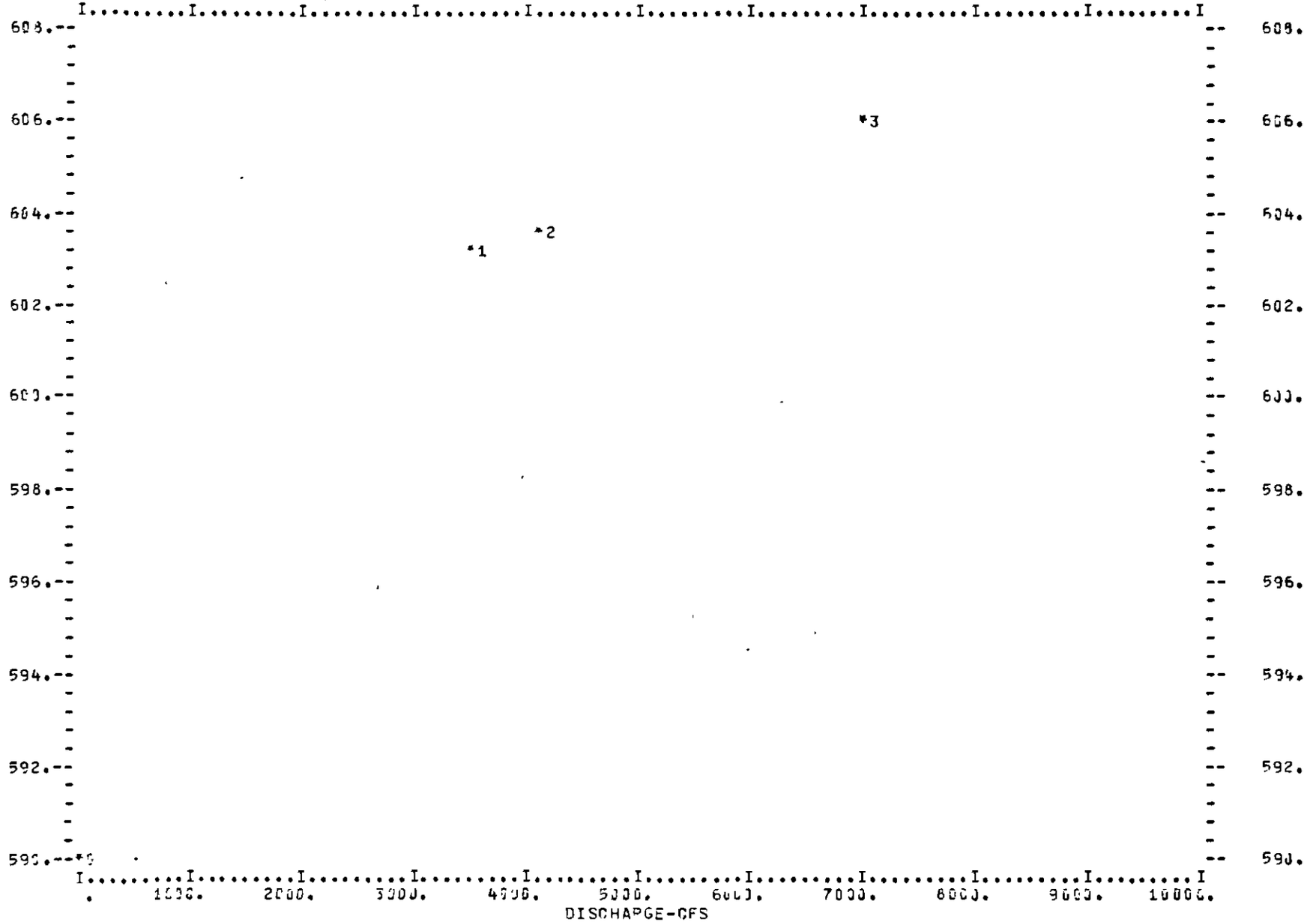
MIN ROAD ELEVATION 602.80

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 608.10 OPENING NO.= 1

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 19.0

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 19.1

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	598.30	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	599.30	753.98	2401.63	.00	.00	.00		
1	603.42	6400.31	3500.00	.00	.00	.00	8.75	597.34
2	603.97	7319.67	4100.00	.00	.00	.00	10.25	599.30
3	606.27	11220.93	7000.00	.00	.00	.00	17.50	599.64

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 19.1

ELEVATION	KO	AREA
590.30	0.00	0.00
591.00	157.53	8.77
592.00	1038.81	32.67
593.00	2833.19	66.43
594.00	5670.15	107.06
595.00	9486.42	153.92
596.00	14596.80	205.77
597.00	20714.46	261.28
598.00	27835.26	323.26
599.00	36791.90	630.75
600.00	55097.25	1540.36
601.00	89494.00	2823.01
602.00	138100.98	4227.36
603.00	196393.10	5749.66
604.00	268849.20	7371.57
605.00	357990.57	9058.37
606.00	459055.68	10761.15
607.00	572149.29	12481.05
608.00	696532.00	14219.50
609.00	822225.34	15972.93
610.00	964894.77	17734.39
611.00	1117567.09	19507.91
612.00	1279373.72	21285.79
613.00	1451956.23	23067.56
614.00	1632302.70	24854.01
615.00	182.873.41	26645.46
616.00	2019296.39	28439.76
617.00	2224116.87	30240.48
618.00	2437925.49	32044.78
619.00	2660279.54	33852.64
620.00	2888699.61	35667.33
621.00	3126958.89	37483.58
622.00	3370916.92	39307.05
623.00	3623356.69	41133.04
624.00	3881743.00	42964.90
625.00	4147221.75	44802.30
626.00	4419421.51	46645.24
627.00	4698353.96	48496.74
628.00	4985392.13	50351.91
629.00	5281759.96	52207.08
630.00	5587507.86	54062.25
631.00	5902685.21	55917.42

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

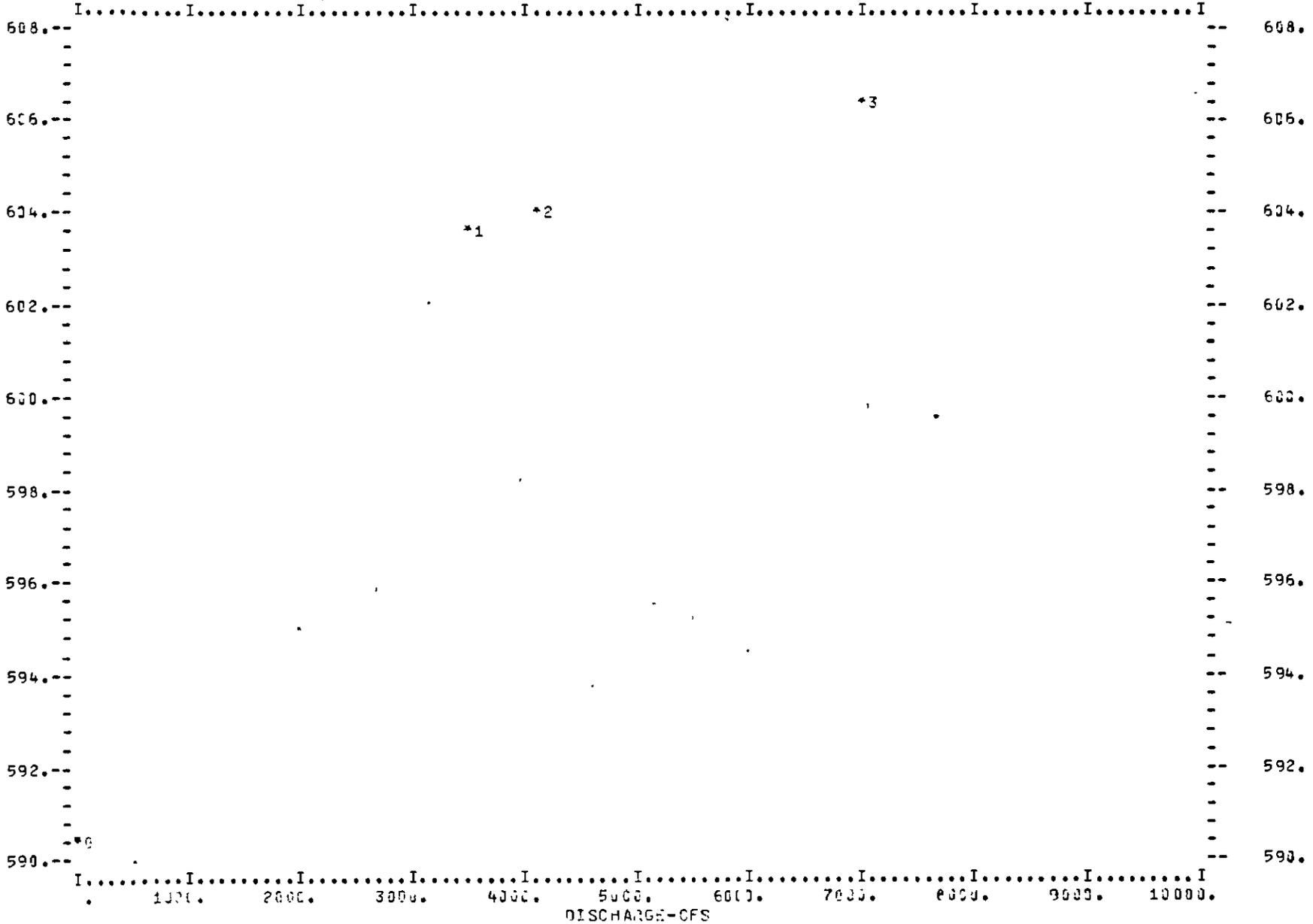
SEGMENT TABLE
CROSS SECTION 19.1
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 M	2 C	3 N
DISCHARGE CFS	3500.00	1575.25	1420.52	504.23
8.75 VELOCITY FPS	1.33	.36	2.03	.39
CORRECT WEIGHTED VEL =	1.33			
DISCHARGE CFS	4100.00	1962.32	1525.09	612.59
10.25 VELOCITY FPS	1.32	.38	2.07	.42
CORRECT WEIGHTED VEL =	1.30			
DISCHARGE CFS	7000.00	3871.92	2006.75	1121.33
17.50 VELOCITY FPS	1.27	.48	2.22	.51
CORRECTED WEIGHTED VEL =	1.26			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 19.1

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 19.25

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
1	592.75	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	602.40	497.76	2573.39	.00	.00	.00		
1	605.89	3912.58	3500.00	.00	.00	.00	8.75	599.48
2	606.39	4573.00	4100.00	.00	.00	.00	10.25	600.02
3	613.46	7522.80	7300.00	.00	.00	.00	17.50	602.99

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 19.25

ELEVATION	KD	AREA
592.70	0.00	0.00
593.00	17.82	1.60
594.00	396.35	15.61
595.00	1435.00	40.27
596.00	3237.66	81.70
597.00	7155.61	137.74
598.00	12562.27	196.96
599.00	19174.49	258.12
600.00	26865.52	321.51
601.00	35464.03	387.21
602.00	43837.71	461.42
603.00	54063.82	774.55
604.00	82664.38	1699.59
605.00	139045.69	2827.45
606.00	193568.71	4054.97
607.00	271442.33	5390.07
608.00	363496.71	6832.76
609.00	470624.96	8371.08
610.00	580928.39	10206.97
611.00	695835.51	12323.89
612.00	885847.20	14614.75
613.00	1097587.46	16918.12
614.00	1331546.07	19232.23
615.00	1584674.59	21558.86
616.00	1852660.16	23902.74
617.00	2142612.30	26254.66
618.00	2448311.72	28520.90
619.00	2770685.10	31001.45
620.00	3113392.66	33390.17
621.00	3468210.19	35797.29
622.00	3841071.25	38215.27
623.00	4239863.83	40644.11
624.00	4634618.71	43089.06
625.00	5057314.98	45540.90
626.00	5490799.96	48013.43
627.00	5944130.34	50490.57
628.00	6408271.11	52988.41
629.00	6890697.25	55493.35
630.00	7387569.71	58014.86
631.00	7903209.71	60541.72
632.00	8434043.38	63081.05
633.00	8985840.26	65620.39

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

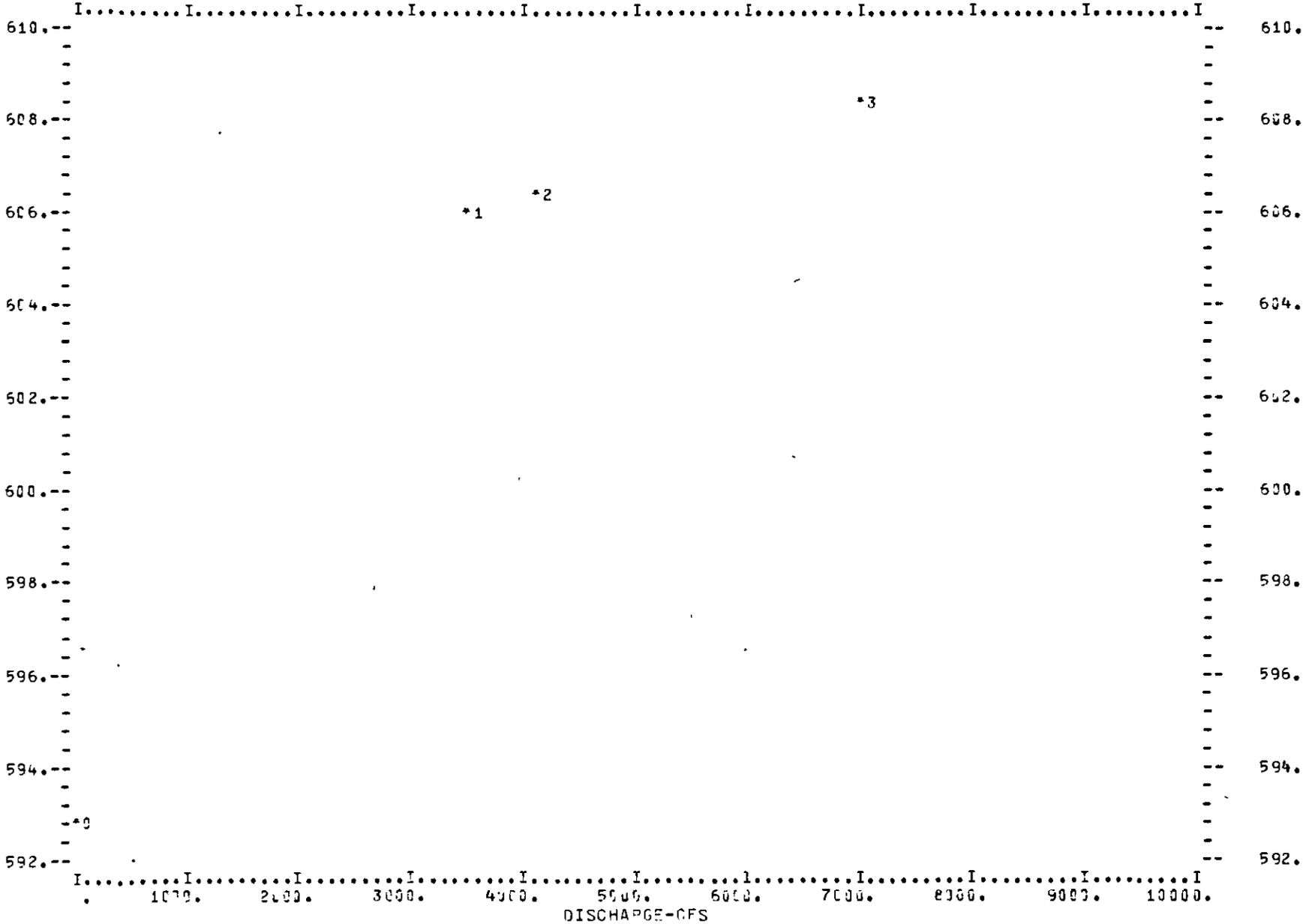
SEGMENT TABLE
CROSS SECTION 19.25
VELOCITY INCREMENT= .00 FPS

CSH	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	352.67	1848.27	1299.06
8.75 VELOCITY FPS	1.73	.54	2.33	.53
CORRECT WEIGHTED VEL =	1.73			
DISCHARGE CFS	4100.00	457.86	1966.28	1676.16
10.25 VELOCITY FPS	1.71	.59	2.35	.57
CORRECT WEIGHTED VEL =	1.68			
DISCHARGE CFS	7000.00	954.54	2534.04	3511.42
17.50 VELOCITY FPS	1.60	.73	2.49	.58
CORRECT WEIGHTED VEL =	1.59			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 19.25

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 19.3

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	592.20	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	602.80	1080.58	2622.33	.00	.00	.00		
1	606.35	4134.40	3500.00	.00	.00	.00	8.75	599.01
2	606.86	4586.94	4100.00	.00	.00	.00	10.25	599.60
3	609.98	6467.72	7000.00	.00	.00	.00	17.50	602.74

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 13.3

ELEVATION	KD	AREA
592.20	0.00	0.00
593.00	329.33	14.18
594.00	1424.76	40.46
595.00	3415.61	76.93
596.00	6497.84	119.77
597.00	10912.84	169.46
598.00	16433.74	222.79
599.00	22951.06	278.98
600.00	30437.86	338.05
601.00	38883.34	400.23
602.00	48803.41	578.06
603.00	67459.26	1234.31
604.00	98896.58	2579.43
605.00	140647.25	2950.90
606.00	191258.10	3828.33
607.00	249987.94	4710.44
608.00	315195.68	5596.37
609.00	389426.88	6486.13
610.00	468126.09	7381.06
611.00	553455.95	8279.34
612.00	646205.45	9180.97
613.00	744627.52	10087.05
614.00	847341.77	10997.60
615.00	956670.91	11911.65
616.00	1071684.11	12829.29
617.00	1191462.05	13752.03
618.00	1317398.63	14677.32
619.00	1447841.42	15607.70
620.00	1583571.36	16541.91
621.00	1725026.52	17478.57
622.00	1870195.58	18422.20
623.00	2021309.48	19367.16
624.00	2176636.49	20317.86
625.00	2337695.09	21271.43
626.00	2502199.60	22229.30
627.00	2672815.26	23190.85
628.00	2849155.28	24154.86
629.00	3029661.75	25121.59
630.00	3215745.71	26089.23
631.00	3405508.57	27059.62
632.00	3600104.41	28030.72
633.00	3798535.81	29004.57
634.00	4001645.53	29979.33
635.00	4208348.98	30956.84
636.00	4419989.69	31935.06
637.00	4637134.54	32913.28

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

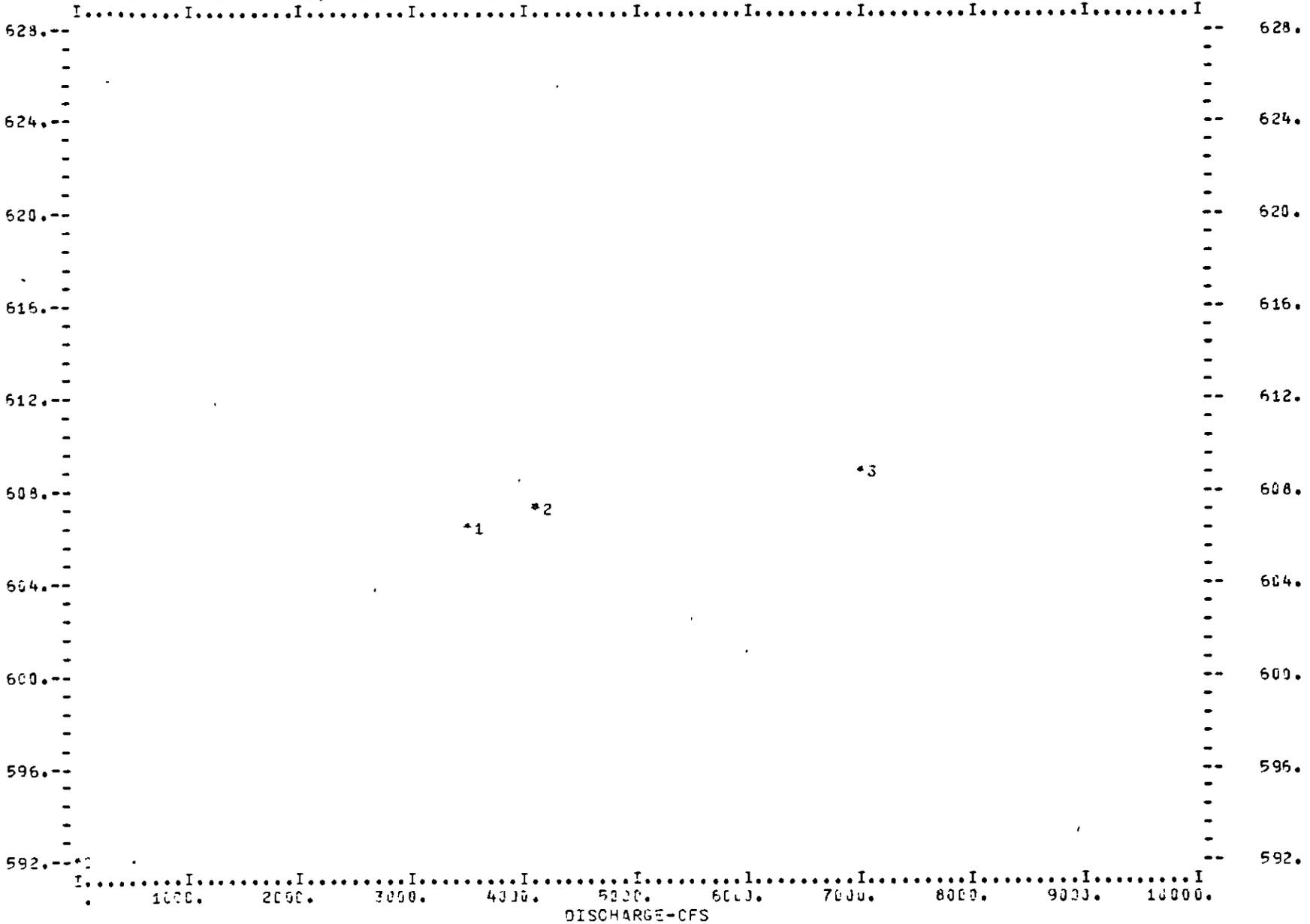
SEGMENT TABLE
CROSS SECTION 19.3
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
8.75	DISCHARGE CFS	3800.00	26.75	1775.21	1698.04
	VELOCITY FPS	1.71	.38	2.32	.51
CORRECT WEIGHTED VEL =		1.69			
13.25	DISCHARGE CFS	4100.00	35.94	1961.21	2102.85
	VELOCITY FPS	1.76	.42	2.45	.57
CORRECT WEIGHTED VEL =		1.75			
17.50	DISCHARGE CFS	7100.00	86.90	2770.93	4142.17
	VELOCITY FPS	1.94	.59	2.93	.77
CORRECT WEIGHTED VEL =		1.94			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 19.3

SCALES ARE 1 INCH = 1000. CFS, AND 4.8 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 19.4

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
1	592.40	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	602.10	1158.32	2379.61	.00	.00	.00		
1	606.52	8113.21	3500.00	.00	.00	.00	8.75	598.65
2	607.64	9064.45	4100.00	.00	.00	.00	10.25	599.16
3	609.17	13210.89	7000.00	.00	.00	.00	17.50	601.96

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 19.4

ELEVATION	KD	AREA
592.40	0.00	0.00
593.00	56.91	4.38
594.00	742.89	28.98
595.00	2819.89	75.39
596.00	6940.71	129.16
597.00	11533.98	189.47
598.00	17847.51	255.08
599.00	25621.21	326.46
600.00	34718.89	402.38
601.00	45626.31	568.56
602.00	64098.71	1158.32
603.00	100328.37	2334.90
604.00	158564.82	3828.54
605.00	236073.03	5456.02
606.00	333688.51	7180.28
607.00	449369.17	8993.86
608.00	583693.48	10884.75
609.00	732023.79	12972.16
610.00	902121.69	14936.15
611.00	1095114.56	17032.18
612.00	1311638.82	19147.56
613.00	1548[illegible]70.54	21279.50
614.00	1765953.76	23421.38
615.00	2048167.26	25573.43
616.00	2323236.24	27739.68
617.00	2613459.81	29917.29
618.00	2920311.60	32102.46
619.00	3236791.30	34306.57
620.00	3569619.75	36518.25
621.00	3915946.44	38741.28
622.00	4273573.65	40980.40
623.00	4648022.95	43223.55
624.00	5031016.72	45497.99
625.00	5430294.44	47756.69
626.00	5839894.69	50142.42
627.00	6263560.23	52336.67
628.00	6699111.37	54643.70
629.00	7147936.76	56964.04
630.00	7610932.25	59293.25
631.00	8090974.11	61630.75
632.00	8588124.51	63973.76
633.00	9096403.40	66322.27
634.00	9617372.16	68674.45
635.00	*154669.07	71026.63

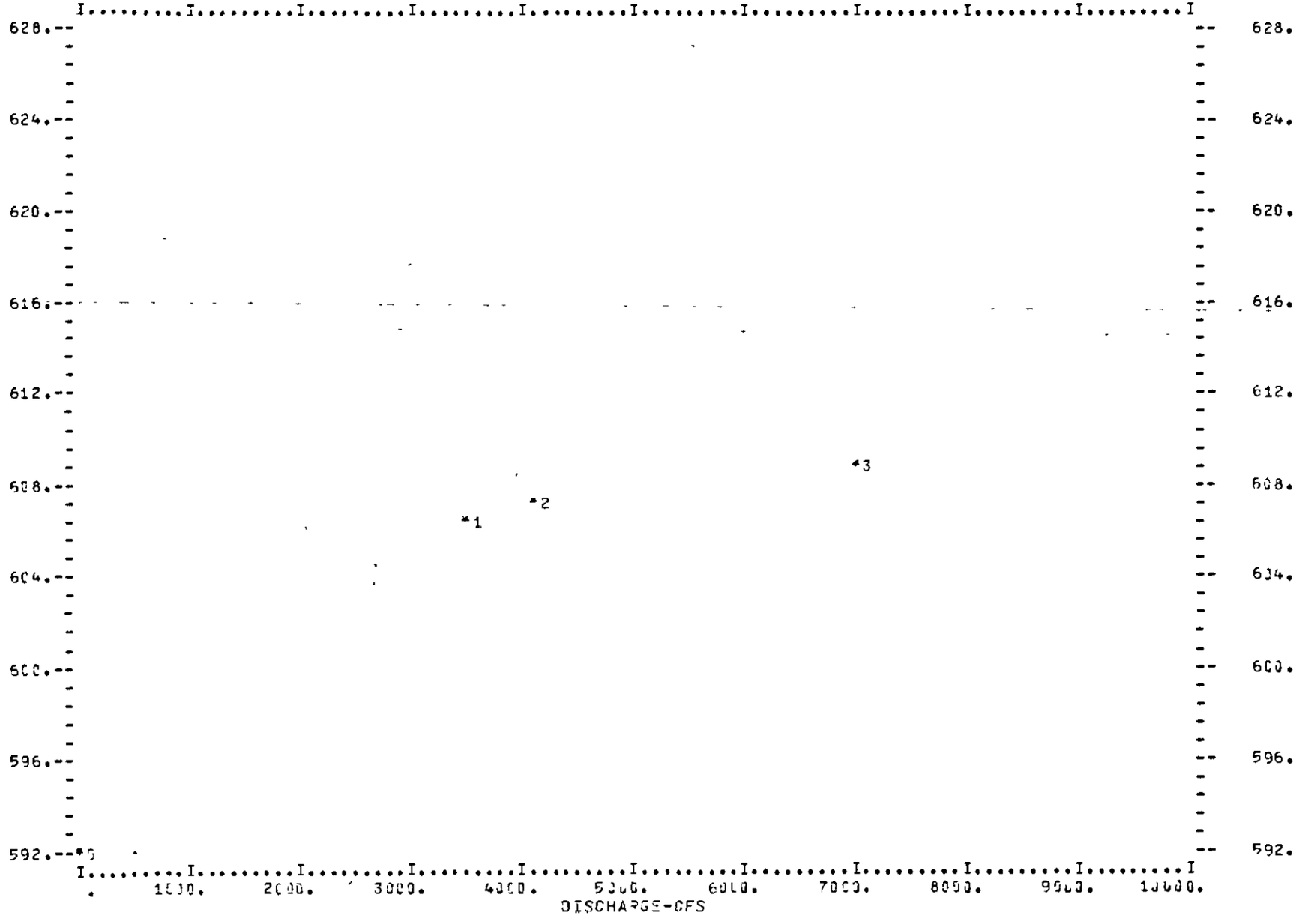
PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

SEGMENT TABLE
CROSS SECTION 19.4
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	933.69	1221.52	1344.79
8.75	VELOCITY FPS	.80	.32	1.27	.32
CORRECT WEIGHTED VEL =		.79			
	DISCHARGE CFS	4100.00	1139.71	1334.83	1625.46
10.25	VELOCITY FPS	.81	.35	1.32	.34
CORRECT WEIGHTED VEL =		.80			
	DISCHARGE CFS	7000.00	2148.39	1816.99	3034.32
17.50	VELOCITY FPS	.86	.45	1.52	.42
CORRECT WEIGHTED VEL =		.86			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 19.4
SCALES ARE 1 INCH = 1000. CFS, AND 4.8 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 19.7

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	595.70	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	614.70	927.34	2608.55	.00	.00	.00		
1	607.78	4431.20	3500.00	.00	.00	.00	8.75	601.94
2	608.29	5147.18	4100.00	.00	.00	.00	10.25	602.42
3	610.31	8031.34	7000.00	.00	.00	.00	17.50	604.85

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KQ TABLE
CROSS SECTION 19.7

ELEVATION	KQ	AREA
595.70	0.00	0.00
596.00	11.82	1.13
597.00	433.75	19.15
598.00	1881.79	54.57
599.00	4658.59	104.97
600.00	8984.66	166.15
601.00	15106.65	237.12
602.00	23146.03	312.55
603.00	32626.93	396.88
604.00	44462.04	620.38
605.00	62821.73	1213.53
606.00	95336.70	2231.93
607.00	143889.43	3431.64
608.00	208523.09	4743.77
609.00	284073.47	6141.68
610.00	377767.29	7581.08
611.00	483385.55	9033.43
612.00	601118.58	10493.90
613.00	729933.14	11961.76
614.00	870508.86	13435.53
615.00	1019622.97	14918.56
616.00	1178921.35	16408.79
617.00	1348650.01	17905.20
618.00	1527709.70	19408.81
619.00	1714445.84	20922.34
620.00	1911836.98	22440.50
621.00	2117418.44	23966.89
622.00	2331355.65	25501.51
623.00	2553675.83	27040.83
624.00	2785645.80	28590.74
625.00	3025135.40	30146.99
626.00	3273166.74	31709.29
627.00	3528637.20	33280.95
628.00	3793322.29	34856.58
629.00	4064301.19	36444.12
630.00	4344771.63	38034.30
631.00	4631451.71	39636.38
632.00	4926923.33	41242.66
633.00	5229219.55	42858.71
634.00	5540141.49	44479.17
635.00	5857480.44	46109.92
636.00	6183238.78	47745.07
637.00	6515624.14	49390.52
638.00	6857259.52	51035.96
639.00	7208195.15	52681.41
640.00	7568460.67	54326.86

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

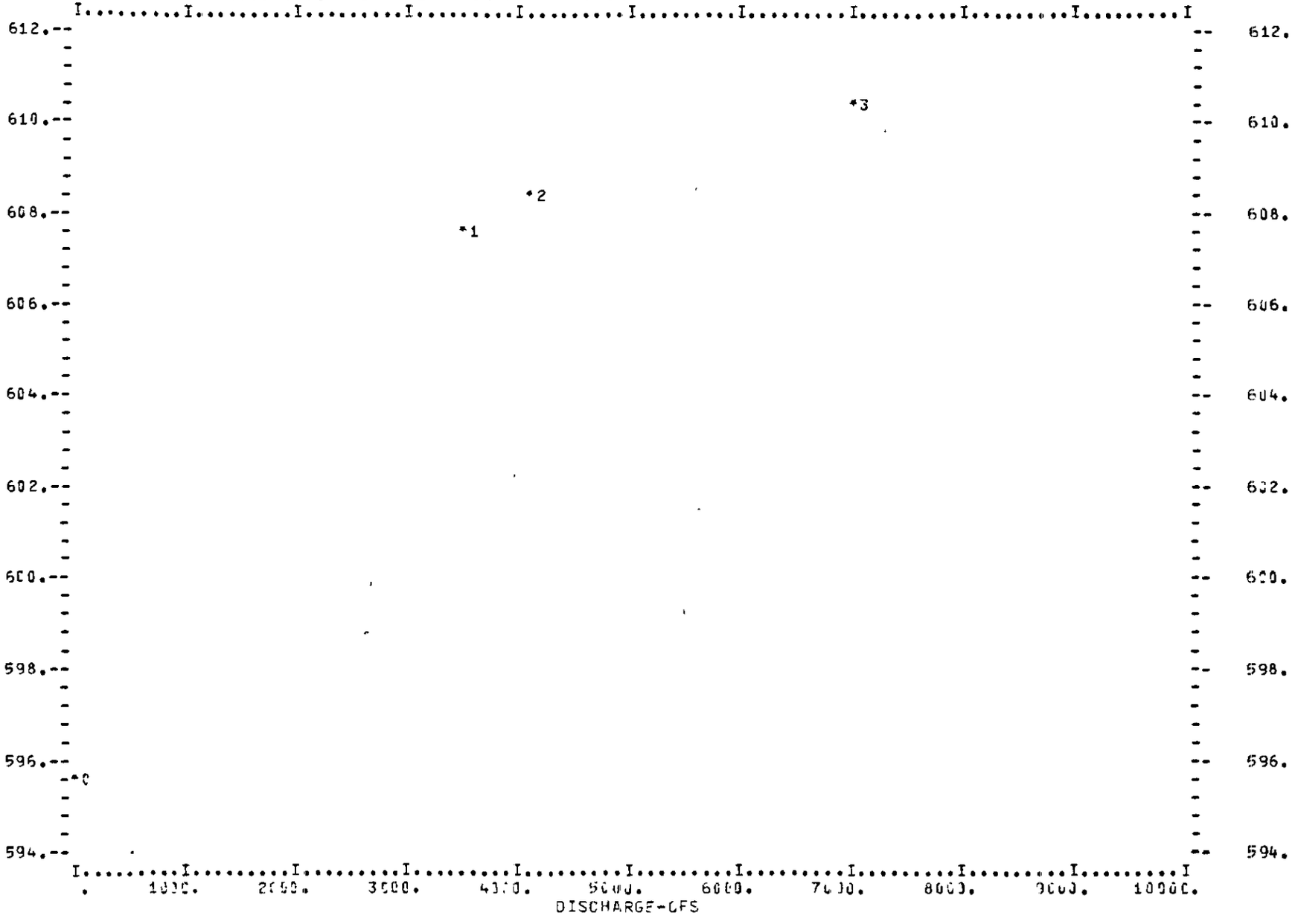
SEGMENT TABLE
CROSS SECTION 19.7
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	1602.41	1832.58	65.00
8.75	VELOCITY FPS	1.66	.47	2.23	.34
CORRECT WEIGHTED VEL =		1.65			
	DISCHARGE CFS	4100.00	2018.15	1984.68	97.17
10.25	VELOCITY FPS	1.66	.59	2.29	.39
CORRECT WEIGHTED VEL =		1.63			
	DISCHARGE CFS	7000.00	4099.67	2643.52	256.80
17.50	VELOCITY FPS	1.62	.63	2.53	.54
CORRECT WEIGHTED VEL =		1.62			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 19.7

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 19.8

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	599.00	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	606.20	2241.89	2735.93	.00	.00	.00		
1	608.49	6733.77	3500.00	.00	.00	.00	8.75	602.87
2	609.96	7694.94	4100.00	.00	.00	.00	10.25	603.29
3	610.90	11758.41	7000.00	.00	.00	.00	17.50	605.55

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 19.8

ELEVATION	KO	AREA
598.00	0.00	0.00
599.00	461.85	24.85
600.00	2781.03	85.41
601.00	7687.04	163.72
602.00	14710.03	248.44
603.00	23624.87	338.16
604.00	34340.48	434.86
605.00	47474.18	545.70
606.00	75797.85	1858.14
607.00	138447.50	3736.92
608.00	227751.81	5721.25
609.00	346629.69	7737.45
610.00	487915.24	9871.16
611.00	648033.14	11974.14
612.00	829755.19	14893.92
613.00	1030556.49	16230.03
614.00	1250302.70	18380.36
615.00	1488000.15	20543.02
616.00	1741944.61	22718.26
617.00	2011483.12	24937.06
618.00	2298287.54	27106.01
619.00	2601579.09	29315.13
620.00	2916687.63	31541.37
621.00	3245325.58	33792.46
622.00	3587940.61	36033.45
623.00	3934433.44	38318.51
624.00	4296451.88	41614.39
625.00	4739889.75	42926.49
626.00	5126757.57	45240.13
627.00	5559935.25	47554.53
628.00	6004767.67	49870.39
629.00	6464933.09	52187.03
630.00	6937858.20	54504.84
631.00	7423759.46	56823.81
632.00	7923812.41	59143.56
633.00	8434768.77	61464.85
634.00	8961095.71	63786.55
635.00	9496098.29	66110.29
636.00	*047491.09	68434.03
637.00	*607100.85	70759.93
638.00	*182522.39	73085.83
639.00	*766142.42	75413.89
640.00	*365062.93	77741.95

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

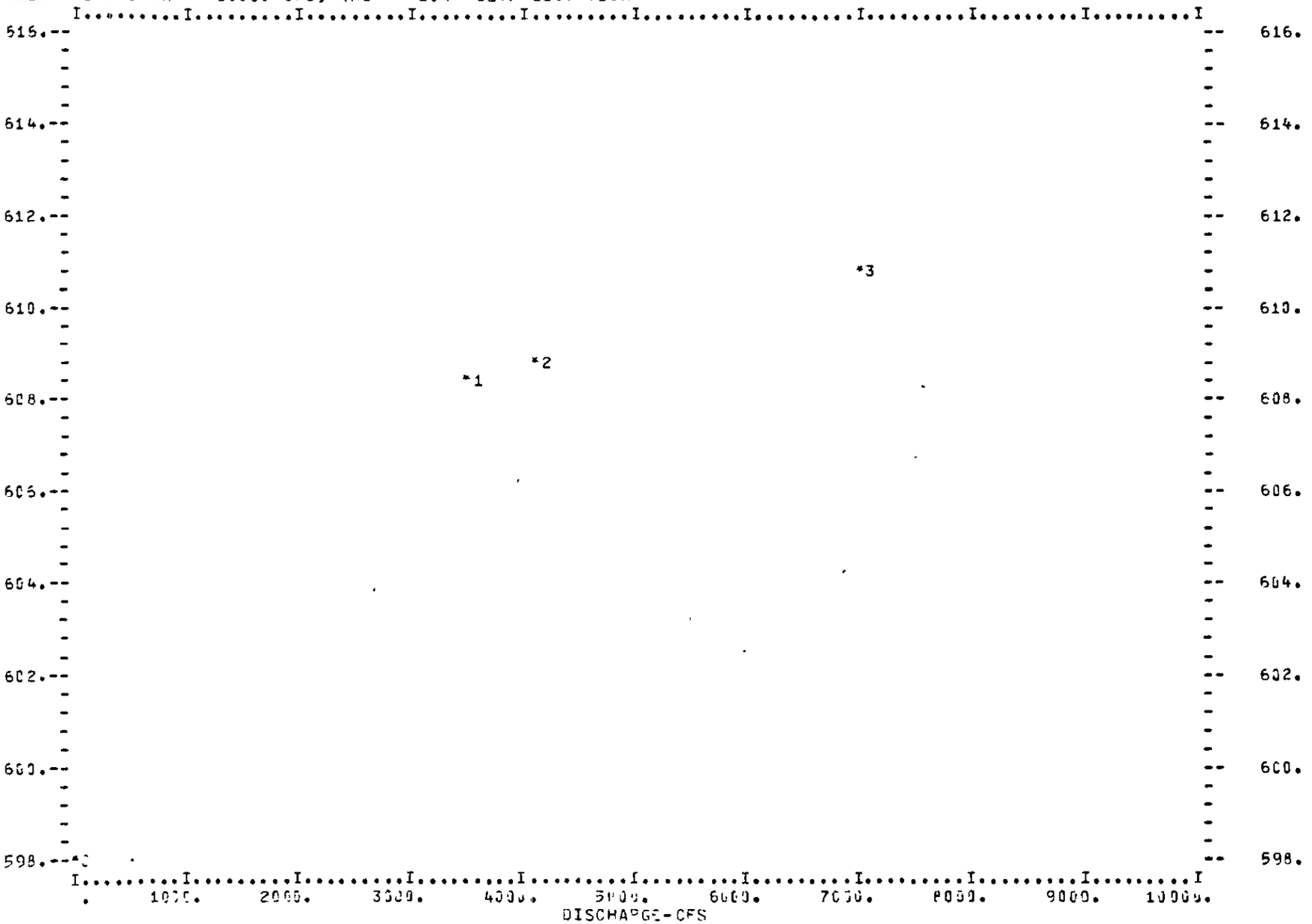
SEGMENT TABLE
CROSS SECTION 19.8
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	442.56	1327.43	1730.01
8.75	VELOCITY FPS	.96	.43	1.45	.37
CORRECT WEIGHTED VEL =		.94			
	DISCHARGE CFS	4100.00	533.16	1426.73	2140.11
10.25	VELOCITY FPS	.93	.42	1.48	.39
CORRECT WEIGHTED VEL =		.93			
	DISCHARGE CFS	7000.00	974.36	1838.37	4187.27
17.50	VELOCITY FPS	.91	.50	1.55	.49
CORRECT WEIGHTED VEL =		.90			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 19.8

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

----------80/80 LIST OF INPUT DATA----------

```
LINK                                                                  832
REACH     19.9      400       940       800                           833
SEGMENT   19.9      1         N         140                           834
NVALUE    .15                                                         835
SEGMENT   19.9      2         C         235.4                         836
NVALUE    .05                                                         837
SEGMENT   19.9      3         N         670       637                 839
NVALUE    .15                                                         840
SECTION   19.9                                                        841
          60        637       130       607.3     140       607       842
          130       604.8     160       598.8     180       598       843
          220       601       235.4     607       250       607.3     844
          282       606.4     310       606.8     378       606       845
          412       607.4     450       616.6     495       617.5     846
          555       617.7     620       618       670       622.1     847
          670       637                                                848
ENDTABLE                                                              849
                        MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
ROAD      20.0      2.7       125       125                           850
BPR       20.0      A         3                                       851
GIRDER    618.6     616.6     C         .8        2.2                 852
          -37.8     619.8     -37.8     616.6     37.8      616.6     853
          37.8      619.9                                             854
ENDTABLE                                                              855
SECTION   20.0                                                        856
          -415      637       -415      636.4     -340      633.7     857
          -240      629.2     -140      624.8     -90       620.7     858
          -37.8     619.8     -37.8     605.8     -23.3     602.5     859
          -8.1      598.1     7.6       596.9     23.5      597.4     860
          37.8      601.5     37.8      619.9     90        619.9     861
          140       620.5     240       624       340       627       862
          440       630       540       633.7     615       636.4     863
          615       637                                                864
ENDTABLE                                                              865
REACH     20.1      400       135       135                           866
SEGMENT   20.1      1         N         257                           867
NVALUE    .15                                                         868
SEGMENT   20.1      2         C         350                           869
NVALUE    .05                                                         870
SEGMENT   20.1      3         N         800       639                 871
NVALUE    .15                                                         872
SECTION   20.1                                                        873
          0         639       190       637.8     220       617.5     874
          234       610.6     257       606.5     262.3     605       875
          272       599.4     290       599.1     302       599.4     876
          320       599.1     337.7     604       350       608       877
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PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

----------80/80 LIST OF INPUT DATA----------

```
          390       609       440       609       560       622       878
          610       623.9     740       636.2     810       639       879
ENDTABLE                                                              880
                              MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH     20.4      400       1800      1160                            881
SEGMENT   20.4      1         N         850                             882
NVALUE    .15                                                           883
SEGMENT   20.4      2         C         930                             884
NVALUE    .05                                                           885
SEGMENT   20.4      3         N         1980      648                   886
NVALUE    .15                                                           887
SECTION   20.4                                                         888
          40        637       120       605.7     160       605.6       889
          235       608.5     225       608.4     255       606.1       890
          300       605.1     818       606       850       606         891
          368       604.5     880       600.5     898       600.8       892
          910       601       915       601.4     930       606         893
          990       605.7     1008      607.4     1060      606         894
          1090      607       1820      607.5     1888      609.7       895
          1990      648       39        648                             896
ENDTABLE                                                              897
----------DATA POINTS REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED----------
                              MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
COMMENT   LEFT SIDE BOARD ADDED AT END
REACH     20.9      400       2810      1840                            899
SEGMENT   20.9      1         N         887                             900
NVALUE    .15                                                           901
SEGMENT   20.9      2         C         562                             902
NVALUE    .05                                                           903
SEGMENT   20.9      3         N         1165      638                   904
NVALUE    .15                                                           905
SECTION   20.9                                                          906
          80        638       145       615.8     458       607.8       907
          469       603       487       603.2     504       602         908
          525       595.9     545       601       552       607.4       909
          562       610       665       608.9     770       607         910
          1190      607       1100      608.3     1165      638         911
ENDTABLE                                                              912
                              MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
ROAD      21.0      2.7       300       300                             913
BPR       21.0      A         3         5                               914
PIER      601.2     2         601.3     2                               915
GIRDER    615.5     614.2     45        .8        2                     916
          -102.3    618.9     -102.3    614.9     102.3     614.2       917
          102.3     619.2                                               918
ENDTABLE                                                              919
SECTION   21.0                                                          920
          -742      638       -700      636.5     -630      632.8       921
          -510      628.7     -400      624.9     -360      621.9       922
```

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

----------80/80 LIST OF INPUT DATA----------

	-200	619.9	-102.3	618.9	-102.3	613.4	923
	-80	608.2	-66	602.7	-39	601.1	924
	-33	601.1	0	601.9	37	601.1	925
	43	601.8	56	602.5	76	608.4	926
	97	612.5	102.3	612.5	102.3	619.2	927
	200	621	300	623.8	400	628.2	928
	500	629.7	600	633.4	624	634.2	929
	624	638					930
ENDTABLE							931
REACH	21.05	400	990	990			932
SEGMENT	21.05	1	N	345			933
NVALUE	.150						934
SEGMENT	21.05	2	C	449			935
NVALUE	.05						936
SEGMENT	21.05	3	N	1695	643		937
NVALUE	.15						938
SECTION	21.05						939
	0	643	100	618	297.8	607.3	940
	334	607.4	345	606.5	352	602	941
	352	601.2	396	601.3	420	601.8	942
	443	601.8	448	605	449	606.4	943
	460	607.3	480	606.7	502.3	607.1	944
	700	607.6	800	608	900	607.8	945
	1000	607.5	1130	607.9	1145	611.8	946
	1175	614.5	1695	621.8	1695	643	947
ENDTABLE							948

MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS 20. FEET

REACH	21.1	400	380	380			950
SEGMENT	21.1	1	N	-830			951
NVALUE	.15						952
SEGMENT	21.1	2	C	-750			953
NVALUE	.05						954
SEGMENT	21.1	3	N	0	625		955
NVALUE	.15						956
SECTION	21.1						957
	-1139	625	-1139	622.9	-1130	622.3	958
	-1030	615.6	-930	612.5	-930	609.4	959
	-820	603.8	-810	603.3	-790	599.6	960
	-770	602.4	-760	604	-750	608.5	961
	-730	608.1	-650	607.5	-600	607.7	962
	-550	607.7	-500	607.3	-455	609.3	963
	-400	611.9	-300	615.7	-200	615.5	964
	0	621.1	0	625			965
ENDTABLE							966
REACH	21.15	400	240	240			967
SEGMENT	21.15	1	N	335			968

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

----------80/80 LIST OF INPUT DATA----------

```
NVALUE    .15                                                          969
SEGMENT   21.15     2         C         440                           970
NVALUE    .05                                                          971
SEGMENT   21.15     3         N         1180      640                 972
NVALUE    .15                                                          973
SECTION   21.15                                                        974
          30        640       155       611.3     175       610       975
          210       610.4     280       608.7     320       615       976
          340       609.7     355       608.5     370       603.7     977
          396       600.9     400       601.8     418       600.5     978
          430       600.8     440       607.9     475       608.7     979
          495       608.8     525       607.3     615       607.8     980
          710       605       1130      606       1180      634       981
          1180      640                                               982
ENOTABLE                                                               983
                          MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH     21.2      400       1240      840                           984
SEGMENT   21.2      1         N         565                           985
NVALUE    .15                                                          986
SEGMENT   21.2      2         C         633                           987
NVALUE    .05                                                          988
SEGMENT   21.2      3         N         1250      640                 989
NVALUE    .15                                                          990
SECTION   21.2                                                        991
          75        640       330       611.4     490       607.3     992
          515       607.7     540       609       565       608.3     993
          574       602.8     586       602.2     600       600.4     994
          612       600.9     633       608       645       609.2     995
          695       608.      1180      607       1250      640       996
ENDTABLE                                                               997
                          MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH     21.5      400       6720      5520                          998
SEGMENT   21.5      1         N         640                           999
NVALUE    .15                                                          1000
SEGMENT   21.5      2         C         737                           1001
NVALUE    .05                                                          1002
SEGMENT   21.5      3         N         830       637                 1003
NVALUE    .15                                                          1004
SECTION   21.5                                                        1005
          30        643       218       613.6     353       612.8     1006
          420       610.8     490       610.9     569       612.9     1007
          585       611.9     597       612.4     608       612.2     1008
          623       608.9     630       610.4     649       611.3     1009
          654       606.3     680       605.3     710       635       1010
          724       604.5     737       611.1     745       611.5     1011
          775       611.2     830       637                           1012
ENDTABLE                                                               1013
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PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

----------80/80 LIST OF INPUT DATA----------

```
                        MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH     21.7      400       3860      2800                              1014
SEGMENT   21.7      1         N         943                               1015
NVALUE    .15                                                             1016
SEGMENT   21.7      2         C         1050                              1017
NVALUE    .05                                                             1018
SEGMENT   21.7      3         N         1505      640                     1019
NVALUE    .15                                                             1020
SECTION   21.7                                                            1021
          55        640       55        624.4     130       619           1022
          540       612.3     930       614.7     943       614.5         1023
          952       608.3     983       606.2     1100      606           1024
          1112      604.5     1136      603.8     1150      612.9         1025
          1258      613.5     1150      612.7     1364      613           1026
          1420      616       1505      640                               1027
ENDTABLE                                                                  1028
                        MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH     21.75     400       1270      720                               1029
SEGMENT   21.75     1         N         448                               1030
NVALUE    .15                                                             1031
SEGMENT   21.75     2         C         550                               1032
NVALUE    .05                                                             1033
SEGMENT   21.75     3         N         625       645.5                   1034
NVALUE    .15                                                             1035
SECTION   21.75                                                           1036
          40        644.5     215       623       345       618.4         1037
          355       615       390       612.5     430       613.9         1038
          443       613.7     470       609.3     487       607.2         1039
          513       607.1     538       604.9     550       613.4         1040
          560       614.8     625       645.5                             1041
ENDTABLE                                                                  1042
                        MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH     21.8      400       570       400                               1043
SEGMENT   21.8      1         N         1350                              1044
NVALUE    .15                                                             1045
SEGMENT   21.8      2         C         1470                              1046
NVALUE    .05                                                             1047
SEGMENT   21.8      3         N         1595      645                     1048
NVALUE    .15                                                             1049
SECTION   21.8                                                            1050
          70        650.5     120       614.4     1145      612.8         1051
          1220      615.3     1338      616       1350      615.5         1052
          1355      613.5     1360      613       1380      607.9         1053
          1395      608.2     1448      607.5     1458      612.8         1054
          1470      614.7     1530      614.3     1595      645           1055
ENDTABLE                                                                  1056
                        MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH     21.85     400       1020      1000                              1057
SEGMENT   21.85     1         N         -54                               1058
```

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

----------80/80 LIST OF INPUT DATA----------

NVALUE	.085						1059
SEGMENT	21.85	2	C	56			1060
NVALUE	.05						1061
SEGMENT	21.85	3	N	71	630		1062
NVALUE	.15						1063
SECTION	21.85						1064
	-179	630	-179	617.7	-154	618	1065
	-129	620.5	-104	621.8	-79	623.3	1066
	-54	624.8	-42	618.5	-30	611.6	1067
	-20	610	-10	609	0	606.1	1068
	10	606	23	611.6	41	620.2	1069
	56	627.5	71	629.1	71	630	1070
ENDTABLE							1071
REACH	21.9	400	940	480			1072
SEGMENT	21.9	1	N	160			1073
NVALUE	.085						1074
SEGMENT	21.9	2	C	250			1075
NVALUE	.05						1076
SEGMENT	21.9	3	N	455	659		1077
NVALUE	.15						1078
SECTION	21.9						1079
	10	659	10	621.2	30	620.8	1080
	45	621.3	138	614.5	160	614.2	1081
	151	612.1	172	609.5	200	609	1082
	235	609.1	250	613.7	280	614	1083
	298	617	350	617	370	619	1084
	455	656	455	659			1085
ENDTABLE							1086
			MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS 20. FEET				
COMMENT	MAIN STREET OR M-140						1087A
ROAD	22.0	2.7	150	150			1087B
BPR	22.0	A	3	7			1088
PIER	607.9	3	610.2	3			1089
GIRDER	624.8	621.7	27	.8	2.1		1090
	-65	624.8	-65	621.7	65	624.9	1091
	65	628.1					1092
ENDTABLE							1093
SECTION	22.0						1094
	-855	653	-855	644.9	-767	641.1	1095
	-567	635.9	-567	630.7	-467	626	1096
	-367	623.5	-267	622.8	-167	623.1	1097
	-65	624.8	-65	619.6	-60	619.3	1098
	-56	617.9	-48	614.4	-45	613.4	1099
	-43	612.3	-34.5	611.3	-24	607.9	1100
	-21	607.7	0	608.1	20.2	609.8	1101
	23.2	610.9	40	612.3	44.7	614.6	1102

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

----------80/80 LIST OF INPUT DATA----------

```
          53        622.3     65        622.5     65        628.1     1103
          157       631.2     267       635.6     367       641       1104
          467       645.7     567       650.8     621       652.8     1105
          621       653                                               1106
ENDTABLE                                                            1107
REACH     22.1      400       170       170                           1108
SEGMENT   22.1      1         N         365                           1109
NVALUE    .085                                                        1110
SEGMENT   22.1      2         C         450                           1112
NVALUE    .05                                                         1113
SEGMENT   22.1      3         N         935       650                 1114
NVALUE    .095                                                        1115
SECTION   22.1                                                       1116
          0         650       60        624       125       615.2     1117
          210       616       300       614       330       614.4     1118
          345       615.4     365       615       396       612.8     1119
          390       610.5     410       610.4     420       610       1120
          431       613.5     450       617.4     470       619       1121
          530       619.6     700       620.3     870       630.9     1122
          935       650                                               1123
ENDTABLE                                                            1124
                        MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH     22.5      400       200       200                           1125
REACH 2   22.1      0                                                 1126
REACH     22.95     400       500.      500.                          1126X
SEGMENT   22.95     1         N         375                           1127
NVALUE    .085                                                        1128
SEGMENT   22.95     2         C         600                           1129
NVALUE    .05                                                         1130
SEGMENT   22.95     3         N         2610      650                 1131
NVALUE    .085                                                        1132
SECTION   22.95                                                       1133
          0         630       0         624.5     10        624       1134
          300       618       350       619       375       617       1135
          430       610       485       613       485       609.5     1136
          550       609.5     630       618       1960      618       1137
          2300      620       2406      620       2600      623       1138
          2600      630                                               1139
ENDTABLE                                                            1140
COMPUTE   19.9      22.95     19.8                                    1358X
```

----------END OF 80/80 LIST----------

COMPUTE 19.9 22.95 19.8 1358X

----------STARTING DATA FROM PREVIOUS COMPUTATIONS----------

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 19.9

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	598.00	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	607.00	651.74	2780.52	.00	.00	.00		
1	609.33	1314.48	3500.00	.00	.00	.00	8.75	603.73
2	609.84	1466.59	4100.00	.00	.00	.00	10.25	604.21
3	611.90	2094.82	7001.00	.00	.00	.00	17.50	607.26

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 19.9

ELEVATION	KD	AREA
598.00	0.00	0.00
599.00	367.37	19.00
600.00	2133.24	59.87
601.00	5109.12	116.03
602.00	10283.67	181.99
603.00	16955.39	252.09
604.00	25038.98	326.42
605.00	34521.54	404.99
606.00	44619.30	489.36
607.00	56091.34	651.74
608.00	75941.86	927.83
609.00	98807.46	1217.20
610.00	124963.18	1513.16
611.00	154109.50	1816.16
612.00	186224.88	2125.28
613.00	221211.52	2440.73
614.00	258983.97	2762.41
615.00	299458.91	3090.45
616.00	342531.16	3425.23
617.00	379255.94	3781.10
618.00	417549.13	4200.82
619.00	461406.81	4708.43
620.00	520083.70	5248.38
621.00	583138.24	5801.44
622.00	649642.72	6363.22
623.00	722711.88	6339.72
624.00	799714.82	7517.73
625.00	881422.94	8098.04
626.00	964279.16	8631.36
627.00	1051924.49	9266.23
628.00	1142451.92	9854.31
629.00	1236586.69	10444.09
630.00	1333797.09	11036.41
631.00	1434100.95	11631.28
632.00	1537767.12	12227.85
633.00	1644653.24	12827.81
634.00	1753973.60	13428.62
635.00	1865988.56	14033.90
636.00	1981882.30	14639.19
637.00	2101681.74	15244.47
638.00	2225413.31	15849.75

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

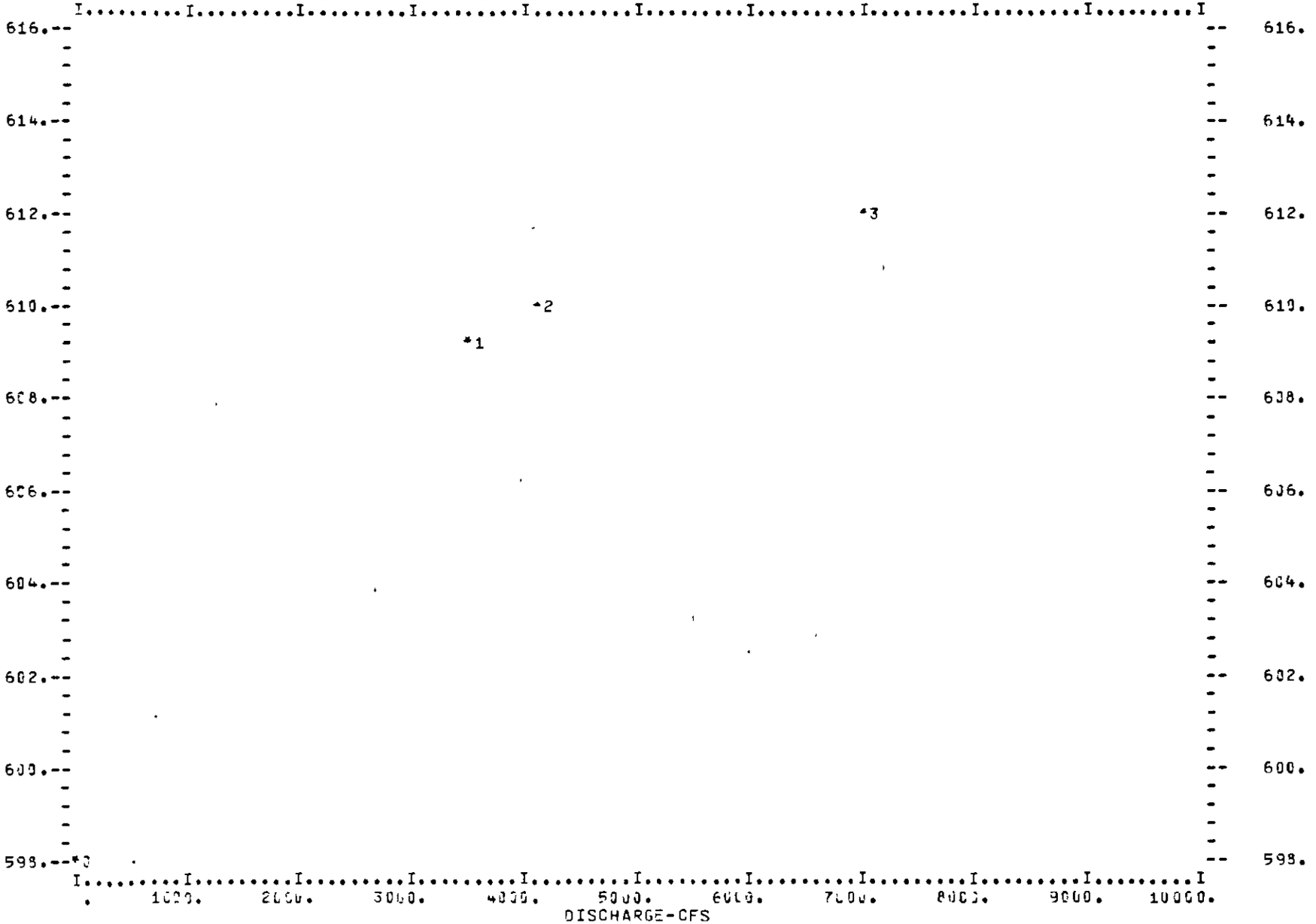
SEGMENT TABLE
CROSS SECTION 19.9
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	14.02	3158.68	327.10
8.75	VELOCITY FPS	3.75	.52	3.93	.68
CORRECT WEIGHTED VEL =		3.74			
	DISCHARGE CFS	4100.00	20.89	3627.22	451.89
10.25	VELOCITY FPS	4.02	.60	4.26	.78
CORRECT WEIGHTED VEL =		4.01			
	DISCHARGE CFS	7000.00	67.16	5764.54	1168.30
17.50	VELOCITY FPS	5.03	.92	5.50	1.20
CORRECT WEIGHTED VEL =		5.01			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 19.9

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



COEFK	AKB	DLTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
.2459	.2459	.0001	.0000	.0000	.0000	.8458	1.0000	1.0000	743.6218	1371.2366	1688.6138
DCRIT	603.31 KBCRIT =										
.2751	.2751	.0001	.0000	.0000	.0000	.8321	1.0000	1.0000	783.7006	1505.3778	1849.2444
DCRIT	603.86 KBCRIT =										
.3996	.3996	.0000	.0000	.0000	.0000	.7783	1.0000	1.0000	943.8138	2099.0153	2513.1826
DCRIT	606.07 KBCRIT =										

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 20.0

NO.	HW	CFS	HL	TW	CSM
0	596.90	0.00	0.00	0.00	0.00
1	609.60	3500.00	.12	609.48	8.75
2	610.17	4100.00	.16	610.01	10.25
3	612.51	7000.00	.38	612.13	17.50

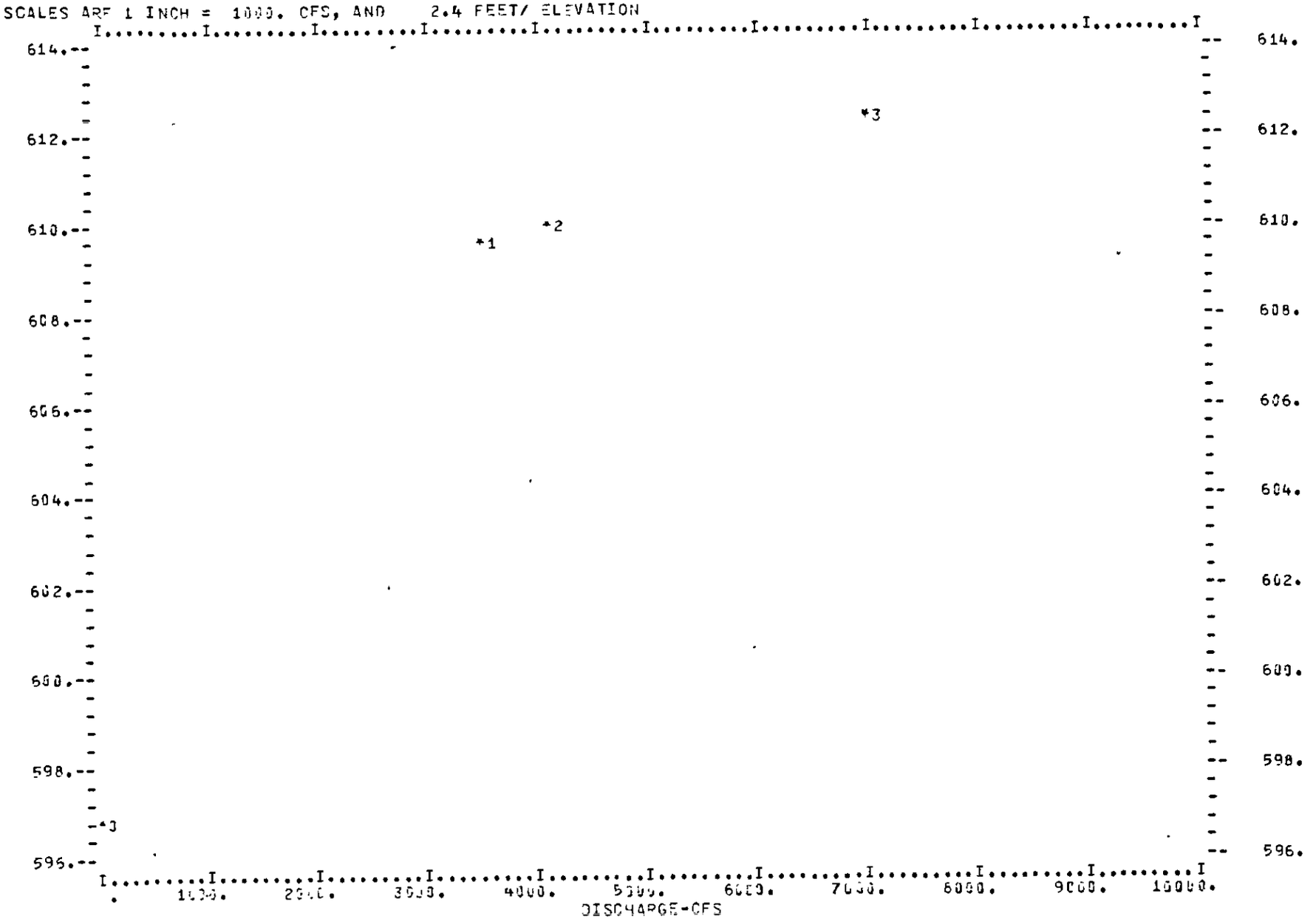
MIN ROAD ELEVATION 619.80

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 616.60 OPENING NO.= 1

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 20.0

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 20.1

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	599.10	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	606.50	491.40	2443.38	.00	.00	.00		
1	609.70	903.83	3500.00	.00	.00	.00	8.75	604.20
2	610.25	1119.50	4100.00	.00	.00	.00	10.25	604.70
3	612.58	1551.61	7000.00	.00	.00	.00	17.50	606.79

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW PIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 20.1

ELEVATION	KO	AREA
599.10	0.00	0.00
600.00	897.21	37.85
601.00	3795.04	92.82
602.00	8130.60	153.18
603.00	13921.99	218.94
604.00	21107.83	289.86
605.00	29698.09	366.21
606.00	39464.68	448.04
607.00	51257.00	536.49
608.00	65312.82	633.82
609.00	82322.84	763.89
610.00	102190.51	962.59
611.00	124750.09	1181.48
612.00	149824.43	1413.35
613.00	177308.70	1655.96
614.00	207161.51	1909.38
615.00	239356.38	2173.61
616.00	273875.38	2448.77
617.00	311066.75	2737.10
618.00	349824.85	3036.26
619.00	391540.31	3344.57
620.00	435159.48	3663.38
621.00	481307.25	3995.58
622.00	528438.97	4330.74
623.00	576317.97	4697.06
624.00	628208.66	5089.37
625.00	683379.62	5492.41
626.00	742777.74	5911.14
627.00	804756.65	6343.37
628.00	869375.31	6783.42
629.00	936570.39	7241.91
630.00	1006450.96	7736.93
631.00	1078973.47	8187.08
632.00	1154192.57	8678.39
633.00	1232116.93	9179.95
634.00	1312764.13	9696.99
635.00	1396167.98	10220.53
636.00	1479524.11	10766.55
637.00	1565098.67	11315.29
638.00	1653200.11	11863.91
639.00	1743835.13	12412.54
640.00	1837.10.26	12961.17

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

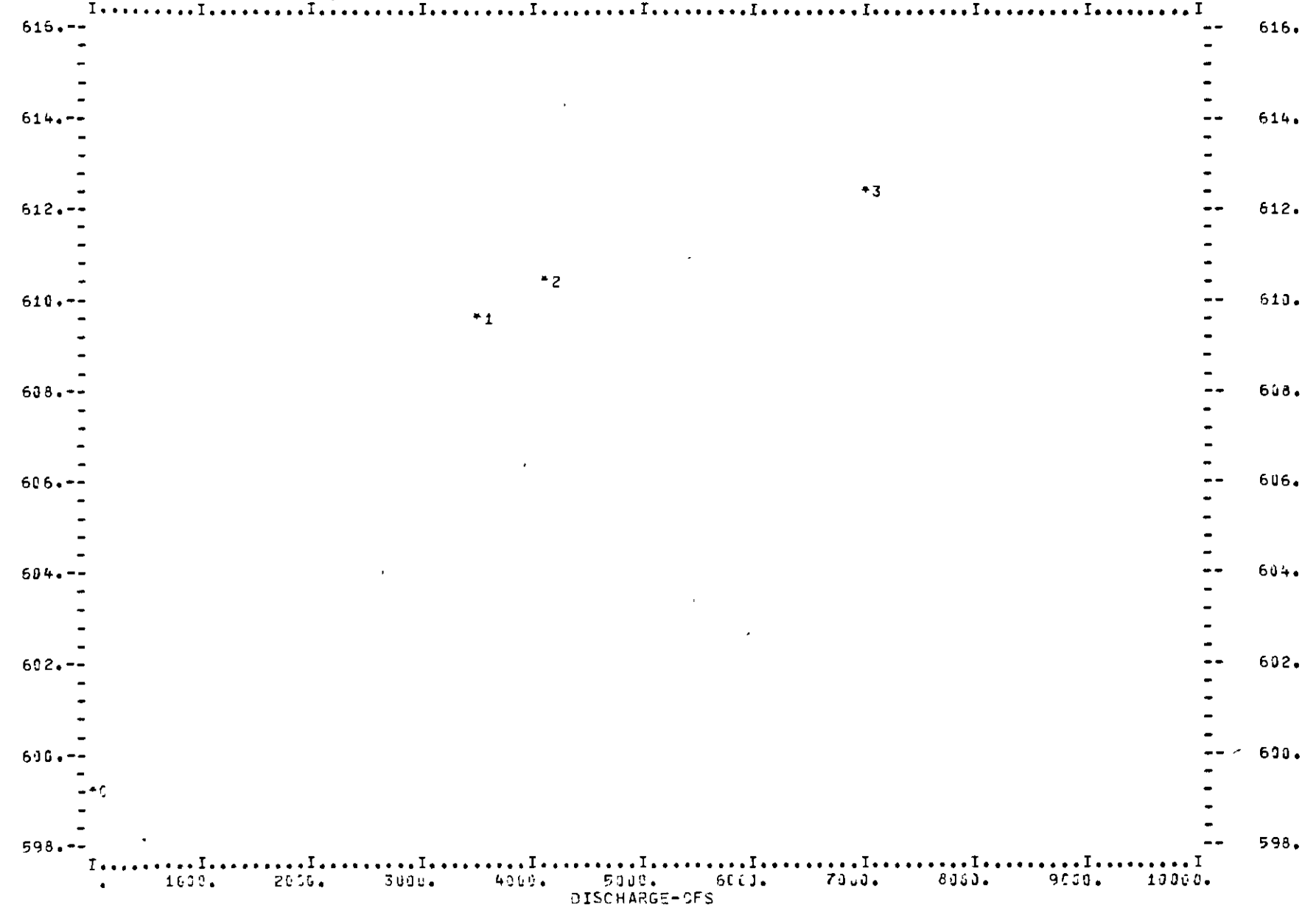
SEGMENT TABLE
CROSS SECTION 20.1
VELOCITY INCREMENT= .05 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	14.73	3452.18	33.09
8.75	VELOCITY FPS	4.38	.50	4.40	.38
CORRECT WEIGHTED VEL =		4.37			
	DISCHARGE CFS	4100.00	23.26	4008.27	68.47
10.25	VELOCITY FPS	4.74	.58	4.79	.48
CORRECT WEIGHTED VEL =		4.73			
	DISCHARGE CFS	7000.00	93.61	6533.19	373.21
17.50	VELOCITY FPS	6.01	.97	6.21	.93
CORRECT WEIGHTED VEL =		6.00			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 20.1

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 20.4

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	600.50	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	606.00	553.59	1959.39	.00	.00	.00		
1	611.32	6938.73	3500.00	.00	.00	.00	8.75	606.18
2	610.91	7953.35	4100.00	.00	.00	.00	10.25	606.26
3	613.36	12341.41	7000.00	.00	.00	.00	17.50	606.67

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 20.4

ELEVATION	KD	AREA
600.50	0.00	0.00
601.00	99.26	8.06
602.00	1424.34	45.47
603.00	4043.37	89.97
604.00	7829.97	140.60
605.00	12422.95	204.43
606.00	20192.90	353.59
607.00	42146.22	1403.03
608.00	81175.75	2839.16
609.00	143662.38	4564.42
610.00	227129.67	6331.39
611.00	328195.46	8113.30
612.00	444977.73	9903.45
613.00	575938.80	11692.90
614.00	721435.79	13439.66
615.00	880259.87	15291.29
616.00	1051109.40	17098.27
617.00	1233772.26	18910.61
618.00	1428224.90	20728.05
619.00	1635185.38	22549.50
620.00	1853286.45	24375.82
621.00	2081237.55	26208.38
622.00	2320643.36	28045.11
623.00	2571.46.21	29886.05
624.00	2830422.38	31733.69
625.00	3100726.67	33585.29
626.00	3381498.90	35443.96
627.00	3670753.12	37303.57
628.00	3974731.81	39169.45
629.00	4279813.16	41040.88
630.00	4597850.13	42918.22
631.00	4926309.38	44798.08
632.00	5262483.57	46685.97
633.00	5609150.15	48575.65
634.00	5963391.80	50473.37
635.00	6327493.75	52373.75
636.00	6699784.98	54280.39
637.00	7082322.86	56191.04
638.00	7475.58.17	58105.71
639.00	7876738.99	60022.95
640.00	8287329.73	61942.76
641.00	8706206.46	63865.05
642.00	9133196.16	65789.86
643.00	9568349.62	67717.15
644.00	*011456.23	69646.93
645.00	*462538.24	71579.33
646.00	*921286.28	73514.34
647.00	*389550.00	75449.36
648.00	*867285.18	77384.38
649.00	*354477.93	79319.40

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

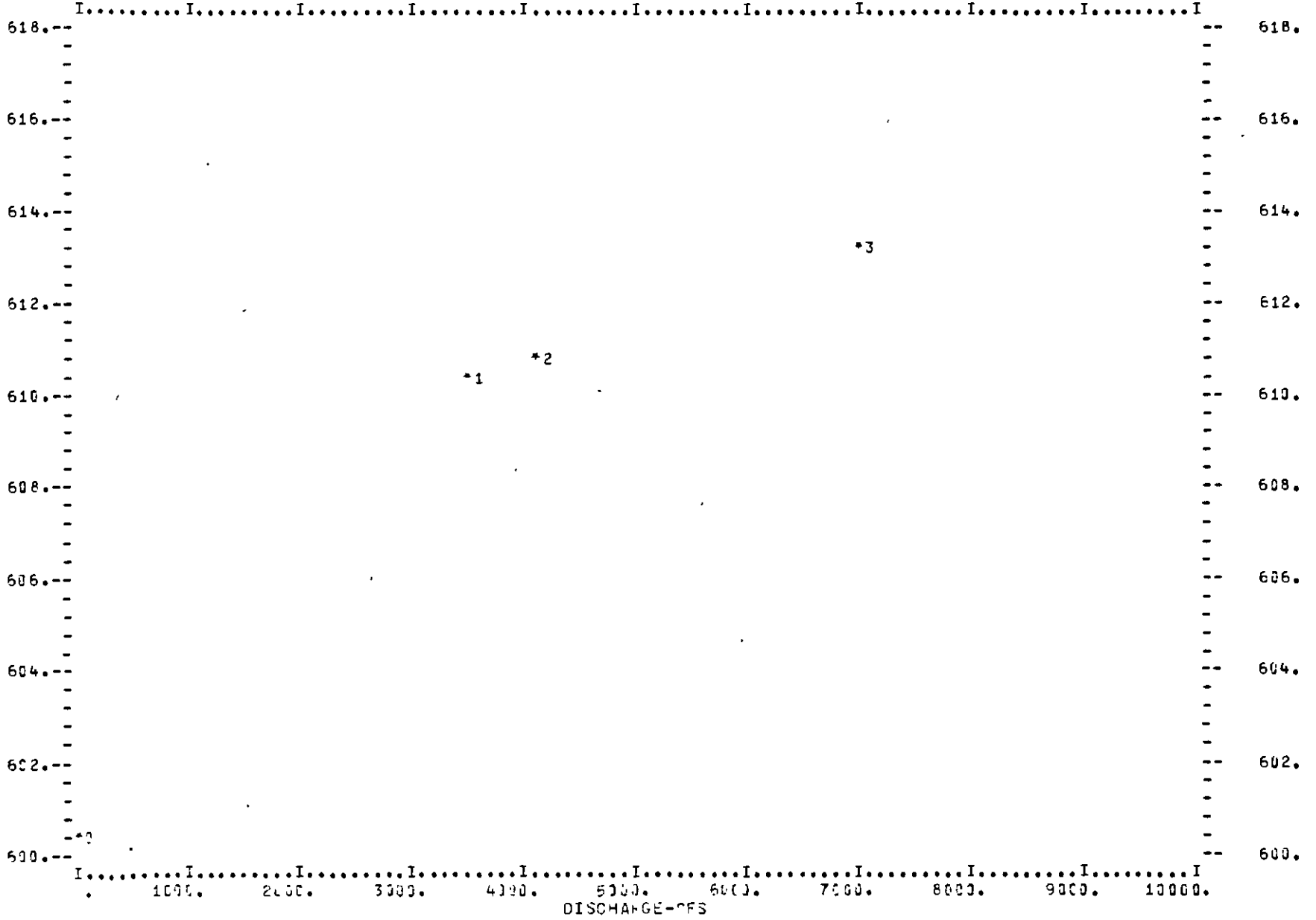
SEGMENT TABLE
CROSS SECTION 20.4
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	1477.40	949.03	1073.57
8.75 VELOCITY FPS	.88	.45	1.54	.36
CORRECT WEIGHTED VEL =	.88			
DISCHARGE CFS	4100.00	1724.58	1018.68	1356.75
10.25 VELOCITY FPS	.86	.46	1.54	.38
CORRECT WEIGHTED VEL =	.85			
DISCHARGE CFS	7000.00	2909.61	1366.54	2732.85
17.50 VELOCITY FPS	.83	.52	1.59	.46
CORRECT WEIGHTED VEL =	.83			

FAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 20.4

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 20.9

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
1	595.00	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	613.20	199.52	1647.16	.00	.00	.00		
1	611.41	3356.65	3900.00	.00	.00	.00	8.75	604.64
2	612.00	3782.88	4100.00	.00	.00	.00	10.25	605.08
3	614.44	5890.70	7000.00	.00	.00	.00	17.50	607.04

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 20.9

ELEVATION	KO	AREA
595.00	0.00	0.00
596.00	3.16	.07
597.00	89.54	4.57
598.00	489.35	16.35
599.00	1378.05	35.57
600.00	2961.88	62.08
601.00	5222.85	96.19
602.00	8311.12	136.24
603.00	11765.77	186.26
604.00	18080.68	263.27
605.00	26300.77	346.54
606.00	35837.19	433.19
607.00	46981.27	558.85
608.00	62436.89	1018.62
609.00	84069.17	1572.69
610.00	113444.77	2245.94
611.00	153197.40	2990.18
612.00	202526.42	3783.94
613.00	259445.14	4618.61
614.00	324241.59	5491.87
615.00	395324.45	6415.19
616.00	475863.45	7366.39
617.00	566067.69	8339.52
618.00	662985.75	9320.14
619.00	766616.59	10306.14
620.00	878245.80	11295.25
621.00	994632.82	12291.74
622.00	1118_26.47	13292.32
623.00	1248094.11	14296.99
624.00	1382783.14	15309.03
625.00	152439-.38	16324.49
626.00	1671116.14	17346.05
627.00	1823913.29	18372.21
628.00	1982451.90	19402.98
629.00	2145932.88	20440.19
630.00	2315904.56	21481.16
631.00	2489834.20	22528.43
632.00	2670591.91	23578.58
633.00	2854871.03	24637.49
634.00	3046148.59	25697.42
635.00	3240951.14	26766.56
636.00	3442441.34	27836.72
637.00	3647498.02	28916.09
638.00	3859376.24	29995.46
639.00	4078163.62	31074.83
640.00	4303926.92	32154.21

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

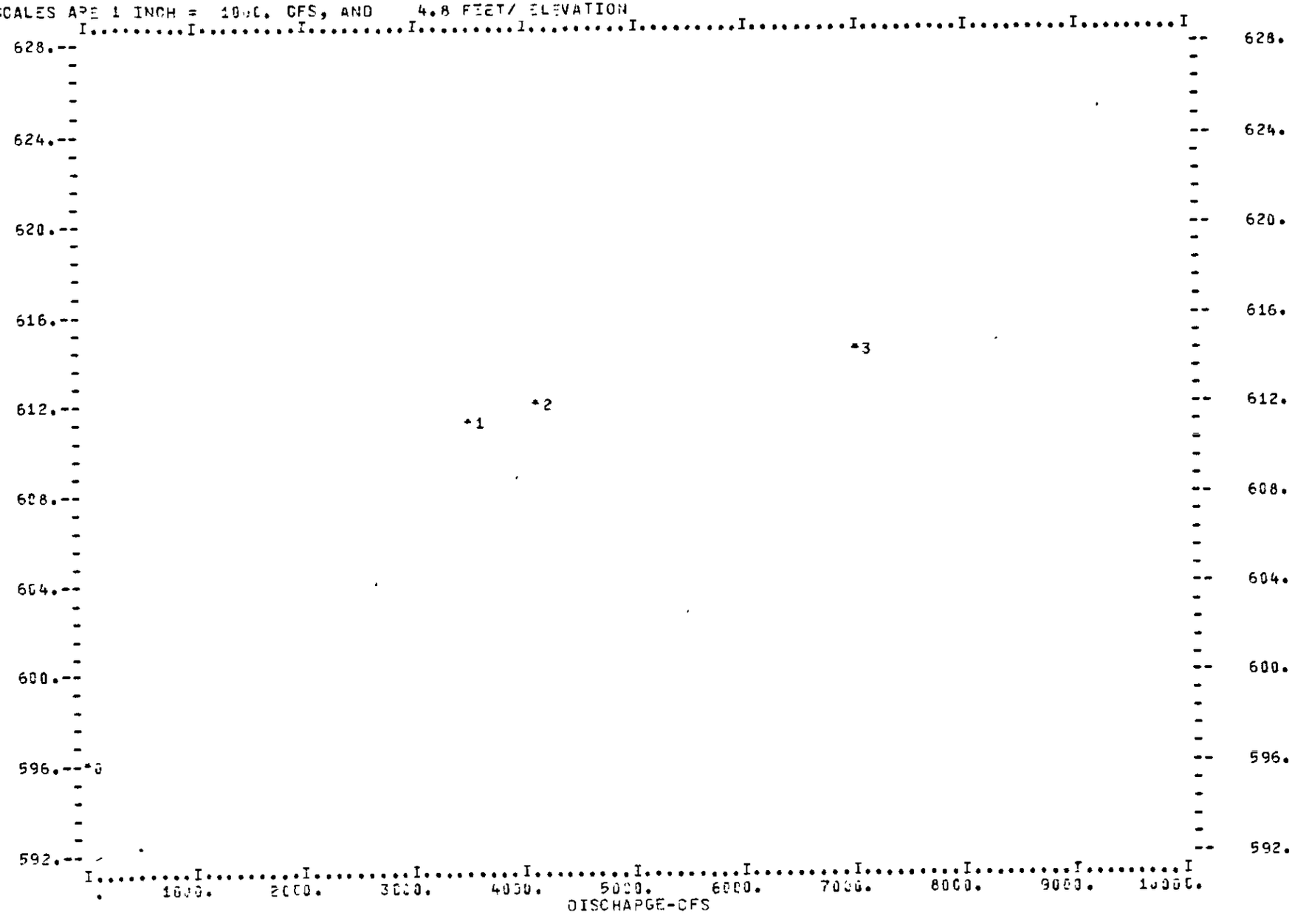
SEGMENT TABLE
CROSS SECTION 20.9
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3502.00	229.98	2005.33	1264.69
8.75	VELOCITY FPS	2.07	.49	2.68	.61
CORRECT WEIGHTED VEL =		2.06			
	DISCHARGE CFS	4100.00	300.36	2196.63	1603.00
10.25	VELOCITY FPS	2.10	.51	2.77	.67
CORRECT WEIGHTED VEL =		2.08			
	DISCHARGE CFS	7000.00	718.56	3046.66	3240.77
17.50	VELOCITY FPS	2.16	.61	3.12	.87
CORRECT WEIGHTED VEL =		2.15			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 26.9

SCALES ARE 1 INCH = 1000. CFS, AND 4.8 FEET/ ELEVATION



COERK	AKP	DLTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
1.0854	.9816	.0473	.7965	.0000	.0575	.5855	1.0000	1.0000	1592.8448	5798.3099	581.6919
DCRIT	604.50 KBCRIT =										
1.1215	1.0491	.0491	.7833	.0000	.0283	.5667	1.0000	1.0000	1706.9900	6455.9454	840.2731
DCRIT	604.92 KBCRIT =										
1.2314	1.2388	.0419	.7344	.0000	-.0503	.5159	1.0000	1.0000	2058.9400	9120.2035	2172.4955
DCRIT	606.28 KBCRIT =										

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 21.0

NO.	HW	CFS	HL	TW	CSM
0	611.10	0.00	0.00	0.00	0.00
1	612.45	3500.00	.20	612.25	8.75
2	613.07	4100.00	.24	612.83	10.25
3	615.49	7000.00	.43	615.06	17.50

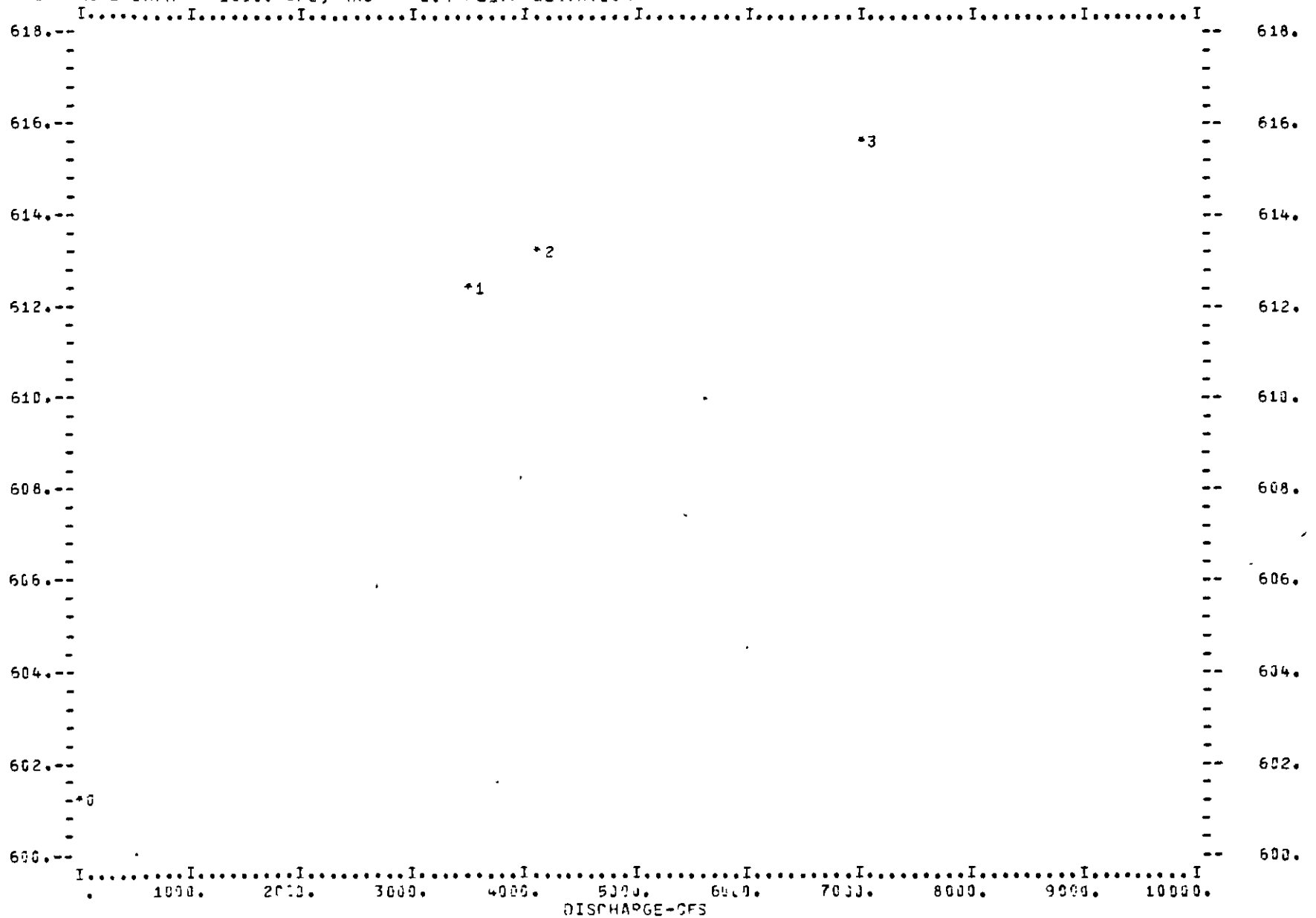
MIN ROAD ELEVATION 618.30

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 614.20 OPENING NO.= 1

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 21.0

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 21.05

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	601.25	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	606.40	455.46	1590.92	.00	.00	.00		
1	612.64	5872.09	3500.00	.00	.00	.00	8.75	605.26
2	613.26	6535.38	4100.00	.00	.00	.00	10.25	605.64
3	615.71	9259.01	7000.00	.00	.00	.00	17.50	608.00

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 21.05

ELEVATION	KO	AREA
601.20	0.00	0.00
602.00	373.31	27.45
603.00	4063.98	118.06
604.00	10635.62	212.72
605.00	19350.58	311.31
606.00	30398.97	413.00
607.00	43859.25	547.63
608.00	62676.46	1062.05
609.00	93562.74	2340.90
610.00	136205.16	3089.48
611.00	188455.93	4136.62
612.00	249140.78	5190.93
613.00	317240.47	6256.83
614.00	392592.31	7337.55
615.00	473750.35	8449.59
616.00	562312.06	9515.91
617.00	641259.59	10853.22
618.00	738275.05	12161.65
619.00	843739.00	13566.40
620.00	957639.39	15133.39
621.00	1081240.78	16561.79
622.00	1218583.35	18169.93
623.00	1375566.96	19861.61
624.00	1544854.32	21440.90
625.00	1722703.42	23092.75
626.00	1907798.91	24728.27
627.00	2101994.30	26375.61
628.00	2303602.92	28126.61
629.00	2511838.66	29680.35
630.00	2729109.44	31335.92
631.00	2951737.15	32996.35
632.00	3183456.35	34657.81
633.00	3421035.57	36323.38
634.00	3666385.51	37991.01
635.00	3918365.31	39661.72
636.00	4177046.87	41335.52
637.00	4442995.66	43011.38
638.00	4714534.50	44691.59
639.00	4993852.62	46372.87
640.00	5278511.67	48058.72
641.00	5570681.35	49745.72
642.00	5871168.18	51432.72
643.00	6179996.36	53119.72
644.00	6497189.59	54806.72

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

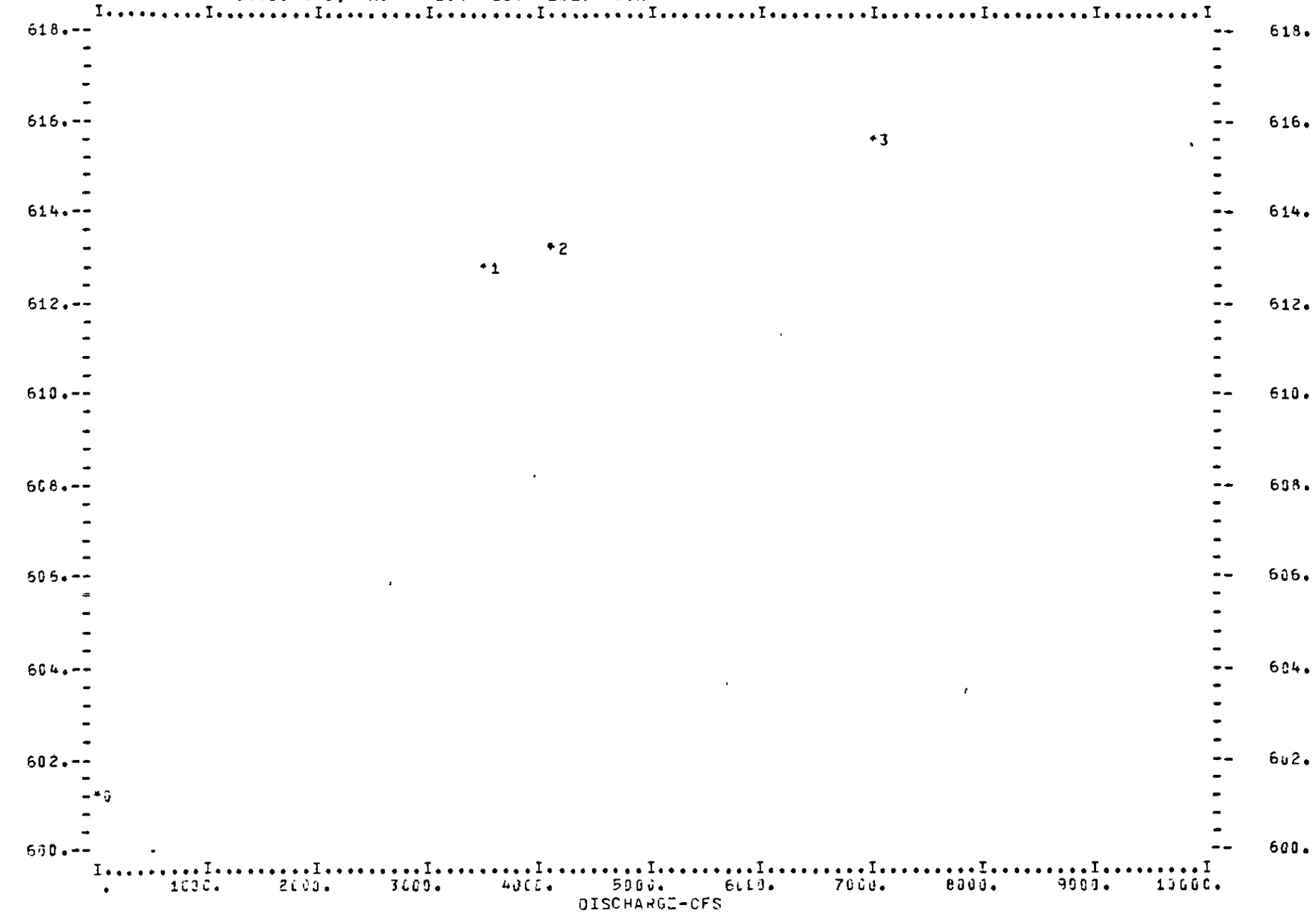
SEGMENT TABLE
CROSS SECTION 21.05
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	437.35	1853.96	1208.70
8.75	VELOCITY FPS	1.25	.34	1.68	.35
CORRECT WEIGHTED VEL =		1.25			
	DISCHARGE CFS	4100.00	538.77	2075.96	1485.27
10.25	VELOCITY FPS	1.29	.38	1.78	.38
CORRECT WEIGHTED VEL =		1.29			
	DISCHARGE CFS	7000.00	1063.24	3138.55	2792.21
17.50	VELOCITY FPS	1.52	.51	2.21	.48
CORRECT WEIGHTED VEL =		1.52			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 21.35

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 21.1

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
1	599.60	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	608.50	638.34	2364.41	.00	.00	.00		
1	612.77	2541.17	3500.00	.00	.00	.00	8.75	606.68
2	613.79	2910.43	4100.00	.00	.00	.00	10.25	608.01
3	615.84	4588.17	7300.00	.00	.00	.00	17.50	609.01

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 21.1

ELEVATION	KO	AREA
599.63	0.00	0.00
600.00	12.11	1.00
601.00	287.80	12.55
602.00	1234.64	36.14
603.00	3158.82	72.83
604.00	5875.94	123.75
605.00	11026.92	186.14
606.00	17624.11	252.27
607.00	25466.00	324.96
608.00	35302.66	432.19
609.00	49264.43	815.79
610.00	68672.82	1203.90
611.00	92771.32	1638.77
612.00	121691.81	2131.88
613.00	153793.59	2574.31
614.00	191096.35	3272.82
615.00	230127.56	3941.61
616.00	274136.29	4716.40
617.00	324740.48	5581.37
618.00	386399.79	6502.37
619.00	453968.38	7481.11
620.00	527604.49	8517.29
621.00	609598.27	9592.34
622.00	701733.25	10704.17
623.00	803104.11	11839.38
624.00	913929.02	12974.58
625.00	1034654.21	14109.79
626.00	1165727.51	15244.99

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

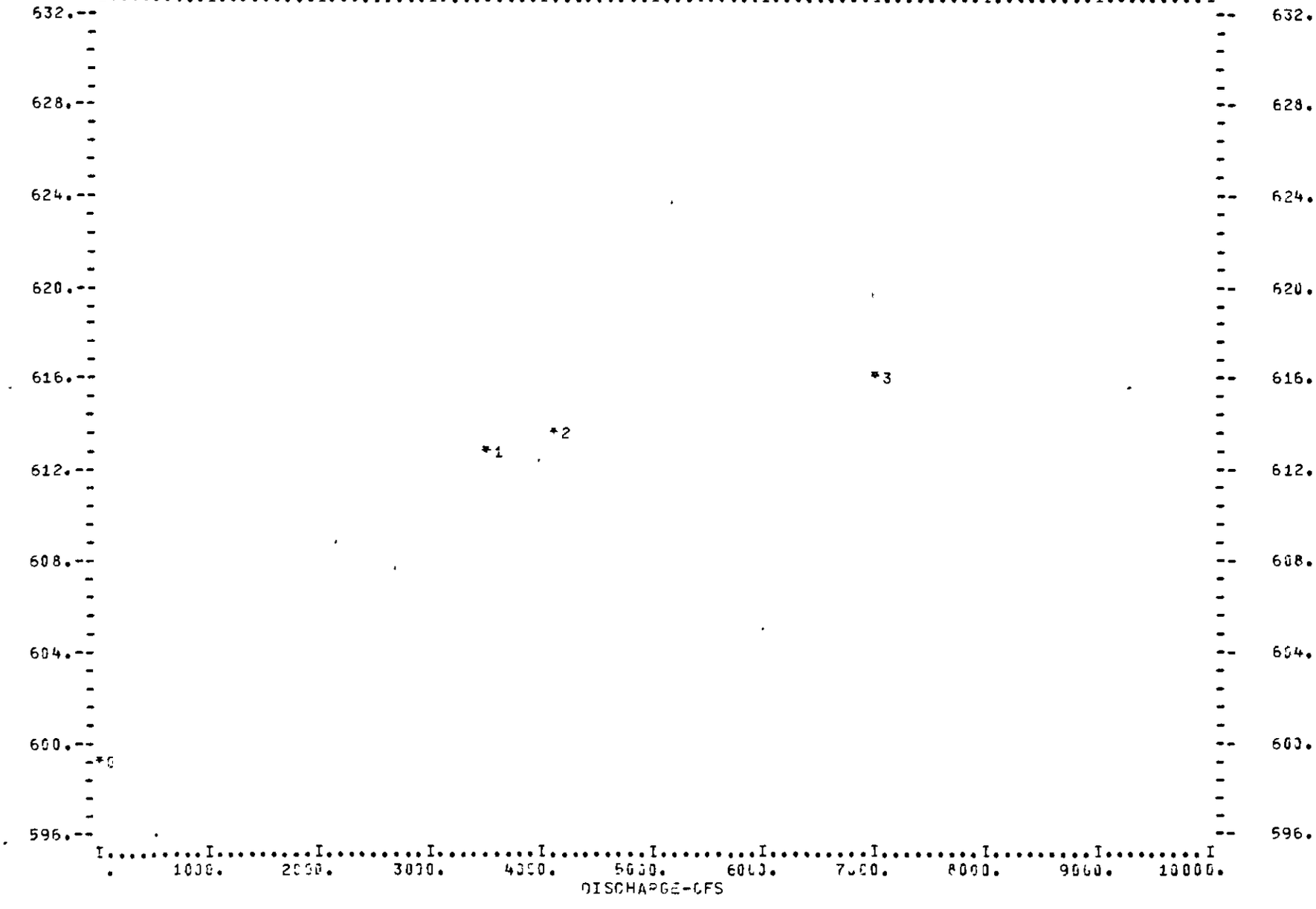
SEGMENT TABLE
CROSS SECTION 21.1
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	62.17	2456.18	981.85
8.75	VELOCITY FPS	2.67	.34	3.16	.62
CORRECT WEIGHTED VEL =		2.67			
	DISCHARGE CFS	4100.00	103.11	2766.37	1230.52
10.25	VELOCITY FPS	2.79	.39	3.35	.68
CORRECT WEIGHTED VEL =		2.77			
	DISCHARGE CFS	7000.00	392.14	4233.46	2374.41
17.50	VELOCITY FPS	3.27	.58	4.14	.82
CORRECT WEIGHTED VEL =		3.26			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 21.1

SCALES ARE 1 INCH = 1000. CFS, AND 4.8 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 21.15

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	600.60	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	607.90	1845.94	2076.99	.00	.00	.00		
1	612.93	6039.34	3500.00	.00	.00	.00	8.75	606.04
2	613.53	6552.66	4100.00	.00	.00	.00	10.25	606.23
3	616.02	9124.57	7000.00	.00	.00	.00	17.50	606.75

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 21.15

ELEVATION	KD	AREA
600.00	0.00	0.00
601.00	58.72	4.93
602.00	1128.07	43.71
603.00	4116.17	99.11
604.00	8654.91	161.84
605.00	14816.34	241.65
606.00	24077.21	549.91
607.00	39996.22	1177.14
608.00	61049.18	1719.42
609.00	92099.85	2482.25
610.00	132174.57	3317.59
611.00	180226.38	4222.84
612.00	235961.51	5170.75
613.00	298650.72	6135.34
614.00	368232.48	7112.68
615.00	444254.95	8103.62
616.00	526793.35	9105.51
617.00	615486.91	10111.28
618.00	709969.25	11121.18
619.00	810515.53	12134.32
620.00	916273.49	13152.00
621.00	1027207.86	14174.21
622.00	1143088.31	15199.83
623.00	1265529.32	16228.85
624.00	1391632.41	17263.95
625.00	1523274.59	18301.63
626.00	1659796.82	19343.21
627.00	1800777.21	20389.97
628.00	1946946.07	21439.33
629.00	2097416.29	22493.36
630.00	2252514.80	23552.53
631.00	2412483.07	24613.96
632.00	2576519.10	25681.22
633.00	2745629.80	26749.93
634.00	2919072.36	27825.62
635.00	3097670.96	28902.22
636.00	3281785.28	29982.48
637.00	3468378.13	31064.47
638.00	3659940.43	32149.13
639.00	3856617.94	33233.60
640.00	4058378.46	34318.16
641.00	4265249.83	35402.72

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

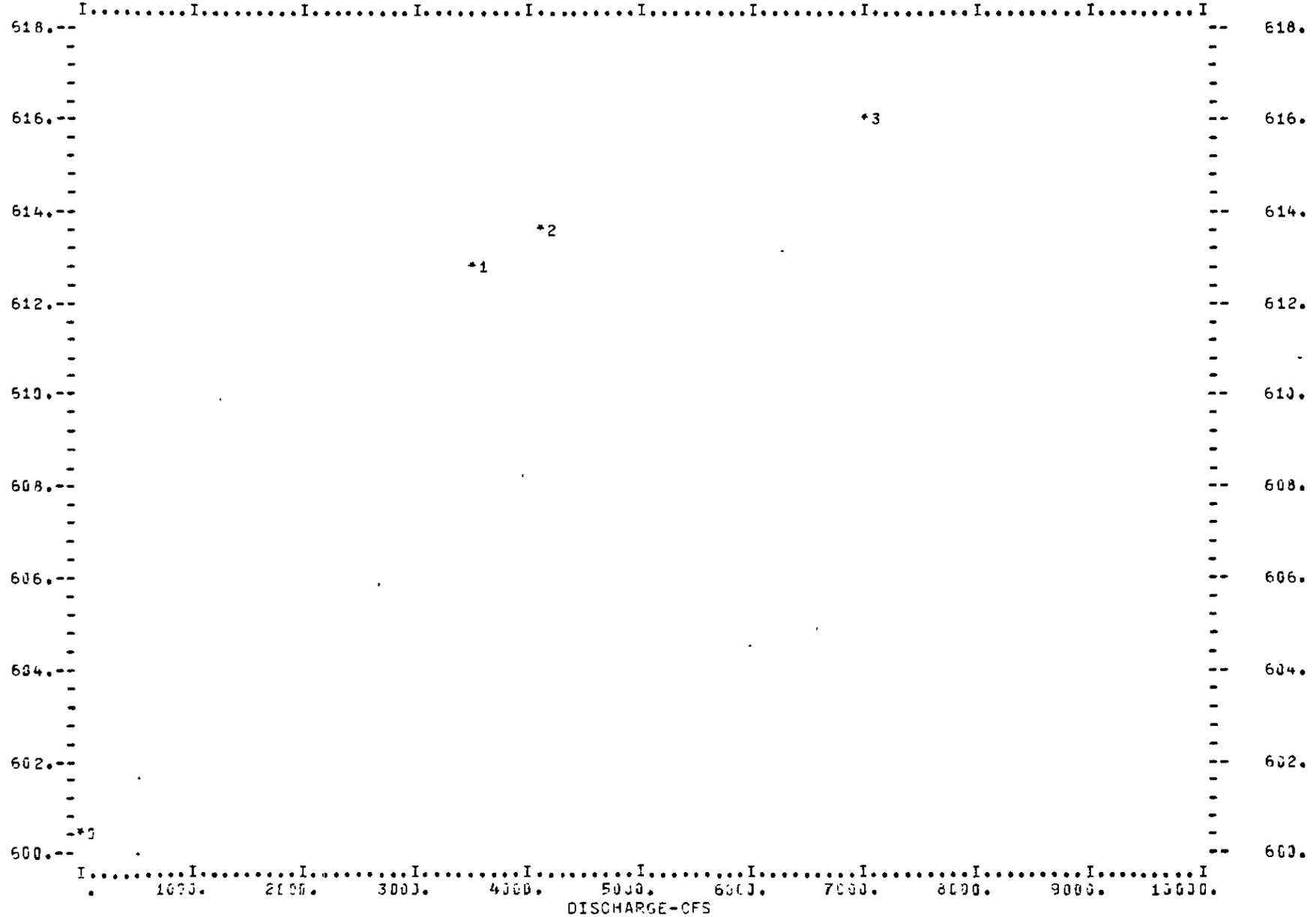
SEGMENT TABLE
CROSS SECTION 21.15
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	121.04	1436.17	1942.78
8.75	VELOCITY FPS	1.10	.24	1.64	.42
CORRECT WEIGHTED VEL =		1.10			
	DISCHARGE CFS	4100.00	169.04	1622.05	2308.91
10.25	VELOCITY FPS	1.15	.27	1.75	.45
CORRECT WEIGHTED VEL =		1.15			
	DISCHARGE CFS	7000.00	454.25	2472.53	4073.22
17.50	VELOCITY FPS	1.37	.40	2.17	.59
CORRECT WEIGHTED VEL =		1.37			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 21.15

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 21.2

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	600.40	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	608.00	647.04	2083.23	.00	.00	.00		
1	613.17	4797.78	3500.00	.00	.00	.00	8.75	607.88
2	613.80	5352.78	4100.00	.00	.00	.00	10.25	608.02
3	616.29	7597.83	7000.00	.00	.00	.00	17.50	608.57

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 21.2

ELEVATION	KD	AREA
600.40	0.00	0.00
601.00	82.35	5.61
602.00	832.03	27.94
603.00	2429.48	63.76
604.00	5532.10	106.65
605.00	9691.74	158.90
606.00	14951.13	213.71
607.00	21419.24	298.38
608.00	31776.28	647.04
609.00	52316.44	1327.24
610.00	83519.23	2101.03
611.00	123812.70	2923.33
612.00	172689.39	3777.74
613.00	229940.58	4649.88
614.00	294615.37	5532.17
615.00	366328.34	6425.06
616.00	444784.62	7328.54
617.00	529165.64	8245.27
618.00	619607.27	9173.47
619.00	715841.14	10110.73
620.00	820431.65	11057.26
621.00	929120.54	12019.24
622.00	1043892.41	12990.49
623.00	1164817.22	13971.23
624.00	1291136.35	14965.22
625.00	1423171.26	15969.81
626.00	1561269.68	16981.46
627.00	1704099.89	18910.76
628.00	1853054.35	19947.13
629.00	2007522.97	20994.10
630.00	2167045.98	21156.38
631.00	2332820.92	22221.81
632.00	2503398.45	23307.41
633.00	2679530.45	24396.98
634.00	2860879.80	25502.44
635.00	3047938.88	26615.86
636.00	3240269.16	27741.19
637.00	3437893.09	28879.10
638.00	3641051.29	31025.41
639.00	3850407.98	31171.71
640.00	4065983.12	32318.01
641.00	4287798.63	33464.32

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

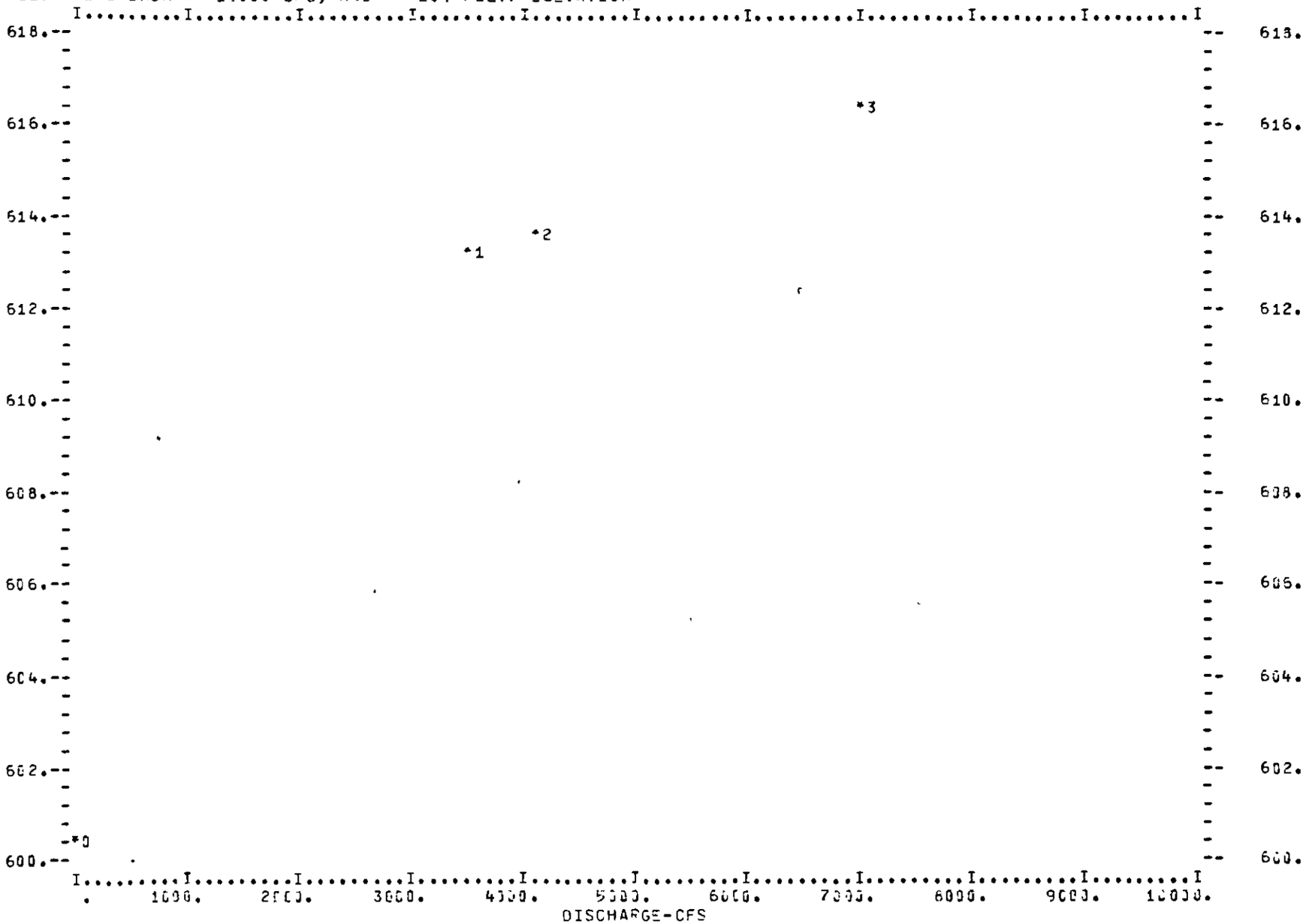
SEGMENT TABLE
CROSS SECTION 21.2
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	442.17	1357.59	1700.24
8.75 VELOCITY FPS	1.30	.44	1.97	.55
CORRECT WEIGHTED VEL =	1.29			
DISCHARGE CFS	4100.00	557.28	1507.46	2035.26
10.25 VELOCITY FPS	1.33	.48	2.06	.59
CORRECT WEIGHTED VEL =	1.33			
DISCHARGE CFS	7000.00	1151.52	2188.24	3660.24
17.50 VELOCITY FPS	1.49	.63	2.42	.75
CORRECT WEIGHTED VEL =	1.48			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 21.2

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PPH PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 21.5

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	604.50	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	611.10	493.00	2011.47	.00	.00	.00		
1	615.98	2800.51	3500.00	.00	.00	.00	8.75	609.78
2	616.69	3212.65	4100.00	.00	.00	.00	10.25	611.11
3	619.29	4751.44	7000.00	.00	.00	.00	17.50	612.18

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 21.5

ELEVATION	KD	AREA
604.50	0.00	0.00
605.00	43.67	4.09
606.00	1289.96	49.41
607.00	4717.78	113.21
608.00	9981.19	182.72
609.00	16845.71	257.57
610.00	25301.22	342.60
611.00	35345.53	466.96
612.00	50410.94	751.35
613.00	70067.18	1152.14
614.00	96311.93	1664.88
615.00	129219.70	2233.35
616.00	168015.54	2839.72
617.00	211769.63	3393.98
618.00	260434.09	3985.07
619.00	313706.49	4583.37
620.00	371237.00	5139.77
621.00	432032.11	5904.28
622.00	498771.38	6426.51
623.00	568936.63	7054.83
624.00	643086.76	7690.51
625.00	720885.55	8335.64
626.00	802753.13	8987.08
627.00	888598.15	9644.89
628.00	977847.07	10312.84
629.00	1071073.56	10986.80
630.00	1168148.10	11666.76
631.00	1268958.82	12357.53
632.00	1372926.37	13053.10
633.00	1480810.63	13757.18
634.00	1592209.26	14469.99
635.00	1707498.95	15186.72
636.00	1825998.30	15915.62
637.00	1948517.37	16647.05
638.00	2075115.77	17389.10
639.00	2205490.58	18134.05
641.00	2339.97.21	18885.78
641.00	2476126.59	19642.61
642.00	2616504.90	20404.55
643.00	2760831.96	21166.49

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

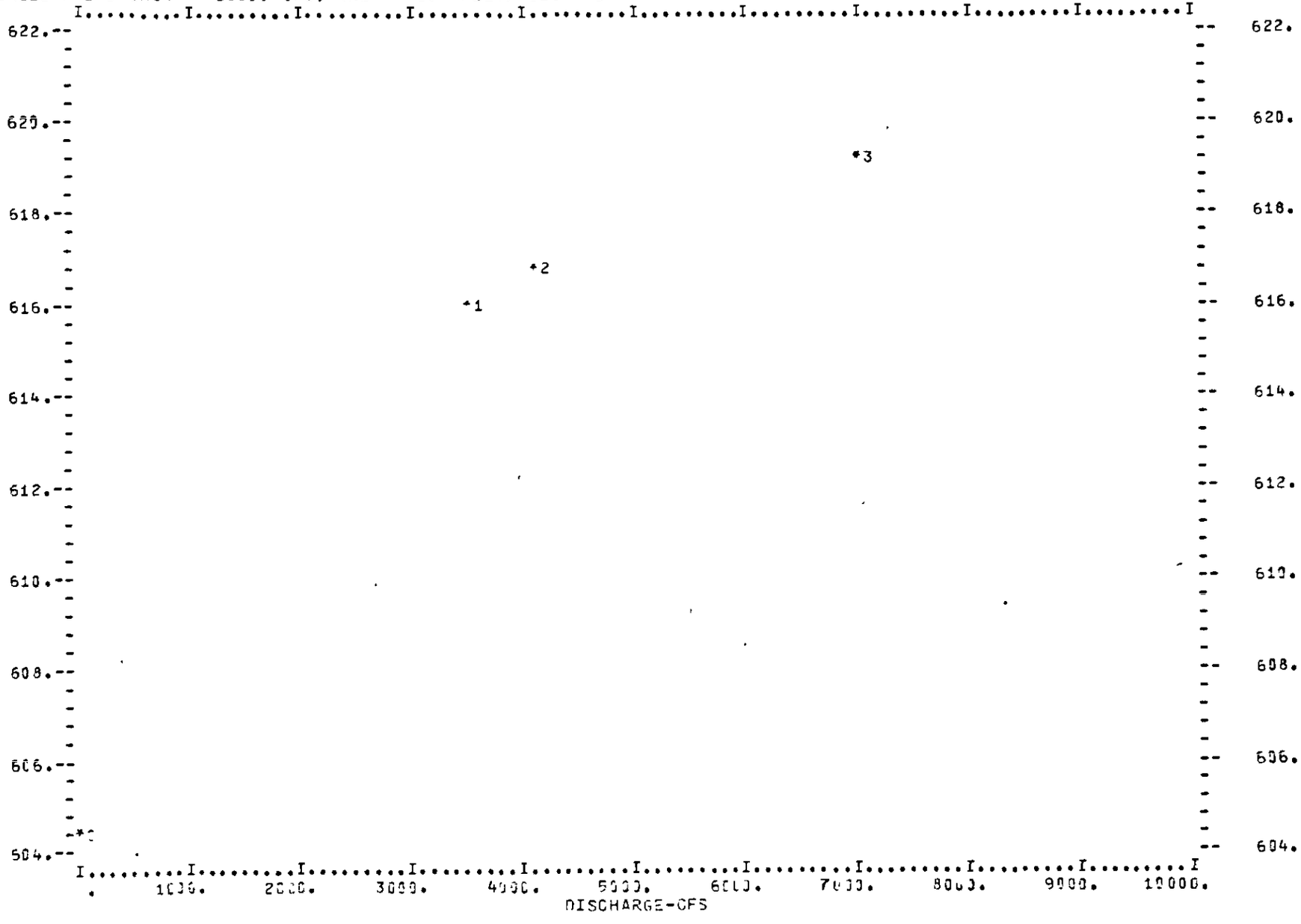
SEGMENT TABLE
CROSS SECTION 21.5
VELOCITY INCREMENT= .00 FPS

CSH	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	973.56	2390.00	136.44
8.75 VELOCITY FPS	2.33	.57	2.78	.62
CORRECT WEIGHTED VEL =	2.32			
DISCHARGE CFS	4110.00	1265.88	2664.48	188.64
10.25 VELOCITY FPS	2.37	.62	2.89	.66
CORRECT WEIGHTED VEL =	2.36			
DISCHARGE CFS	7000.00	2722.67	3949.91	327.42
17.50 VELOCITY FPS	2.65	.85	3.43	.84
CORRECT WEIGHTED VEL =	2.64			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 21.5

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

PATING TABLE

CROSS SECTION 21.7

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	603.80	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	612.99	712.42	2429.00	.00	.00	.00		
1	616.92	4463.22	3600.00	.00	.00	.00	8.75	609.62
2	617.62	5332.55	4100.00	.00	.00	.00	10.25	610.06
3	620.14	8528.17	7000.00	.00	.00	.00	17.50	613.22

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 21.7

ELEVATION	KO	AREA
603.00	0.00	0.00
604.00	6.36	.63
605.00	497.75	26.99
606.00	1868.32	56.29
607.00	4811.43	114.44
608.00	9768.34	185.67
609.00	16862.00	267.57
610.00	25949.75	353.92
611.00	36717.79	444.70
612.00	49198.32	547.14
613.00	64219.89	772.56
614.00	87437.89	1432.37
615.00	122936.11	2357.42
616.00	172384.95	3424.25
617.00	233499.29	4556.31
618.00	304562.18	5766.30
619.00	387160.68	7135.92
620.00	482060.66	8340.57
621.00	588291.15	9667.58
622.00	705.65.32	11008.40
623.00	829247.60	12373.52
624.00	963962.42	13752.80
625.00	1109259.37	15143.51
626.00	1265049.64	16542.16
627.00	1428619.63	17945.05
628.00	1602130.93	19350.15
629.00	1782509.76	20759.77
630.00	1971113.14	22172.80
631.00	2168699.86	23588.09
632.00	2371785.46	25009.05
633.00	2583531.70	26432.41
634.00	2802444.44	27859.39
635.00	3028465.63	29290.20
636.00	3262316.06	30723.55
637.00	3502.12.07	32152.00
638.00	3750303.43	33601.73
639.00	4003337.05	35147.84
640.00	4265633.32	36493.94
641.00	4537261.40	37940.05
642.00	4818284.02	39386.15

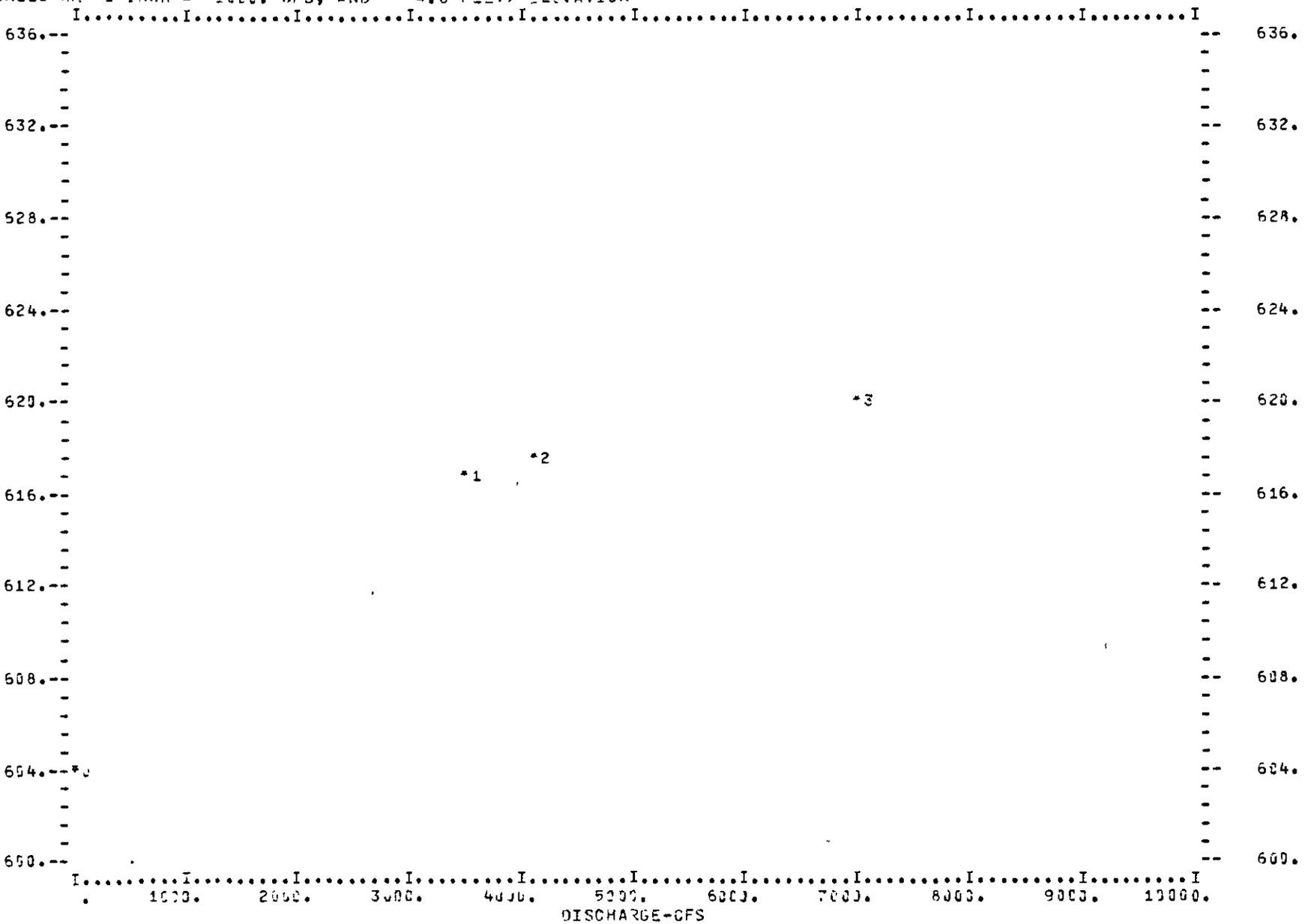
PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

SEGMENT TABLE
CROSS SECTION 21.7
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	740.98	2163.04	595.98
8.75	VELOCITY FPS	1.63	.37	2.05	.43
CORRECT WEIGHTED VEL =		1.63			
	DISCHARGE CFS	4100.00	997.35	2336.40	766.25
10.25	VELOCITY FPS	1.60	.40	2.07	.46
CORRECT WEIGHTED VEL =		1.58			
	DISCHARGE CFS	7000.00	2293.72	3174.95	1531.33
17.50	VELOCITY FPS	1.59	.31	2.27	.59
CORRECT WEIGHTED VEL =		1.58			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 21.7
SCALES ARE 1 INCH = 1000. CFS, AND 4.8 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 21.75

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	604.90	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	613.40	564.15	2340.19	.00	.00	.00		
1	617.61	1403.78	3530.00	.00	.00	.00	8.75	611.01
2	618.33	1562.77	4100.00	.00	.00	.00	10.25	611.47
3	620.96	2251.17	7000.00	.00	.00	.00	17.50	614.01

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 21.75

ELEVATION	KD	AREA
604.90	0.00	0.00
605.00	3.36	.17
606.00	209.24	10.74
607.00	1124.30	38.98
608.00	3569.22	93.21
609.00	7993.28	159.82
610.00	14216.96	235.42
611.00	22199.60	317.32
612.00	31841.88	405.38
613.00	43237.96	507.66
614.00	57496.00	654.13
615.00	76468.19	849.22
616.00	98616.92	1057.12
617.00	123589.15	1275.18
618.00	151226.38	1488.25
619.00	179840.11	1719.48
620.00	210955.27	1977.02
621.00	245172.18	2263.43
622.00	282578.90	2579.90
623.00	324264.82	2923.96
624.00	371437.61	3291.88
625.00	422309.35	3669.63
626.00	476610.44	4055.99
627.00	534526.87	4455.28
628.00	594694.51	4865.33
629.00	658843.05	5281.64
630.00	725995.86	5712.73
631.00	796532.86	6152.01
632.00	870417.77	6599.51
633.00	947371.26	7061.77
634.00	1027765.75	7538.90
635.00	1111358.89	8012.24
636.00	1198320.23	8502.82
637.00	1288624.29	9002.62
638.00	1382190.92	9515.34
639.00	1479254.73	10033.61
640.00	1579507.21	10568.49
641.00	1683337.51	11117.17
642.00	1791386.61	11663.38
643.00	1901248.88	12221.62
644.00	2016969.30	12798.02
645.00	2136546.93	13374.42

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

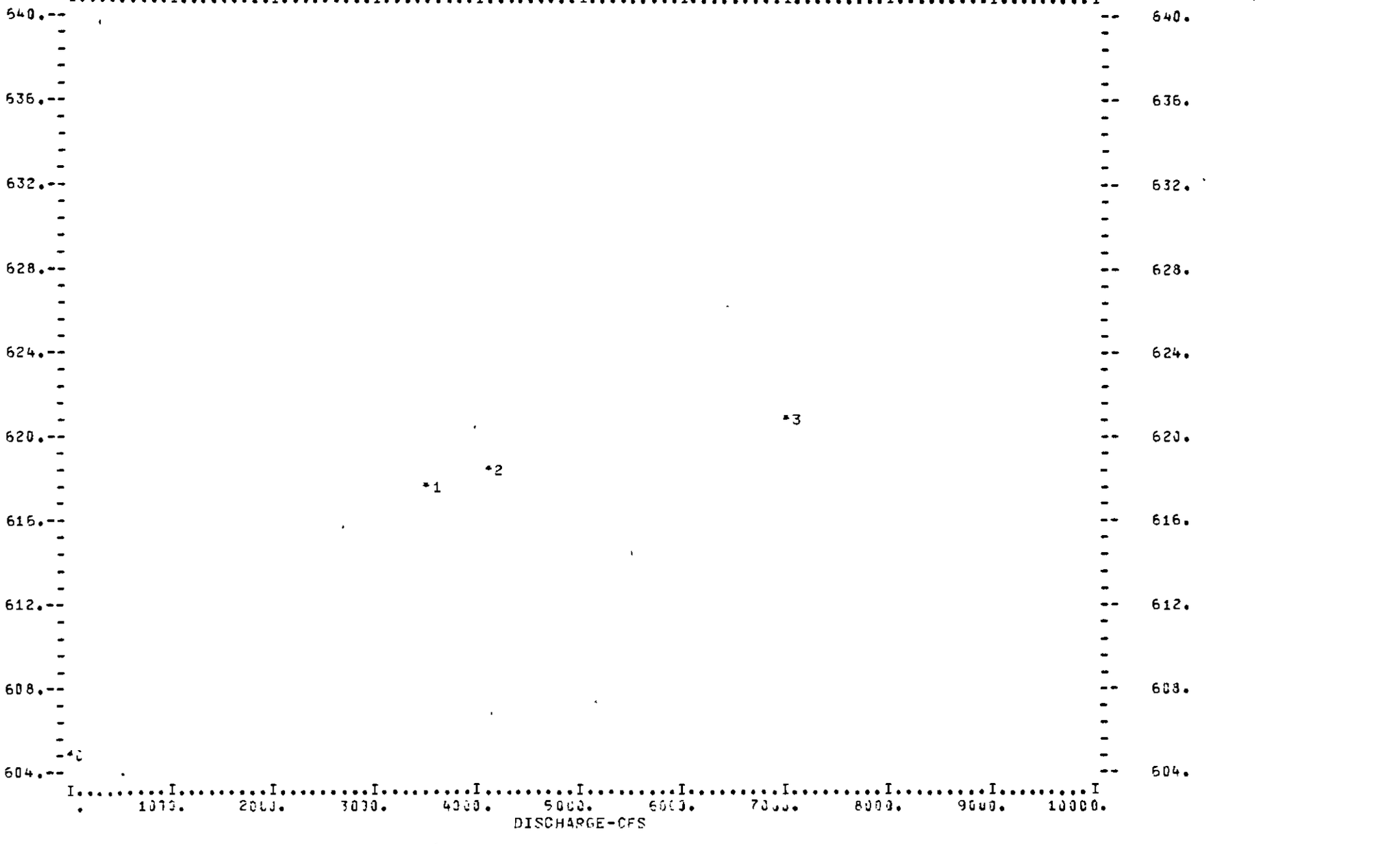
SEGMENT TABLE
CROSS SECTION 21.75
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	319.14	3154.23	27.62
8.75 VELOCITY FPS	3.11	.81	3.26	.63
CORRECT WEIGHTED VEL =	3.10			
DISCHARGE CFS	4100.00	414.37	3546.30	39.33
10.25 VELOCITY FPS	3.32	.89	3.50	.71
CORRECT WEIGHTED VEL =	3.31			
DISCHARGE CFS	7000.00	883.72	6004.61	111.68
17.50 VELOCITY FPS	4.27	1.36	4.58	1.02
CORRECT WEIGHTED VEL =	4.26			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 21.75

SCALES ARE 1 INCH = 1000. CFS, AND 4.8 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 21.8

ELEVATION	KO	AREA
607.66	0.00	0.00
608.00	73.32	7.49
609.00	2295.83	76.92
610.00	7343.11	154.74
611.00	13787.62	238.74
612.00	22427.39	328.36
613.00	32678.61	464.51
614.00	47999.19	1012.66
615.00	80582.96	2181.50
616.00	131446.75	3913.69
617.00	199369.37	4921.61
618.00	282591.54	6342.30
619.00	378419.83	7756.50
620.00	485794.14	9194.36
621.00	604884.34	10625.39
622.00	734712.39	12359.79
623.00	873748.48	13498.41
624.00	1022933.16	14940.40
625.00	1181652.87	15385.99
626.00	1350419.61	17834.38
627.00	1527699.21	19286.71
628.00	1713495.59	20742.98
629.00	1908471.95	22202.21
630.00	2112307.64	23664.39
631.00	2323871.14	25131.84
632.00	2543633.78	26601.54
633.00	2771032.12	28074.62
634.00	3006336.89	29552.20
635.00	3250227.33	31032.03
636.00	3501136.16	32516.36
637.00	3759697.13	34004.27
638.00	4026269.16	35494.58
639.00	4299478.39	36989.95
64 .00	4581074.15	38486.59
641.00	4868565.01	39989.55
642.00	5164254.83	41493.79
643.00	5466317.46	43003.08
644.00	5775986.24	44514.37
645.00	6092674.91	46030.76
646.00	6416953.15	47548.07
647.00	6748352.73	49067.67
648.00	7086702.01	50588.37
649.00	7431232.73	52110.74
650.00	7783688.76	53633.11

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

SEGMENT TABLE
CROSS SECTION 21.8
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	1906.79	1526.18	67.04
8.75	VELOCITY FPS	1.07	.39	1.55	.32
CORRECT WEIGHTED VEL =		1.06			
	DISCHARGE CFS	4100.00	2358.33	1653.76	87.90
10.25	VELOCITY FPS	1.03	.41	1.54	.34
CORRECT WEIGHTED VEL =		1.03			
	DISCHARGE CFS	7000.00	4507.90	2301.19	190.91
17.50	VELOCITY FPS	1.03	.49	1.64	.42
CORRECT WEIGHTED VEL =		1.02			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 21.8

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	607.60	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	614.73	1810.21	2425.29	.00	.00	.00		
1	617.85	6123.48	3500.00	.00	.00	.00	8.75	611.99
2	618.57	7153.04	4100.00	.00	.00	.00	10.25	613.44
3	621.30	11049.35	7000.00	.00	.00	.00	17.50	614.10

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 21.85

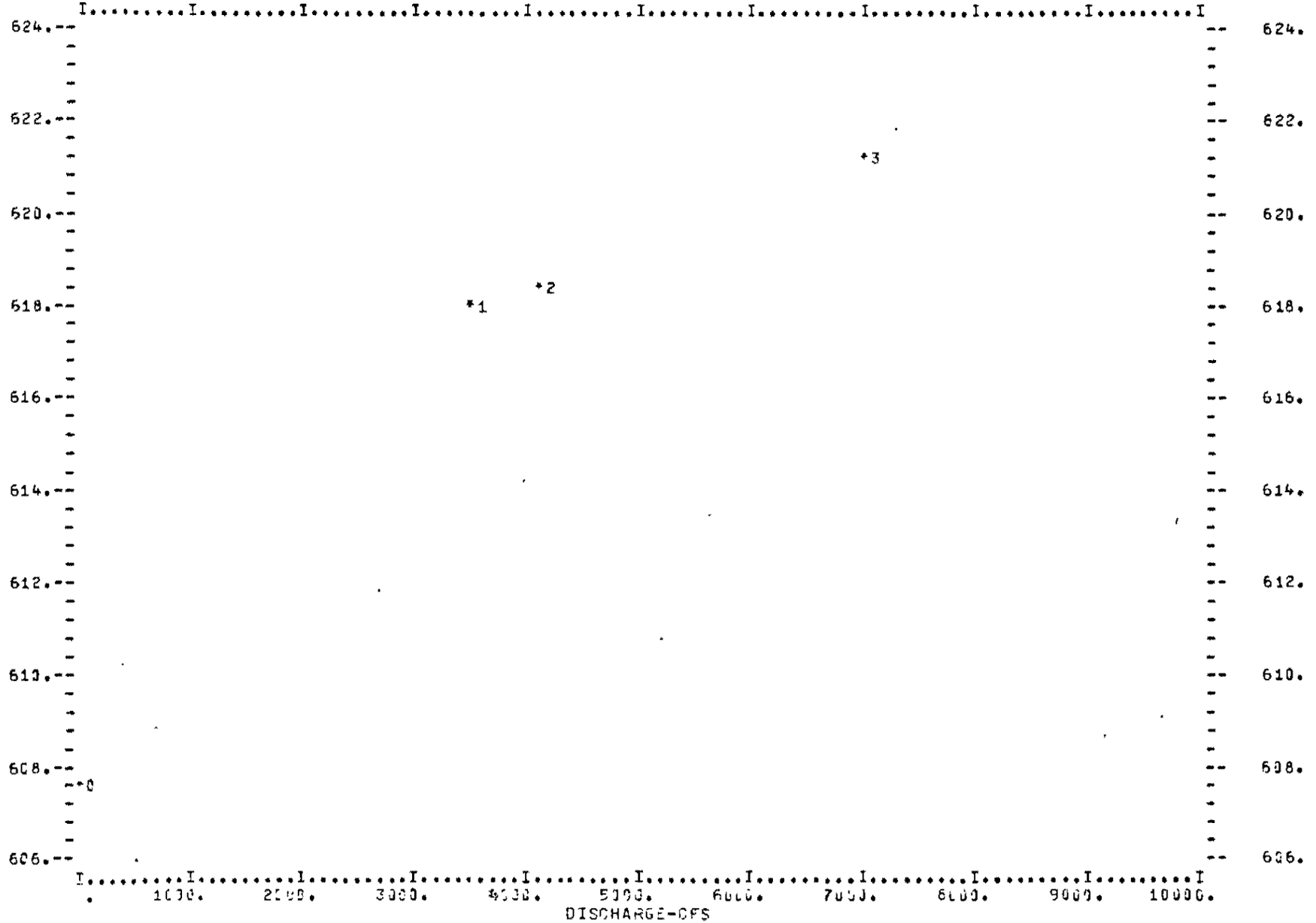
NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	616.00	0.00	0.00	0.00	0.00	0.00	0.00	
1	619.36	736.12	3500.00	.00	.00	.00	8.75	613.77
2	620.13	834.27	4100.00	.00	.00	.00	10.25	614.33
3	623.00	1299.60	7000.00	.00	.00	.00	17.50	615.66

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 21.8

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 21.85

ELEVATION	KD	AREA
606.00	[illegible]	0.00
607.00	302.14	12.17
608.00	1125.16	30.37
609.00	2523.77	54.45
610.00	4399.06	88.01
611.00	7476.67	131.66
612.00	11972.63	185.21
613.00	17725.40	239.59
614.00	24648.61	299.64
615.00	32623.45	363.75
616.00	41687.29	431.70
617.00	51861.85	503.47
618.00	63189.46	582.83
619.00	76207.57	693.69
620.00	91105.22	817.97
621.00	107615.98	958.46
622.00	126313.37	1118.21
623.00	147477.65	1299.37
624.00	171275.34	1502.00
625.00	199497.94	1724.35
626.00	231579.61	1953.72
627.00	267546.32	2186.26
628.00	307618.30	2423.79
629.00	351643.98	2667.94
630.00	398614.49	2916.50
631.00	448962.00	3165.06
632.00	504043.89	3413.63
633.00	563417.21	3662.19

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

SEGMENT TABLE
CROSS SECTION 21.85
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	41.75	3458.25	.00
8.75	VELOCITY FPS	5.00	.87	5.02	.00
CORRECT WEIGHTED VEL =		4.99			
	DISCHARGE CFS	4100.00	89.32	4010.68	.00
10.25	VELOCITY FPS	5.28	1.10	5.32	.00
CORRECT WEIGHTED VEL =		5.27			
	DISCHARGE CFS	7000.00	473.67	6526.33	.00
17.50	VELOCITY FPS	6.23	1.67	6.42	.00
CORRECT WEIGHTED VEL =		6.21			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 21.9

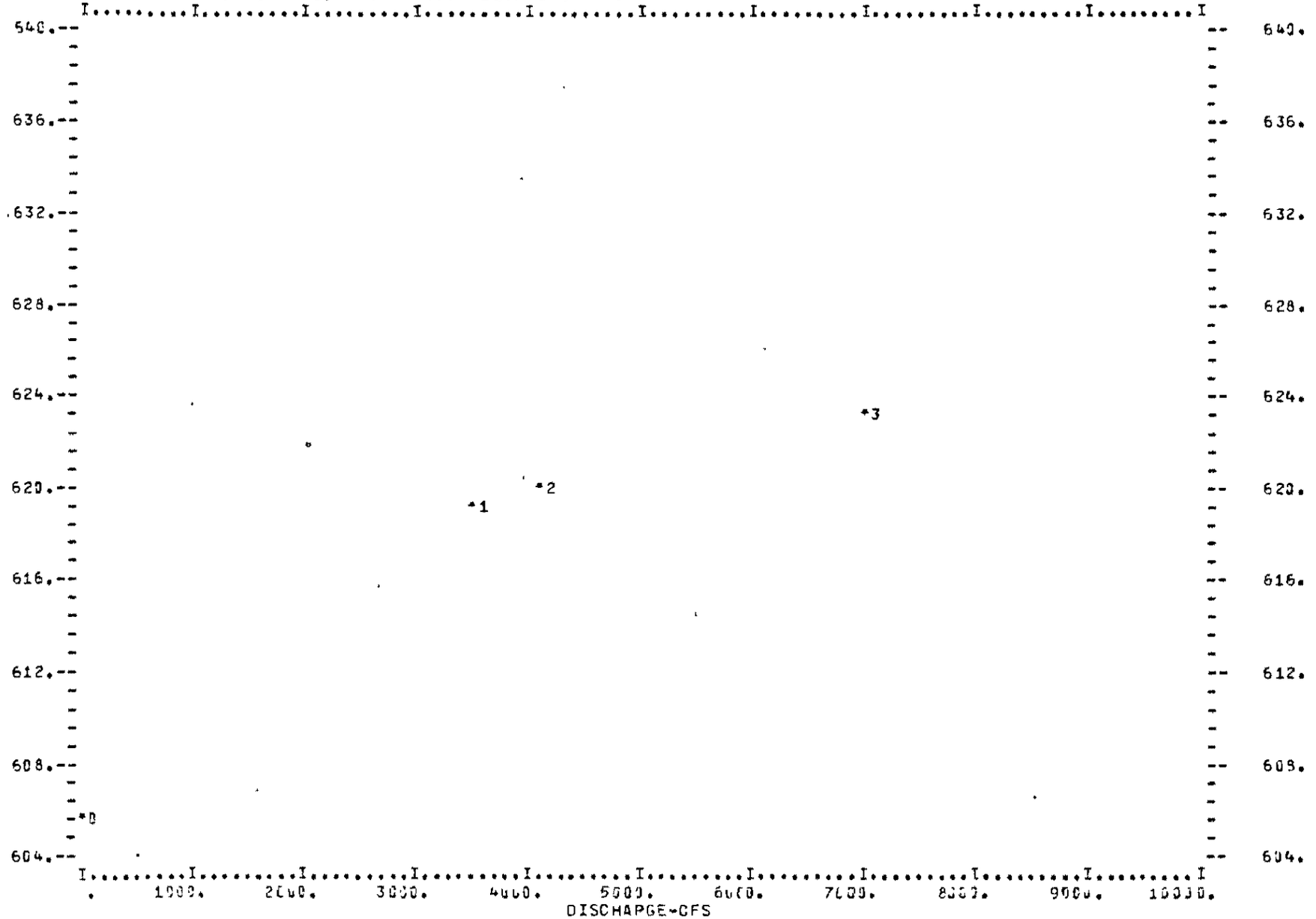
NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	609.00	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	613.73	352.91	1484.94	.00	.00	.00		
1	620.08	1751.51	3500.00	.00	.00	.00	8.75	613.41
2	620.88	2010.27	4100.00	.00	.00	.00	10.25	614.00
3	623.88	3110.21	7000.00	.00	.00	.00	17.50	615.68

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 21.85

SCALES ARE 1 INCH = 1000. CFS, AND 4.8 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 21.9

ELEVATION	KO	AREA
609.00	0.00	0.00
610.00	1393.32	54.68
611.00	5261.60	126.05
612.00	11094.97	205.23
613.00	19057.87	290.64
614.00	29057.76	387.04
615.00	42102.18	524.43
616.00	58321.64	688.72
617.00	77671.75	871.89
618.00	100080.49	1134.92
619.00	128458.61	1422.74
620.00	160938.39	1726.48
621.00	195706.48	2047.73
622.00	238124.24	2413.31
623.00	287416.31	2783.02
624.00	340997.36	3155.37
625.00	399293.03	3529.86
626.00	461680.91	3906.55
627.00	527903.31	4285.56
628.00	597758.66	4667.08
629.00	671454.15	5050.48
630.00	748842.46	5435.75
631.00	829215.85	5824.16
632.00	913071.76	6214.58
633.00	1000584.52	6606.34
634.00	1090698.43	7001.69
635.00	1184305.69	7398.46
636.00	1280988.88	7797.38
637.00	1381457.36	8199.17
638.00	1483168.35	8602.43
639.00	1588584.87	9008.73
640.00	1696934.97	9416.64
641.00	1808068.77	9826.97
642.00	1921963.84	10239.72
643.00	2038778.89	10654.07
644.00	2158027.06	11071.65
645.00	2280342.09	11490.03
646.00	2404756.02	11912.66
647.00	2532567.53	12335.29
648.00	2661999.16	12762.40
649.00	2794731.85	13189.50
650.00	2929472.31	13621.08
651.00	3067228.52	14052.66
652.00	3206977.86	14488.71
653.00	3349663.67	14924.77
654.00	3494294.67	15365.52
655.00	3641785.29	15806.27
656.00	3793203.33	16251.16
657.00	3947306.74	16694.83
658.00	4105328.29	17139.50
659.00	4265761.93	17584.18
660.00	4429101.33	18028.85

FAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

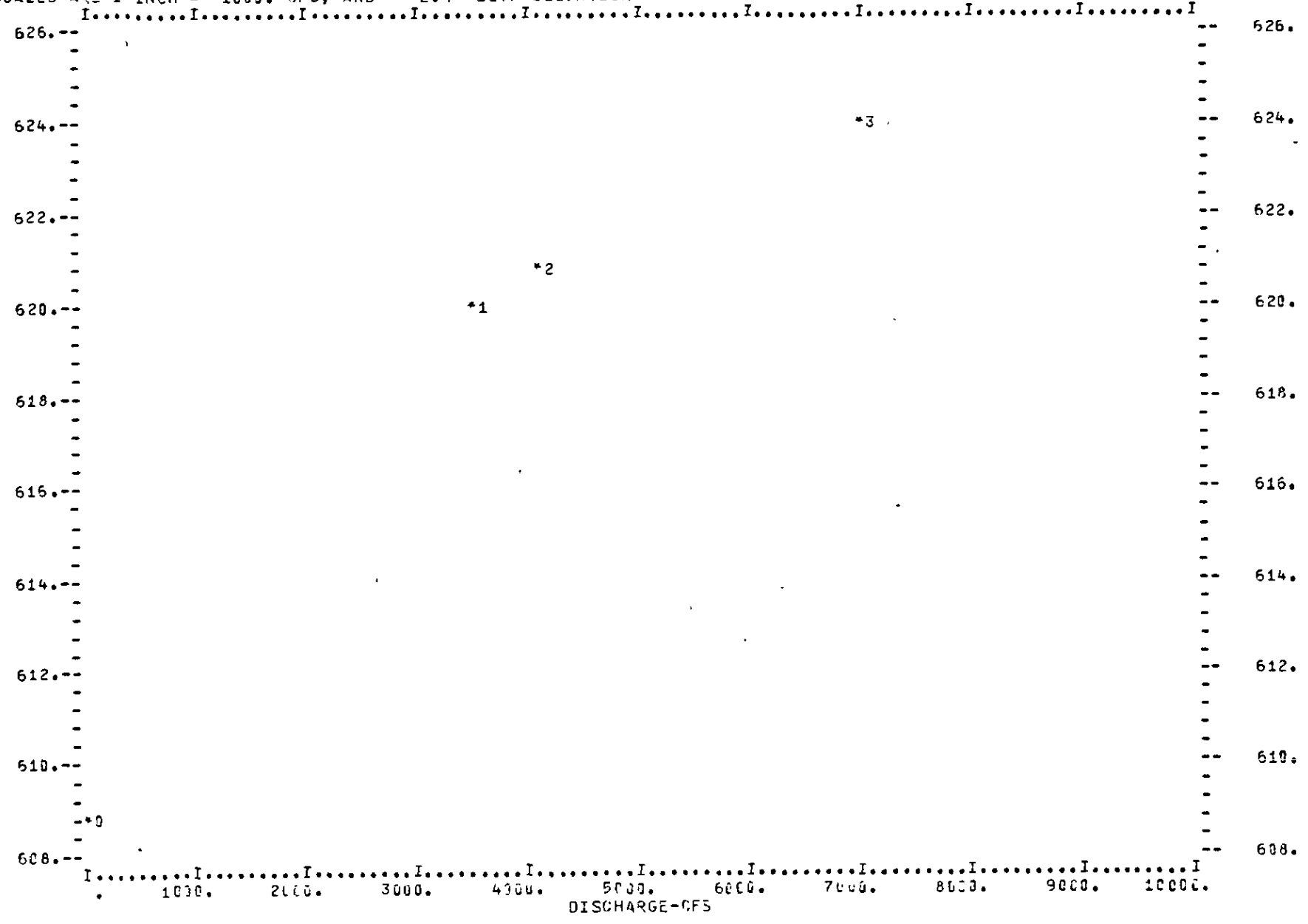
SEGMENT TABLE
CROSS SECTION 21.9
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	401.80	2742.04	356.16
8.75 VELOCITY FPS	2.66	1.18	2.96	.73
CORRECT WEIGHTED VEL =	2.66			
DISCHARGE CFS	4100.00	595.72	3110.88	483.41
10.25 VELOCITY FPS	2.76	1.19	3.11	.82
CORRECT WEIGHTED VEL =	2.76			
DISCHARGE CFS	7000.00	1413.07	4525.18	1061.75
17.50 VELOCITY FPS	3.00	1.63	3.57	1.09
CORRECT WEIGHTED VEL =	2.99			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 21.9

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



COEFK	AKB	DLTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
1.4121	1.3719	.0911	.7425	.0000	-.0508	.4824	1.0000	1.0000	1011.1408	3852.0547	2214.2791
DCRIT	613.45 KBCRIT =										
1.4781	1.4641	.0864	.7232	.0000	-.0724	.4600	1.0000	1.0000	1108.8685	4460.4399	2510.4462
DCRIT	613.88 KBCRIT =										
1.6638	1.7108	.0804	.6715	.0000	-.1274	.4027	1.0000	1.0000	1364.2809	6742.9505	3628.1313
DCRIT	614.90 KBCRIT =										

PAW PAW PIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 22.0

NO.	HW	CFS	HL	TW	CSM
0	607.70	0.00	0.00	0.00	0.00
1	620.56	3500.00	.40	620.16	8.75
2	621.44	4100.00	.48	620.96	10.25
3	624.60	7000.00	.64	623.96	17.50

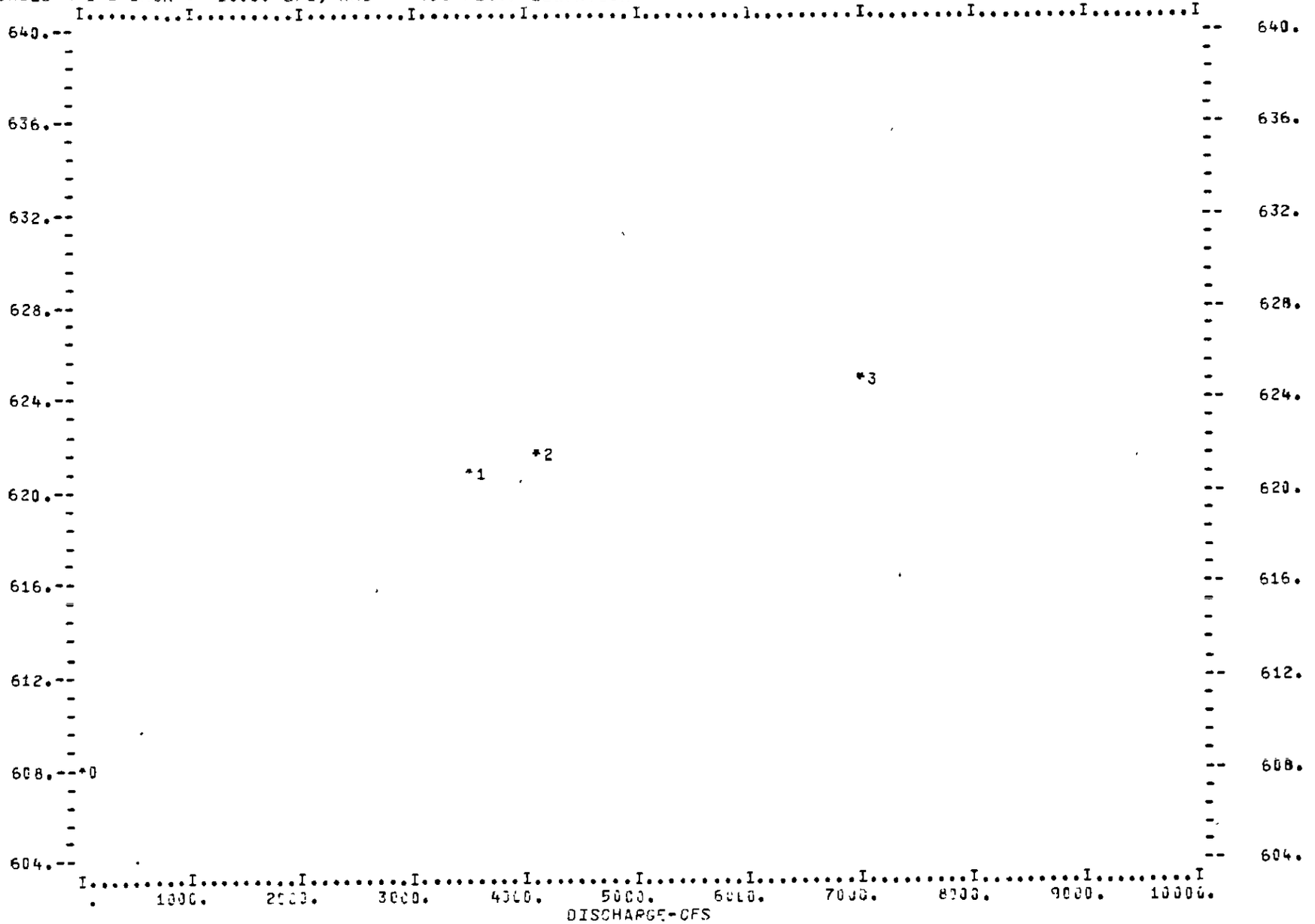
MIN ROAD ELEVATION 622.80

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 621.70 OPENING NO.= 1

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

ROAD SECTION 22.0

SCALES ARE 1 INCH = 1000. CFS, AND 4.8 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 22.1

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	610.00	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	615.00	315.41	1638.71	.00	.00	.00		
1	620.68	2432.87	3500.00	.00	.00	.00	8.75	615.72
2	621.57	2993.05	4100.00	.00	.00	.00	10.25	615.93
3	624.73	5141.36	7000.00	.00	.00	.00	17.50	616.75

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 22.1

ELEVATION	KD	AREA
610.00	0.00	0.00
611.00	432.64	22.00
612.00	2334.40	66.45
613.00	5786.35	124.27
614.00	11021.57	190.69
615.00	18225.25	315.41
616.00	29446.14	552.44
617.00	47273.39	876.13
618.00	72033.76	1219.20
619.00	102606.01	1582.33
620.00	138553.54	2020.52
621.00	184021.02	2627.67
622.00	238753.30	3268.45
623.00	301439.30	3934.99
624.00	372429.93	4623.76
625.00	451962.60	5332.09
626.00	539647.55	6058.58
627.00	634755.10	6803.05
628.00	737030.82	7566.60
629.00	846359.54	8350.70
630.00	963373.16	9150.18
631.00	1088676.39	9965.06
632.00	1224195.64	10795.55
633.00	1367732.93	11631.18
634.00	1519157.85	12470.24
635.00	1675971.55	13318.43
636.00	1840385.01	14170.28
637.00	2011426.72	15027.61
638.00	2188453.39	15892.26
639.00	2372607.17	16760.67
640.00	2562395.82	17636.85
641.00	2759067.19	18517.14
642.00	2961767.59	19403.60
643.00	3170577.92	20296.22
644.00	3385913.67	21192.95
645.00	3606687.89	22097.92
646.00	3834422.68	23004.94
647.00	4066881.17	23922.80
648.00	4306666.67	24840.67
649.00	4551064.60	25769.96
650.00	4802615.26	26699.25
651.00	5061341.31	27628.54
652.00	5327264.93	28557.83

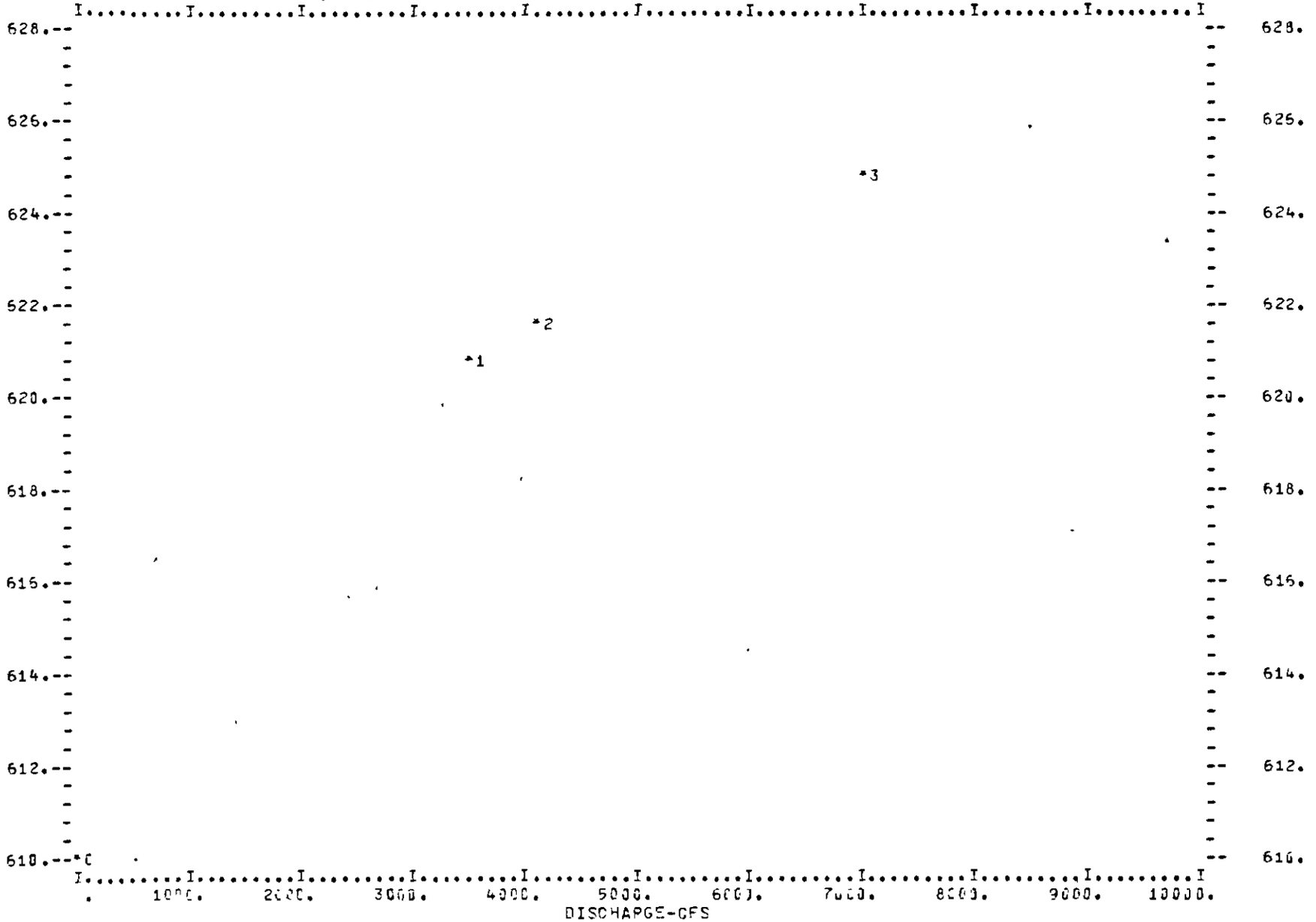
PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

SEGMENT TABLE
CROSS SECTION 22.1
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3501.00	1558.78	1834.04	107.18
8.75	VELOCITY FPS	1.98	1.08	2.52	.41
CORRECT WEIGHTED VEL =		1.97			
	DISCHARGE CFS	4100.00	1851.14	1994.96	253.89
10.25	VELOCITY FPS	1.90	1.39	2.49	.51
CORRECT WEIGHTED VEL =		1.89			
	DISCHARGE CFS	7000.00	3147.27	2749.37	1103.36
17.5	VELOCITY FPS	1.83	1.19	2.57	.77
CORRECT WEIGHTED VEL =		1.82			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 22.1
SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 22.5

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	614.00	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	615.00	315.41	1625.57	.00	.00	.00		
1	620.77	2485.26	3500.00	.00	.00	.00	8.75	615.72
2	621.64	3140.06	4100.00	.00	.00	.00	10.25	615.93
3	624.79	5179.40	7000.00	.00	.00	.00	17.50	616.75

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KO TABLE
CROSS SECTION 22.5

ELEVATION	KO	AREA
610.00	0.00	0.00
611.00	432.64	22.00
612.00	2334.48	66.45
613.00	5786.35	124.27
614.00	11021.57	190.69
615.00	18226.25	315.41
616.00	29446.14	552.44
617.00	47273.33	876.13
618.00	72033.76	1219.20
619.00	102666.01	1582.33
620.00	138553.54	2020.52
621.00	184021.02	2627.67
622.00	238753.30	3268.45
623.00	301439.30	3934.99
624.00	372429.83	4623.76
625.00	451962.60	5332.09
626.00	539647.55	6058.58
627.00	634705.10	6803.05
628.00	737130.82	7566.60
629.00	846859.54	8350.70
630.00	963373.10	9150.18
631.00	1088.79.39	9965.06
632.00	1224105.04	10795.55
633.00	1367732.93	11631.18
634.00	1519157.85	12476.24
635.00	1675971.55	13318.43
636.00	1840385.01	14176.28
637.00	2011426.72	15027.61
638.00	2188453.38	15892.26
639.00	2372607.17	16760.67
640.00	2562395.82	17636.35
641.00	2759067.19	18517.14
642.00	2961767.59	19403.60
643.00	3170577.92	20296.22
644.00	3385913.67	21192.96
645.00	3606687.89	22097.92
646.00	3834422.08	23004.94
647.00	4066881.17	23922.80
648.00	4306666.67	24841.67
649.00	4551.64.64	25769.96
650.00	4802615.26	26699.25
651.00	5061341.31	27628.54
652.00	5327254.93	28557.83

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

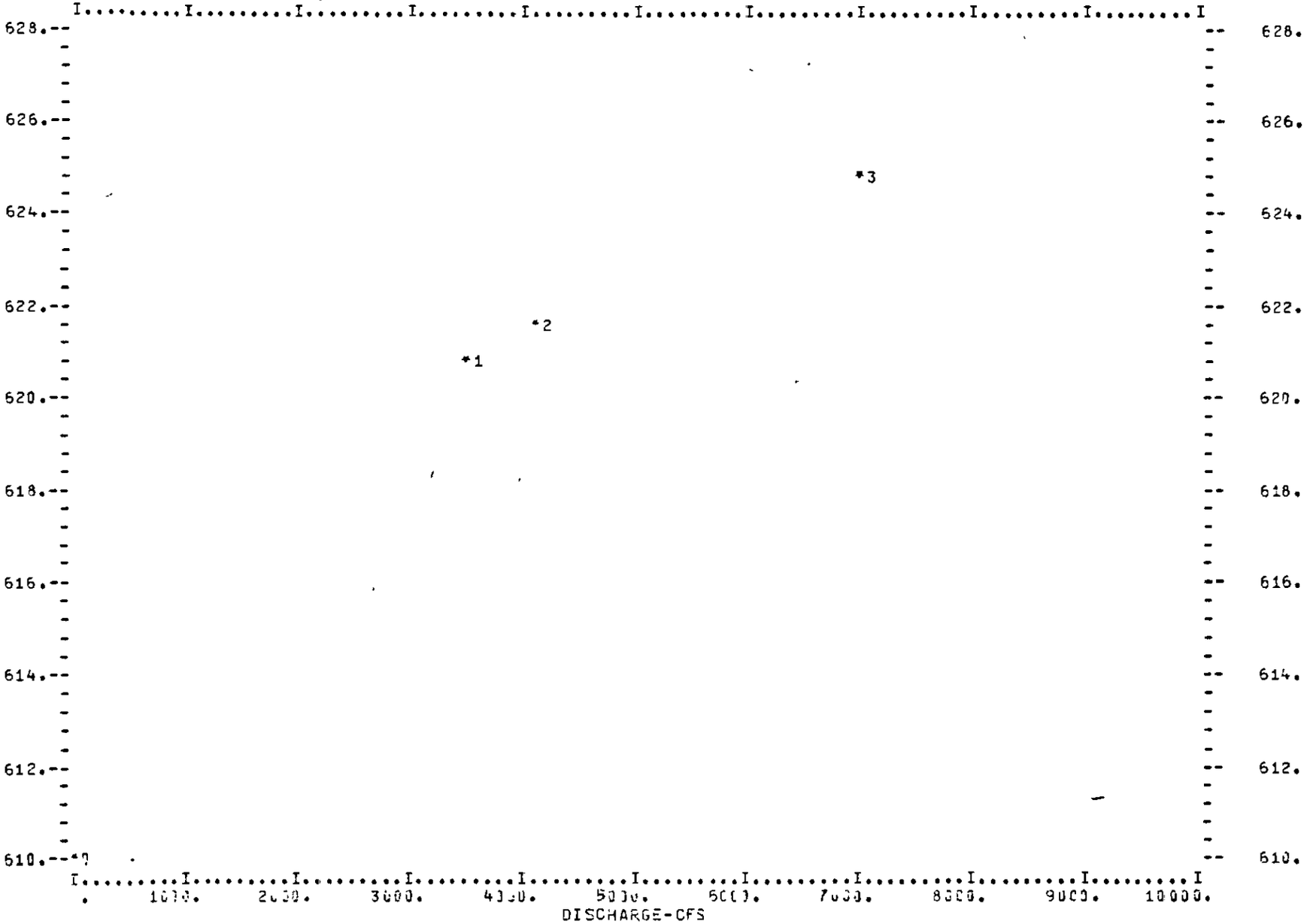
SEGMENT TABLE
CROSS SECTION 22.5
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3900.00	1562.66	1822.21	115.13
8.75 VELOCITY FPS	1.94	1.06	2.48	.41
CORRECT WEIGHTED VEL =	1.93			
DISCHARGE CFS	4100.00	1952.14	1983.63	264.23
10.25 VELOCITY FPS	1.87	1.08	2.45	.51
CORRECT WEIGHTED VEL =	1.86			
DISCHARGE CFS	7000.00	3146.81	2740.66	1112.53
17.50 VELOCITY FPS	1.81	1.18	2.55	.77
CORRECT WEIGHTED VEL =	1.81			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 22.5

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

RATING TABLE

CROSS SECTION 22.95

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	609.50	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	617.00	1357.48	2314.09	.00	.00	.00		
1	620.84	6955.02	3500.00	.00	.00	.00	8.75	612.21
2	621.71	8849.74	4103.00	.00	.00	.00	10.25	612.48
3	624.85	16598.02	7000.00	.00	.00	.00	17.50	613.60

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

KD TABLE
CROSS SECTION 22.95

ELEVATION	KD	AREA
609.50	0.00	0.00
610.00	586.40	39.95
611.00	6549.97	197.87
612.00	17907.05	368.91
613.00	33589.93	548.72
614.00	53252.52	737.57
615.00	76754.91	935.03
616.00	103971.95	1141.43
617.00	135134.65	1357.48
618.00	175067.42	1933.35
619.00	239626.87	3250.99
620.00	335873.35	5090.00
621.00	464543.61	7209.58
622.00	633651.32	9531.25
623.00	835402.62	11937.17
624.00	1072150.58	14420.99
625.00	1336901.77	16991.68
626.00	1635767.96	19588.75
627.00	1963247.62	22188.75
628.00	2319122.11	24788.75
629.00	2699846.33	27388.75
630.00	3119392.91	29988.75
631.00	3579420.88	32588.75
632.00	4081879.67	35188.75

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

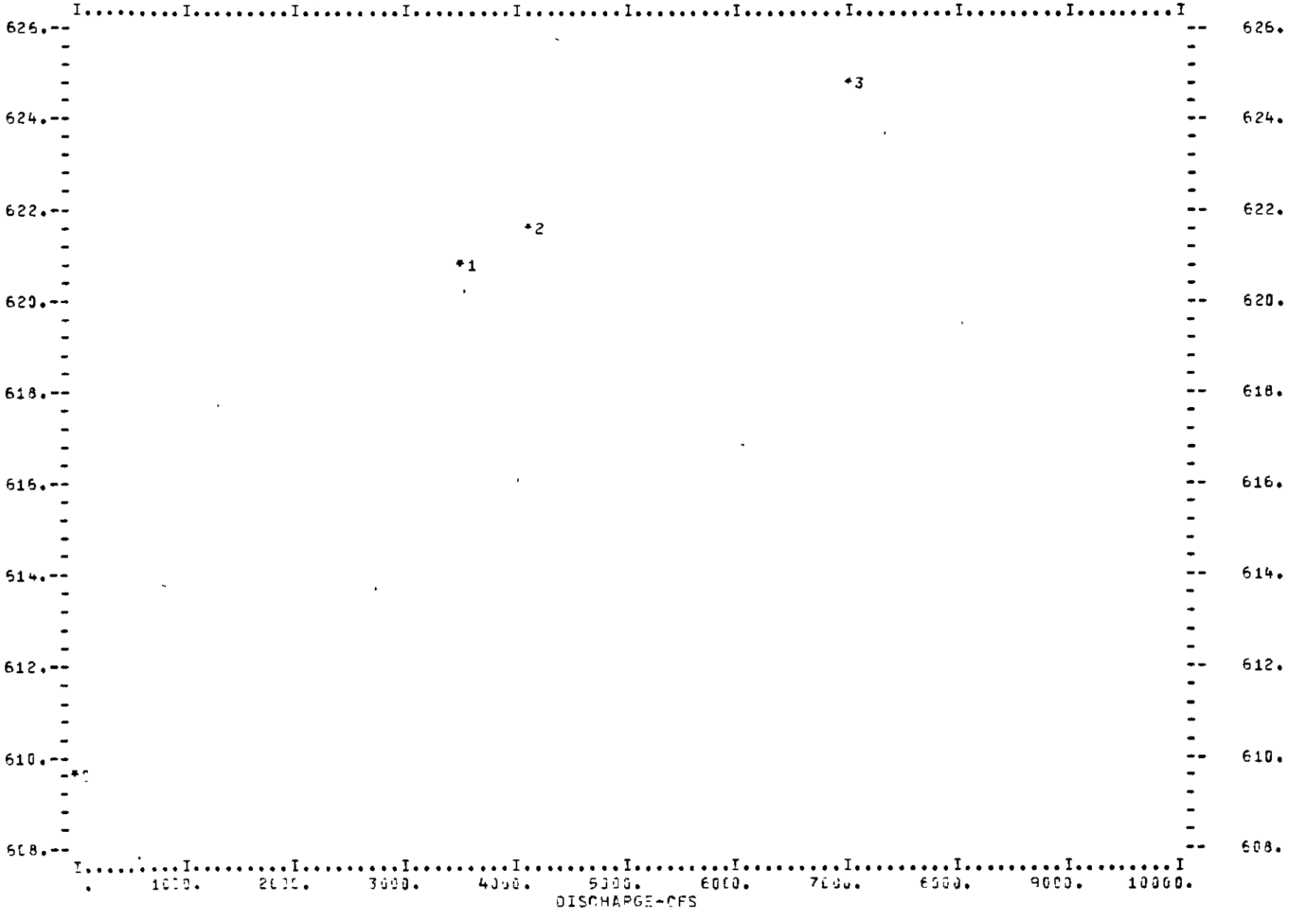
SEGMENT TABLE
CROSS SECTION 22.95
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
8.75	DISCHARGE CFS	3500.00	70.38	2371.27	1058.34
	VELOCITY FPS	.90	.22	1.07	.25
CORRECT WEIGHTED VEL =		.89			
10.25	DISCHARGE CFS	4100.00	108.85	2427.96	1563.19
	VELOCITY FPS	.80	.22	1.01	.26
CORRECT WEIGHTED VEL =		.79			
17.50	DISCHARGE CFS	7000.00	311.31	2859.97	3828.72
	VELOCITY FPS	.64	.23	.92	.32
CORRECT WEIGHTED VEL =		.64			

PAW PAW RIVER F.H.S.-MICHIGAN
50,100, AND 500 YR. BELOW THE DAM

CROSS SECTION 22.95

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



EXECUTI[illegible]TARTED AT .16.22.30.

Head loss over dam interpolated using calculated H.L. (Prev. c.f.s) and graph dated 1-3-75.

1-3-75
Rev. c.f.s.
50 yr. - 3500 c.f.s
100 yr. - 4100 "
500 yr. - 7000 "

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

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----------------------------80/80 LIST OF INPUT DATA-------------------------------
          30        647.5     130       624       150       623       1248
          510       623       589       624.5     625       624.3     1249
          640       624.6     660       623.2     670       620.2     1250
          710       616.4     730       615.7     740       625.1     1251
          880       623.4     1315      623       1355      646.5     1252
ENDTABLE                                                              1253
                          MAX ELEV DIFFERENCE BETWEEN POINTS EXCEEDS  20. FEET
REACH     23.5      400       2030      1200                          1254
SEGMENT   23.5      1         N         930                           1255
NVALUE    .15                                                         1256
SEGMENT   23.5      2         C         1037                          1257
NVALUE    .05                                                         1258
SEGMENT   23.5      3         N         1518      650                 1259
NVALUE    .15                                                         1260
SECTION   23.5                                                        1261
          65        650       70        641       115       623.4     1262
          215       623       325       625.9     370       624.7     1263
          550       623.4     820       624.3     965       623.2     1264
          890       624.5     967       624.3     970       623.8     1265
          974       625       990       624.2     1000      621       1266
          1010      620.6     1030      622       1037      630.2     1267
          1230      629.9     1327      623       1435      628.1     1268
          1470      626       1518      633.8     1518      650       1269
ENDTABLE                                                              1270
COMPUTE   23.2      23.5      23.2
----------------------------END OF 80/80 LIST---------------------------------
```

COMPUTE 23.2 23.5 23.2

----------STARTING DATA FROM GIVEN ELEVATION----------

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

RATING TABLE

CROSS SECTION 23.2

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	616.70	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	619.90	381.54	1342.23	.00	.00	.00		
1	623.52	3939.90	3500.00	.00	.00	.00	8.75	620.49
2	624.05	4630.82	4100.00	.00	.00	.00	10.25	620.60
3	626.15	7529.24	7000.00	.00	.00	.00	17.50	621.06

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

KD TABLE
CROSS SECTION 23.2

ELEVATION	KD	AREA
616.70	0.00	0.00
617.00	119.10	14.05
618.00	3418.16	114.92
619.00	10573.86	236.71
620.00	21367.57	407.95
621.00	40228.57	1054.41
622.00	71422.23	2080.32
623.00	116121.49	3276.06
624.00	173069.92	4563.60
625.00	241324.86	5920.84
626.00	322174.26	7316.80
627.00	413748.79	8739.88
628.00	517002.97	10180.40
629.00	630442.25	11525.64
630.00	753437.43	13074.29
631.00	885050.76	14527.04
632.00	1025095.39	15983.32
633.00	1173645.31	17444.46
634.00	1330343.73	18908.86
635.00	1495418.62	20376.27
636.00	1667721.48	21849.48
637.00	1847741.26	23324.43
638.00	2035517.49	24803.59
639.00	2230629.01	26286.49
640.00	2432450.82	27774.54
641.00	2641947.22	29264.98
642.00	2858239.18	30759.71
643.00	3081322.40	32259.70
644.00	3311546.32	33760.14
645.00	3548169.54	35257.07
646.00	3791652.13	36777.22
647.00	4041950.38	38290.59
648.00	4299836.37	39803.97
649.00	4565286.68	41317.34
650.00	4838278.70	42830.71

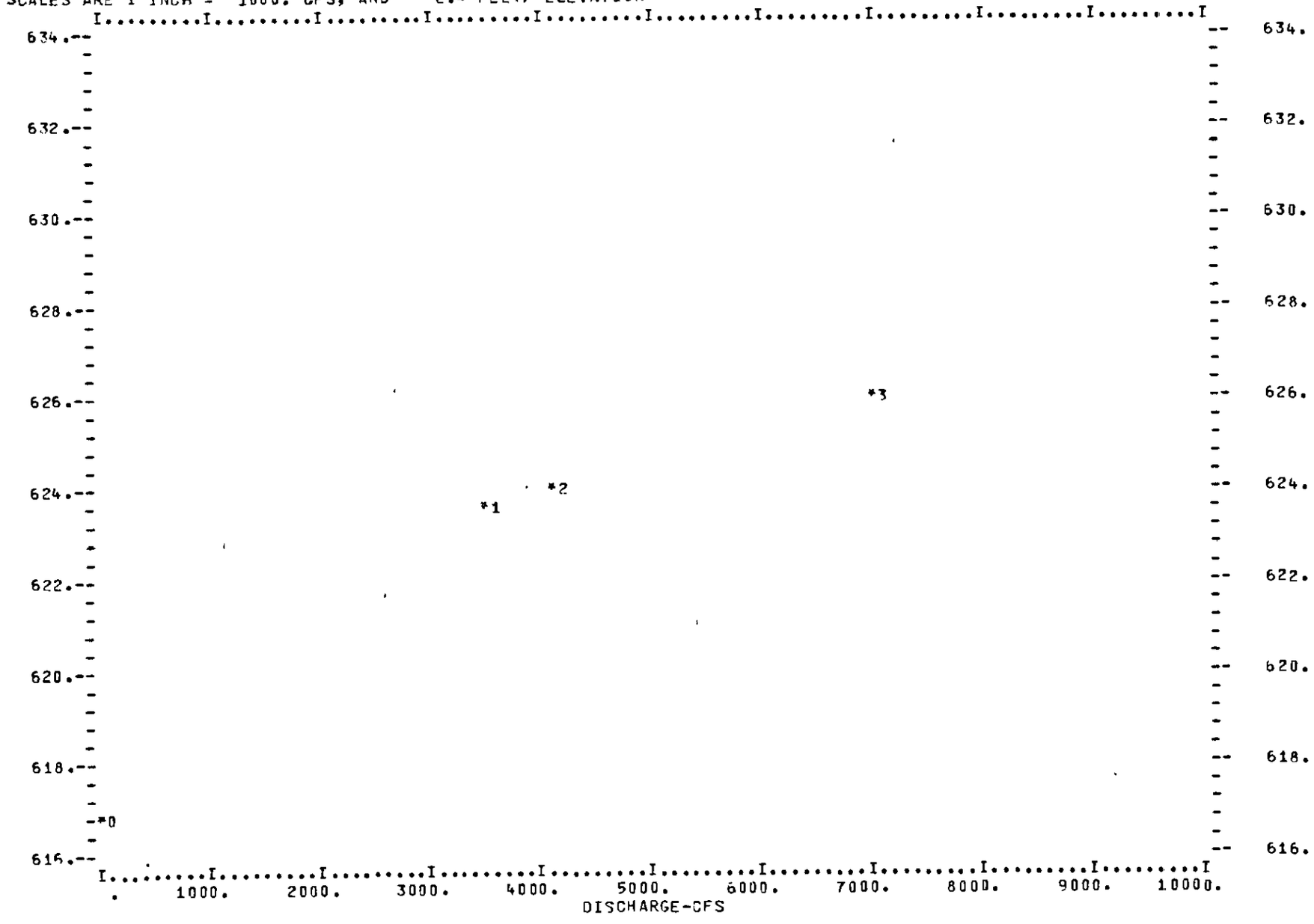
PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

SEGMENT TABLE
CROSS SECTION 23.2
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
8.75	DISCHARGE CFS	3500.00	50.84	2067.97	1381.20
	VELOCITY FPS	1.90	.41	2.42	.47
CORRECT WEIGHTED VEL =		1.88			
10.25	DISCHARGE CFS	4100.00	68.34	2280.28	1751.38
	VELOCITY FPS	1.87	.45	2.46	.49
CORRECT WEIGHTED VEL =		1.86			
17.50	DISCHARGE CFS	7000.00	155.02	3216.59	3628.39
	VELOCITY FPS	1.85	.56	2.64	.60
CORRECT WEIGHTED VEL =		1.84			

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

CROSS SECTION 23.2
SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

RATING TABLE

CROSS SECTION 23.3

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	619.50	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	622.90	385.24	1783.46	.00	.00	.00		
1	626.17	1418.43	3500.00	.00	.00	.00	8.75	622.98
2	626.76	1658.20	4100.00	.00	.00	.00	10.25	623.28
3	628.67	2446.71	7000.00	.00	.00	.00	17.50	624.68

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

KD TABLE
CROSS SECTION 23.3

ELEVATION	KD	AREA
619.50	0.00	0.00
620.00	72.28	7.28
621.00	2494.27	101.04
622.00	9336.42	244.77
623.00	21904.84	401.21
624.00	38434.92	600.64
625.00	60658.67	946.25
626.00	89436.10	1348.25
627.00	123743.77	1756.29
628.00	163066.49	2168.62
629.00	207157.12	2585.01
630.00	255721.21	3005.65
631.00	308573.07	3430.55
632.00	365524.70	3859.33
633.00	426560.39	4293.18
634.00	491519.67	4730.52
635.00	560232.70	5172.45
636.00	632638.80	5619.00
637.00	707316.53	6071.02
638.00	784428.59	6530.28
639.00	863095.08	7001.41
640.00	946785.41	7489.23
641.00	1033593.14	7988.18
642.00	1124176.14	8498.26
643.00	1219348.20	9025.32
644.00	1317470.35	9551.79
645.00	1419422.42	10078.56

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

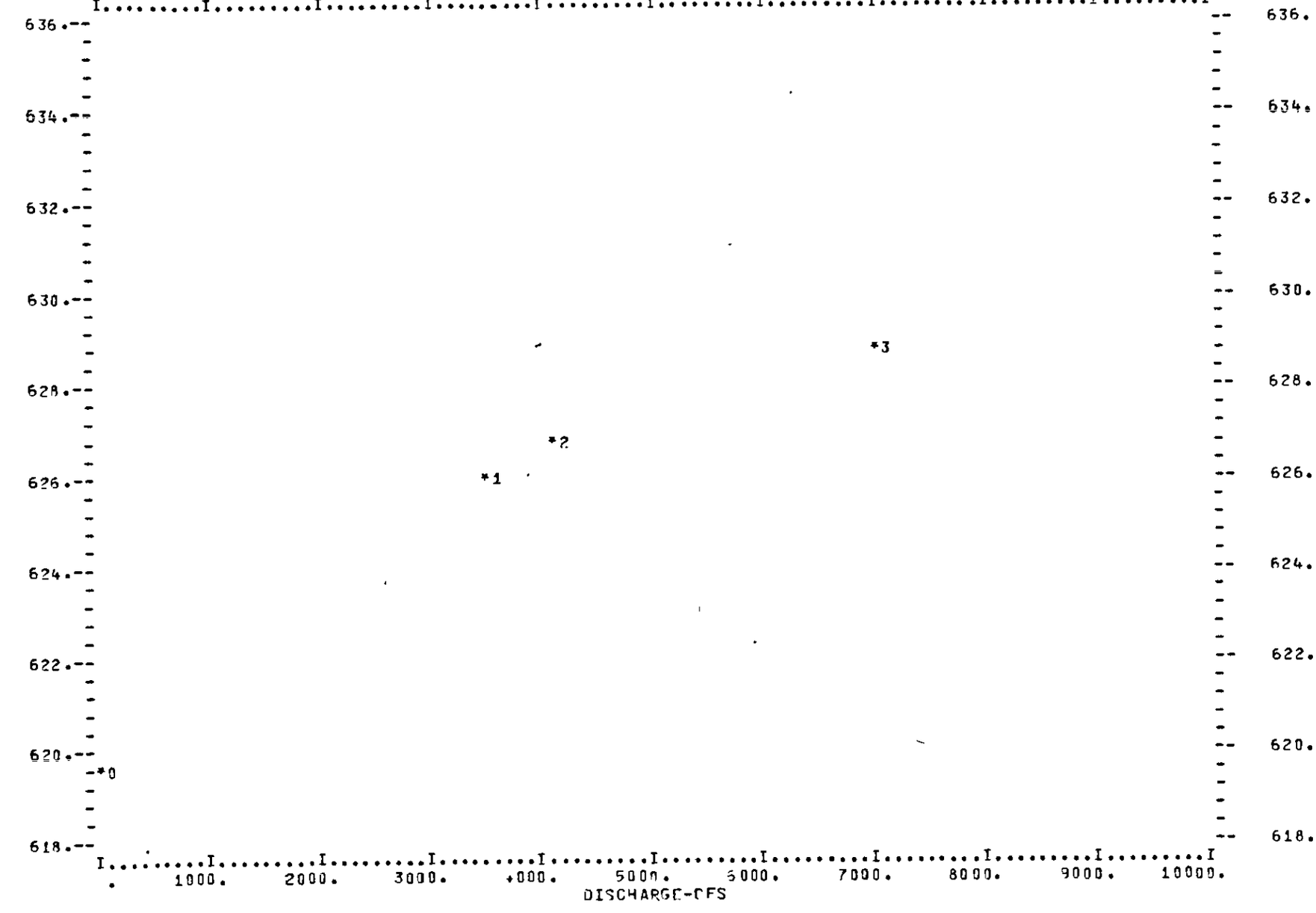
SEGMENT TABLE
CROSS SECTION 23.3
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	3500.00	303.17	3142.75	54.08
8.75	VELOCITY FPS	3.30	.69	3.46	.78
CORRECT WEIGHTED VEL =		3.29			
	DISCHARGE CFS	4100.00	442.31	3585.73	71.96
10.25	VELOCITY FPS	3.36	.77	3.58	.84
CORRECT WEIGHTED VEL =		3.36			
	DISCHARGE CFS	7000.00	1127.28	5713.44	159.28
17.50	VELOCITY FPS	3.99	1.13	4.37	1.12
CORRECT WEIGHTED VEL =		3.98			

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

CROSS SECTION 23.3

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



RATING TABLE

CROSS SECTION 23.4

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	616.40	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	623.20	572.47	2107.29	.00	.00	.00		
1	627.69	5540.55	3500.00	.00	.00	.03	8.75	622.33
2	628.22	6173.82	4100.00	.00	.00	.00	10.25	623.00
3	630.27	8674.87	7000.00	.00	.00	.03	17.50	623.92

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

KD TABLE
CROSS SECTION 23.4

ELEVATION	KD	AREA
515.40	0.00	0.00
517.00	182.11	10.95
518.00	1393.88	43.48
519.00	3746.74	88.20
520.00	7389.29	143.59
521.00	12921.85	209.25
522.00	19989.25	279.12
523.00	29256.16	455.44
524.00	49229.63	1210.02
525.00	88693.71	2315.01
526.00	147380.42	3501.49
527.00	222565.88	4703.08
528.00	311408.61	5910.63
529.00	412430.51	7124.50
530.00	525962.78	8343.35
531.00	650962.34	9568.92
532.00	786901.79	10799.71
533.00	932143.04	12037.64
534.00	1087427.26	13281.77
535.00	1253462.16	14530.79
536.00	1429612.86	15784.81
537.00	1613451.80	17047.17
538.00	1807176.18	18314.54
539.00	2010337.63	19587.03
540.00	2221552.74	20866.67
541.00	2441680.81	22152.03
542.00	2671305.53	23441.20
543.00	2907639.47	24739.90
544.00	3153298.85	26042.41
545.00	3407154.04	27350.05
546.00	3668862.95	28666.89
547.00	3939757.02	29985.13
548.00	4221194.23	31303.38

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

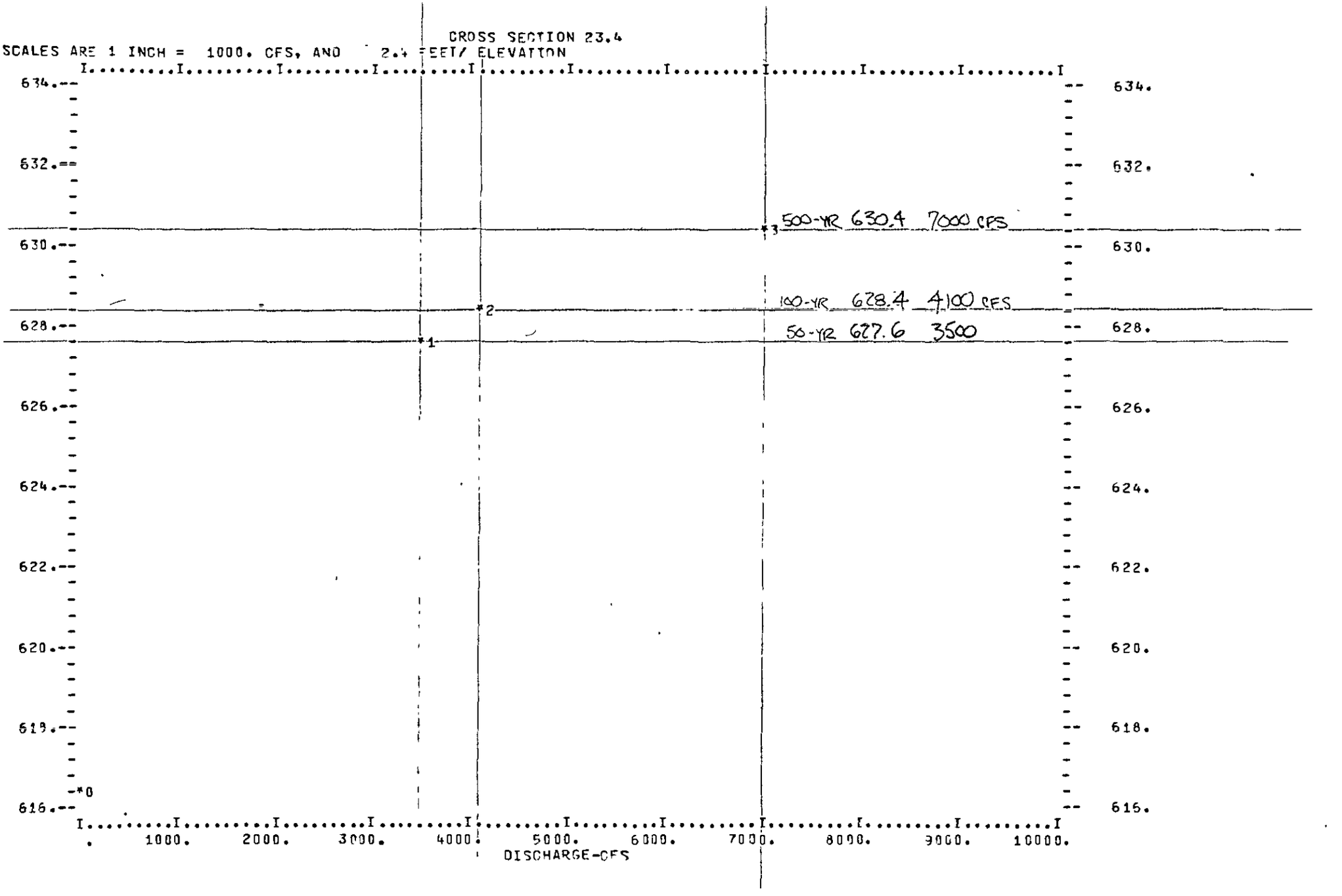
SEGMENT TABLE
CROSS SECTION 23.4
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 V	2 C	3 N
DISCHARGE CFS	3500.00	1173.15	1121.66	1203.19
8.75 VELOCITY FPS	.97	.50	1.54	.49
CORRECT WEIGHTED VEL =	.96			
DISCHARGE CFS	4100.00	1413.94	1229.94	1456.11
10.25 VELOCITY FPS	.99	.53	1.60	.53
CORRECT WEIGHTED VEL =	.98			
DISCHARGE CFS	7000.00	2579.34	1727.72	2692.95
17.50 VELOCITY FPS	1.10	.68	1.85	.68
CORRECT WEIGHTED VEL =	1.09			

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

CROSS SECTION 23.4

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



RATING TABLE

CROSS SECTION 23.5

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	620.60	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	624.20	398.51	1584.72	.00	.00	.00		
1	628.55	4352.32	3500.00	.00	.00	.00	8.75	624.54
2	629.03	4874.93	4100.00	.00	.00	.00	10.25	624.67
3	631.06	7457.41	7000.00	.00	.00	.00	17.50	625.09

**********ERRORS DETECTED IN DATA-CHECK RESULTS CAREFULLY**********

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

KD TABLE
CROSS SECTION 23.5

ELEVATION	KD	AREA
620.60	0.00	0.00
621.00	34.50	3.14
622.00	738.41	27.78
623.00	2606.44	62.58
624.00	6985.90	314.15
625.00	20622.78	1005.26
626.00	48163.81	1897.53
627.00	88190.58	2832.80
628.00	137667.96	3802.01
629.00	196814.23	4844.37
630.00	267041.46	6031.08
631.00	350679.54	7376.81
632.00	449349.55	8786.37
633.00	559762.15	10204.98
634.00	681778.00	11630.70
635.00	814986.68	13061.82
636.00	957633.85	14496.02
637.00	1110235.71	15932.66
638.00	1272243.41	17371.92
639.00	1444002.76	18813.22
640.00	1624224.64	20257.39
641.00	1813704.74	21704.21
642.00	2011741.19	23152.19
643.00	2219330.43	24600.91
644.00	2433690.46	26050.47
645.00	2656894.44	27500.38
646.00	2887835.06	28950.82
647.00	3125770.05	30401.98
648.00	3371901.43	31853.49
649.00	3624712.48	33305.71
650.00	3886740.76	34757.93
651.00	4157991.67	36210.16
652.00	4438470.42	37662.38

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

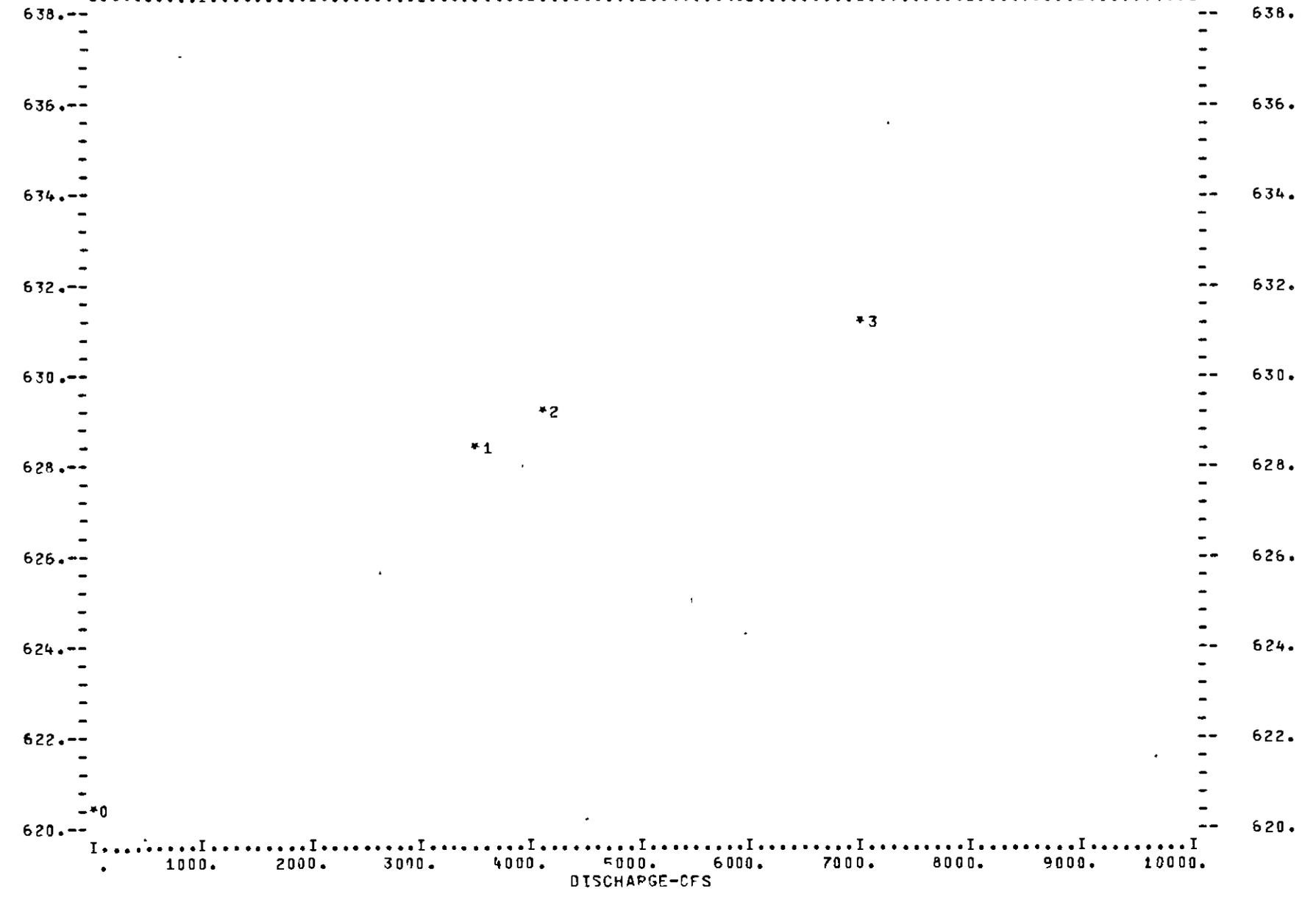
SEGMENT TABLE
CROSS SECTION 23.5
VELOCITY INCREMENT= .00 FPS

CSM	TOTAL	SEG NO 1 N	2 C	3 N
DISCHARGE CFS	3500.00	2853.10	616.81	20.10
8.75 VELOCITY FPS	1.08	.72	2.05	.23
CORRECT WEIGHTED VEL =	1.08			
DISCHARGE CFS	4100.00	3373.14	682.84	44.02
10.25 VELOCITY FPS	1.12	.77	2.12	.27
CORRECT WEIGHTED VEL =	1.11			
DISCHARGE CFS	7000.00	5690.87	981.82	327.32
17.50 VELOCITY FPS	1.22	.92	2.35	.39
CORRECT WEIGHTED VEL =	1.21			

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

CROSS SECTION 23.5

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

----------80/80 LIST OF INPUT DATA----------

ENDRUN 1359

EXECUTION [illegible]ARTED AT .09.22.50.

1-3-75
above P.P. lake outlet.
Used old C.F.S. with
new starting elevations.
Starting elev. were computed
below using Rev. C.F.S.

----------80/80 LIST OF INPUT DATA----------

```
WSP2                                                                    1
TITLE    PAW PAW RIVER F.H.S.-MICHIGAN                                  2
TITLE    ABOVE THE DAM
DISCHARGE 400.      10.5      12.2      19.325
STARTE   23.5       628.55    629.03    631.06
OUTPUT   PRSKB                                                          7
REACH    23.5       400       2030      1200                           1254
SEGMENT  23.5       1         N         990                            1255
NVALUE   .15                                                            1256
SEGMENT  23.5       2         C         1037                           1257
NVALUE   .05                                                            1258
SEGMENT  23.5       3         N         1213      650                  1259
NVALUE   .15                                                            1260
SECTION  23.5                                                           1261
         65         650       70        641       115       623.4      1262
         215        623       325       625.9     370       624.7      1263
         650        623.4     820       624.3     865       623.2      1264
         890        624.5     967       624.5     970       623.8      1265
         978        625       990       624.2     1000      621        1266
         1010       620.6     1030      622       1037      630.2      1267
         1230       629.9     1327      629       1435      628.1      1268
         1470       626       1518      633.8     1518      650        1269
ENDTABLE                                                                1270
REACH    23.6       400       3580      1520                           1271
SEGMENT  23.6       1         N         835                            1272
NVALUE   .15                                                            1273
SEGMENT  23.6       2         C         955                            1274
NVALUE   .05                                                            1275
SEGMENT  23.6       3         N         1905      645                  1276
NVALUE   .15                                                            1277
SECTION  23.6                                                           1278
         0          645       100       629.2     615       627.1      1279
         535        626       720       625.7     770       625.7      1280
         835        627.9     848       625       860       620.8      1281
         890        620       900       619       910       621.5      1282
         940        622.8     955       627       1050      625.8      1283
         1342       624.3     1430      624.3     1500      627        1284
         1815       627       1905      6+5                            1285
ENDTABLE                                                                1286
REACH    23.9       400       6870      4400                           1287
SEGMENT  23.9       1         N         -270.                          1288
NVALUE   .15                                                            1289
SEGMENT  23.9       2         C         -2500                          1290
NVALUE   .05                                                            1291
SEGMENT  23.9       3         N         -100      652                  1292
```

PAW PAW RIVER F.4.S.-MICHIGAN
ABOVE THE DA4

----------80/80 LIST OF INPUT DATA----------

NVALUE	.15						1293
SECTION	23.9						1294
	-2945	652	-2945	641.1	-2897	639.4	1295
	-2864	632.7	-2812	623.9	-2712	628.2	1296
	-2704	626.2	-2695	623	-2685	621.7	1297
	-2665	619.4	-2640	620.9	-2620	622.5	1298
	-2610	626.1	-2600	627.5	-2500	627.3	1299
	-1900	627.5	-1800	630.8	-1700	631.2	1300
	-1600	631.3	-1500	631.5	-1400	632.5	1301
	-1300	632.8	-1200	631.5	-1100	631.1	130X
	-1000	628.4	-900	623	-800	629	1303
	-700	628.7	-600	623	-500	629.2	1304
	-400	630.5	-300	641.4	-200	647.3	1305
	-100	651.7	-100	652			1306
ENDTABLE							1307
COMMENT	COUNTY LINE ROAD						1308A
ROAD	24.0	2.7	120	120			1308B
BPR	24.0	A	3	5			1309
PIER	621.9	3	622.1	3			1310
GIRDER	634.3	633.1	37	.8	2.7		1311
	-58	635.7	-68	632.1	-45	632.9	1312
	45	632.9	70	631.2	70	632.6	1314
ENDTABLE							1315
SECTION	24.0						1316
	-1070.4	655	-1070.4	645.1	-970.4	654	1317
	-870.4	652.8	-770.4	650.9	-670.4	648.5	1318
	-570.4	647.1	-470.4	645.4	-370.4	644.4	1319
	-270.4	642.2	-170.4	640.2	-70.4	636.1	1320
	-58	635.7	-68	632.1	-64	632.1	1321
	-57	631	-51	625.8	-46.5	621.8	1322
	-43.5	621.8	-27	621.7	-9	622.1	1323
	0	621.2	9	621.6	27	621.2	1324
	43.6	622.3	46.5	622	54	623.8	1325
	62	628.1	70	628.7	70	632.6	1326
	72	632.5	172	631.4	272	631	1327
	372	631.5	472	631.6	572	631.5	1328
	672	631.3	972	631.3	1072	631.8	1329
	1172	632.3	1272	633	1572	633.5	1330
	1772	632.5	1872	631.9	2172	630.8	1331
	2572	649	2772	649.8	2772	655	1332
ENDTABLE							1333
REACH	24.1	400	110	110			1334
SEGMENT	24.1	1	N	-83			1335
NVALUE	.15						1336
SEGMENT	24.1	2	C	10			1337

PAW PAW RIVER [illegible].H.S.-MICHIGAN
ABOVE THE DA[illegible]

----------80/80 LIST OF INPUT DATA----------

NVALUE	.05						1338
SEGMENT	24.1	3	N	2710	651		1339
NVALUE	.15						1340
SECTION	24.1						1341
	-186	651	-186	641.1	-175	635.4	1342
	-143	633.9	-133	632.2	-103	630.1	1343
	-98	628.3	-83	626.9	-80	626	134[illegible]
	-70	622.9	-60	621.6	-50	619.3	1345
	-30	620.8	-10	622.7	0	626.1	1346
	10	628.1	110	623	210	628.8	1347
	310	627.5	410	629.9	510	629.7	1348
	610	628.6	710	628.9	810	628.4	1349
	910	628.4	1010	627.6	1110	628.3	1350
	1210	635	1310	635.5	1410	634	1351
	1510	634.1	1610	635.2	1710	631.6	1352
	1810	629.3	1910	628.7	2010	628.4	1353
	2110	628.2	2210	628.5	2310	629.[illegible]	135[illegible]
	2410	636.5	2510	642.1	2610	647.2	1355
	2710	650.4	2710	651			1356
ENDTABLE							1357
COMPUTE	23.5	24.1	23.5				

----------END OF 80/80 LIST----------

COMPUTE 23.5 24.1 23.5

----------STARTING DATA FROM GIVEN ELEVATION----------

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

RATING TABLE

CROSS SECTION 23.5

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	620.60	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	624.20	398.51	1331.89	.00	.00	.00		
1	628.55	4351.42	4200.00	.00	.00	.00	10.50	624.69
2	629.03	4877.59	4880.00	.00	.00	.00	12.20	624.82
3	631.06	7461.17	7930.00	.00	.00	.00	19.82	625.21

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

KD TABLE
CROSS SECTION 23.5

ELEVATION	KD	AREA
620.50	0.00	0.00
621.00	34.50	3.14
622.00	738.41	27.78
623.00	2606.44	62.68
624.00	6985.90	314.15
625.00	20622.78	1005.26
626.00	48163.81	1897.53
627.00	88190.58	2832.80
628.00	137667.96	3802.01
629.00	196814.23	4844.37
630.00	267041.46	6031.08
631.00	350679.54	7376.81
632.00	449349.55	8786.37
633.00	559762.15	10204.98
634.00	681778.00	11630.70
635.00	814986.68	13061.82
636.00	957633.85	14496.02
637.00	1110235.71	15932.66
638.00	1272243.41	17371.92
639.00	1444002.70	18813.22
640.00	1624224.64	20257.39
641.00	1813304.74	21704.21
642.00	2011741.19	23152.19
643.00	2219330.43	24600.91
644.00	2433690.46	26050.47
645.00	2656894.44	27500.38
646.00	2887835.06	28950.82
647.00	3125770.05	30401.98
648.00	3371901.43	31853.49
649.00	3624712.48	33305.71
650.00	3886740.76	34757.93
651.00	4157991.67	36210.16
652.00	4438470.42	37662.38

PAW PAW RIVER [illegible].H.S.-MICHIGAN
ABOVE THE DAM

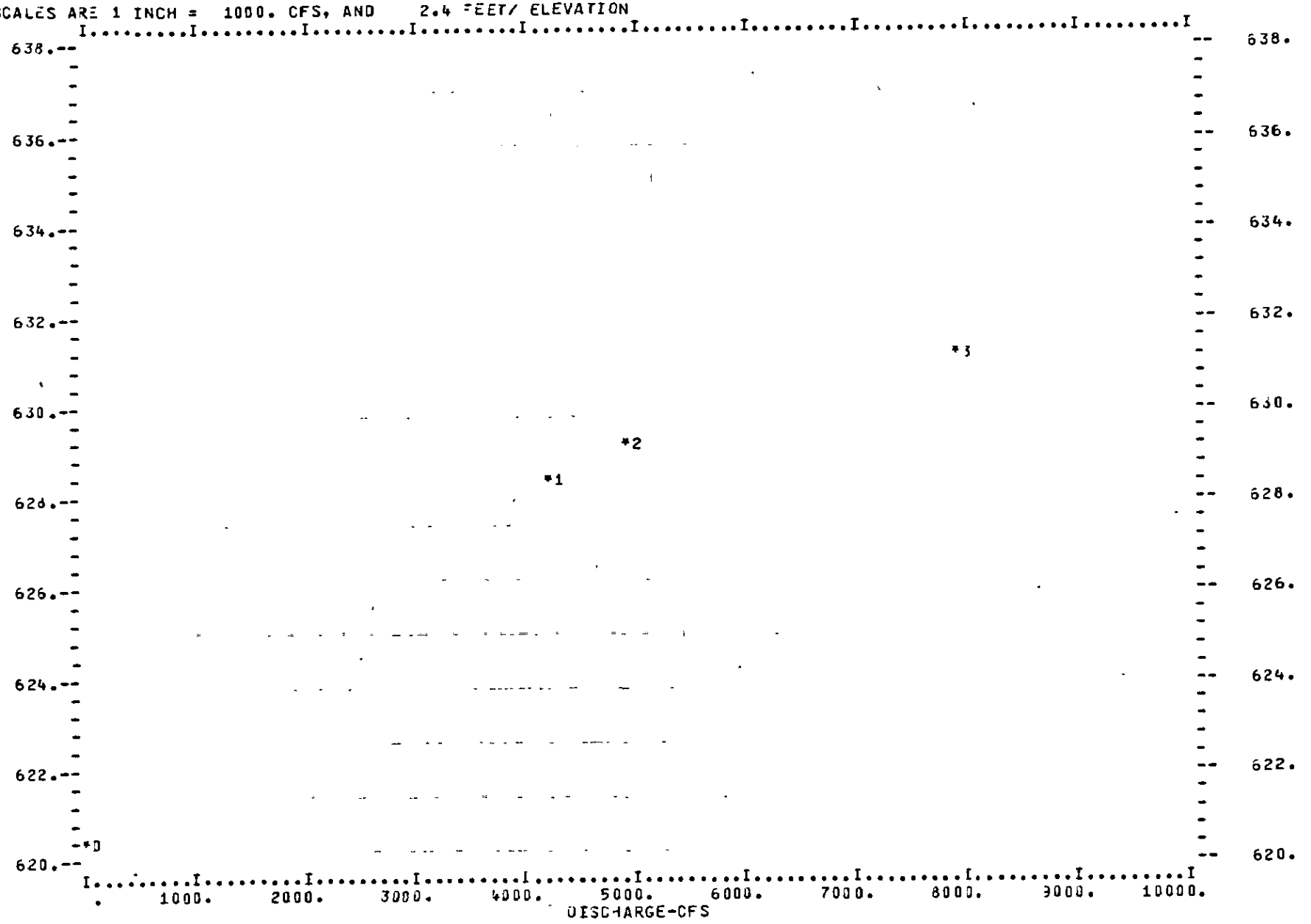
SEGMENT TABLE
CROSS SECTION 23.5
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 W	2 C	3 N
	DISCHARGE CFS	4200.00	3435.65	740.24	24.11
10.50	VELOCITY FPS	1.30	.87	2.46	.28
CORRECT WEIGHTED VEL =		1.30			
	DISCHARGE CFS	4880.00	4014.90	812.54	52.51
12.20	VELOCITY FPS	1.33	.91	2.52	.32
CORRECT WEIGHTED VEL =		1.32			
	DISCHARGE CFS	7930.00	5445.54	1112.04	371.42
19.82	VELOCITY FPS	1.38	1.04	2.67	.44
CORRECT WEIGHTED VEL =		1.37			

PAW PAW RIVER F.A.S.-MICHIGAN
ABOVE THE DAM

CROSS SECTION 23.5

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



RATING TABLE

CROSS SECTION 23.6

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	619.00	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	627.00	1719.43	3188.34	.00	.00	.00		
1	629.54	5746.02	4200.00	.00	.00	.00	10.50	625.37
2	629.96	6481.57	4980.00	.00	.00	.00	12.20	625.55
3	631.85	9785.62	7930.00	.00	.00	.00	19.82	626.24

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

KO TABLE
CROSS SECTION 23.6

ELEVATION	KO	AREA
619.00	0.00	0.00
620.00	126.57	7.55
621.00	1089.85	41.03
622.00	3645.07	95.05
623.00	8086.84	172.02
624.00	15385.30	269.82
625.00	25966.20	488.76
626.00	43665.64	974.67
627.00	72439.62	1719.43
628.00	117783.17	3096.71
629.00	199828.65	4811.75
630.00	305297.58	6546.99
631.00	430851.30	8293.18
632.00	573700.76	10051.42
633.00	734770.46	11820.17
634.00	912954.74	13599.44
635.00	1107402.45	15389.22
636.00	1317299.76	17189.74
637.00	1541580.43	19001.04
638.00	1779625.75	20825.81
639.00	2032962.16	22659.18
640.00	2300898.15	24501.75
641.00	2579965.31	26359.66
642.00	2873071.17	28227.42
643.00	3181154.71	30101.75
644.00	3499135.69	31993.61
645.00	3834544.35	33885.47
646.00	4187610.41	35777.33
647.00	4558557.78	37669.18

PAW PAW RIVER [illegible].S.-MICHIGAN
ABOVE THE DAM

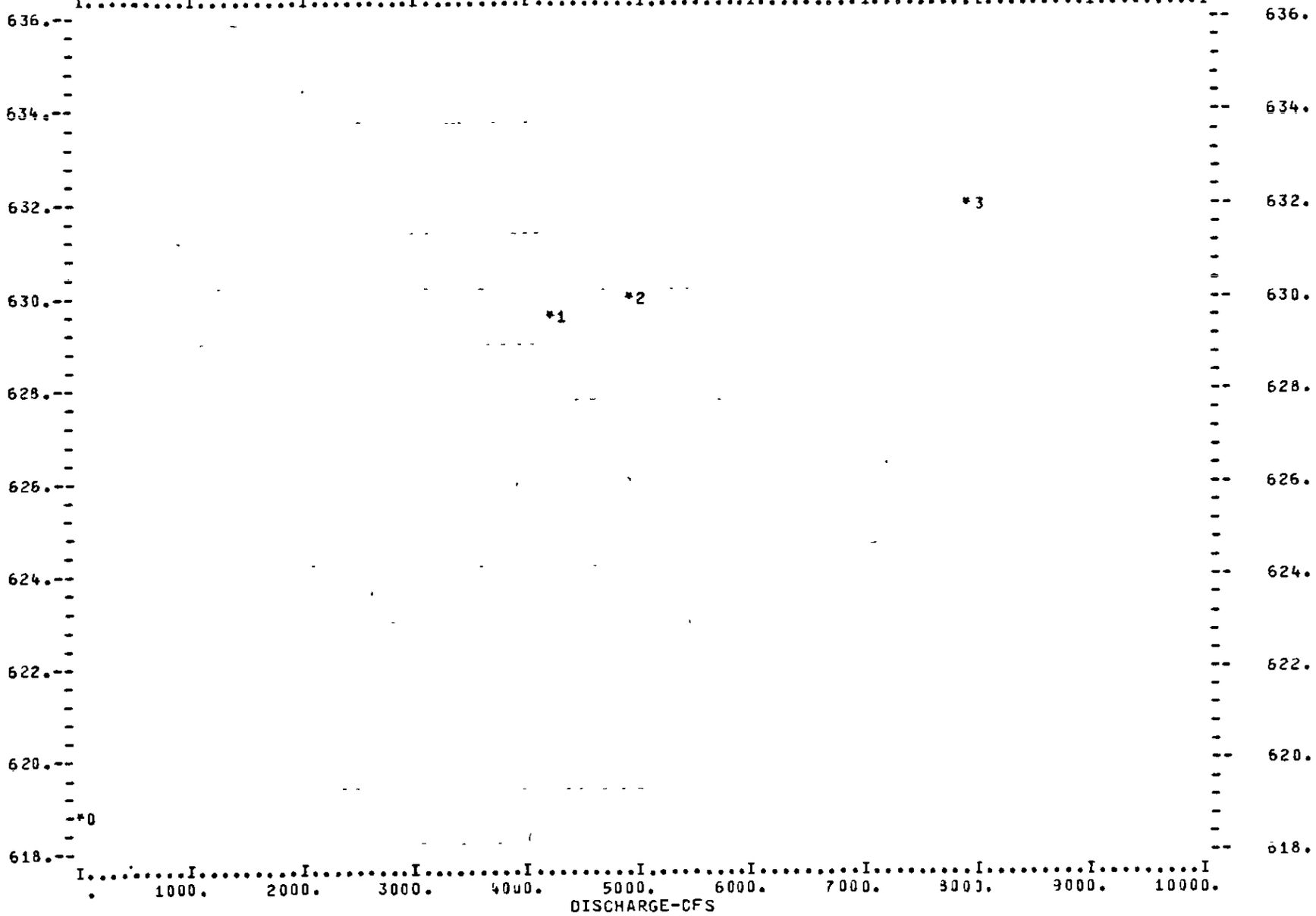
SEGMENT TABLE
CROSS SECTION 23.6
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 N	2 C	3 N
	DISCHARGE CFS	4200.00	759.09	1559.29	1871.62
10.50	VELOCITY FPS	1.20	.45	1.80	.59
CORRECT WEIGHTED VEL =		1.18			
	DISCHARGE CFS	4880.00	982.79	1693.06	2204.15
12.20	VELOCITY FPS	1.19	.48	1.85	.62
CORRECT WEIGHTED VEL =		1.19			
	DISCHARGE CFS	7930.00	2032.04	2162.33	3685.63
19.82	VELOCITY FPS	1.15	.60	1.89	.71
CORRECT WEIGHTED VEL =		1.14			

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

CROSS SECTION 23.6

SCALES ARE 1 INCH = 1000. CFS, AND 2.+ FEET/ ELEVATION



PAW PAW RIVER [illegible].S.-MICHIGAN
ABOVE THE DAM

RATING TABLE

CROSS SECTION 23.9

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	619.40	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	626.20	426.90	2355.40	.00	.00	.00		
1	631.47	6137.16	4200.00	.00	.00	.00	10.50	625.50
2	631.88	7064.69	4880.00	.00	.00	.00	12.20	626.03
3	633.58	11103.29	7930.00	.00	.00	.00	19.82	628.10

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

KO TABLE
CROSS SECTION 23.9

ELEVATION	KO	AREA
619.00	0.00	0.00
620.00	63.14	4.57
621.00	836.80	32.44
622.00	3027.80	83.97
623.00	7211.08	153.10
624.00	13718.41	232.50
625.00	22044.77	317.06
626.00	32017.32	407.30
627.00	43622.08	514.52
628.00	62662.00	1046.56
629.00	93788.25	2093.18
630.00	143597.55	3541.20
631.00	210523.76	5262.95
632.00	290474.75	7331.35
633.00	411759.73	9674.38
634.00	558939.18	12163.41
635.00	731733.78	14571.57
636.00	921846.40	17196.64
637.00	1130834.14	19736.38
638.00	1360411.10	22287.07
639.00	1608991.12	24850.82
640.00	1865975.25	27442.02
641.00	2142629.49	30061.16
642.00	2438117.93	32704.42
643.00	2749084.80	35369.76
644.00	3076367.81	38051.37
645.00	3421448.73	40743.83
646.00	3777361.42	43463.41
647.00	4149657.69	46194.42
648.00	4534605.03	48942.57
649.00	4930426.85	51720.93
650.00	5343214.24	54506.84
651.00	5767675.17	57333.00
652.00	6211044.16	60160.35
653.00	6673544.70	62987.11
654.00	7155396.05	65813.86

PAW PAW RIVER E.A.S.-MICHIGAN
ABOVE THE DAM

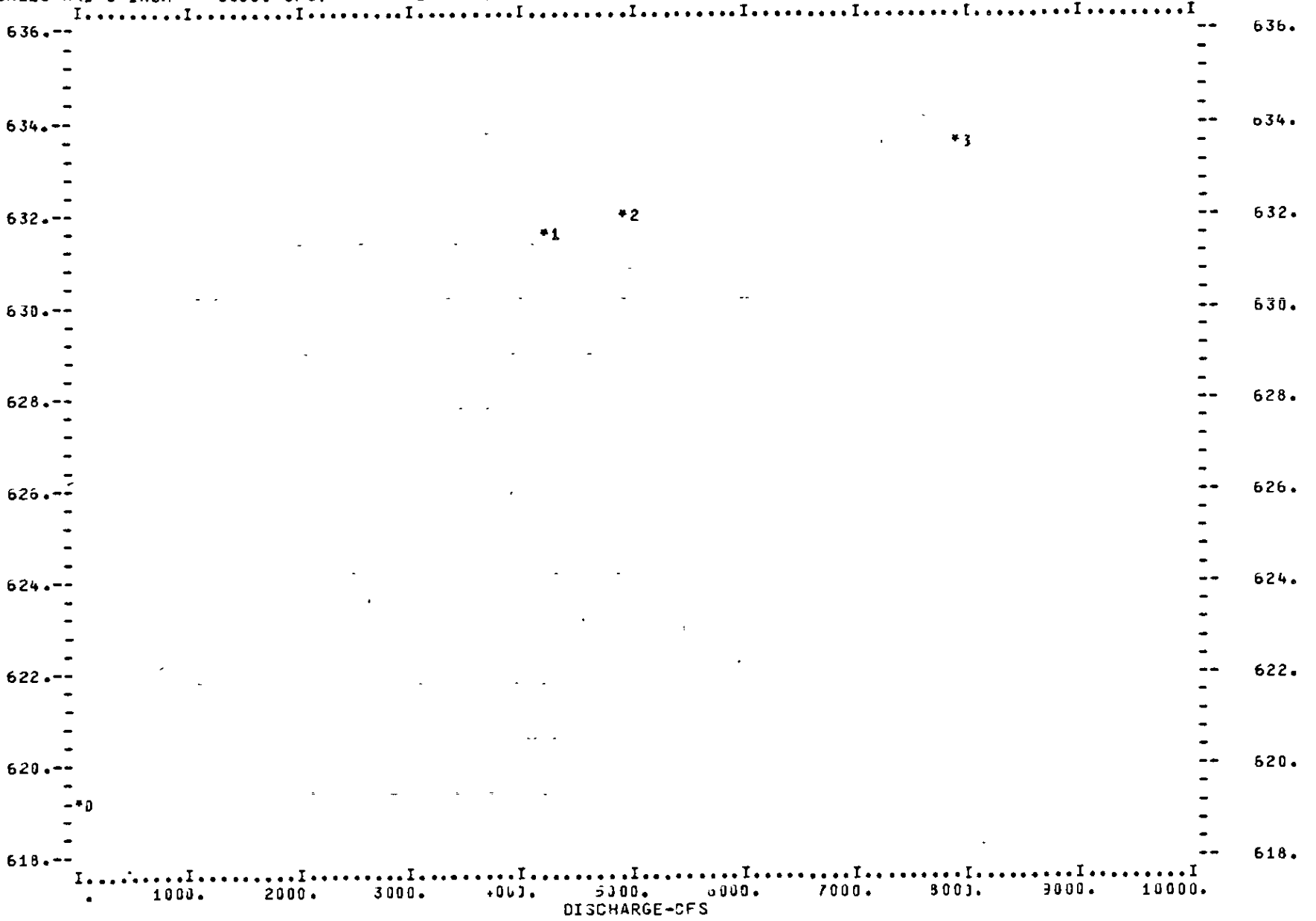
SEGMENT TABLE
CROSS SECTION 23.9
VELOCITY INCREMENT= .00 FPS

CSN	TOTAL	SEG NO 1 W	2 C	3 N
DISCHARGE CFS	4200.00	1+7.72	2136.99	1915.30
10.50 VELOCITY FPS	1.61	.40	2.21	.+0
CORRECT WEIGHTED VEL =	1.60			
DISCHARGE CFS	4880.00	196.91	2290.11	2402.98
12.20 VELOCITY FPS	1.62	.+3	2.27	.43
CORRECT WEIGHTED VEL =	1.58			
DISCHARGE CFS	7930.00	354.96	2826.88	4738.16
19.82 VELOCITY FPS	1.50	.52	2.38	.51
CORRECT WEIGHTED VEL =	1.48			

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

CROSS SECTION 23.9

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



COEFK	AKB	DLTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
.6184	.3884	.1257	.9331	.0000	.1044	.7829	1.0000	1.0000	1093.5219	2403.8779	3.3629
DCRIT	625.50 KBCRIT =										
.8153	.5856	.1189	.8894	.0000	.1118	.7088	1.0000	1.0000	1148.3010	3179.0998	3703.6034
DCRIT	625.55 KBCRIT =										
1.3675	1.3322	.1034	.7119	.0000	-.0581	.4923	1.0000	1.3000	1254.7900	6464.7509	6869.8711
DCRIT	624.63 KBCRIT =										

PAW PAW RIVER F.A.S.-MICHIGAN
ABOVE THE DAM

ROAD SECTION 24.0

NO.	HW	CFS	HL	TW	GSM
0	621.20	0.00	0.00	0.00	0.00
1	631.48	4200.00	.00	631.48	10.50
2	631.94	4880.00	.04	631.90	12.20
3	633.71	7930.00	.12	633.59	19.82

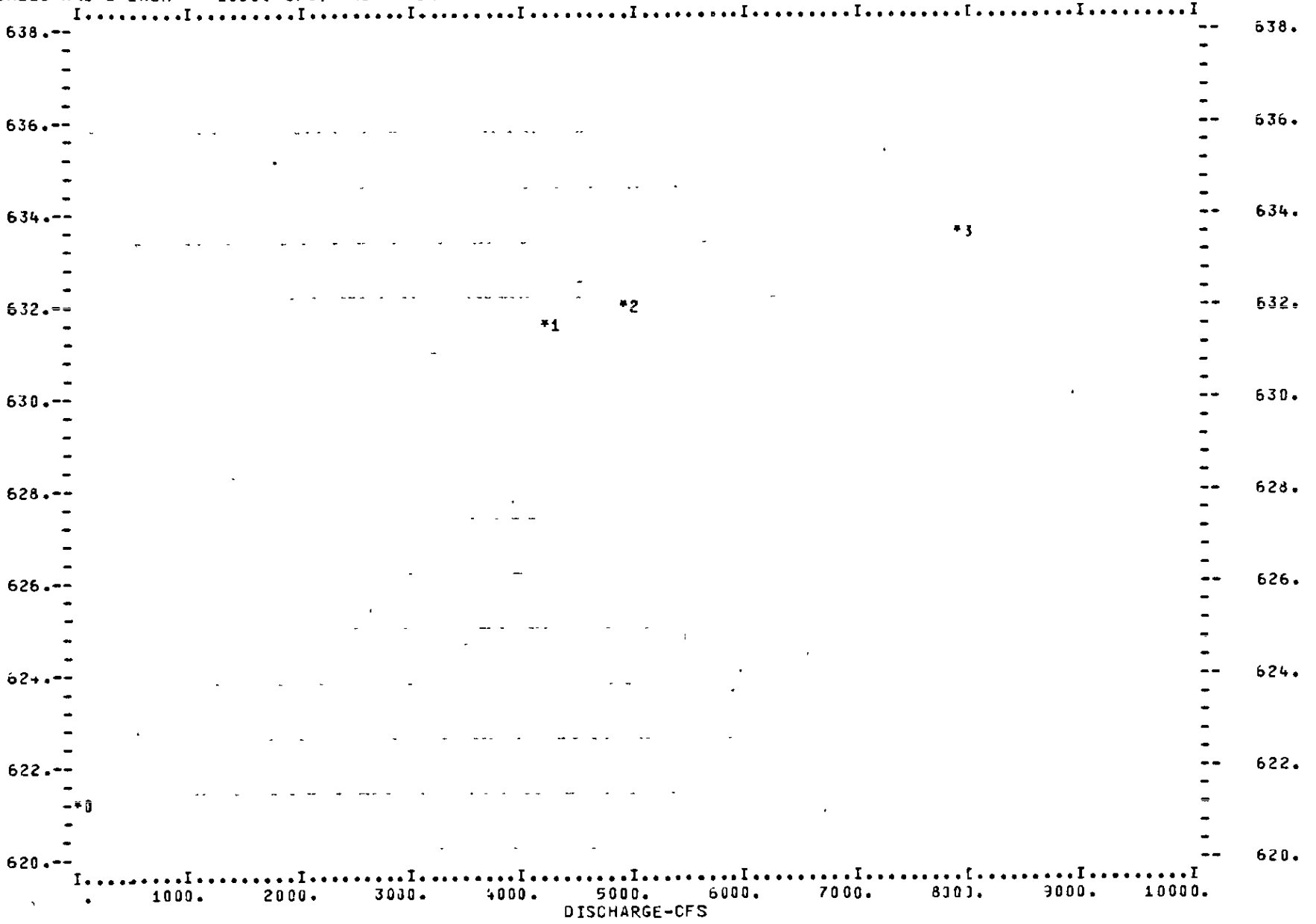
MIN ROAD ELEVATION 630.80

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 633.10 OPENING NO.= 1

PAW PAW RIVER F.4.S.-MICHIGAN
ABOVE THE DAM

ROAD SECTION 24.0

SCALES ARE 1 INCH = 1000. CFS, AND 2.4 FEET/ ELEVATION



PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

RATING TABLE

CROSS SECTION 24.1

NO.	ELEV	AREA	CFS	ACRES FLOODED			CSM	CRITICAL ELEV
				DAMAGE	CHANNEL	NON-DAM		
0	619.30	0.00	0.00	0.00	0.00	0.00	0.00	
BANK FULL	626.90	404.41	2513.20	.00	.00	.00		
1	631.51	5845.76	4200.00	.00	.00	.00	10.50	o26.33
2	631.97	6731.60	4390.00	.00	.00	.00	12.20	626.88
3	633.74	10259.55	7930.00	.00	.00	.00	19.82	628.80

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

KD TABLE
CROSS SECTION 24.1

ELEVATION	KD	AREA
619.30	0.00	0.00
620.00	65.70	4.42
621.00	684.13	25.72
622.00	2295.04	63.51
623.00	5321.42	117.30
624.00	10339.62	181.59
625.00	16827.84	252.11
626.00	24725.93	329.04
627.00	34110.39	413.19
628.00	46146.99	606.80
629.00	67713.59	1525.01
630.00	106575.66	3075.58
631.00	164850.88	4876.30
632.00	239815.95	6784.44
633.00	330553.01	8758.84
634.00	432244.66	10829.46
635.00	537483.37	13057.92
636.00	667656.78	15511.09
637.00	822525.05	18082.90
638.00	998108.58	20685.41
639.00	1192912.99	23308.94
640.00	1399718.23	25957.41
641.00	1621139.25	28625.09
642.00	1857272.30	31309.41
643.00	2105873.78	34013.34
644.00	2366881.14	36739.17
645.00	2642915.97	39477.52
646.00	2928686.72	42244.11
647.00	3226229.91	45027.86
648.00	3534402.96	47828.77
649.00	3849211.89	50675.88
650.00	4178961.10	53528.13
651.00	4525020.17	56380.38
652.00	4887643.11	59232.03
653.00	5267079.77	62084.88

PAW PAW RIVER F.H.S.-MICHIGAN
ABOVE THE DAM

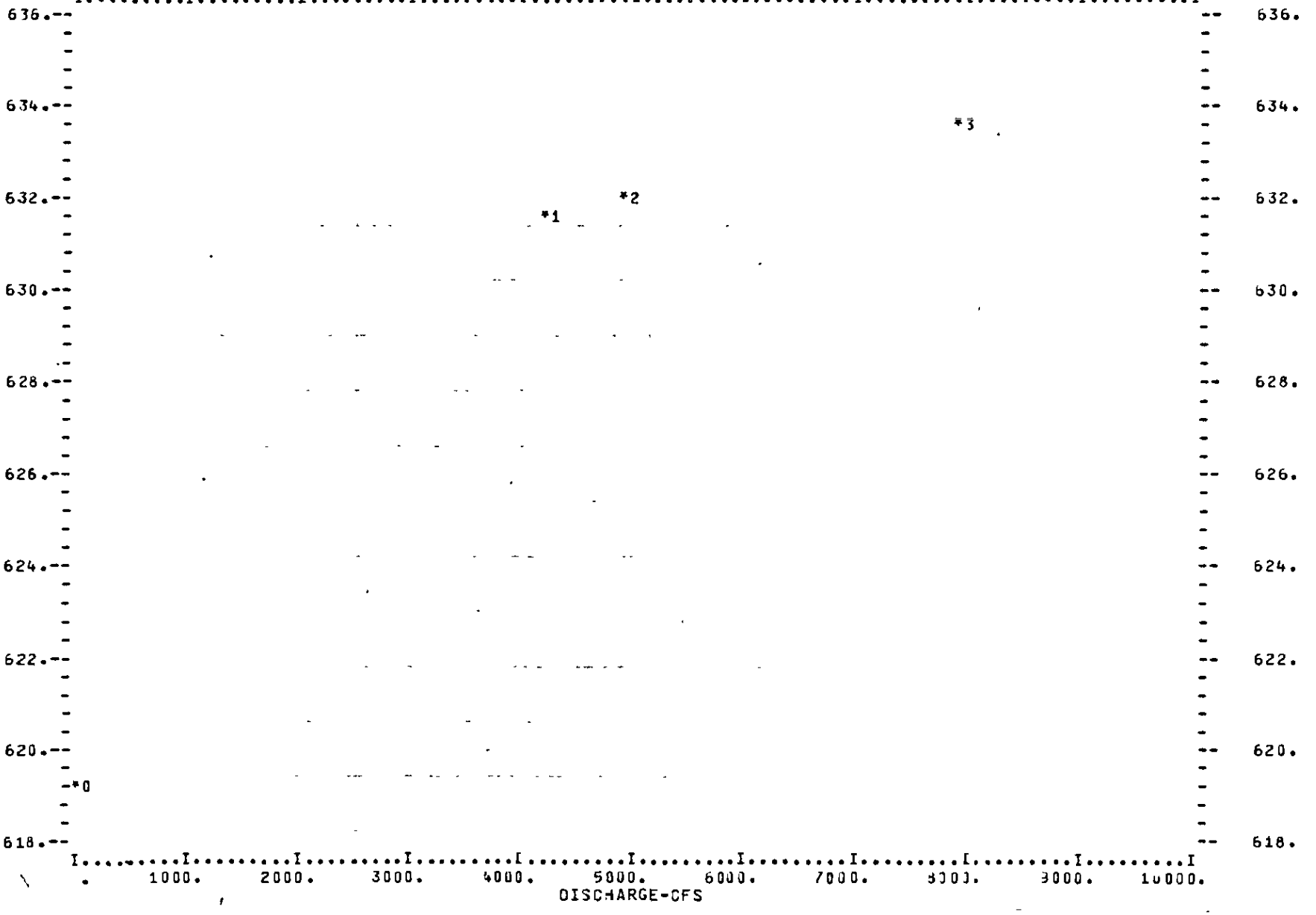
SEGMENT TABLE
CROSS SECTION 24.1
VELOCITY INCREMENT= .00 FPS

CSM		TOTAL	SEG NO 1 W	2 C	3 N
	DISCHARGE CFS	4200.00	29.29	2156.59	2014.12
10.50	VELOCITY FPS	1.91	.34	2.60	.41
CORRECT WEIGHTED VEL =		1.89			
	DISCHARGE CFS	4880.00	37.82	2303.26	2538.91
12.20	VELOCITY FPS	1.88	.35	2.64	.44
CORRECT WEIGHTED VEL =		1.84			
	DISCHARGE CFS	7930.00	35.75	2948.72	4895.53
19.82	VELOCITY FPS	1.79	.43	2.85	.54
CORRECT WEIGHTED VEL =		1.79			

PAW PAW RIVER ..S.-MICHIGAN
ABOVE THE DAM

CROSS SECTION 24.1

SCALES ARE 1 INCH = 1000. CFS, AND 2.. FEET/ ELEVATION



----------80/80 LIST OF INPUT DATA----------

ENDRUN 1359



1) COUNTY: Berrien

2) STUDY NAME: Grand Beach

3) WATERCOURSE: Taylor Creek

4) DOCUMENT TYPE: 100-year



```
C
C      9
C     120          20"-60"*52.8" CONCRETE BRIDGE  RAVINE ROAD
C     245          VALLEY SECTION #8
C     458          62"-36" CONCRETE ENTRANCE DESIGN: PROJECTING FROM FILL  CRESCENT ROAD
C     780          70"-24" CMP ENTRANCE DESIGN: PROJECTING FROM FILL  DRIVEWAY
C     805          VALLEY SECTION #5
C    1116          60"-27" CMP ENTRANCE DESIGN: PROJECTING FROM FILL  STATION ROAD
C    1166          VALLEY SECTION #3
C    1716          VALLEY SECTION #2
C    2416          VALLEY SECTION #1
T1        GRAND BEACH      JOB NO. 5555-25-01
T2        10 YEAR FLOOD
T3        TAYLOR CREEK                                  586.11 st: W.S. elev.
J1                2
J2      1                -1
J3      1        8        4        3       10       11       12
NC   0.07     0.07     0.04      0.3      0.5
JT      4       20       45       55       85
X1      0        7        0       83        0        0        0      1.2     -6.3
GR  602.1        0    595.6       19    586.8       31    586.7       37    587.2       42
GR  591.8       45    609.3       83
X1    100        8       32       37      100      100      100                -2.9
X3     10                                                          590.8    590.8
GR  602.1        0    595.6       19    586.8       31   586.79       32    586.7       37
GR  587.2       42    591.8       45    609.3       83
SB           1.930     3.00             5.0            21.13             583.8    583.8
X1    120        7      250      255       20       20       20
X2                              1   588.8    591.1
X3     10                      230                270                591.1    591.1
BT      7      230   591.42        0      250   591.1    584.8      250    591.1    588.6
BT  252.5    591.1    588.8    255.0    591.1    589.    255.0    591.1    585.2     270.
BT590.96        0
GR  602.7        0    594.3      100    592.7      150    584.8      250    584.8    252.5
GR  585.2      255    590.2      350
NC   0.07     0.07     0.05
X1    128        8        0       83        8        8        8               -1.75
GR  602.1        0    595.6       19    586.8       31   586.79       32    586.7       37
GR  587.2       42    591.8       45    609.3       83
X1    245        7        0       83      105      125      117
GR  602.1        0    595.6       19    586.8       31    586.7       37    587.2       42
GR  591.8       45    609.3       83
NC   0.08     0.08     0.06
X1    280                                35       35       35               0.93
X1    320                                40       40       40               1.07
X1    336                                16       16       16               0.42
X1    356                                20       20       20               0.53
X1    376                                20       20       20               0.54
X1    384                                 8        8        8               0.21
X3                              31                40
X1    396        8       34       37       12       12       12               4.0
X3     10                                                          600.6    600.6
GR  602.1        0    595.6       19    586.8       31   586.75       34    586.7       37
GR  587.2       42    591.8       45    609.3       83
SB           1.890     3.00             2.36             7.07             590.7    590.7
X1    458        7     98.5    101.5       62       62       62
X2                              1   595.5    602.6
X3     10                                                          602.6    602.6
X5      4   594.04   595.35   595.98   598.39
BT      9      0.0    603.1        0     98.5    602.6    593.5     98.5    602.6    594.5
BT     99    602.6    595.2      100    602.6    595.5    101.0    602.6    595.2    101.5
BT  602.6    594.5    101.5    602.6    593.5      200    603.6        0
GR  603.1        0    593.5     98.5    592.8       99    592.5      100    592.8       101
```

NC	0.07	0.07	0.05								
X1	461	8	31	42	3	3	3		5.9		
X3				31		40					
GR	602.1	0	595.6	19	586.8	31	586.75	34	586.7	37	
GR	587.2	42	591.8	45	609.3	83					
X1	466				5	5	5		0.3		
X1	600	22	477	510	95	165	134		-3.15		
X3	10										
GR	603.8	0	604.4	110	604.9	210	605.4	258	605.1	310	
GR	604.9	410	604.6	460	604.8	477	596.9	492	596.5	496	
GR	604.7	510	604.8	560	605.2	610	607.3	710	607.4	810	
GR	607.3	838	606.8	910	606.3	1010	606.8	1110	607.5	1210	
GR	607.7	1310	608.1	1410							
X1	650				50	50	50		0.25		
X3	10										
X1	700				45	60	50		0.25		
X3	10										
X1	710	23	494	496	10	10	10		-2.70		
X3	10							596.0	596.0		
GR	603.8	0	604.4	110	604.9	210	605.4	258	605.1	310	
GR	604.9	410	604.6	460	604.8	477	596.9	492	596.7	494	
GR	596.5	496	604.7	510	604.8	560	605.2	610	607.3	710	
GR	607.4	810	607.3	838	606.8	910	606.3	1010	606.8	1110	
GR	607.5	1210	607.7	1310	608.1	1410					
SB		4.546	3.00		1.57		3.14		596.4	593.8	
X1	780	8	99	101	70	70	70				* 780 driveway
X2			1	598.4	603.8						
X3	10			82		114		603.8	603.8		
BT	7	82	603.8		99	603.8	596.8	99	603.8	598	
BT	100	603.8	598.4	101	603.8	598.0	101	603.8	596.8	114	
BT	604.06	0									
GR	604.5	0	603.8	50	603.8	82	596.8	99	596.4	100	
GR	596.8	101	604.06	114	604.7	150					
NC	0.07	0.07	0.05								
X1	782	22	477	510	2	2	2		-0.1		
X3	10										
GR	603.8	0	604.4	110	604.9	210	605.4	258	605.1	310	
GR	604.9	410	604.6	460	604.8	477	596.9	492	596.5	496	
GR	604.7	510	604.8	560	605.2	610	607.3	710	607.4	810	
GR	607.3	838	606.8	910	606.3	1010	606.8	1110	607.5	1210	
GR	607.7	1310	608.1	1410							
X1	784				2	2	2		0.01		
X3	10										
QT	4	20	43	53	79						
X1	805	22	477	510	21	21	21				
X3	10										
GR	603.8	0	604.4	110	604.9	210	605.4	258	605.1	310	
GR	604.9	410	604.6	460	604.8	477	596.9	492	596.5	496	
GR	604.7	510	604.8	560	605.2	610	607.3	710	607.4	810	
GR	607.3	838	606.8	910	606.3	1010	606.8	1110	607.5	1210	
GR	607.7	1310	608.1	1410							
X1	1046	22	842	881	240	240	241		-0.87		
X3	10										
GR	611.2	0	611.0	42	611.1	142	612.6	242	612.9	342	
GR	613.1	442	613.2	542	612.5	642	612.5	742	612.7	807	
GR	612.3	842	602.0	856	601.4	859	602.4	862	607.6	868	
GR	612.5	881	612.8	892	614.0	942	614.9	1042	615.4	1086	
GR	616.5	1142	618.7	1192							
X1	1056	24	857.9	860.1	10	10	10		-0.70		
X3	10							604.0	604.0		
GR	611.2	0	611.0	42	611.1	142	612.6	242	612.9	342	
GR	613.1	442	613.2	542	612.5	642	612.5	742	612.7	807	
GR	612.3	842	602.0	856	601.62	857.9	601.4	859	601.77	860.1	
GR	602.4	862	607.6	868	612.5	881	612.8	892	614.0	942	
GR	614.9	1042	615.4	1086	616.5	1142	618.7	1192			
SB		4.07	3.00		1.77		3.98		600.8	600.7	

* 1116 Station Road

```
*X1  1116      19   498.9   501.1      60      60      60
X2                    1  603.05  609.06
X3    10                   485             510            609.2   609.2
X5     4  604.02
BT     9     485  609.06       0   498.9   609.2   601.5   498.9   609.2   602.3
BT 499.2   609.2   602.8     500   609.2   603.0   500.8   609.2   602.8   501.1
BT 609.2   602.3   501.1   609.2   601.5   510.0  609.49       0
GR 604.3       0   605.8     100   607.1     185   607.3     200   607.3     300
GR 608.1     400   608.7     450   609.2     485   601.5   498.9   601.0   499.2
GR 600.8     500   601.0   500.8  601.50   501.1  609.49     510   610.8     550
GR 612.4   600.0  615.00     700   616.2     800   618.7     850
NC  0.07    0.07   0.055
X1  1118      22     842     881       2       2       2            -0.57
X3                           843             872
GR 611.2       0   611.0      42   611.1     142   612.6     242   612.9     342
GR 613.1     442   613.2     542   612.5     642   612.5     742   612.7     807
GR 612.3     842   602.0     856   601.4     859   602.4     862   607.6     868
GR 612.5     881   612.8     892   614.0     942   614.9    1042   615.4    1086
GR 616.5    1142   618.7    1192
X1  1166      22     842     881      48      48      48
X3    10
GR 611.2       0   611.0      42   611.1     142   612.6     242   612.9     342
GR 613.1     442   613.2     542   612.5     642   612.5     742   612.7     807
GR 612.3     842   602.0     856   601.4     859   602.4     862   607.6     868
GR 612.5     881   612.8     892   614.0     942   614.9    1042   615.4    1086
GR 616.5    1142   618.7    1192
QT     4      20      41      51      73
X1  1716      11     259     300     600     500     550
GR 625.8       0   621.9     100   620.5     200   621.2     250   620.8     259
GR 605.3     271   606.4     277   612.9     285   621.7     300   624.3     350
GR 624.3     400
QT     4      20      40      50      70
X1 2066.    90.0   324.5   353.0   350.0   350.0   350.0            -0.5
GR 624.2     0.0   624.0    11.1   623.8    22.3   623.6    33.5   623.4    44.7
GR 623.2    55.9   623.0    67.1   622.8    78.3   622.5    89.5   622.1   100.7
GR 621.7   111.8   621.3   123.0   621.0   134.2   620.7   145.4   620.5   156.6
GR 620.3   167.8   620.1   179.0   619.9   190.2   619.7   201.4   619.5   212.6
GR 619.3   223.7   619.2   234.9   619.0   246.1   618.8   257.3   618.7   268.5
GR 618.6   279.7   618.5   290.9   618.1   302.1   617.6   313.3   616.8   324.5
GR 615.9   325.4   614.9   326.4   614.0   327.3   613.1   328.2   612.2   329.2
GR 611.2   330.1   610.3   331.1   609.3   332.0   608.3   333.0   608.2   333.9
GR 608.0   334.9   607.9   335.8   607.7   336.8   608.2   337.7   608.7   338.7
GR 609.3   339.6   609.8   340.6   610.4   341.5   611.0   342.5   611.4   343.4
GR 611.8   344.4   612.2   345.3   612.6   346.3   613.0   347.2   613.6   348.2
GR 614.2   349.1   614.9   350.1   615.5   351.0   616.1   352.0   616.8   353.0
GR 617.6   369.4   617.7   385.7   617.7   402.1   617.8   418.5   617.9   434.9
GR 618.1   451.3   618.2   467.7   618.4   484.1   618.6   500.5   618.8   516.9
GR 618.9   533.3   618.9   549.7   619.0   566.1   619.2   582.5   619.3   598.9
GR 619.4   615.3   619.6   631.7   620.0   648.1   619.8   664.5   619.7   680.9
GR 619.9   697.3   620.0   713.7   620.2   730.1   620.2   746.5   620.2   762.9
GR 620.2   779.3   620.2   795.7   620.2   812.1   620.2   828.5   620.3   845.0
X1  2416      22     390     406     350     350     350
GR 622.7       0   622.4     100   619.4     190   617.6     290   616.1     354
GR 612.9     390   612.2     394   609.1     397   609.2     403   612.0     406
GR 613.4     417   613.5     440   613.3     490   613.5     590   614.2     690
GR 614.2     790   614.6     890   615.8     935   615.2     990   616.2    1090
GR 616.1    1190   616.3    1290
EJ
T1      VILLAGE OF GRAND BEACH JOB NO. 5555-25-01
T2      50 YEAR FLOOD
T3      TAYLOR CREEK
J1   -10       3                                                  588.37
J2     2              -1
T1      VILLAGE OF GRAND BEACH JOB NO. 5555-25-01
T2      100 YEAR FLOOD
```

```
J1   -10       4                                          589.46
J2     3                -1
T1       VILLAGE OF GRAND BEACH JOB NO. 5555-25-01
T2       500 YEAR FLOOD
T3       WHITE CREEK
J1   -10       5                                          590.42
J2    15                -1
```

ER

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

* 589.46 is 100-yr floodplain of White Creek @ confluence with Taylor Creek (White Creek FIS has been approved by DNR 6/76)

```
T1      VILLAGE OF GRAND BEACH JOB NO. 5555-25-01
T2      100 YEAR FLOOD
T3      TAYLOR CREEK

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
     -10.      4.       -0.      -0. -0.000000    -0.00     -0.0     -0.   589.460   -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
```

Ravine Rd (sta 1+00)

```
     0.00     9.06   (589.46)   0.00   589.46   589.46     .00     0.00     0.00   595.80
      55.       0.      55.       0.       0.     226.      0.       0.       0.   603.00
     0.00     0.00      .24     0.00     .070     .040    .070    0.000   580.40    22.24
  .000005       0.       0.       0.        0        0       1     0.00    42.08    64.32
```

check on pressure flow

$K = 1.93;\ C = 1/\sqrt{K} = 1/\sqrt{1.93} = .719$

$Q = CA\sqrt{2gH} = .719(21.13)(8.025)H^{1/2}$

$Q = 122.06\ H^{1/2}$

TW = 589.46

HW = 589.65

$H = (589.65 - 589.46) = .19$

$Q = 122.06(435) = 53.2$ cfs

drawdown

ELLC @ 588.8 < 589.43

```
OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      590.80 ELREA=      590.80
```

submerged outlet condition

```
   100.00     5.63   (589.43)   0.00     0.00   589.49     .06     .00     .03   583.89
      55.       0.      55.       0.       0.      28.      0.       0.       0.   583.80
      .01     0.00     1.97     0.00     .070     .040    .070    .040   583.80    32.00
  .000489     100.     100.     100.        2        0       1     0.00     5.00    37.00
```

Ravine Rd

```
SPECIAL BRIDGE

SB  XK       XKOR     COFQ     RDLEN    BWC      BWP      BAREA    SS       ELCHU    ELCHD
    -0.00     1.93     3.00    -0.00     5.00    -0.00    21.13    -0.00   583.80   583.80

PRESSURE FLOW

  EGPRS    EGLWC     H3       QWEIR    QPR      BAREA    ELLC     ELTRD    CLASS
  589.64   589.52    0.00       0.      55.      21.    588.80   591.10    10.00

3470 ENCROACHMENT STATIONS=     230.0     270.0  TYPE=     1  TARGET=     40.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      591.10 ELREA=      591.10
```

RECEIVED
OCT 6 1970
WATER MANAGEMENT

TAYLOR CREEK

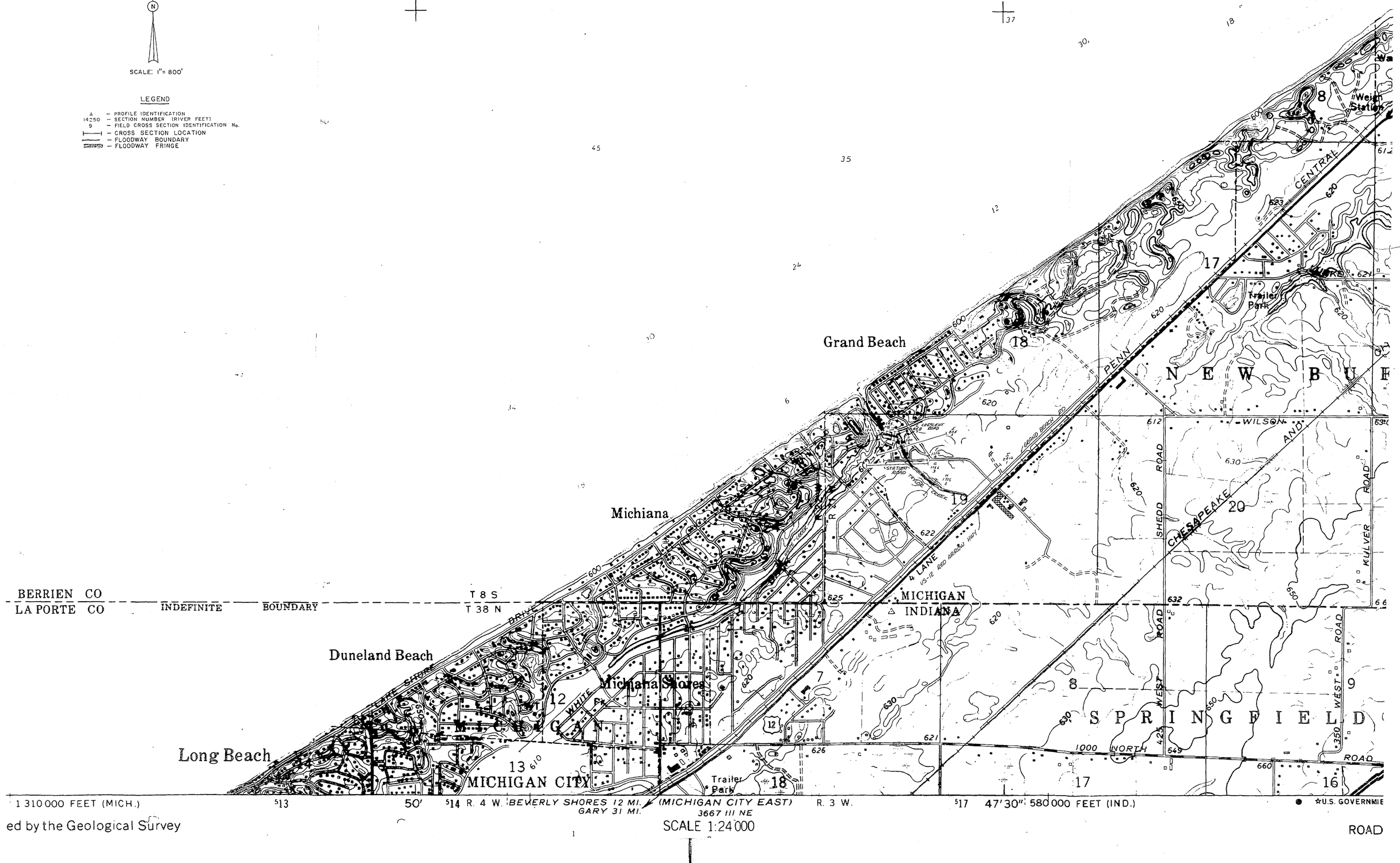
VILLAGE OF GRAND BEACH, FIS

J & A FILE No. 5555-25

SCALE: 1"= 800'

LEGEND

A — PROFILE IDENTIFICATION
14250 — SECTION NUMBER (RIVER FEET)
9 — FIELD CROSS SECTION IDENTIFICATION No.
— CROSS SECTION LOCATION
— FLOODWAY BOUNDARY
— FLOODWAY FRINGE



ed by the Geological Survey

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Grand Beach

3) WATERCOURSE: Taylor Creek

4) DOCUMENT TYPE: Report

00BREAK00

100-year

WATERCOURSE: Taylor Creek
VILLAGE: Grand Beach
COUNTY: Berrien

STATION	LOCATION	CWSEL	EG	Q
0	Confluence @ White Creek	589.46	589.46	55
100	1' d/s of Ravine Road	589.43	589.46	55
120	u/s face of Ravine Road	589.55	589.64	55
128	8' u/s of Ravine Road	589.65	589.66	55
245	125' u/s of Ravine Road	589.68	589.71	55
280	116' u/s of Ravine Road	589.71	589.79	55
320	76' d/s of Crescent Road	589.99	590.24	55
336	60' d/s of Crescent Road	590.41	590.66	55
356	40' d/s of Crescent Road	590.94	591.19	55
376	20' d/s of Crescent Road	591.48	591.73	55
384	12' d/s of Crescent Road	591.68	592.08	55
396	d/s face of Crescent Road	592.90	594.00	55
458	u/s face of Crescent Road	595.98	596.50	55
461	3' u/s of Crescent Road	596.62	596.66	55
466	8' u/s of Crescent Road	596.64	596.66	55
600	142' u/s of Crescent Road	596.71	596.76	55
650	60' d/s of Driveway Culvert	596.80	596.86	55
700	10' d/s of Driveway Culvert	596.91	596.98	55
710	d/s face of Driveway Culvert	596.92	597.02	55
780	u/s face of Driveway Culvert	604.23	604.24	55
782	2' u/s of Driveway Culvert	604.24	604.24	55
784	4' u/s of Driveway Culvert	604.24	604.24	55
805	25' u/s of Driveway Culvert	604.24	604.24	53
1046	10' d/s of Staton Road	604.24	604.28	53
1056	d/s face of Staton Road	604.24	604.31	53
1116	u/s face of Staton Road	609.57	609.57	53
1118	2' u/s of Staton Road	609.57	609.57	53
1166	50' u/s of Staton Road	609.57	609.57	53
1716	600' u/s of Staton Road	609.63	609.66	51
2066	850' u/s of Staton Road	610.21	610.29	50
2416	1200' u/s of Staton Road	611.64	611.72	50

1) COUNTY: Berrien

2) STUDY NAME: Grand Beach

3) WATERCOURSE: Taylor Creek

4) DOCUMENT TYPE: Summary

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

WHITE CREEK

SECTION NUMBER	CHANNEL LENGTH	MIN FL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	TOPWID	EG	HV	HL	OLOSS
0.00	0.00	0.00	0.00	580.40	20.00	586.11	5.71	27.57	586.11	.00	0.00	0.00
0.00	0.00	0.00	0.00	580.40	45.00	588.37	7.97	37.16	588.37	.00	0.00	0.00
0.00	0.00	0.00	0.00	580.40	55.00	589.46	9.06	42.08	589.46	.00	0.00	0.00
0.00	0.00	0.00	0.00	580.40	85.00	590.42	10.02	47.95	590.42	.00	0.00	0.00
100.00	100.00	0.00	0.00	583.80	20.00	586.09	2.29	5.00	586.14	.05	.00	.02
100.00	100.00	0.00	0.00	583.80	45.00	588.34	4.54	5.00	588.40	.06	.00	.03
100.00	100.00	0.00	0.00	583.80	55.00	589.43	5.63	5.00	589.49	.06	.00	.03
100.00	100.00	0.00	0.00	583.80	85.00	590.37	6.57	5.00	590.48	.11	.00	.05
120.00	20.00	591.10	588.80	584.80	20.00	586.06	1.26	5.00	586.24	.18	.04	.07
120.00	20.00	591.10	588.80	584.80	45.00	588.34	3.54	5.00	588.44	.11	.02	.02
120.00	20.00	591.10	588.80	584.80	55.00	589.55	4.75	5.00	589.64	.09	.14	0.00
120.00	20.00	591.10	588.80	584.80	85.00	590.72	5.92	5.00	590.86	.13	.38	0.00
128.00	8.00	0.00	0.00	584.95	20.00	586.29	1.34	13.24	586.32	.03	.03	.05
128.00	8.00	0.00	0.00	584.95	45.00	588.46	3.51	17.62	588.48	.01	.00	.03
128.00	8.00	0.00	0.00	584.95	55.00	589.65	4.70	20.01	589.66	.01	.00	.02
128.00	8.00	0.00	0.00	584.95	85.00	590.88	5.93	23.76	590.89	.01	.00	.04
245.00	117.00	0.00	0.00	586.70	20.00	587.30	.60	11.75	587.53	.23	.68	0.00
245.00	117.00	0.00	0.00	586.70	45.00	588.52	1.82	14.21	588.59	.07	.09	.03
245.00	117.00	0.00	0.00	586.70	55.00	589.68	2.98	16.54	589.71	.03	.04	.01
245.00	117.00	0.00	0.00	586.70	85.00	590.91	4.21	19.02	590.94	.03	.03	.01
280.00	35.00	0.00	0.00	587.63	20.00	588.46	.83	12.23	588.56	.10	.99	.04
280.00	35.00	0.00	0.00	587.63	45.00	588.71	1.08	12.72	588.96	.25	.28	.09
280.00	35.00	0.00	0.00	587.63	55.00	589.71	2.08	14.72	589.79	.08	.06	.02
280.00	35.00	0.00	0.00	587.63	85.00	590.93	3.30	17.17	590.99	.06	.04	.01
320.00	40.00	0.00	0.00	588.70	20.00	589.41	.71	11.98	589.56	.14	.98	.02
320.00	40.00	0.00	0.00	588.70	45.00	589.90	1.20	12.95	590.10	.20	1.12	.02
320.00	40.00	0.00	0.00	588.70	55.00	589.99	1.29	13.16	590.24	.24	.36	.08
320.00	40.00	0.00	0.00	588.70	85.00	591.03	2.33	15.23	591.17	.14	.14	.04
336.00	16.00	0.00	0.00	589.12	20.00	589.91	.79	12.11	590.02	.11	.46	.01
336.00	16.00	0.00	0.00	589.12	45.00	590.28	1.16	12.88	590.50	.21	.39	.01
336.00	16.00	0.00	0.00	589.12	55.00	590.41	1.29	13.13	590.66	.25	.42	.00
336.00	16.00	0.00	0.00	589.12	85.00	591.15	2.03	14.62	591.34	.19	.15	.03
356.00	20.00	0.00	0.00	589.65	20.00	590.41	.76	12.07	590.54	.12	.51	.00
356.00	20.00	0.00	0.00	589.65	45.00	590.81	1.16	12.86	591.03	.22	.53	.00
356.00	20.00	0.00	0.00	589.65	55.00	590.94	1.29	13.13	591.19	.25	.53	.00
356.00	20.00	0.00	0.00	589.65	85.00	591.41	1.76	14.09	591.69	.27	.30	.04
376.00	20.00	0.00	0.00	590.19	20.00	590.95	.76	12.08	591.07	.12	.53	.00
376.00	20.00	0.00	0.00	590.19	45.00	591.35	1.16	12.86	591.57	.22	.54	.00
376.00	20.00	0.00	0.00	590.19	55.00	591.48	1.29	13.11	591.73	.25	.54	.00
376.00	20.00	0.00	0.00	590.19	85.00	591.84	1.65	13.85	592.16	.32	.45	.02

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	TOPWID	EG	HV	HL	OLOSS
384.00	8.00	0.00	0.00	590.40	20.00	591.16	.76	9.00	591.33	.16	.24	.02
384.00	8.00	0.00	0.00	590.40	45.00	591.55	1.15	9.00	591.89	.34	.26	.06
384.00	8.00	0.00	0.00	590.40	55.00	591.68	1.28	9.00	592.08	.40	.27	.08
384.00	8.00	0.00	0.00	590.40	85.00	591.97	1.57	9.00	592.60	.62	.29	.15
396.00	12.00	0.00	0.00	590.70	20.00	591.84	1.14	3.00	592.39	.56	.51	0.00
396.00	12.00	0.00	0.00	590.70	45.00	592.63	1.93	3.00	593.59	.96	.56	0.00
396.00	12.00	0.00	0.00	590.70	55.00	592.90	2.20	3.00	594.00	1.10	.59	0.00
396.00	12.00	0.00	0.00	590.70	85.00	593.64	2.94	3.00	595.11	1.47	.68	0.00
458.00	62.00	100000.00	100000.00	592.50	20.00	594.04	1.54	3.00	594.50	.46	3.56	.03
458.00	62.00	100000.00	100000.00	592.50	45.00	595.35	2.85	3.00	595.89	.54	2.77	.13
458.00	62.00	100000.00	100000.00	592.50	55.00	595.98	3.48	3.00	596.50	.52	2.49	.17
458.00	62.00	100000.00	100000.00	592.50	85.00	598.39	5.89	3.00	598.79	.40	1.79	.32
461.00	3.00	0.00	0.00	592.60	20.00	594.62	2.02	9.00	594.64	.02	.01	.13
461.00	3.00	0.00	0.00	592.60	45.00	596.02	3.42	9.00	596.06	.03	.01	.15
461.00	3.00	0.00	0.00	592.60	55.00	596.62	4.02	9.00	596.66	.04	.01	.15
461.00	3.00	0.00	0.00	592.60	85.00	598.87	6.27	9.00	598.91	.04	.01	.11
466.00	5.00	0.00	0.00	592.90	20.00	594.63	1.73	14.02	594.65	.02	.00	.00
466.00	5.00	0.00	0.00	592.90	45.00	596.04	3.14	16.87	596.06	.02	.00	.00
466.00	5.00	0.00	0.00	592.90	55.00	596.64	3.74	18.08	596.66	.02	.00	.00
466.00	5.00	0.00	0.00	592.90	85.00	598.90	6.00	24.02	598.91	.02	.00	.01
600.00	134.00	0.00	0.00	593.35	20.00	594.82	1.47	8.55	594.92	.10	.23	.04
600.00	134.00	0.00	0.00	593.35	45.00	596.13	2.78	13.29	596.19	.06	.11	.02
600.00	134.00	0.00	0.00	593.35	55.00	596.71	3.36	15.39	596.76	.05	.08	.01
600.00	134.00	0.00	0.00	593.35	85.00	598.92	5.57	23.34	598.94	.02	.03	.00
650.00	50.00	0.00	0.00	593.60	20.00	595.20	1.60	9.01	595.28	.07	.35	.01
650.00	50.00	0.00	0.00	593.60	45.00	596.27	2.67	12.87	596.34	.07	.14	.00
650.00	50.00	0.00	0.00	593.60	55.00	596.80	3.20	14.77	596.86	.06	.09	.00
650.00	50.00	0.00	0.00	593.60	85.00	598.94	5.34	22.48	598.97	.02	.02	.00
700.00	50.00	0.00	0.00	593.85	20.00	595.49	1.64	9.15	595.56	.07	.28	.00
700.00	50.00	0.00	0.00	593.85	45.00	596.44	2.59	12.53	596.52	.08	.17	.00
700.00	50.00	0.00	0.00	593.85	55.00	596.91	3.06	14.24	596.98	.07	.12	.01
700.00	50.00	0.00	0.00	593.85	85.00	598.97	5.12	21.66	598.99	.03	.03	.00
710.00	10.00	0.00	0.00	593.80	20.00	595.36	1.56	2.00	596.09	.73	.12	0.00
710.00	10.00	0.00	0.00	593.80	45.00	596.46	2.66	12.84	596.57	.11	.04	.01
710.00	10.00	0.00	0.00	593.80	55.00	596.92	3.12	14.51	597.02	.09	.03	.01
710.00	10.00	0.00	0.00	593.80	85.00	598.97	5.17	21.86	599.01	.04	.01	.01
780.00	70.00	603.80	598.40	596.40	20.00	599.26	2.86	2.00	599.69	.42	3.51	.09
780.00	70.00	603.80	598.40	596.40	45.00	604.11	7.71	32.00	604.11	.00	7.54	0.00
780.00	70.00	603.80	598.40	596.40	55.00	604.23	7.83	32.00	604.24	.00	7.22	0.00
780.00	70.00	603.80	598.40	596.40	85.00	604.55	8.15	32.00	604.56	.01	5.55	0.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	C#SEL	DEPTH	TOPWID	EG	HV	HL	OLOSS
782.00	2.00	0.00	0.00	596.40	20.00	599.81	3.41	15.53	599.81	.01	.00	.12
782.00	2.00	0.00	0.00	596.40	45.00	604.11	7.71	31.05	604.11	.00	.00	.00
782.00	2.00	0.00	0.00	596.40	55.00	604.24	7.84	31.51	604.24	.00	.00	.00
782.00	2.00	0.00	0.00	596.40	85.00	604.55	8.15	32.66	604.56	.01	.00	.00
784.00	2.00	0.00	0.00	596.41	20.00	599.81	3.40	15.49	599.81	.01	.00	.00
784.00	2.00	0.00	0.00	596.41	45.00	604.11	7.70	31.02	604.11	.00	.00	.00
784.00	2.00	0.00	0.00	596.41	55.00	604.24	7.83	31.48	604.24	.00	.00	.00
784.00	2.00	0.00	0.00	596.41	85.00	604.55	8.14	32.63	604.56	.01	.00	.00
805.00	21.00	0.00	0.00	596.50	20.00	599.81	3.31	15.18	599.82	.01	.00	.00
805.00	21.00	0.00	0.00	596.50	43.00	604.11	7.61	30.69	604.11	.00	.00	.00
805.00	21.00	0.00	0.00	596.50	53.00	604.24	7.74	31.16	604.24	.00	.00	.00
805.00	21.00	0.00	0.00	596.50	79.00	604.56	8.06	32.31	604.56	.00	.00	.00
1046.00	241.00	0.00	0.00	600.53	20.00	601.63	1.10	6.79	601.95	.33	.20	0.00
1046.00	241.00	0.00	0.00	600.53	43.00	604.11	3.58	13.03	604.14	.03	.02	.02
1046.00	241.00	0.00	0.00	600.53	53.00	604.24	3.71	13.36	604.28	.05	.02	.02
1046.00	241.00	0.00	0.00	600.53	79.00	604.56	4.03	14.18	604.64	.08	.04	.04
1056.00	10.00	0.00	0.00	600.70	20.00	602.21	1.51	2.20	602.90	.69	.49	0.00
1056.00	10.00	0.00	0.00	600.70	43.00	604.11	3.41	12.62	604.16	.05	.01	.01
1056.00	10.00	0.00	0.00	600.70	53.00	604.24	3.54	12.94	604.31	.07	.02	.01
1056.00	10.00	0.00	0.00	600.70	79.00	604.56	3.86	13.76	604.69	.12	.02	.02
1116.00	60.00	609.06	603.05	600.80	20.00	604.02	3.22	2.20	604.16	.14	.94	.16
1116.00	60.00	609.06	603.05	600.80	43.00	609.39	8.59	24.90	609.40	.00	5.23	0.00
1116.00	60.00	609.06	603.05	600.80	53.00	609.57	8.77	25.00	609.57	.01	5.26	0.00
1116.00	60.00	609.06	603.05	600.80	79.00	609.88	9.08	25.00	609.89	.01	5.21	0.00
1118.00	2.00	0.00	0.00	600.83	20.00	604.19	3.36	12.48	604.20	.01	.00	.04
1118.00	2.00	0.00	0.00	600.83	43.00	609.40	8.57	26.83	609.40	.00	.00	.00
1118.00	2.00	0.00	0.00	600.83	53.00	609.57	8.74	27.07	609.57	.00	.00	.00
1118.00	2.00	0.00	0.00	600.83	79.00	609.89	9.06	27.51	609.90	.00	.00	.00
1166.00	48.00	0.00	0.00	601.40	20.00	604.21	2.81	11.10	604.23	.02	.02	.00
1166.00	48.00	0.00	0.00	601.40	43.00	609.40	8.00	26.84	609.40	.00	.00	.00
1166.00	48.00	0.00	0.00	601.40	53.00	609.57	8.17	27.53	609.57	.00	.00	.00
1166.00	48.00	0.00	0.00	601.40	79.00	609.89	8.49	28.84	609.90	.01	.00	.00
1716.00	550.00	0.00	0.00	605.30	20.00	606.49	1.19	7.03	606.81	.32	1.40	0.00
1716.00	550.00	0.00	0.00	605.30	41.00	609.44	4.14	12.95	609.46	.02	.05	.01
1716.00	550.00	0.00	0.00	605.30	51.00	609.63	4.33	13.32	609.66	.03	.07	.01
1716.00	550.00	0.00	0.00	605.30	73.00	609.99	4.69	14.05	610.04	.05	.12	.02
2066.00	350.00	0.00	0.00	607.20	20.00	609.39	2.19	9.28	609.43	.04	2.53	.09
2066.00	350.00	0.00	0.00	607.20	40.00	609.92	2.72	10.57	610.00	.08	.51	.03
2066.00	350.00	0.00	0.00	607.20	50.00	610.21	3.01	11.36	610.29	.09	.61	.03
2066.00	350.00	0.00	0.00	607.20	70.00	610.73	3.53	12.94	610.83	.10	.76	.03

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	DEPTH	TOPWID	EG	HV	HL	OLOSS
2416.00	350.00	0.00	0.00	609.10	20.00	610.58	1.48	8.89	610.63	.06	1.19	.01
2416.00	350.00	0.00	0.00	609.10	40.00	611.34	2.24	10.46	611.42	.08	1.42	.00
2416.00	350.00	0.00	0.00	609.10	50.00	611.64	2.54	11.06	611.72	.09	1.43	.00
2416.00	350.00	0.00	0.00	609.10	70.00	612.13	3.03	12.99	612.24	.10	1.41	.00

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	20.000	586.110	0.000	0.000	0.000	27.569	0.000	0.000
0.000	45.000	588.370	2.260	0.000	0.000	37.157	-9.587	0.000
0.000	55.000	589.460	1.090	0.000	0.000	42.080	-14.510	0.000
0.000	85.000	590.420	.960	0.000	0.000	47.949	-20.379	0.000
100.000	20.000	586.087	0.000	-.023	0.000	5.000	0.000	100.000
100.000	45.000	588.341	2.254	-.029	0.000	5.000	0.000	100.000
100.000	55.000	589.432	1.091	-.028	0.000	5.000	0.000	100.000
100.000	85.000	590.371	.939	-.049	0.000	5.000	0.000	100.000
120.000	20.000	586.059	0.000	-.028	0.000	5.000	0.000	20.000
120.000	45.000	588.337	2.278	-.004	0.000	5.000	0.000	20.000
120.000	55.000	589.548	1.211	.116	0.000	5.000	0.000	20.000
120.000	85.000	590.723	1.175	.353	0.000	5.000	0.000	20.000
128.000	20.000	586.290	0.000	.231	0.000	13.241	0.000	8.000
128.000	45.000	588.462	2.172	.125	0.000	17.617	-4.376	8.000
128.000	55.000	589.652	1.190	.103	0.000	20.015	-6.774	8.000
128.000	85.000	590.883	1.231	.159	0.000	23.763	-10.522	8.000
245.000	20.000	587.301	0.000	1.011	0.000	11.749	0.000	117.000
245.000	45.000	588.521	1.220	.059	0.000	14.208	-2.459	117.000
245.000	55.000	589.678	1.157	.026	0.000	16.540	-4.791	117.000
245.000	85.000	590.907	1.229	.024	0.000	19.018	-7.269	117.000
280.000	20.000	588.462	0.000	1.161	0.000	12.228	0.000	35.000
280.000	45.000	588.706	.244	.185	0.000	12.718	-.490	35.000
280.000	55.000	589.714	1.008	.036	0.000	14.720	-2.492	35.000
280.000	85.000	590.929	1.215	.021	0.000	17.170	-4.943	35.000
320.000	20.000	589.414	0.000	.952	0.000	11.981	0.000	40.000
320.000	45.000	589.898	.484	1.192	0.000	12.951	-.970	40.000
320.000	55.000	589.994	.096	.280	0.000	13.158	-1.177	40.000
320.000	85.000	591.029	1.035	.101	0.000	15.233	-3.252	40.000
336.000	20.000	589.910	0.000	.495	0.000	12.111	0.000	16.000
336.000	45.000	590.284	.374	.386	0.000	12.883	-.773	16.000
336.000	55.000	590.408	.124	.414	0.000	13.132	-1.021	16.000
336.000	85.000	591.147	.740	.118	0.000	14.624	-2.514	16.000
356.000	20.000	590.415	0.000	.505	0.000	12.074	0.000	20.000
356.000	45.000	590.810	.395	.526	0.000	12.858	-.784	20.000
356.000	55.000	590.939	.129	.531	0.000	13.129	-1.055	20.000
356.000	85.000	591.411	.472	.263	0.000	14.087	-2.013	20.000
376.000	20.000	590.947	0.000	.532	0.000	12.078	0.000	20.000
376.000	45.000	591.350	.403	.540	0.000	12.864	-.785	20.000
376.000	55.000	591.476	.127	.537	0.000	13.112	-1.034	20.000
376.000	85.000	591.835	.359	.425	0.000	13.855	-1.776	20.000
384.000	20.000	591.162	0.000	.215	0.000	8.999	0.000	8.000
384.000	45.000	591.554	.392	.204	0.000	8.999	-.000	8.000
384.000	55.000	591.675	.122	.199	0.000	8.999	-.000	8.000

396.000	20.000	591.838	0.000	.676	0.000	3.000	0.000	12.000
396.000	45.000	592.629	.791	1.076	0.000	3.000	0.000	12.000
396.000	55.000	592.903	.273	1.227	0.000	3.000	0.000	12.000
396.000	85.000	593.640	.737	1.665	0.000	3.000	0.000	12.000
458.000	20.000	594.040	0.000	2.202	0.000	3.000	0.000	62.000
458.000	45.000	595.350	1.310	2.721	0.000	3.000	0.000	62.000
458.000	55.000	595.980	.630	3.077	0.000	3.000	0.000	62.000
458.000	85.000	598.390	2.410	4.750	0.000	3.000	0.000	62.000
461.000	20.000	594.622	0.000	.582	0.000	8.999	0.000	3.000
461.000	45.000	596.022	1.400	.672	0.000	8.999	-.000	3.000
461.000	55.000	596.618	.596	.638	0.000	8.999	-.000	3.000
461.000	85.000	598.871	2.253	.481	0.000	8.999	-.000	3.000
466.000	20.000	594.629	0.000	.008	0.000	14.024	0.000	5.000
466.000	45.000	596.041	1.411	.019	0.000	16.869	-2.845	5.000
466.000	55.000	596.641	.500	.023	0.000	18.078	-4.053	5.000
466.000	85.000	598.898	2.257	.027	0.000	24.024	-10.000	5.000
600.000	20.000	594.823	0.000	.193	0.000	8.553	0.000	134.000
600.000	45.000	596.132	1.309	.091	0.000	13.288	-4.735	134.000
600.000	55.000	596.709	.577	.068	0.000	15.385	-6.832	134.000
600.000	85.000	598.923	2.214	.025	0.000	23.337	-14.784	134.000
650.000	20.000	595.201	0.000	.378	0.000	9.006	0.000	50.000
650.000	45.000	596.270	1.069	.138	0.000	12.869	-3.862	50.000
650.000	55.000	596.797	.527	.088	0.000	14.768	-5.762	50.000
650.000	85.000	598.943	2.146	.019	0.000	22.482	-13.476	50.000
700.000	20.000	595.488	0.000	.287	0.000	9.148	0.000	50.000
700.000	45.000	596.436	.947	.166	0.000	12.535	-3.387	50.000
700.000	55.000	596.908	.472	.111	0.000	14.242	-5.095	50.000
700.000	85.000	598.967	2.059	.024	0.000	21.660	-12.512	50.000
710.000	20.000	595.359	0.000	-.129	0.000	2.000	0.000	10.000
710.000	45.000	596.461	1.102	.026	0.000	12.838	-10.838	10.000
710.000	55.000	596.923	.462	.015	0.000	14.507	-12.507	10.000
710.000	85.000	598.967	2.044	.000	0.000	21.859	-19.859	10.000
780.000	20.000	599.264	0.000	3.905	0.000	2.000	0.000	70.000
780.000	45.000	604.105	4.841	7.644	0.000	31.999	-29.999	70.000
780.000	55.000	604.233	.128	7.310	0.000	31.999	-29.999	70.000
780.000	85.000	604.551	.318	5.584	0.000	31.999	-29.999	70.000
782.000	20.000	599.807	0.000	.543	0.000	15.528	0.000	2.000
782.000	45.000	604.107	4.300	.001	0.000	31.052	-15.524	2.000
782.000	55.000	604.235	.128	.002	0.000	31.513	-15.986	2.000
782.000	85.000	604.554	.319	.004	0.000	32.664	-17.137	2.000
784.000	20.000	599.807	0.000	.000	0.000	15.491	0.000	2.000
784.000	45.000	604.107	4.300	.000	0.000	31.016	-15.525	2.000
784.000	55.000	604.235	.128	.000	0.000	31.477	-15.987	2.000
784.000	85.000	604.554	.319	.000	0.000	32.629	-17.138	2.000
805.000	20.000	599.812	0.000	.004	0.000	15.182	0.000	21.000
805.000	43.000	604.107	4.296	.001	0.000	30.693	-15.511	21.000
805.000	53.000	604.236	.129	.001	0.000	31.155	-15.973	21.000
805.000	79.000	604.556	.320	.002	0.000	32.309	-17.127	21.000
1046.000	20.000	601.628	0.000	1.816	0.000	6.790	0.000	241.000
1046.000	43.000	604.107	2.479	-.000	0.000	13.035	-6.245	241.000
1046.000	53.000	604.237	.129	.001	0.000	13.361	-6.571	241.000
1046.000	79.000	604.560	.323	.003	0.000	14.177	-7.387	241.000

1056.000	20.000	602.213	0.000	.585	0.000	2.200	0.000	10.000
1056.000	43.000	604.110	1.897	.002	0.000	12.621	-10.421	10.000
1056.000	53.000	604.239	.129	.003	0.000	12.938	-10.738	10.000
1056.000	79.000	604.562	.323	.002	0.000	13.757	-11.557	10.000
1116.000	20.000	604.020	0.000	1.807	0.000	2.200	0.000	60.000
1116.000	43.000	609.394	5.374	5.285	0.000	24.896	-22.696	60.000
1116.000	53.000	609.565	.171	5.326	0.000	24.999	-22.799	60.000
1116.000	79.000	609.884	.319	5.322	0.000	24.999	-22.799	60.000
1118.000	20.000	604.193	0.000	.173	0.000	12.481	0.000	2.000
1118.000	43.000	609.397	5.204	.003	0.000	26.831	-14.350	2.000
1118.000	53.000	609.569	.172	.003	0.000	27.066	-14.585	2.000
1118.000	79.000	609.890	.322	.006	0.000	27.507	-15.026	2.000
1166.000	20.000	604.214	0.000	.021	0.000	11.102	0.000	48.000
1166.000	43.000	609.398	5.184	.001	0.000	26.839	-15.737	48.000
1166.000	53.000	609.570	.172	.002	0.000	27.534	-16.432	48.000
1166.000	79.000	609.893	.323	.003	0.000	28.844	-17.742	48.000
1716.000	20.000	606.488	0.000	2.274	0.000	7.029	0.000	550.000
1716.000	41.000	609.439	2.951	.041	0.000	12.945	-5.917	550.000
1716.000	51.000	609.627	.187	.057	0.000	13.321	-6.292	550.000
1716.000	73.000	609.993	.366	.099	0.000	14.054	-7.026	550.000
2066.000	20.000	609.393	0.000	2.905	0.000	9.279	0.000	350.000
2066.000	40.000	609.922	.528	.482	0.000	10.573	-1.293	350.000
2066.000	50.000	610.206	.285	.579	0.000	11.363	-2.084	350.000
2066.000	70.000	610.730	.524	.737	0.000	12.939	-3.659	350.000
2416.000	20.000	610.578	0.000	1.185	0.000	8.894	0.000	350.000
2416.000	40.000	611.342	.764	1.421	0.000	10.464	-1.570	350.000
2416.000	50.000	611.635	.293	1.429	0.000	11.063	-2.169	350.000
2416.000	70.000	612.134	.499	1.404	0.000	12.989	-4.095	350.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	0.000	.519	0.000
2	0.000	0.000	.887	.367
3	0.000	0.000	.933	.414
4	0.000	0.000	1.045	.526



1) COUNTY: Berrien

2) STUDY NAME: Hagar

3) WATERCOURSE: Granger Drain

4) DOCUMENT TYPE: Input Data



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C
C      22
C       0     VALLEY SECTION A
C     750     VALLEY SECTION B
C    1100  BRIDGE SECTION B-2  U.S. FACE OF DAM
C    1100   EARTH DAM WITH SPILLWAY
C    1025     VALLEY SECTION B-1
C    1160     VALLEY SECTION B-3
C    2100     VALLEY SECTION C
C    3200     VALLEY SECTION D
C    3359  BRIDGE SECTION E  U.S. CHABOT RD.  60'- 48" CMP
C    3359   CMP WITH CONCRETE HEADWALL
C    5541     VALLEY SECTION F
C    5716  BRIDGE SECTION G  U.S. RIVERSIDE RD. 75'-7'7"X 11'10" MULTI PLATE ARCH
C    5716   MULTI PLATE ARCH PROJECTING FROM FILL  (NO HEADWALL)
C    5727     GRANGER DRAIN TRIBUTARY CONFLUENCE
C    7216     VALLEY SECTION H
C    8706  BRIDGE SECTION I  U.S. C&O R.R. TRACK  60'- 36" CI
C    8706   CI PIPE WITH HEADWALL
C    9006     VALLEY SECTION J
C    9395  BRIDGE SECTION K  U.S. PIER RD.  40'- 48" CMP
C    9395   CMP WITH HEADWALL
C    9545     VALLEY SECTION L
C   11093     VALLEY SECTION M
T1        HAGAR TWP. BERRIEN CO.  5555-27
T2        10 YEAR FLOOD
T3        GRANGER DRAIN SEC. 1-13
J1    -10       2                  .0046                          590.4
J2      1              -1
NC    .10     .10     .06      .3      .5
QT      4      98     135     140     155
X1      0       6      92     119
X3     10
GR  631.8       0   595.0      92   590.6     112   591.1     119   590.4     476
GR  629.6     550
X1    188      90    93.7   117.7     188     188     188          -0.32
X3     10
GR  626.3     0.0   624.7     3.2   623.2     6.4   621.7     9.6   620.2    12.9
GR  618.7    16.1   617.2    19.3   616.0    22.6   614.9    25.8   613.9    29.0
GR  612.9    32.3   611.8    35.5   610.8    38.7   609.8    42.0   608.8    45.2
GR  607.9    48.4   606.9    51.7   606.0    54.9   605.0    58.1   604.1    61.4
GR  603.2    64.6   602.2    67.8   601.2    71.1   600.3    74.3   599.4    77.5
GR  598.4    80.8   597.5    84.0   596.5    87.2   595.6    90.5   594.7    93.7
GR  594.4    94.5   594.2    95.3   594.0    96.1   593.8    96.9   593.5    97.7
GR  593.2    98.5   593.0    99.3   592.8   100.1   592.6   100.9   592.4   101.7
GR  592.3   102.5   592.1   103.3   591.9   104.1   591.7   104.9   591.6   105.7
GR  591.4   106.5   591.3   107.3   591.1   108.1   591.0   108.9   590.9   109.7
GR  590.8   110.5   590.7   111.3   590.7   112.1   590.8   112.9   590.8   113.7
GR  590.9   114.5   591.1   115.3   591.3   116.1   591.5   116.9   591.7   117.7
GR  591.6   130.0   591.6   142.4   591.6   154.7   591.5   167.0   591.4   179.4
GR  591.5   191.7   591.6   204.0   591.7   216.4   591.8   228.7   591.9   241.0
GR  591.9   253.4   592.0   265.7   592.1   278.0   592.2   290.4   592.2   302.7
GR  592.3   315.0   592.4   327.4   592.5   339.7   592.6   352.0   592.7   364.4
GR  592.8   376.7   593.4   389.0   594.4   401.4   595.4   413.7   597.3   426.0
GR  604.0   438.4   610.7   450.7   617.4   463.0   624.1   475.4   630.9   487.7
X1    375      90    95.5   116.5     300     100     187          -0.45
X3     10
GR  620.8     0.0   619.1     3.2   617.3     6.5   615.6     9.8   613.9    13.1
GR  612.1    16.4   610.4    19.7   609.2    23.0   608.3    26.3   607.5    29.6
GR  606.7    32.9   605.9    36.2   605.2    39.5   604.4    42.8   603.7    46.1
GR  603.1    49.3   602.5    52.6   601.9    55.9   601.2    59.2   600.6    62.5
GR  600.0    65.8   599.4    69.1   598.7    72.4   598.1    75.7   597.5    79.0
GR  596.9    82.3   596.3    85.6   595.6    88.9   595.0    92.2   594.4    95.5
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GR	592.8	99.6	592.6	100.3	592.3	101.0	592.1	101.7	592.0	102.
GR	591.8	103.1	591.7	103.8	591.5	104.5	591.3	105.2	591.2	105.9
GR	591.0	106.6	591.0	107.3	590.9	108.0	590.9	108.7	590.8	109.4
GR	590.8	110.1	590.8	110.8	590.8	111.5	590.9	112.2	591.0	112.9
GR	591.1	113.6	591.4	114.3	591.7	115.0	592.1	115.7	592.4	116.5
GR	592.3	126.7	592.3	137.0	592.2	147.3	592.1	157.6	592.0	167.9
GR	592.2	178.2	592.4	188.5	592.6	198.8	592.8	209.1	593.0	219.4
GR	593.2	229.7	593.4	240.0	593.5	250.3	593.7	260.6	593.9	270.9
GR	594.1	281.2	594.3	291.5	594.5	301.8	594.7	312.1	594.9	322.4
GR	595.1	332.7	596.5	343.0	598.5	353.3	600.5	363.6	603.1	373.9
GR	608.9	384.2	614.7	394.5	620.5	404.8	626.3	415.1	632.2	425.5
X1	563	90	97.2	115.2	75	400	188		-0.28	
X3	10									
GR	615.3	0.0	613.3	3.3	611.3	6.7	609.4	10.0	607.4	13.4
GR	605.4	16.7	603.5	20.1	602.3	23.4	601.7	26.8	601.1	30.1
GR	600.5	33.5	599.9	36.8	599.5	40.2	599.0	43.5	598.6	46.9
GR	598.3	50.3	598.0	53.6	597.7	57.0	597.3	60.3	597.1	63.7
GR	596.8	67.0	596.5	70.4	596.2	73.7	595.9	77.1	595.6	80.4
GR	595.3	83.8	595.0	87.1	594.7	90.5	594.4	93.8	594.1	97.2
GR	593.8	97.8	593.5	98.4	593.2	99.0	593.0	99.6	592.6	100.2
GR	592.3	100.8	592.0	101.4	591.7	102.0	591.6	102.6	591.5	103.2
GR	591.3	103.8	591.2	104.4	591.0	105.0	590.9	105.6	590.7	106.2
GR	590.6	106.8	590.6	107.4	590.7	108.0	590.7	108.6	590.7	109.2
GR	590.8	109.8	590.8	110.4	590.9	111.0	591.0	111.6	591.1	112.2
GR	591.2	112.8	591.7	113.4	592.1	114.0	592.6	114.6	593.0	115.2
GR	592.9	123.5	592.9	131.7	592.8	140.0	592.7	148.3	592.6	156.5
GR	592.8	164.8	593.1	173.1	593.4	181.3	593.7	189.6	594.0	197.9
GR	594.4	206.1	594.7	214.4	594.9	222.7	595.2	230.9	595.6	239.2
GR	595.9	247.5	596.2	255.7	596.5	264.0	596.8	272.3	597.1	280.5
GR	597.4	288.8	599.5	297.1	602.5	305.3	605.6	313.6	608.9	321.9
GR	613.8	330.1	618.7	338.4	623.6	346.7	628.5	354.9	633.5	363.2
X1	750	12	99	114	75	400	187			
X3	10									
GR	609.9	0	595.7	22	594.2	36	593.5	47	593.9	99
GR	591.3	103	590.3	107	591.4	112	593.8	114	593.2	147
GR	600.0	247	634.8	301						
X1	850				100	100	100		0.63	
X1	950	12	72	82	100	100	100		-0.46	
GR	614.7	0	597.2	29	597.6	41	594.6	47	594.1	72
GR	592.2	74	592.5	78	592.7	81	594.0	82	595.0	182
GR	599.7	280	618.9	303						
X1	1025				32	150	75		0.46	
X1	1075				50	50	50			
X1	1100				25	25	25			
SB		1.0	2.8		0.01		0.01		592.8	592.2
X1	1110	15	23	244	10	10	10			
X2			1	592.9	596.2					
BT	20	0	613.1	0.0	21	599.4	0.0	52	599.5	0.0
BT	68	599.3	0.0	77	598.5	0.0	83	598.2	0.0	83
BT	596.2	0.0	86.4	596.3	0.0	89.8	596.4	0.0	89.8	598.4
BT	0.0	97	599.4	0.0	155	598.7	0.0	163	597.0	0.0
BT	183	597.1	0.0	193	596.9	0.0	195	598.8	0.0	233
BT	600.6	0.0	244	602.3	0.0	265	603.8	0.0	286	617.9
BT	0.0									
GR	618.2	0	598.7	23	596.0	26	594.5	33	593.6	58
GR	594.2	85	594.2	129	594.3	149	594.6	169	594.0	189
GR	592.8	234	596.6	239	602.3	244	603.8	265	617.9	286
X1	1135	14	23	201	50	1	25			
GR	618.2	0	598.7	23	596.0	26	594.5	33	593.6	58
GR	594.2	85	594.3	105	594.6	125	594.0	145	592.8	190
GR	596.6	195	600.3	201	603.8	230	617.9	251		
X1	1160				50	1	25			
X1	1290				130	130	130		0.61	
X3	10									
X1	1425	10	86	103	135	135	135		-3.15	
X3	10									

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GR 616.9      0   601.2     24   598.1     58   598.7     86   597.3     91
GR 597.2     93   597.3     98   598.6    103   600.7    160   614.9    181
X1  1560                           135    135     135           0.63
X3    10
X1  1695                           135    135     135           0.63
X3    10
X1  1830                           150    120     135           0.63
X3    10
X1  1965                           135    135     135           0.63
X3    10
X1  2100                           135    135     135           0.63
X3    10
X1  2210                           110    110     110            0.5
X3    10
X1  2320                           110    110     110            0.5
X3    10
X1  2430                            95    125     110            0.5
X3    10
X1  2540                           100    120     110            0.5
X3    10
X1  2650     10     130    140     110    110     110           -2.5
X3    10
GR 617.6      0   604.3     27   603.4    130   602.4    134   602.3    135
GR 602.5    136   604.2    140   609.7    210   614.2    230   618.7    240
X1  2760                           110    110     110            0.5
X3    10
X1  2870                           110    110     110            0.5
X3    10
X1  2980                           125     95     110            0.5
X3    10
X1  3090                           120    100     110            0.5
X3    10                     37            147
X1  3200                           110    110     110            0.5
X3    10                     92            147
X1  3250                            50     50      50          -1.06
X3    10                    120            150
X1  3284                            34     34      34          -0.72
X3    10                    129            141
X1  3299     12     178    182      15     15      15
X3    10                                              611.2   611.2
GR 623.5      0   615.5     45   602.2     72   601.3    175   601.2    178
GR 600.2  179.5   600.2  180.5   601.2    182   602.1    185   607.6    255
GR 612.1    275   621.7    280
EJ
T1      HAGAR TWP. BERRIEN CO.  5555-27
T2      50 YEAR FLOOD
T3      GRANGER DRAIN SEC. 1-13
J1   -10      3                  .0046                         590.4
J2     2             -1
T1      HAGAR TWP. BERRIEN CO.  5555-27
T2      100 YEAR FLOOD
T3      GRANGER DRAIN SEC. 1-13
J1   -10      4                  .0046                         590.4
J2     3             -1
T1      HAGAR TWP. BERRIEN CO.  5555-27
T2      500 YEAR FLOOD
T3      GRANGER DRAIN SEC. 1-13
J1   -10      5                  .0046                         590.4
J2    15             -1


ER
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X3	10										
GR	617.6	0	604.3	27	603.4	130	602.4	134	602.3	135	
GR	602.5	136	604.2	140	605.7	210	614.2	230	615.7	240	
X1	2760			110	110	110			0.5		
X3	10										
X1	2870			110	110	110			0.5		
X3	10										
X1	2980			120	110	110			0.5		
X3	10										
X1	3090			120	100	110			0.5		
X3	10			57	147						
X1	3200			110	110	110			0.5		
X3	10			62	147						
X1	3250			50	50	50			-1.06		
X3	10			120	150						
X1	3284			34	34	34			-0.72		
X3	10			129	161						
X1	3299	12	178	162	15	15	15				
X3	10							611.2	611.2		
GR	623.5	0	615.5	45	602.2	72	601.3	176	601.2	178	
GR	600.2	179.5	600.2	181.3	601.2	182	602.1	185	607.6	255	
GR	612.1	275	621.7	284							
SB		2.51	2.6		3.14		12.57		600.0	600.2	
X1	3350			60	60	60			-6.2		
X2			1	614.0	614.0						
X3	10							616.4	616.4		
BT	9	0	623.3	0.0	0	611.4	0.0	176	616.4	601.0	
BT	179	618.4	602.5	179.4	617.4	614.0	180.5	617.4	604.0	182	
BT	618.4	602.5	182	613.4	601.0	250	621.2	0.0			
NC	.075	.075	.000								
X1	3373	10	130	140	14	14	14		-2.2		
X3	10			115		141					
GR	617.6	0	604.3	27	603.4	130	602.4	134	602.3	135	
GR	602.5	136	604.2	140	605.7	210	614.2	230	615.7	240	
NC	.075	.075	.000								
X1	3401			28	28	28			-6.21		
X3	10			105		161					
X1	3460			50	59	55			0.44		
X3	10			33	237						
X1	3518			41	55	51			0.37		
X1	3560			41	59	57			0.37		
X1	3615			45	65	55			0.41		
X1	3668			43	43	53			0.39		
X1	3722			44	44	54			0.40		
X1	3775			43	43	53			0.39		
X1	3829			44	44	54			0.40		
X1	3882			43	43	53			0.39		
X1	3936			44	44	54			0.40		
X1	3989			43	43	53			0.3		
X1	4043	90	147	170	54	44	54		-4.32		
GR	624.8	0.0	623.6	5.0	622.5	110.1	621.3	115.2	620.2	20.2	
GR	619.8	25.3	617.9	30.4	617.4	75.4	617.7	65.5	617.7	65.6	
GR	617.6	50.6	617.4	55.7	616.9	67.5	616.6	65.4	616.1	70.9	
GR	616.0	76.1	615.7	81.1	615.3	66.1	615.0	91.2	614.5	95.3	
GR	614.1	101.3	613.6	106.4	613.2	111.5	612.8	116.3	612.3	121.6	
GR	611.9	126.7	611.4	131.7	611.2	136.7	611.0	141.9	610.8	147.0	
GR	610.6	147.7	610.5	148.5	610.3	148.2	610.2	150.6	610.0	150.1	
GR	609.9	151.5	609.7	152.3	609.5	153.1	609.4	153.5	609.4	154.5	
GR	609.5	155.4	609.6	156.1	609.7	156.9	609.8	157.7	609.7	158.4	
GR	609.8	159.2	609.8	160.0	609.8	160.7	609.5	161.5	610.0	162.3	
GR	610.1	163.0	610.2	163.8	610.3	164.6	610.4	165.3	610.5	166.1	
GR	610.6	166.9	610.7	167.6	610.8	168.4	610.9	169.2	611.1	170.0	
GR	611.3	173.6	611.5	177.3	611.8	181.6	612.1	184.6	612.3	188.3	
GR	612.6	191.9	613.0	195.6	613.5	199.3	614.0	202.9	614.5	206.6	
					617.4	217.6	615.4	221.3	616.9	224.9	

GR	619.8	246.9	620.5	250.6	621.2	254.3	621.7	257.2	622.2	261.6	
GR	622.8	265.3	623.3	264.9	624.2	272.6	625.1	276.3	626.0	280.0	
X1	4096				37	62	53		0.39		
X1	4150				38	70	54		0.40		
X1	4203				37	66	53		0.39		
X1	4257				38	70	54		0.40		
X1	4310				53	53	53		0.39		
X1	4364				54	54	54		0.40		
X1	4417				53	53	53		0.39		
X1	4471				54	54	54		0.40		
X1	4524				53	53	53		0.39		
X1	4578				54	54	54		0.40		
NC											
X1	4631				53	53	53		0.39		
X1	4685				54	54	54		0.40		
X1	4738				53	53	53		0.39		
X1	4792				54	54	54		0.40		
X1	4845				53	53	53		0.39		
X1	4899	15	164	200	54	54	54		-4.72		
GR	632.0	0	631.2	50	626.5	100	619.3	150	615.2	164	
GR	617.4	169	616.2	175	617.3	185	617.2	185	617.4	190	
GR	617.7	196	618.1	200	619.6	225	631.1	250	633.4	320	
X1	4952				53	53	53		0.39		
X1	5006				54	54	54		0.40		
X1	5059				53	53	53		0.39		
X1	5113				54	54	54		0.40		
X1	5166				53	53	53		0.39		
X1	5220				54	54	54		0.40		
X1	5273				53	53	53		0.39		
X1	5327				54	54	54		0.40		
X1	5380				53	53	53		0.39		
X1	5434				54	54	54		0.40		
X1	5487				53	53	53		0.39		
X1	5541				54	54	54		0.40		
X3	10			149		210					
NC											
X1	5566				25	2	25		-1.87		
X3	10			174		220					
X1	5576				10	10	10		-0.25		
X3	10			195		240					
X1	5641	16	194.1	205.9	94	94	94				
X3	10							629.5	629.5		
GR	630.9	0	629.9	100	629.5	194.1	615.9	194.1	614.9	194.1	
GR	613.9	195	613.4	197	613.4	199	613.4	201	613.4	203	
GR	613.9	205	614.4	205.9	615.9	205.9	629.5	205.9	630.5	300	
GR	632.4	400									
NC			.031								
X1	5641				1	1	1				
X3	10							629.5	629.5		
BT	12	0.0	630.9	0.0	100.0	629.9	0.0	194.1	629.5	615.9	
BT	195.1	629.5	617.9	197.1	629.5	615.9	199.0	629.5	620.9	201.0	
BT	629.5	620.9	203.0	629.5	619.9	205.0	629.5	617.0	205.9	629.5	
BT	615.9	300.0	630.5	0.0	400.0	630.4	0.0				
X1	5716	16	194.1	205.9	75	75	75				
X3	10							629.5	629.5		
BT	12	0	630.9	0.0	100	629.4	0.0	194.1	629.5	616.1	
BT	195	629.5	617.1	197	629.5	62 .1	199	621.1	621.1	201	
BT	629.5	621.1	203	629.5	621.1	205	629.5	617.1	205.9	629.5	
BT	616.1	300	630.5	0.0	400	630.4	0.0				
GR	630.9	0	629.9	100	629.5	194.1	616.1	194.1	615.1	194.1	
GR	614.1	195	613.6	197	614.6	195	613.6	201	613.6	203	
GR	614.1	205	615.1	205.9	616.1	205.9	629.5	205.9	630.5	300	
GR	632.4	400									
NC	.055	.055	.094								
X1	5717				1	1	1				
X3	10										

QT	4	67	84	95	97						
X1	5727	15	164	200	10	10	10		-2.5		
X3	10			136	13						
GR	632.0	0	631.2	55	629.5	100	619.3	138	618.2	164	
GR	617.4	169	616.2	175	617.3	180	617.7	185	617.2	190	
GR	617.7	195	617.4	200	617.6	225	631.1	250	633.4	320	
X1	5757			30	30	30		0.22			
X3	11		137		227						
X1	5918	90	319.5	351	191	191	191		-0.2		
GR	629.4	0.0	629.3	11.0	629.2	22.0	629.1	33.0	629.0	44.0	
GR	628.9	55.0	629.0	66.1	628.9	77.1	628.9	88.1	628.9	99.1	
GR	628.9	110.1	628.5	121.1	628.1	132.2	627.6	143.2	627.1	154.2	
GR	626.7	165.2	626.2	176.2	625.7	187.2	625.2	198.3	624.8	209.3	
GR	623.8	220.3	623.1	231.3	622.5	242.3	621.7	253.3	621.1	264.4	
GR	620.3	275.4	619.6	286.4	618.9	297.4	618.2	308.4	617.6	319.5	
GR	617.3	320.5	617.1	321.5	616.9	322.5	616.7	324.5	616.5	326.5	
GR	616.2	325.5	616.6	326.6	615.7	327.6	615.5	328.6	615.6	329.5	
GR	615.7	330.6	615.8	331.6	615.6	332.7	615.4	333.7	615.4	334.7	
GR	615.8	335.7	615.7	336.7	615.7	337.7	615.7	338.8	615.9	339.8	
GR	616.0	340.8	616.1	341.8	616.2	342.8	616.4	343.8	616.5	344.9	
GR	616.6	345.9	616.8	346.9	616.9	347.9	617.1	348.9	617.2	350.0	
GR	617.9	359.8	618.6	369.3	619.3	378.9	619.7	388.5	620.0	398.3	
GR	620.2	407.9	620.8	417.6	621.3	427.3	621.8	436.9	622.4	446.6	
GR	622.9	456.3	623.5	465.9	624.0	473.6	624.5	485.3	625.0	494.9	
GR	625.7	504.6	626.4	514.3	627.1	523.9	627.8	533.6	628.4	543.3	
GR	628.9	552.9	629.6	562.6	629.9	572.3	630.1	581.9	630.2	591.6	
GR	630.4	601.3	630.7	611.0	631.0	620.6	631.3	630.3	631.7	640.0	
X1	6109	90	475	500	191	191	191		-0.2		
GR	629.5	0.0	629.4	15.3	629.2	32.7	629.1	49.1	629.0	65.5	
GR	629.0	81.8	629.1	98.2	629.1	114.6	629.2	131.0	629.3	147.4	
GR	629.4	163.7	629.2	180.1	628.9	196.5	628.5	212.9	628.2	229.3	
GR	627.9	245.6	627.5	262.0	627.2	278.4	626.9	294.8	626.6	311.2	
GR	625.8	327.5	625.3	343.9	624.9	360.3	624.2	376.7	623.7	393.1	
GR	623.1	409.4	622.4	425.8	621.5	442.2	620.9	458.6	619.7	475.0	
GR	619.4	475.8	619.2	476.6	619.0	477.4	618.7	478.3	618.5	479.1	
GR	618.2	479.9	618.0	480.8	617.7	481.6	617.4	482.4	617.4	483.3	
GR	617.4	484.1	617.4	484.9	617.4	485.8	617.3	486.6	617.1	487.4	
GR	617.0	488.3	616.9	489.1	616.9	489.9	616.8	490.8	617.0	491.6	
GR	617.2	492.4	617.5	493.3	617.7	494.1	617.9	494.9	618.1	495.8	
GR	618.3	496.6	618.5	497.4	618.7	498.3	618.9	499.1	619.1	500.0	
GR	620.3	515.3	621.4	530.6	622.5	546.0	623.1	561.3	623.4	576.6	
GR	623.6	592.0	624.1	607.3	624.5	622.6	624.9	637.9	625.2	653.3	
GR	625.6	668.6	626.1	683.9	626.3	699.3	626.6	714.6	626.9	729.9	
GR	627.6	745.3	628.3	760.6	628.8	776.0	629.6	791.3	630.1	806.6	
GR	630.5	821.9	631.0	837.3	631.2	852.6	631.3	867.9	631.3	883.3	
GR	631.4	898.6	631.7	913.9	632.0	929.3	632.3	944.6	632.6	960.0	
X1	6157				40	40	40		-0.35		
X1	6245				48	48	48		-0.35		
X1	6253	90	69.5	88	48	48	48		-0.44		
GR	629.6	0.0	629.4	21.7	629.2	43.4	629.1	65.2	628.9	86.9	
GR	629.0	108.7	629.2	130.4	629.3	152.1	629.4	173.9	629.5	195.6	
GR	629.8	217.4	629.8	239.1	629.7	260.8	629.4	282.6	629.2	304.3	
GR	629.0	326.1	628.7	347.8	628.7	369.6	628.5	391.3	628.2	413.0	
GR	627.8	434.8	627.4	456.5	627.1	478.3	626.8	500.0	626.2	521.7	
GR	625.8	543.5	625.2	565.2	624.6	587.0	622.9	608.7	621.7	630.5	
GR	621.4	631.1	621.2	631.7	620.9	632.4	620.6	633.0	620.4	633.7	
GR	621.1	634.3	619.9	635.0	619.6	635.6	619.3	636.3	619.2	636.9	
GR	619.0	637.6	618.9	638.2	618.9	638.9	618.6	639.5	618.3	640.2	
GR	618.2	640.3	617.9	641.0	617.9	642.1	617.9	642.6	618.2	643.4	
GR	618.5	644.1	618.8	644.7	619.1	645.4	619.4	646.0	619.7	646.7	
GR	619.9	647.3	620.2	648.0	620.4	648.6	620.7	649.3	621.0	650.0	
GR	622.6	671.0	624.1	692.0	625.7	712.9	626.5	733.9	626.7	754.8	
GR	627.0	775.9	627.3	796.9	627.6	817.9	627.8	838.9	628.0	859.9	
GR	628.2	880.9	628.4	901.9	628.5	922.9	628.5	943.9	628.3	964.9	
GR	629.4	985.9	630.1	1006.9	630.5	1027.9	631.4	1048.9	631.8	1069.9	
GR	632.8	1090.9	633.3	1111.9	633.5	1132.9	633.4	1153.9	633.6	1174.9	

what is the [illegible] of this?

GR	632.3	1195.9	632.6	1216.9	632.9	1237.9	633.2	1258.9	633.5	1280.0	
X1	6300				47	47	47		0.34		
X1	6491	21	786	300	191	191	191		-5.5		
GR	635.3	0	634.4	100	635.1	200	636.1	300	635.8	400	
GR	635.7	500	634.9	600	633.9	700	629.3	786	624.6	794	
GR	624.6	795	620.6	797	625.8	800	635.1	900	636.3	1000	
GR	636.5	1100	636.2	1200	638.8	1300	639.4	1400	638.8	1500	
GR	640.9	1500									
X1	6566				75	75	75		0.6		
X3	10										
X1	6636				69	98	70		0.5		
X3	10										
X1	6781				75	215	145		1.1		
X3	10										
X1	6926				145	145	145		1.1		
X3	10										
X1	7071				145	145	145		1.1		
X3	10										
XT	4	61	75	79	85						
X1	7216				145	145	145		1.1		
X3	10										
X1	7346				130	130	130		0.9		
X3	10										
X1	7476				130	130	130		0.8		
X3	10										
X1	7606				130	60	130		0.9		
X3	10										
X1	7736				170	90	130		0.9		
X3	10										
X1	7866				130	130	130		0.9		
X3	10										
X1	7996				30	30	130		0.9		
X3	10										
X1	8126				130	130	130		0.9		
X3	10										
X1	8256	22	775	860	130	130	130		2.4		
GR	639.4	1	639.5	100	639.1	200	639.0	300	638.9	400	
GP	638.7	500	639.5	600	637.7	700	636.3	779	632.3	787	
GR	632.3	79	632.4	793	636.5	800	637.6	900	636.3	1000	
GR	632.3	1100	638.5	1200	639.5	1300	640.9	1400	646.6	1435	
GR	646.3	1500	645.8	1500							
X1	8386				130	130	130		0.9		
X1	8451				65	65	65		0.5		
X1	8516				65	65	65		0.5		
X1	8581				65	65	65		0.5		
X1	8616				35	35	35		0.15		
X1	8621				5	5	5		0.03		
X1	8626				5	5	5		0.03		
X1	8631				5	5	5		0.02		
X1	8636				5	5	5		0.04		
X1	8641				5	5	5		0.02		
X1	8646	24	798.5	861.5	5	5	5				
GR	642.3	0	638.2	100	638.9	200	637.9	300	637.5	400	
GR	637.6	500	637.7	600	636.6	700	635.2	769.5	632.2	798.5	
GR	631.5	799	631.2	900	631.5	901	633.2	901.5	635.4	916.5	
GR	636.5	900	637.2	1100	637.2	1100	637.7	1200	638.4	1300	
GR	639.8	1400	645.5	1483	645.7	1500	646.6	1500			
SP		2.52	2.8		2.36		7.87		632.4	631.2	
X1	8705				60	60	60		1.2		
X2				635.4	643.7						
X3	10							643.2	643.5		
BT	23	0	643.5	0.0	100	643.5	0.0	200	643.6	0.0	
BT	300	643.4	0.0	400	643.5	0.0	500	644.1	0.0	600	
BT	643.9	0.0	700	644.6	0.0	794.5	644.8	833.4	795.5	644.8	
BT	634.4	799	644.6	835.1	800	644.5	835.4	861	644.8	835.1	
SP	861.5	644.8	861.5	844.1	844.1	844.4	844.4	844.4	844.4	1300	

	BT	645.5	0.0	1100	645.9	0.0	1400	646.3	0.0	1300	646.7
	BT	0.0	1400	647.1	0.0	1500	647.5	0.0	1600	647.9	0.0
	X1	8716	22	779	500	10	10	10		0.1	
	X3	10			779		800				
	X5	4	637.22	638.84	639.49	640.14					
	GR	639.4	0	639.8	100	639.1	200	639.0	300	638.9	400
	GR	638.7	500	639.9	600	637.7	700	636.3	779	632.3	787
	GR	632.3	799	632.4	793	638.5	900	637.6	910	638.3	1000
	GR	638.3	1100	638.9	1200	639.5	1300	640.9	1400	646.6	1405
	GR	646.8	1500	645.0	1600						
	X1	8731				15	15	15		-0.01	
	X3	10			779		800				
	X1	8756				25	25	25		-0.01	
	X3	10			779		800				
	X1	8831				250	10	125		-0.04	
	X3	10			779		800				
	X1	9006				250	10	125		-0.04	
	X3	10			779		800				
	X1	9081				150	10	75			
	X3	10			779		801				
	X1	9156				150	10	75			
	X3	10			779		800				
	X1	9174				10	10	10			
	X3	10			779		801				
	X1	9306				200	1	132			
	X3	10			779		801				
	X1	9327				21	21	21			
	X3	10			779		800				
	X1	9355	21	639	500	28	25	28			
	X3	10			780		800		938.1	938.0	
	GR	644.4	0	639.8	100	639.1	200	639.0	300	638.9	400
	GR	638.7	500	639.9	600	637.7	700	636.3	779	632.3	799.5
	GR	632.3	800.5	632.4	802	637.4	900	637.6	1000	638.3	1100
	GR	638.8	1200	639.5	1300	640.9	1400	646.6	1405	646.8	1500
	GR	647.3	1601								
	GR		2.77	2.80		3.14	12.47			633.1	632.3
	X1	9395				41	40	40		0.07	
	X2			1	637.00	639.1					
	X3	10			780		800		634.1	635.0	
	BT	8	799	639.4	0.0	799	639.0	634.0	799	639.0	635.5
	BT	799.5	639.0	637.0	800.5	639.0	637.0	802	639.0	635.5	802
	BT	639.0	634.0	804	639.2	1.0					
	NC	.06	.07								
	X1	9443	22	779	300	1	100			1.2	
	X3	10			799		800				
	GR	639.4	0	639.8	100	639.1	200	639.0	300	638.9	400
	GR	638.7	500	639.9	600	637.7	700	636.3	779	632.3	787
	GR	632.3	799	632.4	793	638.5	900	637.6	910	638.3	1000
	GR	638.3	1100	638.9	1200	639.5	1400	640.9	1400	646.6	1405
	GR	646.8	1500	645.0	1600						
	X1	9493				100	1	50		0.60	
	X3	10			799		815				
	X1	9545	24	551	574	52	52	52			
	X3	10			550		574				
	GR	642.7	1	641.5	100	640.3	200	641.7	300	640.1	400
	GR	639.6	500	640.2	550	638.4	550	634.5	565	635.9	571
	GR	639.8	574	639.2	600	637.2	700	634.8	734	634.9	790
	GR	634.7	792	635.1	794	637.7	800	638.0	900	639.1	1000
	GR	639.3	1100	639.3	1200	640.8	1200	643.4	1400		
	X1	9753				60	60	20		0.30	
	X3	10									
	X1	9953				200	200	200		0.00	
	X3	10									
	X1	10153				200	200	200		0.00	
	X3	10									
	X1	10353	23	600	631	200	200	200		-1.35	

```
X3     10
GR 639.5        0   639.6      100   639.8      200   639.0      300   638.6      400
GR 640.1      500   640.9      600   641.1      700   642.1      775   643.3      800
GR 637.6      800   637.4      813   637.1      817   641.4      831   640.9      900
GR 641.1     1000   641.2     1100   641.4     1200   642.4     1300   642.6     1400
GR 642.4     1500   642.2     1600   648.3     1700
X1 10553                                 200      200      200                0.31
X3     10
OT      4       54      115      135      175
X1 10753                                 200      200      200                0.31
X3     10
X1 10993                                   1      200      200                0.31
X3     10
NC   .045     .045     .040
X1 11093                                 100      100      100                0.1[illegible]
X3     10
EJ
T1       HAGAR TWP. BERRIEN CO.  5555-27
T2       50 YEAR FLOOD
T3       GRANGER DRAIN SEC. 1-13
J1    -10        3                    .0045                                  590.[illegible]
J2      2
T1       HAGAR TWP. BERRIEN CO.  5555-27
T2       100 YEAR FLOOD
T3       GRANGER DRAIN SEC. 1-13
J1    -10        4                    .0045                                  590.[illegible]
J2      3
T1       HAGAR TWP. BERRIEN CO.  5555-27
T2       500 YEAR FLOOD
T3       GRANGER DRAIN SEC. 1-13
J1    -10        5                    .0045                                  590.[illegible]
J2     15
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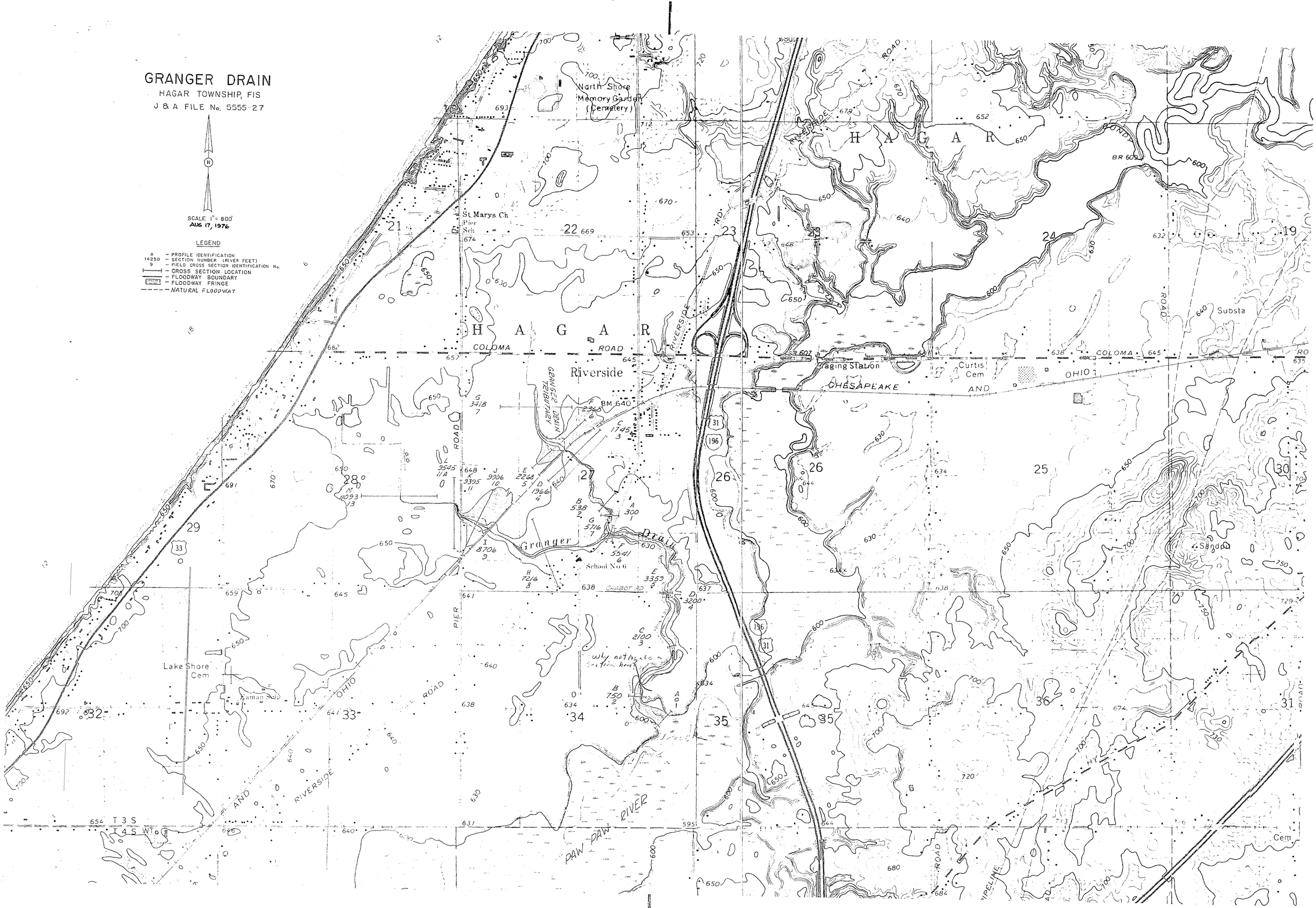
GRANGER DRAIN
HAGAR TOWNSHIP, FIS
J & A FILE No. 5555-27
SCALE: 1" = 800'
AUG 17, 1976
LEGEND
A - PROFILE IDENTIFICATION
14250 - SECTION NUMBER (RIVER FEET)
9 - FIELD CROSS SECTION IDENTIFICATION No.
- CROSS SECTION LOCATION
- FLOODWAY BOUNDARY
- FLOODWAY FRINGE
- NATURAL FLOODWAY
North Shore Memory Garden (Cemetery)
St Marys Ch
Pier Sch
H A G A R
COLOMA ROAD
Riverside
GRANGER DRAIN TRIBUTARY
Granger Drain
School No 6
CHABOT RD
Lake Shore Cem
Eaman Sch
PIER ROAD
RIVERSIDE RD
CHESAPEAKE AND OHIO
Curtis Cem
Substa
Sandpit
PAW PAW RIVER
T 3 S
T 4 S WT
Cem

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Hagar Township

3) WATERCOURSE: Granger Drain

4) DOCUMENT TYPE: 10-, 50-, 500-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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C
1       HAGAR TWP. BERRIEN CO.  5555-27
T2       10 YEAR FLOOD
T3       GRANGER DRAIN SEC. 1-13

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
      -10.        2.         -0.        -0.    .004600      -0.00      -0.0        -0.    590.400     -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

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=       595.00 ELREA=       591.10

          VALLEY SECTION A

       0.00        .60     591.20       0.00     590.40     591.21        .01       0.00       0.00     595.00
         98.         0.         3.        95.         0.         3.       161.         0.         0.     591.10
       0.00       0.00        .81        .59       .100       .060       .100      0.000     590.60     109.27
    .004590         -0.        -0.        -0.          0          0          6       0.00     368.24     477.51

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       594.38 ELREA=       591.38

     188.00       1.61     591.99       0.00       0.00     592.01        .02        .80        .01     594.38
         98.         0.        26.        72.         0.        16.       104.         1.         1.     591.38
        .06       0.00       1.60        .69       .100       .060       .100       .060     590.38     102.38
    .003914        188.       188.       188.          2          0          1       0.00     214.41     316.79

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       593.95 ELREA=       591.95

     375.00       2.16     592.51       0.00       0.00     592.55        .04        .53        .01     593.95
         98.         0.        52.        46.         0.        26.        62.         1.         2.     591.95
        .08       0.00       2.01        .74       .100       .060       .100       .069     590.35      99.27
    .004001        300.       187.       100.          3          0          1       0.00     118.21     217.48

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       593.82 ELREA=       592.72
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[illegible]	[illegible]	[illegible]	0.00	0.00	593.37	.04	.82	.00	593.82
98.	0.	68.	30.	0.	36.	50.	2.	3.	592.72
.13	0.00	1.89	.61	.100	.060	.100	.057	590.32	98.16
.002387	75.	188.	400.	1	0	1	0.00	89.19	187.35

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
	VALLEY SECTION B								
750.00	3.65	593.95	0.00	0.00	594.02	.07	.63	.02	593.90
98.	5.	84.	9.	14.	36.	19.	2.	3.	593.80
.16	.33	2.33	.48	.100	.060	.100	.055	590.30	39.97
.003258	75.	187.	400.	2	0	1	0.00	118.02	157.99
3265 DIVIDED FLOW									
850.00	3.41	594.34	0.00	0.00	594.46	.12	.41	.02	594.53
98.	1.	93.	4.	3.	33.	9.	2.	3.	594.43
.17	.24	2.86	.44	.100	.060	.100	.055	590.93	43.73
.005453	100.	100.	100.	2	0	1	0.00	80.37	154.47
950.00	3.02	594.76	0.00	0.00	594.79	.03	.30	.03	593.64
98.	13.	47.	38.	22.	25.	73.	2.	4.	593.54
.20	.59	1.84	.52	.100	.060	.100	.056	591.74	45.75
.001908	100.	100.	100.	1	0	1	0.00	140.95	186.69
1025.00	2.80	595.00	0.00	0.00	595.06	.06	.25	.02	594.10
98.	11.	57.	29.	16.	23.	50.	3.	4.	594.00
.21	.69	2.49	.59	.100	.060	.100	.055	592.20	46.20
.003928	32.	75.	150.	2	0	1	0.00	135.59	181.79
1075.00	2.98	595.18	0.00	0.00	595.21	.03	.14	.01	594.10
98.	13.	49.	36.	21.	25.	68.	3.	4.	594.00
.22	.61	1.96	.54	.100	.060	.100	.055	592.20	45.85
.002206	50.	50.	50.	2	0	1	0.00	139.83	185.68
	BRIDGE SECTION B-2 U.S. FACE OF DAM								
	EARTH DAM WITH SPILLWAY								
1100.00	3.03	595.23	0.00	0.00	595.26	.03	.05	.00	594.10
98.	13.	46.	39.	23.	26.	75.	3.	4.	594.00
.23	.58	1.80	.52	.100	.060	.100	.055	592.20	45.71
.001807	25.	25.	25.	1	0	1	0.00	141.37	187.08

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.00	2.80	-0.00	.01	-0.00	.01	-0.00	592.80	592.20

PRESSURE AND AIR FLO

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS

491899.58	595.84	0.00	98.	0.	0.	592.90	596.20	30.00	

1110.00	5.02	597.82	0.00	0.00	597.82	.00	2.56	0.00	598.70
98.	0.	98.	0.	0.	803.	0.	3.	4.	602.30
.25	0.00	.12	0.00	.100	.060	.100	.055	592.80	23.98
.000004	10.	10.	10.	0	0	13	0.00	216.09	240.07

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

1135.00	5.02	597.82	0.00	0.00	597.82	.00	.00	.00	598.70
98.	0.	98.	0.	0.	645.	0.	3.	4.	600.30
.30	0.00	.15	0.00	.100	.060	.100	.055	592.80	23.98
.000007	50.	25.	1.	2	0	1	0.00	173.00	196.98

1160.00	5.02	597.82	0.00	0.00	597.82	.00	.00	.00	598.70
98.	0.	98.	0.	0.	645.	0.	4.	5.	600.30
.34	0.00	.15	0.00	.100	.060	.100	.055	592.80	23.98
.000007	50.	25.	1.	0	0	1	0.00	173.00	196.98

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 599.31 ELREA= 600.91

1290.00	4.41	597.82	0.00	0.00	597.82	.00	.00	.00	599.31
98.	0.	98.	0.	0.	540.	0.	5.	5.	600.91
.54	0.00	.18	0.00	.100	.060	.100	.056	593.41	24.66
.000012	130.	130.	130.	0	0	1	0.00	171.33	195.99

1425.00	3.77	597.82	0.00	0.00	597.83	.00	.00	.00	595.55
98.	39.	41.	18.	117.	56.	75.	7.	6.	595.45
.62	.33	.73	.24	.100	.060	.100	.056	594.05	26.51
.000183	135.	135.	135.	0	0	1	0.00	133.90	160.40

1560.00	3.18	597.86	0.00	0.00	597.87	.01	.04	.00	596.18
98.	38.	47.	13.	84.	46.	43.	7.	6.	596.08
.67	.45	1.03	.30	.100	.060	.100	.056	594.68	33.02
.000470	135.	135.	135.	2	0	1	0.00	118.23	151.25

1695.00	2.64	597.95	0.00	0.00	597.97	.02	.10	.01	596.81
98.	36.	54.	8.	57.	37.	21.	8.	6.	596.71
.71	.63	1.47	.39	.100	.060	.100	.056	595.31	38.91
.001300	135.	135.	135.	2	0	1	0.00	97.77	136.68

1830.00	2.27	598.21	0.00	0.00	598.25	.04	.27	.01	597.44
98.	32.	61.	5.	40.	30.	10.	8.	7.	597.34
.73	.81	2.00	.47	.100	.060	.100	.057	595.94	43.01
.003091	150.	135.	120.	2	0	1	0.00	83.50	126.52

1965.00	2.13	598.70	0.00	0.00	598.75	.06	.50	.01	598.07
98.	30.	64.	4.	34.	28.	7.	8.	7.	597.97
.76	.89	2.28	.51	.100	.060	.100	.057	596.57	44.56
.004482	135	135	135	2	0	1	0.00	78.14	122.70

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
2100.00	2.11	599.31	0.00	0.00	599.37	.06	.62	.00	598.70
98.	30.	64.	4.	34.	28.	7.	9.	7.	598.60
.78	.90	2.31	.51	.100	.060	.100	.057	597.20	44.70
.004650	135.	135.	135.	2	0	1	0.00	77.64	122.34
2210.00	2.12	599.82	0.00	0.00	599.88	.06	.51	.00	599.20
98.	30.	64.	4.	34.	28.	7.	9.	7.	599.10
.79	.90	2.31	.51	.100	.060	.100	.057	597.70	44.68
.004621	110.	110.	110.	0	0	1	0.00	77.72	122.40
2320.00	2.13	600.33	0.00	0.00	600.38	.06	.50	.00	599.70
98.	30.	64.	4.	34.	28.	7.	9.	7.	599.60
.81	.89	2.28	.51	.100	.060	.100	.057	598.20	44.57
.004497	110.	110.	110.	0	0	1	0.00	78.10	122.67
2430.00	2.11	600.81	0.00	0.00	600.87	.06	.48	.00	600.20
98.	30.	64.	4.	34.	28.	7.	9.	8.	600.10
.83	.90	2.31	.51	.100	.060	.100	.057	598.70	44.69
.004632	95.	110.	125.	1	0	1	0.00	77.69	122.38
2540.00	2.11	601.31	0.00	0.00	601.37	.06	.50	.00	600.70
98.	30.	64.	3.	34.	28.	7.	9.	8.	600.60
.84	.90	2.32	.51	.100	.060	.100	.057	599.20	44.73
.004678	100.	110.	120.	1	0	1	0.00	77.55	122.28
2650.00	2.16	601.96	0.00	0.00	602.01	.05	.64	.00	600.90
98.	58.	40.	0.	63.	15.	0.	9.	8.	601.70
.86	.92	2.70	.33	.100	.060	.100	.058	599.80	26.68
.007486	110.	110.	110.	2	0	1	0.00	116.61	143.29
2760.00	2.30	602.60	0.00	0.00	602.63	.03	.62	.01	601.40
98.	62.	35.	0.	77.	16.	1.	10.	8.	602.20
.88	.81	2.19	.33	.100	.060	.100	.058	600.30	26.40
.004361	110.	110.	110.	1	0	1	0.00	118.66	145.06
2870.00	2.29	603.09	0.00	0.00	603.12	.03	.49	.00	601.90
98.	62.	36.	0.	76.	16.	1.	10.	9.	602.70
.91	.82	2.22	.33	.100	.060	.100	.058	600.80	26.42
.004545	110.	110.	110.	2	0	1	0.00	118.49	144.91

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
2980.00	2.31	603.61	0.00	0.00	603.65	.03	.52	.00	602.40
98.	62.	35.	0.	78.	16.	1.	10.	9.	603.20
.93	.80	2.15	.33	.100	.060	.100	.058	601.30	26.37
.004184	125.	110.	95.	1	0	1	0.00	118.83	145.20

```
3470 ENCROACHMENT STATIONS=      37.0      147.0  TYPE=      1  TARGET=      110.000
 3090.00      2.31    604.11      0.00      0.00    604.14       .03       .49       .00    602.90
      98.       62.       35.       0.       74.       16.        1.        10.        9.     603.70
     .96       .84      2.18       .33      .100      .060      .100      .058    601.80     37.00
 .004308      120.      110.      100.         1         0         1      0.00    108.13    145.13


3470 ENCROACHMENT STATIONS=      92.0      147.0  TYPE=      1  TARGET=      55.000
 3200.00      2.36    604.66      0.00      0.00    604.72       .07       .57       .02    603.40
      98.       52.       45.       1.       42.       17.        1.        11.       10.     604.20
     .97      1.25      2.70       .44      .100      .060      .100      .058    602.30     92.00
 .006313      110.      110.      110.         2         0         1      0.00     53.84    145.84


3470 ENCROACHMENT STATIONS=      120.0      150.0  TYPE=      1  TARGET=      30.000
 3250.00      3.59    604.83      0.00      0.00    604.88       .05       .15       .01    602.34
      98.       28.       60.      10.       25.       29.       13.       11.       10.     603.14
     .98      1.14      2.07       .75      .100      .060      .100      .058    601.24    120.00
 .001782        50.       50.       50.         2         0         1      0.00     30.00    150.00


3470 ENCROACHMENT STATIONS=      129.0      141.0  TYPE=      1  TARGET=      12.000
 3284.00      4.36    604.88      0.00      0.00    604.96       .09       .06       .02    601.62
      98.        5.       91.       3.        3.       37.        2.        11.       10.     602.42
     .99      1.41      2.46       1.15      .100      .060      .100      .058    600.52    129.00
 .001857        34.       34.       34.         2         0         1      0.00     12.00    141.00


OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      611.20 ELREA=      611.20

 3299.00      4.51    604.71      0.00      0.00    605.26       .54       .07       .23    601.20
      98.        0.       98.       0.        0.       17.        0.        11.       10.     601.20
     .99      0.00      5.92       0.00      .100      .060      .100      .058    600.20    178.00
 .020082        15.       15.       15.         2         0         1      0.00      4.00    182.00
```

2870.00	2.29	603.09	0.00	0.00	603.12	.03	.49	.00	601.90
98.	62.	36.	0.	76.	16.	1.	6.	8.	602.70
.51	.82	2.22	.33	.100	.060	.100	.058	500.80	26.42
.004546	110.	110.	110.	2	0	1	0.00	118.49	144.91

2980.00	2.31	603.61	0.00	0.00	603.65	.03	.52	.00	602.40
98.	62.	35.	0.	74.	16.	1.	6.	8.	603.20
.54	.83	2.15	.33	.100	.060	.100	.058	601.30	26.37
.004184	125.	110.	95.	1	0	1	0.00	118.83	145.20

3470 ENCROACHMENT STATIONS= 37.0 147.0 TYPE= 1 TARGET= 110.000

3090.00	2.31	604.11	0.00	0.00	604.14	.03	.42	.00	602.90
98.	62.	35.	0.	74.	16.	1.	6.	8.	603.70
.56	.84	2.15	.33	.100	.060	.100	.058	601.80	37.00
.004308	120.	110.	100.	1	0	1	0.00	108.13	145.13

3470 ENCROACHMENT STATIONS= 92.0 147.0 TYPE= 1 TARGET= 55.000

VALLEY SECTION 0

3200.00	2.36	604.66	0.00	0.00	604.71	.07	.57	.02	603.40
98.	52.	45.	1.	42.	17.	1.	6.	9.	604.20
.58	1.25	2.75	.44	.100	.060	.100	.058	602.30	92.00
.006313	110.	110.	110.	2	0	1	0.00	53.84	145.84

3470 ENCROACHMENT STATIONS= 120.0 150.0 TYPE= 1 TARGET= 30.000

3250.00	3.59	604.83	0.00	0.00	604.88	.05	.15	.01	602.34
98.	28.	66.	10.	25.	29.	13.	6.	9.	603.14
.59	1.14	2.07	.75	.100	.060	.100	.058	601.24	120.00
.001782	50.	50.	50.	2	0	1	0.00	30.00	150.00

3470 ENCROACHMENT STATIONS= 12.0 141.0 TYPE= 1 TARGET= 12.000

3284.00	4.36	604.88	0.00	0.00	604.96	.09	.06	.02	601.62
98.	5.	91.	3.	3.	37.	2.	3.	4.	602.42
.59	1.41	2.46	1.15	.100	.060	.100	.05	600.52	129.00
.001857	34.	34.	34.	2	0	1	0.00	12.00	141.00

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEV= 611.2 ELREV= 611.2

3299.00	4.51	604.71	0.00	0.00	603.20	.54	.07	.23	601.20
98.	0.	98.	0.	0.	17.	0.	6.	9.	601.20
.59	0.00	5.52	0.00	.100	.060	.100	.058	600.20	176.00
.020052	15.	15.	15.	2	0	1	0.00	4.00	182.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	B=C	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.51	2.60	-0.00	3.14	-0.00	16.57	-0.00	600.00	600.20

SECNO	DEPTH	QWSEL	QRIVS	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	#TN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	TITIAL	IDC	ICONT	CORAR	TOPWID	ENDST

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	AAREA	ELLC	ELTRD	CLASS
607.08	605.06	0.00	0.	98.	1[illegible].	604.00	618.40	10.00

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 618.40 ELREA= 618.40

BRIDGE SECTION E U.S. CHABOT RD. 6 [illegible] CMP

CMP WITH CONCRETE HEADWALL

3359.00	6.86	606.86	0.00	0.00	607.08	.22	1.62	0.00	601.00
98.	0.	98.	0.	0.	26.	0.	6.	9.	601.00
.59	0.00	3.78	0.00	.100	.060	.100	.058	600.00	178.00
.006373	60.	60.	60.	2	0	1	0.00	4.00	182.00

3470 ENCROACHMENT STATIONS=		114.0	151.0	TYPE=	1	TARGET=		32.000	
3373.00	7.04	607.14	0.00	0.00	607.15	.01	.00	.06	601.20
98.	27.	52.	19.	65.	64.	52.	7.	9.	602.00
.60	.42	.81	.36	.075	.040	.075	.058	600.10	119.00
.000043	14.	14.	14.	2	0	1	0.00	32.00	151.00

3470 ENCROACHMENT STATIONS=		105.0	165.0	TYPE=	1	TARGET=		60.000	
3401.00	6.84	607.15	0.00	0.00	607.15	.00	.00	.00	601.41
98.	44.	3[illegible].	24.	141.	62.	99.	7.	9.	602.21
.62	.31	.48	.25	.075	.050	.075	.058	600.31	105.00
.000025	28.	28.	28.	2	0	1	0.00	60.00	165.00

3470 ENCROACHMENT STATIONS=		33.0	237.0	TYPE=	1	TARGET=		204.000	
3460.00	6.40	607.15	0.00	0.00	607.15	.00	.00	.00	601.65
98.	72.	14.	12.	473.	57.	129.	7.	9.	602.65
.73	.15	.25	.09	.075	.050	.075	.058	600.75	33.00
.000007	59.	59.	59.	0	0	1	0.00	164.29	197.29

3510.00	6.03	607.15	0.00	0.00	607.15	.00	.00	.00	602.22
98.	74.	14.	1[illegible].	478.	54.	109.	8.	9.	603.02
.80	.15	.26	.09	.075	.050	.075	.058	601.12	18.82
.000009	41.	50.	59.	0	0	1	0.00	173.77	192.59

3560.00	5.66	607.15	0.00	0.00	607.15	.00	.00	.00	602.59
98.	75.	14.	[illegible].	4[illegible]7.	50.	[illegible]0.	9.	9.	603.39
.87	.17	.29	.10	.075	.050	.075	.058	601.49	19.57
.000012	41.	50.	59.	0	0	1	0.00	168.32	187.88

3615.00	5.25	607.15	0.00	0.00	607.15	.00	.00	.00	603.00
98.	75.	15.	8.	392.	46.	72.	9.	9.	603.80
.94	.19	.32	.11	.075	.050	.075	.058	601.90	20.40
.000017	45.	55.	65.	0	0	1	0.00	162.28	182.67

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	IOC	ICONT	CORAR	TOPWID	ENDST
3668.00	4.86	607.15	0.00	0.00	607.16	.00	.00	.00	603.39
98.	75.	16.	7.	350.	42.	56.	10.	10.	604.19
1.01	.22	.37	.13	.075	.050	.075	.057	602.29	21.19
.000025	63.	53.	43.	0	0	1	0.00	156.53	177.72
3722.00	4.47	607.16	0.00	0.00	607.16	.00	.00	.00	603.79
98.	76.	16.	6.	306.	36.	42.	10.	10.	604.59
1.07	.25	.43	.14	.075	.050	.075	.057	602.69	22.00
.000038	64.	54.	44.	0	0	1	0.00	150.64	172.64
3775.00	4.08	607.16	0.00	0.00	607.16	.00	.00	.00	604.18
98.	76.	17.	5.	265.	34.	30.	11.	10.	604.98
1.12	.29	.51	.16	.075	.050	.075	.057	603.08	22.78
.000062	63.	53.	43.	0	0	1	0.00	144.91	167.70
3829.00	3.68	607.16	0.00	0.00	607.17	.00	.00	.00	604.58
98.	75.	19.	4.	222.	30.	20.	11.	10.	605.38
1.16	.34	.62	.19	.075	.050	.075	.057	603.48	23.59
.000109	64.	54.	44.	0	0	1	0.00	139.05	162.64
3882.00	3.30	607.17	0.00	0.00	607.18	.00	.01	.00	604.97
98.	75.	21.	3.	181.	26.	12.	12.	10.	605.77
1.20	.41	.79	.22	.075	.050	.075	.057	603.87	24.37
.000208	63.	53.	43.	0	0	1	0.00	133.36	157.74
3936.00	2.92	607.19	0.00	0.00	607.19	.01	.02	.00	605.37
98.	73.	23.	2.	141.	22.	6.	12.	11.	606.17
1.23	.52	1.05	.27	.075	.050	.075	.056	604.27	25.15
.000455	64.	54.	44.	1	0	1	0.00	127.70	152.85
3989.00	2.56	607.22	0.00	0.00	607.24	.01	.04	.00	605.76
98.	70.	28.	1.	105.	19.	3.	12.	11.	606.56
1.24	.66	1.46	.31	.075	.050	.075	.056	604.66	25.85
.001102	63.	53.	43.	2	0	1	0.00	122.61	148.46
4043.00	2.22	607.30	0.00	0.00	607.34	.09	.11	.04	606.48
98.	71.	91.	1.	65.	35.	2.	12.	11.	606.78
1.25	.86	2.55	.62	.075	.050	.075	.056	605.08	129.53
.004258	64.	54.	44.	2	0	1	0.00	48.09	177.62
SECNO	DEPTH	C SEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	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
4096.00	2.08	607.55	0.00	0.00	607.67	.12	.27	.01	606.87
98.	5.	92.	1.	6.	32.	1.	12.	11.	607.17
1.26	.89	2.88	.60	.075	.050	.075	.056	605.47	130.92
.006176	37.	53.	68.	2	0	1	0.00	44.87	175.79

4150.00	2.03	607.90	0.00	0.00	605.03	.14	.35	.01	607.27
99.	5.	43.	1.	2.	31.	1.	12.	11.	607.57
1.26	.90	3.03	.55	.075	.050	.075	.056	605.87	131.45
.007166	38.	54.	70.	0	0	1	0.00	43.70	175.14

4203.00	2.01	607.27	0.00	0.00	605.41	.14	.35	.00	607.66
9.	4.	54.	0.	0.	30.	1.	12.	11.	607.96
1.27	.91	3.06	.55	.075	.050	.075	.056	606.26	131.55
.007385	37.	54.	68.	0	0	1	0.00	43.46	175.61

4257.00	2.01	607.67	0.00	0.00	605.81	.14	.40	.00	606.06
9.	4.	54.	0.	0.	30.	1.	12.	11.	606.36
1.27	.91	3.05	.55	.075	.050	.075	.056	606.66	131.63
.007530	38.	54.	70.	0	0	1	0.00	43.30	174.93

4310.00	2.02	608.07	0.00	0.00	606.21	.14	.40	.00	606.45
9.	4.	54.	0.	0.	30.	1.	12.	11.	606.75
1.28	.91	3.06	.55	.075	.050	.075	.056	607.05	131.57
.007422	38.	54.	54.	0	0	1	0.00	43.42	174.99

4364.00	2.02	608.47	0.00	0.00	606.61	.14	.40	.00	606.85
9.	4.	54.	0.	0.	31.	1.	12.	11.	606.15
1.28	.91	3.06	.55	.075	.050	.075	.056	607.45	131.59
.007340	54.	54.	54.	0	0	1	0.00	43.51	175.04

4417.00	2.02	609.80	0.00	0.00	610.00	.14	.39	.00	609.24
9.	4.	54.	0.	0.	31.	1.	12.	11.	610.54
1.28	.91	3.06	.55	.075	.050	.075	.056	607.64	131.52
.007316	53.	54.	54.	0	0	1	0.00	43.53	175.05

4471.00	2.02	610.25	0.00	0.00	610.39	.14	.40	.00	609.64
9.	4.	54.	0.	0.	31.	1.	12.	11.	609.94
1.29	.91	3.06	.55	.075	.050	.075	.056	608.24	131.56
.007407	54.	56.	54.	0	0	1	0.00	43.44	175.00

SECNO	DEPTH	C SEL	CRITS	MSEL	E	H	HL	QLOSS	BANK ELEV
Q	QLAT	QC	CRIB	QLOB	QCH	XLOB	VOL	TW	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XWL	XCH	XRB	WTW	ELMIN	SSTA
SLOPE	XLOBL	YLCH	XLOBR	ITRIAL	IOC	ICOUNT	CORAR	TOPWID	ENDST

4524.00	2.02	610.65	0.00	0.00	610.79	.14	.40	.00	610.03
9.	4.	54.	0.	0.	31.	1.	12.	11.	610.33
1.30	.91	3.06	.55	.075	.050	.075	.056	608.53	131.56
.007405	53.	53.	53.	0	0	1	0.00	43.44	175.00

4578.00	2.02	611.05	0.00	0.00	611.1	.14	.40	.00	610.43
9.	4.	54.	0.	0.	30.	1.	12.	11.	610.73
1.30	.91	3.06	.55	.075	.050	.075	.056	609.03	131.56
.007407	54.	54.	54.	0	0	1	0.00	43.44	175.00

4631.00	1.96	611.10	0.00	0.00	611.54	.14	.34	.01	610.02
9.	3.	45.	0.	0.	25.	1.	12.	11.	611.12
1.31	.74	3.24	.42	.075	.040	.075	.053	609.42	132.74
.005640	53.	53.	53.	0	0	1	0.00	41.59	174.33

4685.00	1.89	611.71	0.00	0.00	611.39	.18	.34	.01	611.22	
98.	2.	9.	0.	3.	21.	0.	13.	12.	611.52	
1.31	.75	3.48	.33	.075	.040	.075	.055	607.62	134.62	
.007011	54.	54.	54.	2	0	1	0.00	37.72	173.34	
4738.00	1.87	612.01	0.00	0.00	612.27	.19	.3	.00	611.81	
98.	2.	9.	0.	3.	27.	0.	13.	12.	611.91	
1.32	.75	3.52	.33	.075	.040	.075	.055	610.21	134.96	
.007300	53.	53.	53.	1	0	1	0.00	36.14	173.10	
4792.00	1.87	612.48	0.00	0.00	612.07	.19	.40	.00	612.01	
99.	2.	9.	0.	3.	27.	1.	13.	12.	612.31	
1.32	.75	3.54	.32	.075	.040	.075	.055	610.61	135.14	
.007454	54.	54.	54.	1	0	1	0.00	37.64	172.97	
4845.00	1.87	612.67	0.00	0.00	613.03	.19	.35	.00	612.40	
99.	2.	9.	0.	3.	27.	0.	13.	12.	612.70	
1.32	.75	3.54	.32	.075	.040	.075	.054	611.00	135.11	
.007433	53.	53.	53.	1	0	1	0.00	37.85	172.99	
4899.00	1.93	613.37	0.00	0.00	613.04	.17	.47	.01	613.44	
99.	1.	9.	0.	0.	29.	0.	13.	12.	613.24	
1.33	0.00	3.32	.32	.075	.040	.075	.056	611.44	136.47	
.010376	54.	54.	54.	2	0	1	0.00	37.47	201.94	

SECNO	DEPTH	CHSEL	CHIWS	VSEL	CS	FW	AL	FLOSS	BANK ELEV
TIME	VEL	VCH	VTOP	XNL	XCH	XNR	VOL	T	LEFT/RIGHT
SLOPE	YLOBL	XLCH	YLOBR	TTRTAL	TDC	TCONT	COR	TOPID	ENDST
4952.00	2.03	613.43	0.00	0.00	614.00	.18	.44	.01	613.03
99.	1.	9.	0.	0.	33.	1.	13.	12.	613.63
1.33	.02	3.37	.30	.075	.040	.075	.056	611.83	163.49
.006916	53.	53.	53.	2	0	1	0.00	40.18	203.37
5006.00	2.02	614.23	0.00	0.00	614.36	.14	.3	.00	614.23
99.	1.	9.	0.	0.	35.	0.	13.	12.	614.03
1.34	.02	3.38	.30	.075	.040	.075	.054	612.23	163.79
.007456	54.	54.	54.	2	0	1	0.00	39.55	203.35
5059.00	2.02	614.61	0.00	0.01	614.73	.14	.35	.00	614.62
99.	1.	9.	0.	0.	35.	1.	13.	12.	614.42
1.34	.02	3.52	.29	.075	.040	.075	.054	612.62	163.75
.007367	53.	53.	53.	1	0	1	0.00	39.65	203.40
5113.00	2.02	615.01	0.00	0.01	615.13	.14	.40	.00	615.02
99.	0.	9.	0.	0.	33.	0.	13.	12.	614.82
1.35	.02	3.33	.33	.075	.040	.075	.054	613.02	163.74
.007362	54.	54.	54.	0	0	1	0.00	39.66	203.40
5166.00	2.02	615.43	0.00	0.01	615.57	.14	.3	.00	615.41
98.	1.	9.	0.	0.	33.	1.	13.	12.	615.21
1.35	.02	3.33	.35	.075	.040	.075	.053	613.41	163.74
.007354	53.	53.	53.	0	0	1	0.00	39.67	203.41

5220.00	2.02	615.62	0.00	0.00	615.97	.14	.40	.00	615.61
98.	0.	98.	0.	0.	33.	0.	13.	12.	615.61
1.36	.02	2.93	.39	.075	.040	.075	.053	613.81	163.78
.007429	54.	54.	54.	0	0	1	0.00	39.59	203.36

5273.00	2.02	616.22	0.00	0.00	616.35	.14	.39	.00	616.20
98.	0.	98.	0.	0.	33.	0.	13.	12.	616.00
1.36	.02	2.98	.39	.075	.040	.075	.053	614.20	163.75
.007382	53.	53.	53.	0	0	1	0.00	39.54	203.39

5327.00	2.02	616.62	0.00	0.00	616.76	.14	.40	.00	616.60
98.	0.	98.	0.	0.	33.	0.	13.	12.	616.40
1.37	.02	2.96	.39	.075	.040	.075	.053	614.60	163.76
.007397	54.	54.	54.	0	0	1	0.00	39.63	203.39

SECNO	DEPTH	C SEL	CHIMS	WSEL	E	HV	HL	LOSS	BANK ELEV
Q	QLOB	C	CROB	WLOB	ACH	AROB	VOL	TWO	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XML	XNCH	XMR	MTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITHIAL	IDC	ICONT	COHER	TOPWID	ENDST

5380.00	2.02	617.01	0.00	0.00	617.15	.14	.	.00	616.99
98.	0.	98.	0.	0.	33.	0.	13.	12.	616.79
1.37	.02	2.98	.39	.075	.040	.075	.053	614.99	163.74
.007351	53.	53.	53.	0	0	1	0.00	39.67	203.41

5434.00	2.02	617.41	0.00	0.00	617.55	.14	.40	.00	617.39
98.	0.	98.	0.	0.	33.	0.	13.	12.	617.19
1.39	.02	2.99	.39	.075	.040	.075	.053	615.39	163.77
.007409	54.	54.	54.	0	0	1	0.00	39.61	203.37

5487.00	2.02	617.81	0.00	0.00	617.94	.14	.39	.00	617.78
98.	0.	98.	0.	0.	33.	0.	13.	12.	617.58
1.38	.02	2.98	.39	.075	.040	.075	.053	615.78	163.75
.007379	53.	53.	53.	0	0	1	0.00	39.64	203.39

3470 ENCROACH FNT STATIONS= 14 .0 215.0 TYPE= 1 TARGET= 55.000

VALLEY SECTION F

5541.00	2.02	618.20	0.00	0.00	618.34	.14	.40	.00	618.18
98.	0.	98.	0.	0.	33.	0.	13.	12.	617.98
1.39	.02	2.98	.39	.075	.040	.075	.053	616.18	163.76
.007400	54.	54.	54.	0	0	1	0.00	39.62	203.38

3470 ENCROACH FNT STATIONS= 17 .0 225.0 TYPE= 1 TARGET= 52.000

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLEN= 100000.00 ELLEN= 617.28

5566.00	2.00	618.34	0.00	0.00	618.44	.07	.07	.02	100000.00
98.	0.	98.	0.	0.	47.	0.	14.	12.	617.28
1.39	0.00	1.39	.51	.075	.040	.075	.052	615.48	174.00
.001473	25.	25.	25.	0	0	1	0.00	43.20	217.20

3470 ENCROACHMENT STATIONS= 15[illegible] 204.0 TYPE= 1 TARGET= 45.000

5576.00	3.23	61.43	0.00	0.00	[illegible]16.45	.02	.01	.01	617.20
98.	2.	53.	2.	5.	76.	5.	14.	12.	617.00
1.39	.41	1.22	.17	.075	.040	.075	.052	513.20	199.00
.000401	10.	10.	11.	0	0	1	0.00	45.00	204.00

OVERBANK AREA ASSUMED NON-EFFECTIVE;ELLEA= [illegible] ELRE= 62[illegible]

5640.00	5.05	61.45	0.00	0.00	61.49	.05	.03	.01	629.50
98.	3.	96.	0.	0.	67.	0.	15.	12.	629.50
1.40	0.00	1.75	0.00	.075	.040	.075	.052	513.40	194.10
.000534	64.	64.	64.	2	1	1	0.00	11.40	205.90

SECNO	DEPTH	CHSL	CRIWSE	SELK				BLOSS	BANKELEV
0	0[illegible]	CH	XROW	XLOB	XCH	XOB	XOL	TYPE	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XCL	XAP	ITM	ELMIN	SST4
SLOPE	XLOBL	XLC	XLOBR	ITRIAL	IOC	ICONT	CORAX	TOPWID	ENDST

NORMAL BRIDGE METHOD=12 WITH FLOW= 629.51 ELLC= 629.00

OVERBANK AREA ASSUMED NON-EFFECTIVE;ELLEA= 624.51 ELRE= 62[illegible]

5641.00	5.03	61.44	0.00	0.00	61.50	.05	.00	.00	629.50
99.	4.	91.	0.	0.	53.	0.	14.	12.	629.50
1.40	0.00	1.65	0.00	.075	.031	.075	.052	513.40	194.10
.000513	1.	1.	1.	0	0	1	-3.[illegible]	11.60	205.90

NORMAL BRIDGE METHOD=12 WITH FLOW= 63[illegible] ELLC= 629.[illegible]

OVERBANK AREA ASSUMED NON-EFFECTIVE;ELLEA= 5[illegible] ELRE= 62[illegible]

BRIDGE SECTION 6.5 U.S. RIVERSIDE RD. 75+-77+ LIVING MULTI-PLATE ARCH

MULTI PLATE ARCH PROJECTING FROM FILL (NO HEADWALL)

5716.00	3.48	61[illegible]	0.00	0.00	61[illegible]	.05	.04	.00	629.50
98.	0.	93.	0.	0.	55.	0.	14.	12.	629.50
1.42	0.00	1.95	0.00	.075	.031	.075	.052	613.60	194.10
.000547	75.	75.	75.	1	0	1	-3.27	11.80	205.90

OVERBANK AREA ASSUMED NON-EFFECTIVE;ELLEA= 6[illegible] ELRE= 62[illegible]

5717.00	4.99	61.49	0.00	0.00	61.54	.05	.00	.00	629.50
98.	0.	91.	0.	0.	55.	0.	14.	12.	629.50
1.42	0.00	1.75	0.00	.075	.040	.075	.052	613.60	194.10
.000585	1.	1.	1.	0	0	1	0.00	11.40	205.90

3470 ENCROACHMENT STATIONS= 15[illegible] 19[illegible] TYPE= 1 TARGET= 32.000

OVERBANK AREA ASSUMED NON-EFFECTIVE;ELLEA= 9999[illegible] ELRE= 9999.40

5727.00	.95	611.55	0.00	0.00	610.56	.00	.00	.01	99997.40		
67.	0.	7.	0.	0.	129.	0.	14.	12.	99997.40		
1.42	0.00	.53	0.00	.055	.040	.055	.052	613.60	160.00		
.000043	10.	10.	10.	2	0	1	0.00	32.00	192.00		

3470 ENCROACHMENT STATIONS= 1[illegible] [illegible] TYPE= [illegible] FRICT= 50.000

5757.00	4.74	611.58	0.00	0.00	611.56	.00	.00	.00	615.32
67.	0.	49.	11.	14.	131.	0.	14.	12.	615.62
1.45	.13	.57	.19	.153	.040	.055	.052	613.82	137.06
.000018	30.	30.	30.	0	0	1	0.00	49.94	227.00

SECNO	OF IN	CH	CHIN	SEL	CP	HW	HL	OLOSS	BANK ELEV
0	QLOB	CH	ROB	QLOB	QCH	YCOB	YCL	TW	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOPWID	ENDST

5918.00	3.56	611.56	0.00	0.00	610.57	.01	.01	.00	617.10
67.	4.	50.	0.	19.	86.	20.	15.	13.	616.70
1.54	.23	.62	.27	.153	.040	.055	.052	613.00	294.77
.000079	191.	191.	191.	0	0	1	0.00	80.94	375.71

6109.00	2.16	611.56	0.00	0.00	611.55	.01	.04	.04	619.30
67.	1.	37.	1.	1.	29.	1.	15.	13.	618.70
1.56	0.00	2.00	0.00	.153	.040	.055	.051	615.40	477.49
.003132	191.	191.	191.	1	1	1	0.00	21.53	494.42

6157.00	1.94	611.57	0.00	0.00	610.53	.13	.13	.02	619.65
67.	1.	67.	1.	5.	4.	1.	15.	13.	619.15
1.56	0.00	2.00	0.00	.055	.040	.055	.051	615.75	478.05
.004813	49.	49.	49.	2	1	1	0.00	20.54	498.63

6205.00	1.82	611.51	0.00	0.00	610.13	.13	.36	.01	620.00
67.	1.	67.	1.	5.	22.	1.	15.	13.	619.41
1.57	0.00	1.03	0.00	.055	.040	.055	.051	617.19	473.18
.006176	49.	49.	49.	2	1	1	0.00	19.84	493.21

6253.00	1.87	611.31	0.00	0.00	610.51	.13	.32	.17	621.26
67.	0.	67.	1.	5.	12.	1.	15.	13.	620.56
1.57	0.00	3.53	0.00	.055	.040	.055	.051	617.45	635.26
.023234	49.	49.	49.	2	1	1	0.00	11.66	646.92

6300.00	2.43	611.23	0.00	0.00	610.43	.13	.52	.03	621.60
67.	0.	67.	1.	0.	1.	0.	15.	13.	620.90
1.57	0.00	.40	0.00	.055	.040	.055	.051	617.60	632.04
.006435	47.	47.	47.	2	1	1	0.00	14.55	646.59

6491.00	2.74	611.15	0.00	0.00	610.22	.13	.71	.10	623.00
67.	0.	67.	1.	1.	13.	0.	15.	13.	622.90
1.59	0.00	1.00	0.00	.055	.040	.055	.050	615.10	789.33
.013272	191.	191.	191.	1	1	1	0.00	9.08	798.41

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 4.40 ELRE= 623.50

6566.00	3.06	622.70	0.00	0.00	623.11	.26	.76	.04	624.40	
67.	1.	67.	0.	0.	17.	0.	15.	13.	623.50	
1.59	0.00	.06	0.00	.055	.040	.055	.050	619.70	788.80	
.007793	75.	75.	75.	1	0	1	0.00	10.09	795.09	

SECNO	DEPTH	CHSEL	CNTRB	WSLOB	ELOB	FROB	HL	%LOSS	BANK ELEV
0	FLOW	VOC	AREB	XLOB	ALOB	XMOB	VOL	TIA	LEFT/RIGHT
TIME	VEL	VOC	VSOB	XN	XCH	XMT	XTN	ELMIN	SSTA
SLOPE	XLHHL	XLC	XLOSH	ITRIAL	IDC	ICONT	EOSAR	TOP TO	ENDST

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 3.90 ELRE= 624.00

6636.00	3.10	623.90	0.00	0.00	623.99	.24	.93	.00	624.00
67.	0.	67.	0.	0.	17.	0.	15.	13.	624.00
1.60	0.00	.05	0.00	.055	.040	.055	.050	620.20	788.72
.007253	50.	70.	90.	0	1	0.00	10.23	798.95	

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLE= 3.00 ELRE= 625.1

6781.00	3.07	624.37	0.00	0.00	624.82	.25	1.07	.00	626.00
67.	1.	67.	0.	0.	17.	0.	15.	13.	625.10
1.61	0.00	.01	0.00	.055	.040	.055	.050	621.30	788.77
.007566	75.	195.	215.	1	0	1	0.00	10.15	798.91

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 3.10 ELRE= 626.2

6926.00	3.07	625.47	0.04	1.00	625.72	.25	1.11	.00	627.10
67.	0.	67.	0.	0.	17.	0.	15.	13.	626.20
1.62	0.00	4.03	0.00	.055	.040	.055	.050	622.40	788.78
.007657	145.	145.	145.	1	0	1	0.01	10.12	798.90

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE = 3.00 ELRE = 626.3

7071.00	3.08	625.5	0.10	0.00	625.73	.23	1.11	.00	627.20
67.	0.	67.	0.	0.	17.	0.	15.	13.	627.30
1.63	0.00	1.02	0.00	.055	.040	.055	.050	623.50	788.77
.007613	145.	145.	145.	1	0	1	0.00	10.13	798.91

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 3.34 ELRE= 626.4

VALLEY SECTION

7216.00	3.06	627.62	0.00	1.01	627.7	.22	1.03	.01	627.30
62.	1.	62.	0.	0.	17.	0.	15.	13.	626.40
1.64	0.00	.07	0.00	.055	.040	.055	.040	624.60	788.79
.006607	145.	145.	145.	1	0	1	0.00	10.11	798.89

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 3.98 ELRE= 625.00

62.	0.	62.	0.	0.	15.	0.	15.	13.	629.00
1.65	0.00	3.25	0.00	.055	.040	.055	.049	625.20	788.47
.004932	130.	130.	130.	2	0	1	0.00	10.70	799.17

SECNO	DEPTH	WSEL	CRIT	WSELK	EL	HV	HL	DLOSS	BANK ELEV
Q	QL	VCH	VROB	XLOB	XCH	XROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XOL	XOCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOPL	XLCH	XLCHR	ITRIAL	IOC	ICONT	CORAR	TOP ID	ENDST

OVERBANK AREA ASSUMED NON EFFECTIVE ELLEF= 630.50 ELREF= 629.6

7476.00	3.28	629.63	0.00	0.00	629.2[illegible]	.17	.60	.00	630.50
62.	0.	62.	0.	0.	15.	0.	15.	13.	629.60
1.66	0.00	3.25	0.00	.055	.040	.055	.049	625.30	788.41
.004685	130.	130.	130.	2	0	1	0.00	10.81	799.22

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLEF= 631.1[illegible] ELREF= 630.20

7606.00	3.29	629.69	0.00	0.00	629.6[illegible]	.16	.60	.00	631.10
62.	0.	62.	0.	0.	15.	0.	15.	13.	630.20
1.67	0.00	3.26	0.00	.055	.040	.055	.049	626.40	788.39
.004594	130.	130.	0.	1	0	1	0.00	10.86	799.25

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLEF= 631.7[illegible] ELREF= 630.[illegible]

7736.00	3.29	630.[illegible]	0.00	0.00	630.45	.17	.60	.00	631.70
62.	0.	62.	0.	0.	15.	0.	15.	13.	630.80
1.68	0.00	3.27	0.00	.055	.040	.055	.049	627.00	788.40
.004621	170.	130.	90.	1	0	1	0.00	10.85	799.24

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLEF= 632.3[illegible] ELREF= 631.40

7865.00	3.29	630.8[illegible]	0.00	0.00	631.05	.17	.60	.00	632.30
62.	0.	62.	0.	0.	15.	0.	15.	14.	631.40
1.69	0.00	3.27	0.00	.055	.040	.055	.049	627.30	788.40
.004633	130.	130.	130.	0	0	1	0.00	10.84	799.24

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLEF= 632.[illegible] ELREF= 632.00

7996.00	3.29	631.4	0.00	0.00	631.56	.17	.60	.00	632.[illegible]0
62.	0.	62.	0.	0.	15.	0.	15.	14.	632.00
1.70	0.00	3.27	0.00	.055	.040	.055	.048	628.20	788.40
.004623	130.	130.	230.	0	0	1	0.00	10.84	799.24

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLEF= 633.50 ELREF= 632.[illegible]

8126.00	3.29	632.0[illegible]	0.00	0.00	632.[illegible]	.17	.60	.00	633.70
62.	0.	62.	0.	0.	15.	0.	15.	14.	632.60
1.71	0.00	3.27	0.00	.055	.040	.055	.048	628.30	788.39
.004612	130.	130.	130.	0	0	1	0.00	10.84	799.24

Q	SLOP	C	RUS	ALP	AC	ARU	WOL	TIM	LEFT/RIGHT
TIME	VLOS	WCA	WROS	XSL	XNC	XNR	.T I	ELMIN	SSTA
SLOPE	XLOSL	YLC	XLOS	ITPT	IDC	ICONT	CORAR	TOP TD	ENDST
8256.00	3.08	63.45	0.00	0.00	63.53	.05	.24	.04	633.40
62.	0.	62.	0.	0.	35.	0.	10.	14.	633.60
1.73	0.00	1.75	0.00	.055	.040	.055	.048	629.40	780.84
.000958	130.	130.	130.	2	0	1	0.00	17.24	798.08
8386.00	2.53	32.63	0.00	0.00	64.74	.05	.17	.01	634.00
62.	0.	62.	0.	0.	21.	0.	10.	14.	634.20
1.75	0.00	2.21	0.00	.055	.040	.055	.048	630.00	781.74
.001804	130.	130.	130.	2	0	1	0.00	15.59	797.32
8451.00	2.46	632.76	0.00	0.00	63.80	.05	.13	.01	634.30
62.	0.	62.	0.	0.	25.	0.	10.	14.	634.50
1.76	0.00	2.44	0.00	.055	.040	.055	.048	630.30	782.09
.002371	65.	65.	65.	2	0	1	0.00	14.34	797.02
8516.00	2.32	32.72	0.00	0.00	633.87	.11	.12	.01	634.00
62.	0.	62.	0.	0.	23.	0.	10.	14.	634.00
1.76	0.00	2.65	0.00	.055	.040	.055	.048	630.60	782.36
.002972	65.	65.	65.	2	0	1	0.00	14.43	797.79
8581.00	2.22	633.12	0.00	0.00	633.21	.12	.11	.01	634.10
62.	0.	62.	0.	0.	21.	0.	10.	14.	635.10
1.77	0.00	2.82	0.00	.055	.040	.055	.048	630.90	782.55
.003517	65.	65.	65.	2	0	1	0.00	14.07	797.63
8646.00	2.19	633.27	0.00	0.00	633.30	.11	.10	.00	634.36
62.	0.	62.	0.	0.	21.	0.	10.	14.	635.26
1.77	0.00	2.9	0.00	.055	.040	.055	.048	631.06	782.64
.003783	35.	65.	35.	1	0	1	0.00	13.92	796.96
8691.00	2.19	633.27	0.00	0.00	633.30	.13	.09	.00	634.06
62.	0.	62.	0.	0.	21.	0.	10.	14.	635.26
1.77	0.00	2.93	0.00	.055	.040	.055	.048	631.08	782.64
.003795	5.	5.	5.	0	0	1	0.00	13.91	796.55
8626.01	2.17	633.25	0.00	0.00	633.42	.13	.08	.00	635.11
62.	0.	62.	0.	0.	21.	0.	10.	14.	635.31
1.77	0.00	2.92	0.00	.055	.040	.055	.048	631.11	782.66
.003871	5.	5.	5.	1	0	1	0.00	13.87	796. 3

SECNO	DEPTH	CISEL	CEL	SELR	ICS	HL	GLOBS	BASIC ELEV
Q	QLOS	C	RUS	ALP	AC	ARU	WOL	T	LEFT/ IGHT
TIME	VLO	WCA	WLO	XSL	XNC	XNR	TIM	ELMIN	SSTA
SLOPE	XLOSL	YLC	XLOS	ITPT	IDC	ICONT	CORAR	TOP TD	ENDST
8631.00	2.17	33.31	0.00	0.00	631.44	.13	.02	.00	635.13
62.	0.	62.	0.	0.	21.	0.	10.	14.	635.33
1.78	0.00	2.92	0.00	.055	.040	.055	.048	631.13	782.36
.003877	5.	5.	5.	1	0	1	0.00	13.87	796.93

	62.	0.	62.	0.	0.	21.	0.	16.	14.	635.36
	1.78	0.00	2.94	0.00	.055	.040	.055	.043	631.16	782.68
	.003952	5.	5.	5.	0	0	1	0.00	13.83	796.51
8641.00	2.16	633.34	633.34	0.00	633.34	.13	.02	.00	635.18	
	62.	0.	62.	0.	0.	21.	0.	16.	14.	635.38
	1.78	0.01	2.94	0.00	.055	.040	.055	.043	631.18	782.66
	.003955	5.	5.	5.	0	0	1	0.00	13.83	796.51

3655 2? ITERATIONS USED MODEL 0 ASSEL

7185 ' IN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

SECNO	DEPTH	Q SEL	CRIT S	SEL	E	M	AL	CLOSS	BANK ELEV
Q	FLOW	VCH	VROS	FLOW	VCH	VRO	VOL	TW	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	X CH	XNR	VTW	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOP WD	ENDST
8646.00	2.46	633.66	633.66	0.00	634.24	.58	.04	0.00	632.20
62.	0.	62.	0.	3.	0.	3.	16.	14.	632.20
1.78	2.31	6.93	2.79	.055	.040	.055	.043	631.20	794.13
.017626	5.	5.	5.	1	1	1	0.00	11.43	816.59

SPECIAL BRIDGE

SAREA	XK	HPRS	COFQ	HDL-U	AWC	HTL	HPRSA	SS	ELCHU	ELCHD
	-0.00	2.28	1.00	-0.00	.36	-0.00	2.07	-0.00	632.40	631.20

PRESSURE FLOW

EGPRS	EGLWC	WSEIN	QCH	AREA	FLLEV	ELTRD	CLASS
636.66	636.31	5.00	0.	0.	7.	633.66	643.66	10.00

OVERBANK AREA ASSUMED NOT EFFECTIVE FLOW. FLOW= 641.65 ELEV= 641.65

BRIDGE SECTION I= 0.0 C= 3.0 T= .0 SKEW= 90.0

CRITICAL WSEL= ALL

8706.00	2.46	636.66	0.00	0.00	636.66	.58	2.47	0.00	633.40
62.	0.	62.	0.	0.	16.	0.	16.	14.	633.40
1.78	0.00	6.13	0.00	.055	.040	.055	.043	631.40	798.50
.014808	10.	10.	10.		0	1	0.00	4.00	809.04

WATER EL= 636.220

SECNO	DEPT	CRSL	CRIT S	SELK		HP	HL	CLOSS	BANK ELEV
Q	FLOB	VC	VROB	FLO	AC	XNCH	VOL	TW	LEFT/RIGHT
TIME	VLOB	VC	VCH	XNL	X CH	XNR	VTW	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOB	ITRIAL	IDC	ICONT	CORAR	TOP WD	ENDST

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NO-EFFECTIVE-ELLE= 636.40 ELE= 100000.10

8716.00	4.92	637.22	0.00	0.00	637.23	.01	.00	.17	636.40
62.	0.	62.	0.	0.	70.	0.	16.	14.	100000.10
1.78	0.01	.62	0.00	.055	.040	.055	.040	637.40	779.00
.000140	10.	10.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NO-EFFECTIVE-ELLE= 636.39 ELE= 100000.01

8731.00	4.93	637.22	0.00	0.00	637.23	.01	.00	.00	636.39
62.	0.	62.	0.	0.	70.	0.	16.	14.	100000.00
1.79	0.01	.62	0.00	.055	.040	.055	.040	637.39	779.00
.000139	15.	15.	15.	2	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NO-EFFECTIVE-ELLE= 636.38 ELE= 100000.00

8756.00	4.95	637.23	0.00	0.00	637.24	.01	.00	.00	636.38
62.	0.	62.	0.	0.	71.	0.	16.	14.	100000.00
1.80	0.01	.63	0.00	.055	.040	.055	.040	637.38	779.00
.000137	25.	25.	25.	3	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NO-EFFECTIVE-ELLE= 636.34 ELE= 100000.00

8881.00	4.90	637.24	0.00	0.00	637.25	.01	.00	.00	636.34
62.	0.	62.	0.	0.	72.	0.	16.	14.	100000.00
1.84	0.00	.66	0.00	.055	.040	.055	.040	637.34	779.00
.000130	244.	175.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NO-EFFECTIVE-ELLE= 636.34 ELE= 100000.00

MAIN CHANNEL SECTION

9006.00	4.96	637.25	0.00	0.00	637.27	.01	.02	.00	636.30
62.	0.	62.	0.	0.	73.	0.	17.	14.	100000.00
1.88	1.00	.67	0.00	.055	.040	.055	.047	637.31	779.00
.000124	241.	175.	10.	3	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NO-EFFECTIVE-ELLE= 636.30 ELE= 100000.00

9081.00	4.97	637.27	0.00	0.00	637.28	.01	.01	.00	636.30
62.	0.	62.	0.	0.	73.	0.	17.	14.	100000.00
1.89	0.00	.67	0.00	.055	.040	.055	.047	637.30	779.00

.000123	140.	75.	10.	0	0	1	0.00	21.00	800.00

SECNO	DEPTH	CHSEL	CHIS	SELK	EG	HV	HL	DLOSS	BANK ELEV
Q	QLOB	VC	CROE	ALOB	ACH	AHOB	VOL	TWO	LEFT/RIGHT
TIME	VLOB	VCH	VHO	XNL	XMCH	XNR	NTM	FEMIN	SSTN
SLOPE	XLOBL	XLC	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOP ID	ENDST

3470 ENCROACHMENT STATIONS= 779.0 500.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLEV= 636.30 ELREV= 100000.00

9156.00	4.93	637.2[illegible]	0.00	0.00	637.2[illegible]	.01	.01	.00	636.30
62.	0.	62.	0.	0.	73.	1.	17.	14.	100000.00
1.93	0.00	.85	0.00	.055	.040	.055	.047	632.30	779.00
.000122	100.	75.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 500.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLEV= 636.30 ELREV= 100000.00

9174.00	4.98	637.2[illegible]	0.00	0.00	637.2[illegible]	.01	.00	.00	63[illegible].30
62.	0.	62.	0.	0.	7[illegible].	0.	17.	14.	100000.00
1.93	0.00	.84	0.00	.055	.040	.055	.047	632.30	779.00
.000122	1[illegible].	1[illegible].	1[illegible].	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 500.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLEV= 636.30 ELREV= 100000.00

9306.00	5.00	37.3[illegible]	0.00	0.00	637.31	.01	.0[illegible]	.00	636.30
62.	0.	[illegible].	0.	0.	74.	0.	17.	14.	100000.00
1.97	0.00	[illegible]	0.00	.055	.040	.055	.047	63[illegible].30	779.00
.000120	200.	132.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 500.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLEV= 636.30 ELREV= 100000.00

9327.00	5.00	637.30	0.00	0.00	637.31	.01	.00	.00	636.30
62.	0.	62.	0.	0.	74.	0.	17.	14.	100000.00
1.98	0.00	[illegible]	0.00	.055	.040	.055	.047	63[illegible].30	779.00
.000120	21.	21.	21.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 7[illegible].0 [illegible].0 TYPE= 1 TARGET= [illegible]0.000

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLEV= [illegible].00 ELREV= [illegible].00

9355.00	4.92	637.22	0.00	0.00	637.40	.1[illegible]	.01	.0[illegible]	633.30
62.	0.	62.	0.	0.	1[illegible].	0.	17.	14.	633.30
1.98	0.00	[illegible].41	0.00	.055	.040	.055	.047	63[illegible].30	793.00
.002790	2[illegible].	2[illegible].	2[illegible].	2	0	1	0.00	[illegible].00	802.00

```
SB  XK      XKOR     CREW     HOLEN    H C      B P      BAREA    SS       ELCHU    ELCHD
    -0.00    2.77     2.40    -0.00    3.14    -0.00    12.57    -0.00    633.00   632.30

  SECNO   DEPTH   CNSEL   CRIND   MSTEK   EG      UV      HL      HLOSS   BANK ELEV
  0       QLOS    QC      QLOU    QLOR    QC      QLOU    QOL     TMA     LEFT/RIGHT
  TIME    VLO     VC      VLOR    XNL     XNC     XN      TN      ELMIN   SSTA
  SLOPE   XLOSL   XLOR    XLOSS   ITRIAL  TDC     ICONT   CORNX   TOP TD  ENDST

PRESSURE F_H

  EGPRS    EGNC     H       QWEIR    QPR      BAREA    ELLC     ELTRD    CLOSS
  638.27   638.10   0.00    0.       62.      12.      37.00    639.00   10.00

3470 ENCROACHMENT STATIONS=     760.0     0.0  TYPE=     1  TARGET=     80.000

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLE4=     [illegible] ELHE4=     [illegible]

        BRIDGE SECTION [illegible] U.S. PIER RD.  [illegible] C.P

        CHE WITH DEAD ALL

  9395.00   [illegible]   636.10   0.00    0.00    636.27   .17     .07     0.00    634.00
     62.      [illegible]   62.      0.      0.      1[illegible].     [illegible].     17.      14.     634.00
   1.99     0.00     [illegible]   0.00    .055    .040    .055    .047    633.00   793.00
 .002523    [illegible]   [illegible]   [illegible]   [illegible]   0       1       0.00    [illegible].00   302.00

3470 ENCROACHMENT STATIONS=     75[illegible].0     [illegible].0  TYPE=     1  TARGET=     [illegible]1.000
  9443.00   4.74    [illegible]   0.00    0.00    638.33   .[illegible]1     .0[illegible]     .05     637.58
     62.      2.      9.      1.      11.     65.      [illegible].     17.      14.     6[illegible]7.78
   2.00     .19     .8[illegible]   .1[illegible]    .060    .040    .060    .047    633.53   759.00
 .000125    1.      [illegible]   100.     [illegible]     0       1       0.00    [illegible]1.00   [illegible]20.00

3470 ENCROACHMENT STATIONS=     76[illegible].0     15.[illegible]  TYPE=     1  TARGET=     [illegible]1.000

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLE4=     [illegible].15 ELHE4=     [illegible]

  9493.00   4.15    638.33   0.00    0.00    63[illegible].35   .0[illegible]     .01     .00     [illegible].18
     62.      [illegible].     62.      [illegible].     1.      [illegible].     [illegible].     17.      14.     [illegible]8.38
   2.02     .07     1.11    0.00    .0[illegible]0    .040    .0[illegible]0    .047    [illegible].18   77[illegible].73
 .000272    100.     [illegible].     1.      2       0       1       0.00    29.18   799.91

3470 ENCROACHMENT STATIONS=     55[illegible].0     [illegible].0  TYPE=     1  TARGET=     24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLE4=     [illegible].20 ELHE4=     100000.00

        VALLEY SECTION [illegible]

  9545.00   3.54    638.34   0.00    0.00    63[illegible].37   .03     .02     .00     640.20
     62.      [illegible].     62.      0.      0.      [illegible].     0.      17.      14.     100000.00
   2.03     0.00     1.30    0.00    .060    .040    .060    .047    634.30   552.34
```

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 640.50 ELREA= 640.10

9753.00	3.34	638.64	0.00	0.00	638.67	.03	.10	.00	640.50
62.	0.	62.	0.	0.	44.	0.	18.	14.	640.10
2.07	0.00	1.41	0.00	.060	.040	.060	.047	635.10	553.25
.000551	60.	200.	50.	2	0	1	0.00	19.47	572.72

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLEA= 640.78 ELREA= 640.[illegible]

9953.00	3.18	638.56	0.00	0.00	638.59	.04	.12	.00	640.78
62.	0.	62.	0.	0.	41.	0.	16.	14.	640.58
2.10	0.00	1.52	0.00	.060	.040	.060	.047	635.38	553.51
.000681	200.	200.	200.	2	0	1	0.00	19.09	572.60

SECNO	DEPTH	CMSEL	CMINS	MSELK	EH	HH	HL	DLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TIME	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XML	XNC	XMR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	XCONT	CORIX	TOPWID	ENDST

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 641.06 ELREA= 640.66

10153.00	3.05	638.71	0.00	0.00	638.75	.04	.13	.00	641.06
62.	0.	62.	0.	0.	38.	0.	18.	14.	640.66
2.14	0.00	1.62	0.00	.060	.040	.060	.047	635.66	553.72
.000820	200.	200.	200.	2	0	1	0.00	18.73	572.50

3280 CROSS SECTION 10353.00 EXTENDED .22 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 642.65 ELREA= 640.25

10353.00	2.93	638.86	0.00	0.00	638.91	.04	.17	.00	642.65
62.	0.	62.	0.	0.	38.	0.	18.	15.	640.25
2.17	0.00	1.59	0.00	.060	.040	.060	.046	635.95	805.49
.000849	200.	200.	200.	1	0	1	0.00	21.00	826.49

3280 CROSS SECTION 10553.00 EXTENDED .[illegible] FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 642.96 ELREA= 640.56

10553.00	2.80	639.06	0.00	0.00	639.10	.04	.19	.00	642.96
62.	0.	62.	0.	0.	37.	0.	16.	15.	640.56
2.21	0.00	1.6[illegible]	0.00	.060	.040	.060	.046	636.[illegible]6	805.56
.001015	200.	200.	200.	2	0	1	0.00	20.44	826.11

3280 CROSS SECTION 10753.00 EXTENDED .21 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 643.27 ELREA= 640.07

10753.00	2.71	639.23	0.00	0.00	639.33	.03	.22	.00	643.27

	64.	0.	64.	0.	0.	45.	0.	19.	15.	640.67
	2.24	0.00	1.65	0.00	.000	.040	.000	.046	636.57	605.79
	.001243	200.	200.	200.		0	1	0.00	20.02	625.92

3280 CROSS SECTION ADDED TO FILE

OVERBANK AREA ASSUMED INEFFECTIVE,ELLC= 643.00 ELBE= 641.24

11093.00	2.63	3.74	0.10	0.00	643.00	0.	.21	.00	643.54	
	64.	0.	64.	0.	0.	64.	0.	19.	15.	641.24
	2.27	0.00	1.71	0.00	.000	.040	.000	.046	636.94	605.48
	.001363	1.	201.	200.	2	0	1	0.00	19.74	625.62

3280 CROSS SECTION INSERTED EFTE 0.0 FILE

SECNO	DEPTH	CHSL	CHIN	XSEL	FP		XL	LOSS	CH	ELEV
A	WIDTH	WCH	WCOR	XWL	XWCH	XWR	WTH	ELMIN	TRS	LEFT/RIGHT
TTOP	WLOB	WC	WROB	XML	XMCH	XMR	WTM	ELMIN	SST/	
SLOPE	XLOBL	LCH	XLOBR	TITCHL	IHC	FCHRT	CORCHR	TOPWID	ENDST	

OVERBANK AREA ASSUMED INEFFECTIVE,ELLC= 643.00 ELBE= 641.40

CHANNEL SECTION

11093.00	2.63	3.74	0.10	0.00	643.00	0.	.21	.00	643.54	
	64.	0.	64.	0.	0.	64.	0.	19.	15.	641.40
	2.29	1.00	1.84	0.00	.045	.040	.045	.046	637.10	605.92
	.001445	100.	100.	100.	0	-0	1	0.00	19.51	625.63

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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       HAGAR TWP. BERRIEN CO.  5555-27
T2       50 YEAR FLOOD
T3       GRANGER DRAIN SEC. 1-13

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      -10.         3.        -0.        -0.    .004600     -0.00      -0.0       -0.    590.400     -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

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=       595.00 ELREA=       591.10


          VALLEY SECTION A

      0.00       .70    591.30       0.00    590.40    591.30       .01       0.00       0.00    595.00
       135.        0.        4.      131.        0.        4.      196.        0.        0.     591.10
      0.00      0.00       .92       .67       .100      .060      .100     0.000    590.60    108.83
   .004528        -0.       -0.       -0.          0         0         5      0.00    368.86    477.69


OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       594.38 ELREA=       591.38

    188.00      1.74    592.12       0.00      0.00    592.14       .02       .83       .01    594.38
       135.        0.       32.      103.        0.       18.      130.        1.        1.     591.38
       .05      0.00      1.74       .79       .100      .060      .100      .060    590.38    101.54
   .004290       188.      188.      188.         2         0         1      0.00    230.83    332.36


OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       593.95 ELREA=       591.95

    375.00      2.33    592.68       0.00      0.00    592.73       .04       .58       .01    593.95
       135.        0.       65.       70.        0.       29.       79.        1.        2.     591.95
       .07      0.00      2.26       .89       .100      .060      .100      .070    590.35     98.94
   .004522       300.      187.      100.         2         0         1      0.00    126.94    225.88


OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       593.82 ELREA=       592.72
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135.	0.	83.	52.	0.	41.	71.	2.	3.	592.72
.13	0.00	2.04	.74	.100	.060	.100	.056	590.32	97.61
.002456	75.	188.	400.	1	0	1	0.00	97.38	194.99

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
	VALLEY SECTION B								
750.00	3.94	594.24	0.00	0.00	594.31	.07	.64	.01	593.90
135.	17.	98.	20.	32.	41.	32.	3.	3.	593.80
.16	.53	2.41	.63	.100	.060	.100	.053	590.30	35.62
.002990	75.	187.	400.	2	0	1	0.00	126.68	162.30
850.00	3.68	594.61	0.00	0.00	594.74	.13	.40	.03	594.53
135.	8.	113.	14.	17.	37.	20.	3.	4.	594.43
.17	.48	3.09	.67	.100	.060	.100	.054	590.93	39.40
.005644	100.	100.	100.	2	0	1	0.00	119.11	158.52
950.00	3.29	595.03	0.00	0.00	595.06	.03	.29	.03	593.64
135.	20.	53.	62.	29.	28.	102.	3.	4.	593.54
.20	.67	1.89	.61	.100	.060	.100	.054	591.74	45.21
.001742	100.	100.	100.	1	0	1	0.00	147.14	192.35
1025.00	3.06	595.26	0.00	0.00	595.30	.05	.24	.01	594.10
135.	18.	63.	54.	23.	26.	76.	3.	4.	594.00
.21	.79	2.45	.70	.100	.060	.100	.054	592.20	45.69
.003306	32.	75.	150.	2	0	1	0.00	141.66	187.34
1075.00	3.21	595.41	0.00	0.00	595.44	.03	.13	.00	594.10
135.	19.	56.	60.	27.	27.	93.	4.	5.	594.00
.23	.71	2.06	.64	.100	.060	.100	.054	592.20	45.38
.002169	50.	50.	50.	2	0	1	0.00	145.17	190.55
	BRIDGE SECTION B-2 U.S. FACE OF DAM								
	EARTH DAM WITH SPILLWAY								
1100.00	3.27	595.47	0.00	0.00	595.49	.03	.05	.00	594.10
135.	20.	54.	62.	29.	28.	100.	4.	5.	594.00
.23	.68	1.93	.62	.100	.060	.100	.054	592.20	45.26
.001850	25.	25.	25.	1	0	1	0.00	146.59	191.85

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	=0.00	1.00	2.80	-0.00	.01	-0.00	.01	-0.00	592.80	592.20

PRESSURE AND WEIR FLOW

								ELTRD	CLASS

830564.41	596.07	0.00	136.	0.	0.	592.90	596.20	30.00	
1110.00	5.24	598.04	0.00	0.00	598.04	.00	2.55	0.00	598.70
135.	0.	135.	0.	0.	852.	0.	4.	5.	602.30
.25	0.00	.16	0.00	.100	.060	.100	.054	592.80	23.73
.000007	10.	10.	10.	0	0	12	0.00	216.54	240.27

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
1135.00	5.24	598.04	0.00	0.00	598.04	.00	.00	.00	598.70
135.	0.	135.	0.	0.	684.	0.	4.	5.	600.30
.28	0.00	.20	0.00	.100	.060	.100	.054	592.80	23.73
.000010	50.	25.	1.	2	0	1	0.00	173.61	197.34
1160.00	5.24	598.04	0.00	0.00	598.05	.00	.00	.00	598.70
135.	0.	135.	0.	0.	684.	0.	5.	5.	600.30
.32	0.00	.20	0.00	.100	.060	.100	.054	592.80	23.73
.000010	50.	25.	1.	0	0	1	0.00	173.61	197.34

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 599.31 ELREA= 600.91

1290.00	4.64	598.05	0.00	0.00	598.05	.00	.00	.00	599.31
135.	0.	135.	0.	0.	579.	0.	7.	5.	600.91
.47	0.00	.23	0.00	.100	.060	.100	.055	593.41	24.40
.000018	130.	130.	130.	0	0	1	0.00	171.95	196.36
1425.00	4.00	598.05	0.00	0.00	598.06	.01	.01	.00	595.55
135.	53.	54.	28.	131.	60.	88.	8.	6.	595.45
.54	.41	.90	.32	.100	.060	.100	.055	594.05	24.02
.000253	135.	135.	135.	0	0	1	0.00	136.71	160.74
1560.00	3.42	598.10	0.00	0.00	598.11	.01	.05	.00	596.18
135.	53.	62.	20.	97.	50.	55.	9.	6.	596.08
.58	.55	1.23	.37	.100	.060	.100	.055	594.68	30.40
.000603	135.	135.	135.	2	0	1	0.00	127.33	157.73
1695.00	2.90	598.21	0.00	0.00	598.24	.03	.12	.01	596.81
135.	51.	70.	14.	70.	41.	31.	9.	7.	596.71
.61	.73	1.69	.47	.100	.060	.100	.056	595.31	36.06
.001467	135.	135.	135.	2	0	1	0.00	107.68	143.73
1830.00	2.54	598.48	0.00	0.00	598.53	.05	.28	.01	597.44
135.	48.	77.	10.	52.	35.	18.	10.	7.	597.34
.64	.92	2.18	.56	.100	.060	.100	.056	595.94	39.97
.003038	150.	135.	120.	2	0	1	0.00	94.09	134.06
1965.00	2.39	598.96	0.00	0.00	599.02	.06	.49	.01	598.07
135.	46.	81.	8.	46.	33.	13.	10.	7.	597.97
.66	1.02	2.47	.61	.100	.060	.100	.056	596.57	41.65
.004318	135.	135.	135.	2	0	1	0.00	88.25	129.89

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
2100.00	2.36	599.56	0.00	0.00	599.63	.07	.60	.00	598.70
135.	46.	81.	8.	44.	32.	13.	10.	8.	598.60
.68	1.04	2.53	.62	.100	.060	.100	.056	597.20	41.96
.004620	135.	135.	135.	2	0	1	0.00	87.17	129.13
2210.00	2.37	600.07	0.00	0.00	600.14	.07	.51	.00	599.20
135.	46.	81.	8.	44.	32.	13.	10.	8.	599.10
.69	1.04	2.53	.62	.100	.060	.100	.056	597.70	41.93
.004593	110.	110.	110.	1	0	1	0.00	87.27	129.20
2320.00	2.37	600.57	0.00	0.00	600.64	.06	.50	.00	599.70
135.	46.	81.	8.	45.	32.	13.	11.	8.	599.60
.71	1.03	2.51	.62	.100	.060	.100	.057	598.20	41.86
.004519	110.	110.	110.	0	0	1	0.00	87.52	129.38
2430.00	2.36	601.06	0.00	0.00	601.12	.07	.48	.00	600.20
135.	46.	81.	8.	44.	32.	13.	11.	8.	600.10
.73	1.04	2.54	.62	.100	.060	.100	.057	598.70	41.97
.004633	95.	110.	125.	1	0	1	0.00	87.13	129.10
2540.00	2.35	601.55	0.00	0.00	601.62	.07	.50	.00	600.70
135.	46.	81.	8.	44.	32.	12.	11.	8.	600.60
.74	1.04	2.54	.62	.100	.060	.100	.057	599.20	42.01
.004674	100.	110.	120.	1	0	1	0.00	86.99	129.00
2650.00	2.37	602.17	0.00	0.00	602.22	.05	.60	.00	600.90
135.	88.	46.	1.	85.	17.	1.	11.	9.	601.70
.76	1.04	2.72	.45	.100	.060	.100	.057	599.80	26.25
.006374	110.	110.	110.	2	0	1	0.00	119.76	146.00
2760.00	2.47	602.77	0.00	0.00	602.81	.04	.59	.00	601.40
135.	91.	43.	1.	96.	18.	2.	12.	9.	602.20
.78	.95	2.39	.44	.100	.060	.100	.057	600.30	26.03
.004507	110.	110.	110.	0	0	1	0.00	121.35	147.37
2870.00	2.47	603.27	0.00	0.00	603.31	.04	.50	.00	601.90
135.	91.	43.	1.	95.	18.	2.	12.	9.	602.70
.80	.95	2.40	.44	.100	.060	.100	.057	600.80	26.04
.004596	110.	110.	110.	2	0	1	0.00	121.25	147.29

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
2980.00	2.51	603.81	0.00	0.00	603.84	.04	.53	.00	602.40
135.	91.	43.	1.	98.	18.	2.	12.	10.	603.20
.83	.93	2.33	.43	.100	.060	.100	.057	601.30	25.99
.004238	125.	110.	95.	1	0	1	0.00	121.64	147.63

3470 ENCROACHMENT STATIONS= 37.0 147.0 TYPE= 1 TARGET= 110.000

3090.00	2.51	604.31	0.00	0.00	604.35	.04	.50	.00	602.90
135.	91.	43.	1.	93.	18.	2.	12.	10.	603.70
.85	.98	2.37	.47	.100	.060	.100	.057	601.80	37.00
.004363	120.	110.	100.	1	0	1	0.00	110.00	147.00

3470 ENCROACHMENT STATIONS= 92.0 147.0 TYPE= 1 TARGET= 55.000

3200.00	2.58	604.88	0.00	0.00	604.97	.08	.60	.02	603.40
135.	74.	59.	2.	50.	19.	3.	13.	10.	604.20
.87	1.49	3.07	.68	.100	.060	.100	.057	602.30	92.00
.006950	110.	110.	110.	2	0	1	0.00	55.00	147.00

3470 ENCROACHMENT STATIONS= 120.0 150.0 TYPE= 1 TARGET= 30.000

3250.00	3.85	605.09	0.00	0.00	605.16	.07	.19	.00	602.34
135.	39.	81.	15.	27.	32.	16.	13.	10.	603.14
.87	1.42	2.56	.98	.100	.060	.100	.057	601.24	120.00
.002436	50.	50.	50.	2	0	1	0.00	30.00	150.00

3470 ENCROACHMENT STATIONS= 129.0 141.0 TYPE= 1 TARGET= 12.000

3284.00	4.62	605.14	0.00	0.00	605.29	.15	.09	.04	601.62
135.	6.	125.	4.	4.	39.	3.	13.	10.	602.42
.88	1.81	3.16	1.51	.100	.060	.100	.057	600.52	129.00
.002780	34.	34.	34.	2	0	1	0.00	12.00	141.00

3301 HV CHANGED MORE THAN HVINS

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 611.20 ELREA= 611.20

3299.00	4.63	604.83	0.00	0.00	605.80	.98	.10	.41	601.20
135.	0.	135.	0.	0.	17.	0.	13.	10.	601.20
.88	0.00	7.93	0.00	.100	.060	.100	.057	600.20	178.00
.035382	15.	15.	15.	2	0	1	0.00	4.00	182.00

135.	91.	43.	[illegible]	[illegible]	1[illegible].	[illegible]	[illegible]	8.	602.70
.49	.95	2.4[illegible]	.14	.1[illegible]	.050	.100	.05	500.30	26.04
.004582	110.	110.	11[illegible]	[illegible]	[illegible]	1	0.00	121.27	147.30

2980.00	2.51	[illegible]	0.00	0.00	[illegible]	[illegible]	.53	.00	602.40
135.	[illegible]	[illegible]	1.	[illegible]	1[illegible].	2.	[illegible]	9.	603.20
.52	.[illegible]3	.3[illegible]	.[illegible]	.1[illegible]	.[illegible]	.100	.0[illegible]	601.30	[illegible].99
.004237	125.	11[illegible]	[illegible]	1	[illegible]	1	0.00	121.[illegible]	147.[illegible]3

3470 ENCRO CH ENT STATIONS= [illegible] 147.[illegible] TYPE = 1 [illegible] T= 11[illegible].000

3090.00	2.[illegible]1	604.[illegible]1	0.00	0.00	604.[illegible]	.[illegible]4	.5[illegible]	.00	602.[illegible]0
135.	[illegible]	4[illegible].	1.	[illegible]	1[illegible].	2.	[illegible]	9.	[illegible]3.70
.54	.9[illegible]	[illegible].37	.47	.100	.050	.100	.05[illegible]	601.30	[illegible]7.00
.004365	120.	11[illegible].	100.	1	[illegible]	1	0.00	110.00	147.00

3470 ENCRO CH ENT ST TIO[illegible] [illegible] 1 [illegible] TYPE= 1 T[illegible]T= [illegible].000

VALLEY SECTION D

3200.00	[illegible]	[illegible]	0.00	0.00	[illegible].97	.0[illegible]	.[illegible]0	.0	603.40
135.	74.	[illegible].	2.	[illegible]	1[illegible].	[illegible]	[illegible]	9.	[illegible]4.20
.55	1.49	.[illegible]7	[illegible]	.100	.060	.100	.05[illegible]	[illegible].30	92.00
.006948	110.	110.	110.	[illegible]	[illegible]	1	0.00	55.00	1[illegible].00

3470 ENCRO C[illegible] ENT ST TIO[illegible] 12[illegible].0 1[illegible] TYPE= 1 T[illegible]T= [illegible].000

3250.00	[illegible]	6[illegible]	0.00	0.00	[illegible]	.[illegible]	.1	.00	602.34
135.	3[illegible].	[illegible]1.	1[illegible].	27.	32.	1[illegible].	[illegible]	9.	603.14
.56	1.42	[illegible]	[illegible]	.100	.050	.100	.05	601.24	120.00
.002436	50.	50.	50.	[illegible]	0	1	0.00	30.00	150.00

3470 ENCRO CH ENT STATIONS= 12[illegible] 1[illegible] TYPE= 1 T[illegible]T= 12.000

3284.00	[illegible].62	6[illegible]	0.00	0.00	603.2[illegible]	.[illegible]	.0[illegible]	.0	601.32
135.	6.	125.	[illegible]	4.	3[illegible].	3.	[illegible]	9.	[illegible]2.42
.56	1.[illegible]1	[illegible]	1.[illegible]1	.100	.060	.100	.0[illegible]	600.32	129.00
.002730	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1	0.00	1[illegible].00	141.00

3301 HV CH[illegible] [illegible] TH[illegible] BYIN[illegible]

OVERBANK AREA ASSUMED [illegible] EFFECTIVE FLLE = [illegible] EL [illegible] = 11.[illegible]

3299.00	[illegible]	[illegible]	[illegible]	0.00	[illegible]	[illegible]	.1[illegible]	[illegible]	601.20
135.	[illegible]	135.	[illegible]	0.	1[illegible].	[illegible]	[illegible]	[illegible]	601.20
.55	[illegible].00	7.[illegible]	[illegible]	.100	.0[illegible]	.100	.0[illegible]	600.20	170.00
.035341	15.	1[illegible].	1[illegible].	[illegible]	[illegible]	1	0.00	[illegible].00	1[illegible].00

SPECIAL BRIDGE [illegible]

SB	XK	XTOR	COF	[illegible]LE	C	[illegible]	[illegible]	SS	ELCHO	ELCHD
	-0.00	2.51	[illegible]	-0.00	[illegible]	-0.00	1[illegible].57	-0.00	600.00	600.20

SECNO	DEPTH	CHSEL	CLAS	SELK	ES	LV	PL	CLOSS	BANK ELEV
Q	CLOB	CH	VROB	ALOB	WCH	AROB	VOL	TYA	LEFT/RIGHT
TIME	VLOB	WCH	VROB	AML	XNCH	XNR	PTN	ELMIN	SSTA
SLOPE	XLOB	VCH	XLOB	TWTM	IOC	TCOM	CORAK	TOPWID	FNDST

PRESSURE F

EGRPS	EGLOC	H	VELH	DAP	SAREA	ELLOC	ELTRD	CLASS
609.32	615.61	0.00	1.	145.	1.	615.00	61.46	10.00

OVERBANK AREA ASSUMED INEFFECTIVE ELLEV= 611.00 ELREV= 611.00

TRIBUTARY SECTION E 0.5. CH OT 20. 1 C P

C P DIS COC FIF E-DOWN

3359.00	5.09	100.00	1.20	1.00	6 .3	.73	3.22	0.00	601.00
135.	1.	1 .	.	0.	0.	.	.	0.	601.00
.57	1.00	.87	0.00	.103	.060	.100	.055	600.00	176.00
.005907	60.	60.	60.		0	1	0.00	0.00	122.00

3470 ENCROACHMENT STATION= 11 .0 15 ,0 TYPE= 1 TARGET= 32.000

3373.00	5.09	0.3	0.00	0.00	0 .3	.71	.00	.07	60 .20
135.	38.	0 .	2 .	.	.	1 .	0	9.	602.00
.58	.62	.73	.33	.075	.041	.075	.033	600.10	119.00
.000020	1 .	1 .	1 .	1	1	1	0.00	32.00	151.00

3470 ENCROACHMENT STATION= 1 .0 15 .0 TYPE= 1 TARGET= 50.000

3401.00	5.03	0 .3	0.11	0.00	0 .5	.04	.00	.00	60 .1
135.	36.	3 .	39.	197.	4.	155.	9.	9.	6 2.21
.60	.30	.4	.	.075	.030	.075	.03	600.31	10 .00
.000014	2 .	2 .	2 .	2	0	1	0.00	50.00	16 .00

3470 ENCROACHMENT STATION= 33.0 37. TYPE= 1 TARGET= 201.000

3460.00	7.54	100. 0	0.10	0.10	100. 0	.00	.00	.00	60 . 5
135.	93.	17.	2 .	0 1.	. .	2 3.	10.	10.	6 2.65
.72	.13	.21	. 5	.075	.030	.075	.037	600.75	33.00
.000003	5 .	5 .	5 .	0	0	1	0.00	167.53	21 .53

3510.00	6.24	61 . 0	0. 0	1.00	61 .0	.00	.00	.00	60 2.22
135.	36.	1 .	2 .	733.	7 .	25 .	11.	10.	6 3.02
.31	.14	.21	. 2	.075	.030	.075	.037	601.12	14.26
.000004	51.	5 .	5 .	0	0	1	0.00	195. 2	21 . 9

3560.00	7.91	100. 0	0.00	0.00	100. 0	.00	.00	.00	60 .09
135.	37.	17.	2 1.	0 .	72.	2 .	12.	10.	6 3.39
.90	.14	.2	. 1	.07	.030	.075	.037	601.49	15.01
.000005	41.	5 .	5 .	0	0	1	0.00	157.23	212.24

3615.00	7.50	[illegible]	0.00	0.00	[illegible]	.00	.00	.00	603.00
135.	99.	17.	1[illegible].	[illegible]	[illegible]	19[illegible].	1[illegible].	10.	603.80
.99	.15	.2[illegible]	.1[illegible]	[illegible]	.050	.07[illegible]	.057	601.90	15.35
.000006	[illegible]	55.	[illegible]	[illegible]	[illegible]	1	0.00	194.55	210.42

SECNO	DEPTH	[illegible]	CRIMS	[illegible]	[illegible]	[illegible]	[illegible]	QLOSS	BANK ELEV
Q	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	T[illegible]	LEFT/RIGHT
TIME	VLO	VC	VLOB	XN	XNC	XN	TN	ELMIN	SSTA
SLOPE	XLOBL	XLC	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3668.00	7.11	[illegible]	0.00	0.00	[illegible]	.00	.00	.00	603.39
135.	1[illegible].	1[illegible].	1[illegible].	5[illegible].	[illegible]	172.	14.	10.	604.19
1.[illegible]8	.17	.2[illegible]	.[illegible]	.075	.050	.07[illegible]	.057	60[illegible].2[illegible]	16.64
.000007	6[illegible].	[illegible]	4[illegible].	[illegible]	[illegible]	1	0.00	1[illegible].61	206.25

3722.00	6.71	[illegible]	0.00	0.00	[illegible]	.00	.00	.00	603.79
135.	1[illegible]1.	1[illegible].	1[illegible].	55[illegible].	[illegible]	147.	15.	11.	[illegible]
1.17	.16	[illegible]	.11	.075	.050	.075	.057	602.6[illegible]	17.45
.000010	5[illegible].	5[illegible].	4[illegible].	0	0	1	0.00	1[illegible].71	201.16

3775.00	6.3[illegible]	[illegible]	0.00	0.00	[illegible]	.00	.00	.00	604.18
135.	1[illegible]1.	1[illegible].	1[illegible].	51[illegible].	[illegible]	1[illegible].	15.	11.	[illegible]
1.25	.2[illegible]	.33	.1[illegible]	.075	.050	.07[illegible]	.057	603.08	13.24
.000013	63.	55.	[illegible]	0	0	1	0.00	177.95	19[illegible].20

3829.00	5.92	[illegible]	0.00	0.00	[illegible]	.00	.00	.00	604.58
135.	1[illegible]2.	1[illegible].	14.	465.	52.	1[illegible].	17.	11.	6[illegible]5.35
1.32	.22	.37	.1[illegible]	.075	.050	.075	.055	60[illegible].48	19.05
.000013	5[illegible].	5[illegible].	4[illegible].	0	0	1	0.00	172.07	191.12

3882.00	5.5[illegible]	[illegible]	0.00	0.00	[illegible]	.00	.00	.00	604.[illegible]7
135.	1[illegible]3.	2[illegible].	12.	[illegible]2.	49.	[illegible].	1[illegible].	11.	6[illegible]5.77
1.39	.24	.41	.15	.075	.050	.075	.055	60[illegible].37	19.54
.000025	6[illegible].	53.	4[illegible].	0	0	1	0.00	16[illegible].33	18[illegible].17

3936.00	5.1[illegible]	[illegible]	0.00	0.00	[illegible]	.00	.00	.00	605.[illegible]7
135.	1[illegible]4.	21.	11.	[illegible]7[illegible].	45.	6[illegible].	1[illegible].	12.	6[illegible]6.17
1.44	.27	.[illegible]7	.1[illegible]	.075	.050	.075	.055	604.27	2[illegible].65
.000035	64.	54.	4[illegible].	0	0	1	0.00	1[illegible]0.44	181.09

3989.00	4.74	[illegible]	0.00	0.00	[illegible]	.00	.00	.00	605.76
135.	1[illegible]4.	22.	[illegible].	[illegible].	41.	51.	1[illegible].	12.	6[illegible]6.56
1.49	.[illegible]1	.5[illegible]	.11	.075	.050	.075	.055	604.65	[illegible]1.44
.000053	63.	5[illegible].	4[illegible].	0	0	1	0.00	15[illegible].71	17[illegible].15

4043.00	4.32	[illegible]	0.00	0.00	[illegible]	.01	.01	.00	606.[illegible]8
135.	32.	3.	[illegible].	[illegible].	[illegible].	[illegible].	[illegible].	12.	606.73
1.51	.46	.9[illegible]	.[illegible]	.075	.050	.07[illegible]	.055	605.08	105.15
.000203	64.	5[illegible].	7[illegible].	[illegible]	0	1	0.00	[illegible]5.7[illegible]	200.50

SECNO	DEPTH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	QLOSS	BANK ELEV
Q	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	VOL	T[illegible]	LEFT/RIGHT
TIME	VLO	VC	VLOB	[illegible]	XNC	XN	TN	ELMIN	SSTA
SLOPE	XLOBL	XLC	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

4096.00	3.54	609.41	0.00	0.00	[illegible]	.12	.01	.00	606.37
135.	31.	[illegible]	17.	35.	[illegible]	38.	20.	12.	607.17
1.53	.54	1.01	.43	.175	.056	.075	.055	605.47	109.73
.000333	37.	55.	48.	0	0	1	0.00	58.38	198.11
4150.00	3.50	609.64	0.00	0.00	609.46	.12	.02	.00	607.27
135.	27.	51.	14.	11.	33.	25.	20.	12.	607.57
1.54	.64	1.43	.35	.175	.056	.075	.055	606.87	114.58
.000592	34.	54.	47.	0	0	1	0.00	80.59	196.17
4203.00	3.21	609.47	0.00	0.00	609.26	.0	.01	.01	607.56
135.	23.	141.	11.	31.	58.	17.	20.	12.	607.96
1.55	.76	1.75	.31	.175	.056	.075	.056	606.26	119.58
.001039	37.	53.	51.	1	1	1	0.00	73.24	191.66
4257.00	2.97	609.29	0.00	0.00	609.09	.09	.07	.01	607.06
135.	19.	138.	7.	22.	43.	13.	20.	12.	606.36
1.56	.89	2.19	.74	.175	.056	.075	.056	606.66	122.03
.001902	37.	54.	70.	2	2	1	0.00	65.64	187.67
4310.00	2.69	609.64	0.00	0.00	609.47	.09	.13	.02	607.45
135.	16.	114.	5.	15.	43.	8.	2.	12.	608.75
1.57	1.02	2.62	.90	.175	.056	.075	.056	607.05	125.54
.003342	53.	55.	53.	2	4	1	0.00	57.73	183.29
4364.00	2.40	609.85	0.00	0.00	609.67	.12	.22	.02	607.65
135.	13.	11.	4.	11.	3.	4.	21.	12.	609.15
1.57	1.11	[illegible]	.34	.175	.056	.075	.056	607.45	127.74
.005203	54.	54.	54.	2	0	1	0.00	53.10	180.32
4417.00	2.31	610.19	0.00	0.00	610.01	.15	.31	.01	607.84
135.	11.	121.	3.	1.	37.	3.	21.	13.	609.54
1.58	1.15	3.07	.93	.175	.056	.075	.056	607.84	128.68
.006529	53.	53.	53.	2	4	1	0.00	50.30	179.18
4471.00	2.27	610.51	0.00	0.00	610.37	.16	.17	.01	608.24
135.	11.	122.	2.	0.	36.	3.	21.	13.	609.94
1.58	1.17	3.37	.96	.175	.056	.075	.056	608.24	129.65
.007148	54.	54.	54.	2	0	1	0.00	49.43	178.51

SECTION Q TIME SLOPE	DEPTH Q*VP VEL VLOBL	CONSEL VC VCH VLOBR	CONTR XLOB VCH XLOBR	CSEL LOB XCH TORTUL	F HV XRCH IDC	HL HVOB XLOB ICONR	HL VOL QT* COMBR	LOSS TUB ELOIN TOP ID	BANK ELEV LEFT/RIGHT BST ENDST
4524.00	2.25	610.[illegible]	0.00	0.00	610.[illegible]	.17	.4	.00	610.03
135.	1.	12[illegible]	2.	0.	1.	2.	21.	13.	1[illegible].33
1.59	1.17	[illegible].42	.93	.175	.056	.075	.056	609.53	129.20
.007420	53.	52.	53.	1	2	1	0.00	49.04	174.73
4573.00	2.26	610.[illegible]2	0.00	0.00	610.[illegible]	.17	.30	.00	610.43
135.	11.	123.	2.	0.	[illegible]	2.	21.	13.	610.73
1.59	1.17	[illegible].41	.96	.175	.056	.075	.056	609.03	129.17
.007376	54.	[illegible]	[illegible]	1	[illegible]	1	0.00	49.11	178.28

SEQ no	DEPTH	CYCL	RSEL	ITRIAL	TOP	TRIAL	CONF	ICONF	TIME	TOP ID	ENDST
0	0.13	C	LOG	Y 0.5	Y C	XC	T+	XC	W 0	LEFT/RIGHT	
TIME	W 0	W0A	LOG	Y C	XC	T+	W 0	T+	W 0	T+	SSTA
SLOPE	W 0	W 0	C 1	LOG	ITRIAL	TIME	CONF	ICONF	SLOPE	TOP ID	ENDST
4952.09	2.22	614.62	0.00	0.00	614.22	.17	.45	0.00	613.43		
135.	.	134.	1.	1.	1.	1.	21.	.054	613.63		
1.42	.39	4.35	.35	.75	.046	.075	.054	0.00	511.34	150.44	
.007140	73.	53.	53.	1					45.64	206.52	
5006.00	2.21	31.44	0.00	1.0	514.62	.13	.39	.03	614.23		
135.	1.	1.4	1.	1.	1.	1.	21.	13.	14.13		
1.42	.37	3.34	.35	.040	.075	.075	.054	612.23	161.02		
.007418	54.	54.	54.	1				0.00	42.32	206.33	
5059.00	2.21	41.4	0.00	1.00	612.01	.1	.32	.00	614.62		
135.	.	1.4	1.	1.	1.	1.	21.	13.	014.42		
1.63	.37	3.34	.35	.075	.040	.075	.054	612.62	160.95		
.007372	54.	52.	52.	1				6.00	42.36	204.36	
5113.00	2.21	51.42	0.00	0.00	51.41	.1	.4C	.00	615.02		
135.	.	1.4.	1.	.0	.0	1.	21.	13.	014.62		
1.63	.37	1.30	.35	.046	.075	.075	.053	513.02	161.00		
.007388	54.	54.	54.	1				0.00	45.35	206.35	

SEQ no	DEPTH	CYCL	RSEL	ITRIAL	TOP	TRIAL	CONF	ICONF	TIME	TOP ID	ENDST
0	0.13	C	LOG	Y 0.5	Y C	XC	T+	XC	W 0	LEFT/RIGHT	
TIME	W 0	W0A	LOG	Y C	XC	T+	W 0	T+	W 0	T+	SSTA
SLOPE	W 0	W 0	C 1	LOG	ITRIAL	TIME	CONF	ICONF	SLOPE	TOP ID	ENDST
4631.00	2.21	411.52	0.00	0.00	411.41	.15	.34	.01	610.42		
135.	.	12A.	L.	.0	45.	2.	21.	13.	611.12		
1.59	.97	.64	.0	.075	.040	.075	.035	609.42	129.74		
.005642	53.	53.	53.	1				0.00	47.31	177.25	
4685.00	2.12	411.	0.00	0.00	512.13	.22	.34	.01	511.22		
135.	.	12.	1.	.0	35.	1.	21.	13.	011.52		
1.52	.99	.63	.0	.075	.040	.075	.052	509.82	130.52		
.006598	54.	54.	54.	1				0.00	45.76	175.29	
4738.00	2.10	41.41	0.00	0.00	512.34	.2	.3	.00	611.51		
135.	.5	12A.	1.	.0	2.	1.	21.	13.	511.51		
1.6	.99	.9	.2	.040	.075	.075	.05	610.21	130.71		
.007259	53.	53.	53.	1				9.00	45.35	176.06	
4792.00	2.09	412.71	0.00	0.00	61.04	.23	.40	.00	512.01		
135.	.	12.0	1.	.2	2.	1.	21.	13.	512.31		
1.61	.99	.6	.2	.041	.072	.075	.054	610.61	130.31		
.007456	52.	52.	52.	1				0.00	45.12	175.13	
4845.00	2.10	12.10	0.00	0.00	513.33	.3	.3	.00	612.40		
135.	.	12.	1.	.0	.2	1.	21.	15.	512.7		
1.61	.99	.6	.2	.040	.075	.075	.034	611.00	130.75		
.007354	51.	52.	52.	1				0.00	45.24	175.00	
4899.00	2.14	11.5	0.00	0.00	513.7	.2	.44	.11	513.44		
135.	.	12.	1.	.0	.2	1.	21.	13.	513.24		
1.63	.37	.63	.0	.075	.040	.075	.053	513.02	161.00		
.007388	54.	54.	54.	1				0.00	45.35	206.35	

5166.00	2.21	615.62	0.00	0.00	615.00	.15	.39	.00	615.41
135.	0.	134.	1.	0.	30.	1.	21.	13.	615.21
1.64	.37	3.38	.39	.075	.040	.075	.053	613.41	160.98
.007363	53.	53.	53.	0	0	1	0.00	45.39	205.37
5220.00	2.21	615.02	0.00	0.00	615.27	.15	.40	.00	615.91
135.	0.	134.	1.	0.	41.	1.	21.	13.	615.61
1.64	.37	3.38	.39	.075	.040	.075	.053	613.81	161.01
.007403	54.	54.	54.	0	0	1	0.00	45.33	206.34
5273.00	2.21	616.40	0.00	0.00	616.53	.1	.3	.00	616.80
135.	0.	134.	1.	0.	41.	1.	21.	13.	616.00
1.64	.37	3.38	.39	.075	.040	.075	.053	614.20	160.99
.007374	53.	53.	53.	0	0	1	0.00	45.37	206.36
5327.00	2.21	616.81	0.00	0.00	616.99	.1	.49	.00	616.60
135.	0.	134.	1.	0.	41.	1.	21.	14.	616.40
1.65	.37	3.39	.39	.075	.040	.075	.053	614.60	161.00
.007399	54.	54.	54.	0	0	1	0.00	45.34	206.34

SECNO	DSPTH	C SEL	CNI	USEL		R	SL	LOSS	BANK ELEV
Q	OLDR	QC		L			AL	T	L:FT/:IGHT
TIME	VLO	VCH	V O	XSL	X C	XN	TN	SUMIN	SST
SLOPE	XLOCH	ELOC	ELOC	TTRT	TOC	TCONT	COR	TOF ID	ENDST
5380.00	2.21	17.21	0.10	0.10	17.31	.1	.3	.00	617.99
135.	0.	134.	1.	0.	41.	1.	22.	14.	616.79
1.65	.37	3.38	.39	.075	.040	.075	.053	614.99	160.98
.007365	53.	53.	53.	0	0	1	0.00	45.38	206.37
5434.00	2.21	617.60	0.00	0.01	617.70	.1	.40	.00	617.99
135.	0.	134.	1.	0.	41.	1.	22.	14.	617.19
1.66	.37	3.38	.39	.075	.040	.075	.053	615.39	161.00
.007398	54.	54.	54.	0	0	1	0.00	45.34	206.34
5487.00	2.21	617.59	0.00	0.00	617.17	.1	.3	.00	617.78
135.	0.	134.	1.	0.	41.	1.	22.	14.	617.58
1.66	.37	3.38	.39	.075	.040	.075	.053	615.78	161.99
.007371	53.	53.	53.	0	0	1	0.00	45.36	206.36

3470 ENCROACHMENT STATION= 14[illegible] 15. TYPE= 1 TARGET= 66.000

VALLEY ECTION

5541.00	2.21	617.39	0.00	0.01	617.57	.1	.40	.00	618.18
135.	0.	134.	1.	0.	41.	1.	22.	14.	617.96
1.67	.37	3.39	.39	.075	.040	.075	.053	616.14	161.00
.007400	54.	54.	54.	0	1	1	0.00	45.34	206.34

3470 ENCROACHMENT STATION= 17[illegible] 22. TYPE= 1 TARGET= 22.000

OVERBANK AREA ASSUME NO EFFECTIVE FLOW= 100000.00 ELEV= 617.2

5566.00	3.12	617.60	0.00	0.00	617.63	.05	.03	.03100000.00
135.	0.	136.	1.	0.	33.	34.	22.	14. 617.25

	1.57	0.00	.40	.25	.075	.040	.675	.052	61..43	174.00
	.001882	25.	5.	2.	2	1	1	0.00	45.55	220.55

3470 ENCROACHMENT ITERATIONS= 15.0 20.0 TYPE= 1 TARGET= +5.000

5576.00	.47	511.67	0.00	0.00	511.70	.03	.01	.02	617.20
135.	3.	2..	.	5.	3.	6.	62.	1..	617.00
1.67	.54	1.5	.00	.075	.006	.075	.653	515.20	159.00
.000525	10.	10.	10.	1	6	3	0.00	45.00	204.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 5..0 EL ..= 5..

5640.00	3.29	61..60	0.00	0.00	61..77	.04	.04	.02	629.50
135.	.	1.5.	.	.	3..	.	22.	14.	629.50
1.68	0.00	2.2.	0.00	.075	.040	.075	.052	513.40	194.10
.000899	54.	04.	6..	1	1	1	0.00	11.10	205.90

SECND	DEPTH	CHNEL	CRIT	VEL	E	FR	EL	LOSS	BANK ELEV
0	OLDS	C	ROE	ALOB	AGA	AROB	WOL	TIA	LEFT/RIGHT
TIME	W.D	WCA	WTD	PWL	XAC	PWS	CTN	ELMIN	SSTA
SLOPE	XLOBL	WLC	SLOB	ITRT	IOC	ICOUT	CORA	TOPWID	ENDST

NORMAL PERIMETER=12 I ELROD= 52..00 AL ELLC= 621.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 5.. EL ..= 62..

5641.00	5.28	61..65	0.00	0.00	61..77	.09	.00	.01	629.50
135.	0.	135.	.	0.	33.	0.	22.	14.	629.50
1.68	0.00	2.62	0.00	.077	.041	.075	.052	513.40	194.10
.000887	1.	1.	1.	0	0	1	0.00	11.30	205.90

NORMAL PERIMETER=12 I ELROD= 52..00 AL ELLC= 621.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 5.. EL ..= 62..

TRAPEZOIDAL SECTION 0.0. RIVERSIDE 00. 7 ..77.70: 11.1.. MULTI PLIER AREA

MULTI PLIER AREA PROJECTING FROM FILL (0 HERE) ALL

5716.00	0.15	61..7.	0.00	0.00	610.77	.19	.07	.00	629.50
135.	0.	135.	.	1.	34.	1.	22.	14.	629.50
1.69	0.00	2.61	0.00	.077	.041	.075	.052	513.60	194.10
.000933	75.	7..	7..	0	1	1	-4.30	11.00	205.90

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 5..0 ELLC= 62..0

5717.00	0.17	61..77	0.00	0.01	61..77	.0	.00	.00	629.50
135.	1.	135.	.	0.	3..	0.	22.	14.	629.50
1.68	1.00	2.62	1.0	.077	.041	.075	.052	613.60	194.10
.000951	1.	1.	1.	1	0	1	0.00	11.30	205.90

3470 ENCROACHMENT STATIONS= 165.0 19[illegible] TYPE= 1 TARGET= 32.000

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLFA= 99997.40 ELRFA= 99997.40

GRANGER DRAIN TRIBUTARY CONFLUENCE

5727.00	[illegible].27	[illegible].07	0.00	0.00	[illegible]	.01	.00	.02	99997.40
85.	[illegible]	[illegible]	[illegible]	[illegible]	136.	[illegible]	22.	14.	99997.40
1.69	0.00	[illegible]	0.00	.055	.040	.055	.052	613.60	165.00
.000054	10.	[illegible]	11.	2	[illegible]	1	0.00	32.00	19[illegible].00

3470 ENCROACHMENT STATIONS= 137.0 227.0 TYPE= 1 TARGET= 90.000

5757.00	[illegible].06	[illegible]	0.00	0.00	[illegible]	.00	.00	.00	61[illegible].82
85.	11.	[illegible]	14.	5[illegible]	143.	65.	22.	14.	615.62
1.72	.2[illegible]	.42	.22	.055	.040	.055	.052	613.82	137.00
.000021	30.	[illegible]	30.	0	[illegible]	1	0.00	90.00	227.00

SEGNO Q TIME SLOPE	DEPTH DLOB VLOB XLOBL	CSEL DCE VCE LCE	CRIS QRO2 VCO XLOB	QSELK XLOB XLOB TTI	FC XCE XCE IDC	FC XCE XCE ICONT	PL VOL TN CORR	QLOSS TW ELMIN TOP ID	BANK ELEV LEFT/RIGHT SST ENDST
5918.00	.88	[illegible]	0.00	0.00	618.39	.01	.01	.00	617.10
85.	7.	68.	1[illegible]	23.	[illegible]	33.	23.	14.	616.70
1.8[illegible]	.27	.71	.[illegible]	.055	.040	.055	.051	615.00	289.73
.000000	191.	191.	191.	1	[illegible]	1	0.00	91.31	381.04
6109.00	2.[illegible]9	610.[illegible]	0.00	0.00	618.97	.04	.04	.04	61[illegible].[illegible]0
85.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	23.	15.	618.70
1.32	[illegible]	[illegible].41	.[illegible]	.055	.040	.055	.051	616.40	476.23
.002563	191.	191.	191.	1	[illegible]	1	0.00	26.21	502.44
6157.00	2.27	61[illegible].02	0.00	0.00	61[illegible].1[illegible]	.12	.1[illegible]	.02	61[illegible].55
85.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	23.	15.	619.05
1.33	0.00	[illegible]	0.00	.055	.040	.055	.051	616.75	477.11
.004082	43.	[illegible]	4[illegible]	2	[illegible]	1	0.00	22.76	499.87
6205.00	2.13	61[illegible].23	0.00	0.00	619.39	.15	.23	.01	620.00
85.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	23.	15.	[illegible]19.40
1.93	0.00	.1[illegible]	0.00	.055	.040	.055	.051	617.10	477.50
.005475	43.	[illegible]	4[illegible]	2		1	0.00	21.65	499.25
6253.00	2.05	61[illegible].51	619.50	0.00	[illegible].17	.56	.[illegible]	.21	621.26
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2[illegible]	15.	620.56
1.[illegible]	0.00	[illegible]	0.00	.055	.040	.055	.051	617.46	634.84
.024192	4[illegible]	[illegible]	[illegible]	[illegible]		1	0.00	12.57	647.41
6300.00	2.69	620.4[illegible]	0.00	0.00	620.70	.21	.[illegible]	.11	621.60
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	24.	15.	620.90
1.[illegible]4	0.00	[illegible]	0.00	.055	.040	.055	.051	617.30	633.03
.006313	47.	47.	47.	2	[illegible]	1	0.00	16.01	649.04
6491.00	2.[illegible]	622.[illegible]	0.00	0.00	622.54	.44	1.72	.12	623.60

1.85	0.00	[illegible]	0.00	.055	.040	.055	.050	619.10	788.90
.013891	191.	191.	191.	[illegible]	0	1	0.00	9.39	798.79

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLE= [illegible] ELRE= 623.50

6566.00	3.36	[illegible]	0.00	0.00	[illegible]	[illegible]	.76	.05	624.40
85.	[illegible]	[illegible]	[illegible]	0.	[illegible]	[illegible]	[illegible]	15.	623.50
1.85	0.00	[illegible]	0.00	.055	.040	.055	.050	619.70	788.27
.007707	75.	75.	75.	[illegible]	[illegible]	1	0.00	11.07	799.35

SECNO	DEPT	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	HL	[illegible]LOSS	BANK ELEV
Q	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XML	XMC	XMR	[illegible]	ELMIN	SSTA
SLOPE	XLOSL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORR	TOPWID	ENDST

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLE= [illegible] ELRE= [illegible]

6636.00	3.41	623.61	0.00	0.00	[illegible]	[illegible]	.57	.00	624.90
85.	[illegible]	[illegible]	0.	0.	20.	0.	24.	15.	624.00
1.86	1.00	.19	0.00	.055	[illegible]	.055	.050	620.20	788.19
.007274	50.	[illegible]	90.		[illegible]	1	0.00	11.22	799.42

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLE= [illegible] ELRE= 625.1[illegible]

6781.00	3.3[illegible]	[illegible]	0.00	0.00	[illegible]	[illegible]	1.07	.00	625.00
85.	[illegible]	[illegible]	[illegible]	0.	[illegible]	[illegible]	[illegible]	15.	625.10
1.87	0.00	4.25	0.00	.055	.040	.055	.050	621.30	788.24
.007549	75.	145.	215.	1	0	1	0.00	11.14	799.38

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLE= [illegible]7.1 ELRE= [illegible]

6926.00	3.39	[illegible]	0.00	0.00	[illegible]	[illegible]	1.15	.00	627.10
85.	[illegible]	[illegible]	[illegible]	[illegible]	20.	[illegible]	24.	15.	626.20
1.88	1.00	[illegible]	0.00	.055	.040	.055	.050	622.40	788.26
.007666	145.	145.	145.	1	[illegible]	1	0.00	11.11	799.36

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLE= [illegible] ELRE= [illegible]

7071.00	3.39	[illegible]	0.00	0.00	[illegible]7.17	[illegible]	1.10	.00	62[illegible].20
85.	[illegible]	[illegible]	[illegible]	0.	20.	[illegible]	24.	15.	627.30
1.89	0.00	4.25	0.00	.055	.040	.055	.050	623.50	788.24
.007562	145.	145.	145.	1	[illegible]	1	0.00	11.14	799.36

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLE= [illegible] ELRE= [illegible]

VALLEY SECTION H

7216.00	3.3[illegible]	[illegible]	0.00	0.00	[illegible].19	[illegible]	1.00	.01	629.30
76.	[illegible]	[illegible]	[illegible]	0.	[illegible]	0.	24.	15.	628.40
1.90	1.00	[illegible]	0.00	.055	.040	.055	.045	624.60	788.29
.006304	145.	145.	145.	[illegible]	[illegible]	1	0.00	11.05	799.33

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 629.90 ELREA= 629.00

7346.00	3.53	625.73	0.00	0.00	628.92	.19	.72	.01	629.90
76.	0.	76.	0.	0.	22.	0.	24.	15.	629.00
1.91	0.00	3.52	0.00	.055	.040	.055	.049	625.20	787.99
.004997	130.	130.	130.	[illegible]	0	1	0.00	11.60	799.59

SECNO	DEPTH	CSEL	CINS	NSEL	FC	HV	HL	QLOSS	BANK ELEV
Q	OLDB	OCH	OROB	NEOB	AC	AROB	WOL	THA	LEFT/RIGHT
TIME	VOL	VCH	VCH	XN	XNCH	XNO	TW	ELMIN	SSTA
SLOPE	XLOBL	XLC	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOP ID	ENDST

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 630.60 ELREA= 629.60

7476.00	3.56	626.36	0.00	0.00	629.55	.19	.72	.00	630.60
76.	0.	76.	0.	0.	22.	0.	24.	15.	629.60
1.92	0.00	3.46	0.00	.055	.040	.055	.049	625.80	787.94
.004639	130.	130.	130.	2	0	1	0.00	11.70	799.64

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 631.10 ELLEA= 630.20

7606.00	3.57	629.97	0.00	0.00	630.15	.19	.60	.00	631.10
76.	0.	76.	0.	0.	22.	0.	24.	15.	630.20
1.93	0.00	3.43	0.00	.055	.040	.055	.049	626.40	787.92
.004594	130.	130.	0.	1	0	1	0.00	11.75	799.66

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 631.70 ELREA= 630.80

7736.00	3.57	630.57	0.00	0.00	630.75	.19	.60	.00	631.70
76.	0.	76.	0.	0.	22.	0.	24.	15.	630.80
1.94	0.00	3.44	0.00	.055	.040	.055	.049	627.00	787.92
.004619	170.	130.	90.	1	0	1	0.00	11.74	799.66

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 632.30 ELREA= 631.40

7866.00	3.57	631.17	0.00	0.00	631.35	.18	.60	.00	632.30
76.	0.	76.	0.	0.	22.	0.	24.	15.	631.40
1.95	0.00	3.44	0.00	.055	.040	.055	.049	627.60	787.92
.004527	130.	130.	130.	0	0	1	0.00	11.73	799.65

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 632.90 ELREA= 632.00

7996.00	3.57	631.77	0.00	0.00	631.95	.1	.60	.00	632.90
76.	0.	76.	0.	0.	22.	0.	24.	15.	632.00
1.96	0.00	3.48	0.00	.055	.040	.055	.049	628.20	787.92
.004621	130.	130.	230.	0	0	1	0.00	11.73	799.66

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 633.50 ELREA= 632.60

8126.00	3.57	632.37	0.00	0.00	632.55	.18	.60	.00	633.50
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	15.	632.60

1.97	0.00	3.45	0.00	.055	.040	.055	.045	628.80	797.82
.004614	130.	130.	130.	0	0	1	0.00	11.74	799.66

SECNO	DEPTH	CHNEL	CHNTR	PSELK	FRC	PIV	AL	PLOSS	BANK ELEV
R	WLEN	ICON	HRAD	ALOB	ACH	AXDF	VOL	TYP	LEFT/RIGHT
TIME	VLO	VC	VHD	XNL	XNC	XNT	STN	ELMIN	SSTA
SLOPE	XLOBL	CLC	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOPWID	SNDST
8256.00	3.38	632.78	0.00	0.00	632.13	.05	.21	.04	633.40
76.	0.	76.	0.	0.	41.	0.	24.	15.	633.60
1.99	0.00	1.87	0.00	.055	.040	.055	.04C	629.40	780.25
.000986	130.	130.	130.	2	0	1	0.00	16.34	798.59
8386.00	2.93	633.93	0.00	0.00	633.61	.0.	.17	.01	634.00
76.	0.	76.	0.	0.	33.	0.	25.	15.	634.20
2.00	0.00	1.81	0.00	.055	.040	.055	.045	630.00	781.14
.001761	130.	130.	130.	2	0	1	0.00	16.69	797.83
8451.00	2.75	633.05	0.00	0.00	633.15	.16	.13	.01	634.30
76.	0.	76.	0.	0.	30.	0.	25.	15.	634.50
2.01	0.00	1.84	0.00	.055	.040	.055	.045	630.30	781.50
.002271	65.	65.	65.	2	0	1	0.00	16.02	797.82
8516.00	2.61	633.21	0.00	0.00	633.32	.12	.10	.01	634.00
76.	0.	76.	0.	0.	22.	0.	25.	15.	634.80
2.02	0.00	1.97	0.00	.055	.040	.055	.045	630.60	781.79
.002621	65.	65.	65.	2	0	1	0.00	15.99	797.28
8581.00	2.50	633.40	0.00	0.00	633.53	.13	.20	.01	634.20
76.	0.	76.	0.	0.	26.	0.	25.	15.	635.10
2.02	0.00	1.93	0.00	.055	.040	.055	.045	630.90	782.01
.003342	65.	65.	65.	2	0	1	0.00	15.09	797.09
8616.00	2.45	633.51	0.00	0.00	633.63	.14	.12	.00	635.06
76.	0.	76.	0.	0.	23.	0.	25.	15.	635.26
2.03	0.00	1.97	0.00	.055	.040	.055	.044	631.06	782.11
.003634	65.	65.	65.	1	0	1	0.00	14.89	797.00
8621.00	2.43	633.53	0.00	0.00	633.67	.14	.11	.00	635.08
76.	0.	76.	0.	0.	21.	0.	25.	15.	635.25
2.03	0.00	1.91	0.00	.055	.040	.055	.045	631.06	782.11
.003619	5.	5.	5.	1	0	1	0.00	14.90	797.01
8626.00	2.44	633.55	0.00	0.00	633.69	.14	.11	.00	635.11
76.	0.	76.	0.	0.	20.	0.	25.	15.	635.31
2.03	0.00	1.91	0.00	.055	.040	.055	.045	631.11	782.13
.003639	5.	5.	5.	0	0	1	0.00	14.86	796.99

SECNO	DEPTH	CHNEL	CHNTR	PSELK	FRC	PIV	AL	PLOSS	BANK ELEV
R	WLEN	ICON	HRAD	ALOB	ACH	AXDF	VOL	TYP	LEFT/RIGHT
TIME	VLO	VC	VHD	XNL	XNC	XNT	STN	ELMIN	SSTA
SLOPE	XLOBL	CLC	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOPWID	SNDST
8631.00	2.44	633.57	0.00	0.00	633.71	.14	.09	.00	635.13

2.03	0.00	3.04	0.00	.055	.040	.055	.044	631.13	782.13
.003699	5.	5.	5.	0	0	1	0.00	14.03	795.98
8636.00	2.43	633.50	0.00	0.00	633.73	.15	.02	.00	635.16
76.	9.	76.	0.	0.	25.	0.	25.	15.	635.36
2.03	0.00	3.07	0.00	.055	.040	.055	.044	631.16	782.16
.003770	5.	5.	5.	0	0	1	0.00	14.41	796.96
8641.00	2.43	633.81	0.00	0.00	633.75	.15	.02	.00	635.18
76.	9.	76.	0.	0.	25.	0.	25.	15.	635.35
2.03	0.00	3.06	0.00	.055	.040	.055	.044	631.16	782.16
.003778	5.	5.	5.	0	0	1	0.00	14.80	796.96

3685 20 TOTALS USED IN SELECTED

7185 IN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPT

SECNO	DEPTH	ENRSEL	CRITS	VELSEL	FR	HB	HL	CLOSS	BASE ELEV
0	0	0	0	0	0	0	0	TOPW	LEFT/RIGHT
TIME	VEL	VCR	V HD	XNF	XNCR	XNB	XTN	FLOWIN	SST
SLOPE	XLOBL	XLOB	XLOBR	TTRIAL	TOC	TCONT	COR K	TOP TO	ENDST
8646.00	2.65	633.83	633.05	0.00	634.42	.03	.04	0.00	632.20
76.	12.	76.	12.	0.	7.	0.	25.	15.	632.20
2.03	3.05	3.40	3.13	.055	.040	.055	.044	631.20	793.54
.017601	5.	5.	5.	0	0	1	0.00	12.61	806.15

SPECIAL BRIDGE

SS	XK	XKOR	COEF	ROLEN	C	BIN	BAREA	SS	ELCHO	ELCHD
	20.00	2.43	2.60	-0.00	.36	-0.90	7.07	-0.00	632.40	631.20

PRESSURE FLOW

EGRS	EGLC	WETP	DKR	SAREA	ELLC	ELTRD	CLASS
638.37	636.36	0.00	0.	7.	7.	635.49	643.00	10.00

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLE= 641.5 ELEV= 641.5

BRIDGE SECTION 1 0.5. C.D R.2. TRACK SUB= SUB CL=

CROSS ITS INTERNAL

8706.00	5.62	638.02	0.00	0.00	638.37	.33	3.00	0.00	633.40
76.	0.	76.	0.	0.	12.	0.	25.	15.	633.40
2.03	0.00	4.77	0.00	.055	.040	.055	.044	631.40	798.50
.006925	90.	90.	90.	0	0	1	0.00	3.00	801.50

WATER ELEVATION ASSUMED 638.85

Q TIME SLOPE	QLOB VLOB XLOBL	CH VCH XLCH	VROB VRO XLOBR	XNL ITRIAL	XNCH XNCH IOC	XNOB XNP ICONT	VOL VTN CORAR	TWA ELMIN TOPWID	LEFT/RIGHT SSTA ENDST

3470 ENCROACHMENT STATIONS= 779.0 [illegible] TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE;ELLEV= [illegible] ELEV= 100000.10

8716.00	5.49	[illegible]	0.00	0.00	[illegible]	.01	.00	.10	636.40
76.	[illegible]	76.	0.	0.	105.	0.	25.	15.	100000.10
2.04	0.00	.72	0.00	.055	.040	.055	.040	63[illegible].40	779.00
.000064	10.	10.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 [illegible] TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE;ELLEV= [illegible] ELEV= 100000.00

8731.00	5.50	638.39	0.00	0.00	[illegible]	.01	.00	.00	636.39
76.	0.	75.	0.	0.	105.	0.	25.	15.	100000.00
2.04	0.00	.72	0.00	.055	.040	.055	.040	632.39	779.00
.000064	15.	15.	15.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 [illegible] TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE;ELLEV= [illegible] ELEV= 100000.00

8756.00	5.51	[illegible]	0.00	0.00	[illegible]	.01	.00	.00	635.38
76.	0.	75.	0.	0.	105.	0.	25.	15.	100000.00
2.05	0.00	.72	0.00	.055	.040	.055	.047	632.38	779.00
.000064	25.	25.	25.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 [illegible] TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE;ELLEV= [illegible] ELEV= 100000.00

8881.00	5.56	[illegible]	0.00	0.00	.01	.01	.01	.00	635.34
76.	0.	75.	0.	0.	107.	0.	25.	15.	100000.00
2.10	0.00	.71	0.00	.055	.040	.055	.047	632.34	779.00
.000062	240.	125.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 [illegible] TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE;ELLEV= [illegible] ELEV= 100000.00

VALLEY SECTION 5

9006.00	6.61	[illegible]	0.00	0.00	[illegible]	.01	.01	.00	635.30
76.	0.	75.	0.	0.	105.	0.	25.	15.	100000.00
2.15	0.00	.71	0.00	.055	.040	.055	.047	632.30	779.00
.000060	240.	125.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 [illegible] TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.30 ELREA= 100000.00

9081.00	6.61	638.51	0.00	0.00	638.92	.01	.00	.00	636.30
76.	0.	76.	0.	0.	100.	0.	26.	15.	100000.00
2.18	0.00	.71	0.00	.055	.040	.055	.047	632.30	779.00
.000060	140.	75.	10.	0	0	1	0.00	21.00	800.00

SECNO	DEPTH	CHSEL	CHIN	USEL	E	H	FL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TMA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XN	XNCH	XNO	ATM	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOP TD	ENDST

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.30 ELREA= 100000.00

9156.00	6.62	638.92	0.00	0.00	638.92	.01	.00	.00	636.30
76.	0.	76.	0.	0.	100.	0.	26.	16.	100000.00
2.21	0.00	.71	0.00	.055	.040	.055	.047	632.30	779.00
.000060	140.	75.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.30 ELREA= 100000.00

9174.00	6.62	638.9	0.00	0.00	638.93	.01	.00	.00	636.30
76.	0.	76.	0.	0.	100.	0.	26.	16.	100000.00
2.22	0.00	.71	0.00	.055	.040	.055	.047	632.30	779.00
.000060	18.	18.	18.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.30 ELREA= 100000.00

9306.00	6.63	638.93	0.00	0.00	638.93	.01	.01	.00	636.30
76.	0.	76.	0.	0.	100.	0.	26.	16.	100000.00
2.27	0.00	.70	0.00	.055	.040	.055	.047	632.30	779.00
.000060	250.	132.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.30 ELREA= 100000.00

9327.00	6.63	638.93	0.00	0.00	638.93	.01	.00	.00	636.30
76.	0.	76.	0.	0.	100.	0.	26.	16.	100000.00
2.28	0.00	.71	0.00	.055	.040	.055	.047	632.30	779.00
.000060	21.	21.	21.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 780.0 800.0 TYPE= 1 TARGET= 40.000

9355.00	6.64	638.94	0.00	0.00	638.94	.00	.00	.00	633.30
76.	34.	76.	34.	132.	26.	132.	26.	16.	633.30
2.32	.19	.23	.19	.055	.040	.055	.047	632.30	760.00
.000006	29.	29.	29.	0	0	1	0.00	80.00	840.00

SPECIAL BRIDGE

SA	XK	XKOR	COF	HOLEN	A C	CP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.77	2.61	-0.00	3.14	-0.00	12.07	-0.00	633.00	632.30

PRESSURE FLO METR FLO

FGPRS	FGL		Q EIR	Q R	BARE	ELLC	ELTRD	CLASS
640.51	639.00	4.00	34.	42.	14.	637.00	639.00	30.00

3470 ENCROACHMENT STATIONS= 750.0 800.0 TYPE= 1 TARGET= 30.000

OPTIONS=EITHER USFLOWER NO. ALT= 1 COD=

COR TH E ALL

9395.00	5.42	630.47	0.00	0.00	630.47	.01	.4	0.00	634.00
76.	154.	7.	35.	174.	24.	174.	27.	16.	634.00
2.37	.21	.31	.1	.053	.040	.052	.047	533.00	760.00
.000007	40.	10.	47.	0	1	9	0.00	0.00	640.00

	SECHO	DEPTH	CHEEL	CHLS	SELS	ES	LP	IL	LOSS	BANK ELEV
	0	BLOB	HEC	IRFS	WLOB	WEC	ARea	BOL	TLS	LEFT/RIGHT
	TIME	VLO	VC	AVO	XWL	XWCI	XWC	TW	ELMIN	SSTA
	SLOPE	ALOWL	VLC	ALOB	TTOT L	IOC	ICONT	CORWR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 779.0 829.0 TYPE= 1 TARGET= 51.000

9443.00	5.04	635.42	0.00	0.00	635.42	.01	.00	.00	637.58
75.	8.	10.	7.	43.	12.	31.	27.	16.	637.76
2.39	.25	.65	.23	.150	.040	.060	.047	533.58	759.00
.000050	1.	8.	100.	9	0	1	0.00	61.00	820.00

3470 ENCROACHMENT STATIONS= 75 .0 815. TYP = 1 T R T= 51.100

9493.00	5.24	638.42	0.00	0.00	638.43	.01	.00	.00	638.18
76.	5.	10.	.	17.	79.	14.	27.	16.	638.38
2.41	.27	.85	.2	.050	.040	.050	.047	534.18	764.00
.000103	100.	50.	1.	0	9	1	0.00	51.00	815.00

3470 ENCROACHMENT STATIONS= 850.0 900.0 TYP= 1 TARGET= 51.100

OVERBANK AREA ASSUMED COMPLETELY EFFECTIVE: ELEV= 639.23 SLOPE= 1000000.00

VALLEY SECTION

9545.00	4.63	635.43	0.00	0.00	635.43	.01	.01	.00	640.20
76.	8.	10.	5.	8.	71.	4.	27.	16.	100000.00
2.42	0.00	1.07	0.00	.051	.041	.051	.047	534.80	551.21
.000210	52.	25.	51.	1	0	1	0.00	22.50	573.71

9753.00	4.37	639.47	0.00	0.00	639.50	.02	.03	.00	640.50
76.	0.	76.	0.	0.	63.	0.	28.	16.	640.10
2.47	0.00	1.16	0.00	.060	.040	.060	.047	635.10	551.62
.000266	50.	200.	200.	2	0	1	0.00	21.90	573.52

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLE= [illegible] ELLE= 640.3[illegible]

9953.00	4.15	63[illegible].53	0.00	0.00	63[illegible].56	.0[illegible]	.06	.00	640.78
76.	0.	76.	0.	0.	51.	0.	2[illegible].	15.	640.38
2.52	0.00	1.26	0.00	.060	.040	.060	.047	635.33	551.99
.000334	200.	200.	200.	0	0	1	0.00	21.35	573.34

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLE= [illegible] ELLE= [illegible]

10153.00	3.94	63[illegible].60	0.00	0.00	63[illegible].63	.0[illegible]	.07	.00	641.06
76.	0.	76.	0.	0.	36.	0.	[illegible]8.	16.	640.66
2.56	0.00	1.3[illegible]	0.00	.060	.040	.060	.047	635.66	55[illegible].30
.000410	200.	200.	200.	2	0	1	0.00	20.39	573.19

3280 CROSS SECTION 10353.00 ENTERED 1.33 FEET

SECNO	DEPT-	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	HL	[illegible]LOSS	[illegible] ELEV
Q	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	VOL	[illegible]	LEFT/RIGHT
TIME	[illegible]	[illegible]	[illegible]	[illegible]	X CH	X[illegible]	[illegible]	ELMIN	SSTA
SLOPE	[illegible]	[illegible]	[illegible]	[illegible]	IDC	ICONT	CORNR	TOP ID	ENDST

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLE= [illegible] ELLE= [illegible]

10353.00	3.74	63[illegible].6[illegible]	0.00	0.00	63[illegible].7	.03	.0[illegible]	.00	642.65
76.	0.	76.	0.	0.	[illegible]	0.	[illegible].	16.	640.25
2.60	0.00	1.31	0.00	.060	.040	.060	.046	635.95	804.30
.000437	200.	200.	200.	1	0	1	0.00	24.86	829.16

3280 CROSS SECTION 10553.00 ENTERED 1.12 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLE= [illegible] ELLE= [illegible].56

10553.00	3.53	639.79	0.00	0.00	639.[illegible]	.03	.10	.00	642.96
76.	0.	76.	0.	0.	53.	0.	[illegible].	16.	640.56
2.64	0.00	1.4[illegible]	0.00	.060	.040	.060	.046	636.26	804.62
.000566	200.	200.	200.	1	0	1	0.00	23.34	823.46

3280 CROSS SECTION 10753.00 ENTERED [illegible] FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLE= 643.27 ELLE= [illegible] 640.27

10753.00	3.39	639.9[illegible]	0.00	0.00	640.04	.0[illegible]	.1[illegible]	.03	643.27
115.	0.	115.	0.	0.	50.	0.	2[illegible].	17.	640.87
2.64	0.00	2.32	0.00	.060	.040	.060	.04[illegible]	635.57	804.81
.001533	200.	200.	200.	2	0	1	0.00	23.21	826.02

3280 CROSS SECTION 11093.00 EXTENDED .00 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLC= 543.04 ELR= 541.24

10993.00	3.38	640.62	0.00	0.00	640.41	.21	.37	.00	643.04
115.	1.	115.	0.	0.	1.	20.	17.		641.24
2.69	0.00	2.33	0.00	.045	.040	.045	.045	536.94	804.82
.001544	1.	100.	100.	0	0	1	0.00	23.19	828.00

3280 CROSS SECTION 11093.00 EXTENDED .00 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLC= 543.04 ELR= 541.24

VALLEY SECTION

11093.00	3.38	640.62	0.00	0.00	640.56	.01	.19	.00	643.80
115.	1.	115.	0.	0.	1.	1.	20.	17.	641.40
2.71	0.00	2.33	0.00	.045	.040	.045	.045	537.10	804.83
.001556	100.	100.	100.	0	0	1	0.00	23.16	827.98

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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      HAGAR TWP. BERRIEN CO.  5555-27
T2      500 YEAR FLOOD
T3      GRANGER DRAIN SEC. 1-13

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ
      -10.       5.         -0.        -0.    .004600      -0.00      -0.0       -0.     590.400     -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

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=      595.00 ELREA=      591.10

          VALLEY SECTION A

     0.00       .74    591.34      0.00    590.40    591.35       .01      0.00      0.00    595.00
   155.         0.       5.      150.        0.        5.      213.        0.        0.     591.10
     0.00       0.00      .98       .71       .100      .060      .100     0.000   590.60    108.62
  .004560        -0.       -0.       -0.         0         0         5      0.00   369.16    477.78


OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      594.38 ELREA=      591.38

   188.00       1.80    592.18      0.00      0.00    592.20       .02       .84       .01    594.38
   155.         0.      35.      120.        0.       19.      143.        1.        1.     591.38
     .05        0.00      1.81      .84       .100      .060      .100      .060   590.38    101.30
  .004419       188.      188.      188.        2         0         1      0.00   238.53    339.83


OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      593.95 ELREA=      591.95

   375.00       2.41    592.76      0.00      0.00    592.81       .05       .59       .01    593.95
   155.         0.      71.       84.        0.       30.       88.        1.        2.     591.95
     .07        0.00      2.37      .95       .100      .060      .100      .070   590.35     98.76
  .004752       300.      187.      100.        2         0         1      0.00   131.11    229.87


OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      593.82 ELREA=      592.72
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155.	0.	90.	65.	0.	43.	81.	2.	3.	592.72
.12	0.00	2.11	.80	.100	.060	.100	.055	590.32	97.36
.002504	75.	188.	400.	1	0	1	0.00	100.97	198.32

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
	VALLEY SECTION B								
750.00	4.08	594.38	0.00	0.00	594.44	.06	.65	.01	593.90
155.	25.	104.	27.	41.	43.	39.	3.	3.	593.80
.16	.60	2.44	.68	.100	.060	.100	.053	590.30	34.38
.002883	75.	187.	400.	2	0	1	0.00	129.89	164.27
850.00	3.80	594.73	0.00	0.00	594.86	.12	.39	.03	594.53
155.	14.	121.	20.	24.	39.	26.	3.	4.	594.43
.17	.59	3.15	.75	.100	.060	.100	.054	590.93	37.50
.005492	100.	100.	100.	2	0	1	0.00	122.80	160.30
950.00	3.40	595.14	0.00	0.00	595.17	.03	.28	.03	593.64
155.	23.	57.	75.	33.	29.	115.	3.	4.	593.54
.19	.71	1.93	.65	.100	.060	.100	.054	591.74	44.97
.001737	100.	100.	100.	0	0	1	0.00	149.81	194.79
1025.00	3.17	595.37	0.00	0.00	595.42	.05	.24	.01	594.10
155.	22.	66.	67.	26.	27.	88.	4.	5.	594.00
.21	.84	2.47	.76	.100	.060	.100	.053	592.20	45.46
.003173	32.	75.	150.	2	0	1	0.00	144.27	189.73
1075.00	3.32	595.52	0.00	0.00	595.55	.03	.13	.00	594.10
155.	23.	60.	72.	30.	28.	105.	4.	5.	594.00
.22	.76	2.12	.69	.100	.060	.100	.053	592.20	45.16
.002171	50.	50.	50.	2	0	1	0.00	147.66	192.82
	BRIDGE SECTION B-2 U.S. FACE OF DAM								
	EARTH DAM WITH SPILLWAY								
1100.00	3.37	595.57	0.00	0.00	595.60	.03	.05	.00	594.10
155.	23.	58.	74.	32.	29.	112.	4.	5.	594.00
.23	.73	1.99	.66	.100	.060	.100	.053	592.20	45.04
.001874	25.	25.	25.	1	0	1	0.00	149.06	194.10

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.00	2.80	-0.00	.01	-0.00	.01	-0.00	592.80	592.20

PRESSURE AND WEIR FLOW

SCPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS

731185.64	596.18	0.00	156.	0.	0.	592.90	596.20	30.00	

1110.00	5.35	598.15	0.00	0.00	598.15	.00	2.55	0.00	598.70
155.	0.	155.	0.	0.	875.	0.	4.	5.	602.30
.25	0.00	.18	0.00	.100	.060	.100	.053	592.80	23.61
.000008	10.	10.	10.	0	0	12	0.00	216.75	240.36

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

1135.00	5.35	598.15	0.00	0.00	598.15	.00	.00	.00	598.70
155.	0.	155.	0.	0.	702.	0.	5.	5.	600.30
.28	0.00	.22	0.00	.100	.060	.100	.054	592.80	23.61
.000013	50.	25.	1.	2	0	1	0.00	173.91	197.52

1160.00	5.35	598.15	0.00	0.00	598.15	.00	.00	.00	598.70
155.	0.	155.	0.	0.	702.	0.	5.	5.	600.30
.31	0.00	.22	0.00	.100	.060	.100	.054	592.80	23.61
.000013	50.	25.	1.	0	0	1	0.00	173.91	197.52

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 599.31 ELREA= 600.91

1290.00	4.74	598.15	0.00	0.00	598.15	.00	.00	.00	599.31
155.	0.	155.	0.	0.	597.	0.	7.	6.	600.91
.45	0.00	.26	0.00	.100	.060	.100	.054	593.41	24.29
.000021	130.	130.	130.	0	0	1	0.00	172.24	196.53

1425.00	4.11	598.16	0.00	0.00	598.17	.01	.01	.00	595.55
155.	61.	60.	33.	138.	62.	95.	8.	6.	595.45
.51	.45	.98	.35	.100	.060	.100	.055	594.05	23.84
.000287	135.	135.	135.	0	0	1	0.00	137.06	160.90

1560.00	3.53	598.21	0.00	0.00	598.23	.01	.06	.00	596.18
155.	61.	69.	25.	103.	52.	62.	9.	6.	596.08
.55	.59	1.33	.40	.100	.060	.100	.055	594.68	29.15
.000665	135.	135.	135.	2	0	1	0.00	130.90	160.05

1695.00	3.02	598.33	0.00	0.00	598.36	.03	.13	.01	596.81
155.	59.	77.	18.	76.	43.	36.	10.	7.	596.71
.58	.78	1.79	.51	.100	.060	.100	.055	595.31	34.70
.001540	135.	135.	135.	2	0	1	0.00	112.38	147.08

1830.00	2.68	598.62	0.00	0.00	598.67	.05	.29	.01	597.44
155.	57.	85.	13.	59.	37.	22.	10.	7.	597.34
.60	.97	2.27	.61	.100	.060	.100	.056	595.94	38.53
.003025	150.	135.	120.	2	0	1	0.00	99.08	137.61

1965.00	2.52	599.09	0.00	0.00	599.15	.07	.48	.01	598.07
155.	55.	89.	11.	51.	35.	17.	11.	7.	597.97
.62	1.07	2.56	.66	.100	.060	.100	.056	596.57	40.26
.004252	135.	135.	135.	2	0	1	0.00	93.07	133.33

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
2100.00	2.48	599.68	0.00	0.00	599.75	.07	.60	.00	598.70
155.	55.	90.	11.	50.	34.	16.	11.	8.	598.60
.64	1.10	2.63	.67	.100	.060	.100	.056	597.20	40.64
.004599	135.	135.	135.	2	0	1	0.00	91.74	132.38
2210.00	2.49	600.19	0.00	0.00	600.26	.07	.51	.00	599.20
155.	55.	90.	11.	50.	34.	16.	11.	8.	599.10
.66	1.10	2.63	.67	.100	.060	.100	.056	597.70	40.64
.004599	110.	110.	110.	1	0	1	0.00	91.74	132.38
2320.00	2.49	600.69	0.00	0.00	600.76	.07	.50	.00	599.70
155.	55.	90.	11.	50.	34.	16.	11.	8.	599.60
.67	1.09	2.62	.67	.100	.060	.100	.056	598.20	40.58
.004538	110.	110.	110.	0	0	1	0.00	91.96	132.54
2430.00	2.48	601.18	0.00	0.00	601.25	.07	.48	.00	600.20
155.	55.	90.	11.	50.	34.	16.	12.	8.	600.10
.69	1.10	2.64	.67	.100	.060	.100	.057	598.70	40.66
.004613	95.	110.	125.	1	0	1	0.00	91.69	132.35
2540.00	2.47	601.67	0.00	0.00	601.74	.07	.50	.00	600.70
155.	54.	90.	11.	49.	34.	16.	12.	9.	600.60
.70	1.10	2.65	.67	.100	.060	.100	.057	599.20	40.71
.004660	100.	110.	120.	1	0	1	0.00	91.52	132.23
2650.00	2.48	602.28	0.00	0.00	602.33	.05	.58	.01	600.90
155.	104.	49.	1.	96.	18.	2.	12.	9.	601.70
.72	1.09	2.75	.50	.100	.060	.100	.057	599.80	26.03
.005981	110.	110.	110.	2	0	1	0.00	121.31	147.35
2760.00	2.57	602.87	0.00	0.00	602.91	.04	.58	.00	601.40
155.	107.	47.	1.	105.	19.	3.	12.	9.	602.20
.74	1.02	2.50	.48	.100	.060	.100	.057	600.30	25.86
.004641	110.	110.	110.	0	0	1	0.00	122.57	148.43
2870.00	2.57	603.37	0.00	0.00	603.41	.04	.50	.00	601.90
155.	107.	47.	1.	106.	19.	3.	13.	10.	602.70
.76	1.01	2.47	.48	.100	.060	.100	.057	600.80	25.84
.004521	110.	110.	110.	2	0	1	0.00	122.71	148.55

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
2980.00	2.60	603.90	0.00	0.00	603.94	.04	.53	.00	602.40
155.	107.	46.	1.	108.	19.	3.	13.	10.	603.20
.79	.99	2.41	.48	.100	.060	.100	.057	601.30	25.79
.004241	125.	110.	95.	1	0	1	0.00	123.04	148.83

3470 ENCROACHMENT STATIONS= 37.0 147.0 TYPE= 1 TARGET= 110.000

3090.00	2.60	604.40	0.00	0.00	604.44	.04	.51	.00	602.90
155.	106.	47.	2.	101.	19.	3.	13.	10.	603.70
.81	1.05	2.46	.55	.100	.060	.100	.057	601.80	37.00
.004410	120.	110.	100.	1	0	1	0.00	110.00	147.00

3470 ENCROACHMENT STATIONS= 92.0 147.0 TYPE= 1 TARGET= 55.000

3200.00	2.69	604.99	0.00	0.00	605.08	.09	.61	.03	603.40
155.	87.	66.	3.	54.	20.	4.	14.	10.	604.20
.82	1.60	3.25	.81	.100	.060	.100	.057	602.30	92.00
.007230	110.	110.	110.	2	0	1	0.00	55.00	147.00

3470 ENCROACHMENT STATIONS= 120.0 150.0 TYPE= 1 TARGET= 30.000

3250.00	3.97	605.21	0.00	0.00	605.30	.09	.21	.00	602.34
155.	44.	92.	19.	28.	33.	17.	14.	10.	603.14
.83	1.57	2.80	1.10	.100	.060	.100	.057	601.24	120.00
.002777	50.	50.	50.	2	0	1	0.00	30.00	150.00

3470 ENCROACHMENT STATIONS= 129.0 141.0 TYPE= 1 TARGET= 12.000

3284.00	4.75	605.27	0.00	0.00	605.45	.18	.10	.05	601.62
155.	7.	143.	5.	4.	41.	3.	14.	10.	602.42
.83	2.02	3.51	1.69	.100	.060	.100	.057	600.52	129.00
.003296	34.	34.	34.	2	0	1	0.00	12.00	141.00

3301 HV CHANGED MORE THAN HVINS

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 611.20 ELREA= 611.20

3299.00	4.64	604.84	0.00	0.00	606.12	1.28	.12	.55	601.20
155.	0.	155.	0.	0.	17.	0.	14.	10.	601.20
.83	0.00	9.09	0.00	.100	.060	.100	.057	600.20	178.00
.046473	15.	15.	15.	3	0	1	0.00	4.00	182.00

155.	107.	47.	1.	1[illegible].	19.	3.	[illegible].	9.	602.70
.48	1.11	2.47	.46	.100	.060	.100	.05[illegible]	600.80	25.84
.004522	110.	110.	110.	2	0	1	0.00	122.71	148.55

2980.00	2.60	603.90	0.00	0.00	603.94	.04	.53	.00	602.40
155.	107.	46.	1.	1[illegible]8.	19.	[illegible].	9.	9.	603.20
.51	.99	2.41	.4[illegible]	.100	.060	.100	.05[illegible]	601.30	25.79
.004241	123.	110.	[illegible]	1	0	1	0.00	123.04	148.83

3470 ENCROACHMENT STATIONS= [illegible] 147.0 TYPE= 1 TARGET= 110.000

3090.00	2.60	604.40	0.00	0.00	604.44	.04	.51	.00	602.90
155.	1[illegible]6.	47.	2.	1[illegible]1.	19.	[illegible].	9.	9.	603.70
.53	1.[illegible]5	2.45	.55	.100	.060	.100	.057	601.80	37.00
.004410	120.	110.	100.	1	0	1	0.00	110.00	147.00

3470 ENCROACHMENT STATIONS= 92.0 147.0 TYPE= 1 TARGET= 55.000

WALLEY SECTION 0

3200.00	2.69	604.99	0.00	0.00	605.0[illegible]	.09	.61	.03	603.40
155.	87.	66.	3.	54.	2[illegible].	[illegible].	9.	10.	604.20
.54	1.6[illegible]	3.25	.[illegible]1	.100	.060	.100	.05[illegible]	602.30	92.00
.007230	110.	110.	110.	2	0	1	0.00	55.00	147.00

3470 ENCROACHMENT STATIONS= 12[illegible].0 150.0 TYPE= 1 TARGET= 30.000

3250.00	3.[illegible]7	605.[illegible]1	0.00	0.00	605.30	.0	.[illegible]1	.00	602.34
155.	44.	[illegible]2.	19.	20.	33.	17.	9.	10.	603.14
.55	1.[illegible]7	2.80	1.10	.100	.060	.100	.05[illegible]	601.[illegible]4	120.00
.002777	[illegible].	[illegible].	[illegible].	2	0	1	0.00	30.00	150.00

3470 ENCROACHMENT STATIONS= 12[illegible].0 141.[illegible] TYPE= 1 TARGET= 12.000

3284.00	4.75	605.27	0.00	0.00	605.4[illegible]	.1	.10	.05	601.52
155.	7.	143.	5.	4.	41.	3.	9.	10.	602.42
.55	2.[illegible]2	3.51	1.6[illegible]	.100	.060	.100	.05[illegible]	600.52	129.00
.003296	34.	34.	34.	2	0	1	0.00	12.00	141.00

3301 HV CHANGED MORE THAN HVINS

OVERBANK AREA ASSUMED NO -EFFECTIVE-ELLEN= [illegible]11.2 EL F[illegible]= [illegible]11.2

3299.00	4.64	604.94	0.00	0.00	605.12	1.2	.12	.55	601.20
155.	[illegible].	155.	[illegible].	6.	17.	[illegible]0.	[illegible].	10.	601.20
.55	0.00	[illegible].0[illegible]	0.00	.100	.060	.100	.05[illegible]	600.20	178.00
.046473	15.	15.	15.	[illegible]	0	1	0.00	4.00	1[illegible]2.00

SPECIAL BRIDGE

SB	XK	XKOR	COFC	[illegible]OLEN	[illegible]C	[illegible]P	PAREA	SS	ELCHU	ELCHD
	-0.00	2.51	2.60	-0.00	3.14	-0.00	1[illegible].57	-0.00	600.00	600.20

3301 HV CHANGED MORE THAN HVINS

SECNO	DEPTH	CWSEL	CRIS	ISELK	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	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORNR	TOP ID	ENDST

PRESSURE FLO

EGPRS	EGLOC	HV	QEIR	QTR	BAREA	ELLC	ELTRD	CLASS
610.76	605.92	0.00	0.	155.	13.	604.00	613.40	10.00

OVERBANK AREA ASSUMED NON-EFFECT VEHELLE= 61[illegible] ELPE= 613.4

BRIDGE SECTION E U.S. CHABOT RD. [illegible] C P

CMP WITH CONCRETE HEADWALL

3359.00	10.54	610.54	0.00	0.00	610.76	.[illegible]3	4.54	0.00	601.00
155.	[illegible]	155.	[illegible]	[illegible]	[illegible]1.	[illegible]	[illegible]	10.	601.00
.56	0.00	[illegible].61	0.00	.100	.050	.100	.058	600.00	178.00
.005421	60.	60.	60.	[illegible]	0	1	0.00	[illegible].00	1[illegible]2.00

3470 ENCROACHMENT STATIONS= 11[illegible].0 151.0 TYPE= 1 TARGET= 32.000

3373.00	10.73	610.8[illegible]	0.00	0.00	610.[illegible]	.01	.00	.07	601.20
155.	43.	77.	35.	1[illegible]5.	101.	92.	9.	10.	602.00
.56	.41	.77	.[illegible]7	.075	.040	.075	.057	600.10	119.00
.000021	14.	14.	14.	[illegible]	[illegible]	1	0.00	32.00	151.00

3470 ENCROACHMENT STATIONS= 10[illegible].0 165.0 TYPE= 1 TARGET= 60.000

3401.00	10.52	610.5[illegible]	0.00	0.00	610.[illegible]	.00	.00	.00	601.41
155.	65.	42.	47.	233.	9[illegible].	191.	10.	10.	602.21
.59	.[illegible]	.43	.[illegible]5	.075	.050	.075	.057	600.31	105.00
.000010	2[illegible].	2[illegible].	2[illegible].	[illegible]	[illegible]	1	0.00	60.00	16[illegible].00

3470 ENCROACHMENT STATIONS= 33.0 237.0 TYPE= 1 TARGET= 204.000

3460.00	10.08	610.8[illegible]	0.00	0.00	610.[illegible]	.00	.00	.00	601.85
155.	1[illegible]2.	1[illegible].	35.	[illegible]3[illegible].	94.	396.	11.	10.	602.65
.72	.12	.1[illegible]	.[illegible]	.075	.050	.075	.057	600.75	33.00
.000002	59.	59.	59.	[illegible]	0	1	0.00	1[illegible].92	221.92

3510.00	9.71	610.8[illegible]	0.00	0.00	10.[illegible]	.00	.00	.00	602.22
155.	1[illegible]6.	17.	32.	[illegible]1.	[illegible].	366.	12.	10.	603.02
.83	.12	.1[illegible]	.[illegible]	.075	.050	.075	.057	601.12	11.34
.000002	[illegible]1.	5[illegible].	5[illegible].	[illegible]	[illegible]	1	0.00	20[illegible].93	220.28

3560.00	9.34	610.6[illegible]	0.00	0.00	610.[illegible]	.00	.00	.00	602.59
155.	107.	17.	[illegible].	3[illegible]7.	87.	337.	14.	10.	603.39
.93	.13	.2[illegible]	.[illegible]	.075	.050	.075	.057	601.49	12.09
.000003	41.	5[illegible].	5[illegible].	[illegible]	[illegible]	1	0.00	205.54	215.63

3615.00	6.93	610.84	0.00	0.00	610.93	.00	.00	.00	603.00
155.	107.	13.	29.	109.	73.	307.	15.	11.	603.80
1.03	.13	.22	.09	.075	.050	.075	.057	601.90	12.93
.000003	45.	35.	65.	0	0	1	0.00	203.89	215.81

SECNO	DEPTH	C SEL	CRIMS	WSELK	ES	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QC	CROB	QLOB	ACH	ACOB	VOL	TMA	LEFT/RIGHT
TIME	VLOB	VC	VCH	XNL	XCH	XNR	TW	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOPWID	ENDST

3668.00	8.54	611.81	0.00	0.00	610.94	.00	.00	.00	603.39
155.	11.	18.	27.	754.	79.	275.	17.	11.	604.19
1.14	.14	.23	.13	.075	.050	.075	.057	602.29	13.72
.000044	63.	53.	43.	0	0	1	0.00	201.36	215.08

3722.00	8.14	611.63	0.00	0.00	610.51	.00	.00	.00	603.79
155.	111.	19.	25.	717.	75.	260.	19.	11.	604.59
1.25	.15	.25	.11	.075	.050	.075	.057	602.69	14.53
.000005	64.	54.	44.	0	0	1	0.00	198.77	213.30

3775.00	7.75	610.83	0.00	0.00	610.00	.00	.00	.00	604.18
155.	112.	19.	23.	673.	71.	214.	21.	11.	604.98
1.34	.17	.27	.11	.075	.050	.075	.057	603.08	15.32
.000007	63.	53.	43.	0	0	1	0.00	196.25	211.57

3829.00	7.35	611.8	0.00	0.00	610.44	.00	.00	.00	604.58
155.	114.	21.	21.	627.	67.	189.	21.	12.	605.38
1.43	.18	.30	.11	.075	.050	.075	.056	603.48	16.13
.000009	54.	54.	44.	0	0	1	0.00	193.24	209.41

3882.00	6.97	611.84	0.00	0.00	610.84	.00	.00	.00	604.57
155.	115.	21.	21.	583.	63.	163.	22.	12.	605.77
1.51	.20	.32	.12	.075	.050	.075	.056	603.87	16.92
.000011	53.	53.	43.	0	0	1	0.00	187.53	204.45

3936.00	6.57	610.84	0.00	0.00	610.64	.00	.00	.00	605.37
155.	116.	21.	19.	550.	59.	134.	23.	12.	606.17
1.59	.22	.35	.13	.075	.050	.075	.056	604.27	17.73
.000014	54.	54.	44.	0	0	1	0.00	181.63	199.37

3939.00	6.10	610.91	0.00	0.00	610.44	.00	.00	.00	605.76
155.	117.	22.	17.	466.	55.	110.	24.	12.	606.56
1.65	.24	.39	.14	.075	.050	.075	.056	604.66	18.52
.000019	53.	53.	43.	0	0	1	0.00	175.89	194.41

4043.00	5.76	611.25	0.00	0.00	610.94	.00	.00	.00	606.48
155.	46.	78.	31.	141.	117.	95.	25.	12.	606.78
1.68	.32	.87	.11	.075	.050	.075	.056	605.08	88.55
.000060	64.	54.	44.	0	0	1	0.00	122.83	211.42

SECNO	DEPTH	C SEL	CRIMS	WSELK	ES	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QC	CROB	QLOB	ACH	ACOB	VOL	TMA	LEFT/RIGHT
TIME	VLOB	VC	VCH	XNL	XCH	XNR	TW	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOPWID	ENDST

4096.00	5.37	610.84	0.00	0.00	610.85	.01	.00	.00	606.87
155.	44.	52.	29.	120.	102.	83.	25.	13.	607.17
1.71	.37	.75	.35	.075	.050	.075	.056	605.47	93.56
.000005	37.	53.	68.	0	0	1	0.00	115.02	208.58
4150.00	4.97	610.8[illegible]	0.00	0.00	610.85	.01	.01	.00	607.27
155.	42.	37.	27.	99.	99.	69.	25.	13.	607.57
1.73	.42	.88	.39	.075	.050	.075	.056	605.87	97.90
.000128	38.	54.	71.	0	0	1	0.00	107.75	205.65
4203.00	4.59	610.85	0.00	0.00	610.86	.01	.01	.00	607.66
155.	39.	91.	24.	52.	9[illegible].	55.	26.	13.	607.96
1.75	.48	1.12	.44	.075	.050	.075	.056	606.26	102.45
.000195	37.	53.	68.	0	0	1	0.00	100.37	202.81
4257.00	4.20	610.86	0.00	0.00	610.88	.02	.01	.00	60[illegible].06
155.	36.	97.	22.	65.	81.	43.	26.	13.	6[illegible].36
1.76	.56	1.2[illegible]	.50	.075	.050	.075	.055	606.66	106.45
.000313	38.	54.	70.	0	0	1	0.00	[illegible].55	199.99
4310.00	3.[illegible]3	610.38	0.00	0.00	610.90	.02	.02	.00	608.45
155.	33.	1[illegible]3.	15.	51.	72.	32.	26.	13.	6[illegible]8.75
1.78	.56	1.4[illegible]	.57	.075	.050	.075	.055	607.05	111.25
.000518	53.	53.	53.	0	0	1	0.00	85.98	197.23
4364.00	[illegible].46	610.91	0.00	0.00	610.94	.04	.04	.01	608.85
155.	3[illegible].	111.	15.	3[illegible].	64.	23.	26.	13.	609.15
1.79	.77	1.7[illegible]	.55	.075	.050	.075	.055	607.45	115.87
.000[illegible]1	54.	54.	54.	1	0	1	0.00	78.34	194.21
4417.00	3.12	610.[illegible]	0.00	0.00	611.02	.06	.06	.01	60[illegible].24
155.	26.	11[illegible].	11.	2[illegible].	56.	15.	26.	13.	6[illegible]9.54
1.80	.90	2.11	.75	.075	.050	.075	.055	607.84	119.[illegible]5
.001565	53.	53.	53.	2	0	1	0.00	71.59	190.94
4471.00	2.92	611.06	0.00	0.00	611.14	.09	.11	.02	60[illegible].64
155.	22.	12[illegible].	[illegible].	21.	49.	9.	25.	13.	6[illegible]9.94
1.80	1.05	2.56	.85	.075	.050	.075	.055	608.24	122.68
.002771	54.	54.	54.	2	0	1	0.00	64.05	185.73

SECND Q TIME SLOPE	DEPTH QLOB VOL XLOBL	C SEL VC VCR XLCH	CRIMS WROB VOL XLOBR	USEL XLOB XNL ITRIAL	EG ACH XNCH IDC	HV AROB XNR ICONT	HL VOL NTN COHER	QLOSS TWA ELMIN TOPWID	BANK ELEV LEFT/RIGHT SSTA ENDST
4524.00	2.5[illegible]	611.22	0.00	0.00	611.34	.12	.1[illegible]	.02	610.03
155.	15.	131.	[illegible].	15.	44.	[illegible].	27.	13.	610.33
1.81	1.17	3.01	.[illegible]	.075	.050	.075	.055	608.63	125.55
.004417	53.	53.	53.	2	0	1	0.00	57.73	183.28
4578.00	2.45	611.4[illegible]	0.00	0.00	611.63	.15	.2[illegible]	.02	610.43
155.	16.	135.	4.	13.	41.	4.	27.	13.	610.73
1.81	1.24	3.34	.95	.075	.050	.075	.055	609.03	127.19
.006027	54.	54.	54.	2	0	1	0.00	54.42	181.61

4631.00	2.34	611.7-	0.00	0.00	611.96	.20	.30	.02	610.52
155.	11.	141.	3.	1[illegible].	38.	3.	27.	14.	611.12
1.82	1.07	3.71	.80	.075	.040	.075	.055	609.42	128.32
.005264	53.	53.	53.	0	0	1	0.00	51.53	179.55
4685.00	2.24	612.05	0.00	0.00	612.2[illegible]	.23	.32	.02	611.22
155.	[illegible].	[illegible]4.	2.	.	36.	2.	27.	14.	611.52
1.82	1.11	[illegible].[illegible]	.81	.075	.040	.075	.055	609.82	129.27
.006621	54.	54.	54.	0	0	1	0.00	48.81	178.09
4739.00	2.21	612.42	0.00	0.00	612.67	.25	.37	.01	611.61
155.	9.	[illegible]5.	2.	3.	35.	2.	27.	14.	611.91
1.82	1.11	[illegible].14	.80	.075	.040	.075	.055	610.21	129.64
.007252	53.	53.	53.	2	0	1	0.00	47.77	177.41
4792.00	2.20	612.81	0.00	0.00	613.07	.26	.40	.00	612.01
155.	9.	145.	2.	4.	35.	2.	27.	14.	612.31
1.93	1.12	4.19	.80	.075	.040	.075	.055	610.61	129.77
.007503	54.	54.	54.	1	0	1	0.00	47.44	177.21
4845.00	2.21	613.21	0.00	0.00	613.46	.25	.3[illegible]	.00	612.40
155.	9.	[illegible]5.	2.	4.	35.	2.	27.	14.	612.7[illegible]
1.8[illegible]	1.11	4.16	.80	.075	.040	.075	.054	611.00	129.69
.007339	53.	53.	53.	1	0	1	0.00	47.64	177.33
4899.00	2.25	613.6-	0.00	0.00	613.[illegible]0	.22	.43	.01	613.44
155.	[illegible].	15[illegible].	1.	.	41.	2.	27.	14.	613.24
1.94	.45	[illegible].75	.[illegible]3	.075	.040	.075	.054	611.44	160.44
.009686	54.	54.	54.	2	0	1	0.00	46.51	206.95

SEC O O TIME SLOPE	DEPT- OL 3 VLO[illegible] XLO 3L	[illegible] SEL C[illegible] VCH XLC[illegible]	C<I[illegible] [illegible]ROB VnO[illegible] XLOR[illegible]	[illegible]SEL XnL ITRIAL	[illegible] ACH X[illegible]C[illegible] IDC	[illegible] [illegible]ROB X[illegible] ICONT	RL VOL ITN COR[illegible]	OLOSS T[illegible] SLMIN TOPWID	BANK ELEV LEFT/RIGHT SSTA ENDST
4952.00	2.30	[illegible]14.13	0.00	0.00	[illegible]14.33	.19	.42	.01	613.63
155.	[illegible].	153.	1.	1.	43.	2.	27.	14.	613.63
1.[illegible]4	.48	[illegible].55	.[illegible]7	.075	.040	.075	.054	611.83	159.57
.007265	53.	[illegible]3.	53.	2	0	1	0.00	48.31	207.88
5006.00	2.30	614.[illegible]1	0.00	0.00	614.73	.20	.40	.00	614.23
155.	.	15[illegible].	1.	1.	43.	2.	27.	14.	614.03
1.84	.48	[illegible].57	.67	.075	.040	.075	.054	612.23	159.67
.007411	54.	54.	54.	2	0	1	0.00	48.11	207.78
5059.00	2.30	614.[illegible]2	0.00	0.00	615.12	.20	.3[illegible]	.00	614.62
155.	[illegible].	153.	1.	1.	43.	2.	27.	14.	[illegible]14.42
1.85	.48	[illegible].56	.67	.075	.040	.075	.054	612.62	159.69
.007435	53.	53.	53.	0	0	1	0.00	48.07	207.76
5113.00	2.30	61[illegible].32	0.00	0.00	615.52	.20	.40	.00	615.02
155.	[illegible].	15[illegible].	1.	1.	43.	2.	27.	14.	614.82
1.85	.48	.5[illegible]	.67	.075	.040	.075	.053	613.02	159.67
.007418	54.	54.	54.	0	0	1	0.00	48.10	207.77

5166.00	2.31	615.72	0.00	0.00	615.91	.20	.39	.00	615.41
155.	1.	153.	1.	1.	43.	2.	27.	14.	615.21
1.86	.48	3.57	.57	.075	.040	.075	.053	613.41	159.62
.007342	53.	53.	53.	0	0	1	0.00	48.20	207.83
5220.00	2.30	616.11	0.00	0.00	616.31	.20	.40	.00	615.31
155.	.	153.	1.	1.	43.	2.	27.	14.	615.61
1.86	.48	3.57	.57	.075	.040	.075	.053	613.81	159.65
.007374	54.	54.	54.	0	0	1	0.00	48.16	207.80
5273.00	2.30	616.30	0.00	0.00	616.70	.20	.39	.00	616.20
155.	.	153.	1.	1.	43.	2.	27.	14.	616.00
1.37	.48	3.57	.57	.075	.040	.075	.053	614.20	159.65
.007376	53.	53.	53.	0	0	1	0.00	48.16	207.80
5327.00	2.30	616.90	0.00	0.00	617.10	.20	.40	.00	616.60
155.	.	153.	1.	1.	43.	2.	27.	14.	616.40
1.87	.48	.57	.67	.075	.040	.075	.053	614.60	159.67
.007414	54.	54.	54.	0	0	1	0.00	48.10	207.77

SECNO Q TIME SLOPE	DEPTH OLD VLO %LOBL	CSEL C VCS %LCH	CRIMS ROB VRO %LOBR	SELK ALOB XNL ITRIAL	FR ACH XNC IDC	BR AROB XNR ICONT	HL VOL ITN CORAR	LOSS T ELMIN TOPWID	BANK ELEV LEFT/RIGHT SSTA ENDST
5380.00	2.31	617.30	0.00	0.00	617.40	.20	.39	.00	616.99
155.	.	153.	1.	1.	43.	2.	28.	14.	616.79
1.87	.48	3.57	.57	.075	.040	.075	.053	614.99	159.64
.007374	53.	53.	53.	0	0	1	0.00	48.16	207.80
5434.00	2.31	617.70	0.00	0.00	617.39	.20	.40	.00	617.39
155.	.	153.	1.	1.	43.	2.	25.	14.	617.19
1.88	.48	3.57	.57	.075	.040	.075	.053	615.39	159.66
.007390	54.	54.	54.	0	0	1	0.00	48.14	207.79
5487.00	2.31	618.09	0.00	0.00	618.28	.20	.39	.00	617.78
155.	.	153.	1.	1.	43.	2.	25.	14.	617.58
1.88	.48	3.57	.57	.075	.040	.075	.052	615.78	159.64
.007365	53.	53.	53.	0	0	1	0.00	48.17	207.81

3470 ENCROACHMENT STATIONS= 14 .0 215.0 TYPE= 1 TARGET= 66.000

VALLEY SECTION F

5541.00	2.31	618.49	0.00	0.00	618.66	.20	.40	.00	618.18
155.	.	153.	1.	1.	43.	2.	23.	15.	617.98
1.89	.48	3.57	.57	.075	.040	.075	.053	616.18	159.66
.007400	54.	54.	54.	0	0	1	0.00	48.12	207.78

3470 ENCROACHMENT STATIONS= 174.0 225.0 TYPE= 1 TARGET= 52.000

OVERBANK AREA ASSUMED NO -EFFECTIVE,ELLEA= 100000.00 ELREA= 617.25

5566.00	3.22	618.70	0.00	0.00	618.80	.10	.09	.03100000.00

1.89	0.00	2.53	.75	.075	.040	.075	.052	615.48	174.00
.002064	25.	25.	25.	2	0	1	0.00	46.22	222.22

347C ENCROACHMENT STATION= 15.0 =0%.0 TYPE= 1 TABLE= 45.000

5576.00	5.59	616.79	0.00	0.00	619.38	.04	.01	.02	617.20
155.	4.	155.	0.	0.	63.	1.	2.	15.	617.00
1.89	.01	1.9	.07	.075	.040	.075	.052	615.20	159.00
.000585	14.	30.	14.	2	0	1	0.00	45.00	204.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 6 .00 EL= 62.

5640.00	5.41	617.81	0.00	0.00	619.91	.10	.05	.03	629.50
155.	0.	155.	0.	0.	61.	1.	2.	15.	629.50
1.90	0.00	2.65	0.00	.075	.040	.075	.052	613.40	194.10
.001102	64.	64.	64.	2	0	1	0.00	11.50	205.90

SECNO	DEPTH	CHSEL	CRI S	SELK	ES	EM	HL	QLOSS	BANK ELEV
Q	AREA	ACH	VROR	ALOS	ACH	AROB	VOL	TEA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNOB	MIN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOB	ITYPEL	IDC	TCOMIT	COR R	TOPWID	ENDST

NORMAL BRIDGE,WSID=12 MIN EL FOR= 62. EL= ELLC= 620.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 6 . EL= 62.

5641.00	5.40	616.30	0.10	0.00	619.92	.12	.00	.01	629.50
155.	1.	155.	0.	0.	56.	1.	2.	15.	629.50
1.90	1.00	2.72	0.00	.075	.031	.075	.052	613.40	194.10
.001119	1.	1.	1.	0	0	1	-5.25	11.50	205.90

NORMAL BRIDGE,WSID=12 MIN EL FOR= 62. EL= ELLC= 621.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 6 . EL= 62.

BRIDGE SECTION U.S. RIVERSIDE RD. 7?"-7?7". 11"l" MULTI PLATE ARCH

MULTI PLATE ARCH PROJECTING FROM FILL (NO HEAD ALL)

5716.00	5.28	618.64	0.00	0.00	619.01	.10	.03	.00	629.50
155.	6.	155.	0.	0.	56.	1.	2.	15.	629.50
1.91	0.00	2.62	0.00	.075	.031	.075	.052	613.60	194.10
.001169	75.	75.	75.	1	0	1	-4.61	11.30	205.90

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 6 .50 FLRE= 629.50

5717.00	5.31	614.91	0.00	0.00	619.01	.10	.00	.01	629.50
155.	0.	155.	0.	0.	60.	0.	2.	15.	629.50
1.91	0.00	2.53	0.00	.055	.040	.055	.052	613.60	194.10
.001165	1.	1.	1.	1	0	1	0.00	11.30	205.90

3470 ENCROACHMENT STATIONS= 165.0 19[illegible] TYPE= 1 TARGET= 32.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 99997.40 FLREA= 99997.40

GRANGER DRAIN TRIBUTARY CONFLUENCE

5727.00	5.44	619.[illegible]	0.00	0.00	619.04	.01	.00	.03	99997.40
98.	0.	98.	0.	0.	141.	0.	28.	15.	99997.40
1.91	0.00	.6	0.00	.055	.040	.055	.052	613.60	166.00
.000064	10.	10.	10.	2	0	1	0.00	32.00	198.00

3470 ENCROACHMENT STATIONS= 137.0 22[illegible] TYPE= 1 TARGET= 90.000

5757.00	5.22	619.0[illegible]	0.00	0.00	619.05	.00	.00	.00	615.82
98.	13.	68.	17.	57.	148.	69.	28.	15.	615.62
1.93	.23	.46	.24	.055	.040	.055	.052	613.82	137.00
.000023	30.	30.	30.	1	0	1	0.00	90.00	227.00

SECNO Q TIME SLOPE	DEPTH QLOB VLOB XLOBL	C SEL QCH VCH XLCH	CHIMS QROB VROB XLOBR	USELK XLOB XNL ITRIM	EG AGH XNCH IDC	HV AROB XN ICONT	HL WDL XTN CORER	QLOSS TWA ELMIN TOP ID	BANK ELEV LEFT/RIGHT SSTA ENDST
5918.00	.05	61[illegible].0[illegible]	0.00	0.00	61[illegible].06	.01	.01	.00	617.10
98.	10.	7[illegible].	12.	33.	1[illegible]1.	39.	29.	15.	616.70
2.01	.29	.75	.32	.055	.040	.055	.051	615.00	287.06
.000085	191.	191.	191.	0	0	1	0.00	9[illegible].10	385.16
6109.00	2.65	61[illegible].05	0.00	0.00	61[illegible].15	.10	.05	.04	619.30
98.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]9.	1.	30.	15.	618.70
2.03	0.00	2.4	.42	.055	.040	.055	.051	616.40	475.64
.002433	191.	191.	191.	1	0	1	0.00	2[illegible].95	504.59
6157.00	2.43	619.1[illegible]	0.00	0.00	619.31	.13	.15	.02	61[illegible].65
98.	[illegible]	[illegible]	[illegible]	0.	[illegible]4.	0.	30.	15.	619.65
2.04	0.00	2.90	.[illegible]7	.055	.040	.055	.051	616.75	476.48
.003874	43.	43.	43.	2	0	1	0.00	25.17	501.65
6205.00	2.28	61[illegible].36	0.00	0.00	619.56	.16	.22	.02	620.00
98.	[illegible]	[illegible]	0.	0.	[illegible].	0.	30.	15.	619.40
2.04	0.00	3.23	0.00	.055	.040	.055	.051	617.10	477.08
.005337	48.	48.	4[illegible].	2	0	1	0.00	22.[illegible]4	499.91
6253.00	2.18	619.64	619.[illegible]3	0.00	620.24	.60	.43	.22	621.26
98.	[illegible]	[illegible]	[illegible]	0.	16.	[illegible]	30.	15.	620.56
2.04	0.00	[illegible].23	0.00	.055	.040	.055	.051	617.46	634.41
.024368	48.	48.	4[illegible].	2	11	1	0.00	13.29	647.69
6300.00	2.35	620.65	0.00	0.00	620.37	.22	.[illegible]2	.11	621.60
98.	[illegible]	[illegible]	0.	0.	[illegible]	0.	30.	15.	620.90
2.05	0.00	3.77	0.00	.055	.040	.055	.051	617.80	632.69
.006215	47.	47.	47.	2	0	1	0.00	16.73	649.42
6491.00	3.15	622.25	0.00	0.00	622.74	.49	1.73	.14	623.80

2.06	0.00	5.6[illegible]	0.00	.055	.040	.055	.050	619.10	798.64
.014457	191.	191.	191.	3	0	1	0.00	10.37	799.02

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 624.40 ELRE= 623.50

6566.00	3.66	623.26	0.00	0.00	623.57	.31	.73	.06	624.40
92.	0.	98.	0.	0.	22.	0.	30.	16.	623.50
2.06	0.00	4.45	0.00	.055	.040	.055	.050	619.70	787.94
.007773	75.	75.	75.	2	0	1	0.00	11.71	799.64

SECNO	DEPT	C SEL	CRIWS	WSELK	EG	H	HL	QLOSS	BANK ELEV
Q	QLOB	QC	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	LCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOP ID	ENDST

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 624.00 ELRE= 624.00

6636.00	3.61	623.81	0.00	0.00	624.10	.33	.53	.00	624.00
92.	0.	98.	0.	0.	23.	0.	30.	16.	624.00
2.07	0.00	4.[illegible]	0.00	.055	.040	.055	.050	620.20	787.85
.007266	0.	70.	90.	[illegible]	0	1	0.00	11.85	799.72

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 625.00 ELRE= 625.10

6781.00	3.58	624.85	0.00	0.00	625.15	.30	1.07	.00	626.00
92.	0.	98.	0.	0.	22.	0.	30.	16.	625.10
2.08	0.00	4.40	0.00	.055	.040	.055	.050	621.30	787.90
.007550	75.	145.	215.	1	0	1	0.00	11.77	799.67

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 627.1 ELRE= 626.20

6926.00	3.58	625.95	0.00	0.00	626.25	.30	1.10	.00	627.10
98.	0.	98.	0.	0.	22.	0.	30.	16.	626.20
2.08	0.00	4.4[illegible]	0.00	.055	.040	.055	.050	622.40	787.92
.007671	145.	145.	145.	1	0	1	0.00	11.74	799.66

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 628.20 ELRE= 627.30

7071.00	3.59	627.0[illegible]	0.00	0.00	627.30	.30	1.10	.00	628.20
92.	0.	98.	0.	0.	22.	0.	30.	16.	627.30
2.09	0.00	4.40	0.00	.055	.040	.055	.049	623.50	787.90
.007563	145.	145.	145.	1	0	1	0.00	11.77	799.67

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 629.30 ELRE= 628.40

VALLEY SECTION H

7216.00	3.55	628.1[illegible]	0.00	0.00	628.38	.23	.9[illegible]	.02	629.30
65.	0.	[illegible]	0.	0.	22.	0.	30.	16.	628.40
2.10	0.00	3.88	0.00	.055	.040	.055	.049	624.60	787.96
.005947	145.	145.	145.	2	0	1	0.00	11.67	799.63

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 629.90 ELREA= 629.00

7346.00	3.69	628.69	0.00	0.00	629.09	.20	.70	.01	629.90
85.	0.	85.	0.	0.	24.	0.	30.	16.	629.00
2.11	0.00	3.61	0.00	.055	.040	.055	.049	625.20	787.71
.004883	130.	130.	130.	2	0	1	0.00	12.12	799.34

SECNO	DEPTH	C SEL	C INS	USELK	FG	HV	HL	QLOSS	BANK ELEV
Q	OLOB	OCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XN	XTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORNR	TOP ID	ENDST

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 630.60 ELREA= 629.60

7476.00	3.72	62 .52	0.00	0.00	62 .72	.20	.62	.00	630.60
85.	0.	85.	0.	0.	24.	0.	30.	16.	629.60
2.12	0.00	3.55	0.00	.055	.040	.055	.049	625.80	787.67
.004693	130.	130.	130.	2	0	1	0.00	12.22	799.08

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 631.10 ELREA= 630.20

7606.00	3.73	630.13	0.00	0.00	630.32	.1	.60	.00	631.10
85.	0.	85.	0.	0.	24.	0.	30.	16.	630.20
2.13	0.00	3.53	0.00	.055	.040	.055	.049	626.40	787.64
.004602	180.	130.	80.	1	0	1	0.00	12.25	799.90

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 631.70 ELREA= 630.80

7736.00	3.73	630.73	0.00	0.00	630.72	.1	.60	.00	631.70
85.	0.	85.	0.	0.	4.	0.	30.	16.	630.80
2.14	0.00	3.53	0.00	.055	.040	.055	.049	627.00	787.64
.004617	170.	170.	90.	1	0	1	0.00	12.26	799.90

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 632.30 ELREA= 631.40

7866.00	3.73	631.33	0.00	0.00	631.52	.1	.60	.00	632.30
85.	0.	85.	0.	0.	24.	0.	30.	16.	631.40
2.16	0.00	3.53	0.00	.055	.040	.055	.049	627.60	787.65
.004622	130.	130.	130.	0	0	1	0.00	12.25	799.90

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 632.90 ELREA= 632.00

7996.00	3.73	631.93	0.00	0.00	632.12	.1	.60	.00	632.90
85.	0.	85.	0.	0.	4.	0.	31.	16.	632.00
2.17	0.00	3.53	0.00	.055	.040	.055	.048	628.20	787.65
.004619	30.	130.	230.	0	0	1	0.00	12.25	799.90

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 633.50 ELREA= 632.60

8126.00	3.73	632.53	0.00	0.00	632.72	.1	.60	.00	633.50

2.18	0.00	3.53	0.00	.055	.040	.055	.048	623.80	787.64
.004615	130.	130.	130.	0	0	1	0.00	12.25	799.90

SECNO	DEPTH	CHSEL	CHIS	MSELK	ES	HV	HL	DLOSS	BANK ELEV
Q	ALOB	ACH	KROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	ITN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
8256.00	3.55	632.95	0.00	0.00	633.01	.06	.24	.04	633.40
85.	0.	85.	0.	0.	44.	0.	31.	16.	633.60
2.19	0.00	1.24	0.00	.055	.040	.055	.045	629.40	779.90
.001003	130.	130.	130.	2	0	1	0.00	18.98	798.89
8386.00	3.10	633.10	0.00	0.00	633.19	.08	.17	.01	634.00
85.	0.	85.	0.	0.	30.	0.	31.	16.	634.20
2.21	0.00	2.39	0.00	.055	.040	.055	.046	630.00	780.79
.001742	130.	130.	130.	2	0	1	0.00	17.33	798.13
8451.00	2.92	633.22	0.00	0.00	633.33	.10	.13	.01	634.30
85.	0.	85.	0.	0.	33.	0.	31.	16.	634.50
2.22	0.00	2.80	0.00	.055	.040	.055	.044	630.30	781.16
.002226	65.	65.	65.	2	0	1	0.00	16.66	797.82
8516.00	2.77	633.37	0.00	0.00	633.50	.12	.16	.01	634.60
85.	0.	85.	0.	0.	30.	0.	31.	16.	634.80
2.22	0.00	2.81	0.00	.055	.040	.055	.046	630.60	781.45
.002748	65.	65.	65.	2	0	1	0.00	16.11	797.56
8581.00	2.66	633.56	0.00	0.00	633.70	.14	.19	.01	634.80
85.	0.	85.	0.	0.	29.	0.	31.	16.	635.10
2.23	0.00	2.99	0.00	.055	.040	.055	.045	630.90	781.68
.003253	65.	65.	65.	2	0	1	0.00	15.69	797.37
8616.00	2.61	633.67	0.00	0.00	633.82	.15	.19	.00	635.06
85.	0.	85.	0.	0.	29.	0.	31.	16.	635.26
2.23	0.00	3.08	0.00	.055	.040	.055	.045	631.05	781.79
.003537	35.	35.	35.	0	0	1	0.00	15.48	797.27
8621.00	2.61	633.69	0.00	0.00	633.84	.15	.02	.00	635.08
85.	0.	85.	0.	0.	29.	0.	31.	16.	635.28
2.23	0.00	3.09	0.00	.055	.040	.055	.048	631.08	781.80
.003553	5.	5.	5.	0	0	1	0.00	15.47	797.27
8626.00	2.60	633.71	0.00	0.00	633.86	.15	.02	.00	635.11
85.	0.	85.	0.	0.	27.	0.	31.	16.	635.31
2.23	0.00	3.11	0.00	.055	.040	.055	.046	631.11	781.82
.003621	5.	5.	5.	0	0	1	0.00	15.43	797.25

SECNO	DEPTH	CHSEL	CHIS	MSELK	ES	HV	HL	DLOSS	BANK ELEV
Q	ALOB	ACH	KROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	ITN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
8631.00	2.60	633.73	0.00	0.00	633.88	.15	.02	.00	635.13

2.23	0.00	3.11	0.00	.055	.040	.055	.048	631.13	781.83
.003632	5.	5.	5.	0	0	1	0.00	15.42	797.25

8636.00	2.58	633.74	0.00	0.00	633.89	.15	.02	.00	635.16
85.	0.	35.	0.	0.	27.	0.	31.	16.	635.36
2.23	0.00	3.13	0.00	.055	.040	.055	.048	631.15	781.85
.003700	5.	5.	5.	1	0	1	0.00	15.37	797.23

8641.00	2.58	633.76	0.00	0.00	633.91	.15	.02	.00	635.10
85.	0.	85.	0.	0.	27.	0.	31.	16.	635.38
2.23	0.00	3.13	0.00	.055	.040	.055	.048	631.13	781.85
.003709	5.	5.	5.	0	0	1	0.00	15.37	797.22

3685 20 TRIALS USED WSEL CWSEL

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

SECNO	DEPTH	CWSEL	CRIWS	WSEL	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	ITERAL	IDC	ICONT	CORAR	TOPWID	ENDST

8646.00	2.77	633.97	633.97	0.00	634.62	.65	.03	0.00	632.20
85.	15.	56.	1[illegible].	5.	7.	4.	31.	16.	632.20
2.23	3.19	7.64	3.17	.055	.040	.055	.048	631.20	793.20
.017610	5.	5.	5.	30	8	1	0.00	13.27	806.47

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	B C	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.52	2.50	-0.00	2.36	-0.00	7.07	-0.00	632.40	631.20

PRESSURE FLOW

EGPRS	EGL C	H	Q EIR	QPR	BAREA	ELLC	ELTRD	CLASS
639.62	637.24	0.00	0.	85.	7.	635.40	643.50	10.00

OVERBANK AREA ASSUMED NON-EFFECTIVE;ELLEA= 643.50 ELREA= 643.5

BRIDGE SECTION I U.S. CNO R.R. TRACK 60'- 30" CI

CI PIPE WITH HEADWALL

8706.00	6.94	639.34	0.00	0.00	639.62	.[illegible]	5.00	0.00	633.40
85.	0.	85.	0.	0.	20.	0.	31.	16.	633.40
2.24	0.00	4.2[illegible]	0.00	.055	.040	.055	.048	632.40	798.50
.005033	60.	60.	60.	2	0	1	0.00	3.00	801.50

WATER EL=X5 CARD= 640.140

Q	QLOB	QCH	QROB	ALOS	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	MTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.40 ELREA= 100000.10

8716.00	7.74	640.14	0.00	0.00	640.15	.01	.00	.08	636.40
85.	0.	85.	0.	0.	131.	0.	31.	16.	100000.10
2.24	0.00	.65	0.00	.055	.040	.055	.048	636.40	779.00
.000043	10.	10.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.39 ELREA= 100000.00

8731.00	7.75	640.14	0.00	0.00	640.15	.01	.00	.00	636.39
85.	0.	85.	0.	0.	132.	0.	31.	16.	100000.00
2.25	0.00	.65	0.00	.055	.040	.055	.048	636.39	779.00
.000043	15.	15.	15.	2	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.38 ELREA= 100000.00

8756.00	7.76	640.14	0.00	0.00	640.15	.01	.00	.00	636.38
85.	0.	85.	0.	0.	132.	0.	31.	16.	100000.00
2.26	0.00	.64	0.00	.055	.040	.055	.048	636.38	779.00
.000043	25.	25.	25.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.34 ELREA= 100000.00

8881.00	7.81	640.15	0.00	0.00	640.15	.01	.01	.00	636.34
85.	0.	85.	0.	0.	133.	0.	32.	16.	100000.00
2.31	0.00	.64	0.00	.055	.040	.055	.047	636.34	779.00
.000042	240.	125.	11.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.30 ELREA= 100000.00

VALLEY SECTION 3

9006.00	7.85	640.15	0.00	0.00	640.16	.01	.01	.00	636.30
85.	1.	85.	0.	0.	134.	0.	32.	16.	100000.00
2.37	0.00	.64	0.00	.055	.040	.055	.047	636.30	779.00
.000041	240.	125.	11.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.30 ELREA= 100000.00

9031.00	7.96	640.16	0.00	0.00	640.16	.01	.00	.00	636.30	
85.	0.	85.	0.	0.	134.	0.	32.	16.	100000.00	
2.40	0.00	.64	0.00	.055	.040	.055	.047	632.30	779.00	
.000041	140.	75.	10.	0	0	1	0.00	21.00	800.00	

SECNO	DEPTH	CHSEL	CRI S	HSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	VC	ERGR	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VPOW	XNL	XNCH	XNR	HTL	ELMIN	SSTA
SEQPE	XLOBL	ALCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOP ID	ENDST

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.30 ELREA= 100000.00

9156.00	7.86	640.16	0.00	0.00	640.16	.01	.00	.00	636.30
85.	0.	85.	0.	0.	134.	0.	32.	16.	100000.00
2.43	0.00	.64	0.00	.055	.040	.055	.047	632.30	779.00
.000041	140.	75.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.30 ELREA= 100000.00

9174.00	7.96	640.16	0.00	0.00	640.17	.01	.00	.00	636.30
85.	0.	85.	0.	0.	134.	0.	32.	16.	100000.00
2.44	0.00	.64	0.00	.055	.040	.055	.047	632.30	779.00
.000041	140.	75.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.30 ELREA= 100000.00

9306.00	7.96	640.16	0.00	0.00	640.17	.01	.01	.00	636.30
85.	0.	85.	0.	0.	134.	0.	33.	16.	100000.00
2.50	0.00	.64	0.00	.055	.040	.055	.047	632.30	779.00
.000041	260.	132.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.30 ELREA= 100000.00

9327.00	7.87	640.17	0.00	0.00	640.17	.01	.00	.00	636.30
85.	0.	85.	0.	0.	134.	0.	33.	16.	100000.00
2.51	0.00	.64	0.00	.055	.040	.055	.047	632.30	779.00
.000041	21.	21.	21.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 50.000

9355.00	7.87	640.17	0.00	0.00	640.17	.00	.00	.00	633.30
65.	39.	7.	34.	229.	30.	224.	33.	17.	633.30
2.55	.17	.25	.17	.055	.040	.055	.047	632.30	760.00
.000004	23.	23.	23.	0	0	1	0.00	80.00	840.00

SPECIAL BRIDGE

SB	XK	KBR	COFQ	XOL	BPC	BPP	AUREA	SS	ELCHU	ELCHD
	-0.00	2.77	2.80	-0.00	3.14	-0.00	12.57	-0.00	633.00	632.30

PRESSURE AND JET FLOW

EGPRS	EGLOC	HB	CWEIR	QHR	BAREA	ELLC	ELTRD	CLASS
642.14	640.67	0.00	73.	12.	13.	637.00	634.00	30.00

3470 ENCROACHMENT STATIONS= 760.0 0.0 TYPE= 1 TARGET= 80.000

BRIDGE SECTION - U.S. PIER NO. 1 - CWPW

CWP WITH FLOW LL

9395.00	7.21	640.21	0.00	0.00	640.21	.00	.04	0.00	634.00
85.	39.	8.	39.	204.	27.	204.	34.	17.	634.00
2.61	.19	.2?	.1?	.055	.040	.055	.047	633.00	760.00
.000005	40.	40.	40.	0	0		0.00	80.00	840.00

SECND	DEPTH	CHSEL	CPI S	SELC	EG	HV	AL	CLOSS	BANK ELEV
0	ALOS	YCH	RUS	ALOS	ACH	AREA	VOL	TMA	LEFT/RIGHT
TIME	VLOS	VCH	VLOS	XNL	XNC	XNR	TW	ELMIN	SSTA
SLOPE	XLOBL	YLC	ALOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 755.0 320.0 TYPE= 1 TARGET= 61.000

9443.00	5.63	640.21	0.00	0.00	640.22	.00	.00	.00	637.58
85.	12.	52.	11.	49.	10.	46.	34.	17.	637.78
2.64	.25	.57	.24	.060	.040	.060	.047	633.58	759.00
.000030	1.	44.	100.	0	0	1	0.00	61.00	820.00

3470 ENCROACHMENT STATIONS= 760.0 315.0 TYPE= 1 TARGET= 61.000

9493.00	5.03	640.21	0.00	0.00	640.22	.01	.00	.00	634.18
85.	3.	70.	7.	29.	36.	26.	34.	17.	638.38
2.66	.20	.73	.27	.060	.040	.060	.047	634.18	764.00
.000050	100.	50.	1.	0	0	1	0.00	61.00	815.00

3470 ENCROACHMENT STATIONS= 550.0 60.0 TYPE= 1 TARGET= 25.000

OVERBANK AREA ASSUMED NON-EFFECTIVE ELLE= 640.20 ELSE= 100000.00

VALLEY SECTION 1

9545.00	5.41	640.21	0.00	0.00	640.23	.01	.00	.00	640.20
85.	0.	85.	0.	0.	89.	0.	34.	17.	100000.00
2.67	0.00	.??	0.00	.060	.040	.060	.047	634.80	550.00
.000137	52.	52.	52.	0	0	1	0.00	24.00	574.00

ENDING EFFECTIVE ELLE = 640.20 ELSE= 640.20

9753.00	5.13	640.23	0.00	0.00	640.24	.00	.00	.00	640.50
85.	0.	19.	65.	0.	82.	746.	35.	17.	640.10
3.03	0.00	.23	.09	.060	.040	.060	.047	635.10	550.43
.000008	60.	200.	60.	0	0	1	0.00	691.44	1241.87

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 640.78 ELREA= 640.38

9953.00	4.85	640.23	0.00	0.00	640.25	.02	.00	.01	640.78
85.	0.	25.	0.	0.	76.	0.	37.	19.	640.38
3.08	0.00	1.12	0.00	.060	.040	.060	.047	635.33	550.86
.000216	200.	200.	200.	1	0	1	0.00	23.03	573.89

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 641.06 ELREA= 640.66

10153.00	4.62	640.23	0.00	0.00	640.30	.02	.05	.00	641.06
85.	0.	85.	0.	0.	70.	0.	33.	19.	640.66
3.12	0.00	1.21	0.00	.060	.040	.060	.047	635.66	551.25
.000269	200.	200.	200.	1	0	1	0.00	22.45	573.70

3280 CROSS SECTION 10353.00 EXTENDED 1.0 FEET

SECNO	DEPTH	CSEL	CRIMS	USFLX	FC	HR	HL	ULOSS	BANK ELEV
Q	OLOB	OCH	OROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLO	VCH	VROB	XNL	XNCH	XNR	UTN	ELMIN	SSTA
SLOPE	XLOBL	ALCH	XLOBR	ITRIAL	IOC	ICONT	CORNR	TOPWID	ENDST

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 642.65 ELREA= 640.25

10353.00	4.3	640.33	0.00	0.00	640.34	.01	.04	.00	642.65
85.	.	66.	19.	0.	75.	120.	33.	20.	640.25
3.20	0.00	.62	.16	.060	.040	.060	.047	635.95	603.37
.000102	200.	200.	200.	1	0	1	0.00	404.17	1207.54

3280 CROSS SECTION 10553.00 EXTENDED 1.71 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 642.96 ELREA= 640.56

10553.00	4.11	640.37	0.00	0.00	640.40	.02	.05	.01	642.96
85.	0.	85.	0.	0.	60.	0.	39.	21.	640.56
3.24	0.00	1.25	0.00	.060	.040	.060	.046	636.26	803.76
.000360	200.	200.	200.	0	0	1	0.00	26.61	830.38

3280 CROSS SECTION 10753.00 EXTENDED 1.57 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 643.27 ELREA= 640.87

10753.00	3.94	640.51	0.00	0.00	640.63	.12	.10	.05	643.27
175.	0.	175.	0.	0.	63.	0.	39.	21.	640.87
3.26	0.00	2.77	0.00	.060	.040	.060	.046	636.57	804.01
.001833	200.	200.	200.	2	0	1	0.00	25.82	829.83

3280 CROSS SECTION 10993.00 EXTENDED 1.00 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEV= 643.64 ELEV= 641.24

10993.00	4.00	640.24	0.00	0.00	641.00	.11	.00	.00	643.64
175.	0.	175.	0.	0.	65.	0.	40.	21.	641.24
3.29	0.00	2.70	0.00	.070	.040	.060	.043	636.94	803.92
.001711	1.	240.	000.	2	1	1	0.00	26.12	830.03

3280 CROSS SECTION 11093.00 EXTENDED 1.00 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEV= 643.64 ELEV= 641.40

VALLEY SECTION

11093.00	4.01	641.11	0.00	0.00	641.23	.11	.17	.00	643.60
175.	0.	175.	0.	0.	65.	3.	40.	21.	641.40
3.30	0.00	2.70	0.00	.145	.040	.045	.046	637.19	803.89
.001679	100.	100.	100.	0	0	1	0.00	27.20	830.09

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Hagar Township

3) WATERCOURSE: Granger 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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T1      HAGAR TWP. BERRIEN CO.  5555-27
T2      100 YEAR FLOOD
T3      GRANGER DRAIN SEC. 1-13

J1  ICHECK     INQ        NINV       IDIR       STRT       METRIC     HVINS      Q          WSEL       FQ

      -10.       4.        -0.        -0.    .004600      -0.00      -0.0       -0.    590.400     -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=      595.00 ELREA=      591.10


            VALLEY SECTION A

     0.00       .71    591.31       0.00    590.40    591.32       .01       0.00       0.00    595.00
     140.        0.        4.       136.        0.        4.      200.        0.         0.     591.10
     0.00      0.00       .94        .68       .100      .060      .100     0.000     590.60     108.78
  .004538        -0.       -0.        -0.          0         0         5      0.00     368.94     477.72



OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      594.38 ELREA=      591.38

   188.00      1.76    592.14       0.00      0.00    592.15       .02       .83        .01    594.38
     140.        0.       33.       107.        0.       19.      133.        1.         1.     591.38
      .05      0.00      1.76        .80       .100      .060      .100      .060     590.38     101.48
  .004324       188.      188.       188.          2         0         1      0.00     232.81     334.29



OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      593.95 ELREA=      591.95

   375.00      2.35    592.70       0.00      0.00    592.75       .05       .58        .01    593.95
     140.        0.       66.        74.        0.       29.       81.        1.         2.     591.95
      .07      0.00      2.28        .90       .100      .060      .100      .070     590.35      98.89
  .004582       300.      187.       100.          2         0         1      0.00     128.02     226.91



OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      593.82 ELREA=      592.72

   563.00      3.32    593.64       0.00      0.00    593.69       .04       .94        .00    593.82
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.13	0.00	2.06	.75	.100	.060	.100	.056	590.32	97.55
.002468	75.	188.	400.	1	0	1	0.00	98.35	195.89

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
	VALLEY SECTION B								
750.00	3.98	594.28	0.00	0.00	594.34	.07	.64	.01	593.90
140.	19.	99.	22.	35.	41.	34.	3.	3.	593.80
.16	.54	2.41	.65	.100	.060	.100	.053	590.30	35.30
.002960	75.	187.	400.	2	0	1	0.00	127.51	162.81
850.00	3.71	594.64	0.00	0.00	594.77	.12	.40	.03	594.53
140.	9.	116.	15.	18.	37.	22.	3.	4.	594.43
.17	.51	3.11	.69	.100	.060	.100	.054	590.93	38.92
.005612	100.	100.	100.	2	0	1	0.00	120.06	158.98
950.00	3.32	595.06	0.00	0.00	595.09	.03	.29	.03	593.64
140.	21.	54.	65.	30.	28.	105.	3.	4.	593.54
.20	.68	1.90	.62	.100	.060	.100	.054	591.74	45.15
.001744	100.	100.	100.	1	0	1	0.00	147.81	192.96
1025.00	3.09	595.29	0.00	0.00	595.33	.05	.24	.01	594.10
140.	19.	64.	57.	24.	26.	80.	4.	4.	594.00
.21	.80	2.45	.72	.100	.060	.100	.053	592.20	45.63
.003260	32.	75.	150.	2	0	1	0.00	142.35	187.98
1075.00	3.24	595.44	0.00	0.00	595.47	.03	.13	.00	594.10
140.	20.	57.	63.	28.	28.	96.	4.	5.	594.00
.23	.72	2.07	.65	.100	.060	.100	.054	592.20	45.32
.002167	50.	50.	50.	2	0	1	0.00	145.82	191.14
	BRIDGE SECTION B-2 U.S. FACE OF DAM								
	EARTH DAM WITH SPILLWAY								
* 1100.00	3.29	595.49	0.00	0.00	595.52	.03	.05	.00	594.10
140.	20.	55.	65.	30.	28.	103.	4.	5.	594.00
.23	.69	1.95	.63	.100	.060	.100	.054	592.20	45.20
.001855	25.	25.	25.	1	0	1	0.00	147.23	192.43

ELTRD @ 596.2 > 595.49

* initial run does not include this spillway

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.00	2.80	-0.00	.01	-0.00	.01	-0.00	592.80	592.20

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS

044073.76	596.10	0.00	14.		0.	592.90	596.20	30.00		
1110.00	5.27	598.07	0.00	0.00	598.07	.00	2.55	0.00	598.70	
140.	0.	140.	0.	0.	858.	0.	4.	5.	602.30	
.25	0.00	.16	0.00	.100	.060	.100	.054	592.80	23.70	
.000007	10.	10.	10.	0	0	12	0.00	216.59	240.29	

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
1135.00	5.27	598.07	0.00	0.00	598.07	.00	.00	.00	598.70	
140.	0.	140.	0.	0.	688.	0.	4.	5.	600.30	
.28	0.00	.20	0.00	.100	.060	.100	.054	592.80	23.70	
.000011	50.	25.	1.	2	0	1	0.00	173.69	197.39	
1160.00	5.27	598.07	0.00	0.00	598.07	.00	.00	.00	598.70	
* 140.	0.	140.	0.	0.	688.	0.	5.	5.	600.30	
.32	0.00	.20	0.00	.100	.060	.100	.054	592.80	23.70	
.000011	50.	25.	1.	0	0	1	0.00	173.69	197.39	
OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA=					599.31	ELREA=		600.91		
1290.00	4.66	598.07	0.00	0.00	598.07	.00	.00	.00	599.31	
140.	0.	140.	0.	0.	583.	0.	7.	5.	600.91	
.47	0.00	.24	0.00	.100	.060	.100	.054	593.41	24.37	
.000019	130.	130.	130.	0	0	1	0.00	172.03	196.40	
1425.00	4.03	598.08	0.00	0.00	598.08	.01	.01	.00	595.55	
140.	55.	55.	29.	133.	60.	90.	8.	6.	595.45	
.53	.42	.92	.32	.100	.060	.100	.055	594.05	23.96	
.000261	135.	135.	135.	0	0	1	0.00	136.82	160.78	
1560.00	3.45	598.13	0.00	0.00	598.14	.01	.05	.00	596.18	
140.	55.	63.	21.	98.	50.	57.	9.	6.	596.08	
.57	.56	1.26	.38	.100	.060	.100	.055	594.68	30.08	
.000620	135.	135.	135.	2	0	1	0.00	128.44	158.52	
1695.00	2.93	598.24	0.00	0.00	598.27	.03	.12	.01	596.81	
140.	53.	72.	15.	71.	42.	32.	9.	7.	596.71	
.61	.75	1.71	.48	.100	.060	.100	.056	595.31	35.71	
.001487	135.	135.	135.	2	0	1	0.00	108.88	144.59	
1830.00	2.58	598.52	0.00	0.00	598.57	.05	.29	.01	597.44	
140.	50.	79.	11.	54.	36.	19.	10.	7.	597.34	
.63	.93	2.21	.57	.100	.060	.100	.056	595.94	39.60	
.003035	150.	135.	120.	2	0	1	0.00	95.38	134.97	
1965.00	2.42	598.99	0.00	0.00	599.06	.06	.48	.01	598.07	
140.	48.	83.	9.	47.	33.	14.	10.	7.	597.97	
.65	1.03	2.50	.62	.100	.060	.100	.056	596.57	41.29	
.004301	135.	135.	135.	2	0	1	0.00	89.49	130.78	

Consider reasonable

* previous W.S. @ 11+55 = 595.96
(598.07 - 595.96) = + 2.11 ft

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2100.00	2.39	599.59	0.00	0.00	599.66	.07	.60	.00	598.70
140.	48.	83.	8.	46.	33.	13.	10.	8.	598.60
.67	1.05	2.56	.63	.100	.060	.100	.056	597.20	41.62
.004615	135.	135.	135.	2	0	1	0.00	88.34	129.96
2210.00	2.40	600.10	0.00	0.00	600.17	.07	.51	.00	599.20
140.	48.	83.	9.	46.	33.	13.	11.	8.	599.10
.68	1.05	2.56	.63	.100	.060	.100	.056	597.70	41.60
.004595	110.	110.	110.	1	0	1	0.00	88.42	130.02
2320.00	2.40	600.60	0.00	0.00	600.67	.07	.50	.00	599.70
140.	48.	83.	9.	46.	33.	14.	11.	8.	599.60
.70	1.05	2.54	.63	.100	.060	.100	.056	598.20	41.53
.004524	110.	110.	110.	0	0	1	0.00	88.66	130.19
2430.00	2.39	601.09	0.00	0.00	601.15	.07	.48	.00	600.20
140.	48.	83.	8.	46.	33.	13.	11.	8.	600.10
.72	1.05	2.56	.63	.100	.060	.100	.057	598.70	41.63
.004628	95.	110.	125.	1	0	1	0.00	88.30	129.93
2540.00	2.38	601.58	0.00	0.00	601.65	.07	.50	.00	600.70
140.	48.	84.	8.	45.	33.	13.	11.	8.	600.60
.73	1.06	2.57	.63	.100	.060	.100	.057	599.20	41.67
.004671	100.	110.	120.	1	0	1	0.00	88.15	129.83
2650.00	2.40	602.20	0.00	0.00	602.25	.05	.59	.01	600.90
140.	92.	47.	1.	88.	17.	2.	11.	9.	601.70
.75	1.05	2.73	.46	.100	.060	.100	.057	599.80	26.19
.006264	110.	110.	110.	2	0	1	0.00	120.16	146.35
2760.00	2.50	602.80	0.00	0.00	602.84	.04	.58	.00	601.40
140.	95.	44.	1.	98.	18.	2.	12.	9.	602.20
.77	.97	2.42	.45	.100	.060	.100	.057	600.30	25.98
.004549	110.	110.	110.	0	0	1	0.00	121.65	147.64
2870.00	2.50	603.30	0.00	0.00	603.34	.04	.50	.00	601.90
140.	95.	44.	1.	98.	18.	2.	12.	9.	602.70
.79	.97	2.42	.45	.100	.060	.100	.057	600.80	25.99
.004570	110.	110.	110.	2	0	1	0.00	121.63	147.62

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
2980.00	2.53	603.83	0.00	0.00	603.87	.04	.53	.00	602.40
140.	95.	43.	1.	101.	18.	2.	12.	10.	603.20
.82	.95	2.35	.44	.100	.060	.100	.057	601.30	25.94
.004241	125.	110.	95.	1	0	1	0.00	122.00	147.94

3470 ENCROACHMENT STATIONS= 37.0 147.0 TYPE= 1 TARGET= 110.000

3090.00	2.53	604.33	0.00	0.00	604.37	.04	.50	.00	602.90
140.	95.	44.	1.	95.	19.	2.	13.	10.	603.70
.84	1.00	2.39	.49	.100	.060	.100	.057	601.80	37.00
.004376	120.	110.	100.	1	0	1	0.00	110.00	147.00

3470 ENCROACHMENT STATIONS= 92.0 147.0 TYPE= 1 TARGET= 55.000

3200.00	2.61	604.91	0.00	0.00	605.00	.09	.60	.02	603.40
140.	77.	60.	2.	51.	19.	3.	13.	10.	604.20
.85	1.52	3.12	.71	.100	.060	.100	.057	602.30	92.00
.007022	110.	110.	110.	2	0	1	0.00	55.00	147.00

3470 ENCROACHMENT STATIONS= 120.0 150.0 TYPE= 1 TARGET= 30.000

3250.00	3.88	605.12	0.00	0.00	605.20	.08	.20	.00	602.34
140.	40.	84.	16.	27.	32.	16.	13.	10.	603.14
.86	1.46	2.62	1.01	.100	.060	.100	.057	601.24	120.00
.002522	50.	50.	50.	2	0	1	0.00	30.00	150.00

3470 ENCROACHMENT STATIONS= 129.0 141.0 TYPE= 1 TARGET= 12.000

3284.00	4.65	605.17	0.00	0.00	605.33	.15	.09	.04	601.62
140.	7.	129.	4.	4.	40.	3.	13.	10.	602.42
.86	1.86	3.25	1.56	.100	.060	.100	.057	600.52	129.00
.002908	34.	34.	34.	2	0	1	0.00	12.00	141.00

3301 HV CHANGED MORE THAN HVINS

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 611.20 ELREA= 611.20

3299.00	4.63	604.83	0.00	0.00	605.88	1.05	.11	.45	601.20
140.	0.	140.	0.	0.	17.	0.	13.	10.	601.20
.86	0.00	8.21	0.00	.100	.060	.100	.057	600.20	178.00
.037865	15.	15.	15.	2	0	1	0.00	4.00	182.00

	140.	95.	44.	1.	95.	19.	2.	8.	9.	602.70
	.49	.97	2.42	.45	.100	.060	.100	.058	600.80	25.99
	.004563	110.	110.	110.	2	0	1	0.00	121.64	147.62
	2980.00	2.53	603.83	0.00	0.00	603.87	.04	.53	.00	602.40
	140.	95.	43.	1.	141.	18.	2.	8.	9.	603.20
	.52	.95	2.35	.44	.100	.060	.100	.058	601.30	25.94
	.004240	125.	110.	45.	1	0	1	0.00	122.00	147.94

3470 ENCROACHMENT STATIONS= 87.0 147.0 TYPE= 1 TARGET= 110.000

3090.00	2.53	604.33	0.00	0.00	604.37	.04	.50	.00	602.90
140.	95.	44.	1.	95.	19.	2.	8.	9.	603.70
.54	1.00	2.39	.49	.100	.060	.100	.058	601.80	37.00
.004378	120.	110.	100.	1	0	1	0.00	110.00	147.00

3470 ENCROACHMENT STATIONS= 92.0 147.0 TYPE= 1 TARGET= 55.000

VALLEY SECTION D

3200.00	2.61	604.21	0.00	0.00	605.00	.0	.60	.00	603.40
140.	77.	66.	2.	61.	14.	3.	9.	9.	604.20
.55	1.52	3.12	.71	.100	.060	.100	.058	602.30	92.00
.007021	110.	110.	110.	2	0	1	0.00	55.00	147.00

3470 ENCROACHMENT STATIONS= 120.0 150.0 TYPE= 1 TARGET= 30.000

3250.00	3.88	605.12	0.00	0.00	605.20	.08	.20	.00	602.34
140.	40.	84.	16.	27.	32.	16.	9.	9.	603.14
.56	1.46	2.62	1.01	.100	.060	.100	.058	601.24	120.00
.002522	50.	50.	50.	2	0	1	0.00	30.00	150.00

3470 ENCROACHMENT STATIONS= 120.0 141.0 TYPE= 1 TARGET= 12.000

3284.00	4.65	605.17	0.00	0.00	605.33	.15	.05	.04	601.62
140.	7.	129.	4.	4.	46.	3.	9.	9.	602.42
.56	1.56	3.25	1.56	.100	.060	.100	.05	600.52	129.00
.002908	34.	34.	34.	2	0	1	0.00	12.00	141.00

3301 HV CHANGED MORE THAN HVINS

submerged outlet condition

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLE= 611.20 EL.EE= 611.20

3299.00	4.63	604.83	0.00	0.00	605.88	1.05	.11	.45	601.20
140.	0.	140.	0.	0.	17.	0.	9.	9.	601.20
.56	0.00	4.21	0.00	.100	.060	.100	.058	600.20	178.00
.037864	15.	15.	15.	2	0	1	0.00	4.00	132.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	ROLEW	B*C	B*P	BAREA	SS	ELCHU	ELCHD
	-0.00	2.51	2.60	-0.00	3.14	-0.00	12.57	-0.00	600.00	600.20

3301 HV CHANGED MORE THAN HVINS

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

PRESSURE FLOW Chabot Rd

EGRRS	EGLWC	HS	QWEIR	QFR	AREA	ELLC	ELTRD	CLASS
609.67	605.68	0.00	0.	140.	1.	604.00	618.40	10.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 618.4 ELREA= 618.4

BRIDGE SECTION E U.S. CHABOT RD. 6'- 4" C P

CMP WITH CONCRETE HEADWALL

3359.00	9.44	609.44	0.00	0.00	609.57	.23	3.75	0.00	601.00
140.	0.	140.	0.	0.	0.	0.	0.	0.	601.00
.57	0.00	.86	0.00	.100	.060	.100	.056	600.00	178.00
.005791	60.	60.	60.	2	0	1	0.00	4.00	182.00

3470 ENCROACHMENT STATIONS=			114.0	151.0	TYPE=	1	TARGET=	32.000	
3373.00	9.63	609.73	0.00	0.00	609.74	.01	.00	.07	601.20
140.	39.	71.	39.	93.	90.	80.	9.	9.	602.00
.57	.42	.79	.38	.075	.040	.075	.058	600.10	119.00
.000026	14.	14.	14.	1	0	1	0.00	32.00	151.00

why so low?

3470 ENCROACHMENT STATIONS=			105.0	165.0	TYPE=	1	TARGET=	60.000	
3401.00	9.43	609.74	0.00	0.00	609.74	.00	.00	.00	601.41
140.	60.	39.	41.	205.	85.	164.	9.	9.	602.21
.60	.29	.44	.25	.075	.050	.075	.056	600.31	105.00
.000013	28.	28.	28.	2	0	1	0.00	60.00	165.00

3470 ENCROACHMENT STATIONS=			33.0	237.0	TYPE=	1	TARGET=	204.000	
3460.00	8.99	609.74	0.00	0.00	609.74	.00	.00	.00	601.85
140.	95.	17.	23.	734.	93.	309.	10.	10.	602.65
.72	.13	.20	.09	.075	.050	.075	.057	600.75	33.00
.000003	59.	59.	59.	3	0	1	0.00	184.06	217.06

3510.00	8.62	609.7	0.00	0.00	609.74	.00	.00	.00	602.22
140.	99.	16.	25.	773.	74.	281.	11.	10.	603.02
.82	.13	.21	.09	.075	.050	.075	.057	601.12	13.56
.000003	41.	50.	50.	3	0	1	0.00	201.86	215.42

3560.00	8.25	609.74	0.00	0.00	609.74	.00	.00	.00	602.59
140.	100.	17.	23.	730.	75.	254.	12.	10.	603.39
.91	.14	.22	.10	.075	.050	.075	.057	601.49	14.31
.000004	41.	50.	59.	0	0	1	0.00	199.47	213.78

Chabot Rd

check on pressure flow

$K = 2.51$; $C = 1/\sqrt{K} = 1/\sqrt{2.51} = .63$

$Q = CA\sqrt{2gH} = .63(12.57)(8.025)H^{1/2}$

$Q = 63.67\,H^{1/2}$

let $TW = 605.17$

$EHW = 609.73$

$H = (609.73 - 605.17) = 4.56$

$Q = 63.67(2.135) = 135.96$ cfs

consider reasonable

3615.00	7.84	609.74	0.00	0.00	609.74	.00	.00	.00	603.00
140.	101.	17.	22.	683.	72.	224.	14.	10.	603.80
1.00	.15	.24	.10	.075	.050	.075	.057	601.90	15.14
.000005	45.	55.	55.	0	0	1	0.00	196.[illegible]1	211.96

SECNO	DEPTH	CSEL	CRIMS	USELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	CH	QROB	XLOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3660.00	7.45	609.74	0.00	0.00	609.74	.00	.00	.00	603.39
140.	103.	18.	24.	638.	68.	196.	15.	11.	604.19
1.10	.15	.25	.10	.075	.050	.075	.057	602.29	15.94
.000006	63.	53.	43.	0	0	1	0.00	194.29	210.22

3722.00	7.05	609.74	0.00	0.00	609.74	.00	.00	.00	603.79
140.	104.	18.	1[illegible].	592.	[illegible]	16[illegible].	16.	11.	604.59
1.19	.17	.29	.11	.075	.050	.075	.057	60[illegible].69	16.75
.000008	64.	54.	44.	0	0	1	0.00	1[illegible].91	205.55

3775.00	6.66	609.74	0.00	0.00	609.74	.00	.00	.00	604.18
140.	104.	19.	17.	5[illegible].	[illegible]	144.	17.	11.	604.98
1.27	.19	.31	.12	.075	.050	.075	.057	60[illegible].08	17.54
.000011	63.	53.	43.	0	0	1	0.00	183.06	200.50

3829.00	6.26	609.74	0.00	0.00	609.74	.00	.00	.00	604.58
140.	105.	19.	15.	504.	56.	121.	1[illegible].	11.	605.38
1.35	.21	.35	.13	.075	.050	.075	.056	603.48	18.35
.000015	64.	54.	44.	0	0	1	0.00	177.16	195.51

3882.00	5.87	609.74	0.00	0.00	609.74	.00	.00	.00	604.97
140.	106.	20.	14.	450.	52.	100.	1[illegible].	11.	605.77
1.42	.23	.38	.14	.075	.050	.075	.056	603.87	19.14
.000020	63.	53.	43.	0	0	1	0.00	171.42	190.56

3936.00	5.47	609.74	0.00	0.00	609.75	.00	.00	.00	605.37
140.	107.	21.	12.	416.	48.	81.	20.	12.	606.17
1.48	.26	.43	.15	.075	.050	.075	.056	604.27	19.95
.000028	64.	54.	44.	0	0	1	0.00	165.53	185.48

3989.00	5.09	609.75	0.00	0.00	609.75	.00	.00	.00	605.76
140.	107.	22.	11.	374.	44.	65.	2[illegible].	12.	606.56
1.53	.29	.44	.17	.075	.050	.075	.056	604.66	20.74
.000040	63.	53.	43.	0	0	1	0.00	159.79	180.53

4043.00	4.67	609.75	0.00	0.00	609.76	.01	.00	.00	606.48
140.	36.	32.	23.	[illegible].	91.	[illegible].	21.	12.	606.78
1.56	.42	.85	.3[illegible]	.075	.050	.075	.056	605.08	101.64
.000146	64.	54.	44.	0	0	1	0.00	101.75	203.39

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

4096.00	4.28	609.75	0.00	0.00	609.77	.01	.01	.00	606.87
140.	33.	87.	20.	53.	33.	46.	21.	12.	607.17
1.57	.49	1.05	.44	.075	.050	.075	.056	605.47	105.57
.000230	37.	53.	63.	0	0	1	0.00	95.03	200.60
4150.00	3.90	609.77	0.00	0.00	609.78	.02	.02	.00	607.27
140.	31.	92.	17.	53.	74.	34.	21.	12.	607.57
1.59	.57	1.25	.50	.075	.050	.075	.056	605.87	110.34
.000323	35.	54.	70.	0	0	1	0.00	87.62	197.76
4203.00	3.53	609.79	0.00	0.00	609.81	.03	.03	.00	607.66
140.	27.	99.	14.	41.	65.	25.	22.	12.	607.96
1.61	.62	1.51	.58	.075	.050	.075	.056	606.26	114.97
.000656	37.	53.	63.	1	1	1	0.00	79.92	196.88
4257.00	3.17	609.83	0.00	0.00	609.87	.04	.05	.01	608.06
140.	24.	106.	11.	21.	57.	16.	22.	12.	608.36
1.61	.31	1.86	.56	.075	.050	.075	.056	606.66	118.97
.001194	35.	54.	70.	1	0	1	0.00	72.43	191.40
4310.00	2.85	609.90	0.00	0.00	609.96	.07	.05	.01	608.45
140.	20.	113.	.	21.	50.	10.	22.	13.	608.75
1.62	.93	2.27	.75	.075	.050	.075	.055	607.05	122.29
.002127	53.	53.	53.	2	0	1	0.00	65.02	187.31
4364.00	2.58	610.03	0.00	0.00	610.13	.10	.15	.02	608.85
140.	15.	110.	5.	15.	43.	6.	22.	13.	609.15
1.62	1.06	2.74	.83	.075	.050	.075	.055	607.45	125.71
.003703	54.	54.	54.	2	0	1	0.00	57.42	183.13
4417.00	2.41	610.25	0.00	0.00	610.3[illegible]	.14	.24	.02	609.24
140.	13.	123.	3.	12.	3[illegible].	4.	22.	13.	609.54
1.63	1.15	3.12	.87	.075	.050	.075	.055	607.84	127.63
.005454	53.	53.	53.	2	0	1	0.00	53.44	181.08
4471.00	2.32	610.56	0.00	0.00	610.7[illegible]	.15	.33	.01	60[illegible].64
140.	12.	125.	3.	1[illegible].	3[illegible].	3.	22.	13.	609.94
1.63	1.19	3.34	.89	.075	.050	.075	.055	608.24	128.49
.006696	54.	54.	54.	2	0	1	0.00	51.04	179.54

SECNO Q TIME SLOPE	DEPTH OLDB VLOB XLOBL	CHSEL WCH VCH XLCH	CHINS WRCH VRCH XLOBR	MSELN ALCR XML ITRIAL	FR ACH XNCH IOC	HR ARCH XNR ICONT	HL VOL MTN CORAR	QLOSS TWA ELMIN TOP ID	BANK ELEV LEFT/RIGHT SSTA ENDST
4524.00	2.29	610.92	0.00	0.00	611.0	.17	.07	.00	610.03
140.	11.	12[illegible].	2.	1[illegible].	37.	3.	22.	13.	610.33
1.64	1.2[illegible]	3.42	.89	.075	.050	.075	.055	608.63	128.76
.007160	53.	53.	53.	2	0	1	0.00	50.27	179.03
4578.00	2.29	611.32	0.00	0.00	611.4[illegible]	.17	.39	.00	610.43
140.	11.	127.	2.	9.	37.	3.	22.	13.	610.73
1.64	1.21	3.46	.89	.075	.050	.075	.055	609.03	128.92
.007438	54.	54.	54.	1	0	1	0.00	49.84	178.75

4631.00	2.22	611.64	0.00	0.00	611.84	.20	.34	.01	610.82
140.	8.	130.	2.	[illegible]	35.	2.	22.	13.	611.12
1.64	1.00	[illegible]	.73	.075	.040	.075	.055	509.42	129.46
.005657	53.	53.	53.	2	0	1	0.00	48.29	177.74
4685.00	2.15	611.97	0.00	0.00	612.1-	.23	.34	.01	611.22
14 .	7.	132.	1.	7.	34.	2.	22.	13.	611.52
1.65	1.02	3.93	.72	.075	.040	.075	.055	609.82	130.24
.006902	54.	54.	54.	2	0	1	0.00	46.39	176.63
4738.00	2.13	612.34	0.00	0.00	612.57	.24	.38	.00	611.61
14[illegible].	7.	132.	1.	7.	33.	1.	22.	13.	611.91
1.65	1.02	4.00	.71	.075	.040	.075	.055	610.21	130.43
.007257	53.	53.	53.	2	0	1	0.00	45.97	176.40
4792.00	2.12	612.73	0.00	0.00	612.97	.24	.40	.00	612.01
140.	7.	132.	1.	8.	33.	1.	22.	13.	612.31
1.66	1.03	4.03	.71	.075	.040	.075	.054	610.61	130.53
.007455	54.	54.	54.	1	0	1	0.00	45.74	176.27
4845.00	2.13	613.13	0.00	0.00	613.36	.24	.3[illegible]	.00	612.40
14[illegible].	7.	132.	1.	7.	33.	1.	22.	13.	612.7[illegible]
1.66	1.02	4.01	.71	.075	.040	.075	.054	611.00	130.48
.007355	53.	53.	53.	1	0	1	0.00	45.85	176.33
4899.00	2.17	613.61	0.00	0.00	613.81	.21	.44	.01	613.44
140.	0.	139.	1.	[illegible].	38.	1.	22.	13.	613.24
1.66	.36	3.65	.61	.075	.040	.075	.054	611.44	161.61
.009074	54.	54.	54.	2	0	1	0.00	44.09	205.69

SECNO	DEPTH	CWSEL	CHWS	WSELK	EG	FR	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	VROB	ALPH	ACH	XROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
4952.00	2.24	614.07	0.00	0.00	614.25	.18	.43	.01	613.83
140.	0.	139.	1.	[illegible].	41.	2.	22.	13.	613.63
1.67	.41	[illegible].4	.61	.075	.040	.075	.054	611.83	160.51
.007172	53.	53.	53.	2	0	1	0.00	46.36	206.87
5006.00	2.23	614.46	0.00	0.00	614.64	.18	.39	.00	614.23
140.	0.	139.	1.	[illegible].	40.	1.	23.	13.	614.03
1.67	.40	[illegible].44	.61	.075	.040	.075	.054	612.23	160.67
.007416	54.	54.	54.	2	0	1	0.00	46.03	206.70
5059.00	2.23	614.85	0.00	0.00	615.04	.18	.39	.00	614.62
140.	0.	139.	1.	[illegible].	41.	1.	23.	13.	614.42
1.68	.40	[illegible].43	.61	.075	.040	.075	.054	612.62	160.64
.007371	53.	53.	53.	1	0	1	0.00	46.09	206.73
5113.00	2.23	615.25	0.00	0.00	615.43	.18	.40	.00	615.02
140.	0.	139.	1.	0.	40.	1.	23.	13.	614.82
1.68	.40	3.43	.61	.075	.040	.075	.053	613.02	160.65
.007389	54.	54.	54.	0	0	1	0.00	46.07	206.72

Next (@ [illegible]

Section 4899 ~~4952~~ 53-76
Mny ~~53-41~~ dups of FP?

appears to be a new cross section with a nice ditch
n = 0.04
TW = 46
36 ft channel
top width
22 ft deep must have a High n Value 0.04 when in doubt (

why use the lower limit as depth drops n increases

5166.00	2.23	615.64	0.00	0.00	615.83	.18	.39	.00	615.41
140.	0.	139.	1.	0.	41.	1.	23.	14.	615.21
1.69	.40	3.43	.61	.075	.040	.075	.053	613.41	160.64
.007364	53.	53.	53.	0	0	1	0.00	46.10	206.74
5220.00	2.23	616.04	0.00	0.00	616.22	.18	.40	.00	615.81
140.	0.	139.	1.	0.	40.	1.	23.	14.	615.61
1.69	.40	3.43	.61	.075	.040	.075	.053	613.81	160.66
.007402	54.	54.	54.	0	0	1	0.00	46.05	206.71
5273.00	2.23	616.43	0.00	0.00	616.62	.18	.39	.00	616.20
140.	0.	139.	1.	0.	41.	1.	23.	14.	616.00
1.70	.40	3.43	.61	.075	.040	.075	.053	614.20	160.64
.007374	53.	53.	53.	0	0	1	0.00	46.09	206.73
5327.00	2.23	616.83	0.00	0.00	617.02	.18	.40	.00	616.60
140.	0.	139.	1.	0.	40.	1.	23.	14.	616.40
1.70	.40	3.43	.61	.075	.040	.075	.053	614.60	160.66
.007398	54.	54.	54.	0	0	1	0.00	46.05	206.71

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

5380.00	2.24	617.23	0.00	0.00	617.41	.18	.39	.00	616.99
140.	0.	139.	1.	.	41.	1.	23.	14.	616.79
1.70	.40	3.43	.61	.075	.040	.075	.053	614.99	160.64
.007366	53.	53.	53.	0	0	1	0.00	46.10	206.74
5434.00	2.23	617.62	0.00	0.00	617.81	.18	.40	.00	617.39
140.	0.	139.	1.	0.	40.	1.	23.	14.	617.19
1.71	.40	3.43	.61	.075	.040	.075	.053	615.39	160.66
.007398	54.	54.	54.	0	0	1	0.00	46.05	206.71
5487.00	2.24	618.02	0.00	0.00	618.20	.18	.39	.00	617.78
140.	0.	139.	1.	.	41.	1.	23.	14.	617.58
1.71	.40	3.43	.61	.075	.040	.075	.052	615.78	160.64
.007371	53.	53.	53.	0	0	1	0.00	46.09	206.73

3470 ENCROACHMENT STATIONS= 149.0 215.0 TYPE= 1 TARGET= 66.000

VALLEY SECTION F

5541.00	2.23	618.41	0.00	0.00	618.60	.18	.40	.00	618.18
140.	0.	139.	1.	0.	40.	1.	23.	14.	617.98
1.72	.40	3.43	.61	.075	.040	.075	.053	616.18	160.66
.007400	54.	54.	54.		0	1	0.00	46.05	206.71

3470 ENCROACHMENT STATIONS= 174.0 226.0 TYPE= 1 TARGET= 52.000

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 100000.00 ELREA= 617.28

5566.00	3.14	618.62	0.00	0.00	618.71	.09	.08	.03	100000.00
140.	0.	131.	9.	0.	53.	14.	23.	14.	617.28

				1	0.00	46.97	220.97		

3470 ENCROACHMENT STATIONS= 159.0 204.0 TYPE= 1 TARGET= 45.000

5576.00	3.50	618.70	0.00	0.00	618.73	.03	.01	.02	617.20
14.	4.	132.	4.	7.	86.	6.	23.	14.	617.00
1.72	.56	1.54	.052	.075	.040	.075	.052	615.20	159.00
.000541	10.	10.	10.	2	0	1	0.00	45.00	204.00

unsubmerged outlet ELLC = 621.1 > 618.72

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 624.50 ELREA= 629.50

5640.00	5.32	618.72	0.00	0.00	618.80	.08	.04	.02	629.50
140.	0.	140.	0.	0.	60.	0.	23.	14.	629.50
1.73	0.00	2.33	0.00	.075	.040	.075	.052	613.40	194.10
.000941	64.	64.	64.	2	0	1	0.00	11.80	205.90

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	CORWR	TOPWID	ENDST

NORMAL BRIDGE,NRD=12 MIN ELTRD= 629.10 MAY ELLC= 620.90

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 624.50 ELREA= 629.5

5641.00	5.31	618.71	0.00	0.00	618.81	.10	.00	.01	629.50
140.	0.	140.	0.	0.	55.	0.	23.	14.	629.50
1.73	0.00	2.54	0.00	.075	.031	.075	.052	613.40	194.10
.000943	1.	1.	1.	0	0	1	-4.92	11.80	205.90

NORMAL BRIDGE,NRD=12 MIN ELTRD= 629.10 MAY ELLC= 621.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 624.50 ELREA= 629.5

BRIDGE SECTION @ U.S. RIVERSIDE RD, 7'-7"X 11'10" MULTI PLATE ARCH

70 SF

MULTI PLATE ARCH PROJECTING FROM FILL (NO HEADWALL)

5716.00	5.18	618.72	0.00	0.00	618.89	.10	.07	.00	629.50
140.	0.	140.	0.	0.	54.	0.	23.	14.	629.50
1.74	0.00	2.59	0.00	.075	.031	.075	.052	613.60	194.10
.000990	75.	75.	75.	6	0	1	-4.42	11.80	205.90

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 629.50 ELREA= 629.50

5717.00	5.20	618.81	0.00	0.00	618.89	.09	.00	.00	629.50
140.	0.	140.	0.	0.	54.	0.	23.	14.	629.50
1.74	0.00	2.33	0.00	.055	.040	.055	.052	613.60	194.10
.001004	1.	1.	1.	1	0	1	0.00	11.80	205.90

3470 ENCROACHMENT STATIONS= 165.0 19[illegible].0 TYPE= 1 TARGET= 32.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 99997.40 ELREA= 99997.40

GRANGER DRAIN TRIBUTARY CONFLUENCE

5727.00	[illegible].31	615.91	0.00	0.00	616.92	.01	.00	.02	99997.40
89.	7.	9.	1.	0.	137.	0.	23.	14.	99997.40
1.7[illegible]	0.00	.65	0.00	.055	.040	.055	.052	613.60	166.00
.000058	10.	10.	10.	2	0	1	0.00	32.00	198.00

3470 ENCROACHMENT STATIONS= 137.0 227.0 TYPE= 1 TARGET= 90.000

5757.00	[illegible].10	615.92	0.00	0.00	616.92	.00	.00	.00	615.82
89.	11.	82.	15.	54.	144.	66.	23.	14.	615.62
1.76	.21	.43	.23	.055	.040	.055	.052	613.82	137.00
.000022	30.	30.	30.	1	0	1	0.00	90.00	227.00

SECNO O TIME SLOPE	DEPTH QLOB VLOB XLOBL	CWSEL QCH VCH XLCH	CWINS WROB VROB XLOBR	WSELK XLOB XNL TTRIAL	EG ACH XNCH IDC	HF WROB XNR TCONT	HL VOL TN CORAR	QLOSS TAX FLMIN TOP ID	BANK ELEV LEFT/RIGHT SSTA ENDST
5918.00	2.92	612.92	0.00	0.00	61[illegible].93	.01	.01	.00	617.10
89.	8.	70.	11.	29.	97.	34.	24.	14.	616.70
1.85	.28	.73	.31	.055	.040	.055	.051	615.00	289.07
.000053	191.	191.	191.	1	0	1	0.00	92.99	382.06
6109.00	2.53	613.93	0.00	0.00	619.0[illegible]	.0[illegible]	.05	.04	619.30
89.	0.	89.	0.	0.	36.	0.	25.	15.	618.70
1.87	0.00	2.45	.43	.055	.040	.055	.051	616.40	476.07
.002581	191.	191.	191.	1		1	0.00	26.91	502.98
6157.00	2.31	619.06	0.00	0.00	619.1[illegible]	.13	.13	.02	619.65
89.	0.	89.	0.	0.	31.	0.	25.	15.	619.05
1.87	0.00	2.86	.12	.055	.040	.055	.051	616.75	476.94
.004101	48.	48.	48.	2	0	1	0.00	23.24	500.18
6205.00	2.18	619.28	0.00	0.00	619.43	.16	.23	.01	620.00
89.	0.	89.	0.	0.	28.	0.	25.	15.	619.40
1.88	0.00	2.15	0.00	.055	.040	.055	.051	617.10	477.47
.005472	48.	48.	48.	2	0	1	0.00	21.96	499.44
6253.00	2.09	619.55	619.55	0.00	620.12	.57	.4[illegible]	.21	621.26
89.	0.	89.	0.	0.	1[illegible].	0.	25.	15.	620.56
1.88	0.00	6.06	0.00	.055	.040	.055	.051	617.46	634.69
.024036	48.	48.	48.	2	0	1	0.00	12.81	647.51
6300.00	2.74	620.54	0.00	0.00	620.75	.21	.22	.11	621.60
89.	0.	89.	0.	0.	2[illegible].	0.	25.	15.	620.90
1.88	0.00	2.69	0.00	.055	.040	.055	.051	617.60	632.93
.006347	47.	47.	47.	2	0	1	0.00	16.22	649.15
6491.00	3.05	622.15	0.00	0.00	622.66	.46	1.73	.12	623.60
89.	0.	89.	0.	0.	16	0	25	15	622.90

1.89	0.00	5.41	0.00	.055	.040	.055	.050	619.10	788.52
.014001	191.	191.	191.	3	0	1	0.00	10.05	798.87

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 624.40 ELRE= 623.50

6566.00	3.42	623.12	0.00	0.00	623.42	.2	.77	.05	624.40
89.	1.	9.	0.	0.	20.	0.	25.	15.	623.50
1.90	0.00	4.35	0.00	.055	.040	.055	.050	619.70	788.17
.007797	75.	75.	75.	2	0	1	0.00	11.27	799.44

SECNO	DEPTH	C SEL	CHNS	MSEL	ES	HV	HL	CLOSS	BANK ELEV
Q	OLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TW	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	TN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	LTRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 624.40 ELRE= 624.00

6636.00	3.47	623.67	0.00	0.00	623.93	.2	.53	.00	624.90
89.	0.	9.	0.	0.	21.	0.	25.	15.	624.00
1.90	0.00	4.24	0.00	.055	.040	.055	.050	620.20	788.09
.007278	50.	70.	90.	2	0	1	0.00	11.42	799.51

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 626.10 ELRE= 625.10

6781.00	3.44	624.74	0.00	0.00	625.03	.2	1.07	.00	626.00
89.	1.	9.	1.	0.	21.	0.	25.	15.	625.10
1.91	0.00	4.31	0.00	.055	.040	.055	.050	621.30	788.13
.007546	75.	145.	215.	1	0	1	0.00	11.34	799.47

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 627.10 ELRE= 625.20

6926.00	3.44	625.84	0.00	0.00	626.13	.2	1.10	.00	627.10
89.	1.	9.	1.	0.	21.	0.	25.	15.	626.20
1.92	0.00	4.32	0.00	.055	.040	.055	.050	622.40	788.15
.007667	145.	145.	145.	1	0	1	0.00	11.31	799.46

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 628.40 ELRE= 627.30

7071.00	3.45	626.95	0.00	0.00	627.24	.2	1.10	.00	628.20
89.	1.	9.	1.	1.	21.	1.	25.	15.	627.30
1.93	0.00	4.30	0.00	.055	.040	.055	.049	623.50	788.13
.007564	145.	145.	145.	1	0	1	0.00	11.34	799.47

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 629.30 ELRE= 628.40

VALLEY SECTION H

7216.00	3.42	628.02	0.00	0.00	628.25	.23	1.60	.02	629.30
79.	1.	75.	1.	0.	21.	0.	25.	15.	628.40
1.94	0.00	3.88	0.00	.055	.040	.055	.049	624.60	788.18
.006215	145.	145.	145.	2	0	1	0.00	11.25	799.43

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 629.90 ELREA= 629.00

7346.00	3.58	628.73	0.00	0.00	628.90	.20	.72	.01	629.90
79.	0.	79.	0.	0.	22.	0.	25.	15.	629.00
1.95	0.00	.55	0.00	.055	.040	.055	.049	625.20	787.90
.004907	130.	130.	130.	2	0	1	0.00	11.77	799.67

SECNO	DEPTH	CUSEL	CRIWS	WSELK	FR	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	QLOS	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VRO	XNL	XNCH	XAR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOP ID	ENDST

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 630.50 ELREA= 629.60

7476.00	3.62	629.42	0.00	0.00	629.60	.1	.62	.00	630.50
79.	0.	79.	0.	0.	23.	0.	25.	15.	629.60
1.96	0.00	1.49	0.00	.055	.040	.055	.049	625.80	787.85
.004691	130.	130.	130.	2	0	1	0.00	11.88	799.72

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 631.10 ELREA= 630.20

7606.00	3.62	630.02	0.00	0.00	630.21	.19	.60	.00	631.10
79.	0.	79.	0.	0.	23.	0.	26.	15.	630.20
1.97	0.00	.45	0.00	.055	.040	.055	.049	625.40	787.82
.004596	190.	130.	90.	1	0	1	0.00	11.92	799.75

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 631.70 ELREA= 630.80

7736.00	3.62	630.62	0.00	0.00	630.81	.19	.60	.00	631.70
79.	0.	79.	0.	0.	23.	0.	26.	15.	630.80
1.98	0.00	2.47	0.00	.055	.040	.055	.049	627.00	787.83
.004618	170.	130.	90.	1	0	1	0.00	11.91	799.74

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 632.30 ELREA= 631.40

7866.00	3.62	631.22	0.00	0.00	631.41	.1	.60	.00	632.30
79.	0.	79.	0.	0.	23.	0.	26.	15.	631.40
1.99	0.00	3.47	0.00	.055	.040	.055	.049	627.60	787.83
.004626	130.	130.	130.	0	0	1	0.00	11.91	799.74

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 632.90 ELREA= 632.00

7996.00	3.62	631.82	0.00	0.00	632.01	.1	.60	.00	632.90
79.	0.	79.	0.	0.	23.	0.	26.	15.	632.00
2.00	0.00	3.47	0.00	.055	.040	.055	.049	628.20	787.83
.004621	130.	130.	230.	0	0	1	0.00	11.91	799.74

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 633.50 ELREA= 632.60

8126.00	3.62	632.42	0.00	0.00	632.61	.19	.60	.00	633.50

2.01	0.00	3.47	0.00	.055	.040	.055	.048	628.80	787.83
.004615	130.	130.	130.	0	0	1	0.00	11.91	799.74

SECNO	DEPTH	CMSEL	CRINS	WSELK	FG	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	TOP ID	ENDST
8256.00	3.43	632.63	0.00	0.00	632.89	.05	.24	.04	633.40
79.	0.	79.	0.	0.	42.	0.	26.	15.	633.60
2.03	0.00	1.[illegible]9	0.00	.055	.040	.055	.048	629.40	780.13
.000992	130.	130.	130.	2	0	1	0.00	18.56	798.69
8386.00	2.99	632.92	0.00	0.00	633.07	.07	.17	.01	634.00
79.	0.	79.	0.	0.	38.	0.	26.	15.	634.20
2.05	0.00	2.34	0.00	.055	.040	.055	.048	630.00	781.02
.001754	130.	130.	130.	2	0	1	0.00	16.91	797.93
8451.00	2.81	633.11	0.00	0.00	633.21	.10	.15	.01	634.30
79.	0.	79.	0.	0.	31.	0.	26.	15.	634.50
2.06	0.00	2.55	0.00	.055	.040	.055	.048	630.30	781.38
.002255	65.	65.	65.	2	0	1	0.00	16.24	797.62
8516.00	2.66	633.25	0.00	0.00	633.36	.12	.16	.01	634.60
79.	0.	79.	0.	0.	29.	0.	26.	15.	634.80
2.06	0.00	2.77	0.00	.055	.040	.055	.048	630.60	781.68
.002795	65.	65.	65.	2	0	1	0.00	15.70	797.37
8581.00	2.55	633.45	0.00	0.00	633.59	.13	.20	.01	634.90
79.	0.	79.	0.	0.	27.	0.	26.	15.	635.10
2.07	0.00	2.95	0.00	.055	.040	.055	.048	630.90	781.90
.003311	65.	65.	65.	2	0	1	0.00	15.29	797.19
8616.00	2.51	633.57	0.00	0.00	633.71	.14	.12	.00	635.06
79.	0.	79.	0.	0.	26.	0.	26.	15.	635.26
2.07	0.00	3.04	0.00	.055	.040	.055	.048	631.06	782.00
.003600	35.	35.	35.	0	0	1	0.00	15.09	797.10
8621.00	2.51	633.59	0.00	0.00	633.73	.14	.02	.00	635.08
79.	0.	79.	0.	0.	26.	0.	26.	15.	635.28
2.07	0.00	3.03	0.00	.055	.040	.055	.048	631.08	782.00
.003586	5.	5.	5.	1	0	1	0.00	15.10	797.10
8626.00	2.49	633.60	0.00	0.00	633.75	.14	.02	.00	635.11
79.	0.	79.	0.	0.	26.	0.	26.	15.	635.31
2.07	0.00	.06	0.00	.055	.040	.055	.048	631.11	782.02
.003656	5.	5.	5.	0	0	1	0.00	15.06	797.08

SECNO	DEPTH	CMSEL	CRINS	WSELK	FG	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	TOP ID	ENDST
8631.00	2.49	633.62	0.00	0.00	633.77	.15	.02	.00	635.13
79.	0.	79.	0.	0.	26.	0.	26.	15.	635.33

2.07	0.00	3.06	0.00	.055	.040	.055	.048	631.13	782.03
.003667	5.	5.	5.	0	0	1	0.00	15.05	797.08

8636.00	2.48	633.64	0.00	0.00	633.79	.15	.02	.00	635.16
79.	0.	79.	0.	0.	26.	0.	26.	16.	635.36
2.07	0.00	3.08	0.00	.055	.040	.055	.048	631.16	782.05
.003736	5.	5.	5.	0	0	1	0.00	15.01	797.06

8641.00	2.48	633.66	0.00	0.00	633.81	.15	.02	.00	635.18
79.	0.	79.	0.	0.	26.	0.	26.	16.	635.38
2.07	0.00	3.08	0.00	.055	.040	.055	.048	631.18	782.05
.003745	5.	5.	5.	0	0	1	0.00	15.00	797.05

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	TOP ID	ENDST

$Y_c = 2.76 + 631.2 = 633.96$

d/s

8646.00	2.69	633.89	633.89	0.00	634.53	.64	.04	0.00	632.20
79.	13.	53.	12.	4.	7.	4.	26.	16.	632.20
2.07	3.10	7.48	3.08	.055	.040	.055	.048	631.20	793.43
.017604	5.	5.	5.	30	8	1	0.00	12.83	806.26

$TW' = 633.96 + \frac{(634.20 - 633.96)}{2} = 633.96 + .12 = 634.08$

should be 3 ft

SPECIAL BRIDGE

SR	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.52	2.80	-0.00	2.36	-0.00	7.07	-0.00	632.40	631.20

PRESSURE FLOW d/s low chord @ 634.20

u/s low chord @ 635.40

EGPRS	EGLWC	HW	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
638.78	637.00	0.00	0.	79.	7.	635.40	643.50	10.00

From J&A report, $Y_c = 2.76$

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 643.50 ELREA= 643.50 ?

BRIDGE SECTION I U.S. C&O R.R. TRACK 6'- 36" CI

n = .02

CI PIPE WITH HEADWALL

8706.00	6.05	638.45	0.00	0.00	638.78	.33	4.25	0.00	633.40
79.	0.	79.	0.	0.	17.	0.	26.	16.	633.40
2.08	0.00	4.59	0.00	.055	.040	.055	.048	632.40	798.50
.006175	50.	50.	50.	0	0	1	0.00	3.00	801.50

checks

WATER EL=X5 CARD= 639.290 (see J&A summary report)

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV

C&O RR

check on pressure flow

$K = 2.52$; $C = 1/\sqrt{K} = 1/\sqrt{2.52} = .63$

$Q = CA\sqrt{2gH} = .63(7.07)(8.025)H^{1/2}$

$Q = 35.74\,H^{1/2}$

$TW' = 634.08$

HW from X5 @ 639.29

$H = (639.29 - 634.08) = 5.21$

$Q = 35.74(2.28) = 81.5$ cfs

consider reasonable

Q	QLOB	CH	AROB	aLOB	aCH	AROB	VOL	TAB	LEFT/RIGHT
TIME	VLOB	VCH	VROB	KUL	XmC	XmR	MTN	ELMIN	SSTA
SLOPE	XLOBL	XLC	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 636.40 EL.E.= 100000.10

8716.00	6.89	639.29	0.00	0.00	639.30	.01	.00	.10	636.40
79.	0.	79.	0.	0.	113.	0.	25.	16.	100000.10
2.08	0.00	.70	0.00	.055	.040	.055	.046	632.40	779.00
.000056	10.	10.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 636.39 EL.E.= 100000.00

8731.00	6.90	639.29	0.00	0.00	639.30	.01	.00	.00	636.39
79.	0.	79.	0.	0.	113.	0.	26.	16.	100000.00
2.09	0.00	.69	0.00	.055	.040	.055	.048	632.39	779.00
.000056	15.	15.	15.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 636.39 EL.E.= 100000.00

8756.00	6.91	639.29	0.00	0.00	639.30	.01	.00	.00	636.38
79.	0.	79.	0.	0.	113.	0.	26.	16.	100000.00
2.10	0.00	.69	0.00	.055	.040	.055	.049	632.38	779.00
.000055	25.	25.	25.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 636.39 EL.E.= 100000.00

8881.00	6.96	639.30	0.00	0.00	639.31	.01	.01	.00	636.34
79.	0.	79.	0.	0.	114.	0.	27.	16.	100000.00
2.15	0.00	.69	0.00	.055	.040	.055	.047	632.34	779.00
.000054	240.	125.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= 636.39 EL.E.= 100000.00

VALLEY SECTION 1

9006.00	7.01	639.31	0.00	0.00	639.31	.01	.01	.00	636.30
79.	0.	79.	0.	0.	116.	0.	27.	15.	100000.00
2.20	0.00	.69	0.00	.055	.040	.055	.047	632.30	779.00
.000053	240.	125.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.30 ELREA= 100000.00

9081.00	7.01	639.31	0.00	0.00	639.32	.01	.00	.00	636.30
79.	0.	79.	0.	0.	116.	0.	27.	16.	100000.00
2.23	0.00	.68	0.00	.055	.040	.055	.047	632.30	779.00
.000053	140.	75.	10.	0	0	1	0.00	21.00	800.00

SECNO	DEPTH	CSEL	CRIMS	WSEL	E	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	WOL	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= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.30 ELREA= 100000.00

9156.00	7.01	639.31	0.00	0.00	639.32	.01	.00	.00	636.30
79.	0.	79.	0.	0.	116.	0.	27.	16.	100000.00
2.26	0.00	.68	0.00	.055	.040	.055	.047	632.30	779.00
.000053	140.	75.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.30 ELREA= 100000.00

9174.00	7.02	639.32	0.00	0.00	639.32	.01	.00	.00	636.30
79.	0.	79.	0.	0.	116.	0.	27.	16.	100000.00
2.27	0.00	.68	0.00	.055	.040	.055	.047	632.30	779.00
.000052	15.	16.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.30 ELREA= 100000.00

9306.00	7.02	639.32	0.00	0.00	639.33	.01	.01	.00	636.30
79.	0.	79.	0.	0.	116.	0.	28.	16.	100000.00
2.32	0.00	.68	0.00	.055	.040	.055	.047	632.30	779.00
.000052	260.	102.	10.	0	0	1	0.00	21.00	800.00

3470 ENCROACHMENT STATIONS= 779.0 800.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.30 ELREA= 100000.00

9327.00	7.02	639.32	0.00	0.00	639.33	.01	.00	.00	636.30
79.	0.	79.	0.	0.	116.	0.	28.	16.	100000.00
2.33	0.00	.68	0.00	.055	.040	.055	.047	632.30	779.00
.000052	21.	21.	21.	0	0	1	0.00	21.00	800.00

submerged outlet ELLC @ 637.0 639.33 > 637.0

3470 ENCROACHMENT STATIONS= 750.0 800.0 TYPE= 1 TARGET= 30.000

9355.00	7.03	639.33	0.00	0.00	639.33	.00	.00	.00	633.30
79.	36.	7.	36.	197.	27.	197.	28.	16.	633.30
2.37	.18	.27	.18	.055	.040	.055	.047	632.30	760.00
.000005	28.	28.	28.	0	0	1	0.00	80.00	840.00

& TW over rdway (639.33 − 639.0) = .33 ft

SPECIAL BRIDGE

Pier Rd

SR XK	AKDR	COPP	ROLEN	TC	RMP	BAREA	SS	ELCHU	ELCHD
-0.00	2.77	2.00	-0.00	3.14	-0.00	12.57	-0.00	633.00	632.30

PRESSURE AND WEIR FLOW

FGPRS	EGL	F	W ELR	Q R	AREA	ELLC	ELTRD	CLASS
641.03	640.03	0.00	5.	7.	13.	637.00	639.00	30.00

3470 ENCROACHMENT STATIONS= 760.0 840.0 TYPE= 1 TARGET= 30.000

BRIDGE SECTION - U.S. SIDE DU. RIV- 48H CMP

CMP WITH HEAD ALL

9395.00	6.53	639.53	0.00	0.00	639.53	.00	.20	0.00	634.00	
79.	36.	7.	36.	178.	25.	178.	23.	16.	634.00	
2.42	.20	.30	.20	.055	.040	.055	.047	633.00	760.00	
.000007	40.	40.	40.	0	0	4	0.00	20.00	840.00	

SECHO	DEPTH	C SEL	CRIT S	SELV	E	HV	HL	QLOSS	BANK ELEV
0	OLOB	SCH	QROB	XLOB	XCH	XROB	VOL	TNA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOP JD	ENDST

Check on pressure flow

$K = 2.77$; $C = \frac{1}{\sqrt{K}} = \frac{1}{\sqrt{2.77}} = .6$

$Q = CA\sqrt{2gH}$

$Q = .6(12.57)(8.025)H^{1/2}$

$Q = 60.61\ H^{1/2}$

Checks

TW = 639.33

HW = 639.53

$H = (639.53 - 639.33) = 0.2$

$Q = 60.61(.447) = 27.1\ cfs$

Consider reasonable

3470 ENCROACHMENT STATIONS= 759.0 839.0 TYPE= 1 TARGET= 61.000

9443.00	5.95	639.53	0.00	0.01	639.53	.01	.00	.00	637.58
79.	9.	58.	9.	3.	94.	33.	29.	16.	637.78
2.45	.25	.66	.24	.060	.040	.060	.047	633.58	759.00
.000049	1.	48.	100.	0	0	1	0.00	61.00	820.00

3470 ENCROACHMENT STATIONS= 760.1 840.0 TYPE= 1 TARGET= 61.000

9493.00	5.35	639.53	0.00	0.00	639.54	.01	.00	.00	638.18
79.	5.	70.	5.	15.	81.	16.	29.	16.	638.38
2.47	.28	.85	.26	.059	.040	.060	.047	634.18	764.00
.000100	100.	0.	1.	1	0	1	0.00	61.00	815.00

3470 ENCROACHMENT STATIONS= 550.0 570.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELEV= 640.20 FLOW= 100000.00

VALLEY SECTION

9545.00	4.73	639.53	0.00	0.00	639.55	.02	.01	.00	640.20
79.	0.	79.	0.	0.	73.	0.	29.	16.	100000.00
2.48	0.00	1.00	0.00	.060	.040	.060	.047	634.30	551.05
.000207	32.	32.	32.	0	0	1	0.00	22.74	573.79

9753.00	4.48	639.58	0.00	0.00	639.60	.02	.05	.00	640.50
79.	0.	79.	0.	0.	68.	0.	29.	16.	640.10
2.53	0.00	1.17	0.00	.060	.040	.060	.047	635.10	551.46
.000261	50.	208.	60.	2	0	1	0.00	22.14	573.60

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 640.78 ELRE= 640.38

9953.00	4.25	639.63	0.00	0.00	639.66	.02	.06	.00	640.78
79.	0.	79.	0.	0.	52.	0.	30.	16.	640.38
2.57	0.00	1.26	0.00	.060	.040	.060	.047	635.38	551.82
.000326	200.	200.	200.	0	0	1	0.00	21.59	573.42

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 641.06 ELRE= 640.66

10153.00	4.04	639.70	0.00	0.00	639.73	.03	.07	.00	641.06
79.	0.	79.	0.	0.	58.	0.	30.	16.	640.66
2.61	0.00	1.30	0.00	.060	.040	.060	.047	635.66	552.14
.000399	200.	200.	200.	2	0	1	0.00	21.12	573.26

3280 CROSS SECTION 10353.00 EXTENDED 1.43 FEET

SECNO	DEPTH	CSEL	CRIMS	MSEL	EL	HN	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QRCB	ALOB	ACH	ARCB	VOL	TMA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	XTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOP ID	ENDST

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 642.65 ELRE= 640.25

10353.00	3.84	639.79	0.00	0.00	639.82	.03	.06	.00	642.65
79.	0.	79.	0.	0.	50.	0.	30.	17.	640.25
2.66	0.00	1.31	0.00	.060	.040	.060	.046	635.95	804.16
.000422	200.	200.	200.	1	0	1	0.00	25.32	829.46

3280 CROSS SECTION 10553.00 EXTENDED 1.21 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 642.86 ELRE= 640.56

10553.00	3.62	639.84	0.00	0.00	639.91	.03	.10	.00	642.86
79.	0.	79.	0.	0.	55.	0.	30.	17.	640.56
2.69	0.00	1.44	0.00	.060	.040	.060	.046	636.26	804.48
.000545	200.	200.	200.	1	0	1	0.00	24.26	828.76

3280 CROSS SECTION 10753.00 EXTENDED 1. FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 643.27 ELRE= 640.87

10753.00	3.49	640.06	0.00	0.00	640.17	.10	.22	.04	643.27
135.	0.	135.	0.	0.	52.	0.	31.	17.	640.87
2.72	0.00	2.54	0.00	.060	.040	.060	.046	636.57	804.66
.001850	200.	200.	200.	2	1	1	0.00	23.71	828.37

3280 CROSS SECTION 10993.00 EXTENDED 1.15 FEET

OVERBANK AREA ASSUMED NOT EFFECTIVE ELEV= 643.54 ELEV= 641.24

10993.00	2.56	640.50	0.00	0.00	640.50	.10	.43	.00	643.64
135.	0.	135.	0.	0.	54.	0.	31.	17.	641.24
2.74	0.00	2.53	0.00	.045	.040	.045	.046	636.94	804.58
.001726	1.	240.	900.	1	0	1	0.00	23.97	828.55

3280 CROSS SECTION 11093.00 EXTENDED 1.17 FEET

OVERBANK AREA ASSUMED NOT EFFECTIVE ELEV= 643.54 ELEV= 641.40

VALLEY SECTION 1

11093.00	3.57	640.67	0.00	0.00	640.77	.10	.17	.00	643.80
135.	0.	135.	0.	0.	54.	0.	31.	17.	641.40
2.75	0.00	2.51	0.00	.045	.040	.045	.046	637.10	804.55
.001687	100.	100.	100.	0	0	1	0.00	24.06	828.61

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Hagar Township

3) WATERCOURSE: Granger Drain and Trib

4) DOCUMENT TYPE: Report

00BREAK00

100-year

WATERCOURSE: Granger Drain

TOWNSHIP: Hagar

COUNTY: Berrien

STATION	LOCATION	CWSEL	EG	Q
0	400' u/s of Confluence Paw Paw	591.31	591.32	140
188	588' u/s of Confluence Paw Paw	592.14	592.15	140
375	775' u/s of Confluence Paw Paw	592.70	592.75	140
563	963' u/s of Confluence Paw Paw	593.64	593.69	140
750	1150' u/s of Confluence Paw Paw	594.28	594.34	140
850	250' d/s of Earth Dam	594.64	594.77	140
950	150' d/s of Earth Dam	595.06	595.09	140
1025	75' d/s of Earth Dam	595.29	595.33	140
1075	25' d/s of Earth Dam	595.44	595.47	140
1100	d/s face of Earth Dam	595.49	595.52	140
1110	u/s face of Earth Dam	598.07	598.07	140
1135	25' u/s of Earth Dam	598.07	598.07	140
1160	50' u/s of Earth Dam	598.07	598.07	140
1290	180' u/s of Earth Dam	598.07	598.07	140
1425	315' u/s of Earth Dam	598.08	598.08	140
1560	450' u/s of Earth Dam	598.13	598.14	140
1695	585' u/s of Earth Dam	598.24	598.27	140
1830	720' u/s of Earth 'Dam	598.52	598.57	140
1965	855' u/s of Earth Dam	598.99	599.06	140
2100	1259' d/s of Chabat Road	599.59	599.66	140
2210	1149' d/s of Chabat Road	600.10	600.17	140
2320	1039' d/s of Chabat Road	600.60	600.67	140
2430	929' d/s of Chabat Road	601.09	601.15	140
2540	819' d/s of Chabat Road	601.58	601.65	140
2650	709' d/s of Chabat Road	602.20	602.25	140
2760	599' d/s of Chabat Road	602.80	602.84	140
2870	489' d/s of Chabat Road	603.30	603.34	140
2980	379' d/s of Chabat Road	603.83	603.87	140
3090	269' d/s of Chabat Road	604.33	604.37	140
3200	159' d/s of Chabat Road	604.91	605.00	140
3250	109' d/s of Chabat Road	605.12	605.20	140
3284	75' d/s of Chabat Road	605.17	605.33	140
3299	60' d/s of Chabat Road	604.83	605.88	140
3359	u/s face of Chabat Road	609.44	609.67	140
3373	14' u/s of Chabat 'Road	609.73	609.74	140
3401	42' u/s of Chabat Road	609.74	609.74	140
3460	101' u/s of Chabat Road	609.74	609.74	140
3510	151' u/s of Chabat Road	609.74	609.74	140
3560	201' u/s of Chabat Road	609.74	609.74	140
3615	256' u/s of Chabat Road	609.74	609.74	140
3668	309' u/s of Chabat Road	609.74	609.74	140
3722	363' u/s of Chabat Road	609.74	609.74	140
3775	416' u/s of Chabat Road	609.74	609.74	140
3829	470' u/s of Chabat Road	609.74	609.74	140
3882	523' u/s of Chabat Road	609.74	609.74	140
3936	577' u/s of Chabat Road	609.74	609.75	140
3989	630' u/s of Chabat Road	609.75	609.75	140
4043	684' u/s of Chabat Road	609.75	609.76	140
4096	737' u/s of Chabat Road	609.75	609.77	140
4150	791' u/s of Chabat Road	609.77	609.78	140
4203	844' u/s of Chabat Road	609.79	609.81	140

WATERCOURSE: Granger Drain

100-year

TOWNSHIP: Hagar

COUNTY: Berrien

STATION	LOCATION	CWSEL	EG	Q
4257	898' u/s of Chabat Road	609.83	609.87	140
4310	951' u/s of Chabat Road	609.90	609.96	140
4364	1005' u/s of Chabat Road	610.03	610.13	140
4417	1058' u/s of Chabat Road	610.25	610.38	140
4471	1102' u/s of Chabat Road	610.56	610.72	140
4524	1155' u/s of Chabat Road	610.92	611.09	140
4578	1209' u/s of Chabat Road	611.32	611.49	140
4631	1262' u/s of Chabat Road	611.64	611.84	140
4685	1316' u/s of Chabat Road	611.97	612.19	140
4738	1369' u/s of Chabat Road	612.34	612.57	140
4792	1423' u/s of Chabat Road	612.73	612.97	140
4845	1476' u/s of Chabat Road	613.13	613.36	140
4899	1530' u/s of Chabat Road	613.61	613.81	140
4952	1583' u/s of Chabat Road	614.07	614.25	140
5006	1637' u/s of Chabat Road	614.46	614.64	140
5059	1690' u/s of Chabat Road	614.85	615.04	140
5113	1744' u/s of Chabat Road	615.25	615.43	140
5166	1797' u/s of Chabat Road	615.64	615.83	140
5220	496' d/s of Riverside Road	616.04	616.22	140
5273	443' d/s of Riverside Road	616.43	616.62	140
5327	389' d/s of Riverside Road	616.83	617.02	140
5380	336' d/s of Riverside Road	617.23	617.41	140
5434	282' d/s of Riverside Road	617.62	617.81	140
5487	229' d/s of Riverside Road	618.02	618.20	140
5541	175' d/s of Riverside Road	618.41	618.60	140
5566	150' d/s of Riverside Road	618.62	618.71	140
5576	140' d/s of Riverside Road	618.70	618.73	140
5640	1' d/s of Riverside Road	618.72	618.80	140
5641	d/s face of Riverside Road	618.71	618.81	140
5716	u/s face of Riverside Road	618.78	618.89	140
5717	1' u/s of Riverside Road	618.80	618.89	140
5727	10' u/s of Riverside Road	618.91	618.92	89
5757	40' u/s of Riverside Road	618.92	618.92	89
5918	231' u/s of Riverside Road	618.92	618.93	89
6109	422' u/s of Riverside Road	618.93	619.02	89
6157	470' u/s of Riverside Road	619.06	619.19	89
6205	518' u/s of Riverside Road	619.28	619.43	89
6253	566' u/s of Riverside Road	619.55	620.12	89
6300	613' u/s of Riverside Road	620.54	620.75	89
6491	804' u/s of Riverside Road	622.15	622.60	89
6566	879' u/s of Riverside Road	623.12	623.42	89
6636	949' u/s of Riverside Road	623.67	623.95	89
6781	1094' u/s of Riverside Road	624.74	625.03	89
6926	1239' u/s of Riverside Road	625.84	626.13	89
7071	1384' u/s of Riverside Road	626.95	627.24	89
7216	1500' u/s of Riverside Road	628.02	628.25	79
7346	1300' d/s of C & O railroad	628.78	628.98	79
7476	1170' d/s of C & O railroad	629.42	629.60	79
7606	1040' d/s of C & O railroad	630.02	630.21	79
7736	910' d/s of C & O railroad	630.62	630.81	79
7866	780' d/s of C & O railroad	631.22	631.41	79
7996	650' d/s of C & O railroad	631.82	632.01	79

100-year

WATERCOURSE: Granger Drain
TOWNSHIP: Hager
COUNTY: Berrien

STATION	LOCATION	CWSEL	EG	Q
8126	520' d/s of C & O railroad	632.42	632.61	79
8256	390' d/s of C & O railroad	632.83	632.89	79
8386	260' d/s of C & O railroad	632.99	633.07	79
8451	195' d/s of C & O railroad	633.11	633.21	79
8516	130' d/s of C & O railroad	633.26	633.38	79
8581	65' d/s of C & O railroad	633.45	633.59	79
8616	30' d/s of C & O railroad	633.57	633.71	79
8621	25' d/s of C & O railroad	633.59	633.73	79
8626	20' d/s of C & O railroad	633.60	633.75	79
8631	15' d/s of C & O railroad	633.62	633.77	79
8636	10' d/s of C & O railroad	633.64	633.79	79
8641	5' d/s of C & O railroad	633.66	633.81	79
8646	d/s face of C & O railroad	633.89	634.53	79
8706	u/s face of C & O railroad	638.45	638.78	79
8716	10' u/s of C & O railroad	639.29	639.30	79
8731	25' u/s of C & O railroad	639.29	639.30	79
8756	50' u/s of C & O railroad	639.29	639.30	79
8881	175' u/s of C & O railroad	639.30	639.31	79
9006	300' u/s of C & O railroad	639.31	639.31	79
9081	375' u/s of C & O railroad	639.31	639.32	79
9156	450' u/s of C & O railroad	639.31	639.32	79
9174	468' u/s of C & O railroad	639.32	639.32	79
9306	600' u/s of C & O railroad	639.32	639.33	79
9327	621' u/s of C & O railroad	639.32	639.33	79
9355	d/s face of Pier Road	639.33	639.33	79
9395	u/s face of Pier Road	639.53	639.53	79
9443	48' u/s of Pier Road	639.53	639.53	79
9493	98' u/s of Pier Road	639.53	639.54	79
9545	150' u/s of Pier Road	639.53	639.55	79
9753	358' u/s of Pier Road	639.58	639.60	79
9953	558' u/s of Pier Road	639.63	639.66	79
10153	758' u/s of Pier Road	639.70	639.73	79
10353	958' u/s of Pier Road	639.79	639.82	79
10553	1158' u/s of Pier Road	639.88	639.91	79
10753	1358' u/s of Pier Road	640.06	640.17	135
10993	1598' u/s of Pier Road	640.50	640.60	135
11093	1698' u/s of Pier Road	640.67	640.77	135

100-year

WATERCOURSE: Granger Drain Trib.
TOWNSHIP: Hagar
COUNTY: Berrien

STATION	LOCATION	CWSEL	EG	Q
0	Confluence of Granger Drain	614.88	614.94	48
25	25' u/s of confluence	615.17	615.34	48
50	50' u/s of confluence	615.83	615.95	48
75	75' u/s of confluence	616.37	616.50	48
100	100' u/s of confluence	616.96	617.08	48
125	125' u/s of confluence	617.52	617.66	48
150	100' d/s of Driveway Culvert	618.11	618.24	48
175	75' d/s of Driveway Culvert	618.67	618.81	48
200	50' d/s of Driveway Culvert	619.25	619.40	48
225	25' d/s of Driveway Culvert	619.85	620.11	48
249	1' d/s of Driveway Culvert	621.71	622.71	48
300	u/s face of Driveway Culvert	624.63	624.87	48
325	25' u/s of Driveway Culvert	624.94	624.94	48
350	50' u/s of Driveway Culvert	624.94	624.94	48
383	88' u/s of Driveway Culvert	624.94	624.94	48
416	82' d/s of Driveway Culvert	624.94	624.94	48
449	49' d/s of Driveway Culvert	624.94	624.94	48
498	1' d/s of Driveway Culvert	624.69	625.21	48
538	u/s face of Driveway Culvert	627.11	627.37	48
563	25' u/s of Driveway Culvert	627.45	627.45	48
588	50' u/s of Driveway Culvert	627.45	627.45	48
634	96' u/s of Driveway Culvert	627.45	627.45	48
680	142' u/s of Driveway Culvert	627.45	627.45	48
738	200' u/s of Driveway Culvert	627.45	627.45	48
797	258' u/s of Driveway Culvert	627.46	627.46	48
855	316' u/s of Driveway Culvert	627.46	627.46	48
914	375' u/s of Driveway Culvert	627.46	627.46	48
972	463' u/s of Driveway Culvert	627.47	627.48	48
1031	521' u/s of Driveway Culvert	627.51	627.53	48
1089	579' u/s of Driveway Culvert	627.68	627.71	48
1148	638' u/s of Driveway Culvert	628.07	628.12	48
1206	696' u/s of Driveway Culvert	628.56	628.60	48
1265	755' u/s of Driveway Culvert	629.14	629.23	48
1323	813' u/s of Driveway Culvert	629.78	629.84	48
1382	872' u/s of Driveway Culvert	630.26	630.32	48
1432	922' u/s of Driveway Culvert	630.68	630.74	48
1482	972' u/s of Driveway Culvert	631.29	631.41	48
1532	1022' u/s of Driveway Culvert	632.01	632.06	48
1582	1072' u/s of Driveway Culvert	632.42	632.47	48
1632	1122' u/s of Driveway Culvert	632.83	632.88	48
1682	265' d/s of Driveway Culvert	633.25	633.30	48
1713	234' d/s of Driveway Culvert	633.49	633.54	48
1745	201' d/s of Driveway Culvert	633.64	633.68	43
1845	101' d/s of Driveway Culvert	633.72	633.73	43
1895	51' d/s of Driveway Culvert	633.73	633.74	43
1927	19' d/s of Driveway Culvert	633.73	633.75	43
1937	9' d/s of Driveway Culvert	633.73	633.77	43
1946	1' d/s of Driveway Culvert	633.65	633.88	43
1947	d/s face of Driveway Culvert	633.49	634.06	43

100-year

WATERCOURSE: Granger Drain Trib.
TOWNSHIP: Hagar
COUNTY: Berrien

STATION	LOCATION	CWSEL	EG	Q
1966	u/s face of Driveway Culvert	633.51	634.23	43
1967	1' u/s of Driveway Culvert	633.73	634.28	43
1991	25' u/s of Driveway Culvert	634.44	634.46	43
2016	50' u/s of Diveway Culvert	634.45	634.49	43
2066	130' d/s of C & O railroad	634.51	634.59	43
2116	80' d/s of C & O railroad	634.69	634.88	43
2146	50' d/s of C & O railroad	634.96	635.19	43
2171	25' d/s of C & O railroad	635.25	635.48	43
2195	1' d/s of C & O railroad	635.53	635.83	43
2268	u/s face of C & O railroad	638.15	638.30	43
2275	7' u/s of C & O railroad-X5	639.59	639.60	43
2293	25' u/s of C & O railroad	639.59	639.60	43
2318	50' u/s of C & O railroad	639.59	639.60	43
2368	100' u/s of C & O railroad	639.60	639.60	43
2473	205' u/s of C & O railroad	639.60	639.60	43
2578	310' u/s of C & O railroad	639.60	639.61	43
2683	415' u/s of C & O railroad	639.61	639.61	43
2788	520' u/s of C & O railroad	639.61	639.61	43
2893	625' u/s of C & O railroad	639.61	639.62	43
2998	730' u/s of C & O railroad	639.62	639.62	43
3103	835' u/s of C & O railroad	639.62	639.63	43
3208	940' u/s of C & O railroad	639.63	639.63	43
3313	1045' u/s of C & O railroad	639.63	639.64	43
3418	1150' u/s of C & O railroad	639.64	639.65	43

Seal ?

HYDRAULIC ANALYSIS

Introduction

The streams being studied are the Granger Drain and its tributary in Hagar Township, Berrien County, Michigan. The study limits for the Granger Drain are from its confluence with the Paw Paw River to approximately 1,700 feet upstream (northwest) of Pier Road. For the tributary, the study limits are from its confluence with the Granger Drain to approximately 1,150 feet upstream (north) of the C&O RR tracks. The flows were computed by the SCS method with concurrent hydraulic and hydrologic analyses used to determine storage effects at the C&O RR track crossings on the Granger Drain and the Granger Drain Tributary. For these areas of floodwater storage, 100-year water surface profiles were obtained with the floodway encroached to the bank stations and with the floodway encroached to what would occur naturally. Both floodways are shown on the floodway map. The difference between water surface elevations for the profiles is less than 0.1 ft. at any point. The floodway encroached to the bank stations will be used in the final flood insurance report.

yes but how about Pe EG

The Granger Drain Tributary 10-, 50-, 100-, and 500-year water surface profiles were extended to the culvert under Coloma Road to determine approximate tailwater elevations at this point. This data was used to determine the amount of storage available upstream of Coloma Road.

Method of Analysis

Water surface profiles were computed through use of the COE HEC-2 step-backwater computer program. Culverts which were under low flow conditions for all four flows were coded according to the "normal bridge" routine requirements. For those culverts which experienced pressure or weir flow for any of the four flows, the "special bridge" routine or hand calculations were used to determine the upstream water surface elevation.

The hydraulic model was developed for the 100-year flow. Valley sections upstream and downstream of culverts were located where full cross section flow would be developed out of the influence of the bridge constriction. The criteria for placement of these sections 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 culvert. The upstream section was placed at a distance about equal to the 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.

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. In general, the following range of values were used:

Description	Manning's "n"
1. Channel	
a. Sand bottom with brush	.04 - .06
2. Flood Plains	
a. Brush, medium to heavy	.10 - .15
b. Brush, medium	.07 - .08
c. Farmland, uncultivated	.05 - .07

The contraction and expansion coefficients used for the Granger Drain and Granger Tributary were .03 and .05 respectively. These values were used throughout the study. References used in the selection of these values were the HEC-2 Users Manual, exhibit 2, page 2, and Open-Channel Hydraulics, Ven Te Chow, pages 311 and 468.

The loss coefficients used in the HEC-2 "special bridge" routine were determined as outlined in exhibit 2 of the HEC-2 Users Manual.

Starting Point

So or Sf ?

Profile computations were begun at the Paw Paw River using the slope-area method. In the final Flood Insurance Study Report, the 10-, 50-, 100-, and 500-year SCS Paw Paw River Flood Hazard Analyses Report flood levels will be extended horizontally upstream until the corresponding Granger Drain profiles are intersected. The floodway and flood plain as delineated in this submittal are based on the calculated water surface profiles begun at the Paw Paw River.

Hagar Township FIS
Berrien County
5555-27-1

Granger Drain

Cross Section	SECNO	Location
A	0	400' u/s Paw Paw River Confluence
B	750	1150' u/s Paw Paw River Confluence
C	2100	1259' d/s Chabot Road Culvert
D	3200	159' d/s Chabot Road Culvert
E	3359	u/s Face Chabot Road Culvert
F	5541	175' d/s Riverside Road Culvert
G	5716	u/s Face Riverside Road Culvert
H	7216	1500' u/s Riverside Road Culvert
I	8706	u/s Face C&O RR Track Culvert
J	9006	300' u/s C&O RR Track Culvert
K	9395	u/s Face Pier Road Culvert
L	9545	150' u/s Pier Road Culvert
M	11093	1698' u/s Pier Road Culvert

Hagar Township FIS
Berrien County
5555-27-2

Granger Drain Tributary

Cross Section	SECNO	Location
A	300	u/s Face Driveway Culvert
B	538	u/s Face Driveway Culvert
C	1745	221' d/s Driveway Culvert
D	1966	u/s Face Driveway Culvert
E	2268	u/s Face C&O R.R. Track Culvert
F	2368	100' u/s C&O R.R. Track Culvert
G	3418	1150' u/s C&O R.R. Track Culvert

JOB NAME: Hagar Twp. FIS | JOB NO. 5555 | 27

WATERCOURSE: Granger Drain | CULVERT LOCATION: C & O R.R. Track BS.#9

CULVERT DESCRIPTION: 36" CI with flat headwall | BY RGW | DATE 7-22-76

n= 0.02 | Q_{10}= 62 | TW_{10}= 2.46

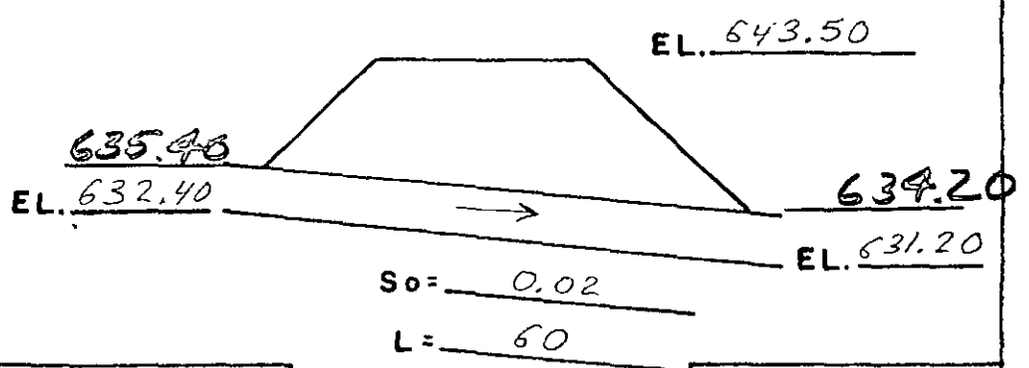
A= 7.07 | Q_{50}= 76 | TW_{50}= 2.65

R= 0.75 | Q_{100}= 79 | TW_{100}= 2.69

Ke= 0.5 | Q_{500}= 85 | TW_{500}= 2.77

D= 3.0

LSo= 1.2



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			
62		4.82	3.02	2.52	2.76	2.76	4.58	4.79		4.82	637.22	
76		6.49	4.53	2.73	2.86	2.86	6.19	5.69		6.49	638.89	* check
79	100-YR	6.89	4.89	2.76	2.88	2.88	6.57	5.91		6.89	639.29	
85		7.74	5.64	2.81	2.91	2.91	7.35	6.37		7.74	640.14	

CALCULATIONS AND COMMENTS

*see DNR check computer output

Nagar Twp
Grainger Drain 27-01
C&O R.R. Tracks
B S #9

Inlet Control Calculations

10 yr.

$$HW = \left[\frac{V^2}{2g} \times \frac{1}{C^2}\right] + \frac{D}{2}$$

C = 0.60

V = 8.77

$$HW = \left[\frac{(8.77)^2}{64.4} \times \frac{1}{(0.60)^2}\right] + \frac{3}{2}$$

$$HW = 4.82$$

50 yr.

$$HW = \left[\frac{(10.75)^2}{64.4} \times \frac{1}{(0.60)^2}\right] + \frac{3}{2}$$

V = 10.75

$$HW = 6.49$$

100 yr.

$$HW = \left[\frac{(11.17)^2}{64.4} \times \frac{1}{(0.60)^2}\right] + \frac{3}{2}$$

V = 11.17

$$HW = 6.89$$

500 yr.

$$HW = \left[\frac{(12.02)^2}{64.4} \times \frac{1}{(0.60)^2}\right] + \frac{3}{2}$$

V = 12.02

$$HW = 7.74$$

Hagar Twp.
Granger Drain 27-01
C 90 R.R. Tracks
B.S. #9

Outlet Control Calculations

10 yr.

$$H = \left[1 + K_e + \frac{29.1 n^2 L}{R^{4/3}}\right]\frac{V^2}{2g} \qquad V = 8.77$$

$$H = \left[1 + 0.5 + \frac{29.1(0.02)^2 60}{(0.75)^{4/3}}\right]\frac{(8.77)^2}{64.4}$$

$$H = (2.525)(1.19)$$

$$H = 3.02$$

50 yr.

$$H = \frac{(2.525)(10.75)^2}{64.4} \qquad V = 10.75$$

$$H = 4.53$$

100 yr.

$$H = \frac{(2.525)(11.17)^2}{64.4} \qquad V = 11.17$$

$$H = 4.89$$

500 yr.

$$H = \frac{(2.525)(12.02)^2}{64.4} \qquad V = 12.02$$

$$H = 5.64$$

JOB NAME: Hagar Twp. FIS | JOB NO. 5555 | 27 | 02 |

WATERCOURSE: Granger Drain Tributary | CULVERT LOCATION: Cond O RR. Tracks B.S. #5

CULVERT DESCRIPTION: 27" x 43" CMP Arch Pipe | BY RGW | DATE 7-14-76

n= 0.034 | Q_{10}= 35 | TW_{10}= 1.49

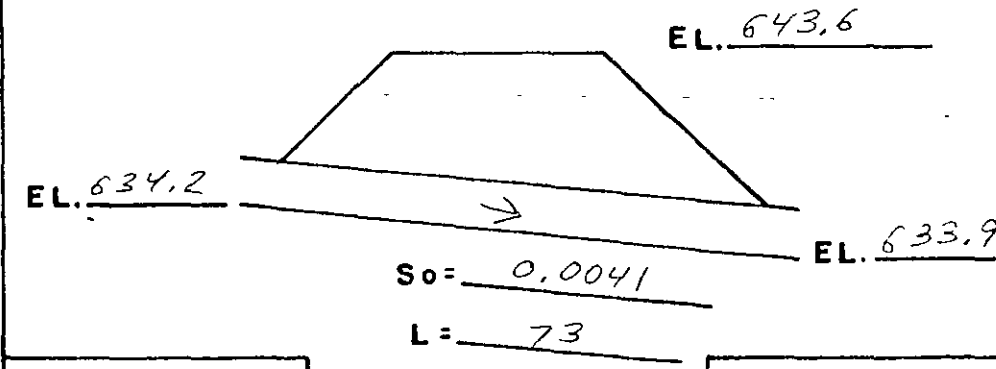
A= 6.4 | Q_{50}= 41 | TW_{50}= 1.59

R= 0.68 | Q_{100}= 42 | TW_{100}= 1.63

Ke= 0.5 | Q_{500}= 45 | TW_{500}= 1.68

D= 2.25

LSo= 0.3



Sta. 2068 | Sta 1995

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			
35	1.19	2.68	2.61	1.47	1.86	1.86	4.17	2.95		4.17	638.37	
41	1.39	3.13	3.58	1.61	1.93	1.93	5.21	3.21		5.21	639.41	
												* ok
42	1.41	3.17	3.75	1.62	1.94	1.94	5.39	3.25		5.39	639.59	
45	1.53	3.44	4.30	1.70	1.98	1.98	5.98	3.40		5.98	640.18	

CALCULATIONS AND COMMENTS

* See DNR check
vs computer output

Granger Main Trib
27-02
Cond O R.R. Tracks
B.S. #5

Outlet Control Calculations

$V =$

10. yr.

$$H = \left[1 + K_e + \frac{29.1 n^2 L}{R^{4/3}}\right]\frac{V^2}{2g}$$

$$H = \left[1 + 0.5 + \frac{29.1(0.034)^2 73}{(0.68)^{4/3}}\right]\frac{(5.47)^2}{64.4}$$

$H = 5.607(\quad)$

$H = 2.61$

50 yr.

$$H = 5.607\frac{(6.41)^2}{64.4}$$

$H = 3.58$

100 yr.

$$H = 5.607\frac{(6.56)^2}{64.4}$$

$H = 3.75$

500 yr.

$$H = 5.607\frac{(7.03)^2}{64.4}$$

$H = 4.30$

JOB NAME: Hagar Twp. FIS JOB NO. 5555 27

WATERCOURSE: Granger Drain Trib. CULVERT LOCATION: Coloma Rd.

CULVERT DESCRIPTION: 36" RCP BY RGW DATE 7-19-76

n= 0.012 Q_{10}= 46 TW_{10}= 2.86

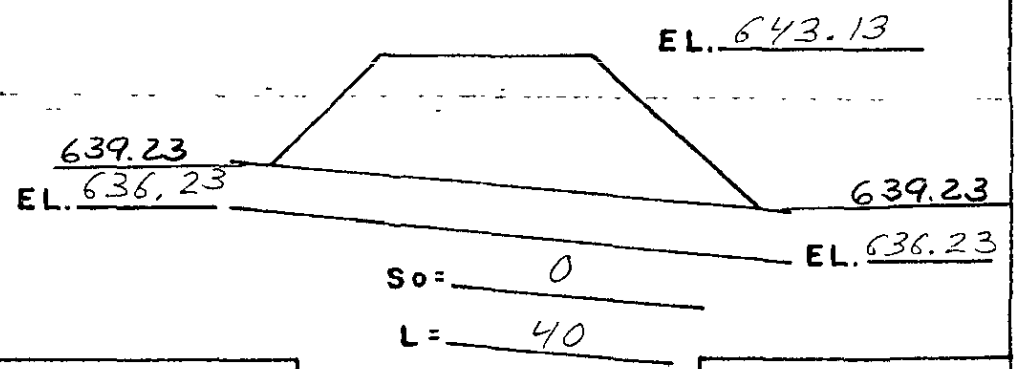
A= 7.07 Q_{50}= 61 TW_{50}= 3.63

R= 0.75 Q_{100}= 63 TW_{100}= 3.77

Ke= 0.5 Q_{500}= 66 TW_{500}= 4.24

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
	HW/D	HW	H	dc	dc+D/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HW			
46	1.25	3.75	1.15	2.26	2.63	2.86	4.00	3.99		4.01	640.24	640.24
61	1.69	5.07	2.02	2.51	2.76	3.63	5.64	4.73		5.65	641.88	642.14
												*
63	1.76	5.28	2.15	2.58	2.79	3.77	5.92	4.85		5.92	642.15	642.35
66	1.85	5.55	2.36	2.62	2.81	4.24	6.59	5.03		6.60	642.83	642.86

CALCULATIONS AND COMMENTS

HYDROLOGY

* see DNR check
100-yr J&A profile
C&O RR to Coloma Rd
(Tailwater Determination
for Hydrology)

Hagar Twp.
Granger Trib. 27-02
Coloma Rd

Outlet Control Calculations

10 yr.

$$H = \left[1 + K_e + \frac{29.1(n^2)L}{R^{4/3}}\right]\frac{V^2}{29} \qquad V = 6.51$$

$$H = \left[1 + 0.5 + \frac{29.1(0.012)^2 40}{(0.75)^{4/3}}\right]\frac{V^2}{64.4}$$

$$H = (1.746)\frac{(6.51)^2}{64.4}$$

$$H = 1.15$$

50 yr.

$$H = (1.746)\frac{(8.63)^2}{64.4} \qquad V = 8.63$$

$$H = 2.02$$

100 yr.

$$H = (1.746)\frac{(8.91)^2}{64.4} \qquad V = 8.91$$

$$H = 2.15$$

500 yr.

$$H = (1.746)\frac{(9.34)^2}{64.4} \qquad V = 9.34$$

$$H = 2.36$$

00BREAK00

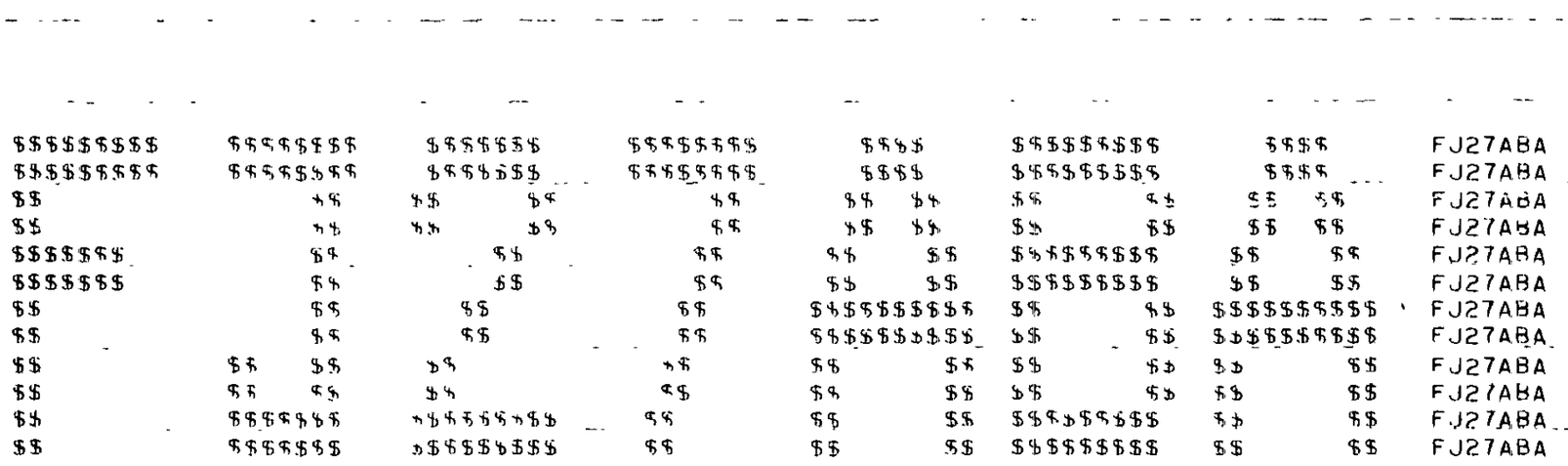
1) COUNTY: Berrien

2) STUDY NAME: Hagar Township

3) WATERCOURSE: Granger Drain Trib

4) DOCUMENT TYPE: 100-YR

00BREAK00



GRANGER DRAIN TRIBUTARY

HAGAR TWP. FIS

J&A File No. 5555-27-1

10-50-100-500 Yr. Flows

C&O RR Track to

Coloma Road

Tailwater Determination

for Hydrology

```
T1       HAGAR TWP. BERRIEN CO.  5555-27
T2       10 YEAR FLOOD
T3       GRANGER DRAIN TRIB.
J1    -10       2                                                  638.37
J2      1              -1
NC    .15     .15     .04      .3      .5
QT      4      35      41      43      46
X1   2275      21     783     800       7       7       7            1.52
X3     10                     783                 800
X5      4  638.37  639.41  639.59  640.18
GR  638.8       0   638.7     100   638.7     200   637.7     300   637.0     400
GR  637.8     500   637.8     600   637.8     700   635.4     783   633.3     788
GR  632.6     792   633.3     795   635.7     800   638.2     900   636.8    1000
GR  639.2    1100   638.9    1200   638.9    1300   638.4    1400   639.4    1500
GR  642.0    1600
X1   2293                             18      18      18           -0.22
X3     10                     783                 800
X1   2318                             25      25      25           -0.30
X3     10                     783                 800
X1   2368                             50      50      50            -1.0
X3     10                     783                 800
X1   2473                             70     140     105            0.25
X3     10                     783                 800
X1   2578                             80     130     105            0.25
X3     10                     783                 800
X1   2683                             80     130     105            0.25
X3     10                     783                 800
X1   2788                             80     130     105            0.25
X3     10                     783                 800
X1   2893      21     776     800      80     130     105            -1.2
X3     10                     776                 800
GR  639.7       0   640.2     100   640.2     200   640.0     300   641.1     400
GR  640.7     500   639.9     600   639.8     700   640.6     776   635.6     782
GR  635.1     787   635.6     792   641.6     800   639.7     900   640.9    1000
GR  641.2    1100   642.3    1200   641.5    1300   641.5    1400   641.9    1500
GR  642.9    1600
X1   2998                             90     120     105            0.25
X3     10                     776                 800
X1   3103                             90     120     105            0.25
X3     10                     776                 800
X1   3208                            105     105     105            0.25
X3     10                     776                 800
X1   3313                            105     105     105            0.25
X3     10                     776                 800
X1   3418                            105     105     105            0.25
X3     10                     776                 800
QT      4      46      61      63      66
X1   3553                            135     135     135            0.10
X3     10                     775                 800
X1   3688                            135     135     135            0.11
X3     10                     776                 800
X1   3823                            135     135     135            0.11
X3     10                     776                 800
X1   3958                            500       1     135            0.11
X3     10                     776                 800
X1   4093                            135     135     135            0.11
X3     10                     776                 800
X1   4228                              1     300     135            0.11
X3     10                     776                 800
X1   4363                              1     300     135            0.11
X3     10                     776                 800
X1   4498                            135     135     135            0.11
X3     10                     776                 800
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X3    10                    776              800
X1  4768                            135      135      135            0.10
X3    10                    776              800
EJ
T1       HAGAR TWP. BERRIEN CO.  5555-27
T2       50 YEAR FLOOD
T3       GRANGER DRAIN TRIB.
J1   -10        3                                                  639.41
J2     2                -1
T1       HAGAR TWP. BERRIEN CO.  5555-27
T2       100 YEAR FLOOD
T3       GRANGER DRAIN TRIB.
J1   -10        4                                                  639.59
J2     3                -1
T1       HAGAR TWP. BERRIEN CO.  5555-27
T2       500 YEAR FLOOD
T3       GRANGER DRAIN TRIB.
J1   -10        5                                                  640.18
J2    15                -1


ER
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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      HAGAR TWP. BERRIEN CO.  5555-27
T2      100 YEAR FLOOD
T3      GRANGER DRAIN TRIB.

J1  ICHECK     INO        NINV       IDTR       STRT       METRIC     HVINS      Q          WSEL       FQ
      -10.       4.         -0.        -0. -0.000000      -0.00      -0.0       -0.    639.590     -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
 WATER EL=X5 CARD=   639.590
   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
   Q          QLOB       QCH        QROB       ALOB       ACH        AROB       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=      783.0      800.0  TYPE=      1  TARGET=       17.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       636.92 ELREA=    100001.52

* 2275.00      5.47    639.59       0.00    639.59     639.60       .01        0.00       0.00     636.92
     43.         0.      43.         0.        0.        72.         0.         0.         0.  100001.52
     0.00       0.00      .59       0.00      .150      .040       .150      0.000     634.12     783.00
   .000056        7.        7.        7.         0         0          1       0.00      17.00     800.00

3470 ENCROACHMENT STATIONS=      783.0      800.0  TYPE=      1  TARGET=       17.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       636.70 ELREA=    100000.00

  2293.00      5.69    639.59       0.00      0.00     639.60       .00        .00        .00     636.70
     43.         0.      43.         0.        0.        76.         0.         0.         0.  100000.00
     .01       0.00      .57       0.00      .150      .040       .150       .038     633.90     783.00
   .000049       18.       18.       18.         0         0          1       0.00      17.00     800.00

3470 ENCROACHMENT STATIONS=      783.0      800.0  TYPE=      1  TARGET=       17.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       636.40 ELREA=    100000.00

  2318.00      5.99    639.59       0.00      0.00     639.60       .00        .00        .00     636.40
     43.         0.      43.         0.        0.        81.         0.         0.         0.  100000.00
     .02       0.00      .53       0.00      .150      .040       .150       .038     633.60     783.00
   .000040       25.       25.       25.         0         0          1       0.00      17.00     800.00
```

* U/S CRO RR (see DNR check) main computed output

3470 ENCROACHMENT STATIONS= 783.0 800.0 TYPE= 1 TARGET= 17.000

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 635.40 ELREA= 100000.00

2368.00	7.00	639.60	0.00	0.00	639.60	.00	.00	.00	635.40
43.	0.	43.	1.	0.	98.	0.	0.	0.	100000.00
.05	0.00	.44	0.00	.150	.040	.150	.039	632.60	783.00
.000024	50.	50.	50.	0	0	1	0.00	17.00	800.00

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= 783.0 800.0 TYPE= 1 TARGET= 17.000

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 635.65 ELREA= 100000.00

2473.00	6.75	639.60	0.00	0.00	639.60	.00	.00	.00	635.65
43.	0.	43.	0.	0.	94.	0.	0.	0.	100000.00
.12	0.00	.46	0.00	.150	.040	.150	.039	632.85	783.00
.000027	70.	105.	140.	0	0	1	0.00	17.00	800.00

3470 ENCROACHMENT STATIONS= 783.0 800.0 TYPE= 1 TARGET= 17.000

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 635.90 ELREA= 100000.00

2578.00	6.50	639.60	0.00	0.00	639.61	.00	.00	.00	635.90
43.	0.	43.	0.	0.	90.	0.	1.	0.	100000.00
.18	0.00	.44	0.00	.150	.040	.150	.039	633.10	783.00
.000031	80.	105.	130.	0	0	1	0.00	17.00	800.00

3470 ENCROACHMENT STATIONS= 783.0 800.0 TYPE= 1 TARGET= 17.000

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 636.15 ELREA= 100000.00

2683.00	6.26	639.61	0.00	0.00	639.61	.00	.00	.00	636.15
43.	0.	43.	0.	0.	86.	0.	1.	0.	100000.00
.24	0.00	.50	0.00	.150	.040	.150	.039	633.35	783.00
.000035	80.	105.	130.	0	0	1	0.00	17.00	800.00

3470 ENCROACHMENT STATIONS= 783.0 800.0 TYPE= 1 TARGET= 17.000

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 636.40 ELREA= 100000.00

2788.00	6.01	639.61	0.00	0.00	639.61	.00	.00	.00	636.40
43.	0.	43.	0.	0.	81.	0.	1.	0.	100000.00
.29	0.00	.53	0.00	.150	.040	.150	.039	633.60	783.00
.000040	80.	105.	130.	0	0	1	0.00	17.00	800.00

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 639.40 ELREA= 99998.80

2893.00	5.71	639.61	0.00	0.00	639.62	.00	.00	.00	639.40
43.	0.	43.	0.	0.	89.	0.	1.	0.	99998.80
.35	0.00	.48	0.00	.150	.040	.150	.039	633.90	776.00
.000034	80.	105.	130.	0	0	1	0.00	22.95	798.95

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 639.65 ELREA= 100000.00

2998.00	5.47	639.62	0.00	0.00	639.62	.00	.00	.00	639.65
43.	0.	43.	0.	0.	93.	0.	1.	0.	100000.00
.41	0.00	.52	0.00	.150	.040	.150	.040	634.15	776.04
.000041	90.	105.	120.	0	0	1	0.00	22.58	798.62

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	IOC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 639.90 ELREA= 100000.00

3103.00	5.22	639.62	0.00	0.00	639.63	.00	.00	.00	639.90
43.	0.	43.	0.	0.	78.	0.	2.	0.	100000.00
.46	0.00	.55	0.00	.150	.040	.150	.040	634.40	776.34
.000049	90.	105.	120.	0	0	1	0.00	21.95	798.29

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 640.15 ELREA= 100000.00

3208.00	4.98	639.63	0.00	0.00	639.63	.01	.01	.00	640.15
43.	0.	43.	0.	0.	73.	0.	2.	0.	100000.00
.51	0.00	.59	0.00	.150	.040	.150	.040	634.65	776.63
.000060	105.	105.	105.	0	0	1	0.00	21.33	797.96

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 640.40 ELREA= 100000.00

3313.00	4.73	639.63	0.00	0.00	639.64	.01	.01	.00	640.40
43.	0.	43.	0.	0.	67.	0.	2.	0.	100000.00
.56	0.00	.64	0.00	.150	.040	.150	.040	634.90	776.92
.000073	105.	105.	105.	0	0	1	0.00	20.71	797.64

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 640.65 ELREA= 100000.00

3418.00	4.49	639.64	0.00	0.00	639.65	.01	.01	.00	640.65
43.	0.	43.	0.	0.	62.	0.	2.	1.	100000.00
.60	0.00	.69	0.00	.150	.040	.150	.040	635.15	777.22
.000090	105.	105.	105.	0	0	1	0.00	20.10	797.31

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 640.75 ELREA= 100000.00

3553.00	4.41	639.66	0.00	0.00	639.67	.02	.02	.00	640.75
63.	0.	63.	0.	0.	61.	0.	2.	1.	100000.00
.63	0.00	1.04	0.00	.150	.040	.150	.040	635.25	777.32
.000209	135.	135.	135.	0	0	1	0.00	19.87	797.20

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 640.86 ELREA= 100000.00

3688.00	4.33	639.69	0.00	0.00	639.70	.02	.03	.00	640.86
63.	0.	63.	0.	0.	59.	0.	3.	1.	100000.00
.67	0.00	1.07	0.00	.150	.040	.150	.040	635.36	777.42
.000225	135.	135.	135.	1	0	1	0.00	19.67	797.09

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 640.97 ELREA= 100000.00

3823.00	4.25	639.72	0.00	0.00	639.73	.02	.03	.00	640.97
63.	0.	63.	0.	0.	58.	0.	3.	1.	100000.00
.70	0.00	1.09	0.00	.150	.040	.150	.040	635.47	777.51
.000242	135.	135.	135.	1	0	1	0.00	19.48	796.99

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 641.08 ELREA= 100000.00

3958.00	4.17	639.75	0.00	0.00	639.77	.02	.03	.00	641.08
63.	0.	63.	0.	0.	56.	0.	3.	1.	100000.00
.74	0.00	1.12	0.00	.150	.040	.150	.040	635.58	777.59
.000257	500.	135.	1.	1	0	1	0.00	19.31	796.90

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 641.19 ELREA= 100000.00

4093.00	4.09	639.78	0.00	0.00	639.81	.02	.04	.00	641.19
63.	0.	63.	0.	0.	55.	0.	3.	1.	100000.00
.77	0.00	1.15	0.00	.150	.040	.150	.040	635.69	777.68
.000276	135.	135.	135.	0	0	1	0.00	19.12	796.80

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

4228.00	4.02	639.82	0.00	0.00	639.84	.02	.04	.00	641.30
63.	0.	63.	0.	0.	54.	0.	3.	1.	100000.00
.80	0.00	1.18	0.00	.150	.040	.150	.040	635.80	777.77
.000296	1.	135.	300.	0	0	1	0.00	18.94	796.70

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 641.41 ELREA= 100000.00

4363.00	3.95	639.66	0.00	0.00	639.69	.02	.04	.00	641.41
63.	0.	63.	0.	0.	52.	0.	3.	1.	100000.00
.83	0.00	1.21	0.00	.150	.040	.150	.040	635.91	777.85
.000317	1.	135.	300.	0	0	1	0.00	18.76	796.61

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 641.52 ELREA= 100000.00

4498.00	3.89	639.91	0.00	0.00	639.93	.02	.04	.00	641.52
63.	0.	63.	0.	0.	51.	0.	4.	1.	100000.00
.86	0.00	1.24	0.00	.150	.040	.150	.040	636.02	777.93
.000339	135.	135.	135.	0	0	1	0.00	18.59	796.52

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

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 641.63 ELREA= 100000.00

4633.00	3.82	639.95	0.00	0.00	639.98	.02	.05	.00	641.63
63.	0.	63.	0.	0.	50.	0.	4.	1.	100000.00
.89	0.00	1.27	0.00	.150	.040	.150	.040	636.13	778.01
.000363	135.	135.	135.	0	0	1	0.00	18.42	796.43

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 641.73 ELREA= 100000.00

submerged outlet condition

*4768.00	3.77	640.00	0.00	0.00	640.03	.03	.05	.00	641.73
63.	0.	63.	0.	0.	49.	0.	4.	1.	100000.00
.92	0.00	1.29	0.00	.150	.040	.150	.040	636.23	778.07
.000383	135.	135.	135.	0	0	1	0.00	18.29	796.36

ELLC = 639.23

640.0 > 639.23

3.0 ft

36" R.C.P. = 7.07 sf

Y_c = 2.58 = 63 cfs (636.65 + 2.58) = 638.81

Coloma Rd

(total loss coeff "K")

A = 7.07

$K_f = \frac{29n^2L}{R^{4/3}}$ n = .012, L = 40

$R^{4/3}$ = .681

$K_f = \frac{29(.012)^2 40}{.681} = .245$

$K = K_o + K_e + K_f = 1 + .5 + .25 = 1.75$

check pressure flow

$C = 1/\sqrt{K} = 1/\sqrt{1.75} = .755$

$Q = CA\sqrt{2gH} = .755(7.07)(8.025)H^{1/2}$

$Q = 42.89\,H^{1/2}$

TW = 640.0

let HW (J&A summary) = 642.15

H = (642.15 - 640.0) = 2.15

Q = 42.89(1.46) = 62.89 cfs

consider HW = 642.15 reasonable

* tailwater = Critical Depth 36" R.C.P., 40 L.F.

bridge comps, J&A summary report

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Hagar Township

3) WATERCOURSE: Granger Drain Trib

4) DOCUMENT TYPE: 100-YR D/S CRO RR

00BREAK00

```
C
C      11
C     300  BRIDGE SECTION A  U.S. DRIVEWAY CULVERT  65'- 36" CMP
C     300   CMP PROJECTING FROM FILL  (NO HEADWALL)
C     538  BRIDGE SECTION B  U.S. DRIVEWAY CULVERT  40'- 30" RCP
C     538   RCP PROJECTING FROM FILL  SQ. CUT END
C    1745    VALLEY SECTION C
C    1966  BRIDGE SECTION D  U.S. DRIVEWAY CULVERT  19'- 36" STEEL PIPE
C    1966   STEEL PIPE WITH HEADWALL
C    2268  BRIDGE SECTION E  U.S. C&O R.R. TRACK  73'- 27" X 43" CMP ARCH
C    2268   CMP ARCH WITH HEADWALL
C    2368    VALLEY SECTION F
C    3418    VALLEY SECTION G
T1       HAGAR TWP. BERRIEN CO.  5555-27
T2       10 YEAR FLOOD
T3       GRANGER DRAIN TRIB.
J1    -10       2                  0.0078                          614.0
J2      1              -1
NC    .15     .15     .05      .3      .5
QT      4      38      46      48      52
X1      0       8     152     228                                  -5.8
GR  636.0       0   634.2      45   634.6     100   621.9     152   619.4     200
GR  622.0     228   635.0     300   636.9     400
X1     25                              25      25      25            0.58
X1     50                              25      25      25            0.57
X1     75                              25      25      25            0.59
X1    100                              25      25      25            0.57
X1    125                              25      25      25            0.58
X1    150                              25      25      25            0.57
X1    175                              25      25      25            0.58
X1    200                              25      25      25            0.57
X3     10                     174             206
X1    225                              25      25      25             0.6
X3     10                     192             207
NC                    .04
X1    249      12   198.5   201.5      24      24      24
X3     10                                                  627.4   627.4
GR  635.2       0   633.4      45   633.8     100   621.9     152   620.4   198.5
GR  619.7     199   619.4     200   619.7     201   620.4   201.5   622.0     228
GR  634.2     300   636.1     400
SB           4.42     2.6            2.36            7.07           620.2   619.4
X1    300                              51      51      51             0.8
X2                      1   623.2   631.5
X3     10                                                  631.5   631.5
BT     12       0   636.0     0.0      45   634.2     0.0     100   634.6     0.0
BT  198.5   631.5   621.2   198.5   631.5   622.2     199   631.5   622.9     200
BT  631.5   623.2     201   631.5   622.9   201.5   631.5   622.2   201.5   631.5
BT  621.2     300   635.0     0.0     400   636.9     0.0
X1    325       8     152     228      25      25      25             0.9
X3     10                     163             216
GR  636.0       0   634.2      45   634.6     100   621.9     152   619.4     200
GR  622.0     228   635.0     300   636.9     400
X1    350                              25      25      25             0.1
X3     10                     138             242
X1    383                              15      48      33            0.13
X3     10                     160             220
X1    416                              33      33      33            0.13
X3     10                     164             212
X1    449      10     357     469      33      33      33           -0.21
X3     10                     400             427
GR  637.0       0   636.8      61   636.5     100   635.1     200   632.5     300
GR  623.4     357   621.0     400   623.6     469   637.1     500   638.2     550
X1    498      14   398.8   401.2      49      49      49
```

GR	636.0	0	635.8	61	635.5	100	634.1	200	631.5	300
GR	623.4	357	621.8	398.8	621.2	399.2	621.0	400	621.2	400.8
GR	621.8	401.2	623.6	469	636.1	500	637.2	550		
SB		1.81	2.6		1.96		4.91		622.0	621.0
X1	538				40	40	40		1.0	
X2				1	624.5	630.7				
X3	10			370		410		630.7	630.7	
BT	14	0	637.0	0.0	61	636.8	0.0	100	636.5	0.0
BT	200	635.1	0.0	300	632.5	0.0	398.8	630.7	622.8	398.8
BT	630.7	623.7	399.2	630.7	624.3	400	630.7	624.5	400.8	630.7
BT	624.3	401.2	630.7	623.7	401.2	630.7	622.8	500	637.1	0.0
BT	550	638.2	0.0							
NC			.05							
X1	563	10	357	469	25	25	25		1.21	
X3	10			387		440				
GR	637.0	0	636.8	61	636.5	100	635.1	200	632.5	300
GR	623.4	357	621.0	400	623.6	469	637.1	500	638.2	550
X1	588				25	25	25		0.21	
X3	10			362		464				
X1	634				115	1	46		0.38	
X1	680				115	1	46		0.38	
X1	738				58	58	58		0.48	
X1	797	90	462.7	551.7	59	59	59		0.05	
GR	637.4	0.0	637.3	15.9	637.3	31.9	637.2	47.8	637.2	63.8
GR	637.1	79.7	637.0	95.7	637.0	111.6	636.9	127.6	636.8	143.6
GR	636.7	159.5	636.7	175.5	636.5	191.4	636.3	207.4	636.2	223.3
GR	636.0	239.3	635.8	255.3	635.6	271.2	635.3	287.2	635.0	303.1
GR	634.7	319.1	634.5	335.0	634.2	351.0	634.0	367.0	633.8	382.9
GR	632.7	398.9	631.2	414.8	629.8	430.8	628.3	446.7	626.9	462.7
GR	626.6	465.7	626.3	468.6	626.1	471.6	625.9	474.6	625.6	477.5
GR	625.4	480.5	625.2	483.5	624.9	486.4	624.7	489.4	624.5	492.4
GR	624.2	495.3	624.1	498.3	624.2	501.3	624.2	504.2	624.2	507.2
GR	624.2	510.2	624.3	513.1	624.4	516.1	624.5	519.1	624.6	522.0
GR	624.7	525.0	624.8	528.0	624.9	530.9	625.0	533.9	625.1	536.9
GR	625.2	539.8	625.3	542.8	625.5	545.8	625.7	548.7	625.9	551.7
GR	627.0	560.4	628.1	569.1	629.2	577.8	630.3	586.5	631.2	595.2
GR	632.1	603.8	633.0	612.5	634.0	621.2	634.8	629.9	635.7	638.6
GR	636.6	647.3	637.1	656.0	637.1	664.7	637.2	673.4	637.3	682.1
GR	637.3	690.8	637.4	699.5	637.4	708.1	637.5	716.8	637.5	725.5
GR	637.5	734.2	637.6	742.9	637.6	751.6	637.7	760.3	637.7	769.0
GR	637.8	777.7	637.8	786.4	637.8	795.1	637.9	803.8	638.0	812.5
X1	855				58	58	58		0.48	
X1	914				59	59	59		0.49	
X1	972				115	1	58		0.48	
X1	1031	90	568.5	649.1	115	1	59		-0.81	
GR	637.9	0.0	637.8	19.6	637.7	39.2	637.6	58.8	637.6	78.4
GR	637.5	98.0	637.4	117.6	637.4	137.2	637.4	156.8	637.4	176.4
GR	637.4	196.0	637.4	215.6	637.3	235.2	637.1	254.8	637.0	274.4
GR	636.8	294.0	636.6	313.6	636.4	333.2	636.1	352.8	635.9	372.4
GR	635.7	392.0	635.5	411.6	635.3	431.2	635.1	450.8	635.0	470.4
GR	634.3	490.0	633.3	509.6	632.3	529.2	631.3	548.8	630.4	568.5
GR	630.1	570.7	629.8	572.9	629.6	575.0	629.3	577.2	629.0	579.4
GR	628.8	581.6	628.5	583.8	628.2	586.0	628.0	588.2	627.7	590.4
GR	627.4	592.6	627.3	594.8	627.2	597.0	627.1	599.2	627.0	601.4
GR	626.9	603.6	626.9	605.8	626.9	608.0	627.0	610.2	627.1	612.4
GR	627.1	614.6	627.2	616.8	627.3	619.0	627.3	621.2	627.4	623.4
GR	627.5	625.6	627.5	627.8	627.8	630.0	628.0	632.2	628.3	634.5
GR	629.3	649.1	630.3	663.8	631.4	678.5	632.3	693.2	633.0	707.9
GR	633.7	722.5	634.3	737.2	635.0	751.9	635.5	766.6	636.1	781.3
GR	636.7	796.0	637.1	810.6	637.1	825.3	637.2	840.0	637.3	854.7
GR	637.3	869.4	637.4	884.1	637.4	898.7	637.5	913.4	637.5	928.1
GR	637.5	942.8	637.5	957.5	637.5	972.2	637.6	986.8	637.6	1001.5
GR	637.7	1016.2	637.7	1030.9	637.7	1045.6	637.8	1060.3	637.8	1075.0
X1	1089				1	115	58		0.48	
X1	1148				1	115	59		0.49	
X1	1206				58	58	58		0.48	

X1	1265	90	674.2	737.9	59	59	59		-1.37	
GR	638.4	0.0	638.2	23.2	638.1	46.5	638.0	69.7	637.9	93.0
GR	637.9	116.2	637.8	139.5	637.8	162.7	637.8	185.9	637.9	209.2
GR	638.0	232.4	638.1	255.7	638.0	278.9	637.8	302.2	637.7	325.4
GR	637.5	348.7	637.3	371.9	637.1	395.2	636.9	418.4	636.7	441.7
GR	636.6	464.9	636.5	488.2	636.3	511.4	636.2	534.7	636.1	557.9
GR	635.8	581.2	635.3	604.4	634.8	627.7	634.3	650.9	633.9	674.2
GR	633.5	675.6	633.2	677.1	633.0	678.5	632.7	679.9	632.3	681.4
GR	632.1	682.9	631.8	684.2	631.5	685.7	631.2	687.1	630.9	688.5
GR	630.6	690.0	630.4	691.4	630.2	692.8	629.9	694.3	629.7	695.7
GR	629.5	697.1	629.4	698.6	629.4	700.0	629.5	701.4	629.5	702.9
GR	629.5	704.3	629.6	705.7	629.6	707.2	629.6	708.6	629.7	710.0
GR	629.7	711.5	629.7	712.9	630.0	714.3	630.3	715.8	630.6	717.2
GR	631.6	737.9	632.5	758.5	633.5	779.2	634.3	799.9	634.8	820.6
GR	635.2	841.2	635.6	861.9	636.0	882.6	636.2	903.3	636.5	923.9
GR	636.8	944.6	637.0	965.3	637.1	986.0	637.2	1006.6	637.3	1027.3
GR	637.3	1048.0	637.4	1068.7	637.4	1089.3	637.4	1110.0	637.4	1130.7
GR	637.4	1151.4	637.4	1172.0	637.4	1192.7	637.5	1213.4	637.5	1234.1
GR	637.5	1254.7	637.6	1275.4	637.6	1296.1	637.6	1316.8	637.6	1337.5
X1	1323				100	29	58		0.48	
X1	1382				100	29	59		0.49	
X1	1432				100	25	50		0.42	
X1	1482	22	780	825	100	25	50		-2.17	
X3	10									
GR	638.9	0	638.4	100	638.2	200	638.9	300	638.4	400
GR	637.7	500	637.4	600	637.4	700	637.4	780	632.1	791
GR	632.0	794	632.0	798	633.0	800	633.8	825	636.4	900
GR	637.0	1000	637.0	1100	637.4	1200	637.5	1300	637.4	1400
GR	637.5	1500	637.5	1600						
X1	1532				50	50	50		0.41	
X1	1582				50	50	50		0.42	
X3	10									
X1	1632				50	50	50		0.41	
X1	1682				50	50	50		0.42	
X3	10									
X1	1713				31	31	31		0.20	
NC			.04							
QT	4	35	41	43	46					
X1	1745				32	32	32		0.21	
X3	10									
X1	1845				100	100	100		-1.14	
X3	10			761		819				
X1	1895				50	50	50		-0.57	
X3	10			775		805				
X1	1927				32	32	32		-0.38	
X3	10			783		797				
X1	1937				10	10	10		-0.11	
X3	10			786		794				
X1	1946	25	798.5	801.5	9	9	9			
X3	10							634.6	634.6	
GR	638.8	0	638.1	100	638.1	200	637.4	300	637.5	400
GR	637.0	500	636.8	600	635.7	700	635.1	798.5	631.6	798.5
GR	630.6	798.5	629.9	799	629.6	800	629.9	801	630.6	801.5
GR	633.0	801.5	635.1	801.5	637.4	900	637.7	1000	637.7	1100
GR	637.9	1200	638.8	1300	638.9	1400	637.9	1500	638.7	1600
NC			.013							
X1	1947				1	1	1			
X3	10							634.6	634.6	
BT	21	0	638.8	0.0	100	638.1	0.0	200	638.1	0.0
BT	300	637.4	0.0	400	637.5	0.0	500	637.0	0.0	600
BT	636.8	0.0	700	635.7	0.0	798.5	635.1	631.6	799	635.1
BT	632.3	800	635.1	632.6	801	635.1	632.3	801.5	635.1	631.6
BT	900	637.4	0.0	1000	637.7	0.0	1100	637.7	0.0	1200
BT	637.9	0.0	1300	638.8	0.0	1400	638.9	0.0	1500	637.9
BT	0.0	1600	638.7	0.0						

X3	10							635.1	635.1	
BT	21	0	638.8	0.0	100	638.1	0.0	200	638.1	0.0
BT	300	637.4	0.0	400	637.5	0.0	500	637.0	0.0	600
BT	636.8	0.0	700	635.7	0.0	798.5	635.1	633.0	799	635.1
BT	633.7	800	635.1	634.0	801	635.1	633.7	801.5	635.1	633.0
BT	900	637.4	0.0	1000	637.7	0.0	1100	637.7	0.0	1200
BT	637.9	0.0	1300	638.8	0.0	1400	638.9	0.0	1500	637.9
BT	0.0	1600	638.7	0.0						
GR	638.8	0	638.1	100	638.1	200	637.4	300	637.5	400
GR	637.0	500	636.8	600	635.7	700	635.1	798.5	633.0	798.5
GR	632.0	798.5	631.3	799	631.0	800	631.3	801	632.0	801.5
GR	633.0	801.5	635.1	801.5	637.4	900	637.7	1000	637.7	1100
GR	637.9	1200	638.8	1300	638.9	1400	637.9	1500	638.7	1600
X1	1967				1	1	1			
X3	10							635.1	635.1	
NC			0.04							
X1	1991	21	783	800	24	24	24		-1.28	
GR	638.8	0	638.7	100	638.7	200	637.7	300	637.0	400
GR	637.8	500	637.8	600	637.8	700	635.4	783	633.3	788
GR	632.6	792	633.3	795	635.7	800	638.2	900	638.8	1000
GR	639.2	1100	638.9	1200	638.9	1300	638.4	1400	639.4	1500
GR	642.0	1600								
X1	2016				25	25	25		0.32	
X1	2066				50	50	50		0.64	
X1	2116				50	50	50		0.64	
X1	2146				30	30	30		0.38	
X1	2171				25	25	25		0.3	
X1	2195	24	798.2	801.8	24	24	24			
GR	642.6	0	639.7	100	639.7	200	638.7	300	638.0	400
GR	638.8	500	638.8	600	638.8	700	634.6	798.2	634.1	798.5
GR	633.9	799	633.9	799.8	633.9	800.2	633.9	801	634.1	801.5
GR	634.6	801.8	639.2	900	639.8	1000	640.2	1100	639.9	1200
GR	639.9	1300	639.4	1400	640.4	1500	643.3	1600		
SB		3.96	2.8		2.84		6.40		634.2	633.9
X1	2268				73	73	73		0.3	
X2			1	636.4	643.6					
X3	10							643.6	643.6	
BT	24	0	642.9	0.0	100	643.1	0.0	200	643.4	0.0
BT	300	643.5	0.0	400	643.6	0.0	500	643.6	0.0	600
BT	643.7	0.0	700	643.6	0.0	798.2	643.6	634.9	798.5	643.6
BT	635.7	799	643.6	636.2	799.8	643.6	636.4	800.2	643.6	636.4
BT	801	643.6	636.2	801.5	643.6	635.7	801.8	643.6	634.9	900
BT	643.6	0.0	1000	643.6	0.0	1100	643.6	0.0	1200	643.6
BT	0.0	1300	643.6	0.0	1400	643.6	0.0	1500	643.6	0.0
BT	1600	643.6	0.0							
X1	2275	21	783	800	7	7	7		1.52	
X3	10			783		800				
X5	4	638.37	639.41	639.59	640.18					
GR	638.8	0	638.7	100	638.7	200	637.7	300	637.0	400
GR	637.8	500	637.8	600	637.8	700	635.4	783	633.3	788
GR	632.6	792	633.3	795	635.7	800	638.2	900	638.8	1000
GR	639.2	1100	638.9	1200	638.9	1300	638.4	1400	639.4	1500
GR	642.0	1600								
X1	2293				18	18	18		-0.22	
X3	10			783		800				
X1	2318				25	25	25		-0.30	
X3	10			783		800				
X1	2368				50	50	50		-1.0	
X3	10			783		800				
X1	2473				70	140	105		0.25	
X3	10			783		800				
X1	2578				80	130	105		0.25	
X3	10			783		800				
X1	2683				80	130	105		0.25	
X3	10			783		800				
X1	2788				80	130	105		0.25	

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X3     10                     783              800
X1   2893      21      776    800       80     130      105              -1.2
X3     10                     776              800
GR  639.7       0    640.2    100    640.2     200    640.0      300    641.1      400
GR  640.7     500    639.9    600    639.8     700    640.6      776    635.6      782
GR  635.1     787    635.6    792    641.6     800    639.7      900    640.9     1000
GR  641.2    1100    642.3   1200    641.5    1300    641.5     1400    641.9     1500
GR  642.9    1600
X1   2998                             90     120      105              0.25
X3     10                     776              800
X1   3103                             90     120      105              0.25
X3     10                     776              800
X1   3208                            105     105      105              0.25
X3     10                     776              800
X1   3313                            105     105      105              0.25
X3     10                     776              800
X1   3418                            105     105      105              0.25
X3     10                     776              800
EJ
T1       HAGAR TWP. BERRIEN CO.  5555-27
T2       50 YEAR FLOOD
T3       GRANGER DRAIN TRIB.
J1    -10       3                 0.0078                                614.0
J2      2              -1
T1       HAGAR TWP. BERRIEN CO.  5555-27
T2       100 YEAR FLOOD
T3       GRANGER DRAIN TRIB.
J1    -10       4                 0.0078                                614.0
J2      3              -1
T1       HAGAR TWP. BERRIEN CO.  5555-27
T2       500 YEAR FLOOD
T3       GRANGER DRAIN TRIB.
J1    -10       5                 0.0078                                614.0
J2     15              -1

ER
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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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Why not use st. W.S of *618.91 @ Granger Drain confluence ?

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T1      HAGAR TWP. PEPRIEN CO.  5555-27
T2      100 YEAR FLOOD
T3      GRANGER DRAIN TRIB.
```

(So DTRT SF ?)

J1	ICHECK	INQ	NINV	IDIR	DTRT	METRIC	HVINS	Q	WSEL	FQ
	-10.	4.	-0.	-0.	.007800	-0.00	-0.0	-0.	614.000	-0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSFCH	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

*100-yr. W.S @ sta 57+27, Granger Drain

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	1.28	614.88	0.00	614.00	614.94	.06	0.00	0.00	616.10
48.	0.	48.	0.	0.	25.	0.	0.	0.	616.20
0.00	0.00	1.96	0.00	.150	.050	.150	0.000	613.60	175.43
.007885	-0.	-0.	-0.	0	0	7	0.00	38.35	213.78
25.00	.99	615.17	0.00	0.00	615.33	.16	.34	.05	616.68
48.	0.	48.	0.	0.	15.	0.	0.	0.	616.78
.00	0.00	3.23	0.00	.150	.050	.150	.048	614.18	180.87
.029976	25.	25.	25.	2	0	1	0.00	29.85	210.73
50.00	1.08	615.83	0.00	0.00	615.95	.12	.60	.01	617.25
48.	0.	48.	0.	0.	17.	0.	0.	0.	617.35
.00	0.00	2.75	0.00	.150	.050	.150	.048	614.75	179.28
.019578	25.	25.	25.	3	0	1	0.00	32.34	211.62
75.00	1.04	616.37	0.00	0.00	616.50	.14	.55	.01	617.83
48.	0.	48.	0.	0.	16.	0.	0.	0.	617.93
.01	0.00	3.00	0.00	.150	.050	.150	.048	615.33	180.15
.024618	25.	25.	25.	2	0	1	0.00	30.98	211.13
100.00	1.06	616.96	0.00	0.00	617.08	.13	.57	.00	618.40
48.	0.	48.	0.	0.	17.	0.	0.	0.	618.50
.01	0.00	2.85	0.00	.150	.050	.150	.048	615.90	179.65
.021506	25.	25.	25.	1	0	1	0.00	31.77	211.42
125.00	1.04	617.52	0.00	0.00	617.66	.14	.57	.01	618.98
48.	0.	48.	0.	0.	16.	0.	0.	0.	619.08
.01	0.00	2.97	0.00	.150	.050	.150	.048	616.48	180.07
.024096	25.	25.	25.	1	0	1	0.00	31.10	211.18

[illegible]

Approved [illegible]

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
150.00	1.06	618.11	0.00	0.00	618.24	.13	.58	.00	619.55
48.	0.	48.	0.	0.	17.	0.	0.	0.	619.65
.01	0.00	2.88	0.00	.150	.050	.150	.048	617.05	179.74
.022039	25.	25.	25.	1	0	1	0.00	31.63	211.36
175.00	1.04	618.67	0.00	0.00	618.81	.13	.57	.00	620.13
48.	0.	48.	0.	0.	16.	0.	0.	0.	620.23
.02	0.00	2.95	0.00	.150	.050	.150	.048	617.63	179.99
.023547	25.	25.	25.	1	0	1	0.00	31.24	211.22

3470 ENCROACHMENT STATIONS= 174.0 206.0 TYPE= 1 TARGET= 32.000

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

200.00	1.05	619.25	0.00	0.00	619.40	.15	.59	.01	100000.00
48.	0.	48.	0.	0.	15.	0.	0.	0.	100000.00
.02	0.00	3.13	0.00	.150	.050	.150	.048	618.20	179.76
.023434	25.	25.	25.	1	0	1	0.00	26.23	206.00

3470 ENCROACHMENT STATIONS= 192.0 207.0 TYPE= 1 TARGET= 15.000

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

225.00	1.05	619.85	0.00	0.00	620.11	.26	.65	.05	100000.00
48.	0.	48.	0.	0.	12.	0.	0.	0.	100000.00
.02	0.00	4.11	0.00	.150	.050	.150	.048	618.80	192.00
.029268	25.	25.	25.	0	0	1	0.00	15.00	207.00

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 627.40 ELREA= 627.40

249.00	2.31	621.71	621.71	0.00	622.71	1.01	.79	0.00	620.40
48.	0.	48.	0.	0.	6.	0.	0.	0.	620.40
.02	0.00	8.05	0.00	.150	.040	.150	.047	619.50	198.50
.037214	24.	24.	24.	30	17	1	0.00	(3.00)	223.12

d/s

ELLC @ 623.2 ; $TW_{DTUSTED} = 621.71 + \left(\frac{623.2 - 621.71}{2}\right) = 621.71 + .745 = 622.46$

.75

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	4.42	2	0.00	4.42	-0.00	7.07	-0.00	620.20	619.40

Consider reasonable

driveway culvert 36"CMP, 65 L.F.
e sta 300

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

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
624.87	623.51	0.00	0.	48.	7.	623.20	631.50	10.00

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 631.50 ELREA= 631.50

BRIDGE SECTION A U.S. DRIVEWAY CULVERT (65') 36" CMP

CMP PROJECTING FROM FILL (NO HEADWALL)

300.00	4.43	624.63	0.00	624.00	624.87	.23	2.16	0.00	621.20
48.	0.	48.	0.	0.	12.	0.	0.	0.	621.20
.02	0.00	1.88	0.00	.150	.040	.150	.046	620.20	198.50
.005236	51.	51.	51.	2	0	1	0.00	3.00	201.50

3470 ENCROACHMENT STATIONS= 163.0 213.0 TYPE= 1 TARGET= 53.000

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 100000.90 ELREA= 100000.90

325.00	4.64	624.94	0.00	0.00	624.94	.00	.00	.07	100000.90
48.	0.	48.	0.	0.	198.	0.	0.	0.	100000.90
.05	0.00	.24	0.00	.150	.040	.150	.045	620.30	163.00
.000008	25.	25.	25.	2	0	1	0.00	53.00	216.00

3470 ENCROACHMENT STATIONS= 138.0 242.0 TYPE= 1 TARGET= 104.000

350.00	4.54	624.94	0.00	0.00	624.94	.00	.00	.00	622.90
48.	0.	48.	0.	9.	249.	10.	0.	0.	623.00
.09	.02	.19	.02	.150	.040	.150	.045	620.40	143.65
.000005	25.	25.	25.	2	0	1	0.00	95.09	238.74

3470 ENCROACHMENT STATIONS= 160.0 220.0 TYPE= 1 TARGET= 60.000

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

383.00	4.41	624.94	0.00	0.00	624.94	.00	.00	.00	100000.00
48.	0.	48.	0.	0.	204.	0.	0.	0.	100000.00
.13	0.00	.23	0.00	.150	.040	.150	.044	620.53	160.00
.000009	15.	33.	48.	0	0	1	0.00	60.00	220.00

check on total loss coeff "K"

let $n = .024$ $A = 7.07$ $R = .75$ $R^{4/3} = .681$

$K_c = \frac{29 n^2 L}{R^{4/3}}$

$K_c = \frac{29(.024)^2 65}{.681} = 1.594$

$\Rightarrow K = K_e + K_o + K_c = 9 + 1 + 1.59 = 3.49$

let $n = .0302$

$K_F = \frac{29(.0302)^2 65}{.681} = 2.52$

$\Rightarrow K = 9 + 1 + 2.52 = 4.42$

check on pressure flow

$K = 4.42$; $C = \sqrt{K} = \sqrt{4.42} = 4.75$

$Q = CA\sqrt{2gH} = 4.75(7.07)(8.025)H^{1/2}$

$Q = 26.987 H^{1/2}$

let $TW' = 622.46$

HW @ 624.94

$H = (624.94 - 622.46) = 2.48$

$Q = 26.987(1.57) = 42.5$ cfs

consider reasonable

3470 ENCROACHMENT STATIONS= 164.0 212.0 TYPE= 1 TARGET= 48.000

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

416.00	4.28	624.94	0.00	0.00	624.94	.00	.00	.00	100000.00
48.	0.	48.	0.	0.	165.	0.	1.	0.	100000.00
.16	0.00	.29	0.00	.150	.040	.150	.044	620.66	164.00
.000014	33.	33.	33.	0	0	1	0.00	48.00	212.00

3470 ENCROACHMENT STATIONS= 400.0 427.0 TYPE= 1 TARGET= 27.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 99999.79 ELREA= 99999.79

449.00	4.15	624.94	0.00	0.00	624.94	.00	.00	.00	99999.79
48.	0.	48.	0.	0.	98.	0.	1.	0.	99999.79
.18	0.00	.49	0.00	.150	.040	.150	.043	620.79	400.00
.000042	33.	33.	33.	0	0	1	0.00	27.00	427.00

drawdown

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= 370.0 410.0 TYPE= 1 TARGET= 40.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 627.30 ELREA= 627.30

Submerged outlet condition

ELLC = 624.5

624.69 > 624.5

498.00	3.69	624.69	0.00	0.00	625.21	.52	.01	.26	621.80
48.	0.	48.	0.	0.	8.	0.	1.	0.	621.80
.18	0.00	5.78	0.00	.150	.040	.150	.043	621.00	398.80
.015332	49.	49.	49.	2	0	1	0.00	2.40	401.20

SPECIAL BRIDGE

checks

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.81	2.60	-0.00	1.96	-0.00	4.91	-0.00	622.00	621.00

OK

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
627.37	626.21	0.00	0.	48.	5.	624.50	630.70	10.00

3470 ENCROACHMENT STATIONS= 370.0 410.0 TYPE= 1 TARGET= 40.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 630.70 ELREA= 630.70

BRIDGE SECTION 8 U.S. DRIVEWAY CULVERT 40'- 30" RCP

n=.012

RCP PROJECTING FROM FILL SQ CUT END

30" RCP, 40 L.F
@ sta 538

check on total loss coeff "K"

let n=.012

A = 4.91
R = .625
$R^{4/3}$ = .534

$K_f = \frac{29(n)^2 L}{R^{4/3}}$

$K_f = \frac{29(.012)^2 40}{.534} = .312$

$K = K_o + K_e + K_f = 1 + .5 + .31 = 1.81$

check on pressure flow

$K = \frac{1}{C^2}$; $C = \frac{1}{\sqrt{K}} = \frac{1}{\sqrt{1.81}} = .74$

$Q = CA\sqrt{2gH} = .74(4.91)(8.025)H^{1/2}$

$Q = 29.29\,H^{1/2}$

let TW = 624.99

& HW: 627.95

$H = (627.95 - 624.99) = 2.51$

$Q = 29.29(1.58) = 96.9$ cfs

consider reasonable

538.00	5.11	627.11	0.00	0.00	627.37	.26	2.17	0.00	622.80
48.	0.	48.	0.	0.	12.	0.	1.	0.	622.80
.18	0.00	4.10	0.00	.150	.040	.150	.043	622.00	398.80
.006474	40.	40.	40.	2	0	1	0.00	2.40	401.20

3470 ENCROACHMENT STATIONS= 387.0 440.0 TYPE= 1 TARGET= 53.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 100001.21 ELREA= 100001.21

563.00	5.24	627.45	0.00	0.00	627.45	.00	.00	.08100001.21	
48.	0.	48.	0.	0.	243.	0.	1.	0.	100001.21
.22	0.00	.20	0.00	.150	.060	.150	.043	622.21	387.00
.000010	25.	25.	25.	2	0	1	0.00	53.00	440.00

3470 ENCROACHMENT STATIONS= 362.0 464.0 TYPE= 1 TARGET= 102.000

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

588.00	5.03	627.45	0.00	0.00	627.45	.00	.00	.00100000.00	
48.	0.	48.	0.	0.	396.	0.	1.	0.	100000.00
.28	0.00	.12	0.00	.150	.060	.150	.044	622.42	362.00
.000004	25.	25.	25.	2	0	1	0.00	102.00	464.00
634.00	4.65	627.45	0.00	0.00	627.45	.00	.00	.00	625.20
48.	0.	48.	0.	16.	380.	5.	1.	1.	625.40
.38	.02	.13	.02	.150	.060	.150	.045	622.80	342.88
.000005	115.	46.	1.	0	0	1	0.00	130.83	473.72

SECNO Q TIME SLOPE	DEPTH QLOB VLOB XLOBL	CWSEL QCH VCH XLCH	CRIWS QROB VROB XLOBR	WSELK ALOB XNL ITRIAL	EG ACH XNCH IDC	HV AROB XNR ICONT	HL VOL WTN CORAR	OLOSS TWA ELMIN TOPWID	BANK ELEV LEFT/RIGHT SSTA ENDST
680.00	4.27	627.45	0.00	0.00	627.45	.00	.00	.00	625.58
48.	0.	48.	0.	11.	337.	3.	2.	1.	625.78
.47	.03	.14	.02	.150	.060	.150	.046	623.18	345.26
.000007	115.	46.	1.	0	0	1	0.00	127.58	472.84
738.00	3.79	627.45	0.00	0.00	627.45	.00	.00	.00	626.06
48.	0.	48.	0.	6.	284.	2.	2.	1.	626.26
.57	.03	.17	.02	.150	.060	.150	.047	623.66	348.26
.000013	58.	58.	58.	0	0	1	0.00	123.48	471.74
797.00	3.31	627.46	0.00	0.00	627.46	.00	.00	.00	626.95
48.	0.	48.	0.	1.	212.	9.	3.	1.	625.95
.64	.02	.22	.03	.150	.060	.150	.048	624.15	456.93
.000026	59.	59.	59.	0	0	1	0.00	106.68	563.60
855.00	2.83	627.46	0.00	0.00	627.46	.00	.00	.00	627.43
48.	0.	48.	0.	0.	169.	4.	3.	1.	626.43
.70	.00	.28	.05	.150	.060	.150	.049	624.63	462.40
.000055	58.	58.	58.	0	0	1	0.00	97.42	559.82

48.	0.	46.	0.	0.	127.	1.	3.	1.	626.92
.74	0.00	.38	.05	.150	.060	.150	.049	625.12	467.26
.000135	59.	59.	59.	0	0	1	0.00	88.70	555.96
972.00	1.87	627.47	0.00	0.00	627.48	.00	.01	.00	628.40
48.	0.	48.	0.	0.	88.	0.	3.	1.	627.40
.77	0.00	.54	.00	.150	.060	.150	.050	625.60	473.64
.000409	115.	58.	1.	0	0	1	0.00	78.57	552.21
1031.00	1.42	627.51	0.00	0.00	627.53	.02	.04	.01	629.59
48.	0.	48.	0.	0.	47.	0.	3.	1.	628.49
.79	0.00	1.03	0.00	.150	.060	.150	.050	626.09	585.11
.001867	115.	59.	1.	2	0	1	0.00	49.72	634.82
1089.00	1.11	627.68	0.00	0.00	627.71	.03	.17	.01	630.07
48.	0.	48.	0.	0.	32.	0.	3.	2.	628.97
.80	0.00	1.50	0.00	.150	.060	.150	.051	626.57	588.12
.005650	1.	58.	115.	2	0	1	0.00	44.13	632.26

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	IOC	ICONT	CORAR	TOPWID	ENDST
1148.00	1.01	628.07	0.00	0.00	628.12	.05	.40	.01	630.56
48.	0.	48.	0.	0.	28.	0.	3.	2.	629.46
.81	0.00	1.72	0.00	.150	.060	.150	.051	627.06	588.84
.008418	1.	59.	115.	2	0	1	0.00	42.41	631.25
1206.00	1.02	628.56	0.00	0.00	628.60	.04	.48	.00	631.04
48.	0.	48.	0.	0.	24.	0.	3.	2.	629.94
.82	0.00	1.70	0.00	.150	.060	.150	.052	627.54	588.77
.008099	58.	58.	58.	1	0	1	0.00	42.57	631.34
1265.00	1.11	629.14	0.00	0.00	629.23	.09	.61	.02	632.53
48.	0.	48.	0.	0.	20.	0.	4.	2.	630.23
.82	0.00	2.41	0.00	.150	.060	.150	.052	628.03	690.64
.013749	59.	59.	59.	1	0	1	0.00	26.13	716.77
1323.00	1.27	629.78	0.00	0.00	629.84	.06	.59	.01	633.01
48.	0.	48.	0.	0.	25.	0.	4.	2.	630.71
.83	0.00	1.96	0.00	.150	.060	.150	.052	628.51	689.61
.007944	100.	58.	29.	1	0	1	0.00	29.18	718.80
1382.00	1.26	630.26	0.00	0.00	630.32	.06	.48	.00	633.50
48.	0.	48.	0.	0.	24.	0.	4.	2.	631.20
.84	0.00	2.01	0.00	.150	.060	.150	.053	629.00	689.72
.008413	100.	59.	29.	2	0	1	0.00	28.65	718.37
1432.00	1.26	630.68	0.00	0.00	630.74	.06	.42	.00	633.92
48.	0.	48.	0.	0.	24.	0.	4.	2.	631.62
.85	0.00	2.00	0.00	.150	.060	.150	.053	629.42	689.70
.008346	100.	50.	25.	2	0	1	0.00	28.73	718.43

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 635.23 ELREA= 631.63

1482.00	1.46	631.29	0.00	0.00	631.41	.12	.64	.03	635.23
48.	0.	48.	0.	0.	17.	0.	4.	2.	631.63
.85	0.00	2.76	0.00	.150	.060	.150	.053	629.83	788.17
.022357	100.	50.	25.	2	0	1	0.00	26.39	814.56
1532.00	1.77	632.01	0.00	0.00	632.06	.05	.63	.02	635.64
48.	0.	48.	0.	0.	27.	0.	4.	2.	632.04
.86	0.00	1.78	0.00	.150	.060	.150	.053	630.24	787.54
.007978	50.	50.	50.	2	0	1	0.00	36.49	824.03

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.06 ELREA= 632.46

1582.00	1.76	632.42	0.00	0.00	632.47	.05	.41	.00	636.06
48.	0.	48.	0.	0.	26.	0.	4.	2.	632.46
.87	0.00	1.82	0.00	.150	.060	.150	.053	630.66	787.56
.008324	50.	50.	50.	3	0	1	0.00	36.07	823.63
1632.00	1.76	632.83	0.00	0.00	632.88	.05	.41	.00	636.47
48.	0.	48.	0.	0.	27.	0.	4.	2.	632.87
.88	0.00	1.81	0.00	.150	.060	.150	.053	631.07	787.56
.008253	50.	50.	50.	1	0	1	0.00	36.15	823.71

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.89 ELREA= 633.29

1682.00	1.76	633.25	0.00	0.00	633.30	.05	.42	.00	636.89
48.	0.	48.	0.	0.	26.	0.	4.	2.	633.29
.88	0.00	1.82	0.00	.150	.060	.150	.054	631.49	787.57
.008409	50.	50.	50.	0	0	1	0.00	35.96	823.53
1713.00	1.80	633.49	0.00	0.00	633.54	.04	.23	.00	637.09
48.	0.	48.	0.	0.	28.	0.	4.	2.	633.49
.89	0.00	1.69	.01	.150	.060	.150	.054	631.69	787.45
.006854	31.	31.	31.	0	0	1	0.00	37.88	825.33

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 637.30 ELREA= 633.70

VALLEY SECTION C

1745.00	1.74	633.64	0.00	0.00	633.68	.04	.15	.00	637.30
43.	0.	43.	0.	0.	26.	0.	4.	2.	633.70
.89	0.00	1.66	0.00	.150	.040	.150	.053	631.90	787.59
.003122	32.	32.	32.	2	0	1	0.00	35.56	823.16

3470 ENCROACHMENT STATIONS= 761.0 819.0 TYPE= 1 TARGET= 58.000

1845.00	2.96	633.72	0.00	0.00	633.73	.01	.04	.01	636.16
43.	0.	43.	0.	0.	66.	0.	4.	2.	100000.00
.94	0.00	.66	0.00	.150	.040	.150	.053	630.76	785.06
.000142	100.	100.	100.	2	0	1	0.00	33.94	819.00

SECNO	DEPTH	CWSEL	CRIMS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 775.0 805.0 TYPE= 1 TARGET= 30.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 635.59 ELREA= 100000.00

1895.00	3.54	633.73	0.00	0.00	633.74	.01	.01	.00	635.59
43.	0.	43.	0.	0.	55.	0.	4.	2.	100000.00
.95	0.00	.78	0.00	.150	.040	.150	.052	630.19	783.86
.000148	50.	50.	50.	2	0	1	0.00	21.14	805.00

3470 ENCROACHMENT STATIONS= 783.0 797.0 TYPE= 1 TARGET= 14.000

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

1927.00	3.92	633.73	0.00	0.00	633.75	.02	.01	.00	100000.00
43.	0.	43.	0.	0.	39.	0.	4.	2.	100000.00
.96	0.00	1.11	0.00	.150	.040	.150	.052	629.81	783.06
.000344	32.	32.	32.	0	0	1	0.00	13.94	797.00

3470 ENCROACHMENT STATIONS= 786.0 794.0 TYPE= 1 TARGET= 8.000

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

1937.00	4.03	633.73	0.00	0.00	633.77	.04	.01	.01	100000.00
43.	0.	43.	0.	0.	26.	0.	4.	2.	100000.00
.96	0.00	1.68	0.00	.150	.040	.150	.052	629.70	786.00
.000927	10.	10.	10.	1	0	1	0.00	8.00	794.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 634.60 ELREA= 634.60

1946.00	4.05	633.65	0.00	0.00	633.88	.23	.02	.09	635.10
43.	0.	43.	0.	0.	11.	0.	4.	2.	635.10
.96	0.00	3.84	0.00	.150	.040	.150	.052	629.60	798.50
.009059	9.	9.	9.	2	0	1	0.00	3.00	801.50

NORMAL BRIDGE,NRD=21 MIN ELTRD= 635.10 MAX ELLC= 632.60

633.49 > 632.6

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 634.60 ELREA= 634.60

1947.00	3.89	633.49	0.00	0.00	634.06	.57	.01	.17	635.10
43.	0.	43.	0.	0.	7.	0.	4.	2.	635.10
.96	0.00	6.06	0.00	.150	.013	.150	.052	629.60	798.50
.006022	1.	1.	1.	2	0	1	-3.62	3.00	801.50

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

$Y_c = 2.15$

NORMAL BRIDGE.NRD=21 MIN ELTRD= 635.10 MAX ELLC= 634.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 635.10 ELREA= 635.10

BRIDGE SECTION D U.S. DRIVEWAY CULVERT 19'- 36" STEEL PIPE

STEEL PIPE WITH HEADWALL

$(2.51 - 2.15) = 0.36'$ above Y_c ⇒ tending to inlet

1966.00	2.51	633.51	0.00	0.00	634.23	.72	.10	.07	635.10
43.	0.	43.	0.	0.	6.	0.	4.	2.	635.10
.97	0.00	6.79	0.00	.150	.013	.150	.052	631.00	798.50
.004295	19.	19.	19.	2	0	1	-.26	3.00	801.50

$\Delta = \frac{0.4\ ft}{19\ ft}$

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 635.10 ELREA= 635.10

1967.00	2.73	633.73	0.00	0.00	634.28	.55	.00	.05	635.10
43.	0.	43.	0.	0.	7.	0.	4.	2.	635.10
.97	0.00	5.95	0.00	.150	.013	.150	.051	631.00	798.50
.002729	1.	1.	1.	3	0 .04	1	0.00	3.00	801.50

3301 HV CHANGED MORE THAN HVINS

1991.00	3.12	634.44	0.00	0.00	634.46	.03	.03	.16	634.12
43.	0.	43.	0.	2.	32.	0.	4.	2.	634.42
.97	.07	1.32	.00	.150	.040	.150	.051	631.32	771.80
.000584	24.	24.	24.	2	0	1	0.00	29.15	800.95
2016.00	2.81	634.45	0.00	0.00	634.49	.04	.02	.01	634.44
43.	0.	43.	0.	0.	27.	0.	4.	2.	634.74
.98	.00	1.58	0.00	.150	.040	.150	.051	631.64	782.67
.001007	25.	25.	25.	2	0	1	0.00	16.73	799.40
2066.00	2.23	634.51	0.00	0.00	634.59	.09	.08	.02	635.08
43.	0.	43.	0.	0.	18.	0.	4.	2.	635.38
.98	0.00	2.36	0.00	.150	.040	.150	.051	632.28	784.39
.002996	50.	50.	50.	1	0	1	0.00	13.78	798.16
2116.00	1.77	634.69	0.00	0.00	634.88	.18	.23	.05	635.72
43.	0.	43.	0.	0.	13.	0.	4.	2.	636.02
.99	0.00	3.43	0.00	.150	.040	.150	.051	632.92	785.44
.008384	50.	50.	50.	2	0	1	0.00	11.79	797.24

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

36" pipe, 19 L.F.

check critical depth (Y_c)

based on Table 8-10, p.8-60 Handbook of Hydraulics, King & Brater

assume Y_c @ 2.15

$\frac{2.15}{3} = .7166$

K_c'

.71 @ 2.741

.72 @ 2.819

$\Delta = .078$

$.66(.078) = .05148$

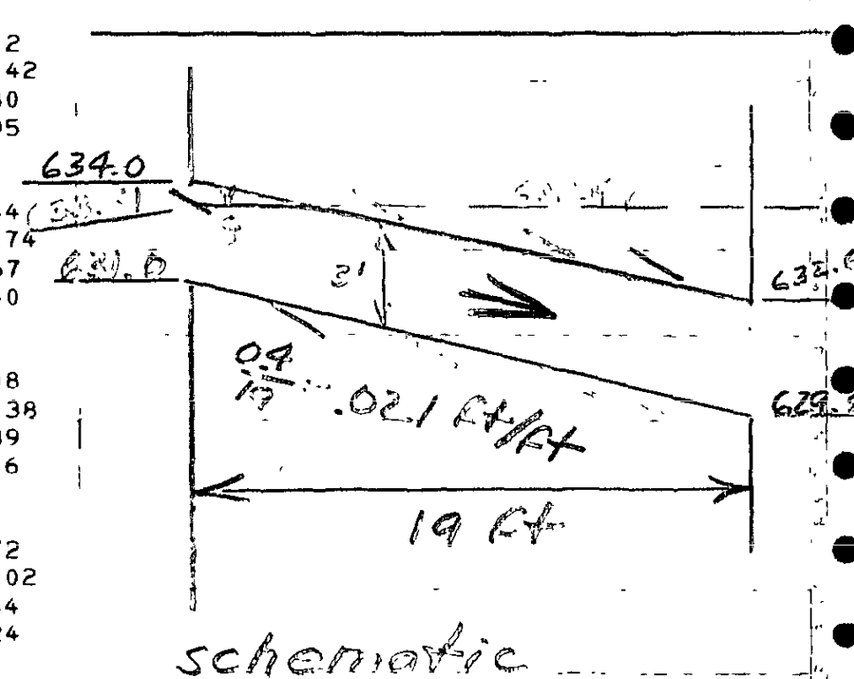
$K_c' = 2.741 + .05148 = 2.79248$

$Q_c = K_c' d^{5/2}$

$Q_c = 2.79248(3)^{5/2} = 43.53$ cfs

⇒ $Y_c \sim 2.15$

$(631.0 + 2.15) = 633.15$



schematic

no scale

2146.00	1.66	634.96	0.00	0.00	635.19	.23	.29	.02	636.10
43.	0.	43.	0.	0.	11.	0.	4.	2.	636.40
.99	0.00	3.82	0.00	.150	.040	.150	.050	633.30	785.71
.011330	30.	30.	30.	2	0	1	0.00	11.30	797.01

2171.00	1.65	635.25	0.00	0.00	635.48	.23	.29	.00	636.40
43.	0.	43.	0.	0.	11.	0.	4.	2.	636.70
.99	0.00	3.88	0.00	.150	.040	.150	.050	633.60	785.74
.011809	25.	25.	25.	2	0	1	0.00	11.23	796.97

d/s

2195.00	1.63	635.53	635.50	0.00	635.83	.30	.32	.04	634.60
43.	7.	29.	7.	10.	5.	9.	4.	2.	634.60
.99	.72	5.34	.72	.150	.040	.150	.050	633.90	776.56
.014677	24.	24.	24.	0	8	1	0.00	44.99	821.55

$TW' = 635.55 + \frac{(636.4 - 635.55)}{2} = 635.55 + \frac{.85}{.43} = 635.98$

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU
	-0.00	3.96	2.80	-0.00	2.84	-0.00	6.40	-0.00	634.20

ELCHD
633.90

PRESSURE FLOW C&O RR

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
638.30	636.78	0.00	0.	43.	6.	636.40	643.60	10.00

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 643.60 ELREA= 643.60

2.25 x 6.5'

BRIDGE SECTION E U.S. C&O R.R. TRACK 731- 27" X 43" CMP ARCH

6.45 SF

From BAR Curve Yc = 1.65 for 43 cfs

CMP ARCH WITH HEADWALL

(1.65 + 633.90) = 635.55

2268.00	3.95	638.15	0.00	0.00	638.30	.15	2.47	0.00	634.90
43.	0.	43.	0.	0.	14.	0.	4.	2.	634.90
1.00	0.00	3.10	0.00	.150	.040	.150	.050	634.20	798.20
.003031	73.	73.	73.	2	0	1	0.00	3.60	871.27

Cano. Ko

WATER FL=XS CARD= 639.590

See bridge comps & summary report

3470 ENCROACHMENT STATIONS= 783.0 800.0 TYPE= 1 TARGET= 17.000

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 636.92 ELREA= 100001.52

2275.00	5.47	639.59	0.00	0.00	639.60	.01	.00	.04	636.92
43.	0.	43.	0.	0.	72.	0.	4.	2.	100001.52
1.00	0.00	.59	0.00	.150	.040	.150	.050	634.12	783.00
.000056	7.	7.	7.	0	0	1	0.00	17.00	800.00

3470 ENCROACHMENT STATIONS= 783.0 800.0 TYPE= 1 TARGET= 17.000

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 636.70 ELREA= 100000.00

2282.00	5.63	639.33	0.00	0.00	639.70	.37	.00	.00	636.70

C&O RR track

c sta 22+68

check on Pressure Flow

$K = 3.96; C = \frac{1}{\sqrt{3.96}} = .5025$

$Q = cA\sqrt{2gH}$

$Q = .5025(6.4)(8.025)H^{1/2}$

$Q = 25.81\,H^{1/2}$

$TW' = 635.98$

HW from XS @ 639.59

$H = (639.59 - 635.98) = 3.61$

$Q = 25.81(1.9) = 49$ c.f.s

Consider Possible

43.	0.	43.	0.	0.	76.	0.	4.	2.	100000.00
1.01	0.00	.57	0.00	.150	.040	.150	.050	633.90	783.00
.000049	18.	18.	18.	2	0	1	0.00	17.00	800.00

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
SLOPF	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 783.0 800.0 TYPE= 1 TARGET= 17.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.40 ELREA= 100000.00

2318.00	5.99	639.59	0.00	0.00	639.60	.00	.00	.00	636.40
43.	0.	43.	0.	0.	81.	0.	4.	2.	100000.00
1.02	0.00	.53	0.00	.150	.040	.150	.050	633.60	783.00
.000040	25.	25.	25.	0	0	1	0.00	17.00	800.00

3470 ENCROACHMENT STATIONS= 783.0 800.0 TYPE= 1 TARGET= 17.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 635.40 ELREA= 100000.00

VALLEY SECTION F

2368.00	7.00	639.60	0.00	0.00	639.60	.00	.00	.00	635.40
43.	0.	43.	0.	0.	98.	0.	4.	2.	100000.00
1.05	0.00	.44	0.00	.150	.040	.150	.049	632.60	783.00
.000024	50.	50.	50.	0	0	1	0.00	17.00	800.00

3470 ENCROACHMENT STATIONS= 783.0 800.0 TYPE= 1 TARGET= 17.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 635.65 ELREA= 100000.00

2473.00	6.75	639.60	0.00	0.00	639.60	.00	.00	.00	635.65
43.	0.	43.	0.	0.	94.	0.	5.	2.	100000.00
1.12	0.00	.46	0.00	.150	.040	.150	.049	632.85	783.00
.000027	70.	105.	140.	0	0	1	0.00	17.00	800.00

3470 ENCROACHMENT STATIONS= 783.0 800.0 TYPE= 1 TARGET= 17.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 635.90 ELREA= 100000.00

2578.00	6.50	639.60	0.00	0.00	639.61	.00	.00	.00	635.90
43.	0.	43.	0.	0.	90.	0.	5.	2.	100000.00
1.18	0.00	.48	0.00	.150	.040	.150	.049	633.10	783.00
.000031	80.	105.	130.	0	0	1	0.00	17.00	800.00

3470 ENCROACHMENT STATIONS= 783.0 800.0 TYPE= 1 TARGET= 17.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 636.15 ELREA= 100000.00

2683.00	6.26	639.61	0.00	0.00	639.61	.00	.00	.00	636.15
43.	0.	43.	0.	0.	86.	0.	5.	2.	100000.00

.000035	80.	105.	130.	0	0	1	0.00	17.00	800.00

3470 ENCROACHMENT STATIONS= 783.0 800.0 TYPE= 1 TARGET= 17.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLFA= 636.40 ELREA= 100000.00

2788.00	6.01	639.61	0.00	0.00	639.61	.00	.00	.00	636.40
43.	0.	43.	0.	0.	81.	0.	5.	3.	100000.00
1.29	0.00	.53	0.00	.150	.040	.150	.048	633.60	783.00
.000040	80.	105.	130.	0	0	1	0.00	17.00	800.00

SECNO	DEPTH	C#SEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 639.40 ELREA= 99998.80

2893.00	5.71	639.61	0.00	0.00	639.62	.00	.00	.00	639.40
43.	0.	43.	0.	0.	89.	0.	5.	3.	99998.80
1.35	0.00	.48	0.00	.150	.040	.150	.048	633.90	776.00
.000034	80.	105.	130.	0	0	1	0.00	22.95	798.95

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 639.65 ELREA= 100000.00

2998.00	5.47	639.62	0.00	0.00	639.62	.00	.00	.00	639.65
43.	0.	43.	0.	0.	83.	0.	6.	3.	100000.00
1.41	0.00	.52	0.00	.150	.040	.150	.047	634.15	776.04
.000041	90.	105.	120.	0	0	1	0.00	22.58	798.62

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 639.90 ELRFA= 100000.00

3103.00	5.22	639.62	0.00	0.00	639.63	.00	.00	.00	639.90
43.	0.	43.	0.	0.	78.	0.	6.	3.	100000.00
1.46	0.00	.55	0.00	.150	.040	.150	.047	634.40	776.34
.000049	90.	105.	120.	0	0	1	0.00	21.96	798.29

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 640.15 ELREA= 100000.00

3208.00	4.98	639.63	0.00	0.00	639.63	.01	.01	.00	640.15
43.	0.	43.	0.	0.	73.	0.	6.	3.	100000.00
1.51	0.00	.59	0.00	.150	.040	.150	.047	634.65	776.63
.000060	105.	105.	105.	0	0	1	0.00	21.33	797.96

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLFA= 640.40 ELREA= 100000.00

3313.00	4.73	639.63	0.00	0.00	639.64	.01	.01	.00	640.40
43.	0.	43.	0.	0.	67.	0.	6.	3.	100000.00
1.56	0.00	.64	0.00	.150	.040	.150	.047	634.90	776.92
.000073	105.	105.	105.	0	0	1	0.00	20.71	797.64

3470 ENCROACHMENT STATIONS= 776.0 800.0 TYPE= 1 TARGET= 24.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 640.65 ELREA= 100000.00

VALLEY SECTION G

3418.00	4.49	639.64	0.00	0.00	639.65	.01	.01	.00	640.65
43.	0.	43.	0.	0.	63.	0.	6.	3.	100000.00
1.60	0.00	.69	0.00	.150	.040	.150	.046	635.15	777.22
.000090	105.	105.	105.	0	0	1	0.00	20.10	797.32

I can not concur in uniform for the entire 3418 ft of profile excluding the culverts.

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Hagar Township

3) WATERCOURSE: Granger Drain Trib

4) DOCUMENT TYPE: Summary D/S C&O RR

00BREAK00

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

GRANGER DRAIN TRIB.

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	C#SEL	CRTWS	EG	TOPWID	10K*S	TIME	VOL
0.00	0.00	0.00	0.00	613.60	38.00	614.77	0.00	614.82	35.08	79.43	0.00	0.00
0.00	0.00	0.00	0.00	613.60	46.00	614.86	0.00	614.92	37.73	78.95	0.00	0.00
0.00	0.00	0.00	0.00	613.60	48.00	614.88	0.00	614.94	38.35	78.85	0.00	0.00
0.00	0.00	0.00	0.00	613.60	52.00	614.92	0.00	614.98	39.53	78.68	0.00	0.00
25.00	25.00	0.00	0.00	614.18	38.00	615.08	0.00	615.23	27.00	321.18	.00	.01
25.00	25.00	0.00	0.00	614.18	46.00	615.15	0.00	615.31	29.31	303.66	.00	.01
25.00	25.00	0.00	0.00	614.18	48.00	615.17	0.00	615.33	29.85	299.76	.00	.01
25.00	25.00	0.00	0.00	614.18	52.00	615.21	0.00	615.37	30.91	292.47	.00	.01
50.00	25.00	0.00	0.00	614.75	38.00	615.75	0.00	615.85	29.82	189.06	.00	.02
50.00	25.00	0.00	0.00	614.75	46.00	615.81	0.00	615.93	31.86	194.46	.00	.02
50.00	25.00	0.00	0.00	614.75	48.00	615.83	0.00	615.95	32.34	195.78	.00	.02
50.00	25.00	0.00	0.00	614.75	52.00	615.86	0.00	615.98	33.24	198.36	.00	.02
75.00	25.00	0.00	0.00	615.33	38.00	616.28	0.00	616.40	28.28	250.70	.01	.03
75.00	25.00	0.00	0.00	615.33	46.00	616.35	0.00	616.49	30.47	247.02	.01	.03
75.00	25.00	0.00	0.00	615.33	48.00	616.37	0.00	616.50	30.98	246.18	.01	.03
75.00	25.00	0.00	0.00	615.33	52.00	616.40	0.00	616.54	31.96	244.61	.01	.03
100.00	25.00	0.00	0.00	615.90	38.00	616.87	0.00	616.98	29.14	213.57	.01	.03
100.00	25.00	0.00	0.00	615.90	46.00	616.94	0.00	617.06	31.31	213.69	.01	.04
100.00	25.00	0.00	0.00	615.90	48.00	616.96	0.00	617.08	31.77	215.06	.01	.04
100.00	25.00	0.00	0.00	615.90	52.00	616.99	0.00	617.12	32.67	217.45	.01	.04
125.00	25.00	0.00	0.00	616.48	38.00	617.44	0.00	617.56	28.44	243.43	.01	.04
125.00	25.00	0.00	0.00	616.48	46.00	617.50	0.00	617.64	30.56	242.88	.01	.05
125.00	25.00	0.00	0.00	616.48	48.00	617.52	0.00	617.66	31.10	240.96	.01	.05
125.00	25.00	0.00	0.00	616.48	52.00	617.55	0.00	617.70	32.13	237.89	.01	.05
150.00	25.00	0.00	0.00	617.05	38.00	618.02	0.00	618.13	29.11	215.03	.02	.05
150.00	25.00	0.00	0.00	617.05	46.00	618.09	0.00	618.22	31.17	218.71	.01	.06
150.00	25.00	0.00	0.00	617.05	48.00	618.11	0.00	618.24	31.63	220.39	.01	.06
150.00	25.00	0.00	0.00	617.05	52.00	618.14	0.00	618.27	32.52	222.77	.01	.06
175.00	25.00	0.00	0.00	617.63	38.00	618.58	0.00	618.71	28.49	241.08	.02	.06
175.00	25.00	0.00	0.00	617.63	46.00	618.66	0.00	618.79	30.71	236.73	.02	.07
175.00	25.00	0.00	0.00	617.63	48.00	618.67	0.00	618.81	31.24	235.47	.02	.07
175.00	25.00	0.00	0.00	617.63	52.00	618.71	0.00	618.85	32.23	234.03	.02	.07
200.00	25.00	0.00	0.00	618.20	38.00	619.16	0.00	619.29	24.57	224.87	.02	.06
200.00	25.00	0.00	0.00	618.20	46.00	619.24	0.00	619.38	25.92	232.33	.02	.07
200.00	25.00	0.00	0.00	618.20	48.00	619.25	0.00	619.40	26.23	234.34	.02	.08
200.00	25.00	0.00	0.00	618.20	52.00	619.28	0.00	619.45	26.84	237.48	.02	.08
225.00	25.00	0.00	0.00	618.80	38.00	619.74	0.00	619.95	15.00	273.79	.02	.07
225.00	25.00	0.00	0.00	618.80	46.00	619.83	0.00	620.08	15.00	288.59	.02	.08
225.00	25.00	0.00	0.00	618.80	48.00	619.85	0.00	620.11	15.00	292.68	.02	.08
225.00	25.00	0.00	0.00	618.80	52.00	619.88	0.00	620.16	15.00	291.82	.02	.09

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
249.00	24.00	0.00	0.00	619.40	38.00	621.42	621.42	622.28	3.00	364.27	.02	.08
249.00	24.00	0.00	0.00	619.40	46.00	621.65	621.65	622.63	3.00	370.37	.02	.09
249.00	24.00	0.00	0.00	619.40	48.00	621.71	621.71	622.71	3.00	372.14	.02	.09
249.00	24.00	0.00	0.00	619.40	52.00	621.82	621.82	622.87	3.00	375.49	.02	.10
300.00	51.00	631.50	623.20	620.20	38.00	623.52	0.00	623.92	3.00	245.03	.03	.08
300.00	51.00	631.50	623.20	620.20	46.00	624.30	0.00	624.55	3.00	59.81	.03	.10
300.00	51.00	631.50	623.20	620.20	48.00	624.63	0.00	624.87	3.00	52.36	.02	.10
300.00	51.00	631.50	623.20	620.20	52.00	625.33	0.00	625.53	3.00	41.43	.02	.11
325.00	25.00	0.00	0.00	620.30	38.00	624.05	0.00	624.05	53.00	.13	.05	.13
325.00	25.00	0.00	0.00	620.30	46.00	624.63	0.00	624.63	53.00	.10	.05	.15
325.00	25.00	0.00	0.00	620.30	48.00	624.94	0.00	624.94	53.00	.08	.05	.16
325.00	25.00	0.00	0.00	620.30	52.00	625.59	0.00	625.59	53.00	.06	.06	.18
350.00	25.00	0.00	0.00	620.40	38.00	624.05	0.00	624.05	86.49	.10	.09	.23
350.00	25.00	0.00	0.00	620.40	46.00	624.63	0.00	624.63	92.13	.07	.09	.27
350.00	25.00	0.00	0.00	620.40	48.00	624.94	0.00	624.94	95.09	.05	.09	.29
350.00	25.00	0.00	0.00	620.40	52.00	625.59	0.00	625.59	101.01	.03	.10	.34
383.00	33.00	0.00	0.00	620.53	38.00	624.05	0.00	624.05	60.00	.14	.12	.35
383.00	33.00	0.00	0.00	620.53	46.00	624.63	0.00	624.63	60.00	.11	.12	.43
383.00	33.00	0.00	0.00	620.53	48.00	624.94	0.00	624.94	60.00	.09	.13	.47
383.00	33.00	0.00	0.00	620.53	52.00	625.59	0.00	625.59	60.00	.06	.14	.56
416.00	33.00	0.00	0.00	620.66	38.00	624.05	0.00	624.05	48.00	.22	.15	.46
416.00	33.00	0.00	0.00	620.66	46.00	624.63	0.00	624.63	48.00	.17	.15	.56
416.00	33.00	0.00	0.00	620.66	48.00	624.94	0.00	624.94	48.00	.14	.16	.61
416.00	33.00	0.00	0.00	620.66	52.00	625.59	0.00	625.59	48.00	.09	.17	.72
449.00	33.00	0.00	0.00	620.79	38.00	624.05	0.00	624.05	27.00	.63	.17	.53
449.00	33.00	0.00	0.00	620.79	46.00	624.63	0.00	624.64	27.00	.51	.17	.65
449.00	33.00	0.00	0.00	620.79	48.00	624.94	0.00	624.94	27.00	.42	.18	.71
449.00	33.00	0.00	0.00	620.79	52.00	625.59	0.00	625.59	27.00	.30	.19	.84
498.00	49.00	0.00	0.00	621.00	38.00	623.76	0.00	624.36	2.40	217.44	.17	.58
498.00	49.00	0.00	0.00	621.00	46.00	624.35	0.00	624.94	2.40	183.41	.17	.71
498.00	49.00	0.00	0.00	621.00	48.00	624.64	0.00	625.21	2.40	153.32	.18	.77
498.00	49.00	0.00	0.00	621.00	52.00	625.38	0.00	625.81	2.40	113.41	.20	.91
538.00	40.00	630.70	624.50	622.00	38.00	624.89	0.00	625.44	2.40	190.53	.17	.58
538.00	40.00	630.70	624.50	622.00	46.00	626.50	0.00	626.82	2.40	82.56	.18	.72
538.00	40.00	630.70	624.50	622.00	48.00	627.11	0.00	627.37	2.40	64.74	.18	.78
538.00	40.00	630.70	624.50	622.00	52.00	628.34	0.00	628.54	2.40	44.26	.20	.92
563.00	25.00	0.00	0.00	622.21	38.00	625.61	0.00	625.61	53.00	.33	.20	.62
563.00	25.00	0.00	0.00	622.21	46.00	626.91	0.00	626.91	53.00	.14	.21	.78
563.00	25.00	0.00	0.00	622.21	48.00	627.45	0.00	627.45	53.00	.10	.22	.86
563.00	25.00	0.00	0.00	622.21	52.00	628.59	0.00	628.59	53.00	.06	.24	1.02

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
588.00	25.00	0.00	0.00	622.42	38.00	625.61	0.00	625.61	102.00	.22	.24	.73
588.00	25.00	0.00	0.00	622.42	46.00	626.91	0.00	626.91	102.00	.06	.26	.94
588.00	25.00	0.00	0.00	622.42	48.00	627.45	0.00	627.45	102.00	.04	.28	1.04
588.00	25.00	0.00	0.00	622.42	52.00	628.59	0.00	628.59	102.00	.02	.31	1.25
634.00	46.00	0.00	0.00	622.80	38.00	625.61	0.00	625.61	115.04	.44	.30	.93
634.00	46.00	0.00	0.00	622.80	46.00	626.91	0.00	626.91	126.19	.08	.35	1.30
634.00	46.00	0.00	0.00	622.80	48.00	627.45	0.00	627.45	130.83	.05	.38	1.47
634.00	46.00	0.00	0.00	622.80	52.00	628.59	0.00	628.60	140.60	.02	.44	1.84
680.00	46.00	0.00	0.00	623.18	38.00	625.61	0.00	625.61	107.70	1.05	.34	1.09
680.00	46.00	0.00	0.00	623.18	46.00	626.91	0.00	626.91	122.94	.13	.43	1.63
680.00	46.00	0.00	0.00	623.18	48.00	627.45	0.00	627.45	127.58	.07	.47	1.88
680.00	46.00	0.00	0.00	623.18	52.00	628.59	0.00	628.60	137.35	.03	.56	2.44
738.00	58.00	0.00	0.00	623.66	38.00	625.62	0.00	625.62	86.91	3.37	.38	1.23
738.00	58.00	0.00	0.00	623.66	46.00	626.91	0.00	626.91	118.84	.28	.51	1.97
738.00	58.00	0.00	0.00	623.66	48.00	627.45	0.00	627.45	123.48	.13	.57	2.31
738.00	58.00	0.00	0.00	623.66	52.00	628.60	0.00	628.60	133.24	.04	.69	3.06
797.00	59.00	0.00	0.00	624.15	38.00	625.65	0.00	625.65	69.40	7.73	.40	1.33
797.00	59.00	0.00	0.00	624.15	46.00	626.91	0.00	626.92	96.27	.56	.57	2.24
797.00	59.00	0.00	0.00	624.15	48.00	627.46	0.00	627.46	106.68	.26	.64	2.66
797.00	59.00	0.00	0.00	624.15	52.00	628.60	0.00	628.60	128.53	.08	.79	3.60
855.00	58.00	0.00	0.00	624.63	38.00	625.72	0.00	625.74	56.08	34.15	.42	1.40
855.00	58.00	0.00	0.00	624.63	46.00	626.92	0.00	626.92	87.78	1.38	.61	2.43
855.00	58.00	0.00	0.00	624.63	48.00	627.46	0.00	627.46	97.42	.55	.70	2.92
855.00	58.00	0.00	0.00	624.63	52.00	628.60	0.00	628.60	119.45	.13	.88	4.03
914.00	59.00	0.00	0.00	625.12	38.00	626.02	0.00	626.05	48.43	86.65	.43	1.44
914.00	59.00	0.00	0.00	625.12	46.00	626.93	0.00	626.94	77.15	4.45	.64	2.57
914.00	59.00	0.00	0.00	625.12	48.00	627.46	0.00	627.46	88.70	1.35	.74	3.13
914.00	59.00	0.00	0.00	625.12	52.00	628.60	0.00	628.60	109.99	.24	.95	4.40
972.00	58.00	0.00	0.00	625.60	38.00	626.51	0.00	626.54	49.00	80.39	.44	1.47
972.00	58.00	0.00	0.00	625.60	46.00	626.97	0.00	626.98	65.99	16.77	.66	2.66
972.00	58.00	0.00	0.00	625.60	48.00	627.47	0.00	627.48	78.57	4.09	.77	3.27
972.00	58.00	0.00	0.00	625.60	52.00	628.60	0.00	628.60	100.73	.48	1.01	4.68
1031.00	59.00	0.00	0.00	626.09	38.00	626.99	0.00	627.03	40.53	86.18	.45	1.51
1031.00	59.00	0.00	0.00	626.09	46.00	627.14	0.00	627.17	43.00	67.07	.67	2.72
1031.00	59.00	0.00	0.00	626.09	48.00	627.51	0.00	627.53	49.72	18.67	.79	3.36
1031.00	59.00	0.00	0.00	626.09	52.00	628.60	0.00	628.61	74.32	1.86	1.05	4.88
1089.00	58.00	0.00	0.00	626.57	38.00	627.49	0.00	627.53	40.58	84.87	.46	1.54
1089.00	58.00	0.00	0.00	626.57	46.00	627.56	0.00	627.61	42.18	81.94	.68	2.76
1089.00	58.00	0.00	0.00	626.57	48.00	627.68	0.00	627.71	44.13	56.50	.80	3.41
1089.00	58.00	0.00	0.00	626.57	52.00	628.62	0.00	628.62	63.83	4.74	1.07	5.01

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
1148.00	59.00	0.00	0.00	627.06	38.00	627.98	0.00	628.02	40.75	81.16	.47	1.57
1148.00	59.00	0.00	0.00	627.06	46.00	628.05	0.00	628.09	42.09	83.81	.69	2.79
1148.00	59.00	0.00	0.00	627.06	48.00	628.07	0.00	628.12	42.41	84.18	.81	3.46
1148.00	59.00	0.00	0.00	627.06	52.00	628.66	0.00	628.67	53.57	13.41	1.09	5.10
1206.00	58.00	0.00	0.00	627.54	38.00	628.46	0.00	628.50	40.65	83.32	.48	1.60
1206.00	58.00	0.00	0.00	627.54	46.00	628.54	0.00	628.58	42.10	83.57	.70	2.83
1206.00	58.00	0.00	0.00	627.54	48.00	628.56	0.00	628.60	42.57	80.99	.82	3.49
1206.00	58.00	0.00	0.00	627.54	52.00	628.78	0.00	628.80	46.53	40.79	1.10	5.17
1265.00	59.00	0.00	0.00	628.03	38.00	629.04	0.00	629.11	25.04	124.66	.49	1.63
1265.00	59.00	0.00	0.00	628.03	46.00	629.13	0.00	629.21	25.98	132.38	.70	2.86
1265.00	59.00	0.00	0.00	628.03	48.00	629.14	0.00	629.23	26.13	137.49	.82	3.53
1265.00	59.00	0.00	0.00	628.03	52.00	629.16	0.00	629.26	26.35	150.03	1.11	5.21
1323.00	58.00	0.00	0.00	628.51	38.00	629.63	0.00	629.69	26.35	80.22	.50	1.65
1323.00	58.00	0.00	0.00	628.51	46.00	629.75	0.00	629.81	28.27	80.58	.71	2.89
1323.00	58.00	0.00	0.00	628.51	48.00	629.78	0.00	629.84	29.18	79.44	.83	3.56
1323.00	58.00	0.00	0.00	628.51	52.00	629.83	0.00	629.90	30.38	81.89	1.12	5.24
1382.00	59.00	0.00	0.00	629.00	38.00	630.12	0.00	630.18	26.18	84.86	.51	1.68
1382.00	59.00	0.00	0.00	629.00	46.00	630.23	0.00	630.29	28.00	82.93	.72	2.92
1382.00	59.00	0.00	0.00	629.00	48.00	630.26	0.00	630.32	28.65	84.13	.84	3.59
1382.00	59.00	0.00	0.00	629.00	52.00	630.32	0.00	630.38	30.23	83.20	1.12	5.27
1432.00	50.00	0.00	0.00	629.42	38.00	630.54	0.00	630.59	26.26	82.56	.51	1.71
1432.00	50.00	0.00	0.00	629.42	46.00	630.65	0.00	630.71	27.94	83.51	.73	2.95
1432.00	50.00	0.00	0.00	629.42	48.00	630.68	0.00	630.74	28.73	83.46	.85	3.62
1432.00	50.00	0.00	0.00	629.42	52.00	630.74	0.00	630.80	30.20	83.46	1.13	5.30
1482.00	50.00	0.00	0.00	629.83	38.00	631.15	0.00	631.27	21.63	224.72	.52	1.72
1482.00	50.00	0.00	0.00	629.83	46.00	631.27	0.00	631.38	25.47	225.59	.73	2.97
1482.00	50.00	0.00	0.00	629.83	48.00	631.29	0.00	631.41	26.39	223.57	.85	3.64
1482.00	50.00	0.00	0.00	629.83	52.00	631.35	0.00	631.47	28.15	219.04	1.14	5.33
1532.00	50.00	0.00	0.00	630.24	38.00	631.87	0.00	631.92	31.71	81.15	.53	1.75
1532.00	50.00	0.00	0.00	630.24	46.00	631.99	0.00	632.04	35.56	80.39	.74	3.00
1532.00	50.00	0.00	0.00	630.24	48.00	632.01	0.00	632.06	36.49	79.78	.86	3.66
1532.00	50.00	0.00	0.00	630.24	52.00	632.05	0.00	632.10	37.98	79.34	1.14	5.35
1582.00	50.00	0.00	0.00	630.66	38.00	632.28	0.00	632.33	31.54	82.55	.53	1.77
1582.00	50.00	0.00	0.00	630.66	46.00	632.40	0.00	632.45	35.20	83.33	.75	3.03
1582.00	50.00	0.00	0.00	630.66	48.00	632.42	0.00	632.47	36.07	83.24	.87	3.70
1582.00	50.00	0.00	0.00	630.66	52.00	632.46	0.00	632.51	37.55	84.26	1.15	5.39
1632.00	50.00	0.00	0.00	631.07	38.00	632.69	0.00	632.74	31.51	82.77	.54	1.80
1632.00	50.00	0.00	0.00	631.07	46.00	632.81	0.00	632.86	35.40	81.75	.75	3.06
1632.00	50.00	0.00	0.00	631.07	48.00	632.83	0.00	632.88	36.15	82.53	.88	3.73
1632.00	50.00	0.00	0.00	631.07	52.00	632.88	0.00	632.93	37.73	82.16	1.16	5.42

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRTWS	EG	TOPWID	10K*S	TIME	VOL
1682.00	50.00	0.00	0.00	631.49	38.00	633.11	0.00	633.16	31.46	83.23	.55	1.82
1682.00	50.00	0.00	0.00	631.49	46.00	633.22	0.00	633.27	35.15	83.78	.76	3.08
1682.00	50.00	0.00	0.00	631.49	48.00	633.25	0.00	633.30	35.96	84.09	.88	3.76
1682.00	50.00	0.00	0.00	631.49	52.00	633.29	0.00	633.35	37.60	83.60	1.17	5.45
1713.00	31.00	0.00	0.00	631.69	38.00	633.35	0.00	633.40	33.16	69.96	.56	1.84
1713.00	31.00	0.00	0.00	631.69	46.00	633.47	0.00	633.51	37.04	69.41	.77	3.10
1713.00	31.00	0.00	0.00	631.69	48.00	633.49	0.00	633.54	37.88	68.54	.89	3.78
1713.00	31.00	0.00	0.00	631.69	52.00	633.53	0.00	633.58	39.08	68.33	1.17	5.47
1745.00	32.00	0.00	0.00	631.90	35.00	633.50	0.00	633.55	30.99	32.95	.56	1.85
1745.00	32.00	0.00	0.00	631.90	41.00	633.62	0.00	633.66	34.75	30.82	.77	3.12
1745.00	32.00	0.00	0.00	631.90	43.00	633.64	0.00	633.68	35.56	31.22	.89	3.80
1745.00	32.00	0.00	0.00	631.90	46.00	633.68	0.00	633.73	36.99	30.98	1.18	5.49
1845.00	100.00	0.00	0.00	630.76	35.00	633.59	0.00	633.59	33.65	1.18	.61	1.95
1845.00	100.00	0.00	0.00	630.76	41.00	633.70	0.00	633.70	33.89	1.34	.82	3.23
1845.00	100.00	0.00	0.00	630.76	43.00	633.72	0.00	633.73	33.94	1.42	.94	3.90
1845.00	100.00	0.00	0.00	630.76	46.00	633.77	0.00	633.78	34.04	1.50	1.22	5.60
1895.00	50.00	0.00	0.00	630.19	35.00	633.59	0.00	633.60	20.85	1.15	.63	2.01
1895.00	50.00	0.00	0.00	630.19	41.00	633.70	0.00	633.71	21.08	1.39	.84	3.29
1895.00	50.00	0.00	0.00	630.19	43.00	633.73	0.00	633.74	21.14	1.48	.95	3.97
1895.00	50.00	0.00	0.00	630.19	46.00	633.78	0.00	633.79	21.24	1.61	1.23	5.67
1927.00	32.00	0.00	0.00	629.81	35.00	633.59	0.00	633.61	13.65	2.62	.64	2.05
1927.00	32.00	0.00	0.00	629.81	41.00	633.71	0.00	633.72	13.88	3.21	.84	3.33
1927.00	32.00	0.00	0.00	629.81	43.00	633.73	0.00	633.75	13.94	3.44	.96	4.00
1927.00	32.00	0.00	0.00	629.81	46.00	633.78	0.00	633.80	14.00	3.75	1.24	5.71
1937.00	10.00	0.00	0.00	629.70	35.00	633.59	0.00	633.62	8.00	6.91	.64	2.05
1937.00	10.00	0.00	0.00	629.70	41.00	633.70	0.00	633.74	8.00	8.62	.85	3.34
1937.00	10.00	0.00	0.00	629.70	43.00	633.73	0.00	633.77	8.00	9.27	.96	4.01
1937.00	10.00	0.00	0.00	629.70	46.00	633.77	0.00	633.82	8.00	10.19	1.24	5.71
1946.00	9.00	0.00	0.00	629.60	35.00	633.54	0.00	633.70	3.00	64.57	.64	2.06
1946.00	9.00	0.00	0.00	629.60	41.00	633.63	0.00	633.84	3.00	83.38	.85	3.34
1946.00	9.00	0.00	0.00	629.60	43.00	633.65	0.00	633.88	3.00	90.59	.96	4.02
1946.00	9.00	0.00	0.00	629.60	46.00	633.69	0.00	633.95	3.00	101.34	1.24	5.72
1947.00	1.00	635.10	632.60	629.60	35.00	633.43	0.00	633.81	3.00	39.43	.64	2.06
1947.00	1.00	635.10	632.60	629.60	41.00	633.49	0.00	634.00	3.00	54.71	.85	3.34
1947.00	1.00	635.10	632.60	629.60	43.00	633.49	0.00	634.06	3.00	60.22	.96	4.02
1947.00	1.00	635.10	632.60	629.60	46.00	633.50	0.00	634.15	3.00	69.07	1.24	5.72
1966.00	19.00	635.10	634.00	631.00	35.00	633.44	0.00	633.94	3.00	30.63	.64	2.06
1966.00	19.00	635.10	634.00	631.00	41.00	633.50	0.00	634.16	3.00	39.33	.85	3.34
1966.00	19.00	635.10	634.00	631.00	43.00	633.51	0.00	634.23	3.00	42.95	.97	4.02
1966.00	19.00	635.10	634.00	631.00	46.00	633.53	0.00	634.34	3.00	48.25	1.24	5.72

SECTION NUMBER	CHANNEL LENGTH	MIN FL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
1967.00	1.00	0.00	0.00	631.00	35.00	633.54	0.00	633.97	3.00	21.93	.64	2.06
1967.00	1.00	0.00	0.00	631.00	41.00	633.69	0.00	634.20	3.00	25.88	.85	3.34
1967.00	1.00	0.00	0.00	631.00	43.00	633.73	0.00	634.28	3.00	27.29	.97	4.02
1967.00	1.00	0.00	0.00	631.00	46.00	633.83	0.00	634.41	3.00	28.23	1.24	5.72
1991.00	24.00	0.00	0.00	631.32	35.00	634.09	0.00	634.11	16.25	7.13	.65	2.07
1991.00	24.00	0.00	0.00	631.32	41.00	634.35	0.00	634.38	25.04	6.16	.85	3.35
1991.00	24.00	0.00	0.00	631.32	43.00	634.44	0.00	634.46	29.15	5.84	.97	4.03
1991.00	24.00	0.00	0.00	631.32	46.00	634.57	0.00	634.60	39.29	5.27	1.25	5.73
2016.00	25.00	0.00	0.00	631.64	35.00	634.10	0.00	634.14	14.87	12.26	.65	2.08
2016.00	25.00	0.00	0.00	631.64	41.00	634.36	0.00	634.40	16.03	10.58	.86	3.37
2016.00	25.00	0.00	0.00	631.64	43.00	634.45	0.00	634.49	16.73	10.07	.98	4.05
2016.00	25.00	0.00	0.00	631.64	46.00	634.58	0.00	634.62	21.68	9.06	1.25	5.75
2066.00	50.00	0.00	0.00	632.28	35.00	634.18	0.00	634.27	12.34	40.74	.66	2.10
2066.00	50.00	0.00	0.00	632.28	41.00	634.42	0.00	634.51	13.41	32.45	.86	3.39
2066.00	50.00	0.00	0.00	632.28	43.00	634.51	0.00	634.59	13.78	29.96	.98	4.07
2066.00	50.00	0.00	0.00	632.28	46.00	634.63	0.00	634.72	14.36	26.40	1.26	5.78
2116.00	50.00	0.00	0.00	632.92	35.00	634.44	0.00	634.64	10.68	112.40	.66	2.12
2116.00	50.00	0.00	0.00	632.92	41.00	634.63	0.00	634.82	11.51	90.33	.87	3.41
2116.00	50.00	0.00	0.00	632.92	43.00	634.69	0.00	634.88	11.79	83.84	.99	4.09
2116.00	50.00	0.00	0.00	632.92	46.00	634.80	0.00	634.97	12.25	74.01	1.26	5.80
2146.00	30.00	0.00	0.00	633.30	35.00	634.79	0.00	635.01	10.53	125.08	.66	2.12
2146.00	30.00	0.00	0.00	633.30	41.00	634.92	0.00	635.14	11.10	116.97	.87	3.42
2146.00	30.00	0.00	0.00	633.30	43.00	634.96	0.00	635.19	11.30	113.30	.99	4.10
2146.00	30.00	0.00	0.00	633.30	46.00	635.03	0.00	635.26	11.62	106.44	1.27	5.81
2171.00	25.00	0.00	0.00	633.60	35.00	635.10	0.00	635.32	10.55	123.08	.67	2.13
2171.00	25.00	0.00	0.00	633.60	41.00	635.21	0.00	635.44	11.07	119.27	.87	3.43
2171.00	25.00	0.00	0.00	633.60	43.00	635.25	0.00	635.48	11.23	118.09	.99	4.11
2171.00	25.00	0.00	0.00	633.60	46.00	635.30	0.00	635.54	11.48	115.45	1.27	5.82
2195.00	24.00	0.00	0.00	633.90	35.00	635.39	635.38	635.69	39.07	153.21	.67	2.14
2195.00	24.00	0.00	0.00	633.90	41.00	635.49	635.47	635.79	43.60	148.07	.87	3.43
2195.00	24.00	0.00	0.00	633.90	43.00	635.53	635.50	635.83	44.99	146.77	.99	4.12
2195.00	24.00	0.00	0.00	633.90	46.00	635.58	635.53	635.88	47.25	142.18	1.27	5.83
2268.00	73.00	643.60	636.40	634.20	35.00	637.03	0.00	637.23	3.60	50.97	.67	2.16
2268.00	73.00	643.60	636.40	634.20	41.00	637.86	0.00	638.02	3.60	34.13	.88	3.46
2268.00	73.00	643.60	636.40	634.20	43.00	638.15	0.00	638.30	3.60	30.31	1.00	4.15
2268.00	73.00	643.60	636.40	634.20	46.00	638.62	0.00	638.76	3.60	25.68	1.28	5.86
2275.00	7.00	0.00	0.00	634.12	35.00	638.37	0.00	638.38	17.00	.99	.68	2.17
2275.00	7.00	0.00	0.00	634.12	41.00	639.41	0.00	639.42	17.00	.58	.88	3.47
2275.00	7.00	0.00	0.00	634.12	43.00	639.59	0.00	639.60	17.00	.56	1.00	4.16
2275.00	7.00	0.00	0.00	634.12	46.00	640.18	0.00	640.18	17.00	.45	1.28	5.87

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
2293.00	18.00	0.00	0.00	633.90	35.00	638.37	0.00	638.38	17.00	.80	.68	2.19
2293.00	18.00	0.00	0.00	633.90	41.00	639.41	0.00	639.42	17.00	.50	.89	3.50
2293.00	18.00	0.00	0.00	633.90	43.00	639.59	0.00	639.60	17.00	.49	1.01	4.19
2293.00	18.00	0.00	0.00	633.90	46.00	640.18	0.00	640.19	17.00	.39	1.29	5.91
2318.00	25.00	0.00	0.00	633.60	35.00	638.38	0.00	638.38	17.00	.62	.70	2.22
2318.00	25.00	0.00	0.00	633.60	41.00	639.41	0.00	639.42	17.00	.41	.90	3.54
2318.00	25.00	0.00	0.00	633.60	43.00	639.59	0.00	639.60	17.00	.40	1.02	4.23
2318.00	25.00	0.00	0.00	633.60	46.00	640.18	0.00	640.19	17.00	.33	1.30	5.96
2368.00	50.00	0.00	0.00	632.60	35.00	638.38	0.00	638.38	17.00	.31	.73	2.30
2368.00	50.00	0.00	0.00	632.60	41.00	639.42	0.00	639.42	17.00	.24	.94	3.64
2368.00	50.00	0.00	0.00	632.60	43.00	639.60	0.00	639.60	17.00	.24	1.05	4.33
2368.00	50.00	0.00	0.00	632.60	46.00	640.19	0.00	640.19	17.00	.21	1.34	6.07
2473.00	105.00	0.00	0.00	632.85	35.00	638.38	0.00	638.39	17.00	.36	.79	2.48
2473.00	105.00	0.00	0.00	632.85	41.00	639.42	0.00	639.42	17.00	.27	1.00	3.87
2473.00	105.00	0.00	0.00	632.85	43.00	639.60	0.00	639.60	17.00	.27	1.12	4.57
2473.00	105.00	0.00	0.00	632.85	46.00	640.19	0.00	640.19	17.00	.23	1.40	6.33
2578.00	105.00	0.00	0.00	633.10	35.00	638.39	0.00	638.39	17.00	.42	.85	2.65
2578.00	105.00	0.00	0.00	633.10	41.00	639.42	0.00	639.43	17.00	.31	1.06	4.08
2578.00	105.00	0.00	0.00	633.10	43.00	639.60	0.00	639.61	17.00	.31	1.18	4.79
2578.00	105.00	0.00	0.00	633.10	46.00	640.19	0.00	640.19	17.00	.26	1.47	6.57
2683.00	105.00	0.00	0.00	633.35	35.00	638.39	0.00	638.40	17.00	.50	.90	2.81
2683.00	105.00	0.00	0.00	633.35	41.00	639.43	0.00	639.43	17.00	.35	1.12	4.29
2683.00	105.00	0.00	0.00	633.35	43.00	639.61	0.00	639.61	17.00	.35	1.24	5.00
2683.00	105.00	0.00	0.00	633.35	46.00	640.19	0.00	640.20	17.00	.29	1.53	6.81
2788.00	105.00	0.00	0.00	633.60	35.00	638.40	0.00	638.40	17.00	.61	.95	2.97
2788.00	105.00	0.00	0.00	633.60	41.00	639.43	0.00	639.43	17.00	.41	1.18	4.48
2788.00	105.00	0.00	0.00	633.60	43.00	639.61	0.00	639.61	17.00	.40	1.29	5.20
2788.00	105.00	0.00	0.00	633.60	46.00	640.20	0.00	640.20	17.00	.33	1.58	7.03
2893.00	105.00	0.00	0.00	633.90	35.00	638.40	0.00	638.41	20.14	.59	1.00	3.12
2893.00	105.00	0.00	0.00	633.90	41.00	639.43	0.00	639.44	22.71	.35	1.24	4.68
2893.00	105.00	0.00	0.00	633.90	43.00	639.61	0.00	639.62	22.95	.34	1.35	5.41
2893.00	105.00	0.00	0.00	633.90	46.00	640.20	0.00	640.20	23.73	.26	1.65	7.27
2998.00	105.00	0.00	0.00	634.15	35.00	638.41	0.00	638.42	19.52	.73	1.05	3.26
2998.00	105.00	0.00	0.00	634.15	41.00	639.44	0.00	639.44	22.12	.43	1.29	4.87
2998.00	105.00	0.00	0.00	634.15	43.00	639.62	0.00	639.62	22.58	.41	1.41	5.61
2998.00	105.00	0.00	0.00	634.15	46.00	640.20	0.00	640.21	23.40	.31	1.71	7.51
3103.00	105.00	0.00	0.00	634.40	35.00	638.42	0.00	638.43	18.90	.93	1.10	3.40
3103.00	105.00	0.00	0.00	634.40	41.00	639.44	0.00	639.45	21.50	.52	1.35	5.06
3103.00	105.00	0.00	0.00	634.40	43.00	639.62	0.00	639.63	21.96	.49	1.46	5.81
3103.00	105.00	0.00	0.00	634.40	46.00	640.21	0.00	640.21	23.07	.36	1.77	7.74

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
3208.00	105.00	0.00	0.00	634.65	35.00	638.43	0.00	638.44	18.29	1.18	1.14	3.52
3208.00	105.00	0.00	0.00	634.65	41.00	639.45	0.00	639.45	20.88	.63	1.39	5.23
3208.00	105.00	0.00	0.00	634.65	43.00	639.63	0.00	639.63	21.33	.60	1.51	5.99
3208.00	105.00	0.00	0.00	634.65	46.00	640.21	0.00	640.21	22.74	.44	1.82	7.95
3313.00	105.00	0.00	0.00	634.90	35.00	638.44	0.00	638.45	17.69	1.53	1.17	3.63
3313.00	105.00	0.00	0.00	634.90	41.00	639.45	0.00	639.46	20.26	.77	1.44	5.39
3313.00	105.00	0.00	0.00	634.90	43.00	639.63	0.00	639.64	20.71	.73	1.56	6.16
3313.00	105.00	0.00	0.00	634.90	46.00	640.21	0.00	640.22	22.19	.53	1.87	8.15
3418.00	105.00	0.00	0.00	635.15	35.00	638.46	0.00	638.47	17.10	1.99	1.21	3.73
3418.00	105.00	0.00	0.00	635.15	41.00	639.46	0.00	639.47	19.65	.96	1.48	5.54
3418.00	105.00	0.00	0.00	635.15	43.00	639.64	0.00	639.65	20.10	.90	1.60	6.31
3418.00	105.00	0.00	0.00	635.15	46.00	640.22	0.00	640.23	21.57	.63	1.92	8.33

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	38.000	614.771	0.000	0.000	0.000	35.084	0.000	-0.000
0.000	46.000	614.859	.088	0.000	0.000	37.732	-2.649	-0.000
0.000	48.000	614.880	.021	0.000	0.000	38.348	-3.265	-0.000
0.000	52.000	614.919	.040	0.000	0.000	39.533	-4.450	-0.000
25.000	38.000	615.076	0.000	.305	0.000	26.998	0.000	25.000
25.000	46.000	615.154	.079	.295	0.000	29.310	-2.312	25.000
25.000	48.000	615.173	.018	.293	0.000	29.854	-2.856	25.000
25.000	52.000	615.208	.036	.289	0.000	30.906	-3.908	25.000
50.000	38.000	615.746	0.000	.670	0.000	29.819	0.000	25.000
50.000	46.000	615.814	.068	.659	0.000	31.865	-2.046	25.000
50.000	48.000	615.829	.016	.656	0.000	32.336	-2.518	25.000
50.000	52.000	615.859	.030	.651	0.000	33.240	-3.421	25.000
75.000	38.000	616.275	0.000	.530	0.000	28.282	0.000	25.000
75.000	46.000	616.348	.073	.535	0.000	30.467	-2.185	25.000
75.000	48.000	616.365	.017	.536	0.000	30.977	-2.695	25.000
75.000	52.000	616.398	.033	.539	0.000	31.959	-3.677	25.000
100.000	38.000	616.871	0.000	.596	0.000	29.145	0.000	25.000
100.000	46.000	616.940	.069	.592	0.000	31.306	-2.161	25.000
100.000	48.000	616.957	.017	.592	0.000	31.772	-2.627	25.000
100.000	52.000	616.990	.033	.592	0.000	32.672	-3.527	25.000
125.000	38.000	617.435	0.000	.564	0.000	28.439	0.000	25.000
125.000	46.000	617.503	.068	.563	0.000	30.564	-2.125	25.000
125.000	48.000	617.520	.017	.563	0.000	31.102	-2.663	25.000
125.000	52.000	617.554	.033	.564	0.000	32.127	-3.688	25.000
150.000	38.000	618.021	0.000	.586	0.000	29.108	0.000	25.000
150.000	46.000	618.092	.071	.589	0.000	31.170	-2.063	25.000
150.000	48.000	618.108	.016	.587	0.000	31.626	-2.519	25.000
150.000	52.000	618.138	.030	.584	0.000	32.524	-3.417	25.000
175.000	38.000	618.584	0.000	.564	0.000	28.490	0.000	25.000
175.000	46.000	618.657	.073	.565	0.000	30.711	-2.221	25.000
175.000	48.000	618.674	.017	.566	0.000	31.236	-2.746	25.000
175.000	52.000	618.706	.032	.568	0.000	32.225	-3.735	25.000
200.000	38.000	619.162	0.000	.578	0.000	24.574	0.000	25.000
200.000	46.000	619.236	.073	.579	0.000	25.925	-1.350	25.000
200.000	48.000	619.252	.017	.578	0.000	26.235	-1.660	25.000
200.000	52.000	619.285	.033	.579	0.000	26.843	-2.269	25.000

225.000	38.000	619.741	0.000	.578	0.000	14.999	0.000	25.000
225.000	46.000	619.829	.088	.594	0.000	14.999	-.000	25.000
225.000	48.000	619.850	.021	.598	0.000	14.999	-.000	25.000
225.000	52.000	619.883	.033	.598	0.000	14.999	-.000	25.000
249.000	38.000	621.417	0.000	1.676	0.000	3.000	0.000	24.000
249.000	46.000	621.649	.232	1.820	0.000	3.000	0.000	24.000
249.000	48.000	621.705	.056	1.855	0.000	3.000	0.000	24.000
249.000	52.000	621.815	.110	1.932	0.000	3.000	0.000	24.000
300.000	38.000	623.518	0.000	2.101	0.000	3.000	0.000	51.000
300.000	46.000	624.300	.782	2.651	0.000	3.000	0.000	51.000
300.000	48.000	624.634	.334	2.929	0.000	3.000	0.000	51.000
300.000	52.000	625.326	.692	3.511	0.000	3.000	0.000	51.000
325.000	38.000	624.046	0.000	.528	0.000	52.999	0.000	25.000
325.000	46.000	624.631	.585	.331	0.000	52.999	-.000	25.000
325.000	48.000	624.939	.308	.304	0.000	52.999	-.000	25.000
325.000	52.000	625.588	.649	.262	0.000	52.999	-.000	25.000
350.000	38.000	624.046	0.000	.001	0.000	86.490	0.000	25.000
350.000	46.000	624.632	.585	.001	0.000	92.126	-5.636	25.000
350.000	48.000	624.939	.308	.001	0.000	95.090	-8.600	25.000
350.000	52.000	625.589	.649	.001	0.000	101.007	-14.517	25.000
383.000	38.000	624.047	0.000	.000	0.000	59.999	0.000	33.000
383.000	46.000	624.632	.585	.000	0.000	59.999	-.000	33.000
383.000	48.000	624.939	.308	.000	0.000	59.999	-.000	33.000
383.000	52.000	625.588	.649	.000	0.000	59.999	-.000	33.000
416.000	38.000	624.047	0.000	.000	0.000	47.999	0.000	33.000
416.000	46.000	624.632	.585	.000	0.000	47.999	-.000	33.000
416.000	48.000	624.939	.308	.000	0.000	47.999	-.000	33.000
416.000	52.000	625.588	.649	.000	0.000	47.999	-.000	33.000
449.000	38.000	624.047	0.000	-.000	0.000	26.999	0.000	33.000
449.000	46.000	624.632	.585	-.000	0.000	26.999	-.000	33.000
449.000	48.000	624.939	.307	-.000	0.000	26.999	-.000	33.000
449.000	52.000	625.588	.649	-.001	0.000	26.999	-.000	33.000
498.000	38.000	623.756	0.000	-.291	0.000	2.400	0.000	49.000
498.000	46.000	624.350	.594	-.282	0.000	2.400	0.000	49.000
498.000	48.000	624.689	.339	-.250	0.000	2.400	0.000	49.000
498.000	52.000	625.383	.695	-.205	0.000	2.400	0.000	49.000
538.000	38.000	624.888	0.000	1.132	0.000	2.400	0.000	40.000
538.000	46.000	626.504	1.616	2.154	0.000	2.400	0.000	40.000
538.000	48.000	627.114	.610	2.425	0.000	2.400	0.000	40.000
538.000	52.000	628.340	1.226	2.957	0.000	2.400	0.000	40.000
563.000	38.000	625.606	0.000	.718	0.000	52.999	0.000	25.000
563.000	46.000	626.910	1.304	.406	0.000	52.999	-.000	25.000
563.000	48.000	627.453	.542	.339	0.000	52.999	-.000	25.000
563.000	52.000	628.594	1.141	.254	0.000	52.999	-.000	25.000
588.000	38.000	625.607	0.000	.001	0.000	101.999	0.000	25.000
588.000	46.000	626.911	1.304	.001	0.000	101.999	-.000	25.000
588.000	48.000	627.454	.542	.001	0.000	101.999	-.000	25.000
588.000	52.000	628.595	1.141	.000	0.000	101.999	-.000	25.000
634.000	38.000	625.609	0.000	.001	0.000	115.041	0.000	46.000
634.000	46.000	626.912	1.303	.000	0.000	126.194	-11.153	46.000
634.000	48.000	627.454	.542	.000	0.000	130.835	-15.794	46.000
634.000	52.000	628.595	1.141	.000	0.000	140.602	-25.561	46.000

680.000	38.000	625.611	0.000	.003	0.000	107.698	0.000	46.000
680.000	46.000	626.912	1.301	.000	0.000	122.945	-15.247	46.000
680.000	48.000	627.454	.542	.000	0.000	127.584	-19.886	46.000
680.000	52.000	628.595	1.141	.000	0.000	137.350	-29.653	46.000
738.000	38.000	625.620	0.000	.009	0.000	86.908	0.000	58.000
738.000	46.000	626.913	1.293	.001	0.000	118.841	-31.933	58.000
738.000	48.000	627.455	.542	.001	0.000	123.478	-36.571	58.000
738.000	52.000	628.595	1.141	.000	0.000	133.243	-46.335	58.000
797.000	38.000	625.648	0.000	.027	0.000	69.397	0.000	59.000
797.000	46.000	626.915	1.267	.002	0.000	96.265	-26.868	59.000
797.000	48.000	627.455	.540	.001	0.000	106.679	-37.281	59.000
797.000	52.000	628.595	1.140	.000	0.000	128.525	-59.128	59.000
855.000	38.000	625.724	0.000	.077	0.000	56.083	0.000	58.000
855.000	46.000	626.919	1.195	.004	0.000	87.784	-31.701	58.000
855.000	48.000	627.457	.538	.002	0.000	97.418	-41.335	58.000
855.000	52.000	628.596	1.139	.001	0.000	119.454	-63.370	58.000
914.000	38.000	626.020	0.000	.296	0.000	48.434	0.000	59.000
914.000	46.000	626.932	.912	.012	0.000	77.151	-28.717	59.000
914.000	48.000	627.462	.530	.004	0.000	88.702	-40.268	59.000
914.000	52.000	628.597	1.135	.001	0.000	109.990	-61.556	59.000
972.000	38.000	626.506	0.000	.486	0.000	49.003	0.000	58.000
972.000	46.000	626.973	.467	.041	0.000	65.990	-16.987	58.000
972.000	48.000	627.473	.500	.011	0.000	78.572	-29.569	58.000
972.000	52.000	628.599	1.125	.002	0.000	100.729	-51.726	58.000
1031.000	38.000	626.994	0.000	.487	0.000	40.529	0.000	59.000
1031.000	46.000	627.136	.142	.163	0.000	43.004	-2.476	59.000
1031.000	48.000	627.512	.376	.039	0.000	49.716	-9.187	59.000
1031.000	52.000	628.603	1.091	.004	0.000	74.316	-33.787	59.000
1089.000	38.000	627.490	0.000	.497	0.000	40.584	0.000	58.000
1089.000	46.000	627.562	.072	.426	0.000	42.176	-1.592	58.000
1089.000	48.000	627.677	.116	.165	0.000	44.134	-3.550	58.000
1089.000	52.000	628.617	.940	.015	0.000	63.833	-23.249	58.000
1148.000	38.000	627.981	0.000	.491	0.000	40.747	0.000	59.000
1148.000	46.000	628.050	.069	.489	0.000	42.086	-1.339	59.000
1148.000	48.000	628.075	.024	.397	0.000	42.412	-1.666	59.000
1148.000	52.000	628.658	.583	.040	0.000	53.571	-12.824	59.000
1206.000	38.000	628.458	0.000	.477	0.000	40.651	0.000	58.000
1206.000	46.000	628.536	.078	.485	0.000	42.097	-1.447	58.000
1206.000	48.000	628.555	.019	.480	0.000	42.571	-1.921	58.000
1206.000	52.000	628.775	.220	.118	0.000	46.528	-5.877	58.000
1265.000	38.000	629.036	0.000	.578	0.000	25.037	0.000	59.000
1265.000	46.000	629.128	.091	.592	0.000	25.983	-.945	59.000
1265.000	48.000	629.144	.017	.589	0.000	26.128	-1.091	59.000
1265.000	52.000	629.156	.011	.380	0.000	26.355	-1.318	59.000
1323.000	38.000	629.634	0.000	.598	0.000	26.351	0.000	58.000
1323.000	46.000	629.752	.117	.624	0.000	28.268	-1.917	58.000
1323.000	48.000	629.779	.028	.635	0.000	29.180	-2.829	58.000
1323.000	52.000	629.834	.055	.678	0.000	30.376	-4.025	58.000
1382.000	38.000	630.120	0.000	.486	0.000	26.175	0.000	59.000
1382.000	46.000	630.233	.113	.482	0.000	28.004	-1.828	59.000
1382.000	48.000	630.260	.027	.481	0.000	28.653	-2.478	59.000
1382.000	52.000	630.320	.060	.487	0.000	30.229	-4.054	59.000

1432.000	46.000	630.649	.109	.416	0.000	27.940	-1.679	50.000
1432.000	48.000	630.679	.030	.420	0.000	28.727	-2.466	50.000
1432.000	52.000	630.737	.057	.417	0.000	30.200	-3.939	50.000
1482.000	38.000	631.150	0.000	.610	0.000	21.631	0.000	50.000
1482.000	46.000	631.266	.116	.617	0.000	25.470	-3.839	50.000
1482.000	48.000	631.294	.028	.615	0.000	26.395	-4.763	50.000
1482.000	52.000	631.348	.053	.611	0.000	28.154	-6.523	50.000
1532.000	38.000	631.873	0.000	.723	0.000	31.707	0.000	50.000
1532.000	46.000	631.987	.114	.721	0.000	35.562	-3.856	50.000
1532.000	48.000	632.009	.023	.715	0.000	36.491	-4.785	50.000
1532.000	52.000	632.053	.044	.706	0.000	37.977	-6.270	50.000
1582.000	38.000	632.282	0.000	.409	0.000	31.539	0.000	50.000
1582.000	46.000	632.395	.114	.408	0.000	35.205	-3.665	50.000
1582.000	48.000	632.416	.021	.407	0.000	36.065	-4.526	50.000
1582.000	52.000	632.461	.045	.408	0.000	37.547	-6.008	50.000
1632.000	38.000	632.695	0.000	.413	0.000	31.513	0.000	50.000
1632.000	46.000	632.809	.114	.414	0.000	35.396	-3.882	50.000
1632.000	48.000	632.831	.022	.415	0.000	36.152	-4.638	50.000
1632.000	52.000	632.878	.047	.417	0.000	37.727	-6.213	50.000
1682.000	38.000	633.110	0.000	.415	0.000	31.460	0.000	50.000
1682.000	46.000	633.222	.113	.413	0.000	35.151	-3.691	50.000
1682.000	48.000	633.247	.025	.416	0.000	35.964	-4.504	50.000
1682.000	52.000	633.292	.045	.414	0.000	37.603	-6.143	50.000
1713.000	38.000	633.354	0.000	.244	0.000	33.157	0.000	31.000
1713.000	46.000	633.468	.113	.245	0.000	37.036	-3.878	31.000
1713.000	48.000	633.491	.024	.244	0.000	37.877	-4.720	31.000
1713.000	52.000	633.534	.043	.242	0.000	39.076	-5.918	31.000
1745.000	35.000	633.504	0.000	.150	0.000	30.985	0.000	32.000
1745.000	41.000	633.615	.111	.148	0.000	34.745	-3.760	32.000
1745.000	43.000	633.639	.023	.147	0.000	35.564	-4.579	32.000
1745.000	46.000	633.683	.045	.149	0.000	36.992	-6.007	32.000
1845.000	35.000	633.585	0.000	.081	0.000	33.651	0.000	100.000
1845.000	41.000	633.698	.113	.083	0.000	33.885	-.234	100.000
1845.000	43.000	633.724	.026	.085	0.000	33.939	-.288	100.000
1845.000	46.000	633.771	.047	.088	0.000	34.036	-.386	100.000
1895.000	35.000	633.590	0.000	.005	0.000	20.849	0.000	50.000
1895.000	41.000	633.704	.113	.006	0.000	21.084	-.235	50.000
1895.000	43.000	633.730	.026	.006	0.000	21.139	-.290	50.000
1895.000	46.000	633.777	.047	.006	0.000	21.236	-.388	50.000
1927.000	35.000	633.592	0.000	.002	0.000	13.645	0.000	32.000
1927.000	41.000	633.706	.114	.002	0.000	13.882	-.237	32.000
1927.000	43.000	633.732	.026	.002	0.000	13.937	-.292	32.000
1927.000	46.000	633.779	.047	.002	0.000	13.999	-.354	32.000
1937.000	35.000	633.587	0.000	-.005	0.000	7.999	0.000	10.000
1937.000	41.000	633.699	.112	-.006	0.000	7.999	-.000	10.000
1937.000	43.000	633.725	.026	-.007	0.000	7.999	-.000	10.000
1937.000	46.000	633.771	.046	-.008	0.000	7.999	-.000	10.000
1946.000	35.000	633.537	0.000	-.051	0.000	3.000	0.000	9.000
1946.000	41.000	633.632	.096	-.067	0.000	3.000	0.000	9.000
1946.000	43.000	633.652	.020	-.073	0.000	3.000	0.000	9.000
1946.000	46.000	633.689	.037	-.083	0.000	3.000	0.000	9.000
1947.000	35.000	633.434	0.000	-.103	0.000	3.000	0.000	1.000

1947.000	43.000	633.489	.004	-.163	0.000	3.000	0.000	1.000
1947.000	46.000	633.499	.011	-.189	0.000	3.000	0.000	1.000
1966.000	35.000	633.436	0.000	.002	0.000	3.000	0.000	19.000
1966.000	41.000	633.504	.068	.019	0.000	3.000	0.000	19.000
1966.000	43.000	633.511	.007	.023	0.000	3.000	0.000	19.000
1966.000	46.000	633.530	.019	.031	0.000	3.000	0.000	19.000
1967.000	35.000	633.540	0.000	.104	0.000	3.000	0.000	1.000
1967.000	41.000	633.686	.146	.182	0.000	3.000	0.000	1.000
1967.000	43.000	633.730	.045	.219	0.000	3.000	0.000	1.000
1967.000	46.000	633.830	.099	.300	0.000	3.000	0.000	1.000
1991.000	35.000	634.087	0.000	.547	0.000	16.246	0.000	24.000
1991.000	41.000	634.350	.263	.665	0.000	25.044	-8.798	24.000
1991.000	43.000	634.437	.087	.706	0.000	29.154	-12.909	24.000
1991.000	46.000	634.573	.137	.743	0.000	39.288	-23.042	24.000
2016.000	35.000	634.103	0.000	.016	0.000	14.871	0.000	25.000
2016.000	41.000	634.364	.261	.014	0.000	16.035	-1.164	25.000
2016.000	43.000	634.450	.086	.013	0.000	16.730	-1.859	25.000
2016.000	46.000	634.585	.135	.011	0.000	21.680	-6.809	25.000
2066.000	35.000	634.177	0.000	.074	0.000	12.344	0.000	50.000
2066.000	41.000	634.425	.247	.061	0.000	13.407	-1.063	50.000
2066.000	43.000	634.507	.082	.057	0.000	13.777	-1.433	50.000
2066.000	46.000	634.635	.128	.050	0.000	14.355	-2.011	50.000
2116.000	35.000	634.443	0.000	.266	0.000	10.681	0.000	50.000
2116.000	41.000	634.629	.187	.205	0.000	11.510	-.828	50.000
2116.000	43.000	634.693	.064	.187	0.000	11.795	-1.113	50.000
2116.000	46.000	634.796	.103	.161	0.000	12.252	-1.571	50.000
2146.000	35.000	634.790	0.000	.348	0.000	10.528	0.000	30.000
2146.000	41.000	634.917	.127	.288	0.000	11.096	-.569	30.000
2146.000	43.000	634.962	.045	.269	0.000	11.297	-.769	30.000
2146.000	46.000	635.034	.072	.238	0.000	11.619	-1.091	30.000
2171.000	35.000	635.104	0.000	.313	0.000	10.551	0.000	25.000
2171.000	41.000	635.211	.107	.294	0.000	11.066	-.516	25.000
2171.000	43.000	635.248	.037	.286	0.000	11.231	-.680	25.000
2171.000	46.000	635.304	.057	.270	0.000	11.485	-.934	25.000
2195.000	35.000	635.388	0.000	.284	0.000	39.074	0.000	24.000
2195.000	41.000	635.492	.104	.281	0.000	43.602	-4.528	24.000
2195.000	43.000	635.528	.036	.280	0.000	44.989	-5.915	24.000
2195.000	46.000	635.581	.053	.277	0.000	47.253	-8.179	24.000
2268.000	35.000	637.030	0.000	1.642	0.000	3.600	0.000	73.000
2268.000	41.000	637.856	.826	2.364	0.000	3.600	0.000	73.000
2268.000	43.000	638.154	.298	2.626	0.000	3.600	0.000	73.000
2268.000	46.000	638.622	.468	3.041	0.000	3.600	0.000	73.000
2275.000	35.000	638.370	0.000	1.340	0.000	16.999	0.000	7.000
2275.000	41.000	639.410	1.040	1.554	0.000	16.999	-.000	7.000
2275.000	43.000	639.590	.180	1.436	0.000	16.999	-.000	7.000
2275.000	46.000	640.180	.590	1.558	0.000	16.999	-.000	7.000
2293.000	35.000	638.373	0.000	.003	0.000	16.999	0.000	18.000
2293.000	41.000	639.412	1.039	.002	0.000	16.999	-.000	18.000
2293.000	43.000	639.592	.180	.002	0.000	16.999	-.000	18.000
2293.000	46.000	640.181	.590	.001	0.000	16.999	-.000	18.000
2318.000	35.000	638.376	0.000	.003	0.000	16.999	0.000	25.000
2318.000	41.000	639.414	1.038	.002	0.000	16.999	-.000	25.000
2318.000	43.000	639.594	.180	.002	0.000	16.999	-.000	25.000

2318.000	46.000	640.183	.589	.002	0.000	16.999	-.000	25.000
2368.000	35.000	638.381	0.000	.005	0.000	16.999	0.000	50.000
2368.000	41.000	639.417	1.036	.003	0.000	16.999	-.000	50.000
2368.000	43.000	639.597	.180	.003	0.000	16.999	-.000	50.000
2368.000	46.000	640.186	.589	.003	0.000	16.999	-.000	50.000
2473.000	35.000	638.384	0.000	.003	0.000	16.999	0.000	105.000
2473.000	41.000	639.419	1.036	.003	0.000	16.999	-.000	105.000
2473.000	43.000	639.599	.180	.003	0.000	16.999	-.000	105.000
2473.000	46.000	640.188	.588	.002	0.000	16.999	-.000	105.000
2578.000	35.000	638.388	0.000	.004	0.000	16.999	0.000	105.000
2578.000	41.000	639.422	1.035	.003	0.000	16.999	-.000	105.000
2578.000	43.000	639.602	.180	.003	0.000	16.999	-.000	105.000
2578.000	46.000	640.190	.588	.002	0.000	16.999	-.000	105.000
2683.000	35.000	638.392	0.000	.005	0.000	16.999	0.000	105.000
2683.000	41.000	639.425	1.033	.003	0.000	16.999	-.000	105.000
2683.000	43.000	639.605	.180	.003	0.000	16.999	-.000	105.000
2683.000	46.000	640.193	.588	.003	0.000	16.999	-.000	105.000
2788.000	35.000	638.398	0.000	.005	0.000	16.999	0.000	105.000
2788.000	41.000	639.429	1.031	.004	0.000	16.999	-.000	105.000
2788.000	43.000	639.609	.180	.004	0.000	16.999	-.000	105.000
2788.000	46.000	640.196	.587	.003	0.000	16.999	-.000	105.000
2893.000	35.000	638.405	0.000	.007	0.000	20.137	0.000	105.000
2893.000	41.000	639.434	1.030	.005	0.000	22.708	-2.571	105.000
2893.000	43.000	639.614	.180	.005	0.000	22.948	-2.811	105.000
2893.000	46.000	640.200	.586	.004	0.000	23.730	-3.593	105.000
2996.000	35.000	638.411	0.000	.006	0.000	19.520	0.000	105.000
2998.000	41.000	639.438	1.027	.004	0.000	22.123	-2.603	105.000
2998.000	43.000	639.618	.180	.004	0.000	22.578	-3.059	105.000
2998.000	46.000	640.203	.585	.003	0.000	23.401	-3.881	105.000
3103.000	35.000	638.419	0.000	.008	0.000	18.904	0.000	105.000
3103.000	41.000	639.442	1.023	.005	0.000	21.500	-2.596	105.000
3103.000	43.000	639.622	.180	.004	0.000	21.955	-3.051	105.000
3103.000	46.000	640.206	.584	.003	0.000	23.071	-4.167	105.000
3208.000	35.000	638.429	0.000	.010	0.000	18.293	0.000	105.000
3208.000	41.000	639.448	1.019	.006	0.000	20.879	-2.586	105.000
3208.000	43.000	639.627	.179	.005	0.000	21.334	-3.041	105.000
3208.000	46.000	640.210	.583	.004	0.000	22.743	-4.450	105.000
3313.000	35.000	638.443	0.000	.013	0.000	17.688	0.000	105.000
3313.000	41.000	639.455	1.012	.007	0.000	20.261	-2.574	105.000
3313.000	43.000	639.634	.179	.006	0.000	20.715	-3.027	105.000
3313.000	46.000	640.215	.581	.005	0.000	22.190	-4.502	105.000
3418.000	35.000	638.460	0.000	.017	0.000	17.104	0.000	105.000
3418.000	41.000	639.463	1.004	.008	0.000	19.647	-2.543	105.000
3418.000	43.000	639.642	.178	.008	0.000	20.099	-2.995	105.000
3418.000	46.000	640.221	.579	.006	0.000	21.569	-4.465	105.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	24.000	2.384	0.000
2	0.000	24.000	2.721	.337
3	0.000	24.000	2.838	.454
4	0.000	24.000	3.128	.744

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Hagar Township

3) WATERCOURSE: Granger Drain Trib

4) DOCUMENT TYPE: Summary

00BREAK00

20"-60"*52.8" CONCRETE BRIDGE

120.00	4.75	589.55	0.00	0.00	589.64	.09	.14	0.00	584.80
55.	0.	55.	0.	0.	23.	0.	0.	0.	585.20
.02	0.00	2.37	0.00	.070	.040	.070	.039	584.80	250.00
.000962	20.	20.	20.	2	0	1	0.00	5.00	255.00

I consider reasonable

128.00	4.70	589.65	0.00	0.00	589.66	.01	.00	.02	600.35
55.	0.	55.	0.	0.	70.	0.	0.	0.	607.55
.02	0.00	.78	0.00	.070	.050	.070	.040	584.95	24.73
.000163	8.	8.	8.	2	0	1	0.00	20.01	44.74

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

VALLEY SECTION #8

245.00	2.98	589.68	0.00	0.00	589.71	.03	.04	.01	602.10
55.	0.	55.	0.	0.	39.	0.	0.	0.	609.30
.04	0.00	1.42	0.00	.070	.050	.070	.044	586.70	27.08
.000865	105.	117.	125.	2	0	1	0.00	16.54	43.62

280.00	2.08	589.71	0.00	0.00	589.79	.08	.06	.02	603.03
55.	0.	55.	0.	0.	25.	0.	0.	0.	610.23
.05	0.00	2.22	0.00	.080	.060	.080	.046	587.63	28.31
.004598	35.	35.	35.	1	0	1	0.00	14.72	43.03

320.00	1.29	589.99	0.00	0.00	590.24	.24	.36	.08	604.10
55.	0.	55.	0.	0.	14.	0.	1.	0.	611.30
.05	0.00	3.95	0.00	.080	.060	.080	.048	588.70	29.36
.025553	40.	40.	40.	2	0	1	0.00	13.16	42.52

336.00	1.29	590.41	0.00	0.00	590.66	.25	.42	.00	604.52
55.	0.	55.	0.	0.	14.	0.	1.	0.	611.72
.05	0.00	3.99	0.00	.080	.060	.080	.048	589.12	29.38
.026531	16.	16.	16.	2	0	1	0.00	13.13	42.51

356.00	1.29	590.94	0.00	0.00	591.19	.25	.53	.00	605.05
55.	0.	55.	0.	0.	14.	0.	1.	0.	612.25
.05	0.00	4.00	0.00	.080	.060	.080	.049	589.65	29.38
.026641	20.	20.	20.	1	0	1	0.00	13.13	42.51

steep gradient

376.00	1.29	591.48	0.00	0.00	591.73	.25	.54	.00	605.59
55.	0.	55.	0.	0.	14.	0.	1.	0.	612.79
.05	0.00	4.03	0.00	.080	.060	.080	.049	590.19	29.39
.027297	20.	20.	20.	0	0	1	0.00	13.11	42.51

3470 ENCROACHMENT STATIONS= 31.0 40.0 TYPE= 1 TARGET= 9.000

384.00	1.28	591.68	0.00	0.00	592.08	.40	.27	.08	100000.00
55.	0.	55.	0.	0.	11.	0.	1.	0.	100000.00
.05	0.00	5.10	0.00	.080	.060	.080	.049	590.40	31.00
[illegible]	[illegible]	[illegible]	[illegible]	0	0	1	0.00	9.00	40.00

3685 20 TRIALS USED WSEL,CWSEL

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 600.60 ELREA= 600.60

396.00	2.20	592.90	592.90	0.00	594.00	1.10	.59	0.00	590.75
55.	0.	55.	0.	0.	7.	0.	1.	0.	590.70
.05	0.00	8.42	0.00	.080	.060	.080	.049	590.70	34.00
.054566	12.	12.	12.	30	14	1	0.00	3.00	37.00

SPECIAL BRIDGE Crescent Rd

Consider reasonable

SB	XK	XKOR	COFQ	RDLEN	[illegible]	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.89	3.00	0.00	2.36	-0.00	7.07	-0.00	590.70	590.70

WATER EL=X5 CARD= 595.980 | see computations, J&A procedural sheet

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 602.60 ELREA= 602.60

CRESCENT ROAD

62"-36" CONCRETE ENTRANCE DESIGN: PROJECTING FROM FILL, socket end @ Ke = 2 ?

458.00	3.48	595.98	0.00	0.00	596.50	.52	2.49	.17	593.50
55.	0.	55.	0.	0.	9.	0.	1.	0.	593.50
.06	0.00	5.80	0.00	.080	.060	.080	.051	592.50	98.50
.030822	62.	62.	62.	0	0	1	0.00	3.00	125.69

3470 ENCROACHMENT STATIONS= 31.0 40.0 TYPE= 1 TARGET= 9.000

461.00	4.02	596.62	0.00	0.00	596.66	.04	.01	.15	592.70
55.	0.	55.	0.	0.	35.	0.	1.	0.	100005.90
.06	0.00	1.55	0.00	.070	.050	.070	.051	592.60	31.00
.000998	3.	3.	3.	2	0	1	0.00	9.00	40.00

466.00	3.74	596.64	0.00	0.00	596.66	.02	.00	.00	593.00
55.	4.	49.	1.	9.	40.	3.	1.	0.	593.40
.06	.49	1.25	.35	.070	.050	.070	.050	592.90	26.04
.000320	5.	5.	5.	2	0	1	0.00	18.08	44.11

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 601.65 ELREA= 601.55

600.00	3.36	596.71	0.00	0.00	596.76	.05	.08	.01	601.65
55.	0.	55.	0.	0.	31.	0.	1.	0.	601.55
.08	0.00	1.79	0.00	.070	.050	.070	.050	593.35	486.36
.001656	95.	134.	165.	1	0	1	0.00	15.39	501.75

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 601.90 ELREA= 601.80

650.00	3.20	596.80	0.00	0.00	596.86	.06	.09	.00	601.90
55.	0.	55.	0.	0.	28.	0.	1.	0.	601.80
.09	0.00	1.95	0.00	.070	.050	.070	.050	593.60	486.69
.002097	50.	50.	50.	2	0	1	0.00	14.77	501.46

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 602.15 ELREA= 602.05

700.00	3.06	596.91	0.00	0.00	596.98	.07	.12	.01	602.15
55.	0.	55.	0.	0.	26.	0.	1.	0.	602.05
.09	0.00	2.11	0.00	.070	.050	.070	.050	593.85	486.97
.002588	45.	50.	60.	1	0	1	0.00	14.24	501.21

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

710.00	3.12	~~596.92~~	0.00	0.00	597.02	.09	.03	.01	594.00
55.	22.	21.	12.	13.	6.	8.	1.	0.	593.80
.09	1.77	3.41	1.43	.070	.050	.070	.050	593.80	486.83
.003032	10.	10.	10.	0	0	1	0.00	14.51	501.33

SPECIAL BRIDGE

4.85 high?

SB	XK	~~XKOR~~	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	~~4.55~~	3.00	-0.00	1.57	-0.00	3.14	-0.00	596.40	593.80

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
618.58	600.90	0.00	23.	32.	3.	598.40	603.80	30.00

3.14

$K_f = \frac{29 n^2 L}{R^{4/3}} = \frac{29(.024)^2 70}{0.397} = 2.945$

$2.95 + 1. + 9 = 4.85 = K$

3470 ENCROACHMENT STATIONS= 82.0 114.0 TYPE= I TARGET= 32.000

DRIVEWAY

70"-24" CMP ENTRANCE DESIGN: PROJECTING FROM FILL, Ke @ 9?

780.00	7.83	604.23	0.00	0.00	604.24	.00	7.22	0.00	596.80
55.	25.	12.	17.	67.	15.	49.	1.	0.	596.80
.14	.37	.82	.35	.070	.050	.070	.050	596.40	82.00
.000056	70.	70.	70.	0	0	7	0.00	32.00	114.00

3280 CROSS SECTION 782.00 EXTENDED 50 FEET

consider reasonable

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 604.70 ELREA= 604.60

Driveway (sta 7+80)

check on pressure flow

let $K = 4.85$ and not 4.55

$C = 1/\sqrt{K} = 1/\sqrt{4.85} = .454$

$Q = CA\sqrt{2gH} = .454(3.14)(8.025)H^{1/2}$

$Q = 11.44\,H^{1/2}$

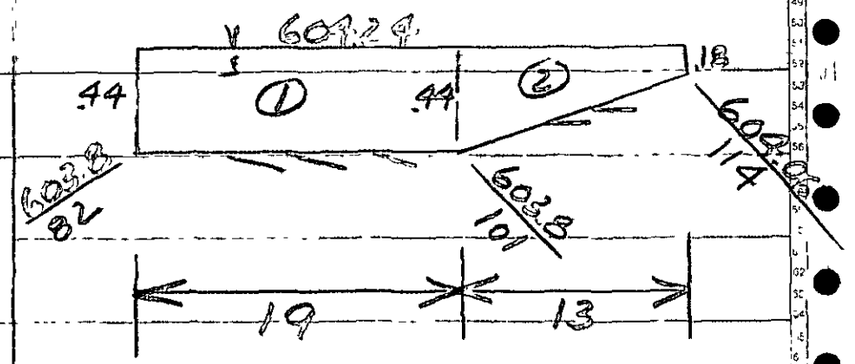
$TW = 596.92$; $HW = 604.24$

$H = (604.24 - 596.92) = 7.32$

$Q = 11.44(2.7) = 30.95$ cfs

check on weir flow

let $c = 2.5$ and not 3.0



no scale

$Q_{W_1} = CLH^{3/2} = 2.5(19)(.44)^{3/2}$

$Q_{W_1} = 13.86$ cfs

782.00	7.84	604.24	0.00	0.00	604.24	.00	.00	.00	604.70
55.	0.	55.	0.	0.	136.	0.	1.	0.	604.60
.14	0.00	.41	0.00	.070	.050	.070	.050	596.40	477.87
.000031	2.	2.	2.	0	0	1	0.00	31.51	509.39

3280 CROSS SECTION 784.00 EXTENDED .53 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 604.71 ELREA= 604.61

784.00	7.83	604.24	0.00	0.00	604.24	.00	.00	.00	604.71
55.	0.	55.	0.	0.	135.	0.	1.	0.	604.61
.14	0.00	.41	0.00	.070	.050	.070	.050	596.41	477.89
.000031	2.	2.	2.	0	0	1	0.00	31.48	509.37

3280 CROSS SECTION 805.00 EXTENDED .44 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 604.80 ELREA= 604.70

VALLEY SECTION #5

805.00	7.74	604.24	0.00	0.00	604.24	.00	.00	.00	604.80
53.	0.	53.	0.	0.	132.	0.	1.	0.	604.70
.15	0.00	.40	0.00	.070	.050	.070	.050	596.50	478.06
.000031	21.	21.	21.	0	0	1	0.00	31.16	509.22

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 611.43 ELREA= 611.63

1046.00	3.71	604.24	0.00	0.00	604.28	.05	.02	.02	611.43
53.	0.	53.	0.	0.	31.	0.	1.	0.	611.63
.19	0.00	1.73	0.00	.070	.050	.070	.050	600.53	851.77
.001369	240.	241.	240.	1	0	1	0.00	13.36	865.13

1056.00	3.54	604.24	0.00	0.00	604.31	.07	.02	.01	600.92
53.	18.	22.	13.	12.	7.	9.	1.	0.	601.07
.19	1.52	2.90	1.45	.070	.050	.070	.050	600.70	852.00
.001955	10.	10.	10.	1	0	1	0.00	12.94	864.94

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	4.07	3.00	-0.00	1.77	-0.00	3.98	-0.00	600.80	600.70

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS

$Q_{W_2} = \frac{2c_d}{5(h_b - h_a)}\left(h_b^{5/2} - h_a^{5/2}\right)$

$Q_{W_2} = \frac{4(2.5)(13)}{.26}\left(.44^{5/2} - .18^{5/2}\right)$ (.1146)

$Q_{W_2} = 5.73$ cfs

$Q_{W\,TOTAL} = 13.56 + 5.73 = 19.59$

$Q_{TOTAL} = 19.59 + 30.95 = 50.54$ cfs

$Q_{100} = 55$ cfs

$(50.54 - 55) = 4.46$ ✓

$K_F = \frac{29n^2L}{R^{4/3}} = \frac{29(.024)^2 60}{3.465} = 2.155$

615.45	605.15	0.00	17.	37.	4.	603.05	609.06	30.00	

3470 ENCROACHMENT STATIONS= 485.0 510.0 TYPE= 1 TARGET= 25.000

60"-27" CMP ENTRANCE SHAPE: PROJECTING FROM FILL Ke = .9

1116.00	8.77	609.57	0.00	0.00	609.57	.01	5.26	0.00	601.50
53.	24.	16.	13.	59.	19.	36.	1.	0.	601.50
.22	.41	.85	.36	.070	.050	.070	.050	600.80	485.00
.000065	60.	60.	60.	0	0	6	0.00	25.00	510.00

3470 ENCROACHMENT STATIONS= 843.0 872.0 TYPE= 1 TARGET= 29.000

1118.00	8.74	609.57	0.00	0.00	609.57	.00	.00	.00	99999.43
53.	0.	53.	0.	0.	133.	0.	2.	0.	99999.43
.23	0.00	.40	0.00	.070	.055	.070	.050	600.83	844.93
.000034	2.	2.	2.	0	0	1	0.00	27.07	872.00

OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 612.30 ELREA= 612.50

VALLEY SECTION #3

1166.00	8.17	609.57	0.00	0.00	609.57	.00	.00	.00	612.30
53.	0.	53.	0.	0.	118.	0.	2.	0.	612.50
.26	0.00	.45	0.00	.070	.055	.070	.050	601.40	845.70
.000049	48.	48.	48.	0	0	1	0.00	27.53	873.24

VALLEY SECTION #2

1716.00	4.33	609.63	0.00	0.00	609.66	.03	.07	.01	620.80
51.	0.	51.	0.	0.	36.	0.	3.	1.	621.70
.36	0.00	1.40	0.00	.070	.055	.070	.051	605.30	267.65
.000958	600.	550.	500.	2	0	1	0.00	13.32	280.97

SECNO	DEPTH	CrSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2066.00	3.01	610.21	0.00	0.00	610.29	.09	.61	.03	616.30
50.	0.	50.	0.	0.	21.	0.	3.	1.	616.30
.41	0.00	2.37	0.00	.070	.055	.070	.052	607.20	330.65
.004150	350.	350.	350.	2	0	1	0.00	11.36	342.01

VALLEY SECTION #1

2416.00	2.54	611.64	0.00	0.00	611.72	.09	1.43	.00	612.90
50.	0.	50.	0.	0.	21.	0.	3.	1.	612.00
.45	0.00	2.36	0.00	.070	.055	.070	.052	609.10	394.55
.004011	350.	350.	350.	3	0	1	0.00	11.06	405.61

Station Road (1116.0)

Looks reasonable

check on pressure flow

$K = 4.07$; $C = 1/\sqrt{K} = 1/\sqrt{4.07} = .495$

$Q = CA\sqrt{2gH} = .495(3.97)(8.025)H^{1/2}$

$Q = 15.79H^{1/2}$

$TW = 604.29$

$HW = 609.57$

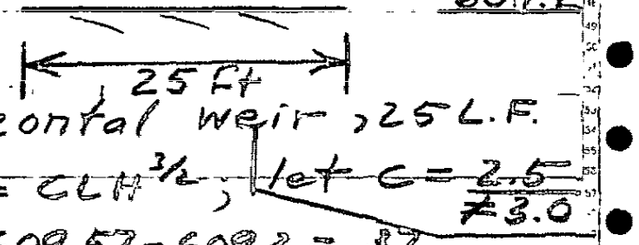
$H = (609.57 - 604.24) = 5.33$

$Q = 15.79(2.3) = 36.45$ cfs

$Q_{100} = 53$ cfs

check on weir flow

609.2



horizontal weir, >25 L.F.

$Q_W = CLH^{3/2}$; let $C = 2.5 \neq 3.0$

$eH = 609.57 - 609.2 = .37$

$Q_W = 2.5(25)(37)^{3/2}$

$Q_W = 62.5(.225) = 14.06$ cfs

$Q_{TOTAL} = 36.45 + 14.06 = 50.51$

$(50.51 - 53) = -2.49$ cfs

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Hagar Township

3) WATERCOURSE: Granger Drain Trib

4) DOCUMENT TYPE: Summary D/S C&O RR

00BREAK00

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

GRANGER DRAIN TRIB.

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRITWS	EG	TOPWID	10K*S	TIME	VOL
0.00	0.00	0.00	0.00	613.60	38.00	614.77	0.00	614.82	35.08	79.43	0.00	0.00
0.00	0.00	0.00	0.00	613.60	46.00	614.86	0.00	614.92	37.73	78.95	0.00	0.00
0.00	0.00	0.00	0.00	613.60	48.00	614.88	0.00	614.94	38.35	78.85	0.00	0.00
0.00	0.00	0.00	0.00	613.60	52.00	614.92	0.00	614.98	39.53	78.68	0.00	0.00
25.00	25.00	0.00	0.00	614.18	38.00	615.08	0.00	615.23	27.00	321.18	.00	.01
25.00	25.00	0.00	0.00	614.18	46.00	615.15	0.00	615.31	29.31	303.66	.00	.01
25.00	25.00	0.00	0.00	614.18	48.00	615.17	0.00	615.33	29.85	299.76	.00	.01
25.00	25.00	0.00	0.00	614.18	52.00	615.21	0.00	615.37	30.91	292.47	.00	.01
50.00	25.00	0.00	0.00	614.75	38.00	615.75	0.00	615.85	29.82	189.06	.00	.02
50.00	25.00	0.00	0.00	614.75	46.00	615.81	0.00	615.93	31.86	194.46	.00	.02
50.00	25.00	0.00	0.00	614.75	48.00	615.83	0.00	615.95	32.34	195.78	.00	.02
50.00	25.00	0.00	0.00	614.75	52.00	615.86	0.00	615.98	33.24	198.36	.00	.02
75.00	25.00	0.00	0.00	615.33	38.00	616.28	0.00	616.40	28.28	250.70	.01	.03
75.00	25.00	0.00	0.00	615.33	46.00	616.35	0.00	616.49	30.47	247.02	.01	.03
75.00	25.00	0.00	0.00	615.33	48.00	616.37	0.00	616.50	30.98	246.18	.01	.03
75.00	25.00	0.00	0.00	615.33	52.00	616.40	0.00	616.54	31.96	244.61	.01	.03
100.00	25.00	0.00	0.00	615.90	38.00	616.87	0.00	616.98	29.14	213.57	.01	.03
100.00	25.00	0.00	0.00	615.90	46.00	616.94	0.00	617.06	31.31	213.69	.01	.04
100.00	25.00	0.00	0.00	615.90	48.00	616.96	0.00	617.08	31.77	215.06	.01	.04
100.00	25.00	0.00	0.00	615.90	52.00	616.99	0.00	617.12	32.67	217.45	.01	.04
125.00	25.00	0.00	0.00	616.48	38.00	617.44	0.00	617.56	28.44	243.43	.01	.04
125.00	25.00	0.00	0.00	616.48	46.00	617.50	0.00	617.64	30.56	242.88	.01	.05
125.00	25.00	0.00	0.00	616.48	48.00	617.52	0.00	617.66	31.10	240.96	.01	.05
125.00	25.00	0.00	0.00	616.48	52.00	617.55	0.00	617.70	32.13	237.89	.01	.05
150.00	25.00	0.00	0.00	617.05	38.00	618.02	0.00	618.13	29.11	215.03	.02	.05
150.00	25.00	0.00	0.00	617.05	46.00	618.09	0.00	618.22	31.17	218.71	.01	.06
150.00	25.00	0.00	0.00	617.05	48.00	618.11	0.00	618.24	31.63	220.39	.01	.06
150.00	25.00	0.00	0.00	617.05	52.00	618.14	0.00	618.27	32.52	222.77	.01	.06
175.00	25.00	0.00	0.00	617.63	38.00	618.58	0.00	618.71	28.49	241.08	.02	.06
175.00	25.00	0.00	0.00	617.63	46.00	618.66	0.00	618.79	30.71	236.73	.02	.07
175.00	25.00	0.00	0.00	617.63	48.00	618.67	0.00	618.81	31.24	235.47	.02	.07
175.00	25.00	0.00	0.00	617.63	52.00	618.71	0.00	618.85	32.23	234.03	.02	.07
200.00	25.00	0.00	0.00	618.20	38.00	619.16	0.00	619.29	24.57	224.87	.02	.06
200.00	25.00	0.00	0.00	618.20	46.00	619.24	0.00	619.38	25.92	232.33	.02	.07
200.00	25.00	0.00	0.00	618.20	48.00	619.25	0.00	619.40	26.23	234.34	.02	.08
200.00	25.00	0.00	0.00	618.20	52.00	619.28	0.00	619.45	26.84	237.48	.02	.08
225.00	25.00	0.00	0.00	618.80	38.00	619.74	0.00	619.95	15.00	273.79	.02	.07
225.00	25.00	0.00	0.00	618.80	46.00	619.83	0.00	620.08	15.00	288.59	.02	.08
225.00	25.00	0.00	0.00	618.80	48.00	619.85	0.00	620.11	15.00	292.68	.02	.08
225.00	25.00	0.00	0.00	618.80	52.00	619.88	0.00	620.16	15.00	291.82	.02	.09

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
249.00	24.00	0.00	0.00	619.40	38.00	621.42	621.42	622.28	3.00	364.27	.02	.08
249.00	24.00	0.00	0.00	619.40	46.00	621.65	621.65	622.63	3.00	370.37	.02	.09
249.00	24.00	0.00	0.00	619.40	48.00	621.71	621.71	622.71	3.00	372.14	.02	.09
249.00	24.00	0.00	0.00	619.40	52.00	621.82	621.82	622.87	3.00	375.49	.02	.10
300.00	51.00	631.50	623.20	620.20	38.00	623.52	0.00	623.92	3.00	245.03	.03	.08
300.00	51.00	631.50	623.20	620.20	46.00	624.30	0.00	624.55	3.00	59.81	.03	.10
300.00	51.00	631.50	623.20	620.20	48.00	624.63	0.00	624.87	3.00	52.36	.02	.10
300.00	51.00	631.50	623.20	620.20	52.00	625.33	0.00	625.53	3.00	41.43	.02	.11
325.00	25.00	0.00	0.00	620.30	38.00	624.05	0.00	624.05	53.00	.13	.05	.13
325.00	25.00	0.00	0.00	620.30	46.00	624.63	0.00	624.63	53.00	.10	.05	.15
325.00	25.00	0.00	0.00	620.30	48.00	624.94	0.00	624.94	53.00	.08	.05	.16
325.00	25.00	0.00	0.00	620.30	52.00	625.59	0.00	625.59	53.00	.06	.06	.18
350.00	25.00	0.00	0.00	620.40	38.00	624.05	0.00	624.05	86.49	.10	.09	.23
350.00	25.00	0.00	0.00	620.40	46.00	624.63	0.00	624.63	92.13	.07	.09	.27
350.00	25.00	0.00	0.00	620.40	48.00	624.94	0.00	624.94	95.09	.05	.09	.29
350.00	25.00	0.00	0.00	620.40	52.00	625.59	0.00	625.59	101.01	.03	.10	.34
383.00	33.00	0.00	0.00	620.53	38.00	624.05	0.00	624.05	60.00	.14	.12	.35
383.00	33.00	0.00	0.00	620.53	46.00	624.63	0.00	624.63	60.00	.11	.12	.43
383.00	33.00	0.00	0.00	620.53	48.00	624.94	0.00	624.94	60.00	.09	.13	.47
383.00	33.00	0.00	0.00	620.53	52.00	625.59	0.00	625.59	60.00	.06	.14	.56
416.00	33.00	0.00	0.00	620.66	38.00	624.05	0.00	624.05	48.00	.22	.15	.46
416.00	33.00	0.00	0.00	620.66	46.00	624.63	0.00	624.63	48.00	.17	.15	.56
416.00	33.00	0.00	0.00	620.66	48.00	624.94	0.00	624.94	48.00	.14	.16	.61
416.00	33.00	0.00	0.00	620.66	52.00	625.59	0.00	625.59	48.00	.09	.17	.72
449.00	33.00	0.00	0.00	620.79	38.00	624.05	0.00	624.05	27.00	.63	.17	.53
449.00	33.00	0.00	0.00	620.79	46.00	624.63	0.00	624.64	27.00	.51	.17	.65
449.00	33.00	0.00	0.00	620.79	48.00	624.94	0.00	624.94	27.00	.42	.18	.71
449.00	33.00	0.00	0.00	620.79	52.00	625.59	0.00	625.59	27.00	.30	.19	.84
498.00	49.00	0.00	0.00	621.00	38.00	623.76	0.00	624.36	2.40	217.44	.17	.58
498.00	49.00	0.00	0.00	621.00	46.00	624.35	0.00	624.94	2.40	183.41	.17	.71
498.00	49.00	0.00	0.00	621.00	48.00	624.69	0.00	625.21	2.40	153.32	.18	.77
498.00	49.00	0.00	0.00	621.00	52.00	625.38	0.00	625.81	2.40	113.41	.20	.91
538.00	40.00	630.70	624.50	622.00	38.00	624.89	0.00	625.44	2.40	190.53	.17	.58
538.00	40.00	630.70	624.50	622.00	46.00	626.50	0.00	626.82	2.40	82.56	.18	.72
538.00	40.00	630.70	624.50	622.00	48.00	627.11	0.00	627.37	2.40	64.74	.18	.78
538.00	40.00	630.70	624.50	622.00	52.00	628.34	0.00	628.54	2.40	44.26	.20	.92
563.00	25.00	0.00	0.00	622.21	38.00	625.61	0.00	625.61	53.00	.33	.20	.62
563.00	25.00	0.00	0.00	622.21	46.00	626.91	0.00	626.91	53.00	.14	.21	.78
563.00	25.00	0.00	0.00	622.21	48.00	627.45	0.00	627.45	53.00	.10	.22	.86
563.00	25.00	0.00	0.00	622.21	52.00	628.59	0.00	628.59	53.00	.06	.24	1.02

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
588.00	25.00	0.00	0.00	622.42	38.00	625.61	0.00	625.61	102.00	.22	.24	.73
588.00	25.00	0.00	0.00	622.42	46.00	626.91	0.00	626.91	102.00	.06	.26	.94
588.00	25.00	0.00	0.00	622.42	48.00	627.45	0.00	627.45	102.00	.04	.28	1.04
588.00	25.00	0.00	0.00	622.42	52.00	628.59	0.00	628.59	102.00	.02	.31	1.25
634.00	46.00	0.00	0.00	622.80	38.00	625.61	0.00	625.61	115.04	.44	.30	.93
634.00	46.00	0.00	0.00	622.80	46.00	626.91	0.00	626.91	126.19	.08	.35	1.30
634.00	46.00	0.00	0.00	622.80	48.00	627.45	0.00	627.45	130.83	.05	.38	1.47
634.00	46.00	0.00	0.00	622.80	52.00	628.59	0.00	628.60	140.60	.02	.44	1.84
680.00	46.00	0.00	0.00	623.18	38.00	625.61	0.00	625.61	107.70	1.05	.34	1.09
680.00	46.00	0.00	0.00	623.18	46.00	626.91	0.00	626.91	122.94	.13	.43	1.63
680.00	46.00	0.00	0.00	623.18	48.00	627.45	0.00	627.45	127.58	.07	.47	1.88
680.00	46.00	0.00	0.00	623.18	52.00	628.59	0.00	628.60	137.35	.03	.56	2.44
738.00	58.00	0.00	0.00	623.66	38.00	625.62	0.00	625.62	86.91	3.37	.38	1.23
738.00	58.00	0.00	0.00	623.66	46.00	626.91	0.00	626.91	118.84	.28	.51	1.97
738.00	58.00	0.00	0.00	623.66	48.00	627.45	0.00	627.45	123.48	.13	.57	2.31
738.00	58.00	0.00	0.00	623.66	52.00	628.60	0.00	628.60	133.24	.04	.69	3.06
797.00	59.00	0.00	0.00	624.15	38.00	625.65	0.00	625.65	69.40	7.73	.40	1.33
797.00	59.00	0.00	0.00	624.15	46.00	626.91	0.00	626.92	96.27	.56	.57	2.24
797.00	59.00	0.00	0.00	624.15	48.00	627.46	0.00	627.46	106.68	.26	.64	2.66
797.00	59.00	0.00	0.00	624.15	52.00	628.60	0.00	628.60	128.53	.08	.79	3.60
855.00	58.00	0.00	0.00	624.63	38.00	625.72	0.00	625.74	56.08	34.15	.42	1.40
855.00	58.00	0.00	0.00	624.63	46.00	626.92	0.00	626.92	87.78	1.38	.61	2.43
855.00	58.00	0.00	0.00	624.63	48.00	627.46	0.00	627.46	97.42	.55	.70	2.92
855.00	58.00	0.00	0.00	624.63	52.00	628.60	0.00	628.60	119.45	.13	.88	4.03
914.00	59.00	0.00	0.00	625.12	38.00	626.02	0.00	626.05	48.43	86.65	.43	1.44
914.00	59.00	0.00	0.00	625.12	46.00	626.93	0.00	626.94	77.15	4.45	.64	2.57
914.00	59.00	0.00	0.00	625.12	48.00	627.46	0.00	627.46	88.70	1.35	.74	3.13
914.00	59.00	0.00	0.00	625.12	52.00	628.60	0.00	628.60	109.99	.24	.95	4.40
972.00	58.00	0.00	0.00	625.60	38.00	626.51	0.00	626.54	49.00	80.39	.44	1.47
972.00	58.00	0.00	0.00	625.60	46.00	626.97	0.00	626.98	65.99	16.77	.66	2.66
972.00	58.00	0.00	0.00	625.60	48.00	627.47	0.00	627.48	78.57	4.09	.77	3.27
972.00	58.00	0.00	0.00	625.60	52.00	628.60	0.00	628.60	100.73	.48	1.01	4.68
1031.00	59.00	0.00	0.00	626.09	38.00	626.99	0.00	627.03	40.53	86.18	.45	1.51
1031.00	59.00	0.00	0.00	626.09	46.00	627.14	0.00	627.17	43.00	67.07	.67	2.72
1031.00	59.00	0.00	0.00	626.09	48.00	627.51	0.00	627.53	49.72	18.67	.79	3.36
1031.00	59.00	0.00	0.00	626.09	52.00	628.60	0.00	628.61	74.32	1.86	1.05	4.88
1089.00	58.00	0.00	0.00	626.57	38.00	627.49	0.00	627.53	40.58	84.87	.46	1.54
1089.00	58.00	0.00	0.00	626.57	46.00	627.56	0.00	627.61	42.18	81.94	.68	2.76
1089.00	58.00	0.00	0.00	626.57	48.00	627.68	0.00	627.71	44.13	56.50	.80	3.41
1089.00	58.00	0.00	0.00	626.57	52.00	628.62	0.00	628.62	63.83	4.74	1.07	5.01

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
1148.00	59.00	0.00	0.00	627.06	38.00	627.98	0.00	628.02	40.75	81.16	.47	1.57
1148.00	59.00	0.00	0.00	627.06	46.00	628.05	0.00	628.09	42.09	83.81	.69	2.79
1148.00	59.00	0.00	0.00	627.06	48.00	628.07	0.00	628.12	42.41	84.18	.81	3.46
1148.00	59.00	0.00	0.00	627.06	52.00	628.66	0.00	628.67	53.57	13.41	1.09	5.10
1206.00	58.00	0.00	0.00	627.54	38.00	628.46	0.00	628.50	40.65	83.32	.48	1.60
1206.00	58.00	0.00	0.00	627.54	46.00	628.54	0.00	628.58	42.10	83.57	.70	2.83
1206.00	58.00	0.00	0.00	627.54	48.00	628.56	0.00	628.60	42.57	80.99	.82	3.49
1206.00	58.00	0.00	0.00	627.54	52.00	628.78	0.00	628.80	46.53	40.79	1.10	5.17
1265.00	59.00	0.00	0.00	628.03	38.00	629.04	0.00	629.11	25.04	124.66	.49	1.63
1265.00	59.00	0.00	0.00	628.03	46.00	629.13	0.00	629.21	25.98	132.38	.70	2.86
1265.00	59.00	0.00	0.00	628.03	48.00	629.14	0.00	629.23	26.13	137.49	.82	3.53
1265.00	59.00	0.00	0.00	628.03	52.00	629.16	0.00	629.26	26.35	150.03	1.11	5.21
1323.00	58.00	0.00	0.00	628.51	38.00	629.63	0.00	629.69	26.35	80.22	.50	1.65
1323.00	58.00	0.00	0.00	628.51	46.00	629.75	0.00	629.81	28.27	80.58	.71	2.89
1323.00	58.00	0.00	0.00	628.51	48.00	629.78	0.00	629.84	29.18	79.44	.83	3.56
1323.00	58.00	0.00	0.00	628.51	52.00	629.83	0.00	629.90	30.38	81.89	1.12	5.24
1382.00	59.00	0.00	0.00	629.00	38.00	630.12	0.00	630.18	26.18	84.86	.51	1.68
1382.00	59.00	0.00	0.00	629.00	46.00	630.23	0.00	630.29	28.00	82.93	.72	2.92
1382.00	59.00	0.00	0.00	629.00	48.00	630.26	0.00	630.32	28.65	84.13	.84	3.59
1382.00	59.00	0.00	0.00	629.00	52.00	630.32	0.00	630.38	30.23	83.20	1.12	5.27
1432.00	50.00	0.00	0.00	629.42	38.00	630.54	0.00	630.59	26.26	82.56	.51	1.71
1432.00	50.00	0.00	0.00	629.42	46.00	630.65	0.00	630.71	27.94	83.51	.73	2.95
1432.00	50.00	0.00	0.00	629.42	48.00	630.68	0.00	630.74	28.73	83.46	.85	3.62
1432.00	50.00	0.00	0.00	629.42	52.00	630.74	0.00	630.80	30.20	83.46	1.13	5.30
1482.00	50.00	0.00	0.00	629.83	38.00	631.15	0.00	631.27	21.63	224.72	.52	1.72
1482.00	50.00	0.00	0.00	629.83	46.00	631.27	0.00	631.38	25.47	225.59	.73	2.97
1482.00	50.00	0.00	0.00	629.83	48.00	631.29	0.00	631.41	26.39	223.57	.85	3.64
1482.00	50.00	0.00	0.00	629.83	52.00	631.35	0.00	631.47	28.15	219.04	1.14	5.33
1532.00	50.00	0.00	0.00	630.24	38.00	631.87	0.00	631.92	31.71	81.15	.53	1.75
1532.00	50.00	0.00	0.00	630.24	46.00	631.99	0.00	632.04	35.56	80.39	.74	3.00
1532.00	50.00	0.00	0.00	630.24	48.00	632.01	0.00	632.06	36.49	79.78	.86	3.66
1532.00	50.00	0.00	0.00	630.24	52.00	632.05	0.00	632.10	37.98	79.34	1.14	5.35
1582.00	50.00	0.00	0.00	630.66	38.00	632.28	0.00	632.33	31.54	82.55	.53	1.77
1582.00	50.00	0.00	0.00	630.66	46.00	632.40	0.00	632.45	35.20	83.33	.75	3.03
1582.00	50.00	0.00	0.00	630.66	48.00	632.42	0.00	632.47	36.07	83.24	.87	3.70
1582.00	50.00	0.00	0.00	630.66	52.00	632.46	0.00	632.51	37.55	84.26	1.15	5.39
1632.00	50.00	0.00	0.00	631.07	38.00	632.69	0.00	632.74	31.51	82.77	.54	1.80
1632.00	50.00	0.00	0.00	631.07	46.00	632.81	0.00	632.86	35.40	81.75	.75	3.06
1632.00	50.00	0.00	0.00	631.07	48.00	632.83	0.00	632.88	36.15	82.53	.88	3.73
1632.00	50.00	0.00	0.00	631.07	52.00	632.88	0.00	632.93	37.73	82.16	1.16	5.42

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
1682.00	50.00	0.00	0.00	631.49	38.00	633.11	0.00	633.16	31.46	83.23	.55	1.82
1682.00	50.00	0.00	0.00	631.49	46.00	633.22	0.00	633.27	35.15	83.78	.76	3.08
1682.00	50.00	0.00	0.00	631.49	48.00	633.25	0.00	633.30	35.96	84.09	.88	3.76
1682.00	50.00	0.00	0.00	631.49	52.00	633.29	0.00	633.35	37.60	83.60	1.17	5.45
1713.00	31.00	0.00	0.00	631.69	38.00	633.35	0.00	633.40	33.16	69.96	.56	1.84
1713.00	31.00	0.00	0.00	631.69	46.00	633.47	0.00	633.51	37.04	69.41	.77	3.10
1713.00	31.00	0.00	0.00	631.69	48.00	633.49	0.00	633.54	37.88	68.54	.89	3.78
1713.00	31.00	0.00	0.00	631.69	52.00	633.53	0.00	633.58	39.08	68.33	1.17	5.47
1745.00	32.00	0.00	0.00	631.90	35.00	633.50	0.00	633.55	30.99	32.95	.56	1.85
1745.00	32.00	0.00	0.00	631.90	41.00	633.62	0.00	633.66	34.75	30.82	.77	3.12
1745.00	32.00	0.00	0.00	631.90	43.00	633.64	0.00	633.68	35.56	31.22	.89	3.80
1745.00	32.00	0.00	0.00	631.90	46.00	633.64	0.00	633.73	36.99	30.98	1.18	5.49
1845.00	100.00	0.00	0.00	630.76	35.00	633.59	0.00	633.59	33.65	1.18	.61	1.95
1845.00	100.00	0.00	0.00	630.76	41.00	633.70	0.00	633.70	33.89	1.34	.82	3.23
1845.00	100.00	0.00	0.00	630.76	43.00	633.72	0.00	633.73	33.94	1.42	.94	3.90
1845.00	100.00	0.00	0.00	630.76	46.00	633.77	0.00	633.78	34.04	1.50	1.22	5.60
1895.00	50.00	0.00	0.00	630.19	35.00	633.59	0.00	633.60	20.85	1.15	.63	2.01
1895.00	50.00	0.00	0.00	630.19	41.00	633.70	0.00	633.71	21.08	1.39	.84	3.29
1895.00	50.00	0.00	0.00	630.19	43.00	633.73	0.00	633.74	21.14	1.48	.95	3.97
1895.00	50.00	0.00	0.00	630.19	46.00	633.78	0.00	633.79	21.24	1.61	1.23	5.67
1927.00	32.00	0.00	0.00	629.81	35.00	633.59	0.00	633.61	13.65	2.62	.64	2.05
1927.00	32.00	0.00	0.00	629.81	41.00	633.71	0.00	633.72	13.88	3.21	.84	3.33
1927.00	32.00	0.00	0.00	629.81	43.00	633.73	0.00	633.75	13.94	3.44	.96	4.00
1927.00	32.00	0.00	0.00	629.81	46.00	633.78	0.00	633.80	14.00	3.75	1.24	5.71
1937.00	10.00	0.00	0.00	629.70	35.00	633.59	0.00	633.62	8.00	6.91	.64	2.05
1937.00	10.00	0.00	0.00	629.70	41.00	633.70	0.00	633.74	8.00	8.62	.85	3.34
1937.00	10.00	0.00	0.00	629.70	43.00	633.73	0.00	633.77	8.00	9.27	.96	4.01
1937.00	10.00	0.00	0.00	629.70	46.00	633.77	0.00	633.82	8.00	10.19	1.24	5.71
1946.00	9.00	0.00	0.00	629.60	35.00	633.54	0.00	633.70	3.00	64.57	.64	2.06
1946.00	9.00	0.00	0.00	629.60	41.00	633.63	0.00	633.84	3.00	83.38	.85	3.34
1946.00	9.00	0.00	0.00	629.60	43.00	633.65	0.00	633.88	3.00	90.59	.96	4.02
1946.00	9.00	0.00	0.00	629.60	46.00	633.69	0.00	633.95	3.00	101.34	1.24	5.72
1947.00	1.00	635.10	632.60	629.60	35.00	633.43	0.00	633.81	3.00	39.43	.64	2.06
1947.00	1.00	635.10	632.60	629.60	41.00	633.49	0.00	634.00	3.00	54.71	.85	3.34
1947.00	1.00	635.10	632.60	629.60	43.00	633.49	0.00	634.06	3.00	60.22	.96	4.02
1947.00	1.00	635.10	632.60	629.60	46.00	633.50	0.00	634.15	3.00	69.07	1.24	5.72
1966.00	19.00	635.10	634.00	631.00	35.00	633.44	0.00	633.94	3.00	30.63	.64	2.06
1966.00	19.00	635.10	634.00	631.00	41.00	633.50	0.00	634.16	3.00	39.33	.85	3.34
1966.00	19.00	635.10	634.00	631.00	43.00	633.51	0.00	634.23	3.00	42.95	.97	4.02
1966.00	19.00	635.10	634.00	631.00	46.00	633.53	0.00	634.34	3.00	48.25	1.24	5.72

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
1967.00	1.00	0.00	0.00	631.00	35.00	633.54	0.00	633.97	3.00	21.93	.64	2.06
1967.00	1.00	0.00	0.00	631.00	41.00	633.69	0.00	634.20	3.00	25.88	.85	3.34
1967.00	1.00	0.00	0.00	631.00	43.00	633.73	0.00	634.28	3.00	27.29	.97	4.02
1967.00	1.00	0.00	0.00	631.00	46.00	633.83	0.00	634.41	3.00	28.23	1.24	5.72
1991.00	24.00	0.00	0.00	631.32	35.00	634.09	0.00	634.11	16.25	7.13	.65	2.07
1991.00	24.00	0.00	0.00	631.32	41.00	634.35	0.00	634.38	25.04	6.16	.85	3.35
1991.00	24.00	0.00	0.00	631.32	43.00	634.44	0.00	634.46	29.15	5.84	.97	4.03
1991.00	24.00	0.00	0.00	631.32	46.00	634.57	0.00	634.60	39.29	5.27	1.25	5.73
2016.00	25.00	0.00	0.00	631.64	35.00	634.10	0.00	634.14	14.87	12.26	.65	2.08
2016.00	25.00	0.00	0.00	631.64	41.00	634.36	0.00	634.40	16.03	10.58	.86	3.37
2016.00	25.00	0.00	0.00	631.64	43.00	634.45	0.00	634.49	16.73	10.07	.98	4.05
2016.00	25.00	0.00	0.00	631.64	46.00	634.58	0.00	634.62	21.68	9.06	1.25	5.75
2066.00	50.00	0.00	0.00	632.28	35.00	634.18	0.00	634.27	12.34	40.74	.66	2.10
2066.00	50.00	0.00	0.00	632.28	41.00	634.42	0.00	634.51	13.41	32.45	.86	3.39
2066.00	50.00	0.00	0.00	632.28	43.00	634.51	0.00	634.59	13.78	29.96	.98	4.07
2066.00	50.00	0.00	0.00	632.28	46.00	634.63	0.00	634.72	14.36	26.40	1.26	5.78
2116.00	50.00	0.00	0.00	632.92	35.00	634.44	0.00	634.64	10.68	112.40	.66	2.12
2116.00	50.00	0.00	0.00	632.92	41.00	634.63	0.00	634.82	11.51	90.33	.87	3.41
2116.00	50.00	0.00	0.00	632.92	43.00	634.69	0.00	634.88	11.79	83.84	.99	4.09
2116.00	50.00	0.00	0.00	632.92	46.00	634.80	0.00	634.97	12.25	74.01	1.26	5.80
2146.00	30.00	0.00	0.00	633.30	35.00	634.79	0.00	635.01	10.53	125.08	.66	2.12
2146.00	30.00	0.00	0.00	633.30	41.00	634.92	0.00	635.14	11.10	116.97	.87	3.42
2146.00	30.00	0.00	0.00	633.30	43.00	634.96	0.00	635.19	11.30	113.30	.99	4.10
2146.00	30.00	0.00	0.00	633.30	46.00	635.03	0.00	635.26	11.62	106.44	1.27	5.81
2171.00	25.00	0.00	0.00	633.60	35.00	635.10	0.00	635.32	10.55	123.08	.67	2.13
2171.00	25.00	0.00	0.00	633.60	41.00	635.21	0.00	635.44	11.07	119.27	.87	3.43
2171.00	25.00	0.00	0.00	633.60	43.00	635.25	0.00	635.48	11.23	118.09	.99	4.11
2171.00	25.00	0.00	0.00	633.60	46.00	635.30	0.00	635.54	11.48	115.45	1.27	5.82
2195.00	24.00	0.00	0.00	633.90	35.00	635.39	635.38	635.69	39.07	153.21	.67	2.14
2195.00	24.00	0.00	0.00	633.90	41.00	635.49	635.47	635.79	43.60	148.07	.87	3.43
2195.00	24.00	0.00	0.00	633.90	43.00	635.53	635.50	635.83	44.99	146.77	.99	4.12
2195.00	24.00	0.00	0.00	633.90	46.00	635.58	635.53	635.88	47.25	142.18	1.27	5.83
2268.00	73.00	643.60	636.40	634.20	35.00	637.03	0.00	637.23	3.60	50.97	.67	2.16
2268.00	73.00	643.60	636.40	634.20	41.00	637.86	0.00	638.02	3.60	34.13	.88	3.46
2268.00	73.00	643.60	636.40	634.20	43.00	638.15	0.00	638.30	3.60	30.31	1.00	4.15
2268.00	73.00	643.60	636.40	634.20	46.00	638.62	0.00	638.76	3.60	25.68	1.28	5.86
2275.00	7.00	0.00	0.00	634.12	35.00	638.37	0.00	638.38	17.00	.99	.68	2.17
2275.00	7.00	0.00	0.00	634.12	41.00	639.41	0.00	639.42	17.00	.58	.88	3.47
2275.00	7.00	0.00	0.00	634.12	43.00	639.59	0.00	639.60	17.00	.56	1.00	4.16
2275.00	7.00	0.00	0.00	634.12	46.00	640.18	0.00	640.18	17.00	.45	1.28	5.87

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
2293.00	18.00	0.00	0.00	633.90	35.00	638.37	0.00	638.38	17.00	.80	.68	2.19
2293.00	18.00	0.00	0.00	633.90	41.00	639.41	0.00	639.42	17.00	.50	.89	3.50
2293.00	18.00	0.00	0.00	633.90	43.00	639.59	0.00	639.60	17.00	.49	1.01	4.19
2293.00	18.00	0.00	0.00	633.90	46.00	640.18	0.00	640.19	17.00	.39	1.29	5.91
2318.00	25.00	0.00	0.00	633.60	35.00	638.38	0.00	638.38	17.00	.62	.70	2.22
2318.00	25.00	0.00	0.00	633.60	41.00	639.41	0.00	639.42	17.00	.41	.90	3.54
2318.00	25.00	0.00	0.00	633.60	43.00	639.59	0.00	639.60	17.00	.40	1.02	4.23
2318.00	25.00	0.00	0.00	633.60	46.00	640.18	0.00	640.19	17.00	.33	1.30	5.96
2368.00	50.00	0.00	0.00	632.60	35.00	638.38	0.00	638.38	17.00	.31	.73	2.30
2368.00	50.00	0.00	0.00	632.60	41.00	639.42	0.00	639.42	17.00	.24	.94	3.64
2368.00	50.00	0.00	0.00	632.60	43.00	639.60	0.00	639.60	17.00	.24	1.05	4.33
2368.00	50.00	0.00	0.00	632.60	46.00	640.19	0.00	640.19	17.00	.21	1.34	6.07
2473.00	105.00	0.00	0.00	632.85	35.00	638.38	0.00	638.39	17.00	.36	.79	2.48
2473.00	105.00	0.00	0.00	632.85	41.00	639.42	0.00	639.42	17.00	.27	1.00	3.87
2473.00	105.00	0.00	0.00	632.85	43.00	639.60	0.00	639.60	17.00	.27	1.12	4.57
2473.00	105.00	0.00	0.00	632.85	46.00	640.19	0.00	640.19	17.00	.23	1.40	6.33
2578.00	105.00	0.00	0.00	633.10	35.00	638.39	0.00	638.39	17.00	.42	.85	2.65
2578.00	105.00	0.00	0.00	633.10	41.00	639.42	0.00	639.43	17.00	.31	1.06	4.08
2578.00	105.00	0.00	0.00	633.10	43.00	639.60	0.00	639.61	17.00	.31	1.18	4.79
2578.00	105.00	0.00	0.00	633.10	46.00	640.19	0.00	640.19	17.00	.26	1.47	6.57
2683.00	105.00	0.00	0.00	633.35	35.00	638.39	0.00	638.40	17.00	.50	.90	2.81
2683.00	105.00	0.00	0.00	633.35	41.00	639.43	0.00	639.43	17.00	.35	1.12	4.29
2683.00	105.00	0.00	0.00	633.35	43.00	639.61	0.00	639.61	17.00	.35	1.24	5.00
2683.00	105.00	0.00	0.00	633.35	46.00	640.19	0.00	640.20	17.00	.29	1.53	6.81
2788.00	105.00	0.00	0.00	633.60	35.00	638.40	0.00	638.40	17.00	.61	.95	2.97
2788.00	105.00	0.00	0.00	633.60	41.00	639.43	0.00	639.43	17.00	.41	1.18	4.48
2788.00	105.00	0.00	0.00	633.60	43.00	639.61	0.00	639.61	17.00	.40	1.29	5.20
2788.00	105.00	0.00	0.00	633.60	46.00	640.20	0.00	640.20	17.00	.33	1.58	7.03
2893.00	105.00	0.00	0.00	633.90	35.00	638.40	0.00	638.41	20.14	.59	1.00	3.12
2893.00	105.00	0.00	0.00	633.90	41.00	639.43	0.00	639.44	22.71	.35	1.24	4.68
2893.00	105.00	0.00	0.00	633.90	43.00	639.61	0.00	639.62	22.95	.34	1.35	5.41
2893.00	105.00	0.00	0.00	633.90	46.00	640.20	0.00	640.20	23.73	.26	1.65	7.27
2998.00	105.00	0.00	0.00	634.15	35.00	638.41	0.00	638.42	19.52	.73	1.05	3.26
2998.00	105.00	0.00	0.00	634.15	41.00	639.44	0.00	639.44	22.12	.43	1.29	4.87
2998.00	105.00	0.00	0.00	634.15	43.00	639.62	0.00	639.62	22.58	.41	1.41	5.61
2998.00	105.00	0.00	0.00	634.15	46.00	640.20	0.00	640.21	23.40	.31	1.71	7.51
3103.00	105.00	0.00	0.00	634.40	35.00	638.42	0.00	638.43	18.90	.93	1.10	3.40
3103.00	105.00	0.00	0.00	634.40	41.00	639.44	0.00	639.45	21.50	.52	1.35	5.06
3103.00	105.00	0.00	0.00	634.40	43.00	639.62	0.00	639.63	21.96	.49	1.46	5.81
3103.00	105.00	0.00	0.00	634.40	46.00	640.21	0.00	640.21	23.07	.36	1.77	7.74

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
3208.00	105.00	0.00	0.00	634.65	35.00	638.43	0.00	638.44	18.29	1.18	1.14	3.52
3208.00	105.00	0.00	0.00	634.65	41.00	639.45	0.00	639.45	20.88	.63	1.39	5.23
3208.00	105.00	0.00	0.00	634.65	43.00	639.63	0.00	639.63	21.33	.60	1.51	5.99
3208.00	105.00	0.00	0.00	634.65	46.00	640.21	0.00	640.21	22.74	.44	1.82	7.95
3313.00	105.00	0.00	0.00	634.90	35.00	638.44	0.00	638.45	17.69	1.53	1.17	3.63
3313.00	105.00	0.00	0.00	634.90	41.00	639.45	0.00	639.46	20.26	.77	1.44	5.39
3313.00	105.00	0.00	0.00	634.90	43.00	639.63	0.00	639.64	20.71	.73	1.56	6.16
3313.00	105.00	0.00	0.00	634.90	46.00	640.21	0.00	640.22	22.19	.53	1.87	8.15
3418.00	105.00	0.00	0.00	635.15	35.00	638.46	0.00	638.47	17.10	1.99	1.21	3.73
3418.00	105.00	0.00	0.00	635.15	41.00	639.46	0.00	639.47	19.65	.96	1.48	5.54
3418.00	105.00	0.00	0.00	635.15	43.00	639.64	0.00	639.65	20.10	.90	1.60	6.31
3418.00	105.00	0.00	0.00	635.15	46.00	640.22	0.00	640.23	21.57	.63	1.92	8.33

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	38.000	614.771	0.000	0.000	0.000	35.084	0.000	-0.000
0.000	46.000	614.859	.088	0.000	0.000	37.732	-2.649	-0.000
0.000	48.000	614.880	.021	0.000	0.000	38.348	-3.265	-0.000
0.000	52.000	614.919	.040	0.000	0.000	39.533	-4.450	-0.000
25.000	38.000	615.076	0.000	.305	0.000	26.998	0.000	25.000
25.000	46.000	615.154	.079	.295	0.000	29.310	-2.312	25.000
25.000	48.000	615.173	.018	.293	0.000	29.854	-2.856	25.000
25.000	52.000	615.208	.036	.289	0.000	30.906	-3.908	25.000
50.000	38.000	615.746	0.000	.670	0.000	29.819	0.000	25.000
50.000	46.000	615.814	.068	.659	0.000	31.865	-2.046	25.000
50.000	48.000	615.829	.016	.656	0.000	32.336	-2.518	25.000
50.000	52.000	615.859	.030	.651	0.000	33.240	-3.421	25.000
75.000	38.000	616.275	0.000	.530	0.000	28.282	0.000	25.000
75.000	46.000	616.348	.073	.535	0.000	30.467	-2.185	25.000
75.000	48.000	616.365	.017	.536	0.000	30.977	-2.695	25.000
75.000	52.000	616.398	.033	.539	0.000	31.959	-3.677	25.000
100.000	38.000	616.871	0.000	.596	0.000	29.145	0.000	25.000
100.000	46.000	616.940	.069	.592	0.000	31.306	-2.161	25.000
100.000	48.000	616.957	.017	.592	0.000	31.772	-2.627	25.000
100.000	52.000	616.990	.033	.592	0.000	32.672	-3.527	25.000
125.000	38.000	617.435	0.000	.564	0.000	28.439	0.000	25.000
125.000	46.000	617.503	.068	.563	0.000	30.564	-2.125	25.000
125.000	48.000	617.520	.017	.563	0.000	31.102	-2.663	25.000
125.000	52.000	617.554	.033	.564	0.000	32.127	-3.688	25.000
150.000	38.000	618.021	0.000	.586	0.000	29.108	0.000	25.000
150.000	46.000	618.092	.071	.589	0.000	31.170	-2.063	25.000
150.000	48.000	618.108	.016	.587	0.000	31.626	-2.519	25.000
150.000	52.000	618.138	.030	.584	0.000	32.524	-3.417	25.000
175.000	38.000	618.584	0.000	.564	0.000	28.490	0.000	25.000
175.000	46.000	618.657	.073	.565	0.000	30.711	-2.221	25.000
175.000	48.000	618.674	.017	.566	0.000	31.236	-2.746	25.000
175.000	52.000	618.706	.032	.568	0.000	32.225	-3.735	25.000
200.000	38.000	619.162	0.000	.578	0.000	24.574	0.000	25.000
200.000	46.000	619.236	.073	.579	0.000	25.925	-1.350	25.000
200.000	48.000	619.252	.017	.578	0.000	26.235	-1.660	25.000
200.000	52.000	619.285	.033	.579	0.000	26.843	-2.269	25.000

225.000	38.000	619.741	0.000	.578	0.000	14.999	0.000	25.000
225.000	46.000	619.829	.088	.594	0.000	14.999	-.000	25.000
225.000	48.000	619.850	.021	.598	0.000	14.999	-.000	25.000
225.000	52.000	619.883	.033	.598	0.000	14.999	-.000	25.000
249.000	38.000	621.417	0.000	1.676	0.000	3.000	0.000	24.000
249.000	46.000	621.649	.232	1.820	0.000	3.000	0.000	24.000
249.000	48.000	621.705	.056	1.855	0.000	3.000	0.000	24.000
249.000	52.000	621.815	.110	1.932	0.000	3.000	0.000	24.000
300.000	38.000	623.518	0.000	2.101	0.000	3.000	0.000	51.000
300.000	46.000	624.300	.782	2.651	0.000	3.000	0.000	51.000
300.000	48.000	624.634	.334	2.929	0.000	3.000	0.000	51.000
300.000	52.000	625.326	.692	3.511	0.000	3.000	0.000	51.000
325.000	38.000	624.046	0.000	.528	0.000	52.999	0.000	25.000
325.000	46.000	624.631	.585	.331	0.000	52.999	-.000	25.000
325.000	48.000	624.939	.308	.304	0.000	52.999	-.000	25.000
325.000	52.000	625.588	.649	.262	0.000	52.999	-.000	25.000
350.000	38.000	624.046	0.000	.001	0.000	86.490	0.000	25.000
350.000	46.000	624.632	.585	.001	0.000	92.126	-5.636	25.000
350.000	48.000	624.939	.308	.001	0.000	95.090	-8.600	25.000
350.000	52.000	625.589	.649	.001	0.000	101.007	-14.517	25.000
383.000	38.000	624.047	0.000	.000	0.000	59.999	0.000	33.000
383.000	46.000	624.632	.585	.000	0.000	59.999	-.000	33.000
383.000	48.000	624.939	.308	.000	0.000	59.999	-.000	33.000
383.000	52.000	625.588	.649	.000	0.000	59.999	-.000	33.000
416.000	38.000	624.047	0.000	.000	0.000	47.999	0.000	33.000
416.000	46.000	624.632	.585	.000	0.000	47.999	-.000	33.000
416.000	48.000	624.939	.308	.000	0.000	47.999	-.000	33.000
416.000	52.000	625.588	.649	.000	0.000	47.999	-.000	33.000
449.000	38.000	624.047	0.000	-.000	0.000	26.999	0.000	33.000
449.000	46.000	624.632	.585	-.000	0.000	26.999	-.000	33.000
449.000	48.000	624.939	.307	-.000	0.000	26.999	-.000	33.000
449.000	52.000	625.588	.649	-.001	0.000	26.999	-.000	33.000
498.000	38.000	623.756	0.000	-.291	0.000	2.400	0.000	49.000
498.000	46.000	624.350	.594	-.282	0.000	2.400	0.000	49.000
498.000	48.000	624.689	.339	-.250	0.000	2.400	0.000	49.000
498.000	52.000	625.383	.695	-.205	0.000	2.400	0.000	49.000
538.000	38.000	624.888	0.000	1.132	0.000	2.400	0.000	40.000
538.000	46.000	626.504	1.616	2.154	0.000	2.400	0.000	40.000
538.000	48.000	627.114	.610	2.425	0.000	2.400	0.000	40.000
538.000	52.000	628.340	1.226	2.957	0.000	2.400	0.000	40.000
563.000	38.000	625.606	0.000	.718	0.000	52.999	0.000	25.000
563.000	46.000	626.910	1.304	.406	0.000	52.999	-.000	25.000
563.000	48.000	627.453	.542	.339	0.000	52.999	-.000	25.000
563.000	52.000	628.594	1.141	.254	0.000	52.999	-.000	25.000
588.000	38.000	625.607	0.000	.001	0.000	101.999	0.000	25.000
588.000	46.000	626.911	1.304	.001	0.000	101.999	-.000	25.000
588.000	48.000	627.454	.542	.001	0.000	101.999	-.000	25.000
588.000	52.000	628.595	1.141	.000	0.000	101.999	-.000	25.000
634.000	38.000	625.609	0.000	.001	0.000	115.041	0.000	46.000
634.000	46.000	626.912	1.303	.000	0.000	126.194	-11.153	46.000
634.000	48.000	627.454	.542	.000	0.000	130.835	-15.794	46.000
634.000	52.000	628.595	1.141	.000	0.000	140.602	-25.561	46.000

680.000	38.000	625.611	0.000	.003	0.000	107.698	0.000	46.000
680.000	46.000	626.912	1.301	.000	0.000	122.945	-15.247	46.000
680.000	48.000	627.454	.542	.000	0.000	127.584	-19.886	46.000
680.000	52.000	628.595	1.141	.000	0.000	137.350	-29.653	46.000
738.000	38.000	625.620	0.000	.009	0.000	86.908	0.000	58.000
738.000	46.000	626.913	1.293	.001	0.000	118.841	-31.933	58.000
738.000	48.000	627.455	.542	.001	0.000	123.478	-36.571	58.000
738.000	52.000	628.595	1.141	.000	0.000	133.243	-46.335	58.000
797.000	38.000	625.648	0.000	.027	0.000	69.397	0.000	59.000
797.000	46.000	626.915	1.267	.002	0.000	96.265	-26.868	59.000
797.000	48.000	627.455	.540	.001	0.000	106.679	-37.281	59.000
797.000	52.000	628.595	1.140	.000	0.000	128.525	-59.128	59.000
855.000	38.000	625.724	0.000	.077	0.000	56.083	0.000	58.000
855.000	46.000	626.919	1.195	.004	0.000	87.784	-31.701	58.000
855.000	48.000	627.457	.538	.002	0.000	97.418	-41.335	58.000
855.000	52.000	628.596	1.139	.001	0.000	119.454	-63.370	58.000
914.000	38.000	626.020	0.000	.296	0.000	48.434	0.000	59.000
914.000	46.000	626.932	.912	.012	0.000	77.151	-28.717	59.000
914.000	48.000	627.462	.530	.004	0.000	88.702	-40.268	59.000
914.000	52.000	628.597	1.135	.001	0.000	109.990	-61.556	59.000
972.000	38.000	626.506	0.000	.486	0.000	49.003	0.000	58.000
972.000	46.000	626.973	.467	.041	0.000	65.990	-16.987	58.000
972.000	48.000	627.473	.500	.011	0.000	78.572	-29.569	58.000
972.000	52.000	628.599	1.125	.002	0.000	100.729	-51.726	58.000
1031.000	38.000	626.994	0.000	.487	0.000	40.529	0.000	59.000
1031.000	46.000	627.136	.142	.163	0.000	43.004	-2.476	59.000
1031.000	48.000	627.512	.376	.039	0.000	49.716	-9.187	59.000
1031.000	52.000	628.603	1.091	.004	0.000	74.316	-33.787	59.000
1089.000	38.000	627.490	0.000	.497	0.000	40.584	0.000	58.000
1089.000	46.000	627.562	.072	.426	0.000	42.176	-1.592	58.000
1089.000	48.000	627.677	.116	.165	0.000	44.134	-3.550	58.000
1089.000	52.000	628.617	.940	.015	0.000	63.833	-23.249	58.000
1148.000	38.000	627.981	0.000	.491	0.000	40.747	0.000	59.000
1148.000	46.000	628.050	.069	.489	0.000	42.086	-1.339	59.000
1148.000	48.000	628.075	.024	.397	0.000	42.412	-1.666	59.000
1148.000	52.000	628.658	.583	.040	0.000	53.571	-12.824	59.000
1206.000	38.000	628.458	0.000	.477	0.000	40.651	0.000	58.000
1206.000	46.000	628.536	.078	.485	0.000	42.097	-1.447	58.000
1206.000	48.000	628.555	.019	.480	0.000	42.571	-1.921	58.000
1206.000	52.000	628.775	.220	.118	0.000	46.528	-5.877	58.000
1265.000	38.000	629.036	0.000	.578	0.000	25.037	0.000	59.000
1265.000	46.000	629.128	.091	.592	0.000	25.983	-.945	59.000
1265.000	48.000	629.144	.017	.589	0.000	26.128	-1.091	59.000
1265.000	52.000	629.156	.011	.380	0.000	26.355	-1.318	59.000
1323.000	38.000	629.634	0.000	.598	0.000	26.351	0.000	58.000
1323.000	46.000	629.752	.117	.624	0.000	28.268	-1.917	58.000
1323.000	48.000	629.779	.028	.635	0.000	29.180	-2.829	58.000
1323.000	52.000	629.834	.055	.678	0.000	30.376	-4.025	58.000
1382.000	38.000	630.120	0.000	.486	0.000	26.175	0.000	59.000
1382.000	46.000	630.233	.113	.482	0.000	28.004	-1.828	59.000
1382.000	48.000	630.260	.027	.481	0.000	28.653	-2.478	59.000
1382.000	52.000	630.320	.060	.487	0.000	30.229	-4.054	59.000
1433.000	38.000	630.540	0.000	.430	0.000	26.361	0.000	59.000

1432.000	46.000	630.649	.109	.416	0.000	27.940	-1.679	50.000
1432.000	48.000	630.679	.030	.420	0.000	28.727	-2.466	50.000
1432.000	52.000	630.737	.057	.417	0.000	30.200	-3.939	50.000
1482.000	38.000	631.150	0.000	.610	0.000	21.631	0.000	50.000
1482.000	46.000	631.266	.116	.617	0.000	25.470	-3.839	50.000
1482.000	48.000	631.294	.028	.615	0.000	26.395	-4.763	50.000
1482.000	52.000	631.348	.053	.611	0.000	28.154	-6.523	50.000
1532.000	38.000	631.873	0.000	.723	0.000	31.707	0.000	50.000
1532.000	46.000	631.987	.114	.721	0.000	35.562	-3.856	50.000
1532.000	48.000	632.009	.023	.715	0.000	36.491	-4.785	50.000
1532.000	52.000	632.053	.044	.706	0.000	37.977	-6.270	50.000
1582.000	38.000	632.282	0.000	.409	0.000	31.539	0.000	50.000
1582.000	46.000	632.395	.114	.408	0.000	35.205	-3.665	50.000
1582.000	48.000	632.416	.021	.407	0.000	36.065	-4.526	50.000
1582.000	52.000	632.461	.045	.408	0.000	37.547	-6.008	50.000
1632.000	38.000	632.695	0.000	.413	0.000	31.513	0.000	50.000
1632.000	46.000	632.809	.114	.414	0.000	35.396	-3.882	50.000
1632.000	48.000	632.831	.022	.415	0.000	36.152	-4.638	50.000
1632.000	52.000	632.878	.047	.417	0.000	37.727	-6.213	50.000
1682.000	38.000	633.110	0.000	.415	0.000	31.460	0.000	50.000
1682.000	46.000	633.222	.113	.413	0.000	35.151	-3.691	50.000
1682.000	48.000	633.247	.025	.416	0.000	35.964	-4.504	50.000
1682.000	52.000	633.292	.045	.414	0.000	37.603	-6.143	50.000
1713.000	38.000	633.354	0.000	.244	0.000	33.157	0.000	31.000
1713.000	46.000	633.468	.113	.245	0.000	37.036	-3.878	31.000
1713.000	48.000	633.491	.024	.244	0.000	37.877	-4.720	31.000
1713.000	52.000	633.534	.043	.242	0.000	39.076	-5.918	31.000
1745.000	35.000	633.504	0.000	.150	0.000	30.985	0.000	32.000
1745.000	41.000	633.615	.111	.148	0.000	34.745	-3.760	32.000
1745.000	43.000	633.639	.023	.147	0.000	35.564	-4.579	32.000
1745.000	46.000	633.683	.045	.149	0.000	36.992	-6.007	32.000
1845.000	35.000	633.585	0.000	.081	0.000	33.651	0.000	100.000
1845.000	41.000	633.698	.113	.083	0.000	33.885	-.234	100.000
1845.000	43.000	633.724	.026	.085	0.000	33.939	-.288	100.000
1845.000	46.000	633.771	.047	.088	0.000	34.036	-.386	100.000
1895.000	35.000	633.590	0.000	.005	0.000	20.849	0.000	50.000
1895.000	41.000	633.704	.113	.006	0.000	21.084	-.235	50.000
1895.000	43.000	633.730	.026	.006	0.000	21.139	-.290	50.000
1895.000	46.000	633.777	.047	.006	0.000	21.236	-.388	50.000
1927.000	35.000	633.592	0.000	.002	0.000	13.645	0.000	32.000
1927.000	41.000	633.706	.114	.002	0.000	13.882	-.237	32.000
1927.000	43.000	633.732	.026	.002	0.000	13.937	-.292	32.000
1927.000	46.000	633.779	.047	.002	0.000	13.999	-.354	32.000
1937.000	35.000	633.587	0.000	-.005	0.000	7.999	0.000	10.000
1937.000	41.000	633.699	.112	-.006	0.000	7.999	-.000	10.000
1937.000	43.000	633.725	.026	-.007	0.000	7.999	-.000	10.000
1937.000	46.000	633.771	.046	-.008	0.000	7.999	-.000	10.000
1946.000	35.000	633.537	0.000	-.051	0.000	3.000	0.000	9.000
1946.000	41.000	633.632	.096	-.067	0.000	3.000	0.000	9.000
1946.000	43.000	633.652	.020	-.073	0.000	3.000	0.000	9.000
1946.000	46.000	633.689	.037	-.083	0.000	3.000	0.000	9.000
1947.000	35.000	633.434	0.000	-.103	0.000	3.000	0.000	1.000

1947.000	43.000	633.489	.004	-.163	0.000	3.000	0.000	1.000
1947.000	46.000	633.499	.011	-.189	0.000	3.000	0.000	1.000
1966.000	35.000	633.436	0.000	.002	0.000	3.000	0.000	19.000
1966.000	41.000	633.504	.068	.019	0.000	3.000	0.000	19.000
1966.000	43.000	633.511	.007	.023	0.000	3.000	0.000	19.000
1966.000	46.000	633.530	.019	.031	0.000	3.000	0.000	19.000
1967.000	35.000	633.540	0.000	.104	0.000	3.000	0.000	1.000
1967.000	41.000	633.686	.146	.182	0.000	3.000	0.000	1.000
1967.000	43.000	633.730	.045	.219	0.000	3.000	0.000	1.000
1967.000	46.000	633.830	.099	.300	0.000	3.000	0.000	1.000
1991.000	35.000	634.087	0.000	.547	0.000	16.246	0.000	24.000
1991.000	41.000	634.350	.263	.665	0.000	25.044	-8.798	24.000
1991.000	43.000	634.437	.087	.706	0.000	29.154	-12.909	24.000
1991.000	46.000	634.573	.137	.743	0.000	39.288	-23.042	24.000
2016.000	35.000	634.103	0.000	.016	0.000	14.871	0.000	25.000
2016.000	41.000	634.364	.261	.014	0.000	16.035	-1.164	25.000
2016.000	43.000	634.450	.086	.013	0.000	16.730	-1.859	25.000
2016.000	46.000	634.585	.135	.011	0.000	21.680	-6.809	25.000
2066.000	35.000	634.177	0.000	.074	0.000	12.344	0.000	50.000
2066.000	41.000	634.425	.247	.061	0.000	13.407	-1.063	50.000
2066.000	43.000	634.507	.082	.057	0.000	13.777	-1.433	50.000
2066.000	46.000	634.635	.128	.050	0.000	14.355	-2.011	50.000
2116.000	35.000	634.443	0.000	.266	0.000	10.681	0.000	50.000
2116.000	41.000	634.629	.187	.205	0.000	11.510	-.828	50.000
2116.000	43.000	634.693	.064	.187	0.000	11.795	-1.113	50.000
2116.000	46.000	634.796	.103	.161	0.000	12.252	-1.571	50.000
2146.000	35.000	634.790	0.000	.348	0.000	10.528	0.000	30.000
2146.000	41.000	634.917	.127	.288	0.000	11.096	-.569	30.000
2146.000	43.000	634.962	.045	.269	0.000	11.297	-.769	30.000
2146.000	46.000	635.034	.072	.238	0.000	11.619	-1.091	30.000
2171.000	35.000	635.104	0.000	.313	0.000	10.551	0.000	25.000
2171.000	41.000	635.211	.107	.294	0.000	11.066	-.516	25.000
2171.000	43.000	635.248	.037	.286	0.000	11.231	-.680	25.000
2171.000	46.000	635.304	.057	.270	0.000	11.485	-.934	25.000
2195.000	35.000	635.388	0.000	.284	0.000	39.074	0.000	24.000
2195.000	41.000	635.492	.104	.281	0.000	43.602	-4.528	24.000
2195.000	43.000	635.528	.036	.280	0.000	44.989	-5.915	24.000
2195.000	46.000	635.581	.053	.277	0.000	47.253	-8.179	24.000
2268.000	35.000	637.030	0.000	1.642	0.000	3.600	0.000	73.000
2268.000	41.000	637.856	.826	2.364	0.000	3.600	0.000	73.000
2268.000	43.000	638.154	.298	2.626	0.000	3.600	0.000	73.000
2268.000	46.000	638.622	.468	3.041	0.000	3.600	0.000	73.000
2275.000	35.000	638.370	0.000	1.340	0.000	16.999	0.000	7.000
2275.000	41.000	639.410	1.040	1.554	0.000	16.999	-.000	7.000
2275.000	43.000	639.590	.180	1.436	0.000	16.999	-.000	7.000
2275.000	46.000	640.180	.590	1.558	0.000	16.999	-.000	7.000
2293.000	35.000	638.373	0.000	.003	0.000	16.999	0.000	18.000
2293.000	41.000	639.412	1.039	.002	0.000	16.999	-.000	18.000
2293.000	43.000	639.592	.180	.002	0.000	16.999	-.000	18.000
2293.000	46.000	640.181	.590	.001	0.000	16.999	-.000	18.000
2318.000	35.000	638.376	0.000	.003	0.000	16.999	0.000	25.000
2318.000	41.000	639.414	1.038	.002	0.000	16.999	-.000	25.000
2318.000	43.000	639.594	.180	.002	0.000	16.999	-.000	25.000

2318.000	46.000	640.183	.589	.002	0.000	16.999	-.000	25.000
2368.000	35.000	638.381	0.000	.005	0.000	16.999	0.000	50.000
2368.000	41.000	639.417	1.036	.003	0.000	16.999	-.000	50.000
2368.000	43.000	639.597	.180	.003	0.000	16.999	-.000	50.000
2368.000	46.000	640.186	.589	.003	0.000	16.999	-.000	50.000
2473.000	35.000	638.384	0.000	.003	0.000	16.999	0.000	105.000
2473.000	41.000	639.419	1.036	.003	0.000	16.999	-.000	105.000
2473.000	43.000	639.599	.180	.003	0.000	16.999	-.000	105.000
2473.000	46.000	640.188	.588	.002	0.000	16.999	-.000	105.000
2578.000	35.000	638.388	0.000	.004	0.000	16.999	0.000	105.000
2578.000	41.000	639.422	1.035	.003	0.000	16.999	-.000	105.000
2578.000	43.000	639.602	.180	.003	0.000	16.999	-.000	105.000
2578.000	46.000	640.190	.588	.002	0.000	16.999	-.000	105.000
2683.000	35.000	638.392	0.000	.005	0.000	16.999	0.000	105.000
2683.000	41.000	639.425	1.033	.003	0.000	16.999	-.000	105.000
2683.000	43.000	639.605	.180	.003	0.000	16.999	-.000	105.000
2683.000	46.000	640.193	.588	.003	0.000	16.999	-.000	105.000
2788.000	35.000	638.398	0.000	.005	0.000	16.999	0.000	105.000
2788.000	41.000	639.429	1.031	.004	0.000	16.999	-.000	105.000
2788.000	43.000	639.609	.180	.004	0.000	16.999	-.000	105.000
2788.000	46.000	640.196	.587	.003	0.000	16.999	-.000	105.000
2893.000	35.000	638.405	0.000	.007	0.000	20.137	0.000	105.000
2893.000	41.000	639.434	1.030	.005	0.000	22.708	-2.571	105.000
2893.000	43.000	639.614	.180	.005	0.000	22.948	-2.811	105.000
2893.000	46.000	640.200	.586	.004	0.000	23.730	-3.593	105.000
2996.000	35.000	638.411	0.000	.006	0.000	19.520	0.000	105.000
2998.000	41.000	639.438	1.027	.004	0.000	22.123	-2.603	105.000
2998.000	43.000	639.618	.180	.004	0.000	22.578	-3.059	105.000
2998.000	46.000	640.203	.585	.003	0.000	23.401	-3.881	105.000
3103.000	35.000	638.419	0.000	.008	0.000	18.904	0.000	105.000
3103.000	41.000	639.442	1.023	.005	0.000	21.500	-2.596	105.000
3103.000	43.000	639.622	.180	.004	0.000	21.955	-3.051	105.000
3103.000	46.000	640.206	.584	.003	0.000	23.071	-4.167	105.000
3208.000	35.000	638.429	0.000	.010	0.000	18.293	0.000	105.000
3208.000	41.000	639.448	1.019	.006	0.000	20.879	-2.586	105.000
3208.000	43.000	639.627	.179	.005	0.000	21.334	-3.041	105.000
3208.000	46.000	640.210	.583	.004	0.000	22.743	-4.450	105.000
3313.000	35.000	638.443	0.000	.013	0.000	17.688	0.000	105.000
3313.000	41.000	639.455	1.012	.007	0.000	20.261	-2.574	105.000
3313.000	43.000	639.634	.179	.006	0.000	20.715	-3.027	105.000
3313.000	46.000	640.215	.581	.005	0.000	22.190	-4.502	105.000
3418.000	35.000	638.460	0.000	.017	0.000	17.104	0.000	105.000
3418.000	41.000	639.463	1.004	.008	0.000	19.647	-2.543	105.000
3418.000	43.000	639.642	.178	.008	0.000	20.099	-2.995	105.000
3418.000	46.000	640.221	.579	.006	0.000	21.569	-4.465	105.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	24.000	2.384	0.000
2	0.000	24.000	2.721	.337
3	0.000	24.000	2.838	.454
4	0.000	24.000	3.128	.744

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Lincoln Township

3) WATERCOURSE: Glenlord Drain - NORTH

4) DOCUMENT TYPE: 100-year

00BREAK00

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C
C     14
C    200  VALLEY SECTION A
C    900  VALLEY SECTION B
C   1900  VALLEY SECTION C
C   3100  VALLEY SECTION D
C   3900  VALLEY SECTION E
C   4400  VALLEY SECTION F
C   5050  VALLEY SECTION G
C   5100  BRIDGE SECTION H  D/S GLENLORD ROAD CULVERT   36" CMP
C   5100  DRAIN ENCLOSED TO U/S WASHINGTON AVE      15" CI PIPE
C   5400  VALLEY SECTION I
C   5850  VALLEY SECTION J
C   5950  BRIDGE SECTION K  U/S WASHINGTON AVE CULVERT   24" CMP
C   5950  CONCRETE HEADWALL
C   6350  VALLEY SECTION L
T1       LINCOLN TWP. FIS 5555-35-05
T2       10 YEAR FLOOD
T3       GLENLORD DRAIN - NORTH
J1   -10      2                                                  608.26
J2     1             -1
NC  .045    .045    .032     .3      .5
QT     4      42      90    105     145
X1     0      12       0    191                                   -2.0
X3    10
GR 625.0       0   606.9     36   605.2      72   603.6     107   602.6     114
GR 600.6     115   600.7    117   600.9     119   604.6     125   604.5     144
GR 608.4     158   625.0    191
X1   100                            100     100     100             1.0
X3    10
X1   200                            100     100     100             1.0
X3    10
X1   300                            100     100     100            0.36
X3    10
X1   500      11       0    200     200     200     200           -1.34
GR 625.5       0   612.0     22   607.9      37   605.8      76   604.0      96
GR 603.4      97   603.2     99   603.1     101   604.6     104   607.2     171
GR 620.8     200
X1   700                            200     200     200            0.67
X1   900                            100     300     200            0.67
X1  1100                            100     300     200            0.76
X1  1300                            250     150     200            0.76
X1  1500       9       0    184     225     175     200           -1.52
GR 628.3       0   614.1     24   610.1      87   607.1      96   606.9      99
GR 607.1     102   608.1    105   611.6     149   627.3     184
X1  1700                            300     100     200            0.76
NC   .06     .06    .035
X1  1900                             25     350     200            0.76
X1  2100                            200     200     200             0.4
X1  2300                             50     350     200             0.4
X1  2500      10       0    230     225     175     200            -1.2
GR 627.2       0   616.2     33   612.9      65   611.1     122   609.5     124
GR 609.3     128   609.7    132   611.3     136   614.5     200   626.6     230
X1  2700                            210     190     200             0.4
X1  2900                            210     190     200             0.4
X1  3100                             50     350     200             0.4
X1  3300                            250     150     200            0.62
X1  3500      12       0    161     225     175     200           -1.25
X3    10
GR 628.5       0   624.6     17   616.0      37   613.9      51   614.5      76
GR 611.8      80   611.8     85   612.1      90   614.1      94   615.6     131
GR 625.5     161   628.1    200
X1  3700                            225     175     200            0.63
X3    10
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X1  3900                                200     200     200             0.62
X3    10
X1  4200                                200     375     300             1.98
X3    10
X1  4400      20     754     900       200     200     200
X3    10
GR 628.7       0   628.8     100     628.4     200   628.5     300   627.5     400
GR 627.0     500   627.3     600     626.9     700   626.8     754   617.2     787
GR 617.3     835   615.4     841     615.1     844   615.1     847   616.2     862
GR 617.0     872   625.7     900     628.0    1000   629.1    1100   630.6    1200
X1  4650                                450       1     250             0.46
X3    10
X1  4850                                200     200     200             0.37
X3    10
NC   .05     .05    .032
X1  5050      19     881     900       200     200     200
GR 627.9       0   627.9     100     628.2     200   628.6     300   628.1     400
GR 628.5     500   628.3     600     627.7     700   625.2     800   619.9     881
GR 616.7     884   616.3     888     617.1     892   624.4     900   627.5    1000
GR 627.7    1100   628.5    1200     630.0    1280   631.5    1310
X1  5075                                 25      25      25             -0.8
QT     4      21      46      54        67
X1  5100      22   898.5   901.5        25      25      25
X3    10                    852       700    1012     700
GR 629.2       0   629.3     100     629.2     200   629.3     300   628.9     400
GR 628.9     493   628.3     600     627.7     700   623.9     800   618.3     893
GR 616.7   898.5   615.7   898.5     615.0     899   614.7     900   615.0     901
GR 615.7   901.5   616.7   901.5     622.8     912   626.2    1000   628.1    1100
GR 630.0    1200   631.5    1270
SB           1.0     2.6                0.01            0.01            621.5   614.7
X1  5150      20   898.5   901.5        50      50      50
X2                     1   621.5     626.0
X3    10                    852       700    1012     700
BT     8     852   626.4     0.0     898.5   626.0   622.0     899   626.0   622.0
BT   900   626.0   622.0     901     626.0   622.0   901.5   626.0   622.0    1000
BT 626.2     0.0    1012   626.4       0.0
GR 629.2       0   629.3     100     629.2     200   629.3     300   628.9     400
GR 628.9     493   628.3     600     627.7     700   623.9     800   621.5     893
GR 621.5   898.5   621.5     899     621.5     900   621.5     901   621.5   901.5
GR 622.8     912   626.2    1000     628.1    1100   630.0    1200   631.5    1270
NC  .035    .035    .035
X1  5175      23     932    1055        25      25      25
X3    10
GR 627.7       0   627.9     100     628.2     200   629.2     300   628.6     400
GR 628.7     500   629.1     600     628.2     700   626.9     820   627.7     900
GR 623.9     932   621.5     972     622.6    1000   626.8    1055   628.2    1100
GR 627.3    1185   627.7    1200     629.6    1300   628.8    1400   629.4    1500
GR 630.6    1600   632.4    1700     634.7    1800
X1  5225                                 50      50      50
X3    10
X1  5275                                 50      50      50
X3    10
X1  5400                                  1     300     125
X3    10
X1  5600      20     900    1002         1     350     200            -2.44
X3    10                    881                1021
GR 627.8       0   628.1     100     628.3     200   628.7     300   629.7     400
GR 628.4     500   628.0     600     628.0     700   627.8     764   627.3     800
GR 625.9     900   626.5    1002     628.0    1100   628.2    1200   628.9    1300
GR 628.8    1400   629.1    1500     628.9    1600   628.9    1700   630.1    1800
X1  5800                                  1     350     200             1.95
X3    10                    881                1021
X1  5850                                  1     100      50             0.49
X3    10                    888                1014
X1  5875                                  1      75      25
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QT      4       9      19      23      32
X1   5900      23     899     901      25      25      25
X3     10                     850                     950
GR 628.3       0   628.8     100   628.9     200   628.9     300   628.9     400
GR 629.0     500   628.6     600   628.1     700   627.7     800   627.4     880
GR 625.9     899   625.9     900   625.9     901   625.9     916   627.8    1000
GR 628.1    1100   628.4    1200   628.9    1300   629.3    1400   629.5    1500
GR 629.8    1600   630.0    1700   630.3    1800
SB              3.5    2.6             0.01            0.01            619.5  625.9
X1   5950      25     899     901      50      50      50
X2                      1   621.5   627.2
X3     10                     865     700     950     700
BT      5     840   627.5     0.0     899   627.2   625.9     900   627.2   625.9
BT    901   627.2   625.9     975   627.6     0.0
GR 628.3       0   628.8     100   628.9     200   628.9     300   628.9     400
GR 629.0     500   628.6     600   628.1     700   627.7     800   627.4     880
GR 621.1     899   619.9     899   619.5     900   619.9     901   621.1     901
GR 625.8     916   627.8    1000   628.1    1100   628.4    1200   628.9    1300
GR 629.3    1400   629.5    1500   629.8    1600   630.0    1700   630.3    1800
NC  .045    .045    .04
QT      4      13      23      27      36
X1   5975      23     864     900      25      25      25                0.56
X3     10                     847                     917
GR 627.6       0   628.8     100   628.4     200   628.0     300   627.8     400
GR 630.1     500   630.3     600   629.2     700   629.1     800   626.8     864
GR 621.3     878   618.9     884   619.2     888   625.2     900   626.6    1000
GR 627.2    1100   628.7    1200   628.6    1300   628.8    1400   629.9    1500
GR 629.8    1600   630.9    1700   630.8    1800
X1   6050                             100      50      75                -0.11
X3     10                     781                     983
X1   6150                             100     100     100                -0.15
X3     10                     800                    1200
X1   6250                             100     100     100                -0.15
X3     10                     800                    1200
X1   6350                             100     100     100                -0.15
X3     10                     800                    1200
EJ
T1      LINCOLN TWP. FIS 5555-35-05
T2      50 YEAR FLOOD
T3      GLENLORD DRAIN - NORTH
J1   -10       3                                                  609.26
J2     2                  -1
T1      LINCOLN TWP. FIS 5555-35-05
T2      100 YEAR FLOOD
T3      GLENLORD DRAIN - NORTH
J1   -10       4                                                  609.43
J2     3                  -1
T1      LINCOLN TWP. FIS 5555-35-05
T2      500 YEAR FLOOD
T3      GLENLORD DRAIN - NORTH
J1   -10       5                                                  609.76
J2     15                 -1


ER
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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      LINCOLN TWP. FIS 5555-35-05
T2      100 YEAR FLOOD
T3      GLENLORD DRAIN - NORTH

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
      -10.      4.       -0.      -0.  -0.000000   -0.00    -0.0     -0.   609.430   -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=    623.00 ELREA=    623.00

      0.00     10.83   609.43     0.00   609.43   609.43     .00      0.00      0.00   623.00
      105.       0.     105.       0.       0.     833.       0.       0.        0.   623.00
      0.00     0.00      .13     0.00     .045     .032     .045    0.000    598.60    26.99
   .000001       -0.       -0.      -0.        0        0        1     0.00    137.03   164.02

     OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=    624.00 ELREA=    624.00

     100.00     9.83   609.43     0.00     0.00   609.43     .00      .00       .00   624.00
      105.       0.     105.       0.       0.     698.       0.       2.        0.   624.00
       .18     0.00      .15     0.00     .045     .032     .045     .032    599.60    28.98
   .000001      100.      100.     100.        0        0        1     0.00    133.06   162.04


     OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=    625.00 ELREA=    625.00

          VALLEY SECTION A

     200.00     8.83   609.43     0.00     0.00   609.43     .00      .00       .00   625.00
      105.       0.     105.       0.       0.     567.       0.       3.        1.   625.00
       .33     0.00      .19     0.00     .045     .032     .045     .032    600.60    30.97
   .000002      100.      100.     100.        0        0        1     0.00    129.08   160.05


     OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=    625.36 ELREA=    625.36

     300.00     8.47   609.43     0.00     0.00   609.43     .00      .00       .00   625.36
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.47	0.00	.20	0.00	.045	.032	.045	.032	600.96	31.68	
.000003	100.	100.	100.	0	0	1	0.00	127.65	159.33	

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
500.00	7.67	609.43	0.00	0.00	609.43	.00	.00	.00	624.16
105.	0.	105.	0.	0.	683.	0.	7.	2.	619.46
.83	0.00	.15	0.00	.045	.032	.045	.032	601.76	26.50
.000002	200.	200.	200.	0	0	1	0.00	152.12	178.61
700.00	7.00	609.43	0.00	0.00	609.43	.00	.00	.00	624.83
105.	0.	105.	0.	0.	583.	0.	10.	2.	620.13
1.14	0.00	.18	0.00	.045	.032	.045	.032	602.43	28.95
.000002	200.	200.	200.	0	0	1	0.00	148.24	177.19
VALLEY SECTION B									
900.00	6.33	609.43	0.00	0.00	609.43	.00	.00	.00	625.50
105.	0.	105.	0.	0.	485.	0.	13.	3.	620.80
1.40	0.00	.22	0.00	.045	.032	.045	.032	603.10	31.40
.000004	100.	200.	300.	0	0	1	0.00	144.36	175.76
1100.00	5.57	609.43	0.00	0.00	609.43	.00	.00	.00	626.26
105.	0.	105.	0.	0.	377.	0.	15.	4.	621.56
1.60	0.00	.28	0.00	.045	.032	.045	.032	603.86	34.17
.000010	100.	200.	300.	0	0	1	0.00	139.97	174.14
1300.00	4.82	609.44	0.00	0.00	609.44	.00	.00	.00	627.02
105.	0.	105.	0.	0.	272.	0.	16.	4.	622.32
1.74	0.00	.39	0.00	.045	.032	.045	.032	604.62	36.95
.000027	250.	200.	150.	0	0	1	0.00	135.57	172.52
1500.00	4.06	609.44	0.00	0.00	609.46	.01	.01	.01	626.78
105.	0.	105.	0.	0.	112.	0.	17.	5.	625.78
1.80	0.00	.94	0.00	.045	.032	.045	.032	605.38	73.49
.000210	225.	200.	175.	0	0	1	0.00	67.43	140.92
1700.00	3.36	609.50	0.00	0.00	609.53	.03	.07	.01	627.54
105.	0.	105.	0.	0.	72.	0.	17.	5.	626.54
1.84	0.00	1.46	0.00	.045	.032	.045	.032	606.14	84.52
.000583	300.	200.	100.	2	0	1	0.00	47.60	132.12
VALLEY SECTION C									
1900.00	2.77	609.67	0.00	0.00	609.75	.08	.19	.02	628.30
105.	0.	105.	0.	0.	48.	0.	18.	5.	627.30
1.86	0.00	2.20	0.00	.060	.035	.060	.032	606.90	88.29
.001930	25.	200.	350.	2	0	1	0.00	36.46	124.75

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2100.00	2.76	610.06	0.00	0.00	610.14	.08	.39	.00	628.70
105.	0.	105.	0.	0.	47.	0.	18.	5.	627.70
1.89	0.00	2.22	0.00	.060	.035	.060	.032	607.30	88.32
.001973	200.	200.	200.	2	0	1	0.00	36.28	124.60
2300.00	2.76	610.46	0.00	0.00	610.54	.08	.40	.00	629.10
105.	0.	105.	0.	0.	47.	0.	18.	5.	628.10
1.91	0.00	2.24	0.00	.060	.035	.060	.033	607.70	88.35
.002012	50.	200.	350.	0	0	1	0.00	36.13	124.48
2500.00	2.83	610.93	0.00	0.00	610.98	.06	.44	.01	626.00
105.	0.	105.	0.	0.	55.	0.	18.	6.	625.40
1.94	0.00	1.90	0.00	.060	.035	.060	.033	608.10	89.42
.002445	225.	200.	175.	2	0	1	0.00	63.15	152.58
2700.00	2.89	611.39	0.00	0.00	611.44	.05	.45	.00	626.40
105.	0.	105.	0.	0.	59.	0.	19.	6.	625.80
1.97	0.00	1.78	0.00	.060	.035	.060	.033	608.50	87.65
.002100	210.	200.	190.	1	0	1	0.00	66.04	153.69
2900.00	2.90	611.80	0.00	0.00	611.85	.05	.41	.00	626.80
105.	0.	105.	0.	0.	60.	0.	19.	6.	626.20
2.01	0.00	1.75	0.00	.060	.035	.060	.033	608.90	87.09
.002002	210.	200.	190.	2	0	1	0.00	66.95	154.05

VALLEY SECTION D

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
3100.00	2.90	612.20	0.00	0.00	612.25	.05	.40	.00	627.20
105.	0.	105.	0.	0.	60.	0.	19.	7.	626.60
2.04	0.00	1.74	0.00	.060	.035	.060	.033	609.30	86.99
.001984	50.	200.	350.	1	0	1	0.00	67.12	154.11
3300.00	2.75	612.67	0.00	0.00	612.74	.07	.48	.01	627.82
105.	0.	105.	0.	0.	51.	0.	19.	7.	627.22
2.07	0.00	2.07	0.00	.060	.035	.060	.033	609.92	91.78
.002999	250.	200.	150.	2	0	1	0.00	59.31	151.09

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 627.25 ELREA= 624.25

TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
3500.00	2.73	613.28	0.00	0.00	613.35	.07	.61	.00	627.25
105.	0.	105.	0.	0.	50.	0.	20.	7.	624.25
2.09	0.00	2.10	0.00	.060	.035	.060	.033	610.55	46.76
.003075	225.	200.	175.	2	0	1	0.00	58.00	104.76

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

3700.00	2.73	613.91	0.00	0.00	613.98	.07	.63	.00	627.88
105.	0.	105.	0.	0.	49.	0.	20.	7.	624.88
2.12	0.00	2.13	0.00	.060	.035	.060	.033	611.18	46.83
.003187	225.	200.	175.	1	0	1	0.00	57.65	104.48

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 628.50 ELREA= 625.50

VALLEY SECTION E

3900.00	2.74	614.54	0.00	0.00	614.61	.07	.63	.00	628.50
105.	0.	105.	0.	0.	50.	0.	20.	8.	625.50
2.14	0.00	2.11	0.00	.055	.035	.055	.034	611.80	46.79
.003126	200.	200.	200.	0	0	1	0.00	57.84	104.63

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 630.48 ELREA= 627.48

4200.00	1.96	615.74	0.00	0.00	616.02	.29	1.31	.11	630.48
105.	0.	105.	0.	0.	24.	0.	20.	8.	627.48
2.16	0.00	4.31	0.00	.055	.035	.055	.034	613.78	77.10
.006480	200.	300.	375.	2	0	1	0.00	16.20	93.31

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 626.80 ELREA= 625.70

VALLEY SECTION F

4400.00	1.85	616.95	0.00	0.00	617.07	.12	1.00	.05	626.80
105.	0.	105.	0.	0.	38.	0.	20.	8.	625.70
2.18	0.00	2.78	0.00	.055	.035	.055	.034	615.10	836.07
.003972	200.	200.	200.	2	0	1	0.00	35.42	871.50

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 627.26 ELREA= 626.16

4650.00	2.29	617.85	0.00	0.00	617.90	.05	.80	.02	627.26
105.	0.	105.	0.	0.	61.	0.	21.	8.	626.16
2.22	0.00	1.72	0.00	.055	.035	.055	.034	615.56	786.33
.002656	450.	250.	1.	3	0	1	0.00	86.94	873.27

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 627.63 ELREA= 626.53

4850.00	2.38	618.31	0.00	0.00	618.35	.04	.44	.00	627.63
105.	0.	105.	0.	0.	68.	0.	21.	9.	626.53
2.26	0.00	1.55	0.00	.055	.035	.055	.034	615.93	786.06
.001886	200.	200.	200.	2	0	1	0.00	87.46	873.52

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

5050.00	2.47	618.77	0.00	0.00	619.16	.39	.64	.18	619.90	
105.	0.	105.	0.	0.	21.	0.	21.	9.	624.40	
2.27	0.00	5.04	0.00	.050	.032	.050	.034	616.30	882.07	
.006548	200.	200.	200.	1	0	1	0.00	11.76	893.82	

5075.00	3.68	619.18	0.00	0.00	619.31	.13	.06	.08	619.10
105.	0.	105.	0.	0.	37.	0.	21.	9.	623.60
2.27	.01	2.86	0.00	.050	.032	.050	.034	615.50	879.70
.001336	25.	25.	25.	2	0	1	0.00	15.46	895.16

3470 ENCROACHMENT STATIONS= 852.0 1012.0 TYPE= 1 TARGET= 160.000
ELENCL= 700.00 ELENCR= 700.00

BRIDGE SECTION H D/S GLENLORD ROAD CULVERT 36" CMP

DRAIN ENCLOSED TO U/S WASHINGTON AVE 15" CI PIPE

5100.00	4.60	619.30	0.00	0.00	619.36	.06	.03	.02	616.70
54.	17.	31.	6.	18.	13.	6.	21.	9.	616.70
2.28	.97	2.41	.98	.050	.032	.050	.034	614.70	876.53
.000933	25.	25.	25.	1	0	1	0.00	29.43	905.96

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.00	2.60	-0.00	.01	-0.00	.01	-0.00	621.50	614.70

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
453414.33	626.16	0.00	54.	0.	0.	621.50	626.00	30.00

3470 ENCROACHMENT STATIONS= 852.0 1012.0 TYPE= 1 TARGET= 160.000
ELENCL= 700.00 ELENCR= 700.00

5150.00	4.89	626.39	0.00	0.00	626.39	.00	7.03	0.00	621.50
54.	30.	4.	20.	206.	15.	212.	22.	9.	621.50
2.38	.15	.24	.10	.050	.032	.050	.034	621.50	852.00
.000003	50.	50.	50.	0	0	12	0.00	158.18	1010.18

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 623.90 ELREA= 626.80

5175.00	4.89	626.39	0.00	0.00	626.39	.00	.00	.00	623.90
54.	2.	52.	0.	26.	364.	0.	22.	9.	626.80
2.43	.08	.14	0.00	.035	.035	.035	.034	621.50	910.95
.000003	25.	25.	25.	1	0	1	0.00	138.80	1049.75

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 623.90 ELREA= 626.80

5225.00	4.89	626.39	0.00	0.00	626.39	.00	.00	.00	623.90
54.	2.	52.	0.	26.	364.	0.	22.	9.	626.80

.000003	50.	50.	50.	0	0	1	0.00	138.80	1049.75

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 623.90 ELREA= 626.80

5275.00	4.89	626.39	0.00	0.00	626.39	.00	.00	.00	623.90
54.	2.	52.	0.	26.	364.	0.	23.	10.	626.80
2.63	.08	.14	0.00	.035	.035	.035	.034	621.50	910.95
.000003	50.	50.	50.	0	0	1	0.00	138.80	1049.75

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 623.90 ELREA= 626.80

VALLEY SECTION I

5400.00	4.89	626.39	0.00	0.00	626.39	.00	.00	.00	623.90
54.	2.	52.	0.	26.	364.	0.	24.	10.	626.80
2.87	.08	.14	0.00	.035	.035	.035	.034	621.50	910.95
.000003	1.	125.	300.	0	0	1	0.00	138.81	1049.76

3470 ENCROACHMENT STATIONS= 881.0 1021.0 TYPE= 1 TARGET= 140.000

5600.00	2.93	626.39	0.00	0.00	626.39	.00	.00	.00	623.46
54.	8.	40.	6.	53.	269.	42.	25.	10.	624.06
3.22	.16	.15	.13	.035	.035	.035	.034	623.46	881.00
.000003	1.	200.	350.	0	0	1	0.00	140.00	1021.00

3470 ENCROACHMENT STATIONS= 881.0 1021.0 TYPE= 1 TARGET= 140.000

5800.00	.98	626.39	0.00	0.00	626.40	.01	.00	.00	625.41
54.	11.	42.	1.	16.	70.	5.	26.	11.	626.01
3.30	.68	.59	.30	.035	.035	.035	.034	625.41	881.00
.000316	1.	200.	350.	0	0	1	0.00	140.00	1021.00

3470 ENCROACHMENT STATIONS= 888.0 1014.0 TYPE= 1 TARGET= 126.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 625.90 ELREA= 626.50

VALLEY SECTION J

5850.00	.50	626.40	0.00	0.00	626.47	.07	.04	.03	625.90
54.	13.	41.	0.	5.	22.	0.	26.	11.	626.50
3.31	2.60	1.85	0.00	.035	.035	.035	.034	625.90	888.00
.011787	1.	50.	100.	0	0	1	0.00	98.50	986.50

3470 ENCROACHMENT STATIONS= 895.0 1007.0 TYPE= 1 TARGET= 112.000

5875.00	.67	626.57	0.00	0.00	626.60	.03	.12	.01	625.90
54.	6.	48.	0.	3.	38.	0.	26.	11.	626.50
3.31	1.84	1.28	.26	.035	.035	.035	.034	625.90	895.00

3470 ENCROACHMENT STATIONS= 850.0 950.0 TYPE= 1 TARGET= 100.000

5900.00	.74	626.64	0.00	0.00	626.65	.01	.05	.01	625.90	
23.	2.	2.	19.	4.	1.	23.	26.	11.	625.90	
3.32	.64	1.02	.82	.035	.035	.035	.034	625.90	889.58	
.000858	25.	25.	25.	2	0	1	0.00	59.29	948.87	

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	3.50	2.60	-0.00	.01	-0.00	.01	-0.00	619.50	625.90

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
288126.64	627.18	0.00	23.	0.	0.	621.50	627.20	30.00

3470 ENCROACHMENT STATIONS= 865.0 950.0 TYPE= 1 TARGET= 85.000

ELENCL= 700.00 ELENCR= 700.00

BRIDGE SECTION K- U/S WASHINGTON AVE CULVERT 24" CMP

CONCRETE HEADWALL

5950.00	8.03	627.53	0.00	0.00	627.53	.00	.87	0.00	621.10	
23.	8.	2.	13.	64.	16.	106.	27.	11.	621.10	
3.43	.13	.14	.12	.035	.035	.035	.034	619.50	865.00	
.000002	50.	50.	50.	0	0	13	0.00	85.00	950.00	

3470 ENCROACHMENT STATIONS= 847.0 917.0 TYPE= 1 TARGET= 70.000

5975.00	8.07	627.53	0.00	0.00	627.53	.00	.00	.00	627.36	
27.	0.	25.	2.	0.	171.	28.	27.	11.	625.76	
3.48	.01	.15	.07	.045	.040	.045	.034	619.46	859.18	
.000002	25.	25.	25.	1	0	1	0.00	57.82	917.00	

3470 ENCROACHMENT STATIONS= 781.0 983.0 TYPE= 1 TARGET= 202.000

6050.00	8.18	627.53	0.00	0.00	627.53	.00	.00	.00	627.25	
27.	0.	22.	5.	1.	175.	108.	27.	12.	625.65	
3.66	.01	.12	.05	.045	.040	.045	.034	619.35	856.11	
.000002	100.	75.	50.	0	0	1	0.00	126.88	983.00	

3470 ENCROACHMENT STATIONS= 800.0 1200.0 TYPE= 1 TARGET= 400.000

6150.00	8.33	627.53	0.00	0.00	627.53	.00	.00	.00	627.10	
27.	0.	21.	6.	3.	181.	167.	28.	12.	625.50	

.000001	100.	100.	100.	0	0	1	0.00	250.30	1102.24	

3470 ENCROACHMENT STATIONS=	800.0	1200.0	TYPE=	1	TARGET=	400.000				
6250.00	8.48	627.53	0.00	0.00	627.53	.00	.00	.00	626.95	
27.	0.	20.	7.	5.	186.	198.	29.	13.	625.35	
4.27	.01	.11	.04	.045	.040	.045	.034	619.05	847.76	
.000001	100.	100.	100.	0	0	1	0.00	264.49	1112.25	

3470 ENCROACHMENT STATIONS= 800.0 1200.0 TYPE= 1 TARGET= 400.000

VALLEY SECTION L

6350.00	8.63	627.53	0.00	0.00	627.53	.00	.00	.00	626.80	
27.	0.	19.	8.	7.	191.	230.	30.	13.	625.20	
4.63	.02	.10	.04	.045	.040	.045	.034	618.90	843.58	
.000001	100.	100.	100.	0	0	1	0.00	278.67	1122.25	

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Lincoln Township

3) WATERCOURSE: Glenlord Drain - North

4) DOCUMENT TYPE: Summary

00BREAK00

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

GLENLORD DRAIN - NORTH

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
0.00	0.00	0.00	0.00	598.60	42.00	608.26	0.00	608.26	132.38	.00	0.00	0.00
0.00	0.00	0.00	0.00	598.60	90.00	609.26	0.00	609.26	136.36	.01	0.00	0.00
0.00	0.00	0.00	0.00	598.60	105.00	609.43	0.00	609.43	137.03	.01	0.00	0.00
0.00	0.00	0.00	0.00	598.60	145.00	609.76	0.00	609.76	138.35	.01	0.00	0.00
100.00	100.00	0.00	0.00	599.60	42.00	608.26	0.00	608.26	128.40	.00	.36	1.40
100.00	100.00	0.00	0.00	599.60	90.00	609.26	0.00	609.26	132.38	.01	.21	1.70
100.00	100.00	0.00	0.00	599.60	105.00	609.43	0.00	609.43	133.06	.01	.18	1.76
100.00	100.00	0.00	0.00	599.60	145.00	609.76	0.00	609.76	134.37	.02	.14	1.86
200.00	100.00	0.00	0.00	600.60	42.00	608.26	0.00	608.26	124.20	.01	.64	2.51
200.00	100.00	0.00	0.00	600.60	90.00	609.26	0.00	609.26	128.40	.02	.38	3.10
200.00	100.00	0.00	0.00	600.60	105.00	609.43	0.00	609.43	129.08	.02	.33	3.21
200.00	100.00	0.00	0.00	600.60	145.00	609.76	0.00	609.76	130.39	.03	.26	3.41
300.00	100.00	0.00	0.00	600.96	42.00	608.26	0.00	608.26	122.19	.01	.88	3.42
300.00	100.00	0.00	0.00	600.96	90.00	609.26	0.00	609.26	126.97	.03	.53	4.30
300.00	100.00	0.00	0.00	600.96	105.00	609.43	0.00	609.43	127.65	.03	.47	4.46
300.00	100.00	0.00	0.00	600.96	145.00	609.76	0.00	609.76	128.96	.04	.37	4.76
500.00	200.00	0.00	0.00	601.76	42.00	608.26	0.00	608.26	145.34	.01	1.56	5.44
500.00	200.00	0.00	0.00	601.76	90.00	609.26	0.00	609.26	151.13	.01	.94	6.96
500.00	200.00	0.00	0.00	601.76	105.00	609.43	0.00	609.43	152.12	.02	.83	7.22
500.00	200.00	0.00	0.00	601.76	145.00	609.76	0.00	609.76	154.03	.02	.65	7.73
700.00	200.00	0.00	0.00	602.43	42.00	608.26	0.00	608.26	141.46	.01	2.10	7.56
700.00	200.00	0.00	0.00	602.43	90.00	609.26	0.00	609.26	147.25	.02	1.28	9.75
700.00	200.00	0.00	0.00	602.43	105.00	609.43	0.00	609.43	148.24	.02	1.14	10.13
700.00	200.00	0.00	0.00	602.43	145.00	609.76	0.00	609.76	150.16	.04	.89	10.87
900.00	200.00	0.00	0.00	603.10	42.00	608.26	0.00	608.26	137.58	.03	2.53	9.24
900.00	200.00	0.00	0.00	603.10	90.00	609.26	0.00	609.26	143.38	.04	1.56	12.08
900.00	200.00	0.00	0.00	603.10	105.00	609.43	0.00	609.43	144.36	.04	1.40	12.58
900.00	200.00	0.00	0.00	603.10	145.00	609.76	0.00	609.76	146.28	.06	1.09	13.54
1100.00	200.00	0.00	0.00	603.86	42.00	608.26	0.00	608.26	127.23	.08	2.82	10.48
1100.00	200.00	0.00	0.00	603.86	90.00	609.26	0.00	609.26	138.98	.09	1.78	13.95
1100.00	200.00	0.00	0.00	603.86	105.00	609.43	0.00	609.43	139.97	.10	1.60	14.56
1100.00	200.00	0.00	0.00	603.86	145.00	609.76	0.00	609.77	141.88	.13	1.26	15.74
1300.00	200.00	0.00	0.00	604.62	42.00	608.26	0.00	608.27	100.70	.35	2.99	11.28
1300.00	200.00	0.00	0.00	604.62	90.00	609.26	0.00	609.27	132.25	.26	1.94	15.33
1300.00	200.00	0.00	0.00	604.62	105.00	609.44	0.00	609.44	135.57	.27	1.74	16.05
1300.00	200.00	0.00	0.00	604.62	145.00	609.77	0.00	609.77	137.49	.32	1.38	17.44
1500.00	200.00	0.00	0.00	605.38	42.00	608.27	0.00	608.28	38.26	2.06	3.06	11.70
1500.00	200.00	0.00	0.00	605.38	90.00	609.27	0.00	609.28	62.59	1.98	2.00	16.14
1500.00	200.00	0.00	0.00	605.38	105.00	609.44	0.00	609.46	67.43	2.10	1.80	16.93
1500.00	200.00	0.00	0.00	605.38	145.00	609.77	0.00	609.79	76.84	2.49	1.43	18.48

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
1700.00	200.00	0.00	0.00	606.14	42.00	608.34	0.00	608.37	27.54	8.97	3.10	11.88
1700.00	200.00	0.00	0.00	606.14	90.00	609.32	0.00	609.35	42.89	5.49	2.04	16.52
1700.00	200.00	0.00	0.00	606.14	105.00	609.50	0.00	609.53	47.60	5.83	1.84	17.35
1700.00	200.00	0.00	0.00	606.14	145.00	609.84	0.00	609.88	57.30	6.75	1.46	19.00
1900.00	200.00	0.00	0.00	606.90	42.00	608.63	0.00	608.71	20.28	35.23	3.12	11.99
1900.00	200.00	0.00	0.00	606.90	90.00	609.49	0.00	609.57	33.69	20.38	2.06	16.76
1900.00	200.00	0.00	0.00	606.90	105.00	609.67	0.00	609.75	36.46	19.30	1.86	17.63
1900.00	200.00	0.00	0.00	606.90	145.00	610.03	0.00	610.11	42.03	18.79	1.49	19.35
2100.00	200.00	0.00	0.00	607.30	42.00	609.21	0.00	609.27	23.08	21.90	3.15	12.08
2100.00	200.00	0.00	0.00	607.30	90.00	609.90	0.00	609.97	33.76	20.17	2.09	16.95
2100.00	200.00	0.00	0.00	607.30	105.00	610.06	0.00	610.14	36.28	19.73	1.89	17.84
2100.00	200.00	0.00	0.00	607.30	145.00	610.41	0.00	610.50	41.73	19.45	1.51	19.63
2300.00	200.00	0.00	0.00	607.70	42.00	609.64	0.00	609.69	23.49	20.43	3.18	12.19
2300.00	200.00	0.00	0.00	607.70	90.00	610.30	0.00	610.37	33.85	19.94	2.12	17.14
2300.00	200.00	0.00	0.00	607.70	105.00	610.46	0.00	610.54	36.13	20.12	1.91	18.06
2300.00	200.00	0.00	0.00	607.70	145.00	610.80	0.00	610.89	41.55	19.86	1.53	19.91
2500.00	200.00	0.00	0.00	608.10	42.00	610.08	0.00	610.15	19.34	24.61	3.21	12.28
2500.00	200.00	0.00	0.00	608.10	90.00	610.78	0.00	610.84	55.49	27.02	2.14	17.35
2500.00	200.00	0.00	0.00	608.10	105.00	610.93	0.00	610.98	63.15	24.45	1.94	18.29
2500.00	200.00	0.00	0.00	608.10	145.00	611.25	0.00	611.30	79.61	20.04	1.56	20.23
2700.00	200.00	0.00	0.00	608.50	42.00	610.57	0.00	610.63	24.16	23.06	3.23	12.38
2700.00	200.00	0.00	0.00	608.50	90.00	611.27	0.00	611.32	59.90	21.35	2.18	17.57
2700.00	200.00	0.00	0.00	608.50	105.00	611.39	0.00	611.44	66.04	21.00	1.97	18.56
2700.00	200.00	0.00	0.00	608.50	145.00	611.65	0.00	611.70	79.56	20.10	1.59	20.59
2900.00	200.00	0.00	0.00	608.90	42.00	611.03	0.00	611.08	26.94	21.73	3.27	12.49
2900.00	200.00	0.00	0.00	608.90	90.00	611.69	0.00	611.73	61.12	20.01	2.21	17.81
2900.00	200.00	0.00	0.00	608.90	105.00	611.80	0.00	611.85	66.95	20.02	2.01	18.83
2900.00	200.00	0.00	0.00	608.90	145.00	612.05	0.00	612.10	79.63	20.03	1.62	20.94
3100.00	200.00	0.00	0.00	609.30	42.00	611.46	0.00	611.50	28.84	20.60	3.30	12.60
3100.00	200.00	0.00	0.00	609.30	90.00	612.09	0.00	612.13	61.33	19.79	2.24	18.05
3100.00	200.00	0.00	0.00	609.30	105.00	612.20	0.00	612.25	67.12	19.84	2.04	19.11
3100.00	200.00	0.00	0.00	609.30	145.00	612.45	0.00	612.50	79.69	19.97	1.65	21.30
3300.00	200.00	0.00	0.00	609.92	42.00	611.89	0.00	611.96	19.24	24.68	3.33	12.70
3300.00	200.00	0.00	0.00	609.92	90.00	612.56	0.00	612.63	53.46	30.12	2.27	18.28
3300.00	200.00	0.00	0.00	609.92	105.00	612.67	0.00	612.74	59.31	29.99	2.07	19.36
3300.00	200.00	0.00	0.00	609.92	145.00	612.92	0.00	612.99	72.01	29.38	1.68	21.63
3500.00	200.00	0.00	0.00	610.55	42.00	612.29	0.00	612.36	15.47	15.85	3.35	12.79
3500.00	200.00	0.00	0.00	610.55	90.00	613.16	0.00	613.23	50.62	30.28	2.30	18.48
3500.00	200.00	0.00	0.00	610.55	105.00	613.28	0.00	613.35	58.00	30.75	2.09	19.59
3500.00	200.00	0.00	0.00	610.55	145.00	613.51	0.00	613.59	65.06	30.15	1.70	21.93

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CHSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
3700.00	200.00	0.00	0.00	611.18	42.00	612.69	0.00	612.78	14.66	26.91	3.38	12.88
3700.00	200.00	0.00	0.00	611.18	90.00	613.78	0.00	613.85	49.15	31.46	2.32	18.67
3700.00	200.00	0.00	0.00	611.18	105.00	613.91	0.00	613.98	57.65	31.87	2.12	19.82
3700.00	200.00	0.00	0.00	611.18	145.00	614.13	0.00	614.21	64.52	31.64	1.73	22.22
3900.00	200.00	0.00	0.00	611.80	42.00	613.26	0.00	613.35	14.47	30.85	3.40	12.96
3900.00	200.00	0.00	0.00	611.80	90.00	614.41	0.00	614.48	49.56	31.13	2.35	18.87
3900.00	200.00	0.00	0.00	611.80	105.00	614.54	0.00	614.61	57.84	31.26	2.14	20.05
3900.00	200.00	0.00	0.00	611.80	145.00	614.76	0.00	614.84	64.77	30.93	1.75	22.51
4200.00	300.00	0.00	0.00	613.78	42.00	614.79	614.64	615.03	12.95	115.19	3.42	13.06
4200.00	300.00	0.00	0.00	613.78	90.00	615.60	0.00	615.85	15.72	62.49	2.37	19.09
4200.00	300.00	0.00	0.00	613.78	105.00	615.74	0.00	616.02	16.20	64.80	2.16	20.30
4200.00	300.00	0.00	0.00	613.78	145.00	616.22	0.00	616.48	37.00	103.18	1.77	22.85
4400.00	200.00	0.00	0.00	615.10	42.00	616.33	0.00	616.41	25.60	43.31	3.44	13.12
4400.00	200.00	0.00	0.00	615.10	90.00	616.80	0.00	616.92	33.13	42.87	2.39	19.22
4400.00	200.00	0.00	0.00	615.10	105.00	616.95	0.00	617.07	35.42	39.72	2.18	20.44
4400.00	200.00	0.00	0.00	615.10	145.00	617.50	0.00	617.57	87.70	30.95	1.80	23.10
4650.00	250.00	0.00	0.00	615.56	42.00	617.05	0.00	617.09	29.62	17.98	3.49	13.25
4650.00	250.00	0.00	0.00	615.56	90.00	617.70	0.00	617.75	61.27	25.46	2.43	19.45
4650.00	250.00	0.00	0.00	615.56	105.00	617.85	0.00	617.90	86.94	26.56	2.22	20.73
4650.00	250.00	0.00	0.00	615.56	145.00	618.11	0.00	618.16	88.65	18.22	1.84	23.54
4850.00	200.00	0.00	0.00	615.93	42.00	617.41	0.00	617.46	29.43	18.68	3.52	13.37
4850.00	200.00	0.00	0.00	615.93	90.00	618.20	0.00	618.24	86.74	22.57	2.46	19.70
4850.00	200.00	0.00	0.00	615.93	105.00	618.31	0.00	618.35	87.46	18.86	2.26	21.02
4850.00	200.00	0.00	0.00	615.93	145.00	618.48	0.00	618.53	88.61	18.58	1.87	23.92
5050.00	200.00	0.00	0.00	616.30	42.00	617.93	0.00	618.13	10.06	54.72	3.54	13.45
5050.00	200.00	0.00	0.00	616.30	90.00	618.72	0.00	619.02	11.67	51.68	2.48	19.88
5050.00	200.00	0.00	0.00	616.30	105.00	618.77	0.00	619.16	11.76	65.48	2.27	21.23
5050.00	200.00	0.00	0.00	616.30	145.00	618.91	0.00	619.55	12.05	100.00	1.88	24.17
5075.00	25.00	0.00	0.00	615.50	42.00	618.16	0.00	618.21	12.16	7.71	3.54	13.46
5075.00	25.00	0.00	0.00	615.50	90.00	619.03	0.00	619.14	13.93	11.67	2.48	19.90
5075.00	25.00	0.00	0.00	615.50	105.00	619.18	0.00	619.31	15.46	13.36	2.27	21.24
5075.00	25.00	0.00	0.00	615.50	145.00	619.59	0.00	619.77	22.17	16.06	1.88	24.19
5100.00	25.00	0.00	0.00	614.70	21.00	618.19	0.00	618.24	10.70	7.85	3.54	13.47
5100.00	25.00	0.00	0.00	614.70	46.00	619.13	0.00	619.18	26.27	8.88	2.48	19.91
5100.00	25.00	0.00	0.00	614.70	54.00	619.30	0.00	619.36	29.43	9.33	2.28	21.26
5100.00	25.00	0.00	0.00	614.70	67.00	619.80	0.00	619.84	38.75	6.58	1.89	24.21
5150.00	50.00	626.00	621.50	621.50	21.00	626.26	0.00	626.26	151.06	.01	3.80	13.72
5150.00	50.00	626.00	621.50	621.50	46.00	626.37	0.00	626.37	156.70	.03	2.60	20.18
5150.00	50.00	626.00	621.50	621.50	54.00	626.39	0.00	626.39	158.18	.03	2.38	21.53
5150.00	50.00	626.00	621.50	621.50	67.00	626.43	0.00	626.43	160.00	.05	1.97	24.50

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
5175.00	25.00	0.00	0.00	621.50	21.00	626.26	0.00	626.26	135.97	.00	3.92	13.95
5175.00	25.00	0.00	0.00	621.50	46.00	626.37	0.00	626.37	138.18	.02	2.66	20.41
5175.00	25.00	0.00	0.00	621.50	54.00	626.39	0.00	626.39	138.80	.03	2.43	21.77
5175.00	25.00	0.00	0.00	621.50	67.00	626.43	0.00	626.43	139.72	.04	2.01	24.74
5225.00	50.00	0.00	0.00	621.50	21.00	626.26	0.00	626.26	135.97	.00	4.16	14.37
5225.00	50.00	0.00	0.00	621.50	46.00	626.37	0.00	626.37	138.19	.02	2.77	20.86
5225.00	50.00	0.00	0.00	621.50	54.00	626.39	0.00	626.39	138.80	.03	2.53	22.22
5225.00	50.00	0.00	0.00	621.50	67.00	626.43	0.00	626.43	139.73	.04	2.09	25.19
5275.00	50.00	0.00	0.00	621.50	21.00	626.26	0.00	626.26	135.98	.00	4.40	14.80
5275.00	50.00	0.00	0.00	621.50	46.00	626.37	0.00	626.37	138.19	.02	2.89	21.30
5275.00	50.00	0.00	0.00	621.50	54.00	626.39	0.00	626.39	138.80	.03	2.63	22.67
5275.00	50.00	0.00	0.00	621.50	67.00	626.43	0.00	626.43	139.73	.04	2.18	25.65
5400.00	125.00	0.00	0.00	621.50	21.00	626.26	0.00	626.26	135.98	.00	4.99	15.80
5400.00	125.00	0.00	0.00	621.50	46.00	626.37	0.00	626.37	138.19	.02	3.17	22.34
5400.00	125.00	0.00	0.00	621.50	54.00	626.39	0.00	626.39	138.81	.03	2.87	23.71
5400.00	125.00	0.00	0.00	621.50	67.00	626.43	0.00	626.43	139.74	.04	2.37	26.71
5600.00	200.00	0.00	0.00	623.46	21.00	626.26	0.00	626.26	140.00	.01	5.85	17.35
5600.00	200.00	0.00	0.00	623.46	46.00	626.37	0.00	626.37	140.00	.03	3.58	23.94
5600.00	200.00	0.00	0.00	623.46	54.00	626.39	0.00	626.39	140.00	.03	3.22	25.34
5600.00	200.00	0.00	0.00	623.46	67.00	626.44	0.00	626.44	140.00	.05	2.66	28.36
5800.00	200.00	0.00	0.00	625.41	21.00	626.26	0.00	626.26	137.54	1.00	6.01	18.23
5800.00	200.00	0.00	0.00	625.41	46.00	626.37	0.00	626.37	140.00	2.64	3.67	24.89
5800.00	200.00	0.00	0.00	625.41	54.00	626.39	0.00	626.40	140.00	3.16	3.30	26.30
5800.00	200.00	0.00	0.00	625.41	67.00	626.43	0.00	626.44	140.00	4.05	2.73	29.35
5850.00	50.00	0.00	0.00	625.90	21.00	626.25	0.00	626.29	73.22	101.11	6.02	18.27
5850.00	50.00	0.00	0.00	625.90	46.00	626.37	0.00	626.43	93.37	116.13	3.67	24.95
5850.00	50.00	0.00	0.00	625.90	54.00	626.40	0.00	626.47	98.50	117.87	3.31	26.36
5850.00	50.00	0.00	0.00	625.90	67.00	626.45	0.00	626.52	105.45	123.25	2.73	29.41
5875.00	25.00	0.00	0.00	625.90	21.00	626.38	0.00	626.40	86.63	31.11	6.03	18.28
5875.00	25.00	0.00	0.00	625.90	46.00	626.53	0.00	626.56	109.11	34.77	3.68	24.96
5875.00	25.00	0.00	0.00	625.90	54.00	626.57	0.00	626.60	111.50	34.32	3.31	26.38
5875.00	25.00	0.00	0.00	625.90	67.00	626.63	0.00	626.66	112.00	33.49	2.74	29.43
5900.00	25.00	0.00	0.00	625.90	9.00	626.43	0.00	626.44	47.29	5.21	6.04	18.29
5900.00	25.00	0.00	0.00	625.90	19.00	626.60	0.00	626.61	57.01	7.38	3.69	24.98
5900.00	25.00	0.00	0.00	625.90	23.00	626.64	0.00	626.65	59.29	8.58	3.32	26.40
5900.00	25.00	0.00	0.00	625.90	32.00	626.70	0.00	626.72	61.17	11.78	2.74	29.46
5950.00	50.00	627.20	621.50	619.50	9.00	627.42	0.00	627.42	76.63	.00	6.31	18.40
5950.00	50.00	627.20	621.50	619.50	19.00	627.50	0.00	627.51	85.00	.01	3.82	25.10
5950.00	50.00	627.20	621.50	619.50	23.00	627.53	0.00	627.53	85.00	.02	3.43	26.52
5950.00	50.00	627.20	621.50	619.50	32.00	627.57	0.00	627.57	85.00	.04	2.83	29.58

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
5975.00	25.00	0.00	0.00	619.46	13.00	627.42	0.00	627.42	54.99	.01	6.41	18.51
5975.00	25.00	0.00	0.00	619.46	23.00	627.50	0.00	627.51	57.29	.02	3.88	25.21
5975.00	25.00	0.00	0.00	619.46	27.00	627.53	0.00	627.53	57.82	.02	3.48	26.63
5975.00	25.00	0.00	0.00	619.46	36.00	627.57	0.00	627.58	59.18	.04	2.86	29.69
6050.00	75.00	0.00	0.00	619.35	13.00	627.42	0.00	627.42	124.05	.00	6.77	18.88
6050.00	75.00	0.00	0.00	619.35	23.00	627.51	0.00	627.51	126.36	.01	4.09	25.59
6050.00	75.00	0.00	0.00	619.35	27.00	627.53	0.00	627.53	126.88	.02	3.66	27.01
6050.00	75.00	0.00	0.00	619.35	36.00	627.57	0.00	627.58	128.25	.03	3.00	30.08
6150.00	100.00	0.00	0.00	619.20	13.00	627.42	0.00	627.42	233.80	.00	7.34	19.56
6150.00	100.00	0.00	0.00	619.20	23.00	627.51	0.00	627.51	248.50	.01	4.43	26.31
6150.00	100.00	0.00	0.00	619.20	27.00	627.53	0.00	627.53	250.30	.01	3.95	27.74
6150.00	100.00	0.00	0.00	619.20	36.00	627.58	0.00	627.58	254.94	.02	3.23	30.83
6250.00	100.00	0.00	0.00	619.05	13.00	627.42	0.00	627.43	254.83	.00	7.96	20.35
6250.00	100.00	0.00	0.00	619.05	23.00	627.51	0.00	627.51	262.69	.01	4.80	27.14
6250.00	100.00	0.00	0.00	619.05	27.00	627.53	0.00	627.53	264.49	.01	4.27	28.59
6250.00	100.00	0.00	0.00	619.05	36.00	627.58	0.00	627.58	269.14	.02	3.48	31.71
6350.00	100.00	0.00	0.00	618.90	13.00	627.43	0.00	627.43	269.01	.00	8.65	21.23
6350.00	100.00	0.00	0.00	618.90	23.00	627.51	0.00	627.51	276.87	.01	5.21	28.07
6350.00	100.00	0.00	0.00	618.90	27.00	627.53	0.00	627.53	278.67	.01	4.63	29.52
6350.00	100.00	0.00	0.00	618.90	36.00	627.58	0.00	627.58	283.33	.01	3.75	32.68

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	42.000	608.260	0.000	0.000	0.000	132.380	0.000	-0.000
0.000	90.000	609.260	1.000	0.000	0.000	136.357	-3.977	-0.000
0.000	105.000	609.430	.170	0.000	0.000	137.033	-4.653	-0.000
0.000	145.000	609.760	.330	0.000	0.000	138.346	-5.965	-0.000
100.000	42.000	608.260	0.000	.000	0.000	128.404	0.000	100.000
100.000	90.000	609.260	1.000	.000	0.000	132.381	-3.977	100.000
100.000	105.000	609.430	.170	.000	0.000	133.057	-4.653	100.000
100.000	145.000	609.760	.330	.000	0.000	134.369	-5.966	100.000
200.000	42.000	608.260	0.000	.000	0.000	124.203	0.000	100.000
200.000	90.000	609.260	1.000	.000	0.000	128.404	-4.201	100.000
200.000	105.000	609.430	.170	.000	0.000	129.080	-4.878	100.000
200.000	145.000	609.760	.330	.000	0.000	130.393	-6.190	100.000
300.000	42.000	608.260	0.000	.000	0.000	122.195	0.000	100.000
300.000	90.000	609.260	1.000	.000	0.000	126.973	-4.778	100.000
300.000	105.000	609.430	.170	.000	0.000	127.649	-5.455	100.000
300.000	145.000	609.760	.330	.000	0.000	128.962	-6.768	100.000
500.000	42.000	608.260	0.000	.000	0.000	145.339	0.000	200.000
500.000	90.000	609.261	1.000	.001	0.000	151.132	-5.793	200.000
500.000	105.000	609.431	.170	.001	0.000	152.118	-6.778	200.000
500.000	145.000	609.762	.331	.001	0.000	154.031	-8.692	200.000
700.000	42.000	608.261	0.000	.000	0.000	141.460	0.000	200.000
700.000	90.000	609.261	1.001	.000	0.000	147.255	-5.794	200.000
700.000	105.000	609.431	.170	.000	0.000	148.240	-6.780	200.000
700.000	145.000	609.762	.331	.000	0.000	150.155	-8.695	200.000
900.000	42.000	608.261	0.000	.000	0.000	137.582	0.000	200.000
900.000	90.000	609.262	1.001	.000	0.000	143.377	-5.795	200.000
900.000	105.000	609.432	.170	.001	0.000	144.363	-6.781	200.000
900.000	145.000	609.763	.331	.001	0.000	146.279	-8.697	200.000

1100.000	42.000	608.262	0.000	.001	0.000	127.234	0.000	200.000
1100.000	90.000	609.262	1.001	.001	0.000	138.979	-11.745	200.000
1100.000	105.000	609.433	.170	.001	0.000	139.966	-12.732	200.000
1100.000	145.000	609.764	.331	.001	0.000	141.883	-14.649	200.000
1300.000	42.000	608.264	0.000	.003	0.000	100.701	0.000	200.000
1300.000	90.000	609.265	1.001	.002	0.000	132.248	-31.546	200.000
1300.000	105.000	609.435	.171	.003	0.000	135.573	-34.871	200.000
1300.000	145.000	609.767	.332	.003	0.000	137.493	-36.792	200.000
1500.000	42.000	608.274	0.000	.010	0.000	38.262	0.000	200.000
1500.000	90.000	609.271	.997	.006	0.000	62.593	-24.331	200.000
1500.000	105.000	609.442	.171	.006	0.000	67.429	-29.167	200.000
1500.000	145.000	609.774	.332	.007	0.000	76.844	-38.583	200.000
1700.000	42.000	608.338	0.000	.064	0.000	27.544	0.000	200.000
1700.000	90.000	609.323	.985	.053	0.000	42.885	-15.341	200.000
1700.000	105.000	609.497	.174	.056	0.000	47.600	-20.056	200.000
1700.000	145.000	609.840	.342	.066	0.000	57.297	-29.753	200.000
1900.000	42.000	608.630	0.000	.291	0.000	20.282	0.000	200.000
1900.000	90.000	609.493	.863	.169	0.000	33.686	-13.405	200.000
1900.000	105.000	609.670	.178	.173	0.000	36.457	-16.176	200.000
1900.000	145.000	610.028	.358	.188	0.000	42.027	-21.746	200.000
2100.000	42.000	609.212	0.000	.582	0.000	23.076	0.000	200.000
2100.000	90.000	609.899	.687	.406	0.000	33.763	-10.687	200.000
2100.000	105.000	610.060	.161	.390	0.000	36.283	-13.207	200.000
2100.000	145.000	610.409	.349	.381	0.000	41.727	-18.651	200.000
2300.000	42.000	609.639	0.000	.427	0.000	23.494	0.000	200.000
2300.000	90.000	610.301	.662	.402	0.000	33.849	-10.354	200.000
2300.000	105.000	610.458	.157	.398	0.000	36.131	-12.637	200.000
2300.000	145.000	610.802	.344	.392	0.000	41.548	-18.054	200.000
2500.000	42.000	610.079	0.000	.440	0.000	19.336	0.000	200.000
2500.000	90.000	610.780	.701	.479	0.000	55.494	-36.158	200.000
2500.000	105.000	610.929	.148	.471	0.000	63.153	-43.817	200.000
2500.000	145.000	611.247	.319	.445	0.000	79.610	-60.274	200.000
2700.000	42.000	610.572	0.000	.493	0.000	24.161	0.000	200.000
2700.000	90.000	611.273	.701	.493	0.000	59.901	-35.741	200.000
2700.000	105.000	611.390	.117	.461	0.000	66.040	-41.879	200.000
2700.000	145.000	611.649	.259	.401	0.000	79.557	-55.396	200.000
2900.000	42.000	611.028	0.000	.456	0.000	26.943	0.000	200.000
2900.000	90.000	611.689	.662	.417	0.000	61.117	-34.174	200.000
2900.000	105.000	611.802	.113	.412	0.000	66.950	-40.007	200.000
2900.000	145.000	612.050	.248	.401	0.000	79.625	-52.682	200.000
3100.000	42.000	611.456	0.000	.428	0.000	28.843	0.000	200.000
3100.000	90.000	612.088	.632	.399	0.000	61.332	-32.488	200.000
3100.000	105.000	612.201	.113	.399	0.000	67.117	-38.273	200.000
3100.000	145.000	612.450	.249	.400	0.000	79.686	-50.843	200.000
3300.000	42.000	611.894	0.000	.438	0.000	19.238	0.000	200.000
3300.000	90.000	612.561	.667	.473	0.000	53.461	-34.223	200.000
3300.000	105.000	612.674	.113	.473	0.000	59.309	-40.071	200.000
3300.000	145.000	612.920	.246	.470	0.000	72.008	-52.770	200.000
3500.000	42.000	612.293	0.000	.399	0.000	15.469	0.000	200.000
3500.000	90.000	613.164	.870	.603	0.000	50.623	-35.154	200.000
3500.000	105.000	613.281	.117	.606	0.000	58.004	-42.535	200.000
3500.000	145.000	613.512	.231	.592	0.000	65.062	-49.593	200.000

3700.000	90.000	613.780	1.094	.616	0.000	49.147	-34.488	200.000	
3700.000	105.000	613.906	.126	.625	0.000	57.649	-42.990	200.000	
3700.000	145.000	614.128	.222	.616	0.000	64.517	-49.857	200.000	
3900.000	42.000	613.257	0.000	.571	0.000	14.469	0.000	200.000	
3900.000	90.000	614.407	1.150	.627	0.000	49.560	-35.091	200.000	
3900.000	105.000	614.539	.132	.633	0.000	57.841	-43.373	200.000	
3900.000	145.000	614.756	.217	.627	0.000	64.772	-50.303	200.000	
4200.000	42.000	614.794	0.000	1.537	0.000	12.945	0.000	300.000	
4200.000	90.000	615.597	.803	1.190	0.000	15.724	-2.779	300.000	
4200.000	105.000	615.735	.138	1.197	0.000	16.204	-3.259	300.000	
4200.000	145.000	616.216	.481	1.460	0.000	36.996	-24.051	300.000	
4400.000	42.000	616.333	0.000	1.539	0.000	25.596	0.000	200.000	
4400.000	90.000	616.804	.470	1.207	0.000	33.134	-7.538	200.000	
4400.000	105.000	616.954	.150	1.219	0.000	35.422	-9.826	200.000	
4400.000	145.000	617.504	.550	1.288	0.000	87.702	-62.106	200.000	
4650.000	42.000	617.047	0.000	.714	0.000	29.623	0.000	250.000	
4650.000	90.000	617.700	.653	.896	0.000	61.268	-31.645	250.000	
4650.000	105.000	617.854	.154	.900	0.000	86.942	-57.319	250.000	
4650.000	145.000	618.111	.257	.607	0.000	88.653	-59.030	250.000	
4850.000	42.000	617.413	0.000	.366	0.000	29.430	0.000	200.000	
4850.000	90.000	618.199	.786	.499	0.000	86.738	-57.308	200.000	
4850.000	105.000	618.310	.111	.456	0.000	87.458	-58.028	200.000	
4850.000	145.000	618.479	.169	.368	0.000	88.615	-59.184	200.000	
5050.000	42.000	617.930	0.000	.517	0.000	10.063	0.000	200.000	
5050.000	90.000	618.719	.789	.521	0.000	11.668	-1.605	200.000	
5050.000	105.000	618.770	.050	.460	0.000	11.758	-1.695	200.000	
5050.000	145.000	618.906	.137	.428	0.000	12.049	-1.986	200.000	
5075.000	42.000	618.164	0.000	.234	0.000	12.165	0.000	25.000	
5075.000	90.000	619.033	.869	.313	0.000	13.935	-1.770	25.000	
5075.000	105.000	619.181	.148	.411	0.000	15.458	-3.294	25.000	
5075.000	145.000	619.595	.414	.688	0.000	22.171	-10.006	25.000	
5100.000	21.000	618.193	0.000	.030	0.000	10.703	0.000	25.000	
5100.000	46.000	619.125	.932	.092	0.000	26.266	-15.563	25.000	
5100.000	54.000	619.301	.176	.120	0.000	29.431	-18.728	25.000	
5100.000	67.000	619.800	.499	.205	0.000	38.754	-28.051	25.000	
5150.000	21.000	626.258	0.000	8.065	0.000	151.061	0.000	50.000	
5150.000	46.000	626.365	.107	7.240	0.000	156.696	-5.635	50.000	
5150.000	54.000	626.393	.028	7.092	0.000	158.178	-7.118	50.000	
5150.000	67.000	626.433	.040	6.633	0.000	159.999	-8.938	50.000	
5175.000	21.000	626.258	0.000	.000	0.000	135.974	0.000	25.000	
5175.000	46.000	626.365	.107	.000	0.000	138.184	-2.210	25.000	
5175.000	54.000	626.393	.028	.000	0.000	138.796	-2.822	25.000	
5175.000	67.000	626.433	.040	.000	0.000	139.720	-3.746	25.000	
5225.000	21.000	626.258	0.000	.000	0.000	135.975	0.000	50.000	
5225.000	46.000	626.365	.107	.000	0.000	138.187	-2.212	50.000	
5225.000	54.000	626.393	.028	.000	0.000	138.799	-2.825	50.000	
5225.000	67.000	626.434	.040	.000	0.000	139.725	-3.750	50.000	
5275.000	21.000	626.258	0.000	.000	0.000	135.975	0.000	50.000	
5275.000	46.000	626.365	.107	.000	0.000	138.189	-2.214	50.000	
5275.000	54.000	626.393	.028	.000	0.000	138.802	-2.827	50.000	
5275.000	67.000	626.434	.040	.000	0.000	139.729	-3.754	50.000	
5400.000	21.000	626.258	0.000	.000	0.000	135.976	0.000	125.00	

5400.000	54.000	626.394	.028	.000	0.000	138.810	-2.833	125.000
5400.000	67.000	626.434	.041	.000	0.000	139.740	-3.764	125.000
5600.000	21.000	626.258	0.000	.000	0.000	139.999	0.000	200.000
5600.000	46.000	626.366	.108	.000	0.000	139.999	-.000	200.000
5600.000	54.000	626.394	.028	.001	0.000	139.999	-.000	200.000
5600.000	67.000	626.435	.041	.001	0.000	139.999	-.000	200.000
5800.000	21.000	626.258	0.000	-.000	0.000	137.538	0.000	200.000
5800.000	46.000	626.365	.107	-.001	0.000	139.999	-2.461	200.000
5800.000	54.000	626.394	.028	-.001	0.000	139.999	-2.461	200.000
5800.000	67.000	626.434	.041	-.001	0.000	139.999	-2.461	200.000
5850.000	21.000	626.254	0.000	-.004	0.000	73.216	0.000	50.000
5850.000	46.000	626.369	.115	.004	0.000	93.369	-20.154	50.000
5850.000	54.000	626.400	.031	.007	0.000	98.496	-25.281	50.000
5850.000	67.000	626.446	.046	.012	0.000	105.449	-32.234	50.000
5875.000	21.000	626.381	0.000	.128	0.000	86.628	0.000	25.000
5875.000	46.000	626.533	.152	.164	0.000	109.106	-22.478	25.000
5875.000	54.000	626.570	.036	.169	0.000	111.502	-24.874	25.000
5875.000	67.000	626.625	.056	.179	0.000	111.999	-25.371	25.000
5900.000	9.000	626.433	0.000	.052	0.000	47.287	0.000	25.000
5900.000	19.000	626.603	.170	.070	0.000	57.014	-9.727	25.000
5900.000	23.000	626.644	.040	.074	0.000	59.290	-12.003	25.000
5900.000	32.000	626.703	.059	.078	0.000	61.168	-13.881	25.000
5950.000	9.000	627.425	0.000	.991	0.000	76.633	0.000	50.000
5950.000	19.000	627.505	.080	.901	0.000	84.999	-8.366	50.000
5950.000	23.000	627.528	.023	.884	0.000	84.999	-8.366	50.000
5950.000	32.000	627.574	.047	.872	0.000	84.999	-8.366	50.000
5975.000	13.000	627.425	0.000	-.000	0.000	54.986	0.000	25.000
5975.000	23.000	627.505	.080	.000	0.000	57.292	-2.306	25.000
5975.000	27.000	627.528	.023	.000	0.000	57.819	-2.834	25.000
5975.000	36.000	627.574	.047	.000	0.000	59.179	-4.193	25.000
6050.000	13.000	627.425	0.000	.000	0.000	124.048	0.000	75.000
6050.000	23.000	627.505	.080	.000	0.000	126.356	-2.308	75.000
6050.000	27.000	627.528	.023	.000	0.000	126.885	-2.837	75.000
6050.000	36.000	627.575	.047	.000	0.000	128.247	-4.200	75.000
6150.000	13.000	627.425	0.000	.000	0.000	233.804	0.000	100.000
6150.000	23.000	627.505	.080	.000	0.000	248.503	-14.698	100.000
6150.000	27.000	627.528	.023	.000	0.000	250.303	-16.499	100.000
6150.000	36.000	627.575	.047	.000	0.000	254.943	-21.139	100.000
6250.000	13.000	627.425	0.000	.000	0.000	254.833	0.000	100.000
6250.000	23.000	627.505	.080	.000	0.000	262.686	-7.853	100.000
6250.000	27.000	627.528	.023	.000	0.000	264.490	-9.656	100.000
6250.000	36.000	627.576	.047	.000	0.000	269.138	-14.305	100.000
6350.000	13.000	627.425	0.000	.000	0.000	269.010	0.000	100.000
6350.000	23.000	627.505	.080	.000	0.000	276.867	-7.858	100.000
6350.000	27.000	627.528	.023	.000	0.000	278.674	-9.664	100.000
6350.000	36.000	627.576	.047	.000	0.000	283.329	-14.320	100.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	400.000	10.064	0.000
2	0.000	400.000	12.684	2.620
3	0.000	400.000	13.247	3.183

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NEC2 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: Berrien

2) STUDY NAME: Lincoln Township

3) WATERCOURSE: Glenlord Drain - south

4) DOCUMENT TYPE: 100-year

00BREAK00

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C
C      14
C     270  VALLEY SECTION A
C     408  BRIDGE SECTION B  U/S DRIVEWAY CULVERT   42'-54" CMP
C     408  SQ. CUT END PROJECTING FROM FILL  (NO HEADWALL)
C     572  VALLEY SECTION C
C     676  BRIDGE SECTION D  U/S CLEVELAND AVE CULVERT   54'-48" BOX
C     676  CONCRETE HEADWALL AND WINGWALLS
C    1301  CONFLUENCE WITH NORTH BRANCH - GLENLORD ROAD DRAIN
C    1476  VALLEY SECTION E
C    2376  VALLEY SECTION F
C    3076  VALLEY SECTION G
C    3676  VALLEY SECTION H
C    3801  BRIDGE SECTION I  U/S WASHINGTON AVE CULVERT   60'-48" CMP
C    3801  CONCRETE HEADWALL
C    4301  VALLEY SECTION J
T1       LINCOLN TWP. FIS 5555-35-04
T2       10 YEAR FLOOD
T3       GLENLORD DRAIN - SOUTH
J1    -10       2                  .0035                          601.4
J2      1              -1
NC   .055     .05    .045      .3      .5
QT      4     105     180     205     265
X1      0      15     144     152                                  -1.2
X3     10                     105
GR 618.2       0   605.4      33   605.1      52   602.7      66   600.2      76
GR 602.5      86   603.0     105   602.2     121   600.5     140   600.1     144
GR 597.2     147   596.9     150   599.9     152   600.9     199   620.7     238
X1    100                            100     100     100            0.44
X3     10                     105
X1    200                            100     100     100            0.44
X3     10                     105
X1    270                             70      70      70            0.32
X3     10                     105
X1    315                             45      45      45            0.09
X3     10                     105
X1    341                             26      26      26            0.06
X3     10                     105
X1    351                             10      10      10            0.02
X3     10                     105
X1    361                             10      10      10            0.02
X3     10                     105
X1    366      18   121.7   126.3       5       5       5
X3     10                      78     650                   601.5   601.5
GR 614.7       0   608.3      24   602.3      46   602.3      55   605.1      61
GR 605.3      78   604.4      93   600.3   121.7   598.3   121.7   597.6   122.5
GR 597.1     124   597.6   125.5   598.3   126.3   600.3   126.3   601.1     175
GR 607.2     187   609.8     224   615.4     274
SB          3.04     2.8            3.53            15.9           597.1   597.1
X1    408                             42      42      42
X2                     1   601.5   604.5
X3     10                      78     650                   604.5   604.5
BT     10      78   605.3     0.0      93   604.4     0.0   121.7   604.5   600.3
BT 122.5   604.5   601.0     124   604.5   601.5   125.5   604.5   601.0   126.3
BT 604.5   600.3     174   606.1     0.0     224   609.8     0.0     274   615.4
BT    0.0
NC          .055    .035
X1    433      15     144     152      25      25      25            0.34
X3     10                     105
GR 618.2       0   605.4      33   605.1      52   602.7      66   600.2      76
GR 602.5      86   603.0     105   602.2     121   600.5     140   600.1     144
GR 597.2     147   596.9     150   599.9     152   600.9     199   620.7     238
X1    483                             50      50      50            0.27
X3     10                     105
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X1   533      13     139     150      15      85      50          -0.21
X3    10
GR 617.5       0   612.1      50  609.3       80  609.3       99  608.0      117
GR 607.0     125   600.8     139  598.0      143  598.1      146  601.1      150
GR 600.7     200   601.2     248  624.5      298
X1   572                             20      60      39           0.21
X3    10
X1   597                              1      50      25          -0.45
X3    10
X1   622      17     598     602       1      50      25
X3    10   597.1             500     650                  601.0  601.0
GR 608.7       0   605.7     100  603.4      200  603.1      300  603.5      338
GR 604.4     400   607.6     500  609.4      550  597.5      598  596.0      598
GR 595.0     599   595.0     601  596.0      602  597.5      602  613.1      650
GR 615.1     700   618.9     800
SB          3.21     2.7          4.0            9.54           596.8    595.0
X1   676      15     598     602      54      54      54
X2                    1   600.1  608.5
X3    10   597.1             500     650                  607.6  607.6
BT     5     500   607.6     0.0     598   611.1  600.1      602  611.1    600.1
BT   700   615.1     0.0     800   618.9     0.0
GR 608.7       0   605.7     100  603.4      200  603.1      300  603.5      338
GR 604.4     400   607.6     500  609.4      550  600.1      598  596.8      598
GR 596.8     602   600.1     602  613.1      650  615.1      700  618.9      800
NC  .080    .080    .065
X1   701      11      72      89      25      25      25          -4.84
X3    10
GR 627.3       0   606.3      52  604.9       72  602.1       76  602.5       82
GR 603.4      84   604.3      89  604.6       94  609.7      136  619.8      174
GR 622.4     199
X1   801                             125      75     100           0.62
X1  1001                             200     200     200           1.25
X1  1201                             200     200     200           1.25
QT     4      80     130     155     200
X1  1301                             100     100     100           0.62
X1  1401                             100     100     100           0.62
X1  1476                              65      85      75           0.48
X1  1676                             300     100     200           1.0
X1  1876      13      83     101     175     225     200          -2.5
GR 624.7       0   612.8      50  610.4       83  608.6       87  608.1       88
GR 606.7      89   606.6      92  608.0       95  608.8       98  610.6      101
GR 613.8     133   622.1     183  627.6      218
X1  2076                             50     350     200           1.0
X1  2276                             75     325     200           1.0
NC  .035    .065    .055
X1  2376                            100     100     100           0.5
X1  2476                            100     100     100           0.83
X1  2676      13     200     210     200     200     200          -3.32
GR 629.8       0   628.5      55  627.6       75  624.8      100  615.8      176
GR 615.7     200   612.4     205  612.4      207  614.6      210  617.3      257
GR 624.9     300   627.4     320  628.0      400
X1  2876                            200     200     200          1.66
NC  .045    .045
X1  3076                            250     150     200          1.66
X1  3276                            250     150     200          1.83
X1  3476                            200     200     200          1.83
X1  3676      28     782     792      25     375     200
X3    10
GR 628.1       0   627.9     100  628.6      200  627.5      234  628.1      300
GR 628.5     400   628.7     460  628.2      500  627.0      600  628.3      700
GR 627.3     748   619.7     767  619.8      782  618.6      785  617.9      787
GR 618.0     790   619.9     792  619.9      800  620.0      823  627.1      842
GR 627.2     900   626.6     993  627.7     1100  628.1     1200  627.8     1300.
GR 627.8    1400   628.0    1523  628.0     1600
X1  3716                             40      40      40          -0.49
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X1   3726                                  10      10      10            -0.12
X3     10
X1   3736                                  10      10      10            -0.12
X3     10
X1   3741      30     798     802       5       5       5
X3     10   617.1             753     650     847     650   621.0   621.0
GR 628.2       0   628.5     100   628.2     200   628.1     241   627.9     300
GR 627.7     400   627.4     500   626.9     600   626.5     700   626.2     750
GR 617.3     780   617.4     795   618.0     798   616.5     798   615.5     799
GR 615.5     801   616.5     802   618.0     802   617.5     805   617.5     813
GR 617.6     836   626.4     850   626.7     900   627.2    1000   627.6    1100
GR 628.0    1200   628.4    1300   628.8    1400   628.8    1500   628.8    1600
SB           3.40     2.6            3.14           12.57           615.5   615.5
X1   3801                                  60      60      60
X2                     1   618.5   626.1
X3     10   617.1             735     650     865     650   626.1   626.1
BT      8     735   626.3     0.0     750   626.2     0.0     798   626.1   618.0
BT    799   626.1   619.5     801   626.1   619.5     802   626.1   618.0     850
BT 626.4     0.0     865   626.5     0.0
NC  .065    .065    .055
QT      4      74     125     145     190
X1   3826      28     782     792      25      25      25            -0.65
X3     10                     710             890
GR 628.1       0   627.9     100   628.6     200   627.5     234   628.1     300
GR 628.5     400   628.7     460   628.2     500   627.0     600   628.3     700
GR 627.3     748   619.7     767   619.8     782   618.6     785   617.9     787
GR 618.0     790   619.9     792   619.9     800   620.0     823   627.1     842
GR 627.2     900   626.6     993   627.7    1100   628.1    1200   627.8    1300
GR 627.8    1400   628.0    1523   628.0    1600
X1   3901                                  75      75      75             0.45
X3     10                     635             965
X1   4101      26     787     800     350       0     200            -1.20
X3     10                                    1000
GR 629.4       0   629.5     100   629.5     200   629.3     300   629.2     400
GR 629.0     500   628.9     600   627.1     700   626.9     758   622.9     774
GR 622.2     787   620.4     789   620.1     793   620.6     796   623.2     800
GR 623.3     814   628.0     827   628.4     850   628.8     900   628.9    1000
GR 628.6    1100   628.9    1200   628.2    1300   628.1    1400   627.5    1500
GR 627.9    1600
X1   4301                                  50     250     200             1.20
X3     10
EJ
T1       LINCOLN TWP. FIS 5555-35-04
T2       50 YEAR FLOOD
T3       GLENLORD DRAIN - SOUTH
J1    -10       3                     .0035                           601.4
J2      2                 -1
T1       LINCOLN TWP. FIS 5555-35-04
T2       100 YEAR FLOOD
T3       GLENLORD DRAIN - SOUTH
J1    -10       4                     .0035                           601.4
J2      3                 -1
T1       LINCOLN TWP. FIS 5555-35-04
T2       500 YEAR FLOOD
T3       GLENLORD DRAIN - SOUTH
J1    -10       5                     .0035                           601.4
J2     15                 -1


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 T1      LINCOLN TWP. FIS 5555-35-04
 T2      100 YEAR FLOOD
 T3      GLENLORD DRAIN - SOUTH

 J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       -10.       4.        -0.       -0. -0.000000     -0.00     -0.0      -0.    602.560   -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    WSELR    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

 3470 ENCROACHMENT STATIONS=      105.0      238.0  TYPE=     1  TARGET=    -105.000
       0.00      5.86    602.56     0.00    602.56   602.57     .01      0.00      0.00    598.90
       205.       40.       45.      120.       78.      46.      166.       0.        0.      598.70
       0.00       .51       .97      .72      .055     .045     .050     0.000    595.70    105.00
    .000123       -0.       -0.      -0.         0        0        1      0.00     99.63    204.63

 3470 ENCROACHMENT STATIONS=      105.0      238.0  TYPE=     1  TARGET=    -105.000
      100.00      5.43    602.57     0.00     0.00   602.59     .01      .02       .00     599.34
       205.       36.       49.      120.       62.      43.      144.       1.        0.      599.14
        .03       .58      1.16      .84      .055     .045     .050     .045     596.14    105.00
    .000196      100.      100.      100.         0        0        1      0.00     98.79    203.79

 3470 ENCROACHMENT STATIONS=      105.0      238.0  TYPE=     1  TARGET=    -105.000
      200.00      5.02    602.60     0.00     0.00   602.61     .02      .02       .00     599.78
       205.       30.       56.      119.       45.      39.      122.       1.        0.      599.58
        .06       .67      1.42      .98      .055     .045     .050     .045     596.58    106.83
    .000327      100.      100.      100.         0        0        1      0.00     96.12    202.96

 3470 ENCROACHMENT STATIONS=      105.0      238.0  TYPE=     1  TARGET=    -105.000

              VALLEY SECTION A

      270.00      5.72    602.62     0.00     0.00   602.64     .02      .03       .00     600.10
       205.       27.       61.      117.       35.      37.      107.       1.        1.      599.90
        .07       .76      1.65      1.10      .055     .045     .050     .045     596.90    112.73
    .000485       70.       70.      70.          1        0        1      0.00     89.64    202.37
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Lincoln Twp. FIS
J&A File No. 5555-35

Glenlord Road Drain
South Branch

New Starting Water Surface Elevation

100 yr. flow upstream to point of convergence.
Summary of 4 flows.

3470 ENCROACHMENT STATIONS= 105.0 238.0 TYPE= 1 TARGET= -105.000

315.00	5.65	602.64	0.00	0.00	602.67	.03	.02	.00	600.19
205.	26.	63.	117.	33.	36.	104.	2.	1.	599.99
.08	.78	1.72	1.13	.055	.045	.050	.044	596.99	114.07
.000533	45.	45.	45.	1	0	1	0.00	88.18	202.24

3470 ENCROACHMENT STATIONS= 105.0 238.0 TYPE= 1 TARGET= -105.000

341.00	5.61	602.66	0.00	0.00	602.68	.03	.01	.00	600.25
205.	25.	64.	116.	32.	36.	101.	2.	1.	600.05
.09	.80	1.76	1.15	.055	.045	.050	.044	597.05	115.00
.000570	26.	26.	26.	0	0	1	0.00	87.15	202.15

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= 105.0 238.0 TYPE= 1 TARGET= -105.000

351.00	5.59	602.66	0.00	0.00	602.69	.03	.01	.00	600.27
205.	25.	64.	116.	31.	36.	100.	2.	1.	600.07
.09	.80	1.78	1.16	.055	.045	.050	.044	597.07	115.29
.000582	10.	10.	10.	0	0	1	0.00	86.83	202.12

3470 ENCROACHMENT STATIONS= 105.0 238.0 TYPE= 1 TARGET= -105.000

361.00	5.58	602.67	0.00	0.00	602.70	.03	.01	.00	600.29
205.	25.	64.	116.	31.	36.	100.	2.	1.	600.09
.09	.81	1.79	1.16	.055	.045	.050	.044	597.09	115.58
.000594	10.	10.	10.	0	0	1	0.00	86.52	202.09

3470 ENCROACHMENT STATIONS= 78.0 274.0 TYPE= 1 TARGET= -78.000
ELENCL= 650.00 ELENCR= 100000.00

366.00	5.57	602.67	0.00	0.00	602.70	.04	.00	.00	600.30
205.	18.	45.	141.	20.	23.	98.	2.	1.	600.30
.10	.94	1.92	1.44	.055	.045	.050	.044	597.10	105.15
.000982	5.	5.	5.	0	0	1	0.00	72.93	178.08

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BAC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	3.04	2.60	-0.00	3.53	-0.00	15.90	-0.00	597.10	597.10

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
610.51	603.85	0.00	88.	117.	16.	601.50	604.50	30.00

Driveway culvert

3470 ENCROACHMENT STATIONS= 78.0 274.0 TYPE= 1 TARGET= -78.000
ELENCL= 650.00 ELENCR= 100000.00

SO. CUT END PROJECTING FROM FILL (NO HEADWALL)

405.00	8.13	605.23	0.00	0.00	605.23	.01	2.53	0.00	600.30
205.	36.	22.	147.	89.	35.	238.	2.	1.	600.30
.12	.41	.63	.62	.055	.045	.050	.044	597.10	79.09
.000061	42.	42.	42.	0	0	6	0.00	104.04	183.13

3470 ENCROACHMENT STATIONS= 105.0 238.0 TYPE= 1 TARGET= -105.000

433.00	7.99	605.23	0.00	0.00	605.24	.01	.00	.00	600.44
205.	49.	47.	109.	123.	55.	227.	2.	1.	600.24
.13	.40	.85	.48	.055	.035	.055	.043	597.24	105.00
.000045	25.	25.	25.	1	0	1	0.00	101.88	206.88

3470 ENCROACHMENT STATIONS= 105.0 238.0 TYPE= 1 TARGET= -105.000

483.00	7.72	605.23	0.00	0.00	605.24	.01	.00	.00	600.71
205.	47.	49.	109.	112.	53.	213.	3.	1.	600.51
.15	.42	.92	.51	.055	.035	.055	.042	597.51	105.00
.000056	50.	50.	50.	0	0	1	0.00	101.35	206.35

533.00	7.45	605.24	0.00	0.00	605.24	.00	.00	.00	600.59
205.	5.	43.	157.	24.	70.	463.	3.	1.	600.89
.20	.21	.61	.34	.055	.035	.055	.040	597.79	128.49
.000022	15.	50.	85.	0	0	1	0.00	128.64	257.13

SECNO	DEPTH	CHSEL	CRIWS	WSELK	EG	HV	nL	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	IOC	ICONT	CORAR	TOPWID	ENDST

VALLEY SECTION C

572.00	7.24	605.24	0.00	0.00	605.24	.00	.00	.00	600.80
205.	5.	44.	157.	22.	68.	441.	4.	1.	601.10
.24	.22	.65	.35	.055	.035	.055	.039	598.00	128.96
.000025	20.	39.	60.	0	0	1	0.00	127.72	256.68

597.00	7.69	605.24	0.00	0.00	605.24	.00	.00	.00	600.35
205.	5.	42.	158.	27.	73.	484.	5.	2.	600.65
.27	.20	.58	.32	.055	.035	.055	.038	597.55	127.94
.000018	1.	25.	50.	0	0	1	0.00	129.71	257.65

3470 ENCROACHMENT STATIONS= 500.0 800.0 TYPE= 1 TARGET= -500.000
ELENCL= 550.00 ELENCR= 100000.00

622.00	8.14	605.24	0.00	0.00	605.25	.02	.00	.01	597.50
205.	46.	54.	65.	121.	33.	92.	5.	2.	597.50
.26	.71	1.65	.70	.055	.035	.055	.037	597.10	566.77
.000119	1.	25.	50.	1	0	1	0.00	59.05	625.82

-0.00	3.21	2.70	-0.00	4.00	-0.00	9.54	-0.00	596.80	595.00

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	AAREA	ELLC	ELTRD	CLASS
626.25	605.60	0.00	118.	47.	10.	600.10	608.50	30.00

3470 ENCROACHMENT STATIONS= 500.0 800.0 TYPE= 1 TARGET= -500.000
ELENCL= 650.00 ELENCR= 100000.00

BRIDGE SECTION D -U/S CLEVELAND AVE CULVERT 54'-48" BOX

CONCRETE HEADWALL AND WINGWALLS

676.00	12.31	609.41	0.00	0.00	609.41	.00	4.16	0.00	600.10
205.	102.	35.	68.	259.	49.	160.	6.	2.	600.10
.31	.38	.71	.42	.055	.035	.055	.037	597.10	500.00
.000033	54.	54.	54.	0	0	9	0.00	136.38	636.37
701.00	12.15	609.41	0.00	0.00	609.41	.00	.00	.00	600.06
205.	55.	67.	83.	251.	189.	386.	6.	2.	599.46
.34	.22	.35	.22	.080	.065	.080	.038	597.26	32.31
.000010	25.	25.	25.	0	0	1	0.00	120.82	153.13
801.00	11.53	609.41	0.00	0.00	609.41	.00	.00	.00	600.68
205.	54.	69.	81.	227.	179.	347.	8.	2.	600.08
.43	.24	.39	.23	.080	.065	.080	.041	597.88	33.84
.000014	125.	100.	75.	0	0	1	0.00	116.96	150.80
1001.00	10.28	609.41	0.00	0.00	609.42	.00	.00	.00	601.93
205.	53.	75.	77.	182.	158.	273.	11.	3.	601.33
.59	.29	.48	.28	.080	.065	.080	.045	599.13	36.93
.000024	200.	200.	200.	0	0	1	0.00	109.18	146.11

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
1201.00	9.04	609.42	0.00	0.00	609.42	.00	.01	.00	603.18
205.	51.	83.	70.	140.	136.	205.	13.	3.	602.58
.71	.37	.61	.34	.080	.065	.080	.048	600.38	40.01
.000049	200.	200.	200.	0	0	1	0.00	101.40	141.42

CONFLUENCE WITH NORTH BRANCH - GLENLORD ROAD DRAIN

1301.00	8.43	609.43	0.00	0.00	609.43	.00	.00	.00	603.80
155.	38.	67.	50.	121.	126.	173.	14.	3.	603.20
.78	.32	.53	.29	.080	.065	.080	.050	601.00	41.54
.000041	100.	100.	100.	0	0	1	0.00	97.56	139.10

205.	54.	69.	61.	147.	119.	547.	8.	2.	600.08
.43	.24	.39	.23	.080	.065	.080	.041	597.88	33.84
.000014	125.	100.	75.	0	0	1	0.00	116.96	150.80
1001.00	10.28	609.41	0.00	0.00	609.42	.00	.00	.00	601.93
205.	53.	75.	77.	182.	158.	273.	11.	3.	601.33
.59	.29	.48	.28	.080	.065	.080	.045	599.13	36.93
.000024	200.	200.	200.	0	0	1	0.00	109.18	146.11
SECNO	DEPTH	CWSEL	CRIWS	WSEL	EG	HV	HL	OLOSS	BANK ELEV
Q	OLOB	QCH	QROB	ACH	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	L	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
1201.00	9.04	609.42	0.00	0.00	609.42	.00	.01	.00	603.18
205.	51.	83.	70.	140.	136.	205.	13.	3.	602.58
.71	.37	.61	.34	.080	.065	.080	.048	600.38	40.01
.000049	200.	200.	200.	0	0	1	0.00	101.40	141.42
CONFLUENCE WITH NORTH BRANCH - GLENLOCH ROAD DRAIN									
1301.00	8.43	609.43	0.00	0.00	609.43	.00	.00	.00	603.80
155.	38.	67.	50.	121.	126.	173.	14.	3.	603.20
.78	.32	.53	.29	.080	.065	.080	.050	601.00	41.54
.000041	100.	100.	100.	0	0	1	0.00	97.56	139.10
1401.00	7.81	609.43	0.00	0.00	609.43	.00	.01	.00	604.42
155.	37.	72.	46.	102.	115.	143.	15.	4.	603.82
.84	.36	.62	.32	.080	.065	.080	.051	601.62	43.07
.000063	100.	100.	100.	0	0	1	0.00	93.72	136.78
VALLEY SECTION E									
1476.00	7.34	609.44	0.00	0.00	609.44	.00	.01	.00	604.90
155.	36.	76.	43.	89.	107.	121.	16.	4.	604.30
.88	.40	.71	.36	.080	.065	.080	.051	602.10	44.24
.000090	65.	75.	85.	0	0	1	0.00	89.55	133.79
1676.00	6.36	609.46	0.00	0.00	609.47	.01	.03	.00	605.90
155.	32.	86.	38.	63.	91.	81.	17.	4.	605.30
.95	.50	.94	.47	.080	.065	.080	.053	603.10	46.67
.000199	300.	200.	100.	1	0	1	0.00	79.06	125.73
1876.00	5.42	609.52	0.00	0.00	609.58	.05	.09	.02	607.90
155.	12.	137.	5.	18.	66.	10.	18.	4.	608.10
.48	.66	2.06	.60	.080	.065	.080	.054	604.10	60.71
.001655	175.	200.	225.	2	0	1	0.00	54.50	115.21
2076.00	4.85	609.95	0.00	0.00	610.05	.10	.45	.02	608.90
155.	5.	148.	2.	8.	56.	4.	18.	5.	609.10
1.00	.70	2.63	.61	.080	.065	.080	.055	605.10	68.60
.003368	50.	200.	350.	2	0	1	0.00	40.87	109.47

1476.00	7.34	609.44	0.00	0.00	609.44	.00	.01	.00	604.90
155.	36.	76.	43.	89.	107.	121.	16.	4.	604.30
.88	.40	.71	.36	.080	.065	.080	.051	602.10	44.24
.000090	65.	75.	85.	0	0	1	0.00	89.55	133.79
1676.00	6.36	609.46	0.00	0.00	609.47	.01	.03	.00	605.90
155.	32.	86.	38.	63.	91.	81.	17.	4.	605.30
.95	.50	.94	.47	.080	.065	.080	.053	603.10	46.67
.000199	300.	200.	100.	1	0	1	0.00	79.06	125.73
1876.00	5.42	609.52	0.00	0.00	609.58	.05	.09	.02	607.90
155.	12.	137.	5.	18.	66.	10.	18.	4.	608.10
.98	.66	2.06	.60	.080	.065	.080	.054	604.10	60.71
.001655	175.	200.	225.	2	0	1	0.00	54.50	115.21
2076.00	4.85	609.95	0.00	0.00	610.05	.10	.45	.02	608.90
155.	5.	148.	2.	8.	56.	4.	18.	5.	609.10
1.00	.70	2.63	.61	.080	.065	.080	.055	605.10	68.60
.003368	50.	200.	350.	2	0	1	0.00	40.87	109.47
2276.00	4.61	610.71	0.00	0.00	610.84	.13	.77	.01	609.90
155.	3.	151.	1.	4.	52.	2.	18.	5.	610.10
1.02	.69	2.91	.57	.080	.065	.080	.056	606.10	71.90
.004597	75.	200.	325.	2	0	1	0.00	35.17	107.07

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

VALLEY SECTION F

2376.00	4.51	611.11	0.00	0.00	611.25	.14	.41	.00	610.40
155.	4.	150.	1.	3.	50.	1.	19.	5.	610.60
1.03	1.28	3.00	.55	.035	.055	.065	.056	606.60	73.30
.003664	100.	100.	100.	0	0	1	0.00	32.75	106.05
2476.00	4.13	611.56	0.00	0.00	611.75	.20	.47	.03	611.23
155.	1.	154.	0.	1.	43.	0.	19.	5.	611.43
1.04	1.01	3.57	.02	.035	.055	.065	.056	607.43	78.52
.006333	100.	100.	100.	2	0	1	0.00	23.74	102.26

compliance with orig. run use original run from here on.

2676.00	3.80	612.88	0.00	0.00	613.03	.15	1.26	.01	612.38
155.	22.	98.	35.	12.	25.	22.	19.	5.	611.28
1.06	1.94	3.70	1.56	.035	.055	.065	.056	609.08	172.61
.006315	200.	200.	200.	3	0	1	0.00	65.26	237.87
2876.00	3.65	614.39	0.00	0.00	614.51	.22	1.54	.04	614.04

155.	37.	72.	46.	102.	115.	143.	14.	3.	603.82
.77	.36	.62	.32	.080	.065	.080	.051	601.62	43.08
.000063	100.	100.	100.	0	0	1	0.00	93.68	136.76

VALLEY SECTION E

1476.00	7.33	609.43	0.00	0.00	609.43	.00	.01	.00	604.90
155.	36.	76.	43.	89.	107.	121.	15.	3.	604.30
.81	.40	.71	.36	.080	.065	.080	.051	602.10	44.26
.000090	65.	75.	85.	0	0	1	0.00	89.49	133.75
1676.00	6.35	609.45	0.00	0.00	609.46	.01	.03	.00	605.90
155.	32.	86.	38.	63.	91.	81.	16.	4.	605.30
.89	.50	.94	.47	.080	.065	.080	.053	603.10	46.68
.000200	300.	200.	100.	1	0	1	0.00	79.00	125.68
1876.00	5.42	609.52	0.00	0.00	609.58	.06	.09	.03	607.90
155.	12.	137.	6.	18.	66.	10.	17.	4.	608.10
.91	.66	2.07	.60	.080	.065	.080	.054	604.10	60.78
.001666	175.	200.	225.	2	0	1	0.00	54.38	115.16
2076.00	4.84	609.94	0.00	0.00	610.05	.10	.45	.02	608.90
155.	5.	148.	2.	7.	56.	4.	17.	4.	609.10
.94	.70	2.63	.61	.080	.065	.080	.055	605.10	68.64
.003380	50.	200.	350.	2	0	1	0.00	40.80	109.44
2276.00	4.61	610.71	0.00	0.00	610.84	.13	.78	.01	609.90
155.	3.	151.	1.	4.	52.	2.	17.	4.	610.10
.96	.69	2.91	.57	.080	.065	.080	.056	606.10	71.91
.004602	75.	200.	325.	2	0	1	0.00	35.15	107.06

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

2376.00	4.51	611.11	0.00	0.00	611.25	.14	.41	.00	610.40
155.	4.	150.	1.	3.	50.	1.	17.	5.	610.60
.96	1.28	3.00	.55	.035	.055	.065	.056	606.60	73.30
.003663	100.	100.	100.	0	0	1	0.00	32.76	106.06
2476.00	4.13	611.56	0.00	0.00	611.75	.20	.47	.03	611.23
155.	1.	154.	0.	1.	43.	0.	17.	5.	611.43
.97	1.01	3.57	.02	.035	.055	.065	.056	607.43	78.53
.006337	100.	100.	100.	2	0	1	0.00	23.72	102.25
2676.00	3.80	612.88	0.00	0.00	613.03	.15	1.27	.01	612.38
155.	22.	98.	35.	12.	26.	22.	18.	5.	611.28
.99	1.94	3.70	1.56	.035	.055	.065	.056	609.08	172.61
.006315	200.	200.	200.	3	0	1	0.00	65.26	237.87
2876.00	3.65	614.39	0.00	0.00	614.61	.22	1.54	.04	614.04

155.	13.	109.	33.	7.	25.	18.	18.	5.	612.94
1.01	1.81	4.38	1.80	.035	.055	.065	.056	610.74	173.94
.009631	200.	200.	200.	2	0	1	0.00	61.19	235.13

VALLEY SECTION G

3076.00	3.68	616.08	0.00	0.00	616.26	.18	1.63	.01	615.70
155.	11.	99.	45.	8.	25.	19.	18.	5.	614.60
1.02	1.35	3.93	2.35	.045	.055	.045	.056	612.40	173.65
.007600	250.	200.	150.	2	0	1	0.00	62.09	235.74
3276.00	3.53	617.76	0.00	0.00	618.02	.26	1.72	.04	617.53
155.	5.	109.	41.	4.	24.	15.	18.	6.	616.43
1.04	1.10	4.58	2.66	.045	.055	.045	.056	614.23	174.88
.011200	250.	200.	150.	2	0	1	0.00	58.30	233.19
3476.00	3.66	619.72	0.00	0.00	619.91	.19	1.87	.02	619.36
155.	10.	100.	44.	8.	25.	19.	19.	6.	618.26
1.05	1.33	3.99	2.38	.045	.055	.045	.056	616.06	173.77
.007895	200.	200.	200.	2	0	1	0.00	61.72	235.49

VALLEY SECTION H

3676.00	3.04	620.94	0.00	0.00	621.01	.07	1.06	.04	619.80
155.	39.	58.	58.	20.	24.	32.	19.	6.	619.90
1.08	1.97	2.46	1.80	.045	.055	.045	.055	617.90	763.90
.003040	25.	200.	375.	3	0	1	0.00	61.62	825.52

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
3716.00	3.64	621.05	0.00	0.00	621.08	.03	.06	.01	619.31
155.	42.	45.	68.	31.	30.	53.	19.	6.	619.41
1.09	1.35	1.52	1.29	.045	.055	.045	.055	617.41	762.40
.000855	40.	40.	40.	2	0	1	0.00	64.72	827.12
3726.00	3.77	621.06	0.00	0.00	621.09	.03	.01	.00	619.19
155.	42.	43.	70.	34.	31.	58.	19.	6.	619.29
1.09	1.25	1.39	1.21	.045	.055	.045	.055	617.29	762.05
.000672	10.	10.	10.	0	0	1	0.00	65.45	827.50
3736.00	3.90	621.07	0.00	0.00	621.10	.02	.01	.00	619.07
155.	43.	41.	71.	36.	32.	62.	19.	6.	619.17
1.10	1.17	1.28	1.14	.045	.055	.045	.055	617.17	761.73
.000545	10.	10.	10.	0	0	1	0.00	66.11	827.84

3470 ENCROACHMENT STATIONS= 753.0 847.0 TYPE= 1 TARGET= 94.000
ELENCL= 650.00 ELENCR= 650.00

3741.00	3.99	621.09	0.00	0.00	621.10	.01	.00	.00	618.00
155.	59.	8.	88.	90.	16.	130.	19.	6.	618.00
1.10	.65	.49	.68	.045	.055	.045	.055	617.10	767.23
.000085	5	5	5	1	0	1	0.00	74.31	841.55

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	3.40	2.60	-0.00	3.14	-0.00	12.57	-0.00	615.50	615.50

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
629.12	623.56	0.00	29.	126.	13.	618.50	626.10	30.00

3470 ENCROACHMENT STATIONS= 735.0 865.0 TYPE= 1 TARGET= 130.000
ELENCL= 650.00 ELENCR= 650.00

BRIDGE SECTION I U/S WASHINGTON AVE CULVERT 60'-48" CMP

CONCRETE HEADWALL

3801.00	9.31	626.41	0.00	0.00	626.41	.00	5.31	0.00	618.00
155.	64.	6.	85.	304.	37.	363.	20.	6.	618.00
1.17	.21	.17	.23	.045	.055	.045	.055	617.10	735.00
.000003	60.	60.	60.	0	0	6	0.00	116.83	851.83

3470 ENCROACHMENT STATIONS= 710.0 890.0 TYPE= 1 TARGET= 180.000

3826.00	9.16	626.41	0.00	0.00	626.41	.00	.00	.00	619.15
145.	43.	29.	73.	177.	85.	288.	20.	7.	619.25
1.20	.24	.35	.25	.065	.055	.065	.055	617.25	748.59
.000011	25.	25.	25.	0	0	1	0.00	93.30	841.90

3470 ENCROACHMENT STATIONS= 635.0 965.0 TYPE= 1 TARGET= 330.000

3901.00	8.71	626.41	0.00	0.00	626.41	.00	.00	.00	619.60
145.	42.	30.	73.	163.	80.	265.	21.	7.	619.70
1.27	.26	.37	.27	.065	.055	.065	.055	617.70	749.72
.000014	75.	75.	75.	0	0	1	0.00	90.98	840.70

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 1000.0 TYPE= 1 TARGET= 999.999

4101.00	7.51	626.41	0.00	0.00	626.42	.00	.00	.00	621.00
145.	52.	58.	35.	152.	87.	87.	23.	7.	622.00
1.37	.34	.67	.40	.065	.055	.065	.056	618.90	671.40
.000056	350.	200.	0.	0	0	1	0.00	154.54	825.93

VALLEY SECTION J

4301.00	6.33	626.43	0.00	0.00	626.43	.01	.01	.00	622.20
145.	45.	68.	32.	75.	71	58	24	8	623.20



1) COUNTY: Berrien

2) STUDY NAME: Lincoln Township

3) WATERCOURSE: Glenlord Drain - South

4) DOCUMENT TYPE: Summary



SUMMARY PRINTOUT FOR MULTIPLE PROFILES

GLENLORD DRAIN - SOUTH

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRITWS	EG	TOPWID	10K*S	TIME	VOL
0.00	0.00	0.00	0.00	595.70	105.00	600.93	0.00	600.94	79.64	2.64	0.00	0.00
0.00	0.00	0.00	0.00	595.70	180.00	602.11	0.00	602.12	98.75	1.55	0.00	0.00
0.00	0.00	0.00	0.00	595.70	205.00	602.56	0.00	602.57	99.63	1.23	0.00	0.00
0.00	0.00	0.00	0.00	595.70	265.00	604.11	0.00	604.12	102.69	.55	0.00	0.00
100.00	100.00	0.00	0.00	596.14	105.00	600.96	0.00	600.98	74.20	5.42	.03	.28
100.00	100.00	0.00	0.00	596.14	180.00	602.13	0.00	602.14	95.62	2.60	.03	.52
100.00	100.00	0.00	0.00	596.14	205.00	602.57	0.00	602.59	98.79	1.96	.03	.62
100.00	100.00	0.00	0.00	596.14	265.00	604.12	0.00	604.12	101.83	.77	.04	.98
200.00	100.00	0.00	0.00	596.58	105.00	601.03	0.00	601.07	69.36	11.56	.04	.49
200.00	100.00	0.00	0.00	596.58	180.00	602.16	0.00	602.18	86.53	4.57	.05	.94
200.00	100.00	0.00	0.00	596.58	205.00	602.60	0.00	602.61	96.12	3.27	.06	1.14
200.00	100.00	0.00	0.00	596.58	265.00	604.12	0.00	604.13	100.98	1.09	.08	1.85
270.00	70.00	0.00	0.00	596.90	105.00	601.12	0.00	601.19	66.33	19.85	.05	.61
270.00	70.00	0.00	0.00	596.90	180.00	602.19	0.00	602.22	80.36	7.10	.07	1.19
270.00	70.00	0.00	0.00	596.90	205.00	602.62	0.00	602.64	89.64	4.85	.07	1.45
270.00	70.00	0.00	0.00	596.90	265.00	604.13	0.00	604.14	100.36	1.44	.10	2.40
315.00	45.00	0.00	0.00	596.99	105.00	601.21	0.00	601.28	66.21	20.34	.06	.68
315.00	45.00	0.00	0.00	596.99	180.00	602.22	0.00	602.26	79.61	7.78	.08	1.33
315.00	45.00	0.00	0.00	596.99	205.00	602.64	0.00	602.67	88.18	5.33	.08	1.63
315.00	45.00	0.00	0.00	596.99	265.00	604.14	0.00	604.15	100.19	1.56	.12	2.73
341.00	26.00	0.00	0.00	597.05	105.00	601.26	0.00	601.33	66.10	20.74	.06	.71
341.00	26.00	0.00	0.00	597.05	180.00	602.24	0.00	602.28	79.07	8.30	.08	1.42
341.00	26.00	0.00	0.00	597.05	205.00	602.66	0.00	602.68	87.15	5.70	.09	1.73
341.00	26.00	0.00	0.00	597.05	265.00	604.14	0.00	604.15	100.08	1.65	.12	2.92
351.00	10.00	0.00	0.00	597.07	105.00	601.28	0.00	601.35	66.18	20.45	.06	.73
351.00	10.00	0.00	0.00	597.07	180.00	602.25	0.00	602.29	78.92	8.47	.08	1.45
351.00	10.00	0.00	0.00	597.07	205.00	602.66	0.00	602.69	86.83	5.82	.09	1.77
351.00	10.00	0.00	0.00	597.07	265.00	604.14	0.00	604.16	100.05	1.68	.13	2.99
361.00	10.00	0.00	0.00	597.09	105.00	601.30	0.00	601.37	66.19	20.42	.07	.74
361.00	10.00	0.00	0.00	597.09	180.00	602.26	0.00	602.30	78.76	8.63	.09	1.48
361.00	10.00	0.00	0.00	597.09	205.00	602.67	0.00	602.70	86.52	5.94	.09	1.81
361.00	10.00	0.00	0.00	597.09	265.00	604.15	0.00	604.16	100.01	1.71	.13	3.07
366.00	5.00	0.00	0.00	597.10	105.00	601.03	0.00	601.70	4.60	213.01	.07	.75
366.00	5.00	0.00	0.00	597.10	180.00	602.26	0.00	602.31	64.28	14.90	.09	1.49
366.00	5.00	0.00	0.00	597.10	205.00	602.67	0.00	602.70	72.93	9.82	.10	1.83
366.00	5.00	0.00	0.00	597.10	265.00	604.14	0.00	604.16	86.18	2.73	.13	3.10
408.00	42.00	604.50	601.50	597.10	105.00	602.79	0.00	603.09	4.60	67.31	.07	.77
408.00	42.00	604.50	601.50	597.10	180.00	605.06	0.00	605.07	100.91	.54	.11	1.71
408.00	42.00	604.50	601.50	597.10	205.00	605.23	0.00	605.23	104.04	.61	.12	2.07
408.00	42.00	604.50	601.50	597.10	265.00	605.59	0.00	605.59	105.84	.77	.15	3.42

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIDDEPTH (FT)	DISCHARGE (CFS)	CWSEL	CRITWS	EG	TOPWID	10K*S	TIME	VOL
433.00	25.00	0.00	0.00	597.24	105.00	603.17	0.00	603.18	94.45	.90	.08	.83
433.00	25.00	0.00	0.00	597.24	180.00	605.06	0.00	605.07	101.53	.40	.12	1.92
433.00	25.00	0.00	0.00	597.24	205.00	605.23	0.00	605.24	101.88	.45	.13	2.29
433.00	25.00	0.00	0.00	597.24	265.00	605.59	0.00	605.60	102.58	.58	.16	3.66
483.00	50.00	0.00	0.00	597.51	105.00	603.18	0.00	603.19	88.61	1.27	.10	1.05
483.00	50.00	0.00	0.00	597.51	180.00	605.07	0.00	605.07	101.00	.50	.15	2.35
483.00	50.00	0.00	0.00	597.51	205.00	605.23	0.00	605.24	101.35	.56	.15	2.74
483.00	50.00	0.00	0.00	597.51	265.00	605.59	0.00	605.60	102.05	.71	.18	4.15
533.00	50.00	0.00	0.00	597.79	105.00	603.19	0.00	603.19	119.56	.38	.15	1.44
533.00	50.00	0.00	0.00	597.79	180.00	605.07	0.00	605.07	127.86	.19	.20	3.07
533.00	50.00	0.00	0.00	597.79	205.00	605.24	0.00	605.24	128.64	.22	.20	3.49
533.00	50.00	0.00	0.00	597.79	265.00	605.60	0.00	605.60	130.21	.29	.22	4.97
572.00	39.00	0.00	0.00	598.00	105.00	603.19	0.00	603.19	118.65	.49	.18	1.81
572.00	39.00	0.00	0.00	598.00	180.00	605.07	0.00	605.07	126.94	.22	.24	3.74
572.00	39.00	0.00	0.00	598.00	205.00	605.24	0.00	605.24	127.72	.25	.24	4.19
572.00	39.00	0.00	0.00	598.00	265.00	605.60	0.00	605.61	129.29	.33	.25	5.72
597.00	25.00	0.00	0.00	597.55	105.00	603.19	0.00	603.20	120.63	.29	.22	2.13
597.00	25.00	0.00	0.00	597.55	180.00	605.07	0.00	605.08	128.93	.16	.28	4.29
597.00	25.00	0.00	0.00	597.55	205.00	605.24	0.00	605.24	129.71	.18	.27	4.76
597.00	25.00	0.00	0.00	597.55	265.00	605.60	0.00	605.61	131.27	.24	.28	6.34
622.00	25.00	0.00	0.00	597.10	105.00	603.19	0.00	603.20	44.44	1.32	.23	2.33
622.00	25.00	0.00	0.00	597.10	180.00	605.07	0.00	605.08	57.83	1.02	.29	4.64
622.00	25.00	0.00	0.00	597.10	205.00	605.24	0.00	605.25	59.05	1.19	.28	5.13
622.00	25.00	0.00	0.00	597.10	265.00	605.60	0.00	605.62	61.62	1.60	.29	6.73
676.00	54.00	608.50	600.10	597.10	105.00	608.25	0.00	608.25	94.32	.17	.27	2.63
676.00	54.00	608.50	600.10	597.10	180.00	609.24	0.00	609.25	130.75	.28	.32	5.07
676.00	54.00	608.50	600.10	597.10	205.00	609.41	0.00	609.41	136.38	.33	.31	5.58
676.00	54.00	608.50	600.10	597.10	265.00	609.74	0.00	609.74	137.60	.44	.31	7.22
701.00	25.00	0.00	0.00	597.25	105.00	608.25	0.00	608.25	113.60	.05	.32	2.93
701.00	25.00	0.00	0.00	597.26	180.00	609.25	0.00	609.25	119.50	.09	.35	5.43
701.00	25.00	0.00	0.00	597.26	205.00	609.41	0.00	609.41	120.82	.10	.34	5.95
701.00	25.00	0.00	0.00	597.25	265.00	609.74	0.00	609.74	122.88	.15	.34	7.62
801.00	100.00	0.00	0.00	597.49	105.00	608.25	0.00	608.25	109.74	.06	.47	4.38
801.00	100.00	0.00	0.00	597.58	180.00	609.25	0.00	609.25	115.94	.11	.46	7.13
801.00	100.00	0.00	0.00	597.48	205.00	609.41	0.00	609.41	116.96	.14	.43	7.69
801.00	100.00	0.00	0.00	597.82	265.00	609.74	0.00	609.74	119.04	.20	.41	9.45
1001.00	200.00	0.00	0.00	599.13	105.00	608.25	0.00	608.26	101.94	.12	.71	6.93
1001.00	200.00	0.00	0.00	599.13	180.00	609.25	0.00	609.25	108.16	.21	.63	10.19
1001.00	200.00	0.00	0.00	599.13	205.00	609.41	0.00	609.42	109.18	.24	.59	10.83
1001.00	200.00	0.00	0.00	599.13	265.00	609.75	0.00	609.75	111.26	.35	.54	12.76

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
1201.00	200.00	0.00	0.00	600.38	105.00	608.26	0.00	608.26	94.16	.28	.89	8.90
1201.00	200.00	0.00	0.00	600.38	180.00	609.26	0.00	609.26	100.38	.42	.76	12.62
1201.00	200.00	0.00	0.00	600.38	205.00	609.42	0.00	609.42	101.40	.49	.71	13.34
1201.00	200.00	0.00	0.00	600.38	265.00	609.76	0.00	609.76	103.49	.67	.64	15.43
1301.00	100.00	0.00	0.00	601.00	80.00	608.26	0.00	608.26	88.78	.25	.98	9.68
1301.00	100.00	0.00	0.00	601.00	130.00	609.26	0.00	609.26	96.53	.32	.84	13.61
1301.00	100.00	0.00	0.00	601.00	155.00	609.43	0.00	609.43	97.56	.41	.78	14.37
1301.00	100.00	0.00	0.00	601.00	200.00	609.76	0.00	609.77	99.66	.55	.70	16.55
1401.00	100.00	0.00	0.00	601.62	80.00	608.26	0.00	608.27	82.17	.41	1.06	10.33
1401.00	100.00	0.00	0.00	601.62	130.00	609.26	0.00	609.27	92.69	.50	.91	14.47
1401.00	100.00	0.00	0.00	601.62	155.00	609.43	0.00	609.43	93.72	.63	.84	15.27
1401.00	100.00	0.00	0.00	601.62	200.00	609.77	0.00	609.77	95.83	.83	.75	17.52
1476.00	75.00	0.00	0.00	602.10	80.00	608.27	0.00	608.27	77.06	.63	1.12	10.75
1476.00	75.00	0.00	0.00	602.10	130.00	609.27	0.00	609.27	87.77	.72	.95	15.04
1476.00	75.00	0.00	0.00	602.10	155.00	609.44	0.00	609.44	89.55	.90	.88	15.86
1476.00	75.00	0.00	0.00	602.10	200.00	609.78	0.00	609.78	92.87	1.17	.78	18.17
1676.00	200.00	0.00	0.00	603.10	80.00	608.28	0.00	608.29	66.46	1.73	1.21	11.57
1676.00	200.00	0.00	0.00	603.10	130.00	609.29	0.00	609.29	77.19	1.64	1.03	16.19
1676.00	200.00	0.00	0.00	603.10	155.00	609.46	0.00	609.47	79.06	1.99	.95	17.07
1676.00	200.00	0.00	0.00	603.10	200.00	609.80	0.00	609.82	82.76	2.47	.85	19.50
1876.00	200.00	0.00	0.00	604.10	80.00	608.35	0.00	608.39	26.62	19.94	1.24	12.02
1876.00	200.00	0.00	0.00	604.10	130.00	609.34	0.00	609.39	50.19	14.50	1.07	16.89
1876.00	200.00	0.00	0.00	604.10	155.00	609.52	0.00	609.58	54.50	16.55	.98	17.83
1876.00	200.00	0.00	0.00	604.10	200.00	609.88	0.00	609.95	63.05	18.08	.87	20.37
2076.00	200.00	0.00	0.00	605.10	80.00	608.87	0.00	608.95	17.56	38.89	1.26	12.21
2076.00	200.00	0.00	0.00	605.10	130.00	609.73	0.00	609.81	35.59	31.59	1.09	17.21
2076.00	200.00	0.00	0.00	605.10	155.00	609.95	0.00	610.05	40.87	33.68	1.00	18.18
2076.00	200.00	0.00	0.00	605.10	200.00	610.33	0.00	610.45	49.97	34.72	.89	20.80
2276.00	200.00	0.00	0.00	606.10	80.00	609.73	0.00	609.81	16.98	47.38	1.29	12.38
2276.00	200.00	0.00	0.00	606.10	130.00	610.46	0.00	610.57	29.22	45.25	1.11	17.45
2276.00	200.00	0.00	0.00	606.10	155.00	610.71	0.00	610.84	35.17	45.97	1.02	18.46
2276.00	200.00	0.00	0.00	606.10	200.00	611.10	0.00	611.25	44.46	46.28	.91	21.15
2376.00	100.00	0.00	0.00	606.60	80.00	610.14	0.00	610.23	16.69	37.59	1.30	12.45
2376.00	100.00	0.00	0.00	606.60	130.00	610.86	0.00	610.98	26.75	37.02	1.12	17.56
2376.00	100.00	0.00	0.00	606.60	155.00	611.11	0.00	611.25	32.75	36.64	1.03	18.59
2376.00	100.00	0.00	0.00	606.60	200.00	611.50	0.00	611.65	42.21	34.82	.92	21.31
2476.00	100.00	0.00	0.00	607.43	80.00	610.60	0.00	610.74	15.23	64.61	1.31	12.52
2476.00	100.00	0.00	0.00	607.43	130.00	611.31	0.00	611.49	18.92	63.30	1.13	17.66
2476.00	100.00	0.00	0.00	607.43	155.00	611.56	0.00	611.75	23.74	63.33	1.04	18.70
2476.00	100.00	0.00	0.00	607.43	200.00	611.92	0.00	612.15	32.12	63.35	.93	21.45

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRTWS	EG	TOPWID	10K*S	TIME	VOL
2676.00	200.00	0.00	0.00	609.08	80.00	612.14	0.00	612.34	24.56	96.46	1.32	12.64
2676.00	200.00	0.00	0.00	609.08	130.00	612.69	0.00	612.86	60.23	74.91	1.15	17.86
2676.00	200.00	0.00	0.00	609.08	155.00	612.88	0.00	613.03	65.26	63.15	1.06	18.94
2676.00	200.00	0.00	0.00	609.08	200.00	613.17	0.00	613.30	72.83	50.32	.95	21.76
2876.00	200.00	0.00	0.00	610.74	80.00	613.91	0.00	614.07	26.68	77.55	1.34	12.77
2876.00	200.00	0.00	0.00	610.74	130.00	614.29	0.00	614.49	58.74	87.59	1.16	18.08
2876.00	200.00	0.00	0.00	610.74	155.00	614.39	0.00	614.61	61.19	96.31	1.07	19.19
2876.00	200.00	0.00	0.00	610.74	200.00	614.53	0.00	614.79	64.99	108.07	.96	22.08
3076.00	200.00	0.00	0.00	612.40	80.00	615.47	0.00	615.64	24.89	85.01	1.36	12.88
3076.00	200.00	0.00	0.00	612.40	130.00	615.92	0.00	616.10	57.98	81.44	1.18	18.26
3076.00	200.00	0.00	0.00	612.40	155.00	616.08	0.00	616.26	62.09	76.00	1.09	19.42
3076.00	200.00	0.00	0.00	612.40	200.00	616.31	0.00	616.48	68.00	70.56	.98	22.36
3276.00	200.00	0.00	0.00	614.23	80.00	617.23	0.00	617.43	23.50	99.44	1.37	12.99
3276.00	200.00	0.00	0.00	614.23	130.00	617.64	0.00	617.88	55.20	107.48	1.19	18.43
3276.00	200.00	0.00	0.00	614.23	155.00	617.76	0.00	618.02	58.30	112.00	1.10	19.63
3276.00	200.00	0.00	0.00	614.23	200.00	617.94	0.00	618.22	63.05	114.91	.99	22.63
3476.00	200.00	0.00	0.00	616.06	80.00	619.12	0.00	619.30	24.63	87.52	1.39	13.10
3476.00	200.00	0.00	0.00	616.06	130.00	619.58	0.00	619.77	57.94	81.73	1.21	18.62
3476.00	200.00	0.00	0.00	616.06	155.00	619.72	0.00	619.91	61.72	78.95	1.12	19.85
3476.00	200.00	0.00	0.00	616.06	200.00	619.92	0.00	620.11	67.01	77.66	1.01	22.90
3676.00	200.00	0.00	0.00	617.90	80.00	620.44	0.00	620.50	59.06	36.35	1.42	13.29
3676.00	200.00	0.00	0.00	617.90	130.00	620.81	0.00	620.87	60.96	29.99	1.24	18.91
3676.00	200.00	0.00	0.00	617.90	155.00	620.94	0.00	621.01	61.62	30.40	1.15	20.18
3676.00	200.00	0.00	0.00	617.90	200.00	621.14	0.00	621.22	62.66	31.46	1.04	23.31
3716.00	40.00	0.00	0.00	617.41	80.00	620.55	0.00	620.56	62.11	6.44	1.43	13.35
3716.00	40.00	0.00	0.00	617.41	130.00	620.92	0.00	620.94	64.03	7.73	1.25	18.99
3716.00	40.00	0.00	0.00	617.41	155.00	621.05	0.00	621.08	64.72	8.55	1.16	20.27
3716.00	40.00	0.00	0.00	617.41	200.00	621.26	0.00	621.30	65.83	9.90	1.04	23.41
3726.00	10.00	0.00	0.00	617.29	80.00	620.55	0.00	620.57	62.81	4.73	1.44	13.37
3726.00	10.00	0.00	0.00	617.29	130.00	620.93	0.00	620.95	64.74	5.97	1.25	19.02
3726.00	10.00	0.00	0.00	617.29	155.00	621.06	0.00	621.09	65.45	6.72	1.16	20.30
3726.00	10.00	0.00	0.00	617.29	200.00	621.28	0.00	621.31	66.56	7.93	1.05	23.44
3736.00	10.00	0.00	0.00	617.17	80.00	620.56	0.00	620.57	63.46	3.63	1.44	13.39
3736.00	10.00	0.00	0.00	617.17	130.00	620.94	0.00	620.95	65.40	4.79	1.25	19.05
3736.00	10.00	0.00	0.00	617.17	155.00	621.07	0.00	621.10	66.11	5.45	1.16	20.33
3736.00	10.00	0.00	0.00	617.17	200.00	621.29	0.00	621.32	67.22	6.55	1.05	23.47
3741.00	5.00	0.00	0.00	617.10	80.00	620.26	0.00	620.88	4.00	299.27	1.44	13.40
3741.00	5.00	0.00	0.00	617.10	130.00	621.06	621.06	621.07	74.20	.61	1.26	19.07
3741.00	5.00	0.00	0.00	617.10	155.00	621.09	0.00	621.10	74.31	.85	1.16	20.35
3741.00	5.00	0.00	0.00	617.10	200.00	621.32	0.00	621.33	75.46	1.13	1.05	23.49

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
3801.00	60.00	626.10	618.50	617.10	90.00	622.16	0.00	622.40	4.00	83.15	1.44	13.42
3801.00	60.00	626.10	618.50	617.10	130.00	626.25	0.00	626.25	107.72	.02	1.34	19.70
3801.00	60.00	626.10	618.50	617.10	155.00	626.41	0.00	626.41	116.83	.03	1.24	21.00
3801.00	60.00	626.10	618.50	617.10	200.00	626.59	0.00	626.59	130.00	.05	1.11	24.17
3826.00	25.00	0.00	0.00	617.25	74.00	622.48	0.00	622.48	72.93	.42	1.46	13.49
3826.00	25.00	0.00	0.00	617.25	125.00	626.25	0.00	626.25	92.46	.09	1.37	20.05
3826.00	25.00	0.00	0.00	617.25	145.00	626.41	0.00	626.41	93.30	.11	1.26	21.36
3826.00	25.00	0.00	0.00	617.25	190.00	626.59	0.00	626.59	141.86	.17	1.13	24.54
3901.00	75.00	0.00	0.00	617.70	74.00	622.48	0.00	622.48	70.62	.67	1.52	13.84
3901.00	75.00	0.00	0.00	617.70	125.00	626.25	0.00	626.25	90.13	.11	1.45	20.94
3901.00	75.00	0.00	0.00	617.70	145.00	626.41	0.00	626.41	90.98	.14	1.34	22.27
3901.00	75.00	0.00	0.00	617.70	190.00	626.59	0.00	626.59	94.17	.21	1.19	25.49
4101.00	200.00	0.00	0.00	618.90	74.00	622.49	0.00	622.53	44.23	11.06	1.55	14.31
4101.00	200.00	0.00	0.00	618.90	125.00	626.25	0.00	626.25	144.97	.48	1.56	22.48
4101.00	200.00	0.00	0.00	618.90	145.00	626.41	0.00	626.42	154.54	.56	1.44	23.92
4101.00	200.00	0.00	0.00	618.90	190.00	626.60	0.00	626.60	165.26	.82	1.27	27.26
4301.00	200.00	0.00	0.00	620.10	74.00	622.83	0.00	622.96	24.26	52.31	1.57	14.47
4301.00	200.00	0.00	0.00	620.10	125.00	626.26	0.00	626.27	61.60	1.30	1.63	23.34
4301.00	200.00	0.00	0.00	620.10	145.00	626.43	0.00	626.43	62.71	1.51	1.49	24.82
4301.00	200.00	0.00	0.00	620.10	190.00	626.61	0.00	626.63	63.98	2.22	1.32	28.22

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	105.000	600.930	0.000	0.000	0.000	79.640	0.000	-0.000
0.000	180.000	602.110	1.180	0.000	0.000	98.747	-19.107	-0.000
0.000	205.000	602.560	.450	0.000	0.000	99.633	-19.993	-0.000
0.000	265.000	604.110	1.550	0.000	0.000	102.686	-23.046	-0.000
100.000	105.000	600.962	0.000	.032	0.000	74.203	0.000	100.000
100.000	180.000	602.127	1.166	.017	0.000	95.620	-21.418	100.000
100.000	205.000	602.574	.446	.014	0.000	98.791	-24.588	100.000
100.000	265.000	604.116	1.542	.006	0.000	101.831	-27.628	100.000
200.000	105.000	601.023	0.000	.066	0.000	69.360	0.000	100.000
200.000	180.000	602.157	1.129	.030	0.000	86.531	-17.172	100.000
200.000	205.000	602.596	.438	.022	0.000	96.122	-26.762	100.000
200.000	265.000	604.124	1.528	.008	0.000	100.977	-31.617	100.000
270.000	105.000	601.118	0.000	.090	0.000	66.335	0.000	70.000
270.000	180.000	602.192	1.074	.035	0.000	80.357	-14.022	70.000
270.000	205.000	602.620	.428	.024	0.000	89.641	-23.306	70.000
270.000	265.000	604.132	1.512	.008	0.000	100.359	-34.025	70.000
315.000	105.000	601.207	0.000	.040	0.000	66.206	0.000	45.000
315.000	180.000	602.224	1.017	.032	0.000	79.608	-13.402	45.000
315.000	205.000	602.642	.418	.022	0.000	88.179	-21.973	45.000
315.000	265.000	604.138	1.496	.006	0.000	100.193	-33.987	45.000
341.000	105.000	601.260	0.000	.053	0.000	66.104	0.000	26.000

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Lincoln Township

3) WATERCOURSE: Goodrow Drain

4) DOCUMENT TYPE: 100-year

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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C
1       LINCOLN TWP. FIS 5555-35
T2       10 YEAR FLOOD
T3       GOODROW DRAIN
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J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-0.	2.	-0.	-0.	.001000	-0.00	-0.0	-0.	597.000	-0.000

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

NC	.050	.050	.040	.300	.500	-0.000	-0.000	-0.000	-0.000	-0.000
QT	4.000	53.000	90.000	105.000	130.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	0.000	27.000	698.500	701.500	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	613.000	-0.000	788.000	-0.000	599.650	599.650	-0.000
GR	601.400	0.000	601.800	100.000	601.500	200.000	604.300	300.000	605.000	315.000
GR	607.800	351.000	607.800	373.000	607.800	400.000	601.000	500.000	600.300	600.000
GR	600.200	650.000	599.600	691.000	597.000	698.500	596.300	699.000	596.000	700.000
GR	596.300	701.000	597.000	701.500	598.400	706.000	600.200	715.000	600.500	750.000
GR	600.200	800.000	600.000	900.000	600.300	1000.000	600.700	1100.000	601.100	1200.000
GR	600.400	1300.000	600.700	1400.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1.000	26.000	698.500	701.500	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	613.000	-0.000	788.000	-0.000	599.300	599.300	-0.000
GR	601.400	0.000	601.800	100.000	601.500	200.000	604.300	300.000	605.000	315.000
GR	607.800	351.000	607.800	373.000	607.800	400.000	601.000	500.000	600.300	600.000
GR	600.200	650.000	600.500	692.500	597.000	698.500	596.300	699.000	596.000	700.000
GR	596.300	701.000	597.000	701.500	600.500	707.500	600.500	750.000	600.200	800.000
GR	600.000	900.000	600.300	1000.000	600.700	1100.000	601.100	1200.000	600.400	1300.000
GR	600.700	1400.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	1.670	2.600	-0.000	2.360	-0.000	7.070	-0.000	596.000	596.000
X1	25.000	-0.000	-0.000	-0.000	24.000	24.000	24.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	599.000	600.500	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	618.000	-0.000	782.000	-0.000	600.100	600.100	-0.000
BT	11.000	618.000	600.300	0.000	650.000	600.200	0.000	698.500	600.500	597.000
BT	698.500	600.500	598.000	699.000	600.500	598.700	700.000	600.500	599.000	701.000
BT	600.500	598.700	701.500	600.500	598.000	701.500	600.500	597.000	750.000	600.500
BT	0.000	782.000	600.200	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	41.000	9.000	298.000	312.000	16.000	16.000	16.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	193.000	-0.000	349.000	-0.000	-0.000	-0.000	-0.000
GR	607.800	0.000	601.000	100.000	600.300	298.000	596.100	302.000	596.200	305.000
GR	596.600	308.000	600.500	312.000	600.000	500.000	601.100	800.000	-0.000	-0.000
NC	.060	.060	.050	.300	.500	-0.000	-0.000	-0.000	-0.000	-0.000
X1	281.000	65.000	243.000	255.500	240.000	240.000	240.000	-0.000	-0.000	-0.000
GR	611.800	0.000	610.800	8.300	609.900	16.700	609.000	25.100	608.100	33.500
GR	607.300	41.800	606.300	50.200	605.400	58.600	604.700	67.000	604.100	75.400
GR	603.600	83.700	603.500	92.100	603.400	100.500	603.300	108.900	603.200	117.300
GR	603.100	125.600	603.000	134.000	602.900	142.400	602.700	150.800	602.700	159.200

GR	602.600	167.500	602.400	175.900	602.300	184.300	602.200	192.700	602.100	201.100
GR	602.000	209.400	601.650	217.800	601.300	226.200	600.950	234.600	600.600	243.000
GR	598.200	246.700	598.200	249.200	598.300	250.000	598.400	250.900	598.500	251.700
GR	600.600	255.500	601.400	281.300	601.800	294.300	601.800	307.200	601.900	320.200
GR	602.000	333.100	602.000	346.000	602.100	359.000	602.200	371.900	602.300	384.900
GR	602.500	397.800	602.800	410.700	603.000	423.700	603.300	436.600	603.600	449.600
GR	603.800	462.500	604.100	475.500	604.400	488.400	604.600	501.300	604.900	514.300
GR	605.200	527.200	605.500	540.200	605.700	553.100	606.000	566.000	606.300	579.000
GR	606.500	591.900	606.800	604.900	607.100	617.800	607.400	630.800	607.700	643.700
X1	761.000	90.000	133.000	142.500	480.000	480.000	480.000	-0.000	-0.000	-0.000
GR	619.800	0.000	618.400	4.500	617.200	9.100	615.900	13.700	614.600	18.300
GR	613.300	22.900	612.000	27.500	610.700	32.100	609.900	36.600	609.400	41.200
GR	609.100	45.800	608.800	50.400	608.600	55.000	608.300	59.600	608.100	64.200
GR	607.800	68.700	607.600	73.300	607.300	77.900	607.000	82.500	606.800	87.100
GR	606.600	91.700	606.300	96.300	606.000	100.800	605.800	105.400	605.600	110.000
GR	605.300	114.600	605.000	119.200	604.800	123.800	604.500	128.400	604.300	133.000
GR	604.000	133.300	603.800	133.600	603.500	133.900	603.300	134.200	603.000	134.500
GR	602.800	134.800	602.600	135.200	602.400	135.500	602.400	135.800	602.400	136.100
GR	602.400	136.400	602.400	136.700	602.400	137.100	602.400	137.400	602.400	137.700
GR	602.400	138.000	602.400	138.300	602.500	138.600	602.500	139.000	602.500	139.300
GR	602.600	139.600	602.700	139.900	602.800	140.200	603.000	140.500	603.100	140.900
GR	603.200	141.200	603.400	141.500	603.500	141.800	603.700	142.100	603.800	142.500
GR	604.100	148.700	604.400	155.000	604.700	161.300	605.000	167.600	605.300	173.900
GR	605.600	180.200	605.900	186.500	606.200	192.800	606.500	199.100	607.000	205.400
GR	607.700	211.700	608.400	217.900	609.100	224.200	609.700	230.500	610.400	236.800
GR	611.100	243.100	611.800	249.400	612.500	255.700	613.200	262.000	613.900	268.300
GR	614.600	274.600	615.300	280.900	616.000	287.200	616.700	293.400	617.300	299.700
GR	618.000	306.000	618.700	312.300	619.400	318.600	620.100	324.900	620.900	331.200
NC	.050	.050	.045	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1000.000	8.000	78.000	86.000	239.000	239.000	239.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	623.800	0.000	612.700	20.000	605.700	78.000	604.500	80.000	604.600	83.000
GR	605.000	86.000	608.900	114.000	627.500	175.000	-0.000	-0.000	-0.000	-0.000
X1	1030.000	-0.000	-0.000	-0.000	30.000	30.000	30.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	76.000	-0.000	88.000	-0.000	-0.000	-0.000	-0.000
X1	1050.000	14.000	80.000	85.000	20.000	20.000	20.000	-0.000	-0.000	-0.000
X3	10.000	604.600	-0.000	-0.000	-0.000	-0.000	-0.000	608.100	608.100	-0.000
GR	623.800	0.000	612.700	20.000	605.700	78.000	605.500	80.000	604.700	80.000
GR	603.700	81.000	603.200	82.000	603.200	83.000	603.700	84.000	604.700	85.000
GR	604.900	85.000	605.000	86.000	608.400	114.000	627.500	175.000	-0.000	-0.000
SB	-0.000	5.100	2.800	-0.000	4.190	-0.000	14.230	-0.000	604.800	604.600
X1	1140.000	17.000	286.500	291.500	90.000	90.000	90.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	607.900	619.000	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	604.800	-0.000	210.000	-0.000	364.000	-0.000	619.200	619.000	-0.000
X5	4.000	607.931	611.270	612.560	615.070	-0.000	-0.000	-0.000	-0.000	-0.000
BT	12.000	210.000	621.700	0.000	246.000	620.000	0.000	286.500	619.200	604.600
BT	286.500	619.200	606.600	287.500	619.200	607.600	288.500	619.100	608.100	289.500
BT	619.100	608.100	290.500	619.100	607.600	291.500	619.100	606.600	291.500	619.000
BT	604.600	346.000	619.800	0.000	364.000	620.300	0.000	-0.000	-0.000	-0.000
GR	626.100	0.000	625.800	96.000	621.700	210.000	611.400	228.000	609.000	246.000
GR	604.600	286.500	603.600	287.500	603.100	288.500	603.100	289.500	603.600	290.500
GR	604.600	291.500	608.000	325.000	614.600	346.000	620.300	364.000	621.400	396.000
GR	625.300	496.000	625.800	530.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1160.000	8.000	89.000	100.000	20.000	20.000	20.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	72.000	-0.000	117.000	-0.000	-0.000	-0.000	-0.000
GR	620.000	0.000	608.500	30.000	607.300	89.000	604.800	91.000	604.900	94.000
GR	607.300	100.000	608.500	170.000	620.000	200.000	=0.000	=0.000	=0.000	-0.000
X1	1210.000	-0.000	-0.000	-0.000	50.000	50.000	50.000	-0.000	.070	-0.000
X3	-0.000	0.000	-0.000	25.000	0.000	173.200	0.000	0.000		

X1	1280.000	-0.000	-0.000	-0.000	70.000	70.000	70.000	-0.000	.100	-0.000
X3	-0.000	-0.000	-0.000	36.000	-0.000	153.000	-0.000	-0.000	-0.000	-0.000
X1	1300.000	9.000	82.300	87.700	20.000	20.000	20.000	-0.000	-0.000	-0.000
X3	10.000	605.000	-0.000	47.000	-0.000	-0.000	-0.000	608.600	609.300	-0.000
GR	626.300	0.000	612.900	35.000	605.000	82.300	603.800	83.100	603.300	85.000
GR	603.800	86.900	605.000	87.700	610.100	140.000	620.100	175.000	-0.000	-0.000
SB	-0.000	2.000	2.800	-0.000	5.500	-0.000	19.000	-0.000	604.900	605.000
X1	1312.000	17.000	82.300	87.700	12.000	12.000	12.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	609.400	609.500	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	604.900	-0.000	53.000	-0.000	-0.000	-0.000	608.600	609.300	-0.000
BT	17.000	0.000	626.300	0.000	35.000	612.900	0.000	72.000	611.200	0.000
BT	81.000	609.500	0.000	82.300	609.500	605.700	82.300	609.500	607.700	83.100
BT	609.500	608.900	85.000	609.800	609.400	86.900	609.700	608.900	87.700	609.600
BT	607.700	87.700	609.600	605.700	89.000	609.500	0.000	97.000	610.900	0.000
BT	115.000	610.800	0.000	125.000	609.300	0.000	140.000	610.100	0.000	175.000
BT	620.100	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	626.300	0.000	612.900	35.000	607.300	72.000	605.900	81.000	605.700	82.300
GR	605.700	82.300	604.500	83.100	604.000	85.000	604.500	86.900	605.700	87.700
GR	605.700	87.700	605.800	89.000	606.500	97.000	608.000	115.000	608.800	125.000
GR	610.100	140.000	620.100	175.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1333.000	11.000	175.000	187.000	15.000	25.000	21.000	-0.000	-0.000	-0.000
GR	627.400	0.000	626.500	52.000	619.700	75.000	613.800	100.000	611.100	125.000
GR	609.700	175.000	605.700	176.000	605.500	179.000	605.600	183.000	609.600	187.000
GR	626.200	219.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.035	.050	.045	.300	.500	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1355.000	11.000	175.000	187.000	17.000	27.000	22.000	-0.000	-1.200	-0.000
X3	10.000	-0.000	-0.000	112.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	627.400	0.000	626.500	52.000	619.700	75.000	613.800	100.000	611.100	125.000
GR	609.700	175.000	607.500	176.000	607.300	179.000	607.400	182.000	609.600	187.000
GR	626.200	219.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1377.000	-0.000	-0.000	-0.000	22.000	22.000	22.000	-0.000	.600	-0.000
X3	10.000	-0.000	-0.000	120.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1400.000	-0.000	-0.000	-0.000	23.000	23.000	23.000	-0.000	.600	-0.000
X3	10.000	-0.000	-0.000	134.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1440.000	-0.000	-0.000	-0.000	40.000	40.000	40.000	-0.000	-.300	-0.000
X3	10.000	-0.000	-0.000	154.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1500.000	14.000	178.450	183.450	60.000	60.000	60.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	87.000	-0.000	201.000	-0.000	617.000	617.000	-0.000
GR	627.400	0.000	626.500	52.000	619.700	75.000	613.800	100.000	611.100	125.000
GR	609.700	175.000	608.000	178.450	607.000	179.450	606.500	180.450	606.500	181.450
GR	607.000	182.450	608.000	183.450	609.600	187.000	626.200	219.000	-0.000	-0.000
SB	-0.000	2.770	2.800	-0.000	3.790	-0.000	19.640	-0.000	607.500	606.500
X1	1570.000	20.000	303.750	308.750	70.000	70.000	70.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	612.500	617.600	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	203.000	-0.000	328.000	-0.000	617.600	618.200	-0.000
BT	11.000	214.000	618.200	0.000	253.000	617.600	0.000	303.750	618.100	609.000
BT	303.750	618.100	611.000	304.750	618.100	612.000	305.750	618.200	612.500	306.750
BT	618.100	612.500	307.750	618.200	612.000	308.750	618.200	611.000	308.750	618.200
BT	609.000	328.000	618.600	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	626.000	0.000	622.300	103.000	618.300	203.000	618.200	214.000	615.200	226.000
GR	612.500	253.000	611.500	284.000	609.000	303.750	608.000	304.750	607.500	305.750
GR	607.500	306.750	608.000	307.750	609.000	308.750	611.600	315.000	618.600	328.000
GR	619.200	353.000	621.000	403.000	622.800	476.000	624.200	503.000	626.300	599.000
NC	.060	.060	.045	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1615.000	12.000	50.000	56.000	45.000	45.000	45.000	-0.000	-2.500	-0.000

GR	628.000	0.000	627.000	9.000	611.300	39.000	611.100	50.000	610.700	51.000
GR	610.700	53.000	610.600	55.000	611.000	56.000	612.700	99.000	615.000	119.000
GR	625.400	156.000	627.300	220.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1665.000	-0.000	-0.000	-0.000	50.000	50.000	50.000	-0.000	.800	-0.000
X1	1720.000	-0.000	-0.000	-0.000	55.000	55.000	55.000	-0.000	.800	-0.000
X1	1775.000	-0.000	-0.000	-0.000	55.000	55.000	55.000	-0.000	.900	-0.000
X1	1850.000	-0.000	-0.000	-0.000	75.000	75.000	75.000	-0.000	.300	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1913.000	-0.000	-0.000	-0.000	63.000	63.000	63.000	-0.000	.200	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1925.000	14.000	51.000	54.000	12.000	12.000	12.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	15.000	-0.000	152.000	-0.000	613.500	613.500	-0.000
GR	628.000	0.000	627.000	9.000	611.300	39.000	611.100	50.000	610.900	51.000
GR	610.200	51.500	609.900	52.500	610.200	53.500	610.900	54.000	611.000	56.000
GR	612.700	99.000	615.000	119.000	625.400	156.000	627.300	220.000	-0.000	-0.000
SB	-0.000	4.110	2.800	-0.000	2.530	-0.000	7.070	-0.000	610.200	609.900
X1	2015.000	21.000	274.000	277.000	90.000	90.000	90.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	613.200	623.600	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	236.000	-0.000	336.000	-0.000	623.600	623.600	-0.000
BT	9.000	200.000	624.100	-0.000	220.000	624.000	-0.000	274.000	623.600	611.200
BT	274.500	623.600	612.900	275.500	623.600	613.200	276.500	623.600	612.900	277.000
BT	623.600	611.200	322.000	623.800	-0.000	350.000	624.000	-0.000	-0.000	-0.000
GR	628.500	0.000	625.800	67.000	625.300	100.000	624.100	200.000	612.400	220.000
GR	611.400	260.000	611.200	274.000	611.200	274.000	610.500	274.500	610.200	275.500
GR	610.500	276.500	611.200	277.000	611.200	277.000	612.300	322.000	624.000	350.000
GR	624.300	376.000	624.700	400.000	626.400	488.000	626.200	502.000	628.400	507.000
GR	628.200	600.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2048.000	15.000	100.000	106.000	33.000	33.000	33.000	-0.000	-1.800	-0.000
GR	628.300	0.000	627.900	15.000	626.100	24.000	615.000	52.000	613.700	100.000
GR	612.100	101.000	612.100	102.000	612.200	105.000	614.000	106.000	615.400	150.000
GR	618.200	173.000	624.000	177.000	626.400	200.000	628.000	217.000	628.400	300.000
NC	.045	.045	.040	.300	.500	-0.000	-0.000	-0.000	-0.000	-0.000
QT	4.000	41.000	74.000	87.000	115.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2500.000	-0.000	-0.000	-0.000	452.000	452.000	452.000	-0.000	1.800	-0.000
X1	2713.000	90.000	125.000	132.200	213.000	213.000	213.000	-0.000	.100	=0.000
GR	628.500	0.000	628.500	4.300	628.400	8.600	628.300	12.900	628.300	17.200
GR	627.900	21.500	627.400	25.800	626.800	30.100	625.800	34.400	624.800	38.700
GR	623.700	43.100	622.600	47.400	621.500	51.700	620.400	56.000	619.300	60.300
GR	618.300	64.600	618.100	68.900	618.000	73.200	617.800	77.500	617.500	81.800
GR	617.200	86.200	616.900	90.500	616.500	94.800	616.200	99.100	615.900	103.400
GR	615.800	107.700	615.700	112.000	615.600	116.300	615.400	120.600	615.000	125.000
GR	614.500	125.200	614.100	125.400	613.600	125.700	613.200	125.900	612.800	126.200
GR	612.700	126.400	612.600	126.600	612.600	126.900	612.600	127.100	612.600	127.400
GR	612.700	127.600	612.700	127.800	612.700	128.100	612.700	128.300	612.800	128.600
GR	612.900	128.800	613.000	129.100	613.100	129.300	613.100	129.500	613.200	129.800
GR	613.300	130.000	613.400	130.300	613.400	130.500	613.500	130.700	613.600	131.000
GR	614.000	131.200	614.300	131.500	614.600	131.700	614.900	132.000	615.300	132.200
GR	615.600	142.800	616.300	153.400	617.200	164.000	618.000	174.600	618.200	185.200
GR	618.400	195.700	618.700	206.300	619.300	216.900	619.900	227.500	620.500	238.100
GR	625.100	248.700	625.500	259.300	626.000	269.900	626.600	280.500	627.000	291.100
GR	627.500	301.700	628.000	312.300	628.100	322.800	628.100	333.400	628.200	344.000
GR	628.200	354.600	628.300	365.200	628.300	375.800	628.400	386.400	628.500	397.000
GR	628.500	407.600	628.600	418.200	628.600	428.800	628.600	439.400	628.700	450.000
X1	2926.000	90.000	150.000	158.500	213.000	213.000	213.000	-0.000	.100	-0.000
	628.900	0.000	628.800	5.100	628.800	10.300	628.700	15.500		

GR	628.400	25.800	628.100	31.000	627.700	36.200	627.000	41.300	626.300	46.500
GR	625.500	51.700	624.700	56.800	623.900	62.000	623.100	67.200	622.300	72.400
GR	621.500	77.500	621.400	82.700	621.300	87.900	621.000	93.100	620.500	98.200
GR	619.900	103.400	619.400	108.600	618.800	113.700	618.300	118.900	617.800	124.100
GR	617.700	129.300	617.500	134.400	617.400	139.600	617.100	144.800	616.400	150.000
GR	615.800	150.200	615.300	150.500	614.700	150.800	614.200	151.100	613.600	151.400
GR	613.400	151.600	613.300	151.900	613.200	152.200	613.200	152.500	613.200	152.800
GR	613.300	153.100	613.300	153.300	613.300	153.600	613.400	153.900	613.600	154.200
GR	613.800	154.500	613.900	154.800	614.100	155.000	614.200	155.300	614.300	155.600
GR	614.500	155.900	614.600	156.200	614.800	156.500	614.900	156.700	615.100	157.000
GR	615.400	157.300	615.700	157.600	616.000	157.900	616.300	158.200	616.700	158.500
GR	617.100	173.200	618.200	187.900	619.800	202.600	621.200	217.300	621.400	232.000
GR	621.700	246.700	621.900	261.500	622.400	276.200	622.800	290.900	623.200	305.600
GR	626.200	320.300	626.500	335.000	626.800	349.800	627.200	364.500	627.500	379.200
GR	627.800	393.900	628.200	408.600	628.300	423.300	628.300	438.100	628.400	452.800
GR	628.400	467.500	628.500	482.200	628.600	496.900	628.700	511.600	628.800	526.400
GR	628.900	541.100	628.900	555.800	628.900	570.500	629.000	585.200	629.000	600.000
X1	3138.000	90.000	175.000	184.700	212.000	212.000	212.000	-0.000	-0.000	-0.000
GR	629.200	0.000	629.100	6.000	629.100	12.000	629.100	18.100	629.100	24.100
GR	628.900	30.100	628.700	36.200	628.500	42.200	628.200	48.200	627.800	54.300
GR	627.300	60.300	626.800	66.300	626.200	72.400	625.700	78.400	625.200	84.400
GR	624.700	90.500	624.700	96.500	624.600	102.500	624.200	108.600	623.400	114.600
GR	622.600	120.600	621.900	126.700	621.000	132.700	620.300	138.700	619.600	144.800
GR	619.500	150.800	619.300	156.800	619.200	162.900	618.700	168.900	617.800	175.000
GR	617.000	175.300	616.300	175.600	615.700	175.900	615.000	176.200	614.400	176.600
GR	614.000	176.900	613.900	177.200	613.800	177.500	613.800	177.900	613.800	178.200
GR	613.900	178.500	613.900	178.800	613.900	179.200	614.000	179.500	614.300	179.800
GR	614.600	180.100	614.800	180.500	615.000	180.800	615.200	181.100	615.400	181.400
GR	615.700	181.800	615.800	182.100	616.100	182.400	616.300	182.700	616.500	183.100
GR	616.800	183.400	617.100	183.700	617.400	184.000	617.700	184.400	618.000	184.700
GR	618.500	203.500	620.100	222.400	622.400	241.200	624.400	260.100	624.600	278.900
GR	624.900	297.700	625.100	316.600	625.500	335.400	625.700	354.300	625.800	373.100
GR	627.300	392.000	627.400	410.800	627.600	429.600	627.800	448.500	627.900	467.300
GR	628.100	486.200	628.300	505.000	628.400	523.800	628.400	542.700	628.500	561.500
GR	628.600	580.400	628.700	599.200	628.800	618.100	629.000	636.900	629.100	655.700
GR	629.200	674.600	629.200	693.400	629.200	712.300	629.300	731.100	629.300	750.000
NC	.055	.055	.045	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3350.000	20.000	200.000	211.000	212.000	212.000	212.000	-0.000	-0.000	-0.000
GR	629.600	0.000	629.400	63.000	628.100	100.000	627.900	121.000	621.600	164.000
GR	620.900	191.000	619.200	200.000	614.900	202.000	614.400	203.000	614.600	205.000
GR	615.600	206.000	619.400	211.000	620.300	243.000	627.700	300.000	628.700	400.000
GR	628.400	500.000	628.500	600.000	628.900	700.000	629.600	800.000	629.700	900.000
NC	.045	.055	.045	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3475.000	90.000	323.200	333.200	125.000	125.000	125.000	-0.000	-0.000	-0.000
GR	629.400	0.000	629.300	11.100	629.200	22.200	629.200	33.400	629.200	44.500
GR	629.200	55.700	629.300	66.800	629.500	78.000	629.600	89.100	629.600	100.300
GR	629.300	111.400	629.100	122.600	628.900	133.700	628.800	144.900	628.700	156.000
GR	628.500	167.100	628.400	178.300	628.300	189.400	627.800	200.600	627.000	211.700
GR	626.200	222.900	625.300	234.000	624.800	245.200	624.400	256.300	623.700	267.500
GR	623.500	278.600	623.300	289.800	622.900	300.900	621.600	312.100	619.200	323.200
GR	618.500	323.500	617.900	323.900	617.200	324.200	616.600	324.500	616.000	324.900
GR	615.700	325.200	615.600	325.500	615.500	325.900	615.500	326.200	615.500	326.500
GR	615.600	326.900	615.700	327.200	615.800	327.500	615.900	327.900	616.200	328.200
GR	616.500	328.500	616.800	328.900	617.000	329.200	617.300	329.500	617.500	329.900
GR	617.800	330.200	618.000	330.500	618.300	330.900	618.500	331.200	618.700	331.500
GR	619.000	331.900	619.200	332.200	619.500	332.500	619.700	332.900	619.900	333.200
GR	620.800	356.300	623.500	379.300	626.100	402.400	628.100	425.400	628.300	448.500
GR	628.300	471.500	628.500	494.600	628.500	517.700	628.500	540.700	628.600	563.800
GR	628.800	586.800	628.700	609.900	628.700	633.000	628.600	656.000	628.600	679.100
GR	628.500	702.100	628.500	725.200	628.900	748.200	629.000	771.300	629.100	794.400
GR	629.200	817.400	629.300	840.500	629.400	863.500	629.400	886.600	629.500	909.700
GR	629.500	932.700	629.500	955.800	629.500	978.800	629.400	1001.900	629.500	1025.000

X1	3600.000	90.000	446.500	455.500	125.000	125.000	125.000	-0.000	-0.000	-0.000
GR	629.300	0.000	629.200	15.300	629.000	30.700	628.900	46.100	629.000	61.500
GR	629.100	76.900	629.300	92.300	629.600	107.700	629.800	123.100	629.800	138.500
GR	629.600	153.900	629.300	169.300	629.100	184.700	629.300	200.100	629.300	215.500
GR	629.100	230.900	628.900	246.300	628.700	261.700	628.300	277.100	627.700	292.500
GR	627.000	307.900	626.300	323.300	626.400	338.700	626.500	354.100	626.000	369.500
GR	625.800	384.900	625.400	400.300	624.900	415.700	622.700	431.100	619.300	446.500
GR	618.800	446.700	618.400	447.000	617.900	447.300	617.400	447.600	617.000	447.900
GR	616.800	448.200	616.700	448.500	616.600	448.800	616.600	449.100	616.700	449.400
GR	616.800	449.700	616.900	450.000	617.000	450.300	617.100	450.600	617.400	450.900
GR	617.600	451.200	617.800	451.500	618.000	451.800	618.200	452.100	618.500	452.400
GR	618.700	452.700	618.900	453.000	619.100	453.300	619.300	453.600	619.500	453.900
GR	619.700	454.200	619.900	454.500	620.100	454.800	620.300	455.100	620.500	455.500
GR	621.600	478.600	624.900	501.700	627.200	524.900	628.600	548.000	628.700	571.200
GR	628.600	594.300	628.600	617.500	628.500	640.600	628.400	663.800	628.800	686.900
GR	629.200	710.100	629.100	733.200	629.000	756.400	628.900	779.500	628.800	802.700
GR	628.700	825.800	628.500	849.000	629.400	872.100	629.500	895.300	629.600	918.400
GR	629.700	941.600	629.700	964.700	629.700	987.900	629.600	1011.000	629.600	1034.200
GR	629.500	1057.300	629.500	1080.500	629.400	1103.600	629.300	1126.800	629.300	1150.000
X1	3725.000	90.000	569.700	577.700	125.000	125.000	125.000	-0.000	-0.000	-0.000
GR	629.200	0.000	629.000	19.600	628.700	39.200	628.600	58.900	628.700	78.500
GR	628.900	98.200	629.300	117.800	629.600	137.500	630.000	157.100	630.000	176.800
GR	629.800	196.400	629.500	216.100	629.300	235.700	629.800	255.400	629.900	275.000
GR	629.600	294.600	629.300	314.300	629.100	333.900	628.700	353.600	628.300	373.200
GR	627.800	392.900	627.300	412.500	627.900	432.200	628.500	451.800	628.200	471.500
GR	628.100	491.100	627.500	510.800	626.800	530.400	623.800	550.100	619.400	569.700
GR	619.000	570.000	618.700	570.200	618.400	570.500	618.100	570.800	617.900	571.000
GR	617.800	571.300	617.700	571.600	617.700	571.800	617.700	572.100	617.900	572.400
GR	618.000	572.600	618.100	572.900	618.200	573.200	618.400	573.400	618.600	573.700
GR	618.700	574.000	618.900	574.200	619.000	574.500	619.200	574.800	619.400	575.000
GR	619.600	575.300	619.800	575.600	619.900	575.800	620.100	576.100	620.300	576.400
GR	620.400	576.600	620.600	576.900	620.800	577.200	620.900	577.400	621.100	577.700
GR	622.400	600.900	626.300	624.200	628.200	647.400	629.100	670.700	629.000	693.900
GR	628.800	717.100	628.700	740.400	628.400	763.600	628.300	786.900	628.900	810.100
GR	629.500	833.400	629.500	856.600	629.300	879.800	629.200	903.100	629.000	926.300
GR	628.800	949.600	628.500	972.800	629.900	996.000	629.900	1019.300	630.000	1042.500
GR	630.100	1065.800	630.000	1089.000	629.900	1112.300	629.800	1135.500	629.600	1158.700
GR	629.500	1182.000	629.400	1205.200	629.300	1228.500	629.100	1251.700	629.000	1275.000
X1	3850.000	31.000	693.000	700.000	125.000	125.000	125.000	-0.000	-0.000	-0.000
GR	629.100	0.000	628.400	62.000	628.500	100.000	630.400	200.000	629.600	288.000
GR	627.700	300.000	630.900	313.000	629.600	400.000	628.900	463.000	628.300	500.000
GR	630.700	550.000	630.400	600.000	628.500	654.000	619.500	693.000	618.900	694.000
GR	618.900	695.000	621.700	700.000	623.700	714.000	623.000	727.000	629.200	752.000
GR	629.700	800.000	628.600	881.000	628.000	900.000	630.100	960.000	629.800	1000.000
GR	629.100	1065.000	628.600	1100.000	630.400	1120.000	630.600	1200.000	629.600	1300.000
GR	628.900	1400.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3942.000	-0.000	-0.000	-0.000	92.000	92.000	92.000	-0.000	.600	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3950.000	32.000	695.000	697.000	8.000	8.000	8.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	621.300	621.300	-0.000
GR	629.100	0.000	628.400	62.000	628.500	100.000	630.400	200.000	629.600	288.000
GR	627.700	300.000	630.900	313.000	629.600	400.000	628.900	463.000	628.300	500.000
GR	630.700	550.000	630.400	600.000	628.500	654.000	619.500	693.000	619.100	695.000
GR	618.700	696.000	619.100	697.000	621.700	700.000	623.700	714.000	623.000	727.000
GR	629.200	752.000	629.700	800.000	628.600	881.000	628.000	900.000	630.100	960.000
GR	629.800	1000.000	629.100	1065.000	628.600	1100.000	630.400	1120.000	630.600	1200.000
GR	629.600	1300.000	628.900	1400.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	6.120	2.800	-0.000	1.680	-0.000	3.140	-0.000	619.600	618.700
X1	4050.000	21.000	691.500	693.500	100.000	100.000	100.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	621.600	627.100	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	625.000	0.000	755.000	0.000	626.900	626.900	-0.000

BT	7.000	645.000	627.300	0.000	665.000	627.100	.0.000	691.500	627.100	621.200
BT	692.500	627.100	621.600	693.500	627.100	621.100	740.000	627.200	0.000	755.000
BT	627.300	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	628.200	0.000	628.500	100.000	628.500	200.000	628.800	300.000	628.800	400.000
GR	628.800	501.000	627.800	600.000	627.200	650.000	627.100	665.000	620.000	691.500
GR	619.600	692.500	620.000	693.500	627.200	740.000	627.200	750.000	627.800	800.000
GR	628.400	903.000	628.500	1000.000	629.000	1100.000	629.200	1200.000	629.100	1300.000
GR	629.000	1400.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.040	.040	.040	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4098.000	31.000	693.000	700.000	48.000	48.000	48.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	629.100	0.000	628.400	62.000	628.500	100.000	630.400	200.000	629.600	288.000
GR	627.700	300.000	630.900	313.000	629.600	400.000	628.900	463.000	628.300	500.000
GR	630.700	550.000	630.400	600.000	628.500	654.000	620.200	693.000	619.900	694.000
GR	619.900	695.000	622.400	700.000	623.700	714.000	623.000	727.000	629.200	752.000
GR	629.700	800.000	628.600	881.000	628.000	900.000	630.100	960.000	629.800	1000.000
GR	629.100	1065.000	628.600	1100.000	630.400	1120.000	630.600	1200.000	629.600	1300.000
GR	628.900	1400.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.060	.060	.050	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4600.000	25.000	665.000	700.000	502.000	502.000	502.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	629.600	0.000	630.200	100.000	628.600	170.000	630.800	250.000	630.500	340.000
GR	630.900	350.000	629.200	408.000	631.000	500.000	629.700	600.000	630.100	629.000
GR	626.500	642.000	626.800	665.000	623.800	675.000	623.500	680.000	623.700	686.000
GR	628.600	700.000	629.600	732.000	629.800	756.000	629.700	800.000	630.300	900.000
GR	631.100	1000.000	631.100	1100.000	631.500	1200.000	631.600	1300.000	631.400	1400.000
X1	4750.000	90.000	673.700	706.200	150.000	150.000	150.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	629.500	0.000	629.600	23.200	629.700	46.400	629.900	69.600	630.000	92.900
GR	629.800	116.100	629.500	139.300	629.100	162.600	629.300	185.800	629.800	209.000
GR	630.300	232.300	630.700	255.500	630.700	278.700	630.600	302.000	630.600	325.200
GR	630.700	348.400	630.500	371.700	630.000	394.900	629.600	418.100	630.000	441.400
GR	630.200	464.600	630.600	487.800	630.800	511.100	630.500	534.300	630.300	557.500
GR	630.000	580.800	629.800	604.000	630.000	627.200	627.500	650.500	627.900	673.700
GR	627.500	674.800	627.100	675.900	626.700	677.000	626.300	678.000	626.000	679.100
GR	625.600	680.200	625.300	681.300	624.900	682.400	624.600	683.400	624.500	684.500
GR	624.400	685.600	624.300	686.700	624.300	687.800	624.300	688.900	624.300	689.900
GR	624.400	691.000	624.400	692.100	624.500	693.200	624.900	694.300	625.300	695.400
GR	625.700	696.400	626.100	697.500	626.500	698.600	626.900	699.700	627.300	700.800
GR	627.700	701.900	628.100	702.900	628.500	704.000	628.900	705.100	629.300	706.200
GR	630.200	729.300	630.200	752.500	630.200	775.600	630.100	798.700	630.200	821.800
GR	630.300	844.900	630.400	868.100	630.500	891.200	630.600	914.300	630.800	937.400
GR	630.900	960.600	631.100	983.700	631.200	1006.800	631.200	1029.900	631.200	1053.100
GR	631.200	1076.200	631.200	1099.300	631.300	1122.400	631.300	1145.600	631.400	1168.700
GR	631.400	1191.800	631.500	1214.900	631.600	1238.100	631.600	1261.200	631.600	1284.300
GR	631.600	1307.400	631.600	1330.600	631.500	1353.700	631.500	1376.800	631.500	1400.000
X1	4900.000	90.000	682.500	712.500	150.000	150.000	150.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	629.500	0.000	629.600	23.500	629.700	47.000	629.900	70.600	630.000	94.100
GR	629.900	117.600	629.700	141.200	629.500	164.700	629.700	188.200	630.000	211.800
GR	630.400	235.300	630.700	258.800	630.700	282.400	630.700	305.900	630.700	329.400
GR	630.800	353.000	630.700	376.500	630.300	400.000	630.100	423.600	630.300	447.100
GR	630.400	470.600	630.600	494.200	630.700	517.700	630.500	541.200	630.300	564.800
GR	630.100	588.300	630.000	611.800	630.200	635.400	628.500	658.900	629.000	682.500
GR	628.600	683.500	628.200	684.500	627.800	685.400	627.400	686.400	627.000	687.400
GR	626.700	688.400	626.300	689.400	625.900	690.400	625.600	691.400	625.400	692.400
GR	625.300	693.400	625.200	694.400	625.200	695.400	625.200	696.400	625.200	697.400
GR	625.300	698.400	625.300	699.400	625.400	700.400	625.800	701.400	626.200	702.400
GR	626.500	703.400	626.900	704.400	627.300	705.400	627.700	706.400	628.100	707.400
GR	628.400	708.400	628.800	709.400	629.200	710.400	629.600	711.400	630.000	712.500
GR	631.100	735.400	630.700	758.300	630.700	781.200	630.600	804.100	630.700	827.000
GR	630.700	849.900	630.800	872.900	630.900	895.800	631.000	918.700	631.100	941.600

GR	631.200	964.500	631.300	987.400	631.400	1010.400	631.400	1033.300	631.400	1056.200
GR	631.400	1079.100	631.400	1102.000	631.500	1124.900	631.500	1147.900	631.500	1170.800
GR	631.500	1193.700	631.600	1216.600	631.700	1239.500	631.700	1262.400	631.800	1285.400
GR	631.800	1308.300	631.800	1331.200	631.700	1354.100	631.700	1377.000	631.700	1400.000
X1	5050.000	90.000	691.200	718.700	150.000	150.000	150.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	629.400	0.000	629.500	23.800	629.600	47.600	629.800	71.500	629.900	95.300
GR	630.000	119.100	629.900	143.000	629.900	166.800	630.000	190.600	630.200	214.500
GR	630.500	238.300	630.700	262.100	630.700	286.000	630.800	309.800	630.800	333.700
GR	630.900	357.500	630.800	381.300	630.600	405.200	630.500	429.000	630.500	452.800
GR	630.500	476.700	630.600	500.500	630.600	524.300	630.400	548.200	630.300	572.000
GR	630.200	595.900	630.200	619.700	630.300	643.500	629.500	667.400	630.100	691.200
GR	629.600	692.100	629.200	693.000	628.800	694.000	628.400	694.900	628.000	695.800
GR	627.600	696.700	627.200	697.600	626.800	698.500	626.500	699.400	626.200	700.400
GR	626.100	701.300	626.100	702.200	626.000	703.100	626.000	704.000	626.100	704.900
GR	626.100	705.900	626.200	706.800	626.300	707.700	626.600	708.600	627.000	709.500
GR	627.300	710.400	627.700	711.400	628.100	712.300	628.500	713.200	628.800	714.100
GR	629.200	715.000	629.500	715.900	629.900	716.900	630.300	717.800	630.700	718.700
GR	632.000	741.400	631.200	764.100	631.100	786.800	631.100	809.500	631.100	832.200
GR	631.100	855.000	631.200	877.700	631.200	900.400	631.300	923.100	631.300	945.800
GR	631.400	968.500	631.400	991.200	631.500	1013.900	631.500	1036.600	631.600	1059.300
GR	631.600	1082.000	631.600	1104.700	631.600	1127.400	631.600	1150.200	631.600	1172.900
GR	631.600	1195.600	631.600	1218.300	631.700	1241.000	631.800	1263.700	631.900	1286.400
GR	631.900	1309.100	631.900	1331.800	631.900	1354.500	631.900	1377.200	631.900	1400.000
NC	.070	.070	.055	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5200.000	23.000	700.000	725.000	150.000	150.000	150.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	629.400	0.000	630.000	100.000	630.500	200.000	630.900	300.000	631.100	400.000
GR	630.700	500.000	630.300	600.000	630.700	695.000	631.200	700.000	627.200	708.000
GR	626.900	711.000	627.200	715.000	631.400	725.000	632.900	735.000	633.200	759.000
GR	631.900	763.000	631.600	800.000	631.600	900.000	631.700	1000.000	631.900	1100.000
GR	631.700	1200.000	632.100	1300.000	632.100	1400.000	-0.000	-0.000	-0.000	-0.000
EJ	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

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HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
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T1 LINCOLN TWP. FIS 5555-35
T2 100 YEAR FLOOD
T3 GOODROW DRAIN

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-0.	4.	-0.	-0.	.001000	-0.00	-0.0	-0.	597.000	-0.000

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

SECNO	DEPTH	CWSEL	CRIWS	[illegible]	[illegible]	HV	HL	OLOSS	BANK ELEV
Q	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	VOL	TWA	LEFT/RIGHT
ITYE	V	VCH	VPOR	[illegible]	[illegible]	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	[illegible]	[illegible]	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 576.0 [illegible] TYPE= 1 TARGET= 248.000

0.00	6.20	602.20	0.00	602.20	602.20	.00	0.00	0.00	597.00
105.	51.	7.	47.	255.	18.	252.	0.	0.	597.00
0.00	.19	.39	.19	.050	.040	.050	0.000	596.00	576.00
.000014	-0.	-0.	-0.	0	0	1	0.00	248.00	824.00

3280 CROSS SECTION 1.00 EXTENDED 1.50 FEET

3470 ENCROACHMENT STATIONS= 576.0 824.0 TYPE= 1 TARGET= 248.000

1.00	6.20	602.20	0.00	0.00	602.20	.00	.00	.00	597.00
105.	50.	8.	47.	241.	18.	234.	0.	0.	597.00
.00	.21	.45	.20	.050	.040	.050	.020	596.00	576.00
.000019	1.	1.	1.	0	0	1	0.00	248.00	824.00

Lincoln Twp FIS
JHA File No 5555-35

Goodrow Drain

SPECIAL BRIDGE

SB	XK	XKOR	COEQ	RDLEN	RWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.67	2.60	-0.00	2.35	-0.00	7.07	-0.00	596.00	596.00

New starting water surface elevation from Hickory Creek flow at Peak Goodrow Drain flow.

3280 CROSS SECTION 25.00 EXTENDED 1.52 FEET

PRESSURE AND WEIR FLOW

FGRRS	FGLWC	HB	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
607.92	602.20	0.00	[illegible]	7.	7.	599.00	600.50	30.00

100 year flow to critical depth (TW) at first bridge SECNO 1050

Summary of 4 flows.

3470 ENCROACHMENT STATIONS= 582.0 818.0 TYPE= 1 TARGET= 236.000

25.00	6.22	602.22	0.00	0.00	602.22	.00	.02	0.00	597.00
105.	50.	8.	47.	232.	18.	224.	0.	0.	597.00
.03	.21	.47	.21	.050	.040	.050	.037	596.00	582.00
.000020	24.	24.	24.	0	0	0	0.00	236.00	818.00

3280 CROSS SECTION 41.00 EXTENDED 1.12 FEET

3470 ENCROACHMENT STATIONS= 141.0 414.0 TYPE= 1 TARGET= 228.000

41.00	[illegible]	602.22	0.00	[illegible]	602.22	.00	.00	.00	600.30
105.	[illegible]	25.	41.	155.	66.	200.	0.	0.	600.50
.05	.20	.41	.21	.050	.040	.050	.037	596.10	191.00
.000021	[illegible]	18.	18.	[illegible]	0	1	0.00	228.00	419.00

[illegible]	[illegible]	15.	15.	0	0	1	0.00	228.00	419.00

SECTION	DEPTH	WSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
[illegible]	[illegible]	[illegible]	QROB	ALOB	ACH	AROB	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= 195.0 303.0 TYPE= 1 TARGET= 108.000

281.00	4.02	602.22	0.00	0.00	602.25	.02	.01	.01	600.60
105.	19.	60.	26.	33.	40.	44.	2.	1.	600.60
.11	.58	1.49	.59	.050	.040	.050	.039	598.20	195.00
.000[illegible]	240.	240.	240.	0	0	1	0.00	108.00	303.00

3470 ENCROACHMENT STATIONS= 208.0 291.0 TYPE= 1 TARGET= 83.000

331.00	3.64	602.24	0.00	0.00	602.29	.05	.03	.01	601.00
105.	14.	73.	15.	18.	35.	24.	2.	1.	601.00
.12	.75	2.06	.73	.050	.040	.050	.039	598.60	213.30
.0[illegible]472	50.	50.	50.	0	0	1	0.00	77.70	291.00

381.00	3.17	602.27	0.00	0.00	602.40	.13	.07	.04	601.50
105.	6.	91.	7.	7.	30.	10.	2.	1.	601.50
.12	.90	3.07	.78	.050	.040	.050	.039	599.10	224.55
.002462	50.	50.	50.	0	0	1	0.00	55.74	280.29

431.00	2.99	602.39	0.00	0.00	602.50	.21	.16	.04	601.90
105.	2.	100.	3.	3.	25.	4.	2.	1.	601.90
.12	.87	3.81	.77	.050	.040	.050	.039	599.50	231.32
.004476	50.	50.	50.	2	0	1	0.00	39.87	271.19

481.00	2.62	602.62	0.00	0.00	602.94	.32	.29	.05	602.40
105.	0.	104.	0.	1.	23.	1.	2.	1.	602.40
.13	.60	4.56	.60	.050	.040	.050	.039	600.00	237.69
.007698	50.	50.	50.	2	0	1	0.00	24.95	262.64

521.00	2.63	602.93	0.00	0.00	603.25	.32	.31	.00	602.70
105.	0.	104.	1.	1.	23.	1.	2.	1.	602.70
.13	.61	4.54	.61	.050	.040	.050	.039	600.30	237.52
.007588	40.	40.	41.	2	0	1	0.00	25.35	262.87

641.00	2.52	603.92	0.00	0.00	604.29	.37	1.01	.02	603.80
105.	0.	105.	0.	0.	22.	0.	2.	2.	603.80
.14	.44	4.87	.44	.050	.040	.050	.039	601.40	240.14
.009444	120.	120.	120.	2	0	1	0.00	19.20	259.34

761.00	2.55	604.45	0.00	0.00	605.14	.19	.80	.05	604.30
105.	5.	77.	23.	4.	20.	14.	2.	2.	603.80
.15	1.17	3.96	1.[illegible]	.050	.040	.050	.039	602.40	120.56
.00[illegible]	12[illegible].	12[illegible].	12[illegible].	0	0	1	0.00	45.80	166.36

SECTION	DEPTH	WSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
[illegible]	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT

1000.00	2.10	606.60	[illegible]	[illegible]	[illegible]	.31	1.71	.06	605.70
105.	[illegible]	74.	[illegible]	[illegible]	[illegible]	[illegible]	3.	2.	605.00
.15	1.[illegible]	5.[illegible]	2.71	[illegible]	[illegible]	.050	.041	604.50	70.54
.011315	234.	234.	234.			1	0.00	26.94	97.49

3470 ENCROACHMENT STATIONS= 7[illegible].0 [illegible] TYPE= 1 TARGET= 12.000

1030.00	2.29	606.[illegible]	0.00	[illegible]	[illegible]	.40	.33	.04	605.80
105.	[illegible]	65.	14.	2.	16.	3.	3.	2.	605.10
.15	3.01	5.30	4.28	.050	.045	.050	.041	604.60	76.00
.010795	[illegible]	30.	30.	[illegible]	0	1	0.00	12.00	88.00

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	IOC	ICONT	CORAR	TOPWID	ENDST

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= [illegible].10 ELREA= 608.10

1050.00	2.40	607.00	607.00	0.00	[illegible].21	1.21	.37	0.00	605.50
105.	0.	105.	0.	0.	12.	0.	3.	2.	604.90
.16	0.00	[illegible].81	0.00	.050	.045	.050	.041	604.60	80.00
.038481	20.	20.	20.	3	[illegible]	1	0.00	5.00	85.00

SPECIAL BRIDGE

SK	XK	XKOR	COEQ	RDLEQ	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	5.10	2.8[illegible]	-0.00	4.19	-0.00	14.23	-0.00	604.80	604.60

3301 HV CHANGED MORE THAN HVINS

PRESSURE FLOW

EGPRS	EGL C	H3	Q EIR	QPR	BAREA	ELLC	ELTPD	CLASS
611.32	608.39	0.00	0.	105.	14.	607.90	619.00	10.00

XS elev used for bridge bm CWSEL= 612.56

3470 ENCROACHMENT STATIONS= 210.[illegible] 364.0 TYPE= 1 TARGET= 154.000

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 619.20 ELREA= 619.00

1140.00	5.35	611.15	0.00	0.00	611.32	.17	3.11	0.00	604.80
105.	[illegible]	105.	0.	0.	32.	0.	3.	2.	604.80
.17	0.00	3.31	0.00	.050	.045	.050	.041	604.80	286.50
.002277	90.	90.	90.	[illegible]	0	1	0.00	5.00	291.50

WATER EL=XS CARD= 612.560

3470 ENCROACHMENT STATIONS= 210.0 364.0 TYPE= 1 TARGET= 154.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 619.20 ELREA= 619.00

BRIDGE SECTION C ALPINE RIDGE ROAD

90°-60" CMP ENTRANCE DESIGN: PROJECTING FROM FILL

1140.00	7.76	612.56	0.00	0.00	612.67	.11	.35	.32	604.80
105.	0.	105.	0.	0.	39.	0.	1.	1.	604.80
.09	0.00	2.71	0.00	.050	.045	.050	.048	604.80	286.50
.001377	90.	90.	90.	0	0	1	0.00	5.00	291.50

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= 72.0 117.0 TYPE= 1 TARGET= 45.000

1160.00	7.91	612.71	0.00	0.00	612.71	.00	.00	.03	607.30
105.	34.	36.	35.	89.	77.	89.	1.	1.	607.30
.10	.39	.47	.39	.050	.045	.050	.048	604.80	72.00
.000019	20.	20.	20.	2	0	1	0.00	45.00	117.00

3470 ENCROACHMENT STATIONS= 25.0 173.0 TYPE= 1 TARGET= 148.000

1210.00	7.84	612.71	0.00	0.00	612.71	.00	.00	.00	607.37
105.	42.	14.	49.	295.	76.	342.	2.	1.	607.37
.20	.14	.19	.14	.050	.045	.050	.047	604.87	25.00
.000003	50.	50.	50.	2	0	1	0.00	148.00	173.00

3470 ENCROACHMENT STATIONS= 36.0 153.0 TYPE= 1 TARGET= 117.000

1280.00	7.74	612.71	0.00	0.00	612.71	.00	.00	.00	607.47
105.	43.	17.	45.	249.	75.	254.	3.	2.	607.47
.30	.17	.23	.18	.050	.045	.050	.047	604.97	36.00
.000004	70.	70.	70.	0	0	1	0.00	117.00	153.00

3470 ENCROACHMENT STATIONS= 47.0 175.0 TYPE= 1 TARGET= -47.000

BRIDGE SECTION D ABANDONED CULVERT

12°-66" CONC ENTRANCE DESIGN: PROJECTING FROM FILL

1300.00	7.71	612.71	0.00	0.00	612.71	.00	.00	.00	605.00
105.	34.	13.	58.	168.	42.	282.	3.	2.	605.00
.33	.20	.31	.21	.050	.045	.050	.047	605.00	47.00
.000006	20.	20.	20.	0	0	1	0.00	102.13	149.13

SPECIAL BRIDGE

-0.00	2.00	2.80	-0.00	5.50	-0.00	19.00	-0.00	604.90	605.00

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
613.66	612.61	0.00	87.	18.	19.	609.40	609.50	30.00

3470 ENCROACHMENT STATIONS=			53.0	175.0	TYPE=	1	TARGET=	-53.000	
1312.00	7.84	612.74	0.00	0.00	612.74	.00	.03	0.00	605.70
105.	32.	13.	60.	140.	42.	265.	3.	2.	605.70
.34	.23	.32	.23	.050	.045	.050	.047	604.90	53.00
.000007	12.	12.	12.	0	0	6	0.00	96.23	149.23
1333.00	7.23	612.73	0.00	0.00	612.74	.00	.00	.00	609.70
105.	50.	53.	3.	129.	76.	9.	3.	2.	609.60
.35	.38	.70	.29	.050	.045	.050	.047	605.50	109.85
.000059	15.	21.	25.	0	0	1	0.00	83.20	193.05

CCHV= .300 CEHV= .500

3470 ENCROACHMENT STATIONS=			112.0	219.0	TYPE=	1	TARGET=	-112.000	
1355.00	6.64	612.74	0.00	0.00	612.74	.00	.00	.00	608.50
105.	74.	27.	3.	205.	72.	18.	3.	2.	608.40
.37	.36	.38	.18	.035	.045	.050	.047	606.10	112.00
.000015	17.	22.	27.	0	0	1	0.00	83.36	195.36

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

3470 ENCROACHMENT STATIONS=			120.0	219.0	TYPE=	1	TARGET=	-120.000	
1377.00	6.04	612.74	0.00	0.00	612.74	.00	.00	.00	609.10
105.	71.	31.	3.	157.	65.	13.	3.	2.	609.00
.38	.45	.48	.22	.035	.045	.050	.047	606.70	120.00
.000028	22.	22.	22.	0	0	1	0.00	74.21	194.21

3470 ENCROACHMENT STATIONS=			134.0	219.0	TYPE=	1	TARGET=	-134.000	

VALLEY SECTION E

1400.00	5.44	612.74	0.00	0.00	612.74	.01	.00	.00	609.70
105.	63.	39.	3.	101.	58.	9.	4.	2.	609.60
.39	.62	.68	.30	.035	.045	.050	.047	607.30	134.00
.000064	23.	23.	23.	0	0	1	0.00	59.05	193.05

3470 ENCROACHMENT STATIONS=			154.0	219.0	TYPE=	1	TARGET=	-154.000	
1440.00	5.74	612.74	0.00	0.00	612.75	.01	.00	.00	609.40
105.	52.	49.	4.	64.	61.	11.	4.	2.	609.30
.41	.81	.80	.36	.035	.045	.050	.047	607.00	154.00
.000082	40.	40.	40.	0	0	1	0.00	39.63	193.63

3470 ENCROACHMENT STATIONS= 87.0 201.0 TYPE= 1 TARGET= 114.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 617.00 ELREA= 617.00

1500.00	6.15	612.65	0.00	0.00	612.87	.21	.01	.10	608.00
105.	0.	105.	0.	0.	28.	0.	4.	2.	608.00
.41	0.00	3.72	0.00	.035	.045	.050	.047	606.50	178.45
.003336	60.	60.	60.	2	0	1	0.00	5.00	183.45

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.77	2.80	-0.00	3.79	-0.00	19.64	-0.00	607.50	606.50

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
613.88	613.87	0.00	0.	105.	20.	612.50	617.60	10.00

3470 ENCROACHMENT STATIONS= 203.0 328.0 TYPE= 1 TARGET= 125.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 617.60 ELREA= 618.20

BRIDGE SECTION F JOHN BEERS ROAD

70'-60" CMP ENTRANCE DESIGN: PROJECTING FROM FILL

1570.00	6.17	613.67	0.00	0.00	613.88	.21	1.01	0.00	609.00
105.	0.	105.	0.	0.	28.	0.	4.	2.	609.00
.42	0.00	3.71	0.00	.035	.045	.050	.047	607.50	303.75
.003310	70.	70.	70.	2	0	1	0.00	5.00	308.75

1615.00	5.85	613.95	0.00	0.00	613.95	.00	.00	.06	608.60
105.	23.	15.	67.	83.	34.	253.	4.	2.	608.50
.46	.27	.44	.27	.060	.045	.060	.047	608.10	29.17
.000018	45.	45.	45.	2	0	1	0.00	94.97	124.14

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

1665.00	5.05	613.95	0.00	0.00	613.95	.00	.00	.00	609.40
105.	23.	16.	65.	67.	29.	200.	4.	2.	609.30
.50	.35	.55	.33	.060	.045	.060	.047	608.90	30.70
.000034	50.	50.	50.	2	0	1	0.00	90.60	121.30

1720.00	4.25	613.95	0.00	0.00	613.95	.00	.00	.00	610.20
105.	24.	18.	63.	52.	25.	149.	5.	2.	610.10
.53	.46	.73	.42	.060	.045	.060	.046	609.70	32.22
.000077	55.	55.	55.	0	0	1	0.00	85.45	117.67

VALLEY SECTION G

1775.00	3.35	613.95	0.00	0.00	613.96	.01	.01	.00	611.10
105.	26.	21.	58.	37.	19.	97.	5.	2.	611.00
.55	.69	1.09	.60	.060	.045	.060	.046	610.60	33.94
.000238	55.	55.	55.	0	0	1	0.00	75.94	109.87
1850.00	3.07	613.97	0.00	0.00	613.98	.01	.02	.00	611.40
105.	26.	22.	56.	32.	18.	82.	5.	2.	611.30
.57	.80	1.28	.69	.060	.045	.060	.046	610.90	34.48
.000367	75.	75.	75.	1	0	1	0.00	72.94	107.41
1913.00	2.90	614.00	0.00	0.00	614.01	.01	.03	.00	611.60
105.	27.	23.	55.	30.	17.	73.	5.	3.	611.50
.59	.89	1.42	.75	.060	.045	.060	.046	611.10	34.81
.000494	63.	63.	63.	1	0	1	0.00	71.08	105.89

3470 ENCROACHMENT STATIONS= 15.0 152.0 TYPE= 1 TARGET= 137.000

1925.00	4.11	614.01	0.00	0.00	614.02	.01	.00	.00	610.90
105.	28.	12.	65.	41.	11.	106.	5.	3.	610.90
.60	.69	1.04	.61	.060	.045	.060	.046	609.90	33.83
.000230	12.	12.	12.	1	0	1	0.00	76.51	110.34

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	RWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	4.11	2.80	-0.00	2.53	-0.00	7.07	-0.00	610.20	609.90

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
628.09	615.63	0.00	17.	88.	7.	613.20	623.60	30.00

3470 ENCROACHMENT STATIONS= 236.0 336.0 TYPE= 1 TARGET= 100.000

BRIDGE SECTION H ECHO RIDGE ROAD

90'-36" CMP ENTRANCE DESIGN: PROJECTING FROM FILL

2015.00	13.69	623.89	0.00	0.00	623.89	.00	9.87	0.00	611.20
105.	43.	4.	58.	469.	40.	667.	7.	3.	611.20
.88	.09	.11	.09	.060	.045	.060	.046	610.20	236.00
.000000	90.	90.	90.	0	0	7	0.00	100.00	336.00

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
2048.00	13.59	623.89	0.00	0.00	623.89	.00	.00	.00	611.90
105.	48.	7.	50.	688.	80.	720.	8.	3.	612.20
1.01	.07	.09	.07	.060	.045	.060	.046	610.30	25.04

.000000	33.	33.	33.	0	0	1	0.00	168.15	193.19

CCHV= .300 CEHV= .500

VALLEY SECTION I

2500.00	11.79	623.89	0.00	0.00	623.89	.00	.00	.00	613.70
87.	40.	6.	41.	558.	69.	579.	22.	5.	614.00
2.74	.07	.08	.07	.045	.040	.045	.045	612.10	29.58
.000000	452.	452.	452.	0	0	1	0.00	147.35	176.92
2713.00	11.19	623.89	0.00	0.00	623.89	.00	.00	.00	615.10
87.	36.	7.	44.	491.	75.	631.	28.	5.	615.40
3.55	.07	.09	.07	.045	.040	.045	.045	612.70	42.74
.000000	213.	213.	213.	0	0	1	0.00	202.94	245.68
2926.00	10.59	623.89	0.00	0.00	623.89	.00	.00	.00	616.50
87.	35.	11.	41.	359.	80.	463.	33.	6.	616.80
4.15	.10	.14	.09	.045	.040	.045	.044	613.30	62.72
.000001	213.	213.	213.	0	0	1	0.00	245.77	308.49
3138.00	10.09	623.89	0.00	0.00	623.89	.00	.00	.00	617.80
87.	32.	18.	38.	220.	83.	253.	36.	7.	618.00
4.52	.14	.21	.15	.045	.040	.045	.044	613.80	110.93
.000003	212.	212.	212.	0	0	1	0.00	144.35	255.28

VALLEY SECTION J

3350.00	9.49	623.89	0.00	0.00	623.89	.00	.00	.00	619.20
87.	22.	28.	37.	124.	82.	179.	39.	8.	619.40
4.76	.18	.34	.21	.055	.045	.055	.044	614.40	148.37
.000012	212.	212.	212.	0	0	1	0.00	122.28	270.65
3475.00	8.39	623.89	0.00	0.00	623.89	.00	.00	.00	619.20
87.	21.	32.	34.	75.	67.	123.	40.	8.	619.90
4.86	.28	.48	.28	.045	.045	.055	.044	615.50	264.45
.000025	125.	125.	125.	0	0	1	0.00	118.33	382.77
3600.00	7.29	623.89	0.00	0.00	623.90	.00	.00	.00	619.30
87.	23.	34.	30.	50.	52.	84.	40.	9.	620.50
4.93	.45	.66	.36	.045	.045	.055	.044	616.60	422.75
.000054	125.	125.	125.	0	0	1	0.00	71.91	494.65

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
3725.00	6.20	623.90	0.00	0.00	623.91	.01	.01	.00	619.40
87.	27.	35.	25.	45.	39.	57.	41.	9.	621.10
4.98	.60	.89	.45	.045	.045	.055	.044	617.70	549.46
.000112	125.	125.	125.	0	0	1	0.00	60.40	609.85

VALLEY SECTION K

3850.00	5.02	623.92	0.00	0.00	623.93	.02	.02	.00	619.50
87.	39.	36.	11.	42.	28.	26.	41.	9.	621.70
5.02	.94	1.30	.44	.045	.045	.055	.044	618.90	673.90
.000290	125.	125.	125.	0	0	1	0.00	56.77	730.66

3265 DIVIDED FLOW

3942.00	4.45	623.95	0.00	0.00	623.98	.03	.04	.01	620.10
87.	40.	41.	6.	32.	24.	11.	41.	9.	622.30
5.04	1.26	1.73	.54	.045	.045	.055	.044	619.50	676.38
.000631	92.	92.	92.	1	0	1	0.00	42.68	728.36

3950.00	5.27	623.97	0.00	0.00	623.99	.02	.00	.01	619.10
87.	51.	15.	21.	53.	10.	39.	41.	9.	619.10
5.04	.98	1.47	.54	.045	.045	.055	.044	618.70	673.62
.000249	8.	8.	8.	2	0	1	0.00	57.30	730.92

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	6.12	2.80	-0.00	1.68	-0.00	3.14	-0.00	619.60	618.70

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
696.93	626.01	0.00	68.	19.	3.	621.60	627.10	30.00

3470 ENCROACHMENT STATIONS= 645.0 755.0 TYPE= 1 TARGET= 110.000

BRIDGE SECTION L PONDEROSA DRIVE

100'-24" CMP ENTRANCE DESIGN: PROJECTING FROM FILL

4050.00	7.92	627.52	0.00	0.00	627.52	.00	3.54	0.00	620.00
87.	33.	7.	47.	112.	15.	187.	42.	9.	620.00
5.13	.29	.47	.25	.045	.045	.055	.044	619.60	645.00
.000015	100.	100.	100.	0	0	9	0.00	110.00	755.00

4098.00	7.62	627.52	0.00	0.00	627.52	.00	.00	.00	620.20
87.	31.	16.	40.	126.	47.	158.	42.	9.	622.40
5.18	.24	.35	.25	.040	.040	.040	.044	619.90	658.56
.000008	48.	48.	48.	0	0	1	0.00	86.71	745.27

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 626.80 ELREA= 628.60

VALLEY SECTION M

4600.00	4.03	627.53	0.00	0.00	627.54	.01	.01	.01	626.80
87.	8.	79.	0.	22.	86.	0.	45.	10.	628.60
5.35	.36	.91	0.00	.060	.050	.060	.045	623.50	638.26
.000263	502.	502.	502.	0	0	1	0.00	58.70	626.96

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 627.90 ELREA= 629.30

4750.00	3.29	627.59	0.00	0.00	627.62	.04	.07	.01	627.90
87.	0.	87.	0.	0.	58.	0.	45.	10.	629.30
5.37	0.00	1.50	0.00	.060	.050	.060	.045	624.30	674.56
.000975	150.	150.	150.	2	0	1	0.00	27.02	701.59

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 629.00 ELREA= 630.00

4900.00	2.60	627.80	0.00	0.00	627.89	.09	.24	.03	629.00
87.	0.	87.	0.	0.	37.	0.	45.	11.	630.00
5.39	0.00	2.35	0.00	.060	.050	.060	.045	625.20	685.39
.003154	150.	150.	150.	2	0	1	0.00	21.26	706.66

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 630.10 ELREA= 630.70

5050.00	2.40	628.40	0.00	0.00	628.54	.14	.63	.03	630.10
87.	0.	87.	0.	0.	29.	0.	45.	11.	630.70
5.41	0.00	3.00	0.00	.060	.050	.060	.045	626.00	694.90
.005767	150.	150.	150.	2	0	1	0.00	18.07	712.97

3280 CROSS SECTION 5200.00 EXTENDED .00 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 631.20 ELREA= 631.40

VALLEY SECTION N

5200.00	2.50	629.40	0.00	0.00	629.56	.16	1.01	.01	631.20
87.	0.	87.	0.	0.	27.	0.	45.	11.	631.40
5.42	0.00	3.22	0.00	.070	.055	.070	.045	626.90	703.60
.008002	150.	150.	150.	2	0	1	0.00	16.64	720.24



1) COUNTY: Berrien

2) STUDY NAME: Lincoln Township

3) WATERCOURSE: Goodrow Drain

4) DOCUMENT TYPE: Summary



SUMMARY PRINTOUT FOR MULTIPLE PROFILES

FOOTHROW DRAIN

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRTWS	EG	TOPWID	10K*S	TIME	VOL
0.00	0.00	0.00	0.00	596.00	53.00	600.28	0.00	600.22	89.00	4.42	0.00	0.00
0.00	0.00	0.00	0.00	596.00	90.00	601.65	0.00	601.65	248.00	.26	0.00	0.00
0.00	0.00	0.00	0.00	596.00	105.00	602.20	0.00	602.20	248.00	.14	0.00	0.00
0.00	0.00	0.00	0.00	596.00	130.00	603.05	0.00	603.05	248.00	.08	0.00	0.00
1.00	1.00	0.00	0.00	596.00	53.00	600.17	0.00	600.25	24.36	11.93	.00	.00
1.00	1.00	0.00	0.00	596.00	90.00	601.65	0.00	601.65	248.00	.39	.00	.01
1.00	1.00	0.00	0.00	596.00	105.00	602.20	0.00	602.20	248.00	.19	.00	.01
1.00	1.00	0.00	0.00	596.00	130.00	603.05	0.00	603.05	248.00	.09	.00	.02
25.00	24.00	600.50	599.00	596.00	53.00	600.45	0.00	600.52	190.44	5.90	.01	.03
25.00	24.00	600.50	599.00	596.00	90.00	601.67	0.00	601.67	236.00	.41	.02	.20
25.00	24.00	600.50	599.00	596.00	105.00	602.22	0.00	602.22	236.00	.20	.03	.28
25.00	24.00	600.50	599.00	596.00	130.00	603.07	0.00	603.07	236.00	.10	.04	.40
41.00	16.00	0.00	0.00	596.10	53.00	600.51	0.00	600.53	176.83	3.08	.01	.05
41.00	16.00	0.00	0.00	596.10	90.00	601.67	0.00	601.67	228.00	.40	.04	.32
41.00	16.00	0.00	0.00	596.10	105.00	602.22	0.00	602.22	228.00	.21	.05	.45
41.00	16.00	0.00	0.00	596.10	130.00	603.07	0.00	603.07	228.00	.10	.06	.64
281.00	240.00	0.00	0.00	598.20	53.00	600.64	0.00	600.74	14.58	28.41	.04	.28
281.00	240.00	0.00	0.00	598.20	90.00	601.67	0.00	601.72	73.47	8.99	.08	1.41
281.00	240.00	0.00	0.00	598.20	105.00	602.22	0.00	602.25	108.00	3.81	.11	2.01
281.00	240.00	0.00	0.00	598.20	130.00	603.07	0.00	603.08	108.00	1.31	.15	2.99
331.00	50.00	0.00	0.00	598.60	53.00	600.79	0.00	600.93	11.81	44.20	.04	.31
331.00	50.00	0.00	0.00	598.60	90.00	601.71	0.00	601.82	52.22	20.69	.08	1.47
331.00	50.00	0.00	0.00	598.60	105.00	602.26	0.00	602.29	77.70	8.72	.12	2.13
331.00	50.00	0.00	0.00	598.60	130.00	603.04	0.00	603.10	83.00	2.78	.16	3.20
381.00	50.00	0.00	0.00	599.10	53.00	601.04	0.00	601.24	10.96	72.19	.04	.32
381.00	50.00	0.00	0.00	599.10	90.00	601.81	0.00	602.02	29.92	47.36	.09	1.51
381.00	50.00	0.00	0.00	599.10	105.00	602.27	0.00	602.40	55.74	24.62	.12	2.20
381.00	50.00	0.00	0.00	599.10	130.00	603.09	0.00	603.12	176.94	5.93	.18	3.35
431.00	50.00	0.00	0.00	599.50	53.00	601.41	0.00	601.62	10.85	77.16	.05	.34
431.00	50.00	0.00	0.00	599.50	90.00	602.05	0.00	602.32	21.48	63.98	.09	1.54
431.00	50.00	0.00	0.00	599.50	105.00	602.39	0.00	602.60	39.87	44.76	.12	2.24
431.00	50.00	0.00	0.00	599.50	130.00	603.11	0.00	603.19	94.71	14.16	.18	3.47
481.00	50.00	0.00	0.00	600.00	53.00	601.62	0.00	602.06	10.55	93.85	.05	.36
481.00	50.00	0.00	0.00	600.00	90.00	602.40	0.00	602.72	12.75	87.58	.09	1.56
481.00	50.00	0.00	0.00	600.00	105.00	602.82	0.00	602.94	24.95	76.98	.13	2.28
481.00	50.00	0.00	0.00	600.00	130.00	603.15	0.00	603.36	55.33	38.33	.19	3.54
521.00	40.00	0.00	0.00	600.30	53.00	602.20	0.00	602.41	10.82	78.83	.05	.37
521.00	40.00	0.00	0.00	600.30	90.00	602.76	0.00	603.05	15.99	77.89	.10	1.58
521.00	40.00	0.00	0.00	600.30	105.00	602.93	0.00	603.25	25.35	75.88	.13	2.30
521.00	40.00	0.00	0.00	600.30	130.00	603.31	0.00	603.57	46.67	53.20	.19	3.58

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
641.00	120.00	0.00	0.00	601.40	53.00	603.21	0.00	603.46	10.54	93.94	.06	.41
641.00	120.00	0.00	0.00	601.40	90.00	603.77	0.00	604.09	12.38	93.99	.10	1.64
641.00	120.00	0.00	0.00	601.40	105.00	603.92	0.00	604.29	19.20	94.44	.14	2.36
641.00	120.00	0.00	0.00	601.40	130.00	604.08	603.66	604.53	28.46	104.09	.19	3.67
761.00	120.00	0.00	0.00	602.40	53.00	604.27	0.00	604.49	19.26	77.70	.07	.45
761.00	120.00	0.00	0.00	602.40	90.00	604.78	0.00	604.98	38.99	55.01	.11	1.71
761.00	120.00	0.00	0.00	602.40	105.00	604.95	0.00	605.14	45.80	49.42	.15	2.44
761.00	120.00	0.00	0.00	602.40	130.00	605.19	0.00	605.36	55.30	40.38	.21	3.77
1000.00	239.00	0.00	0.00	604.50	53.00	606.21	0.00	606.38	21.01	79.50	.09	.54
1000.00	239.00	0.00	0.00	604.50	90.00	606.51	0.00	606.78	25.52	104.34	.13	1.86
1000.00	239.00	0.00	0.00	604.50	105.00	606.60	0.00	606.91	26.94	113.16	.16	2.62
1000.00	239.00	0.00	0.00	604.50	130.00	606.69	0.00	607.09	28.50	136.38	.22	3.99
1030.00	30.00	0.00	0.00	604.40	53.00	606.43	0.00	606.62	12.00	71.14	.09	.55
1030.00	30.00	0.00	0.00	604.60	90.00	606.78	0.00	607.11	12.00	97.03	.13	1.87
1030.00	30.00	0.00	0.00	604.60	105.00	606.89	0.00	607.29	12.00	107.95	.16	2.64
1030.00	30.00	0.00	0.00	604.60	130.00	607.03	0.00	607.55	12.00	129.31	.22	4.01
1050.00	20.00	0.00	0.00	604.60	53.00	606.50	0.00	606.99	5.00	198.00	.10	.56
1050.00	20.00	0.00	0.00	604.60	90.00	606.77	606.77	607.86	5.00	381.57	.13	1.88
1050.00	20.00	0.00	0.00	604.60	105.00	607.00	607.00	608.21	5.00	384.81	.16	2.64
1050.00	20.00	0.00	0.00	604.60	130.00	607.38	607.38	608.76	5.00	388.06	.22	4.02
1140.00	90.00	619.00	607.90	604.30	53.00	607.94	0.00	608.15	5.00	80.19	.10	.58
1140.00	90.00	619.00	607.90	604.30	90.00	609.73	0.00	609.94	5.00	31.99	.14	1.92
1140.00	90.00	619.00	607.90	604.30	105.00	611.15	0.00	611.32	5.00	22.77	.17	2.69
1140.00	90.00	619.00	607.90	604.30	130.00	613.66	0.00	613.98	5.00	14.48	.23	4.08

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH SECTION	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	53.000	600.200	0.000	0.000	0.000	88.999	0.000	-0.000
0.000	90.000	601.650	1.450	0.000	0.000	247.999	-159.000	-0.000
0.000	105.000	602.200	.550	0.000	0.000	247.999	-159.000	-0.000
0.000	130.000	603.050	.850	0.000	0.000	247.999	-159.000	-0.000
1.000	53.000	600.173	0.000	-.027	0.000	24.358	0.000	1.000
1.000	90.000	601.650	1.477	-.000	0.000	247.999	-223.641	1.000
1.000	105.000	602.200	.550	-.000	0.000	247.999	-223.641	1.000
1.000	130.000	603.050	.850	-.000	0.000	247.999	-223.641	1.000
25.000	53.000	600.490	0.000	.317	0.000	190.439	0.000	24.000
25.000	90.000	601.671	1.180	.021	0.000	235.999	-45.560	24.000
25.000	105.000	602.221	.550	.021	0.000	235.999	-45.560	24.000
25.000	130.000	603.072	.851	.022	0.000	235.999	-45.560	24.000
41.000	53.000	600.511	0.000	.021	0.000	178.829	0.000	16.000
41.000	90.000	601.671	1.160	.000	0.000	227.999	-49.170	16.000
41.000	105.000	602.221	.550	.000	0.000	227.999	-49.170	16.000
41.000	130.000	603.072	.851	.000	0.000	227.999	-49.170	16.000
281.000	53.000	600.637	0.000	.125	0.000	14.577	0.000	240.000
281.000	90.000	601.674	1.037	.003	0.000	73.469	-58.892	240.000
281.000	105.000	602.224	.550	.003	0.000	107.999	-93.422	240.000
281.000	130.000	603.075	.850	.002	0.000	107.999	-93.422	240.000
331.000	53.000	600.793	0.000	.156	0.000	11.806	0.000	50.000

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
1160.00	20.00	0.00	0.00	604.80	53.00	608.16	0.00	608.18	45.00	7.21	.11	.56
1160.00	20.00	0.00	0.00	604.80	90.00	611.42	0.00	611.43	45.00	.32	.10	.90
1160.00	20.00	0.00	0.00	604.80	105.00	612.71	0.00	612.71	45.00	.19	.10	1.04
1160.00	20.00	0.00	0.00	604.80	130.00	615.20	0.00	615.20	45.00	.09	.10	1.28
1210.00	50.00	0.00	0.00	604.87	53.00	608.20	0.00	608.22	99.87	6.98	.12	.62
1210.00	50.00	0.00	0.00	604.87	90.00	611.43	0.00	611.43	148.00	.06	.18	1.32
1210.00	50.00	0.00	0.00	604.87	105.00	612.71	0.00	612.71	148.00	.03	.20	1.60
1210.00	50.00	0.00	0.00	604.87	130.00	615.20	0.00	615.20	148.00	.01	.22	2.11
1280.00	70.00	0.00	0.00	604.97	53.00	608.25	0.00	608.27	94.46	8.09	.13	.72
1280.00	70.00	0.00	0.00	604.97	90.00	611.43	0.00	611.43	117.00	.09	.28	2.08
1280.00	70.00	0.00	0.00	604.97	105.00	612.71	0.00	612.71	117.00	.04	.30	2.63
1280.00	70.00	0.00	0.00	604.97	130.00	615.20	0.00	615.20	117.00	.02	.35	3.68
1300.00	20.00	0.00	0.00	605.00	53.00	608.22	0.00	608.36	5.40	29.95	.14	.74
1300.00	20.00	0.00	0.00	605.00	90.00	611.43	0.00	611.43	97.65	.11	.30	2.26
1300.00	20.00	0.00	0.00	605.00	105.00	612.71	0.00	612.71	102.13	.06	.33	2.88
1300.00	20.00	0.00	0.00	605.00	130.00	615.20	0.00	615.20	110.85	.02	.38	4.05
1312.00	12.00	609.50	609.40	604.90	53.00	608.25	0.00	608.40	5.40	40.30	.14	.74
1312.00	12.00	609.50	609.40	604.90	90.00	611.47	0.00	611.47	91.79	.13	.31	2.36
1312.00	12.00	609.50	609.40	604.90	105.00	612.74	0.00	612.74	96.23	.07	.34	3.01
1312.00	12.00	609.50	609.40	604.90	130.00	615.22	0.00	615.22	104.92	.03	.40	4.25
1333.00	21.00	0.00	0.00	605.50	53.00	608.41	0.00	608.49	10.49	19.19	.14	.75
1333.00	21.00	0.00	0.00	605.50	90.00	611.46	0.00	611.48	69.02	1.94	.32	2.46
1333.00	21.00	0.00	0.00	605.50	105.00	612.73	0.00	612.74	83.20	.59	.35	3.16
1333.00	21.00	0.00	0.00	605.50	130.00	615.22	0.00	615.22	103.86	.12	.42	4.51
1355.00	22.00	0.00	0.00	606.10	53.00	608.45	0.00	608.56	12.08	36.27	.14	.76
1355.00	22.00	0.00	0.00	606.10	90.00	611.48	0.00	611.48	80.92	.42	.33	2.53
1355.00	22.00	0.00	0.00	606.10	105.00	612.74	0.00	612.74	83.36	.15	.37	3.27
1355.00	22.00	0.00	0.00	606.10	130.00	615.22	0.00	615.22	88.15	.04	.44	4.72
1377.00	22.00	0.00	0.00	606.70	53.00	608.52	0.00	608.74	10.63	98.33	.14	.77
1377.00	22.00	0.00	0.00	606.70	90.00	611.48	0.00	611.48	71.77	.97	.34	2.62
1377.00	22.00	0.00	0.00	606.70	105.00	612.74	0.00	612.74	74.21	.28	.38	3.41
1377.00	22.00	0.00	0.00	606.70	130.00	615.22	0.00	615.22	78.99	.06	.46	4.95
1400.00	23.00	0.00	0.00	607.30	53.00	608.77	0.00	609.14	9.69	216.53	.15	.78
1400.00	23.00	0.00	0.00	607.30	90.00	611.48	0.00	611.49	56.61	2.79	.34	2.68
1400.00	23.00	0.00	0.00	607.30	105.00	612.74	0.00	612.74	59.05	.64	.39	3.51
1400.00	23.00	0.00	0.00	607.30	130.00	615.22	0.00	615.22	63.84	.13	.47	5.15
1440.00	40.00	0.00	0.00	607.00	53.00	609.40	0.00	609.49	12.19	33.43	.15	.79
1440.00	40.00	0.00	0.00	607.00	90.00	611.48	0.00	611.50	37.21	2.36	.35	2.76
1440.00	40.00	0.00	0.00	607.00	105.00	612.74	0.00	612.75	39.63	.82	.41	3.65
1440.00	40.00	0.00	0.00	607.00	130.00	615.22	0.00	615.22	44.42	.22	.49	5.41

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
1500.00	60.00	0.00	0.00	606.50	53.00	609.60	0.00	609.86	5.00	72.23	.15	.82
1500.00	60.00	0.00	0.00	606.50	90.00	611.40	0.00	611.66	5.00	47.68	.36	2.84
1500.00	60.00	0.00	0.00	606.50	105.00	612.65	0.00	612.87	5.00	33.36	.41	3.77
1500.00	60.00	0.00	0.00	606.50	130.00	615.15	0.00	615.31	5.00	20.07	.50	5.60
1570.00	70.00	617.60	612.50	607.50	53.00	610.19	0.00	610.55	5.00	120.23	.16	.84
1570.00	70.00	617.60	612.50	607.50	90.00	611.79	0.00	612.16	5.00	89.49	.36	2.87
1570.00	70.00	617.60	612.50	607.50	105.00	613.67	0.00	613.88	5.00	33.10	.42	3.81
1570.00	70.00	617.60	612.50	607.50	130.00	616.90	0.00	617.03	5.00	16.12	.50	5.67
1615.00	45.00	0.00	0.00	608.10	53.00	610.69	0.00	610.69	67.84	2.25	.18	.89
1615.00	45.00	0.00	0.00	608.10	90.00	612.28	0.00	612.28	84.69	.61	.39	2.99
1615.00	45.00	0.00	0.00	608.10	105.00	613.95	0.00	613.95	94.97	.18	.46	4.02
1615.00	45.00	0.00	0.00	608.10	130.00	617.07	0.00	617.07	112.07	.04	.57	6.05
1665.00	50.00	0.00	0.00	608.90	53.00	610.70	0.00	610.73	54.55	15.89	.19	.98
1665.00	50.00	0.00	0.00	608.90	90.00	612.28	0.00	612.29	76.24	1.68	.41	3.21
1665.00	50.00	0.00	0.00	608.90	105.00	613.95	0.00	613.95	90.60	.34	.50	4.40
1665.00	50.00	0.00	0.00	608.90	130.00	617.07	0.00	617.07	107.69	.06	.63	6.80
1720.00	55.00	0.00	0.00	609.70	53.00	610.83	0.00	611.02	36.39	196.06	.20	1.02
1720.00	55.00	0.00	0.00	609.70	90.00	612.29	0.00	612.31	67.82	6.50	.43	3.37
1720.00	55.00	0.00	0.00	609.70	105.00	613.95	0.00	613.95	85.45	.77	.53	4.73
1720.00	55.00	0.00	0.00	609.70	130.00	617.07	0.00	617.07	103.32	.10	.69	7.51
1775.00	55.00	0.00	0.00	610.60	53.00	611.80	0.00	611.95	38.18	142.73	.20	1.05
1775.00	55.00	0.00	0.00	610.60	90.00	612.33	0.00	612.42	52.70	56.08	.44	3.46
1775.00	55.00	0.00	0.00	610.60	105.00	613.95	0.00	613.96	75.94	2.38	.55	4.97
1775.00	55.00	0.00	0.00	610.60	130.00	617.07	0.00	617.07	98.40	.17	.74	8.11
1850.00	75.00	0.00	0.00	610.90	53.00	612.42	0.00	612.47	47.18	37.68	.21	1.10
1850.00	75.00	0.00	0.00	610.90	90.00	612.72	0.00	612.80	55.03	43.56	.45	3.54
1850.00	75.00	0.00	0.00	610.90	105.00	613.97	0.00	613.98	72.94	3.67	.57	5.21
1850.00	75.00	0.00	0.00	610.90	130.00	617.07	0.00	617.08	96.77	.21	.80	8.83
1913.00	63.00	0.00	0.00	611.10	53.00	612.66	0.00	612.70	47.72	35.16	.22	1.15
1913.00	63.00	0.00	0.00	611.10	90.00	612.99	0.00	613.05	56.85	36.06	.45	3.62
1913.00	63.00	0.00	0.00	611.10	105.00	614.00	0.00	614.01	71.08	4.94	.59	5.40
1913.00	63.00	0.00	0.00	611.10	130.00	617.07	0.00	617.08	95.68	.25	.85	9.40
1925.00	12.00	0.00	0.00	609.90	53.00	612.34	612.34	613.41	3.00	478.79	.22	1.15
1925.00	12.00	0.00	0.00	609.90	90.00	613.19	613.19	614.77	3.00	548.37	.46	3.63
1925.00	12.00	0.00	0.00	609.90	105.00	614.01	0.00	614.02	76.51	2.30	.60	5.44
1925.00	12.00	0.00	0.00	609.90	130.00	617.08	0.00	617.08	98.42	.18	.86	9.51
2015.00	90.00	623.60	613.20	610.20	53.00	615.75	0.00	615.92	3.00	45.14	.23	1.18
2015.00	90.00	623.60	613.20	610.20	90.00	623.45	0.00	623.53	3.00	15.23	.47	3.68
2015.00	90.00	623.60	613.20	610.20	105.00	623.89	0.00	623.89	100.00	.00	.88	6.81
2015.00	90.00	623.60	613.20	610.20	130.00	624.06	0.00	624.06	100.00	.01	1.09	11.19

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
2048.00	33.00	0.00	0.00	610.30	53.00	615.98	0.00	615.98	124.54	.07	.29	1.32
2048.00	33.00	0.00	0.00	610.30	90.00	623.56	0.00	623.56	164.11	.00	.61	4.23
2048.00	33.00	0.00	0.00	610.30	105.00	623.89	0.00	623.89	168.15	.00	1.01	7.82
2048.00	33.00	0.00	0.00	610.30	130.00	624.06	0.00	624.06	170.27	.01	1.20	12.22
2500.00	452.00	0.00	0.00	612.10	41.00	615.98	0.00	615.98	105.27	.31	.75	4.04
2500.00	452.00	0.00	0.00	612.10	74.00	623.56	0.00	623.56	146.28	.00	2.57	17.66
2500.00	452.00	0.00	0.00	612.10	87.00	623.89	0.00	623.89	147.35	.00	2.74	21.79
2500.00	452.00	0.00	0.00	612.10	115.00	624.06	0.00	624.06	148.48	.00	2.54	26.47
2713.00	213.00	0.00	0.00	612.70	41.00	615.98	0.00	616.03	43.18	10.48	.79	4.50
2713.00	213.00	0.00	0.00	612.70	74.00	623.56	0.00	623.56	200.86	.00	3.47	23.25
2713.00	213.00	0.00	0.00	612.70	87.00	623.89	0.00	623.89	202.94	.00	3.55	27.67
2713.00	213.00	0.00	0.00	612.70	115.00	624.06	0.00	624.06	204.04	.01	3.17	32.50
2926.00	213.00	0.00	0.00	613.30	41.00	616.30	0.00	616.41	8.03	29.67	.81	4.61
2926.00	213.00	0.00	0.00	613.30	74.00	623.56	0.00	623.56	241.97	.01	4.11	28.02
2926.00	213.00	0.00	0.00	613.30	87.00	623.89	0.00	623.89	245.77	.01	4.15	32.80
2926.00	213.00	0.00	0.00	613.30	115.00	624.06	0.00	624.06	247.76	.02	3.65	37.82
3138.00	212.00	0.00	0.00	613.80	41.00	616.92	0.00	617.02	8.17	27.74	.84	4.69
3138.00	212.00	0.00	0.00	613.80	74.00	623.56	0.00	623.56	138.69	.03	4.50	31.26
3138.00	212.00	0.00	0.00	613.80	87.00	623.89	0.00	623.89	144.35	.03	4.52	36.35
3138.00	212.00	0.00	0.00	613.80	115.00	624.06	0.00	624.06	147.31	.04	3.94	41.54
3350.00	212.00	0.00	0.00	614.40	41.00	617.59	0.00	617.69	7.86	36.55	.86	4.77
3350.00	212.00	0.00	0.00	614.40	74.00	623.56	0.00	623.56	117.44	.11	4.76	33.33
3350.00	212.00	0.00	0.00	614.40	87.00	623.89	0.00	623.89	122.28	.12	4.76	38.64
3350.00	212.00	0.00	0.00	614.40	115.00	624.07	0.00	624.07	124.83	.17	4.14	43.94
3475.00	125.00	0.00	0.00	615.50	41.00	618.19	0.00	618.37	7.04	75.96	.87	4.81
3475.00	125.00	0.00	0.00	615.50	74.00	623.56	0.00	623.56	104.39	.26	4.86	34.15
3475.00	125.00	0.00	0.00	615.50	87.00	623.89	0.00	623.89	118.33	.25	4.86	39.57
3475.00	125.00	0.00	0.00	615.50	115.00	624.07	0.00	624.07	122.70	.37	4.22	44.93
3600.00	125.00	0.00	0.00	616.60	41.00	619.23	0.00	619.44	6.96	94.57	.88	4.84
3600.00	125.00	0.00	0.00	616.60	74.00	623.56	0.00	623.57	67.23	.56	4.93	34.71
3600.00	125.00	0.00	0.00	616.60	87.00	623.89	0.00	623.90	71.91	.54	4.93	40.21
3600.00	125.00	0.00	0.00	616.60	115.00	624.07	0.00	624.08	74.38	.79	4.27	45.63
3725.00	125.00	0.00	0.00	617.70	41.00	620.32	0.00	620.49	10.80	74.51	.89	4.87
3725.00	125.00	0.00	0.00	617.70	74.00	623.57	0.00	623.58	56.71	1.21	4.98	35.12
3725.00	125.00	0.00	0.00	617.70	87.00	623.90	0.00	623.91	60.40	1.12	4.98	40.68
3725.00	125.00	0.00	0.00	617.70	115.00	624.08	0.00	624.09	62.64	1.59	4.32	46.13
3850.00	125.00	0.00	0.00	618.90	41.00	621.21	0.00	621.32	13.50	57.21	.90	4.92
3850.00	125.00	0.00	0.00	618.90	74.00	623.59	0.00	623.61	51.01	3.28	5.01	35.40
3850.00	125.00	0.00	0.00	618.90	87.00	623.92	0.00	623.93	56.77	2.90	5.02	41.02
3850.00	125.00	0.00	0.00	618.90	115.00	624.11	0.00	624.13	58.36	3.93	4.34	46.50

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
3942.00	92.00	0.00	0.00	619.50	41.00	621.76	0.00	621.88	13.20	63.99	.91	4.95
3942.00	92.00	0.00	0.00	619.50	74.00	623.62	0.00	623.66	32.04	7.04	5.03	35.54
3942.00	92.00	0.00	0.00	619.50	87.00	623.95	0.00	623.98	42.68	6.31	5.04	41.19
3942.00	92.00	0.00	0.00	619.50	115.00	624.15	0.00	624.19	49.82	8.30	4.36	46.70
3950.00	8.00	0.00	0.00	618.70	41.00	621.89	0.00	621.93	18.67	10.09	.91	4.95
3950.00	8.00	0.00	0.00	618.70	74.00	623.65	0.00	623.67	53.30	2.75	5.03	35.56
3950.00	8.00	0.00	0.00	618.70	87.00	623.97	0.00	623.99	57.30	2.49	5.04	41.21
3950.00	8.00	0.00	0.00	618.70	115.00	624.18	0.00	624.20	59.07	3.33	4.36	46.71
4050.00	100.00	627.10	621.60	619.60	41.00	627.30	0.00	627.30	110.00	.04	1.10	5.32
4050.00	100.00	627.10	621.60	619.60	74.00	627.47	0.00	627.47	110.00	.11	5.14	36.01
4050.00	100.00	627.10	621.60	619.60	87.00	627.52	0.00	627.52	110.00	.15	5.13	41.69
4050.00	100.00	627.10	621.60	619.60	115.00	627.62	0.00	627.62	110.00	.23	4.44	47.22
4098.00	48.00	0.00	0.00	619.90	41.00	627.30	0.00	627.30	84.72	.02	1.20	5.65
4098.00	48.00	0.00	0.00	619.90	74.00	627.47	0.00	627.47	86.26	.06	5.20	36.36
4098.00	48.00	0.00	0.00	619.90	87.00	627.52	0.00	627.52	86.71	.08	5.18	42.04
4098.00	48.00	0.00	0.00	619.90	115.00	627.62	0.00	627.62	87.56	.13	4.48	47.58
4600.00	502.00	0.00	0.00	623.50	41.00	627.30	0.00	627.31	57.20	.81	1.50	8.00
4600.00	502.00	0.00	0.00	623.50	74.00	627.48	0.00	627.49	58.36	2.04	5.39	38.85
4600.00	502.00	0.00	0.00	623.50	87.00	627.53	0.00	627.54	58.70	2.63	5.35	44.58
4600.00	502.00	0.00	0.00	623.50	115.00	627.63	0.00	627.65	59.35	4.01	4.61	50.20
4750.00	150.00	0.00	0.00	624.30	41.00	627.32	0.00	627.33	25.54	3.10	1.56	8.25
4750.00	150.00	0.00	0.00	624.30	74.00	627.52	0.00	627.55	26.66	7.68	5.42	39.13
4750.00	150.00	0.00	0.00	624.30	87.00	627.59	0.00	627.62	27.02	9.75	5.37	44.87
4750.00	150.00	0.00	0.00	624.30	115.00	627.71	0.00	627.77	27.72	14.52	4.63	50.51
4900.00	150.00	0.00	0.00	625.20	41.00	627.40	0.00	627.43	19.24	14.06	1.58	8.39
4900.00	150.00	0.00	0.00	625.20	74.00	627.69	0.00	627.77	20.73	27.16	5.44	39.29
4900.00	150.00	0.00	0.00	625.20	87.00	627.80	0.00	627.89	21.26	31.54	5.39	45.03
4900.00	150.00	0.00	0.00	625.20	115.00	628.02	0.00	628.14	22.29	39.44	4.64	50.68
5050.00	150.00	0.00	0.00	626.00	41.00	627.73	0.00	627.81	15.07	49.30	1.60	8.47
5050.00	150.00	0.00	0.00	626.00	74.00	628.23	0.00	628.36	17.33	56.15	5.45	39.39
5050.00	150.00	0.00	0.00	626.00	87.00	628.40	0.00	628.54	18.07	57.67	5.41	45.14
5050.00	150.00	0.00	0.00	626.00	115.00	628.72	0.00	628.89	19.66	60.55	4.66	50.82
5200.00	150.00	0.00	0.00	626.90	41.00	628.64	0.00	628.75	13.34	79.18	1.62	8.52
5200.00	150.00	0.00	0.00	626.90	74.00	629.22	0.00	629.37	15.84	79.70	5.47	39.48
5200.00	150.00	0.00	0.00	626.90	87.00	629.40	0.00	629.56	16.64	80.02	5.42	45.24
5200.00	150.00	0.00	0.00	626.90	115.00	629.75	0.00	629.94	18.17	80.43	4.67	50.93

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
0.000	53.000	599.750	0.000	0.000	0.000	31.965	0.000	-0.000
0.000	90.000	600.314	.564	0.000	0.000	122.248	-90.283	-0.000
0.000	105.000	600.429	.115	0.000	0.000	154.770	-122.805	-0.000
0.000	130.000	600.589	.160	0.000	0.000	174.999	-143.034	-0.000
1.000	53.000	599.714	0.000	-.035	0.000	12.305	0.000	1.000
1.000	90.000	600.235	.521	-.079	0.000	35.957	-23.652	1.000
1.000	105.000	600.334	.099	-.094	0.000	80.851	-68.545	1.000
1.000	130.000	600.494	.159	-.095	0.000	131.622	-119.317	1.000
25.000	53.000	600.399	0.000	.685	0.000	90.066	0.000	24.000
25.000	90.000	600.554	.155	.319	0.000	163.999	-73.933	24.000
25.000	105.000	600.587	.033	.252	0.000	163.999	-73.933	24.000
25.000	130.000	600.647	.060	.153	0.000	163.999	-73.933	24.000

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Lincoln Township

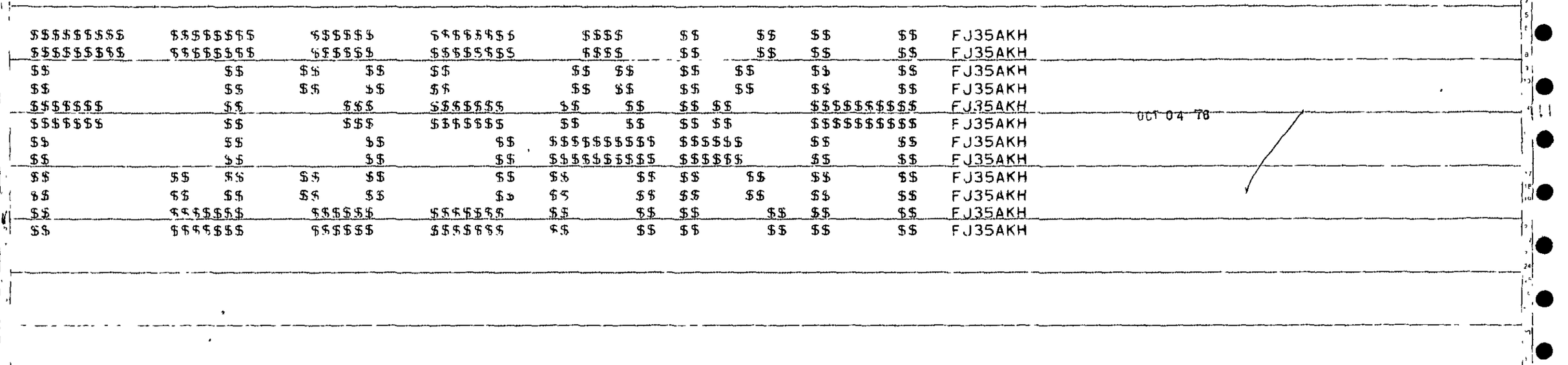
3) WATERCOURSE: Hickory Creek

4) DOCUMENT TYPE: 100-year

00BREAK00

HICKORY CREEK
LINCOLN TWP. FIS
J&A FILE NO. 5555-35

10-50-100-500 YR. FLOWS



OCT 04 78

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C
C     43
C  12000        VALLEY SECTION A
C  13500        VALLEY SECTION B
C  15735        VALLEY SECTION C
C  15835        BRIDGE SECTION D, MAIDEN LANE BRIDGE
C  15835        48' WIDE OPENING, TIMBER PILES ALONG ABUTMENTS
C  15940        BRIDGE SECTION E, ABANDONED ROAD BRIDGE
C  15940        46.5' WIDE OPENING, CONCRETE ABUTMENTS
C  16735        VALLEY SECTION F
C  17935        VALLEY SECTION G
C  18535        VALLEY SECTION H
C  18720        BRIDGE SECTION I, GLENLORD ROAD BRIDGE
C  18720        45.7' WIDE OPENING, CONCRETE ABUTMENTS
C  19770        VALLEY SECTION J
C  20170        BRIDGE SECTION K, I-94 BRIDGE
C  20170    68.8' WIDE OPENING, U-SHAPED CHANNEL, CONCRETE SIDES NATURAL BOTTOM,
C  20170        RUNNING 200' UNDER 4 LANES(2 EAST BOUND, 2 WEST BOUND) OF I-94
C  20470        VALLEY SECTION L
C  22435        VALLEY SECTION M
C  23970        VALLEY SECTION N
C  24068        BRIDGE SECTION O, MARQUETTE WOODS ROAD BRIDGE
C  24068        49' WIDE OPENING, WOODEN PIER W ABUTMENTS, WITH ASPHALT PAVEMENT
C  24068        OVER WOODEN BRIDGE DECK
C  24943        VALLEY SECTION P
C  25593        VALLEY SECTION Q
C  25643        BRIDGE SECTION R, ROOSEVELT STREET BRIDGE
C  25643        49.5' WIDE OPENING, WOOD PIERS, WITH WOODEN ABUTMENTS
C  25643        AND WING WALLS, ASPHALT PAVEMENT OVER WOODEN DECK
C  26873        VALLEY SECTION S
C  28073        VALLEY SECTION T
C  29073        VALLEY SECTION U
C  30273        VALLEY SECTION V
C  31398        VALLEY SECTION W
C  31473        BRIDGE SECTION X, JOHN BEERS ROAD BRIDGE
C  31473      60'-2-19'6"X12'6" CMP ARCH PIPES, MITERED TO CONFORM TO FILL SLOPE
C  31608        VALLEY SECTION Y
C  31833        VALLEY SECTION Z
C  32223        VALLEY SECTION AA
C  32433        VALLEY SECTION AB
C  33833        VALLEY SECTION AC
C  35233        VALLEY SECTION AD
C  35333        BRIDGE SECTION AE, STEVENSVILLE BARODA ROAD BRIDGE
C  35333        45' WIDE OPENING, CONCRETE ABUTMENTS
C  36567        VALLEY SECTION AF
T1       LINCOLN TOWNSHIP FIS J&A FILE NO. 5555-35
T2       10 YEAR FLOOD
T3       HICKORY CREEK
J1            2                .00057                          585.0
J2     1            -1
NC   .09     .09    .045      .3      .5
QT     4    1420    2265    2590    3280
X1 12000      19     572     631
X3    10
GR 628.6       0   589.1      85   586.1     141   585.6     241   585.0     241
GR 584.8     341   585.3     391   585.6     441   587.3     541   587.6     572
GR 581.3     583   582.0     593   582.3     602   586.5     609   586.6     615
GR 591.5     631   590.5     636   591.1     641   623.6     713
X1 12800      24     151     191     750     900     800
X3    10
GR 628.1       0   586.9      66   587.3      91   587.1     127   589.7     137
GR 587.9     144   587.4     151   582.4     157   581.8     167   582.0     178
[illegible]  [illegible]  587.2     191   588.6     201   587.0     291   586.8     391
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GR	587.6	691	588.7	720	602.9	791	625.0	854		
X1	13500	24	663	703	750	650	700			
X3	10			300						
GR	625.0	0	602.9	63	588.7	134	587.6	163	586.9	263
GR	586.7	363	587.0	431	586.1	435	586.9	438	586.8	463
GR	587.0	563	588.6	653	587.2	663	582.9	668	582.4	676
GR	582.2	687	582.8	697	587.4	703	587.9	710	589.7	717
GR	587.1	727	587.3	763	586.9	788	628.1	854		
X1	15100	16	68	105	1550	1600	1600			
X3	10					320				
GR	612.5	0	590.8	45	588.8	68	584.2	76	583.1	84
GR	583.8	99	591.2	105	592.3	133	590.2	140	589.3	168
GR	588.7	228	588.9	268	589.0	368	592.4	468	592.5	540
GR	631.3	608								
X1	15735	16	68	105	650	550	635		.1	
X3	10			50		160				
GR	612.5	0	590.8	45	588.8	68	584.5	76	583.4	84
GR	584.1	99	591.2	105	592.3	133	590.2	140	589.3	168
GR	588.7	228	588.9	268	589.0	368	592.4	468	592.5	540
GR	631.3	608								
X1	15785				50	50	50			
X3	10					110				
X1	15834	21	62	110	49	49	49			
X3	10							595.9	595.9	
GR	612.5	0	590.8	45	589.3	62	585.2	62	583.6	76
GR	585.1	78	585.0	81	583.4	89	584.2	95	587.6	100
GR	587.8	110	591.4	110	592.3	133	590.2	140	589.3	168
GR	588.7	228	588.9	268	589.0	368	592.4	468	592.5	540
GR	631.3	608								
NC	.03	.03	.03							
X1	15835	15	200	248	1	1	1			
X3	10									
BT	13	0.0	610.0	0.0	100.0	603.6	0.0	150.0	600.9	0.0
BT	200.0	599.8	595.9	214.0	599.6	595.5	216.0	599.6	595.5	219.0
BT	599.6	595.4	227.0	599.5	595.3	233.0	599.4	595.2	238.0	599.3
BT	595.2	248.0	599.2	595.2	300.0	599.3	0.0	400.0	601.9	0.0
GR	610.0	0	603.6	100	600.9	150	599.8	200	585.2	200
GR	583.6	214	585.1	216	585.0	219	583.4	227	584.2	233
GR	587.6	238	587.8	248	599.2	248	599.3	300	601.9	400
X1	15865				30	30	30			
X2							1			
X3	10									
NC	.09	.09	.045							
X1	15866	21	62	110	1	1	1			
X3	10							599.2	599.2	
GR	612.5	0	590.8	45	589.3	62	585.2	62	583.6	76
GR	585.1	78	585.0	81	583.4	89	584.2	95	587.6	100
GR	587.8	110	591.4	110	592.3	133	590.2	140	589.3	168
GR	588.7	228	588.9	268	589.0	368	592.4	468	592.5	540
GR	631.3	608								
NC	.09	.09	.045							
QT	4	1430	2265	2585	3275					
X1	15923	15	122	168.5	57	57	57			
X3	10					255				
GR	606.5	0	606.2	22	596.9	72	594.0	122	589.8	122
GR	586.0	130	584.2	140	584.3	146	584.1	164	586.4	168.5
GR	593.6	168.5	592.2	222	593.9	322	599.1	422	606.2	497
NC	.09	.09	.04							
SB		1.7	2.6		7.36		342		584.1	584.1
X1	15940	16	122	168.5	17	17	17			
X2			1	592.5	592.6					
X3	10					255				
BT	11	0.0	606.5	0.0	22.0	606.2	0.0	72.0	596.9	0.0
BT	122.0	594.0	592.5	130.0	593.9	592.5	140.0	593.8	592.5	146.0
BT	593.8	592.5	164.0	593.6	592.5	165.5	593.6	592.5	222.0	592.2

GR	606.5	0	606.2	22	596.9	72	594.0	122	589.8	122
GR	586.0	130	584.2	140	584.3	146	584.1	164	586.4	168.5
GR	593.6	168.5	592.2	222	592.8	255	593.9	322	599.1	422
GR	606.2	497								
NC	.09	.09	.045							
X1	16190	17	346	394	200	250	250			
X3	10			200		425				
GR	633.5	0	589.2	171	589.2	252	592.4	270	590.7	346
GR	584.6	352	584.9	364	584.1	370	587.8	374	590.4	381
GR	592.0	394	589.3	404	588.9	446	589.1	446	589.0	546
GR	592.5	630	614.4	716						
X1	16440				250	250	250			
X3	10					450				
X1	16735	17	346	394	295	295	295			
X3	10									
GR	633.5	0	589.2	171	589.2	252	592.4	270	590.7	346
GR	584.6	352	584.9	364	584.1	370	587.8	374	590.4	381
GR	592.0	394	589.3	404	588.9	446	589.1	446	589.0	546
GR	592.5	630	614.4	716						
X1	17935	24	442	480	1150	1250	1200			
X3	10			275						
GR	635.4	0	597.0	90	591.3	150	589.4	150	589.4	160
GR	591.1	160	590.2	242	590.9	340	588.3	344	586.4	350
GR	590.8	353	590.8	357	586.6	365	587.2	373	591.0	379
GR	591.5	442	590.8	445	585.3	458	584.7	466	584.1	474
GR	591.6	480	596.0	522	599.9	542	608.3	577		
X1	18285	17	315	352	350	350	350			
X3	10			225		460				
GR	615.6	0	590.4	36	590.2	101	587.7	108	587.3	116
GR	590.9	123	591.0	215	591.5	315	585.1	322	584.9	332
GR	584.7	345	591.5	352	590.2	415	590.8	515	591.5	615
GR	592.1	669	617.1	691						
X1	18535	17	315	352	300	200	250			
X3	10			260		370				
GR	615.6	0	590.4	36	590.2	101	587.7	108	587.3	116
GR	590.6	123	591.0	215	591.5	315	585.6	322	585.4	332
GR	585.2	345	591.5	352	590.2	415	590.8	515	591.5	615
GR	592.1	669	617.1	691						
X1	18635				125	75	100			
X3	10			290		360				
X1	18685	32	310.6	356.3	50	50	50			
X3	10							597.3	597.3	
GR	615.6	0	610.8	8	590.4	36	590.3	56.3	590.2	101
GR	590.3	108	590.5	116	590.6	123	590.7	156.3	591.0	215
GR	591.2	256.3	591.5	310.6	591.2	310.6	590.6	315.3	586.2	322.3
GR	586.4	326.3	585.6	333.3	585.2	340.3	585.5	347.3	589.7	350.3
GR	591.1	356.3	591.5	356.3	590.4	406.3	590.2	415	590.4	456.3
GR	590.8	515	591.1	556.3	591.5	615	592.0	656.3	592.1	669
GR	608.5	684	617.1	691						
SB		1.63	2.5		45.7		453		585.2	585.2
X1	18720				35	35	35			
X2			1	597.3	600.5					
X3	10							600.5	600.5	
BT	20	8	610.8		56.3	607.9		156.3	603.8	
BT	256.3	601.6		310.6	601.0	591.5	310.6	601.0	597.2	315.3
BT	601.0	597.2	322.3	601.0	597.3	326.3	601.0	597.3	333.3	601.0
BT	597.3	340.3	600.9	597.3	347.3	600.9	597.3	350.3	600.9	597.3
BT	356.3	600.9	597.3	356.3	600.9	591.5	406.3	600.5		456.3
BT	600.9		556.3	602.3		656.3	607.1		684	608.5
BT	0.0									
X1	18733	17	346	394	13	13	13			
X3	10			345		415				
GR	633.5	0	589.2	171	589.2	252	592.4	270	590.7	346
GR	585.7	352	586.0	364	585.2	370	588.9	374	591.5	381
GR	592.0	394	589.3	404	588.9	446	589.1	446	589.0	546
GR	592.5	630	614.4	716						

X1	18745				12	12	12			
X3	10			330		425				
X1	18770				25	25	25			
X3	10			300		450				
X1	18845				75	75	75			
X3	10			175		475				
X1	19345				425	550	500		.1	
X3	10			200		440				
X1	19770	15	239	275	425	425	425			
X3	10			190		300				
GR	607.7	0	592.9	47	591.4	139	591.7	189	591.5	239
GR	585.9	246	586.0	257	585.4	267	586.1	268	594.1	275
GR	596.3	339	598.9	439	597.2	475	599.7	505	600.5	539
X1	19920				200	100	150		.6	
X3	10			210		280				
X1	19970	21	222.6	291.4	100	20	50			
X3	10							598.8	598.8	
GR	607.7	0	592.9	47	591.4	139	591.7	189	591.6	222.6
GR	590.7	222.6	590.0	233.6	588.5	242.6	587.1	244.6	586.7	252.6
GR	586.3	262.6	586.3	271.6	587.3	280.6	589.9	285.6	589.4	291.4
GR	594.7	291.4	596.3	339	598.9	439	597.2	475	599.7	505
GR	600.5	539								
SB		2.38	2.5		70		744		586.3	586.3
X1	20170	31	110	178.8	200	200	200			
X2			1	598.8	600.3					
X3	10							600.3	600.3	
BT	21	34	603.6		55	603.1		110	602.8	592.0
BT	110	602.8	598.8	121	602.7	598.7	130	602.6	598.6	132
BT	602.6	598.6	140	602.5	598.5	150	602.5	598.4	159	602.4
BT	598.4	168	602.3	598.3	173	602.3	598.3	178.8	602.2	598.3
BT	178.8	602.2	590.0	210	602.0		310	601.5		410
BT	601.0		510	600.5		610	600.4		710	600.4
BT	0.0	766	600.3							
GR	620.0	0	603.6	34	593.4	55	593.1	65	592.0	110
GR	590.7	110	590.0	121	588.5	130	587.1	132	586.7	140
GR	586.3	150	586.3	159	587.3	168	589.9	173	589.4	178.8
GR	590.0	178.8	590.2	210	590.4	232	590.3	310	590.3	332
GR	590.9	410	591.1	432	591.3	510	591.3	532	591.5	610
GR	591.5	632	592.0	710	592.2	732	592.4	755	600.3	766
GR	617.4	789								
NC	.09	.09	.045							
QT	4	1440	2270	2585	3265					
X1	20220	20	132	165	50	50	50			
X3	10			125		295				
GR	620.0	0	593.7	55	591.9	58	591.7	61	593.1	65
GR	592.1	107	591.3	132	586.7	136	586.1	147	587.2	153
GR	587.8	160	592.6	165	590.4	232	590.3	332	591.1	432
GR	591.3	532	591.5	632	592.2	732	592.4	755	617.4	789
X1	20470	20	132	165	325	225	250			
X3	10			100		550				
GR	620.0	0	593.7	55	591.9	58	591.7	61	593.1	65
GR	592.1	107	591.3	132	586.1	136	585.5	147	586.6	153
GR	587.2	160	592.6	165	590.4	232	590.3	332	591.1	432
GR	591.3	532	591.5	632	592.2	732	592.4	755	617.4	789
X1	20870	20	500	533	400	400	400			
X3	10			300		1050				
GR	620.0	0	593.7	55	591.9	100	591.7	110	593.1	150
GR	592.1	300	591.3	500	586.5	504	585.9	515	587.0	521
GR	587.6	529	592.6	533	590.4	600	590.3	700	591.1	800
GR	591.3	900	591.5	1000	592.2	1100	592.4	1123	617.4	1157
X1	21370	20	132	165	500	500	500			
X3	10			75		650				
GR	620.0	0	593.7	55	591.9	58	591.7	61	593.1	65
GR	592.1	107	591.3	132	592.9	136	586.4	147	587.5	153
GR	588.1	160	592.6	165	590.4	232	590.3	332	591.0	432

X1	22435	22	536	576	1100	1050	1065			
X3	10									
GR	627.6	0	595.0	74	594.4	100	593.0	200	592.4	300
GR	592.9	400	593.0	464	593.4	500	593.4	536	587.3	541
GR	587.5	551	587.5	560	589.1	566	595.2	576	595.0	600
GR	593.5	649	592.2	651	592.3	670	594.7	676	594.8	700
GR	594.8	782	624.8	950						
X1	22985				550	550	550		.3	
X3	10			250						
X1	23585	20	132	165	600	600	600			
X3	10					450				
GR	620.0	0	593.7	55	591.9	58	591.7	61	593.1	65
GR	592.1	107	591.3	132	588.4	136	587.8	147	588.9	153
GR	589.5	160	592.6	165	590.4	232	590.3	332	591.1	432
GR	591.3	532	591.5	632	592.2	732	592.4	755	617.4	789
X1	23970	23	317	356	385	385	385			
X3	10		.	300		625				
GR	622.2	0	597.0	54	595.3	117	594.2	223	595.9	228
GR	593.7	317	589.0	325	588.0	335	588.6	337	588.0	344
GR	588.4	347	594.9	356	596.7	373	599.8	382	599.9	417
GR	597.7	517	597.7	555	595.4	560	594.6	617	594.4	717
GR	595.3	817	598.6	871	633.9	938				
X1	24035	30	312	361	65	65	65			
X3	10			300		650				
GR	622.2	0	597.0	54	595.3	117	594.2	223	595.9	228
GR	593.8	312	590.4	312	589.8	317	589.4	322	589.1	327
GP	588.7	332	588.4	335.5	587.9	337.5	588.4	342	588.2	347
GR	589.7	352	590.4	357	590.8	361	595.4	361	596.7	373
GR	599.8	382	599.9	417	597.7	517	597.7	555	595.4	560
GR	594.6	617	594.4	717	595.3	817	598.6	871	633.9	938
SB		1.70	2.7		49		470		587.9	587.9
X1	24068	32	244	293	33	33	33			
X2			1	598.8	599.3					
X3	10			75		568		600.0	599.3	
BT	22	75	603.5	.0	100	602.5	.0	125	601.5	.0
BT	144.0	600.7	0.0	244.0	600.0	598.8	249.0	600.0	598.8	254.0
BT	600.0	598.8	259.0	600.0	598.8	264.0	600.0	598.8	267.8	600.0
BT	598.8	267.8	600.0	598.8	269.5	600.0	598.8	269.5	600.0	598.8
BT	274.0	600.0	598.8	279.0	600.0	598.8	284.0	600.0	598.8	289.0
BT	600.0	598.8	293.0	600.0	598.8	344.0	599.7	0.0	444.0	599.3
BT	0.0	500.0	599.4	0.0	568	599.6	0.0			
GR	610.0	0	606.9	10	595.3	48	595.0	75	594.8	100
GR	595.5	125	594.2	155	593.8	244	590.4	244	589.8	249
GR	589.4	254	589.1	259	588.7	264	588.4	267.8	598.8	267.8
GR	598.8	269.5	587.9	269.5	588.4	274	588.2	279	589.7	284
GR	590.4	289	590.8	293	594.0	293	595.0	344	597.7	444
GP	595.4	500	595.5	568	594.6	617	594.4	717	595.3	817
GR	598.6	871	633.9	938						
QT	4	1190	1870	2130	2680					
X1	24118	20	132	165	100	10	50			
X3	10			100		350				
GR	620.0	0	593.7	55	591.9	58	591.7	61	593.1	65
GR	592.1	107	591.3	132	588.6	136	588.0	147	589.1	153
GR	589.7	160	592.6	165	590.4	232	590.3	332	591.1	432
GR	591.3	532	591.5	632	592.2	732	592.4	755	617.4	789
X1	24218	16	290	331	100	100	100			
X3	10			200		530				
GR	620.4	0	601.9	30	596.1	90	595.4	190	596.2	290
GR	589.0	298	588.1	306	588.7	312	589.1	319	592.7	323
GR	596.1	331	594.6	340	595.7	490	596.9	562	603.6	588
GR	608.7	690								
X1	24943	16	290	331	725	725	725			
X3	10									
GR	620.4	0	601.9	30	596.1	90	595.4	190	596.2	290
GR	589.7	298	588.8	306	589.4	312	589.8	319	592.8	323

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GR 608.7     690
X1 25268                          325     325     325             -.1
X3    10                  170             415
X1 25593      12      31      79     325     325     325
X3    10                                    100
GR 606.5       0   598.3      23   597.8      31   590.4      43   589.9      52
GR 588.6      62   590.4      68   596.1      79   596.2     131   598.9     231
GR 622.3     287   622.3     316
X1 25642      20      30    79.5      49      49      49
X3    10                                                  607.9   609.9
GR 606.5       0   598.3      23   597.9      30   592.1      30   591.9      35
GR 591.1      40   590.3      45   589.4      50   589.7    53.2   589.7    54.8
GR 590.0      56   590.3      60   591.1      65   592.8      70   594.6      75
GR 596.1    79.5   596.2     131   598.9     231   602.3     287.  622.6     316
NC   .03     .03     .04
X1 25643      21     251   300.5       1       1       1
X3    10
BT    17     0.0   613.3     0.0    51.0   610.6     0.0   151.0   607.3     0.0
BT 251.0   607.9   607.1   256.0   608.1   607.3   261.0   608.3   607.5   266.0
BT 608.5   607.7   271.0   608.8   607.9   274.2   608.9   608.1   275.8   608.9
BT 608.1   277.0   609.0   608.2   281.0   609.1   608.4   286.0   609.3   608.7
BT 291.0   609.5   608.9   296.0   609.7   609.2   300.5   609.9   609.4   351.0
BT 612.6     0.0
GR 613.3      00   610.6      51   607.3     151   607.9     251   592.1     251
GR 591.9     256   591.1     261   590.3     266   589.4     271   589.7   274.2
GR 608.1   274.2   608.1   275.8   589.7   275.8   590.0     277   590.3     281
GR 591.1     286   592.8     291   594.6     296   597.5   300.5   609.9   300.5
GR 612.6     351
X1 25673                           30      30      30
X2                                                  1
X3    10
NC   .09     .09    .045
X1 25674      21      30    79.5       1       1       1
X3    10                                                  607.9   609.9
GR 606.5       0   598.3      23   597.9      30   592.1      30   591.9      35
GR 591.1      40   590.3      45   589.4      50   589.7    53.2   589.7    54.8
GR 590.0      56   590.3      60   591.1      65   592.8      70   594.6      75
GR 597.5    79.5   596.1    79.5   596.2     131   598.9     231   602.3     287
GR 622.6     316
X1 25723      12     368     423      49      49      49              .2
X3    10                    300
GR 603.1       0   598.7      68   597.1     168   595.5     268   596.6     368
GR 592.0     377   589.2     388   591.1     392   591.4     406   594.2     423
GR 602.5     445   608.3     456
X1 25923                          200     200     200             -.1
X3    10                     50
X1 26873      12     368     423     950     950     950
X3    10
GR 603.1       0   598.7      68   597.1     168   595.5     268   596.6     368
GR 591.7     377   588.9     388   590.8     392   591.1     406   599.2     423
GR 602.5     445   608.3     456
X1 28073      17      94     133    1200    1200    1200
X3    10
GR 623.4       0   598.4      30   597.9      45   600.0      57   597.9      94
GR 591.8     102   591.6     109   591.4     117   591.4     125   598.1     133
GR 599.8     194   598.1     294   600.6     394   602.2     494   605.6     594
GR 604.4     606   625.0     634
X1 29073      15     205     243    1000    1000    1000
X3    10
GR 625.5       0   602.2      43   598.4     143   598.6     205   593.1     210
GR 592.4     217   592.3     223   592.4     232   593.6     237   598.8     243
GR 598.7     343   599.4     443   598.8     543   600.0     579   626.0     613
NC   .09     .07    .045
X1 30273      19     260     321    1000    1300    1200
X3    10                                    700
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GR 595.5     272   594.3     277   594.1     286   593.6     299   593.7     305
GR 594.4     315   598.6     321   598.3     360   599.2     460   599.8     560
GR 599.3     660   599.6     760   601.9     860   626.1     900
NC   .09     .09     .045
X1 30823      19     260     321     500     600     550              .1
X3    10                    150             480
GR 625.3       0   608.7      50   603.8      77   603.0     160   602.3     260
GR 596.0     272   594.8     277   594.6     286   594.1     299   594.2     305
GR 594.9     315   598.6     321   598.3     360   599.2     460   599.8     560
GR 599.3     660   599.6     760   601.8     860   626.1     900
X1 31111      19     407     466     288     288     288              .2
X3    10                                    600
GR 614.0       0   607.1      27   604.3     107   604.4     195   607.6     252
GR 608.2     307   605.2     407   595.1     421   594.4     437   594.7     450
GR 595.9     456   602.0     466   601.5     507   601.3     607   602.0     667
GR 607.9     678   608.2     707   611.8     807   613.9     887
NC   .07     .08     .045
QT     4    1200    1865    2120    2665
X1 31398      19     407     466     287     287     287
X3    10                                    475
GR 614.0       0   607.1      27   604.3     107   604.4     195   607.6     252
GR 608.2     307   605.2     407   595.6     421   594.9     437   595.2     450
GR 596.4     456   602.0     466   601.5     507   601.3     607   602.0     667
GR 607.9     678   608.2     707   611.8     807   613.9     887
X1 31472      31     415     458      74      74      74
X3    10                                              607.9   607.9
GR 614.0       0   607.1      27   604.3     107   604.4     195   607.6     252
GR 608.2     307   605.2     407   605.0     415   599.0     415   597.9     415
GR 596.8   415.7   596.3     417   595.8   419.5   595.4     422   595.4     425
GR 595.0     448   595.0     451   595.4   453.5   595.9     456   596.4   457.3
GR 597.5     458   598.6     458   602.1     458   602.0     466   601.5     507
GR 601.3     607   602.0     667   607.9     678   608.2     707   611.8     807
GR 613.9     887
NC   .03     .03     .03
X1 31473      38     400     443       1       1       1
X3    10   595.0
BT    30     0.0   612.4     0.0   100.0   608.4     0.0   200.0   608.2     0.0
BT 300.0   607.8     0.0   400.0   607.9   597.2   400.7   607.9   599.7   402.0
BT 607.9   602.0   404.5   607.9   604.5   407.0   607.9   605.8   410.0   607.9
BT 606.1   413.0   607.9   605.8   415.5   607.9   604.5   418.0   607.9   602.0
BT 419.3   607.9   599.7   420.0   607.9   597.2   423.0   607.9   596.8   423.7
BT 607.9   599.3   425.0   607.9   601.6   427.5   607.9   604.1   430.0   607.9
BT 605.4   433.0   607.9   605.7   436.0   607.9   605.4   438.5   607.9   604.1
BT 441.0   607.9   601.6   442.3   607.9   599.3   443.0   607.9   596.8   500.0
BT 607.9     0.0   600.0   608.5     0.0   700.0   609.8     0.0   800.0   612.5
BT   0.0
GR 612.4       0   608.4     100   608.2     200   607.8     300   607.9     400
GR 597.2     400   596.1     400   595.0   400.7   594.5     402   594.0   404.5
GR 593.6     407   593.6     410   593.6     413   594.0   415.5   594.5     418
GR 595.0   419.3   596.1     420   597.2     420   607.9     420   607.9     423
GR 596.8     423   595.7     423   594.6   423.7   594.1     425   593.6   427.5
GR 593.2     430   593.2     433   593.2     436   593.6   438.5   594.1     441
GR 594.6   442.3   595.7     443   596.8     443   607.9     443   607.9     500
GR 608.5     600   609.8     700   612.5     800
X1 31533                              60      60      60
X2                                                    1
X3    10   595.0
NC   .09     .09     .045
X1 31534      39     415     458       1       1       1
X3    10                                              607.9   607.9
GR 614.0       0   607.1      27   604.3     107   604.4     195   607.6     252
GR 608.2     307   605.2     407   599.4     415   597.9     415   596.8   415.7
GR 596.8     417   595.8   419.5   595.4     422   595.4     425   595.4     428
GR 595.8   430.5   596.3     433   596.8   434.3   597.9     435   597.5     438
GR 596.4   438.7   595.0     440   595.4   442.5   595.0     445   595.0     448
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GR	596.5	458	602.0	466	601.5	507	601.3	607	602.0	607
GR	607.9	678	608.2	707	611.8	807	613.9	887		
X1	31608	19	18	69	74	74	74			
X3	10					120				
GR	607.9	0	607.7	0	607.5	15	607.4	18	600.2	34
GR	596.0	35	595.2	43	595.0	51	595.3	56	596.9	60
GR	600.4	60	602.3	69	602.6	81	602.6	148	607.3	175
GR	607.3	218	607.4	298	610.1	306	610.3	318		
X1	31720	20	186	235	112	112	112			
X3	10					335				
GR	608.2	0	607.4	0	606.9	35	607.0	135	607.1	151
GR	607.2	176	606.5	186	598.8	199	596.6	200	595.0	203
GR	594.9	207	595.0	213	595.9	222	599.5	226	601.7	235
GR	601.1	285	601.5	335	603.8	435	605.1	458	611.6	470
X1	31833	20	186	235	113	113	113			
X3	10									
GR	608.2	0	607.4	0	606.9	35	607.0	135	607.1	151
GR	607.2	176	606.5	186	598.7	199	596.5	200	594.9	203
GR	594.8	207	594.9	213	595.8	222	599.4	226	601.7	235
GR	601.1	285	601.5	335	603.8	435	605.1	458	611.6	470
X1	32148	19	486	540	315	315	315		-.3	
X3	10			150		550				
GR	614.1	0	607.1	40	605.4	57	602.5	140	600.6	240
GR	601.2	340	601.8	440	603.1	486	602.0	493	595.7	507
GR	594.9	515	595.1	524	595.0	532	597.8	534	601.3	540
GR	601.4	640	601.8	673	604.5	726	615.3	740		
X1	32223	19	486	540	75	75	75			
X3	10			250						
GR	614.1	0	607.1	40	605.4	57	602.5	140	600.6	240
GR	601.2	340	601.8	440	603.1	486	602.0	493	595.4	507
GR	594.6	515	594.8	524	594.7	532	597.8	534	601.3	540
GR	601.4	640	601.8	673	604.5	726	615.3	740		
NC	.07	.09	.045							
X1	32433	17	400	439	175	225	210			
X3	10									
GR	613.1	0	607.2	40	605.2	100	601.9	200	601.1	300
GR	602.4	387	600.3	400	594.5	410	594.7	416	594.9	426
GR	595.7	432	600.3	439	600.5	470	600.8	500	602.2	540
GR	617.9	600	626.9	630						
NC	.09	.09	.045							
X1	33833	17	464	500	1500	1300	1400			
X3	10									
GR	629.5	0	604.8	48	604.1	64	602.2	164	602.9	264
GR	602.1	364	602.6	424	603.0	464	595.2	473	595.1	476
GR	595.4	482	596.3	491	603.3	500	603.2	530	603.1	564
GR	601.8	588	624.6	648						
X1	34961				1150	1100	1128		1.0	
X3	10			360		580				
X1	35233	16	16	60	225	325	272			
X3	10					90				
GR	610.0	0	606.7	6	605.7	16	596.8	33	596.9	36
GR	596.3	40	596.5	45	596.8	49	605.1	60	604.7	100
GR	604.2	200	606.3	248	603.2	252	603.2	286	608.1	294
GR	617.6	314								
X1	35332	29	1119	1164	99	99	99			
X3	10							612.8	612.1	
GR	620.0	0	606.3	16	603.4	113	602.6	213	602.7	313
GR	603.2	413	603.0	513	603.9	613	603.9	713	604.0	813
GR	604.3	913	605.5	1013	609.9	1113	606.7	1119	599.7	1119
GR	599.6	1135	596.6	1139	596.4	1149	597.0	1157	598.0	1164
GR	598.3	1164	605.1	1173	604.7	1213	604.2	1313	606.3	1361
GR	603.2	1366	603.2	1399	608.1	1407	617.6	1427		
NC	.03	.03	.04							
X1	35333	14	100	145	1	1	1			
X3	10									

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BT 120.0   612.5   610.5   130.0   612.3   610.4   138.0   612.2   610.1   145.0
BT 612.1   610.1   200.0   611.2     0.0   300.0   611.0     0.0   400.0   611.4
BT   0.0   500.0   613.9     0.0   600.0   616.6     0.0
GR 615.0       0   612.8     100   599.7     100   599.6     116   596.6     120
GR 596.4     130   597.0     138   598.0     145   612.1     145   611.2     200
GR 611.0     300   611.4     400   613.9     500   616.6     600
X1 35367                              34      34      34
X2                                                    1
X3    10
NC   .09     .09    .045
X1 35368      29    1119    1164       1       1       1
X3    10                                                   612.8   612.1
GR 620.0       0   606.3      16   603.4     113   602.6     213   602.7     313
GR 603.2     413   603.0     513   603.9     613   603.9     713   604.0     813
GR 604.3     913   605.5    1013   609.9    1113   606.7    1119   599.7    1119
GR 599.6    1135   596.6    1139   596.4    1149   597.0    1157   598.0    1164
GR 598.3    1164   605.1    1173   604.7    1213   604.2    1313   606.3    1361
GR 603.2    1366   603.2    1399   608.1    1407   617.6    1427
X1 35417      17     464     500      49      49      49
X3    10                    400             545
GR 629.5       0   604.8      48   604.1      64   602.2     164   602.9     264
GR 602.1     364   602.6     424   603.0     464   596.6     473   596.5     476
GR 596.8     482   597.7     491   603.3     500   603.2     530   603.1     564
GR 601.8     588   624.6     648
X1 35497                              60     125      80
X3    10                    300
X1 36047      16     380     423     450     725     550
X3    10
GR 623.2       0   609.0      30   605.5      80   605.1     180   605.9     280
GR 604.7     380   598.3     388   597.3     394   597.2     399   597.4     407
GR 598.6     413   606.3     423   607.2     475   608.6     523   609.0     600
GR 617.1     623
NC   .09     .09    .045
X1 36567      14     380     423     520     520     520
X3    10
GR 623.2       0   609.0      30   605.5      80   605.1     180   605.9     280
GR 604.7     380   599.0     388   598.0     394   597.9     399   598.1     407
GR 599.1     413   606.3     423   607.2     437   617.1     456
EJ
T1      LINCOLN TOWNSHIP FIS J&A FILE NO. 5555-35
T2      50 YEAR FLOOD
T3      HICKORY CREEK
J1            3                  .00057                          585.0
J2     2             -1
T1      LINCOLN TOWNSHIP FIS J&A FILE NO. 5555-35
T2      100 YEAR FLOOD
T3      HICKORY CREEK
J1            4                  .00057                          585.0
J2     3             -1
T1      LINCOLN TOWNSHIP FIS J&A FILE NO. 5555-35
T2      500 YEAR FLOOD
T3      HICKORY CREEK
J1            5                  .00057                          585.0
J2    15             -1


ER
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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 LINCOLN TOWNSHIP FIS J&A FILE NO. 5555-35
T2 100 YEAR FLOOD
T3 HICKORY CREEK

? Slope-Area method

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	-0.	4.	-0.	-0.	.000570	-0.00	-0.0	-0.	585.000	-0.000

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

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= 587.60 ELREA= 591.50

VALLEY SECTION A

12000.00	8.57	589.87	0.00	585.00	589.91	.03	0.00	0.00	587.60
2590.	1925.	665.	0.	1907.	287.	0.	0.	0.	591.50
0.00	1.01	2.32	0.00	.090	.045	.090	0.000	581.30	83.34
.000571	-0.	-0.	-0.	0	0	8	0.00	542.35	625.69
12800.00	9.54	590.34	0.00	0.00	590.40	.05	.48	.01	587.40
2590.	209.	886.	1494.	252.	300.	1681.	41.	11.	587.20
.14	.83	2.95	.39	.090	.045	.090	.044	581.80	60.49
.000614	750.	800.	900.	0	0	1	0.00	667.71	728.20

3470 ENCROACHMENT STATIONS= 300.0 454.0 TYPE= 1 TARGET= -300.000

VALLEY SECTION B

13500.00	8.58	590.78	0.00	0.00	590.85	.07	.45	.01	587.20
2590.	1363.	951.	276.	1334.	304.	293.	75.	21.	587.40
.25	1.02	3.13	.94	.090	.045	.090	.045	582.20	300.00
.000666	750.	700.	650.	2	0	1	0.00	494.22	794.22

3470 ENCROACHMENT STATIONS= .0 320.0 TYPE= 1 TARGET= 319.999

15100.00	9.33	592.43	0.00	0.00	592.69	.26	1.74	.10	588.80
2590.	86.	1477.	1027.	63.	282.	635.	129.	35.	591.20
.37	1.36	5.24	1.62	.090	.045	.090	.044	583.10	41.62
.001976	1550.	1600.	1800.	2	0	1	0.00	278.38	320.00

3470 ENCROACHMENT STATIONS= 50.0 160.0 TYPE= 1 TARGET= 110.000

VALLEY SECTION C

15735.00	10.20	593.70	0.00	0.00	594.33	.63	1.46	.18	588.90
2590.	162.	2175.	253.	72.	316.	143.	140.	38.	591.30
.40	2.24	6.88	1.77	.090	.045	.090	.045	583.50	50.00
.002888	650.	635.	550.	2	0	1	0.00	110.00	160.00

3470 ENCROACHMENT STATIONS= .0 110.0 TYPE= 1 TARGET= 109.999

15785.00	10.28	593.78	0.00	0.00	594.55	.77	.15	.07	588.90
2590.	218.	2352.	20.	98.	319.	12.	140.	38.	591.30
.40	2.22	7.37	1.69	.090	.045	.090	.045	583.50	39.02
.003274	50.	50.	50.	2	0	1	0.00	70.97	110.00

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 595.90 ELREA= 595.90

15834.00	10.80	594.20	0.00	0.00	594.76	.55	.14	.07	589.30
2590.	0.	2590.	0.	0.	433.	0.	141.	38.	591.40
.41	0.00	5.97	0.00	.090	.045	.090	.045	583.40	62.00
.002472	49.	49.	49.	2	0	1	0.00	48.00	110.00

NORMAL BRIDGE,NRD=13 MIN ELTRD= 599.20 MAX ELLC= 595.90

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 599.80 ELREA= 599.20

BRIDGE SECTION D, MAIDEN LANE BRIDGE

48' WIDE OPENING, TIMBER PILES ALONG ABUTMENTS

15835.00	10.81	594.21	0.00	0.00	594.76	.55	.00	.00	599.80
2590.	0.	2590.	0.	0.	434.	0.	141.	38.	599.20
.41	0.00	5.97	0.00	.030	.030	.030	.045	583.40	200.00
.001164	1.	1.	1.	0	0	1	0.00	48.00	248.00

NORMAL BRIDGE,NRD=13 MIN ELTRD= 599.20 MAX ELLC= 595.90

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 599.80 ELREA= 599.20

15865.00	10.85	594.25	0.00	0.00	594.80	.55	.03	.00	599.80
2590.	0.	2590.	0.	0.	436.	0.	141.	38.	599.20
.41	0.00	5.94	0.00	.030	.030	.030	.045	583.40	200.00
.001146	30.	30.	30.	1	0	1	0.00	48.00	248.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 599.20 ELREA= 599.20

15866.00	10.85	594.25	0.00	0.00	594.80	.55	.00	.00	589.30
2590.	0.	2590.	0.	0.	436.	0.	141.	38.	591.40
.41	0.00	5.94	0.00	.090	.045	.090	.045	583.40	62.00
.002428	1.	1.	1.	0	0	1	0.00	48.00	110.00

3470 ENCROACHMENT STATIONS= .0 255.0 TYPE= 1 TARGET= 254.999

15923.00	10.40	594.50	0.00	0.00	594.95	.45	.12	.03	594.00
2585.	1.	2419.	165.	2.	435.	153.	142.	38.	593.60
.41	.29	5.56	1.08	.090	.045	.090	.045	584.10	113.32
.001990	57.	57.	57.	2	0	1	0.00	141.68	255.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.70	2.60	-0.00	7.36	-0.00	342.00	-0.00	584.10	584.10

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
596.01	594.95	0.00	947.	1644.	342.	592.50	592.60	30.00

3470 ENCROACHMENT STATIONS= .0 255.0 TYPE= 1 TARGET= 254.999

BRIDGE SECTION E, ABANDONED ROAD BRIDGE

46.5' WIDE OPENING, CONCRETE ABUTMENTS

15940.00	10.58	594.68	0.00	0.00	595.11	.43	.16	0.00	594.00
2585.	1.	2418.	166.	4.	444.	167.	142.	38.	593.60
.41	.31	5.45	.99	.090	.040	.090	.044	584.10	110.21
.001474	17.	17.	17.	2	0	3	0.00	144.78	255.00

3470 ENCROACHMENT STATIONS= 200.0 425.0 TYPE= 1 TARGET= 225.000

16190.00	11.25	595.35	0.00	0.00	595.47	.12	.27	.09	590.70
2585.	971.	1341.	273.	691.	374.	176.	147.	39.	592.00
.44	1.40	3.59	1.55	.090	.045	.090	.045	584.10	200.00
.000863	200.	250.	250.	2	0	1	0.00	225.00	425.00

3470 ENCROACHMENT STATIONS= .0 450.0 TYPE= 1 TARGET= 449.999

16440.00	11.49	595.59	0.00	0.00	595.65	.06	.16	.02	590.70
2585.	1089.	1065.	431.	990.	385.	348.	155.	41.	592.00
.48	1.10	2.76	1.24	.090	.045	.090	.045	584.10	146.33
.000493	250.	250.	250.	2	0	1	0.00	303.66	450.00

VALLEY SECTION F

16735.00	11.63	595.73	0.00	0.00	595.75	.02	.09	.01	590.70
2585.	740.	713.	1131.	1018.	392.	1437.	171.	43.	592.00
.55	.73	1.82	.79	.090	.045	.090	.045	584.10	145.79
.000208	295.	295.	295.	2	0	1	0.00	496.91	642.69

3470 ENCROACHMENT STATIONS= 275.0 577.0 TYPE= 1 TARGET= -275.000

VALLEY SECTION G

17935.00	12.00	596.10	0.00	0.00	596.20	.10	.41	.04	591.50
2585.	1291.	1222.	72.	947.	351.	97.	229.	54.	591.60
.69	1.36	3.48	.74	.090	.045	.090	.045	584.10	275.00
.000671	1150.	1200.	1250.	2	0	1	0.00	247.52	522.52

Sta 17935, credit was allowed for the area of the small channel which is only localized. No credit should be given to its area. Should not affect the OWSEL.

3470 ENCROACHMENT STATIONS= 225.0 460.0 TYPE= 1 TARGET= 235.000

18285.00	11.62	596.32	0.00	0.00	596.42	.10	.22	.00	591.50
2585.	529.	1282.	775.	454.	377.	614.	240.	56.	591.50
.74	1.16	3.40	1.26	.090	.045	.090	.045	584.70	225.00
.000574	350.	350.	350.	2	0	1	0.00	235.00	460.00

3470 ENCROACHMENT STATIONS= 260.0 370.0 TYPE= 1 TARGET= 110.000

VALLEY SECTION H

18535.00	11.22	596.42	0.00	0.00	596.75	.33	.21	.11	591.50
2585.	504.	1913.	168.	278.	365.	92.	247.	57.	591.50
.75	1.81	5.24	1.82	.090	.045	.090	.045	585.20	260.00
.001387	300.	250.	200.	2	0	1	0.00	110.00	370.00

3470 ENCROACHMENT STATIONS= 290.0 360.0 TYPE= 1 TARGET= 70.000

18635.00	11.30	596.50	0.00	0.00	597.00	.50	.16	.09	591.50
2585.	264.	2236.	85.	126.	368.	41.	248.	57.	591.50
.76	2.09	6.07	2.10	.090	.045	.090	.045	585.20	290.00
.001846	125.	100.	75.	2	0	1	0.00	70.00	360.00

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 597.30 ELREA= 597.30

18685.00	11.36	596.56	0.00	0.00	597.15	.59	.10	.04	591.50
2585.	0.	2585.	0.	0.	419.	0.	249.	57.	591.50
.76	0.00	6.17	0.00	.090	.045	.090	.045	585.20	310.60
.002338	50.	50.	50.	2	0	1	0.00	45.70	356.30

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.63	2.50	-0.00	45.70	-0.00	453.00	-0.00	585.20	585.20

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 597.147 ELLC= 597.300 PCWSE= 596.556 ELTRD= 600.500

NORMAL BRIDGE,NRD=20 MIN ELTRD= 600.50 MAX ELLC= 597.30

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.50 ELREA= 600.50

BRIDGE SECTION I, GLENLORD ROAD BRIDGE

45.7' WIDE OPENING, CONCRETE ABUTMENTS

18720.00	11.43	596.63	0.00	0.00	597.24	.62	.08	.01	591.50

	2585.	0.	2585.	0.	0.	410.	0.	249.	57.	591.50
	.76	0.00	6.30	0.00	.090	.045	.090	.045	585.20	310.60
	.002513	35.	35.	35.	2	0	1	-167.74	45.70	356.30

3470 ENCROACHMENT STATIONS=			345.0	415.0	TYPE=	1	TARGET=		70.000	
	18733.00	11.74	596.94	0.00	0.00	597.34	.40	.03	.06	590.70
	2585.	14.	2203.	368.	6.	408.	147.	249.	57.	592.00
	.76	2.31	5.40	2.49	.090	.045	.090	.045	585.20	345.00
	.001711	13.	13.	13.	2	0	1	0.00	70.00	415.00

3470 ENCROACHMENT STATIONS=			330.0	425.0	TYPE=	1	TARGET=		95.000	
	18745.00	11.95	597.15	0.00	0.00	597.40	.25	.02	.04	590.70
	2585.	192.	1894.	499.	100.	418.	232.	249.	57.	592.00
	.76	1.92	4.53	2.15	.090	.045	.090	.045	585.20	330.00
	.001166	12.	12.	12.	2	0	1	0.00	95.00	425.00

3470 ENCROACHMENT STATIONS=			300.0	450.0	TYPE=	1	TARGET=		150.000	
	18770.00	12.14	597.34	0.00	0.00	597.46	.12	.02	.04	590.70
	2585.	393.	1452.	739.	282.	427.	446.	250.	57.	592.00
	.77	1.40	3.40	1.66	.090	.045	.090	.045	585.20	300.00
	.000637	25.	25.	25.	2	0	1	0.00	150.00	450.00

3470 ENCROACHMENT STATIONS=			175.0	475.0	TYPE=	1	TARGET=		300.000	
	18845.00	12.28	597.48	0.00	0.00	597.51	.03	.03	.03	590.70
	2585.	1191.	858.	646.	1209.	434.	664.	253.	57.	592.00
	.78	.89	1.98	.97	.090	.045	.090	.045	585.20	175.00
	.000211	75.	75.	75.	2	0	1	0.00	300.00	475.00

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

3470 ENCROACHMENT STATIONS=			200.0	440.0	TYPE=	1	TARGET=		240.000	
	19345.00	12.29	597.59	0.00	0.00	597.64	.05	.12	.01	590.80
	2585.	1086.	1060.	438.	1004.	434.	370.	275.	60.	592.10
	.86	1.08	2.44	1.19	.090	.045	.090	.045	585.30	200.00
	.000321	425.	500.	550.	2	0	1	0.00	240.00	440.00

3470 ENCROACHMENT STATIONS=			190.0	300.0	TYPE=	1	TARGET=		110.000	
VALLEY SECTION J										
	19770.00	12.31	597.71	0.00	0.00	598.01	.30	.24	.13	591.50
	2585.	582.	1904.	100.	299.	378.	79.	288.	62.	594.10
	.89	1.94	5.04	1.26	.090	.045	.090	.045	585.40	190.00
	.001239	425.	425.	425.	0	0	1	0.00	110.00	300.00

3470 ENCROACHMENT STATIONS=			210.0	280.0	TYPE=	1	TARGET=		70.000	
	19920.00	11.85	597.85	0.00	0.00	598.34	.49	.24	.09	592.10

.90	2.29	6.04	1.51	.090	.045	.090	.045	586.00	210.00
.001890	200.	150.	100.	2	0	1	0.00	70.00	280.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 598.80 ELREA= 598.80

19970.00	11.98	598.28	0.00	0.00	598.49	.21	.06	.09	591.60
2585.	0.	2585.	0.	0.	708.	0.	291.	62.	594.70
.90	0.00	3.65	0.00	.090	.045	.090	.045	586.30	222.60
.000701	100.	50.	20.	2	0	1	0.00	68.80	291.40

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.38	2.50	-0.00	70.00	-0.00	744.00	-0.00	586.30	586.30

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 598.487 ELLC= 598.800 PCWSE= 598.280 ELTRD= 600.300

NORMAL BRIDGE,NRD=21 MIN ELTRD= 600.30 MAX ELLC= 598.80

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.30 ELREA= 600.30

BRIDGE SECTION K, I-94 BRIDGE

68.8' WIDE OPENING, U-SHAPED CHANNEL, CONCRETE SIDES NATURAL BOTTOM,

RUNNING 200' UNDER 4 LANES(2 EAST BOUND, 2 WEST BOUND) OF I-94

20170.00	12.16	598.46	0.00	0.00	598.66	.20	.17	.00	592.00
2585.	0.	2585.	0.	0.	717.	0.	294.	63.	590.00
.92	0.00	3.61	0.00	.090	.045	.090	.045	586.30	110.00
.001069	200.	200.	200.	3	0	1	-263.99	68.80	178.80

3470 ENCROACHMENT STATIONS= 125.0 295.0 TYPE= 1 TARGET= 170.000

20220.00	12.54	598.64	0.00	0.00	598.73	.09	.03	.03	591.30
2585.	66.	1164.	1356.	51.	365.	1000.	296.	63.	592.60
.92	1.30	3.19	1.36	.090	.045	.090	.045	586.10	125.00
.000442	50.	50.	50.	2	0	1	0.00	170.00	295.00

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= 100.0 550.0 TYPE= 1 TARGET= 450.000

VALLEY SECTION L

20470.00	13.28	598.78	0.00	0.00	598.79	.01	.04	.02	591.30
2585.	128.	571.	1887.	223.	387.	3030.	309.	65.	592.60

.000090	325.	250.	225.	2	0	1	0.00	450.00	550.00

3470 ENCROACHMENT STATIONS=		300.0	1050.0	TYPE=	1	TARGET=		750.000	
20870.00	12.91	598.81	0.00	0.00	598.82	.00	.02	.00	591.30
2585.	555.	370.	1659.	1422.	377.	4006.	352.	70.	592.60
1.23	.39	.94	.41	.090	.045	.090	.045	585.90	300.00
.000041	400.	400.	400.	2	0	1	0.00	750.00	1050.00

3470 ENCROACHMENT STATIONS=		75.0	650.0	TYPE=	1	TARGET=		575.000	
21370.00	12.44	598.84	0.00	0.00	598.84	.01	.03	.00	591.30
2585.	184.	366.	2035.	382.	320.	3806.	412.	78.	592.60
1.46	.48	1.14	.53	.090	.045	.090	.045	586.40	75.00
.000067	500.	500.	500.	0	0	1	0.00	575.00	650.00

VALLEY SECTION M

22435.00	11.63	598.93	0.00	0.00	598.94	.01	.09	.00	593.40
2585.	1534.	590.	461.	2688.	392.	950.	516.	94.	595.20
1.84	.57	1.50	.49	.090	.045	.090	.045	587.30	65.09
.000115	1100.	1065.	1050.	2	0	1	0.00	726.26	791.35

3470 ENCROACHMENT STATIONS=		250.0	850.0	TYPE=	1	TARGET=		-250.000	
22985.00	11.40	599.00	0.00	0.00	599.03	.02	.08	.01	593.70
2585.	1271.	752.	562.	1670.	384.	902.	561.	102.	595.50
1.99	.76	1.96	.62	.090	.045	.090	.045	587.60	250.00
.000201	550.	550.	550.	2	0	1	0.00	540.85	790.85

3470 ENCROACHMENT STATIONS=		.0	450.0	TYPE=	1	TARGET=		449.999	
23585.00	11.30	599.10	0.00	0.00	599.12	.01	.09	.00	591.30
2585.	342.	526.	1717.	556.	332.	2367.	603.	108.	592.60
2.17	.62	1.58	.73	.090	.045	.090	.045	587.80	43.71
.000114	600.	600.	600.	0	0	1	0.00	406.29	450.00

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=		300.0	625.0	TYPE=	1	TARGET=		325.000	

VALLEY SECTION N

23970.00	11.07	599.07	0.00	0.00	599.37	.30	.11	.14	593.70
2585.	160.	1854.	572.	88.	364.	438.	622.	111.	594.90
2.20	1.82	5.10	1.30	.090	.045	.090	.045	588.00	300.00
.001364	385.	385.	385.	2	0	1	0.00	250.02	625.00

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=		300.0	650.0	TYPE=	1	TARGET=		350.000	
24035.00	11.40	599.30	0.00	0.00	599.47	.17	.06	.04	593.80
2585.	89.	1886.	610.	64.	495.	583.	623.	112.	595.40

.000756	65.	65.	65.	2	0	1	0.00	286.24	650.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.70	2.70	-0.00	49.00	-0.00	470.00	-0.00	587.90	587.90

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

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
600.10	599.76	0.00	221.	2357.	470.	598.80	599.30	30.00

3470 ENCROACHMENT STATIONS= 75.0 568.0 TYPE= 1 TARGET= 493.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.00 ELREA= 599.30

BT. cards cut off at encroachment.

BRIDGE SECTION O, MARQUETTE WOODS ROAD BRIDGE

49' WIDE OPENING, WOODEN PIER W ABUTMENTS, WITH ASPHALT PAVEMENT

OVER WOODEN BRIDGE DECK

24068.00	11.99	599.89	0.00	0.00	599.96	.07	.49	0.00	593.80
2585.	0.	1387.	1193.	0.	505.	1118.	624.	112.	594.00
2.21	0.00	2.74	1.07	.090	.045	.090	.045	587.90	244.00
.000625	33.	33.	33.	2	0	2	0.00	324.00	568.00

3470 ENCROACHMENT STATIONS= 100.0 350.0 TYPE= 1 TARGET= 250.000

24118.00	11.97	599.97	0.00	0.00	599.99	.02	.01	.02	591.30
2130.	190.	599.	1341.	261.	355.	1702.	625.	112.	592.60
2.22	.73	1.69	.79	.090	.045	.090	.045	588.00	100.00
.000118	100.	50.	10.	2	0	1	0.00	250.00	350.00

3470 ENCROACHMENT STATIONS= 200.0 530.0 TYPE= 1 TARGET= 330.000

24218.00	11.87	599.97	0.00	0.00	600.02	.06	.02	.02	596.20
2130.	308.	994.	828.	371.	378.	921.	630.	113.	596.10
2.24	.83	2.63	.90	.090	.045	.090	.045	588.10	200.00
.000382	100.	100.	100.	2	0	1	0.00	330.00	530.00

VALLEY SECTION P

24943.00	11.42	600.22	0.00	0.00	600.24	.03	.21	.01	596.20
2130.	631.	743.	756.	976.	369.	1097.	664.	120.	596.10
[illegible]	[illegible]	[illegible]	[illegible]	.090	.045	.090	.045	588.80	47.43

3470 ENCROACHMENT STATIONS= 170.0 415.0 TYPE= 1 TARGET= 245.000

25268.00	11.59	600.29	0.00	0.00	600.37	.08	.10	.03	596.10
2130.	554.	1103.	472.	558.	376.	439.	678.	123.	596.00
2.46	.99	2.94	1.09	.090	.045	.090	.045	588.70	170.00
.000467	325.	325.	325.	2	0	1	0.00	245.00	415.00

3470 ENCROACHMENT STATIONS= .0 100.0 TYPE= 1 TARGET= 99.999

VALLEY SECTION Q

25593.00	11.80	600.40	0.00	0.00	600.72	.31	.23	.12	597.80
2130.	23.	1971.	136.	25.	424.	90.	685.	124.	596.10
2.48	.90	4.65	1.51	.090	.045	.090	.045	588.60	17.10
.001206	325.	325.	325.	0	0	1	0.00	82.90	100.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 607.90 ELREA= 609.90

25642.00	11.05	600.45	0.00	0.00	600.81	.36	.06	.02	597.90
2130.	0.	2130.	0.	0.	442.	0.	686.	124.	596.10
2.48	0.00	4.81	0.00	.090	.045	.090	.045	589.40	30.00
.001448	49.	49.	49.	0	0	1	0.00	49.50	79.50

3265 DIVIDED FLOW

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

NORMAL BRIDGE,NRD=17 MIN ELTRD= 607.30 MAX ELLC= 609.40

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 607.90 ELREA= 609.90

BRIDGE SECTION R, ROOSEVELT STREET BRIDGE

49.5' WIDE OPENING, WOOD PIERS, WITH WOODEN ABUTMENTS

AND WING WALLS, ASPHALT PAVEMENT OVER WOODEN DECK

25643.00	11.03	600.43	0.00	0.00	600.83	.40	.00	.02	607.90
2130.	0.	2130.	0.	0.	422.	0.	686.	124.	609.90
2.48	0.00	5.05	0.00	.030	.040	.030	.045	589.40	251.00
.002095	1.	1.	1.	1	0	1	0.00	47.90	300.50

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=17 MIN ELTRD= 607.30 MAX ELLC= 609.40

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 607.90 ELREA= 609.90

25673.00	11.10	600.50	0.00	0.00	600.89	.39	.06	.00	607.90
2130.	0.	2130.	0.	0.	424.	0.	686.	124.	609.90
2.48	0.00	5.02	0.00	.030	.040	.030	.045	589.40	251.00
.002061	30.	30.	30.	0	0	1	0.00	47.90	300.50

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 607.90 ELREA= 609.90

25674.00	11.14	600.54	0.00	0.00	600.90	.36	.00	.01	597.90
2130.	0.	2130.	0.	0.	444.	0.	686.	124.	596.10
2.48	0.00	4.79	0.00	.090	.045	.090	.045	589.40	30.00
.001498	1.	1.	1.	2	0	1	0.00	49.50	79.50

3470 ENCROACHMENT STATIONS= 300.0 456.0 TYPE= 1 TARGET= -300.000

25723.00	11.44	600.84	0.00	0.00	601.01	.17	.05	.06	596.80
2130.	357.	1722.	51.	300.	474.	55.	687.	124.	594.40
2.49	1.19	3.63	.92	.090	.045	.090	.045	589.40	300.00
.000720	49.	49.	49.	2	0	1	0.00	140.06	440.06

3470 ENCROACHMENT STATIONS= 50.0 456.0 TYPE= 1 TARGET= -50.000

25923.00	11.78	601.08	0.00	0.00	601.13	.05	.09	.04	596.70
2130.	947.	1147.	36.	1296.	492.	61.	693.	125.	594.30
2.52	.73	2.33	.60	.090	.045	.090	.045	589.30	50.00
.000281	200.	200.	200.	1	0	1	0.00	390.94	440.94

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

26873.00	12.45	601.35	0.00	0.00	601.39	.04	.26	.00	596.60
2130.	1065.	1061.	4.	1434.	483.	15.	734.	134.	599.20
2.70	.74	2.19	.28	.090	.045	.090	.045	588.90	27.06
.000267	950.	950.	950.	2	0	1	0.00	410.27	437.33

VALLEY SECTION T

28073.00	10.41	601.81	0.00	0.00	601.95	.13	.51	.05	597.90
2130.	194.	1287.	650.	202.	349.	753.	779.	146.	598.10
2.83	.96	3.69	.86	.090	.045	.090	.045	591.40	25.90
.000777	1200.	1200.	1200.	2	0	1	0.00	443.91	469.82

VALLEY SECTION U

29073.00	10.17	602.47	0.00	0.00	602.52	.05	.55	.02	598.60
2130.	330.	904.	896.	463.	338.	1166.	817.	157.	598.80
3.01	.71	2.68	.77	.090	.045	.090	.045	592.30	42.50
.000414	1000.	1000.	1000.	2	0	1	0.00	539.73	582.23

3470 ENCROACHMENT STATIONS= .0 700.0 TYPE= 1 TARGET= 699.999

VALLEY SECTION V

30273.00	9.30	602.90	0.00	0.00	602.94	.03	.41	.01	602.30
2130.	3.	947.	1180.	26.	466.	1405.	872.	172.	598.60
3.26	.12	2.03	.84	.090	.045	.070	.045	593.60	174.22
.000269	1000.	1200.	1300.	2	0	1	0.00	525.78	700.00

3470 ENCROACHMENT STATIONS= 150.0 480.0 TYPE= 1 TARGET= 330.000

30823.00	8.90	603.10	0.00	0.00	603.20	.10	.23	.03	602.40
2130.	7.	1375.	748.	34.	446.	675.	892.	177.	598.70
3.32	.21	3.08	1.11	.090	.045	.090	.045	594.20	161.66
.000653	500.	550.	600.	0	0	1	0.00	318.34	480.00

3470 ENCROACHMENT STATIONS= .0 600.0 TYPE= 1 TARGET= 599.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 605.40 ELREA= 602.20

31111.00	8.67	603.27	0.00	0.00	603.64	.36	.31	.13	605.40
2130.	0.	1916.	214.	0.	376.	209.	898.	179.	602.20
3.34	0.00	5.10	1.02	.090	.045	.090	.045	594.60	409.95
.002085	288.	288.	288.	2	0	1	0.00	190.05	600.00

3470 ENCROACHMENT STATIONS= .0 475.0 TYPE= 1 TARGET= 474.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 605.20 ELREA= 602.00

VALLEY SECTION W

31398.00	8.95	603.85	0.00	0.00	604.28	.43	.60	.03	605.20
2120.	0.	2098.	22.	0.	396.	17.	901.	180.	602.00
3.36	0.00	5.29	1.31	.070	.045	.080	.045	594.90	408.98
.002130	287.	287.	287.	2	0	1	0.00	66.02	475.00

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 607.90 ELREA= 607.90

31472.00	8.97	603.97	0.00	0.00	604.49	.52	.17	.04	605.00
2120.	0.	2120.	0.	0.	367.	0.	902.	180.	602.10
3.36	0.00	5.77	0.00	.070	.045	.080	.045	595.00	415.00
.002446	74.	74.	74.	2	0	1	0.00	43.00	458.00

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=30 MIN ELTRD= 607.80 MAX ELLC= 606.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 607.90 ELREA= 607.90

BRIDGE SECTION X, JOHN BEERS ROAD BRIDGE

60'-2-19'6"(12'6" CMP ARCH PIPES, MITERED TO CONFORM TO FILL SLOPE

31473.00	8.87	603.87	0.00	0.00	604.59	.72	.00	.10	607.90
2120.	0.	2120.	0.	0.	311.	0.	902.	180.	607.90
3.36	0.00	6.82	0.00	.030	.030	.030	.045	595.00	400.00
.003457	1.	1.	1.	2	0	1	-42.84	40.00	443.00

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=30 MIN ELTRD= 607.80 MAX ELLC= 606.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 607.90 ELREA= 607.90

31533.00	9.12	604.12	0.00	0.00	604.81	.69	.21	.01	607.90
2120.	0.	2120.	0.	0.	317.	0.	902.	180.	607.90
3.36	0.00	6.68	0.00	.030	.030	.030	.045	595.00	400.00
.003529	60.	60.	60.	2	0	1	-46.01	40.00	443.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 607.90 ELREA= 607.90

31534.00	9.35	604.35	0.00	0.00	604.87	.52	.00	.05	599.40
2120.	0.	2120.	0.	0.	367.	0.	902.	180.	596.50
3.36	0.00	5.78	0.00	.090	.045	.090	.045	595.00	415.00
.002390	1.	1.	1.	2	0	1	0.00	43.00	458.00

3470 ENCROACHMENT STATIONS= .0 120.0 TYPE= 1 TARGET= 119.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 607.40 ELREA= 602.30

VALLEY SECTION Y

31608.00	9.51	604.51	0.00	0.00	605.19	.68	.24	.08	607.40
2120.	0.	1946.	174.	0.	282.	99.	903.	180.	602.30
3.37	0.00	6.89	1.76	.090	.045	.090	.045	595.00	24.43
.004664	74.	74.	74.	2	0	1	0.00	95.57	120.00

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= .0 335.0 TYPE= 1 TARGET= 334.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.50 ELREA= 601.70

31720.00	10.48	605.38	0.00	0.00	605.59	.22	.27	.14	606.50

3.38	0.00	4.35	1.58	.090	.045	.090	.045	594.90	187.89
.001435	112.	112.	112.	2	0	1	0.00	147.11	335.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 606.50 ELREA= 601.70

VALLEY SECTION Z

31833.00	10.83	605.63	0.00	0.00	605.75	.12	.13	.03	606.50
2120.	0.	1247.	873.	0.	356.	753.	907.	181.	601.70
3.39	0.00	3.50	1.16	.090	.045	.090	.045	594.80	187.45
.000889	113.	113.	113.	2	0	1	0.00	271.52	458.97

3470 ENCROACHMENT STATIONS= 150.0 550.0 TYPE= 1 TARGET= 400.000

32148.00	11.27	605.87	0.00	0.00	605.90	.03	.13	.03	602.80
2120.	1143.	942.	35.	1590.	464.	49.	918.	184.	601.00
3.45	.72	2.03	.73	.090	.045	.090	.045	594.60	150.00
.000236	315.	315.	315.	2	0	1	0.00	400.00	550.00

3470 ENCROACHMENT STATIONS= 250.0 740.0 TYPE= 1 TARGET= -250.000

VALLEY SECTION AA

32223.00	11.29	605.89	0.00	0.00	605.92	.03	.02	.00	603.10
2120.	719.	919.	482.	1044.	458.	742.	922.	184.	601.30
3.47	.69	2.00	.65	.090	.045	.090	.045	594.60	250.00
.000235	75.	75.	75.	2	0	1	0.00	477.80	727.80

VALLEY SECTION AB

32433.00	11.44	605.94	0.00	0.00	605.97	.04	.05	.00	600.30
2120.	887.	846.	387.	1115.	384.	535.	932.	186.	600.30
3.51	.80	2.20	.72	.070	.045	.090	.045	594.50	77.83
.000232	175.	210.	225.	0	0	1	0.00	476.46	554.29

VALLEY SECTION AC

33833.00	11.24	606.34	0.00	0.00	606.38	.04	.41	.00	603.00
2120.	1114.	783.	223.	1497.	319.	322.	1001.	204.	603.30
3.80	.74	2.46	.69	.090	.045	.090	.045	595.10	45.00
.000363	1500.	1400.	1300.	2	0	1	0.00	554.96	599.96

3470 ENCROACHMENT STATIONS= 360.0 580.0 TYPE= 1 TARGET= 220.000

34961.00	10.86	606.96	0.00	0.00	607.17	.21	.70	.08	604.00
2120.	484.	1362.	274.	358.	305.	230.	1040.	214.	604.30
3.90	1.35	4.47	1.19	.090	.045	.090	.045	596.10	360.00
.001276	1150.	1128.	1100.	2	0	1	0.00	220.00	580.00

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= .0 90.0 TYPE= 1 TARGET= 89.999

VALLEY SECTION AD

35233.00	10.97	607.27	0.00	0.00	607.78	.51	.46	.15	605.70
2120.	9.	2013.	98.	11.	343.	70.	1044.	215.	605.10
3.91	.82	5.88	1.41	.090	.045	.090	.045	596.30	4.96
.002369	225.	272.	325.	2	0	1	0.00	85.04	90.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 612.80 ELREA= 612.10

35332.00	11.23	607.63	0.00	0.00	608.00	.37	.17	.04	606.70
2120.	0.	2120.	0.	0.	435.	0.	1045.	215.	598.30
3.92	0.00	4.87	0.00	.090	.045	.090	.045	596.40	1119.00
.001355	99.	99.	99.	2	0	1	0.00	45.00	1164.00

NORMAL BRIDGE,NRD=12 MIN ELTRD= 611.00 MAX ELLC= 610.90

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 612.80 ELREA= 612.10

BRIDGE SECTION AE, STEVENSVILLE BARODA ROAD BRIDGE

45° SIDE OPENING, CONCRETE ABUTMENTS

35333.00	11.23	607.63	0.00	0.00	608.00	.37	.00	.00	612.80
2120.	0.	2120.	0.	0.	435.	0.	1045.	215.	612.10
3.92	0.00	4.87	0.00	.030	.040	.030	.045	596.40	100.00
.001322	1.	1.	1.	0	0	1	0.00	45.00	145.00

NORMAL BRIDGE,NRD=12 MIN ELTRD= 611.00 MAX ELLC= 610.90

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 612.80 ELREA= 612.10

35367.00	11.28	607.68	0.00	0.00	608.04	.36	.04	.00	612.80
2120.	0.	2120.	0.	0.	438.	0.	1046.	215.	612.10
3.92	0.00	4.85	0.00	.030	.040	.030	.045	596.40	100.00
.001304	34.	34.	34.	0	0	1	0.00	45.00	145.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 612.80 ELREA= 612.10

35368.00	11.28	607.68	0.00	0.00	608.05	.36	.00	.00	606.70
2120.	0.	2120.	0.	0.	438.	0.	1046.	215.	598.30
3.92	0.00	4.84	0.00	.090	.045	.090	.045	596.40	1119.00
.001334	1.	1.	1.	0	0	1	0.00	45.00	1164.00

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	545.0	TYPE=	1	TARGET=	145.000	
35417.00	11.49	607.99	0.00	0.00	608.16	.17	.05	.06	603.00
2120.	488.	1346.	287.	339.	340.	214.	1047.	215.	603.30
3.92	1.44	3.96	1.34	.090	.045	.090	.045	596.50	400.00
.000818	49.	49.	49.	2	0	1	0.00	145.00	545.00

3470 ENCROACHMENT STATIONS=			300.0	648.0	TYPE=	1	TARGET=	-300.000	
35497.00	11.69	608.19	0.00	0.00	608.23	.04	.04	.04	603.00
2120.	857.	840.	423.	939.	347.	511.	1049.	215.	603.30
3.94	.91	2.42	.93	.090	.045	.090	.045	596.50	300.00
.000298	60.	80.	125.	2	0	1	0.00	304.81	604.81
36047.00	11.18	608.38	0.00	0.00	608.48	.10	.22	.03	604.70
2120.	804.	1261.	55.	962.	384.	108.	1069.	220.	606.30
4.00	.84	3.28	.51	.090	.045	.090	.045	597.20	38.91
.000618	450.	550.	725.	2	0	1	0.00	476.43	515.33

VALLEY SECTION AF

36567.00	10.80	608.70	0.00	0.00	608.78	.08	.29	.01	604.70
2120.	983.	1121.	17.	1073.	376.	29.	1086.	225.	606.30
4.08	.92	2.98	.56	.080	.045	.090	.045	597.90	34.27
.000514	520.	520.	520.	2	0	1	0.00	405.61	439.88

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Lincoln Township

3) WATERCOURSE: Hickory Creek

4) DOCUMENT TYPE: Convergence

00BREAK00

10-29-76

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

HICKORY CREEK
LINCOLN TWP. FIS
JEA FILE NO: 5555-35

SUMMARY PRINTOUT OF HEC2 RUN SHOWING HICKORY CREEK STARTING AT KNOWN WSEL, (588-592), REACHING "NORMAL" DEPTH AT DIS FACE MAIDEN LANE. BRIDGE. (15835)

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
12000.00	0.00	0.00	0.00	581.30	2590.00	588.00	0.00	588.14	514.04	32.69	0.00	0.00
12000.00	0.00	0.00	0.00	581.30	2590.00	589.00	0.00	589.06	535.97	11.73	0.00	0.00
12000.00	0.00	0.00	0.00	581.30	2590.00	590.00	0.00	590.03	543.04	5.20	0.00	0.00
12000.00	0.00	0.00	0.00	581.30	2590.00	591.00	0.00	591.02	548.46	2.67	0.00	0.00
12000.00	0.00	0.00	0.00	581.30	2590.00	592.00	0.00	592.01	564.23	1.51	0.00	0.00
12800.00	800.00	0.00	0.00	581.80	2590.00	589.58	0.00	589.69	661.77	12.39	.10	27.66
12800.00	800.00	0.00	0.00	581.80	2590.00	589.84	0.00	589.93	664.42	9.59	.11	33.94
12800.00	800.00	0.00	0.00	581.80	2590.00	590.43	0.00	590.48	668.27	5.71	.15	42.52
12800.00	800.00	0.00	0.00	581.80	2590.00	591.23	0.00	591.26	673.51	3.12	.19	52.59
12800.00	800.00	0.00	0.00	581.80	2590.00	592.13	0.00	592.15	679.49	1.73	.24	63.63
13500.00	700.00	0.00	0.00	582.20	2590.00	590.35	0.00	590.44	493.51	9.36	.19	55.22
13500.00	700.00	0.00	0.00	582.20	2590.00	590.47	0.00	590.55	493.72	8.43	.21	63.37
13500.00	700.00	0.00	0.00	582.20	2590.00	590.84	0.00	590.91	494.32	6.36	.26	76.45
13500.00	700.00	0.00	0.00	582.20	2590.00	591.47	0.00	591.51	495.32	4.13	.32	93.18
13500.00	700.00	0.00	0.00	582.20	2590.00	592.27	0.00	592.30	496.60	2.55	.40	112.21
15100.00	1600.00	0.00	0.00	583.10	2590.00	592.42	0.00	592.68	278.36	19.89	.32	105.96
15100.00	1600.00	0.00	0.00	583.10	2590.00	592.41	0.00	592.67	278.34	20.03	.34	115.25
15100.00	1600.00	0.00	0.00	583.10	2590.00	592.44	0.00	592.70	278.40	19.64	.38	131.86
15100.00	1600.00	0.00	0.00	583.10	2590.00	592.60	0.00	592.83	278.74	17.52	.45	155.20
15100.00	1600.00	0.00	0.00	583.10	2590.00	593.00	0.00	593.19	279.57	13.45	.55	183.75
15735.00	635.00	0.00	0.00	583.50	2590.00	593.70	0.00	594.33	110.00	28.91	.35	116.23
15735.00	635.00	0.00	0.00	583.50	2590.00	593.70	0.00	594.32	110.00	28.95	.36	125.49
15735.00	635.00	0.00	0.00	583.50	2590.00	593.70	0.00	594.33	110.00	28.85	.41	142.16
15735.00	635.00	0.00	0.00	583.50	2590.00	593.76	0.00	594.37	110.00	28.11	.48	165.85
15735.00	635.00	0.00	0.00	583.50	2590.00	593.92	0.00	594.50	110.00	25.93	.58	195.24
15785.00	50.00	0.00	0.00	583.50	2590.00	593.78	0.00	594.55	70.97	32.76	.35	116.76
15785.00	50.00	0.00	0.00	583.50	2590.00	593.78	0.00	594.55	70.97	32.80	.37	126.04
15785.00	50.00	0.00	0.00	583.50	2590.00	593.78	0.00	594.56	70.98	32.71	.41	142.71
15785.00	50.00	0.00	0.00	583.50	2590.00	593.83	0.00	594.59	71.08	32.04	.48	166.40
15785.00	50.00	0.00	0.00	583.50	2590.00	593.98	0.00	594.71	71.40	29.99	.58	195.82
15834.00	49.00	0.00	0.00	583.40	2590.00	594.20	0.00	594.76	48.00	24.73	.35	117.27
15834.00	49.00	0.00	0.00	583.40	2590.00	594.20	0.00	594.76	48.00	24.75	.37	126.53
15834.00	49.00	0.00	0.00	583.40	2590.00	594.21	0.00	594.76	48.00	24.71	.41	143.20
15834.00	49.00	0.00	0.00	583.40	2590.00	594.24	0.00	594.79	48.00	24.40	.49	166.89
15834.00	49.00	0.00	0.00	583.40	2590.00	594.36	0.00	594.90	48.00	23.41	.58	196.32
15835.00	1.00	599.20	595.90	583.40	2590.00	594.20	0.00	594.76	48.00	11.64	.35	117.28
15835.00	1.00	599.20	595.90	583.40	2590.00	594.20	0.00	594.76	48.00	11.65	.37	126.54
15835.00	1.00	599.20	595.90	583.40	2590.00	594.21	0.00	594.76	48.00	11.63	.41	143.21
15835.00	1.00	599.20	595.90	583.40	2590.00	594.24	0.00	594.79	48.00	11.49	.49	166.90
15835.00	1.00	599.20	595.90	583.40	2590.00	594.36	0.00	594.90	48.00	11.06	.58	196.33

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Lincoln Township

3) WATERCOURSE: Hickory Creek

4) DOCUMENT TYPE: Summary

00BREAK00

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

HICKORY CREEK

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
12000.00	0.00	0.00	0.00	581.30	1420.00	586.49	0.00	588.52	524.86	5.73	0.00	0.00
12000.00	0.00	0.00	0.00	581.30	2265.00	589.53	0.00	589.56	540.49	5.70	0.00	0.00
12000.00	0.00	0.00	0.00	581.30	2590.00	589.87	0.00	589.91	542.35	5.71	0.00	0.00
12000.00	0.00	0.00	0.00	581.30	3280.00	590.54	0.00	590.58	545.98	5.72	0.00	0.00
12800.00	800.00	0.00	0.00	581.80	1420.00	588.99	0.00	589.05	653.28	7.13	.13	25.97
12800.00	800.00	0.00	0.00	581.80	2265.00	590.00	0.00	590.06	665.43	6.36	.14	37.44
12800.00	800.00	0.00	0.00	581.80	2590.00	590.34	0.00	590.40	667.71	6.14	.14	41.35
12800.00	800.00	0.00	0.00	581.80	3280.00	591.00	0.00	591.06	672.14	5.80	.14	49.02
13500.00	700.00	0.00	0.00	582.20	1420.00	589.46	0.00	589.52	490.25	6.22	.25	46.93
13500.00	700.00	0.00	0.00	582.20	2265.00	590.45	0.00	590.51	493.69	6.56	.25	67.55
13500.00	700.00	0.00	0.00	582.20	2590.00	590.78	0.00	590.85	494.22	6.66	.25	74.59
13500.00	700.00	0.00	0.00	582.20	3280.00	591.43	0.00	591.50	495.25	6.83	.24	88.35
15100.00	1600.00	0.00	0.00	583.10	1420.00	591.14	0.00	591.67	60.66	32.15	.33	75.18
15100.00	1600.00	0.00	0.00	583.10	2265.00	592.07	0.00	592.32	271.18	19.51	.38	117.37
15100.00	1600.00	0.00	0.00	583.10	2590.00	592.43	0.00	592.69	278.38	19.76	.37	129.38
15100.00	1600.00	0.00	0.00	583.10	3280.00	593.12	0.00	593.39	279.80	20.07	.36	152.82
15735.00	635.00	0.00	0.00	583.50	1420.00	592.77	0.00	593.04	110.00	14.18	.37	80.16
15735.00	635.00	0.00	0.00	583.50	2265.00	593.32	0.00	593.88	110.00	26.79	.41	126.73
15735.00	635.00	0.00	0.00	583.50	2590.00	593.70	0.00	594.33	110.00	28.88	.40	139.66
15735.00	635.00	0.00	0.00	583.50	3280.00	594.42	0.00	595.19	110.00	32.91	.39	164.90
15785.00	50.00	0.00	0.00	583.50	1420.00	592.82	0.00	593.14	68.98	15.37	.37	80.62
15785.00	50.00	0.00	0.00	583.50	2265.00	593.41	0.00	594.07	70.20	29.59	.41	127.24
15785.00	50.00	0.00	0.00	583.50	2590.00	593.78	0.00	594.55	70.97	32.74	.40	140.21
15785.00	50.00	0.00	0.00	583.50	3280.00	594.48	0.00	595.49	72.42	39.16	.39	165.53
15834.00	49.00	0.00	0.00	583.40	1420.00	593.01	0.00	593.23	48.00	11.63	.38	81.03
15834.00	49.00	0.00	0.00	583.40	2265.00	593.79	0.00	594.26	48.00	21.92	.41	127.70
15834.00	49.00	0.00	0.00	583.40	2590.00	594.20	0.00	594.76	48.00	24.72	.41	140.70
15834.00	49.00	0.00	0.00	583.40	3280.00	594.98	0.00	595.73	48.00	30.61	.39	166.06
15835.00	1.00	599.20	595.90	583.40	1420.00	593.01	0.00	593.23	48.00	5.35	.38	81.04
15835.00	1.00	599.20	595.90	583.40	2265.00	593.79	0.00	594.26	48.00	10.24	.41	127.71
15835.00	1.00	599.20	595.90	583.40	2590.00	594.21	0.00	594.76	48.00	11.64	.41	140.71
15835.00	1.00	599.20	595.90	583.40	3280.00	594.98	0.00	595.74	48.00	14.63	.39	166.07
15865.00	30.00	599.20	595.90	583.40	1420.00	593.03	0.00	593.25	48.00	5.30	.38	81.30
15865.00	30.00	599.20	595.90	583.40	2265.00	593.83	0.00	594.29	48.00	10.09	.41	127.99
15865.00	30.00	599.20	595.90	583.40	2590.00	594.25	0.00	594.80	48.00	11.46	.41	141.01
15865.00	30.00	599.20	595.90	583.40	3280.00	595.04	0.00	595.78	48.00	14.36	.39	166.40
15866.00	1.00	0.00	0.00	583.40	1420.00	593.03	0.00	593.25	48.00	11.50	.38	81.31
15866.00	1.00	0.00	0.00	583.40	2265.00	593.83	0.00	594.29	48.00	21.56	.41	128.00
15866.00	1.00	0.00	0.00	583.40	2590.00	594.25	0.00	594.80	48.00	24.28	.41	141.02
15866.00	1.00	0.00	0.00	583.40	3280.00	595.04	0.00	595.78	48.00	29.97	.39	166.41

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
15923.00	57.00	0.00	0.00	584.10	1430.00	593.09	0.00	593.32	46.50	11.64	.38	81.80
15923.00	57.00	0.00	0.00	584.10	2265.00	594.01	0.00	594.42	133.14	19.20	.42	128.62
15923.00	57.00	0.00	0.00	584.10	2585.00	594.50	0.00	594.95	141.68	19.90	.41	141.69
15923.00	57.00	0.00	0.00	584.10	3275.00	595.49	0.00	596.00	158.68	20.65	.40	167.20
15940.00	17.00	592.60	592.50	584.10	1430.00	593.24	0.00	593.46	46.50	8.68	.38	81.94
15940.00	17.00	592.60	592.50	584.10	2265.00	594.22	0.00	594.61	136.91	13.88	.42	128.83
15940.00	17.00	592.60	592.50	584.10	2585.00	594.68	0.00	595.11	144.78	14.74	.41	141.92
15940.00	17.00	592.60	592.50	584.10	3275.00	595.60	0.00	596.11	160.71	15.94	.40	167.49
16190.00	250.00	0.00	0.00	584.10	1430.00	593.62	0.00	593.70	225.00	7.78	.42	85.22
16190.00	250.00	0.00	0.00	584.10	2265.00	594.85	0.00	594.96	225.00	8.81	.44	133.29
16190.00	250.00	0.00	0.00	584.10	2585.00	595.35	0.00	595.47	225.00	8.63	.44	146.85
16190.00	250.00	0.00	0.00	584.10	3275.00	596.36	0.00	596.49	225.00	8.36	.42	173.38
16440.00	250.00	0.00	0.00	584.10	1430.00	593.82	0.00	593.86	296.86	4.41	.46	91.09
16440.00	250.00	0.00	0.00	584.10	2265.00	595.08	0.00	595.14	301.70	5.00	.48	141.02
16440.00	250.00	0.00	0.00	584.10	2585.00	595.59	0.00	595.65	303.66	4.93	.48	155.36
16440.00	250.00	0.00	0.00	584.10	3275.00	596.60	0.00	596.67	307.56	4.82	.46	183.43
16735.00	295.00	0.00	0.00	584.10	1430.00	593.94	0.00	593.95	482.93	1.94	.56	101.79
16735.00	295.00	0.00	0.00	584.10	2255.00	595.22	0.00	595.24	492.93	2.12	.56	155.12
16735.00	295.00	0.00	0.00	584.10	2585.00	595.73	0.00	595.75	496.91	2.08	.55	170.83
16735.00	295.00	0.00	0.00	584.10	3275.00	596.75	0.00	596.77	504.80	2.02	.53	201.66
17935.00	1200.00	0.00	0.00	584.10	1430.00	594.28	0.00	594.35	230.55	5.67	.73	141.93
17935.00	1200.00	0.00	0.00	584.10	2265.00	595.60	0.00	595.69	243.15	6.65	.71	208.13
17935.00	1200.00	0.00	0.00	584.10	2585.00	596.10	0.00	596.20	247.52	6.71	.69	229.01
17935.00	1200.00	0.00	0.00	584.10	3275.00	597.10	0.00	597.22	252.66	6.74	.67	270.25
18285.00	350.00	0.00	0.00	584.70	1430.00	594.46	0.00	594.53	235.00	4.82	.78	149.83
18285.00	350.00	0.00	0.00	584.70	2265.00	595.81	0.00	595.91	235.00	5.65	.75	218.56
18285.00	350.00	0.00	0.00	584.70	2585.00	596.32	0.00	596.42	235.00	5.74	.74	240.42
18285.00	350.00	0.00	0.00	584.70	3275.00	597.33	0.00	597.44	235.00	5.90	.71	283.61
18535.00	250.00	0.00	0.00	585.20	1430.00	594.57	0.00	594.76	110.00	10.20	.80	154.24
18535.00	250.00	0.00	0.00	585.20	2265.00	595.92	0.00	596.22	110.00	13.23	.77	224.33
18535.00	250.00	0.00	0.00	585.20	2585.00	596.42	0.00	596.75	110.00	13.87	.75	246.69
18535.00	250.00	0.00	0.00	585.20	3275.00	597.41	0.00	597.80	110.00	15.02	.72	290.88
18635.00	100.00	0.00	0.00	585.20	1430.00	594.65	0.00	594.91	70.00	12.34	.80	155.37
18635.00	100.00	0.00	0.00	585.20	2265.00	596.00	0.00	596.44	70.00	17.13	.78	225.75
18635.00	100.00	0.00	0.00	585.20	2585.00	596.50	0.00	597.00	70.00	18.46	.76	248.23
18635.00	100.00	0.00	0.00	585.20	3275.00	597.47	0.00	598.11	70.00	20.87	.72	292.64
18685.00	50.00	0.00	0.00	585.20	1430.00	594.70	0.00	594.99	45.70	14.55	.81	155.79
18685.00	50.00	0.00	0.00	585.20	2265.00	596.06	0.00	596.57	45.70	21.24	.78	226.27
18685.00	50.00	0.00	0.00	585.20	2585.00	596.56	0.00	597.15	45.70	23.38	.76	248.77
18685.00	50.00	0.00	0.00	585.20	3275.00	598.29	0.00	598.30	649.50	.87	.74	295.80

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
18720.00	35.00	600.50	597.30	585.20	1430.00	594.75	0.00	595.04	45.70	15.35	.81	156.06
18720.00	35.00	600.50	597.30	585.20	2265.00	596.13	0.00	596.66	45.70	22.83	.78	226.59
18720.00	35.00	600.50	597.30	585.20	2585.00	596.63	0.00	597.24	45.70	25.13	.76	249.11
18720.00	35.00	600.50	597.30	585.20	3275.00	599.03	0.00	599.62	45.70	17.94	.74	297.98
18733.00	13.00	0.00	0.00	585.20	1430.00	594.86	0.00	595.08	70.00	13.77	.81	156.17
18733.00	13.00	0.00	0.00	585.20	2265.00	596.38	0.00	596.73	70.00	16.58	.78	226.72
18733.00	13.00	0.00	0.00	585.20	2585.00	596.94	0.00	597.34	70.00	17.11	.76	249.25
18733.00	13.00	0.00	0.00	585.20	3275.00	599.32	0.00	599.70	70.00	11.78	.75	298.17
18745.00	12.00	0.00	0.00	585.20	1430.00	594.97	0.00	595.12	95.00	9.92	.81	156.30
18745.00	12.00	0.00	0.00	585.20	2265.00	596.56	0.00	596.79	95.00	11.44	.78	226.89
18745.00	12.00	0.00	0.00	585.20	2585.00	597.15	0.00	597.40	95.00	11.66	.76	249.43
18745.00	12.00	0.00	0.00	585.20	3275.00	599.52	0.00	599.75	95.00	8.03	.75	298.40
18770.00	25.00	0.00	0.00	585.20	1430.00	595.09	0.00	595.16	150.00	5.78	.81	156.69
18770.00	25.00	0.00	0.00	585.20	2265.00	596.74	0.00	596.85	150.00	6.33	.78	227.39
18770.00	25.00	0.00	0.00	585.20	2585.00	597.34	0.00	597.46	150.00	6.37	.77	249.98
18770.00	25.00	0.00	0.00	585.20	3275.00	599.70	0.00	599.81	150.00	4.35	.75	299.11
18845.00	75.00	0.00	0.00	585.20	1430.00	595.18	0.00	595.20	300.00	1.99	.84	158.79
18845.00	75.00	0.00	0.00	585.20	2265.00	596.87	0.00	596.90	300.00	2.11	.80	230.14
18845.00	75.00	0.00	0.00	585.20	2585.00	597.48	0.00	597.51	300.00	2.11	.78	252.96
18845.00	75.00	0.00	0.00	585.20	3275.00	599.82	0.00	599.85	300.00	1.43	.77	303.00
19345.00	500.00	0.00	0.00	585.30	1430.00	595.29	0.00	595.33	240.00	3.07	.93	174.42
19345.00	500.00	0.00	0.00	585.30	2265.00	596.98	0.00	597.03	240.00	3.22	.88	250.66
19345.00	500.00	0.00	0.00	585.30	2585.00	597.59	0.00	597.64	240.00	3.21	.86	275.26
19345.00	500.00	0.00	0.00	585.30	3275.00	599.90	0.00	599.94	240.00	2.19	.85	332.03
19770.00	425.00	0.00	0.00	585.40	1430.00	595.43	0.00	595.63	110.00	10.62	.97	183.01
19770.00	425.00	0.00	0.00	585.40	2265.00	597.10	0.00	597.39	110.00	12.23	.91	262.13
19770.00	425.00	0.00	0.00	585.40	2585.00	597.71	0.00	598.01	110.00	12.39	.89	287.77
19770.00	425.00	0.00	0.00	585.40	3275.00	599.95	0.00	600.22	110.00	8.96	.88	348.44
19920.00	150.00	0.00	0.00	586.00	1430.00	595.58	0.00	595.88	70.00	15.33	.98	184.69
19920.00	150.00	0.00	0.00	586.00	2265.00	597.26	0.00	597.70	70.00	18.29	.92	264.37
19920.00	150.00	0.00	0.00	586.00	2585.00	597.85	0.00	598.34	70.00	18.90	.90	290.22
19920.00	150.00	0.00	0.00	586.00	3275.00	600.02	0.00	600.50	70.00	14.52	.89	351.64
19970.00	50.00	0.00	0.00	586.30	1430.00	595.87	0.00	595.98	68.80	5.03	.98	185.28
19970.00	50.00	0.00	0.00	586.30	2265.00	597.65	0.00	597.83	68.80	6.57	.93	265.12
19970.00	50.00	0.00	0.00	586.30	2585.00	598.28	0.00	598.49	68.80	7.01	.90	291.02
19970.00	50.00	0.00	0.00	586.30	3275.00	600.62	0.00	600.65	516.52	1.33	.90	354.69
20170.00	200.00	600.30	598.80	586.30	1430.00	595.97	0.00	596.07	68.80	4.46	1.01	187.78
20170.00	200.00	600.30	598.80	586.30	2265.00	597.78	0.00	597.96	68.80	5.83	.94	268.19
20170.00	200.00	600.30	598.80	586.30	2585.00	598.46	0.00	598.66	68.80	10.69	.92	294.29
20170.00	200.00	600.30	598.80	586.30	3275.00	601.14	0.00	601.15	728.09	.26	1.01	378.83

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
20220.00	50.00	0.00	0.00	586.10	1440.00	596.04	0.00	596.11	170.00	4.29	1.01	188.65
20220.00	50.00	0.00	0.00	586.10	2270.00	597.93	0.00	598.01	170.00	4.49	.95	269.32
20220.00	50.00	0.00	0.00	586.10	2585.00	598.64	0.00	598.73	170.00	4.42	.92	295.52
20220.00	50.00	0.00	0.00	586.10	3265.00	601.11	0.00	601.19	170.00	3.12	1.02	384.07
20470.00	250.00	0.00	0.00	585.50	1440.00	596.16	0.00	596.16	450.00	.96	1.11	197.89
20470.00	250.00	0.00	0.00	585.50	2270.00	598.06	0.00	598.08	450.00	.93	1.03	281.73
20470.00	250.00	0.00	0.00	585.50	2585.00	598.78	0.00	598.79	450.00	.90	1.01	309.10
20470.00	250.00	0.00	0.00	585.50	3265.00	601.22	0.00	601.23	450.00	.62	1.10	401.74
20870.00	400.00	0.00	0.00	585.90	1440.00	596.19	0.00	596.19	750.00	.48	1.36	226.82
20870.00	400.00	0.00	0.00	585.90	2270.00	598.10	0.00	598.10	750.00	.43	1.27	321.17
20870.00	400.00	0.00	0.00	585.90	2585.00	598.81	0.00	598.82	750.00	.41	1.23	352.47
20870.00	400.00	0.00	0.00	585.90	3265.00	601.25	0.00	601.25	750.00	.27	1.34	458.56
21370.00	500.00	0.00	0.00	586.40	1440.00	596.22	0.00	596.22	575.00	.78	1.63	266.08
21370.00	500.00	0.00	0.00	586.40	2270.00	598.12	0.00	598.13	575.00	.71	1.50	374.94
21370.00	500.00	0.00	0.00	586.40	2585.00	598.84	0.00	598.84	575.00	.67	1.46	411.67
21370.00	500.00	0.00	0.00	586.40	3265.00	601.26	0.00	601.27	575.00	.44	1.58	536.24
22435.00	1065.00	0.00	0.00	587.30	1440.00	596.34	0.00	596.36	714.54	2.16	1.95	329.48
22435.00	1065.00	0.00	0.00	587.30	2270.00	598.22	0.00	598.23	723.07	1.33	1.87	468.42
22435.00	1065.00	0.00	0.00	587.30	2585.00	598.93	0.00	598.94	726.26	1.15	1.84	516.47
22435.00	1065.00	0.00	0.00	587.30	3265.00	601.32	0.00	601.33	737.07	.60	2.04	679.62
22985.00	550.00	0.00	0.00	587.60	1440.00	596.48	0.00	596.52	535.14	3.52	2.07	353.29
22985.00	550.00	0.00	0.00	587.60	2270.00	598.31	0.00	598.34	539.28	2.32	2.01	506.94
22985.00	550.00	0.00	0.00	587.60	2585.00	599.00	0.00	599.03	540.85	2.01	1.99	560.57
22985.00	550.00	0.00	0.00	587.60	3265.00	601.36	0.00	601.37	546.18	1.07	2.21	742.81
23585.00	600.00	0.00	0.00	587.80	1440.00	596.63	0.00	596.64	401.12	1.14	2.30	379.86
23585.00	600.00	0.00	0.00	587.80	2270.00	598.42	0.00	598.43	404.87	1.17	2.21	545.25
23585.00	600.00	0.00	0.00	587.80	2585.00	599.10	0.00	599.12	406.29	1.14	2.17	603.35
23585.00	600.00	0.00	0.00	587.80	3265.00	601.42	0.00	601.43	411.12	.81	2.40	800.90
23970.00	385.00	0.00	0.00	588.00	1440.00	596.59	0.00	596.90	139.52	17.84	2.33	391.75
23970.00	385.00	0.00	0.00	588.00	2270.00	598.38	0.00	598.70	216.75	15.32	2.23	561.64
23970.00	385.00	0.00	0.00	588.00	2585.00	599.07	0.00	599.37	250.02	13.64	2.20	621.66
23970.00	385.00	0.00	0.00	588.00	3265.00	601.41	0.00	601.57	325.00	6.61	2.44	826.56
24035.00	65.00	0.00	0.00	587.90	1440.00	596.87	0.00	597.02	166.67	8.46	2.33	392.52
24035.00	65.00	0.00	0.00	587.90	2270.00	598.64	0.00	598.81	254.30	8.11	2.24	562.91
24035.00	65.00	0.00	0.00	587.90	2585.00	599.30	0.00	599.47	286.24	7.56	2.21	623.18
24035.00	65.00	0.00	0.00	587.90	3265.00	601.51	0.00	601.62	350.00	4.28	2.45	829.17
24068.00	33.00	599.30	598.80	587.90	1440.00	596.86	0.00	597.11	47.30	17.98	2.34	392.89
24068.00	33.00	599.30	598.80	587.90	2270.00	598.87	0.00	599.25	49.00	23.32	2.24	563.44
24068.00	33.00	599.30	598.80	587.90	2585.00	599.89	0.00	599.96	324.00	6.25	2.21	624.22
24068.00	33.00	599.30	598.80	587.90	3265.00	601.69	0.00	601.71	493.00	1.86	2.45	831.19

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
24118.00	50.00	0.00	0.00	588.00	1190.00	597.18	0.00	597.19	250.00	1.17	2.35	393.58
24118.00	50.00	0.00	0.00	588.00	1870.00	599.36	0.00	599.38	250.00	1.13	2.25	564.36
24118.00	50.00	0.00	0.00	588.00	2130.00	599.97	0.00	599.99	250.00	1.18	2.22	625.34
24118.00	50.00	0.00	0.00	588.00	2680.00	601.70	0.00	601.72	250.00	1.06	2.47	833.95
24218.00	100.00	0.00	0.00	588.10	1190.00	597.15	0.00	597.27	330.00	9.26	2.36	396.29
24218.00	100.00	0.00	0.00	588.10	1870.00	599.36	0.00	599.42	330.00	4.22	2.27	568.53
24218.00	100.00	0.00	0.00	588.10	2130.00	599.97	0.00	600.02	330.00	3.82	2.24	629.92
24218.00	100.00	0.00	0.00	588.10	2680.00	601.70	0.00	601.75	330.00	2.54	2.48	839.69
24943.00	725.00	0.00	0.00	588.80	1190.00	597.72	0.00	597.77	491.90	5.02	2.49	412.18
24943.00	725.00	0.00	0.00	588.80	1870.00	599.63	0.00	599.66	519.16	2.54	2.44	598.55
24943.00	725.00	0.00	0.00	588.80	2130.00	600.22	0.00	600.24	527.44	2.26	2.41	664.14
24943.00	725.00	0.00	0.00	588.80	2680.00	601.87	0.00	601.89	550.99	1.45	2.69	886.10
25268.00	325.00	0.00	0.00	588.70	1190.00	597.89	0.00	597.97	245.00	6.63	2.53	419.46
25268.00	325.00	0.00	0.00	588.70	1870.00	599.72	0.00	599.80	245.00	4.90	2.48	611.11
25268.00	325.00	0.00	0.00	588.70	2130.00	600.29	0.00	600.37	245.00	4.67	2.46	678.36
25268.00	325.00	0.00	0.00	588.70	2680.00	601.92	0.00	601.98	245.00	3.47	2.73	905.15
25593.00	325.00	0.00	0.00	588.60	1190.00	598.10	0.00	598.31	73.87	11.30	2.55	423.71
25593.00	325.00	0.00	0.00	588.60	1870.00	599.85	0.00	600.14	81.34	11.81	2.50	617.55
25593.00	325.00	0.00	0.00	588.60	2130.00	600.40	0.00	600.72	82.90	12.06	2.48	685.49
25593.00	325.00	0.00	0.00	588.60	2680.00	601.97	0.00	602.30	87.28	10.48	2.75	914.27
25642.00	49.00	0.00	0.00	589.40	1190.00	598.16	0.00	598.37	49.50	11.50	2.56	424.09
25642.00	49.00	0.00	0.00	589.40	1870.00	599.90	0.00	600.21	49.50	13.63	2.51	618.06
25642.00	49.00	0.00	0.00	589.40	2130.00	600.45	0.00	600.81	49.50	14.48	2.48	686.05
25642.00	49.00	0.00	0.00	589.40	2680.00	601.98	0.00	602.40	49.50	13.94	2.76	914.94
25643.00	1.00	607.30	609.40	589.40	1190.00	598.15	0.00	598.38	47.90	15.20	2.56	424.10
25643.00	1.00	607.30	609.40	589.40	1870.00	599.89	0.00	600.23	47.90	19.27	2.51	618.07
25643.00	1.00	607.30	609.40	589.40	2130.00	600.43	0.00	600.83	47.90	20.95	2.48	686.06
25643.00	1.00	607.30	609.40	589.40	2680.00	601.97	0.00	602.42	47.90	21.41	2.76	914.95
25673.00	30.00	607.30	609.40	589.40	1190.00	598.20	0.00	598.42	47.90	14.94	2.56	424.32
25673.00	30.00	607.30	609.40	589.40	1870.00	599.95	0.00	600.29	47.90	18.96	2.51	618.34
25673.00	30.00	607.30	609.40	589.40	2130.00	600.50	0.00	600.89	47.90	20.61	2.48	686.35
25673.00	30.00	607.30	609.40	589.40	2680.00	602.04	0.00	602.49	47.90	21.07	2.76	915.30
25674.00	1.00	0.00	0.00	589.40	1190.00	598.23	0.00	598.43	49.50	12.01	2.56	424.32
25674.00	1.00	0.00	0.00	589.40	1870.00	599.99	0.00	600.30	49.50	14.12	2.51	618.35
25674.00	1.00	0.00	0.00	589.40	2130.00	600.54	0.00	600.90	49.50	14.98	2.48	686.36
25674.00	1.00	0.00	0.00	589.40	2680.00	602.09	0.00	602.50	49.50	14.44	2.76	915.31
25723.00	49.00	0.00	0.00	589.40	1190.00	598.36	0.00	598.50	133.48	8.72	2.56	424.78
25723.00	49.00	0.00	0.00	589.40	1870.00	600.23	0.00	600.40	138.46	7.40	2.51	619.01
25723.00	49.00	0.00	0.00	589.40	2130.00	600.84	0.00	601.01	140.06	7.20	2.49	687.07
25723.00	49.00	0.00	0.00	589.40	2680.00	602.45	0.00	602.62	144.34	5.80	2.76	916.20

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
25923.00	200.00	0.00	0.00	589.30	1190.00	598.58	0.00	598.65	351.95	4.82	2.59	427.97
25923.00	200.00	0.00	0.00	589.30	1870.00	600.47	0.00	600.52	389.32	3.11	2.55	624.42
25923.00	200.00	0.00	0.00	589.30	2130.00	601.08	0.00	601.13	390.94	2.81	2.52	693.22
25923.00	200.00	0.00	0.00	589.30	2680.00	602.68	0.00	602.72	395.15	1.98	2.80	924.32
26873.00	950.00	0.00	0.00	588.90	1190.00	599.02	0.00	599.07	359.50	3.95	2.75	449.04
26873.00	950.00	0.00	0.00	588.90	1870.00	600.76	0.00	600.81	397.33	2.89	2.72	660.48
26873.00	950.00	0.00	0.00	588.90	2130.00	601.35	0.00	601.39	410.27	2.67	2.70	734.46
26873.00	950.00	0.00	0.00	588.90	2680.00	602.87	0.00	602.90	442.14	1.95	3.00	979.53
28073.00	1200.00	0.00	0.00	591.40	1190.00	599.72	0.00	599.93	315.85	12.83	2.85	470.28
28073.00	1200.00	0.00	0.00	591.40	1870.00	601.27	0.00	601.43	409.55	8.95	2.84	698.64
28073.00	1200.00	0.00	0.00	591.40	2130.00	601.81	0.00	601.95	443.91	7.77	2.83	779.05
28073.00	1200.00	0.00	0.00	591.40	2680.00	603.20	0.00	603.28	499.06	4.88	3.16	1042.13
29073.00	1000.00	0.00	0.00	592.30	1190.00	600.73	0.00	600.80	498.18	5.71	2.99	488.23
29073.00	1000.00	0.00	0.00	592.30	1870.00	602.02	0.00	602.07	533.79	4.51	3.01	730.74
29073.00	1000.00	0.00	0.00	592.30	2130.00	602.47	0.00	602.52	539.73	4.14	3.01	816.60
29073.00	1000.00	0.00	0.00	592.30	2680.00	603.63	0.00	603.67	543.39	3.04	3.36	1094.46
30273.00	1200.00	0.00	0.00	593.60	1190.00	601.28	0.00	601.31	438.19	3.09	3.24	519.81
30273.00	1200.00	0.00	0.00	593.60	1870.00	602.48	0.00	602.51	465.27	2.82	3.26	779.40
30273.00	1200.00	0.00	0.00	593.60	2130.00	602.90	0.00	602.94	525.78	2.69	3.26	871.66
30273.00	1200.00	0.00	0.00	593.60	2680.00	603.96	0.00	603.99	564.53	2.14	3.63	1166.40
30823.00	550.00	0.00	0.00	594.20	1190.00	601.49	0.00	601.57	218.27	5.67	3.32	532.67
30823.00	550.00	0.00	0.00	594.20	1870.00	602.68	0.00	602.78	259.79	6.45	3.33	797.65
30823.00	550.00	0.00	0.00	594.20	2130.00	603.10	0.00	603.20	318.34	6.53	3.32	892.09
30823.00	550.00	0.00	0.00	594.20	2680.00	604.11	0.00	604.21	330.00	5.77	3.70	1192.81
31111.00	288.00	0.00	0.00	594.60	1190.00	601.66	0.00	601.93	52.94	17.98	3.34	536.17
31111.00	288.00	0.00	0.00	594.60	1870.00	602.86	0.00	603.21	189.48	20.93	3.35	802.75
31111.00	288.00	0.00	0.00	594.60	2130.00	603.27	0.00	603.64	190.05	20.85	3.34	897.84
31111.00	288.00	0.00	0.00	594.60	2680.00	604.26	0.00	604.61	191.42	18.40	3.71	1200.29
31398.00	287.00	0.00	0.00	594.90	1200.00	602.14	0.00	602.42	63.59	15.91	3.36	538.12
31398.00	287.00	0.00	0.00	594.90	1865.00	603.43	0.00	603.81	65.42	19.98	3.37	805.70
31398.00	287.00	0.00	0.00	594.90	2120.00	603.85	0.00	604.28	66.02	21.30	3.36	901.13
31398.00	287.00	0.00	0.00	594.90	2665.00	604.76	0.00	605.28	67.36	22.69	3.73	1204.40
31472.00	74.00	0.00	0.00	595.00	1200.00	602.29	0.00	602.54	43.00	15.57	3.36	538.63
31472.00	74.00	0.00	0.00	595.00	1865.00	603.56	0.00	604.00	43.00	22.11	3.37	806.32
31472.00	74.00	0.00	0.00	595.00	2120.00	603.97	0.00	604.49	43.00	24.46	3.36	901.79
31472.00	74.00	0.00	0.00	595.00	2665.00	604.87	0.00	605.54	43.00	28.27	3.73	1205.15
31473.00	1.00	607.80	606.10	595.00	1200.00	602.26	0.00	602.57	40.00	16.51	3.36	538.64
31473.00	1.00	607.80	606.10	595.00	1865.00	603.48	0.00	604.08	40.00	29.29	3.37	806.33
31473.00	1.00	607.80	606.10	595.00	2120.00	603.87	0.00	604.59	40.00	34.57	3.36	901.80
31473.00	1.00	607.80	606.10	595.00	2665.00	604.70	0.00	605.72	40.00	54.57	3.73	1205.16

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
31533.00	60.00	607.80	606.10	595.00	1200.00	602.37	0.00	602.67	40.00	16.09	3.37	539.01
31533.00	60.00	607.80	606.10	595.00	1865.00	603.68	0.00	604.26	40.00	27.96	3.37	806.75
31533.00	60.00	607.80	606.10	595.00	2120.00	604.12	0.00	604.81	40.00	35.29	3.36	902.23
31533.00	60.00	607.80	606.10	595.00	2665.00	605.07	0.00	606.05	40.00	52.25	3.73	1205.61
31534.00	1.00	0.00	0.00	595.00	1200.00	602.41	0.00	602.68	43.00	17.28	3.37	539.02
31534.00	1.00	0.00	0.00	595.00	1865.00	603.84	0.00	604.30	43.00	22.38	3.37	806.75
31534.00	1.00	0.00	0.00	595.00	2120.00	604.35	0.00	604.87	43.00	23.90	3.36	902.24
31534.00	1.00	0.00	0.00	595.00	2665.00	605.53	0.00	606.16	43.00	25.24	3.73	1205.62
31608.00	74.00	0.00	0.00	595.00	1200.00	602.46	0.00	603.04	46.42	52.69	3.37	539.42
31608.00	74.00	0.00	0.00	595.00	1865.00	603.97	0.00	604.65	94.37	49.48	3.38	807.33
31608.00	74.00	0.00	0.00	595.00	2120.00	604.51	0.00	605.19	95.57	46.64	3.37	902.87
31608.00	74.00	0.00	0.00	595.00	2665.00	605.76	0.00	606.39	98.35	38.03	3.74	1206.40
31720.00	112.00	0.00	0.00	594.90	1200.00	603.25	0.00	603.47	143.52	17.61	3.38	540.23
31720.00	112.00	0.00	0.00	594.90	1865.00	604.85	0.00	605.07	146.22	14.86	3.39	808.61
31720.00	112.00	0.00	0.00	594.90	2120.00	605.38	0.00	605.59	147.11	14.35	3.38	904.32
31720.00	112.00	0.00	0.00	594.90	2665.00	606.52	0.00	606.74	149.37	12.81	3.75	1208.22
31833.00	113.00	0.00	0.00	594.80	1200.00	603.50	0.00	603.66	230.78	13.05	3.39	541.52
31833.00	113.00	0.00	0.00	594.80	1865.00	605.10	0.00	605.23	264.65	9.65	3.40	810.73
31833.00	113.00	0.00	0.00	594.80	2120.00	605.63	0.00	605.75	271.52	8.89	3.39	906.72
31833.00	113.00	0.00	0.00	594.80	2665.00	606.77	0.00	606.88	278.98	7.27	3.76	1211.25
32148.00	315.00	0.00	0.00	594.60	1200.00	603.83	0.00	603.87	400.00	2.99	3.46	548.20
32148.00	315.00	0.00	0.00	594.60	1865.00	605.36	0.00	605.39	400.00	2.46	3.47	821.08
32148.00	315.00	0.00	0.00	594.60	2120.00	605.87	0.00	605.90	400.00	2.36	3.45	918.33
32148.00	315.00	0.00	0.00	594.60	2665.00	606.98	0.00	607.01	400.00	2.10	3.83	1225.60
32223.00	75.00	0.00	0.00	594.60	1200.00	603.86	0.00	603.89	463.34	3.36	3.47	550.41
32223.00	75.00	0.00	0.00	594.60	1865.00	605.38	0.00	605.41	477.14	2.52	3.48	824.43
32223.00	75.00	0.00	0.00	594.60	2120.00	605.89	0.00	605.92	477.80	2.35	3.47	922.07
32223.00	75.00	0.00	0.00	594.60	2665.00	607.00	0.00	607.03	479.25	1.99	3.84	1230.19
32433.00	210.00	0.00	0.00	594.50	1200.00	603.92	0.00	603.96	407.78	3.19	3.51	555.92
32433.00	210.00	0.00	0.00	594.50	1865.00	605.43	0.00	605.46	459.25	2.50	3.52	833.02
32433.00	210.00	0.00	0.00	594.50	2120.00	605.94	0.00	605.97	476.46	2.32	3.51	931.74
32433.00	210.00	0.00	0.00	594.50	2665.00	607.04	0.00	607.07	513.85	1.93	3.89	1242.26
33833.00	1400.00	0.00	0.00	595.10	1200.00	604.51	0.00	604.58	540.51	5.91	3.73	593.32
33833.00	1400.00	0.00	0.00	595.10	1865.00	605.87	0.00	605.92	552.80	4.03	3.80	893.76
33833.00	1400.00	0.00	0.00	595.10	2120.00	606.34	0.00	606.38	554.96	3.63	3.80	1000.80
33833.00	1400.00	0.00	0.00	595.10	2665.00	607.37	0.00	607.41	559.67	2.90	4.20	1330.00
34961.00	1128.00	0.00	0.00	596.10	1200.00	605.39	0.00	605.57	220.00	12.40	3.83	615.17
34961.00	1128.00	0.00	0.00	596.10	1865.00	606.54	0.00	606.75	220.00	12.92	3.90	928.68
34961.00	1128.00	0.00	0.00	596.10	2120.00	606.96	0.00	607.17	220.00	12.76	3.90	1040.34
34961.00	1128.00	0.00	0.00	596.10	2665.00	607.88	0.00	608.08	220.00	11.84	4.29	1379.66

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	C*SEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
35233.00	272.00	0.00	0.00	596.30	1200.00	605.73	0.00	606.01	74.29	17.17	3.85	617.78
35233.00	272.00	0.00	0.00	596.30	1865.00	606.87	0.00	607.32	84.31	22.36	3.91	932.38
35233.00	272.00	0.00	0.00	596.30	2120.00	607.27	0.00	607.78	85.04	23.69	3.91	1044.43
35233.00	272.00	0.00	0.00	596.30	2665.00	608.13	0.00	608.74	86.59	25.15	4.31	1384.62
35332.00	99.00	0.00	0.00	596.40	1200.00	605.99	0.00	606.16	45.00	7.74	3.85	618.53
35332.00	99.00	0.00	0.00	596.40	1865.00	607.21	0.00	607.53	45.00	12.01	3.92	933.30
35332.00	99.00	0.00	0.00	596.40	2120.00	607.63	0.00	608.00	45.00	13.55	3.92	1045.41
35332.00	99.00	0.00	0.00	596.40	2665.00	608.48	0.00	608.97	45.00	16.51	4.31	1385.72
35333.00	1.00	611.00	610.90	596.40	1200.00	605.99	0.00	606.16	45.00	7.33	3.85	618.54
35333.00	1.00	611.00	610.90	596.40	1865.00	607.22	0.00	607.53	45.00	11.63	3.92	933.31
35333.00	1.00	611.00	610.90	596.40	2120.00	607.63	0.00	608.00	45.00	13.22	3.92	1045.42
35333.00	1.00	611.00	610.90	596.40	2665.00	608.48	0.00	608.97	45.00	16.34	4.31	1385.73
35367.00	34.00	611.00	610.90	596.40	1200.00	606.02	0.00	606.18	45.00	7.27	3.86	618.82
35367.00	34.00	611.00	610.90	596.40	1865.00	607.26	0.00	607.57	45.00	11.48	3.92	933.63
35367.00	34.00	611.00	610.90	596.40	2120.00	607.68	0.00	608.04	45.00	13.04	3.92	1045.76
35367.00	34.00	611.00	610.90	596.40	2665.00	608.54	0.00	609.03	45.00	16.09	4.31	1386.10
35368.00	1.00	0.00	0.00	596.40	1200.00	606.02	0.00	606.19	45.00	7.66	3.86	618.83
35368.00	1.00	0.00	0.00	596.40	1865.00	607.26	0.00	607.57	45.00	11.84	3.92	933.64
35368.00	1.00	0.00	0.00	596.40	2120.00	607.68	0.00	608.05	45.00	13.34	3.92	1045.77
35368.00	1.00	0.00	0.00	596.40	2665.00	608.55	0.00	609.03	45.00	16.22	4.31	1386.11
35417.00	49.00	0.00	0.00	596.50	1200.00	606.12	0.00	606.24	145.00	7.04	3.86	619.39
35417.00	49.00	0.00	0.00	596.50	1865.00	607.51	0.00	607.66	145.00	7.97	3.92	934.34
35417.00	49.00	0.00	0.00	596.50	2120.00	607.99	0.00	608.16	145.00	8.18	3.92	1046.52
35417.00	49.00	0.00	0.00	596.50	2665.00	608.99	0.00	609.18	145.00	8.37	4.32	1386.96
35497.00	80.00	0.00	0.00	596.50	1200.00	606.26	0.00	606.30	299.74	2.95	3.88	621.11
35497.00	80.00	0.00	0.00	596.50	1865.00	607.69	0.00	607.73	303.50	2.98	3.94	936.68
35497.00	80.00	0.00	0.00	596.50	2120.00	608.19	0.00	608.23	304.81	2.98	3.94	1049.07
35497.00	80.00	0.00	0.00	596.50	2665.00	609.21	0.00	609.26	307.50	2.91	4.33	1389.96
36047.00	550.00	0.00	0.00	597.20	1200.00	606.46	0.00	606.61	366.00	9.10	3.93	632.33
36047.00	550.00	0.00	0.00	597.20	1865.00	607.88	0.00	608.00	452.56	6.87	4.00	953.97
36047.00	550.00	0.00	0.00	597.20	2120.00	608.38	0.00	608.48	476.43	6.18	4.00	1068.66
36047.00	550.00	0.00	0.00	597.20	2665.00	609.39	0.00	609.47	571.93	4.90	4.40	1414.86
36567.00	520.00	0.00	0.00	597.90	1200.00	606.93	0.00	607.04	373.37	6.80	3.99	640.84
36567.00	520.00	0.00	0.00	597.90	1865.00	608.25	0.00	608.33	398.23	5.52	4.07	969.02
36567.00	520.00	0.00	0.00	597.90	2120.00	608.70	0.00	608.78	405.61	5.14	4.08	1086.17
36567.00	520.00	0.00	0.00	597.90	2665.00	609.65	0.00	609.72	413.06	4.41	4.48	1437.91

SECTION NUMBER	DISCHARGE CFS	C*SEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
12000.000	1420.000	588.493	0.000	0.000	0.000	524.860	0.000	-0.000
12000.000	2265.000	589.529	1.036	0.000	0.000	540.488	-15.628	-0.000
12000.000	2590.000	589.873	.344	0.000	0.000	542.352	-17.492	-0.000
12000.000	3280.000	590.544	.670	0.000	0.000	545.984	-21.124	-0.000
12800.000	1420.000	586.988	0.000	.495	0.000	653.280	0.000	800.000
12800.000	2265.000	590.003	1.015	.474	0.000	665.433	-12.153	800.000
12800.000	2590.000	590.341	.338	.466	0.000	667.707	-14.427	800.000
12800.000	3280.000	591.002	.661	.458	0.000	672.139	-18.859	800.000
13500.000	1420.000	589.461	0.000	.472	0.000	490.250	0.000	700.000
13500.000	2265.000	590.450	.989	.447	0.000	493.687	-3.437	700.000
13500.000	2590.000	590.781	.331	.440	0.000	494.217	-3.967	700.000

15100.000	1420.000	591.139	0.000	1.679	0.000	60.661	0.000	1600.000
15100.000	2265.000	592.075	.935	1.625	0.000	271.177	-210.516	1600.000
15100.000	2590.000	592.429	.354	1.648	0.000	278.379	-217.718	1600.000
15100.000	3280.000	593.116	.687	1.685	0.000	279.802	-219.142	1600.000
15735.000	1420.000	592.766	0.000	1.627	0.000	109.999	0.000	635.000
15735.000	2265.000	593.321	.555	1.247	0.000	109.999	-.000	635.000
15735.000	2590.000	593.701	.380	1.272	0.000	109.999	-.000	635.000
15735.000	3280.000	594.419	.718	1.303	0.000	109.999	-.000	635.000
15785.000	1420.000	592.819	0.000	.053	0.000	68.979	0.000	50.000
15785.000	2265.000	593.408	.589	.087	0.000	70.201	-1.222	50.000
15785.000	2590.000	593.782	.373	.081	0.000	70.975	-1.996	50.000
15785.000	3280.000	594.479	.697	.060	0.000	72.421	-3.441	50.000
15834.000	1420.000	593.008	0.000	.189	0.000	48.000	0.000	49.000
15834.000	2265.000	593.790	.781	.381	0.000	48.000	0.000	49.000
15834.000	2590.000	594.204	.414	.422	0.000	48.000	0.000	49.000
15834.000	3280.000	594.981	.777	.502	0.000	48.000	0.000	49.000
15835.000	1420.000	593.009	0.000	.001	0.000	48.000	0.000	1.000
15835.000	2265.000	593.792	.782	.002	0.000	48.000	0.000	1.000
15835.000	2590.000	594.206	.415	.002	0.000	48.000	0.000	1.000
15835.000	3280.000	594.984	.777	.003	0.000	48.000	0.000	1.000
15865.000	1420.000	593.027	0.000	.018	0.000	48.000	0.000	30.000
15865.000	2265.000	593.828	.801	.036	0.000	48.000	0.000	30.000
15865.000	2590.000	594.248	.420	.042	0.000	48.000	0.000	30.000
15865.000	3280.000	595.039	.791	.056	0.000	48.000	0.000	30.000
15866.000	1420.000	593.028	0.000	.001	0.000	48.000	0.000	1.000
15866.000	2265.000	593.829	.802	.002	0.000	48.000	0.000	1.000
15866.000	2590.000	594.250	.421	.002	0.000	48.000	0.000	1.000
15866.000	3280.000	595.041	.791	.002	0.000	48.000	0.000	1.000
15923.000	1430.000	593.087	0.000	.060	0.000	46.500	0.000	57.000
15923.000	2265.000	594.008	.920	.178	0.000	133.137	-86.637	57.000
15923.000	2585.000	594.503	.495	.253	0.000	141.680	-95.180	57.000
15923.000	3275.000	595.487	.984	.446	0.000	158.685	-112.185	57.000
15940.000	1430.000	593.240	0.000	.153	0.000	46.500	0.000	17.000
15940.000	2265.000	594.225	.985	.217	0.000	136.907	-90.407	17.000
15940.000	2585.000	594.681	.456	.178	0.000	144.785	-98.285	17.000
15940.000	3275.000	595.603	.922	.116	0.000	160.706	-114.206	17.000
16190.000	1430.000	593.622	0.000	.382	0.000	224.999	0.000	250.000
16190.000	2265.000	594.846	1.223	.621	0.000	224.999	-.000	250.000
16190.000	2585.000	595.354	.509	.673	0.000	224.999	-.000	250.000
16190.000	3275.000	596.361	1.007	.758	0.000	224.999	-.000	250.000
16440.000	1430.000	593.819	0.000	.197	0.000	296.864	0.000	250.000
16440.000	2265.000	595.081	1.262	.235	0.000	301.698	-4.834	250.000
16440.000	2585.000	595.590	.509	.236	0.000	303.664	-6.800	250.000
16440.000	3275.000	596.600	1.010	.239	0.000	307.563	-10.699	250.000
16735.000	1430.000	593.937	0.000	.118	0.000	482.928	0.000	295.000
16735.000	2265.000	595.222	1.285	.141	0.000	492.930	-10.003	295.000
16735.000	2585.000	595.732	.511	.142	0.000	496.907	-13.979	295.000
16735.000	3275.000	596.746	1.014	.146	0.000	504.803	-21.876	295.000
17935.000	1430.000	594.277	0.000	.340	0.000	230.553	0.000	1200.000
17935.000	2265.000	595.596	1.319	.375	0.000	243.145	-12.592	1200.000
17935.000	2585.000	596.101	.504	.368	0.000	247.516	-16.962	1200.000
17935.000	3275.000	597.103	1.002	.357	0.000	252.656	-22.102	1200.000

18285.000	1430.000	594.459	0.000	.182	0.000	234.999	0.000	350.000
18285.000	2265.000	595.813	1.354	.217	0.000	234.999	-.000	350.000
18285.000	2585.000	596.321	.507	.220	0.000	234.999	-.000	350.000
18285.000	3275.000	597.326	1.005	.223	0.000	234.999	-.000	350.000
18535.000	1430.000	594.566	0.000	.107	0.000	109.999	0.000	250.000
18535.000	2265.000	595.920	1.354	.106	0.000	109.999	-.000	250.000
18535.000	2585.000	596.420	.501	.099	0.000	109.999	-.000	250.000
18535.000	3275.000	597.410	.989	.084	0.000	109.999	-.000	250.000
18635.000	1430.000	594.645	0.000	.079	0.000	69.999	0.000	100.000
18635.000	2265.000	596.001	1.355	.081	0.000	69.999	-.000	100.000
18635.000	2585.000	596.496	.495	.075	0.000	69.999	-.000	100.000
18635.000	3275.000	597.469	.973	.059	0.000	69.999	-.000	100.000
18685.000	1430.000	594.703	0.000	.058	0.000	45.700	0.000	50.000
18685.000	2265.000	596.064	1.361	.063	0.000	45.700	0.000	50.000
18685.000	2585.000	596.556	.492	.060	0.000	45.700	0.000	50.000
18685.000	3275.000	598.294	1.738	.825	0.000	649.500	-603.800	50.000
18720.000	1430.000	594.751	0.000	.048	0.000	45.700	0.000	35.000
18720.000	2265.000	596.130	1.379	.066	0.000	45.700	0.000	35.000
18720.000	2585.000	596.628	.498	.072	0.000	45.700	0.000	35.000
18720.000	3275.000	599.028	2.401	.734	0.000	45.700	0.000	35.000
18733.000	1430.000	594.860	0.000	.110	0.000	69.999	0.000	13.000
18733.000	2265.000	596.379	1.519	.249	0.000	69.999	-.000	13.000
18733.000	2585.000	596.935	.557	.308	0.000	69.999	-.000	13.000
18733.000	3275.000	599.317	2.381	.288	0.000	69.999	-.000	13.000
18745.000	1430.000	594.972	0.000	.112	0.000	94.999	0.000	12.000
18745.000	2265.000	596.563	1.591	.184	0.000	94.999	-.000	12.000
18745.000	2585.000	597.145	.582	.210	0.000	94.999	-.000	12.000
18745.000	3275.000	599.516	2.370	.199	0.000	94.999	-.000	12.000
18770.000	1430.000	595.087	0.000	.115	0.000	149.999	0.000	25.000
18770.000	2265.000	596.739	1.652	.176	0.000	149.999	-.000	25.000
18770.000	2585.000	597.341	.602	.196	0.000	149.999	-.000	25.000
18770.000	3275.000	599.697	2.356	.181	0.000	149.999	-.000	25.000
18845.000	1430.000	595.183	0.000	.096	0.000	299.999	0.000	75.000
18845.000	2265.000	596.869	1.686	.130	0.000	299.999	-.000	75.000
18845.000	2585.000	597.482	.613	.141	0.000	299.999	-.000	75.000
18845.000	3275.000	599.821	2.339	.124	0.000	299.999	-.000	75.000
19345.000	1430.000	595.294	0.000	.111	0.000	239.999	0.000	500.000
19345.000	2265.000	596.983	1.690	.114	0.000	239.999	-.000	500.000
19345.000	2585.000	597.595	.612	.113	0.000	239.999	-.000	500.000
19345.000	3275.000	599.895	2.301	.075	0.000	239.999	-.000	500.000
19770.000	1430.000	595.429	0.000	.135	0.000	109.999	0.000	425.000
19770.000	2265.000	597.104	1.675	.120	0.000	109.999	-.000	425.000
19770.000	2585.000	597.707	.603	.112	0.000	109.999	-.000	425.000
19770.000	3275.000	599.949	2.243	.054	0.000	109.999	-.000	425.000
19920.000	1430.000	595.581	0.000	.152	0.000	69.999	0.000	150.000
19920.000	2265.000	597.257	1.676	.154	0.000	69.999	-.000	150.000
19920.000	2585.000	597.853	.595	.146	0.000	69.999	-.000	150.000
19920.000	3275.000	600.025	2.172	.075	0.000	69.999	-.000	150.000
19970.000	1430.000	595.868	0.000	.287	0.000	68.800	0.000	50.000
19970.000	2265.000	597.653	1.785	.396	0.000	68.800	0.000	50.000
19970.000	2585.000	598.280	.627	.428	0.000	68.800	0.000	50.000
19970.000	3275.000	600.621	2.341	.596	0.000	516.520	-447.720	50.000

20170.000	2265.000	597.783	1.817	.130	0.000	68.800	0.000	200.000
20170.000	2585.000	598.458	.675	.178	0.000	68.800	0.000	200.000
20170.000	3275.000	601.142	2.684	.521	0.000	728.089	-659.289	200.000
20220.000	1440.000	596.044	0.000	.078	0.000	169.999	0.000	50.000
20220.000	2270.000	597.931	1.887	.148	0.000	169.999	-.000	50.000
20220.000	2585.000	598.641	.710	.183	0.000	169.999	-.000	50.000
20220.000	3265.000	601.109	2.468	-.033	0.000	169.999	-.000	50.000
20470.000	1440.000	596.155	0.000	.111	0.000	449.999	0.000	250.000
20470.000	2270.000	598.063	1.908	.133	0.000	449.999	-.000	250.000
20470.000	2585.000	598.778	.715	.138	0.000	449.999	-.000	250.000
20470.000	3265.000	601.224	2.446	.115	0.000	449.999	-.000	250.000
20870.000	1440.000	596.189	0.000	.034	0.000	749.999	0.000	400.000
20870.000	2270.000	598.097	1.908	.034	0.000	749.999	-.000	400.000
20870.000	2585.000	598.812	.714	.033	0.000	749.999	-.000	400.000
20870.000	3265.000	601.248	2.437	.024	0.000	749.999	-.000	400.000
21370.000	1440.000	596.218	0.000	.029	0.000	574.999	0.000	500.000
21370.000	2270.000	598.124	1.905	.026	0.000	574.999	-.000	500.000
21370.000	2585.000	598.836	.713	.025	0.000	574.999	-.000	500.000
21370.000	3265.000	601.264	2.428	.016	0.000	574.999	-.000	500.000
22435.000	1440.000	596.342	0.000	.124	0.000	714.543	0.000	1065.000
22435.000	2270.000	598.222	1.879	.098	0.000	723.069	-8.525	1065.000
22435.000	2585.000	598.926	.704	.090	0.000	726.264	-11.721	1065.000
22435.000	3265.000	601.318	2.392	.054	0.000	737.073	-22.529	1065.000
22985.000	1440.000	596.484	0.000	.142	0.000	535.138	0.000	550.000
22985.000	2270.000	598.310	1.826	.089	0.000	539.277	-4.139	550.000
22985.000	2585.000	599.002	.692	.076	0.000	540.845	-5.708	550.000
22985.000	3265.000	601.355	2.355	.039	0.000	546.184	-11.046	550.000
23585.000	1440.000	596.625	0.000	.141	0.000	401.117	0.000	600.000
23585.000	2270.000	598.422	1.796	.111	0.000	404.870	-3.753	600.000
23585.000	2585.000	599.103	.682	.101	0.000	406.286	-5.169	600.000
23585.000	3265.000	601.416	2.313	.059	0.000	411.118	-10.001	600.000
23970.000	1440.000	596.587	0.000	-.038	0.000	139.519	0.000	385.000
23970.000	2270.000	598.379	1.792	-.042	0.000	216.754	-77.235	385.000
23970.000	2585.000	599.067	.688	-.036	0.000	250.017	-110.498	385.000
23970.000	3265.000	601.410	2.343	-.006	0.000	324.999	-185.480	385.000
24035.000	1440.000	596.866	0.000	.279	0.000	166.672	0.000	65.000
24035.000	2270.000	598.638	1.772	.259	0.000	254.297	-87.625	65.000
24035.000	2585.000	599.299	.661	.232	0.000	286.238	-119.565	65.000
24035.000	3265.000	601.515	2.216	.105	0.000	349.999	-183.327	65.000
24068.000	1440.000	596.859	0.000	-.008	0.000	47.300	0.000	33.000
24068.000	2270.000	598.868	2.009	.230	0.000	49.000	-1.700	33.000
24068.000	2585.000	599.891	1.023	.593	0.000	323.999	-276.699	33.000
24068.000	3265.000	601.692	1.801	.177	0.000	492.999	-445.699	33.000
24118.000	1190.000	597.177	0.000	.319	0.000	249.999	0.000	50.000
24118.000	1870.000	599.361	2.184	.493	0.000	249.999	-.000	50.000
24118.000	2130.000	599.966	.605	.075	0.000	249.999	-.000	50.000
24118.000	2680.000	601.699	1.733	.007	0.000	249.999	-.000	50.000
24218.000	1190.000	597.151	0.000	-.026	0.000	329.999	0.000	100.000
24218.000	1870.000	599.360	2.208	-.002	0.000	329.999	-.000	100.000
24218.000	2130.000	599.967	.607	.001	0.000	329.999	-.000	100.000
24218.000	2680.000	601.703	1.736	.004	0.000	329.999	-.000	100.000
24943.000	1190.000	597.718	0.000	.567	0.000	491.901	0.000	725.000

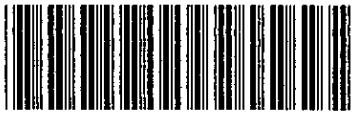
24943.000	2130.000	600.215	.582	.248	0.000	527.438	-35.536	725.000
24943.000	2680.000	601.871	1.656	.168	0.000	550.992	-59.091	725.000
25268.000	1190.000	597.887	0.000	.169	0.000	244.999	0.000	325.000
25268.000	1870.000	599.721	1.834	.087	0.000	244.999	-.000	325.000
25268.000	2130.000	600.292	.571	.077	0.000	244.999	-.000	325.000
25268.000	2680.000	601.917	1.625	.046	0.000	244.999	-.000	325.000
25593.000	1190.000	598.105	0.000	.218	0.000	73.872	0.000	325.000
25593.000	1870.000	599.853	1.748	.132	0.000	81.339	-7.467	325.000
25593.000	2130.000	600.405	.552	.113	0.000	82.903	-9.031	325.000
25593.000	2680.000	601.967	1.562	.050	0.000	87.284	-13.413	325.000
25642.000	1190.000	598.162	0.000	.058	0.000	49.500	0.000	49.000
25642.000	1870.000	599.899	1.737	.047	0.000	49.500	0.000	49.000
25642.000	2130.000	600.446	.547	.042	0.000	49.500	0.000	49.000
25642.000	2680.000	601.984	1.538	.017	0.000	49.500	0.000	49.000
25643.000	1190.000	598.152	0.000	-.010	0.000	47.900	0.000	1.000
25643.000	1870.000	599.885	1.733	-.014	0.000	47.900	0.000	1.000
25643.000	2130.000	600.430	.545	-.016	0.000	47.900	0.000	1.000
25643.000	2680.000	601.965	1.535	-.019	0.000	47.900	0.000	1.000
25673.000	1190.000	598.201	0.000	.049	0.000	47.900	0.000	30.000
25673.000	1870.000	599.948	1.747	.063	0.000	47.900	0.000	30.000
25673.000	2130.000	600.498	.551	.068	0.000	47.900	0.000	30.000
25673.000	2680.000	602.036	1.538	.071	0.000	47.900	0.000	30.000
25674.000	1190.000	598.229	0.000	.027	0.000	49.500	0.000	1.000
25674.000	1870.000	599.988	1.760	.040	0.000	49.500	0.000	1.000
25674.000	2130.000	600.545	.556	.046	0.000	49.500	0.000	1.000
25674.000	2680.000	602.088	1.543	.052	0.000	49.500	0.000	1.000
25723.000	1190.000	598.355	0.000	.127	0.000	133.484	0.000	49.000
25723.000	1870.000	600.234	1.879	.246	0.000	138.464	-4.981	49.000
25723.000	2130.000	600.837	.603	.293	0.000	140.064	-6.580	49.000
25723.000	2680.000	602.450	1.613	.363	0.000	144.340	-10.856	49.000
25923.000	1190.000	598.578	0.000	.223	0.000	351.954	0.000	200.000
25923.000	1870.000	600.468	1.890	.234	0.000	389.324	-37.370	200.000
25923.000	2130.000	601.079	.611	.242	0.000	390.943	-38.989	200.000
25923.000	2680.000	602.677	1.598	.227	0.000	395.146	-43.192	200.000
26873.000	1190.000	599.017	0.000	.439	0.000	359.505	0.000	950.000
26873.000	1870.000	600.764	1.748	.296	0.000	397.330	-37.825	950.000
26873.000	2130.000	601.349	.585	.270	0.000	410.273	-50.768	950.000
26873.000	2680.000	602.870	1.520	.193	0.000	442.143	-82.638	950.000
28073.000	1190.000	599.717	0.000	.700	0.000	315.853	0.000	1200.000
28073.000	1870.000	601.273	1.556	.509	0.000	409.551	-93.698	1200.000
28073.000	2130.000	601.813	.539	.464	0.000	443.911	-128.057	1200.000
28073.000	2680.000	603.196	1.383	.327	0.000	499.059	-183.205	1200.000
29073.000	1190.000	600.727	0.000	1.010	0.000	498.180	0.000	1000.000
29073.000	1870.000	602.016	1.289	.743	0.000	533.786	-35.607	1000.000
29073.000	2130.000	602.471	.455	.658	0.000	539.730	-41.551	1000.000
29073.000	2680.000	603.633	1.162	.436	0.000	543.394	-45.215	1000.000
30273.000	1190.000	601.279	0.000	.552	0.000	438.188	0.000	1200.000
30273.000	1870.000	602.478	1.199	.462	0.000	465.273	-27.086	1200.000
30273.000	2130.000	602.901	.423	.430	0.000	525.780	-87.593	1200.000
30273.000	2680.000	603.957	1.056	.324	0.000	564.528	-126.340	1200.000
30823.000	1190.000	601.492	0.000	.213	0.000	218.270	0.000	550.000
30823.000	1870.000	602.681	1.189	.203	0.000	259.786	-41.516	550.000

30823.000	2680.000	604.111	1.015	.154	0.000	329.999	-111.729	550.000
31111.000	1190.000	601.664	0.000	.172	0.000	52.943	0.000	288.000
31111.000	1870.000	602.860	1.195	.178	0.000	189.478	-136.534	288.000
31111.000	2130.000	603.274	.414	.178	0.000	190.051	-137.108	288.000
31111.000	2680.000	604.261	.987	.150	0.000	191.420	-138.476	288.000
31398.000	1200.000	602.178	0.000	.514	0.000	63.593	0.000	287.000
31398.000	1865.000	603.433	1.255	.573	0.000	65.422	-1.829	287.000
31398.000	2120.000	603.845	.412	.572	0.000	66.023	-2.430	287.000
31398.000	2665.000	604.759	.913	.498	0.000	67.355	-3.763	287.000
31472.000	1200.000	602.288	0.000	.110	0.000	43.000	0.000	74.000
31472.000	1865.000	603.557	1.269	.124	0.000	43.000	0.000	74.000
31472.000	2120.000	603.970	.413	.125	0.000	43.000	0.000	74.000
31472.000	2665.000	604.871	.901	.113	0.000	43.000	0.000	74.000
31473.000	1200.000	602.261	0.000	-.027	0.000	40.000	0.000	1.000
31473.000	1865.000	603.481	1.220	-.076	0.000	40.000	0.000	1.000
31473.000	2120.000	603.871	.390	-.100	0.000	40.000	0.000	1.000
31473.000	2665.000	604.701	.830	-.170	0.000	40.000	0.000	1.000
31533.000	1200.000	602.367	0.000	.106	0.000	40.000	0.000	60.000
31533.000	1865.000	603.680	1.313	.199	0.000	40.000	0.000	60.000
31533.000	2120.000	604.118	.438	.247	0.000	40.000	0.000	60.000
31533.000	2665.000	605.070	.952	.369	0.000	40.000	0.000	60.000
31534.000	1200.000	602.405	0.000	.038	0.000	43.000	0.000	1.000
31534.000	1865.000	603.845	1.439	.165	0.000	43.000	0.000	1.000
31534.000	2120.000	604.348	.504	.230	0.000	43.000	0.000	1.000
31534.000	2665.000	605.525	1.177	.455	0.000	43.000	0.000	1.000
31608.000	1200.000	602.460	0.000	.055	0.000	46.419	0.000	74.000
31608.000	1865.000	603.968	1.508	.123	0.000	94.372	-47.953	74.000
31608.000	2120.000	604.508	.540	.159	0.000	95.572	-49.153	74.000
31608.000	2665.000	605.758	1.251	.233	0.000	98.352	-51.932	74.000
31720.000	1200.000	603.251	0.000	.791	0.000	143.522	0.000	112.000
31720.000	1865.000	604.852	1.601	.885	0.000	146.224	-2.702	112.000
31720.000	2120.000	605.376	.523	.868	0.000	147.106	-3.585	112.000
31720.000	2665.000	606.524	1.148	.765	0.000	149.366	-5.844	112.000
31833.000	1200.000	603.495	0.000	.244	0.000	230.780	0.000	113.000
31833.000	1865.000	605.099	1.603	.246	0.000	269.649	-38.869	113.000
31833.000	2120.000	605.627	.529	.252	0.000	271.520	-40.740	113.000
31833.000	2665.000	606.773	1.145	.249	0.000	278.982	-48.201	113.000
32148.000	1200.000	603.833	0.000	.338	0.000	399.999	0.000	315.000
32148.000	1865.000	605.360	1.526	.261	0.000	399.999	-.000	315.000
32148.000	2120.000	605.871	.511	.244	0.000	399.999	-.000	315.000
32148.000	2665.000	606.981	1.110	.208	0.000	399.999	-.000	315.000
32223.000	1200.000	603.855	0.000	.022	0.000	463.343	0.000	75.000
32223.000	1865.000	605.379	1.524	.020	0.000	477.140	-13.796	75.000
32223.000	2120.000	605.891	.512	.020	0.000	477.803	-14.460	75.000
32223.000	2665.000	607.001	1.110	.020	0.000	479.252	-15.908	75.000
32433.000	1200.000	603.918	0.000	.062	0.000	407.778	0.000	210.000
32433.000	1865.000	605.427	1.509	.048	0.000	459.245	-51.467	210.000
32433.000	2120.000	605.936	.509	.044	0.000	476.464	-68.687	210.000
32433.000	2665.000	607.039	1.103	.038	0.000	513.849	-106.072	210.000
33833.000	1200.000	604.510	0.000	.593	0.000	540.509	0.000	1400.000
33833.000	1865.000	605.872	1.361	.445	0.000	552.798	-12.289	1400.000
33833.000	2120.000	606.345	.473	.409	0.000	554.961	-14.452	1400.000

34961.000	1200.000	605.387	0.000	.877	0.000	219.999	0.000	1128.000
34961.000	1865.000	606.543	1.156	.671	0.000	219.999	-.000	1128.000
34961.000	2120.000	606.960	.418	.616	0.000	219.999	-.000	1128.000
34961.000	2665.000	607.877	.916	.502	0.000	219.999	-.000	1128.000
35233.000	1200.000	605.729	0.000	.341	0.000	74.287	0.000	272.000
35233.000	1865.000	606.871	1.142	.328	0.000	84.309	-10.022	272.000
35233.000	2120.000	607.270	.399	.309	0.000	85.035	-10.748	272.000
35233.000	2665.000	608.128	.858	.251	0.000	86.595	-12.308	272.000
35332.000	1200.000	605.988	0.000	.259	0.000	45.000	0.000	99.000
35332.000	1865.000	607.215	1.227	.344	0.000	45.000	0.000	99.000
35332.000	2120.000	607.629	.414	.359	0.000	45.000	0.000	99.000
35332.000	2665.000	608.480	.852	.353	0.000	45.000	0.000	99.000
35333.000	1200.000	605.989	0.000	.001	0.000	45.000	0.000	1.000
35333.000	1865.000	607.216	1.227	.001	0.000	45.000	0.000	1.000
35333.000	2120.000	607.630	.414	.002	0.000	45.000	0.000	1.000
35333.000	2665.000	608.482	.852	.002	0.000	45.000	0.000	1.000
35367.000	1200.000	606.015	0.000	.026	0.000	45.000	0.000	34.000
35367.000	1865.000	607.259	1.244	.043	0.000	45.000	0.000	34.000
35367.000	2120.000	607.679	.420	.049	0.000	45.000	0.000	34.000
35367.000	2665.000	608.544	.865	.062	0.000	45.000	0.000	34.000
35368.000	1200.000	606.016	0.000	.001	0.000	45.000	0.000	1.000
35368.000	1865.000	607.260	1.244	.001	0.000	45.000	0.000	1.000
35368.000	2120.000	607.681	.421	.001	0.000	45.000	0.000	1.000
35368.000	2665.000	608.546	.865	.002	0.000	45.000	0.000	1.000
35417.000	1200.000	606.121	0.000	.106	0.000	144.999	0.000	49.000
35417.000	1865.000	607.509	1.387	.249	0.000	144.999	-.000	49.000
35417.000	2120.000	607.990	.481	.309	0.000	144.999	-.000	49.000
35417.000	2665.000	608.990	1.000	.444	0.000	144.999	-.000	49.000
35497.000	1200.000	606.261	0.000	.140	0.000	299.740	0.000	80.000
35497.000	1865.000	607.691	1.430	.182	0.000	303.503	-3.763	80.000
35497.000	2120.000	608.186	.495	.196	0.000	304.806	-5.066	80.000
35497.000	2665.000	609.210	1.024	.220	0.000	307.500	-7.760	80.000
36047.000	1200.000	606.461	0.000	.199	0.000	366.005	0.000	550.000
36047.000	1865.000	607.885	1.424	.194	0.000	452.558	-86.553	550.000
36047.000	2120.000	608.376	.491	.190	0.000	476.426	-110.421	550.000
36047.000	2665.000	609.389	1.012	.179	0.000	571.925	-205.920	550.000
36567.000	1200.000	606.934	0.000	.474	0.000	373.373	0.000	520.000
36567.000	1865.000	608.245	1.311	.360	0.000	398.225	-24.852	520.000
36567.000	2120.000	608.701	.456	.325	0.000	405.609	-32.235	520.000
36567.000	2665.000	609.646	.945	.257	0.000	413.058	-39.685	520.000

DATA FOR LAST CROSS SECTIO

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	0.000	203.229	0.000
2	0.000	0.000	221.721	17.492
3	0.000	0.000	225.434	22.206
4	0.000	0.000	236.496	33.268



1) COUNTY: Berrien

2) STUDY NAME: Lincoln Township

3) WATERCOURSE:

4) DOCUMENT TYPE: Report



HYDRAULIC ANALYSIS

Introduction

The streams being studied are Hickory Creek, Goodrow Drain, and the Glenlord Road Drains (North and South Branch). The Parker/Richardson Drain is currently under study and will be submitted in the near future. The study limits of Hickory Creek are its entire length within Lincoln Township. The final Flood Insurance Study, however, will not include that reach within Stevensville. The study limits of the Goodrow Drain are from its confluence with Hickory Creek to a point approximately 1150 feet upstream of Ponderosa Drive. The study limits of the North Branch of the Glenlord Road Drain are from its confluence with the South Branch to a point approximately 400 feet upstream of Washington Avenue. The study limits of the South Branch of the Glenlord Road Drain are from its confluence with the Parker/Richardson Drain to a point approximately 500 feet upstream of Washington Avenue. The study limits of the Parker/Richardson Drain will include a reach from its confluence with Hickory Creek to a point approximately 1650 feet upstream of John Beers Road. The flows were computed by the SCS method and have been approved by the Michigan Department of Natural Resources.

Method of Analysis

Water-surface profiles were computed through use of the COE HEC-2 step-backwater computer program. Culverts and bridges which were under low flow conditions for all four flows were coded according to the "normal bridge" routine requirements. Those bridges which experienced pressure or weir flow for any of the four flows were coded according to the "special bridge" routine requirements. The roadways of the bridges coded "special bridge" were coded to reflect effective weir lengths. The bridge tables (BT cards) reflect physical encroachments imposed by the upstream cross-section.

The hydraulic models were developed for the 100-year flows. Valley sections upstream and downstream of culverts or bridges were located where full cross-section flow would be developed out of the influence of the bridge constriction. The criteria for placement of these sections was that outlined on pages 18-21 in the HEC Training Document No. 6, Application of the HEC-2 Bridge Routines. Accordingly, the downstream section

was placed at a distance of about four times the average length of the side constriction caused by the bridge abutment. The upstream section was placed at a distance about equal to the bridge constriction. If additional sections were found necessary within this distance or if the actual field-surveyed cross-section fell within this distance, the intermediate sections were encroached as appropriate.

On the Glenlord Road Drain (North Branch), the drain is enclosed from downstream of Glenlord Road to upstream of Washington Avenue. The pipe consists of 36 inch diameter corrugated metal pipe (CMP) under Glenlord Road and 24 inch CMP under Washington Avenue connected by approximately 800 feet of 15 inch cast iron pipe. Because of the poor condition and small diameter of the enclosed drain, a maximum of approximately 4 cfs can be carried through the pipe before weir flow begins. Outlet control for the drain occurs due to its extreme length. Since 4 cfs is less than 5 percent of the total flow, Glenlord Road and Washington Avenue are treated as dams by entering negligible flow areas into the "special bridge" routine. The flow going over the roads and through the subdivision is reduced by 4 cfs. Supporting calculations are included.

On the Glenlord Road Drain (South Branch), the flow over Cleveland Avenue is encroached on the left at staion 500 because of a driveway parallel to the flow at this location. The driveway is higher than Cleveland Avenue and does not allow the flow to expand further at this point.

On the Goodrow Drain at the downstream section of the Alpine Road Bridge (SECNO 1140), preliminary HEC-2 runs determined that downstream 50-, 100-, and 500-year water surface elevations were below the low chord with a submerged headwater. Since this indicates a condition of full flow through a part of the culvert length, the headwater elevations were checked by hand calculation. The difference between HEC-2 and the hand calculations was found to be significant and the headwater was input on a X5 card at the upstream bridge section. the 10-year flow was "low flow" and the upstream water surface elevation detemrined by HEC-2 was input on the X5 card. All supporting calculations are included.

Variables and Coefficients

The roughness factors (Manning's "n") were establsihed 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. In general, the following range of values were used:

DESCRIPTION	
I. Hickory Creek	
A. Channel -	
Sand bottom with overhanging trees and brush	.045
B. Floodplain	
1. Medium woods with weeds and brush	.07 - .08
2. Heavy woods with weeds and brush	.09
II. Glenlord Road Drains (North and South Branch)	
A. Channel	
1. Sand bottom with sparse grass	.032
2. Lawn Areas	.035
3. Sand with some large rocks and debris	.04-.045
4. Sand with medium to heavy brush and debris	.055-.065
B. Floodplain	
1. Lawn areas	.035
2. Weeds, medium to heavy	.045 - .055
3. Brush with debris, medium to heavy	.06 - .08
III. Goodrow Drain	
A. Channel	
1. Sand bottom with grass and brush slopes	.045 - .055
2. Sand bottom with weed and brush slopes	.45 - .055
B. Floodplain	
1. Lawn with trees and shrubs	.035 - .055
2. Light woods with weeds and brush	.05 - .06
3. Cultivated	.06 - .07

The contraction and expansion coefficients used in the Lincoln Township analyses were .3 and .5, respectively. The values were used throughout the studies. References evaluated in selection of these values were the HEC-2 Users Manual, exhibit 2, page 2 and Open Channel Hydraulics, Ven Te Chow, pages 311 and 468.

The orifice and weir coefficients used in the HEC-2 "special bridge" routine were determined as outlined in Exhibit 2 of the HEC Users Manual.

Starting Point

Profile computations for Hickory Creek were begun by the slope-area method, approximately 3600 feet and three field-surveyed cross-sections downstream (north) of the northern border of Lincoln Township. Centerline stationing was begun at the St. Joseph River - Hickory Creek confluence.

3 See attached multiple profile summary for cross-section

Void See Nov 12, 1976 letter

Profile computations for Goodrow Drain and the Glenlord Road Drain (South Branch), were begun by the slope-area method at their confluences with Hickory Creek and the Parker/Richardson Drain respectively. rating curve

Profile computations for the Glenlord Road Drain (North Branch) were begun at the corresponding South Branch levels, since the hydrograph peaks were within six minutes of each other.

In the final Flood Insurance Study report, the 10-, 50-, 100-, and 500-year Hickory Creek elevations will be extended horizontally upstream until the corresponding elevations of Goodrow Drain are intersected. Similarly, the Parker/Richardson Drain elevations will be extended upstream until the corresponding Glenlord Road Drain (South Branch) elevations are intersected.

The floodways and floodplains delineated in this submittal are based on the calculated water surface profiles. In the final Flood Insurance Study, the floodways will be based on the calculatedwater surface profiles; the floodplains will reflect backwater influences.

HICKORY CREEK

Cross Section	SECNO.	Location
A	12000	12000' u/s confluence with St. Joseph River 3835' d/s of d/s face Maiden Lane
B	13500	2335' d/s of d/s face Maiden Lane 1050' d/s Anthony Drive extended
C	15735	100' d/s of d/s face Maiden Lane
D	15835	d/s face Maiden Lane Bridge
E	15940	u/s face Abandoned Road Bridge 75' u/s of u/s face Maiden Lane
F	16735	870' u/s of u/s face Maiden Lane
G	17935	750' d/s of d/s face Glenlord Road
H	18535	150' d/s of d/s face Glenlord Road
I	18720	u/s face Glenlord Road Bridge
J	19770	200' d/s of d/s face I-94
K	20170	u/s face I-94 Bridge
L	20470	300' u/s of u/s face I-94
M	22435	1600' d/s of d/s face Marquette Woods Road
N	23970	65' d/s of d/s face Marquette Woods Road
O	24068	u/s face Marquette Woods Road Bridge
P	24943	875' u/s of u/s face Marquette Woods Road 700' d/s of d/s face Roosevelt Street
Q	25593	50' d/s of d/s face Roosevelt Street
R	25643	d/s face Roosevelt Street Bridge
S	26873	1200' u/s of u/s face Roosevelt Street
T	28073	3400' d/s of d/s face John Beers Road

Cross Section	SECNO.	Location
U	29073	2400' d/s of d/s face John Beers Road
V	30273	1200' d/s of d/s face John Beers Road
W	31398	75' d/s of d/s face John Beers Road
X	31473	d/s face John Beers Road Bridge
Y	31608	75' u/s of u/s face John Beers Road
Z	31833	300' u/s of u/s face John Beers Road
AA	32223	690' u/s of u/s face John Beers Road
AB	32433	900' u/s of u/s face John Beers Road
AC	33833	1500' d/s of d/s face Stevensville-Baroda Road
AD	35233	100' d/s of d/s face Stevensville-Baroda Road
AE	35333	d/s face Stevensville-Baroda Road Bridge
AF	36567	1200' u/s of u/s face Stevensville-Baroda Road

Lincoln Township
Berrien County, MI
5555-35-1

GLENLORD ROAD DRAIN
(North Branch)

Cross Section	SECNO	Location
A	200	200' u/s Glenlord Road Drain (South)
B	900	1100' u/s Glenlord Road Drain (South)
C	1900	3000' u/s Glenlord Road Drain (South)
D	3100	2000' d/s Glenlord Road
E	3900	1200' d/s Glenlord Road
F	4400	700' d/s Glenlord Road
G	5050	50' d/s Glenlord Road
H	5100	d/s Face Glenlord Road Culvert
I	5400	250' u/s Glenlord Road
J	5850	50' d/s Washington Avenue
K	5950	u/s Face Washington Avenue Culvert
L	6350	400' u/s Washington Avenue

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RGW DATE 4-20-76 JOB DESCRIPTION Lincoln Twp. FIS SHEET 1 OF 2
SUBJECT JOB NO. 5555-35-1

Determination of Q_{max} through Glenlord - North enclosed drain:

Road el. @ Washington Ave - 627.2

Invert el. - 619.5

HW - 7.7' for water surface @ road el.

h_o = tailwater depth (100 yr.) = 4.6'

Due to the extremely long culvert length (800'), other variables such as h_o, n, and K_e are less significant than under more typical conditions. For this reason, the value of Q obtained does not vary significantly with typical changes in other variables.

For the given conditions it was determined that outlet control will occur. See page 3.

JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RGW DATE 4-20-76 JOB DESCRIPTION Lincoln Twp. FIS SHEET 2 OF 2
SUBJECT JOB NO. 5555-35-1

Revised 9-17-76 Glenford Road Drain (North Branch)

Max. Q through enclosed drain.

Assuming Outlet Control:

$L = 800$ ft. $A = 1.23$ ft.^{2}
$D = 1.25$ ft. $P = 3.93$ ft.
$n = 0.02$ $R = 0.31$ ft.
$K_e = 0.5$

$Hw = H + h_o - LS_o$

$7.7 = H + 4.6 - 4.8$

$H = 7.9$

$$H = \left[1 + K_e + \frac{29.1 n^2 L}{R^{4/3}}\right]\frac{V^2}{2g}$$

$$7.9 = \left[1 + 0.5 + \frac{29.1(.02)^2 800}{(0.31)^{4/3}}\right]\frac{V^2}{64.4}$$

$$7.9 = 45.884\left(\frac{V^2}{64.4}\right)$$

$V = 3.33$ ft./sec

$Q = VA = 3.33(1.23)$

$Q = 4.1$ ft.^{3}/sec

$Q \simeq 4$ cfs

ORIGINAL

JOB NAME: Lincoln Twp. FIS | JOB NO. 5555 | 35

WATERCOURSE: Glenlord Drain - North | CULVERT LOCATION:

CULVERT DESCRIPTION: ~800' of 15" CI pipe | BY RGW | DATE 10-1-76

n= 0.02 | Q_{10}= | TW_{10}=

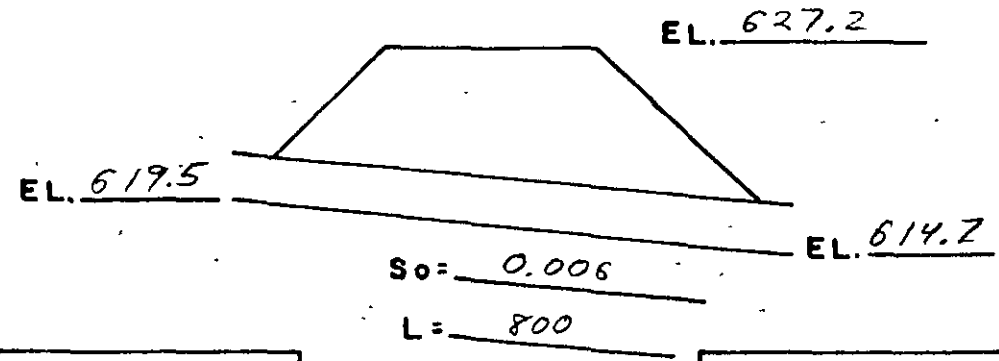
A= 1.23 | Q_{50}= | TW_{50}=

R= 0.31 | Q_{100}= 4 | TW_{100}= 4.6

Ke= 0.5 | Q_{500}= | TW_{500}=

D= 1.25

LSo= 4.8



Sta. 5900 | Sta 5100

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			
4		1.07	7.5	0.8	1.02	4.6	7.3	Outlet Control				

CALCULATIONS AND COMMENTS

$HW = \left(\frac{V^2}{2g} \times \frac{1}{c^2}\right) + \frac{D}{2}$

$HW = \left(\frac{1.62}{64.4} \times \frac{1}{0.36}\right) + \frac{2}{2} = 1.07$

$H = \left[1 + Ke + \frac{29.1(n)^2 L}{R^{4/3}}\right]\frac{V^2}{2g} = \left[1 + 0.5 + \frac{29.1(.02)^2 800}{(0.31)^{4/3}}\right]\frac{(3.25)^2}{2g}$

$H = 7.5$

GLENLORD ROAD DRAIN
(South Branch)

Cross Section	SECNO	Location
A	270	270' u/s Parker-Richardson Drain
B	408	u/s Face Driveway Culvert
C	572	50' d/s Cleveland Avenue
D	676	u/s Face Cleveland Avenue Culvert
E	1476	800' u/s Cleveland Avenue
F	2376	1700' u/s Cleveland Avenue
G	3076	2400' u/s Cleveland Avenue
H	3676	65' d/s Washington Avenue
I	3801	u/s Face Washington Avenue Culvert
J	4301	500' u/s Washington Avenue

Lincoln Township
Berrien County, MI
5555-35-1

GOODROW DRAIN

Cross Section	SECNO	Location
A	25	u/s face of 36" culvert at confluence of Goodrow Drain and Hickory Creek
B	1000	1000' u/s Hickory Creek 50' d/s Alpine Ridge Road
C	1140	u/s face Alpine Ridge Road culvert
D	1300	u/s face of abandoned culvert
E	1400	260' u/s Alpine Ridge Road 100' d/s John Beers Road
F	1570	u/s face John Beers Road culvert
G	1775	205' u/s John Beers Road 150' d/s Echo Ridge Road
H	2015	u/s face Echo Ridge Road culvert
I	2500	485' u/s Echo Ridge Road
J	3350	1335' u/s Echo Ridge Road 600' d/s Ponderosa Drive
K	3850	100' d/s Ponderosa Drive
L	4050	u/s face of Ponderosa Drive culvert
M	4600	550' u/s Ponderosa Drive
N	5200	1150' u/s Ponderosa Drive at Joni Lane Extended

JOB NAME: LINCOLN TWP FIS | JOB NO. 5555 | 35 | 1 |

WATERCOURSE: GOOSOW DRAIN | CULVERT LOCATION: ALPINE RIDGE ROAD SEC# 12

CULVERT DESCRIPTION: 60"CMP 90' LENGTH | BY JSE | DATE 9/22/76

PROJECTING FROM FILL

n= .035 ① | Q_{10}= | TW_{10}=

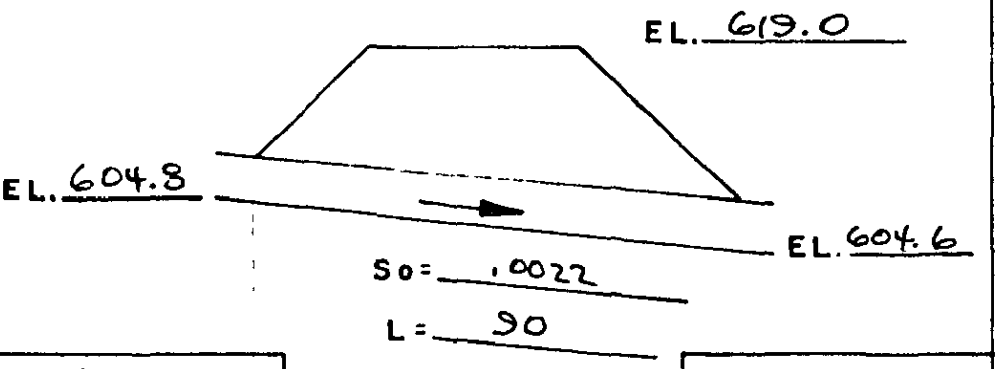
A= 14.23 | Q_{50}= 90 | TW_{50}=

R= .99 | Q_{100}= 105 | TW_{100}= 607.00

Ke= .9 | Q_{500}= 130 | TW_{500}=

D= 5

LSo= 120



Sta. 1140 | Sta 1050

HEADWATER ANALYSIS

Q	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL EGL	FINAL HW ELEV.	Δ H HEC-2
	HW/D	HW	③ H	dc ②	(dc+D)/2	ho	HW	D+(1+Ke) $\frac{V^2}{2g}$	HW ELEV			
90	.85	4.25	3.20	2.18	3.59	3.59	6.59	5+(1+.9).62 = 6.18	609.74	611.39	611.27	1.53
105	.95	4.75	4.36	2.41	3.71	3.71	7.87	5+(1+.9).85 = 6.61	611.15	612.67	612.56	1.41
130	1.10	5.50	6.68	2.77	3.89	3.89	10.37	5+(1+.9)1.3 = 7.46	613.85	615.17	615.07	1.22

CALCULATIONS AND COMMENTS

Note: ① "n" value, R, and Area have been adjusted to account for silt.

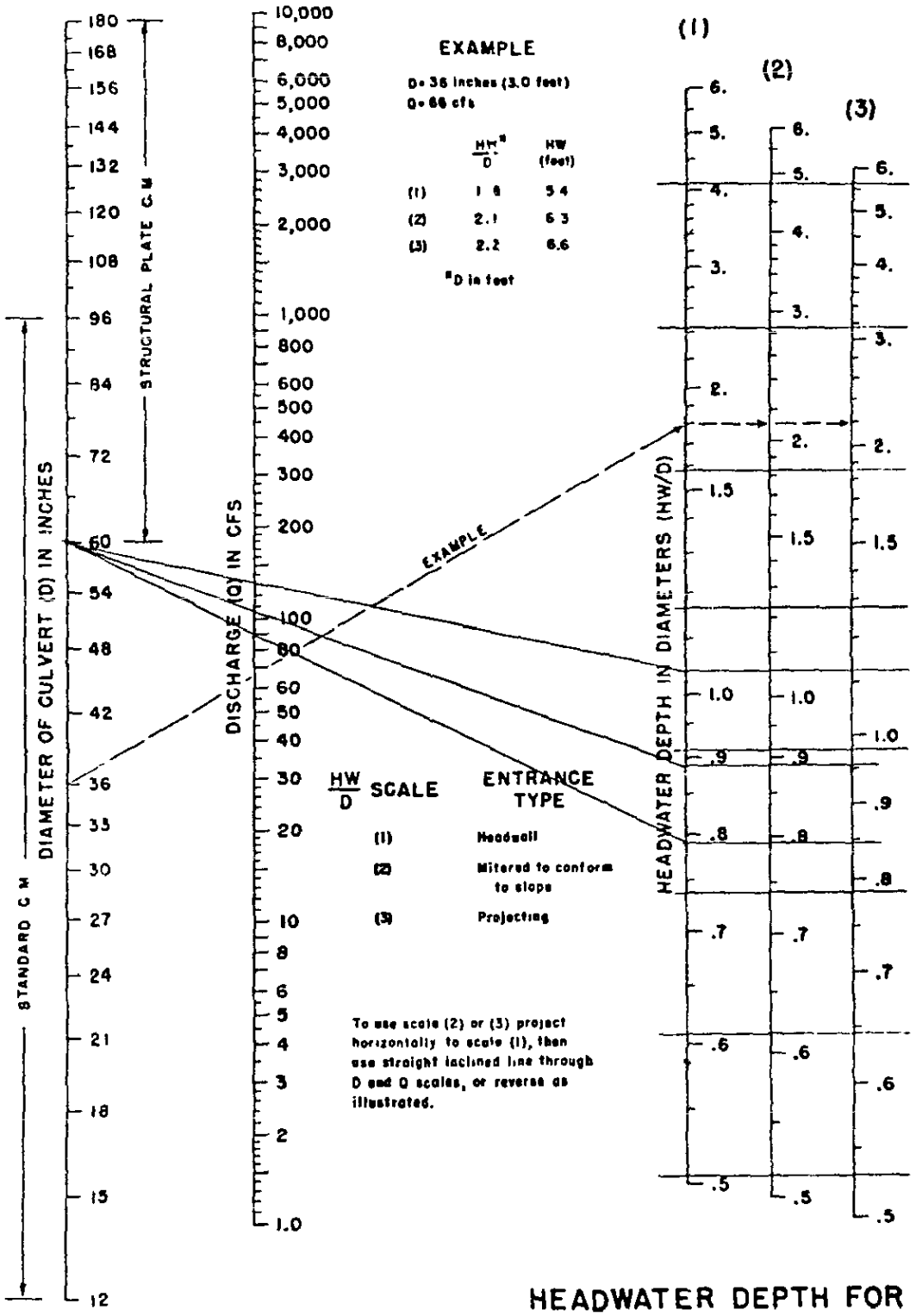
② d_c calculated by HEC 2 for 60"CMP w/SILT ④

③ $H = \left[1 + Ke + \frac{29.1 n^2 L}{R^{4/3}}\right] \frac{V^2}{2g}$

$H = \left[1 + .9 + 3.25\right] \frac{V^2}{2g} = .000395\, Q^2$

④ silt u/s = 1.7'
silt d/s = 1.4'

CHART 5



HEADWATER DEPTH FOR C. M. PIPE CULVERTS WITH INLET CONTROL

BUREAU OF PUBLIC ROADS JAN. 1963

100-year

WATERCOURSE: Hickory Creek
CITY/TOWNSHIP: Lincoln
COUNTY: Berrien

STATION	LOCATION	CWSEL	EG	Q
12000	12000' u/s of confluence of St. Joseph	589.87	589.91	2590
12800	12800' u/s of confluence of St. Joseph	590.34	590.40	2590
13500	2335' d/s of Maiden Lane	590.78	590.85	2590
15100	735' d/s of Maiden Lane	592.43	592.69	2590
15735	100' d/s of Maiden Lane	593.70	594.33	2590
15785	49' d/s of Maiden Lane	593.78	594.55	2590
15834	1' d/s of Maiden Lane	594.20	594.76	2590
15835	d/s face of Maiden Lane	594.21	594.76	2590
15865	u/s face of Maiden Lane	594.25	594.80	2590
15866	1' face of Maiden Lane	594.25	594.80	2590
15923	d/s face of Abandoned Road Br.	594.50	594.95	2585
15940	u/s face of Abandoned Road Br.	594.68	595.11	2585
16190	250' u/s of Abandoned Road Br.	595.35	595.47	2585
16440	500' u/s of Abandoned Road Br.	595.59	595.65	2585
16735	795' u/s of Abandoned Road Br.	595.73	595.75	2585
17935	750' d/s of Glenlord Road	596.10	596.20	2585
18285	400' d/s of Glenlord Road	596.32	596.42	2585
18535	150' d/s of Glenlord Road	596.42	596.75	2585
18635	50' d/s of Glenlord Road	596.50	597.00	2585
18685	d/s face of Glenlord Road	596.56	597.15	2585
18720	u/s face of Glenlord Road	596.63	597.24	2585
18733	13' u/s of Glenlord Road	596.94	597.34	2585
18745	25' u/s of Glenlord Road	597.15	597.40	2585
18770	50' u/s of Glenlord Road	597.34	597.46	2585
18845	125' u/sof Glenlord Road	597.48	597.51	2585
19345	625' u/s of Glenlord Road	597.59	597.64	2585
19770	200' d/s of I-94	597.71	598.01	2585
19920	50' d/s of I-94	597.85	598.34	2585
19970	d/s face of I-94	598.28	598.49	2585
20170	u/s face of I-94	598.46	598.66	2585
20220	50' u/s of I-94	598.64	598.73	2585
20470	300' u/s of I-94	598.78	598.79	2585
20870	700' u/s of I-94	598.81	598.82	2585
21370	1200' u/s of I-94	598.84	598.84	2585
22435	1600' d/s of Marquette Woods Rd.	598.93	598.94	2585
22985	1050' d/s of Marquette Woods Rd.	599.00	599.03	2585
23585	450' d/s of Marquette Woods Rd.	599.10	599.12	2585
23970	65' d/s of Marquette Woods Rd.	599.07	599.37	2585
24035	d/s face of Marquette Woods Rd,	599.30	599.47	2585
24068	u/s face of Marquette Woods Rd.	599.89	599.96	2585
24118	50' u/s of Marquette Woods Rd.	599.97	599.99	2130
24218	150' u/s of Marquette Woods Rd.	599.97	600.02	2130
25268	375' d/s of Roosevelt St.	600.29	600.37	2130
25593	50' d/s of Roosevelt St.	600.40	600.72	2130
25642	1' d/s of Roosevelt St.	600.45	600.81	2130
25643	d/s face of Roosevelt St.	600.43	600.83	2130
25673	u/s face of Roosevelt St.	600.50	600.89	2130
25674	1' u/s of Roosevelt St.	600.54	600.90	2130
25723	50' u/s of Roosevelt St.	600.84	601.01	2130
25923	250' u/s of Roosevelt St.	601.08	601.13	2130
26873	1200' u/s of Roosevelt St.	601.35	601.39	2130

100-year

WATERCOURSE: Hickory Creek
CITY/TOWNSHIP: Lincoln
COUNTY: Berrien

STATION	LOCATION	CWSEL	EG	Q
28073	3400' d/s of John Beers Rd.	601.81	601.95	2130
29073	2400' D/S of John Beers Rd.	602.47	602.52	2130
30273	1200' d/s of John Beers Rd.	602.90	602.94	2130
30823	650' d/s of John Beers Rd.	603.10	603.20	2130
31111	362' d/s of John Beers Rd.	603.27	603.64	2130
31398	75' d/s of John Beers Rd.	603.85	604.28	2120
31472	1' d/s of John Beers Rd.	603.97	604.49	2120
31473	d/s face of John Beers Rd.	603.87	604.59	2120
31533	u/s face of John Beers Rd.	604.12	604.81	2120
31534	1' u/s of John Beers Rd.	604.35	604.87	2120
31608	75' u/s of John Beers Rd.	604.51	605.19	2120
31720	187' u/s of John Beers Rd.	605.38	605.59	2120
31833	300' u/s of John Beers Rd.	605.63	605.75	2120
32148	615' u/s of John Beers Rd.	605.87	605.90	2120
32223	690' u/s of John Beers Rd.	605.89	605.92	2120
✓32433	✓900' u/s of John Beers Rd.	✓605.94	✓605.97	2120
33833	1500' d/s of Stevensville-Baroda Rd.	606.34	606.38	2120
34961	372' d/s of Stevensville-Baroda Rd.	606.96	607.17	2120
35233	100' d/s of Stevensville-Baroda Rd.	607.27	607.78	2120
35332	1' d/s of Stevensville-Baroda Rd.	607.63	608.00	2120
35333	d/s face of Stevensville-Baroda Rd.	607.63	608.00	2120
35367	u/s face of Stevensville-Baroda Rd.	607.68	608.04	2120
35368	1' u/s of Stevensville-Baroda Rd.	607.68	608.05	2120
35417	50' u/s of Stevensville-Baroda Rd.	607.99	608.16	2120
35497	130' u/s of Stevensville-Baroda Rd.	608.19	608.23	2120
36047	680' u/s of Stevensville-Baroda Rd.	608.38	608.48	2120
36567	1200' u/s of Stevensville-Baroda Rd.	608.70	608.78	2120

100-year

WATERCOURSE: South Br. Glenlord Road Drain
/TOWNSHIP: Lincoln
COUNTY: Berrien

STATION	LOCATION	CWSEL	EG	Q
0	Confluence of Parker Richarson Dr.	602.56	602.56	205
100	100' u/s of Confluence	602.57	602.59	205
200	200' u/s of Confluence	602.60	602.61	205
270	270' u/s of Confluence	602.62	602.64	205
315	315' u/s of Confluence	602.64	602.67	205
341	26' d/s of Driveway culvert	602.66	602.68	205
351	6' d/s of Driveway culvert	602.67	602.70	205
366	1' d/s of Driveway culvert	602.67	602.70	205
408	5' u/s of Driveway culvert	605.23	605.23	205
433	30' u/s of Driveway culvert	605.23	605.24	205
483	80' u/s of Driveway culvert	605.23	605.24	205
533	130 u/s of Driveway culvert	605.23	605.24	205
572	51' d/s of Cleveland Ave.	605.23	605.24	205
597	26' d/s of Cleveland Ave.	605.23	605.24	205
622	1' d/s of Cleveland Ave.	605.23	605.25	205
676	5' u/s of Cleveland Ave.	609.41	609.41	205
701	30' u/s of Cleveland Ave.	609.41	609.41	205
801	130' u/s of Cleveland Ave.	609.41	609.41	205
1001	300' d/s of confluence of North Br.	609.41	609.42	205
1201	100' d/s of confluence of North Br.	609.42	609.42	205
1301	confluence of North Branch	609.43	609.43	155
1401	100' u/s of confluence	609.43	609.43	155
1476	175' u/s of confluence	609.44	609.44	155
1676	375' u/s of confluence	609.46	609.47	155
1876	575' u/s of confluence	609.52	609.58	155
2076	775' u/s of confluence	609.95	610.05	155
2276	975' u/s of confluence	610.71	610.84	155
2376	1075' u/s of confluence	611.11	611.25	155
2476	1275' u/s of confluence	611.56	611.75	155
2676	1475' u/s of confluence	612.88	613.03	155
2876	1675' u/s of confluence	614.39	614.39	155
3076	1875' u/s of confluence	616.08	616.26	155
3276	2075' u/s of confluence	617.76	618.02	155
3476	310' d/s of Washington Ave.	619.72	619.91	155
3676	110' d/s of Washington Ave.	620.94	621.01	155
3716	70' d/s of Washington Ave.	621.05	621.08	155
3726	60' d/s of Washington Ave.	621.06	621.09	155
3736	50' d/s of Washington Ave.	621.07	621.10	155
3741	1' d/s of Washington Ave.	621.09	621.10	155
3801	1' u/s of Washington Ave.	626.41	626.41	155
3826	26' u/s of Washington Ave.	626.41	626.41	145
3901	100' u/s of Washington Ave.	626.41	626.41	145
4101	300' u/s of Washington Ave.	626.41	626.42	145
4301	500' u/s of Washington Ave.	626.43	626.43	145

100-year

WATERCOURSE: North Branch Glenlord Road Drain

/TOWNSHIP: Lincoln

COUNTY: Berrien

STATION	LOCATION	CWSEL	EG	Q
0	Confluence of South Branch	609.43	609.43	105
100	100' u/s of confluence	609.43	609.43	105
200	200' u/s of confluence	609.43	609.43	105
300	300' u/s of confluence	609.43	609.43	105
500	500' u/s of confluence	609.43	609.43	105
700	700' u/s of confluence	609.43	609.43	105
900	900' u/s of confluence	609.43	609.43	105
1100	1100' u/s of confluence	609.43	609.43	105
1300	1300' u/s of confluence	609.44	609.44	105
1500	1500' u/s of confluence	609.44	609.46	105
1700	1700' u/s of confluence	609.50	609.53	105
1900	1900' u/s of confluence	609.67	609.75	105
2100	2100' u/s of confluence	610.06	610.14	105
2300	2300' u/s of confluence	610.46	610.54	105
2500	2500' u/s of confluence	610.93	610.98	105
2700	2700' u/s of confluence	611.39	611.44	105
2900	2900' u/s of confluence	611.80	611.85	105
3100	2000' d/s of Glenlord Rd.	612.20	612.25	105
3300	1800' d/s of Glenlord Rd.	612.67	612.74	105
3500	1600' d/s of Glenlord Rd.	613.28	613.35	105
3700	1400' d/s of Glenlord Rd.	613.91	613.98	105
3900	1200' d/s of Glenlord Rd.	614.54	614.61	105
4200	900' d/s of Glenlord Rd.	615.74	616.02	105
4400	700' d/s of Glenlord Rd.	616.95	617.07	105
4650	450' d/s of Glenlord Rd.	617.85	617.90	105
4850	250' d/s of Glenlord Rd.	618.31	618.35	105
5050	50' d/s of Glenlord Rd.	618.77	619.16	105
5075	25' d/s of Glenlord Rd.	619.18	619.31	105
5100	d/s face of Glenlord Road	619.30	619.36	54
5150	u/s face of Glenlord Road	626.39	626.39	54
5175	25' u/s of Glenlord Road	626.39	626.39	54
5225	75' u/s of Glenlord Road	626.39	626.39	54
5275	125' u/s of Glenlord Road	626.39	626.39	54
5400	250' u/s of Glenlord Road	626.39	626.39	54
5600	500' d/s of Washington Ave.	626.39	626.39	54
5800	300' d/s of Washington Ave.	626.39	626.40	54
5850	50' d/s of Washington Ave.	626.40	626.47	54
5875	25' d/s of Washington Ave.	626.57	626.60	54
5900	d/s face of Washington Ave.	626.64	626.65	23
5950	u/s face of Washington Ave.	627.53	627.53	23
5975	25' u/s of Washington Ave.	627.53	627.53	23
6050	100' u/s of Washington Ave.	627.53	627.53	23
6150	200' u/s of Washington Ave.	627.53	627.53	23
6250	300' u/s of Washington Ave.	627.53	627.53	23
6350	400' u/s of Washington Ave.	627.53	627.53	23

WATERCOURSE: Goodrow Drain

100-year /TOWNSHIP: Lincoln

COUNTY: Berrien

STATION	LOCATION	CWSEL	EG	Q
0	Confluence of Hickory Creek	602.20	602.20	105
1	d/s face of Driveway Culvert	602.20	602.20	105
25	u/s face of Driveway Culvert	602.22	602.22	105
41	16' u/s of Driveway Culvert	602.22	602.22	105
281	256' u/s of Driveway Culvert	602.22	602.25	105
331	306' u/s of Driveway Culvert	602.24	602.29	105
381	356' u/s of Driveway Culvert	602.27	602.40	105
431	406' u/s of Driveway Culvert	602.39	602.60	105
481	456' u/s of Driveway Culvert	602.62	602.94	105
521	496' u/s of Driveway Culvert	602.93	603.25	105
641	616' u/s of Driveway Culvert	603.92	604.29	105
761	290' d/s of Alpine Ridge Road	604.95	605.14	105
1000	50' d/s of Alpine Ridge Road	606.60	606.91	105
1030	20' d/s of Alpine Ridge Road	606.89	607.29	105
1050	d/s face of Alpine Ridge Road	607.00	608.21	105
1140	u/s face of Alpine Ridge Road-X5	611.15	611.32	105
1160	20' u/s of Alpine Ridge Road	612.71	612.71	105
1210	70' u/s of Alpine Ridge Road	612.71	612.71	105
1280	d/s face of Abandoned Culvert	612.71	612.71	105
1300	u/s face of Abandoned Culvert	612.71	612.71	105
1312	12' u/s of Abandoned Culvert	612.74	612.74	105
1333	33' u/s of Abandoned Culvert	612.73	612.74	105
1355	55' u/s of Abandoned Culvert	612.74	612.74	105
1377	77' u/s of Abandoned Culvert	612.74	612.74	105
1400	100' d/s of John Beers Road	612.74	612.74	105
1440	60' d/s of John Beers Road	612.74	612.75	105
1500	d/s face of John Beers Road	612.65	612.87	105
1570	u/s face of John Beers Road	613.67	613.88	105
1615	45' u/s of John Beers Road	613.95	613.95	105
1665	95' u/s of John Beers Road	613.95	613.95	105
1720	150' u/s of John Beers Road	613.95	613.95	105
1775	150' d/s of Echo Ridge Road	613.95	613.96	105
1850	75' d/s of Echo Ridge Road	613.97	613.98	105
1913	12' d/s of Echo Ridge Road	614.00	614.01	105
1925	d/s face of Echo Ridge Road	614.01	614.02	105
2015	u/s face of Echo Ridge Road	623.89	623.89	105
2048	33' u/s of Echo Ridge Road	623.89	623.89	105
2500	485' u/s of Echo Ridge Road	623.89	623.89	87
2713	698' u/s of Echo Ridge Road	623.89	623.89	87
2926	911' u/s of Echo Ridge Road	623.89	623.89	87
3138	1123' u/s of Echo Ridge Road	623.89	623.89	87
3350	600' d/s of Ponderosa Drive	623.89	623.89	87
3475	475' d/s of Ponderosa Drive	623.89	623.89	87
3600	350' d/s of Ponderosa Drive	623.89	623.90	87
3725	225' d/s of Ponderosa Drive	623.90	623.91	87
3850	100' d/s of Ponderosa Drive	623.92	623.93	87
3942	8' d/s of Ponderosa Drive	623.95	623.98	87
3950	D/S face of Ponderosa Drive	623.97	623.99	87
4050	u/s face of Ponderosa Drive	627.52	627.52	87
4098	48' u/s of Ponderosa Drive	627.52	627.52	87
4600	550' u/s of Ponderosa Drive	627.53	627.54	87
4750	700' u/s of Ponderosa Drive	627.59	627.62	87
4900	850' u/s of Ponderosa Drive	627.80	627.89	87
5050	1000' u/s of Ponderosa Drive	628.40	628.54	87
5200	1150' u/s of Ponderosa Drive	629.40	629.56	87

HYDRAULIC ANALYSIS

Introduction

The stream being studied is the Parker/Richardson Drain. The study limits of the Parker/Richardson Drain are from its confluence with Hickory Creek to a point approximately 2800 feet upstream of John Beers Road. The flows were computed by the SCS method and have been approved by the Michigan Department of Natural Resources.

Method of Analysis

The cross-section data used in this analysis were field-surveyed in November, 1975. Water-surface profiles were computed through use of the COE HEC-2 step-backwater computer program. Culverts and bridges which were under low flow conditions for all four flows were coded according to the "normal bridge" routine requirements. Those bridges which experienced pressure or weir flow for any of the four flows were coded according to the "special bridge" routine requirements. The roadways of the bridges coded "special bridge" were coded to reflect effective weir lengths. The bridge tables (BT cards) reflect physical encroachments imposed by the upstream cross-section.

The hydraulic models were developed for the 100-year flows. Valley sections upstream and downstream of culverts or bridges were located where full cross-section flow would be developed out of the influence of the bridge constriction.

The criteria for placement of these sections was that outlined on pages 18-21 in the HEC Training Document No. 6, Application of the HEC-2 Bridge Routines. Accordingly, the downstream section was placed at a distance of about four times the average length of the side constriction caused by the bridge abutment. The upstream section was placed at a distance about equal to the bridge constriction. If additional sections were found necessary within this distance or if the actual field-surveyed cross-section fell within this distance, the intermediate sections were encroached as appropriate.

At Cleveland Road South (SECNO 9913), preliminary HEC-2 runs determined that the 50- and 100-year flows were flowing pressure flow with tailwater elevations below the low chord. Since this indicates a condition of full flow through part of the culvert length, the headwater elevations were checked by hand calculation. The difference between HEC-2 and the hand calculations was found to be significant and the headwater elevation (Energy Grade Line - velocity head) was input on an X5 card at the upstream bridge section. Supporting calculations are included. The 10-year flow was "low flow" and the 500-year flow was a combination pressure-weir flow. Consequently, the headwater elevations corresponding to these flows were determined by HEC-2.

Due to the well-defined channel and flood plain areas, the natural floodway, as defined by the expansion and contraction of moving floodwaters at constrictions, was not encroached upon with the exception of upstream of SECNO 12023. The depth of flow in the left overbank, prior to encroaching SECNOS

12023 through 13773, was generally less than one foot with velocities less than 0.50 feet per second. The topwidth of the natural floodway varies from approximately 250 - 350 feet; the topwidth of the encroached model is 150 feet. The natural floodway model was defined in the right overbank by homes and in the left overbank by natural topography. In the encroached model, the right overbank was encroached to the right bank, while the left overbank was encroached until upstream water surfaces were increased 0.10 feet or less. The encroachments produced less than a 0.10 foot increase in the water-surface elevations and insignificant increases in velocities. Comparison computer runs are included with this submittal.

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. In general, the following range of values was used:

Description	Manning's "n"
A. Channel	
1. Sand bottom with grass slopes	.035 - .04
2. Sand bottom with overhanging trees and brush	.045 -.055
B. Flood Plain	
1. Lawn with light trees and brush	.04 - .05
2. Medium woods with weeds and brush	.07 - .08
3. Cultivated areas	.075

The contraction and expansion coefficients used in the Lincoln Township analyses were 0.3 and 0.5, respectively. The values were used throughout the studies. References evaluated in selection of these values were the HEC-2 Users Manual, Exhibit 2, page 2, and Open-Channel Hydraulics, Ven Te Chow, pages 311 and 468. The orifice and weir coefficients used in the HEC-2 "special bridge" routine were determined as outlined in Exhibit 2 of the HEC-2 Users Manual.

Starting Point

Profile computations for the Parker/Richardson Drain were begun by the slope-area method at the confluence with Hickory Creek.

In the final Flood Insurance Study report, the 10-, 50-, 100-, and 500-year Hickory Creek elevations will be extended horizontally upstream until the corresponding elevations of the Parker/Richardson Drain are intersected.

The floodways and flood plains delineated in this submittal are based on the calculated water-surface profiles. In the final Flood Insurance Study the floodways will be based on the calculated water-surface profiles; the flood plains will reflect the backwater influence of Hickory Creek.

Parker/Richardson Drain

Cross Section	SECNO	Location
A	155	45' d/s of d/s face Driveway Bridge 155' u/s of Hickory Creek
B	214	u/s face Driveway Bridge 214' u/s Hickory Creek
C	375	u/s face Abandoned Bridge 375' u/s Hickory Creek
D	675	300' u/s of u/s face Abandoned Bridge
E	1325	50' d/s of d/s face Marquette Woods Road Bridge (West)
F	1418	u/s face Marquette Woods Road Bridge (West)
G	1868	450' u/s of u/s face Marquette Woods Road Bridge (West)
H	2368	55' d/s of d/s face Cleveland Road Bridge (North)
I	2423	d/s face Cleveland Road Bridge (North)
J	3628	1175' u/s of u/s face Cleveland Road Bridge (North) 100' d/s of d/s face Marquette Woods Road Bridge (East)
K	3728	d/s face Marquette Woods Road Bridge (East)
L	4423	650' u/s of u/s face Marquette Woods Road Bridge (East)
M	5098	675' u/s Sect. No. 4423 100' d/s South Bonny Bruce Drive Extended
N	6123	1025' u/s Sect. No. 5098 200' d/s North Teakwood Drive Extended
O	7173	1050' u/s Sect. No. 6123 75' u/s North Cherry Drive Extended
P	8423	1250' u/s Sect. No. 7173 Barbara Ann Drive Extended
Q	9248	825' u/s Sect. No. 8423 600' d/s of d/s face Cleveland Road Bridge (South)

Cross Section	SECNO	Location
R	9798	50' d/s of d/s face Cleveland Road Bridge (South)
S	9913	u/s face Cleveland Road Bridge (South)
T	10863	950' u/s of u/s face Cleveland Road Bridge (South) 50' d/s of d/s face John Beers Road Bridge
U	10973	u/s face John Beers Road Bridge
V	12573	1600' u/s of u/s face John Beers Road Judi Lane Extended

JOB NAME: LINCOLN TWP. FIS | JOB NO. 5555 | 35 | 01

WATERCOURSE: PARKER / RICHARDSON DRAIN | CULVERT LOCATION: CLEVELAND ROAD (SOUTH)

CULVERT DESCRIPTION: 48" CMP 65' LENGTH | BY RSM | DATE 10-15-76

PROJECTING FROM FILL

n= 0.033 | Q_{10}= | TW_{10}=

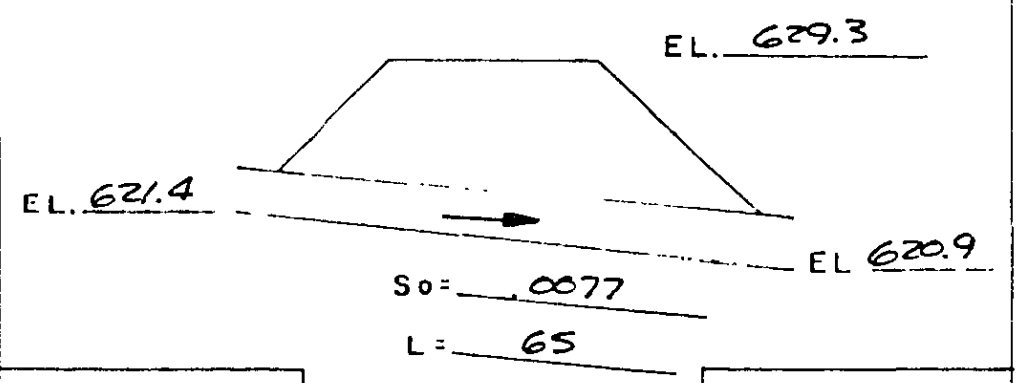
A= 12.57 | Q_{50}= 97 | TW_{50}= 3.13

R= 1.0 | Q_{100}= 110 | TW_{100}= 3.23

Ke= 0.9 | Q_{500}= | TW_{500}=

D= 4

LSo= .50



Sta. 9913 | Sta 9848

Q	HEADWATER ANALYSIS										
	INLET CONT.		OUTLET CONT. HW = H + ho − LSo					HEC-2		FINAL EGL	FINAL HW ELEV. (HGL)	ΔH HEC-2
	HW/D	HW	① H	dc	(dc+D)/2	ho	HW	$D+(1+Ke)\frac{V^2}{2g}$	HEC-2 HW ELEV.			
97	1.14	4.57	3.66	2.9	3.45	3.45	6.61	4+(1+.9).925=5.76	626.94	627.59	627.30	.36
110	1.33	5.31	4.71	3.15	3.58	3.58	7.79	4+(1+.9)1.19=6.26	628.0	628.64	628.38	.38

CALCULATIONS AND COMMENTS

① $H=\left[1+Ke+\frac{29.1n^2L}{R^{4/3}}\right]=\left[1+.9+2.06\right]\frac{V^2}{2g}=.000389Q^2$

Johnson & Anderson, Inc.
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P.O. Box 166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

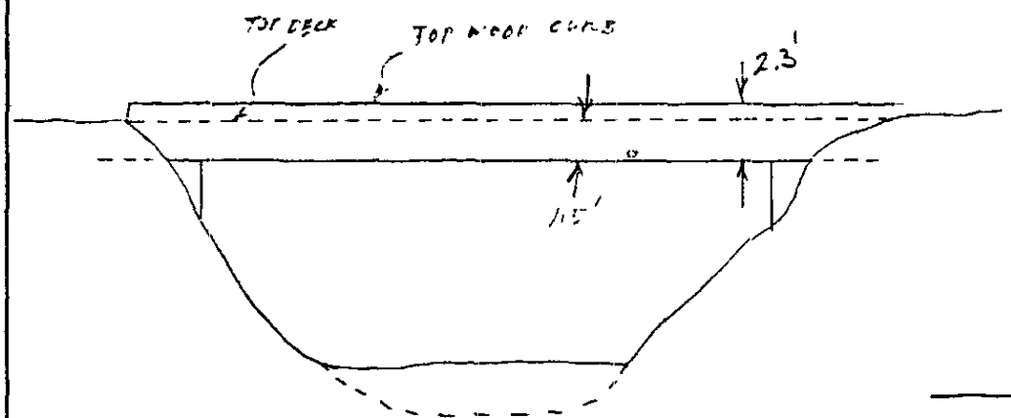
95-03-21

SECT. B 214 Code No. 35-03-21

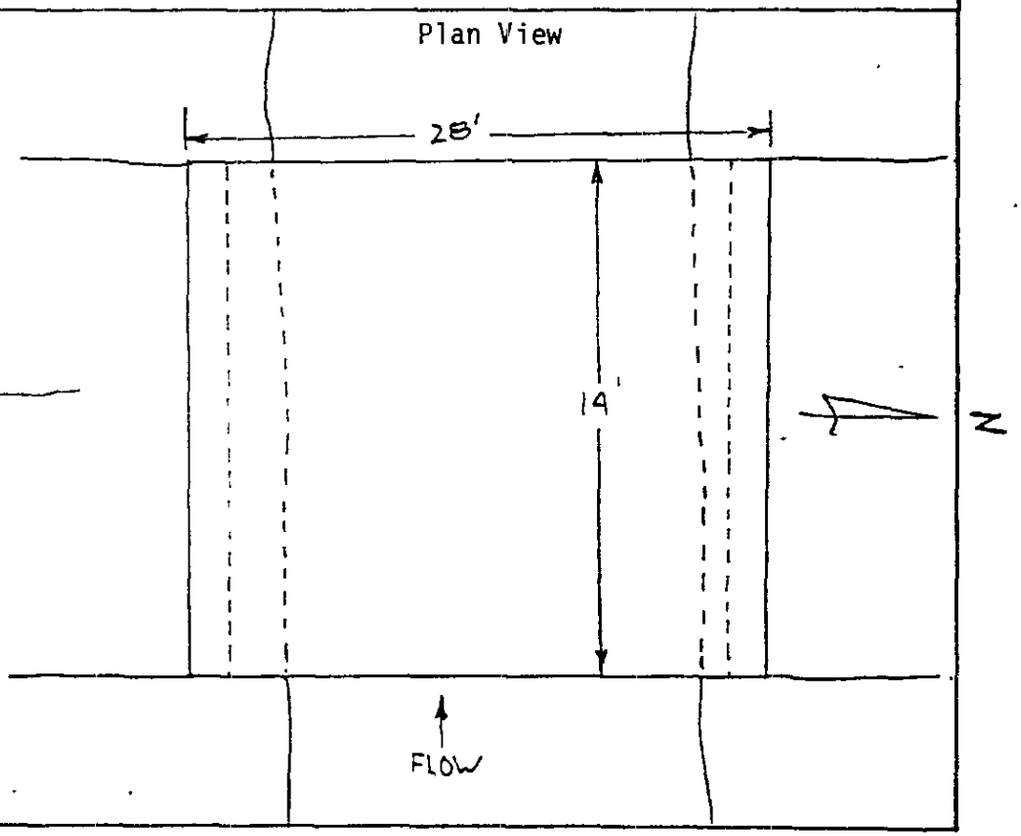
Job Name: LINCOLN TWP F.I.S.			By: J KINER
Date: 9 DEC 1975	Feature: DRIVE BRIDGE HOUSE # 1907		Water Course: PARKET-RICHARDSON DRAIN
Remarks: LOCATION: 200' UPSTREAM FROM HUNTOON CREEK			
BOTTOM: SAND AND LARGE ROCKS			
SLOPES: ROUGH CONCRETE			
Width of Piers: N/A	Pier Shape: N/A	No. of Piers: NONE	Area:
Water Elevation: UPSTREAM 592.6' DOWNSTREAM 592.7	Length: 14'	Width of Deck: 28'	Skew: 90°

FIELD SKETCH

Profile View



Plan View



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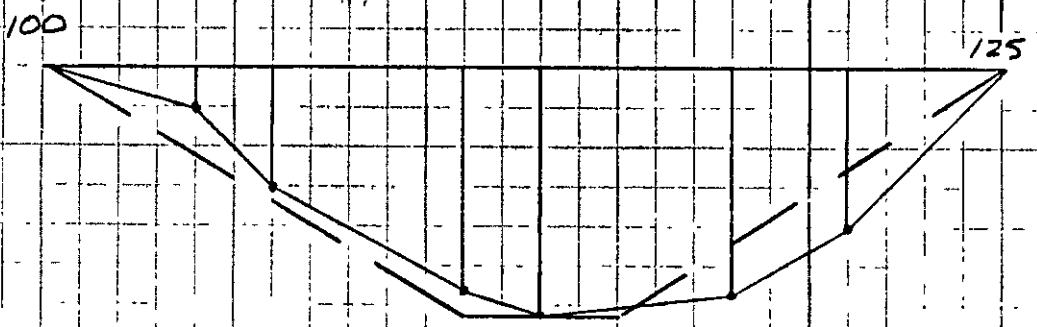
CONSULTING ENGINEERS

BY RSM DATE _____ JOB DESCRIPTION LINCOLN TWP. FIS SHEET _____ OF _____
SUBJECT PARKER / RICHARDSON DRAIN BRIDGE SECT. 21 JOB NO. 5555-35

DRIVEWAY BRIDGE



WETTED PERIMETER = 51'
AREA = 88.5 ft²
R = A/P = 1.74

SS = 1.5
BWC = 4
TRAP. AREA = 90 ft² ≈ 88.5

ΣKOR = EXIT LOSS + ENTRANCE LOSS + FRICTION LOSS

ASSUME:

EXIT LOSS = 1.0

ENTRANCE LOSS = 0.5

$$K_F = \frac{29.1\, n^2 L}{R^{4/3}} = \frac{29.1\,(.043)^2\,14}{1.74^{4/3}}$$

$K_F = 0.4$

ΣKOR = 1.0 + .5 + .4 = 1.9

ΣKOR = 1.9

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

HYDRAULIC STRUCTURAL DATA

SECT. C 375

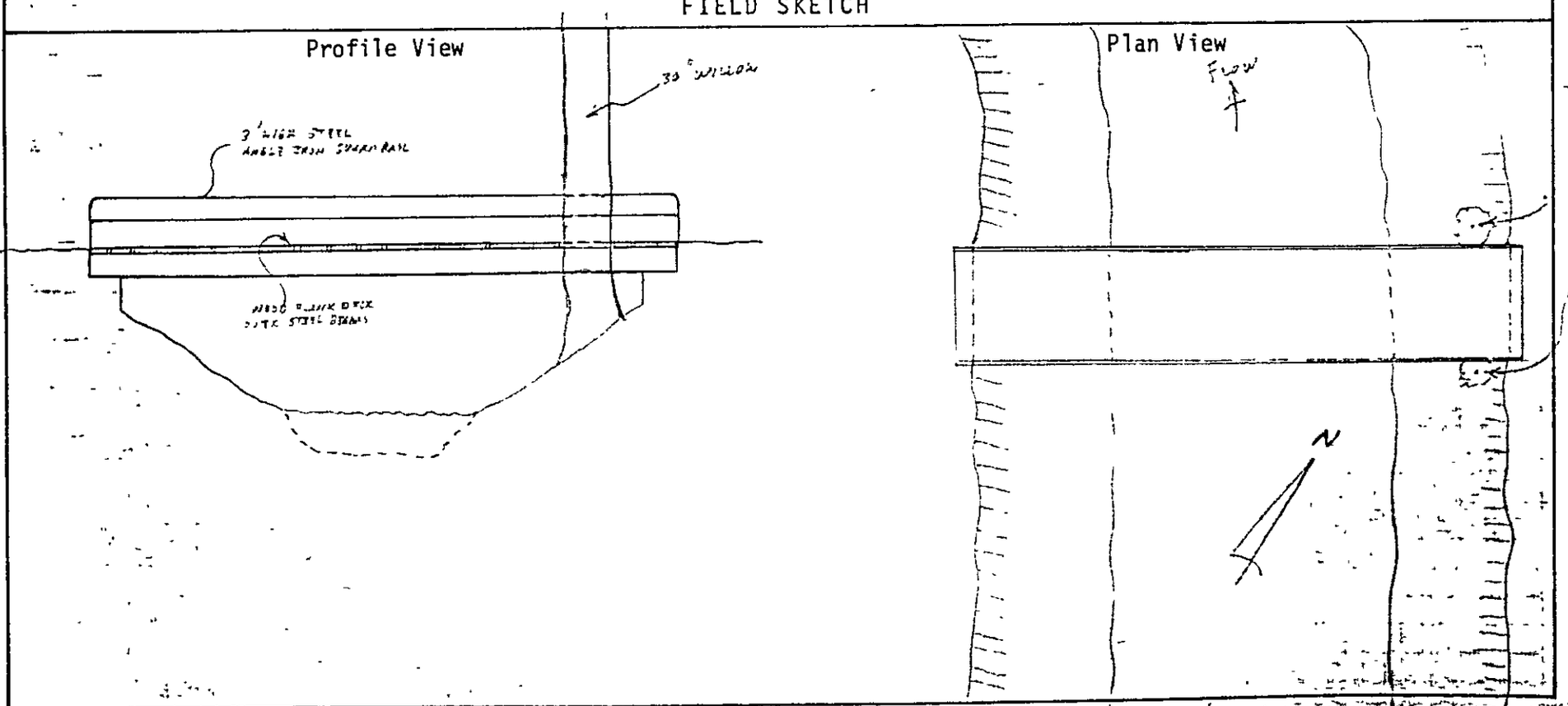
Code No. 35-03-20

Job Name: LINCOLN TOWNSHIP F.I.S.		By: P. SHUNCK
Date: 9 DECEMBER 1975	Feature: ABANDON DRIVE BRIDGE 350'± UP/STREAM FROM HICKORY CREEK	Water Course: PARKER/RICHARDSON DRAIN

Remarks: A. SAND BOTTOM W/ SCATTERED PIECES OF BROKEN CONCRETE & LEFT SLOPE; RIGHT & RIGHT SLOPE & BROKEN CONCRETE [illegible] OBSTRUCTED BY 30" WILLOWS ON BOTH FACES OF BRIDGE.

Width of Piers: N/A	Pier Shape: N/A	No. of Piers: NONE	Area:
Water Elevation: 592.7	Length: 25.0'	Width of Deck: 14.0'	Skew: 90°

FIELD SKETCH



JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RSM DATE ____ JOB DESCRIPTION LINCOLN TWP. FIS SHEET ____ OF ____

SUBJECT PARKER/RICHARDSON BRIDGE SECT. 20 JOB NO 555-35

ABANDONED BRIDGE

WETTED PERIMETER = 45.5 Ft

AREA = 80.2 Ft^2

$R = A/P = 80.2/45.5 = 1.76$

NO PIERS

XKOR = EXIT LOSS + ENTRANCE LOSS + FRICTION LOSS

ASSUME:

EXIT LOSS = 1.0

ENTRANCE LOSS = .5

$$K_F = \frac{29.1\, n^2 L}{R^{4/3}}$$

$$= \frac{29.1\,(.04)^2\,25}{1.76^{4/3}}$$

$$= .54$$

XKOR = 2.04

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

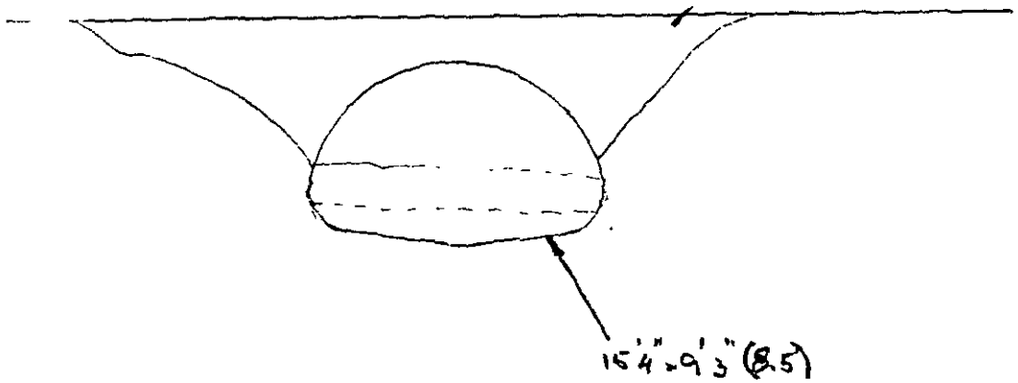
HYDRAULIC STRUCTURAL DATA

SECT. F 14B Code No: 35-08-17

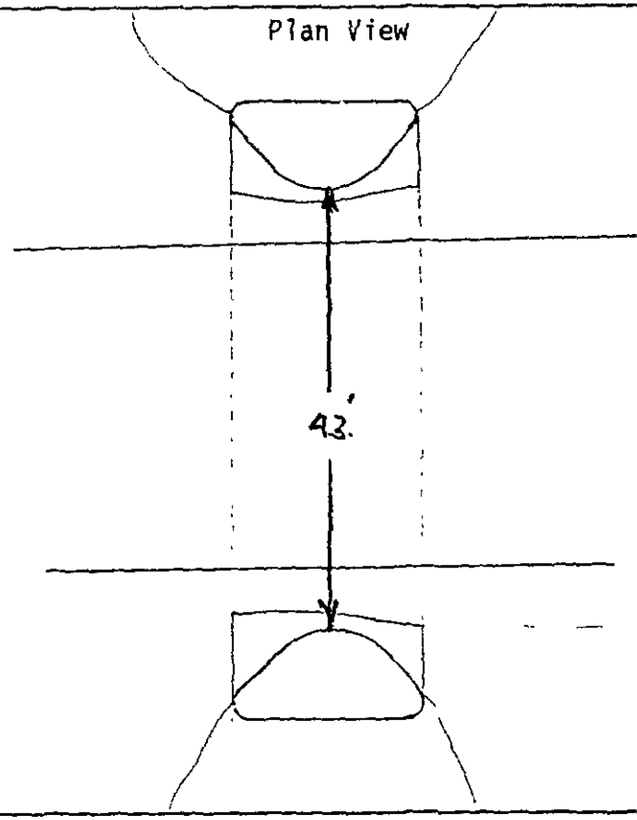
Job Name: LINCOLN TWP F.I.S			By: J KLINER
Date: 21 NOVEMBER 77	Feature: MARQUETTE WOODS RD CULVERT West of CLOVERLAND RD		Water Course: PARKER/RICHARDSON DRAIN
Remarks: A. BOTTOM: MUCK & LARGE PIECES OF CONCRETE B. CULVERT PARTIALLY CRUSHED			
Width of Piers: N/A	Pier Shape: N/A	No. of Piers: N/A	Area:
Water Elevation: 595.4	Length: 43'	Width of ~~Deck~~ CULVERT 15.33' x 8.5'	Skew: 90°

FIELD SKETCH

Profile View



Plan View



JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY ESM DATE 9-28-76 JOB DESCRIPTION LINCOLN TWP. FIS SHEET ____ OF ____
SUBJECT PARKER / RICHARDSON BRIDGE SECT. # 17 JOB NO. 5565-35

MARQUETTE WOODS ROAD BRIDGE (WEST)

15'4" X 9'3" ARCH PIPE

AREA = 109 Ft²
R = 2.71
} STEEL DRAINAGE MANUAL

L = 43'

XKOR = EXIT LOSS + ENTRANCE LOSS + FRICTION LOSS

ASSUME:

EXIT LOSS = 1.0

ENTRANCE LOSS = 0.9 (PROJECTING FROM FILL)

$$K_F = \frac{29.1\, n^2 L}{R^{4/3}}$$

$$= \frac{29.1\,(.0309)^2\,(43)}{(2.71)^{4/3}}$$

$$= .316$$

XKOR = 2.216

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

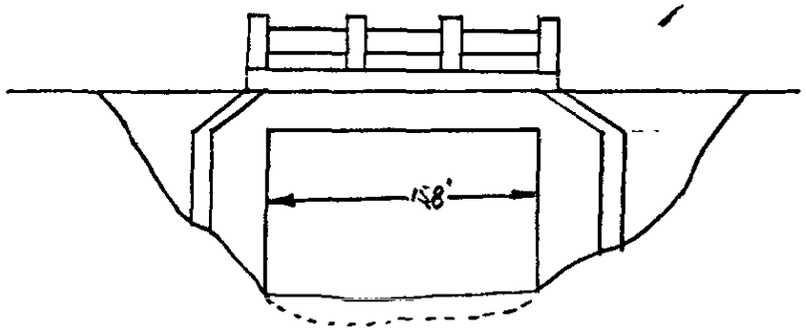
HYDRAULIC/STRUCTURAL DATA

SECT. I 1423 Code No. 35-02-14

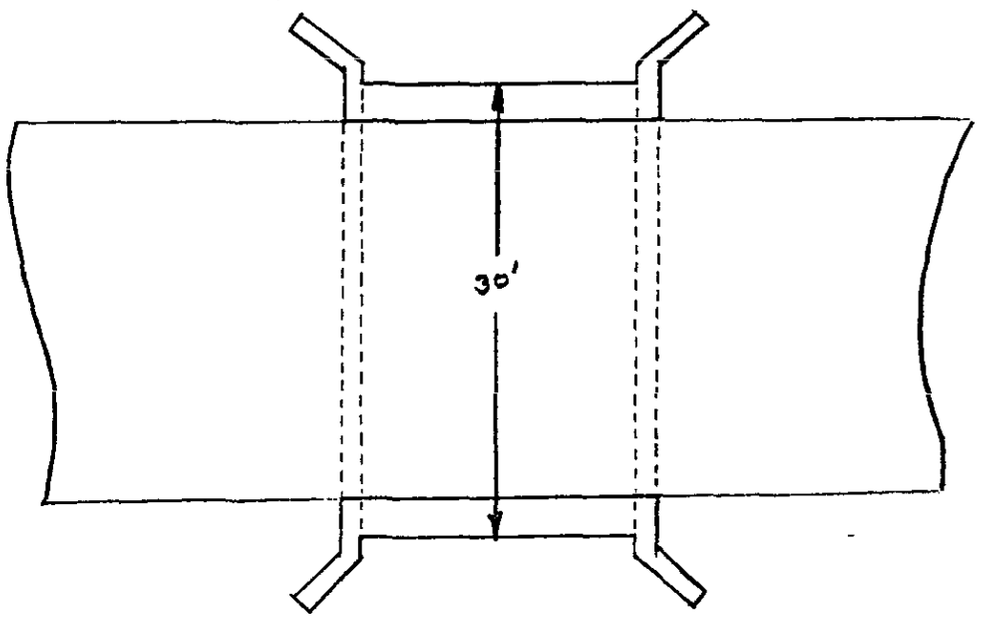
Job Name: LINCOLN TWP EIS.			By: J KINGR
Date: 21 NOVEMBER 1975	Feature: CLEVELAND RD BRIDGE (SEE BELOW)		Water Course: PARKER/RICHARDSON DRAIN
Remarks: BOTTOM: SAND & GRASS			
DRAIN CROSSES CLEVELAND RD NORTH OF MARQUETTE RD			
Width of Piers: N/A	Pier Shape: N/A	No. of Piers: N/A	Area:
Water Elevation: UP/S = 597.3 DN/STREAM = 597.2	Length: OF BRIDGE 15.8'	Width of Deck: 30'	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

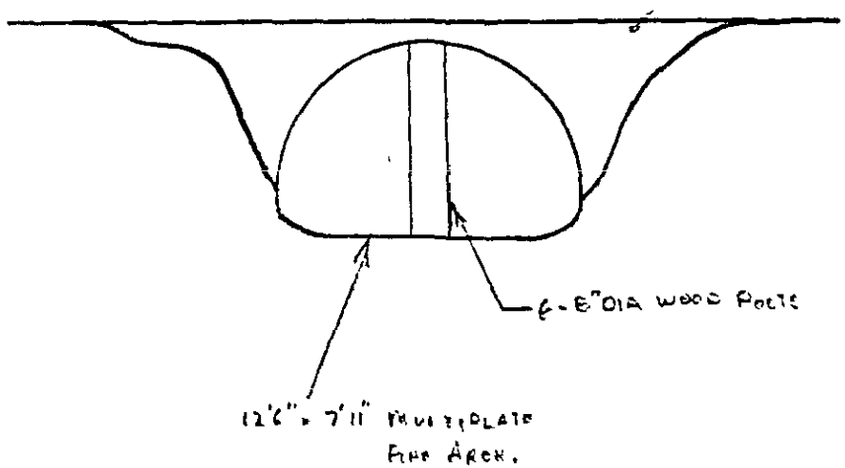
SECT. K 3728 Code No. 35-03-12

Job Name: Lincoln Twp FIS.		By: J. Kiner
Date: 20 November 1975	Feature: Marquette Woods [illegible] Culvert	Water Course: Parker/Richardson Drain
Remarks: Bottom: Gravel		
Culvert has [illegible] Ward, [illegible] size [illegible]		

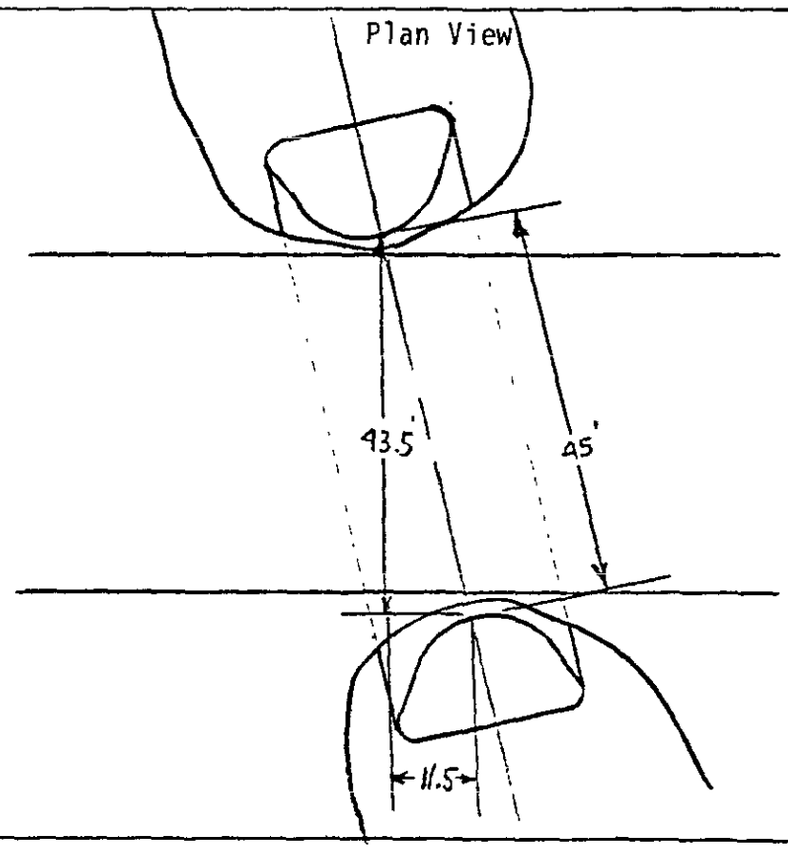
Width of Piers: 8" DIA.	Pier Shape: Round	No. of Piers: 1 (6 Posts)	Area:
Water Elevation: 600.7	Length: 45' [illegible]	Width of Deck + Culvert: [illegible]	Skew: See Below

FIELD SKETCH

Profile View



Plan View



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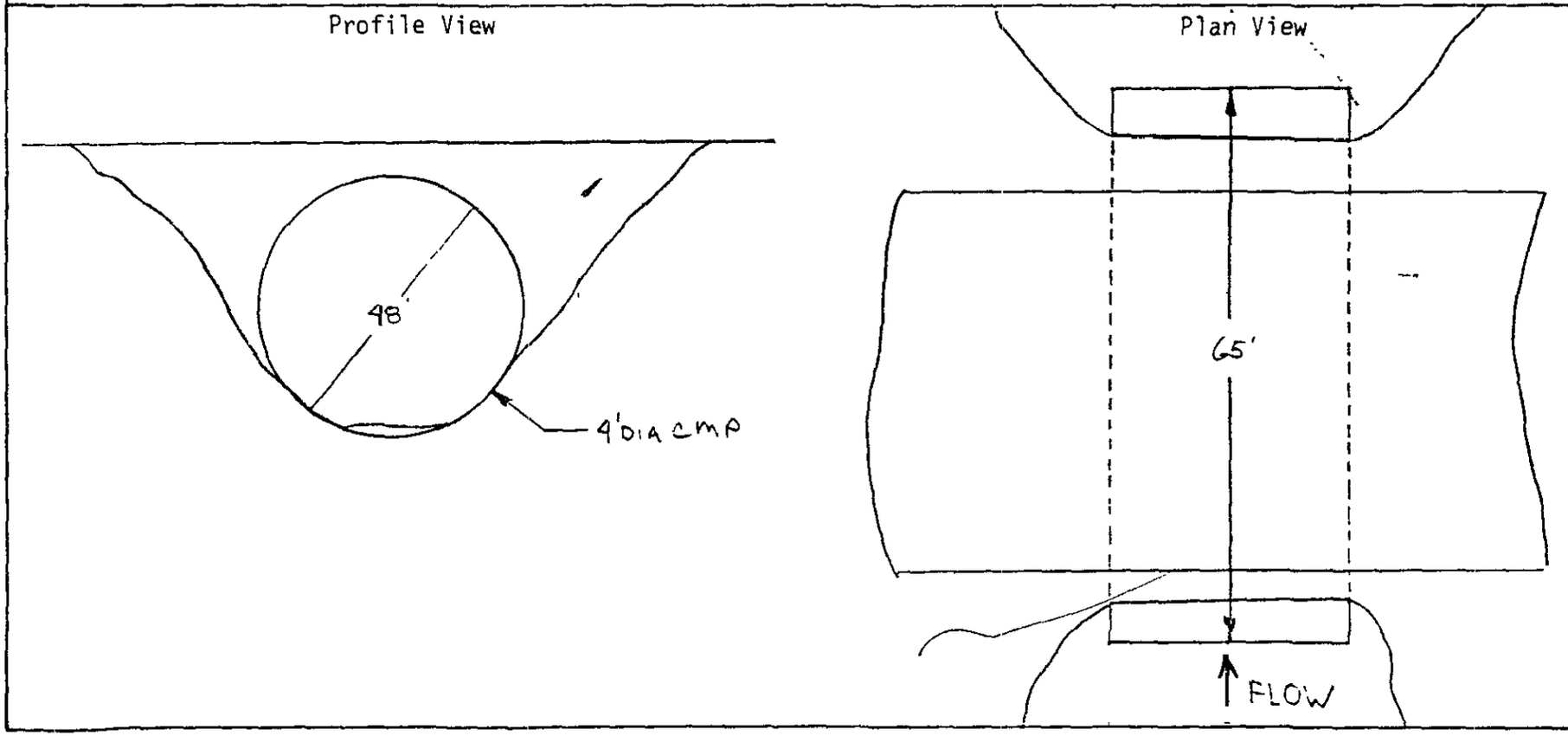
Consulting Engineers
P.O. Box 1166 2300 Dixie Highway Pontiac, Michigan 48056

HYDRAULIC STRUCTURAL DATA

SECT. S 9913 Code No. 35-03-04

Job Name: LIVONIA TWP FIS			By: J. KINGA
Date: 19 NOVEMBER 1975	Feature: CLEVELAND PL CULVERT		Water Course: PARKER/PLANTATION DR.
Remarks:			
Width of Piers: N/A	Pier Shape: N/A	No. of Piers: NONE	Area:
Water Elevation: DRY	Length: 65' CMP	Width of Deck CMP 48"	Skew: 90°

FIELD SKETCH



JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RSM DATE 10-7-76 JOB DESCRIPTION LINCOLN TWP. FIS SHEET ____ OF ____
SUBJECT PARKER TRICHARDSON DRAIN BRIDGE SECT. #4 JOB NO. 5555-35

CLEVELAND ROAD BRIDGE (SOUTH)

48" C.M.P.

C = 50'

ENTRANCE DESIGN: PROJECTING FROM FILL

A = 12.57

R = 1.00

$\Sigma K_0 R$ = EXIT LOSS + ENTRANCE LOSS + FRICTION LOSS

ASSUME:

EXIT LOSS = 1.0

ENTRANCE LOSS = 0.9

$$K_F = \frac{29.1 n^2 L}{R^{4/3}} \quad 1$$

$$= \frac{29.1 (.0332)^2 (50)}{1.00}$$

$$= 1.60$$

$\Sigma K_0 R = 1.0 + .9 + 1.6 = 3.5$

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

HYDRAULIC STRUCTURAL DATA

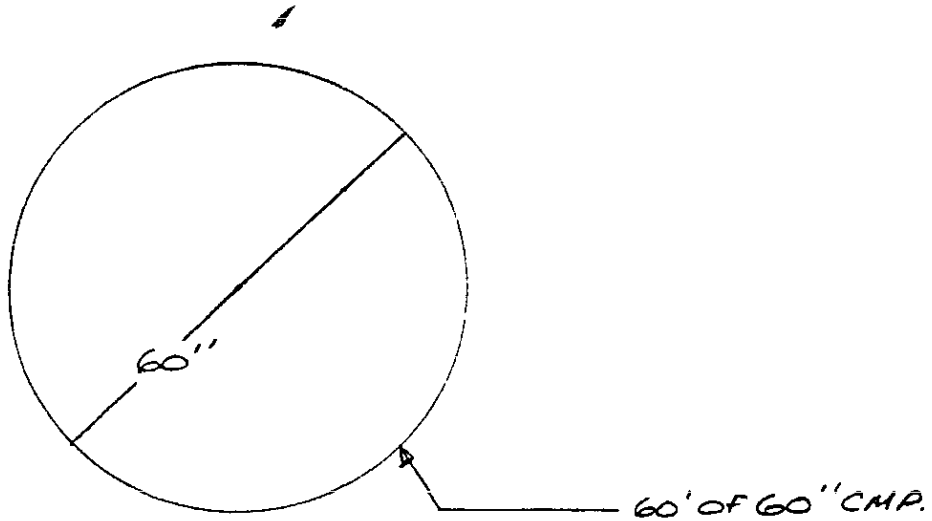
SECT. U 10973 Code No. 35-03-02

Job Name: LINCOLN TOWNSHIP FIS			By: P. SHUNCK
Date: 11 JUNE 1976	Feature: JOHN BEERS RD.		Water Course: PARKER/RICHARDSON
Remarks:			
Width of Piers: N/A	Pier Shape: N/A	No. of Piers: N/A	Area:
Water Elevation:	Length: 60'	Width of Deck:	Skew: 90°

FIELD SKETCH

Profile View

Plan View



JOHNSON & ANDERSON, INC.
CONSULTING ENGINEERS

BY RSM DATE 9-28-76 JOB DESCRIPTION LINCOLN TWP. FIS SHEET ____ OF ____
SUBJECT PARKER IRON ARBOR BRIDGE SECT. #2 JOB NO. 5555-35

JOHN BEERS ROAD BRIDGE

60" CMP.

L = 60'

ENTRANCE DESIGN: PROJECTING FROM FILL

A = 19.63

R = 1.25

XKOR = EXIT LOSS + ENTRANCE LOSS + FRICTION LOSS

ASSUME:

EXIT LOSS = 1.0

ENTRANCE LOSS = 0.9

$$K_F = \frac{29.1 n^2 L}{R^{4/3}}$$

$$= \frac{29.1 (.0328)^2 60}{1.25^{4/3}}$$

$$= 1.39$$

XKOR = 3.29

WATERCOURSE: Parker/Richardson Drain

100-year

CITY/TOWNSHIP: Lincoln

COUNTY: Berrien

STATION	LOCATION	CWSEL	EG	Q
	Starting elevation from rating curve of Hickory Creek Tc=13.6 hrs.			
155	155' u/s of confluence Hickory Creek	598.35	598.67	725
177	23' d/s of Driveway Bridge	598.35	598.80	725
200	d/s face of Driveway Bridge	598.38	599.00	725
214	u/s face of Driveway Bridge	599.14	599.74	725
248	34' u/s of Driveway Bridge	599.52	599.96	725
282	68' u/s of Driveway Bridge	599.74	600.10	725
316	34' d/s of Abandoned Bridge	599.96	600.23	725
350	d/s face of Abandoned Bridge	600.11	600.32	725
375	u/s face of Abandoned Bridge	600.17	600.37	725
675	300' u/s of Abandoned Bridge	600.53	600.54	725
1050	675' u/s of Abandoned Bridge	600.61	600.67	725
1325	50' d/s of Marquette Road Bridge	600.74	601.02	725
1350	25' d/s of Marquette Road Bridge	600.77	601.08	725
1375	d/s face of Marquette Road Bridge	600.75	601.21	725
1418	u/s face of Marquette Road Bridge	601.92	602.27	725
1423	5' u/s of Marquette Road Bridge	602.13	602.33	725
1428	10' u/s of Marquette Road Bridge	602.18	602.34	725
1443	25' u/s of Marquette Road Bridge	602.28	602.37	725
1468	50' u/s of Marquette Road Bridge	602.34	602.39	725
1568	150' u/s of Marquette Road Bridge	602.40	602.42	725
1868	475' u/s of Marquette Road Bridge	602.46	602.47	725
2343	70' d/s of Cleveland Rd. North	602.55	602.58	725
2368	55' d/s of Cleveland Rd. North	602.35	602.81	725
2398	25' d/s of Cleveland Rd. North	602.56	602.93	475
2410	12' d/s of Cleveland Rd, North	602.55	603.04	475
2422	1' d/s of Cleveland Rd. North	602.62	603.10	475
2423	d/s face of Cleveland Rd. North	602.62	603.10	475
2453	u/s face of Cleveland Rd. North	602.76	603.16	475
2454	1' u/s of Cleveland Rd. North	602.76	603.16	475
2460	7' u/s of Cleveland Rd. North	602.92	603.21	475
2466	13' u/s of Cleveland Rd. North	603.00	603.24	475
2472	19' u/s of Cleveland Rd. North	603.05	603.26	475
2481	28' u/s of Cleveland Rd. North	603.10	603.28	475
2501	48' u/s of Cleveland Rd. North	603.21	603.32	475
2529	75' u/s of Cleveland Rd. North	603.28	603.36	475
2804	350' u/s of Cleveland Rd. North	603.52	603.74	475
3079	625' u/s of Cleveland Rd. North	603.98	604.22	475
3354	900' u/s of Cleveland Rd, North	604.49	604.76	475
3628	100' d/s of Marquette Woods Rd. East	605.09	605.28	475
3661	67' d/s of Marquette Woods Rd. East	605.14	605.35	475
3694	34' d/s of Marquette Woods Rd. East	605.18	605.44	475
3711	17' d/s of Marquette Woods Rd. East	605.20	605.51	475
3719	9' d/s of Marquette Woods Rd. East	605.18	605.59	475
3727	1' d/s of Marquette Woods Rd. East	605.07	605.79	475
3728	d/s face of Marquette Woods Rd. East	605.01	605.87	475
3773	u/s face of Marquette Woods Rd. East	605.68	606.40	475
3774	1' u/s of Marquette Woods Rd. East	605.93	606.47	475
3779	6' u/s of Marquette Woods Rd. East	606.39	606.59	475
3784	11' u/s of Marquette Woods Rd. East	606.47	606.61	475

100-year

WATERCOURSE: Parker/Richardson Drain
CITY/TOWNSHIP: Lincoln
COUNTY: Berrien

STATION	LOCATION	CWSEL	EG	Q
3794	21' u/s of Marquette Woods Rd. East	606.55	606.63	475
3804	31' u/s of Marquette Woods Rd. East	606.60	606.65	475
3823	50' u/s of Marquette Woods Rd. East	606.64	606.66	475
3873	100' u/s of Marquette Woods Rd. East	606.67	606.68	475
3923	150' u/s of Marquette Woods Rd. East	606.68	606.68	475
4423	650' u/s of Marquette Woods Rd. East	606.80	606.84	475
5098	100' d/s S. Bonny Bruce Drive	607.35	607.42	415
5648	1875' u/s of Marquette Woods East	608.36	608.60	415
6123	Across North Teakwood Drive	609.68	609.78	415
7173	75' u/s North Cherry Drive	612.40	612.55	415
8423	Across Barbara Abb Drive	616.71	616.77	415
8475	1373' d/s of Cleveland Rd. South	616.85	617.07	415
8527	1321' d/s of Cleveland Rd. South	617.24	617.58	415
8579	1270' d/s of Cleveland Rd. South	617.81	617.83	110
8630	1219' d/s of Cleveland Rd. South	617.83	617.87	110
8836	1013' d/s of Cleveland Rd. South	618.12	618.36	110
9042	807' d/s of Cleveland Rd. South	619.36	619.53	110
9248	600' d/s of Cleveland Rd. South	620.37	620.55	110
9548	300' d/s of Cleveland Rd. South	622.42	622.80	110
9798	50' d/s of Cleveland Rd. South	624.35	624.58	110
9813	35' d/s of Cleveland Rd. South	624.47	624.66	110
9828	20' d/s of Cleveland Rd. South	624.54	624.72	110
9848	d/s face of Cleveland Rd. South	624.13	625.45	110
9913	u/s face of Cleveland Rd. South	628.38	628.64	110
9963	50' u/s of Cleveland Rd. South	628.71	628.73	110
10863	50' d/s of John Beers Rd.	629.04	629.14	110
10913	d/s face of John Beers Rd.	629.03	629.49	110
10973	u/s face of John Beers Rd.	630.42	630.68	110
11023	50' u/s of John Beers Rd.	630.77	630.81	110
11523	550' u/s of John Beers Rd.	631.11	631.15	110
11773	800' u/s of John Beers Rd.	631.30	631.35	110
12023	1050' u/s of John Beers Rd.	631.52	631.57	110
12133	1160' u/s of John Beers Rd.	631.63	631.64	110
12156	1183' u/s of JOhn Beers Rd.	631.64	631.65	110
12243	1270' u/s of John Beers Rd.	631.67	631.68	110
12353	1380' u/s of John Beers Rd.	631.71	631.72	110
12463	1490' u/s of John Beers Rd.	631.74	631.75	110
12573	1600' u/s of John Beers Rd.	631.78	631.79	110
12673	1710' u/s of John Beers Rd.	631.81	631.83	110
12773	1810' u/s of John Beers Rd.	631.87	631.89	110
12873	1910' u/s of John Beers Rd.	631.94	631.96	110
12973	2010' u/s of John Beers Rd.	632.03	632.05	110
13073	2110' u/s of John Beers Rd.	632.14	632.17	110
13173	2210' u/s of John Beers Rd.	632.26	632.29	110
13273	2310' u/s of John Beers Rd.	632.39	632.43	110
13373	2410' u/s of John Beers Rd.	632.54	632.58	110
13473	2510' u/s of John Beers Rd.	632.70	632.73	110
13573	2610' u/s of John Beers Rd.	632.84	632.89	110
13673	2710' u/s of John Beers Rd.	633.01	633.06	110
13773	2810' u/s of John Beers Rd.	633.19	633.24	110



1) COUNTY: Berrien

2) STUDY NAME: Lincoln Township

3) WATERCOURSE: Parker / Richardson Drain

4) DOCUMENT TYPE: 100-year



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$$$$$$$$$   $$$$$$$$   $$$$$$   $$$$$$$$   $$$$$$$$   $$$$$$$$$$   $$      $$   FJ35DQK
$$$$$$$$$   $$$$$$$$   $$$$$$   $$$$$$$$   $$$$$$$$   $$$$$$$$$$   $$      $$   FJ35DQK
$$              $$   $$    $$   $$         $$      $$   $$       $$   $$    $$   FJ35DQK
$$              $$   $$    $$   $$         $$      $$   $$       $$   $$    $$   FJ35DQK
$$$$$$$         $$        $$$   $$$$$$$   $$       $$   $$       $$   $$ $$     FJ35DQK
$$$$$$$         $$        $$$   $$$$$$$   $$       $$   $$       $$   $$ $$     FJ35DQK
$$              $$          $$         $$   $$       $$   $$   $$   $$   $$$$$$   FJ35DQK
$$              $$          $$         $$   $$       $$   $$   $$   $$   $$$$$$   FJ35DQK
$$          $$  $$   $$    $$         $$   $$       $$   $$$$$$$$$$   $$     $$   FJ35DQK
$$          $$  $$   $$    $$         $$   $$       $$   $$$$$$$$$$   $$     $$   FJ35DQK
$$          $$$$$$$    $$$$$$   $$$$$$$   $$$$$$$$         $$       $$       $$   FJ35DQK
$$          $$$$$$$    $$$$$$   $$$$$$$   $$$$$$$$         $$       $$       $$   FJ35DQK
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PARKER/RICHARDSON DRAIN
LINCOLN TWP. FE
J&A FILE NO. 5555-35
100 YR. FLOW
STARTING WITH HICKORY CREEK
FLOOD LEVELS.

NOV 09 '73

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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
**********************************************
     Parker Richardson Drain
     Lincoln Twp

T1
T2
T3

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       -0.      4.        -0.       -0. -0.000000     -0.00     -0.0      -0.    598.350   -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     4.000   425.000   655.000   725.000   890.000    -0.000    -0.000    -0.000    -0.000    -0.000

X1   155.000    12.000   173.000   200.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
X3    10.000    -0.000    -0.000   170.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
GR   622.900     0.000   596.700    53.000   594.800   131.000   597.600   145.000   597.100   173.000
GR   590.200   179.000   589.800   184.000   590.100   188.000   594.000   193.000   596.800   200.000
GR   599.200   226.000   599.300   240.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000

X1   177.000    -0.000    -0.000    -0.000    22.000    22.000    22.000    -0.000      .800    -0.000
X3    10.000    -0.000    -0.000   172.000    -0.000   204.000    -0.000    -0.000    -0.000    -0.000

X1   200.000    15.000   100.000   125.000    23.000    23.000    23.000    -0.000    -0.000    -0.000
X3    10.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000   597.500   597.500    -0.000
GR   609.100     0.000   602.400    50.000   600.900    75.000   599.400   100.000   597.700   100.000
GR   596.700   104.000   594.200   106.000   592.000   111.000   591.400   113.000   592.000   118.000
GR   592.800   121.000   597.300   125.000   598.800   125.000   598.700   145.000   599.500   171.000
SB    -0.000     1.900     2.650    -0.000     4.000    -0.000    88.500     1.500   591.400   591.400

X1   214.000    16.000   100.000   125.000    14.000    14.000    14.000    -0.000    -0.000    -0.000
X2    -0.000    -0.000     1.000   597.500   599.000    -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   598.700   598.700    -0.000
BT    14.000     0.000   609.100     0.000    50.000   602.400     0.000    75.000   600.900     0.000
BT   100.000   599.400     0.000   103.000   599.400   597.500   103.200   599.300   597.500   105.000
BT   599.300   597.500   110.000   599.200   597.400   113.000   599.100   597.400   117.000   599.000
BT   597.300   120.000   598.900   597.300   125.000   598.800   597.300   145.000   598.700     0.000
BT   171.000   599.500     0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
GR   609.100     0.000   602.400    50.000   600.900    75.000   599.400   100.000   598.200   100.000
GR   597.800   103.000   597.500   103.200   594.600   105.000   592.500   110.000   591.400   113.000
GR   592.100   117.000   596.000   120.000   597.600   125.000   598.800   125.000   598.700   145.000
GR   599.500   171.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000

X1   248.000    90.000    87.000   112.000    25.000    50.000    34.000    -0.000    -0.000    -0.000
X3    10.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
GR   609.000     0.000   608.400     3.000   607.800     6.000   607.200     9.000   606.700    11.900
GR   606.100    14.900   605.500    17.900   604.900    20.900   604.300    23.900   603.800    26.900
GR   603.200    29.900   602.700    32.900   602.200    35.900   601.800    38.900   601.400    41.900
GR   601.100    44.900   600.900    47.900   600.800    50.900   600.700    53.900   600.600    56.900
GR   600.500    59.900   600.400    62.900   600.300    65.900   600.200    68.900   600.000    71.900
GR   599.900    74.900   599.700    77.900   599.500    80.900   599.300    83.900   599.200    87.000
GR   597.900    87.000   597.600    87.800   597.400    88.700   597.100    89.600   596.300    90.500
GR   595.100    91.400   594.200    92.300   593.800    93.200   593.400    94.100   593.100    95.000
```

GR	592.700	95.900	592.300	96.800	592.000	97.700	591.800	98.600	591.500	99.500
GR	591.500	100.300	591.700	101.200	591.900	102.100	592.100	103.000	592.400	103.900
GR	593.200	104.800	594.200	105.700	595.100	106.600	596.400	107.500	596.600	108.400
GR	596.900	109.300	597.000	110.200	597.300	111.100	598.100	111.900	598.800	112.000
GR	598.700	114.400	598.700	116.900	598.700	119.400	598.800	121.900	598.800	124.400
GR	598.800	126.900	598.800	129.400	598.800	131.900	598.800	134.400	598.800	136.900
GR	598.800	139.400	598.800	141.800	598.800	144.300	598.800	146.800	598.900	149.300
GR	599.000	151.800	599.100	154.300	599.200	156.800	599.300	159.300	599.400	161.800
GR	599.400	164.300	599.500	166.800	599.500	169.300	599.500	171.700	599.500	174.200
GR	599.600	176.700	599.600	179.200	599.600	181.700	599.600	184.200	599.700	186.700
X1	282.000	90.000	74.000	99.000	25.000	50.000	34.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	609.000	0.000	608.300	2.500	607.600	5.100	606.900	7.600	606.200	10.200
GR	605.500	12.700	604.800	15.300	604.100	17.800	603.400	20.400	602.700	22.900
GR	602.000	25.500	601.400	28.000	601.000	30.600	600.700	33.100	600.300	35.700
GR	600.000	38.200	599.900	40.800	599.900	43.300	599.800	45.900	599.800	48.400
GR	599.800	51.000	599.800	53.500	599.800	56.100	599.800	58.600	599.700	61.200
GR	599.600	63.700	599.400	66.300	599.300	68.800	599.100	71.400	599.000	74.000
GR	597.600	74.000	597.300	74.800	596.900	75.700	596.600	76.600	595.900	77.500
GR	594.900	78.400	594.100	79.300	593.600	80.200	593.200	81.100	592.900	82.000
GR	592.500	82.900	592.200	83.800	591.900	84.700	591.700	85.600	591.600	86.400
GR	591.600	87.300	591.800	88.200	592.100	89.100	592.400	90.000	592.700	90.900
GR	593.300	91.800	594.000	92.700	594.600	93.600	596.700	94.500	596.900	95.400
GR	597.100	96.300	597.100	97.200	597.400	98.100	597.600	98.900	598.800	99.000
GR	598.800	102.400	598.800	105.800	598.800	109.300	598.900	112.700	598.900	116.200
GR	598.900	119.600	598.900	123.100	598.900	126.500	598.900	130.000	598.900	133.400
GR	598.900	136.900	598.900	140.300	598.900	143.800	598.900	147.200	599.100	150.700
GR	599.200	154.100	599.400	157.600	599.600	161.000	599.700	164.500	599.900	167.900
GR	599.900	171.400	599.900	174.800	599.900	178.300	599.900	181.700	599.900	185.200
GR	599.900	188.600	599.900	192.100	599.900	195.500	599.900	199.000	599.900	202.500
X1	316.000	90.000	61.000	86.000	25.000	50.000	34.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	609.000	0.000	608.100	2.100	607.300	4.200	606.500	6.300	605.700	8.400
GR	604.900	10.500	604.100	12.600	603.200	14.700	602.400	16.800	601.600	18.900
GR	600.800	21.000	600.100	23.100	599.800	25.200	599.500	27.300	599.200	29.400
GR	598.900	31.500	598.800	33.600	598.900	35.700	598.900	37.800	599.000	39.900
GR	599.100	42.000	599.200	44.100	599.300	46.200	599.300	48.300	599.300	50.400
GR	599.300	52.500	599.100	54.600	599.100	56.700	598.900	58.800	598.800	61.000
GR	597.300	61.000	596.900	61.800	596.400	62.700	595.900	63.600	595.300	64.500
GR	594.600	65.400	593.900	66.300	593.400	67.200	592.900	68.100	592.600	69.000
GR	592.300	69.900	592.000	70.800	591.700	71.700	591.600	72.600	591.700	73.400
GR	591.700	74.300	591.900	75.200	592.300	76.100	592.600	77.000	593.000	77.900
GR	593.400	78.800	593.800	79.700	594.200	80.600	597.000	81.500	597.100	82.400
GR	597.200	83.300	597.200	84.200	597.400	85.100	598.200	85.900	598.800	86.000
GR	598.800	90.400	598.800	94.800	598.800	99.200	598.900	103.600	599.000	108.000
GR	599.000	112.400	599.000	116.800	599.000	121.200	599.000	125.600	599.000	130.000
GR	599.000	134.400	599.000	138.800	599.000	143.300	599.000	147.700	599.200	152.100
GR	599.400	156.500	599.700	160.900	599.900	165.300	600.100	169.700	600.300	174.100
GR	600.300	178.500	600.300	182.900	600.300	187.300	600.300	191.700	600.200	196.200
GR	600.200	200.600	600.200	205.000	600.200	209.400	600.100	213.800	600.100	218.200
X1	350.000	21.000	48.000	73.000	25.000	50.000	34.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	609.000	0.000	598.900	18.000	597.700	26.000	599.100	39.000	598.900	45.000
GR	598.600	48.000	597.100	48.000	592.800	55.000	591.600	59.000	592.000	62.000
GR	593.400	65.000	593.900	69.000	597.400	68.000	597.500	70.500	597.200	70.500
GR	597.800	73.000	598.800	73.000	599.100	98.000	599.200	148.000	600.900	181.000
GR	600.400	234.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	2.040	2.500	-0.000	20.000	-0.000	80.200	-0.000	591.600	591.600
X1	375.000	-0.000	-0.000	-0.000	25.000	25.000	25.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	-0.000	-0.000	-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	-0.000	-0.000	-0.000
RT	17.000	0.000	609.000	0.000	18.000	598.900	0.000	26.000	597.700	0.000

BT	39.000	599.100	0.000	45.000	598.900	0.000	48.000	598.600	597.300	55.000
BT	598.700	597.400	59.000	598.700	597.400	62.000	598.700	597.400	65.000	598.700
BT	597.400	68.000	598.700	597.400	70.500	598.800	-0.000	73.000	598.800	-0.000
BT	98.000	599.100	0.000	148.000	599.200	0.000	181.000	600.900	0.000	234.000
BT	600.400	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.040	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	675.000	17.000	123.000	140.000	200.000	350.000	300.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	624.300	0.000	599.500	45.000	595.900	98.000	595.800	123.000	592.300	127.000
GR	592.200	132.000	592.000	135.000	595.400	140.000	595.900	165.000	596.500	240.000
GR	596.900	265.000	603.300	313.000	603.400	340.000	602.900	426.000	602.700	440.000
GR	603.400	448.000	634.100	511.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1050.000	24.000	236.000	273.000	300.000	400.000	375.000	-0.000	-.400	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	623.200	0.000	609.400	34.000	608.400	40.000	601.500	64.000	600.900	73.000
GR	598.000	173.000	597.300	224.000	599.300	228.000	599.100	236.000	597.400	240.000
GR	597.100	245.000	593.100	249.000	592.900	253.000	593.700	257.000	595.600	260.000
GR	596.900	266.000	601.500	273.000	602.600	283.000	603.800	323.000	603.800	373.000
GR	603.500	473.000	603.500	573.000	602.500	673.000	602.700	773.000	-0.000	-0.000
X1	1325.000	24.000	236.000	273.000	100.000	300.000	275.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	228.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	623.200	0.000	609.400	34.000	608.400	40.000	601.500	64.000	600.900	73.000
GR	598.000	173.000	597.300	224.000	599.300	228.000	599.100	236.000	597.400	240.000
GR	597.100	245.000	593.100	249.000	592.900	253.000	593.700	257.000	595.600	260.000
GR	596.900	266.000	601.500	273.000	602.600	283.000	603.800	323.000	603.800	373.000
GR	603.500	473.000	603.500	573.000	602.500	673.000	602.700	773.000	599.200	873.000
X1	1350.000	-0.000	-0.000	-0.000	25.000	25.000	25.000	-0.000	-.800	-0.000
X3	10.000	-0.000	-0.000	245.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1375.000	44.000	244.900	260.100	25.000	25.000	25.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	27.000	-0.000	573.000	-0.000	601.200	601.200	-0.000
GR	623.200	0.000	611.900	27.000	609.400	34.000	608.400	40.000	604.900	52.000
GR	601.500	64.000	600.900	73.000	598.600	152.000	598.000	173.000	597.600	200.000
GR	597.600	202.000	597.300	224.000	599.300	228.000	599.100	236.000	597.400	240.000
GR	597.100	244.900	593.600	244.900	593.000	245.300	592.400	246.100	592.000	247.500
GR	591.800	248.700	591.600	250.100	591.400	251.700	591.400	253.300	591.600	254.900
GR	591.800	256.300	592.000	257.500	592.400	258.900	593.000	259.700	594.400	260.100
GR	596.900	266.000	601.500	273.000	602.600	283.000	603.200	302.500	603.800	323.000
GR	603.800	352.500	603.800	373.000	603.600	452.500	603.500	473.000	603.500	552.500
GR	603.500	573.000	603.200	621.000	602.500	673.000	602.900	773.000	-0.000	-0.000
SB	-0.000	2.220	2.800	-0.000	9.250	-0.000	109.000	-0.000	591.400	591.400
X1	1418.000	-0.000	-0.000	-0.000	43.000	43.000	43.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	600.800	603.500	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	27.000	-0.000	573.000	-0.000	603.500	603.500	-0.000
BT	23.000	27.000	612.100	-0.000	52.000	610.900	-0.000	152.000	606.000	-0.000
BT	202.000	605.000	-0.000	244.900	604.500	597.100	245.300	604.500	595.600	246.100
BT	604.500	597.200	247.500	604.500	598.800	248.700	604.500	599.600	250.100	604.500
BT	600.200	251.700	604.500	600.800	253.300	604.500	600.800	254.900	604.500	600.200
BT	256.300	604.500	599.600	257.500	604.500	598.800	258.900	604.500	597.200	259.700
BT	604.500	595.600	260.100	604.500	594.400	302.500	604.400	-0.000	352.500	604.300
BT	0.000	452.500	603.900	-0.000	552.500	603.600	-0.000	573.000	603.500	-0.000
X1	1423.000	15.000	141.000	160.000	5.000	10.000	5.000	-0.000	-.300	-0.000
X3	10.000	-0.000	-0.000	138.000	-0.000	163.000	-0.000	-0.000	-0.000	-0.000
GR	621.100	0.000	601.400	31.000	599.400	60.000	598.100	120.000	598.300	141.000
GR	593.200	142.000	592.400	145.000	591.900	147.000	591.700	152.000	591.800	158.000
GR	597.600	160.000	598.300	185.000	597.800	260.000	598.100	301.000	623.500	358.000
X1	1428.000	-0.000	-0.000	-0.000	5.000	10.000	5.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	135.000	-0.000	170.000	-0.000	-0.000	-0.000	-0.000

X1	1443.000	-0.000	-0.000	-0.000	10.000	20.000	15.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	120.000	-0.000	185.000	-0.000	-0.000	-0.000	-0.000
X1	1468.000	-0.000	-0.000	-0.000	20.000	40.000	25.000	-0.000	.200	-0.000
X3	10.000	-0.000	-0.000	95.000	-0.000	210.000	-0.000	-0.000	-0.000	-0.000
X1	1568.000	-0.000	-0.000	-0.000	135.000	55.000	100.000	-0.000	.800	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1868.000	15.000	141.000	160.000	500.000	200.000	300.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	621.100	0.000	601.400	31.000	599.400	60.000	598.100	120.000	598.300	141.000
GR	596.400	142.000	595.900	145.000	595.100	147.000	594.900	152.000	595.000	158.000
GR	597.600	160.000	598.300	185.000	597.800	260.000	598.100	301.000	623.500	358.000
X1	2343.000	14.000	92.000	111.000	450.000	500.000	475.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	620.600	0.000	600.100	31.000	600.700	75.000	599.500	92.000	597.600	94.000
GR	597.500	100.000	595.800	103.000	595.700	106.000	599.200	111.000	599.600	142.000
GR	599.300	192.000	600.000	292.000	600.800	304.000	621.600	347.000	-0.000	-0.000
NC	.080	.040	.042	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2368.000	14.000	92.000	111.000	75.000	1.000	25.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	85.000	-0.000	120.000	-0.000	-0.000	-0.000	-0.000
GR	620.600	0.000	600.100	31.000	600.700	75.000	599.500	92.000	597.600	94.000
GR	597.500	100.000	595.800	103.000	595.700	106.000	599.200	111.000	599.600	142.000
GR	599.300	192.000	600.000	292.000	600.800	304.000	621.600	347.000	-0.000	-0.000
QT	4.000	275.000	420.000	475.000	585.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2398.000	-0.000	-0.000	-0.000	50.000	25.000	30.000	-0.000	.400	-0.000
X3	10.000	-0.000	-0.000	90.000	-0.000	111.000	-0.000	-0.000	-0.000	-0.000
X1	2410.000	-0.000	-0.000	-0.000	30.000	10.000	12.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	92.000	-0.000	109.000	-0.000	-0.000	-0.000	-0.000
X1	2422.000	18.000	300.000	315.800	20.000	10.000	12.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	617.300	0.000	614.500	100.000	610.800	200.000	609.100	250.000	607.400	300.000
GR	598.500	300.000	597.800	306.000	596.600	308.000	596.400	315.800	606.900	315.800
GR	605.900	350.000	604.500	400.000	603.000	500.000	603.400	600.000	603.400	603.000
GR	605.300	700.000	608.800	800.000	612.100	900.000	-0.000	-0.000	-0.000	-0.000
NC	-0.000	-0.000	.020	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2423.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	-0.000	605.100	604.500	-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	-0.000	-0.000	-0.000
BT	16.000	0.000	617.300	0.000	100.000	614.500	0.000	200.000	610.800	0.000
BT	250.000	609.100	0.000	300.000	607.400	605.100	306.000	607.200	605.100	308.000
BT	607.100	605.000	315.800	606.900	604.900	350.000	605.900	0.000	400.000	604.500
BT	0.000	500.000	603.000	0.000	600.000	603.400	0.000	603.000	603.400	0.000
BT	700.000	605.300	0.000	800.000	608.800	0.000	900.000	612.100	0.000	-0.000
X1	2453.000	18.000	300.000	315.800	30.000	30.000	30.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	-0.000	605.200	604.500	-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	-0.000	-0.000	-0.000
BT	16.000	0.000	617.300	0.000	100.000	614.500	0.000	200.000	610.800	0.000
BT	250.000	609.100	0.000	300.000	607.400	605.200	310.000	607.100	605.000	312.000
BT	607.000	604.900	315.800	606.900	604.900	350.000	605.900	0.000	400.000	604.500
BT	0.000	500.000	603.000	0.000	600.000	603.400	0.000	603.000	603.400	0.000
BT	700.000	605.300	0.000	800.000	608.800	0.000	900.000	612.100	0.000	-0.000
GR	617.300	0.000	614.500	100.000	610.800	200.000	609.100	250.000	607.400	300.000
GR	597.400	300.000	597.000	310.000	596.300	312.000	595.700	315.800	606.900	315.800
GR	605.900	350.000	604.500	400.000	603.000	500.000	603.400	600.000	603.400	603.000
GR	605.300	700.000	608.800	800.000	612.100	900.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.042	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

X1	2454.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2460.000	14.000	92.000	111.000	6.000	6.000	6.000	-0.000	1.600	-0.000
X3	10.000	-0.000	-0.000	87.000	-0.000	115.000	-0.000	-0.000	-0.000	-0.000
GR	620.600	0.000	600.100	31.000	600.700	75.000	599.500	92.000	596.000	94.000
GR	595.900	100.000	594.200	103.000	594.100	106.000	599.200	111.000	599.600	142.000
GR	599.300	192.000	600.000	292.000	600.800	304.000	621.600	347.000	-0.000	-0.000
X1	2466.000	-0.000	-0.000	-0.000	6.000	6.000	6.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	82.000	-0.000	122.000	-0.000	-0.000	-0.000	-0.000
X1	2472.000	-0.000	-0.000	-0.000	6.000	6.000	6.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	76.000	-0.000	128.000	-0.000	-0.000	-0.000	-0.000
X1	2481.000	-0.000	-0.000	-0.000	9.000	9.000	9.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	68.000	-0.000	138.000	-0.000	-0.000	-0.000	-0.000
X1	2501.000	-0.000	-0.000	-0.000	20.000	20.000	20.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	47.000	-0.000	159.000	-0.000	-0.000	-0.000	-0.000
X1	2529.000	-0.000	-0.000	-0.000	35.000	20.000	28.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	187.000	-0.000	-0.000	-0.000	-0.000
X1	2804.000	17.000	251.000	274.000	275.000	250.000	275.000	-0.000	-.700	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	626.400	0.000	607.900	37.000	608.100	156.000	609.100	176.000	608.400	196.000
GR	604.900	222.000	603.600	251.000	598.200	257.000	597.300	262.000	597.500	268.000
GR	602.300	274.000	603.500	287.000	606.300	298.000	606.900	352.000	607.000	360.000
GR	607.100	380.000	623.600	422.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3079.000	-0.000	-0.000	-0.000	275.000	250.000	275.000	-0.000	.600	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3354.000	-0.000	-0.000	-0.000	275.000	250.000	275.000	-0.000	.700	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.045	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3628.000	17.000	251.000	274.000	275.000	250.000	274.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	626.400	0.000	607.900	37.000	608.100	156.000	609.100	176.000	608.400	196.000
GR	604.900	222.000	604.100	251.000	599.500	257.000	598.600	262.000	598.800	268.000
GR	602.300	274.000	603.500	287.000	606.300	298.000	606.900	352.000	607.000	360.000
GR	607.100	380.000	623.600	422.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3661.000	-0.000	-0.000	-0.000	100.000	17.000	33.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	240.000	-0.000	285.000	-0.000	-0.000	-0.000	-0.000
X1	3694.000	-0.000	-0.000	-0.000	100.000	17.000	33.000	-0.000	.200	-0.000
X3	10.000	-0.000	-0.000	253.000	-0.000	282.000	-0.000	-0.000	-0.000	-0.000
X1	3711.000	-0.000	-0.000	-0.000	50.000	7.000	17.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	252.000	-0.000	273.000	-0.000	-0.000	-0.000	-0.000
X1	3719.000	-0.000	-0.000	-0.000	25.000	5.000	8.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	254.000	-0.000	271.000	-0.000	-0.000	-0.000	-0.000
X1	3727.000	32.000	788.000	800.500	24.000	4.000	8.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	621.600	0.000	616.000	100.000	610.800	200.000	608.500	300.000	608.300	400.000
GR	608.800	500.000	608.800	600.000	609.300	700.000	609.500	750.000	609.400	788.000
GR	601.300	788.000	600.500	788.200	599.900	789.000	599.500	790.200	599.200	791.800
GR	599.000	793.400	599.000	795.000	599.200	796.600	599.500	798.200	599.900	799.400
GR	600.500	800.200	601.300	800.500	609.300	800.500	609.200	850.000	609.000	900.000
GR	608.900	950.000	609.400	1000.000	612.600	1100.000	617.400	1187.000	618.200	1200.000
GR	622.300	1300.000	624.000	1400.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

NC	-0.000	-0.000	.040	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3728.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
BT	30.000	0.000	621.600	0.000	100.000	616.000	0.000	200.000	610.800	0.000
BT	300.000	608.500	0.000	400.000	608.300	0.000	500.000	608.800	0.000	600.000
BT	608.800	0.000	700.000	609.300	0.000	750.000	609.500	0.000	788.000	609.400
BT	601.300	788.200	609.400	602.500	789.000	609.400	604.100	790.200	609.400	605.500
BT	791.800	609.400	606.500	793.400	609.400	606.900	795.000	609.300	606.900	796.600
BT	609.300	606.500	798.200	609.300	605.500	799.400	609.300	604.100	800.200	609.300
BT	602.500	800.500	609.300	601.300	850.000	609.200	0.000	900.000	609.000	0.000
BT	950.000	608.900	0.000	1000.000	609.400	0.000	1100.000	612.600	0.000	1187.000
BT	617.400	0.000	1200.000	618.200	0.000	1300.000	622.300	0.000	1400.000	624.000
BT	0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3773.000	-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	-0.000	-0.000	-0.000	1.000	-0.000	-0.000	-0.000
X3	1000.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.045	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3774.000	-0.000	-0.000	-0.000	1.000	1.000	1.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3779.000	13.000	104.000	126.000	5.000	5.000	5.000	-0.000	-2.100	-0.000
X3	10.000	-0.000	-0.000	104.000	-0.000	126.000	-0.000	-0.000	-0.000	-0.000
GR	622.800	0.000	605.800	33.000	605.000	54.000	604.700	104.000	601.600	107.000
GR	601.100	111.000	601.300	115.000	603.300	121.000	604.900	126.000	604.400	154.000
GR	605.000	204.000	606.500	263.000	627.300	315.000	-0.000	-0.000	-0.000	-0.000
X1	3784.000	-0.000	-0.000	-0.000	5.000	5.000	5.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	99.000	-0.000	131.000	-0.000	-0.000	-0.000	-0.000
X1	3794.000	-0.000	-0.000	-0.000	10.000	10.000	10.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	89.000	-0.000	141.000	-0.000	-0.000	-0.000	-0.000
X1	3804.000	-0.000	-0.000	-0.000	10.000	10.000	10.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	79.000	-0.000	151.000	-0.000	-0.000	-0.000	-0.000
X1	3823.000	-0.000	-0.000	-0.000	19.000	19.000	19.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	57.000	-0.000	169.000	-0.000	-0.000	-0.000	-0.000
X1	3873.000	-0.000	-0.000	-0.000	3.000	100.000	50.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	240.000	-0.000	-0.000	-0.000	-0.000
X1	3923.000	-0.000	-0.000	-0.000	4.000	100.000	50.000	-0.000	.200	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.080	.080	.045	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4423.000	13.000	104.000	126.000	550.000	500.000	500.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	622.800	0.000	605.800	33.000	605.000	54.000	604.700	104.000	601.600	107.000
GR	601.100	111.000	601.300	115.000	603.300	121.000	604.900	126.000	604.400	154.000
GR	605.000	204.000	606.500	263.000	627.300	315.000	-0.000	-0.000	-0.000	-0.000
NC	.050	.075	.040	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
QT	4.000	240.000	370.000	415.000	515.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5098.000	12.000	146.000	165.000	700.000	500.000	675.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	623.700	0.000	607.700	43.000	605.300	96.000	606.000	146.000	604.300	154.000
GR	603.100	155.000	602.900	160.000	603.000	165.000	605.800	170.000	606.200	204.000
GR	608.300	231.000	623.100	276.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	5648.000	14.000	230.000	260.000	550.000	550.000	550.000	-0.000	-1.100	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	260.000	-0.000	-0.000	-0.000	-0.000
GR	623.000	0.000	610.400	58.000	608.900	147.000	609.200	197.000	608.300	230.000
GR	607.200	244.000	606.500	247.000	605.600	248.000	605.300	253.000	605.700	259.000

GR	607.800	260.000	607.900	272.000	608.600	295.000	623.500	338.000	-0.000	-0.000
NC	.080	.040	.040	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	6123.000	14.000	230.000	260.000	525.000	425.000	475.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	623.000	0.000	610.400	58.000	608.900	147.000	609.200	197.000	608.300	230.000
GR	607.200	244.000	606.500	247.000	605.600	248.000	605.300	253.000	605.700	259.000
GR	607.800	260.000	607.900	272.000	608.600	295.000	623.500	338.000	-0.000	-0.000
NC	.075	.040	.042	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	7173.000	23.000	767.000	819.000	850.000	1050.000	1050.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	627.600	0.000	626.700	100.000	625.200	200.000	624.000	300.000	623.100	400.000
GR	622.700	500.000	623.600	600.000	623.600	700.000	623.400	714.000	615.600	767.000
GR	613.000	777.000	610.900	800.000	609.100	802.000	609.000	804.000	609.600	809.000
GR	610.300	811.000	610.600	817.000	611.300	819.000	611.200	850.000	612.000	900.000
GR	614.800	980.000	625.300	1015.000	625.900	1100.000	-0.000	-0.000	-0.000	-0.000
NC	.075	.075	.042	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	8423.000	28.000	790.000	800.000	1350.000	950.000	1250.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	627.300	0.000	627.200	100.000	626.900	200.000	626.500	300.000	626.200	415.000
GR	627.800	500.000	627.200	535.000	621.800	570.000	619.600	610.000	615.400	659.000
GR	615.300	700.000	615.800	750.000	615.100	790.000	613.700	791.000	613.500	795.000
GR	614.000	797.000	615.100	800.000	615.900	887.000	618.200	900.000	622.900	916.000
GR	624.100	934.000	623.900	1000.000	624.000	1100.000	624.500	1200.000	625.300	1300.000
GR	625.900	1400.000	626.300	1500.000	626.700	1600.000	-0.000	-0.000	-0.000	-0.000
X1	8475.000	90.000	790.600	801.400	72.000	25.000	52.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	682.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	627.300	0.000	627.200	27.200	627.200	54.500	627.200	81.700	627.100	109.000
GR	627.100	136.300	627.100	163.500	627.000	190.800	626.900	218.000	626.800	245.300
GR	626.600	272.600	626.500	299.800	626.500	327.100	626.400	354.400	626.300	381.600
GR	626.300	408.900	626.600	436.100	627.100	463.400	627.600	490.700	627.400	517.900
GR	625.700	545.200	622.000	572.500	620.600	599.700	618.700	627.000	616.500	654.200
GR	616.100	681.500	616.000	708.800	616.300	736.000	616.000	763.300	615.400	790.600
GR	614.900	790.900	614.400	791.300	614.000	791.600	613.900	792.000	613.900	792.300
GR	613.800	792.700	613.800	793.100	613.800	793.400	613.800	793.800	613.700	794.100
GR	613.700	794.500	613.700	794.900	613.700	795.200	613.700	795.600	613.700	795.900
GR	613.700	796.300	613.800	796.700	613.900	797.000	614.000	797.400	614.100	797.700
GR	614.200	798.100	614.400	798.500	614.500	798.800	614.600	799.200	614.700	799.500
GR	614.900	799.900	615.000	800.300	615.100	800.600	615.200	801.000	615.400	801.400
GR	615.700	827.800	615.900	854.200	616.300	880.600	620.400	907.000	624.100	933.400
GR	624.200	959.800	624.100	986.200	624.100	1012.600	624.100	1039.100	624.100	1065.500
GR	624.100	1091.900	624.200	1118.300	624.400	1144.700	624.500	1171.100	624.600	1197.500
GR	624.800	1223.900	625.000	1250.300	625.200	1276.800	625.400	1303.200	625.500	1329.600
GR	625.700	1356.000	625.800	1382.400	625.700	1408.800	625.800	1435.200	625.900	1461.600
GR	626.000	1488.100	626.000	1514.500	626.100	1540.900	626.200	1567.300	626.400	1593.700
X1	8527.000	90.000	791.200	802.800	72.000	25.000	52.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	689.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	627.400	0.000	627.300	27.200	627.300	54.500	627.300	81.800	627.200	109.100
GR	627.200	136.400	627.200	163.700	627.100	190.900	627.000	218.200	626.900	245.500
GR	626.700	272.800	626.600	300.100	626.600	327.400	626.600	354.600	626.500	381.900
GR	626.500	409.200	626.700	436.500	627.200	463.800	627.700	491.100	627.500	518.400
GR	625.900	545.600	622.400	572.900	621.100	600.200	619.400	627.500	617.300	654.800
GR	616.900	682.100	616.800	709.300	617.000	736.600	616.500	763.900	615.700	791.200
GR	615.200	791.600	614.700	792.000	614.300	792.400	614.200	792.700	614.200	793.100
GR	614.100	793.500	614.100	793.900	614.100	794.300	614.100	794.700	614.000	795.100
GR	614.000	795.500	614.000	795.800	614.000	796.200	614.000	796.600	614.000	797.000
GR	614.000	797.400	614.100	797.800	614.200	798.200	614.300	798.500	614.400	798.900
GR	614.500	799.300	614.700	799.700	614.800	800.100	615.000	800.500	615.100	800.900
GR	615.300	801.300	615.400	801.600	615.500	802.000	615.600	802.400	615.800	802.800
GR	616.100	829.000	616.400	855.100	616.800	881.300	620.800	907.400	624.300	933.600
GR	624.400	959.700	624.300	985.900	624.300	1012.000	624.300	1038.200	624.300	1064.300
GR	624.300	1090.500	624.500	1116.700	624.600	1142.800	624.700	1169.000	624.800	1195.100

GR	625.000	1221.300	625.200	1247.400	625.400	1273.600	625.500	1299.700	625.700	1325.900
GR	625.800	1352.100	625.800	1378.200	625.600	1404.400	625.700	1430.500	625.700	1456.700
GR	625.800	1482.800	625.800	1509.000	625.900	1535.100	626.000	1561.300	626.100	1587.500
QT	4.000	56.000	97.000	110.000	125.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	8579.000	90.000	791.800	804.200	72.000	25.000	52.000	-0.000	.100	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	627.400	0.000	627.300	27.300	627.300	54.600	627.300	81.900	627.300	109.200
GR	627.300	136.500	627.300	163.800	627.200	191.100	627.000	218.400	626.900	245.700
GR	626.700	273.000	626.700	300.300	626.700	327.600	626.700	354.900	626.600	382.200
GR	626.600	409.500	626.800	436.800	627.300	464.100	627.700	491.400	627.500	518.700
GR	626.000	546.100	622.800	573.400	621.600	600.700	620.000	628.000	618.100	655.300
GR	617.700	682.600	617.600	709.900	617.700	737.200	617.000	764.500	616.000	791.800
GR	615.500	792.200	615.000	792.600	614.600	793.000	614.500	793.500	614.400	793.900
GR	614.400	794.300	614.400	794.700	614.400	795.100	614.300	795.500	614.300	795.900
GR	614.300	796.300	614.300	796.800	614.300	797.200	614.300	797.600	614.300	798.000
GR	614.300	798.400	614.300	798.800	614.400	799.200	614.600	799.700	614.700	800.100
GR	614.800	800.500	615.000	800.900	615.100	801.300	615.300	801.700	615.400	802.100
GR	615.600	802.500	615.700	803.000	615.800	803.400	615.900	803.800	616.100	804.200
GR	616.500	830.100	616.800	856.000	617.300	881.900	621.100	907.800	624.400	933.700
GR	624.500	959.600	624.500	985.500	624.500	1011.400	624.500	1037.300	624.500	1063.200
GR	624.500	1089.100	624.600	1115.000	624.800	1140.900	624.900	1166.800	625.000	1192.700
GR	625.100	1218.600	625.300	1244.500	625.500	1270.400	625.600	1296.300	625.800	1322.200
GR	625.900	1348.100	625.700	1374.000	625.500	1399.900	625.500	1425.800	625.500	1451.700
GR	625.500	1477.600	625.500	1503.500	625.600	1529.400	625.700	1555.300	625.800	1581.200
X1	8630.000	90.000	792.500	805.700	72.000	25.000	51.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	627.500	0.000	627.400	27.300	627.400	54.600	627.400	81.900	627.400	109.300
GR	627.400	136.600	627.400	163.900	627.400	191.200	627.200	218.600	627.100	245.900
GR	626.900	273.200	626.800	300.600	626.900	327.900	626.900	355.200	626.800	382.500
GR	626.800	409.900	627.000	437.200	627.400	464.500	627.800	491.800	627.600	519.200
GR	626.300	546.500	623.300	573.800	622.200	601.200	620.700	628.500	618.900	655.800
GR	618.500	683.100	618.400	710.500	618.500	737.800	617.600	765.100	616.400	792.500
GR	615.900	792.900	615.500	793.300	615.000	793.800	614.900	794.200	614.800	794.700
GR	614.700	795.100	614.700	795.500	614.700	796.000	614.700	796.400	614.600	796.900
GR	614.600	797.300	614.600	797.700	614.600	798.200	614.600	798.600	614.600	799.100
GR	614.600	799.500	614.700	800.000	614.800	800.400	614.900	800.800	615.000	801.300
GR	615.100	801.700	615.400	802.200	615.500	802.600	615.700	803.000	615.800	803.500
GR	616.000	803.900	616.100	804.400	616.200	804.800	616.300	805.300	616.500	805.700
GR	616.900	831.300	617.400	857.000	617.900	882.600	621.500	908.300	624.700	933.900
GR	624.800	959.500	624.700	985.200	624.800	1010.800	624.800	1036.500	624.800	1062.100
GR	624.800	1087.800	624.900	1113.400	625.000	1139.000	625.100	1164.700	625.200	1190.300
GR	625.400	1216.000	625.500	1241.600	625.700	1267.200	625.800	1292.900	626.000	1318.500
GR	626.100	1344.200	625.800	1369.800	625.400	1395.500	625.400	1421.100	625.400	1446.700
GR	625.400	1472.400	625.400	1498.000	625.400	1523.700	625.500	1549.300	625.600	1575.000
X1	8836.000	90.000	795.000	811.500	288.000	100.000	206.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	627.700	0.000	627.700	27.400	627.700	54.800	627.700	82.200	627.700	109.600
GR	627.800	137.000	627.800	164.400	627.900	191.800	627.700	219.300	627.500	246.700
GR	627.300	274.100	627.100	301.500	627.400	328.900	627.600	356.300	627.500	383.700
GR	627.400	411.200	627.500	438.600	627.700	466.000	628.000	493.400	627.900	520.800
GR	627.000	548.200	625.000	575.600	624.300	603.100	623.300	630.500	622.100	657.900
GR	621.800	685.300	621.600	712.700	621.400	740.100	619.800	767.500	617.800	795.000
GR	617.300	795.500	616.900	796.000	616.500	796.600	616.300	797.100	616.100	797.700
GR	615.900	798.200	615.800	798.800	615.800	799.300	615.800	799.900	615.800	800.400
GR	615.800	801.000	615.800	801.500	615.800	802.100	615.800	802.600	615.800	803.200
GR	615.800	803.700	615.900	804.300	616.000	804.800	616.000	805.400	616.100	805.900
GR	616.200	806.500	616.700	807.000	616.900	807.600	617.100	808.100	617.200	808.700
GR	617.400	809.200	617.500	809.800	617.700	810.300	617.800	810.900	618.000	811.500
GR	618.500	836.100	619.300	860.700	620.100	885.300	623.000	909.900	625.500	934.500
GR	625.600	959.100	625.600	983.800	625.700	1008.400	625.700	1033.000	625.800	1057.600
GR	625.800	1082.200	625.800	1106.800	625.900	1131.500	626.000	1156.100	626.000	1180.700
GR	626.100	1205.300	626.200	1229.900	626.300	1254.500	626.400	1279.200	626.500	1303.800
GR	626.600	1328.400	625.800	1353.000	624.900	1377.600	624.800	1402.200	624.700	1426.900

GR	624.600	1451.500	624.600	1476.100	624.500	1500.700	624.500	1525.300	624.500	1550.000
X1	9042.000	90.000	797.500	817.200	288.000	100.000	206.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	627.900	0.000	627.900	27.500	627.900	55.000	627.900	82.500	628.000	109.900
GR	628.100	137.500	628.200	164.900	628.400	192.400	628.200	219.900	627.900	247.400
GR	627.600	274.900	627.400	302.400	627.900	329.900	628.200	357.400	628.100	384.900
GR	628.000	412.400	627.900	439.900	628.000	467.400	628.200	494.900	628.100	522.400
GR	627.700	549.900	626.700	577.400	626.300	604.900	625.800	632.400	625.200	659.900
GR	625.000	687.400	624.700	714.900	624.300	742.400	621.900	769.900	619.100	797.500
GR	618.600	798.100	618.200	798.800	617.900	799.400	617.600	800.100	617.300	800.700
GR	617.000	801.400	616.900	802.100	616.900	802.700	616.900	803.400	616.900	804.000
GR	616.900	804.700	616.900	805.300	616.900	806.000	616.900	806.700	616.900	807.300
GR	617.000	808.000	617.000	808.600	617.100	809.300	617.100	810.000	617.200	810.600
GR	617.300	811.300	618.000	811.900	618.300	812.600	618.500	813.200	618.600	813.900
GR	618.800	814.600	618.900	815.200	619.100	815.900	619.200	816.500	619.400	817.200
GR	620.100	840.800	621.200	864.400	622.300	888.000	624.400	911.600	626.300	935.200
GR	626.400	958.700	626.500	982.300	626.600	1005.900	626.600	1029.500	626.700	1053.100
GR	626.700	1076.700	626.700	1100.300	626.700	1123.900	626.800	1147.500	626.800	1171.100
GR	626.800	1194.700	626.900	1218.300	626.900	1241.800	627.000	1265.400	627.000	1289.000
GR	627.100	1312.600	625.800	1336.200	624.400	1359.800	624.200	1383.400	624.000	1407.000
GR	623.800	1430.600	623.700	1454.200	623.600	1477.800	623.500	1501.400	623.400	1525.000
NC	.040	.050	.042	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9248.000	26.000	800.000	823.000	288.000	100.000	206.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	628.200	0.000	628.300	100.000	629.000	200.000	627.800	300.000	628.900	355.000
GR	628.400	458.000	628.500	600.000	628.300	700.000	627.100	750.000	620.500	800.000
GR	618.000	805.000	618.200	812.000	618.400	816.000	619.600	817.000	620.900	823.000
GR	622.000	850.000	625.100	900.000	627.100	935.000	627.600	1008.000	627.700	1100.000
GR	627.600	1190.000	627.700	1300.000	627.800	1312.000	624.100	1327.000	623.200	1400.000
GR	622.300	1500.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9548.000	26.000	897.000	916.000	500.000	1.000	300.000	-0.000	-1.400	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	627.400	0.000	627.700	100.000	628.100	200.000	628.100	296.000	628.100	300.000
GR	629.100	400.000	628.100	500.000	628.300	600.000	628.200	700.000	629.300	800.000
GR	627.500	850.000	626.600	897.000	621.300	903.000	621.100	908.000	626.500	916.000
GR	627.100	950.000	627.700	994.000	629.200	1004.000	629.600	1100.000	628.700	1200.000
GR	628.700	1300.000	628.800	1400.000	629.900	1500.000	629.900	1600.000	629.900	1700.000
GR	630.200	1750.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.040	.050	.042	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9798.000	26.000	897.000	916.000	250.000	250.000	250.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	627.400	0.000	627.700	100.000	628.100	200.000	628.100	296.000	628.100	300.000
GR	629.100	400.000	628.100	500.000	628.300	600.000	628.200	700.000	629.300	800.000
GR	627.500	850.000	626.600	897.000	621.300	903.000	621.100	908.000	626.500	916.000
GR	627.100	950.000	627.700	994.000	629.200	1004.000	629.600	1100.000	628.700	1200.000
GR	628.700	1300.000	628.800	1400.000	629.900	1500.000	629.900	1600.000	629.900	1700.000
GR	630.200	1750.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9813.000	-0.000	-0.000	-0.000	15.000	15.000	15.000	-0.000	-.100	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9828.000	-0.000	-0.000	-0.000	15.000	15.000	15.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	9848.000	29.000	898.000	902.000	20.000	20.000	20.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	800.000	-0.000	1004.000	-0.000	627.400	627.400	-0.000
GR	627.400	0.000	627.700	100.000	628.100	200.000	628.100	296.000	628.100	300.000
GR	629.100	400.000	628.100	500.000	628.300	600.000	628.200	700.000	629.300	800.000
GR	627.500	850.000	626.900	890.000	621.900	898.000	620.900	899.000	620.900	901.000
GR	621.900	902.000	624.700	910.000	626.500	916.000	627.100	950.000	627.700	994.000
GR	629.600	1004.000	629.600	1100.000	628.700	1200.000	628.700	1300.000	628.800	1400.000
GR	629.900	1500.000	629.900	1600.000	629.900	1700.000	630.200	1750.000	-0.000	-0.000

SB	-0.000	3.500	2.800	-0.000	4.000	-0.000	12.570	-0.000	621.400	620.900
X1	9913.000	29.000	898.000	902.000	65.000	65.000	65.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	625.400	629.300	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	800.000	-0.000	1004.000	-0.000	629.300	629.300	-0.000
X5	4.000	0.000	627.300	628.380	0.000	-0.000	-0.000	-0.000	-0.000	-0.000
BT	8.000	800.000	629.300	-0.000	898.000	629.300	622.400	898.000	629.300	623.900
BT	899.500	629.300	625.400	900.500	629.300	625.400	902.000	629.300	623.900	902.000
BT	629.300	622.400	1004.000	629.600	0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	627.400	0.000	627.700	100.000	628.100	200.000	628.100	296.000	628.100	300.000
GR	629.100	400.000	628.100	500.000	628.300	600.000	628.200	700.000	629.300	800.000
GR	627.500	850.000	626.900	890.000	622.400	898.000	621.400	899.000	621.400	901.000
GR	622.400	902.000	624.700	910.000	626.500	916.000	627.100	950.000	627.700	994.000
GR	629.600	1004.000	629.600	1100.000	628.700	1200.000	628.700	1300.000	628.800	1400.000
GR	629.900	1500.000	629.900	1600.000	629.900	1700.000	630.200	1750.000	-0.000	-0.000
X1	9963.000	50.000	898.500	917.500	50.000	150.000	50.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	628.400	0.000	628.600	64.100	628.600	128.300	628.400	192.500	628.500	256.700
GR	628.600	320.800	628.900	385.000	628.700	449.200	628.300	513.400	628.600	577.600
GR	628.600	641.700	628.600	705.900	629.300	770.100	629.200	834.300	629.100	898.500
GR	626.000	899.400	625.300	900.400	624.600	901.300	623.900	902.200	623.100	903.200
GR	622.400	904.100	622.000	905.100	621.800	906.000	621.800	907.000	621.700	907.900
GR	621.600	908.900	621.700	909.800	622.000	910.800	622.400	911.700	623.100	912.700
GR	623.800	913.600	624.500	914.600	625.300	915.500	626.000	916.500	629.100	917.500
GR	629.200	974.600	629.800	1031.800	629.700	1089.000	630.100	1146.100	630.200	1203.300
GR	629.800	1260.400	629.500	1317.600	629.100	1374.800	629.100	1431.900	629.400	1489.100
GR	629.700	1546.300	629.800	1603.400	629.900	1660.600	630.300	1717.800	630.100	1775.000
NC	.075	.080	.042	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	10863.000	24.000	900.000	919.000	850.000	950.000	900.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	629.500	0.000	629.900	100.000	628.800	200.000	629.000	300.000	629.000	400.000
GR	628.600	500.000	629.100	600.000	629.000	700.000	629.900	800.000	629.900	900.000
GR	625.600	907.000	625.000	913.000	630.000	919.000	630.600	1006.000	630.300	1082.000
GR	629.900	1100.000	631.900	1200.000	630.700	1300.000	629.400	1400.000	629.300	1500.000
GR	629.800	1600.000	630.000	1700.000	630.900	1738.000	630.000	1800.000	-0.000	-0.000
X1	10913.000	33.000	897.500	902.500	1.000	400.000	50.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	879.500	-0.000	920.500	-0.000	629.500	629.500	-0.000
GR	631.500	0.000	631.500	100.000	631.400	200.000	631.200	300.000	631.200	400.000
GR	631.000	500.000	630.800	600.000	630.400	700.000	630.500	800.000	630.800	850.000
GR	631.000	891.000	629.000	893.000	627.500	894.500	626.000	897.500	625.000	898.500
GR	624.500	899.500	624.500	900.500	625.000	901.500	626.000	902.500	628.400	905.500
GR	631.000	908.000	630.900	950.000	630.600	1000.000	630.400	1058.000	630.400	1100.000
GR	630.100	1200.000	630.000	1300.000	630.100	1400.000	630.100	1500.000	630.200	1564.000
GR	630.200	1600.000	630.400	1700.000	630.700	1800.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	3.290	2.800	-0.000	5.000	-0.000	19.365	-0.000	624.800	624.500
X1	10973.000	-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	629.500	630.900	-0.000	-0.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	879.500	-0.000	920.500	-0.000	630.900	630.900	-0.000
BT	9.000	879.500	630.900	0.000	891.000	631.000	0.000	897.500	631.100	626.000
BT	898.500	631.100	629.000	899.500	631.100	629.500	900.500	631.100	629.500	901.500
BT	631.100	629.000	902.500	631.100	626.000	920.500	631.100	0.000	-0.000	-0.000
NC	.075	.075	.050	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	11023.000	26.000	883.000	900.000	50.000	50.000	50.000	-0.000	-0.000	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	632.300	0.000	632.400	100.000	632.300	200.000	632.000	300.000	631.800	400.000
GR	631.800	500.000	631.400	600.000	630.900	700.000	630.800	800.000	630.400	876.000
GR	631.500	883.000	624.600	887.000	624.700	894.000	631.700	900.000	631.300	911.000
GR	631.700	1000.000	632.300	1052.000	632.200	1100.000	632.300	1200.000	632.100	1300.000
GR	632.100	1400.000	632.000	1500.000	633.300	1545.000	632.600	1600.000	632.600	1700.000
GR	632.400	1800.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000

X1	12463.000	26.000	883.000	110.000	110.000	900.000	100.000	432.400	0.000	432.300
X3	-0.000	-0.000	-0.000	-0.000	-0.000	750.000	-0.000	-0.000	-0.000	-0.000
GR	632.300	0.000	632.400	200.000	632.300	100.000	632.400	300.000	631.800	400.000
GR	631.800	500.000	631.400	700.000	630.900	600.000	630.800	800.000	630.400	876.000
GR	631.500	883.000	627.100	894.000	887.000	631.700	900.000	631.300	911.000	
GR	631.700	1000.000	632.300	1100.000	1052.000	632.200	1200.000	632.100	1300.000	
GR	632.100	1400.000	632.300	1545.000	1500.000	633.300	1600.000	632.600	1700.000	
GR	632.400	1800.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
X1	12353.000	26.000	883.000	110.000	110.000	900.000	100.000	432.400	0.000	432.300
X3	-0.000	-0.000	-0.000	-0.000	-0.000	750.000	-0.000	-0.000	-0.000	-0.000
GR	632.300	0.000	632.400	200.000	632.300	100.000	632.400	300.000	631.800	400.000
GR	631.800	500.000	631.400	700.000	630.900	600.000	630.800	800.000	630.400	876.000
GR	631.500	883.000	626.800	894.000	887.000	631.700	900.000	631.300	911.000	
GR	631.700	1000.000	632.300	1100.000	1052.000	632.200	1200.000	632.100	1300.000	
GR	632.100	1400.000	632.300	1545.000	1500.000	633.300	1600.000	632.600	1700.000	
GR	632.400	1800.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
X1	12243.000	26.000	883.000	87.000	87.000	900.000	100.000	432.400	0.000	432.300
X3	-0.000	-0.000	-0.000	-0.000	-0.000	750.000	-0.000	-0.000	-0.000	-0.000
GR	632.300	0.000	632.400	200.000	632.300	100.000	632.400	300.000	631.800	400.000
GR	631.800	500.000	631.400	700.000	630.900	600.000	630.800	800.000	630.400	876.000
GR	631.500	883.000	626.800	894.000	887.000	631.700	900.000	631.300	911.000	
GR	631.700	1000.000	632.300	1100.000	1052.000	632.200	1200.000	632.100	1300.000	
GR	632.100	1400.000	632.300	1545.000	1500.000	633.300	1600.000	632.600	1700.000	
GR	632.400	1800.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
X1	12156.000	26.000	883.000	23.000	23.000	900.000	100.000	432.400	0.000	432.300
X3	-0.000	-0.000	-0.000	-0.000	-0.000	750.000	-0.000	-0.000	-0.000	-0.000
GR	632.300	0.000	632.400	200.000	632.300	100.000	632.400	300.000	631.800	400.000
GR	631.800	500.000	631.400	700.000	630.900	600.000	630.800	800.000	630.400	876.000
GR	631.500	883.000	626.700	894.000	887.000	631.700	900.000	631.300	911.000	
GR	631.700	1000.000	632.300	1100.000	1052.000	632.200	1200.000	632.100	1300.000	
GR	632.100	1400.000	632.300	1545.000	1500.000	633.300	1600.000	632.600	1700.000	
GR	632.400	1800.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
X1	12133.000	26.000	883.000	110.000	110.000	900.000	773.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	773.000	-0.000	-0.000	-0.000	-0.000
GR	632.300	0.000	632.400	200.000	632.300	100.000	632.400	300.000	631.800	400.000
GR	631.800	500.000	631.400	700.000	630.900	600.000	630.800	800.000	630.400	876.000
GR	631.500	883.000	626.300	894.000	887.000	631.900	900.000	631.300	911.000	
GR	631.700	1000.000	632.300	1100.000	1052.000	632.200	1200.000	632.100	1300.000	
GR	632.100	1400.000	632.300	1545.000	1500.000	633.300	1600.000	632.600	1700.000	
GR	632.400	1800.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
X1	12023.000	26.000	883.000	250.000	250.000	900.000	100.000	432.400	0.000	432.300
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	632.300	0.000	632.400	200.000	632.300	100.000	632.400	300.000	631.800	400.000
GR	631.800	500.000	631.400	700.000	630.900	600.000	630.800	800.000	630.400	876.000
GR	631.500	883.000	625.900	894.000	887.000	631.700	900.000	631.300	911.000	
GR	631.700	1000.000	632.300	1100.000	1052.000	632.200	1200.000	632.100	1300.000	
GR	632.100	1400.000	632.300	1545.000	1500.000	633.300	1600.000	632.600	1700.000	
GR	632.400	1800.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
X1	11773.000	26.000	883.000	250.000	250.000	900.000	100.000	432.400	0.000	432.300
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	632.300	0.000	632.400	200.000	632.300	100.000	632.400	300.000	631.800	400.000
GR	631.800	500.000	631.400	700.000	630.900	600.000	630.800	800.000	630.400	876.000
GR	631.500	883.000	625.500	894.000	887.000	631.700	900.000	631.300	911.000	
GR	631.700	1000.000	632.300	1100.000	1052.000	632.200	1200.000	632.100	1300.000	
GR	632.100	1400.000	632.300	1545.000	1500.000	633.300	1600.000	632.600	1700.000	
GR	632.400	1800.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	
X1	11523.000	26.000	883.000	500.000	500.000	900.000				
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000				
GR	632.300	0.000	632.400	200.000	632.300	100.000				
GR	631.800	500.000	631.400	700.000	630.900	600.000				
GR	631.500	883.000	625.300	894.000	887.000	631.700				
GR	631.700	1000.000	632.300	1100.000	1052.000	632.200				
GR	632.100	1400.000	632.300	1545.000	1500.000	633.300				
GR	632.400	1800.000	-0.000	-0.000	-0.000	-0.000				

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GR	631.800	500.000	631.400	600.000	630.900	700.000	630.800	800.000	630.400	876.000
GR	631.500	883.000	627.300	887.000	627.200	894.000	631.700	900.000	631.300	911.000
GR	631.700	1000.000	632.300	1052.000	632.200	1100.000	632.300	1200.000	632.100	1300.000
GR	632.100	1400.000	632.000	1500.000	633.300	1545.000	632.600	1600.000	632.600	1700.000
GR	632.400	1800.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	12573.000	26.000	883.000	900.000	110.000	110.000	110.000	-0.000	-0.000	-0.000
X3	-0.000	-0.000	-0.000	750.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	632.300	0.000	632.400	100.000	632.300	200.000	632.000	300.000	631.800	400.000
GR	631.800	500.000	631.400	600.000	630.900	700.000	630.800	800.000	630.400	876.000
GR	631.500	883.000	627.300	887.000	627.400	894.000	631.700	900.000	631.300	911.000
GR	631.700	1000.000	632.300	1052.000	632.200	1100.000	632.300	1200.000	632.100	1300.000
GR	632.100	1400.000	632.000	1500.000	633.300	1545.000	632.600	1600.000	632.600	1700.000
GR	632.400	1800.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
NC	.075	.075	.055	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	12673.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.200	-0.000
X3	-0.000	-0.000	-0.000	750.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	12773.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.200	-0.000
X3	-0.000	-0.000	-0.000	750.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	12873.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.100	-0.000
X3	-0.000	-0.000	-0.000	750.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	12973.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.200	-0.000
X3	-0.000	-0.000	-0.000	750.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	13073.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.200	-0.000
X3	-0.000	-0.000	-0.000	750.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	13173.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.100	-0.000
X3	-0.000	-0.000	-0.000	750.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	13273.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.200	-0.000
X3	-0.000	-0.000	-0.000	750.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	13373.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.200	-0.000
X3	-0.000	-0.000	-0.000	750.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	13473.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.100	-0.000
X3	-0.000	-0.000	-0.000	750.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	13573.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.200	-0.000
X3	-0.000	-0.000	-0.000	750.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	13673.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.200	-0.000
X3	-0.000	-0.000	-0.000	750.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	13773.000	-0.000	-0.000	-0.000	100.000	100.000	100.000	-0.000	.200	-0.000
X3	-0.000	-0.000	-0.000	750.000	-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

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=		170.0	240.0	TYPE=	1	TARGET=	-170.000		
155.00	8.55	598.35	0.00	598.35	598.67	.32	0.00	0.00	597.10
725.	4.	711.	10.	4.	156.	13.	0.	0.	596.80
0.00	1.02	4.57	.75	.080	.045	.080	0.000	589.80	170.00
.002327	-0.	-0.	-0.	0	0	1	0.00	46.79	216.79
3470 ENCROACHMENT STATIONS=		172.0	204.0	TYPE=	1	TARGET=	32.000		
177.00	7.75	598.35	0.00	0.00	598.80	.45	.07	.07	597.90
725.	0.	723.	2.	0.	134.	2.	0.	0.	597.60
.00	.68	5.39	.80	.080	.045	.080	.043	590.60	172.00
.003953	22.	22.	22.	2	0	1	0.00	32.00	204.00
200.00	6.98	598.38	0.00	0.00	599.00	.62	.11	.08	599.40
725.	0.	725.	0.	0.	115.	0.	0.	0.	598.80
.00	0.00	6.31	0.00	.080	.045	.080	.043	591.40	100.00
.006294	23.	23.	23.	2	0	1	0.00	25.00	125.00

SPECIAL BRIDGE

Driveway Bridge

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
-0.00	1.90	2.65	-0.00	4.00	-0.00	88.50	1.50	591.40	591.40

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
600.36	599.26	0.00	122.	600.	89.	597.50	599.00	30.00
214.00	7.74	599.14	0.00	0.00	599.74	.59	.74	0.00	599.40
725.	0.	717.	8.	0.	115.	11.	0.	0.	598.80
.00	0.00	6.21	.72	.080	.045	.080	.043	591.40	100.00
.006344	14.	14.	14.	3	0	2	0.00	59.41	159.41
248.00	8.02	599.52	0.00	0.00	599.96	.43	.17	.05	599.20
725.	1.	695.	30.	1.	129.	33.	0.	0.	598.80
.00	.43	5.40	.91	.080	.045	.080	.043	591.50	80.58
.004052	25.	34.	50.	2	0	1	0.00	94.16	174.74

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
600.00	8.17	599.74	0.00	0.00	600.10	36	13	.02	599.00

725.	3.	676.	45.	3.	136.	49.	0.	0.	598.80
.01	.66	4.98	.92	.080	.045	.080	.043	591.60	60.06
.003223	25.	34.	50.	2	0	1	0.00	105.19	165.25
316.00	8.36	599.96	0.00	0.00	600.23	.27	.10	.03	598.80
725.	25.	637.	64.	30.	144.	72.	1.	0.	598.80
.01	.83	4.43	.88	.080	.045	.080	.043	591.60	24.09
.002363	25.	34.	50.	2	0	1	0.00	142.50	166.59
350.00	8.51	600.11	0.00	0.00	600.32	.21	.08	.02	598.60
725.	56.	599.	70.	49.	147.	85.	1.	0.	598.80
.01	1.14	4.07	.83	.080	.045	.080	.043	591.60	15.85
.002075	25.	34.	50.	2	0	1	0.00	149.73	165.58

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.04	2.50	-0.00	20.00	-0.00	80.20	-0.00	591.60	591.60

PRESSURE AND WEIR FLOW

Abandoned Bridge

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
602.69	600.32	0.00	496.	231.	80.	597.40	597.70	30.00

375.00	8.57	600.17	0.00	0.00	600.37	.20	.05	0.00	598.60
725.	58.	592.	75.	51.	149.	90.	1.	1.	598.80
.01	1.14	3.98	.83	.080	.045	.080	.043	591.60	15.74
.001955	25.	25.	25.	2	0	4	0.00	151.04	166.78
675.00	8.53	600.53	0.00	0.00	600.54	.02	.12	.06	595.80
725.	150.	212.	363.	268.	127.	592.	5.	2.	595.40
.11	.56	1.67	.61	.080	.040	.080	.041	592.00	43.14
.000166	200.	300.	350.	2	0	1	0.00	249.07	292.21

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 598.70 ELREA= 601.10

1050.00	8.11	600.61	0.00	0.00	600.67	.06	.10	.02	598.70
725.	291.	434.	0.	353.	177.	0.	12.	4.	601.10
.16	.82	2.46	0.00	.080	.040	.080	.041	592.50	71.37
.000608	300.	375.	400.	2	0	1	0.00	200.88	272.25

3470 ENCROACHMENT STATIONS= 228.0 773.0 TYPE= 1 TARGET= -228.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 599.10 ELREA= 601.50

1325.00	7.84	600.74	0.00	0.00	601.02	.28	.24	.11	599.10
725.	13.	712.	0.	12.	167.	0.	13.	4.	601.50
.18	1.09	4.26	0.00	.080	.040	.080	.042	592.90	228.00
.001940	100.	275.	300.	2	0	1	0.00	43.84	271.84

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
				XNL	XNCH	XNR	WTN	FLMIN	SSTA

SLOPE XLOBL XLOB XLOBR ITRIAL IDC ICONT CORAR TOP.IO ENDST

3470 ENCROACHMENT STATIONS= 245.0 773.0 TYPE= 1 TARGET= -245.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 100000.00 ELREA= 600.70

1350.00	8.67	600.77	0.00	0.00	601.08	.31	.05	.02100000.00	
725.	0.	725.	0.	0.	163.	0.	13.	4.	600.70
.18	0.00	4.46	.01	.080	.040	.080	.042	592.10	245.00
.001952	25.	25.	25.	0	0	1	0.00	28.64	273.64

3470 ENCROACHMENT STATIONS= 27.0 573.0 TYPE= 1 TARGET= 546.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 601.20 ELREA= 601.20

1375.00	9.35	600.75	0.00	0.00	601.21	.46	.05	.07	597.10
725.	0.	725.	0.	0.	134.	0.	13.	4.	594.40
.18	0.00	5.42	0.00	.080	.040	.080	.042	591.40	244.90
.002194	25.	25.	25.	2	0	1	0.00	15.20	260.10

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.22	2.80	-0.00	9.25	-0.00	109.00	-0.00	591.40	591.40

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
602.27	601.21	0.00	0.	725.	109.	600.80	603.50	10.00

Marquette Road Bridge

3470 ENCROACHMENT STATIONS= 27.0 573.0 TYPE= 1 TARGET= 546.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 603.50 ELREA= 603.50

1418.00	10.52	601.92	0.00	0.00	602.27	.36	1.07	0.00	597.10
725.	0.	725.	0.	0.	152.	0.	13.	4.	594.40
.18	0.00	4.78	0.00	.080	.040	.080	.042	591.40	244.90
.001540	43.	43.	43.	2	0	1	0.00	15.20	260.10

3470 ENCROACHMENT STATIONS= 138.0 163.0 TYPE= 1 TARGET= 25.000

1423.00	10.73	602.13	0.00	0.00	602.33	.20	.01	.05	598.00
725.	16.	688.	21.	12.	189.	14.	13.	4.	597.30
.18	1.30	3.65	1.43	.080	.040	.080	.042	591.40	138.00
.000738	5.	5.	10.	2	0	1	0.00	25.00	163.00

3470 ENCROACHMENT STATIONS= 135.0 170.0 TYPE= 1 TARGET= 35.000

1428.00	10.68	602.18	0.00	0.00	602.34	.16	.00	.01	598.10
725.	30.	635.	61.	25.	188.	46.	13.	4.	597.40
.18	1.20	3.38	1.30	.080	.040	.080	.042	591.50	135.00
.000637	5.	5.	10.	2	0	1	0.00	35.00	170.00

3470 ENCROACHMENT STATIONS= 120.0 185.0 TYPE= 1 TARGET= 65.000

1443.00	10.68	602.28	0.00	0.00	602.37	.09	.01	.02	598.20
725.	88.	522.	115.	88.	188.	111.	14.	4.	597.50
.18	1.00	2.78	1.04	.080	.040	.080	.042	591.60	120.00
.000432	10.	15.	20.	2	0	1	0.00	65.00	185.00

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= 95.0 210.0 TYPE= 1 TARGET= 115.000

1468.00	10.54	602.34	0.00	0.00	602.39	.05	.01	.01	598.40
725.	142.	414.	169.	182.	185.	208.	14.	4.	597.70
.19	.78	2.23	.81	.080	.040	.080	.042	591.80	95.00
.000284	20.	25.	40.	2	0	1	0.00	115.00	210.00
1568.00	9.80	602.40	0.00	0.00	602.42	.02	.02	.01	599.20
725.	131.	297.	296.	266.	171.	506.	15.	5.	598.50
.21	.49	1.74	.59	.080	.040	.080	.042	592.60	30.84
.000191	135.	100.	55.	2	0	1	0.00	277.78	308.63
1868.00	7.56	602.46	0.00	0.00	602.47	.01	.05	.00	598.30
725.	180.	184.	361.	374.	133.	651.	23.	7.	597.60
.32	.48	1.39	.55	.080	.040	.080	.042	594.90	29.32
.000124	500.	300.	200.	1	0	1	0.00	281.49	310.80
2343.00	6.85	602.55	0.00	0.00	602.58	.03	.10	.01	599.50
725.	87.	210.	428.	140.	101.	570.	34.	10.	599.20
.44	.62	2.07	.75	.080	.040	.080	.041	595.70	27.30
.000388	450.	475.	500.	0	0	1	0.00	280.30	307.61

3470 ENCROACHMENT STATIONS= 85.0 120.0 TYPE= 1 TARGET= 35.000

2368.00	6.65	602.35	0.00	0.00	602.81	.45	.02	.21	599.50
725.	37.	559.	128.	18.	98.	28.	34.	10.	599.20
.45	2.05	5.71	4.61	.080	.042	.040	.041	595.70	85.00
.003412	75.	25.	1.	2	0	1	0.00	35.00	120.00

3470 ENCROACHMENT STATIONS= 90.0 111.0 TYPE= 1 TARGET= 21.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 599.90 ELREA= 100000.00

2398.00	6.46	602.56	0.00	0.00	602.93	.37	.10	.02	599.90
475.	10.	465.	0.	5.	94.	0.	34.	10.	100000.00
.45	1.97	4.93	0.00	.080	.042	.040	.041	596.10	90.00
.003188	50.	30.	25.	2	0	1	0.00	21.00	111.00

3470 ENCROACHMENT STATIONS= 92.0 109.0 TYPE= 1 TARGET= 17.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.00 ELREA= 100000.00

2410.00	6.35	602.55	0.00	0.00	603.04	.48	.05	.06	600.00
475.	0.	475.	0.	0.	85.	0.	34.	10.	100000.00

.45	0.00	5.59	0.00	.080	.042	.040	.041	596.20	92.00
.005050	30.	12.	10.	2	0	1	0.00	17.00	109.00

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 607.40 ELREA= 606.90

2422.00	6.22	602.62	0.00	0.00	603.10	.48	.06	.00	607.40
475.	0.	475.	0.	0.	85.	0.	34.	10.	606.90
.45	0.00	5.57	0.00	.080	.042	.040	.041	596.40	300.00
.005224	20.	12.	10.	0	0	1	0.00	15.80	315.80

NORMAL BRIDGE,NRD=16 MIN ELTRD= 604.50 MAX ELLC= 605.10

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 607.40 ELREA= 606.90

D/s face Cleveland Road north

2423.00	6.22	602.62	0.00	0.00	603.10	.48	.00	.00	607.40
475.	0.	475.	0.	0.	85.	0.	34.	10.	606.90
.45	0.00	5.57	0.00	.080	.020	.040	.041	596.40	300.00
.001182	1.	1.	1.	0	0	1	0.00	15.80	315.80

NORMAL BRIDGE,NRD=16 MIN ELTRD= 604.50 MAX ELLC= 605.20

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 607.40 ELREA= 606.90

U/s face Cleveland Road north

2453.00	7.06	602.76	0.00	0.00	603.16	.40	.03	.02	607.40
475.	0.	475.	0.	0.	93.	0.	34.	10.	606.90
.45	0.00	5.08	0.00	.080	.020	.040	.041	595.70	300.00
.000956	30.	30.	30.	2	0	1	0.00	15.80	315.80

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 607.40 ELREA= 606.90

2454.00	7.06	602.76	0.00	0.00	603.16	.40	.00	.00	607.40
475.	0.	475.	0.	0.	93.	0.	34.	10.	606.90
.45	0.00	5.08	0.00	.080	.042	.080	.041	595.70	300.00
.004213	1.	1.	1.	0	0	1	0.00	15.80	315.80

3470 ENCROACHMENT STATIONS= 87.0 115.0 TYPE= 1 TARGET= 28.000

2460.00	7.22	602.92	0.00	0.00	603.21	.29	.02	.03	601.10
475.	10.	453.	12.	8.	103.	8.	34.	10.	600.80
.45	1.20	4.40	1.42	.080	.042	.080	.041	595.70	87.00
.002164	6.	6.	6.	2	0	1	0.00	28.00	115.00

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

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3470 ENCROACHMENT STATIONS=      82.0      122.0  TYPE=     1  TARGET=      40.000
 2466.00      7.30    603.00      0.00      0.00    603.24       .24       .01        .02    601.10
    475.        16.       428.       31.       15.       105.       23.       34.        10.     600.80
     .45      1.06      4.09      1.32      .080      .042      .080      .041     595.70     82.00
.001837         6.        6.        6.         2         0         1      0.00      40.00    122.00


3470 ENCROACHMENT STATIONS=      76.0      128.0  TYPE=     1  TARGET=      52.000
 2472.00      7.35    603.05      0.00      0.00    603.26       .20       .01        .01    601.10
    475.        21.       409.       45.       22.       106.       36.       34.        10.     600.80
     .45       .93      3.87      1.25      .080      .042      .080      .041     595.70     76.00
.001626         6.        6.        6.         2         0         1      0.00      52.00    128.00


3470 ENCROACHMENT STATIONS=      68.0      138.0  TYPE=     1  TARGET=      70.000
 2481.00      7.30    603.10      0.00      0.00    603.28       .18       .01        .01    601.20
    475.        22.       389.       63.       27.       105.       55.       34.        10.     600.90
     .45       .81      3.72      1.16      .080      .042      .080      .041     595.80     68.00
.001525         9.        9.        9.         2         0         1      0.00      70.00    138.00


3470 ENCROACHMENT STATIONS=      47.0      159.0  TYPE=     1  TARGET=     112.000
 2501.00      7.41    603.21      0.00      0.00    603.32       .12       .03        .02    601.20
    475.        36.       341.       98.       52.       107.       99.       34.        10.     600.90
     .45       .69      3.20      1.00      .080      .042      .080      .041     595.80     47.00
.001100        20.       20.       20.         2         0         1      0.00     112.00    159.00


3470 ENCROACHMENT STATIONS=        .0      187.0  TYPE=     1  TARGET=     186.999
 2529.00      7.38    603.28      0.00      0.00    603.36       .08       .03        .01    601.30
    475.        43.       297.      135.       72.       106.      155.       35.        10.     601.00
     .46       .60      2.80       .87      .080      .042      .080      .041     595.90     28.91
.000844        35.       28.       20.         2         0         1      0.00     158.09    187.00


 2804.00      6.92    603.52      0.00      0.00    603.74       .22       .31        .07    602.90
    475.         1.       458.       16.        4.       119.       18.       36.        11.     601.60
     .48       .34      3.84       .87      .080      .042      .080      .041     596.60    237.20
.001620       275.      275.      250.         2         0         1      0.00      52.62    289.82


 3079.00      6.78    603.98      0.00      0.00    604.22       .24       .47        .01    603.50
    475.         1.       461.       14.        3.       116.       16.       37.        11.     602.20
     .50       .30      3.98       .85      .080      .042      .080      .041     597.20    240.35
.001797       275.      275.      250.         2         0         1      0.00      48.92    289.27


 3354.00      6.59    604.49      0.00      0.00    604.76       .26       .53        .01    604.20
    475.         0.       464.       11.        1.       112.       13.       38.        11.     602.90
     .52       .23      4.16       .82      .080      .042      .080      .041     597.90    244.45
.002064       275.      275.      250.         2         0         1      0.00      44.09    288.55


 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


 3628.00      6.49    605.09      0.00      0.00    605.28       .19       .51        .02    604.10
    475.         0.       426.       40.       17.       116.       33.       39.        12.     602.30
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.54	.53	3.69	1.18	.080	.045	.080	.041	598.60	220.58
.001672	275.	274.	250.	2	0	1	0.00	72.67	293.25

3470 ENCROACHMENT STATIONS= 240.0 285.0 TYPE= 1 TARGET= 45.000

3661.00	6.44	605.14	0.00	0.00	605.35	.21	.06	.01	604.20
475.	6.	436.	33.	9.	114.	25.	39.	12.	602.40
.54	.67	3.81	1.35	.080	.045	.080	.041	598.70	240.00
.001812	100.	33.	17.	2	0	1	0.00	45.00	285.00

3470 ENCROACHMENT STATIONS= 253.0 282.0 TYPE= 1 TARGET= 29.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 100000.00 ELREA= 602.60

3694.00	6.28	605.18	0.00	0.00	605.44	.26	.07	.02	100000.00
475.	0.	448.	27.	0.	108.	18.	39.	12.	602.60
.54	0.00	4.16	1.51	.080	.045	.080	.041	598.90	253.00
.002317	100.	33.	17.	2	0	1	0.00	29.00	282.00

3470 ENCROACHMENT STATIONS= 252.0 273.0 TYPE= 1 TARGET= 21.000

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

3711.00	6.30	605.20	0.00	0.00	605.51	.31	.04	.02	100000.00
475.	0.	475.	0.	0.	107.	0.	39.	12.	100000.00
.54	0.00	4.44	0.00	.080	.045	.080	.041	598.90	252.00
.003005	50.	17.	7.	2	0	1	0.00	21.00	273.00

3470 ENCROACHMENT STATIONS= 254.0 271.0 TYPE= 1 TARGET= 17.000

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

3719.00	6.18	605.18	0.00	0.00	605.59	.41	.03	.05	100000.00
475.	0.	475.	0.	0.	93.	0.	39.	12.	100000.00
.55	0.00	5.12	0.00	.080	.045	.080	.041	599.00	254.00
.004300	25.	8.	5.	2	0	1	0.00	17.00	271.00

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 609.40 ELREA= 609.30

3727.00	6.07	605.07	0.00	0.00	605.79	.72	.05	.16	609.40
475.	0.	475.	0.	0.	70.	0.	39.	12.	609.30
.55	0.00	6.79	0.00	.080	.045	.080	.041	599.00	788.00
.008968	24.	8.	4.	2	0	1	0.00	12.50	800.50

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

NORMAL BRIDGE,NRD=30 MIN ELTRD= 608.30 MAX ELLC= 606.90

D/s face Marquette Woods Rd. East

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 609.40 ELREA= 609.30

3728.00	6.01	605.01	0.00	0.00	605.87	.86	.01	.07	609.40
475.	0.	475.	0.	0.	64.	0.	39.	12.	609.30
.55	0.00	7.45	0.00	.080	.040	.080	.041	599.00	788.00
.011369	1.	1.	1.	2	0	1	-5.38	12.50	800.50

NORMAL BRIDGE,NRD=30 MIN ELTRD= 608.30 MAX ELLC= 606.90

4/5 for Marquette Woods Rd. East

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 609.40 ELREA= 609.30

3773.00	6.68	605.68	0.00	0.00	606.40	.73	.49	.04	609.40
475.	0.	475.	0.	0.	69.	0.	39.	12.	609.30
.55	0.00	6.85	0.00	.080	.040	.080	.041	599.00	788.00
.010533	45.	45.	45.	3	0	1	-8.07	12.50	800.50

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 609.40 ELREA= 609.30

3774.00	6.93	605.93	0.00	0.00	606.47	.54	.01	.06	609.40
475.	0.	475.	0.	0.	81.	0.	39.	12.	609.30
.55	0.00	5.89	0.00	.080	.045	.080	.041	599.00	788.00
.006160	1.	1.	1.	2	0	1	0.00	12.50	800.50

3470 ENCROACHMENT STATIONS= 104.0 126.0 TYPE= 1 TARGET= 22.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 602.60 ELREA= 99997.90

3779.00	7.39	606.39	0.00	0.00	606.59	.20	.01	.10	602.60
475.	0.	475.	0.	0.	133.	0.	39.	12.	99997.90
.55	0.00	3.58	0.00	.080	.045	.080	.041	599.00	104.00
.001708	5.	5.	5.	2	0	1	0.00	22.00	126.00

3470 ENCROACHMENT STATIONS= 99.0 131.0 TYPE= 1 TARGET= 32.000

3784.00	7.47	606.47	0.00	0.00	606.61	.14	.01	.02	602.60
475.	27.	424.	25.	19.	135.	19.	39.	12.	602.80
.55	1.38	3.15	1.34	.080	.045	.080	.041	599.00	99.00
.000908	5.	5.	5.	2	0	1	0.00	32.00	131.00

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= 89.0 141.0 TYPE= 1 TARGET= 52.000

3794.00	7.45	606.55	0.00	0.00	606.63	.08	.01	.02	602.70
475.	64.	347.	64.	57.	134.	57.	39.	12.	602.90
.55	1.12	2.59	1.12	.080	.045	.080	.041	599.10	89.00
.000616	10.	10.	10.	2	0	1	0.00	52.00	141.00

3470 ENCROACHMENT STATIONS= 79.0 151.0 TYPE= 1 TARGET= 72.000

3804.00	7.50	606.60	0.00	0.00	606.65	.05	.01	.01	602.70
475.	90.	292.	93.	96.	135.	98.	39.	12.	602.90
.55	.94	2.16	.95	.080	.045	.080	.041	599.10	79.00
.000625	10.	10.	10.	2	0	1	0.00	72.00	151.00

3470 ENCROACHMENT STATIONS= 57.0 169.0 TYPE= 1 TARGET= 112.000

3823.00	7.44	606.64	0.00	0.00	606.66	.02	.01	.01	602.80
475.	124.	224.	127.	174.	134.	170.	39.	12.	603.00
.56	.71	1.68	.75	.080	.045	.080	.041	599.20	57.00
.000259	19.	19.	19.	2	0	1	0.00	112.00	169.00

3470 ENCROACHMENT STATIONS= .0 240.0 TYPE= 1 TARGET= 239.999

3873.00	7.37	606.67	0.00	0.00	606.68	.01	.01	.00	602.90
475.	120.	156.	199.	252.	132.	403.	40.	12.	603.10
.58	.48	1.18	.49	.080	.045	.080	.041	599.30	27.83
.000130	3.	50.	100.	1	0	1	0.00	212.16	240.00
3923.00	7.18	606.68	0.00	0.00	606.68	.01	.01	.00	603.10
475.	114.	154.	207.	237.	128.	433.	41.	13.	603.30
.60	.48	1.20	.48	.080	.045	.080	.041	599.50	28.20
.000142	4.	50.	100.	0	0	1	0.00	239.22	267.43
4423.00	5.70	606.80	0.00	0.00	606.84	.04	.14	.01	604.70
475.	94.	213.	167.	128.	96.	227.	49.	15.	604.90
.70	.74	2.23	.74	.080	.045	.080	.042	601.10	31.06
.000719	550.	500.	500.	2	0	1	0.00	232.69	263.75
5098.00	4.45	607.35	0.00	0.00	607.42	.07	.57	.01	606.00
415.	171.	183.	61.	132.	65.	69.	54.	18.	603.00
.79	1.30	2.81	.88	.050	.040	.075	.042	602.90	50.68
.001169	700.	675.	500.	2	0	1	0.00	168.13	218.81

3470 ENCROACHMENT STATIONS= .0 260.0 TYPE= 1 TARGET= 259.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 607.20 ELREA= 99998.90

5648.00	4.16	608.36	0.00	0.00	608.60	.25	1.09	.09	607.20
415.	64.	351.	0.	53.	82.	0.	56.	20.	99998.90
.83	1.21	4.31	0.00	.050	.040	.075	.041	604.20	114.05
.004102	550.	550.	550.	3	0	1	0.00	145.95	260.00

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
6123.00	4.38	609.68	0.00	0.00	609.78	.10	1.13	.05	608.30
415.	46.	257.	112.	81.	89.	57.	58.	22.	607.80
.89	.57	2.90	1.97	.080	.040	.040	.041	605.30	100.15
.001553	525.	475.	425.	1	0	1	0.00	198.00	298.14

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 615.60 ELREA= 611.30

7173.00	3.40	612.40	0.00	0.00	612.55	.15	2.74	.03	615.60
415.	0.	211.	204.	0.	59.	78.	62.	26.	611.30
.98	0.00	3.59	2.62	.075	.042	.040	.042	609.00	783.58
005459	850.	1050.	1050.	2	0	1	0.00	127.81	911.39

8423.00	3.21	616.71	0.00	0.00	616.77	.05	4.18	.03	615.10
415.	203.	90.	123.	176.	27.	108.	68.	31.	615.10
1.18	1.15	3.29	1.14	.075	.042	.075	.042	613.50	643.60
.002574	1350.	1250.	950.	4	0	1	0.00	248.03	891.63

3470 ENCROACHMENT STATIONS= 682.0 1593.7 TYPE= 1 TARGET= -682.000

8475.00	3.05	616.85	0.00	0.00	617.07	.22	.22	.08	615.50
415.	124.	157.	134.	80.	28.	75.	69.	31.	615.50
1.19	1.54	5.70	1.79	.075	.042	.075	.042	613.80	682.00
.008446	72.	52.	25.	2	0	1	0.00	201.52	883.52

3470 ENCROACHMENT STATIONS= 689.0 1587.5 TYPE= 1 TARGET= -689.000

8527.00	3.14	617.24	0.00	0.00	617.58	.34	.45	.06	615.80
415.	83.	197.	135.	53.	30.	70.	69.	31.	615.90
1.19	1.57	6.48	1.94	.075	.042	.075	.042	614.10	689.00
.010359	72.	52.	25.	2	0	1	0.00	194.57	883.57
8579.00	3.41	617.81	0.00	0.00	617.83	.02	.15	.10	616.10
110.	19.	54.	38.	46.	36.	82.	69.	31.	616.20
1.20	.40	1.49	.46	.075	.042	.075	.042	614.40	681.87
.000474	72.	52.	25.	2	0	1	0.00	202.83	884.70
8630.00	3.23	617.83	0.00	0.00	617.87	.04	.03	.01	616.40
110.	12.	70.	28.	24.	35.	51.	69.	32.	616.50
1.21	.52	1.98	.55	.075	.042	.075	.042	614.60	758.10
.000930	72.	51.	25.	2	0	1	0.00	120.95	879.05
8836.00	2.32	618.12	0.00	0.00	618.36	.24	.39	.10	617.80
110.	0.	110.	0.	1.	28.	0.	69.	32.	618.00
1.23	.48	3.97	.25	.075	.042	.075	.042	615.80	790.58
.006868	288.	206.	100.	2	0	1	0.00	26.91	817.49

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 619.10 ELREA= 619.40

9042.00	2.46	619.36	0.00	0.00	619.53	.17	1.14	.02	619.10
110.	0.	110.	0.	0.	33.	0.	70.	32.	619.40
1.24	.34	3.29	0.00	.075	.042	.075	.042	616.90	794.92
.004557	288.	206.	100.	1	0	1	0.00	22.15	817.07

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 620.50 ELREA= 620.90

9248.00	2.37	620.37	0.00	0.00	620.55	.18	1.01	.01	620.50
110.	0.	110.	0.	0.	32.	0.	70.	32.	620.90
1.26	0.00	3.40	0.00	.040	.042	.050	.042	618.00	800.27
.005325	288.	206.	100.	2	0	1	0.00	20.25	820.52

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 625.20 ELREA= 625.10

9548.00	2.72	622.42	0.00	0.00	622.80	.38	2.15	.10	625.20
110.	0.	110.	0.	0.	22.	0.	70.	32.	625.10
1.28	0.00	4.94	0.00	.040	.042	.050	.042	619.70	900.14
.010206	500.	300.	1.	2	0	1	0.00	11.90	912.04

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 626.60 ELREA= 626.50

9798.00	3.25	624.35	0.00	0.00	624.58	.22	1.73	.05	626.60
110.	0.	110.	0.	0.	29.	0.	70.	32.	626.50
1.30	0.00	3.81	0.00	.040	.042	.050	.042	621.10	899.54
.005013	250.	250.	250.	1	0	1	0.00	13.28	912.82

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 626.50 ELREA= 626.40

9813.00	3.47	624.47	0.00	0.00	624.66	.19	.07	.01	626.50
110.	0.	110.	0.	0.	32.	0.	70.	32.	626.40
1.30	0.00	3.46	0.00	.040	.042	.050	.042	621.00	899.30
.003868	15.	15.	15.	0	0	1	0.00	13.84	913.14

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 626.50 ELREA= 626.40

9828.00	3.54	624.54	0.00	0.00	624.72	.18	.06	.00	626.50
110.	0.	110.	0.	0.	33.	0.	70.	32.	626.40
1.30	0.00	3.36	0.00	.040	.042	.050	.042	621.00	899.22
.003578	15.	15.	15.	0	0	1	0.00	14.01	913.24

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= 800.0 1004.0 TYPE= 1 TARGET= 204.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 627.40 ELREA= 627.40

9848.00	3.23	624.13	0.00	0.00	625.45	1.32	.16	.57	621.90
110.	0.	110.	0.	0.	12.	0.	70.	32.	621.90
1.30	0.00	9.23	0.00	.040	.042	.050	.042	620.90	898.00
.032157	20.	20.	20.	3	0	1	0.00	4.00	908.37

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	3.50	2.80	-0.00	4.00	-0.00	12.57	-0.00	621.40	620.90

WATER EL=X5 CARD= 628.380 HGL

Cleveland R. Smith

3470 ENCROACHMENT STATIONS= 800.0 1004.0 TYPE= 1 TARGET= 204.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 629.30 ELREA= 629.30

9913.00	6.98	628.38	0.00	0.00	628.64	.26	.55	.32	622.40
110.	0.	110.	0.	0.	27.	0.	70.	32.	622.40
1.30	0.00	4.09	0.00	.040	.042	.050	.042	621.40	898.00
.003784	65.	65.	65.	0	0	1	0.00	4.00	902.00

3280 CROSS SECTION 9963.00 EXTENDED .32 FEET

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 629.10 ELREA= 629.10

9963.00	7.11	628.71	0.00	0.00	628.73	.02	.02	.07	629.10
110.	0.	110.	0.	0.	97.	0.	70.	32.	629.10
1.31	0.00	1.13	0.00	.040	.042	.050	.042	621.60	898.61
.000172	50.	50.	150.	2	0	1	0.00	18.77	917.38

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 629.90 ELREA= 630.00

10863.00	4.04	629.04	0.00	0.00	629.14	.11	.37	.04	629.90
110.	0.	110.	0.	0.	42.	0.	72.	33.	630.00
1.41	0.00	2.63	0.00	.075	.042	.080	.042	625.00	901.40
.001916	850.	900.	950.	3	0	1	0.00	16.44	917.85

3470 ENCROACHMENT STATIONS= 879.5 920.5 TYPE= 1 TARGET= 41.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 629.50 ELREA= 629.50

10913.00	4.53	629.03	0.00	0.00	629.49	.46	.17	.18	626.00
110.	0.	110.	0.	0.	20.	0.	72.	33.	626.00
1.41	0.00	5.46	0.00	.075	.042	.080	.042	624.50	897.50
.007881	1.	50.	400.	2	0	1	0.00	5.00	902.50

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	3.29	2.80	-0.00	5.00	-0.00	19.37	-0.00	624.80	624.50

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

PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
630.68	629.73	0.00	0.	110.	19.	629.50	630.90	10.00

John Byers PE

3470 ENCROACHMENT STATIONS= 879.5 920.5 TYPE= 1 TARGET= 41.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 630.90 ELREA= 630.90

10973.00	5.92	630.42	0.00	0.00	630.68	.26	1.19	0.00	626.00

110.	0.	110.	0.	0.	27.	0.	72.	33.	626.00
1.42	0.00	4.06	0.00	.075	.042	.080	.042	624.50	897.50
.003550	60.	60.	60.	2	0	1	0.00	5.00	902.50

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 631.50 ELREA= 631.70

11023.00	6.17	630.77	0.00	0.00	630.81	.04	.06	.06	631.50
110.	0.	110.	0.	0.	70.	0.	72.	33.	631.70
1.43	0.00	1.58	0.00	.075	.050	.075	.042	624.60	883.42
.000613	50.	50.	50.	2	0	1	0.00	15.78	899.20

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 631.50 ELREA= 631.70

11523.00	5.61	631.11	0.00	0.00	631.15	.05	.34	.00	631.50
110.	0.	110.	0.	0.	64.	0.	73.	33.	631.70
1.51	0.00	1.71	0.00	.075	.050	.075	.042	625.50	883.26
.000768	500.	500.	500.	3	0	1	0.00	16.15	899.42

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 631.50 ELREA= 631.70

11773.00	5.40	631.30	0.00	0.00	631.35	.05	.20	.00	631.50
110.	0.	110.	0.	0.	63.	0.	73.	33.	631.70
1.55	0.00	1.75	0.00	.075	.050	.075	.043	625.90	883.14
.000828	250.	250.	250.	2	0	1	0.00	16.44	899.58

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 631.70 ELREA= 631.90

12023.00	5.22	631.52	0.00	0.00	631.57	.05	.22	.00	631.70
110.	0.	110.	0.	0.	60.	0.	73.	33.	631.90
1.58	0.00	1.82	0.00	.075	.050	.075	.043	626.30	883.14
.000919	250.	250.	250.	1	0	1	0.00	16.44	899.58

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= 773.0 1800.0 TYPE= 1 TARGET= -773.000

12133.00	5.03	631.63	0.00	0.00	631.64	.01	.06	.01	631.50
110.	39.	69.	2.	105.	60.	14.	74.	33.	631.70
1.62	.37	1.15	.12	.075	.050	.075	.043	626.60	773.00
.000373	110.	110.	110.	2	0	1	0.00	209.43	984.43

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 750.0 1800.0 TYPE= 1 TARGET= -750.000

12156.00	5.04	631.64	0.00	0.00	631.65	.01	.01	.00	631.50
110.	43.	65.	2.	125.	60.	15.	74.	33.	631.70
1.63	35	1.08	.11	.075	050	.075	.043	626.60	750.00

.000326	23.	23.	23.	0	0	1	0.00	236.16	987.7

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=			750.0	1800.0	TYPE=	1	TARGET=	-750.000	
12243.00	4.87	631.67	0.00	0.00	631.68	.01	.03	.00	631.50
110.	46.	62.	2.	129.	58.	18.	74.	34.	631.70
1.66	.35	1.07	.12	.075	.050	.075	.043	626.80	750.00
.000327	87.	87.	87.	0	0	1	0.00	243.79	994.50

3470 ENCROACHMENT STATIONS=			750.0	1800.0	TYPE=	1	TARGET=	-750.000	
12353.00	4.71	631.71	0.00	0.00	631.72	.01	.04	.00	631.50
110.	48.	59.	3.	134.	56.	21.	75.	35.	631.70
1.70	.36	1.05	.13	.075	.050	.075	.043	627.00	750.00
.000322	110.	110.	110.	0	0	1	0.00	250.97	1000.97

3470 ENCROACHMENT STATIONS=			750.0	1800.0	TYPE=	1	TARGET=	-750.000	
12463.00	4.54	631.74	0.00	0.00	631.75	.01	.04	.00	631.50
110.	51.	56.	3.	139.	55.	25.	75.	35.	631.70
1.75	.37	1.02	.14	.075	.050	.075	.043	627.20	750.00
.000316	110.	110.	110.	0	0	1	0.00	254.06	1004.06

3470 ENCROACHMENT STATIONS=			750.0	1800.0	TYPE=	1	TARGET=	-750.000	
12573.00	4.48	631.78	0.00	0.00	631.79	.01	.03	.00	631.50
110.	52.	54.	4.	143.	54.	28.	76.	36.	631.70
1.79	.36	.99	.15	.075	.050	.075	.043	627.30	750.00
.000301	110.	110.	110.	0	0	1	0.00	257.10	1007.10

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=			750.0	1800.0	TYPE=	1	TARGET=	-750.000	
12673.00	4.31	631.81	0.00	0.00	631.83	.01	.04	.00	631.70
110.	51.	58.	2.	121.	51.	12.	76.	36.	631.90
1.83	.42	1.13	.13	.075	.055	.075	.043	627.50	750.00
.000500	100.	100.	100.	0	0	1	0.00	228.08	980.60

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=			750.0	1800.0	TYPE=	1	TARGET=	-750.000	
12773.00	4.17	631.87	0.00	0.00	631.89	.02	.06	.00	631.90
110.	45.	64.	0.	101.	49.	3.	77.	37.	632.10
1.86	.45	1.32	.10	.075	.055	.075	.043	627.70	750.00
.000722	100.	100.	100.	1	0	1	0.00	189.98	947.12

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 750.0 1800.0 TYPE= 1 TARGET= -750.000

12873.00	4.14	631.94	0.00	0.00	631.96	.02	.07	.00	632.00
110.	45.	65.	0.	99.	48.	3.	77.	37.	632.20
1.89	.45	1.35	.09	.075	.055	.075	.043	627.80	750.00
.000753	100.	100.	100.	2	0	1	0.00	185.43	943.21

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 750.0 1800.0 TYPE= 1 TARGET= -750.000

12973.00	4.03	632.03	0.00	0.00	632.05	.03	.09	.00	632.20
110.	39.	71.	0.	82.	46.	0.	77.	38.	632.40
1.91	.47	1.55	.01	.075	.055	.075	.043	628.00	750.00
.001023	100.	100.	100.	0	0	1	0.00	152.76	915.12

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 750.0 1800.0 TYPE= 1 TARGET= -750.000

13073.00	3.94	632.14	0.00	0.00	632.17	.03	.11	.00	632.40
110.	34.	76.	0.	71.	45.	0.	78.	38.	632.60
1.93	.48	1.69	0.00	.075	.055	.075	.044	628.20	750.00
.001250	100.	100.	100.	2	0	1	0.00	147.44	899.36

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 750.0 1800.0 TYPE= 1 TARGET= -750.000

13173.00	3.96	632.26	0.00	0.00	632.29	.03	.12	.00	632.50
110.	35.	75.	0.	74.	45.	0.	78.	38.	632.70
1.95	.48	1.66	0.00	.075	.055	.075	.044	628.30	750.00
.001192	100.	100.	100.	1	0	1	0.00	147.60	899.38

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 750.0 1800.0 TYPE= 1 TARGET= -750.000

13273.00	3.89	632.39	0.00	0.00	632.43	.04	.13	.00	632.70
110.	31.	79.	0.	64.	44.	0.	78.	39.	632.90
1.97	.48	1.80	0.00	.075	.055	.075	.044	628.50	750.00
.001431	100.	100.	100.	1	0	1	0.00	146.97	899.28

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= 750.0 1800.0 TYPE= 1 TARGET= -750.000

13373.00	3.84	632.54	0.00	0.00	632.58	.04	.15	.00	632.90
110.	28.	82.	0.	58.	43.	0.	78.	39.	633.10
1.99	.48	1.90	0.00	.075	.055	.075	.044	628.70	750.00
.001611	100.	100.	100.	2	0	1	0.00	146.57	899.22

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 750.0 1800.0 TYPE= 1 TARGET= -750.000

13473.00	3.90	632.70	0.00	0.00	632.73	.04	.15	.00	633.00
110.	31.	79.	0.	65.	44.	0.	79.	39.	633.20
2.01	.48	1.79	0.00	.075	.055	.075	.044	628.80	750.00
.001410	100.	100.	100.	0	0	1	0.00	147.02	899.29

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 750.0 1800.0 TYPE= 1 TARGET= -750.000

13573.00	3.84	632.84	0.00	0.00	632.89	.04	.15	.00	633.20
110.	28.	82.	0.	59.	43.	0.	79.	40.	633.40
2.03	.48	1.89	0.00	.075	.055	.075	.044	629.00	750.00
.001598	100.	100.	100.	0	0	1	0.00	146.59	899.22

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 750.0 1800.0 TYPE= 1 TARGET= -750.000

13673.00	3.81	633.01	0.00	0.00	633.06	.05	.17	.00	633.40
110.	26.	84.	0.	53.	43.	0.	79.	40.	633.60
2.04	.48	1.98	0.00	.075	.055	.075	.044	629.20	750.00
.001771	100.	100.	100.	1	0	1	0.00	146.24	899.16

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 750.0 1800.0 TYPE= 1 TARGET= -750.000

13773.00	3.79	633.19	0.00	0.00	633.24	.05	.18	.00	633.60
110.	24.	86.	0.	51.	42.	0.	79.	40.	633.80
2.06	.48	2.03	0.00	.075	.055	.075	.044	629.40	750.00
.001868	100.	100.	100.	1	0	1	0.00	146.06	899.14

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
155.00	0.00	0.00	0.00	589.80	725.00	598.35	0.00	598.67	46.79	23.27	0.00	0.00
177.00	22.00	0.00	0.00	590.60	725.00	598.35	0.00	598.80	32.00	39.53	.00	.08
200.00	23.00	0.00	0.00	591.40	725.00	598.38	0.00	599.00	25.00	62.94	.00	.14
214.00	14.00	599.00	597.50	591.40	725.00	599.14	0.00	599.74	59.41	63.44	.00	.18
248.00	34.00	0.00	0.00	591.50	725.00	599.52	0.00	599.96	94.16	40.52	.00	.30
282.00	34.00	0.00	0.00	591.60	725.00	599.74	0.00	600.10	105.19	32.23	.01	.46
316.00	34.00	0.00	0.00	591.60	725.00	599.96	0.00	600.23	142.50	23.63	.01	.64
350.00	34.00	0.00	0.00	591.60	725.00	600.11	0.00	600.32	149.73	20.75	.01	.87
375.00	25.00	597.70	597.40	591.60	725.00	600.17	0.00	600.37	151.04	19.55	.01	1.03
675.00	300.00	0.00	0.00	592.00	725.00	600.53	0.00	600.54	249.07	1.66	.11	5.45
1050.00	375.00	0.00	0.00	592.50	725.00	600.61	0.00	600.67	200.88	6.08	.16	11.61
1325.00	275.00	0.00	0.00	592.90	725.00	600.74	0.00	601.02	43.84	19.40	.18	13.12
1350.00	25.00	0.00	0.00	592.10	725.00	600.77	0.00	601.08	28.64	19.52	.18	13.21
1375.00	25.00	0.00	0.00	591.40	725.00	600.75	0.00	601.21	15.20	21.94	.18	13.30
1418.00	43.00	603.50	600.80	591.40	725.00	601.92	0.00	602.27	15.20	15.40	.18	13.44
1423.00	5.00	0.00	0.00	591.40	725.00	602.13	0.00	602.33	25.00	7.38	.18	13.46
1428.00	5.00	0.00	0.00	591.50	725.00	602.18	0.00	602.34	35.00	6.37	.18	13.49
1443.00	15.00	0.00	0.00	591.60	725.00	602.28	0.00	602.37	65.00	4.32	.18	13.61
1468.00	25.00	0.00	0.00	591.80	725.00	602.34	0.00	602.39	115.00	2.84	.19	13.92
1568.00	100.00	0.00	0.00	592.60	725.00	602.40	0.00	602.42	277.78	1.91	.21	15.48
1868.00	300.00	0.00	0.00	594.90	725.00	602.46	0.00	602.47	281.49	1.24	.32	22.85
2343.00	475.00	0.00	0.00	595.70	725.00	602.55	0.00	602.58	280.30	3.88	.44	33.79
2368.00	25.00	0.00	0.00	595.70	725.00	602.35	0.00	602.81	35.00	34.12	.45	33.99
2398.00	30.00	0.00	0.00	596.10	475.00	602.56	0.00	602.93	21.00	31.88	.45	34.08
2410.00	12.00	0.00	0.00	596.20	475.00	602.55	0.00	603.04	17.00	50.50	.45	34.11
2422.00	12.00	0.00	0.00	596.40	475.00	602.62	0.00	603.10	15.80	52.24	.45	34.13
2423.00	1.00	604.50	605.10	596.40	475.00	602.62	0.00	603.10	15.80	11.82	.45	34.13
2453.00	30.00	604.50	605.20	595.70	475.00	602.76	0.00	603.16	15.80	9.56	.45	34.20

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
2454.00	1.00	0.00	0.00	595.70	475.00	602.76	0.00	603.16	15.80	42.13	.45	34.20
2460.00	6.00	0.00	0.00	595.70	475.00	602.92	0.00	603.21	28.00	21.64	.45	34.21
2466.00	6.00	0.00	0.00	595.70	475.00	603.00	0.00	603.24	40.00	18.37	.45	34.23
2472.00	6.00	0.00	0.00	595.70	475.00	603.05	0.00	603.26	52.00	16.26	.45	34.25
2481.00	9.00	0.00	0.00	595.80	475.00	603.10	0.00	603.28	70.00	15.25	.45	34.29
2501.00	20.00	0.00	0.00	595.80	475.00	603.21	0.00	603.32	112.00	11.00	.45	34.39
2529.00	28.00	0.00	0.00	595.90	475.00	603.28	0.00	603.36	158.09	8.44	.46	34.57
2804.00	275.00	0.00	0.00	596.60	475.00	603.52	0.00	603.74	52.62	16.20	.48	36.02
3079.00	275.00	0.00	0.00	597.20	475.00	603.98	0.00	604.22	48.92	17.97	.50	36.88
3354.00	275.00	0.00	0.00	597.90	475.00	604.49	0.00	604.76	44.09	20.64	.52	37.69
3628.00	274.00	0.00	0.00	598.60	475.00	605.09	0.00	605.28	72.67	16.72	.54	38.60
3661.00	33.00	0.00	0.00	598.70	475.00	605.14	0.00	605.35	45.00	18.12	.54	38.72
3694.00	33.00	0.00	0.00	598.90	475.00	605.18	0.00	605.44	29.00	23.17	.54	38.83
3711.00	17.00	0.00	0.00	598.90	475.00	605.20	0.00	605.51	21.00	30.05	.54	38.87
3719.00	8.00	0.00	0.00	599.00	475.00	605.18	0.00	605.59	17.00	43.00	.55	38.89
3727.00	8.00	0.00	0.00	599.00	475.00	605.07	0.00	605.79	12.50	89.68	.55	38.90
3728.00	1.00	608.30	606.90	599.00	475.00	605.01	0.00	605.87	12.50	113.69	.55	38.91
3773.00	45.00	608.30	606.90	599.00	475.00	605.68	0.00	606.40	12.50	105.33	.55	38.97
3774.00	1.00	0.00	0.00	599.00	475.00	605.93	0.00	606.47	12.50	61.60	.55	38.98
3779.00	5.00	0.00	0.00	599.00	475.00	606.39	0.00	606.59	22.00	17.08	.55	38.99
3784.00	5.00	0.00	0.00	599.00	475.00	606.47	0.00	606.61	32.00	9.08	.55	39.01
3794.00	10.00	0.00	0.00	599.10	475.00	606.55	0.00	606.63	52.00	6.16	.55	39.05
3804.00	10.00	0.00	0.00	599.10	475.00	606.60	0.00	606.65	72.00	4.25	.55	39.12
3823.00	19.00	0.00	0.00	599.20	475.00	606.64	0.00	606.66	112.00	2.59	.56	39.30
3873.00	50.00	0.00	0.00	599.30	475.00	606.67	0.00	606.68	212.16	1.30	.58	40.12
3923.00	50.00	0.00	0.00	599.50	475.00	606.68	0.00	606.68	239.22	1.42	.60	41.25
4423.00	500.00	0.00	0.00	601.10	475.00	606.80	0.00	606.84	232.69	7.19	.70	48.63
5098.00	675.00	0.00	0.00	602.90	415.00	607.35	0.00	607.42	168.13	11.69	.79	53.66

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
5648.00	550.00	0.00	0.00	604.20	415.00	608.36	0.00	608.60	145.95	41.02	.83	56.18
6123.00	475.00	0.00	0.00	605.30	415.00	609.68	0.00	609.78	198.00	15.53	.89	58.20
7173.00	1050.00	0.00	0.00	609.00	415.00	612.40	0.00	612.55	127.81	54.59	.98	62.39
8423.00	1250.00	0.00	0.00	613.50	415.00	616.71	0.00	616.77	248.03	25.74	1.18	68.37
8475.00	52.00	0.00	0.00	613.80	415.00	616.85	0.00	617.07	201.52	84.46	1.19	68.67
8527.00	52.00	0.00	0.00	614.10	415.00	617.24	0.00	617.58	194.57	103.59	1.19	68.86
8579.00	52.00	0.00	0.00	614.40	110.00	617.81	0.00	617.83	202.83	4.74	1.20	69.02
8630.00	51.00	0.00	0.00	614.60	110.00	617.83	0.00	617.87	120.95	9.30	1.21	69.16
8836.00	206.00	0.00	0.00	615.80	110.00	618.12	0.00	618.36	26.91	68.68	1.23	69.45
9042.00	206.00	0.00	0.00	616.90	110.00	619.36	0.00	619.53	22.15	45.57	1.24	69.59
9248.00	206.00	0.00	0.00	618.00	110.00	620.37	0.00	620.55	20.25	53.25	1.26	69.75
9548.00	300.00	0.00	0.00	619.70	110.00	622.42	0.00	622.80	11.90	102.06	1.28	69.94
9798.00	250.00	0.00	0.00	621.10	110.00	624.35	0.00	624.58	13.28	50.13	1.30	70.09
9813.00	15.00	0.00	0.00	621.00	110.00	624.47	0.00	624.66	13.84	38.68	1.30	70.10
9828.00	15.00	0.00	0.00	621.00	110.00	624.54	0.00	624.72	14.01	35.78	1.30	70.11
9848.00	20.00	0.00	0.00	620.90	110.00	624.13	0.00	625.45	4.00	321.57	1.30	70.12
9913.00	65.00	100000.00	100000.00	621.40	110.00	628.38	0.00	628.64	4.00	37.84	1.30	70.15
9963.00	50.00	0.00	0.00	621.60	110.00	628.71	0.00	628.73	18.77	1.72	1.31	70.22
10863.00	900.00	0.00	0.00	625.00	110.00	629.04	0.00	629.14	16.44	19.16	1.41	71.65
10913.00	50.00	0.00	0.00	624.50	110.00	629.03	0.00	629.49	5.00	78.81	1.41	71.69
10973.00	60.00	630.90	629.50	624.50	110.00	630.42	0.00	630.68	5.00	35.50	1.42	71.72
11023.00	50.00	0.00	0.00	624.60	110.00	630.77	0.00	630.81	15.78	6.13	1.43	71.78
11523.00	500.00	0.00	0.00	625.50	110.00	631.11	0.00	631.15	16.15	7.68	1.51	72.55
11773.00	250.00	0.00	0.00	625.90	110.00	631.30	0.00	631.35	16.44	8.28	1.55	72.91
12023.00	250.00	0.00	0.00	626.30	110.00	631.52	0.00	631.57	16.44	9.19	1.58	73.26
12133.00	110.00	0.00	0.00	626.60	110.00	631.63	0.00	631.64	209.43	3.73	1.62	73.57
12156.00	23.00	0.00	0.00	626.60	110.00	631.64	0.00	631.65	236.16	3.26	1.63	73.67
12243.00	87.00	0.00	0.00	626.80	110.00	631.67	0.00	631.68	243.79	3.27	1.66	74.07

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
12353.00	110.00	0.00	0.00	627.00	110.00	631.71	0.00	631.72	250.97	3.22	1.70	74.60
12463.00	110.00	0.00	0.00	627.20	110.00	631.74	0.00	631.75	254.06	3.16	1.75	75.14
12573.00	110.00	0.00	0.00	627.30	110.00	631.78	0.00	631.79	257.10	3.01	1.79	75.70
12673.00	100.00	0.00	0.00	627.50	110.00	631.81	0.00	631.83	228.08	5.00	1.83	76.17
12773.00	100.00	0.00	0.00	627.70	110.00	631.87	0.00	631.89	189.98	7.22	1.86	76.56
12873.00	100.00	0.00	0.00	627.80	110.00	631.94	0.00	631.96	185.43	7.53	1.89	76.91
12973.00	100.00	0.00	0.00	628.00	110.00	632.03	0.00	632.05	152.76	10.23	1.91	77.22
13073.00	100.00	0.00	0.00	628.20	110.00	632.14	0.00	632.17	147.44	12.50	1.93	77.50
13173.00	100.00	0.00	0.00	628.30	110.00	632.26	0.00	632.29	147.60	11.92	1.95	77.78
13273.00	100.00	0.00	0.00	628.50	110.00	632.39	0.00	632.43	146.97	14.31	1.97	78.04
13373.00	100.00	0.00	0.00	628.70	110.00	632.54	0.00	632.58	146.57	16.11	1.99	78.28
13473.00	100.00	0.00	0.00	628.80	110.00	632.70	0.00	632.73	147.02	14.10	2.01	78.52
13573.00	100.00	0.00	0.00	629.00	110.00	632.84	0.00	632.89	146.59	15.98	2.03	78.76
13673.00	100.00	0.00	0.00	629.20	110.00	633.01	0.00	633.06	146.24	17.71	2.04	78.99
13773.00	100.00	0.00	0.00	629.40	110.00	633.19	0.00	633.24	146.06	18.68	2.06	79.21

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
155.000	725.000	598.350	0.000	0.000	0.000	46.792	0.000	-0.000
177.000	725.000	598.350	0.000	-.000	0.000	31.999	0.000	22.000
200.000	725.000	598.379	0.000	.030	0.000	25.000	0.000	23.000
214.000	725.000	599.143	0.000	.764	0.000	59.408	0.000	14.000
248.000	725.000	599.521	0.000	.378	0.000	94.157	0.000	34.000
282.000	725.000	599.744	0.000	.223	0.000	105.192	0.000	34.000
316.000	725.000	599.959	0.000	.214	0.000	142.498	0.000	34.000
350.000	725.000	600.105	0.000	.147	0.000	149.725	0.000	34.000
375.000	725.000	600.166	0.000	.060	0.000	151.040	0.000	25.000
675.000	725.000	600.528	0.000	.362	0.000	249.070	0.000	300.000
1050.000	725.000	600.608	0.000	.081	0.000	200.883	0.000	375.000
1325.000	725.000	600.738	0.000	.130	0.000	43.841	0.000	275.000
1350.000	725.000	600.771	0.000	.033	0.000	28.638	0.000	25.000
1375.000	725.000	600.749	0.000	-.022	0.000	15.200	0.000	25.000
1418.000	725.000	601.919	0.000	1.170	0.000	15.200	0.000	43.000

1423.000	725.000	602.129	0.000	.211	0.000	24.999	0.000	5.000
1428.000	725.000	602.184	0.000	.055	0.000	34.999	0.000	5.000
1443.000	725.000	602.279	0.000	.095	0.000	64.999	0.000	15.000
1468.000	725.000	602.344	0.000	.064	0.000	114.999	0.000	25.000
1568.000	725.000	602.399	0.000	.056	0.000	277.785	0.000	100.000
1868.000	725.000	602.459	0.000	.060	0.000	281.486	0.000	300.000
2343.000	725.000	602.550	0.000	.091	0.000	280.301	0.000	475.000
2368.000	725.000	602.354	0.000	-.196	0.000	34.999	0.000	25.000
2398.000	475.000	602.560	0.000	.206	0.000	20.999	0.000	30.000
2410.000	475.000	602.552	0.000	-.008	0.000	16.999	0.000	12.000
2422.000	475.000	602.616	0.000	.065	0.000	15.800	0.000	12.000
2423.000	475.000	602.620	0.000	.003	0.000	15.800	0.000	1.000
2453.000	475.000	602.756	0.000	.136	0.000	15.800	0.000	30.000
2454.000	475.000	602.758	0.000	.002	0.000	15.800	0.000	1.000
2460.000	475.000	602.923	0.000	.165	0.000	27.999	0.000	6.000
2466.000	475.000	603.002	0.000	.079	0.000	39.999	0.000	6.000
2472.000	475.000	603.055	0.000	.053	0.000	51.999	0.000	6.000
2481.000	475.000	603.100	0.000	.045	0.000	69.999	0.000	9.000
2501.000	475.000	603.205	0.000	.106	0.000	111.999	0.000	20.000
2529.000	475.000	603.281	0.000	.075	0.000	158.087	0.000	28.000
2804.000	475.000	603.519	0.000	.238	0.000	52.621	0.000	275.000
3079.000	475.000	603.978	0.000	.459	0.000	48.924	0.000	275.000
3354.000	475.000	604.494	0.000	.516	0.000	44.094	0.000	275.000
3628.000	475.000	605.091	0.000	.597	0.000	72.667	0.000	274.000
3661.000	475.000	605.139	0.000	.048	0.000	44.999	0.000	33.000
3694.000	475.000	605.182	0.000	.043	0.000	28.999	0.000	33.000
3711.000	475.000	605.201	0.000	.019	0.000	20.999	0.000	17.000
3719.000	475.000	605.179	0.000	-.022	0.000	16.999	0.000	8.000
3727.000	475.000	605.072	0.000	-.107	0.000	12.500	0.000	8.000
3728.000	475.000	605.009	0.000	-.063	0.000	12.500	0.000	1.000
3773.000	475.000	605.676	0.000	.667	0.000	12.500	0.000	45.000
3774.000	475.000	605.930	0.000	.254	0.000	12.500	0.000	1.000
3779.000	475.000	606.387	0.000	.456	0.000	21.999	0.000	5.000

3784.000	475.000	606.469	0.000	.082	0.000	31.999	0.000	5.000
3794.000	475.000	606.553	0.000	.084	0.000	51.999	0.000	10.000
3804.000	475.000	606.599	0.000	.046	0.000	71.999	0.000	10.000
3823.000	475.000	606.637	0.000	.039	0.000	111.999	0.000	19.000
3873.000	475.000	606.667	0.000	.030	0.000	212.164	0.000	50.000
3923.000	475.000	606.675	0.000	.008	0.000	239.224	0.000	50.000
4423.000	475.000	606.799	0.000	.124	0.000	232.688	0.000	500.000
5098.000	415.000	607.353	0.000	.554	0.000	168.131	0.000	675.000
5648.000	415.000	608.356	0.000	1.002	0.000	145.946	0.000	550.000
6123.000	415.000	609.681	0.000	1.326	0.000	197.995	0.000	475.000
7173.000	415.000	612.397	0.000	2.716	0.000	127.810	0.000	1050.000
8423.000	415.000	616.715	0.000	4.318	0.000	248.033	0.000	1250.000
8475.000	415.000	616.852	0.000	.137	0.000	201.516	0.000	52.000
8527.000	415.000	617.243	0.000	.391	0.000	194.572	0.000	52.000
8579.000	110.000	617.811	0.000	.568	0.000	202.833	0.000	52.000
8630.000	110.000	617.830	0.000	.019	0.000	120.948	0.000	51.000
8836.000	110.000	618.120	0.000	.290	0.000	26.911	0.000	206.000
9042.000	110.000	619.359	0.000	1.240	0.000	22.146	0.000	206.000
9248.000	110.000	620.367	0.000	1.008	0.000	20.247	0.000	206.000
9548.000	110.000	622.421	0.000	2.054	0.000	11.902	0.000	300.000
9798.000	110.000	624.355	0.000	1.933	0.000	13.280	0.000	250.000
9813.000	110.000	624.471	0.000	.117	0.000	13.840	0.000	15.000
9828.000	110.000	624.541	0.000	.069	0.000	14.014	0.000	15.000
9848.000	110.000	624.128	0.000	-.413	0.000	4.000	0.000	20.000
9913.000	110.000	628.380	0.000	4.252	0.000	4.000	0.000	65.000
9963.000	110.000	628.715	0.000	.335	0.000	18.767	0.000	50.000
10863.000	110.000	629.037	0.000	.322	0.000	16.441	0.000	900.000
10913.000	110.000	629.031	0.000	-.006	0.000	5.000	0.000	50.000
10973.000	110.000	630.424	0.000	1.393	0.000	5.000	0.000	60.000
11023.000	110.000	630.767	0.000	.343	0.000	15.775	0.000	50.000
11523.000	110.000	631.106	0.000	.339	0.000	16.152	0.000	500.000
11773.000	110.000	631.304	0.000	.198	0.000	16.443	0.000	250.000
12023.000	110.000	631.520	0.000	.216	0.000	16.437	0.000	250.000

12133.000	110.000	631.630	0.000	.110	0.000	209.426	0.000	110.000
12156.000	110.000	631.641	0.000	.011	0.000	236.158	0.000	23.000
12243.000	110.000	631.670	0.000	.029	0.000	243.794	0.000	87.000
12353.000	110.000	631.707	0.000	.037	0.000	250.967	0.000	110.000
12463.000	110.000	631.743	0.000	.036	0.000	254.059	0.000	110.000
12573.000	110.000	631.778	0.000	.035	0.000	257.101	0.000	110.000
12673.000	110.000	631.815	0.000	.037	0.000	228.077	0.000	100.000
12773.000	110.000	631.871	0.000	.057	0.000	189.979	0.000	100.000
12873.000	110.000	631.945	0.000	.073	0.000	185.428	0.000	100.000
12973.000	110.000	632.028	0.000	.084	0.000	152.764	0.000	100.000
13073.000	110.000	632.138	0.000	.110	0.000	147.438	0.000	100.000
13173.000	110.000	632.262	0.000	.124	0.000	147.604	0.000	100.000
13273.000	110.000	632.389	0.000	.127	0.000	146.970	0.000	100.000
13373.000	110.000	632.538	0.000	.149	0.000	146.567	0.000	100.000
13473.000	110.000	632.696	0.000	.158	0.000	147.021	0.000	100.000
13573.000	110.000	632.843	0.000	.147	0.000	146.594	0.000	100.000
13673.000	110.000	633.009	0.000	.165	0.000	146.244	0.000	100.000
13773.000	110.000	633.189	0.000	.180	0.000	146.064	0.000	100.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	-750.000	40.359	0.000

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Lincoln Township

3) WATERCOURSE: Parker/Richardson Drain

4) DOCUMENT TYPE: Summary

00BREAK00

REVISED 11-9-76

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

PARKER/RICHARDSON DRAIN
CLINTON TWP. FIS
JEA FILE NO. 5555-35
SUMMARY PRINTOUT OF 4 FLOW RUN, STARTING WITH HICKORY CREEK FLOOD LEVELS.

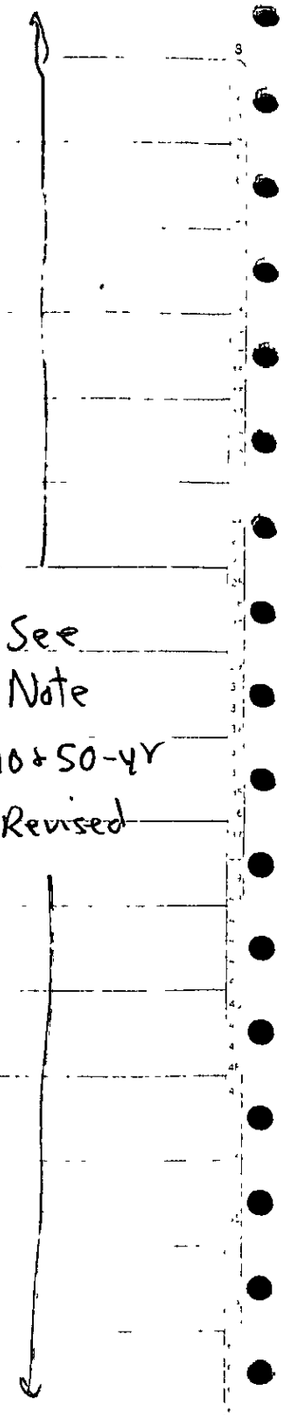
SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
155.00	0.00	0.00	0.00	589.80	425.00	595.35	0.00	595.80	21.85	60.64	0.00	0.00
155.00	0.00	0.00	0.00	589.80	655.00	597.60	0.00	597.96	38.67	31.11	0.00	0.00
155.00	0.00	0.00	0.00	589.80	725.00	598.35	0.00	598.67	46.79	23.27	0.00	0.00
155.00	0.00	0.00	0.00	589.80	890.00	599.80	0.00	600.06	70.00	14.84	0.00	0.00
177.00	22.00	0.00	0.00	590.60	425.00	595.40	0.00	596.10	19.32	106.55	.00	.04
177.00	22.00	0.00	0.00	590.60	655.00	597.61	0.00	598.12	26.89	54.50	.00	.06
177.00	22.00	0.00	0.00	590.60	725.00	598.35	0.00	598.80	32.00	39.53	.00	.08
177.00	22.00	0.00	0.00	590.60	890.00	599.77	0.00	600.17	32.00	25.02	.00	.11
200.00	23.00	0.00	0.00	591.40	425.00	595.56	0.00	596.56	18.54	174.27	.00	.07
200.00	23.00	0.00	0.00	591.40	655.00	597.67	0.00	598.37	24.88	83.96	.00	.12
200.00	23.00	0.00	0.00	591.40	725.00	598.38	0.00	599.00	25.00	62.94	.00	.14
200.00	23.00	0.00	0.00	591.40	890.00	599.81	0.00	600.27	77.90	36.98	.00	.21
214.00	14.00	599.00	597.50	591.40	425.00	595.76	595.76	597.20	15.54	270.64	.00	.08
214.00	14.00	599.00	597.50	591.40	655.00	598.49	0.00	599.17	25.00	83.95	.00	.15
214.00	14.00	599.00	597.50	591.40	725.00	599.14	0.00	599.74	59.41	63.44	.00	.18
214.00	14.00	599.00	597.50	591.40	890.00	600.21	0.00	600.66	84.46	40.55	.00	.27
248.00	34.00	0.00	0.00	591.50	425.00	597.43	0.00	597.90	22.64	68.12	.00	.13
248.00	34.00	0.00	0.00	591.50	655.00	598.93	0.00	599.44	63.06	53.15	.00	.24
248.00	34.00	0.00	0.00	591.50	725.00	599.52	0.00	599.96	94.16	40.52	.00	.30
248.00	34.00	0.00	0.00	591.50	890.00	600.51	0.00	600.82	127.13	25.97	.01	.49
282.00	34.00	0.00	0.00	591.60	425.00	597.76	0.00	598.14	24.91	52.06	.01	.19
282.00	34.00	0.00	0.00	591.60	655.00	599.20	0.00	599.63	83.36	42.22	.01	.34
282.00	34.00	0.00	0.00	591.60	725.00	599.74	0.00	600.10	105.19	32.23	.01	.46
282.00	34.00	0.00	0.00	591.60	890.00	600.68	0.00	600.92	169.30	20.38	.01	.77
316.00	34.00	0.00	0.00	591.60	425.00	597.99	0.00	598.31	24.69	89.46	.01	.26
316.00	34.00	0.00	0.00	591.60	655.00	599.43	0.00	599.78	129.22	31.57	.01	.47
316.00	34.00	0.00	0.00	591.60	725.00	599.96	0.00	600.23	142.50	23.63	.01	.64
316.00	34.00	0.00	0.00	591.60	890.00	600.82	0.00	601.01	197.27	15.62	.01	1.11
350.00	34.00	0.00	0.00	591.60	425.00	598.16	0.00	598.45	25.00	38.12	.01	.34
350.00	34.00	0.00	0.00	591.60	655.00	599.63	0.00	599.90	139.60	26.89	.01	.63
350.00	34.00	0.00	0.00	591.60	725.00	600.11	0.00	600.32	149.73	20.75	.01	.87
350.00	34.00	0.00	0.00	591.60	890.00	600.91	0.00	601.07	219.40	14.99	.01	1.48
375.00	25.00	597.70	597.40	591.60	425.00	598.71	0.00	598.92	42.18	25.03	.01	.40
375.00	25.00	597.70	597.40	591.60	655.00	599.76	0.00	600.00	142.55	23.49	.01	.76
375.00	25.00	597.70	597.40	591.60	725.00	600.17	0.00	600.37	151.04	19.55	.01	1.03
375.00	25.00	597.70	597.40	591.60	890.00	600.93	0.00	601.09	219.62	14.55	.02	1.72
675.00	300.00	0.00	0.00	592.00	425.00	599.11	0.00	599.12	230.67	1.87	.11	3.06
675.00	300.00	0.00	0.00	592.00	655.00	600.18	0.00	600.20	245.85	1.75	.10	4.68
675.00	300.00	0.00	0.00	592.00	725.00	600.53	0.00	600.54	249.07	1.66	.11	5.45
675.00	300.00	0.00	0.00	592.00	890.00	601.22	0.00	601.23	255.49	1.56	.11	7.23

See Note

Revised 10 & 50 Yr. outfalls at end of summary printout

* 10 & 50-year profile Revised from 155 → 3923 see revision at end of this summary

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
1050.00	375.00	0.00	0.00	592.50	425.00	599.21	0.00	599.28	152.51	8.69	.16	6.87
1050.00	375.00	0.00	0.00	592.50	655.00	600.27	0.00	600.33	190.80	6.80	.16	10.24
1050.00	375.00	0.00	0.00	592.50	725.00	600.61	0.00	600.67	200.84	6.08	.16	11.61
1050.00	375.00	0.00	0.00	592.50	890.00	601.29	0.00	601.34	211.39	5.02	.17	14.62
1325.00	275.00	0.00	0.00	592.90	425.00	599.45	0.00	599.64	41.89	18.02	.18	7.83
1325.00	275.00	0.00	0.00	592.90	655.00	600.43	0.00	600.69	43.37	19.64	.17	11.60
1325.00	275.00	0.00	0.00	592.90	725.00	600.74	0.00	601.02	43.84	19.40	.18	13.12
1325.00	275.00	0.00	0.00	592.90	890.00	601.36	0.00	601.68	44.79	19.51	.18	16.42
1350.00	25.00	0.00	0.00	592.10	425.00	599.51	0.00	599.68	26.19	12.90	.18	7.91
1350.00	25.00	0.00	0.00	592.10	655.00	600.47	0.00	600.75	27.64	18.56	.17	11.69
1350.00	25.00	0.00	0.00	592.10	725.00	600.77	0.00	601.08	28.64	19.52	.18	13.21
1350.00	25.00	0.00	0.00	592.10	890.00	601.38	0.00	601.76	34.27	21.42	.18	16.53
1375.00	25.00	0.00	0.00	591.40	425.00	599.52	0.00	599.73	15.20	11.60	.18	7.98
1375.00	25.00	0.00	0.00	591.40	655.00	600.46	0.00	600.86	15.20	19.71	.18	11.77
1375.00	25.00	0.00	0.00	591.40	725.00	600.75	0.00	601.21	15.20	21.94	.18	13.30
1375.00	25.00	0.00	0.00	591.40	890.00	601.82	0.00	601.88	213.04	3.89	.19	16.79
1418.00	43.00	603.50	600.80	591.40	425.00	599.56	0.00	599.83	15.20	23.47	.18	8.08
1418.00	43.00	603.50	600.80	591.40	655.00	601.38	0.00	601.70	15.20	14.71	.18	11.91
1418.00	43.00	603.50	600.80	591.40	725.00	601.92	0.00	602.27	15.20	15.40	.18	13.44
1418.00	43.00	603.50	600.80	591.40	890.00	603.92	0.00	603.94	517.58	1.06	.20	17.80
1423.00	5.00	0.00	0.00	591.40	425.00	599.75	0.00	599.88	25.00	6.67	.18	8.10
1423.00	5.00	0.00	0.00	591.40	655.00	601.57	0.00	601.75	25.00	7.40	.18	11.93
1423.00	5.00	0.00	0.00	591.40	725.00	602.13	0.00	602.33	25.00	7.38	.18	13.46
1423.00	5.00	0.00	0.00	591.40	890.00	603.83	0.00	604.04	25.00	6.37	.20	17.90
1428.00	5.00	0.00	0.00	591.50	425.00	599.77	0.00	599.89	35.00	6.46	.19	8.12
1428.00	5.00	0.00	0.00	591.50	655.00	601.61	0.00	601.76	35.00	6.54	.18	11.96
1428.00	5.00	0.00	0.00	591.50	725.00	602.18	0.00	602.34	35.00	6.37	.18	13.49
1428.00	5.00	0.00	0.00	591.50	890.00	603.90	0.00	604.05	35.00	5.21	.20	17.94
1443.00	15.00	0.00	0.00	591.60	425.00	599.81	0.00	599.90	65.00	5.61	.19	8.19
1443.00	15.00	0.00	0.00	591.60	655.00	601.70	0.00	601.79	65.00	4.65	.18	12.06
1443.00	15.00	0.00	0.00	591.60	725.00	602.28	0.00	602.37	65.00	4.32	.18	13.61
1443.00	15.00	0.00	0.00	591.60	890.00	604.01	0.00	604.08	65.00	3.17	.20	18.08
1468.00	25.00	0.00	0.00	591.80	425.00	599.84	0.00	599.92	115.00	5.18	.19	8.35
1468.00	25.00	0.00	0.00	591.80	655.00	601.76	0.00	601.81	115.00	3.24	.19	12.34
1468.00	25.00	0.00	0.00	591.80	725.00	602.34	0.00	602.39	115.00	2.84	.19	13.92
1468.00	25.00	0.00	0.00	591.80	890.00	604.07	0.00	604.10	115.00	1.85	.21	18.50
1568.00	100.00	0.00	0.00	592.60	425.00	599.89	0.00	599.99	223.92	7.53	.20	8.95
1568.00	100.00	0.00	0.00	592.60	655.00	601.82	0.00	601.85	269.14	2.53	.21	13.66
1568.00	100.00	0.00	0.00	592.60	725.00	602.40	0.00	602.42	277.78	1.91	.21	15.48
1568.00	100.00	0.00	0.00	592.60	890.00	604.11	0.00	604.12	284.28	.92	.24	20.76



SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
1868.00	300.00	0.00	0.00	594.90	425.00	600.14	0.00	600.17	256.32	4.12	.27	11.64
1868.00	300.00	0.00	0.00	594.90	655.00	601.90	0.00	601.91	279.32	1.58	.31	19.83
1868.00	300.00	0.00	0.00	594.90	725.00	602.46	0.00	602.47	281.49	1.24	.32	22.85
1868.00	300.00	0.00	0.00	594.90	890.00	604.14	0.00	604.15	287.89	.65	.38	31.71
2343.00	475.00	0.00	0.00	595.70	425.00	600.49	0.00	600.65	250.91	28.55	.32	15.93
2343.00	475.00	0.00	0.00	595.70	655.00	602.02	0.00	602.05	278.38	5.76	.41	29.07
2343.00	475.00	0.00	0.00	595.70	725.00	602.55	0.00	602.58	280.30	3.88	.44	33.79
2343.00	475.00	0.00	0.00	595.70	890.00	604.18	0.00	604.19	286.17	1.47	.54	47.88
2368.00	25.00	0.00	0.00	595.70	425.00	600.37	0.00	600.96	35.00	81.17	.32	15.99
2368.00	25.00	0.00	0.00	595.70	655.00	601.81	0.00	602.30	35.00	43.04	.41	29.23
2368.00	25.00	0.00	0.00	595.70	725.00	602.35	0.00	602.81	35.00	34.12	.45	33.99
2368.00	25.00	0.00	0.00	595.70	890.00	604.03	0.00	604.37	35.00	17.52	.54	48.20
2398.00	30.00	0.00	0.00	596.10	275.00	600.93	0.00	601.22	21.00	37.77	.32	16.04
2398.00	30.00	0.00	0.00	596.10	420.00	602.11	0.00	602.46	21.00	33.59	.42	29.31
2398.00	30.00	0.00	0.00	596.10	475.00	602.56	0.00	602.93	21.00	31.88	.45	34.08
2398.00	30.00	0.00	0.00	596.10	585.00	604.11	0.00	604.43	21.00	20.81	.54	48.32
2410.00	12.00	0.00	0.00	596.20	275.00	600.95	0.00	601.30	17.00	51.17	.32	16.05
2410.00	12.00	0.00	0.00	596.20	420.00	602.11	0.00	602.56	17.00	51.32	.42	29.33
2410.00	12.00	0.00	0.00	596.20	475.00	602.55	0.00	603.04	17.00	50.50	.45	34.11
2410.00	12.00	0.00	0.00	596.20	585.00	604.09	0.00	604.52	17.00	36.47	.54	48.36
2422.00	12.00	0.00	0.00	596.40	275.00	601.05	0.00	601.37	15.80	46.13	.32	16.07
2422.00	12.00	0.00	0.00	596.40	420.00	602.18	0.00	602.63	15.80	51.68	.42	29.35
2422.00	12.00	0.00	0.00	596.40	475.00	602.62	0.00	603.10	15.80	52.24	.45	34.13
2422.00	12.00	0.00	0.00	596.40	585.00	604.13	0.00	604.57	15.80	40.06	.55	48.39
2423.00	1.00	604.50	605.10	596.40	275.00	601.06	0.00	601.37	15.80	10.42	.32	16.07
2423.00	1.00	604.50	605.10	596.40	420.00	602.19	0.00	602.63	15.80	11.69	.42	29.35
2423.00	1.00	604.50	605.10	596.40	475.00	602.62	0.00	603.10	15.80	11.82	.45	34.13
2423.00	1.00	604.50	605.10	596.40	585.00	604.13	0.00	604.57	15.80	9.07	.55	48.39
2453.00	30.00	604.50	605.20	595.70	275.00	601.17	0.00	601.42	15.80	7.74	.33	16.12
2453.00	30.00	604.50	605.20	595.70	420.00	602.32	0.00	602.69	15.80	9.24	.42	29.41
2453.00	30.00	604.50	605.20	595.70	475.00	602.76	0.00	603.16	15.80	9.56	.45	34.20
2453.00	30.00	604.50	605.20	595.70	585.00	604.22	0.00	604.61	15.80	7.92	.55	48.47
2454.00	-1.00	0.00	0.00	595.70	275.00	601.17	0.00	601.42	15.80	34.13	.33	16.12
2454.00	1.00	0.00	0.00	595.70	420.00	602.32	0.00	602.69	15.80	40.74	.42	29.41
2454.00	1.00	0.00	0.00	595.70	475.00	602.76	0.00	603.16	15.80	42.13	.45	34.20
2454.00	-1.00	0.00	0.00	595.70	585.00	604.23	0.00	604.62	15.80	34.86	.55	48.47
2460.00	6.00	0.00	0.00	595.70	275.00	601.21	0.00	601.45	24.59	28.00	.33	16.13
2460.00	6.00	0.00	0.00	595.70	420.00	602.45	0.00	602.73	28.00	23.49	.42	29.43
2460.00	6.00	0.00	0.00	595.70	475.00	602.92	0.00	603.21	28.00	21.64	.45	34.21
2460.00	6.00	0.00	0.00	595.70	585.00	604.43	0.00	604.67	28.00	13.50	.55	48.49

See Note

10 & 50-yr Revised

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
2466.00	6.00	0.00	0.00	595.70	275.00	601.24	0.00	601.46	31.86	27.31	.33	16.14
2466.00	6.00	0.00	0.00	595.70	420.00	602.52	0.00	602.76	40.00	20.72	.42	29.44
2466.00	6.00	0.00	0.00	595.70	475.00	603.00	0.00	603.24	40.00	18.37	.45	34.23
2466.00	6.00	0.00	0.00	595.70	585.00	604.52	0.00	604.70	40.00	10.62	.55	48.52
2472.00	6.00	0.00	0.00	595.70	275.00	601.26	0.00	601.48	34.09	26.76	.33	16.15
2472.00	6.00	0.00	0.00	595.70	420.00	602.56	0.00	602.78	52.00	18.93	.42	29.46
2472.00	6.00	0.00	0.00	595.70	475.00	603.05	0.00	603.26	52.00	16.26	.45	34.25
2472.00	6.00	0.00	0.00	595.70	585.00	604.58	0.00	604.72	52.00	8.82	.55	48.55
2481.00	9.00	0.00	0.00	595.80	275.00	601.28	0.00	601.51	47.02	28.83	.33	16.16
2481.00	9.00	0.00	0.00	595.80	420.00	602.59	0.00	602.80	70.00	18.83	.42	29.49
2481.00	9.00	0.00	0.00	595.80	475.00	603.10	0.00	603.28	70.00	15.25	.45	34.29
2481.00	9.00	0.00	0.00	595.80	585.00	604.63	0.00	604.73	70.00	7.45	.55	48.60
2501.00	20.00	0.00	0.00	595.80	275.00	601.35	0.00	601.57	69.11	26.62	.33	16.20
2501.00	20.00	0.00	0.00	595.80	420.00	602.70	0.00	602.85	112.00	14.44	.42	29.57
2501.00	20.00	0.00	0.00	595.80	475.00	603.21	0.00	603.32	112.00	11.00	.45	34.39
2501.00	20.00	0.00	0.00	595.80	585.00	604.70	0.00	604.76	112.00	4.74	.55	48.77
2529.00	28.00	0.00	0.00	595.90	275.00	601.42	0.00	601.65	96.78	26.92	.33	16.25
2529.00	28.00	0.00	0.00	595.90	420.00	602.78	0.00	602.89	157.34	11.73	.43	29.70
2529.00	28.00	0.00	0.00	595.90	475.00	603.29	0.00	603.36	158.09	8.44	.46	34.57
2529.00	28.00	0.00	0.00	595.90	585.00	604.74	0.00	604.78	160.30	3.28	.56	49.07
2804.00	275.00	0.00	0.00	596.60	275.00	602.07	0.00	602.23	27.18	16.09	.36	16.79
2804.00	275.00	0.00	0.00	596.60	420.00	603.11	0.00	603.33	42.24	17.03	.45	30.86
2804.00	275.00	0.00	0.00	596.60	475.00	603.52	0.00	603.74	52.62	16.20	.48	36.02
2804.00	275.00	0.00	0.00	596.60	585.00	604.82	0.00	604.99	77.54	9.80	.58	51.49
3079.00	275.00	0.00	0.00	597.20	275.00	602.53	0.00	602.70	25.52	17.98	.38	17.33
3079.00	275.00	0.00	0.00	597.20	420.00	603.60	0.00	603.82	38.93	18.77	.47	31.61
3079.00	275.00	0.00	0.00	597.20	475.00	603.98	0.00	604.22	48.92	17.97	.50	36.88
3079.00	275.00	0.00	0.00	597.20	585.00	605.10	0.00	605.30	73.92	12.19	.60	52.84
3354.00	275.00	0.00	0.00	597.90	275.00	603.05	0.00	603.24	23.40	20.80	.40	17.84
3354.00	275.00	0.00	0.00	597.90	420.00	604.13	0.00	604.38	36.06	21.22	.49	32.33
3354.00	275.00	0.00	0.00	597.90	475.00	604.49	0.00	604.76	44.09	20.64	.52	37.69
3354.00	275.00	0.00	0.00	597.90	585.00	605.46	0.00	605.70	69.34	15.56	.62	54.04
3628.00	274.00	0.00	0.00	598.60	275.00	603.64	0.00	603.80	35.96	19.71	.43	18.38
3628.00	274.00	0.00	0.00	598.60	420.00	604.74	0.00	604.93	64.00	17.64	.51	33.12
3628.00	274.00	0.00	0.00	598.60	475.00	605.09	0.00	605.28	72.67	16.72	.54	38.60
3628.00	274.00	0.00	0.00	598.60	585.00	605.93	0.00	606.10	82.24	12.88	.65	55.31
3661.00	33.00	0.00	0.00	598.70	275.00	603.71	0.00	603.87	33.35	20.35	.43	18.45
3661.00	33.00	0.00	0.00	598.70	420.00	604.79	0.00	604.99	45.00	18.69	.51	33.22
3661.00	33.00	0.00	0.00	598.70	475.00	605.14	0.00	605.35	45.00	18.12	.54	38.72
3661.00	33.00	0.00	0.00	598.70	585.00	605.96	0.00	606.17	45.00	15.24	.65	55.50

See Note
10-50-4Y
Revised

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
3694.00	33.00	0.00	0.00	598.90	275.00	603.77	0.00	603.95	29.00	22.88	.43	18.51
3694.00	33.00	0.00	0.00	598.90	420.00	604.84	0.00	605.08	29.00	22.81	.51	33.31
3694.00	33.00	0.00	0.00	598.90	475.00	605.18	0.00	605.44	29.00	23.17	.54	38.83
3694.00	33.00	0.00	0.00	598.90	585.00	605.99	0.00	606.26	29.00	21.67	.65	55.63
3711.00	17.00	0.00	0.00	598.90	275.00	603.80	0.00	604.00	21.00	25.28	.43	18.54
3711.00	17.00	0.00	0.00	598.90	420.00	604.86	0.00	605.14	21.00	28.58	.51	33.35
3711.00	17.00	0.00	0.00	598.90	475.00	605.20	0.00	605.51	21.00	30.05	.54	38.87
3711.00	17.00	0.00	0.00	598.90	585.00	605.99	0.00	606.34	21.00	30.31	.65	55.68
3719.00	8.00	0.00	0.00	599.00	275.00	603.80	0.00	604.04	17.00	32.65	.43	18.55
3719.00	8.00	0.00	0.00	599.00	420.00	604.85	0.00	605.21	17.00	40.01	.51	33.37
3719.00	8.00	0.00	0.00	599.00	475.00	605.18	0.00	605.59	17.00	43.00	.55	38.89
3719.00	8.00	0.00	0.00	599.00	585.00	605.96	0.00	606.43	17.00	45.19	.65	55.71
3727.00	8.00	0.00	0.00	599.00	275.00	603.75	0.00	604.16	12.50	62.12	.43	18.57
3727.00	8.00	0.00	0.00	599.00	420.00	604.76	0.00	605.39	12.50	81.82	.52	33.38
3727.00	8.00	0.00	0.00	599.00	475.00	605.07	0.00	605.79	12.50	89.68	.55	38.90
3727.00	8.00	0.00	0.00	599.00	585.00	605.83	0.00	606.67	12.50	97.55	.65	55.72
3728.00	1.00	608.30	606.90	599.00	275.00	603.74	0.00	604.19	12.50	59.45	.43	18.57
3728.00	1.00	608.30	606.90	599.00	420.00	604.71	0.00	605.45	12.50	99.58	.52	33.39
3728.00	1.00	608.30	606.90	599.00	475.00	605.01	0.00	605.87	12.50	113.69	.55	38.91
3728.00	1.00	608.30	606.90	599.00	585.00	605.71	0.00	606.81	12.50	158.53	.65	55.72
3773.00	45.00	608.30	606.90	599.00	275.00	604.06	0.00	604.45	12.50	49.88	.44	18.62
3773.00	45.00	608.30	606.90	599.00	420.00	605.26	0.00	605.88	12.50	81.22	.52	33.45
3773.00	45.00	608.30	606.90	599.00	475.00	605.68	0.00	606.40	12.50	105.33	.55	38.97
3773.00	45.00	608.30	606.90	599.00	585.00	606.61	0.00	607.55	12.50	152.88	.66	55.80
3774.00	1.00	0.00	0.00	599.00	275.00	604.11	0.00	604.46	12.50	49.79	.44	18.62
3774.00	1.00	0.00	0.00	599.00	420.00	605.44	0.00	605.93	12.50	59.30	.52	33.45
3774.00	1.00	0.00	0.00	599.00	475.00	605.93	0.00	606.47	12.50	61.60	.55	38.98
3774.00	1.00	0.00	0.00	599.00	585.00	607.08	0.00	607.67	12.50	61.09	.66	55.80
3779.00	5.00	0.00	0.00	599.00	275.00	604.39	0.00	604.54	22.00	18.23	.44	18.63
3779.00	5.00	0.00	0.00	599.00	420.00	605.85	0.00	606.04	22.00	17.38	.52	33.46
3779.00	5.00	0.00	0.00	599.00	475.00	606.39	0.00	606.59	22.00	17.08	.55	38.99
3779.00	5.00	0.00	0.00	599.00	585.00	607.59	0.00	607.80	22.00	15.61	.66	55.82
3784.00	5.00	0.00	0.00	599.00	275.00	604.43	0.00	604.55	32.00	13.00	.44	18.64
3784.00	5.00	0.00	0.00	599.00	420.00	605.92	0.00	606.06	32.00	9.90	.52	33.48
3784.00	5.00	0.00	0.00	599.00	475.00	606.47	0.00	606.61	32.00	9.08	.55	39.01
3784.00	5.00	0.00	0.00	599.00	585.00	607.68	0.00	607.82	32.00	7.26	.66	55.84
3794.00	10.00	0.00	0.00	599.10	275.00	604.49	0.00	604.57	52.00	10.69	.44	18.67
3794.00	10.00	0.00	0.00	599.10	420.00	606.00	0.00	606.08	52.00	6.96	.52	33.52
3794.00	10.00	0.00	0.00	599.10	475.00	606.55	0.00	606.63	52.00	6.16	.55	39.05
3794.00	10.00	0.00	0.00	599.10	585.00	607.77	0.00	607.85	52.00	4.64	.66	55.90

See Note 10 & 50-yr Revised

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
3804.00	10.00	0.00	0.00	599.10	275.00	604.53	0.00	604.59	72.00	8.15	.44	18.71
3804.00	10.00	0.00	0.00	599.10	420.00	606.05	0.00	606.10	72.00	4.90	.52	33.58
3804.00	10.00	0.00	0.00	599.10	475.00	606.60	0.00	606.65	72.00	4.25	.55	39.12
3804.00	10.00	0.00	0.00	599.10	585.00	607.82	0.00	607.86	72.00	3.12	.66	55.98
3823.00	19.00	0.00	0.00	599.20	275.00	604.57	0.00	604.61	112.00	5.97	.44	18.80
3823.00	19.00	0.00	0.00	599.20	420.00	606.09	0.00	606.11	112.00	3.08	.53	33.74
3823.00	19.00	0.00	0.00	599.20	475.00	606.64	0.00	606.66	112.00	2.59	.56	39.30
3823.00	19.00	0.00	0.00	599.20	585.00	607.85	0.00	607.87	112.00	1.80	.66	56.21
3873.00	50.00	0.00	0.00	599.30	275.00	604.62	0.00	604.64	208.19	4.19	.46	19.20
3873.00	50.00	0.00	0.00	599.30	420.00	606.12	0.00	606.13	211.10	1.64	.55	34.44
3873.00	50.00	0.00	0.00	599.30	475.00	606.67	0.00	606.68	212.16	1.30	.58	40.12
3873.00	50.00	0.00	0.00	599.30	585.00	607.88	0.00	607.88	214.51	.82	.69	57.28
3923.00	50.00	0.00	0.00	599.50	275.00	604.65	0.00	604.68	220.71	5.54	.47	19.67
3923.00	50.00	0.00	0.00	599.50	420.00	606.13	0.00	606.14	236.80	1.87	.57	35.40
3923.00	50.00	0.00	0.00	599.50	475.00	606.68	0.00	606.68	239.22	1.42	.60	41.25
3923.00	50.00	0.00	0.00	599.50	585.00	607.88	0.00	607.89	244.58	.84	.72	58.81
4423.00	500.00	0.00	0.00	601.10	275.00	605.16	0.00	605.38	160.46	43.48	.51	22.23
4423.00	500.00	0.00	0.00	601.10	420.00	606.30	0.00	606.36	223.10	11.78	.65	41.32
4423.00	500.00	0.00	0.00	601.10	475.00	606.80	0.00	606.84	232.69	7.19	.70	48.63
4423.00	500.00	0.00	0.00	601.10	585.00	607.95	0.00	607.97	237.79	2.90	.86	69.51
5098.00	675.00	0.00	0.00	602.90	240.00	606.76	0.00	606.82	147.41	11.60	.61	24.32
5098.00	675.00	0.00	0.00	602.90	370.00	607.11	0.00	607.19	159.69	14.04	.74	45.30
5098.00	675.00	0.00	0.00	602.90	415.00	607.35	0.00	607.42	168.13	11.69	.79	53.66
5098.00	675.00	0.00	0.00	602.90	515.00	608.18	0.00	608.22	187.73	5.39	.98	77.42
5648.00	550.00	0.00	0.00	604.20	240.00	607.76	0.00	607.97	50.89	40.28	.66	25.85
5648.00	550.00	0.00	0.00	604.20	370.00	608.25	0.00	608.49	139.79	40.13	.78	47.48
5648.00	550.00	0.00	0.00	604.20	415.00	608.36	0.00	608.60	145.95	41.02	.83	56.18
5648.00	550.00	0.00	0.00	604.20	515.00	608.70	0.00	608.90	166.15	32.63	1.03	81.22
6123.00	475.00	0.00	0.00	605.30	240.00	609.09	0.00	609.17	137.46	16.80	.71	26.87
6123.00	475.00	0.00	0.00	605.30	370.00	609.56	0.00	609.65	190.11	15.57	.83	49.27
6123.00	475.00	0.00	0.00	605.30	415.00	609.68	0.00	609.78	198.00	15.53	.89	58.20
6123.00	475.00	0.00	0.00	605.30	515.00	609.90	0.00	610.01	211.01	16.63	1.08	83.80
7173.00	1050.00	0.00	0.00	609.00	240.00	612.01	0.00	612.15	112.38	56.47	.81	29.37
7173.00	1050.00	0.00	0.00	609.00	370.00	612.30	0.00	612.45	124.23	55.19	.93	53.07
7173.00	1050.00	0.00	0.00	609.00	415.00	612.40	0.00	612.55	127.81	54.59	.98	62.39
7173.00	1050.00	0.00	0.00	609.00	515.00	612.62	0.00	612.78	136.62	48.82	1.17	88.80
8423.00	1250.00	0.00	0.00	613.50	240.00	616.34	0.00	616.38	241.42	24.62	1.04	33.51
8423.00	1250.00	0.00	0.00	613.50	370.00	616.63	0.00	616.68	246.47	25.56	1.13	58.61
8423.00	1250.00	0.00	0.00	613.50	415.00	616.71	0.00	616.77	248.03	25.74	1.18	68.37
8423.00	1250.00	0.00	0.00	613.50	515.00	616.87	0.00	616.93	250.82	27.50	1.35	95.68

See Note 10 & 50-yr Revise to 3823

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRTWS	EG	TOPWID	10K*S	TIME	VOL
8475.00	52.00	0.00	0.00	613.80	240.00	616.45	616.45	616.75	198.93	108.19	1.04	33.70
8475.00	52.00	0.00	0.00	613.80	370.00	616.76	0.00	616.99	200.93	88.30	1.14	58.88
8475.00	52.00	0.00	0.00	613.80	415.00	616.85	0.00	617.07	201.52	84.46	1.19	68.67
8475.00	52.00	0.00	0.00	613.80	515.00	617.02	0.00	617.24	202.61	81.74	1.36	96.02
8527.00	52.00	0.00	0.00	614.10	240.00	616.93	0.00	617.22	147.22	87.29	1.04	33.81
8527.00	52.00	0.00	0.00	614.10	370.00	617.16	617.13	617.51	194.03	104.37	1.14	59.05
8527.00	52.00	0.00	0.00	614.10	415.00	617.24	0.00	617.58	194.57	103.59	1.19	68.86
8527.00	52.00	0.00	0.00	614.10	515.00	617.41	0.00	617.74	195.63	103.32	1.36	96.25
8579.00	52.00	0.00	0.00	614.40	56.00	617.42	0.00	617.43	129.74	3.13	1.06	33.91
8579.00	52.00	0.00	0.00	614.40	97.00	617.74	0.00	617.75	164.30	4.36	1.15	59.19
8579.00	52.00	0.00	0.00	614.40	110.00	617.81	0.00	617.83	202.83	4.74	1.20	69.02
8579.00	52.00	0.00	0.00	614.40	125.00	617.97	0.00	617.99	214.98	4.23	1.38	96.45
8630.00	51.00	0.00	0.00	614.60	56.00	617.43	0.00	617.46	89.72	6.14	1.07	34.00
8630.00	51.00	0.00	0.00	614.60	97.00	617.75	0.00	617.79	114.77	8.59	1.16	59.32
8630.00	51.00	0.00	0.00	614.60	110.00	617.83	0.00	617.87	120.95	9.30	1.21	69.16
8630.00	51.00	0.00	0.00	614.60	125.00	617.99	0.00	618.03	129.97	8.45	1.39	96.62
8836.00	206.00	0.00	0.00	615.80	56.00	617.65	0.00	617.77	15.02	46.09	1.09	34.18
8836.00	206.00	0.00	0.00	615.80	97.00	618.03	0.00	618.24	21.27	64.48	1.18	59.58
8836.00	206.00	0.00	0.00	615.80	110.00	618.12	0.00	618.36	26.91	68.68	1.23	69.45
8836.00	206.00	0.00	0.00	615.80	125.00	618.24	0.00	618.51	34.25	69.87	1.40	96.95
9042.00	206.00	0.00	0.00	616.90	56.00	618.62	0.00	618.74	15.90	47.69	1.11	34.28
9042.00	206.00	0.00	0.00	616.90	97.00	619.22	0.00	619.37	20.22	45.88	1.19	59.72
9042.00	206.00	0.00	0.00	616.90	110.00	619.36	0.00	619.53	22.15	45.57	1.24	69.59
9042.00	206.00	0.00	0.00	616.90	125.00	619.50	0.00	619.68	26.93	45.70	1.42	97.12
9248.00	206.00	0.00	0.00	618.00	56.00	619.64	0.00	619.77	15.49	52.16	1.13	34.37
9248.00	206.00	0.00	0.00	618.00	97.00	620.22	0.00	620.39	19.31	52.61	1.21	59.86
9248.00	206.00	0.00	0.00	618.00	110.00	620.37	0.00	620.55	20.25	53.25	1.26	69.75
9248.00	206.00	0.00	0.00	618.00	125.00	620.52	0.00	620.71	21.30	53.98	1.43	97.29
9548.00	300.00	0.00	0.00	619.70	56.00	621.66	0.00	621.92	9.89	97.58	1.15	34.49
9548.00	300.00	0.00	0.00	619.70	97.00	622.26	0.00	622.62	11.47	101.50	1.23	60.03
9548.00	300.00	0.00	0.00	619.70	110.00	622.42	0.00	622.80	11.90	102.06	1.28	69.94
9548.00	300.00	0.00	0.00	619.70	125.00	622.59	0.00	623.00	12.34	103.61	1.45	97.49
9798.00	250.00	0.00	0.00	621.10	56.00	623.45	0.00	623.60	10.92	47.67	1.18	34.58
9798.00	250.00	0.00	0.00	621.10	97.00	624.17	0.00	624.38	12.79	49.56	1.25	60.17
9798.00	250.00	0.00	0.00	621.10	110.00	624.35	0.00	624.58	13.28	50.13	1.30	70.09
9798.00	250.00	0.00	0.00	621.10	125.00	624.56	0.00	624.80	13.83	50.10	1.47	97.65
9813.00	15.00	0.00	0.00	621.00	56.00	623.55	0.00	623.67	11.46	34.06	1.18	34.59
9813.00	15.00	0.00	0.00	621.00	97.00	624.28	0.00	624.45	13.35	37.76	1.25	60.18
9813.00	15.00	0.00	0.00	621.00	110.00	624.47	0.00	624.66	13.84	38.68	1.30	70.10
9813.00	15.00	0.00	0.00	621.00	125.00	624.68	0.00	624.88	14.40	39.13	1.47	97.67

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
9828.00	15.00	0.00	0.00	621.00	56.00	623.61	0.00	623.72	11.62	31.01	1.18	34.59
9828.00	15.00	0.00	0.00	621.00	97.00	624.35	0.00	624.51	13.52	34.84	1.25	60.19
9828.00	15.00	0.00	0.00	621.00	110.00	624.54	0.00	624.72	14.01	35.78	1.30	70.11
9828.00	15.00	0.00	0.00	621.00	125.00	624.75	0.00	624.94	14.57	36.34	1.47	97.68
9848.00	20.00	0.00	0.00	620.90	56.00	623.51	0.00	624.06	4.00	159.68	1.18	34.60
9848.00	20.00	0.00	0.00	620.90	97.00	624.03	0.00	625.13	4.00	274.18	1.25	60.20
9848.00	20.00	0.00	0.00	620.90	110.00	624.13	0.00	625.45	4.00	321.57	1.30	70.12
9848.00	20.00	0.00	0.00	620.90	125.00	624.26	624.26	625.83	4.00	370.42	1.47	97.69
9913.00	65.00	629.30	625.40	621.40	56.00	624.61	0.00	624.98	4.00	112.97	1.18	34.62
9913.00	65.00	629.30	625.40	621.40	97.00	627.30	0.00	627.59	4.00	45.68	1.26	60.22
9913.00	65.00	629.30	625.40	621.40	110.00	628.38	0.00	628.64	4.00	37.84	1.30	70.15
9913.00	65.00	629.30	625.40	621.40	125.00	629.35	0.00	629.35	202.70	.18	1.53	98.03
9963.00	50.00	0.00	0.00	621.60	56.00	625.13	0.00	625.17	14.69	7.99	1.19	34.64
9963.00	50.00	0.00	0.00	621.60	97.00	627.67	0.00	627.70	18.13	2.48	1.27	60.28
9963.00	50.00	0.00	0.00	621.60	110.00	628.71	0.00	628.73	18.77	1.72	1.31	70.22
9963.00	50.00	0.00	0.00	621.60	125.00	629.35	0.00	629.35	1130.80	.19	1.62	99.05
10863.00	900.00	0.00	0.00	625.00	56.00	626.86	0.00	627.16	10.28	132.65	1.25	35.13
10863.00	900.00	0.00	0.00	625.00	97.00	628.17	0.00	628.35	14.00	41.66	1.34	61.38
10863.00	900.00	0.00	0.00	625.00	110.00	629.04	0.00	629.14	16.44	19.16	1.41	71.65
10863.00	900.00	0.00	0.00	625.00	125.00	629.35	0.00	629.46	17.36	17.72	1.72	106.90
10913.00	50.00	0.00	0.00	624.50	56.00	627.38	0.00	627.72	5.00	90.64	1.25	35.14
10913.00	50.00	0.00	0.00	624.50	97.00	628.31	0.00	628.84	5.00	105.88	1.34	61.41
10913.00	50.00	0.00	0.00	624.50	110.00	629.03	0.00	629.49	5.00	78.81	1.41	71.69
10913.00	50.00	0.00	0.00	624.50	125.00	629.31	0.00	629.84	5.00	84.53	1.72	106.94
10973.00	60.00	630.90	629.50	624.50	56.00	627.94	0.00	628.20	5.00	62.11	1.26	35.16
10973.00	60.00	630.90	629.50	624.50	97.00	629.09	0.00	629.51	5.00	103.69	1.35	61.43
10973.00	60.00	630.90	629.50	624.50	110.00	630.42	0.00	630.68	5.00	35.50	1.42	71.72
10973.00	60.00	630.90	629.50	624.50	125.00	631.09	0.00	631.19	41.00	7.70	1.73	107.00
11023.00	50.00	0.00	0.00	624.60	56.00	628.32	0.00	628.36	12.26	9.95	1.27	35.19
11023.00	50.00	0.00	0.00	624.60	97.00	629.68	0.00	629.73	14.21	9.76	1.35	61.47
11023.00	50.00	0.00	0.00	624.60	110.00	630.77	0.00	630.81	15.78	6.13	1.43	71.78
11023.00	50.00	0.00	0.00	624.60	125.00	631.20	0.00	631.24	16.40	6.14	1.74	107.08
11523.00	500.00	0.00	0.00	625.50	56.00	628.88	0.00	628.93	12.49	12.78	1.35	35.58
11523.00	500.00	0.00	0.00	625.50	97.00	630.21	0.00	630.26	14.66	11.53	1.43	62.07
11523.00	500.00	0.00	0.00	625.50	110.00	631.11	0.00	631.15	16.15	7.68	1.51	72.55
11523.00	500.00	0.00	0.00	625.50	125.00	631.60	627.52	631.61	349.88	2.43	1.94	109.12
11773.00	250.00	0.00	0.00	625.90	56.00	629.21	0.00	629.25	12.74	13.27	1.39	35.76
11773.00	250.00	0.00	0.00	625.90	97.00	630.50	0.00	630.56	15.02	11.85	1.46	62.36
11773.00	250.00	0.00	0.00	625.90	110.00	631.30	0.00	631.35	16.44	8.28	1.55	72.91
11773.00	250.00	0.00	0.00	625.90	125.00	631.66	0.00	631.67	365.11	2.34	2.05	110.76

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRITS	EO	VEL HEAD			
12023.00	250.00	0.00	0.00	626.30	56.00	629.55	0.00	629.60	12.83	13.97	1.42	35.95
12023.00	250.00	0.00	0.00	626.30	97.00	630.80	0.00	630.86	15.13	12.51	1.50	62.64
12023.00	250.00	0.00	0.00	626.30	110.00	631.52	0.00	631.57	16.44	9.19	1.58	73.26
12023.00	250.00	0.00	0.00	626.30	125.00	631.72	0.00	631.73	379.86	2.31	2.16	112.50
12133.00	110.00	0.00	0.00	626.60	56.00	629.71	0.00	629.76	13.14	15.33	1.44	36.03
12133.00	110.00	0.00	0.00	626.60	97.00	630.95	0.00	630.99	122.06	10.81	1.52	62.80
12133.00	110.00	0.00	0.00	626.60	110.00	631.63	0.00	631.64	209.43	3.73	1.62	73.57
12133.00	110.00	0.00	0.00	626.60	125.00	631.75	0.00	631.76	230.97	3.80	2.20	113.15
12156.00	23.00	0.00	0.00	626.60	56.00	629.74	0.00	629.79	13.22	14.65	1.44	36.04
12156.00	23.00	0.00	0.00	626.60	97.00	630.98	0.00	631.02	145.29	10.20	1.52	62.84
12156.00	23.00	0.00	0.00	626.60	110.00	631.64	0.00	631.65	236.16	3.26	1.63	73.67
12156.00	23.00	0.00	0.00	626.60	125.00	631.76	0.00	631.77	254.58	3.33	2.21	113.26
12243.00	87.00	0.00	0.00	626.80	56.00	629.87	0.00	629.92	13.34	15.49	1.46	36.10
12243.00	87.00	0.00	0.00	626.80	97.00	631.07	0.00	631.11	146.05	9.45	1.54	63.03
12243.00	87.00	0.00	0.00	626.80	110.00	631.67	0.00	631.68	243.79	3.27	1.66	74.07
12243.00	87.00	0.00	0.00	626.80	125.00	631.79	0.00	631.80	257.26	3.30	2.24	113.72
12353.00	110.00	0.00	0.00	627.00	56.00	630.04	0.00	630.10	13.55	15.59	1.48	36.18
12353.00	110.00	0.00	0.00	627.00	97.00	631.18	0.00	631.21	146.93	8.37	1.56	63.29
12353.00	110.00	0.00	0.00	627.00	110.00	631.71	0.00	631.72	250.97	3.22	1.70	74.60
12353.00	110.00	0.00	0.00	627.00	125.00	631.83	0.00	631.84	260.42	3.23	2.28	114.32
12463.00	110.00	0.00	0.00	627.20	56.00	630.22	0.00	630.27	13.78	15.69	1.49	36.26
12463.00	110.00	0.00	0.00	627.20	97.00	631.27	0.00	631.29	147.73	7.45	1.59	63.58
12463.00	110.00	0.00	0.00	627.20	110.00	631.74	0.00	631.75	254.06	3.16	1.75	75.14
12463.00	110.00	0.00	0.00	627.20	125.00	631.86	0.00	631.87	263.54	3.15	2.33	114.93
12573.00	110.00	0.00	0.00	627.30	56.00	630.39	0.00	630.43	14.10	14.26	1.51	36.34
12573.00	110.00	0.00	0.00	627.30	97.00	631.35	0.00	631.37	162.33	6.43	1.62	63.90
12573.00	110.00	0.00	0.00	627.30	110.00	631.78	0.00	631.79	257.10	3.01	1.79	75.70
12573.00	110.00	0.00	0.00	627.30	125.00	631.90	0.00	631.91	266.57	3.00	2.37	115.56
12673.00	100.00	0.00	0.00	627.50	56.00	630.55	0.00	630.59	13.99	18.20	1.52	36.41
12673.00	100.00	0.00	0.00	627.50	97.00	631.43	0.00	631.45	147.32	10.04	1.64	64.19
12673.00	100.00	0.00	0.00	627.50	110.00	631.81	0.00	631.83	228.08	5.00	1.83	76.17
12673.00	100.00	0.00	0.00	627.50	125.00	631.93	0.00	631.95	252.46	4.87	2.41	116.10
12773.00	100.00	0.00	0.00	627.70	56.00	630.73	0.00	630.78	13.97	18.44	1.54	36.48
12773.00	100.00	0.00	0.00	627.70	97.00	631.54	0.00	631.57	146.55	12.57	1.66	64.44
12773.00	100.00	0.00	0.00	627.70	110.00	631.87	0.00	631.89	189.98	7.22	1.86	76.56
12773.00	100.00	0.00	0.00	627.70	125.00	631.99	0.00	632.01	222.25	6.83	2.44	116.55
12873.00	100.00	0.00	0.00	627.90	56.00	630.91	0.00	630.95	16.38	16.66	1.56	36.56
12873.00	100.00	0.00	0.00	627.80	97.00	631.66	0.00	631.69	146.72	11.97	1.68	64.67
12873.00	100.00	0.00	0.00	627.80	110.00	631.94	0.00	631.96	185.43	7.53	1.89	76.91
12873.00	100.00	0.00	0.00	627.80	125.00	632.06	0.00	632.08	213.38	7.45	2.47	116.95

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
12973.00	100.00	0.00	0.00	628.00	56.00	631.08	0.00	631.12	14.10	17.27	1.57	36.63
12973.00	100.00	0.00	0.00	628.00	97.00	631.79	0.00	631.83	146.10	14.39	1.70	64.90
12973.00	100.00	0.00	0.00	628.00	110.00	632.03	0.00	632.05	152.76	10.23	1.91	77.22
12973.00	100.00	0.00	0.00	628.00	125.00	632.14	0.00	632.17	182.77	9.97	2.49	117.32
13073.00	100.00	0.00	0.00	628.20	56.00	631.25	0.00	631.30	14.02	17.92	1.59	36.70
13073.00	100.00	0.00	0.00	628.20	97.00	631.94	0.00	631.98	145.70	16.17	1.72	65.11
13073.00	100.00	0.00	0.00	628.20	110.00	632.14	0.00	632.17	147.44	12.50	1.93	77.50
13073.00	100.00	0.00	0.00	628.20	125.00	632.25	0.00	632.28	160.85	12.24	2.52	117.64
13173.00	100.00	0.00	0.00	628.30	56.00	631.43	0.00	631.47	19.53	16.34	1.60	36.78
13173.00	100.00	0.00	0.00	628.30	97.00	632.10	0.00	632.14	146.16	14.12	1.74	65.31
13173.00	100.00	0.00	0.00	628.30	110.00	632.26	0.00	632.29	147.60	11.92	1.95	77.78
13173.00	100.00	0.00	0.00	628.30	125.00	632.37	0.00	632.40	165.12	11.76	2.54	117.95
13273.00	100.00	0.00	0.00	628.50	56.00	631.59	0.00	631.64	14.13	16.92	1.62	36.85
13273.00	100.00	0.00	0.00	628.50	97.00	632.24	0.00	632.29	145.74	16.00	1.75	65.52
13273.00	100.00	0.00	0.00	628.50	110.00	632.39	0.00	632.43	146.97	14.31	1.97	78.04
13273.00	100.00	0.00	0.00	628.50	125.00	632.50	0.00	632.53	147.91	14.11	2.56	118.25
13373.00	100.00	0.00	0.00	628.70	56.00	631.76	0.00	631.81	14.06	17.63	1.64	36.92
13373.00	100.00	0.00	0.00	628.70	97.00	632.41	0.00	632.46	145.39	17.72	1.77	65.72
13373.00	100.00	0.00	0.00	628.70	110.00	632.54	0.00	632.58	146.57	16.11	1.99	78.28
13373.00	100.00	0.00	0.00	628.70	125.00	632.64	0.00	632.68	147.49	15.90	2.58	118.52
13473.00	100.00	0.00	0.00	628.80	56.00	631.94	0.00	631.98	21.58	16.14	1.65	37.00
13473.00	100.00	0.00	0.00	628.80	97.00	632.58	0.00	632.62	146.04	14.62	1.79	65.92
13473.00	100.00	0.00	0.00	628.80	110.00	632.70	0.00	632.73	147.02	14.10	2.01	78.52
13473.00	100.00	0.00	0.00	628.80	125.00	632.80	0.00	632.84	147.93	14.04	2.60	118.80
13573.00	100.00	0.00	0.00	629.00	56.00	632.10	0.00	632.15	15.38	16.76	1.67	37.07
13573.00	100.00	0.00	0.00	629.00	97.00	632.73	0.00	632.78	145.71	16.13	1.81	66.12
13573.00	100.00	0.00	0.00	629.00	110.00	632.84	0.00	632.89	146.59	15.98	2.03	78.76
13573.00	100.00	0.00	0.00	629.00	125.00	632.95	0.00	632.99	147.49	15.91	2.62	119.08
13673.00	100.00	0.00	0.00	629.20	56.00	632.27	0.00	632.32	14.07	17.50	1.68	37.15
13673.00	100.00	0.00	0.00	629.20	97.00	632.90	0.00	632.95	145.30	18.15	1.82	66.32
13673.00	100.00	0.00	0.00	629.20	110.00	633.01	0.00	633.06	146.24	17.71	2.04	78.99
13673.00	100.00	0.00	0.00	629.20	125.00	633.11	0.00	633.16	147.13	17.62	2.63	119.34
13773.00	100.00	0.00	0.00	629.40	56.00	632.45	0.00	632.50	14.00	18.13	1.70	37.22
13773.00	100.00	0.00	0.00	629.40	97.00	633.09	0.00	633.14	145.24	18.50	1.84	66.50
13773.00	100.00	0.00	0.00	629.40	110.00	633.19	0.00	633.24	146.06	18.68	2.06	79.21
13773.00	100.00	0.00	0.00	629.40	125.00	633.29	0.00	633.34	146.95	18.60	2.65	119.59

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
155.000	425.000	595.350	0.000	0.000	0.000	21.853	0.000	-0.000
155.000	655.000	597.600	2.250	0.000	0.000	38.667	-16.813	-0.000
155.000	725.000	598.350	.750	0.000	0.000	46.792	-24.938	-0.000
155.000	890.000	599.800	1.450	0.000	0.000	69.999	-48.146	-0.000
177.000	425.000	595.399	0.000	.049	0.000	19.324	0.000	22.000
177.000	655.000	597.613	2.214	.013	0.000	26.889	-7.566	22.000
177.000	725.000	598.350	.737	-.000	0.000	31.999	-12.675	22.000
177.000	890.000	599.775	1.425	-.025	0.000	31.999	-12.675	22.000

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

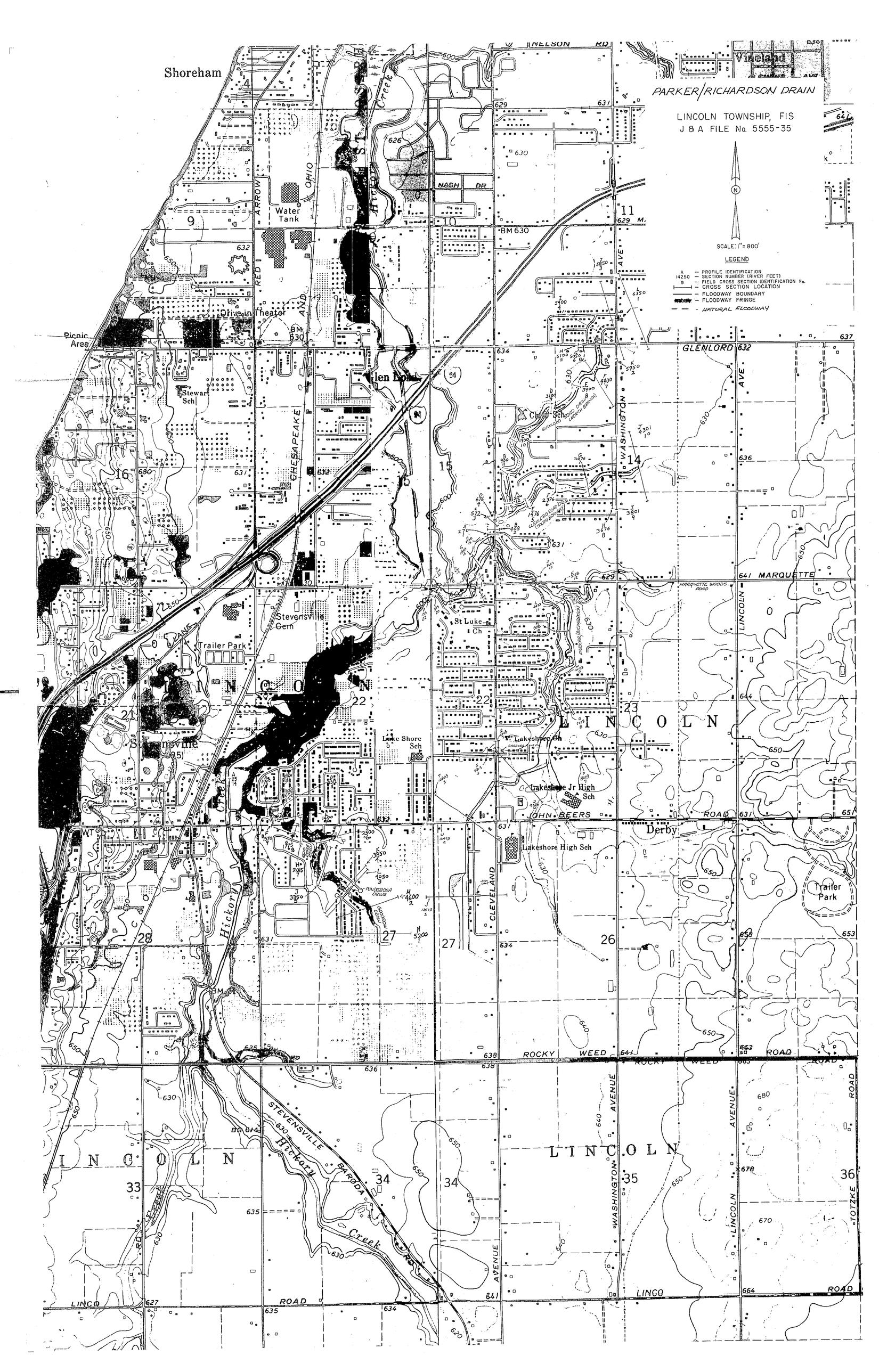
SECND

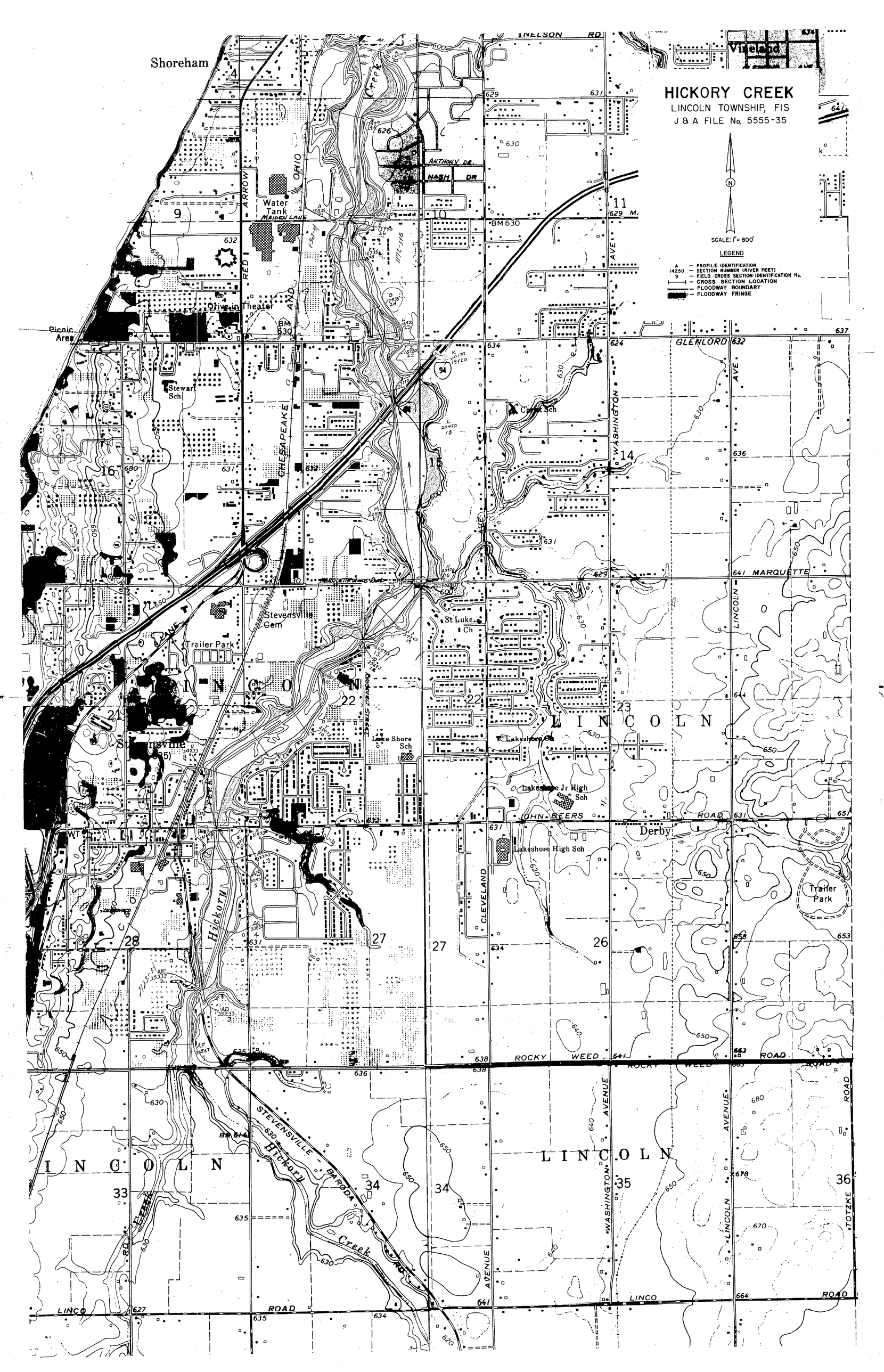
Revised 10 & 50-YR to 3923

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRI S	EG	TIPWID	10**S	TIME	VOL
155.00	0.00	0.00	0.00	589.80	380.00	595.35	0.00	595.71	21.85	48.48	0.00	0.00
155.00	0.00	0.00	0.00	589.80	630.00	597.60	0.00	597.93	34.67	28.78	0.00	0.00
177.00	22.00	0.00	0.00	590.60	380.00	595.39	0.00	595.95	19.29	85.95	.00	.04
177.00	22.00	0.00	0.00	590.60	630.00	597.61	0.00	598.03	26.83	50.46	.00	.06
200.00	23.00	0.00	0.00	591.40	380.00	595.51	0.00	596.34	11.45	146.29	.00	.07
200.00	23.00	0.00	0.00	591.40	630.00	597.66	0.00	598.32	24.66	77.96	.00	.12
214.00	14.00	599.00	597.50	591.40	380.00	595.53	595.53	596.39	15.22	273.53	.00	.08
214.00	14.00	599.00	597.50	591.40	630.00	598.44	0.00	599.03	25.00	40.90	.00	.15
248.00	34.00	0.00	0.00	591.50	380.00	597.12	0.00	597.57	21.00	67.57	.00	.12
248.00	34.00	0.00	0.00	591.50	630.00	598.85	0.00	599.34	61.06	52.21	.00	.23
282.00	34.00	0.00	0.00	591.60	380.00	597.44	0.00	597.81	23.91	53.27	.01	.18
282.00	34.00	0.00	0.00	591.60	630.00	599.10	0.00	599.52	79.19	42.00	.01	.33
316.00	34.00	0.00	0.00	591.60	380.00	597.69	0.00	597.98	24.39	40.24	.01	.25
316.00	34.00	0.00	0.00	591.60	630.00	599.33	0.00	599.67	125.37	32.17	.01	.45
350.00	34.00	0.00	0.00	591.60	380.00	597.85	0.00	598.12	25.00	38.87	.01	.32
350.00	34.00	0.00	0.00	591.60	630.00	599.52	0.00	599.75	137.24	27.64	.01	.60
375.00	25.00	597.70	597.40	591.60	380.00	598.33	0.00	598.54	25.00	26.30	.01	.37
375.00	25.00	597.70	597.40	591.60	630.00	599.69	0.00	599.93	140.30	23.44	.01	.72
675.00	300.00	0.00	0.00	592.00	380.00	598.74	0.00	598.75	222.43	2.17	.10	2.69
675.00	300.00	0.00	0.00	592.00	630.00	600.10	0.00	600.12	245.09	1.73	.10	4.53
1050.00	375.00	0.00	0.00	592.50	380.00	598.85	0.00	598.94	135.04	10.57	.15	5.96
1050.00	375.00	0.00	0.00	592.50	630.00	600.19	0.00	600.25	187.85	6.30	.16	9.95
1325.00	275.00	0.00	0.00	592.90	380.00	599.16	0.00	599.34	35.90	18.74	.17	6.81
1325.00	275.00	0.00	0.00	592.90	630.00	600.35	0.00	600.60	43.25	19.24	.18	11.28
1350.00	25.00	0.00	0.00	592.10	380.00	599.23	0.00	599.38	25.76	12.15	.17	6.87
1350.00	25.00	0.00	0.00	592.10	630.00	600.39	0.00	600.56	27.52	17.66	.18	11.37
1375.00	25.00	0.00	0.00	591.40	380.00	599.24	0.00	599.43	15.20	10.35	.17	6.94
1375.00	25.00	0.00	0.00	591.40	630.00	600.38	0.00	600.76	15.20	18.70	.18	11.45
1418.00	43.00	603.50	600.80	591.40	380.00	599.28	0.00	599.51	15.20	20.10	.18	7.04
1418.00	43.00	603.50	600.80	591.40	630.00	600.43	0.00	600.87	15.20	37.54	.18	11.57
1423.00	5.00	0.00	0.00	591.40	380.00	599.43	0.00	599.55	25.00	6.21	.18	7.05
1423.00	5.00	0.00	0.00	591.40	630.00	600.88	0.00	601.03	25.00	8.57	.18	11.58
1428.00	5.00	0.00	0.00	591.50	380.00	599.45	0.00	599.55	35.00	6.11	.18	7.06
1428.00	5.00	0.00	0.00	591.50	630.00	600.92	0.00	601.04	35.00	8.18	.18	11.61
1443.00	15.00	0.00	0.00	591.60	380.00	599.48	0.00	599.58	65.00	5.56	.18	7.14
1443.00	15.00	0.00	0.00	591.60	630.00	601.01	0.00	601.12	65.00	8.13	.18	11.70

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	VELS	EG	TOPWID	10K*S	TIME	VOL
1468.00	25.00	0.00	0.00	591.80	380.00	599.50	0.00	599.53	115.00	5.45	.18	7.28
1468.00	25.00	0.00	0.00	591.80	630.00	601.08	0.00	601.15	115.00	4.61	.19	11.94
1568.00	100.00	0.00	0.00	592.60	380.00	599.55	0.00	599.67	207.41	5.80	.19	7.77
1568.00	100.00	0.00	0.00	592.60	630.00	601.15	0.00	601.20	257.93	4.32	.20	12.99
1868.00	300.00	0.00	0.00	594.90	380.00	599.35	0.00	599.58	251.39	4.96	.26	9.95
1868.00	300.00	0.00	0.00	594.90	630.00	601.28	0.00	601.30	275.45	2.52	.29	17.84
2343.00	475.00	0.00	0.00	595.70	380.00	600.27	0.00	600.45	227.82	36.95	.30	13.54
2343.00	475.00	0.00	0.00	595.70	630.00	601.48	0.00	601.54	276.50	10.75	.37	25.36
2368.00	25.00	0.00	0.00	595.70	380.00	600.21	0.00	600.75	35.00	79.86	.30	13.52
2368.00	25.00	0.00	0.00	595.70	630.00	601.23	0.00	601.85	35.00	67.09	.37	25.45
2398.00	30.00	0.00	0.00	596.10	275.00	600.67	0.00	601.01	21.00	48.91	.30	13.52
2398.00	30.00	0.00	0.00	596.10	420.00	601.69	0.00	602.12	21.00	45.56	.37	25.55
2410.00	12.00	0.00	0.00	596.20	275.00	600.70	0.00	601.11	17.00	64.19	.30	13.64
2410.00	12.00	0.00	0.00	596.20	420.00	601.70	0.00	602.25	17.00	67.26	.37	25.57
2422.00	12.00	0.00	0.00	596.40	275.00	600.64	0.00	601.20	15.80	54.52	.30	13.65
2422.00	12.00	0.00	0.00	596.40	420.00	601.82	0.00	602.34	15.80	63.81	.37	25.59
2423.00	1.00	604.50	605.10	596.40	275.00	600.84	0.00	601.20	15.80	12.30	.30	13.65
2423.00	1.00	604.50	605.10	596.40	420.00	601.82	0.00	602.34	15.80	14.41	.37	25.59
2453.00	30.00	604.50	605.20	595.70	275.00	600.93	0.00	601.25	15.80	8.32	.31	13.70
2453.00	30.00	604.50	605.20	595.70	420.00	602.00	0.00	602.41	15.80	10.99	.37	25.64
2454.00	1.00	0.00	0.00	595.70	275.00	600.98	0.00	601.26	15.80	38.35	.31	13.70
2454.00	1.00	0.00	0.00	595.70	420.00	602.00	0.00	602.41	15.80	48.42	.37	25.64
2460.00	6.00	0.00	0.00	595.70	275.00	601.02	0.00	601.28	22.95	33.38	.31	13.71
2460.00	6.00	0.00	0.00	595.70	420.00	602.13	0.00	602.46	23.60	29.97	.37	25.66
2466.00	6.00	0.00	0.00	595.70	275.00	601.05	0.00	601.30	25.97	32.67	.31	13.72
2466.00	6.00	0.00	0.00	595.70	420.00	602.19	0.00	602.48	41.00	26.91	.37	25.67
2472.00	6.00	0.00	0.00	595.70	275.00	601.07	0.00	601.32	34.53	32.02	.31	13.73
2472.00	6.00	0.00	0.00	595.70	420.00	602.24	0.00	602.51	52.05	24.94	.37	25.69
2481.00	9.00	0.00	0.00	595.80	275.00	601.09	0.00	601.36	33.74	34.25	.31	13.74
2481.00	9.00	0.00	0.00	595.80	420.00	602.27	0.00	602.53	61.06	25.35	.37	25.71
2501.00	20.00	0.00	0.00	595.80	275.00	601.19	0.00	601.43	39.56	31.98	.31	13.77
2501.00	20.00	0.00	0.00	595.80	420.00	602.40	0.00	602.60	111.61	20.03	.37	25.78
2529.00	28.00	0.00	0.00	595.90	275.00	601.26	0.00	601.52	60.09	32.18	.31	13.82
2529.00	28.00	0.00	0.00	595.90	420.00	602.51	0.00	602.65	156.52	18.50	.34	25.89
2804.00	275.00	0.00	0.00	596.60	275.00	602.01	0.00	602.17	25.43	16.91	.33	14.31
2804.00	275.00	0.00	0.00	596.60	420.00	602.95	0.00	603.19	37.82	19.40	.40	26.89

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRITWS	EG	TOPWID	VELHDS	TIME	VOL
3079.00	275.00	0.00	0.00	597.20	275.00	602.49	0.00	602.66	24.99	14.54	.36	14.04
3079.00	275.00	0.00	0.00	597.20	420.00	603.50	0.00	603.73	36.37	20.31	.42	27.61
3354.00	275.00	0.00	0.00	597.90	275.00	603.03	0.00	603.22	23.10	21.25	.34	15.39
3354.00	275.00	0.00	0.00	597.90	420.00	604.07	0.00	604.33	35.54	22.21	.44	28.31
3628.00	274.00	0.00	0.00	598.60	275.00	603.63	0.00	603.79	35.89	19.96	.40	15.59
3628.00	274.00	0.00	0.00	598.60	420.00	604.70	0.00	604.89	47.43	18.22	.45	29.09
3661.00	33.00	0.00	0.00	598.70	275.00	603.69	0.00	603.86	33.34	20.60	.41	15.95
3661.00	33.00	0.00	0.00	598.70	420.00	604.76	0.00	604.96	45.00	19.25	.46	29.19
3694.00	33.00	0.00	0.00	598.90	275.00	603.75	0.00	603.94	29.00	23.14	.41	16.01
3694.00	33.00	0.00	0.00	598.90	420.00	604.81	0.00	605.03	39.00	23.35	.46	29.25
3711.00	17.00	0.00	0.00	598.90	275.00	603.79	0.00	603.99	21.00	25.52	.41	16.05
3711.00	17.00	0.00	0.00	598.90	420.00	604.83	0.00	605.11	21.00	29.15	.46	29.32
3719.00	8.00	0.00	0.00	599.00	275.00	603.79	0.00	604.03	17.00	32.92	.41	16.06
3719.00	8.00	0.00	0.00	599.00	420.00	604.81	0.00	605.18	17.00	40.73	.46	29.33
3727.00	8.00	0.00	0.00	599.00	275.00	603.74	0.00	604.15	12.50	82.50	.41	16.07
3727.00	8.00	0.00	0.00	599.00	420.00	604.72	0.00	605.36	12.50	93.24	.46	29.35
3728.00	1.00	608.30	606.90	599.00	275.00	603.73	0.00	604.18	12.50	59.87	.41	16.07
3728.00	1.00	608.30	606.90	599.00	420.00	604.68	0.00	605.42	12.50	100.84	.46	29.35
3773.00	45.00	608.30	606.90	599.00	275.00	604.05	0.00	604.44	12.50	50.13	.41	16.13
3773.00	45.00	608.30	606.90	599.00	420.00	605.23	0.00	605.56	12.50	81.95	.47	29.42
3774.00	1.00	0.00	0.00	599.00	275.00	604.10	0.00	604.46	12.50	50.06	.41	16.13
3774.00	1.00	0.00	0.00	599.00	420.00	605.41	0.00	605.91	12.50	59.94	.47	29.42
3779.00	5.00	0.00	0.00	599.00	275.00	604.38	0.00	604.53	22.00	18.34	.41	16.14
3779.00	5.00	0.00	0.00	599.00	420.00	605.83	0.00	606.02	22.00	17.57	.47	29.43
3784.00	5.00	0.00	0.00	599.00	275.00	604.42	0.00	604.55	32.00	13.09	.41	16.15
3784.00	5.00	0.00	0.00	599.00	420.00	605.90	0.00	606.04	32.00	10.93	.47	29.44
3794.00	10.00	0.00	0.00	599.10	275.00	604.48	0.00	604.57	52.00	10.77	.42	16.18
3794.00	10.00	0.00	0.00	599.10	420.00	605.98	0.00	606.07	52.00	7.06	.47	29.49
3804.00	10.00	0.00	0.00	599.10	275.00	604.52	0.00	604.58	72.00	8.22	.42	16.21
3804.00	10.00	0.00	0.00	599.10	420.00	606.03	0.00	606.09	72.00	4.97	.47	29.54
3823.00	19.00	0.00	0.00	599.20	275.00	604.57	0.00	604.61	112.00	6.03	.42	16.30
3823.00	19.00	0.00	0.00	599.20	420.00	606.07	0.00	606.10	112.00	3.13	.47	29.70
3873.00	50.00	0.00	0.00	599.30	275.00	604.62	0.00	604.64	204.18	4.24	.44	16.70
3873.00	50.00	0.00	0.00	599.30	420.00	606.10	0.00	606.11	211.07	1.57	.49	30.41
3923.00	50.00	0.00	0.00	599.50	275.00	604.64	0.00	604.67	220.43	5.30	.45	17.17
3923.00	50.00	0.00	0.00	599.50	420.00	606.11	0.00	606.12	236.72	1.40	.52	31.35


PARKER/RICHARDSON DRAIN
LINCOLN TOWNSHIP, FIS
J & A FILE No. 5555-35
SCALE: 1" = 800'
LEGEND
A — PROFILE IDENTIFICATION
14250 — SECTION NUMBER (RIVER FEET)
9 — FIELD CROSS SECTION IDENTIFICATION No.
— CROSS SECTION LOCATION
— FLOODWAY BOUNDARY
— FLOODWAY FRINGE
— NATURAL FLOODWAY
Shoreham
Vineland
Water Tank
Drive-in Theater
Picnic Area
Glen Lord
Stewart Sch
Stevensville Cem
Trailer Park
St Luke Ch
Lake Shore Sch
Lakeshore Ch
Lakeshore Jr High Sch
Lakeshore High Sch
Derby
Trailer Park
LINCOLN
LINCOLN
LINCOLN
LINCOLN
NELSON RD
NASH DR
GLENLORD
MARQUETTE
JOHN BEERS ROAD
ROCKY WEED ROAD
LINCO ROAD
CHESAPEAKE AND OHIO
RED ARROW
WASHINGTON AVE
LINCOLN AVE
CLEVELAND AVENUE
STEVENSVILLE BARODA RD
Hickory Creek
Hickory Creek
Hickory Creek
TOTZKE ROAD


HICKORY CREEK
LINCOLN TOWNSHIP, FIS
J & A FILE No. 5555-35
SCALE: 1" = 800'
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14250 — SECTION NUMBER (RIVER FEET)
9 — FIELD CROSS SECTION IDENTIFICATION No.
CROSS SECTION LOCATION
FLOODWAY BOUNDARY
FLOODWAY FRINGE
Shoreham
Vineland
NELSON RD
Creek
ANTHONY DR.
NASH DR
Water Tank
MAIDEN LANE
ARROW HEAD TRAIL
OHIO AVE
BM 630
Drive-in Theater
Picnic Area
Stewart Sch
CHESAPEAKE AND OHIO
GLENLORD
WASHINGTON AVE
Christ Sch
Stevensville Gem
Trailer Park
St Luke Ch
LINCOLN AVE
MARQUETTE
LINCOLN
Lake Shore Sch
Lakeshore Ch
Lakeshore Jr High Sch
JOHN BEERS ROAD
Derby
Lakeshore High Sch
Trailer Park
Hickory Creek
CLEVELAND AVENUE
ROCKY WEED ROAD
STEVENSVILLE - BARODA ROAD
Hickory Creek
WASHINGTON AVENUE
LINCOLN AVENUE
TOTTEN ROAD
LINCO ROAD

LINCOLN TOWNSHIP, FIS
J & A FILE No. 5555-35

SCALE: 1"= 800'

LEGEND

A — PROFILE IDENTIFICATION
14250 — SECTION NUMBER (RIVER FEET)
9 — FIELD CROSS SECTION IDENTIFICATION No.
— CROSS SECTION LOCATION
— FLOODWAY BOUNDARY
— FLOODWAY FRINGE

NOTE: THE HYDRAULIC ANALYSES OF THE PARKER/RICHARDSON DRAIN HAVE NOT BEEN COMPLETED.

Shoreham
Vineland
Creek
Water Tank
ARROW
OHIO
NASH DR
BM 630
AVE
Olive in Theater
Picnic Area
Stewart Sch
CHESAPEAKE
Glenlord Road Drain (North Branch)
Glenlord Road Drain (South Branch)
Christ Sch
GLENLORD
AVE
WASHINGTON
Marquette Woods Road
MARQUETTE
LINCOLN
Stevensville Cem
St Luke Ch
Trailer Park
LANE
Lake Shore Sch
Lakeshore Ch
Lakeshore Jr High Sch
Lakeshore High Sch
JOHN BEERS ROAD
Derby
Trailer Park
Ponderosa Drive
Goodrow Drain
CLEVELAND
Hickory Creek
STEVENSVILLE BR RODA
ROCKY WEED ROAD
WASHINGTON AVENUE
LINCOLN AVENUE
TOTZKE ROAD
LINCO ROAD



1) COUNTY: Berrien

2) STUDY NAME: Mc Coy Creek FPMS

3) WATERCOURSE: Mc Coy Creek

4) DOCUMENT TYPE: Report



FLOOD PLAIN MANAGEMENT STUDY

Mc COY CREEK

BERRIEN COUNTY, MICHIGAN

JANUARY 1985

TECHNICAL SUPPORT DOCUMENTATION



PREPARED BY

U.S. Department of Agriculture
Soil Conservation Service
East Lansing, Michigan

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6. Time of Concentration
7. Land Use
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9. Structure Summary
10. WSP-2 Schematic
11. WSP-2 80/80 Listing
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13. TR-20 80/80 Listing
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INVESTIGATIONS AND ANALYSES

SURVEY PROCEDURES

Field surveys were made of bridges, roads, structures and the channel and flood plain within the study area by the Soil Conservation Service in 1984. Temporary bench marks based on USC&GS mean sea level elevations datum of 1929 were also set at this time and used for this study. Surveys were made using third order accuracy.

For McCoy Creek, 20 valley and channel cross-sections plus 17 roads, bridges and structures were surveyed. Aerial photography flown April 1, 1984 was used as a base for the photo mosaic sheets used to delineate the flood plain and to develop 2-foot contour maps. The 2-foot contour maps were then used to develop 16 additional valley cross-sections.

HYDROLOGY AND HYDRAULICS

Physical data was obtained from USGS topographic maps, soil survey maps, local topographic maps and aerial photographs, as well as on-site field inspections. The watershed boundary was determined from map studies and field checks. The watershed was divided into 15 sub-watershed areas for use in evaluating the hydrologic volumes and times. Drainage areas for the sub-watersheds were measured from USGS quadrangle maps. Times of concentration were calculated for each of the sub-watersheds using the Upland Flow method. Each sub-watershed was evaluated for land use, soil group, runoff curve number and time concentration.

Channel flood routings to establish peak discharge-frequency relationships were made using the SCS TR-20 Hydrology Program dated September 1, 1983, with U.S. Department of Agriculture computer facilities. The Modified Attenuation-Kinematic (Att-Kin) method of routing through stream channels is used by this program. This method is derived from inflow-outflow hydrograph relationships. Several types of data were used in developing this watershed model. Time of concentration for each local drainage area was computed from sub-watershed relief, hydraulics and travel length. Drainage area, hydrologic soil groups and land use and cover were used to develop runoff hydrographs.

Temporary flood water storage at several road culverts and bridges was recognized as a potential to modify downstream peak discharges. Data was gathered and evaluated. Opening sizes and type, head available from the top of opening to top of road fill and storage shapes were determined.

Two structures and four valley sections were selected and evaluated to effectively model study area conditions. Elevation-storage-discharge relationships were determined for the two structure sections and elevation-discharge-area relationships were determined for the four valley sections. The TR-20 computer program uses this data and the Storage-Indication method of evaluating the affect of the structures in reducing peak flood discharges. The lakes associated with the structures play an important role in reducing the peak discharges. Table 1 (Appendix 2) lists discharges obtained from the flood routings.

The computer model was verified using historic rainfall and flood information. Flood photographs of a 4.7 inch rainfall in 6 hours showed similar elevations to the 100-year flood. The 6 hour, 100-year flood is approximately 4.7 inches. A comparison of 100-year McCoy Creek TR-20 flows with Galena River (04096100) as discussed on pages 68 and 97 of "Techniques for Estimating Magnitude and Frequency of Floods on Streams in Indiana" shows the CSM rates are within 3 percent. This comparison is in Appendix 14 of the technical support documentation.

Water surface profiles were developed using the Soil Conservation Service computer program WSP2. This program uses the Step method of computation to solve the Bernoulli equation, the Bureau of Public Roads bridge loss procedures, and the culvert loss analysis. Flood discharges determined from flood routings were used in the water surface profile program to develop high water profiles. Manning's "n" values were determined from field investigations of the channel and flood plains.

Normal bridge and channel flow conditions were assumed in the hydraulic computations. No consideration was made for openings blocked by ice or other debris. Channel and flood plain flow characteristics may change due to vegetative growth, sedimentation, scour, debris accumulation, filling and encroachment. Computations for this study considered only those features in the flood plain at the time of field surveys, with the exception of the railroad fill discussed at the end of this section. Future flood plain developments and modifications, as well as changes in the upstream drainage area land use and cover, will require recomputation of the water surface profiles.

Approximately 1,900 feet upstream from Smith Street, a portion of McCoy Creek's flow is diverted into a small mill race. This mill race flows for a distance of approximately 2,800 feet before it passes over a 20 foot overfall. From here, the mill race flows for approximately 200 feet, where it rejoins McCoy Creek at station 15.02. Initial stage-discharge computations for the mill race revealed that just downstream from the diversion point, bankfull flow was only 24 cfs.

Because of the mill race's location, upslope and parallel to McCoy Creek, any flows above this 24 cfs would overtop its banks and flow overland a short distance back into McCoy Creek. In using WSP2 to compute final water surface profiles, it was decided to ignore any flow in the mill race and assume that all flow proceeds down McCoy Creek, since the mill race portion is a small percentage of the total.

Flood plain delineations were made on the contour maps and photomap sheets. Computed water surface elevations at surveyed sections and bridges were used to identify flood plain limits. Between sections, topographic map interpretations and field inspections were used to delineate the flood boundary lines. Limits of flooding shown on the photomaps may vary from actual location on the ground, and the photographic image may vary from true ground location due to inherent aerial photographic displacement. High water profile elevations and detailed field surveys should be used to determine the extent or depth of flooding at any specific site.

Where the limits of the 500-year and the 100-year floods were too close to delineate, the limits of the two flood plains are shown as the same line on the photomap sheets.

At station 15.03, McCoy Creek enters into a concrete rectangular channel at Roe Street and flows underneath the west side of Days Avenue. The sidewalk on this side of the street acts as a cover for this 7 by 10 foot channel. Approximately 500 feet downstream from this entrance, the channel changes abruptly from a rectangular cross-section into a 6 by 13 foot masonry arch, angles northeast and continues for 200 feet, where it outlets as an open channel north of Front Street at station 14.90.

Instead of using WSP2 directly to solve for water surface profiles in this reach, a combination of hand and computer calculations were used. (WSP2 cannot handle backwater computations for two differently sized and shaped culverts in series. Also, it was decided that flow above the culverts down the street would not represent a weir flow situation as WSP2 would assume.) The procedure used was as follows:

1. Given tailwater, assume a headwater elevation on the two pipes in series.

2. Calculate a flow using an equation describing the hydraulic characteristics of the two pipes (see Appendix 9).

3. Flow from 2, above, is subtracted from the total flow (as determined by TR-20 for this reach) and WSP2 is used to calculate a water surface profile (assuming only overland flow) up to the entrance, or headwater, of the two pipes.

4. Compare the assumed headwater elevation from 1, above, with the elevation calculated from overland flow 3, above.

5. Adjust assumed headwater elevation up or down and repeat 2, above, through 4, above, until assumed and calculated headwaters match.

The railroad fill in the Clark Equipment Complex will soon be removed, so the alternative of removing it is included here. Table 2A (Appendix 3) shows the flood elevations that will apply when that fill is removed.

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TABLE 1 - McCOY CREEK FLOOD DISCHARGES

Location	TR-20 Sec.	From Sec.	To Sec.	Drainage Area	Estimated Peak Discharges 10 Yr.	50 Yr.	100 Yr.	500 Yr.
				Sq. Miles	-cubic feet per second-			
From Bakertown Road to Amtrak Crossing	21	24.00	23.00	10.82	325	535	620	855
To McCoy-Mill Race Junction	26	22.80	21.51	11.67	350	570	665	915
To Upstream of of Schirmer Parkway	31	21.20	10.20	13.45	410	670	780	1,065
To St. Joseph River	39	10.10	9.80	18.25	505	825	950	1,290

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TABLE 2 - FLOOD ELEVATIONS AT SECTIONS
McCOY CREEK

Location	Section	Station	10-Year	50-Year	100-Year	500-Year
Confluence St. Joseph River	9.80	6+26	642.0	642.0	642.0	642.0
	9.90	8+76	642.0	642.1	642.1	642.2
Schirmer Parkway	10.00 D 1/	8+86	642.0	642.1	642.1	642.2
	10.00 U 1/	11+14	642.9	644.3	645.1	647.2
	10.10	11+24	642.9	644.3	645.1	647.2
	10.20	21+74	645.3	645.9	646.4	647.7
	10.50	29+04	649.0	650.0	650.2	651.1
	10.70	36+54	652.8	653.7	654.2	655.0
	10.80	38+10	661.7	662.4	662.6	663.1
Crossing Upstream of Clark Falls	10.90 D	38+60	667.4	668.0	668.3	668.8
	10.90 U	39+14	672.9	675.3	675.5	676.1
Clark Railroad Crossing	10.95	41+14	673.0	675.4	675.6	676.2
	11.00 D	43+54	673.0	675.4	675.6	676.2
	11.00 U	45+90	675.2	681.2	683.4	685.6
	11.10	46+70	675.2	681.2	683.4	685.6
	11.90	49+05	675.2	681.2	683.4	685.6
3rd Street Crossing	12.00 D	49+65	675.2	681.2	683.4	685.6
	12.00 U	50+29	677.9	681.3	683.4	685.6
	12.50	50+69	677.9	681.3	683.4	685.6
Dewey Street Crossing	13.00 D	51+34	677.9	681.3	683.4	685.6
	13.00 U	52+54	678.4	681.4	683.5	685.7
	13.10	52+64	678.4	681.4	683.5	685.7
Clark Pond Weir	13.20	52+66	678.5	681.4	683.5	685.7
Red Bud Trail Crossing	13.90	55+96	678.5	681.4	683.5	685.7
	14.00 D	56+11	678.5	681.4	683.5	685.7
	14.00 U	57+61	681.0	681.9	683.6	685.7
	14.90	59+01	681.0	681.9	683.7	685.8
	15.00	59+26	683.5	684.1	684.2	685.8
	15.01	60+96	683.9	685.2	685.7	686.7
	15.02	64+66	683.9	685.4	685.9	687.0
	15.03	66+56	683.9	685.4	685.9	687.0
	16.25	69+46	683.9	685.4	685.9	687.0

1/ D and U represent downstream and upstream faces of bridge and indicates bridge head losses for the tabulated floods.

TABLE 2 - FLOOD ELEVATIONS AT SECTIONS - CONTINUED
McCOY CREEK

Location	Section	Station	10-Year	50-Year	100-Year	500-Year
Chicago Street Crossing	17.00 D	70+26	684.0	685.4	685.9	687.0
	17.00 U	70+96	685.2	685.6	686.0	687.1
	17.50	72+51	685.2	685.7	686.1	687.1
Oak Street Crossing	18.00 D	72+98	685.3	685.7	686.1	687.2
	18.00 U	73+54	685.3	685.7	686.1	687.2
	18.50	74+41	685.5	686.0	686.3	687.3
Alexander Street Crossing	19.00 D	75+29	685.6	686.2	686.5	687.4
	19.00 U	75+84	686.9	687.4	687.5	687.9
Smith Street Crossing	19.50	77+81	687.0	687.5	687.7	688.0
	20.00 D	78+61	687.1	687.6	687.7	688.1
	20.00 U	79+21	687.6	688.0	688.2	688.6
	20.10	81+16	687.8	688.5	688.6	689.2
Crossing "A" Forged Products	20.20 D	82+36	687.9	688.7	688.9	689.5
	20.20 U	83+06	690.3	690.7	690.8	691.1
Crossing "B" Forged Products	20.30	83+21	690.3	690.7	690.7	691.1
	20.40 D	83+36	690.0	690.1	690.3	690.6
	20.40 U	83+51	690.8	691.2	691.3	691.7
Crossing "E" Forged Products	20.50	85+57	691.1	691.5	691.6	692.0
	20.60 D	87+97	691.1	691.6	691.7	692.1
	20.60 U	88+30	691.1	691.7	691.8	692.1
Crossing "D" Forged Products	21.00	90+55	691.2	691.7	691.9	692.3
	21.20 D	94+25	691.7	692.2	692.4	692.8
	21.20 U	94+50	692.2	692.6	692.7	693.1
Junction McCoy Creek and Mill Race	21.51	98+10	692.7	693.1	693.2	693.6
Farm Crossing	21.70	116+25	696.1	696.7	697.0	697.3
	22.30	131+05	698.6	699.0	699.3	699.5
	22.40	160+55	700.7	701.2	701.4	701.8
	22.45 D	161+30	700.7	701.3	701.5	701.9
	22.45 U	161+40	701.7	702.1	702.2	702.4
	22.50	162+85	701.7	702.1	702.3	702.5
	22.60	183+70	703.1	703.6	703.9	704.2
	22.70	195+80	704.2	704.8	705.1	705.5
	22.80	204+70	705.6	706.2	706.4	706.9

TABLE 2 - FLOOD ELEVATIONS AT SECTIONS - CONTINUED
McCOY CREEK

Location	Section	Station	10-Year	50-Year	100-Year	500-Year
Amtrak Crossing	23.00 D	207+25	706.5	707.4	707.6	708.1
	23.00 U	207+55	706.5	708.5	708.8	710.3
	23.50	209+55	706.8	708.5	708.9	710.3
Bakertown Road Crossing	24.00 D	210+90	706.8	708.6	708.9	710.3
	24.00 U	211+26	707.8	708.6	709.0	710.3

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TABLE 2A - FLOOD ELEVATIONS AT SECTIONS
McCOY CREEK

Location	Section	Station	10-Year	50-Year	100-Year	500-Year
Confluence St. Joseph River	9.80	6+26	642.0	642.0	642.0	642.0
	9.90	8+76	642.0	642.1	642.1	642.2
Schirmer Parkway	10.00 D 1/	8+86	642.0	642.1	642.1	642.2
	10.00 U 1/	11+14	642.9	644.3	645.1	647.2
	10.10	11+24	642.9	644.3	645.1	647.2
	10.20	21+74	645.3	645.9	646.4	647.7
	10.50	29+04	649.0	650.0	650.2	651.1
	10.70	36+54	652.8	653.7	654.2	655.0
	10.80	38+10	661.7	662.4	662.6	663.1
Crossing	10.90 D	38+60	667.4	668.0	668.3	668.8
Upstream of Clark Falls	10.90 U	39+14	672.9	675.3	675.5	676.1
3rd Street Crossing	10.95	41+14	673.0	675.4	675.6	676.2
	11.10	46+70	673.1	675.4	675.7	676.3
	11.90	49+05	673.2	675.5	675.7	676.4
	12.00 D	49+65	673.2	675.5	675.7	676.3
	12.00 U	50+29	677.6	679.9	680.0	680.3
	12.50	50+69	677.6	679.9	680.0	680.3
Dewey Street Crossing	13.00 D	51+34	677.6	679.9	680.1	680.4
	13.00 U	52+54	678.2	680.1	680.3	680.7
	13.10	52+64	678.1	680.1	680.3	680.7
Clark Pond Weir	13.20	52+66	678.2	680.2	680.4	680.8
Red Bud Trail Crossing	13.90	55+96	678.3	680.2	680.4	680.8
	14.00 D	56+11	678.3	680.2	680.4	680.8
	14.00 U	57+61	681.0	681.7	681.9	682.2
	14.90	59+01	681.0	681.8	682.0	682.3
	15.00	59+26	683.7	684.1	684.2	684.5
	15.01	60+96	684.1	685.2	685.3	685.9
	15.02	64+66	684.2	685.3	685.6	686.3
	15.03	66+56	684.2	685.3	685.6	686.3
	16.25	69+46	684.2	685.3	685.6	686.3
Chicago Street Crossing	17.00 D	70+26	684.3	685.4	685.7	686.4
	17.00 U	70+96	685.2	685.6	685.8	686.4
	17.50	72+51	685.3	685.7	685.9	686.5

1/ D and U represent downstream and upstream faces of bridge and indicates bridge head losses for the tabulated floods.

TABLE 2A - FLOOD ELEVATIONS AT SECTIONS - CONTINUED
McCOY CREEK

Location	Section	Station	10-Year	50-Year	100-Year	500-Year
Oak Street Crossing	18.00 D	72+98	685.3	685.7	685.9	686.6
	18.00 U	73+54	685.4	685.8	686.0	686.6
	18.50	74+41	685.5	686.0	686.2	686.8
Alexander Street Crossing	19.00 D	75+29	685.6	686.2	686.4	687.0
	19.00 U	75+84	686.9	687.4	687.5	687.8
Smith Street Crossing	19.50	77+81	687.0	687.5	687.6	688.0
	20.00 D	78+61	687.1	687.6	687.7	688.1
	20.00 U	79+21	687.6	688.1	688.3	688.6
	20.10	81+16	687.8	688.4	688.7	689.2
Crossing "A" Forged Products	20.20 D	82+36	687.9	688.6	688.9	689.5
	20.20 U	83+06	690.3	690.7	690.8	691.1
Crossing "B" Forged Products	20.30	83+21	690.3	690.7	690.8	691.1
	20.40 D	83+36	690.0	690.1	690.2	690.6
	20.40 U	83+51	690.8	691.2	691.3	691.7
Crossing "E" Forged Products	20.50	85+57	691.1	691.5	691.6	692.0
	20.60 D	87+97	691.1	691.6	691.7	692.1
	20.60 U	88+30	691.1	691.6	691.8	692.1
Crossing "D" Forged Products	21.00	90+55	691.2	691.7	691.9	692.3
	21.20 D	94+25	691.7	692.2	692.4	692.8
	21.20 U	94+50	692.2	692.6	692.8	693.1
Junction McCoy Creek and Mill Race	21.51	98+10	692.7	693.1	693.3	693.6
Farm Crossing	21.70	116+25	696.1	696.7	697.0	697.3
	22.30	131+05	698.6	699.0	699.2	699.5
	22.40	160+55	700.7	701.2	701.5	701.8
	22.45 D	161+30	700.7	701.2	701.5	701.9
	22.45 U	161+40	701.7	702.1	702.2	702.4
	22.50	162+85	701.7	702.2	702.3	702.5
	22.60	183+70	703.1	703.7	703.9	704.2
	22.70	195+80	704.2	704.9	705.1	705.5
	22.80	204+70	705.6	706.2	706.4	706.9
Amtrak Crossing	23.00 D	207+25	706.5	707.4	707.6	708.1
	23.00 U	207+55	706.5	708.5	708.8	710.3
	23.50	209+55	706.8	708.5	708.9	710.3
Bakertown Road Crossing	24.00 D	210+90	706.8	708.6	708.9	710.3
	24.00 U	211+26	707.8	708.6	709.0	710.3

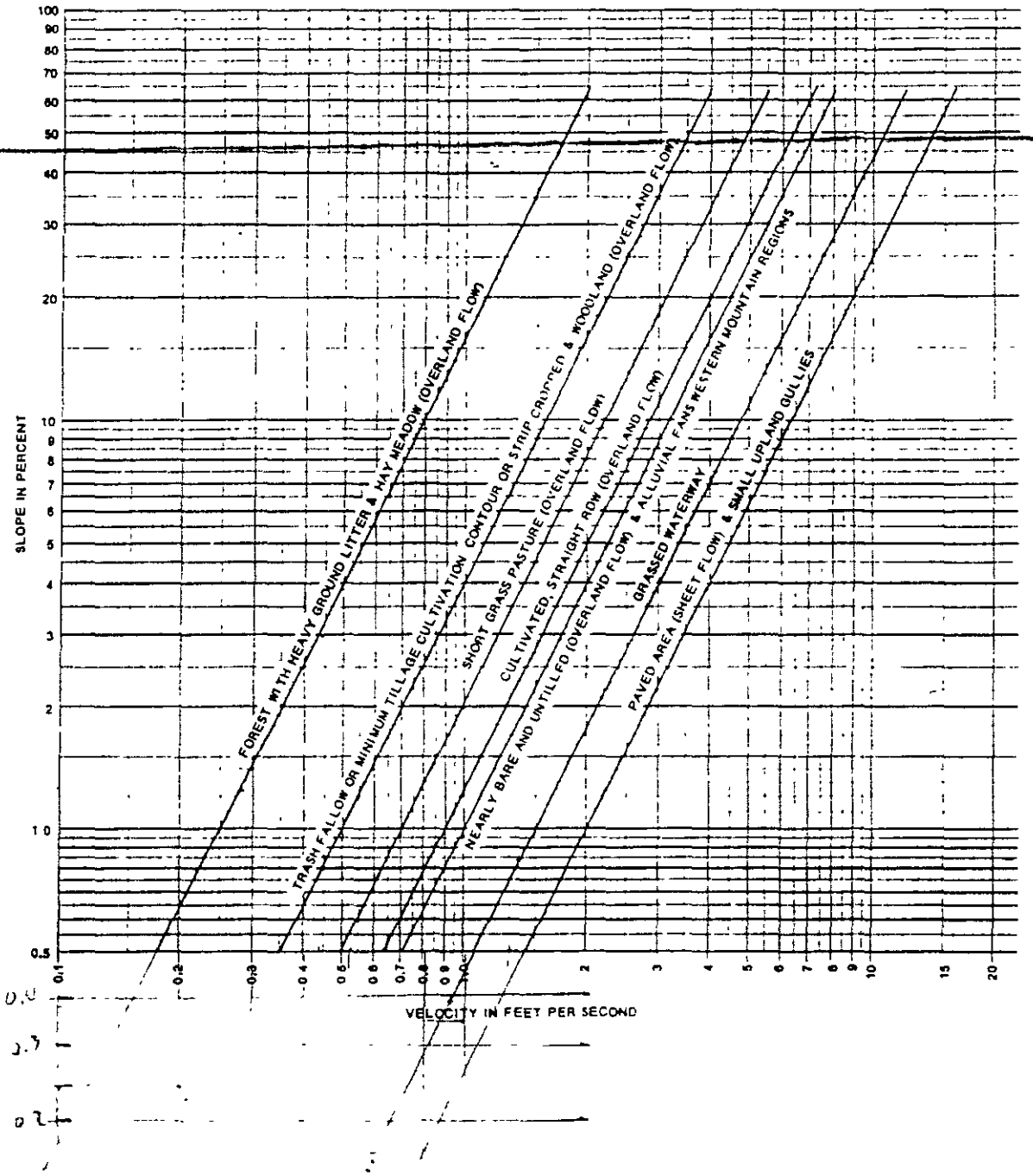
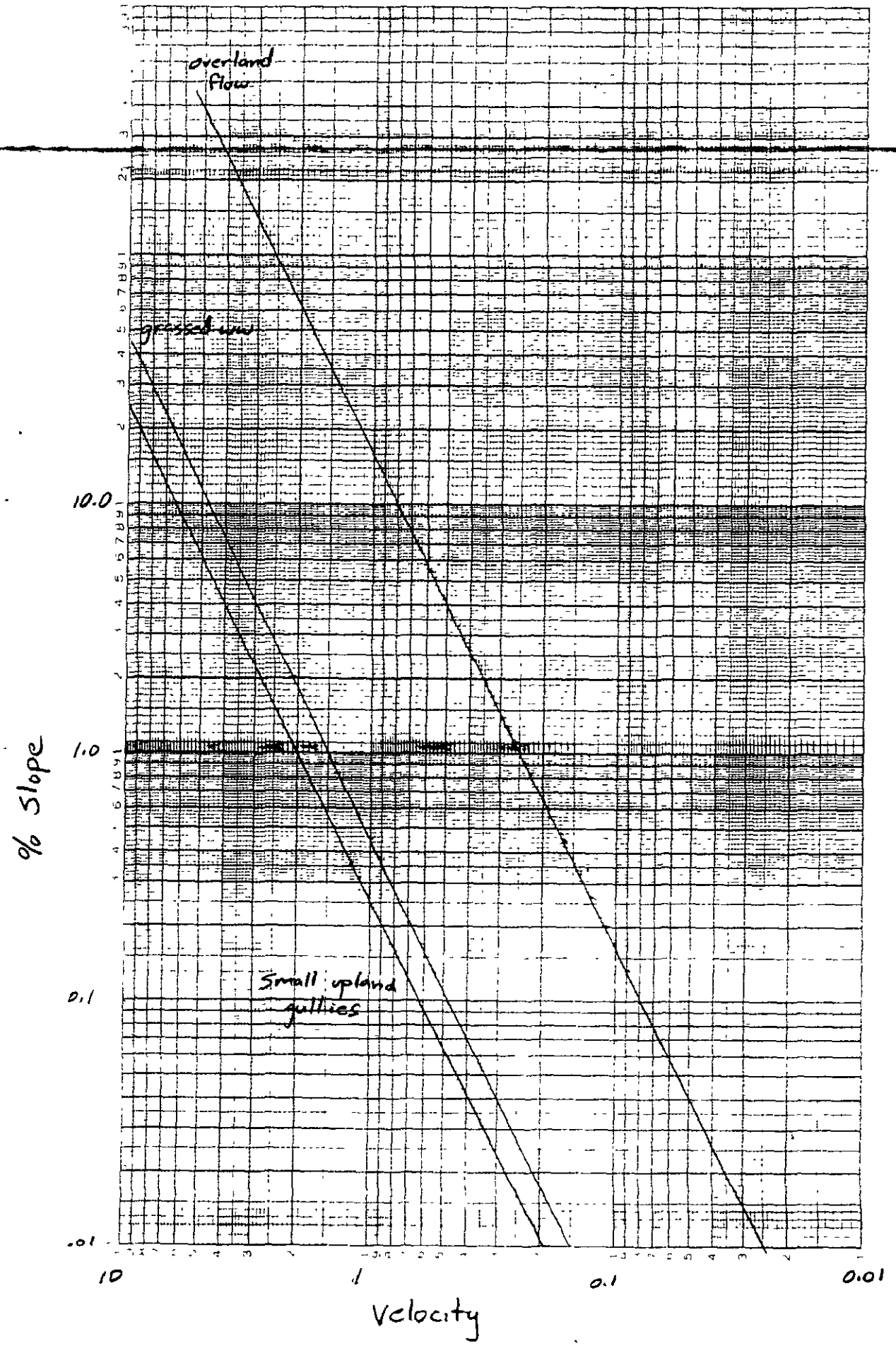


Figure 15.2.—Velocities for upland method of estimating T_c

Velocities for Upland Method of Tc Estimation



Sub Area #	$T_c = \frac{L}{3600V}$ hrs
1	19.71
2	6.89
3	10.29
4	15.75
5	~~13.05~~ NC
6	6.12
7	15.53
8	6.40
9	18.47
10	NC
11	10.65
12	13.66
13	17.78
14	6.38
15	7.10
16	NC

T_c Computations:

Sub Area # 1

~~2.8'/1000' = 0.28% V = 0.13 ✓ T_c = 2.14 ✓ O.F.~~

10'/2100'	= 0.48%	V = 0.17 ✓	T_c = 3.43 ✓	O.F.
10'/4500'	= 0.22%	V = 0.11 ✓	T_c = 11.36 ✓	O.F.
2.2'/1100	= 0.20%	V = 0.11 ✓	T_c = 2.78 ✓	O.F.
			19.71 ✓ =	

Sub Area # 2

5.2'/4400'	= 0.12%	V = 0.5 ✓	T_c = 2.44 ✓	G. WW.
9.8'/1000'	= 0.98%	V = 0.25 ✓	T_c = 1.11 ✓	O.F.
10'/100'	= 10%	V = 0.8 ✓	T_c = 0.03 ✓	
10'/800'	= 1.25%	V = 0.28 ✓	T_c = 0.79 ✓	
10'/800'	= 1.25%	V = 0.28 ✓	T_c = 0.79 ✓	
40'/1000'	= 4%	V = 0.5 ✓	T_c = 0.56 ✓	
'/800'	= 0.62%	V = 0.19 ✓	T_c = 1.17 ✓	
			6.89 ✓	

T_c Computations

Subarea #3

~~1.7'/2800' = 0.06%~~ ✓	~~V = 0.49~~ ✓	~~T_c = 1.59~~ ✓	S.U.G.
9.8'/1100' = 0.89% ✓	V = 0.24 ✓	T_c = 1.27 ✓	O.F.
10'/2500' = 0.40% ✓	V = 0.16 ✓	T_c = 4.34 ✓	O.F.
10/900 = 1.11%	V = 0.26 ✓	T_c = 0.96 ✓	O.F.
10/100 = 10%	V = 0.8 ✓	T_c = 0.03 ✓	O.F.
10/800 = 1.25%	V = 0.28 ✓	T_c = 0.79 ✓	O.F.
10/1100 = 3.64%	V = 0.48 ✓	T_c = 0.64	O.F.
75/1400 = 5.4%	V = 0.58 ✓	T_c = 0.67	O.F.

T_c Computations

Sub Area #4

1'/1600' = 0.06%	V = 0.49	T_c = 0.91	S.V.G.
1.5'/400' = 0.37%	V = 0.92	T_c = 0.12	G. WW.
10'/1300' = 0.77%	V = 1.32	T_c = 0.27	G. WW.
10'/1800' = 0.56%	V = 1.12	T_c = 0.45	G. WW.
10'/600' = 1.67%	V = 0.32	T_c = 0.52	O. F.
10'/1600' = 0.62%	V = 0.20	T_c = 2.22	O. F.
13.3'/650' = 2%	V = 2.1	T_c = 0.09	G. WW
6.7'/900' = 0.74%	V = 0.21	T_c = 1.19	O. F.
70'/4500' = 1.6%	V = 0.31	T_c = 4.03	O. F.
10'/3000' = 0.33%	V = 0.14	T_c = 5.95	O. F.
		15.75	

T_c Computations

Sub Area #6

~~5'/1600' = 0.31%~~	~~V = 1.10~~	~~T_c = 0.40~~	~~USG~~
2.5'/1000' = 0.25%	V = 1.0	T_c = 2.28	USG
7.5'/2500' = 0.30%	V = 0.14	T_c = 4.96	OF
10'/450' = 2.2%	V = 0.37	T_c = 0.34	OF
5'/200' = 2.5%	V = 0.4	T_c = 0.14	OF
		6.12	

T_c Computations

Sub Area # 5

N.C. ✓

~~1/1300 = 0.10%~~	~~V = 0.64~~	~~T_c = 0.56~~	~~S.U.G.~~
2100' Clear lake	V = 16 fps	T_c = 0.04	
0.4/400 = 0.10%	V = 0.64	T_c = 0.17	S.U.G.
800' Rand Lake	V = 16	T_c = 0.01	
3.5'/3500' = 0.1%	V = 0.08	T_c = 12.15	O.F
55'/400' = 13.7%	V = 0.94	T_c = 0.12	O.F.
		13.05	

Sub Area # 7

3.8'/420' = 0.08% ✓	V = 0.43 ✓	T_c = 3.04 ✓	G.WW.
11.2'/400' = 2.8% ✓	V = 0.42 ✓	T_c = 0.26 ✓	O.F. ✓
10'/4800' = 0.21%	V = 0.11	T_c = 12.12 ✓	O.F.
15'/250' = 6%	V = 0.62	T_c = 0.11 ✓	
		15.53	

T_c Computations

T. BAKER 1-7-85

SubArea #8

~~1.2/2200'~~ = 0.055%	V=0.46	T_c = 1.33	U.S.G.
300' Pike Lake	V=16	T_c = 0.0052	
0.9/1600' = 0.056%	V=0.46	T_c = 0.97	U.S.G.
700' ? Lake	V=16	T_c = 0.0122	
0.2'/300' = 0.067%	V = 0.51	T_c = 0.16	U.S.G.
~~?00'~~ ? Lake	V=16	T_c = 0.0122	
10'/1500' = 0.67%	V = ~~0.72~~ 1.23	T_c = ~~2.08~~ 0.34	G.WW.
20'/120 = 16.7%	V = ~~1.0~~ 6.0	T_c = ~~0.03~~ 0.02	G.WW.
5'/1100' = 0.45%	V = ~~0.17~~ 1.0	T_c = ~~1.80~~ 0.31	G.WW.
		3.16	
		~~6.40~~	

T_c Computations

I. BALCH 1-7-01

Sub Area #9

1.7'/3400' = 0.054% ✓	V=0.46 ✓	T_c = 1.87 ✓	U.S.G.
5.7'/200' = 2.8% ✓	V=0.42 ✓	T_c = 0.13 ✓	O.F.
30'/4400' = 0.68% ✓	V= 0.21 ✓	T_c = 5.82 ✓	O.F.
10'/4600' = 0.22% ✓	V=0.12 ✓	T_c = 10.65 ✓	O.F
		18.47 ✓	

Sub Area #10

'/400' = 2%	V = 2.1 ✓	T_c = 0.05 ✓	G.WW.
10/800 = 1.25% ✓	V = 1.7 ✓	T_c = 0.13 ✓	G.WW.
20/300 = 6.7% ✓	V=3.8 ✓	T_c = 0.02 ✓	G.WW.
10/1200 = 0.83% ✓	V=1.4 ✓	T_c = 0.24 ✓	G.WW.
40'/3600' = 1.1% ✓	V=0.26 ✓	T_c = 3.85 ✓	O.F.
1100' Lake	V=16 ✓	T_c = 0.02 ✓	
10'/500' = 2% ✓	V=0.35 ✓	T_c = 0.40 ✓	O.F.
6'/850' = 7.1%	V=0.68 ✓	T_c = 0.135 ✓	O.F.
5/900' = 0.56 ✓	V=0.19 ✓	T_c = 1.32 ✓	O.F.
		6.38 ✓	

T_c Computations

T BAILEY

Sub Area #12

2.1'/1200' = ~~0.17~~ 0.18% V = 0.10 ✓ T_c = 3.33 ✓ O.F.

3.9'/1100' = 0.35% ✓ V = 1.2 ✓ T_c = 0.25 ✓ Paved Area (Pipe)

6.1'/1700' = 0.36% ✓ V = 0.15 ✓ T_c = 3.15 ✓ O.F.

10'/2200' = 0.45% ✓ V = 0.17 ✓ T_c = 3.59 ✓ OF

10'/800' = 1.25% ✓ V = 0.28 ✓ T_c = 0.79 ✓ OF

20'/2000' = 1% ✓ V = 0.25 ✓ T_c = 2.22 ✓ OF

25'/600' = 4.2% ✓ V = 0.51 ✓ T_c = 0.33 ✓ OF

13.66 ✓

Sub Area #11

14.25'/5700' = 0.25% ✓ V = 0.76 ✓ T_c = 2.08 ✓ G.WW.

2.75'/1700' = 0.16% ✓ V = 0.10 ✓ T_c = 4.72 ✓ OF

10'/200' = 5% ✓ V = 0.56 ✓ T_c = 0.10 ✓ OF

10'/2100' = 0.48% ✓ V = 0.17 ✓ T_c = 3.43 ✓ OF

1''/500' = 3% ✓ V = 0.44 ✓ T_c = 0.32 ✓ OF

10.65 ✓

Tc Computations

Sub Area #14

~~8'/400' = 2%~~ ✓	~~V = 2.1~~ ✓	~~Tc = 0.05~~ ✓	~~G.WW.~~
10'/800' = 1.25% ✓	V = 1.7 ✓	Tc = 0.13 ✓	G.WW.
20'/300' = 6.7 % ✓	V = 3.8 ✓	Tc = 0.02 ✓	G.WW.
10'/1200' = 0.83% ✓	V = 1.4 ✓	Tc = 0.24 ✓	G.WW.
40'/3600' = 1.1 % ✓	V = 0.26 ✓	Tc = 3.85 ✓	O.F.
1100' Lake	V = 16 ✓	Tc = 0.02 ✓	
10'/500' = 2% ✓	V = 0.35 ✓	Tc = 0.40 ✓	O.F.
60'/850' = 7.1% ✓	V = 0.68 ✓	Tc = 0.35 ✓	O.F.
5'/900' = 0.56% ✓	V = 0.19 ✓	Tc = 1.32 ✓	O.F.
		6.38 ✓	

Sub Area #13

28'/500' = 5.6% ✓	V = 0.6 ✓	Tc = 0.23 ✓	O.F.
30'/3900' = 0.77% ✓	V = 0.22 ✓	Tc = 4.92 ✓	O.F.
2'/5000' = 0.2% ✓	V = 0.11 ✓	Tc = 12.63 ✓	
		17.78 ✓	

Tc Computations

SubArea #15

~~56.2'/4400'~~	= ~~1.3%~~ ✓	V = 2.3 ✓	Tc = 0.53 ✓	S.U.G.
10'/500'	= 2% ✓	V = 2.9 ✓	Tc = 0.05 ✓	P.A.S.F.
10'/250'	= 4% ✓	V = 4.0 ✓	Tc = 0.02 ✓	P.A.S.F.
10'/100'	= 10% ✓	V = 6.4 ✓	Tc = .0043 ✓	P.A.S.F.
10'/1000'	= 1% ✓	V = 2.0 ✓	Tc = 0.14 ✓	P.A.S.F.
'/1100'	= 0.91%	V = 1.9 ✓	Tc = 0.16 ✓	P.A.S.F
3.5'/1100'	= 0.5% ✓	V = 1.4 ✓	Tc = 0.22 ✓	P.A.S.F.
4.5'/900'	= ~~0.5%~~ ✓	V = 0.18 ✓	Tc = 1.39 ✓	O.F.
10'/2400'	= 0.42% ✓	V = 0.16 ✓	Tc = 4.17 ✓	O.F
15'/600'	= 2.5% ✓	V = 0.4 ✓	Tc = 0.42 ✓	O.F
			7.10'	

SCS-ENG-523 Rev. 8-69

SOIL CONSERVATION SERVICE

STATE Michigan | PROJECT McCoy Creek, Berrien Co.

BY B. Hill | DATE 12/15 | CHECKED BY T Carey | DATE 12-17-81 | JOB NO.

SUBJECT Hydrologic Soil Grouping | SHEET ____ OF ____

Sub W.S. #	Area Acres	Area Sq. Mi.	Hydrologic Soil Group A	B	C	D	Open Water Acres	LAND AREA ONLY
1	1262.7	1.98 (1.97)	222	766	254	21	0	1263
2	464.7	0.73 ✓	47	413	5	0	0	465
3	1063.1	1.66 ✓	384	626	44	8	1 ✓	1062
4	978.8	1.53 ✓	130	816	29	2	2 ✓	977
5	NC							
6	321.5	0.50 ✓	66	230	21	0	4 ✓	318
7	977.6	1.53 ✓	108	624	207	39	0	978
8	557.3	0.87 ✓	148	316	58	5	30	527
9	1293.1	2.02 ✓	304	897	60	30	2	1291
10	NC							
11	544.1	0.85 ✓	28	473	18	25	0	544
12	1140.2	1.78 ✓	215	830	8	86	1	1139
13	1310.5	2.05 ✓	134	1147	12	4	13	1298
14	1141.2	1.78 ✓	129	967	3	13	29	1112
15	618.9	0.97 ✓	54	564	0	0	1	618
16	NC							

STATE MICHIGAN	PROJECT McCoy CREEK		
BY B. Hill	DATE 12/83	CHECKED BY T. BAKER	DATE 12-17-84
SUBJECT SUBAREA #1			JOB NO.
			SHEET ____ OF ____

(Antecedent moisture condition II and Ia = 0.25)

LAND USE DESCRIPTION	HYDROLOGIC SOIL GROUP A	B	C	D	ACRES	PRODUCT
Land Area %	17.6	60.6	20.1	1.7		
Cultivated land[1]: without conservation treatment	72	81	88	91	856	x 76 = 65056
: with conservation treatment	67 62	76 71	83 78	86 81		
Pasture or range land: poor condition	68	79	86	89	—	
good condition	39	61	74	80	99	x60 = 5940
Meadow: good condition	30	58	71	78	—	
Wood or Forest land: thin stand, poor cover, no mulch	45	66	77	83	268	X59 = 15812
good cover[2]	35 25	60 55	73 70	80 77		
Open Spaces, lawns, parks, golf courses, cemeteries, etc.						
good condition: grass cover on 75% or more of the area	39	61	74	80		
fair condition: grass cover on 50% to 75% of the area	49	69	79	84		
Commercial and business areas (85% impervious)	89	92	94	95		
Industrial districts (72% impervious).	81	88	91	93		
Residential:[3]						
Average lot size — Average % Impervious[4]						
1/8 acre or less — 65	77	85	90	92		
1/4 acre — 38	61	75	83	87		
1/3 acre — 30	57	72	81	86		
1/2 acre — 25	54	70	80	85		
1 acre — 20	51	68	79	84		
Paved parking lots, roofs, driveways, etc.[5]	98	98	98	98		
Streets and roads:						
paved with curbs and storm sewers[5]	98	98	98	98	16	x98 = 1568
gravel	76	85	89	91	24	x84 = 2016
dirt	72	82	87	89		
TOTAL					1263	90392

Weighted CN = $\frac{\text{Product Total}}{\text{Total Acres}} = \frac{90392}{1263} = 71.6$

From EFM, Exhibit 2-10, Sheet _____ of 21

	Storm 1	Storm 2
Peak Discharge (Q, cfs)	_____	_____

STATE MICHIGAN	PROJECT McCoy CREEK			GPO 1984—O-337-998
BY B. Hill	DATE 12/83	CHECKED BY T. Bakir	DATE 12-17-84	JOB NO.
SUBJECT SUBAREA 2				SHEET ____ OF ____

(Antecedent moisture condition II and Ia = 0.25)

LAND USE DESCRIPTION	HYDROLOGIC SOIL GROUP A	B	C	D	ACRES	PRODUCT
Land Area %	10.1	88.8	1.1	0		
Cultivated land[1]: without conservation treatment	72	81	88	91	296	×75 = 22200
: with conservation treatment	67 82	76 71	83 78	86 81		
Pasture or range land: poor condition	68	79	86	89	—	
good condition	39	61	74	80	56	×59 = 3304
Meadow: good condition	30	58	71	78	—	
Wood or Forest land: thin stand, poor cover, no mulch	45	66	77	83	104	×58 = 6032
good cover[2]	35 25	60 55	73 70	89 77		
Open Spaces, lawns, parks, golf courses, cemeteries, etc.						
good condition: grass cover on 75% or more of the area	39	61	74	80		
fair condition: grass cover on 50% to 75% of the area	49	69	79	84		
Commercial and business areas (85% impervious)	89	92	94	95		
Industrial districts (72% impervious)	81	88	91	93		
Residential:[3]						
Average lot size — Average % Impervious[4]						
1/8 acre or less — 65	77	85	90	92		
1/4 acre — 38	61	75	83	87		
1/3 acre — 30	57	72	81	86		
1/2 acre — 25	54	70	80	85		
1 acre — 20	51	68	79	84		
Paved parking lots, roofs, driveways, etc.[5]	98	98	98	98		
Streets and roads:						
paved with curbs and storm sewers[5]	98	98	98	98	2	196
gravel	76	85	89	91	7	×84 = 588
dirt	72	82	87	89		
TOTAL					465	32320

Weighted CN = $\frac{\text{Product Total}}{\text{Total Acres}} = \frac{32320}{465} = 69.5$

From EFM, Exhibit 2-10, Sheet ____ of 21

	Storm 1	Storm 2
Peak Discharge (Q, cfs)	____	____

STATE MICHIGAN	PROJECT McCoy CREEK		
BY B. Hill	DATE 12/83	CHECKED BY T BAKER	DATE 12-17-84
SUBJECT SUBAREA 3			JOB NO.
			SHEET ____ OF ____

(Antecedent moisture condition II and Ia = 0.25)

LAND USE DESCRIPTION	HYDROLOGIC SOIL GROUP A	B	C	D	ACRES	PRODUCT
Land Area %	36.2	58.9	4.1	0.8		
Cultivated land[1]: without conservation treatment	72	81	88	91	578	×73 = 42194
: with conservation treatment	67 62	74 71	83 78	86 81		
Pasture or range land: poor condition	68	79	86	89	—	
good condition	39	61	74	80	147	×54 = 7938
Meadow: good condition	30	58	71	78	—	
Wood or Forest land: thin stand, poor cover, no mulch	45	66	77	83	323	×52 = 16796
good cover[2]	35 25	60 55	73 70	80 77		
Open Spaces, lawns, parks, golf courses, cemeteries, etc.						
good condition: grass cover on 75% or more of the area	39	61	74	80		
fair condition: grass cover on 50% to 75% of the area	49	69	79	84		
Commercial and business areas (85% impervious)	89	92	94	95		
Industrial districts (72% impervious).	81	88	91	93		
Residential:[3]						
Average lot size — Average % Impervious[4]						
1/8 acre or less — 65	77	85	90	92		
1/4 acre — 38	61	75	83	87		
1/3 acre — 30	57	72	81	86		
1/2 acre — 25	54	70	80	85		
1 acre — 20	51	68	79	84		
Paved parking lots, roofs, driveways, etc.[5]	98	98	98	98		
Streets and roads:						
paved with curbs and storm sewers[5]	98	98	98	98	10	980
gravel	76	85	89	91	4	×82 = 328
dirt	72	82	87	89		
Lakes ~~TOTAL~~		100			1 1063	100 68336

Weighted CN = Product Total / Total Acres = 68336 / 1063 = 64.3

From EFM, Exhibit 2-10, Sheet _____ of 21

Peak Discharge (Q, cfs) . . . . . _____ _____

Storm 1 Storm 2

STATE MICHIGAN	PROJECT McCoy CREEK		
BY B. Hill / DATE 12/83	CHECKED BY T. BAKER / DATE 12-17-84	JOB NO.	
SUBJECT SUBAREA 4		SHEET ____ OF ____	

(Antecedent moisture condition II and Ia = 0.25)

LAND USE DESCRIPTION	HYDROLOGIC SOIL GROUP A	B	C	D	ACRES	PRODUCT
Land Area %	13.3	83.5	3.0	0.2		
Cultivated land[1]: without conservation treatment	72	81	88	91	649	×75 = 48675
: with conservation treatment	67	76	83	86		
	62	71	78	81		
Pasture or range land: poor condition	68	79	86	89	—	
good condition	39	61	74	80	63	×59 = 3717
Meadow: good condition	30	58	71	78	—	
Wood or Forest land: thin stand, poor cover, no mulch	45	66	77	83	184	×57 = 10488
good cover[2]	35	60	73	80		
	25	55	70	77		
Open Spaces, lawns, parks, golf courses, cemeteries, etc.						
good condition: grass cover on 75% or more of the area	39	61	74	80		
fair condition: grass cover on 50% to 75% of the area	49	69	79	84		
Commercial and business areas (85% impervious)	89	92	94	95		
Industrial districts (72% impervious).	81	88	91	93		
Residential:[3]						
Average lot size — Average % Impervious[4]						
1/8 acre or less — 65	77	85	90	92		
1/4 acre — 38	61	75	83	87		
1/3 acre — 30	57	72	81	86		
1/2 acre — 25	54	70	80	85		
1 acre — 20	51	68	79	84	54	×66 = 3564
Paved parking lots, roofs, driveways, etc.[5]	98	98	98	98		
Streets and roads:						
paved with curbs and storm sewers[5]	98	98	98	98	27	2646
gravel	76	85	89	91	0	
dirt	72	82	87	89		
LAKES			100		2	200
					979	69290

Weighted CN = $\frac{\text{Product Total}}{\text{Total Acres}} = \frac{69290}{979} = 70.8$

From EFM, Exhibit 2-10, Sheet _____ of 21

	Storm 1	Storm 2
Peak Discharge (Q, cfs)	_____	_____

STATE MICHIGAN	PROJECT McCoy CREEK			
BY B. Hill	DATE 12/83	CHECKED BY T CAKER	DATE 12-17-84	JOB NO.
SUBJECT SUBAREA 6				SHEET ____ OF ____

(Antecadent moisture condition II and Ia = 0.25)

LAND USE DESCRIPTION	HYDROLOGIC SOIL GROUP				ACRES	PRODUCT
Land Area %	A 20.8	B 72.3	C 6.9	D 0		
Cultivated land[1]: without conservation treatment	72 ~~67~~	81 ~~74~~	88 ~~83~~	91 ~~86~~	178	x 75 = 13350
: with conservation treatment	62	71	78	81		
Pasture or range land: poor condition	68	79	86	89		
good condition	39	61	74	80		
Meadow: good condition	30	58	71	78		
Wood or Forest land: thin stand, poor cover, no mulch	45	66	77	83	125	x 56 = 7000
good cover[2]	~~35~~ 25	~~60~~ 55	~~73~~ 70	~~80~~ 77		
Open Spaces, lawns, parks, golf courses, cemeteries, etc.						
good condition: grass cover on 75% or more of the area	39	61	74	80		
fair condition: grass cover on 50% to 75% of the area	49	69	79	84		
Commercial and business areas (85% impervious)	89	92	94	95		
Industrial districts (72% impervious).	81	88	91	93		
Residential:[3]						
Average lot size — Average % Impervious[4]						
1/8 acre or less — 65	77	85	90	92		
1/4 acre — 38	61	75	83	87		
1/3 acre — 30	57	72	81	86		
1/2 acre — 25	54	70	80	85		
1 acre — 20	51	68	79	84		
Paved parking lots, roofs, driveways, etc.[5]	98	98	98	98		
Streets and roads:						
paved with curbs and storm sewers[5]	98	98	98	98	7	686
gravel	76	85	89	91	7	x 83 = 581
dirt	72	82	87	89		
LAKES ~~TOTAL~~		100			4 321	400 22017

Weighted CN = $\frac{\text{Product Total}}{\text{Total Acres}} = \frac{22017}{321} = 68.6$

From EFM, Exhibit 2-10, Sheet ____ of 21

	Storm 1	Storm 2
Peak Discharge (Q, cfs)	____	____

GPO 1966—O-337-998

STATE MICHIGAN	PROJECT McCoy CREEK		
BY B. Hill	DATE 12/83	CHECKED BY T. BAKER	DATE 12-17-84
SUBJECT SUBAREA 7		JOB NO.	SHEET ____ OF ____

(Antecedent moisture condition II and Ia = 0.25)

LAND USE DESCRIPTION	Land Area %	HYDROLOGIC SOIL GROUP A 11.0	B 63.8	C 21.2	D 4.0	ACRES	PRODUCT
Cultivated land[1]: without conservation treatment		72 ~~67~~	81 ~~76~~	88 ~~83~~	91 ~~86~~	619	x77 = 47663
: with conservation treatment		62	71	78	81		
Pasture or range land: poor condition		68	79	86	89	—	
good condition		39	61	74	80	49	x62 = 3038
Meadow: good condition		30	58	71	78	—	
Wood or Forest land: thin stand, poor cover, no mulch		45	66	77	83	290	x61 = 17690
good cover[2]		~~35~~ 25	~~60~~ 55	~~73~~ 70	~~79~~ 77		
Open Spaces, lawns, parks, golf courses, cemeteries, etc.							
good condition: grass cover on 75% or more of the area		39	61	74	80		
fair condition: grass cover on 50% to 75% of the area		49	69	79	84		
Commercial and business areas (85% impervious)		89	92	94	95		
Industrial districts (72% impervious).		81	88	91	93		
Residential:[3]							
Average lot size — Average % Impervious[4]							
1/8 acre or less — 65		77	85	90	92		
1/4 acre — 38		61	75	83	87		
1/3 acre — 30		57	72	81	86		
1/2 acre — 25		54	70	80	85		
1 acre — 20		51	68	79	84		
Paved parking lots, roofs, driveways, etc.[5]		98	98	98	98		
Streets and roads:							
paved with curbs and storm sewers[5]		98	98	98	98	13	1274
gravel		76	85	89	91	7	x85 = 595
dirt		72	82	87	89		
TOTAL						978	70260

Weighted CN = $\frac{\text{Product Total}}{\text{Total Acres}} = \frac{70260}{978} = 71.8$

From EFM, Exhibit 2-10, Sheet ____ of 21

Peak Discharge (Q, cfs) . . . . . ____ ____

Storm 1 Storm 2

STATE MICHIGAN	PROJECT McCoy CREEK		
BY B. Hill / DATE 12/83	CHECKED BY T BAKER / DATE 12-17-84	JOB NO.	
SUBJECT SUBAREA 8		SHEET ___ OF ___	

(Antecedent moisture condition II and Ia = 0.25)

LAND USE DESCRIPTION — Land Area %	HYDROLOGIC SOIL GROUP A 28.1	B 60.0	C 11.0	D 0.9	ACRES	PRODUCT
Cultivated land[1]: without conservation treatment	72	81	88	91	263	×74 = 19462
: with conservation treatment	67 62	76 71	83 78	86 81		
Pasture or range land: poor condition	68	79	86	89	—	
good condition	39	61	74	80	64	×56 = 3584
Meadow: good condition	30	58	71	78	—	
Wood or Forest land: thin stand, poor cover, no mulch	45	66	77	83	168	×55 = 9240
good cover[2]	35 25	60 55	73 70	80 77		
Open Spaces, lawns, parks, golf courses, cemeteries, etc.						
good condition: grass cover on 75% or more of the area	39	61	74	80		
fair condition: grass cover on 50% to 75% of the area	49	69	79	84		
Commercial and business areas (85% impervious)	89	92	94	95		
Industrial districts (72% impervious).	81	88	91	93		
Residential:[3]						
Average lot size — Average % Impervious[4]						
1/8 acre or less — 65	77	85	90	92		
1/4 acre — 38	61	75	83	87		
1/3 acre — 30	57	72	81	86		
1/2 acre — 25	54	70	80	85		
1 acre — 20	51	68	79	84	14	×65 = 910
Paved parking lots, roofs, driveways, etc.[5]	98	98	98	98		
Streets and roads:						
paved with curbs and storm sewers[5]	98	98	98	98	8	784
gravel	76	85	89	91	10	×83 = 830
dirt	72	82	87	89		
Lakes ~~TOTAL~~		100			30	3000
					557	37810

Weighted CN = $\frac{\text{Product Total}}{\text{Total Acres}} = \frac{37810}{557} = 67.9$

From EFM, Exhibit 2-10, Sheet _____ of 21

Peak Discharge (Q, cfs) . . . . . _____ _____

Storm 1 Storm 2

STATE MICHIGAN	PROJECT McCoy CREEK		
BY B. Hill / DATE 12/83	CHECKED BY T. BAKER / DATE 12-17-84	JOB NO.	
SUBJECT SUBAREA 9		SHEET ____ OF ____	

(Antecedent moisture condition II and Ia = 0.25)

LAND USE DESCRIPTION	Land Area %	HYDROLOGIC SOIL GROUP A 23.5	B 69.5	C 4.6	D 2.4	ACRES	PRODUCT
Cultivated land[1]: without conservation treatment		72	81	88	91	723	×74 = 53502
: with conservation treatment		67 62	76 71	83 78	86 81		
Pasture or range land: poor condition		68	79	86	89	—	
good condition		39	61	74	80	51	×57 = 2907
Meadow: good condition		30	58	71	78	—	
Wood or Forest land: thin stand, poor cover, no mulch		45	66	77	83	362	×55 = 19910
good cover[2]		35 25	60 55	73 70	89 77		
Open Spaces, lawns, parks, golf courses, cemeteries, etc.							
good condition: grass cover on 75% or more of the area		39	61	74	80		
fair condition: grass cover on 50% to 75% of the area		49	69	79	84		
Commercial and business areas (85% impervious)		89	92	94	95		
Industrial districts (72% impervious)		81	88	91	93		
Residential:[3]							
Average lot size — Average % Impervious[4]							
1/8 acre or less — 65		77	85	90	92		
1/4 acre — 38		61	75	83	87	97	×72 = 6264
1/3 acre — 30		57	72	81	86		
1/2 acre — 25		54	70	80	85		
1 acre — 20		51	68	79	84	10	×65 = 650
Paved parking lots, roofs, driveways, etc.[5]		98	98	98	98		
Streets and roads:							
paved with curbs and storm sewers[5]		98	98	98	98	43	4214
gravel		76	85	89	91	15	×83 = 1245
dirt		72	82	87	89		
LAKES	TOTAL		100			2	200
						1293	88892

Weighted CN = Product Total / Total Acres = 88892 / 1293 = 68.7

From EFM, Exhibit 2-10, Sheet ____ of 21

Peak Discharge (Q, cfs) . . . . . ____ ____

Storm 1 Storm 2

STATE MICHIGAN	PROJECT McCoy CREEK		
BY B.Hill / DATE 12/83	CHECKED BY T BAKER / DATE 12-17-84	JOB NO.	
SUBJECT SUBAREA 11		SHEET ____ OF ____	

(Antecedent moisture condition II and Ia = 0.25)

LAND USE DESCRIPTION	HYDROLOGIC SOIL GROUP A	B	C	D	ACRES	PRODUCT
	Land Area % 5.7	86.9	3.3	4.7		
Cultivated land[1]: without conservation treatment	72	81	88	91	441	×76 = 33516
: with conservation treatment	67 62	76 71	83 78	86 81		
Pasture or range land: poor condition	68	79	86	89	—	
good condition	39	61	74	80	—	
Meadow: good condition	30	58	71	78	—	
Wood or Forest land: thin stand, poor cover, no mulch	45	66	77	83	52	×60 = 3120
good cover[2]	35 25	60 55	73 70	80 77		
Open Spaces, lawns, parks, golf courses, cemeteries, etc.						
good condition: grass cover on 75% or more of the area	39	61	74	80		
fair condition: grass cover on 50% to 75% of the area	49	69	79	84		
Commercial and business areas (85% impervious)	89	92	94	95		
Industrial districts (72% impervious).	81	88	91	93		
Residential:[3]						
Average lot size — Average % Impervious[4]						
1/8 acre or less — 65	77	85	90	92		
1/4 acre — 38	61	75	83	87		
1/3 acre — 30	57	72	81	86	39	×72 = 2808
1/2 acre — 25	54	70	80	85		
1 acre — 20	51	68	79	84		
Paved parking lots, roofs, driveways, etc.[5]	98	98	98	98		
Streets and roads:						
paved with curbs and storm sewers[5]	98	98	98	98	11	1078
gravel	76	85	89	91	1	×85 = 85
dirt	72	82	87	89		
TOTAL					544	40607

Weighted CN = $\frac{\text{Product Total}}{\text{Total Acres}} = \frac{40607}{544} = 74.6$

From EFM, Exhibit 2-10, Sheet ____ of 21

Peak Discharge (Q, cfs) . . . . . ____ ____

Storm 1 Storm 2

STATE	MICHIGAN	PROJECT	McCoy CREEK		
BY	B. Hill	DATE 12/83	CHECKED BY T. BAKER	DATE 12-17 84	JOB NO.
SUBJECT	SUBAREA 12				SHEET ____ OF ____

(Antecedent moisture condition II and Ia = 0.25)

LAND USE DESCRIPTION	HYDROLOGIC SOIL GROUP A	B	C	D	ACRES	PRODUCT
	Land Area % 18.9	72.9	0.6	7.6		
Cultivated land[1]: without conservation treatment	72	81	88	91	507	×75 = 38025
: with conservation treatment	67 62	76 71	83 78	86 81		
Pasture or range land: poor condition	68	79	86	89	—	
good condition	39	61	74	80	104	×58 = 6032
Meadow: good condition	30	58	71	78	—	
Wood or Forest land: thin stand, poor cover, no mulch	45	66	77	83	144	×57 = 8208
good cover[2]	35 25	60 55	73 70	80 77		
Open Spaces, lawns, parks, golf courses, cemeteries, etc.						
good condition: grass cover on 75% or more of the area	39	61	74	80	82	×58 = 4756
fair condition: grass cover on 50% to 75% of the area	49	69	79	84	—	
Commercial and business areas (85% impervious)	89	92	94	95	24	×92 = 2208
Industrial districts (72% impervious).	81	88	91	93	—	
Residential:[3]						
Average lot size — Average % Impervious[4]						
1/8 acre or less — 65	77	85	90	92	95	×84 = 7980
1/4 acre — 38	61	75	83	87	0	
1/3 acre — 30	57	72	81	86	40	×70 = 2800
1/2 acre — 25	54	70	80	85	45	×68 = 3060
1 acre — 20	51	68	79	84	23	×66 = 1518
Paved parking lots, roofs, driveways, etc.[5]	98	98	98	98	0	
Streets and roads:						
paved with curbs and storm sewers[5]	98	98	98	98	60	5880
gravel	76	85	89	91	15.	×84 = 1260
dirt	72	82	87	89		
LAKES ~~TOTAL~~		100			1	100
					1140	81827

Weighted CN = Product Total / Total Acres = 81827 / 1140 = 71.8

From EFM, Exhibit 2-10, Sheet ____ of 21

Peak Discharge (Q, cfs) . . . . . ____ ____

Storm 1 Storm 2

STATE	MICHIGAN	PROJECT	McCoy CREEK		
BY B. Hill	DATE 12/83	CHECKED BY T. BAKER	DATE 12-17-84	JOB NO.	
SUBJECT SUBAREA 13				SHEET ____ OF ____	

(Antecedent moisture condition II and Ia = 0.25)

LAND USE DESCRIPTION	HYDROLOGIC SOIL GROUP				ACRES	PRODUCT
Land Area %	A 10.3	B 88.4	C 0.9	D 0.4		
Cultivated land[1]: without conservation treatment	72	81	88	91	933	×75 = 69975
: with conservation treatment	67 62	76 71	83 78	86 81		
Pasture or range land: poor condition	68	79	86	89	23	×78 = 2184
good condition	39	61	74	80	62	×59 = 3658
Meadow: good condition	30	58	71	78	—	
Wood or Forest land: thin stand, poor cover, no mulch	45	66	77	83	177	×58 = 10266
good cover[2]	35 25	60 55	73 70	80 77		
Open Spaces, lawns, parks, golf courses, cemeteries, etc.						
good condition: grass cover on 75% or more of the area	39	61	74	80		
fair condition: grass cover on 50% to 75% of the area	49	69	79	84		
Commercial and business areas (85% impervious)	89	92	94	95		
Industrial districts (72% impervious).	81	88	91	93		
Residential:[3]						
Average lot size — Average % Impervious[4]						
1/8 acre or less — 65	77	85	90	92		
1/4 acre — 38	61	75	83	87		
1/3 acre — 30	57	72	81	86		
1/2 acre — 25	54	70	80	85		
1 acre — 20	51	68	79	84	= 38	×66 = 2508
Paved parking lots, roofs, driveways, etc.[5]	98	98	98	98		
Streets and roads:						
paved with curbs and storm sewers[5]	98	98	98	98	33	3234
gravel	76	85	89	91	26	×84 = 2184
dirt	72	82	87	89		
LAKES ~~DITCHES~~			100		13	1300
					1310	94009

Weighted CN = $\frac{\text{Product Total}}{\text{Total Acres}} = \frac{94009}{1310} = 71.8$

From EFM, Exhibit 2-10, Sheet ____ of 21

Peak Discharge (Q, cfs) . . . . . ____ ____

Storm 1 Storm 2

GPO 1984—O-337-998

STATE	MICHIGAN	PROJECT	McCoy CREEK	
BY B. Hill	DATE 12/83	CHECKED BY T. BAKER	DATE 12-17-84	JOB NO.
SUBJECT	SUBAREA 14			SHEET ____ OF ____

(Antecedent moisture condition II and Ia = 0.25)

LAND USE DESCRIPTION	HYDROLOGIC SOIL GROUP				AGRES	PRODUCT
Land Area %	A 11.6	B 87.0	C 0.2	D 1.2		
Cultivated land[1]: without conservation treatment	72	81	88	91	163	×75 = 12225
: with conservation treatment	67 62	76 71	83 78	86 81		
Pasture or range land: poor condition	68	79	86	89	71	×78 = 5538
good condition	39	61	74	80	52	×59 = 3068
Meadow: good condition	30	58	71	78		
Wood or Forest land: thin stand, poor cover, no mulch	45	66	77	83	213	×57 = 12141
good cover[2]	35 25	60 55	73 70	80 77		
Open Spaces, lawns, parks, golf courses, cemeteries, etc.						
good condition: grass cover on 75% or more of the area	39	61	74	80	170	×59 = 10030
fair condition: grass cover on 50% to 75% of the area	49	69	79	84	—	
Commercial and business areas (85% impervious)	89	92	94	95	23	×92 = 2116
Industrial districts (72% impervious).	81	88	91	93	21	×87 = 1827
Residential:[3]						
Average lot size — Average % Impervious[4]						
1/8 acre or less — 65	77	85	90	92	84	×84 = 7056
1/4 acre — 38	61	75	83	87		
1/3 acre — 30	57	72	81	86		
1/2 acre — 25	54	70	80	85	215	×68 = 14620
1 acre — 20	51	68	79	84		
Paved parking lots, roofs, driveways, etc.[5]	98	98	98	98		
Streets and roads:						
paved with curbs and storm sewers[5]	98	98	98	98	84	3232
gravel	76	85	89	91	16	×84 = 1344
dirt	72	82	87	89		
LAKES		100			29	2900
					1141	81370

Weighted CN = Product Total / Total Acres = 81370 / 1141 = 71.3

From EFM, Exhibit 2-10, Sheet ____ of 21

Peak Discharge (Q, cfs) . . . . . ____ ____

Storm 1 Storm 2

GPO 1966—O-337-998

STATE MICHIGAN	PROJECT McCoy CREEK		
BY B. Hill	DATE 12/83	CHECKED BY T. BAKER	DATE 12-17-84	JOB NO.
SUBJECT SUBAREA 15				SHEET ____ OF ____

(Antecedent moisture condition II and Ia = 0.25)

LAND USE DESCRIPTION	HYDROLOGIC SOIL GROUP A	B	C	D	ACRES	PRODUCT
Land Area %	8.7	91.3	0	0		
Cultivated land[1]: without conservation treatment	72	81	88	91	19	x75 = 1425
: with conservation treatment	67 62	76 71	83 78	86 81		
Pasture or range land: poor condition	68	79	86	89	—	
good condition	39	61	74	80	14	x59 = 826
Meadow: good condition	30	58	71	78	—	
Wood or Forest land: thin stand, poor cover, no mulch	45	66	77	83	86	x58 = 4988
good cover[2]	35 25	60 55	73 70	80 77		
Open Spaces, lawns, parks, golf courses, cemeteries, etc.						
good condition: grass cover on 75% or more of the area	39	61	74	80	11	x59 = 649
fair condition: grass cover on 50% to 75% of the area	49	69	79	84	—	
Commercial and business areas (85% impervious)	89	92	94	95	63	x92 = 5796
Industrial districts (72% impervious).	81	88	91	93	70	x87 = 6090
Residential:[3]						
Average lot size — Average % Impervious[4]						
1/8 acre or less — 65	77	85	90	92	233	x84 = 19572
1/4 acre — 38	61	75	83	87		
1/3 acre — 30	57	72	81	86		
1/2 acre — 25	54	70	80	85		
1 acre — 20	51	68	79	84		
Paved parking lots, roofs, driveways, etc.[5]	98	98	98	98	6	588
Streets and roads:						
paved with curbs and storm sewers[5]	98	98	98	98	103	10094
gravel	76	85	89	91	13	x84 = 1092
dirt	72	82	87	89		
LAKES		100			1	100
					619	51220

Weighted CN = $\frac{\text{Product Total}}{\text{Total Acres}}$ = $\frac{51220}{619}$ = 82.7

From EFM, Exhibit 2-10, Sheet _____ of 21

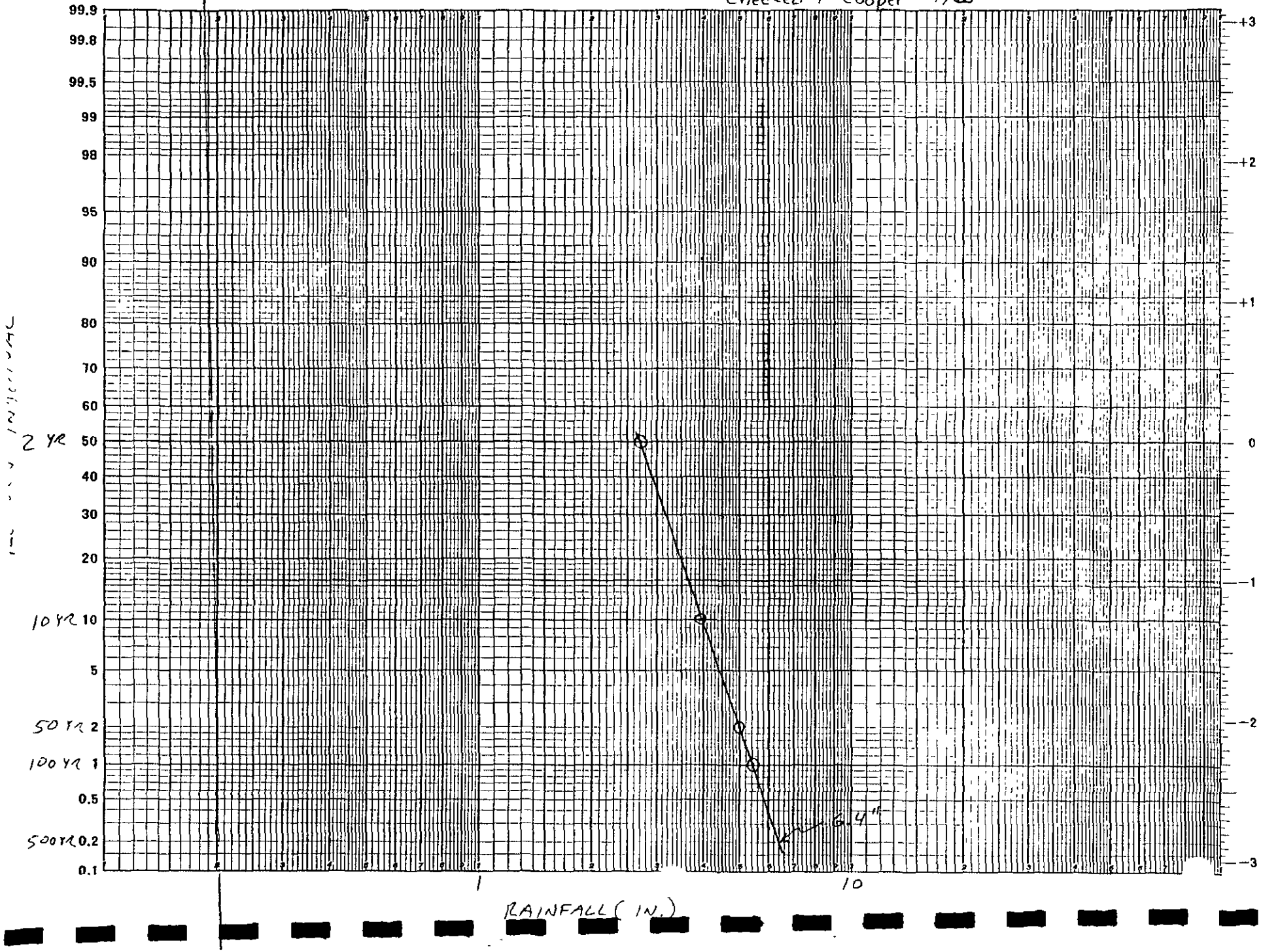
Peak Discharge (Q, cfs) . . . . . _____ _____

Storm 1 Storm 2

GRAPH PAPER® IN STOCK DIRECT FROM COUEX BOOK CO INC NORWOOD MASS 02062 PRINTED IN U.S.A.

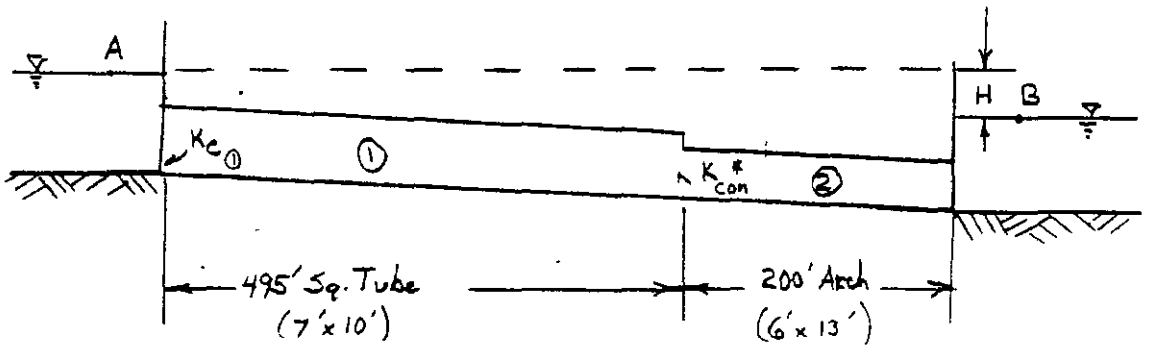
McCoy CREEK
2-100 YR, 24 HR RAINFALLS FROM TP-40
500 YR EXTRAPOLATED

T. BAKER
6-27-84
Checked: D Cooper 1/88



STATE MI		PROJECT McCoy Creek FPMS		
BY P. Cooper	DATE 1/9/85	CHECKED BY	DATE	JOB NO.
SUBJECT Hydraulics of Tunnel under Days Ave				SHEET 1 OF

Develop an equation to calculate full pipe flow through two conduits, rectangular and arch, connected in series.



Apply the energy eqn from A to B

$$H = K_{c_①}\frac{V_1^2}{2g} + K_{c_①} L_1 \frac{V_1^2}{2g} + K^*_{con}\frac{V_2^2}{2g} + K_{c_②} L_2 \frac{V_2^2}{2g} + \frac{V_2^2}{2g}$$

Entrance Loss | Friction Loss Conduit ① | Constriction Loss | Friction Loss Conduit ② | Velocity head

* Contraction Loss Coef. values based on ratio of diameters
Convert rect. & arch tubes to equiv. pipe sizes

rect conduit ⇒ $R = \frac{A}{WP} = \frac{70}{34} = 2.06 \Rightarrow 2.06 = \frac{\pi r^2}{2\pi r} \Rightarrow r = 4.06'$
$D_1 = 8.12'$

Arch Conduit ⇒ $R = \frac{61.4}{32.1} = 1.91 \Rightarrow$ $r = 3.82$ $D_2 = 7.64$

assume $V_2 \simeq 8$ ft/sec
from Kings Handbook p6-62
$D_1/D_2 = 1.3$ $K_{con} \simeq 0.1$

STATE MT		PROJECT McCoy Creek FPMS		
BY P. Cooper	DATE 1/9/85	CHECKED BY	DATE	JOB NO.
SUBJECT Hydraulics of Tunnel under Days Ave				SHEET 2 OF

- Calculate K_c's

$$K_c = \frac{29.164\, n^2}{R^{4/3}} \qquad (NEH\text{-}5 \quad p\ 5.5\text{-}3)$$

$K_{c①} \Rightarrow n = 0.013 \Rightarrow K_{c①} = 0.00188$

$R = 2.06$

$K_{c②} \Rightarrow n = 0.030 \Rightarrow K_{c②} = 0.0111$

$R = 1.91$

- Put V_2 in terms of V_1 & Substitute back into energy eqn.

from continuity $V_1 A_1 = V_2 A_2$

$$V_2 = V_1 \frac{A_1}{A_2} = V_1 \frac{70}{61.4} = 1.14\, V_1$$

let $K_{e①} = 0.5$ (entrance loss coef)

$K_{con} = 0.1$ (constriction loss)

$L_① = 495'$

$L_② = 200'$

$g = 32.2\ ^{1}/_{sec^2}$

eqn becomes:

$$H = V_{①}^{2}\,(.0893)$$

let $Q = V_{①} A_{①} = V_{①}(70) \Rightarrow V_{①} = \frac{Q}{70}$ & substitute into above to produce:

$$\boxed{Q = 234.6\sqrt{H}}$$

Note:

Values of flow from the above equation were compared with orifice flows for the entrance of the rectangular channel. In all flows considered in this study, full pipe flow was the control.

Tabular Computations — SOIL CONSERVATION SERVICE

RR Fill Intact

Sec 14.90 → Sec. 15.03

$Q_{500} = 1056.4$
$Q_{100} = 773.7$
$Q_{50} = 668.2$
$Q_{10} = 409.8$

SOIL CONSERVATION SERVICE

	Run #	Sec 15.03 HW 500 *	Sec 14.90 TW 500	H_{500}	$Q_{pipe\ 500}$	$Q_{overland\ 500}$ **	Sec 15.03 HW 100 *	Sec 14.90 TW 100	H_{100}	$Q_{pipe\ 100}$	$Q_{overland\ 100}$ **	Sec 15.03 HW 50 *	Sec 14.90 TW 50	H_{50}	$Q_{pipe\ 50}$	$Q_{overland\ 50}$ **	Sec 15.03 HW 10 *	Sec 14.90 TW 10	H_{10}	$Q_{pipe\ 10}$	$Q_{overland\ 10}$ **
	1	687.0	685.8	1.2	257.0	799.4	685.5	683.7	1.8	314.8	458.9	684.8	681.9	2.9	399.6 USE	268.6 223.0	683.2	681.0	2.2	349.0 USE	61.8 3.4
	2	686.7	685.8	0.9	222.6	933.8	685.9	683.7	2.2	348.0	425.7	685.3	681.9	3.4	432.7	235.5	684.1	681.0	3.1	413.1 USE	< 0 3.0
	3	686.8	685.8	1.0	234.6	821.8	685.9	683.7	2.2	348.0	425.7	685.4	681.9	3.5	439.0	229.2	684.0	681.0	3.0	406.4	3.4
USE	4	686.7	685.8	0.9	222.6	833.8	685.9	683.7	2.2	348.0	425.7	685.4	681.9	3.5	439.0	229.2	684.1	681.0	3.1		0
							686.2	683.7	2.5	370.9	402.8										
							685.9	683.7	2.2	348.0	425.7										
							685.8	683.7	2.1	340.0	432.9						684.1	681.0	3.1		2.0
							685.9	683.7	2.2	348.0	425.7										

Tabular Computations — SOIL CONSERVATION SERVI

McCoy CREEK FPMS

FLOW THRU PIPE UNDER FRONT STREET — T BAKER 1-3-85

	RUN #	SEC. 15.03 H.W	SEC. 14.90 TW	H	Q PIPE	Q OVERLAND				
500 YR	1	687.0	685.8	1.2	257.0	799.4				
	2	687.0								
100 YR	1	686.2	685.5	0.7	196.3	577.4				
	2	686.5		1.0	234.6	539.1				
	3	686.4		0.9	222.6	551.1				
	4	686.4								
50 YR	1	685.4	683.9	1.5	439.0	229.2				
	2	685.4								
10 YR	1	684.1	681.0	3.1	413.1	0	USE 0.1			
	2	683.9		2.9	399.6	10.2	USE 1.5			
	3	683.9								

$Q_{50} = 668.2$

$Q_{10} = 409.8$

SCS-347 5-57
Tabular Computations

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

RR Fill Removed

Sec 14.90 → Sec 15.03 (Q_{50}, Q_{10})

Run #1	Sec 14.90 TW 50	Sec 15.03 HW 50	H_{50}	$Q_{pipe_{50}}$	$Q_{overland_{50}}$	Sec 14.90 TW 10	Sec 15.03 HW 10	H 10	$Q_{pipe_{10}}$	$Q_{overland_{10}}$
5	681.7	683.0	1.3	267.5	400.7	681.1	682.1	1.0	234.6	175.2
6	681.7	685.9	4.2	480.9	187.3	681.1	685.1	4.0	469.3	<0 use 50
7	681.7	685.2	3.5	439.0	229.2	681.1	684.6	3.5	438.9	<0 use 5
8	681.7	685.4	3.7	451.3	216.9	681.1	684.0	2.9	399.6	10.2
9	681.7	685.3	3.6	445.2	223.0	681.1	684.1	3.0	406.4	3.4

1056.4 Q_{500}
778.7 Q_{100}

SCS-347 5-57
Tabular Computations

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

RR F.11 Removed

Sec 14.90 → Sec 15.03 (Q_{500}, Q_{100})

Run #	Sec 14.90 Tail Water 500	Sec 15.03 HW 500	H_{500}	Q_{pipe} 500	$Q_{overland}$ 500	Sec 14.90 TW 100	Sec 15.03 HW 100	H 100	Q_{pipe} 100	$Q_{overland}$ 100
1	682.3	—	—	385	671	681.9	—	—	370	404
2	682.3	686.4	4.1	475	581.	681.9	685.9	4.0	469	305
3	682.3	686.2	3.9	463.4	593.0	681.9	685.6	3.7	451.3	322.4
4	682.3	686.3	4.0	469.3	587.1	681.9	685.6	3.7	451.3	322.4

SCS-ENG-16
REV. DEC. 1974

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATER SURFACE OFILE INPUT DATA

(JOB OR PROJECT) BY CHECKED DATE

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word	Data Fields						Card Ident.
	1	2	3	4	5	6	
	DELTA ELEV.						
WSP2							
	ANY ALPHAMERIC TITLE WILL BE PRINTED AT TOP OF EACH PAGE MAY NOT BE CHANGED IN JOB						
TITLE							
	ANY ALPHAMERIC TITLE WILL BE PRINTED AT TOP OF EACH PAGE MAY BE CHANGED AT ANY TIME						
TITLE							
	TOTAL D. A.	CSM	CSM	CSM	CSM	CSM	
DISCHARGE							
DISCHARGE							
DISCHARGE							
	XSEC NAME	SLOPE	SLOPE	SLOPE	SLOPE	SLOPE	
STARTS							
STARTS							
STARTS							
	XSEC NAME	ELEVATION	ELEVATION	ELEVATION	ELEVATION	ELEVATION	
STARTE							
STARTE							
STARTE							
	XSEC NAME	XSEC NAME	XSEC NAME	XSEC NAME	XSEC NAME	XSEC NAME	
TRIB							
TRIB							
TRIB							
TRIB							
	OUTPUT OPTIONS						
OUTPUT							
	ANY ALPHAMERIC MESSAGE						
COMMENT							
	SAME AS COMMENT						
*							

PAGE _____ OF _____

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SCS ENG 18

WATER SURFACE PROFILE INPUT DATA

(JOB OR PROJECT) _____ BY _____ CHECKED _____ DATE _____

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word	Data Fields						Card Ident.
	1	2	3	4	5	6	
	REACH NAME	DRAINAGE AREA	CHANNEL LENGTH	FLOOD LENGTH	DAMAGE LENGTH	CHANNEL LENGTH	
REACH							
	XSEC NAME	DISPLACEMENT	VELOCITY				
REACH 2							
	XSEC NAME	SEGMENT No.	SEGMENT TYPE	LAST STATION	LAST ELEV	CODE LETTER	
SEGMENT							
	'n'	'E' or 'r'	'n'	'E' or 'r'	'n'	'E' or 'r'	
NVALUE							
SEGMENT							
NVALUE							
SEGMENT							
NVALUE							
SEGMENT							
NVALUE							
SEGMENT							
NVALUE							
SEGMENT							
NVALUE							
	ROAD NAME	COEF OF CONTR					
CONTR							
	ELEV FULL	ELEV GRDR BOT	SKEW ANGLE	ORIF COEF	WEIR COEF		
GIRDER							
	STATION	ELEV.	STATION	ELEV.	STATION	ELEV.	
ENDTABLE							

NOTE 2 N VALUE CARDS CAN BE USED PER SEGMENT WITH A MAXIMUM OF 4 SETS OF 'n' and 'r' OR 'n' AND 'E' VALUES

PAGE _____ OF _____

SCS-ENG-19
JAN. 1973

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

CROSS SECTION DATA

_____ BY _____ CHECKED _____ DATE _____
(JOB OR PROJECT)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word	Data Fields						Card Ident.
	1	2	3	4	5	6	
	XSEC NAME	HI					
SECTION							
	STATION	ELEV	STATION	ELEV	STATION	ELEV.	
ENDTABLE							
NOTE:	IF ROD READINGS ARE GIVEN TURN CARDS MAY BE NEEDED						

PAGE _____ OF _____

SCS-ENG-17 [redacted]
JAN. 1973

[redacted] EPA [redacted] NT O [redacted] ICU [redacted]
SOIL CONSERVATION SERVICE

WATER SURFACE PRO E INPUT DATA

_____ BY _____ CHECKED _____ DATE _____
(JOB OR PROJECT)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Control Word	Data Fields						Card Ident.
	1	2	3	4	5	6	
	ROAD NAME	WEIR COEF	CHANNEL LENGTH	FLOOD LENGTH			
ROAD							
	ROAD NAME	SKEW TYPE	BASE CURVE	PIER CURVE			
BPR							
	BOTTOM ELEV	AVG WIDTH	BOTTOM ELEV	AVG WIDTH	BOTTOM ELEV	AVG WIDTH	
PIER							
	ELEV FULL	ELEV GRDR BOT	SKEW ANGLE	ORIF COEF	WEIR COEF		
GIRDER							
ENDTABLE							
	ROAD NAME	NO OF PIPES	CULV CODE				
CULV 1							
	DIA OR HEIGHT	WIDTH	LENGTH	ELEV US INVERT	ELEV DS INVERT	CULV 'n'	
CULV 2							
CULV 1							
CULV 2							
CULV 1							
CULV 2							
CULV 1							
CULV 2							
CULV 1							
CULV 2							

SCS-ENG-20
JAN. 1973

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WATER SURFACE PROFILE INPUT DATA

_____ BY _____ CHECKED _____ DATE _____
(JOB OR PROJECT)

Control Word	Data Fields						Card Ident.
	1	2	3	4	5	6	
	FROM XSEC	TO XSEC	STARTING XSEC				
COMPUTE							
COMPUTE							
COMPUTE							
COMPUTE							
COMPUTE							
COMPUTE							
LINK							
	FILE NAME	FROM (XSEC)	TO (XSEC)				
CHANGE							
END							
ENDJOB							
ENDRUN							

PAGE _____ OF _____

SCS-ENG - 264 DRAFT
REV. May 1982

TR - 20
JOB & TITLE

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Watershed _____ Hydrologist _____ Date _____ SHEET _____ OF _____

1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80
1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0
JOB TR-20							
TITLE							
TITLE							

JOB Record (required)

Columns 1-3 JOB

Columns 5-9 TR-20

Columns 11-17 HOLDOUT (not operational)
Use only if a holdout hydrograph is desired.

Columns 21-24 ECON

Use only if peak discharge output for ECON2/URB1 is desired. Locations for this output must be selected for inclusion in Summary Tables 1 and 3 also. Such designation can be made using summary option explained below (columns 51-57) or on Standard Control (column 71).

Columns 31-39 FULLPRINT
Use only if FULLPRINT option is desired.

Columns 41-48 PASS=XXX
Use only if PASS number, XXX, is greater than 1. XXX is an integer, right justified

Columns 51-57 SUMMARY
Use only if Summary Tables 1 and 3 are to include all Standard Control operations (except SAVHOV).

Columns 61-67 NOPLOTS
Use if no cross section rating plots are desired.

ENDPLOT
Use if only cross section rating plots are desired with no routings.

Columns 73-80 Optional user information, printed at top of input listing.

TITLE Records (one required, second is optional)

Columns 1-5 TITLE

Columns 7-9 XXX (first TITLE record only).
An optional user file number, XXX, is an integer, right justified.

Columns 11-80 Both titles may be any characters desired.

SCS-ENG.-270 DRAFT
REV. May 1982

TR-20
STREAM CROSS SECTION DATA
CROSS SECTION NO. _____

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Watershed _____ Hydrologist _____ Date _____ SHEET _____ OF _____

1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80
DATA CODE	TABLE NAME		DATA FIELD NO. 1	DATA FIELD NO. 2	DATA FIELD NO. 3		RECORD IDENT.

IMPORTANT: Line out unused lines. Data fields require decimal points.

		X SECTION ID. (1001-2001)	Drainage Area, Sq. Mi.	Bankfull Elevation, Ft.			
2	XSECTN						

(Use 1.0 unless discharge in CSM.)

NOTE: Maximum of 20 data records allowed.

	Elevation, Ft.	Discharge, CFS (or CSM)	End Area, Sq Ft.
8		0.0	0.0
8			
8			
8			
8			
8			
8			
8			
8			
8			
8			
8			
8			
8			

9	ENDTBL	NOTE. This record must be the last record of this table.

SCS - ENG - 269 DRAFT
REV May 1982

TR - 20
STRUCTURE DATA
STRUCTURE NO._____

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

P-5

Watershed _____ Hydrologist _____ Date _____ SHEET _____ OF _____

1-10		11-20		21-30	31-40	41-50	51-60	61-70	71-80
DATA CODE	TABLE NAME				DATA FIELD NO. 1	DATA FIELD NO 2	DATA FIELD NO. 3		RECORD IDENT.
		STRUCTURE ID (01-99)			IMPORTANT: Line out unused lines. Data fields require decimal points				
3	STRUCT								
		NOTE: Maximum of 20 data records allowed.							
					Elevation, Ft.	Discharge, CFS	Storage, Acre, Ft.		
8						0.0			
8									
8									
8									
8									
8									
8									
8									
8									
8									
8									
8									
8									
8									
8									
9	ENDTBL	NOTE. This record must be the last record of this table.							

SCS-ENG.-273 DRAFT
REV May 1982

TR-20
STANDARD CONTROL FOR WATERSHED

U S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Watershed _____ Hydrologist _____ Date _____ SHEET _____ OF _____

1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80
1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0

DATA CODE	OPERATION NAME	OPERATION NO.	X SECT / STRUCT. XSECT ID.	X SECT / STRUCT. STRUCT ID	HYDRO. NUMBER INPUT #1	HYDRO. NUMBER INPUT #2	HYDRO. NUMBER OUTPUT	DATA FIELD # 1	DATA FIELD # 2	DATA FIELD # 3	OUTPUT OPTIONS PRINT PEAK	PRINT HYD	PRINT ELEV	PRINT VOL	FILE	SUM	RECORD IDENT
6	RUNOFF	1					6	AREA, SQ MI.	RUNOFF CURVE NO	T_c, HRS.							EXAMPLES DO NOT ENTER
6	RESVOR	2			6		7	SURF EL. AT T=0, FT.									
6	REACH	3			7		5	LENGTH, FT.	(OPTIONAL) END AREA COEFF (X)	(OPTIONAL) EXPONENT (M)							
6	ADDHYD	4			5	6	7										
6	SAVMOV	5			FROM												
6	DIVERT	6			IN	OUT 1	OUT 2 TO	OUT 1 DISCHARGE, CFS	OUT 1, Decimal % D. A	OUT 2, I.D.							
	ENDATA							This record is to be used only at end of all standard control records.									

EXAMPLES DO NOT ENTER

(Right justify these fields)

IMPORTANT: Data Fields No. 1, 2, and 3 require decimal points.

NOTE: This form was suggested by members of Massachusetts Planning Staff.

F-14

SCS-ENG.-273A DRAFT
REV. May 1982

TR-20
STANDARD CONTROL FOR WATERSHED
CONTINUATION SHEET

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Watershed _____ Hydrologist _____ Date _____ SHEET _____ OF _____

1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80
1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0

CODE	OPERATION	XSEC (Right justify these fields)	STRUC	HYD. NO.	DATA FIELD NO. 1	DATA FIELD NO. 2	DATA FIELD NO. 3	OUTPUT OPTIONS P H E V F S	RECORD ID.
					IMPORTANT: Data Fields No 1, 2, and 3 require decimal points.				

F-16

SCS-ENG-274 DRAFT
REV May 1982

TR-20
EXECUTIVE CONTROL FOR WATERSHED

U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Watershed _____ Hydrologist _____ Date _____ SHEET _____ OF _____

1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80
1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0	1 2 3 4 5 6 7 8 9 0

DATA CODE	OPERATION		DATA FIELD # 1	DATA FIELD # 2	DATA FIELD # 3		RECORD IDENT
7	LIST		This record is used for printout of tabular data and standard control list that are currently effective				
7	BASFLO	5	NEW BASE FLOW, CFS or VOLUME IN INCHES	IF VOLUME IS IN DATA FIELD No 1: PEAK TIME, HOURS	BASE TIME, HOURS		
7	INCREM	6	MAIN TIME INCREMENT, HRS.	This increment is required for initial computations. Remains in force until new increment is entered			
7	COMPUT	7	FROM XSECT OR STRUCT	THRU XSECT OR STRUCT	STARTING TIME HOURS	RAINFALL DEPTH INCHES (Set depth and duration to 0 for actual rainfall)	RAINFALL DURATION HOURS	RAIN TABLE NO	AMC	ALTERNATE NO.	ON PEAKS
	ENDCMP	1	This record is required at "end" of a watershed, it may follow a series of COMPUT records								
	ENDJOB	2	This record terminates routing computation and precedes the PEAKS record, if any								

EXAMPLES DO NOT ENTER

EXAMPLES DO NOT ENTER

Right justify these fields

IMPORTANT: Data Fields No 1, 2, and 3 require decimal points.

F-17

```
*******************80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*******************

JOB TR-20                          FULLPRINT          SUMMARY                    1
TITLE      MCCOY CREEK - FPMS - BERRIAN COUNTY, MICHIGAN                         2
TITLE      FLOOD PLAIN MANAGEMENT STUDY - PRESENT CONDITIONS                     3
 3 STRUCT       01                                                               4
 8                        708.        0.          0.                             5
 8                        709.5       20.         75.                            6
 8                        709.9       30.         95.
 8                        710.4       50.         135.                           8
 8                        710.9       75.         180.                           9
 8                        711.3       100.        210.
 8                        712.3       200.        290.
 8                        713.3       400.        380.
 8                        714.3       600.        465.
 8                        716.        1300.       610.
 9 ENDTBL                                                                       10
 3 STRUCT       03                                                              19
 8                        720.        0.          55.                            20
 8                        721.        8.          79.                            21
 8                        722.        18.         104.                           22
 8                        723.        35.         130.                           23
 8                        724.        50.         157.                           24
 8                        725.        62.         185.                           25
 8                        726.        81.         213.                         25.1
 8                        727.        90.         241.                         25.2
 8                        728.        98.         269.                         25.3
 8                        729.        2000.       297.                         25.4
 9 ENDTBL                                                                       26
 2 XSECTN    024          1.0         701.7                                    26.01
 8                        699.9       0.          0.                           26.02
 8                        701.3       10.         13.7                         26.03
 8                        701.9       20.         24.1                         26.04
 8                        702.2       30.         29.8                         26.05
 8                        702.7       50.         41.1                         26.06
 8                        703.7       100.        67.5                         26.07
 8                        704.3       150.        102.6                        26.08
 8                        704.7       200.        139.4                        26.09
 8                        705.3       300.        231.3                        26.10
 8                        705.7       400.        322.8                        26.11
 8                        706.3       600.        483.6                        26.12
 8                        706.7       900.        620.                         26.13
 8                        707.2       1000.       753.7                        26.14
 8                        707.7       1300.       930.5                        26.15
 9 ENDTBL                                                                      26.18
 2 XSECTN    123          1.0         701.5                                    26.18
 8                        699.5       0.          0.                           26.19
 8                        700.6       10.         13.6                         26.20
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
8                        701.0      20.        22.6                    26.
8                        701.4      30.        31.4                    26.
8                        701.9      50.        43.8                    26.
8                        702.7      100.       95.0                    26.
8                        703.2      150.       160.9                   26.
8                        703.5      200.       205.1                   26.
8                        704.       300.       316.3                   26.
8                        704.4      400.       401.7                   26.
8                        704.9      600.       571.5                   26.
8                        705.3      800.       701.1                   26.
8                        705.6      1000.      834.3                   26.
8                        706.1      1300.      1003.4                  26.
9 ENDTBL                                                              26.
2 XSECTN    025          1.0        700.2                              26.
8                        698.2      0.         0.                      26.
8                        699.4      10.        15.3                    26.
8                        699.8      20.        24.8                    26.
8                        700.3      30.        35.5                    26.
8                        700.6      50.        45.7                    26.
8                        701.5      100.       71.4                    26.
8                        702.1      150.       139.5                   26.
8                        702.4      200.       214.3                   26.
8                        703.       300.       400.                    26.
8                        703.3      400.       535.7                   26.
8                        703.8      600.       778.9                   26.
8                        704.       800.       908.8                   26.
8                        704.3      1000.      1109.1                  26.
8                        704.7      1300.      1296.3                  26.
9 ENDTBL                                                              26.
2 XSECTN    125          1.0        698.2                              26.
8                        696.3      0.         0.                      26.
8                        697.7      10.        39.                     26.
8                        698.1      20.        58.8                    26.
8                        698.4      30.        86.3                    26.
8                        698.8      50.        139.2                   26.
8                        699.5      100.       258.4                   26.
8                        699.9      150.       344.3                   26.
8                        700.5      200.       499.4                   26.
8                        701.3      300.       823.4                   26.
8                        701.9      400.       1088.6                  26.
8                        702.2      600.       1259.3                  26.
8                        702.4      800.       1367.5                  26.
8                        702.6      1000.      1483.2                  26.
8                        702.9      1300.      1670.5                  26.
9 ENDTBL                                                              26.
2 XSECTN    026          1.0        697.6                              26.
```

```
8                          701.0        20.          22.6                          26.2
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
9 ENDTBL                                                                          27.1
2 XSECTN    018            1.0          706.                                      27.1
8                          702.8        0.           0.                           27.1
8                          704.3        10.          9.7                          27.1
8                          704.8        20.          15.4                         27.2
8                          705.3        30.          21.8                         27.2
8                          705.9        50.          31.3                         27.2
8                          706.7        100.         110.5                        27.2
8                          707.4        150.         311.1                        27.2
8                          707.9        200.         568.0                        27.2
8                          708.8        300.         1143.9                       27.2
8                          709.6        400.         1767.5                       27.2
8                          710.3        600.         2383.9                       27.2
8                          710.5        800.         2606.5                       27.2
8                          711.4        1000.        3528.                        27.3
9 ENDTBL                                                                          27.3
2 XSECTN    021            1.0          705.9
8                          702.7        0.           0.                           27.4
8                          704.2        10.          9.7                          27.4
8                          704.7        20.          15.4                         27.4
8                          705.3        30.          22.0                         27.4
8                          705.8        50.          31.3                         27.4
8                          706.6        100.         107.                         27.4
8                          707.1        150.         261.5                        27.4
8                          707.5        200.         406.9                        27.4
8                          708.1        300.         719.2                        27.4
8                          708.5        400.         963.0                        27.4
8                          708.9        600.         1285.                        27.5
8                          710.0        800.         2207.                        27.5
8                          711.4        1000.        3566.2                       27.5
9 ENDTBL                                                                          27.5
6 RUNOFF 1 001         6 1.98           72.          19.7                            2
6 RUNOFF 1 002         5 0.73           70.          6.9                             2
6 ADDHYD 4 003    5 6 7                                                             2
6 REACH  3 004    7    5 6470.          .18          1.33                            3
6 RUNOFF 1 005         6 1.66           64.          10.3                            3
6 ADDHYD 4 006    5 6 7                                                             3
6 RUNOFF 1 007         6 1.53           71.          15.7                            3
6 ADDHYD 4 008    7 6 5                                                             3
6 REACH  3 009    5    6 1850.          .21          1.33                            3
6 SAVMOV 5 009    6    4                                                             3
6 RUNOFF 1 010         5 0.50           69.          6.1                             3
6 RUNOFF 1 011         6 1.53           72.          15.5                            3
6 ADDHYD 4 012    5 6 7                                                             3
6 REACH  3 013    7    5 9500.          .32          1.33                            4
6 RUNOFF 1 014         6 0.87           68.          3.2                             4
```

**********80-80 LIST OF INPUT DATA (CONTINUED)**********

```
 6 ADDHYD  4 015    5 6 7
 6 RESVOR  2     01 7   5
 6 ADDHYD  4 016    4 5 6
 6 REACH   3 017    6   7 4720.        .13          1.33
 6 REACH   3 018    7   5 1000.                                              45
 6 RUNOFF  1 019        6 2.02         69.          18.5
 6 ADDHYD  4 020    5 6 7
 6 REACH   3 021    7   4 1800.                                              47
 6 RUNOFF  1 022        6 0.85         75.          10.6
 6 ADDHYD  4 023    4 6 5
 6 REACH   3 026    5   6 6670.                                              50
 6 RUNOFF  1 029        5 1.78         72.          13.7
 6 ADDHYD  4 030    5 6 7
 6 REACH   3 031    7   4 8320.        0.57         1.33
 6 RUNOFF  1 032        5 2.05         72.          17.8
 6 SAVMOV  5 032    5   6
 6 RESVOR  2     03 6   5
 6 REACH   3 033    5   6 8840.        0.7          1.33
 6 RUNOFF  1 034        5 1.78         72.          6.4
 6 ADDHYD  4 035    5 6 7
 6 REACH   3 036    7   5 530.         0.57         1.33
 6 RUNOFF  1 037        6 0.97         83.          7.1
 6 ADDHYD  4 038    5 6 7
 6 ADDHYD  4 039    4 7 6
   ENDATA
 7 INCREM  6              0.25
 7 COMPUT  7 001    039             2.7          1.          1 2  01  01
   ENDCMP  1
 7 COMPUT  7 001    039             3.9          1.          1 2  01  02
   ENDCMP  1
 7 COMPUT  7 001    039             5.0          1.          1 2  01  03
   ENDCMP  1
 7 COMPUT  7 001    039             5.4          1.          1 2  01  04
   ENDCMP  1
 7 COMPUT  7 001    039             6.4          1.          1 2  01  05
   ENDCMP  1
   ENDJOB  2
```

**********END OF 80-80 LIST**********

STATE MI		PROJECT McCoy CREEK		
BY T. BAKER	DATE 1-21-85	CHECKED BY	DATE	JOB NO.
SUBJECT VERIFICATION OF MODEL				SHEET ____ OF ____

COMPARISON OF McCoy CREEK WITH INDIANA'S 04096100 WHICH IS LOCATED JUST SOUTH OF McCoy CREEK.

BASIN CHARACTERISTIC	GALENA RIVER (04096100)	McCoy CREEK
DRAINAGE AREA (mi^2)	14.90	18.25
CHANNEL SLOPE FT/MI	20.1	12.54
CHANNEL LENGTH-MI	8.30	6.70
ELEVATION	697.5	642 – 710
% SWAMPS/LAKES	11.34	14.0
AVG. ANN. PRECIP.	45.0	36–38
$I_{24,2}$ - IN.	2.7	2.7
CSM_{100}	$797/14.9 = 53.49$	$959/18.25 = 52.05$

VERY GOOD COMPARISON (WITHIN 3%)

TECHNIQUES FOR ESTIMATING MAGNITUDE AND FREQUENCY OF FLOODS ON STREAMS IN INDIANA

U.S. GEOLOGICAL SURVEY
Water-Resources Investigations Report 84-4134

Prepared in cooperation with the
INDIANA DEPARTMENT OF HIGHWAYS
and the FEDERAL HIGHWAY
ADMINISTRATION

Table 3.--Selected basin characteristics of gaging stations and partial-record sites--Continued

Station number	DA	SL	L	ELEV	STOR	FOR	PREC	$I_{24,2}$	RC
03376300	603.00	1.3	122.90	578.0	0.320	39.100	43.0	3.20	0.80
03376340	0.84	39.1	1.50	442.5	0.360	25.000	42.0	3.25	0.70
03376350	42.80	9.9	9.80	495.0	3.700	30.900	42.0	3.25	0.80
03376500	822.00	1.2	143.00	552.0	0.510	33.600	43.0	3.20	0.80
03376600	0.40	72.0	1.10	465.0	0.750	8.500	42.0	3.30	0.70
03378550	104.00	3.8	18.60	445.0	0.610	11.400	42.0	3.30	0.70
03378590	0.32	79.5	1.10	412.0	0.000	3.125	42.0	3.35	0.50
04093000	124.00	3.6	29.80	690.0	0.600	5.900	36.1	2.80	0.45
04093500	160.00	3.2	36.00	645.0	0.090	6.040	36.0	2.80	0.40
04094000	66.20	6.2	14.80	694.0	0.900	18.100	41.0	2.80	0.40
04094500	74.60	4.7	22.50	712.0	0.410	12.600	37.5	2.80	0.40
04095250	0.17	147.0	0.64	715.0	0.000	41.170	42.0	2.75	0.50
04095300	54.10	6.4	12.50	630.0	1.700	20.100	46.0	2.70	0.35
04096100	14.90	20.1	8.30	697.5	11.340	24.680	45.0	2.70	0.50
04099060	1.22	14.0	2.00	1,018.5	0.250	18.030	35.0	2.60	0.50
04099510	83.50	6.0	10.60	980.0	0.800	2.800	34.0	2.60	0.50
04099610	0.60	5.6	1.70	981.0	13.300	20.000	34.0	2.60	0.50
04099750	307.00	3.5	63.20	990.0	2.600	6.800	34.0	2.60	0.45
04100165	2.47	18.2	3.60	995.0	0.160	35.000	34.0	2.65	0.50
04100220	134.00	3.9	26.60	956.0	4.660	14.700	34.0	2.70	0.50
04100222	142.00	3.9	29.70	956.0	8.000	3.600	34.0	2.70	0.50
04100500	594.00	2.8	65.90	881.0	2.100	9.400	35.2	2.70	0.50
04101000	3,370.00	2.2	135.00	833.0	3.200	14.200	35.3	2.70	0.40
04177720	37.50	16.0	6.40	778.0	4.000	6.000	34.0	2.60	0.40
04178000	610.00	6.2	74.40	901.0	0.270	6.300	34.8	2.60	0.50

Table 4.--T-year peak discharges at gaging stations and partial-record sites--Continued

Station number	Station name	Q_2	Q_{10}	Q_{25}	Q_{50}	Q_{100}
04094000	Little Calumet River at Porter, Ind.	1,050	2,030	2,540	2,930	3,320
		1,130	2,090	2,560	2,940	3,280
		1,060	2,030	2,540	2,930	3,320
04094500	Salt Creek near McCool, Ind.	955	1,930	2,460	2,870	3,290
		925	1,630	1,980	2,240	2,490
		953	1,910	2,420	2,800	3,180
04095250	East Branch Trail Creek tributary near Springville, Ind.	24	36	41	44	46
		21	41	52	60	67
		24	37	43	48	53
04095300	Trail Creek at Michigan City, Ind.	1,060	2,390	3,170	3,780	4,410
		1,270	2,450	3,070	3,540	4,010
		1,100	2,400	3,150	3,720	4,290
04096100	Galena River near Laporte, Ind.	260	495	616	707	797
		317	644	819	952	1,080
		270	522	652	762	872
[r]04097970	Lime Lake outlet at Panama, Ind.	26	38	43	47	51
		-----	-----	-----	-----	-----
		-----	-----	-----	-----	-----
04099060	Pigeon Creek tributary near Ellis, Ind.	46	100	130	154	178
		34	61	74	84	93
		43	89	114	129	143
04099510	Pigeon Creek near Angola, Ind.	355	569	666	735	800
		509	851	1,010	1,130	1,240
		365	586	687	767	843

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: McCoy Creek FPMS

3) WATERCOURSE: McCoy Creek

4) DOCUMENT TYPE: Summary - overland

00BREAK00

FINAL

```
----------80/80 LIST OF INPUT DATA----------
WSP2        15.
TITLE       MCCOY CREEK FPMS - BUCHANAN MICHIGAN
TITLE       OVERLAND FLOW - ROE TO FRONT STREET (WSP2/OVER) RAILROAD IN
DISCHARGE   -1.         3.0         232.6       425.7       806.0
STARTE      14.90       681.0       681.9       683.7       685.8
OUTPUT      S
REACH       14.90       1.          0.0         0.0
SEGMENT     14.90       1           N           -9.
NVALUE      0.04
SEGMENT     14.90       2           C           8.
NVALUE      0.03
SEGMENT     14.90       3           N           500.
NVALUE      0.04
SECTION     14.90
            -360.       700.0       -359.9      689.0       -320.       688.0
            -290.       687.0       -289.9      700.0       -23.1       700.0
            -23.        676.3       -9.         676.3       -7.         673.8
            0.          673.7       7.          673.4       8.          677.5
            20.         683.9       20.1        700.0       95.         700.0
            95.1        683.9       120.        683.4       160.        683.9
            160.1       700.0       275.        700.0       275.1       684.3
            290.        683.7       335.        683.7       350.        684.3
            375.        684.5       375.1       700.0       465.        700.0
            465.1       686.0       500.        688.0
ENDTABLE
----------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 14.90  EXCEEDS  15. FEET----------
REACH       15.0        1.          25.         25.
SEGMENT     15.0        1           N           -23.1
NVALUE      0.04
SEGMENT     15.0        2           C           20.1
NVALUE      0.04
SEGMENT     15.0        3           N           500.
NVALUE      0.04
SECTION     15.0
            -360.       700.0       -359.9      689.0       -320.       688.0
            -290.       687.0       -289.9      700.0       -23.1       700.0
            20.         683.9       20.1        700.0       95.         700.0
            95.1        683.9       120.        683.4       160.        683.9
            160.1       700.0       275.        700.0       275.1       684.3
            290.        683.7       335.        683.7       350.        684.3
            375.        684.5       375.1       700.0       465.        700.0
            465.1       686.0       500.        688.0       -23.        683.9
ENDTABLE
----------DATA POINTS ON SECTION 15.0   REORDERED BY PROGRAM ACCORDING TO X VALUES
          DUPLICATE X POINTS NOT CHANGED----------
----------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 15.0   EXCEEDS  15. FEET----------
REACH       15.01       1.          170.0       170.0
SEGMENT     15.01       1           N           835.0
NVALUE      0.05
```

----------80/80 LIST OF INPUT DATA----------

```
SECTION   15.01
          -440.     690.0     -400.     690.0     -399.9    700.0
          -135.1    700.0     -135.     686.0     -115.     686.0
          -114.9    700.0     -45.1     700.0     -45.      684.3
          -15.      684.3     -14.9     683.8     21.       683.8
          21.1      684.3     40.       684.3     40.1      700.0
          185.      700.0     185.1     684.0     215.      686.0
          215.1     700.0     320.      700.0     320.1     686.3
          365.      686.3     365.1     700.0     485.      700.0
          485.1     686.5     600.0     686.5     800.      688.0
          835.      690.0
ENDTABLE
----------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 15.01  EXCEEDS  15. FEET----------
REACH     15.02     1.        370.0     370.0
SEGMENT   15.02     1         N         565.0
NVALUE    0.05
SECTION   15.02
          -470.     688.0     -390.     686.7     -310.     686.0
          -250.     684.0     -220.     683.0     -219.9    700.0
          -180.     700.0     -179.9    682.0     -140.     681.0
          -139.     700.0     -5.2      700.0     -5.1      683.8
          30.       683.3     75.       683.8     75.1      700.0
          190.      700.0     191.      684.0     230.      686.0
          300.      686.4     440.      686.6     565.      688.0
ENDTABLE
----------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 15.02  EXCEEDS  15. FEET----------
REACH     15.03     1.        190.0     190.0
REACH2    15.25     -1.9
REACH     15.25     1.        290.0     250.0
SEGMENT   15.25     1         N         -10.
NVALUE    0.07
SEGMENT   15.25     2         C         12.
NVALUE    0.03
SEGMENT   15.25     3         N         658.
NVALUE    0.07
SECTION   15.25
          -524.     696.0     -523.     691.1     -502.     690.2
          -343.     686.4     -318.     686.4     -273.     686.9
          -229.     686.8     -193.     685.4     -149.     685.6
          -102.     684.5     -10.      682.4     -9.       678.6
          0.        678.6     6.        678.4     12.       680.4
          99.       683.2     162.      683.8     227.      685.8
          287.      686.6     321.      686.9     386.      686.7
          398.      687.5     484.      687.5     534.      689.3
          585.      694.3     632.      693.9     658.      695.7
ENDTABLE
COMPUTE   14.90     16.25     14.90
```

----------80/80 LIST OF INPUT DATA----------
----------END OF 80/80 LIST----------

RATING TABLE FOR SECTION 14.90 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	673.4	0.0	0.0						
BANK FULL	676.3	41.8	1.1	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	681.0	197.8	3.0	0.0	0.0	0.0	3.00	673.7	0.00000
2	681.9	232.5	232.6	0.0	0.0	0.0	232.60	675.6	0.00005
3	683.7	334.1	425.7	0.0	0.0	0.0	425.70	676.8	0.00008
4	685.8	720.3	806.0	0.0	0.0	0.0	806.00	677.8	0.00009

SEGMENT TABLE FOR SECTION 14.90

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	3.	1.	2.	0.
3.	VELOCITY FPS	0.02	0.01	0.02	0.01
2	DISCHARGE CFS	233.	54.	170.	8.
233.	VELOCITY FPS	1.13	0.69	1.25	0.43
3	DISCHARGE CFS	426.	102.	297.	27.
426.	VELOCITY FPS	1.58	0.98	1.79	0.42
4	DISCHARGE CFS	806.	151.	429.	225.
806.	VELOCITY FPS	1.68	1.14	2.13	0.59
1	ELEV 681.0 KD	25058.	5650.	18843.	565.
2	ELEV 681.9 KD	31378.	7334.	23003.	1041.
3	ELEV 683.7 KD	46140.	11029.	32292.	2819.
4	ELEV 685.8 KD	82268.	15725.	44660.	21883.

*****SECT.15.0 KD VALUES REVERSED ON SEGMENT 1 AT ELEVATION 700.20 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****
*****SECT.15.0 KD VALUES REVERSED ON SEGMENT 3 AT ELEVATION 700.20 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****

RATING TABLE FOR SECTION 15.0 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM		CRIT ELEV	FRICTION SLOPE
0	683.4	0.0	0.0							
1	683.5	1.7	3.0	0.9	0.0	0.0	3.00	C	683.5	0.04364
2	684.1	65.6	232.6	0.0	0.0	0.0	232.60	C	684.1	0.03358
3	684.2	86.1	425.7	0.0	0.0	0.0	425.70		684.3	0.04900
4	685.8	407.4	806.0	0.0	0.0	0.0	806.00		684.6	0.00123

SEGMENT TABLE FOR SECTION 15.0

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	3.	0.	0.	3.
3.	VELOCITY FPS	1.34	0.0	0.0	1.80
2	DISCHARGE CFS	233.	0.	26.	206.
233.	VELOCITY FPS	3.72	0.0	2.65	3.71
3	DISCHARGE CFS	426.	0.	61.	365.
426.	VELOCITY FPS	5.10	0.0	4.08	5.12
4	DISCHARGE CFS	806.	0.	156.	650.
806.	VELOCITY FPS	1.98	0.0	1.90	2.00
1	ELEV 683.5 KD	15.	1.	1.	13.
2	ELEV 684.1 KD	1258.	1.	121.	1136.
3	ELEV 684.2 KD	1920.	1.	257.	1662.
4	ELEV 685.8 KD	22939.	1.	4452.	18486.

*****SECT.15.01 KD VALUES REVERSED ON SEGMENT 1 AT ELEVATION 700.60 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****

RATING TABLE FOR SECTION 15.01 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	683.8	0.0	0.0						
1	683.9	4.8	3.0	0.0	0.0	0.0	3.00	683.8	0.00529
2	685.2	108.0	232.6	0.0	0.0	0.0	232.60	684.7	0.00530
3	685.7	157.4	425.7	0.0	0.0	0.0	425.70	685.0	0.00553
4	686.7	346.8	806.0	0.0	0.0	0.0	806.00	685.4	0.00553

SEGMENT TABLE FOR SECTION 15.01

CSM		TOTAL	SEG NO 1 N
1	DISCHARGE CFS	3.	3.
3.	VELOCITY FPS	0.60	0.62
2	DISCHARGE CFS	233.	233.
233.	VELOCITY FPS	2.17	2.15
3	DISCHARGE CFS	426.	426.
426.	VELOCITY FPS	2.71	2.70
4	DISCHARGE CFS	806.	806.
806.	VELOCITY FPS	2.36	2.32
1	ELEV 683.9 KD	41.	41.
2	ELEV 685.2 KD	3194.	3194.
3	ELEV 685.7 KD	5727.	5727.
4	ELEV 686.7 KD	10843.	10843.

*****SECT.15.02 KD VALUES REVERSED ON SEGMENT 1 AT ELEVATION 700.60 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****

RATING TABLE FOR SECTION 15.02 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	681.0	0.0	0.0						
1	683.9	143.9	3.0	0.0	0.0	0.0	3.00	681.2	0.00000
2	685.4	403.8	232.6	0.0	0.0	0.0	232.60	682.5	0.00018
3	685.9	538.1	425.7	0.0	0.0	0.0	425.70	683.1	0.00031
4	687.0	988.5	806.0	0.0	0.0	0.0	806.00	683.9	0.00042

SEGMENT TABLE FOR SECTION 15.02

CSM		TOTAL	SEG NO 1 N
1	DISCHARGE CFS	3.	3.
3.	VELOCITY FPS	0.02	0.02
2	DISCHARGE CFS	233.	233.
233.	VELOCITY FPS	0.58	0.58
3	DISCHARGE CFS	426.	426.
426.	VELOCITY FPS	0.80	0.79
4	DISCHARGE CFS	806.	806.
806.	VELOCITY FPS	0.84	0.82
1	ELEV 683.9 KD	4168.	4168.
2	ELEV 685.4 KD	17189.	17189.
3	ELEV 685.9 KD	23995.	23995.
4	ELEV 687.0 KD	39134.	39134.

RATING TABLE FOR SECTION 15.03 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	676.5	0.0	0.0						
BANK FULL	678.5	34.0	0.8	0.0	0.0	0.0			
*****WARNING=BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	683.9	1000.6	3.0	0.0	0.0	0.0	3.00	676.7	0.00000
2	685.4	1844.9	232.6	0.0	0.0	0.0	232.60	678.4	0.00001
3	685.9	2310.0	425.7	0.0	0.0	0.0	425.70	679.4	0.00001
4	687.0	3302.8	806.0	0.0	0.0	0.0	806.00	680.2	0.00002

SEGMENT TABLE FOR SECTION 15.03

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	3.	0.	1.	1.
3.	VELOCITY FPS	0.01	0.00	0.01	0.00
2	DISCHARGE CFS	233.	52.	83.	98.
233.	VELOCITY FPS	0.28	0.08	0.45	0.10
3	DISCHARGE CFS	426.	111.	132.	183.
426.	VELOCITY FPS	0.40	0.13	0.67	0.15
4	DISCHARGE CFS	806.	248.	195.	363.
806.	VELOCITY FPS	0.48	0.19	0.88	0.21
1	ELEV 683.9 KD	54778.	7117.	25248.	22414.
2	ELEV 685.4 KD	96429.	21268.	34462.	40699.
3	ELEV 685.9 KD	121159.	30715.	38322.	52123.
4	ELEV 687.0 KD	188413.	57487.	46266.	84660.

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: McCoy Creek FPMS

3) WATERCOURSE: McCoy Creek

4) DOCUMENT TYPE: Summary - RR OUT

00BREAK00

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----------------------------80/80 LIST OF INPUT DATA-----------------------------
WSP2       15.                                                                  1
TITLE      MCCOY CREEK FPMS - BUCHANAN, MICHIGAN  (WSP2/NORR)                   2
TITLE      RR FILL REMOVED    - ST. JOE RIVER TO JUST ABOVE SCHERMER PK         3
TITLE      RR FILL REMOVED    - ST. JOE RIVER TO JUST ABOVE SCHERMER PK         3
DISCHARGE  -1.       227.24    505.23    823.04    952.45    1287.59           4
STARTE     9.80      642.      642.      642.      642.      642.              7
TRIB       10.20     21.51     22.70                                          10
OUTPUT     PSK                                                              11
REACH      9.80      1.        0.        0.                                   12
SEGMENT    9.80      1         N         -22.                                13A
NVALUE     .06                                                              13B
SEGMENT    9.80      2         C         22.                                 13C
NVALUE     .04                                                              13D
SEGMENT    9.80      3         N         130.                                13E
NVALUE     .06                                                              13F
SECTION    9.80                                                             13G
           -110.     650.      -97.      640.      -22.      638.            13H
           -10.      634.      10.       634.      22.       638.            13I
           31.       640.      53.       642.      80.       644.            13J
           110.      646.      120.      648.      130.      650.            13K
ENDTABLE                                                                    13L
REACH      9.9       1.        250.      180.                                 14
REACH2     10.10     -1.5                                                     15
ROAD       10.00     2.7       10.       10.                                  16
CULV1      10.00     2.        12311                                          17
CULV2      9.                  228.0     634.9     634.1                      18
SECTION    10.00                                                            19
           -336.     681.3     -144.     675.2     0.        670.3            20
           110.      667.7     228.      667.1     426.      669.8            21
ENDTABLE                                                                    22
REACH      10.10     1.        10.       10.                                  23
SEGMENT    10.10     1         N         -11.                                 24
NVALUE     0.06                                                             25
SEGMENT    10.10     2         C         13.                                  26
NVALUE     0.04                                                             27
SEGMENT    10.10     3         N         225.0                                28
NVALUE     0.06                                                             29
SECTION    10.10                                                            30
           -133.     657.5     -86.      649.2     -11.      640.4            31
           -6.       637.1     0.        635.5     9.        637.3            32
           13.       638.1     81.       639.5     167.      644.3            33
           194.      650.5     225.      656.0                                34
ENDTABLE                                                                    35
REACH      10.20     1.        1050      600.                                 36
SEGMENT    10.20     1         N         -16.                                37A
```

----------80/80 LIST OF INPUT DATA----------

```
NVALUE    .06                                                          37B
SEGMENT   10.20     2         C         22.                           37C
NVALUE    .04                                                          37D
SEGMENT   10.20     3         N         34.                           37E
NVALUE    .06                                                          37F
SECTION   10.20                                                        37G
          -290.     660.      -265.     650.      -259.     648.      37H
          -250.     646.      -175.     644.2     -50.      644.2     37I
          -16.      644.      -8.       643.      8.        643.      37J
          22.       650.      34.       660.                          37K
ENDTABLE                                                               37L
COMPUTE   9.80      10.20     9.80                                     37M
```

----------END OF 80/80 LIST----------

COMPUTE 9.80 10.20 9.80, 37M

----------STARTING DATA FROM GIVEN ELEVATION----------

RATING TABLE FOR SECTION 9.80 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	634.0	0.0	0.0						
BANK FULL	638.0	128.7	113.6	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	642.0	580.6	227.2	0.0	0.0	0.0	227.24	635.5	0.00002
2	642.0	580.6	505.2	0.0	0.0	0.0	505.23	636.4	0.00009
3	642.0	580.6	823.0	0.0	0.0	0.0	823.04	637.2	0.00024
4	642.0	580.6	952.4	0.0	0.0	0.0	952.45	637.4	0.00032
5	642.0	580.6	1287.6	0.0	0.0	0.0	1287.59	638.3	0.00058

SEGMENT TABLE FOR SECTION 9.80

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	227.	49.	171.	7.
227.	VELOCITY FPS	0.50	0.22	0.56	0.14
2	DISCHARGE CFS	505.	109.	381.	16.
505.	VELOCITY FPS	1.11	0.48	1.25	0.32
3	DISCHARGE CFS	823.	177.	621.	25.
823.	VELOCITY FPS	1.81	0.78	2.04	0.52
4	DISCHARGE CFS	952.	205.	718.	29.
952.	VELOCITY FPS	2.10	0.90	2.36	0.60
5	DISCHARGE CFS	1288.	277.	971.	40.
1288.	VELOCITY FPS	2.84	1.22	3.19	0.81
1	ELEV 642.0 KD	53326.	11483.	40207.	1636.
2	ELEV 642.0 KD	53326.	11483.	40207.	1636.
3	ELEV 642.0 KD	53326.	11483.	40207.	1636.
4	ELEV 642.0 KD	53326.	11483.	40207.	1636.
5	ELEV 642.0 KD	53326.	11483.	40207.	1636.

KD TABLE FOR CROSS SECTION 9.80

ELEVATION	AREA	KD	KD BY SEGMENT		
534.00	0.				
535.	23.	784.	1.	782.	1.
536.	52.	2637.	1.	2635.	1.
537.	87.	5524.	1.	5522.	1.
538.	129.	9628.	3.	9623.	2.
539.	196.	15919.	263.	15538.	31.
540.	302.	24961.	1857.	22722.	204.
541.	435.	37469.	5733.	30968.	642.
542.	581.	53327.	11483.	40207.	1636.
543.	741.	72242.	18536.	50369.	3336.
544.	915.	94379.	26885.	61427.	6066.
545.	1106.	119739.	36444.	73346.	9948.
546.	1312.	148561.	47148.	86095.	15316.
547.	1531.	181919.	58887.	99640.	23264.
548.	1756.	218648.	71721.	113971.	32805.
549.	1986.	258687.	85605.	129068.	43883.
550.	2222.	302427.	100606.	144909.	56793.
551.	2462.	349517.	116487.	161441.	71361.
552.	2702.	396842.	132010.	178523.	85010.
553.	2942.	447491.	148593.	196342.	100316.
554.	3182.	501503.	166247.	214889.	117376.

RATING TABLE FOR SECTION 9.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	634.0	0.0	0.0						
BANK FULL	636.6	29.9	73.8	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	642.0	659.2	227.2	0.0	0.0	0.0	227.24	637.0	0.00002
2	642.0	664.2	505.2	0.0	0.0	0.0	505.23	637.7	0.00010
3	642.1	674.8	823.0	0.0	0.0	0.0	823.04	638.2	0.00025
4	642.1	680.0	952.4	0.0	0.0	0.0	952.45	638.3	0.00033
5	642.2	697.5	1287.6	0.0	0.0	0.0	1287.59	638.7	0.00056

SEGMENT TABLE FOR SECTION 9.9

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	227.	7.	85.	135.
227.	VELOCITY FPS	0.41	0.17	0.55	0.29
2	DISCHARGE CFS	505.	16.	189.	300.
505.	VELOCITY FPS	0.90	0.39	1.22	0.64
3	DISCHARGE CFS	823.	27.	305.	490.
823.	VELOCITY FPS	1.44	0.63	1.96	1.03
4	DISCHARGE CFS	952.	32.	352.	568.
952.	VELOCITY FPS	1.66	0.73	2.25	1.19
5	DISCHARGE CFS	1288.	46.	470.	772.
1288.	VELOCITY FPS	2.19	0.97	2.96	1.57
1	ELEV 642.0 KD	50752.	1601.	19044.	30106.
2	ELEV 642.0 KD	51220.	1633.	19166.	30421.
3	ELEV 642.1 KD	52208.	1701.	19421.	31085.
4	ELEV 642.1 KD	52700.	1736.	19548.	31417.
5	ELEV 642.2 KD	54385.	1856.	19977.	32552.

KD TABLE FOR CROSS SECTION 9.9

ELEVATION	AREA	KD	KD BY SEGMENT		
534.00	0.				
535.	5.	103.	1.	101.	1.
536.	17.	651.	1.	648.	1.
537.	41.	1965.	1.	1925.	39.
538.	108.	5121.	1.	3965.	1080.
539.	208.	11284.	3.	6661.	4578.
540.	333.	20795.	86.	10187.	10456.
541.	483.	33799.	548.	14327.	18875.
542.	658.	50643.	1594.	19016.	30033.
543.	861.	72116.	3359.	24207.	44549.
544.	1081.	99896.	6013.	29887.	63996.
545.	1314.	132067.	9693.	36036.	86337.
546.	1560.	168645.	14531.	42637.	111476.
547.	1821.	209558.	20616.	49668.	139222.
548.	2093.	255320.	28371.	57126.	169733.
549.	2375.	305601.	37817.	65000.	202690.
550.	2668.	360157.	48871.	73277.	237936.
551.	2972.	418955.	61427.	81948.	275533.
552.	3288.	482312.	75495.	90998.	315768.
553.	3616.	550283.	91118.	100420.	358657.
554.	3953.	623908.	108469.	110216.	405158.
555.	4300.	703903.	127579.	120380.	455943.
556.	4656.	793149.	149298.	130883.	512894.
557.	5013.	884351.	171988.	141677.	570081.
558.	5371.	978195.	195832.	152777.	628063.
559.	5729.	1077552.	221803.	164240.	689211.
560.	6087.	1182504.	249994.	176062.	753562.

ROAD SECTION 10.00

NO.	HW	CFS	HL	TW	CSM
0	634.90	0.00	0.00	0.00	0.00
1	642.16	227.24	0.16	642.01	227.24
2	642.91	505.23	0.88	642.03	505.23
3	644.32	823.04	2.24	642.08	823.04
4	645.07	952.45	2.96	642.11	952.45
5	647.23	1287.59	5.04	642.20	1287.59

MIN ROAD ELEVATION 667.10

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	2	12311.	9.00		228.00	634.90	634.10	0.024

RATING TABLE FOR SECTION 10.10 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	635.5	0.0	0.0						
BANK FULL	638.1	29.9	88.7	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	642.2	429.2	227.2	0.0	0.0	0.0	227.24	638.5	0.00007
2	642.9	551.1	505.2	0.0	0.0	0.0	505.23	639.2	0.00019
3	644.3	823.7	823.0	0.0	0.0	0.0	823.04	639.7	0.00018
4	645.1	985.1	952.4	0.0	0.0	0.0	952.45	639.8	0.00015
5	647.2	1494.5	1287.6	0.0	0.0	0.0	1287.59	640.2	0.00008

SEGMENT TABLE FOR SECTION 10.10

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	227.	3.	109.	115.
227.	VELOCITY FPS	0.69	0.20	0.90	0.39
2	DISCHARGE CFS	505.	11.	223.	271.
505.	VELOCITY FPS	1.19	0.40	1.59	0.71
3	DISCHARGE CFS	823.	35.	312.	477.
823.	VELOCITY FPS	1.28	0.52	1.80	0.82
4	DISCHARGE CFS	952.	50.	332.	571.
952.	VELOCITY FPS	1.22	0.53	1.73	0.82
5	DISCHARGE CFS	1288.	103.	373.	812.
1288.	VELOCITY FPS	1.04	0.51	1.53	0.77
1	ELEV 642.2 KD	26512.	288.	12866.	13358.
2	ELEV 642.9 KD	36459.	754.	16157.	19548.
3	ELEV 644.3 KD	60993.	2503.	23207.	35283.
4	ELEV 645.1 KD	77901.	3987.	27334.	46579.
5	ELEV 647.2 KD	140453.	11102.	40819.	88532.

KD TABLE FOR CROSS SECTION 10.10

ELEVATION	AREA	KD	KD BY SEGMENT		
535.50	0.				
536.	1.	18.	1.	16.	1.
537.	10.	299.	1.	297.	1.
538.	27.	1174.	1.	1168.	2.
539.	68.	3170.	1.	2865.	260.
540.	155.	7401.	1.	5219.	2127.
541.	266.	14543.	18.	8348.	6148.
542.	403.	24647.	227.	12195.	12205.
543.	568.	37901.	831.	16599.	20425.
544.	759.	54812.	1985.	21531.	31217.
545.	971.	75424.	3843.	26972.	45525.
546.	1198.	102776.	6515.	32891.	63300.
547.	1437.	132925.	10115.	39270.	83478.
548.	1690.	166850.	14738.	46089.	105944.
549.	1955.	204805.	20594.	53345.	130802.
550.	2231.	245892.	27945.	61020.	157903.
551.	2519.	292609.	36680.	69096.	186806.
552.	2819.	341813.	46630.	77564.	217562.
553.	3130.	394908.	57869.	86419.	250531.
554.	3450.	452101.	70527.	95664.	285857.
555.	3782.	513328.	84556.	105279.	323471.
556.	4127.	580190.	99917.	115248.	364958.
557.	4478.	653483.	117214.	125583.	410613.
558.	4834.	732959.	136472.	136264.	460128.
559.	5192.	811981.	155832.	147181.	507996.
560.	5550.	895691.	176957.	158463.	558535.
561.	5908.	984158.	199926.	170106.	611775.

RATING TABLE FOR SECTION 10.20 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	643.0	0.0	0.0						
BANK FULL	644.0	22.8	122.2	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	644.9	162.3	227.2	0.0	0.0	0.0	227.24	644.3	0.00210
2	645.3	259.8	505.2	0.0	0.0	0.0	505.23	644.6	0.00266
3	645.9	418.2	823.0	0.0	0.0	0.0	823.04	644.9	0.00176
4	646.4	531.8	952.4	0.0	0.0	0.0	952.45	645.0	0.00112
5	647.7	880.9	1287.6	0.0	0.0	0.0	1287.59	645.1	0.00040

SEGMENT TABLE FOR SECTION 10.20

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	227.	130.	97.	0.
227.	VELOCITY FPS	1.74	1.10	2.21	0.0
2	DISCHARGE CFS	505.	340.	165.	0.
505.	VELOCITY FPS	2.20	1.67	2.93	0.0
3	DISCHARGE CFS	823.	611.	212.	0.
823.	VELOCITY FPS	2.11	1.78	2.82	0.0
4	DISCHARGE CFS	952.	738.	215.	0.
952.	VELOCITY FPS	1.89	1.66	2.43	0.0
5	DISCHARGE CFS	1288.	1054.	233.	0.
1288.	VELOCITY FPS	1.49	1.40	1.80	0.0
1	ELEV 644.9 KD	4893.	2688.	2204.	1.
2	ELEV 645.3 KD	9771.	6522.	3248.	1.
3	ELEV 645.9 KD	19583.	14507.	5075.	1.
4	ELEV 646.4 KD	28439.	21945.	6493.	1.
5	ELEV 647.7 KD	63977.	52348.	11627.	1.

KD TABLE FOR CROSS SECTION 10.20

ELEVATION	AREA	KD	KD BY SEGMENT		
643.00	0.				
644.	23.	696.	7.	684.	1.
645.	192.	6411.	3886.	2523.	1.
646.	434.	20786.	15510.	5274.	1.
647.	702.	44412.	35550.	8846.	1.
648.	975.	75288.	62071.	13208.	1.
649.	1255.	112814.	94459.	18347.	1.
650.	1539.	156699.	132302.	24393.	2.
651.	1828.	207229.	175325.	31894.	10.
652.	2121.	263474.	223064.	40343.	66.
653.	2417.	325161.	275398.	49569.	194.
654.	2717.	392126.	332168.	59539.	419.
655.	3020.	464228.	393242.	70226.	759.
656.	3328.	541282.	458444.	81597.	1230.
657.	3639.	623304.	527782.	93649.	1855.
658.	3954.	710194.	601162.	106361.	2651.
659.	4273.	801868.	678501.	119715.	3634.
660.	4594.	898726.	760195.	133694.	4823.
661.	4918.	1002323.	847777.	148279.	6251.
662.	5242.	1108015.	937123.	163314.	7483.
663.	5566.	1217709.	1029848.	178925.	8738.
664.	5890.	1332110.	1126547.	195157.	10126.
665.	6214.	1451186.	1227192.	212003.	11655.

----------80/80 LIST OF INPUT DATA----------

```
CHANGE    DISCHARGE                                                    37N
DISCHARGE -1.       181.74    411.71    671.62    777.94    1062.99    370
TITLE     RR FILL REMOVED   - ABOVE SCHERMER PKWY TO MCCOY-MILL JUNC   37P
END                                                                    37Q
REACH     10.50     1.        730.      600.                          38
SEGMENT   10.50     1         N         -8.                           39
NVALUE    0.06                                                         40
SEGMENT   10.50     2         C         16.                           41
NVALUE    0.04                                                         42
SEGMENT   10.50     3         N         115.                          43
NVALUE    0.06                                                         44
SECTION   10.50                                                        45
          -124.     658.1     -34.      655.8     -8.       648.5     46
          -3.       645.6     0.        644.9     11.       645.8     47
          15.       648.7     58.       651.2     115.      661.2     48
ENDTABLE                                                               49
REACH     10.70     1.        750.      750.                          50
SEGMENT   10.70     1         N         -14.                          51
NVALUE    0.06                                                         52
SEGMENT   10.70     2         C         12.                           53
NVALUE    0.04                                                         54
SEGMENT   10.70     3         N         54.                           55
NVALUE    0.06                                                         56
SECTION   10.70                                                        57
          -52.      682.3     -31.      666.9     -14.      652.3     58
          -7.       649.1     0.        649.2     6.        648.5     59
          12.       652.2     54.       681.8                         60
ENDTABLE                                                               61
----------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 10.70  EXCEEDS  15. FEET----------
REACH     10.80     1.        156.      156.                          64
SEGMENT   10.80     1         N         -25.                          65
NVALUE    0.06                                                         66
SEGMENT   10.80     2         C         26.                           67
NVALUE    0.04                                                         68
SEGMENT   10.80     3         N         49.                           69
NVALUE    0.06                                                         70
SECTION   10.80                                                        71
          -58.      678.0     -56.      673.1     -25.      669.3     72
          -24.      659.2     0.        660.6     10.       660.6     73
          15.       661.9     26.       664.0     49.       677.4     74
ENDTABLE                                                               75
ROAD      10.90     2.7       50.       50.                          75A
CULV1     10.90     1.        32111                                  75B
CULV2     6.        10.       54.       664.63    664.88             76
SECTION   10.90                                                        78
          -58.      676.      0.        674.2     65.       676.
```

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----------------------------80/80 LIST OF INPUT DATA-------------------------------
          -105.     688.0     105.      688.0                                  78A
ENDTABLE                                                                       80
--------------------DATA POINTS ON SECTION 10.90  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
REACH     10.95     1.        200.      200.                                   81
SEGMENT   10.95     1         N         -29.9                                  82
NVALUE    0.04                                                                 82A
SEGMENT   10.95     2         C         26.                                    82B
NVALUE    0.03                                                                 82C
SEGMENT   10.95     3         N         313.                                   82D
NVALUE    0.04                                                                 82E
SECTION   10.95                                                                82F
          -235.     690.0     -150.     688.0     -149.9    700.0              82G
          -30.      700.0     -29.9     676.2     -9.0      663.8              82H
          0.        664.0     9.        664.6     26.       675.2              82I
          88.       677.5     150.      685.0     151.      684.5              82J
          180.      684.2     205.      684.2     213.      686.2              82K
          313.      711.2                                                      82L
ENDTABLE                                                                       82M
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 10.95  EXCEEDS  15. FEET------------
SECTION   11.00                                                                86
          -225.     690.7     0.        687.9     67.       687.5              87
          170.      690.0     235.      690.5     650.      692.0              87A
          551.      685.5     681.      684.2     706.      684.2              87B
          714.      686.2                                                      87C
ENDTABLE                                                                       88
REACH     11.10     1.        556.      556.                                   88A
SEGMENT   11.10     1         N         -27.                                   88B
NVALUE    0.04                                                                 88C
SEGMENT   11.10     2         C         23.                                    88D
NVALUE    0.03                                                                 88E
SEGMENT   11.10     3         N         949.                                   88F
NVALUE    0.04                                                                 88G
SECTION   11.10                                                                88H
          -440.     700.0     -115.     684.0     -30.      682.0              88I
          -27.      680.0     -9.       665.6     0.        665.8              88J
          9.        666.4     23.       680.0     80.       681.6              88K
          135.      682.0     200.      684.0     214.      684.2              88L
          214.1     700.0     544.      700.0     544.1     678.9              88M
          624.      679.0     625.      678.5     639.      678.7              88N
          649.      680.0     700.      680.3     749.      682.5              88O
          949.      691.3                                                      88P
ENDTABLE                                                                       88N
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 11.10  EXCEEDS  15. FEET------------
REACH     11.90     1.        235.      235.                                   89
SEGMENT   11.90     1         N         -31.                                   90
NVALUE    .04                                                                  91
SEGMENT   11.90     2         C         25.                                    92
NVALUE    .03                                                                  93
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-----------------------------80/80 LIST OF INPUT DATA-------------------------------
SEGMENT   11.90     3         N         165.1                                  94
NVALUE    .04                                                                  95
SECTION   11.90                                                                96
          -152.     682.1     -31.      679.7     -9.       667.3              98
          0.        667.5     25.       680.0     165.      682.0              99
          165.1     700.0     -440.     690.0                               100.
ENDTABLE                                                                     101
--------------------DATA POINTS ON SECTION 11.90  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED--------------------
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 11.90  EXCEEDS  15. FEET-------------
ROAD      12.00     2.7       60.       60.                                  102
CULV1     12.00     1.        12133                                          103
CULV2     7.7       6.5       64.       668.3     668.2                      104
SECTION   12.00                                                              105
          -360.     700.0     -295.1    700.0     -295.     682.0             106
          -275.     680.0     -235.     679.8     0.        679.4            106A
          22.       680.0     60.       681.0     60.1      700.0            106B
          -360.1    684.5     -405.     686.0     405.1     700.0            106C
ENDTABLE                                                                     108
--------------------DATA POINTS ON SECTION 12.00  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED--------------------
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 12.00  EXCEEDS  15. FEET-------------
REACH     12.50     1.        40.       40.                                  109
SEGMENT   12.50     1         N         -20.                                 110
NVALUE    .04                                                               110A
SEGMENT   12.50     2         C         18.                                 110B
NVALUE    0.03                                                              110C
SEGMENT   12.50     3         N         735.0                               110D
NVALUE    0.04                                                              110E
SECTION   12.50                                                             110F
          -460.     686.0     -340.     684.0     -265.     682.0            110G
          -215.     680.0     -95.      678.4     -20.      678.0            110H
          -9.       668.3     0.        668.5     9.        669.1            110I
          18.       680.0     75.       681.0     75.1      700.0            110J
          700.      688.0     735.      690.0     -735.     690.0            110K
ENDTABLE                                                                    110L
--------------------DATA POINTS ON SECTION 12.50  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED--------------------
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 12.50  EXCEEDS  15. FEET-------------
ROAD      13.00     2.7       65.       65.                                  111
CULV1     13.00     1.        32133                                          112
CULV2     7.0       16.0      120.      668.3     667.8     0.012             113
SECTION   13.00                                                              114
          -495.1    685.5     -495.     700.0     -365.1    700.              115
          -365.     684.0     -285.     682.0     -235.     680.5             116
          -210.     680.0     -170.     679.0     -169.9    700.0            116A
          40.       700.0     40.1      678.0     150.      680.0            116B
          150.1     700.0     -530.     686.0                               116C
ENDTABLE                                                                     117
--------------------DATA POINTS ON SECTION 13.00  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED--------------------
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 13.00  EXCEEDS  15. FEET-------------
REACH     13.10     1.        10.       10.                                  118
SEGMENT   13.10     1         N         -9.                                  119
NVALUE    .04                                                                120
SEGMENT   13.10     2         C         9.                                   121
NVALUE    .02                                                                122
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----------------------------80/80 LIST OF INPUT DATA-------------------------------
SEGMENT   13.10      3          N          106.                                  123
NVALUE    .04                                                                    124
SECTION   13.10                                                                  125
          -927.      693.9      -191.      679.5      -9.        677.4           126
          -3.        668.3      8.         668.3      9.         677.4           127
          105.       680.9      106.       694.                                  128
ENDTABLE                                                                         129
REACH     13.20      1.         2.         2.                                    130
SEGMENT   13.20      1          N          -26.                                  130
NVALUE    .02                                                                    131
SEGMENT   13.20      2          C          900.0                                 132
NVALUE    .02                                                                    133
SECTION   13.20                                                                  134
          -610.      686.0      -350.      684.0      -320.      682.0           135
          -200.      680.       -149.      678.5      -96.       676.9           136
          -26.       676.6      -25.       673.2      11.        673.4          136A
          24.        677.1      24.1       700.0      650.       688.0          136B
          900.       690.0                                                      136C
ENDTABLE                                                                         137
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 13.20  EXCEEDS  15. FEET----------
REACH     13.90      1.         330.       330.                                  138
SEGMENT   13.90      1          N          -15.                                  139
NVALUE    .04                                                                    140
SEGMENT   13.90      2          C          22.                                   141
NVALUE    .03                                                                    142
SEGMENT   13.90      3          N          370.0                                 143
NVALUE    .04                                                                    144
SECTION   13.90                                                                  145
          -540.      686.0      -375.      684.5      -374.9     700.0           146.
          -333.      700.0      -332.9     683.0      -313.      682.0           147
          -188.      680.0      -165.      682.0      -120.      687.0           148
          -50.       682.0      -15.       680.0      -7.        671.3         148.1
          7.         671.3      22.        680.0      70.        682.0         148.2
          170.       684.0      310.       686.0      370.       688.0         148.3
ENDTABLE                                                                         149
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 13.90  EXCEEDS  15. FEET----------
ROAD      14.00      2.7        15.        15.                                   150
CULV1     14.00      1.         32111                                            151
CULV2     4.7        10.5       150.       673.4      671.3      0.029           152
SECTION   14.00                                                                  153
          -445.      686.0      -280.      684.0      -240.      682.0           154
          -190.      680.3      -189.9     700.0      -40.       700.0           155
          -39.9      680.0      0.         680.5      75.        682.0           156
          125.       683.4      200.       684.0      275.       686.0           157
ENDTABLE                                                                         158
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 14.00  EXCEEDS  15. FEET----------
REACH     14.90      1.         140.       140.                                  168
SEGMENT   14.90      1          N          -9.                                   169
```

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----------------------------80/80 LIST OF INPUT DATA-------------------------------
NVALUE    .04                                                              170
SEGMENT   14.90     2         C         8.                                  171
NVALUE    .03                                                              172
SEGMENT   14.90     3         N         500.0                               173
NVALUE    .04                                                              174
SECTION   14.90                                                            175
          -360.     700.0     -359.9    689.0     -320.     688.0           176
          -290.     687.0     -289.9    700.0     -23.1     700.0           177
          -23.      676.3     -9.       676.3     -7.       673.8           178
          0.        673.7     7.        673.4     8.        677.5           179
          20.       683.9     20.1      700.0     95.       700.0           180
          120.      683.4     160.      683.9     160.1     700.0           181
          275.      700.0     275.1     684.3     290.      683.7           182
          335.      683.7     350.      684.3     375.      684.5           183
          375.1     700.0     465.      700.0     465.1     686.0           184
          500.      688.0                                                  185
ENDTABLE                                                                   185
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 14.90  EXCEEDS  15. FEET------------
COMPUTE   10.50     14.90     10.20                                         284
-----------------------------END OF 80/80 LIST--------------------------------
```

COMPUTE 10.50 14.90 10.20 284

----------STARTING DATA FROM PREVIOUS COMPUTATIONS----------

RATING TABLE FOR SECTION 10.50 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	644.9	0.0	0.0						
1	648.1	47.8	181.7	0.0	0.0	0.0	181.74	647.0	0.00408
BANK FULL	648.5	57.9	285.5	0.0	0.0	0.0			
2	649.0	72.7	411.7	0.0	0.0	0.0	411.71	648.1	0.00625
3	650.0	113.2	671.6	0.0	0.0	0.0	671.62	649.2	0.00603
4	650.2	124.3	777.9	0.0	0.0	0.0	777.94	649.6	0.00660
5	651.1	178.4	1063.0	0.0	0.0	0.0	1062.99	650.2	0.00567

SEGMENT TABLE FOR SECTION 10.50

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	3.81	0.0	3.80	0.0
2	DISCHARGE CFS	412.	1.	410.	1.
412.	VELOCITY FPS	5.78	0.95	5.78	0.74
3	DISCHARGE CFS	672.	8.	637.	26.
672.	VELOCITY FPS	6.69	1.82	6.80	1.73
4	DISCHARGE CFS	778.	11.	728.	39.
778.	VELOCITY FPS	7.20	2.03	7.37	1.94
5	DISCHARGE CFS	1063.	28.	922.	112.
1063.	VELOCITY FPS	7.31	2.40	7.74	2.37
1	ELEV 648.1 KD	2845.	1.	2843.	1.
2	ELEV 649.0 KD	5207.	6.	5191.	10.
3	ELEV 650.0 KD	8587.	82.	8241.	263.
4	ELEV 650.2 KD	9500.	117.	8988.	396.
5	ELEV 651.1 KD	14050.	356.	12301.	1393.

KD TABLE FOR CROSS SECTION 10.50

ELEVATION	AREA	KD	KD BY SEGMENT		
544.90	0.				
545.	0.	3.	1.	2.	1.
546.	10.	260.	1.	257.	1.
547.	26.	1204.	1.	1202.	1.
548.	47.	2746.	1.	2743.	1.
549.	72.	5082.	6.	5066.	9.
550.	114.	8682.	83.	8269.	267.
551.	175.	13819.	337.	12094.	1310.
552.	252.	20989.	840.	16482.	3625.
553.	340.	30160.	1646.	21389.	7100.
554.	437.	41269.	2813.	26794.	11641.
555.	543.	54334.	4359.	32675.	17286.
556.	661.	68943.	5838.	39013.	24079.
557.	811.	84859.	6949.	45792.	32067.
558.	1005.	105764.	11402.	53000.	41304.
559.	1227.	133371.	20520.	60619.	51824.
560.	1456.	165349.	32664.	68645.	63716.
561.	1691.	201680.	46903.	77067.	77496.
562.	1929.	241107.	61962.	85843.	92883.
563.	2168.	280741.	75535.	94916.	108531.
564.	2407.	324227.	91105.	104383.	125757.
565.	2646.	371704.	108839.	114237.	144626.

RATING TABLE FOR SECTION 10.70 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	648.5	0.0	0.0						
1	651.6	48.5	181.7	0.0	0.0	0.0	181.74	650.6	0.00423
BANK FULL	652.2	63.1	298.6	0.0	0.0	0.0			
2	652.8	78.5	411.7	0.0	0.0	0.0	411.71	651.7	0.00509
3	653.7	106.3	671.6	0.0	0.0	0.0	671.62	652.5	0.00529
4	654.2	120.4	777.9	0.0	0.0	0.0	777.94	652.8	0.00485
5	655.0	145.3	1063.0	0.0	0.0	0.0	1062.99	653.6	0.00520

SEGMENT TABLE FOR SECTION 10.70

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	3.76	0.0	3.75	0.0
2	DISCHARGE CFS	412.	0.	412.	0.
412.	VELOCITY FPS	5.28	0.0	5.28	0.0
3	DISCHARGE CFS	672.	2.	667.	3.
672.	VELOCITY FPS	6.48	1.30	6.47	1.41
4	DISCHARGE CFS	778.	3.	770.	5.
778.	VELOCITY FPS	6.66	1.43	6.68	1.55
5	DISCHARGE CFS	1063.	8.	1044.	11.
1063.	VELOCITY FPS	7.65	1.83	7.71	1.97
1	ELEV 651.6 KD		2795.	1.	2793.	1.
2	ELEV 652.8 KD		5771.	2.	5767.	2.
3	ELEV 653.7 KD		9223.	19.	9176.	29.
4	ELEV 654.2 KD		11164.	42.	11060.	61.
5	ELEV 655.0 KD		14734.	105.	14481.	148.

KD TABLE FOR CROSS SECTION 10.70

ELEVATION	AREA	KD	KD BY SEGMENT		
548.50	0.				
549.	1.	21.	1.	18.	1.
550.	16.	521.	1.	519.	1.
551.	35.	1741.	1.	1739.	1.
552.	58.	3616.	1.	3614.	1.
553.	85.	6505.	4.	6494.	5.
554.	114.	10279.	30.	10199.	45.
555.	146.	14799.	106.	14540.	150.
556.	180.	20058.	246.	19466.	338.
557.	217.	26062.	465.	24952.	631.
558.	257.	32819.	780.	30977.	1047.
559.	299.	40330.	1203.	37510.	1603.
560.	344.	48606.	1744.	44534.	2312.
561.	391.	57655.	2416.	52028.	3190.
562.	441.	67490.	3232.	59988.	4254.
563.	493.	78119.	4201.	68395.	5516.
564.	548.	89557.	5332.	77232.	6986.
565.	606.	101817.	6634.	86490.	8676.
566.	667.	114913.	8118.	96163.	10601.
567.	730.	128842.	9792.	106250.	12780.
568.	795.	143606.	11645.	116735.	15218.
569.	864.	159272.	13721.	127601.	17920.
570.	935.	175834.	16037.	138858.	20909.
571.	1008.	193309.	18606.	150496.	24196.
572.	1085.	211747.	21436.	162495.	27777.
573.	1165.	231125.	24541.	174866.	31579.
574.	1246.	251459.	27933.	187603.	35912.
575.	1332.	272812.	31613.	200683.	40469.
576.	1420.	295138.	35603.	214124.	45382.
577.	1510.	318491.	39906.	227908.	50648.
578.	1604.	342891.	44529.	242029.	56275.
579.	1699.	368299.	49496.	256499.	62291.
580.	1799.	394822.	54794.	271290.	68676.
581.	1900.	422415.	60471.	286424.	75504.
582.	2005.	451568.	66613.	301872.	83013.
583.	2110.	481465.	72970.	317636.	90718.
584.	2216.	511630.	79236.	333674.	98164.
585.	2322.	542769.	85844.	350043.	105989.
586.	2428.	574884.	92802.	366740.	114200.

RATING TABLE FOR SECTION 10.80 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM		CRIT ELEV	FRICTION SLOPE
0	659.2	0.0	0.0							
1	661.1	33.0	181.7	0.0	0.0	0.0	181.74	C	661.1	0.02735
2	661.7	58.6	411.7	0.0	0.0	0.0	411.71	C	661.7	0.02280
3	662.4	83.4	671.6	0.0	0.0	0.0	671.62	C	662.4	0.02075
4	662.6	92.8	777.9	0.0	0.0	0.0	777.94	C	662.6	0.02030
5	663.1	116.9	1063.0	0.0	0.0	0.0	1062.99	C	663.1	0.01927

SEGMENT TABLE FOR SECTION 10.80

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	5.63	0.0	5.51	0.0
2	DISCHARGE CFS	412.	0.	412.	0.
412.	VELOCITY FPS	7.09	0.0	7.03	0.0
3	DISCHARGE CFS	672.	0.	672.	0.
672.	VELOCITY FPS	8.09	0.0	8.05	0.0
4	DISCHARGE CFS	778.	0.	778.	0.
778.	VELOCITY FPS	8.42	0.0	8.38	0.0
5	DISCHARGE CFS	1063.	0.	1063.	0.
1063.	VELOCITY FPS	9.12	0.0	9.09	0.0
1	ELEV 661.1 KD	1099.	1.	1097.	1.
2	ELEV 661.7 KD	2727.	1.	2725.	1.
3	ELEV 662.4 KD	4662.	1.	4660.	1.
4	ELEV 662.6 KD	5460.	1.	5458.	1.
5	ELEV 663.1 KD	7657.	1.	7655.	1.

KD TABLE FOR CROSS SECTION 10.80

ELEVATION	AREA	KD	KD BY SEGMENT		
559.20	0.				
560.	6.	109.	1.	107.	1.
561.	31.	990.	1.	988.	1.
562.	69.	3478.	1.	3476.	1.
563.	111.	7124.	1.	7122.	1.
564.	159.	11941.	1.	11939.	1.
565.	210.	18678.	1.	18662.	11.
566.	264.	25551.	1.	26470.	74.
567.	319.	35471.	1.	35239.	225.
568.	375.	45345.	1.	44850.	486.
569.	434.	55148.	1.	55255.	884.
570.	497.	68393.	23.	66908.	1440.
571.	569.	82082.	239.	79615.	2175.
572.	652.	97264.	849.	93193.	3103.
573.	743.	114112.	2073.	107627.	4250.
574.	841.	132727.	4074.	122885.	5633.
575.	941.	153073.	6797.	138945.	7269.
576.	1044.	174945.	9984.	155787.	9173.
577.	1149.	198241.	13439.	173356.	11346.
578.	1255.	223093.	17373.	191690.	13931.
579.	1362.	249153.	21540.	210718.	16793.
580.	1469.	275215.	25143.	230232.	19273.
581.	1576.	302586.	29136.	250508.	21976.
582.	1683.	331268.	33540.	271541.	24911.

ROAD SECTION 10.90

NO.	HW	CFS	HL	TW	CSM
0	664.88	0.00	0.00	0.00	0.00
1	669.38	181.74	2.64	666.74	181.74
2	672.94	411.71	5.52	667.42	411.71
3	675.32	671.62	7.28	668.04	671.62
4	675.54	777.94	7.28	668.26	777.94
5	676.08	1062.99	7.28	668.80	1062.99

MIN ROAD ELEVATION 674.20

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	32111.	6.44	9.52	54.00	664.63	664.88	0.032

RATING TABLE FOR SECTION 10.95 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	663.8	0.0	0.0						
1	669.4	140.8	181.7	0.0	0.0	0.0	181.74	665.5	0.00012
2	673.0	286.8	411.7	0.0	0.0	0.0	411.71	666.4	0.00009
BANK FULL	675.2	401.6	655.7	0.0	0.0	0.0			
3	675.3	410.3	671.6	0.0	0.0	0.0	671.62	667.3	0.00009
4	675.6	423.8	777.9	0.0	0.0	0.0	777.94	667.6	0.00011
5	676.1	466.9	1063.0	0.0	0.0	0.0	1062.99	668.3	0.00016

SEGMENT TABLE FOR SECTION 10.95

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	1.29	0.0	1.29	0.0
2	DISCHARGE CFS	412.	0.	412.	0.
412.	VELOCITY FPS	1.44	0.0	1.44	0.0
3	DISCHARGE CFS	672.	0.	671.	0.
672.	VELOCITY FPS	1.65	0.0	1.65	0.16
4	DISCHARGE CFS	778.	0.	777.	1.
778.	VELOCITY FPS	1.85	0.0	1.85	0.17
5	DISCHARGE CFS	1063.	0.	1057.	6.
1063.	VELOCITY FPS	2.34	0.0	2.34	0.38
1	ELEV 669.4	KD	16675.	1.	16673.	1.
2	ELEV 673.0	KD	44438.	1.	44436.	1.
3	ELEV 675.3	KD	72108.	1.	72095.	12.
4	ELEV 675.6	KD	75352.	1.	75320.	31.
5	ELEV 676.1	KD	84215.	1.	84025.	189.

KD TABLE FOR CROSS SECTION 10.95

ELEVATION	AREA	KD	KD BY SEGMENT		
563.80	0.				
564.	1.	12.	1.	10.	1.
565.	18.	770.	1.	768.	1.
566.	40.	2696.	1.	2693.	1.
567.	66.	5603.	1.	5601.	1.
568.	94.	9479.	1.	9477.	1.
569.	127.	14358.	1.	14356.	1.
570.	162.	20273.	1.	20271.	1.
571.	201.	27272.	1.	27270.	1.
572.	243.	35425.	1.	35423.	1.
573.	288.	44764.	1.	44762.	1.
574.	337.	55347.	1.	55345.	1.
575.	390.	67397.	1.	67381.	3.
576.	455.	82060.	1.	81773.	134.
577.	543.	100539.	2.	99022.	1510.
578.	660.	123458.	3.	118126.	4961.
579.	786.	150025.	4.	138599.	10976.
580.	921.	180123.	4.	160390.	19362.
581.	1063.	213698.	5.	183436.	29939.
582.	1213.	250854.	6.	207789.	43057.
583.	1374.	291449.	7.	233166.	57986.
584.	1554.	329327.	7.	259780.	69539.
585.	1756.	369134.	8.	287585.	81119.
586.	1996.	428888.	9.	316459.	111949.
587.	2241.	493985.	9.	346372.	146683.
588.	2494.	564932.	18.	377474.	187041.
589.	2772.	641001.	344.	409548.	230146.
590.	3088.	724332.	2393.	442680.	277434.
591.	3427.	815177.	8810.	476917.	329435.
592.	3777.	913031.	16053.	512023.	383478.
593.	4130.	1017582.	26345.	548200.	442180.
594.	4487.	1128342.	37669.	585348.	504373.
595.	4849.	1244849.	50433.	623453.	570158.
596.	5213.	1367649.	64612.	662565.	640090.
597.	5584.	1495164.	79155.	702541.	712792.
598.	5955.	1629428.	95522.	743562.	790337.
599.	6334.	1767437.	111538.	785369.	870004.
700.	6737.	1910414.	127665.	828194.	954449.
701.	7231.	2050864.	137140.	871837.	1041597.
702.	7729.	2202699.	151996.	916469.	1133411.
703.	8243.	2382840.	190707.	961894.	1227895.
704.	8759.	2571920.	236018.	1008284.	1326978.
705.	9282.	2767928.	281828.	1055459.	1428850.
706.	9806.	2972800.	333454.	1103575.	1535263.
707.	10336.	3184110.	385674.	1152464.	1644566.
708.	10868.	3404139.	443068.	1202272.	1758347.
709.	11407.	3630127.	500857.	1252836.	1875045.
710.	11946.	3865692.	564626.	1304351.	1996702.
711.	12493.	4112257.	627371.	1356552.	2127227.
712.	13039.	4368896.	695553.	1409684.	2263281.
713.	13587.	4626667.	758753.	1463298.	2401226.
714.	14135.	4891700.	823482.	1517699.	2543601.
715.	14683.	5166251.	892294.	1572993.	2691363.
716.	15231.	5450433.	965353.	1629170.	2844595.

RATING TABLE FOR SECTION 11.10 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	665.6	0.0	0.0						
1	669.6	83.2	181.7	0.0	0.0	0.0	181.74	667.3	0.00048
2	673.1	186.9	411.7	0.0	0.0	0.0	411.71	668.3	0.00025
3	675.4	273.9	671.6	0.0	0.0	0.0	671.62	669.2	0.00023
4	675.7	283.6	777.9	0.0	0.0	0.0	777.94	669.5	0.00028
5	676.3	308.3	1063.0	0.0	0.0	0.0	1062.99	670.2	0.00042

SEGMENT TABLE FOR SECTION 11.10

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	2.19	0.0	2.18	0.0
2	DISCHARGE CFS	412.	0.	412.	0.
412.	VELOCITY FPS	2.21	0.0	2.20	0.0
3	DISCHARGE CFS	672.	0.	672.	0.
672.	VELOCITY FPS	2.45	0.0	2.45	0.0
4	DISCHARGE CFS	778.	0.	778.	0.
778.	VELOCITY FPS	2.75	0.0	2.74	0.0
5	DISCHARGE CFS	1063.	0.	1063.	0.
1063.	VELOCITY FPS	3.45	0.0	3.45	0.0
1	ELEV 669.6	KD	8283.	1.	8281.	1.
2	ELEV 673.1	KD	26054.	1.	26052.	1.
3	ELEV 675.4	KD	44104.	1.	44102.	1.
4	ELEV 675.7	KD	46277.	1.	46275.	1.
5	ELEV 676.3	KD	51834.	1.	51832.	1.

KD TABLE FOR CROSS SECTION 11.10

ELEVATION	AREA	KD	KD BY SEGMENT		
565.60	0.				
566.	3.	62.	1.	60.	1.
567.	21.	1050.	1.	1048.	1.
568.	43.	3097.	1.	3095.	1.
569.	67.	5982.	1.	5980.	1.
570.	93.	9675.	1.	9673.	1.
571.	121.	14169.	1.	14167.	1.
572.	152.	19472.	1.	19470.	1.
573.	185.	25613.	1.	25611.	1.
574.	220.	32611.	1.	32609.	1.
575.	257.	40488.	1.	40486.	1.
576.	297.	49275.	1.	49273.	1.
577.	339.	59001.	1.	58999.	1.
578.	384.	69710.	1.	69698.	3.
579.	451.	82047.	1.	81383.	81.
580.	590.	98369.	1.	94100.	4258.
581.	819.	124458.	15.	110989.	12680.
582.	1128.	158937.	82.	129020.	28565.
583.	1540.	205067.	531.	148122.	54803.
584.	2030.	268374.	3477.	168350.	95355.
585.	2615.	349598.	9952.	189537.	148544.
586.	3252.	447508.	20016.	211681.	213743.
587.	3926.	562426.	34293.	234853.	292097.
588.	4636.	693929.	52917.	259018.	381981.
589.	5411.	838737.	74749.	283968.	478536.
590.	6213.	1001961.	102301.	309943.	588821.
591.	7057.	1181963.	134864.	336820.	709701.
592.	7943.	1389494.	172247.	364517.	851519.
593.	8846.	1621756.	216119.	393170.	1012050.
594.	9775.	1868948.	265262.	422615.	1180304.
595.	10724.	2133063.	320714.	452906.	1358521.
596.	11688.	2416328.	383333.	484092.	1548467.
597.	12681.	2712554.	451870.	516019.	1743749.
598.	13681.	3030358.	528874.	548874.	1952606.
599.	14718.	3353241.	611494.	582390.	2163503.
700.	15819.	3667605.	706347.	616812.	2342258.
701.	17170.	3822127.	822950.	651942.	2342258.
702.	18536.	4080287.	943625.	687730.	2446236.
703.	19925.	4510173.	1059866.	724004.	2717611.
704.	21314.	4972189.	1186782.	761158.	3010724.
705.	22703.	5467812.	1325039.	799190.	3326681.

RATING TABLE FOR SECTION 11.90 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	667.3	0.0	0.0						
1	670.2	40.3	181.7	0.0	0.0	0.0	181.74	669.4	0.00348
2	673.2	115.4	411.7	0.0	0.0	0.0	411.71	670.6	0.00101
3	675.5	196.3	671.6	0.0	0.0	0.0	671.62	671.6	0.00064
4	675.7	206.8	777.9	0.0	0.0	0.0	777.94	671.9	0.00075
5	676.4	232.6	1063.0	0.0	0.0	0.0	1062.99	672.7	0.00102

SEGMENT TABLE FOR SECTION 11.90

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	4.51	0.0	4.51	0.0
2	DISCHARGE CFS	412.	0.	412.	0.
412.	VELOCITY FPS	3.58	0.0	3.57	0.0
3	DISCHARGE CFS	672.	0.	672.	0.
672.	VELOCITY FPS	3.43	0.0	3.42	0.0
4	DISCHARGE CFS	778.	0.	778.	0.
778.	VELOCITY FPS	3.77	0.0	3.76	0.0
5	DISCHARGE CFS	1063.	0.	1063.	0.
1063.	VELOCITY FPS	4.57	0.0	4.57	0.0

1	ELEV	670.2	KD	3080.	1.	3078.	1.
2	ELEV	673.2	KD	12942.	1.	12940.	1.
3	ELEV	675.5	KD	26502.	1.	26500.	1.
4	ELEV	675.7	KD	28388.	1.	28386.	1.
5	ELEV	676.4	KD	33303.	1.	33301.	1.

KD TABLE FOR CROSS SECTION 11.90

ELEVATION	AREA	KD	KD BY SEGMENT		
567.30	0.				
568.	6.	198.	1.	196.	1.
569.	19.	1086.	1.	1084.	1.
570.	36.	2650.	1.	2648.	1.
571.	57.	4951.	1.	4949.	1.
572.	81.	8073.	1.	8071.	1.
573.	110.	12094.	1.	12092.	1.
574.	142.	17096.	1.	17094.	1.
575.	178.	23150.	1.	23148.	1.
576.	217.	30335.	1.	30333.	1.
577.	261.	38719.	1.	38717.	1.
578.	308.	48375.	1.	48373.	1.
579.	358.	59371.	1.	59369.	1.
580.	427.	73131.	31.	72888.	18.
581.	567.	92031.	923.	89129.	518.
582.	806.	119308.	5197.	107658.	4959.
583.	1132.	159536.	14345.	127566.	16182.
584.	1500.	209589.	28471.	148734.	31816.
585.	1910.	271196.	47901.	171087.	50693.
586.	2351.	344170.	74433.	194795.	73880.
587.	2823.	429065.	108507.	219784.	100531.
588.	3340.	525109.	149471.	245827.	129118.
589.	3894.	633421.	198956.	273048.	160578.
590.	4473.	757671.	260471.	301458.	194889.
591.	5077.	903504.	340262.	330949.	231334.
592.	5682.	1062548.	430063.	361498.	269866.
593.	6287.	1235886.	532224.	393237.	311238.
594.	6892.	1418800.	638441.	425884.	353752.
595.	7497.	1612999.	754185.	459638.	398659.
596.	8102.	1818608.	878281.	494464.	445718.
597.	8707.	2030461.	1005984.	530151.	493737.
598.	9312.	2256174.	1144583.	567005.	544491.
599.	9917.	2487046.	1285948.	604680.	595986.
700.	10522.	2729869.	1436472.	643438.	649766.
701.	11127.	2979666.	1591581.	683086.	704712.
702.	11732.	3231552.	1747494.	723412.	759757.
703.	12338.	3483686.	1902374.	764364.	814522.
704.	12943.	3747704.	2066129.	806405.	871558.
705.	13548.	4023818.	2239000.	849535.	930891.

ROAD SECTION 12.00

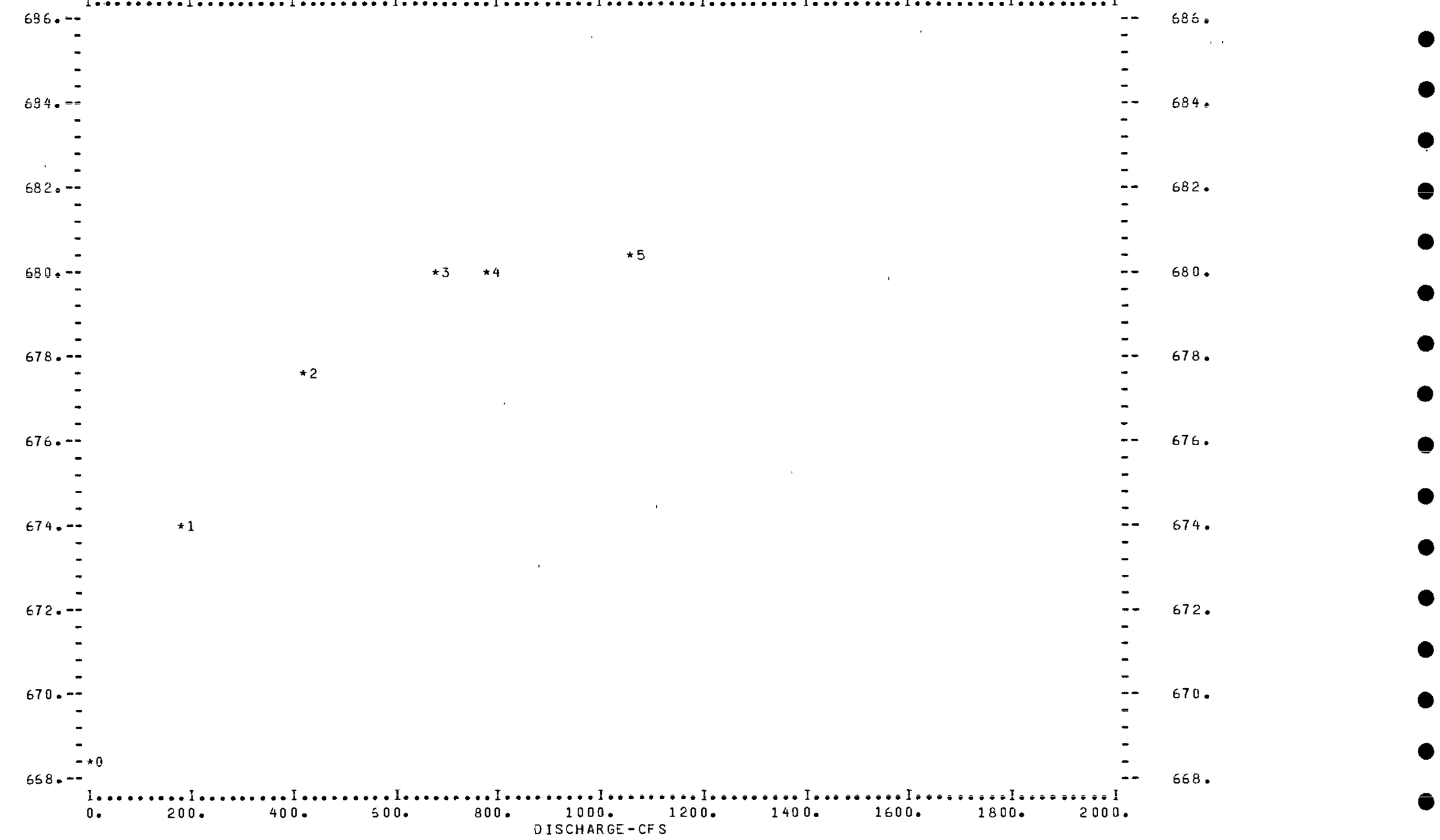
NO.	HW	CFS	HL	TW	CSM
0	668.30	0.00	0.00	0.00	0.00
1	673.82	181.74	3.36	670.46	181.74
2	677.57	411.71	4.40	673.17	411.71
3	679.87	671.62	4.40	675.47	671.62
4	680.04	777.94	4.32	675.72	777.94
5	680.33	1062.99	4.00	676.33	1062.99

MIN ROAD ELEVATION 679.40

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	12133.	7.70		64.00	668.30	668.20	0.032

ROAD SECTION 12.00

SCALES ARE 1 INCH = 200. CFS, AND 2.4 FEET/ ELEVATION



RATING TABLE FOR SECTION 12.50 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	668.3	0.0	0.0						
1	673.8	120.7	181.7	0.0	0.0	0.0	181.74	670.0	0.00016
2	677.6	242.5	411.7	0.0	0.0	0.0	411.71	671.0	0.00012
BANK FULL	678.0	261.2	459.8	0.0	0.0	0.0			
3	679.9	540.3	671.6	0.0	0.0	0.0	671.62	671.9	0.00010
4	680.0	577.9	777.9	0.0	0.0	0.0	777.94	672.2	0.00012
5	680.3	646.7	1063.0	0.0	0.0	0.0	1062.99	673.0	0.00018

SEGMENT TABLE FOR SECTION 12.50

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	1.51	0.0	1.51	0.0
2	DISCHARGE CFS	412.	0.	411.	0.
412.	VELOCITY FPS	1.71	0.12	1.71	0.0
3	DISCHARGE CFS	672.	92.	579.	0.
672.	VELOCITY FPS	1.68	0.43	1.78	0.11
4	DISCHARGE CFS	778.	120.	657.	0.
778.	VELOCITY FPS	1.85	0.49	1.98	0.11
5	DISCHARGE CFS	1063.	196.	865.	1.
1063.	VELOCITY FPS	2.31	0.66	2.53	0.31
1	ELEV 673.8 KD	14326.	1.	14324.	1.
2	ELEV 677.6 KD	37485.	4.	37481.	1.
3	ELEV 679.9 KD	66641.	7821.	58814.	7.
4	ELEV 680.0 KD	70508.	9828.	60669.	12.
5	ELEV 680.3 KD	78231.	14218.	63982.	31.

KD TABLE FOR CROSS SECTION 12.50

ELEVATION	AREA	KD	KD BY SEGMENT		
568.30	0.				
569.	8.	215.	1.	213.	1.
570.	27.	1560.	1.	1558.	1.
571.	49.	3822.	1.	3819.	1.
572.	72.	6867.	1.	6865.	1.
573.	98.	10650.	1.	10648.	1.
574.	126.	15164.	1.	15162.	1.
575.	155.	20415.	1.	20413.	1.
576.	187.	26410.	1.	26408.	1.
577.	220.	33171.	1.	33169.	1.
578.	261.	40956.	24.	40896.	1.
579.	374.	52358.	1226.	49945.	1.
580.	569.	70533.	9299.	60214.	10.
581.	845.	98823.	24552.	71921.	359.
582.	1168.	137102.	47542.	84753.	3668.
583.	1526.	184939.	76690.	98422.	9284.
584.	1920.	242074.	112600.	112900.	16436.
585.	2365.	305802.	152763.	128139.	24745.
586.	2881.	381143.	202460.	144108.	34024.
587.	3452.	469315.	263328.	160858.	44632.
588.	4084.	570673.	336898.	178361.	55155.
589.	4839.	677622.	425236.	196533.	55156.
590.	5720.	817937.	539378.	215411.	62293.
591.	6682.	994018.	680889.	234995.	77231.
592.	7709.	1211813.	849746.	255244.	105806.
593.	8795.	1452448.	1032183.	276146.	142656.
594.	9914.	1720472.	1232836.	297742.	189563.
595.	11108.	2008369.	1441003.	319932.	246112.
596.	12343.	2323109.	1664863.	342781.	314216.
597.	13621.	2664425.	1902826.	366274.	394960.
598.	14978.	3025688.	2147580.	390334.	486869.
599.	16352.	3421548.	2410344.	415064.	595614.
700.	17805.	3848734.	2678675.	440342.	727192.
701.	19262.	4299928.	2955901.	466182.	872727.
702.	20732.	4754306.	3224548.	492411.	1016282.
703.	22202.	5241271.	3508669.	519282.	1178190.
704.	23672.	5762127.	3808679.	546794.	1360169.

ROAD SECTION 13.00

NO.	HW	CFS	HL	TW	CSM
0	668.30	0.00	0.00	0.00	0.00
1	674.00	181.74	0.16	673.84	181.74
2	678.15	411.71	0.56	677.59	411.71
3	680.12	671.62	0.24	679.89	671.62
4	680.30	777.94	0.24	680.06	777.94
5	680.69	1062.99	0.32	680.37	1062.99

MIN ROAD ELEVATION 678.00

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	32133.	8.44	13.40	120.00	668.30	667.80	0.012

RATING TABLE FOR SECTION 13.10 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	668.3	0.0	0.0						
1	674.0	94.8	181.7	0.0	0.0	0.0	181.74	669.9	0.00013
BANK FULL	677.4	159.2	370.2	0.0	0.0	0.0			
2	678.1	205.9	411.7	0.0	0.0	0.0	411.71	671.0	0.00012
3	680.1	614.3	671.6	0.0	0.0	0.0	671.62	672.1	0.00009
4	680.3	663.3	777.9	0.0	0.0	0.0	777.94	672.4	0.00011
5	680.7	803.9	1063.0	0.0	0.0	0.0	1062.99	673.4	0.00015

SEGMENT TABLE FOR SECTION 13.10

CSM				TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS			182.	0.	182.	0.
182.	VELOCITY FPS			1.92	0.0	1.92	0.0
2	DISCHARGE CFS			412.	7.	403.	2.
412.	VELOCITY FPS			2.37	0.24	2.39	0.24
3	DISCHARGE CFS			672.	145.	480.	47.
672.	VELOCITY FPS			2.03	0.47	2.36	0.45
4	DISCHARGE CFS			778.	180.	539.	58.
778.	VELOCITY FPS			2.19	0.53	2.61	0.50
5	DISCHARGE CFS			1063.	303.	656.	104.
1063.	VELOCITY FPS			2.52	0.69	3.07	0.68
1	ELEV	674.0	KD	16087.	1.	16085.	1.
2	ELEV	678.1	KD	36483.	283.	36091.	110.
3	ELEV	680.1	KD	68212.	14001.	49673.	4538.
4	ELEV	680.3	KD	73493.	17022.	50975.	5495.
5	ELEV	680.7	KD	84516.	22942.	53902.	7672.

KD TABLE FOR CROSS SECTION 13.10

ELEVATION	AREA	KD	KD BY SEGMENT		
568.30	0.				
569.	11.	627.	1.	625.	1.
570.	28.	2581.	1.	2579.	1.
571.	44.	5282.	1.	5280.	1.
572.	61.	8509.	1.	8507.	1.
573.	78.	12134.	1.	12132.	1.
574.	95.	16085.	1.	16083.	1.
575.	112.	20310.	1.	20308.	1.
576.	130.	24777.	1.	24775.	1.
577.	148.	29458.	1.	29456.	1.
578.	197.	35814.	110.	35162.	50.
579.	336.	45786.	3009.	41718.	997.
580.	580.	65028.	12158.	48761.	3953.
581.	914.	96427.	28775.	56236.	9884.
582.	1305.	138851.	53958.	64133.	19724.
583.	1749.	194092.	88178.	72440.	32930.
584.	2242.	262146.	132360.	81148.	48469.
585.	2790.	343226.	186914.	90245.	65877.
586.	3399.	437639.	252400.	99721.	84909.
587.	4050.	547280.	331108.	109576.	106111.
588.	4745.	672729.	423624.	119801.	129183.
589.	5505.	813214.	529105.	130384.	153392.
590.	6315.	970459.	649549.	141323.	179156.
591.	7171.	1145453.	786049.	152614.	206487.
592.	8080.	1338149.	938529.	164248.	235044.
593.	9047.	1549133.	1107664.	176220.	264774.
594.	10043.	1784476.	1299662.	188531.	296066.
595.	11076.	2078031.	1547965.	201168.	328053.
596.	12109.	2377240.	1800644.	214121.	360193.
597.	13142.	2674932.	2049014.	227383.	392137.
598.	14175.	2997760.	2321346.	240971.	425673.
599.	15208.	3346897.	2619030.	254880.	460823.

RATING TABLE FOR SECTION 13.20 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM		CRIT ELEV	FRICTION SLOPE
0	673.2	0.0	0.0							
1	674.2	33.9	181.7	0.0	0.0	0.0	181.74	C	674.2	0.00661
BANK FULL	676.6	141.7	319.5	0.0	0.0	0.0				
2	678.2	348.5	411.7	0.0	0.0	0.0	411.71		674.9	0.00006
3	680.2	733.1	671.6	0.0	0.0	0.0	671.62		675.4	0.00003
4	680.4	774.7	777.9	0.0	0.0	0.0	777.94		675.6	0.00003
5	680.8	883.2	1063.0	0.0	0.0	0.0	1062.99		676.2	0.00005

SEGMENT TABLE FOR SECTION 13.20

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C
1	DISCHARGE CFS	182.	0.	182.
182.	VELOCITY FPS	5.42	0.0	5.37
2	DISCHARGE CFS	412.	87.	325.
412.	VELOCITY FPS	1.37	0.67	1.49
3	DISCHARGE CFS	672.	278.	393.
672.	VELOCITY FPS	1.05	0.67	1.24
4	DISCHARGE CFS	778.	332.	446.
778.	VELOCITY FPS	1.15	0.74	1.37
5	DISCHARGE CFS	1063.	486.	577.
1063.	VELOCITY FPS	1.38	0.91	1.67
1	ELEV 674.2 KD	2235.	1.	2234.
2	ELEV 678.2 KD	51271.	10218.	41053.
3	ELEV 680.2 KD	126660.	52095.	74565.
4	ELEV 680.4 KD	135874.	57815.	78060.
5	ELEV 680.8 KD	157384.	71477.	85908.

KD TABLE FOR CROSS SECTION 13.20

ELEVATION	AREA	KD	KD BY SEGMENT	
573.20	0.			
574.	26.	1468.	1.	1467.
575.	66.	5481.	1.	6480.
576.	110.	14178.	1.	14177.
577.	178.	25288.	257.	24511.
578.	314.	46035.	8005.	38027.
579.	487.	77307.	23298.	53765.
580.	694.	118783.	47163.	71373.
581.	948.	171340.	80494.	90659.
582.	1263.	241975.	130192.	111437.
583.	1611.	338896.	204832.	133601.
584.	1980.	445252.	288024.	157031.
585.	2426.	537704.	356052.	181632.
586.	2999.	677165.	469240.	207299.
587.	3619.	879184.	643785.	233993.
588.	4272.	1123673.	871050.	250428.
589.	4993.	1376063.	1124620.	250429.
590.	5875.	1653496.	1402940.	250555.
591.	6900.	1991294.	1699127.	292098.
592.	7969.	2404453.	2021052.	381054.
593.	9081.	2893652.	2366629.	526000.
594.	10252.	3427326.	2730801.	695376.
595.	11482.	4007263.	3113713.	891486.
596.	12757.	4637861.	3517675.	1118302.
597.	14079.	5318886.	3941251.	1376438.
598.	15468.	6047025.	4380419.	1664079.
599.	16890.	6834843.	4841095.	1992432.
700.	18376.	7688542.	5316315.	2369816.
701.	19877.	8581329.	5794060.	2768538.
702.	21387.	9518869.	6278731.	3192685.
703.	22897.	10521808.	6785315.	3663941.
704.	24407.	11591795.	7313999.	4185681.

RATING TABLE FOR SECTION 13.90 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	671.3	0.0	0.0						
1	674.8	66.2	181.7	0.0	0.0	0.0	181.74	672.9	0.00088
2	678.3	161.6	411.7	0.0	0.0	0.0	411.71	674.0	0.00038
BANK FULL	680.0	225.6	647.5	0.0	0.0	0.0			
3	680.2	233.0	671.6	0.0	0.0	0.0	671.62	675.0	0.00038
4	680.4	245.9	777.9	0.0	0.0	0.0	777.94	675.3	0.00046
5	680.8	296.7	1063.0	0.0	0.0	0.0	1062.99	676.1	0.00067

SEGMENT TABLE FOR SECTION 13.90

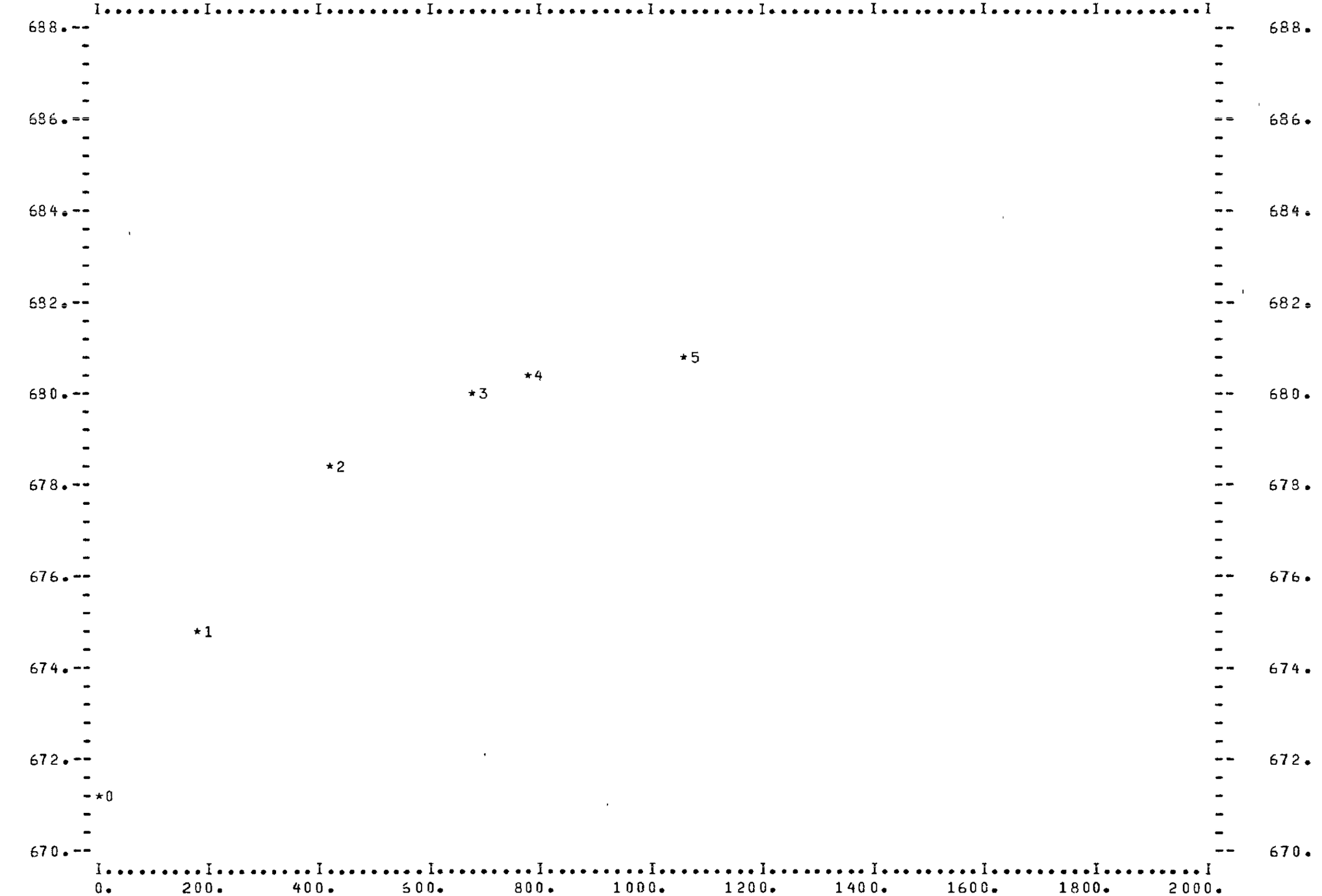
CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	2.75	0.0	2.75	0.0
2	DISCHARGE CFS	412.	0.	412.	0.
412.	VELOCITY FPS	2.55	0.0	2.55	0.0
3	DISCHARGE CFS	672.	1.	671.	0.
672.	VELOCITY FPS	2.94	0.20	2.93	0.20
4	DISCHARGE CFS	778.	4.	773.	1.
778.	VELOCITY FPS	3.29	0.43	3.29	0.43
5	DISCHARGE CFS	1063.	26.	1031.	7.
1063.	VELOCITY FPS	4.09	0.69	4.13	0.69
1	ELEV 674.8 KD	6128.	1.	6126.	1.
2	ELEV 678.3 KD	21239.	1.	21237.	1.
3	ELEV 680.2 KD	34567.	28.	34531.	8.
4	ELEV 680.4 KD	36141.	54.	36072.	14.
5	ELEV 680.8 KD	40169.	266.	39834.	70.

KD TABLE FOR CROSS SECTION 13.90

ELEVATION	AREA	KD	KD BY SEGMENT		
571.30	0.				
572.	10.	386.	1.	384.	1.
573.	28.	1717.	1.	1715.	1.
574.	48.	3808.	1.	3806.	1.
575.	70.	6632.	1.	6630.	1.
576.	95.	10212.	1.	10210.	1.
577.	123.	14578.	1.	14576.	1.
578.	153.	19768.	1.	19766.	1.
579.	186.	25814.	1.	25812.	1.
580.	226.	33136.	14.	33100.	6.
581.	329.	44109.	695.	42307.	182.
582.	538.	62091.	6494.	52878.	1598.
583.	850.	90650.	20072.	64369.	5116.
584.	1253.	131827.	41544.	76724.	12171.
585.	1768.	182389.	66962.	89956.	24636.
586.	2429.	247511.	97383.	104023.	45010.
587.	3230.	350007.	153523.	118899.	77220.
588.	4082.	482334.	228483.	134540.	118881.
589.	4949.	638282.	313172.	150915.	172930.
590.	5817.	817521.	410552.	168071.	238161.
591.	6685.	1016788.	518655.	185978.	312014.
592.	7553.	1229183.	633197.	204561.	391037.
593.	8421.	1458362.	756730.	223853.	477386.
594.	9289.	1704487.	889313.	243852.	571102.
595.	10157.	1964287.	1028952.	264520.	670581.
596.	11025.	2237248.	1175422.	285845.	775714.
597.	11893.	2527214.	1330984.	307864.	888318.
598.	12761.	2825796.	1490687.	330484.	1004443.
599.	13630.	3113018.	1631896.	353765.	1127040.
700.	14501.	3382325.	1746963.	377691.	1255583.
701.	15407.	3697929.	1917167.	401950.	1377641.
702.	16317.	4034869.	2100612.	426845.	1505120.
703.	17227.	4390226.	2294877.	452409.	1639738.
704.	18137.	4764373.	2500228.	478638.	1781650.

CROSS SECTION 13.90

SCALES ARE 1 INCH = 200. CFS, AND 2.4 FEET/ ELEVATION



*****SECT.14.90 KD VALUES REVERSED ON SEGMENT 1 AT ELEVATION 687.80 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****
*****SECT.14.90 KD VALUES REVERSED ON SEGMENT 1 AT ELEVATION 689.00 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****
*****SECT.14.90 KD VALUES REVERSED ON SEGMENT 1 AT ELEVATION 700.60 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****
*****SECT.14.90 KD VALUES REVERSED ON SEGMENT 3 AT ELEVATION 700.60 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****

Red Bud Trail

ROAD SECTION 14.00

NO.	HW	CFS	HL	TW	CSM
0	673.40	0.00	0.00	0.00	0.00
1	677.81	181.74	2.96	674.85	181.74
2	680.98	411.71	2.72	678.26	411.71
3	681.70	671.62	1.52	680.18	671.62
4	681.88	777.94	1.52	680.37	777.94
5	682.20	1062.99	1.44	680.76	1062.99

MIN ROAD ELEVATION 680.00

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	32111.	5.93	8.62	150.00	673.40	671.30	0.029

pipe arch

$A = 40 ft^2$

$H = 29.1 \frac{(.032)^2 150}{(171)^{4/3}} = 409$

$Q = 1013$

RATING TABLE FOR SECTION 14.90 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	673.4	0.0	0.0						
BANK FULL	676.3	41.8	117.5	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	677.9	89.8	181.7	0.0	0.0	0.0	181.74	675.3	0.00049
2	681.0	198.6	411.7	0.0	0.0	0.0	411.71	676.7	0.00027
3	681.8	227.5	671.6	0.0	0.0	0.0	671.62	677.4	0.00049
4	682.0	235.3	777.9	0.0	0.0	0.0	777.94	677.7	0.00059
5	682.3	250.0	1063.0	0.0	0.0	0.0	1062.99	678.3	0.00093

SEGMENT TABLE FOR SECTION 14.90

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	182.	23.	158.	0.
182.	VELOCITY FPS	2.23	1.05	2.35	0.0
2	DISCHARGE CFS	412.	93.	309.	10.
412.	VELOCITY FPS	2.32	1.41	2.56	0.82
3	DISCHARGE CFS	672.	157.	493.	22.
672.	VELOCITY FPS	3.33	2.04	3.69	1.27
4	DISCHARGE CFS	778.	182.	568.	27.
778.	VELOCITY FPS	3.74	2.29	4.15	1.44
5	DISCHARGE CFS	1063.	252.	770.	42.
1063.	VELOCITY FPS	4.82	2.97	5.38	1.89
1	ELEV 677.9 KD	8193.	1024.	7165.	4.
2	ELEV 681.0 KD	25187.	5585.	18929.	573.
3	ELEV 681.8 KD	30446.	7089.	22394.	962.
4	ELEV 682.0 KD	31901.	7472.	23343.	1086.
5	ELEV 682.3 KD	34766.	8226.	25185.	1355.

KD TABLE FOR CROSS SECTION 14.90

ELEVATION	AREA	KD	KD BY SEGMENT		
573.40	0.				
574.	5.	120.	1.	118.	1.
575.	20.	1079.	1.	1077.	1.
576.	36.	2648.	2.	2643.	1.
577.	62.	5066.	278.	4787.	1.
578.	93.	8683.	1149.	7515.	5.
579.	126.	13319.	2423.	10836.	59.
580.	161.	18788.	3930.	14618.	229.
581.	198.	25072.	5650.	18843.	565.
582.	236.	32142.	7530.	23486.	1106.
583.	277.	39993.	9548.	28531.	1894.
584.	364.	48853.	11676.	33960.	3173.
585.	522.	63410.	13895.	39761.	8646.
586.	709.	84666.	16189.	45922.	21719.
587.	910.	109349.	17608.	52434.	38766.
588.	1139.	136757.	17609.	59287.	59550.
589.	1410.	170787.	17634.	56474.	86676.
590.	1707.	217579.	26522.	73982.	116840.
591.	2006.	269767.	37564.	81808.	149994.
592.	2306.	327247.	50583.	89949.	186512.
593.	2608.	389100.	64901.	98397.	225800.
594.	2911.	453177.	79633.	107141.	266258.
595.	3216.	521158.	95543.	116183.	309314.
596.	3523.	592594.	112410.	125517.	354620.
597.	3831.	666282.	129752.	135136.	401310.
598.	4141.	742877.	147849.	145036.	449919.
599.	4452.	822550.	166773.	155218.	500558.
700.	4969.	833163.	166773.	165669.	500558.
701.	5624.	892220.	181173.	176386.	531933.
702.	6484.	1033890.	221250.	187354.	615981.
703.	7344.	1192004.	268344.	198593.	709723.
704.	8204.	1367817.	323382.	210099.	813893.

FINAL

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------------------------------80/80 LIST OF INPUT DATA------------------------------
WSP2        15.
TITLE       MCCOY CREEK FPMS - BUCHANAN MICHIGAN
TITLE       OVERLAND FLOW - ROE TO FRONT STREET (WSP2/OVER) RAILROAD OUT
DISCHARGE   -1.         12.1        220.3       326.6       593.7
STARTE      14.90       681.0       681.7       681.9       682.3
OUTPUT      S
REACH       14.90       1.          0.0         0.0
SEGMENT     14.90       1           N           -9.
NVALUE      0.04
SEGMENT     14.90       2           C           8.
NVALUE      0.03
SEGMENT     14.90       3           N           500.
NVALUE      0.04
SECTION     14.90
            -360.       700.0       -359.9      689.0       -320.       688.0
            -290.       687.0       -289.9      700.0       -23.1       700.0
            -23.        676.3       -9.         676.3       -7.         673.8
            0.          673.7       7.          673.4       8.          677.5
            20.         683.9       20.1        700.0       95.         700.0
            95.1        683.9       120.        683.4       160.        683.9
            160.1       700.0       275.        700.0       275.1       684.3
            290.        683.7       335.        683.7       350.        684.3
            375.        684.5       375.1       700.0       465.        700.0
            465.1       686.0       500.        688.0
ENDTABLE
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 14.90  EXCEEDS  15. FEET-------------
REACH       15.0        1.          25.         25.
SEGMENT     15.0        1           N           -23.1
NVALUE      0.04
SEGMENT     15.0        2           C           20.1
NVALUE      0.04
SEGMENT     15.0        3           N           500.
NVALUE      0.04
SECTION     15.0
            -360.       700.0       -359.9      689.0       -320.       688.0
            -290.       687.0       -289.9      700.0       -23.1       700.0
            20.         683.9       20.1        700.0       95.         700.0
            95.1        683.9       120.        683.4       160.        683.9
            160.1       700.0       275.        700.0       275.1       684.3
            290.        683.7       335.        683.7       350.        684.3
            375.        684.5       375.1       700.0       465.        700.0
            465.1       686.0       500.        688.0       -23.        683.9
ENDTABLE
--------------------DATA POINTS ON SECTION 15.0   REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED--------------------
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 15.0   EXCEEDS  15. FEET-------------
REACH       15.01       1.          170.0       170.0
SEGMENT     15.01       1           N           835.0
NVALUE      0.05
```

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----------80/80 LIST OF INPUT DATA----------
SECTION   15.01
          -440.     690.0     -400.     690.0     -399.9    700.0
          -135.1    700.0     -135.     686.0     -115.     686.0
          -114.9    700.0     -45.1     700.0     -45.      684.3
          -15.      684.3     -14.9     683.8     21.       683.8
          21.1      684.3     40.       684.3     40.1      700.0
          185.      700.0     185.1     684.0     215.      686.0
          215.1     700.0     320.      700.0     320.1     686.3
          365.      686.3     365.1     700.0     485.      700.0
          485.1     686.5     600.0     686.5     800.      688.0
          835.      690.0
ENDTABLE
----------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 15.01  EXCEEDS  15. FEET----------
REACH     15.02     1.        370.0     370.0
SEGMENT   15.02     1         N         565.0
NVALUE    0.05
SECTION   15.02
          -470.     688.0     -390.     686.7     -310.     686.0
          -250.     684.0     -220.     683.0     -219.9    700.0
          -180.     700.0     -179.9    682.0     -140.     681.0
          -139.     700.0     -5.2      700.0     -5.1      683.8
          30.       683.3     75.       683.8     75.1      700.0
          190.      700.0     191.      684.0     230.      686.0
          300.      686.4     440.      686.5     565.      688.0
ENDTABLE
----------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 15.02  EXCEEDS  15. FEET----------
REACH     15.03     1.        190.0     190.0
REACH2    15.25     -1.9
REACH     15.25     1.        290.0     250.0
SEGMENT   15.25     1         N         -10.
NVALUE    0.07
SEGMENT   15.25     2         C         12.
NVALUE    0.03
SEGMENT   15.25     3         N         658.
NVALUE    0.07
SECTION   15.25
          -524.     696.0     -523.     691.1     -502.     690.2
          -343.     686.4     -318.     686.4     -273.     686.9
          -229.     686.8     -193.     685.4     -149.     685.6
          -102.     684.5     -10.      682.4     -9.       678.6
          0.        678.6     6.        678.4     12.       680.4
          99.       683.2     162.      683.8     227.      685.8
          297.      686.6     321.      686.9     386.      686.7
          398.      687.5     484.      687.5     534.      689.3
          585.      694.3     632.      693.9     658.      695.7
ENDTABLE
COMPUTE   14.90     16.25     14.90
```

----------80/80 LIST OF INPUT DATA----------
----------END OF 80/80 LIST----------

```
                    COMPUTE   14.90     16.25     14.90
*****SECT.14.90 KD VALUES REVERSED ON SEGMENT 1  AT ELEVATION    687.80  VALUE CHANGED TO EQUAL PREVIOUS VALUE*****
*****SECT.14.90 KD VALUES REVERSED ON SEGMENT 1  AT ELEVATION    689.00  VALUE CHANGED TO EQUAL PREVIOUS VALUE*****
*****SECT.14.90 KD VALUES REVERSED ON SEGMENT 1  AT ELEVATION    700.60  VALUE CHANGED TO EQUAL PREVIOUS VALUE*****
*****SECT.14.90 KD VALUES REVERSED ON SEGMENT 3  AT ELEVATION    700.60  VALUE CHANGED TO EQUAL PREVIOUS VALUE*****



----------------------------STARTING DATA FROM GIVEN ELEVATION-------------------------------
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RATING TABLE FOR SECTION 14.90 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	673.4	0.0	0.0						
BANK FULL	676.3	41.8	4.6	0.0	0.0	0.0			

*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****

1	681.0	197.8	12.1	0.0	0.0	0.0	12.10	673.9	0.00000
2	681.7	224.6	220.3	0.0	0.0	0.0	220.30	675.6	0.00005
682.0 — 3	681.9	232.5	326.6	0.0	0.0	0.0	326.60	676.5	0.00011
From last XSEC, no impact 4	682.3	248.2	593.7	0.0	0.0	0.0	593.70	677.2	0.00030

SEGMENT TABLE FOR SECTION 14.90

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	12.	3.	9.	0.
12.	VELOCITY FPS	0.07	0.04	0.08	0.02
2	DISCHARGE CFS	220.	51.	162.	7.
220.	VELOCITY FPS	1.11	0.68	1.23	0.42
3	DISCHARGE CFS	327.	76.	239.	11.
327.	VELOCITY FPS	1.59	0.97	1.76	0.61
4	DISCHARGE CFS	594.	140.	430.	23.
594.	VELOCITY FPS	2.71	1.67	3.02	1.06
1	ELEV 681.0 KD	25058.	5550.	18843.	565.
2	ELEV 681.7 KD	29923.	6952.	22050.	920.
3	ELEV 681.9 KD	31378.	7334.	23003.	1041.
4	ELEV 682.3 KD	34412.	8133.	24960.	1320.

*****SECT.15.0 KD VALUES REVERSED ON SEGMENT 1 AT ELEVATION 700.20 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****
*****SECT.15.0 KD VALUES REVERSED ON SEGMENT 3 AT ELEVATION 700.20 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****

RATING TABLE FOR SECTION 15.0 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM		CRIT ELEV	FRICTION SLOPE
0	683.4	0.0	0.0							
1	683.7	5.9	12.1	0.0	0.0	0.0	12.10	C	683.7	0.07682
2	684.1	63.0	220.3	0.0	0.0	0.0	220.30	C	684.1	0.03422
3	684.2	83.5	326.6	0.0	0.0	0.0	326.60	C	684.2	0.03134
4	684.5	127.6	593.7	0.0	0.0	0.0	593.70	C	684.5	0.03029

SEGMENT TABLE FOR SECTION 15.0

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	12.	0.	0.	12.
12.	VELOCITY FPS	2.41	0.0	0.0	2.06
2	DISCHARGE CFS	220.	0.	24.	196.
220.	VELOCITY FPS	3.68	0.0	2.59	3.65
3	DISCHARGE CFS	327.	0.	45.	281.
327.	VELOCITY FPS	4.02	0.0	3.17	4.07
4	DISCHARGE CFS	594.	0.	104.	490.
594.	VELOCITY FPS	4.81	0.0	4.31	4.73
1	ELEV 683.7 KD	43.	1.	1.	41.
2	ELEV 684.1 KD	1180.	1.	106.	1072.
3	ELEV 684.2 KD	1843.	1.	243.	1599.
4	ELEV 684.5 KD	3402.	1.	559.	2842.

*****SECT.15.01 KD VALUES REVERSED ON SEGMENT 1 AT ELEVATION 700.60 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****

RATING TABLE FOR SECTION 15.01 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	683.8	0.0	0.0						
1	684.1	12.5	12.1	0.0	0.0	0.0	12.10	683.9	0.00492
2	685.2	103.9	220.3	0.0	0.0	0.0	220.30	684.7	0.00538
3	685.3	120.7	326.6	0.0	0.0	0.0	326.60	684.8	0.00733
4	685.9	184.8	593.7	0.0	0.0	0.0	593.70	685.2	0.00699

SEGMENT TABLE FOR SECTION 15.01

CSM		TOTAL	SEG NO 1 N
1	DISCHARGE CFS	12.	12.
12.	VELOCITY FPS	0.98	0.97
2	DISCHARGE CFS	220.	220.
220.	VELOCITY FPS	2.14	2.12
3	DISCHARGE CFS	327.	327.
327.	VELOCITY FPS	2.72	2.71
4	DISCHARGE CFS	594.	594.
594.	VELOCITY FPS	3.22	3.21
1	ELEV 684.1 KD	173.	173.
2	ELEV 685.2 KD	3005.	3005.
3	ELEV 685.3 KD	3814.	3814.
4	ELEV 685.9 KD	7100.	7100.

*****SECT.15.02 KD VALUES REVERSED ON SEGMENT 1 AT ELEVATION 700.60 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****

RATING TABLE FOR SECTION 15.02 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	681.0	0.0	0.0						
1	684.2	176.9	12.1	0.0	0.0	0.0	12.10	681.5	0.00001
2	685.3	393.7	220.3	0.0	0.0	0.0	220.30	682.5	0.00018
3	685.6	448.5	326.6	0.0	0.0	0.0	326.60	682.8	0.00027
4	686.3	652.7	593.7	0.0	0.0	0.0	593.70	683.6	0.00052

SEGMENT TABLE FOR SECTION 15.02

CSM		TOTAL	SEG NO 1 N
1	DISCHARGE CFS	12.	12.
12.	VELOCITY FPS	0.07	0.07
2	DISCHARGE CFS	220.	220.
220.	VELOCITY FPS	0.56	0.56
3	DISCHARGE CFS	327.	327.
327.	VELOCITY FPS	0.73	0.73
4	DISCHARGE CFS	594.	594.
594.	VELOCITY FPS	0.94	0.91
1	ELEV 684.2 KD	5350.	5350.
2	ELEV 685.3 KD	16624.	16624.
3	ELEV 685.6 KD	19837.	19837.
4	ELEV 686.3 KD	26132.	26132.

RATING TABLE FOR SECTION 15.03 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	676.5	0.0	0.0						
BANK FULL	678.5	34.0	3.2	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	684.2	1098.3	12.1	0.0	0.0	0.0	12.10	676.9	0.00000
2	685.3	1814.0	220.3	0.0	0.0	0.0	220.30	678.4	0.00001
3	685.6	1997.9	326.6	0.0	0.0	0.0	326.60	679.0	0.00001
4	686.3	2626.4	593.7	0.0	0.0	0.0	593.70	679.8	0.00002

SEGMENT TABLE FOR SECTION 15.03

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	12.	2.	5.	5.
12.	VELOCITY FPS	0.02	0.01	0.03	0.01
2	DISCHARGE CFS	220.	49.	79.	93.
220.	VELOCITY FPS	0.27	0.07	0.43	0.09
3	DISCHARGE CFS	327.	76.	112.	139.
327.	VELOCITY FPS	0.36	0.10	0.59	0.13
4	DISCHARGE CFS	594.	166.	170.	257.
594.	VELOCITY FPS	0.48	0.16	0.83	0.18
1	ELEV 684.2 KD	60188.	8971.	26570.	24748.
2	ELEV 685.3 KD	94860.	20705.	34151.	40004.
3	ELEV 685.6 KD	104250.	24146.	35859.	44246.
4	ELEV 686.3 KD	140912.	38352.	40890.	61169.

FINAL

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----------------------------80/80 LIST OF INPUT DATA-------------------------------
WSP2        15.                                                          00000001
TITLE       MCCOY CREEK FPMS - BUCHANAN, MICHIGAN  (WSP2/MCCOY.UPST)     00000002
TITLE       PRESENT CONDITIONS - SEC 15.03 TO END  RR FILL OUT
DISCHARGE   -1.       181.7     411.7     671.6     778.0     1063.0     00000004
STARTE      15.03     679.6     684.2     685.3     685.6     686.3      00000005
TRIB        21.51     22.70
OUTPUT      S                                                            00000006
REACH       15.03     1.0       0.0       0.0                            00000007
REACH2      15.25     -1.9                                               00000008
REACH       15.25     1.0       290.      250.                           00000009
SEGMENT     15.25     1         N         -10.                           00000010
NVALUE      0.07                                                         00000011
SEGMENT     15.25     2         C         12.                            00000012
NVALUE      0.03                                                         00000013
SEGMENT     15.25     3         N         658.                           00000014
NVALUE      0.07                                                         00000015
SECTION     15.25                                                        00000016
            -524.     696.      -523.     691.1     -502.     690.2      00000017
            -343.     686.4     -318.     686.4     -273.     686.9      00000018
            -229.     686.8     -193.     685.4     -149.     685.6      00000019
            -102.     684.5     -10.      682.4     -9.       678.6      00000020
            0.        678.6     6.        678.4     12.       680.4      00000021
            99.       683.2     162.      683.8     227.      685.8      00000022
            287.      686.6     321.      686.9     386.      686.7      00000023
            398.      687.5     484.      687.5     534.      689.3      00000024
            555.      694.3     632.      693.9     658.      695.7      00000025
ENDTABLE                                                                 00000026
ROAD        17.00     2.7       80.       80.                            00000027
CULV1       17.00     1.        32133                                    00000028
CULV2       4.5       7.0       70.       678.7     678.4              00000029
SECTION     17.00                                                        00000030
            -478.     691.7     -181.     684.8     0.        684.6      00000031
            244.      686.8     490.      689.6     639.      699.8      00000032
            677.      706.5     -512.     693.0     -660.     694.0      00000033
            -740.     696.                                             00000034
ENDTABLE                                                                 00000035
----------------------DATA POINTS ON SECTION 17.00  REORDERED BY PROGRAM ACCORDING TO X VALUES
                      DUPLICATE X POINTS NOT CHANGED----------------------
REACH       17.50     1.0       155.      155.                           00000036
SEGMENT     17.50     1         N         -10.                           00000037
NVALUE      0.07                                                         00000038
SEGMENT     17.50     2         C         11.                            00000039
NVALUE      0.04                                                         00000040
SEGMENT     17.50     3         N         509.                           00000041
NVALUE      0.07                                                         00000042
SECTION     17.50                                                        00000043
            -422.     691.4     -386.     690.9     -354.     688.4      00000044
```

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----------------------------80/80 LIST OF INPUT DATA--------------------------------
          -335.     687.9     -317.     687.1     -257.     686.8      00000045
          -254.     686.9     -214.     686.3     -150.     684.1      00000046
          -64.      684.8     -10.      682.8     -5.       680.2      00000047
          0.        680.1     8.        680.5     11.       681.8      00000048
          213.      688.5     302.      690.5     355.      691.0      00000049
          416.      691.7     458.      693.2     509.      695.1      00000050
          -449.     692.5     -450.     695.                           00000051
ENDTABLE                                                               00000052
--------------------DATA POINTS ON SECTION 17.50  REORDERED BY PROGRAM ACCORDING TO X VALUES
                   DUPLICATE X POINTS NOT CHANGED---------------------
ROAD      18.00     2.7       75.0      75.0                           00000053
BPR       18.00     A         3                                        00000054
GIRDER    684.5     684.0     15.       0.8       2.7                  00000055
          -7.       686.0     -6.       684.0     6.        684.0      00000056
          7.        686.0                                              00000057
ENDTABLE                                                               00000058
SECTION   18.00                                                        00000059
          -1523.    699.1     -1133.    691.2     -937.     692.1      00000060
          -718.     686.3     -357.     685.4     -126.     684.2      00000061
          7.        686.0     85.       687.0     150.      688.0      00000062
          -7.       686.0     -6.       679.5     6.        679.5      00000063
          230.      690.      300.      692.0                          00000064
ENDTABLE                                                               00000065
--------------------DATA POINTS ON SECTION 18.00  REORDERED BY PROGRAM ACCORDING TO X VALUES
                   DUPLICATE X POINTS NOT CHANGED---------------------
REACH     18.50     1.0       115.      110.                           00000066
SEGMENT   18.50     1         N         -11.                           00000067
NVALUE    0.04                                                         00000068
SEGMENT   18.50     2         C         11.                            00000069
NVALUE    0.04                                                         00000070
SEGMENT   18.50     3         N         110.1                          00000071
NVALUE    0.05                                                         00000072
SECTION   18.50                                                        00000073
          -135.     700.0     -134.9    687.0     -120.     686.3      00000074
          -50.      685.3     -11.      684.0     -8.       680.1      00000075
          8.        680.1     11.       684.0     20.       684.2      00000076
          20.1      700.0     70.       700.0     70.1      686.9      00000077
          110.      686.8     110.1     700.0                          00000078
ENDTABLE                                                               00000079
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 18.50  EXCEEDS  15. FEET------------
ROAD      19.00     2.7       115.      110.                           00000080
BPR       19.00     A         3                                        00000081
GIRDER    685.3     684.8     15.       0.8       2.7                  00000082
          -7.       686.8     -6.       684.8     6.        684.8      00000083
          7.        686.8                                              00000084
ENDTABLE                                                               00000085
SECTION   19.00                                                        00000086
          -117.     689.0     -7.       686.8     219.      686.9      00000087
          441.      689.6     583.      697.5     637.      697.5      00000088
          787.      710.1     -198.     693.6     -199.     698.       00000089
```

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----------------------------80/80 LIST OF INPUT DATA-------------------------------
          7.        686.8     -6.       680.7     6.        680.7       00000090
ENDTABLE                                                                 00000091
---------------------DATA POINTS ON SECTION 19.00  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
REACH     19.50     1.0       225.      225.                            00000092
SEGMENT   19.50     1         N         -33.                            00000093
NVALUE    0.04                                                         00000094
SEGMENT   19.50     2         N         -13.                            00000095
NVALUE    0.06                                                         00000096
SEGMENT   19.50     3         C         11.                             00000097
NVALUE    0.04                                                         00000098
SEGMENT   19.50     4         N         100.                            00000099
NVALUE    0.06                                                         00000100
SEGMENT   19.50     5         N         315.                            00000101
NVALUE    0.04                                                         00000102
SECTION   19.50                                                        00000103
          -121.     689.9     -33.      685.9     -13.      684.4       00000104
          -11.      682.6     0.        682.3     9.        682.3       00000105
          11.       684.2     100.      686.0     213.      689.7       00000106
          279.      692.8     315.      697.3     -135.     698.        00000107
          -134.     693.1                                              00000108
ENDTABLE                                                               00000109
---------------------DATA POINTS ON SECTION 19.50  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
ROAD      20.00     2.7       80.       80.                             00000110
CULV1     20.00     1.        32133                                     00000111
CULV2     5.5       7.0       60.       682.46    681.6                 00000112
SECTION   20.00                                                        00000113
          -174.     693.2     0.        688.0     128.      686.2       00000114
          350.      697.9     421.      699.9     -175.     700.        00000115
ENDTABLE                                                               00000116
---------------------DATA POINTS ON SECTION 20.00  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
REACH     20.10     1.0       195.      195.                            00000117
SEGMENT   20.10     1         N         -8.                             00000118
NVALUE    0.04                                                         00000119
SEGMENT   20.10     2         C         8.                              00000120
NVALUE    0.03                                                         00000121
SEGMENT   20.10     3         N         16.                             00000122
NVALUE    0.04                                                         00000123
SECTION   20.10                                                        00000124
          -90.      690.0     -18.      688.0     -8.       684.0       00000125
          -5.       682.8     6.        682.8     8.        684.0       00000126
          15.       686.0     16.       694.0     -80.1     700.0       00000127
ENDTABLE                                                               00000128
=====================DATA POINTS ON SECTION 20.10  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
ROAD      20.20     2.7       120.      120.                            00000129
CULV1     20.20     1.        12311                                     00000130
CULV2     3.5                 70.       683.43    683.19                00000131
CULV1     20.20     1.        12311                                     00000132
CULV2     3.5                 70.       683.94    683.05                00000133
SECTION   20.20                                                        00000134
```

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----------------------------80/80 LIST OF INPUT DATA-------------------------------
          -330.     692.0     -315.     692.8     -295.     692.0      00000135
          -294.9    700.0     -160.     700.0     -159.9    690.0      00000136
          -115.     690.0     -20.      690.0     10.       688.7      00000137
          10.1      700.                                             00000138
ENDTABLE                                                           00000139
REACH     20.30     1.0       15.       15.                          00000140
SEGMENT   20.30     1         N         -10.                         00000141
NVALUE    0.035                                                    00000142
SEGMENT   20.30     2         C         10.                          00000143
NVALUE    0.03                                                     00000144
SEGMENT   20.30     3         N         200.1                        00000145
NVALUE    0.035                                                    00000146
SECTION   20.30                                                    00000147
          -127.1    700.0     -127.     690.0     -10.      690.0      00000148
          -8.       685.2     8.        685.2     10        690.0      00000149
          27.       690.0     27.1      700.0     127.      688.2      00000150
          200.      688.2     200.1     700.0                        00000151
ENDTABLE                                                           00000152
ROAD      20.40     2.7       15.       15.                          00000153
CULV1     20.40     2.        22552                                  00000154
CULV2     3.0                 15.5      686.45    686.46             00000155
SECTION   20.40                                                    00000156
          -127.1    700.0     -127.     690.0     -10.      690.0      00000157
          0.        690.2     10.       690.0     27.       690.0      00000158
          27.1      700.0                                            00000159
ENDTABLE                                                           00000160
REACH     20.50     1.0       206.      206.                         00000161
SEGMENT   20.50     1         N         -12.                         00000162
NVALUE    0.04                                                     00000163
SEGMENT   20.50     2         C         12.                          00000164
NVALUE    0.04                                                     00000165
SEGMENT   20.50     3         N         425.0                        00000166
NVALUE    0.04                                                     00000167
SECTION   20.50                                                    00000168
          -215.     692.0     -200.     692.5     -170.     692.0      00000169
          -105.     690.6     -104.9    700.0     -60.1     700.0      00000170
          -60.      690.6     -12.      690.0     -7.       686.1      00000171
          7.        686.1     12.       690.0     27.       690.2      00000172
          27.1      700.0     125.      700.0     125.1     690.0      00000173
          300.      690.0     395.      692.0     -360.     694.0      00000174
          -240.     692.0     -220.     692.0     425.      694.0      00000175
ENDTABLE                                                           00000176
--------------------DATA POINTS ON SECTION 20.50  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED--------------------
ROAD      20.60     2.7       240.      210.                         00000177
CULV1     20.60     1.        12311                                  00000178
CULV2     5.                  33.       686.19    685.65             00000179
```

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----------------------------80/80 LIST OF INPUT DATA--------------------------------
SECTION   20.60                                                          00000180
          -300.     692.2     -200.     692.0     -100.     691.4      00000181
          0.        691.3     75.       690.      250.      688.5      00000182
          355.      690.0     400.      700.0                          00000183
ENDTABLE                                                                 00000184
REACH     21.00     1.0       225.      210.                           00000185
SEGMENT   21.00     1         N         -17.                           00000186
NVALUE    0.05                                                         00000187
SEGMENT   21.00     2         C         30.                            00000188
NVALUE    0.04                                                         00000189
SEGMENT   21.00     3         N         100.                           00000190
NVALUE    0.07                                                         00000191
SECTION   21.00                                                        00000192
          -475.     692.0     -365.     692.2     -364.9    700.0      00000193
          -250.     700.0     -249.9    692.0     -150.     690.0      00000194
          -17.      689.6     -5.       687.3     0.        687.3      00000195
          22.       687.3     30.       689.1     35.       690.       00000196
          100.      700.      -515.     694.0     -500.     692.0      00000197
ENDTABLE                                                               00000198
--------------------DATA POINTS ON SECTION 21.00  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
ROAD      21.20     2.7       370.      355.                           00000199
CULV1     21.20     1.        32133                                    00000200
CULV2     5.        7.        25.       688.47    688.61               00000201
SECTION   21.20                                                        00000202
          -300.     692.0     -190.     691.2     -110.     692.0      00000203
          -45.      694.0     0.        694.5     7.        694.       00000204
          115.      696.0                                              00000205
ENDTABLE                                                               00000206
REACH     21.51     1.0       360.      360.                           00000207
SEGMENT   21.51     1         N         -12.                           00000208
NVALUE    .05                                                          00000209
SEGMENT   21.51     2         C         15.                            00000210
NVALUE    .03                                                          00000211
SEGMENT   21.51     3         N         495.                           00000212
NVALUE    0.04                                                         00000213
SECTION   21.51                                                        00000214
          -235.     700.      -220.     696.0     -180.     694.0      00000215
          -77.      693.2     -71.      690.8     -61.      690.0      00000216
          -50.      690.9     -48.      692.9     -12.      691.4      00000217
          -9.       690.3     0.        690.4     11.       689.7      00000218
          15.       691.9     90.       692.0     320.      694.0      00000219
          380.      696.0     430.      698.0     495.      700.0      00000220
ENDTABLE                                                               00000221
COMPUTE   15.03     21.51     15.03                                    00000222
----------------------------END OF 80/80 LIST---------------------------------
```

----------STARTING DATA FROM GIVEN ELEVATION----------

RATING TABLE FOR SECTION 15.03 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	676.5	0.0	0.0						
BANK FULL	678.5	34.0	117.2	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	679.6	77.4	181.7	0.0	0.0	0.0	181.70	678.2	0.00114
2	684.2	1117.8	411.7	0.0	0.0	0.0	411.70	679.3	0.00004
3	685.3	1798.0	671.6	0.0	0.0	0.0	671.60	679.9	0.00005
4	685.6	2023.8	778.0	0.0	0.0	0.0	778.00	680.1	0.00005
5	686.3	2648.2	1063.0	0.0	0.0	0.0	1063.00	680.6	0.00006

SEGMENT TABLE FOR SECTION 15.03

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	182.	0.	172.	10.
182.	VELOCITY FPS	2.91	0.0	2.97	0.50
2	DISCHARGE CFS	412.	65.	178.	169.
412.	VELOCITY FPS	0.77	0.20	1.12	0.27
3	DISCHARGE CFS	672.	148.	241.	283.
672.	VELOCITY FPS	0.82	0.23	1.32	0.29
4	DISCHARGE CFS	778.	184.	264.	331.
778.	VELOCITY FPS	0.85	0.25	1.39	0.30
5	DISCHARGE CFS	1063.	299.	303.	461.
1063.	VELOCITY FPS	0.84	0.29	1.48	0.33
1	ELEV 679.6 KD	5358.	1.	5097.	260.
2	ELEV 684.2 KD	61333.	9263.	26837.	25233.
3	ELEV 685.3 KD	94059.	20420.	33991.	39648.
4	ELEV 685.6 KD	105565.	24642.	36060.	44863.
5	ELEV 686.3 KD	142377.	39473.	41070.	61834.

RATING TABLE FOR SECTION 16.25 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	678.4	0.0	0.0						
BANK FULL	680.4	34.0	157.1	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	680.7	42.7	181.7	0.0	0.0	0.0	181.70	680.1	0.00385
2	684.2	457.8	411.7	0.0	0.0	0.0	411.70	681.2	0.00025
3	685.3	799.0	671.6	0.0	0.0	0.0	671.60	681.8	0.00022
4	685.6	906.3	778.0	0.0	0.0	0.0	778.00	682.0	0.00022
5	686.3	1222.2	1063.0	0.0	0.0	0.0	1063.00	682.5	0.00022

SEGMENT TABLE FOR SECTION 16.25

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	182.	0.	181.	1.
182.	VELOCITY FPS	4.43	0.0	4.43	0.49
2	DISCHARGE CFS	412.	27.	255.	130.
412.	VELOCITY FPS	1.76	0.35	2.16	0.49
3	DISCHARGE CFS	672.	74.	326.	272.
672.	VELOCITY FPS	1.66	0.38	2.29	0.59
4	DISCHARGE CFS	778.	93.	358.	327.
778.	VELOCITY FPS	1.69	0.40	2.41	0.63
5	DISCHARGE CFS	1063.	190.	422.	451.
1063.	VELOCITY FPS	1.70	0.51	2.58	0.66
1	ELEV 680.7 KD	2924.	1.	2912.	11.
2	ELEV 684.2 KD	25852.	1540.	16306.	8007.
3	ELEV 685.3 KD	45398.	4899.	22242.	18256.
4	ELEV 685.6 KD	52038.	6159.	24000.	21879.
5	ELEV 686.3 KD	70907.	12520.	28287.	30099.

ROAD SECTION 17.00

NO.	HW	CFS	HL	TW	CSM
0	678.70	0.00	0.00	0.00	0.00
1	684.67	181.70	3.68	681.00	181.70
2	685.21	411.70	0.96	684.25	411.70
3	685.59	671.60	0.24	685.35	671.60
4	685.81	778.00	0.16	685.65	778.00
5	686.43	1063.00	0.08	686.35	1063.00

MIN ROAD ELEVATION 684.60

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	32133.	4.76	6.33	70.00	678.70	678.40	0.032

RATING TABLE FOR SECTION 17.50 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	680.1	0.0	0.0						
BANK FULL	681.8	25.0	67.2	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	684.7	293.8	181.7	0.0	0.0	0.0	181.70	682.0	0.00022
2	685.3	448.8	411.7	0.0	0.0	0.0	411.70	682.9	0.00049
3	685.7	570.4	671.6	0.0	0.0	0.0	671.60	683.4	0.00075
4	685.9	646.7	778.0	0.0	0.0	0.0	778.00	683.6	0.00077
5	686.5	861.5	1063.0	0.0	0.0	0.0	1063.00	684.0	0.00071

SEGMENT TABLE FOR SECTION 17.50

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	19.	112.	51.
182.	VELOCITY FPS	1.09	0.23	1.33	0.40
2	DISCHARGE CFS	412.	82.	208.	122.
412.	VELOCITY FPS	1.65	0.48	2.16	0.67
3	DISCHARGE CFS	672.	167.	302.	203.
672.	VELOCITY FPS	2.04	0.69	2.88	0.90
4	DISCHARGE CFS	778.	215.	325.	238.
778.	VELOCITY FPS	2.06	0.76	2.97	0.94
5	DISCHARGE CFS	1063.	349.	381.	333.
1063.	VELOCITY FPS	2.01	0.86	3.12	1.00
1	ELEV 684.7 KD	12210.	1090.	7712.	3408.
2	ELEV 685.3 KD	18236.	3162.	9597.	5478.
3	ELEV 685.7 KD	24412.	5974.	11051.	7387.
4	ELEV 685.9 KD	28011.	7556.	11885.	8570.
5	ELEV 686.5 KD	39896.	13095.	14316.	12485.

*****SECT.18.50 KD VALUES REVERSED ON SEGMENT 3 AT ELEVATION 701.10 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	56.5067	0.0	0.0
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	56.5067	0.0	0.0
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	56.5067	0.0	0.0
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	56.5067	0.0	0.0
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	56.5067	0.0	0.0
DCRIT	-1.00	KBCRIT=									

ROAD SECTION 18.00

NO.	HW	CFS	HL	TW	CSM
0	679.50	0.00	0.00	0.00	0.00
1	684.79	181.70	0.08	684.71	181.70
2	685.40	411.70	0.10	685.30	411.70
3	685.82	671.60	0.10	685.72	671.60
4	686.04	778.00	0.10	685.94	778.00
5	686.63	1063.00	0.08	686.55	1063.00

MIN ROAD ELEVATION 684.20

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 684.00 OPENING NO.= 1

RATING TABLE FOR SECTION 18.50 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	680.1	0.0	0.0						
BANK FULL	684.0	75.7	150.0	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	684.8	109.5	181.7	0.0	0.0	0.0	181.70	681.6	0.00047
2	685.5	156.2	411.7	0.0	0.0	0.0	411.70	682.7	0.00125
3	686.0	203.8	671.6	0.0	0.0	0.0	671.60	683.7	0.00204
4	686.2	232.4	778.0	0.0	0.0	0.0	778.00	684.6	0.00214
5	686.8	317.9	1063.0	0.0	0.0	0.0	1063.00	685.2	0.00214

SEGMENT TABLE FOR SECTION 18.50

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	5.	173.	3.
182.	VELOCITY FPS	1.84	0.47	1.88	0.52
2	DISCHARGE CFS	412.	38.	359.	15.
412.	VELOCITY FPS	3.19	1.01	3.36	1.23
3	DISCHARGE CFS	672.	109.	532.	30.
672.	VELOCITY FPS	4.18	1.56	4.55	1.82
4	DISCHARGE CFS	778.	156.	584.	37.
778.	VELOCITY FPS	4.31	1.71	4.79	1.99
5	DISCHARGE CFS	1063.	325.	688.	50.
1063.	VELOCITY FPS	4.37	2.12	5.10	1.67
1	ELEV 684.8	KD	8327.	189.	8002.	135.
2	ELEV 685.5	KD	11499.	899.	10197.	402.
3	ELEV 686.0	KD	14634.	2073.	11902.	658.
4	ELEV 686.2	KD	16529.	2971.	12770.	789.
5	ELEV 686.8	KD	22720.	6546.	15080.	1094.

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
1.7676	1.8832	0.0	0.0	0.0	-0.1156	0.3646	1.0000	1.0000	51.4820	323.5918	83.6277
DCRIT	682.60	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	51.4820	323.5918	83.6277
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	51.4820	323.5918	83.6277
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	51.4820	323.5918	83.6277
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	51.4820	323.5918	83.6277
DCRIT	-1.00	KBCRIT=									

ROAD SECTION 19.00

NO.	HW	CFS	HL	TW	CSM
0	680.70	0.00	0.00	0.00	0.00
1	685.29	181.70	0.40	684.89	181.70
2	686.93	411.70	1.30	685.64	411.70
3	687.38	671.60	1.20	686.18	671.60
4	687.51	778.00	1.10	686.41	778.00
5	687.80	1063.00	0.82	686.99	1063.00

MIN ROAD ELEVATION 686.80

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 684.80 OPENING NO.= 1

RATING TABLE FOR SECTION 19.50 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	682.3	0.0	0.0						
BANK FULL	684.2	39.9	109.4	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	685.5	118.3	181.7	0.0	0.0	0.0	181.70	683.7	0.00094
2	687.0	345.1	411.7	0.0	0.0	0.0	411.70	684.8	0.00047
3	687.5	444.1	671.6	0.0	0.0	0.0	671.60	685.4	0.00068
4	687.6	474.6	778.0	0.0	0.0	0.0	778.00	685.5	0.00077
5	688.0	547.8	1063.0	0.0	0.0	0.0	1063.00	685.9	0.00098

SEGMENT TABLE FOR SECTION 19.50

CSM		TOTAL	SEG NO 1 N	2 N	3 C	4 N	5 N
1	DISCHARGE CFS	182.	0.	4.	154.	24.	0.
182.	VELOCITY FPS	2.07	0.0	0.53	2.20	0.58	0.0
2	DISCHARGE CFS	412.	8.	30.	223.	141.	9.
412.	VELOCITY FPS	1.64	0.56	0.82	2.08	0.83	0.53
3	DISCHARGE CFS	672.	26.	53.	315.	246.	31.
672.	VELOCITY FPS	2.04	0.88	1.14	2.66	1.16	0.85
4	DISCHARGE CFS	778.	34.	63.	353.	289.	40.
778.	VELOCITY FPS	2.18	0.97	1.26	2.89	1.28	0.94
5	DISCHARGE CFS	1063.	57.	87.	447.	401.	70.
1063.	VELOCITY FPS	2.52	1.21	1.55	3.44	1.58	1.17
1	ELEV 685.5 KD	5884.	1.	115.	5077.	690.	1.
2	ELEV 687.0 KD	18950.	327.	1394.	10383.	6498.	348.
3	ELEV 687.5 KD	25508.	841.	2028.	12298.	9370.	971.
4	ELEV 687.6 KD	27804.	1069.	2243.	12895.	10342.	1255.
5	ELEV 688.0 KD	33825.	1773.	2786.	14321.	12791.	2154.

ROAD SECTION 20.00

NO.	HW	CFS	HL	TW	CSM
0	682.46	0.00	0.00	0.00	0.00
1	686.80	181.70	1.28	685.52	181.70
2	687.61	411.70	0.56	687.05	411.70
3	688.11	671.60	0.56	687.55	671.60
4	688.26	778.00	0.56	687.70	778.00
5	688.61	1063.00	0.56	688.05	1063.00

MIN ROAD ELEVATION 686.20

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	32133.	5.27	7.25	60.00	682.46	681.60	0.032

RATING TABLE FOR SECTION 20.10 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	682.8	0.0	0.0						
BANK FULL	684.0	16.8	53.5	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	686.9	86.3	181.7	0.0	0.0	0.0	181.70	684.6	0.00044
2	687.8	116.0	411.7	0.0	0.0	0.0	411.70	685.6	0.00103
3	688.4	140.6	671.6	0.0	0.0	0.0	671.60	686.5	0.00176
4	688.7	153.5	778.0	0.0	0.0	0.0	778.00	686.7	0.00201
5	689.2	187.1	1063.0	0.0	0.0	0.0	1063.00	687.4	0.00255

SEGMENT TABLE FOR SECTION 20.10

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	10.	158.	14.
182.	VELOCITY FPS	2.38	0.95	2.51	1.07
2	DISCHARGE CFS	412.	29.	343.	40.
412.	VELOCITY FPS	4.12	1.54	4.43	2.00
3	DISCHARGE CFS	672.	48.	553.	71.
672.	VELOCITY FPS	5.81	1.70	6.29	2.88
4	DISCHARGE CFS	778.	65.	631.	83.
778.	VELOCITY FPS	6.34	1.80	6.89	3.16
5	DISCHARGE CFS	1063.	116.	833.	115.
1063.	VELOCITY FPS	7.48	2.06	8.28	3.79
1	ELEV 686.9 KD	8661.	463.	7531.	667.
2	ELEV 687.8 KD	12829.	901.	10702.	1226.
3	ELEV 688.4 KD	16018.	1124.	13212.	1682.
4	ELEV 688.7 KD	17332.	1381.	14112.	1839.
5	ELEV 689.2 KD	21048.	2266.	16509.	2274.

ROAD SECTION 20.20

NO.	HW	CFS	HL	TW	CSM
0	683.43	0.00	0.00	0.00	0.00
1	689.72	181.70	2.80	686.92	181.70
2	690.31	411.70	2.40	687.91	411.70
3	690.72	671.60	2.08	688.64	671.60
4	690.82	778.00	1.92	688.90	778.00
5	691.13	1063.00	1.60	689.53	1063.00

MIN ROAD ELEVATION 688.70

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	12311.	3.50		70.00	683.43	683.19	0.024
2	1	12311.	3.50		70.00	683.94	683.05	0.024

RATING TABLE FOR SECTION 20.30 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	685.2	0.0	0.0						
1	689.7	200.9	181.7	0.0	0.0	0.0	181.70	686.8	0.00015
BANK FULL	690.0	231.7	298.8	0.0	0.0	0.0			
2	690.3	300.4	411.7	0.0	0.0	0.0	411.70	687.9	0.00035
3	690.7	397.6	671.6	0.0	0.0	0.0	671.60	688.8	0.00053
4	690.8	418.5	778.0	0.0	0.0	0.0	778.00	688.9	0.00064
5	691.1	494.0	1063.0	0.0	0.0	0.0	1063.00	689.2	0.00080

SEGMENT TABLE FOR SECTION 20.30

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	104.	78.
182.	VELOCITY FPS	1.08	0.0	1.29	0.65
2	DISCHARGE CFS	412.	22.	191.	199.
412.	VELOCITY FPS	1.67	0.66	2.07	1.14
3	DISCHARGE CFS	672.	66.	274.	332.
672.	VELOCITY FPS	2.10	0.83	2.75	1.52
4	DISCHARGE CFS	778.	81.	311.	385.
778.	VELOCITY FPS	2.30	0.91	3.06	1.69
5	DISCHARGE CFS	1063.	160.	376.	527.
1063.	VELOCITY FPS	2.63	1.29	3.49	2.01
1	ELEV 689.7 KD	14693.	1.	8547.	6146.
2	ELEV 690.3 KD	21115.	20.	10474.	10620.
3	ELEV 690.7 KD	27415.	1055.	12022.	14338.
4	ELEV 690.8 KD	30011.	2388.	12369.	15254.
5	ELEV 691.1 KD	37334.	5049.	13607.	18678.

ROAD SECTION 20.40

NO.	HW	CFS	HL	TW	CSM
0	686.46	0.00	0.00	0.00	0.00
1	690.34	181.70	0.72	689.62	181.70
2	690.82	411.70	0.80	690.02	411.70
3	691.22	671.60	1.12	690.10	671.60
4	691.31	778.00	1.12	690.20	778.00
5	691.71	1063.00	1.12	690.59	1063.00

MIN ROAD ELEVATION 690.00

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	2	22552.	3.00		15.50	686.45	686.46	0.012

RATING TABLE FOR SECTION 20.50 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	686.1	0.0	0.0						
BANK FULL	690.0	104.7	162.2	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	690.5	191.5	181.7	0.0	0.0	0.0	181.70	687.7	0.00040
2	691.1	375.2	411.7	0.0	0.0	0.0	411.70	688.8	0.00052
3	691.5	518.2	671.6	0.0	0.0	0.0	671.60	690.3	0.00063
4	691.6	559.5	778.0	0.0	0.0	0.0	778.00	690.4	0.00068
5	692.0	716.9	1063.0	0.0	0.0	0.0	1063.00	690.5	0.00070

SEGMENT TABLE FOR SECTION 20.50

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	4.	132.	45.
182.	VELOCITY FPS	1.44	0.39	1.54	0.48
2	DISCHARGE CFS	412.	28.	195.	188.
412.	VELOCITY FPS	1.56	0.63	1.96	0.82
3	DISCHARGE CFS	672.	63.	252.	357.
672.	VELOCITY FPS	1.72	0.82	2.30	1.07
4	DISCHARGE CFS	778.	77.	278.	423.
778.	VELOCITY FPS	1.79	0.89	2.48	1.17
5	DISCHARGE CFS	1063.	124.	316.	623.
1063.	VELOCITY FPS	1.85	0.93	2.61	1.35
1	ELEV 690.5 KD	8583.	90.	6885.	1608.
2	ELEV 691.1 KD	17699.	1014.	8921.	7764.
3	ELEV 691.5 KD	26205.	2227.	10404.	13574.
4	ELEV 691.6 KD	29443.	2763.	10853.	15826.
5	ELEV 692.0 KD	40069.	4507.	12316.	23246.

ROAD SECTION 20.60

NO.	HW	CFS	HL	TW	CSM
0	686.19	0.00	0.00	0.00	0.00
1	690.53	181.70	0.0	690.53	181.70
2	691.14	411.70	0.0	691.14	411.70
3	691.64	671.60	0.08	691.56	671.60
4	691.76	778.00	0.08	691.68	778.00
5	692.14	1063.00	0.08	692.06	1063.00

MIN ROAD ELEVATION 688.50

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	12311.	5.00		33.00	685.19	685.65	0.024

RATING TABLE FOR SECTION 21.00 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	687.3	0.0	0.0						
BANK FULL	689.1	64.5	100.2	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	690.6	250.6	181.7	0.0	0.0	0.0	181.70	688.3	0.00021
2	691.2	402.5	411.7	0.0	0.0	0.0	411.70	689.0	0.00036
3	691.7	543.8	671.6	0.0	0.0	0.0	671.60	689.8	0.00048
4	691.9	581.7	778.0	0.0	0.0	0.0	778.00	689.9	0.00056
5	692.3	718.7	1063.0	0.0	0.0	0.0	1063.00	690.3	0.00067

SEGMENT TABLE FOR SECTION 21.00

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	41.	139.	2.
182.	VELOCITY FPS	0.96	0.37	1.05	0.26
2	DISCHARGE CFS	412.	149.	257.	6.
412.	VELOCITY FPS	1.33	0.66	1.58	0.43
3	DISCHARGE CFS	672.	280.	380.	12.
672.	VELOCITY FPS	1.63	0.83	2.03	0.58
4	DISCHARGE CFS	778.	329.	434.	15.
778.	VELOCITY FPS	1.79	0.90	2.25	0.64
5	DISCHARGE CFS	1063.	496.	544.	23.
1063.	VELOCITY FPS	2.01	1.04	2.57	0.76
1	ELEV 690.6 KD	12259.	2409.	9746.	104.
2	ELEV 691.2 KD	21600.	7553.	13758.	288.
3	ELEV 691.7 KD	30578.	12666.	17380.	532.
4	ELEV 691.9 KD	32713.	13780.	18326.	607.
5	ELEV 692.3 KD	40900.	18596.	21328.	876.

ROAD SECTION 21.20

NO.	HW	CFS	HL	TW	CSM
0	688.61	0.00	0.00	0.00	0.00
1	691.78	181.70	0.80	690.98	181.70
2	692.19	411.70	0.48	691.71	411.70
3	692.62	671.60	0.40	692.22	671.60
4	692.78	778.00	0.40	692.38	778.00
5	693.09	1063.00	0.32	692.77	1063.00

MIN ROAD ELEVATION 691.20

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	32133.	5.09	7.02	25.00	689.47	688.61	0.032

RATING TABLE FOR SECTION 21.51 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	689.7	0.0	0.0						
BANK FULL	691.4	50.0	125.0	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	692.2	117.1	181.7	0.0	0.0	0.0	181.70	691.1	0.00118
2	692.7	217.5	411.7	0.0	0.0	0.0	411.70	691.8	0.00174
3	693.1	344.0	671.6	0.0	0.0	0.0	671.60	692.3	0.00172
4	693.3	386.7	778.0	0.0	0.0	0.0	778.00	692.3	0.00170
5	693.6	520.0	1063.0	0.0	0.0	0.0	1063.00	692.6	0.00175

d=3.6'

SEGMENT TABLE FOR SECTION 21.51

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	50.	120.	12.
182.	VELOCITY FPS	2.13	1.04	2.44	0.58
2	DISCHARGE CFS	412.	105.	223.	84.
412.	VELOCITY FPS	2.76	1.43	3.55	1.03
3	DISCHARGE CFS	672.	154.	294.	224.
672.	VELOCITY FPS	2.87	1.51	3.91	1.34
4	DISCHARGE CFS	778.	175.	325.	277.
778.	VELOCITY FPS	2.89	1.57	4.11	1.42
5	DISCHARGE CFS	1063.	215.	389.	459.
1063.	VELOCITY FPS	3.01	1.43	4.40	1.63
1	ELEV 692.2 KD		5182.	1453.	3558.	172.
2	ELEV 692.7 KD		9781.	2509.	5361.	1911.
3	ELEV 693.1 KD		16023.	3760.	7217.	5046.
4	ELEV 693.3 KD		18819.	4250.	7895.	6674.
5	ELEV 693.6 KD		25253.	5214.	9448.	10591.

----------80/80 LIST OF INPUT DATA----------

```
LINK                                                                    00000223
CHANGE     DISCHARGE                                                    00000224
DISCHARGE  -1.       151.6     348.2     571.2     663.0     912.9     00000225
TITLE      PRESENT CONDITIONS- MCCOY-MILL JUNCTION TO AMTRAK            00000226
END                                                                     00000227
REACH      21.70     1.0       1815.0    1575.0                       00000228
SEGMENT    21.70     1         N         -16.0                        00000229
NVALUE     0.06                                                       00000230
SEGMENT    21.70     2         C         16.0                         00000231
NVALUE     0.04                                                       00000232
SEGMENT    21.70     3         N         585.0                        00000233
NVALUE     0.06                                                       00000234
SECTION    21.70                                                      00000235
           -105.     710.0     -100.     708.0     -65.      700.0    00000236
           -30.      698.0     -25.      696.0     -16.      695.0    00000237
           -9.       692.5     0.        692.4     8.        692.5    00000238
           15.       695.0     30.       696.0     185.      696.0    00000239
           300.      698.0     370.      700.0     425.      702.0    00000240
           485.      704.0     530.      706.0     585.      710.0    00000241
           12.       694.5     -12.      694.5                        00000242
ENDTABLE                                                               00000243
----------DATA POINTS ON SECTION 21.70  REORDERED BY PROGRAM ACCORDING TO X VALUES
          DUPLICATE X POINTS NOT CHANGED----------
REACH      22.30     1.0       1480.0    980.0                        00000244
SEGMENT    22.30     1         N         -12.                         00000245
NVALUE     .08                                                        00000246
SEGMENT    22.30     2         C         10.                          00000247
NVALUE     .04                                                        00000248
SEGMENT    22.30     3         N         700.0                        00000249
NVALUE     .10                                                        00000250
SECTION    22.30                                                      00000251
           -235.     710.0     -195.0    700.0     -155.     698.0    00000252
           -12.      697.3     -7.       694.7     0.        694.9    00000253
           5.        695.3     10.       697.6     60.       698.     00000254
           275.      699.0     450.      700.0     600.      700.7    00000255
           700.      702.0                                            00000256
ENDTABLE                                                               00000257
REACH      22.40     1.0       2950.0    1260.0                       00000258
SEGMENT    22.40     1         N         -15.0                        00000259
NVALUE     .12                                                        00000260
SEGMENT    22.40     2         C         15.0                         00000261
NVALUE     0.06                                                       00000262
SEGMENT    22.40     3         N         855.0                        00000263
NVALUE     0.12                                                       00000264
SECTION    22.40                                                      00000265
           -555.     710.0     -405.     704.0     -320.     702.0    00000266
           -50.      700.0     -16.      698.0     -15.      696.0    00000267
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----------------------------80/80 LIST OF INPUT DATA-------------------------------
          0.        696.7     15.       696.0     16.       698.      00000268
          20.       698.0     160.      700.      200.      702.0     00000269
          575.      704.0     690.      706.0     790.      708.0     00000270
          855.      710.0     5.        696.7     -5.       696.7     00000271
          10.       697.9     -10.      697.9                         00000272
ENDTABLE                                                              00000273
---------------------DATA POINTS ON SECTION 22.40  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED--------------------
ROAD      22.45     2.7       80.0      80.0                          00000274
BPR       22.45     B         1                                       00000275
GIRDER    700.1     699.8     0.        0.8       2.7               00000276
          -12.5     701.5     -10.5     699.8     11.0      699.8     00000277
          14.0      701.5                                             00000278
SECTION   22.45                                                       00000279
          -480.     710.0     -445.     708.0     -380.     706.0     00000280
          -285.     704.0     -185.     702.0     -18.      701.8     00000281
          -12.5     701.5     -12.      700.6     -6.       696.7     00000282
          0.        696.1     4.        697.1     7.        698.1     00000283
          12.       700.3     14.       701.5     190.      702.0     00000284
          920.      710.0                                             00000285
ENDTABLE                                                              00000286
REACH     22.50     1.        150.      150.                          00000287
SEGMENT   22.50     1         N         -16.                          00000288
NVALUE    .12                                                         00000289
SEGMENT   22.50     2         C         16.                           00000290
NVALUE    .06                                                         00000291
SEGMENT   22.50     3         N         830.                          00000292
NVALUE    .12                                                         00000293
SECTION   22.50                                                       00000294
          -370.     708.0     -315.     706.0     -295.     704.0     00000295
          -260.     702.0     -110.     700.0     -25.      698.0     00000296
          -16.      698.2     -13.      696.4     0.        696.3     00000297
          13.       696.4     16.       698.2     50.       698.0     00000298
          140.      700.0     270.      702.0     340.      704.0     00000299
          635.      706.0     735.      708.0     830.      710.0     00000300
ENDTABLE                                                              00000301
REACH     22.60     1.0       2085.0    1025.0                        00000302
SEGMENT   22.60     1         N         -13.0                         00000303
NVALUE    0.12                                                        00000304
SEGMENT   22.60     2         C         13.0                          00000305
NVALUE    0.06                                                        00000306
SEGMENT   22.60     3         N         200.0                         00000307
NVALUE    0.12                                                        00000308
SECTION   22.60                                                       00000309
          -890.     710.0     -770.     708.0     -640.     706.0     00000310
          -380.     704.0     -80.      702.0     -16.      702.0     00000311
          -13.      700.2     -4.       698.2     0.        698.2     00000312
```

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----------------------------80/80 LIST OF INPUT DATA--------------------------------
          15.       702.0     170.      702.0     180.      704.0       00000313
          185.      706.0     200.      710.0     4.        698.2       00000314
          13.       700.2                                               00000315
ENDTABLE                                                              00000316
---------------------DATA POINTS ON SECTION 22.60  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
REACH     22.70     1.0       1210.0    680.0                         00000317
SEGMENT   22.70     1         N         -13.0                         00000318
NVALUE    0.12                                                        00000319
SEGMENT   22.70     2         C         13.0                          00000320
NVALUE    0.06                                                        00000321
SEGMENT   22.70     3         N         390.0                         00000322
NVALUE    0.10                                                        00000323
SECTION   22.70                                                       00000324
          -590.0    710.0     -160.     708.0     -140.     706.0       00000325
          -20.      704.0     -16.      704.0     -13.      701.5       00000326
          -4.       699.5     0.        699.5     4.        699.5       00000327
          210.      704.0     305.      706.0     360.      708.0       00000328
          390.      710.0     13.       701.5     16.       702.0       00000329
ENDTABLE                                                              00000330
---------------------DATA POINTS ON SECTION 22.70  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
REACH     22.80     1.0       890.0     700.0                         00000331
SEGMENT   22.80     1         N         -9.0                          00000332
NVALUE    0.12                                                        00000333
SEGMENT   22.80     2         C         9.                            00000334
NVALUE    0.06                                                        00000335
SEGMENT   22.80     3         N         160.                          00000336
NVALUE    0.12                                                        00000337
SECTION   22.80                                                       00000338
          -400.     712.5     -370.     712.0     -295.     710.0       00000339
          -245.     708.0     -165.     706.0     -16.      704.0       00000340
          -3.       699.9     0.        699.9     3.        700.1       00000341
          15.       704.0     25.       704.0     115.      706.0       00000342
          125.      708.0     135.      710.0     145.      712.0       00000343
          160.      713.1     9.        701.7     15.       704.0       00000344
          -9.       701.7     22.       704.0                         00000345
ENDTABLE                                                              00000346
---------------------DATA POINTS ON SECTION 22.80  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
COMPUTE   21.70     22.80     21.51                                   00000347
------------------------------END OF 80/80 LIST-------------------------------
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COMPUTE 21.70 22.80 21.51 00000347

----------STARTING DATA FROM PREVIOUS COMPUTATIONS----------

RATING TABLE FOR SECTION 21.70 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	692.4	0.0	0.0						
BANK FULL	695.0	56.7	141.4	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	695.2	63.2	151.6	0.0	0.0	0.0	151.60	693.7	0.00181
2	696.1	127.6	348.2	0.0	0.0	0.0	348.20	694.7	0.00230
3	696.7	257.8	571.2	0.0	0.0	0.0	571.20	695.5	0.00228
4	697.0	344.5	663.0	0.0	0.0	0.0	663.00	695.8	0.00174
5	697.3	437.0	912.9	0.0	0.0	0.0	912.90	696.2	0.00194

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SEGMENT TABLE FOR SECTION 21.70

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	152.	0.	151.	0.
152.	VELOCITY FPS	2.45	0.0	2.44	0.40
2	DISCHARGE CFS	348.	5.	317.	25.
348.	VELOCITY FPS	3.39	0.88	3.46	0.86
3	DISCHARGE CFS	571.	15.	426.	131.
571.	VELOCITY FPS	3.46	1.07	3.89	0.97
4	DISCHARGE CFS	663.	21.	427.	215.
663.	VELOCITY FPS	3.02	1.04	3.57	1.05
5	DISCHARGE CFS	913.	34.	520.	359.
913.	VELOCITY FPS	3.21	1.22	4.01	1.28
1	ELEV 695.2	KD	3565.	4.	3556.	5.
2	ELEV 696.1	KD	7032.	98.	6713.	221.
3	ELEV 696.7	KD	11852.	295.	9006.	2551.
4	ELEV 697.0	KD	15643.	480.	10440.	4722.
5	ELEV 697.3	KD	20594.	739.	11972.	7883.

RATING TABLE FOR SECTION 22.30 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	694.7	0.0	0.0						
BANK FULL	697.3	45.1	129.3	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	697.7	75.3	151.6	0.0	0.0	0.0	151.60	696.5	0.00220
2	698.6	314.0	348.2	0.0	0.0	0.0	348.20	697.8	0.00135
3	699.0	438.9	571.2	0.0	0.0	0.0	571.20	698.0	0.00178
4	699.2	553.9	663.0	0.0	0.0	0.0	663.00	698.1	0.00149
5	699.5	720.9	912.9	0.0	0.0	0.0	912.90	698.3	0.00152

SEGMENT TABLE FOR SECTION 22.30

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	152.	11.	139.	1.
152.	VELOCITY FPS	2.78	0.50	2.83	0.33
2	DISCHARGE CFS	348.	120.	187.	41.
348.	VELOCITY FPS	2.17	0.81	2.72	0.42
3	DISCHARGE CFS	571.	218.	259.	94.
571.	VELOCITY FPS	2.46	1.09	3.41	0.57
4	DISCHARGE CFS	663.	262.	262.	139.
663.	VELOCITY FPS	2.25	1.10	3.22	0.59
5	DISCHARGE CFS	913.	371.	311.	231.
913.	VELOCITY FPS	2.26	1.26	3.52	0.68
1	ELEV 697.7 KD	3173.	159.	3011.	2.
2	ELEV 698.6 KD	9196.	3039.	5292.	865.
3	ELEV 699.0 KD	13464.	5132.	6242.	2090.
4	ELEV 699.2 KD	16946.	6711.	6962.	3273.
5	ELEV 699.5 KD	23345.	9492.	8038.	5814.

RATING TABLE FOR SECTION 22.40 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	696.0	0.0	0.0						
BANK FULL	696.0	0.0	0.0	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	699.6	202.5	151.6	0.0	0.0	0.0	151.60	697.8	0.00071
2	700.7	462.8	348.2	0.0	0.0	0.0	348.20	698.5	0.00058
3	701.2	636.3	571.2	0.0	0.0	0.0	571.20	698.9	0.00077
4	701.5	755.1	663.0	0.0	0.0	0.0	663.00	699.1	0.00068
5	701.8	943.7	912.9	0.0	0.0	0.0	912.90	699.3	0.00080

SEGMENT TABLE FOR SECTION 22.40

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	152.	11.	96.	44.
152.	VELOCITY FPS	1.01	0.44	1.22	0.45
2	DISCHARGE CFS	348.	36.	154.	159.
348.	VELOCITY FPS	1.03	0.37	1.38	0.62
3	DISCHARGE CFS	571.	88.	213.	271.
571.	VELOCITY FPS	1.23	0.49	1.70	0.81
4	DISCHARGE CFS	663.	118.	228.	318.
663.	VELOCITY FPS	1.19	0.50	1.70	0.83
5	DISCHARGE CFS	913.	211.	285.	417.
913.	VELOCITY FPS	1.31	0.62	1.95	0.91
1	ELEV 699.6 KD	5702.	408.	3626.	1668.
2	ELEV 700.7 KD	14411.	1448.	6438.	6525.
3	ELEV 701.2 KD	20405.	2845.	7851.	9709.
4	ELEV 701.5 KD	25255.	4301.	8821.	12133.
5	ELEV 701.8 KD	31962.	6973.	10154.	14835.

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
1.1714	1.1714	0.0	0.0	0.0	0.0	0.4878	1.0000	1.0000	47.7127	390.2705	197.0872
DCRIT	698.30	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	51.1236	390.2705	197.0872
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	51.1236	390.2705	197.0872
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	51.1236	390.2705	197.0872
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	51.1236	390.2705	197.0872
DCRIT	-1.00	KBCRIT=									

ROAD SECTION 22.45

NO.	HW	CFS	HL	TW	CSM
0	696.10	0.00	0.00	0.00	0.00
1	699.85	151.60	0.18	699.67	151.60
2	701.71	348.20	0.98	700.74	348.20
3	702.12	571.20	0.90	701.22	571.20
4	702.23	663.00	0.72	701.51	663.00
5	702.43	912.90	0.52	701.92	912.90

MIN ROAD ELEVATION 701.50

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 699.80 OPENING NO.= 1

RATING TABLE FOR SECTION 22.50 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	696.3	0.0	0.0						
BANK FULL	698.2	62.9	80.2	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	699.9	341.4	151.6	0.0	0.0	0.0	151.60	697.3	0.00028
2	701.7	1019.6	348.2	0.0	0.0	0.0	348.20	698.3	0.00016
3	702.2	1236.4	571.2	0.0	0.0	0.0	571.20	698.6	0.00026
4	702.3	1301.6	663.0	0.0	0.0	0.0	663.00	698.7	0.00031
5	702.5	1426.2	912.9	0.0	0.0	0.0	912.90	699.0	0.00047

SEGMENT TABLE FOR SECTION 22.50

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	152.	20.	99.	33.
152.	VELOCITY FPS	0.75	0.21	0.92	0.23
2	DISCHARGE CFS	348.	84.	150.	114.
348.	VELOCITY FPS	0.62	0.22	0.90	0.24
3	DISCHARGE CFS	571.	152.	222.	197.
571.	VELOCITY FPS	0.83	0.32	1.23	0.34
4	DISCHARGE CFS	663.	181.	250.	231.
663.	VELOCITY FPS	0.90	0.36	1.36	0.38
5	DISCHARGE CFS	913.	260.	328.	324.
913.	VELOCITY FPS	1.11	0.46	1.71	0.49
1	ELEV 699.9 KD	8991.	1164.	5865.	1962.
2	ELEV 701.7 KD	27878.	6623.	12151.	9104.
3	ELEV 702.2 KD	35056.	9193.	13843.	12021.
4	ELEV 702.3 KD	37370.	10064.	14336.	12970.
5	ELEV 702.5 KD	42139.	11907.	15299.	14934.

RATING TABLE FOR SECTION 22.60 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	698.2	0.0	0.0						
BANK FULL	700.2	34.0	78.3	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	702.1	133.5	151.6	0.0	0.0	0.0	151.60	699.8	0.00100
2	703.1	466.1	348.2	0.0	0.0	0.0	348.20	700.7	0.00074
3	703.7	748.1	571.2	0.0	0.0	0.0	571.20	701.4	0.00068
4	703.9	850.6	663.0	0.0	0.0	0.0	663.00	701.6	0.00068
5	704.2	1011.8	912.9	0.0	0.0	0.0	912.90	702.4	0.00086

SEGMENT TABLE FOR SECTION 22.60

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	152.	5.	137.	10.
152.	VELOCITY FPS	1.60	0.27	1.65	0.31
2	DISCHARGE CFS	348.	70.	186.	93.
348.	VELOCITY FPS	1.33	0.40	1.69	0.51
3	DISCHARGE CFS	571.	163.	226.	182.
571.	VELOCITY FPS	1.24	0.47	1.81	0.65
4	DISCHARGE CFS	663.	207.	240.	216.
663.	VELOCITY FPS	1.24	0.51	1.84	0.69
5	DISCHARGE CFS	913.	318.	292.	303.
913.	VELOCITY FPS	1.40	0.62	2.12	0.85
1	ELEV 702.1 KD	4591.	94.	4372.	126.
2	ELEV 703.1 KD	12673.	2349.	7017.	3307.
3	ELEV 703.7 KD	21691.	6046.	8772.	6873.
4	ELEV 703.9 KD	25324.	7711.	9361.	8252.
5	ELEV 704.2 KD	30881.	10395.	10230.	10256.

RATING TABLE FOR SECTION 22.70 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	699.5	0.0	0.0						
BANK FULL	701.5	34.0	81.3	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	703.2	161.7	151.6	0.0	0.0	0.0	151.60	701.1	0.00084
2	704.2	357.3	348.2	0.0	0.0	0.0	348.20	702.1	0.00085
3	704.9	551.9	571.2	0.0	0.0	0.0	571.20	702.7	0.00087
4	705.1	612.0	663.0	0.0	0.0	0.0	663.00	702.9	0.00089
5	705.5	777.3	912.9	0.0	0.0	0.0	912.90	703.2	0.00099

SEGMENT TABLE FOR SECTION 22.70

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	152.	1.	116.	35.
152.	VELOCITY FPS	1.32	0.37	1.46	0.44
2	DISCHARGE CFS	348.	2.	187.	159.
348.	VELOCITY FPS	1.40	0.24	1.79	0.65
3	DISCHARGE CFS	571.	13.	241.	318.
571.	VELOCITY FPS	1.46	0.35	1.98	0.81
4	DISCHARGE CFS	663.	17.	266.	380.
663.	VELOCITY FPS	1.49	0.37	2.10	0.87
5	DISCHARGE CFS	913.	42.	318.	553.
913.	VELOCITY FPS	1.61	0.48	2.31	1.00
1	ELEV 703.2 KD	5189.	22.	4056.	1111.
2	ELEV 704.2 KD	11891.	63.	6473.	5354.
3	ELEV 704.9 KD	19237.	328.	8335.	10573.
4	ELEV 705.1 KD	22158.	545.	8934.	12680.
5	ELEV 705.5 KD	28804.	1135.	10278.	17391.

RATING TABLE FOR SECTION 22.80 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	699.9	0.0	0.0						
BANK FULL	701.7	20.8	61.4	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	704.3	103.6	151.6	0.0	0.0	0.0	151.60	701.9	0.00121
2	705.6	287.7	348.2	0.0	0.0	0.0	348.20	702.8	0.00148
3	706.2	464.4	571.2	0.0	0.0	0.0	571.20	704.0	0.00166
4	706.4	530.4	663.0	0.0	0.0	0.0	663.00	704.3	0.00169
5	706.9	677.0	912.9	0.0	0.0	0.0	912.90	704.8	0.00183

SEGMENT TABLE FOR SECTION 22.80

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	152.	6.	140.	6.
152.	VELOCITY FPS	1.99	0.32	2.05	0.32
2	DISCHARGE CFS	348.	56.	245.	47.
348.	VELOCITY FPS	2.33	0.50	2.72	0.54
3	DISCHARGE CFS	571.	139.	320.	112.
571.	VELOCITY FPS	2.42	0.67	3.14	0.73
4	DISCHARGE CFS	663.	179.	343.	141.
663.	VELOCITY FPS	2.43	0.72	3.23	0.80
5	DISCHARGE CFS	913.	286.	406.	221.
913.	VELOCITY FPS	2.50	0.86	3.54	0.97
1	ELEV 704.3	KD	4320.	149.	4045.	126.
2	ELEV 705.6	KD	9013.	1395.	6419.	1199.
3	ELEV 706.2	KD	13951.	3343.	7914.	2695.
4	ELEV 706.4	KD	16028.	4229.	8439.	3360.
5	ELEV 706.9	KD	21206.	6538.	9591.	5077.

----------80/80 LIST OF INPUT DATA----------

```
CHANGE    DISCHARGE                                                        00000348
DISCHARGE -1.       140.0     324.7     534.4     620.0     857.2        00000349
TITLE     PRESENT CONDITIONS- AMTRAK TO HASS ROAD                        00000350
END                                                                      00000351
ROAD      23.00     2.7       270.0     240.0                            00000352
BPR       23.00     A         3                                          00000353
GIRDER    708.5     707.96    0.        .8        2.7                    00000354
          -8.       712.3     -7.       707.96    7.        707.96       00000355
          8.        712.3                                                00000356
ENDTABLE                                                                 00000357
SECTION   23.00                                                          00000358
          -810.     715.9     -271.     713.8     -8.       712.3        00000359
          -7.       702.      7.        702.      8.        712.3        00000360
          578.      712.7                                                00000361
ENDTABLE                                                                 00000362
REACH     23.50     1.        215.0     180.0                            00000363
SEGMENT   23.50     1         N         -10.                             00000364
NVALUE    .07                                                            00000365
SEGMENT   23.50     2         C         10.                              00000366
NVALUE    .04                                                            00000367
SEGMENT   23.50     3         N         517.                             00000368
NVALUE    .07                                                            00000369
SECTION   23.50                                                          00000370
          -109.     713.5     -86.      705.1     -10.      704.0        00000371
          -5.       701.6     0.        700.5     7.        700.9        00000372
          10.       704.3     131.      707.6     495.      707.1        00000373
          517.      713.2                                                00000374
ENDTABLE                                                                 00000376
ROAD      24.00     2.7       135.      135.                             00000377
CULV1     24.00     1.        12333                                      00000378
CULV2     8.                  36.       701.08    700.97                 00000379
SECTION   24.00                                                          00000380
          -1394.    716.4     -1065.    713.6     -619.     711.6        00000381
          -222.     710.8     -84.      713.8     0.        710.7        00000382
          174.      707.3     690.      709.6     1093.     715.1        00000383
ENDTABLE                                                                 00000384
REACH     24.10     1.        200.      200.                             00000385
SEGMENT   24.10     1         N         -10.                             00000386
NVALUE    .05                                                            00000387
SEGMENT   24.10     2         C         10.                              00000388
NVALUE    .04                                                            00000389
SEGMENT   24.10     3         N         517.                             00000390
NVALUE    .05                                                            00000391
SECTION   24.10                                                          00000392
          -109.     713.5     -86.      705.1     -10.      704.         00000393
```

----------80/80 LIST OF INPUT DATA----------

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          -5.       701.6     0.        700.5     7.        700.9     00000394
          10.       704.3     131.      707.6     495.      707.1     00000395
          517.      713.2                                             00000396
ENDTABLE                                                            00000397
REACH     24.90     1.        1700.     1700.                       00000398
REACH2    25.10     -0.1                                            00000399
ROAD      25.00     2.7       50.       50.                         00000400
BPR       25.00     A         3                                     00000401
GIRDER    710.5     709.9     0.        .8        2.7               00000402
          -13.      710.      -12.9     709.9     13.9      710.2   00000403
          14.       710.3                                           00000404
ENDTABLE                                                            00000405
REACH     25.10     1.        50.       50.                         00000406
SEGMENT   25.10     1         N         -8.                         00000407
NVALUE    .05                                                       00000408
SEGMENT   25.10     2         C         7.                          00000409
NVALUE    .04                                                       00000410
SEGMENT   25.10     3         N         590.                        00000411
NVALUE    .05                                                       00000412
SECTION   25.10                                                     00000413
          -525.     712.4     -301.     707.3     -8.       706.    00000414
          -4.       703.3     0.        702.8     3.        703.3   00000415
          7.        706.6     131.      707.6     495.      709.4   00000416
          590.      717.8                                           00000417
ENDTABLE                                                            00000418
SECTION   25.00                                                     00000419
          -525.     712.4     -301.     710.      -13.      710.    00000420
          -8.       706.      -4.       703.3     0.        702.8   00000421
          3.        703.3     7.        704.8     14.       710.3   00000422
          202.      710.2     590.      717.8                       00000423
ENDTABLE                                                            00000424
COMPUTE   22.80     25.10     22.70                                 00000425
```

----------END OF 80/80 LIST----------

COMPUTE 22.80 25.10 22.70 00000425

----------STARTING DATA FROM PREVIOUS COMPUTATIONS----------

RATING TABLE FOR SECTION 22.80 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	699.9	0.0	0.0						
BANK FULL	701.7	20.8	57.5	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	704.3	97.8	140.0	0.0	0.0	0.0	140.00	701.8	0.00111
2	705.4	257.4	324.7	0.0	0.0	0.0	324.70	702.7	0.00155
3	706.2	460.0	534.4	0.0	0.0	0.0	534.40	703.6	0.00148
4	706.4	526.6	620.0	0.0	0.0	0.0	620.00	704.2	0.00150
5	706.9	681.7	857.2	0.0	0.0	0.0	857.20	704.8	0.00159

SEGMENT TABLE FOR SECTION 22.80

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	140.	5.	131.	4.
140.	VELOCITY FPS	1.89	0.31	1.94	0.30
2	DISCHARGE CFS	325.	46.	239.	40.
325.	VELOCITY FPS	2.38	0.49	2.73	0.53
3	DISCHARGE CFS	534.	129.	301.	104.
534.	VELOCITY FPS	2.29	0.63	2.96	0.68
4	DISCHARGE CFS	620.	166.	322.	132.
620.	VELOCITY FPS	2.29	0.68	3.04	0.75
5	DISCHARGE CFS	857.	269.	380.	208.
857.	VELOCITY FPS	2.33	0.80	3.30	0.90
1	ELEV 704.3 KD	4168.	131.	3929.	108.
2	ELEV 705.4 KD	8179.	1101.	6109.	969.
3	ELEV 706.2 KD	13792.	3274.	7874.	2643.
4	ELEV 706.4 KD	15913.	4180.	8410.	3323.
5	ELEV 706.9 KD	21399.	5627.	9629.	5142.

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
0.0	0.0	0.0	0.0	0.0	0.0	1.0402	1.0000	1.0000	46.2040	43.0799	52.4069
DCRIT	703.45	KBCRIT=									
0.2666	0.2666	0.0	0.0	0.0	0.0	0.8360	1.0000	1.0000	65.5399	122.1951	111.7980
DCRIT	704.54	KBCRIT=									
1.4765	1.4765	0.0	0.0	0.0	0.0	0.4570	1.0000	1.0000	78.2937	445.8967	236.8721
DCRIT	705.53	KBCRIT=									
1.4521	1.4521	0.0	0.0	0.0	0.0	0.4629	1.0000	1.0000	89.3958	428.7732	284.3848
DCRIT	705.90	KBCRIT=									
1.4636	1.4636	0.0	0.0	0.0	0.0	0.4601	1.0000	1.0000	89.3958	436.7461	395.3831
DCRIT	706.82	KBCRIT=									

ROAD SECTION 23.00

NO.	HW	CFS	HL	TW	CSM
0	702.00	0.00	0.00	0.00	0.00
1	705.23	140.00	0.0	705.23	140.00
2	706.54	324.70	0.0	706.54	324.70
3	708.47	534.40	1.08	707.39	534.40
4	708.80	620.00	1.16	707.64	620.00
5	710.28	857.20	2.22	708.06	857.20

MIN ROAD ELEVATION 712.30

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 707.96 OPENING NO.= 1

RATING TABLE FOR SECTION 23.50 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	700.5	0.0	0.0						
BANK FULL	704.0	48.4	99.3	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	705.4	169.4	140.0	0.0	0.0	0.0	140.00	702.4	0.00029
2	706.8	395.5	324.7	0.0	0.0	0.0	324.70	703.6	0.00025
3	708.5	1205.6	534.4	0.0	0.0	0.0	534.40	704.8	0.00009
4	708.9	1403.9	620.0	0.0	0.0	0.0	620.00	704.9	0.00008
5	710.3	2267.2	857.2	0.0	0.0	0.0	857.20	705.2	0.00004

SEGMENT TABLE FOR SECTION 23.50

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	140.	25.	108.	7.
140.	VELOCITY FPS	1.28	0.37	1.41	0.28
2	DISCHARGE CFS	325.	106.	170.	49.
325.	VELOCITY FPS	1.25	0.60	1.63	0.42
3	DISCHARGE CFS	534.	162.	162.	211.
534.	VELOCITY FPS	0.73	0.51	1.17	0.28
4	DISCHARGE CFS	620.	174.	164.	281.
620.	VELOCITY FPS	0.70	0.50	1.13	0.31
5	DISCHARGE CFS	857.	199.	157.	501.
857.	VELOCITY FPS	0.50	0.42	0.90	0.31
1	ELEV 705.4 KD	8184.	1326.	6510.	348.
2	ELEV 706.8 KD	20471.	6528.	10833.	3010.
3	ELEV 708.5 KD	57358.	17428.	17492.	22438.
4	ELEV 708.9 KD	68838.	19868.	18899.	30071.
5	ELEV 710.3 KD	138333.	32415.	25521.	80397.

ROAD SECTION 24.00

NO.	HW	CFS	HL	TW	CSM
0	701.08	0.00	0.00	0.00	0.00
1	706.13	140.00	0.64	705.49	140.00
2	707.80	324.70	0.96	706.84	324.70
3	708.63	534.40	0.08	708.55	534.40
4	708.96	620.00	0.08	708.88	620.00
5	710.31	857.20	0.0	710.31	857.20

MIN ROAD ELEVATION 707.30

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	12333.	8.00		36.00	701.08	700.97	0.024

RATING TABLE FOR SECTION 24.10 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	700.5	0.0	0.0						
BANK FULL	704.0	48.4	86.7	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	706.2	278.4	140.0	0.0	0.0	0.0	140.00	702.4	0.00008
2	707.8	782.5	324.7	0.0	0.0	0.0	324.70	703.6	0.00006
3	708.6	1271.4	534.4	0.0	0.0	0.0	534.40	704.8	0.00005
4	709.0	1467.6	620.0	0.0	0.0	0.0	620.00	704.9	0.00005
5	710.3	2274.2	857.2	0.0	0.0	0.0	857.20	705.2	0.00002

SEGMENT TABLE FOR SECTION 24.10

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	140.	45.	78.	17.
140.	VELOCITY FPS	0.69	0.36	0.86	0.26
2	DISCHARGE CFS	325.	126.	113.	85.
325.	VELOCITY FPS	0.65	0.49	0.91	0.21
3	DISCHARGE CFS	534.	169.	127.	239.
534.	VELOCITY FPS	0.57	0.51	0.90	0.30
4	DISCHARGE CFS	620.	182.	129.	309.
620.	VELOCITY FPS	0.56	0.51	0.88	0.32
5	DISCHARGE CFS	857.	208.	125.	524.
857.	VELOCITY FPS	0.43	0.44	0.72	0.32
1	ELEV 706.2 KD		15343.	4900.	8678.	1765.
2	ELEV 707.8 KD		40548.	16244.	14595.	9709.
3	ELEV 708.6 KD		73936.	23728.	17953.	32256.
4	ELEV 709.0 KD		89266.	26967.	19362.	42937.
5	ELEV 710.3 KD		173372.	42381.	25578.	105413.

RATING TABLE FOR SECTION 24.90 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	702.7	0.0	0.0						
BANK FULL	705.9	36.5	102.8	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	707.1	228.6	140.0	0.0	0.0	0.0	140.00	705.1	0.00040
2	708.1	706.1	324.7	0.0	0.0	0.0	324.70	706.4	0.00015
3	708.8	1223.1	534.4	0.0	0.0	0.0	534.40	706.7	0.00010
4	709.1	1446.1	620.0	0.0	0.0	0.0	620.00	706.8	0.00008
5	710.4	2581.7	857.2	0.0	0.0	0.0	857.20	707.0	0.00003

SEGMENT TABLE FOR SECTION 24.90

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	140.	68.	65.	7.
140.	VELOCITY FPS	1.10	0.43	1.37	0.30
2	DISCHARGE CFS	325.	208.	65.	52.
325.	VELOCITY FPS	0.64	0.45	1.04	0.29
3	DISCHARGE CFS	534.	336.	71.	127.
534.	VELOCITY FPS	0.55	0.46	0.96	0.30
4	DISCHARGE CFS	620.	385.	74.	162.
620.	VELOCITY FPS	0.51	0.46	0.94	0.30
5	DISCHARGE CFS	857.	467.	63.	327.
857.	VELOCITY FPS	0.36	0.35	0.65	0.29
1	ELEV 707.1 KD	6744.	3042.	3502.	199.
2	ELEV 708.1 KD	25740.	16477.	5550.	3713.
3	ELEV 708.8 KD	52961.	33655.	7331.	11975.
4	ELEV 709.1 KD	67763.	42149.	8084.	17529.
5	ELEV 710.4 KD	153572.	84294.	11525.	57752.

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
1.5850	1.5850	0.0	0.0	0.0	0.0	0.4314	1.0000	1.0000	54.0588	265.3289	197.8509
DCRIT	705.04	KBCRIT=									
2.9485	2.9485	0.0	0.0	0.0	0.0	0.1547	1.0000	1.0000	74.5415	1242.2075	656.0012
DCRIT	706.20	KBCRIT=									
3.2255	3.2255	0.0	0.0	0.0	0.0	0.1053	1.0000	1.0000	91.7270	2319.3303	1152.5779
DCRIT	706.87	KBCRIT=									
3.2441	3.2441	0.0	0.0	0.0	0.0	0.1021	1.0000	1.0000	98.8192	2427.8071	1370.8704
DCRIT	706.87	KBCRIT=									
3.2684	3.2684	0.0	0.0	0.0	0.0	0.0978	1.0000	1.0000	122.3619	2582.3469	2488.3799
DCRIT	707.27	KBCRIT=									

ROAD SECTION 25.00

NO.	HW	CFS	HL	TW	CSM
0	702.80	0.00	0.00	0.00	0.00
1	707.24	140.00	0.16	707.08	140.00
2	708.93	324.70	0.86	708.08	324.70
3	710.17	534.40	1.34	708.83	534.40
4	710.29	620.00	1.16	709.13	620.00
5	710.57	857.20	0.20	710.37	857.20

MIN ROAD ELEVATION 710.00

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 709.90 OPENING NO.= 1

RATING TABLE FOR SECTION 25.10 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	702.8	0.0	0.0						
BANK FULL	706.0	36.5	100.6	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	707.3	264.1	140.0	0.0	0.0	0.0	140.00	705.2	0.00030
2	708.9	1228.5	324.7	0.0	0.0	0.0	324.70	706.5	0.00004
3	710.2	2300.9	534.4	0.0	0.0	0.0	534.40	706.8	0.00002
4	710.3	2409.6	620.0	0.0	0.0	0.0	620.00	706.9	0.00002
5	710.6	2677.0	857.2	0.0	0.0	0.0	857.20	707.1	0.00003

SEGMENT TABLE FOR SECTION 25.10

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	140.	72.	59.	9.
140.	VELOCITY FPS	0.94	0.39	1.20	0.27
2	DISCHARGE CFS	325.	204.	43.	78.
325.	VELOCITY FPS	0.33	0.28	0.58	0.18
3	DISCHARGE CFS	534.	299.	43.	192.
534.	VELOCITY FPS	0.26	0.25	0.47	0.19
4	DISCHARGE CFS	620.	343.	48.	229.
620.	VELOCITY FPS	0.28	0.27	0.51	0.22
5	DISCHARGE CFS	857.	464.	62.	332.
857.	VELOCITY FPS	0.35	0.33	0.62	0.28
1	ELEV 707.3 KD	7713.	3746.	3674.	293.
2	ELEV 708.9 KD	53292.	33850.	7350.	12092.
3	ELEV 710.2 KD	129800.	72978.	10658.	46163.
4	ELEV 710.3 KD	138608.	77220.	10990.	50395.
5	ELEV 710.6 KD	162433.	88412.	11827.	62194.

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: McCoy Creek FPMS

3) WATERCOURSE: McCoy Creek

4) DOCUMENT TYPE: Summary 15.03 To END

00BREAK00

FINAL

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----------------------------80/80 LIST OF INPUT DATA-----------------------------
WSP2        15.                                                          00000001
TITLE       MCCOY CREEK FPMS - BUCHANAN, MICHIGAN  (WSP2/MCCOY.UPST)     00000002
TITLE       PRESENT CONDITIONS - SEC 15.03 TO END  RR FILL IN
DISCHARGE   -1.       181.7     411.7     671.6     778.0     1063.0     00000004
STARTE      15.03     679.6     683.9     685.4     685.9     687.0      00000005
TRIB        21.51     22.70
OUTPUT      S                                                            00000006
REACH       15.03     1.0       0.0       0.0                            00000007
REACH2      15.25     -1.9                                               00000008
REACH       15.25     1.0       290.      250.                           00000009
SEGMENT     15.25     1         N         -10.                           00000010
NVALUE      0.07                                                         00000011
SEGMENT     15.25     2         C         12.                            00000012
NVALUE      0.03                                                         00000013
SEGMENT     15.25     3         N         658.                           00000014
NVALUE      0.07                                                         00000015
SECTION     15.25                                                        00000016
            -524.     696.      -523.     691.1     -502.     690.2      00000017
            -343.     686.4     -318.     686.4     -273.     686.9      00000018
            -229.     686.8     -193.     685.4     -149.     685.6      00000019
            -102.     684.5     -10.      682.4     -9.       678.6      00000020
            0.        678.6     6.        678.4     12.       680.4      00000021
            99.       683.2     162.      683.8     227.      685.8      00000022
            287.      686.6     321.      686.9     386.      686.7      00000023
            398.      687.5     484.      687.5     534.      689.3      00000024
            585.      694.3     632.      693.9     658.      695.7      00000025
ENDTABLE                                                                 00000026
ROAD        17.00     2.7       80.       80.                            00000027
CULV1       17.00     1.        32133                                    00000028
CULV2       4.5       7.0       70.       678.7     678.4              00000029
SECTION     17.00                                                        00000030
            -478.     691.7     -181.     684.8     0.        684.6      00000031
            244.      686.8     490.      689.6     639.      699.8      00000032
            677.      706.5     -512.     693.0     -660.     694.0      00000033
            -740.     696.                                             00000034
ENDTABLE                                                                 00000035
--------------------DATA POINTS ON SECTION 17.00  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
REACH       17.50     1.0       155.      155.                           00000036
SEGMENT     17.50     1         N         -10.                           00000037
NVALUE      0.07                                                         00000038
SEGMENT     17.50     2         C         11.                            00000039
NVALUE      0.04                                                         00000040
SEGMENT     17.50     3         N         509.                           00000041
NVALUE      0.07                                                         00000042
SECTION     17.50                                                        00000043
            -422.     691.4     -386.     690.9     -354.     688.4      00000044
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----------------------------80/80 LIST OF INPUT DATA-------------------------------
          -335.     687.9     -317.     687.1     -257.     686.8      00000045
          -254.     686.9     -214.     686.3     -150.     684.1      00000046
           -54.     684.8      -10.     682.8       -5.     680.2      00000047
            0.      680.1        8.     680.5       11.     681.8      00000048
           213.     688.5       302.     690.5      355.     691.0      00000049
           416.     691.7       458.     693.2      509.     695.1      00000050
          -449.     692.5      -450.     695.                          00000051
ENDTABLE                                                               00000052
---------------------DATA POINTS ON SECTION 17.50  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
ROAD      18.00     2.7       75.0      75.0                           00000053
BPR       18.00     A         3                                        00000054
GIRDER    684.5     684.0     15.       0.8       2.7                  00000055
          -7.       686.0     -6.       684.0     6.        684.0      00000056
           7.       686.0                                              00000057
ENDTABLE                                                               00000058
SECTION   18.00                                                        00000059
          -1523.    699.1     -1133.    691.2     -937.     692.1      00000060
          -718.     686.3     -357.     685.4     -126.     684.2      00000061
           7.       686.0       85.     687.0      150.     688.0      00000062
          -7.       686.0      -6.      679.5       6.      679.5      00000063
           230.     690.       300.     692.0                          00000064
ENDTABLE                                                               00000065
---------------------DATA POINTS ON SECTION 18.00  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
REACH     18.50     1.0       115.      110.                           00000066
SEGMENT   18.50     1         N         -11.                           00000067
NVALUE    0.04                                                         00000068
SEGMENT   18.50     2         C         11.                            00000069
NVALUE    0.04                                                         00000070
SEGMENT   18.50     3         N         110.1                          00000071
NVALUE    0.05                                                         00000072
SECTION   18.50                                                        00000073
          -135.     700.0     -134.9    687.0     -120.     686.3      00000074
          -50.      685.3     -11.      684.0     -8.       680.1      00000075
           8.       680.1       11.     684.0       20.     684.2      00000076
           20.1     700.0       70.     700.0       70.1    686.9      00000077
           110.     686.8       110.1   700.0                          00000078
ENDTABLE                                                               00000079
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 18.50  EXCEEDS  15. FEET-------------
ROAD      19.00     2.7       115.      110.                           00000080
BPR       19.00     A         3                                        00000081
GIRDER    685.3     684.8     15.       0.8       2.7                  00000082
          -7.       686.8     -6.       684.8     6.        684.8      00000083
           7.       686.8                                              00000084
ENDTABLE                                                               00000085
SECTION   19.00                                                        00000086
          -117.     689.0      -7.      686.8      219.     686.9      00000087
           441.     689.6       583.    697.5      637.     697.5      00000088
           787.     710.1      -198.    693.6      -199.    698.       00000089
```

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-----------------------------80/80 LIST OF INPUT DATA-----------------------------
          7.        686.8     -6.       680.7     6.        680.7       00000090
ENDTABLE                                                                 00000091
--------------------DATA POINTS ON SECTION 19.00  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED--------------------
REACH     19.50     1.0       225.      225.                            00000092
SEGMENT   19.50     1         N         -33.                            00000093
NVALUE    0.04                                                          00000094
SEGMENT   19.50     2         N         -13.                            00000095
NVALUE    0.06                                                          00000096
SEGMENT   19.50     3         C         11.                             00000097
NVALUE    0.04                                                          00000098
SEGMENT   19.50     4         N         100.                            00000099
NVALUE    0.06                                                          00000100
SEGMENT   19.50     5         N         315.                            00000101
NVALUE    0.04                                                          00000102
SECTION   19.50                                                         00000103
          -121.     689.9     -33.      685.9     -13.      684.4       00000104
          -11.      682.6     0.        682.3     9.        682.3       00000105
          11.       684.2     100.      686.0     213.      689.7       00000106
          279.      692.8     315.      697.3     -135.     698.        00000107
          -134.     693.1                                               00000108
ENDTABLE                                                                 00000109
--------------------DATA POINTS ON SECTION 19.50  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED--------------------
ROAD      20.00     2.7       80.       80.                             00000110
CULV1     20.00     1.        32133                                     00000111
CULV2     5.5       7.0       60.       682.46    681.6                 00000112
SECTION   20.00                                                         00000113
          -174.     693.2     0.        688.0     128.      686.2       00000114
          360.      697.9     421.      699.9     -175.     700.        00000115
ENDTABLE                                                                 00000116
--------------------DATA POINTS ON SECTION 20.00  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED--------------------
REACH     20.10     1.0       195.      195.                            00000117
SEGMENT   20.10     1         N         -8.                             00000118
NVALUE    0.04                                                          00000119
SEGMENT   20.10     2         C         8.                              00000120
NVALUE    0.03                                                          00000121
SEGMENT   20.10     3         N         16.                             00000122
NVALUE    0.04                                                          00000123
SECTION   20.10                                                         00000124
          -80.      690.0     -18.      688.0     -8.       684.0       00000125
          -5.       682.8     6.        682.8     8.        684.0       00000126
          15.       686.0     16.       694.0     -80.1     700.0       00000127
ENDTABLE                                                                 00000128
--------------------DATA POINTS ON SECTION 20.10  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED--------------------
ROAD      20.20     2.7       120.      120.                            00000129
CULV1     20.20     1.        12311                                     00000130
CULV2     3.5                 70.       683.43    683.19                00000131
CULV1     20.20     1.        12311                                     00000132
CULV2     3.5                 70.       683.94    683.05                00000133
SECTION   20.20                                                         00000134
```

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----------------------------80/80 LIST OF INPUT DATA--------------------------------
          -330.     692.0     -315.     692.8     -295.     692.0      00000135
          -294.9    700.0     -160.     700.0     -159.9    690.0      00000136
          -115.     690.0     -20.      690.0     10.       688.7      00000137
          10.1      700.                                             00000138
ENDTABLE                                                           00000139
REACH     20.30     1.0       15.       15.                          00000140
SEGMENT   20.30     1         N         -10.                         00000141
NVALUE    0.035                                                    00000142
SEGMENT   20.30     2         C         10.                          00000143
NVALUE    0.03                                                     00000144
SEGMENT   20.30     3         N         200.1                        00000145
NVALUE    0.035                                                    00000146
SECTION   20.30                                                    00000147
          -127.1    700.0     -127.     690.0     -10.      690.0      00000148
          -8.       685.2     8.        685.2     10        690.0      00000149
          27.       690.0     27.1      700.0     127.      688.2      00000150
          200.      688.2     200.1     700.0                        00000151
ENDTABLE                                                           00000152
ROAD      20.40     2.7       15.       15.                          00000153
CULV1     20.40     2.        22552                                  00000154
CULV2     3.0                 15.5      686.45    686.46             00000155
SECTION   20.40                                                    00000156
          -127.1    700.0     -127.     690.0     -10.      690.0      00000157
          0.        690.2     10.       690.0     27.       690.0      00000158
          27.1      700.0                                            00000159
ENDTABLE                                                           00000160
REACH     20.50     1.0       206.      206.                         00000161
SEGMENT   20.50     1         N         -12.                         00000162
NVALUE    0.04                                                     00000163
SEGMENT   20.50     2         C         12.                          00000164
NVALUE    0.04                                                     00000165
SEGMENT   20.50     3         N         425.0                        00000166
NVALUE    0.04                                                     00000167
SECTION   20.50                                                    00000168
          -215.     692.0     -200.     692.5     -170.     692.0      00000169
          -105.     690.6     -104.9    700.0     -60.1     700.0      00000170
          -50.      690.6     -12.      690.0     -7.       686.1      00000171
          7.        686.1     12.       690.0     27.       690.2      00000172
          27.1      700.0     125.      700.0     125.1     690.0      00000173
          300.      690.0     395.      692.0     -360.     694.0      00000174
          -240.     692.0     -220.     692.0     425.      694.0      00000175
ENDTABLE                                                           00000176
--------------------DATA POINTS ON SECTION 20.50  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
ROAD      20.60     2.7       240.      210.                         00000177
CULV1     20.60     1.        12311                                  00000178
CULV2     5.                  33.       686.19    685.65             00000179
```

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----------------------------80/80 LIST OF INPUT DATA-------------------------------
SECTION   20.60                                                          00000180
          -300.     692.2     -200.     692.0     -100.     691.4        00000181
          0.        691.3     75.       690.      250.      688.5        00000182
          365.      690.0     400.      700.0                            00000183
ENDTABLE                                                                 00000184
REACH     21.00     1.0       225.      210.                             00000185
SEGMENT   21.00     1         N         -17.                             00000186
NVALUE    0.05                                                           00000187
SEGMENT   21.00     2         C         30.                              00000188
NVALUE    0.04                                                           00000189
SEGMENT   21.00     3         N         100.                             00000190
NVALUE    0.07                                                           00000191
SECTION   21.00                                                          00000192
          -475.     692.0     -365.     692.2     -364.9    700.0        00000193
          -250.     700.0     -249.9    692.0     -150.     690.0        00000194
          -17.      689.6     -5.       687.3     0.        687.3        00000195
          22.       687.3     30.       689.1     35.       690.         00000196
          100.      700.      -515.     694.0     -500.     692.0        00000197
ENDTABLE                                                                 00000198
--------------------DATA POINTS ON SECTION 21.00  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED--------------------
ROAD      21.20     2.7       370.      355.                             00000199
CULV1     21.20     1.        32133                                      00000200
CULV2     5.        7.        25.       688.47    688.61                 00000201
SECTION   21.20                                                          00000202
          -300.     692.0     -190.     691.2     -110.     692.0        00000203
          -45.      694.0     0.        694.5     7.        694.         00000204
          115.      696.0                                                00000205
ENDTABLE                                                                 00000206
REACH     21.51     1.0       360.      360.                             00000207
SEGMENT   21.51     1         N         -12.                             00000208
NVALUE    .05                                                            00000209
SEGMENT   21.51     2         C         15.                              00000210
NVALUE    .03                                                            00000211
SEGMENT   21.51     3         N         495.                             00000212
NVALUE    0.04                                                           00000213
SECTION   21.51                                                          00000214
          -235.     700.      -220.     696.0     -180.     694.0        00000215
          -77.      693.2     -71.      690.8     -61.      690.0        00000216
          -50.      690.9     -48.      692.9     -12.      691.4        00000217
          -9.       690.3     0.        690.4     11.       689.7        00000218
          15.       691.9     90.       692.0     320.      694.0        00000219
          380.      696.0     430.      698.0     495.      700.0        00000220
ENDTABLE                                                                 00000221
COMPUTE   15.03     21.51     15.03                                      00000222
----------------------------END OF 80/80 LIST--------------------------------
```

----------STARTING DATA FROM GIVEN ELEVATION----------

RATING TABLE FOR SECTION 15.03 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	676.5	0.0	0.0						
BANK FULL	678.5	34.0	117.2	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	679.6	77.4	181.7	0.0	0.0	0.0	181.70	678.2	0.00114
2	683.9	982.4	411.7	0.0	0.0	0.0	411.70	679.3	0.00006
3	685.4	1866.1	671.6	0.0	0.0	0.0	671.60	679.9	0.00005
4	685.9	2291.5	778.0	0.0	0.0	0.0	778.00	680.1	0.00004
5	687.0	3312.1	1063.0	0.0	0.0	0.0	1063.00	680.6	0.00003

SEGMENT TABLE FOR SECTION 15.03

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	172.	10.
182.	VELOCITY FPS	2.91	0.0	2.97	0.50
2	DISCHARGE CFS	412.	55.	189.	168.
412.	VELOCITY FPS	0.88	0.20	1.24	0.30
3	DISCHARGE CFS	672.	150.	238.	284.
672.	VELOCITY FPS	0.80	0.22	1.28	0.28
4	DISCHARGE CFS	778.	201.	243.	334.
778.	VELOCITY FPS	0.74	0.23	1.24	0.27
5	DISCHARGE CFS	1063.	327.	257.	479.
1063.	VELOCITY FPS	0.63	0.25	1.16	0.27
1	ELEV 679.6 KD	5358.	1.	5097.	260.
2	ELEV 683.9 KD	53829.	6826.	25005.	21997.
3	ELEV 685.4 KD	97522.	21662.	34677.	41183.
4	ELEV 685.9 KD	120088.	30287.	38173.	51628.
5	ELEV 687.0 KD	189120.	57758.	46339.	85024.

RATING TABLE FOR SECTION 16.25 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	678.4	0.0	0.0						
BANK FULL	680.4	34.0	157.1	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	680.7	42.7	181.7	0.0	0.0	0.0	181.70	680.1	0.00385
2	683.9	381.8	411.7	0.0	0.0	0.0	411.70	681.2	0.00035
3	685.4	832.6	671.6	0.0	0.0	0.0	671.60	681.8	0.00020
4	685.9	1038.3	778.0	0.0	0.0	0.0	778.00	682.0	0.00017
5	687.0	1673.9	1063.0	0.0	0.0	0.0	1063.00	682.5	0.00013

SEGMENT TABLE FOR SECTION 16.25

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	181.	1.
182.	VELOCITY FPS	4.43	0.0	4.43	0.49
2	DISCHARGE CFS	412.	19.	276.	116.
412.	VELOCITY FPS	2.05	0.36	2.47	0.54
3	DISCHARGE CFS	672.	75.	320.	276.
672.	VELOCITY FPS	1.60	0.36	2.22	0.57
4	DISCHARGE CFS	778.	116.	334.	328.
778.	VELOCITY FPS	1.48	0.40	2.15	0.56
5	DISCHARGE CFS	1063.	232.	373.	458.
1063.	VELOCITY FPS	1.31	0.40	2.08	0.50
1	ELEV 680.7 KD	2924.	1.	2912.	11.
2	ELEV 683.9 KD	22111.	988.	14881.	6241.
3	ELEV 685.4 KD	47470.	5262.	22806.	19402.
4	ELEV 685.9 KD	59193.	8351.	25754.	25088.
5	ELEV 687.0 KD	92273.	19714.	32757.	39803.

ROAD SECTION 17.00

NO.	HW	CFS	HL	TW	CSM
0	678.70	0.00	0.00	0.00	0.00
1	684.67	181.70	3.68	681.00	181.70
2	685.17	411.70	1.20	683.98	411.70
3	685.60	671.60	0.16	685.44	671.60
4	686.02	778.00	0.08	685.94	778.00
5	687.11	1063.00	0.08	687.03	1063.00

MIN ROAD ELEVATION 684.60

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	32133.	4.76	6.33	70.00	678.70	678.40	0.032

RATING TABLE FOR SECTION 17.50 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	680.1	0.0	0.0						
BANK FULL	681.3	25.0	67.2	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	684.7	293.8	181.7	0.0	0.0	0.0	181.70	682.0	0.00022
2	685.2	438.0	411.7	0.0	0.0	0.0	411.70	682.9	0.00052
3	685.7	574.8	671.6	0.0	0.0	0.0	671.60	683.4	0.00074
4	686.1	713.9	778.0	0.0	0.0	0.0	778.00	683.6	0.00061
5	687.1	1145.6	1063.0	0.0	0.0	0.0	1063.00	684.0	0.00039

SEGMENT TABLE FOR SECTION 17.50

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	19.	112.	51.
182.	VELOCITY FPS	1.09	0.23	1.33	0.40
2	DISCHARGE CFS	412.	79.	211.	122.
412.	VELOCITY FPS	1.69	0.48	2.20	0.68
3	DISCHARGE CFS	672.	168.	301.	203.
672.	VELOCITY FPS	2.02	0.69	2.86	0.89
4	DISCHARGE CFS	778.	231.	307.	240.
778.	VELOCITY FPS	1.85	0.72	2.71	0.86
5	DISCHARGE CFS	1063.	379.	336.	348.
1063.	VELOCITY FPS	1.52	0.66	2.47	0.81
1	ELEV 684.7 KD	12210.	1090.	7712.	3408.
2	ELEV 685.2 KD	17780.	2980.	9472.	5328.
3	ELEV 685.7 KD	24678.	6108.	11105.	7465.
4	ELEV 686.1 KD	31335.	9030.	12624.	9681.
5	ELEV 687.1 KD	53693.	19069.	17051.	17573.

*****SECT.18.50 KD VALUES REVERSED ON SEGMENT 3 AT ELEVATION 701.10 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	56.5067	0.0	0.0
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	56.5067	0.0	0.0
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	56.5067	0.0	0.0
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	56.5067	0.0	0.0
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	56.5067	0.0	0.0
DCRIT	-1.00	KBCRIT=									

ROAD SECTION 18.00

NO.	HW	CFS	HL	TW	CSM
0	679.50	0.00	0.00	0.00	0.00
1	684.79	181.70	0.08	684.71	181.70
2	685.36	411.70	0.10	685.26	411.70
3	685.83	671.60	0.10	685.73	671.60
4	686.20	778.00	0.08	686.12	778.00
5	687.23	1063.00	0.06	687.18	1063.00

MIN ROAD ELEVATION 684.20

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 684.00 OPENING NO.= 1

RATING TABLE FOR SECTION 18.50 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	680.1	0.0	0.0						
BANK FULL	684.0	75.7	150.0	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	684.8	109.5	181.7	0.0	0.0	0.0	181.70	681.6	0.00047
2	685.5	154.0	411.7	0.0	0.0	0.0	411.70	682.7	0.00129
3	686.0	205.3	671.6	0.0	0.0	0.0	671.60	683.7	0.00202
4	686.3	249.2	778.0	0.0	0.0	0.0	778.00	684.6	0.00186
5	687.3	411.5	1063.0	0.0	0.0	0.0	1063.00	685.2	0.00121

SEGMENT TABLE FOR SECTION 18.50

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	5.	173.	3.
182.	VELOCITY FPS	1.84	0.47	1.88	0.52
2	DISCHARGE CFS	412.	37.	360.	15.
412.	VELOCITY FPS	3.23	1.02	3.40	1.24
3	DISCHARGE CFS	672.	111.	530.	31.
672.	VELOCITY FPS	4.16	1.55	4.52	1.82
4	DISCHARGE CFS	778.	171.	569.	38.
778.	VELOCITY FPS	4.03	1.64	4.55	1.92
5	DISCHARGE CFS	1063.	415.	603.	45.
1063.	VELOCITY FPS	3.32	1.90	4.11	0.96
1	ELEV 684.8 KD	8327.	189.	8002.	135.
2	ELEV 685.5 KD	11327.	848.	10092.	387.
3	ELEV 686.0 KD	14721.	2111.	11945.	664.
4	ELEV 686.3 KD	17814.	3648.	13292.	874.
5	ELEV 687.3 KD	30593.	11942.	17353.	1297.

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
1.7676	1.8832	0.0	0.0	0.0	-0.1156	0.3646	1.0000	1.0000	51.4820	323.5918	83.6277
DCRIT	682.60	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	51.4820	323.5918	83.6277
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	51.4820	323.5918	83.6277
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	51.4820	323.5918	83.6277
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	51.4820	323.5918	83.6277
DCRIT	-1.00	KBCRIT=									

ROAD SECTION 19.00

NO.	HW	CFS	HL	TW	CSM
0	680.70	0.00	0.00	0.00	0.00
1	685.29	181.70	0.40	684.89	181.70
2	686.93	411.70	1.32	685.61	411.70
3	687.39	671.60	1.20	686.19	671.60
4	687.53	778.00	1.02	686.51	778.00
5	687.88	1063.00	0.46	687.42	1063.00

MIN ROAD ELEVATION 686.80

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 684.80 OPENING NO.= 1

515 [illegible] - 57

[illegible]

682F
687.93 280 (EG 686.9)'s

688

RATING TABLE FOR SECTION 19.50 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	682.3	0.0	0.0						
BANK FULL	684.2	39.9	109.4	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	685.5	118.3	181.7	0.0	0.0	0.0	181.70	683.7	0.00094
2	687.0	344.3	411.7	0.0	0.0	0.0	411.70	684.8	0.00047
3	687.5	445.6	671.6	0.0	0.0	0.0	671.60	685.4	0.00067
4	687.7	478.7	778.0	0.0	0.0	0.0	778.00	685.5	0.00075
5	688.0	564.0	1063.0	0.0	0.0	0.0	1063.00	685.9	0.00092

SEGMENT TABLE FOR SECTION 19.50

CSM		TOTAL	SEG NO 1 N	2 N	3 C	4 N	5 N
1	DISCHARGE CFS	182.	0.	4.	154.	24.	0.
182.	VELOCITY FPS	2.07	0.0	0.53	2.20	0.58	0.0
2	DISCHARGE CFS	412.	8.	30.	223.	141.	9.
412.	VELOCITY FPS	1.64	0.56	0.82	2.09	0.83	0.53
3	DISCHARGE CFS	672.	26.	53.	315.	246.	31.
672.	VELOCITY FPS	2.03	0.88	1.14	2.65	1.15	0.85
4	DISCHARGE CFS	778.	34.	63.	351.	289.	41.
778.	VELOCITY FPS	2.16	0.97	1.25	2.87	1.27	0.94
5	DISCHARGE CFS	1063.	61.	87.	439.	401.	74.
1063.	VELOCITY FPS	2.45	1.20	1.52	3.34	1.54	1.16
1	ELEV 685.5 KD	5884.	1.	115.	5077.	690.	1.
2	ELEV 687.0 KD	18888.	323.	1388.	10365.	6470.	342.
3	ELEV 687.5 KD	25617.	851.	2038.	12327.	9417.	984.
4	ELEV 687.7 KD	28131.	1103.	2273.	12977.	10478.	1299.
5	ELEV 688.0 KD	34971.	1910.	2887.	14600.	13245.	2329.

ROAD SECTION 20.00

NO.	HW	CFS	HL	TW	CSM
0	682.46	0.00	0.00	0.00	0.00
1	686.80	181.70	1.28	685.52	181.70
2	687.61	411.70	0.56	687.05	411.70
3	688.11	671.60	0.56	687.55	671.60
4	688.19	778.00	0.48	687.72	778.00
5	688.58	1063.00	0.48	688.10	1063.00

MIN ROAD ELEVATION 686.20

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	32133.	5.27	7.25	60.00	682.46	681.60	0.032

pipe arch w/ headwall

$A = 31 ft^2$ R_h-151

$XXOR = 14.5 + \frac{29.1(.032)^2 60}{(151)^{1.5}} = 2.464$

$31 \cdot \frac{4(64.4)}{2.46} = 100 \Rightarrow 678$ weir

RATING TABLE FOR SECTION 20.10 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	682.8	0.0	0.0						
BANK FULL	684.0	16.8	53.5	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	686.9	86.3	181.7	0.0	0.0	0.0	181.70	684.6	0.00044
2	687.8	115.8	411.7	0.0	0.0	0.0	411.70	685.6	0.00103
3	688.5	140.8	671.6	0.0	0.0	0.0	671.60	686.5	0.00175
4	688.6	151.0	778.0	0.0	0.0	0.0	778.00	686.7	0.00207
5	689.2	186.1	1063.0	0.0	0.0	0.0	1063.00	687.4	0.00257

SEGMENT TABLE FOR SECTION 20.10

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	182.	10.	158.	14.
182.	VELOCITY FPS	2.38	0.95	2.51	1.07
2	DISCHARGE CFS	412.	29.	343.	40.
412.	VELOCITY FPS	4.12	1.55	4.43	2.00
3	DISCHARGE CFS	672.	48.	553.	71.
672.	VELOCITY FPS	5.81	1.70	6.28	2.87
4	DISCHARGE CFS	778.	63.	633.	82.
778.	VELOCITY FPS	6.41	1.83	6.97	3.19
5	DISCHARGE CFS	1063.	114.	834.	115.
1063.	VELOCITY FPS	7.51	2.06	8.31	3.80
1	ELEV 686.9 KD	8661.	463.	7531.	667.
2	ELEV 687.8 KD	12812.	900.	10688.	1224.
3	ELEV 688.5 KD	16043.	1129.	13229.	1685.
4	ELEV 688.6 KD	17074.	1328.	13938.	1808.
5	ELEV 689.2 KD	20957.	2238.	16455.	2264.

ROAD SECTION 20.20

NO.	HW	CFS	HL	TW	CSM
0	683.43	0.00	0.00	0.00	0.00
1	689.72	181.70	2.80	686.92	181.70
2	690.31	411.70	2.40	687.91	411.70
3	690.73	671.60	2.08	688.65	671.60
4	690.78	778.00	1.92	688.86	778.00
5	691.12	1063.00	1.60	689.52	1063.00

MIN ROAD ELEVATION 688.70

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	12311.	3.50		70.00	683.43	683.19	0.024
2	1	12311.	3.50		70.00	683.94	683.05	0.024

Project CMP
n = .024

$A_T = 192 ft^2$

$1 KOR = 1 + 9 \times \frac{299(70)(.024)^2}{(.875)^{4/3}} = 3.30$

$Q_p = 117 cfs$

$\Rightarrow Q_w = 660$ Reasonable

RATING TABLE FOR SECTION 20.30 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	685.2	0.0	0.0						
1	689.7	200.9	181.7	0.0	0.0	0.0	181.70	686.8	0.00015
BANK FULL	690.0	231.7	299.5	0.0	0.0	0.0			
2	690.3	299.6	411.7	0.0	0.0	0.0	411.70	687.9	0.00035
3	690.7	398.5	671.6	0.0	0.0	0.0	671.60	688.8	0.00053
4	690.7	409.5	778.0	0.0	0.0	0.0	778.00	688.9	0.00067
5	691.1	491.8	1063.0	0.0	0.0	0.0	1063.00	689.2	0.00080

SEGMENT TABLE FOR SECTION 20.30

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	104.	78.
182.	VELOCITY FPS	1.08	0.0	1.29	0.65
2	DISCHARGE CFS	412.	21.	191.	199.
412.	VELOCITY FPS	1.68	0.66	2.08	1.14
3	DISCHARGE CFS	672.	66.	274.	332.
672.	VELOCITY FPS	2.09	0.83	2.74	1.51
4	DISCHARGE CFS	778.	79.	314.	385.
778.	VELOCITY FPS	2.36	0.93	3.11	1.72
5	DISCHARGE CFS	1063.	159.	377.	527.
1063.	VELOCITY FPS	2.64	1.29	3.51	2.02
1	ELEV 689.7	KD	14693.	1.	8547.	6146.
2	ELEV 690.3	KD	21072.	19.	10461.	10592.
3	ELEV 690.7	KD	27506.	1093.	12037.	14376.
4	ELEV 690.7	KD	28753.	1681.	12218.	14853.
5	ELEV 691.1	KD	37125.	4984.	13570.	18571.

ROAD SECTION 20.40

NO.	HW	CFS	HL	TW	CSM
0	686.46	0.00	0.00	0.00	0.00
1	690.34	181.70	0.72	689.62	181.70
2	690.82	411.70	0.80	690.02	411.70
3	691.23	671.60	1.12	690.11	671.60
4	691.33	778.00	1.04	690.29	778.00
5	691.71	1063.00	1.12	690.59	1063.00

MIN ROAD ELEVATION 690.00

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	2	22552.	3.00		15.50	686.45	686.46	0.012

RATING TABLE FOR SECTION 20.50 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	686.1	0.0	0.0						
BANK FULL	690.0	104.7	162.2	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	690.5	191.5	181.7	0.0	0.0	0.0	181.70	687.7	0.00040
2	691.1	374.3	411.7	0.0	0.0	0.0	411.70	688.8	0.00053
3	691.5	520.6	671.6	0.0	0.0	0.0	671.60	690.3	0.00062
4	691.6	563.3	778.0	0.0	0.0	0.0	778.00	690.4	0.00067
5	692.0	716.9	1063.0	0.0	0.0	0.0	1063.00	690.5	0.00070

SEGMENT TABLE FOR SECTION 20.50

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	4.	132.	45.
182.	VELOCITY FPS	1.44	0.39	1.54	0.48
2	DISCHARGE CFS	412.	28.	196.	188.
412.	VELOCITY FPS	1.56	0.63	1.96	0.82
3	DISCHARGE CFS	672.	63.	251.	357.
672.	VELOCITY FPS	1.71	0.82	2.29	1.07
4	DISCHARGE CFS	778.	77.	277.	424.
778.	VELOCITY FPS	1.77	0.89	2.46	1.17
5	DISCHARGE CFS	1063.	124.	316.	623.
1063.	VELOCITY FPS	1.85	0.93	2.61	1.35
1	ELEV 690.5 KD	8583.	90.	6885.	1608.
2	ELEV 691.1 KD	17658.	1009.	8913.	7736.
3	ELEV 691.5 KD	26379.	2254.	10430.	13694.
4	ELEV 691.6 KD	29757.	2817.	10695.	16045.
5	ELEV 692.0 KD	40069.	4507.	12316.	23246.

ROAD SECTION 20.60

NO.	HW	CFS	HL	TW	CSM
0	686.19	0.00	0.00	0.00	0.00
1	690.53	181.70	0.0	690.53	181.70
2	691.14	411.70	0.0	691.14	411.70
3	691.65	671.60	0.08	691.57	671.60
4	691.77	778.00	0.08	691.69	778.00
5	692.14	1063.00	0.08	692.06	1063.00

MIN ROAD ELEVATION 688.50

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	J/S INVERT	D/S INVERT	(N) COEFF
1	1	12311.	5.00		33.00	685.19	685.65	0.024

RATING TABLE FOR SECTION 21.00 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	687.3	0.0	0.0						
BANK FULL	689.1	64.5	100.2	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	690.6	250.6	181.7	0.0	0.0	0.0	181.70	688.3	0.00021
2	691.2	402.1	411.7	0.0	0.0	0.0	411.70	689.0	0.00036
3	691.7	545.3	671.6	0.0	0.0	0.0	671.60	689.8	0.00048
4	691.9	584.0	778.0	0.0	0.0	0.0	778.00	689.9	0.00056
5	692.3	718.7	1063.0	0.0	0.0	0.0	1063.00	690.3	0.00067

SEGMENT TABLE FOR SECTION 21.00

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	182.	41.	139.	2.
182.	VELOCITY FPS	0.96	0.37	1.05	0.26
2	DISCHARGE CFS	412.	149.	257.	6.
412.	VELOCITY FPS	1.34	0.66	1.58	0.43
3	DISCHARGE CFS	672.	280.	380.	12.
672.	VELOCITY FPS	1.63	0.83	2.03	0.57
4	DISCHARGE CFS	778.	329.	434.	15.
778.	VELOCITY FPS	1.78	0.90	2.24	0.64
5	DISCHARGE CFS	1063.	496.	544.	23.
1063.	VELOCITY FPS	2.01	1.04	2.57	0.76
1	ELEV 690.6 KD	12259.	2409.	9746.	104.
2	ELEV 691.2 KD	21571.	7537.	13747.	288.
3	ELEV 691.7 KD	30662.	12709.	17417.	535.
4	ELEV 691.9 KD	32846.	13850.	18384.	612.
5	ELEV 692.3 KD	40900.	18596.	21328.	876.

ROAD SECTION 21.20

NO.	HW	CFS	HL	TW	CSM
0	688.61	0.00	0.00	0.00	0.00
1	691.78	181.70	0.80	690.98	181.70
2	692.19	411.70	0.48	691.71	411.70
3	692.63	671.60	0.40	692.23	671.60
4	692.70	778.00	0.32	692.38	778.00
5	693.09	1063.00	0.32	692.77	1063.00

MIN ROAD ELEVATION 691.20

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	32133.	5.09	7.02	25.00	688.47	688.61	0.032

RATING TABLE FOR SECTION 21.51 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	689.7	0.0	0.0						
BANK FULL	691.4	50.0	125.0	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	692.2	117.1	181.7	0.0	0.0	0.0	181.70	691.1	0.00118
2	692.7	217.4	411.7	0.0	0.0	0.0	411.70	691.8	0.00174
3	693.1	344.5	671.6	0.0	0.0	0.0	671.60	692.3	0.00171
4	693.2	373.8	778.0	0.0	0.0	0.0	778.00	692.3	0.00186
5	693.6	520.0	1063.0	0.0	0.0	0.0	1063.00	692.6	0.00175

SEGMENT TABLE FOR SECTION 21.51

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	50.	120.	12.
182.	VELOCITY FPS	2.13	1.04	2.44	0.58
2	DISCHARGE CFS	412.	105.	223.	84.
412.	VELOCITY FPS	2.76	1.43	3.55	1.03
3	DISCHARGE CFS	672.	154.	293.	224.
672.	VELOCITY FPS	2.86	1.51	3.90	1.34
4	DISCHARGE CFS	778.	176.	329.	272.
778.	VELOCITY FPS	3.01	1.62	4.22	1.46
5	DISCHARGE CFS	1063.	215.	389.	459.
1063.	VELOCITY FPS	3.01	1.43	4.40	1.63
1	ELEV 692.2 KD	5182.	1453.	3558.	172.
2	ELEV 692.7 KD	9778.	2509.	5360.	1909.
3	ELEV 693.1 KD	16052.	3766.	7224.	5062.
4	ELEV 693.2 KD	17924.	4097.	7686.	6140.
5	ELEV 693.6 KD	25253.	5214.	9448.	10591.

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----------80/80 LIST OF INPUT DATA----------
LINK                                                                    00000223
CHANGE    DISCHARGE                                                     00000224
DISCHARGE -1.       151.6     348.2     571.2     663.0     912.9       00000225
TITLE     PRESENT CONDITIONS- MCCOY-MILL JUNCTION TO AMTRAK              00000226
END                                                                     00000227
REACH     21.70     1.0       1815.0    1575.0                          00000228
SEGMENT   21.70     1         N         -16.0                           00000229
NVALUE    0.06                                                          00000230
SEGMENT   21.70     2         C         16.0                            00000231
NVALUE    0.04                                                          00000232
SEGMENT   21.70     3         N         585.0                           00000233
NVALUE    0.06                                                          00000234
SECTION   21.70                                                         00000235
          -105.     710.0     -100.     708.0     -65.      700.0       00000236
          -50.      698.0     -25.      696.0     -16.      695.0       00000237
          -9.       692.5     0.        692.4     8.        692.5       00000238
          16.       695.0     30.       696.0     185.      696.0       00000239
          300.      698.0     370.      700.0     425.      702.0       00000240
          485.      704.0     530.      706.0     585.      710.0       00000241
          12.       694.5     -12.      694.5                           00000242
ENDTABLE                                                                00000243
----------DATA POINTS ON SECTION 21.70  REORDERED BY PROGRAM ACCORDING TO X VALUES
          DUPLICATE X POINTS NOT CHANGED----------
REACH     22.30     1.0       1480.0    980.0                           00000244
SEGMENT   22.30     1         N         -12.                            00000245
NVALUE    .08                                                           00000246
SEGMENT   22.30     2         C         10.                             00000247
NVALUE    .04                                                           00000248
SEGMENT   22.30     3         N         700.0                           00000249
NVALUE    .10                                                           00000250
SECTION   22.30                                                         00000251
          -235.     710.0     -195.0    700.0     -155.     698.0       00000252
          -12.      697.3     -7.       694.7     0.        694.9       00000253
          5.        695.3     10.       697.5     60.       698.        00000254
          275.      699.0     450.      700.0     600.      700.7       00000255
          700.      702.0                                               00000256
ENDTABLE                                                                00000257
REACH     22.40     1.0       2950.0    1260.0                          00000258
SEGMENT   22.40     1         N         -15.0                           00000259
NVALUE    .12                                                           00000260
SEGMENT   22.40     2         C         15.0                            00000261
NVALUE    0.06                                                          00000262
SEGMENT   22.40     3         N         855.0                           00000263
NVALUE    0.12                                                          00000264
SECTION   22.40                                                         00000265
          -355.     710.0     -405.     704.0     -320.     702.0       00000266
          -30.      700.0     -16.      698.0     -15.      696.0       00000267
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----------------------------80/80 LIST OF INPUT DATA--------------------------------
          0.        696.7     15.       696.0     16.       698.        00000268
          20.       698.0     160.      700.      200.      702.0       00000269
          575.      704.0     690.      706.0     790.      708.0       00000270
          855.      710.0     5.        696.7     -5.       696.7       00000271
          10.       697.9     -10.      697.9                           00000272
ENDTABLE                                                                00000273
---------------------DATA POINTS ON SECTION 22.40  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
ROAD      22.45     2.7       80.0      80.0                            00000274
BPR       22.45     B         1                                         00000275
GIRDER    700.1     699.8     0.        0.8       2.7                   00000276
          -12.5     701.5     -10.5     699.8     11.0      699.8       00000277
          14.0      701.5                                               00000278
SECTION   22.45                                                         00000279
          -480.     710.0     -445.     708.0     -380.     706.0       00000280
          -285.     704.0     -185.     702.0     -18.      701.8       00000281
          -12.5     701.5     -12.      700.5     -6.       696.7       00000282
          0.        696.1     4.        697.1     7.        698.1       00000283
          12.       700.3     14.       701.5     190.      702.0       00000284
          920.      710.0                                               00000285
ENDTABLE                                                                00000286
REACH     22.50     1.        150.      150.                            00000287
SEGMENT   22.50     1         N         -16.                            00000288
NVALUE    .12                                                           00000289
SEGMENT   22.50     2         C         16.                             00000290
NVALUE    .06                                                           00000291
SEGMENT   22.50     3         N         830.                            00000292
NVALUE    .12                                                           00000293
SECTION   22.50                                                         00000294
          -370.     708.0     -315.     706.0     -295.     704.0       00000295
          -260.     702.0     -110.     700.0     -25.      698.0       00000296
          -16.      698.2     -13.      696.4     0.        696.3       00000297
          13.       696.4     16.       698.2     50.       698.0       00000298
          140.      700.0     270.      702.0     340.      704.0       00000299
          635.      706.0     735.      708.0     830.      710.0       00000300
ENDTABLE                                                                00000301
REACH     22.60     1.0       2085.0    1025.0                          00000302
SEGMENT   22.60     1         N         -13.0                           00000303
NVALUE    0.12                                                          00000304
SEGMENT   22.60     2         C         13.0                            00000305
NVALUE    0.06                                                          00000306
SEGMENT   22.60     3         N         200.0                           00000307
NVALUE    0.12                                                          00000308
SECTION   22.60                                                         00000309
          -890.     710.0     -770.     708.0     -640.     706.0       00000310
          -380.     704.0     -80.      702.0     -16.      702.0       00000311
          -13.      700.2     -4.       698.2     0.        698.2       00000312
```

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----------------------------80/80 LIST OF INPUT DATA--------------------------------
          15.       702.0     170.      702.0     180.      704.0       00000313
          185.      706.0     200.      710.0     4.        698.2       00000314
          13.       700.2                                               00000315
ENDTABLE                                                              00000316
---------------------DATA POINTS ON SECTION 22.60  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
REACH     22.70     1.0       1210.0    680.0                         00000317
SEGMENT   22.70     1         N         -13.0                         00000318
NVALUE    0.12                                                        00000319
SEGMENT   22.70     2         C         13.0                          00000320
NVALUE    0.06                                                        00000321
SEGMENT   22.70     3         N         390.0                         00000322
NVALUE    0.10                                                        00000323
SECTION   22.70                                                       00000324
          -590.0    710.0     -160.     708.0     -140.     706.0       00000325
          -20.      704.0     -16.      704.0     -13.      701.5       00000326
          -4.       699.5     0.        699.5     4.        699.5       00000327
          210.      704.0     305.      706.0     360.      708.0       00000328
          390.      710.0     13.       701.5     16.       702.0       00000329
ENDTABLE                                                              00000330
---------------------DATA POINTS ON SECTION 22.70  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
REACH     22.80     1.0       890.0     700.0                         00000331
SEGMENT   22.80     1         N         -9.0                          00000332
NVALUE    0.12                                                        00000333
SEGMENT   22.80     2         C         9.                            00000334
NVALUE    0.06                                                        00000335
SEGMENT   22.80     3         N         160.                          00000336
NVALUE    0.12                                                        00000337
SECTION   22.80                                                       00000338
          -400.     712.5     -370.     712.0     -295.     710.0       00000339
          -245.     708.0     -165.     706.0     -16.      704.0       00000340
          -3.       699.9     0.        699.9     3.        700.1       00000341
          15.       704.0     25.       704.0     115.      706.0       00000342
          125.      708.0     135.      710.0     145.      712.0       00000343
          160.      713.1     9.        701.7     15.       704.0       00000344
          -9.       701.7     22.       704.0                         00000345
ENDTABLE                                                              00000346
---------------------DATA POINTS ON SECTION 22.80  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
COMPUTE   21.70     22.80     21.51                                   00000347
------------------------------END OF 80/80 LIST--------------------------------
```

COMPUTE 21.70 22.80 21.51 00000347

----------STARTING DATA FROM PREVIOUS COMPUTATIONS----------

RATING TABLE FOR SECTION 21.70 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	692.4	0.0	0.0						
BANK FULL	695.0	56.7	141.4	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	695.2	63.2	151.6	0.0	0.0	0.0	151.60	693.7	0.00181
2	696.1	127.6	348.2	0.0	0.0	0.0	348.20	694.7	0.00230
3	696.7	256.5	571.2	0.0	0.0	0.0	571.20	695.5	0.00231
4	697.0	335.9	663.0	0.0	0.0	0.0	663.00	695.8	0.00183
5	697.3	437.0	912.9	0.0	0.0	0.0	912.90	696.2	0.00194

SEGMENT TABLE FOR SECTION 21.70

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	152.	0.	151.	0.
152.	VELOCITY FPS	2.45	0.0	2.44	0.40
2	DISCHARGE CFS	348.	5.	317.	25.
348.	VELOCITY FPS	3.39	0.88	3.46	0.86
3	DISCHARGE CFS	571.	15.	427.	130.
571.	VELOCITY FPS	3.47	1.07	3.91	0.97
4	DISCHARGE CFS	663.	21.	432.	210.
663.	VELOCITY FPS	3.10	1.06	3.65	1.06
5	DISCHARGE CFS	913.	34.	520.	359.
913.	VELOCITY FPS	3.21	1.22	4.01	1.28
1	ELEV 695.2 KD		3565.	4.	3556.	5.
2	ELEV 696.1 KD		7032.	98.	6713.	221.
3	ELEV 696.7 KD		11804.	293.	8985.	2526.
4	ELEV 697.0 KD		15203.	458.	10293.	4452.
5	ELEV 697.3 KD		20594.	739.	11972.	7883.

RATING TABLE FOR SECTION 22.30 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	694.7	0.0	0.0						
BANK FULL	697.3	45.1	129.3	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	697.7	75.3	151.6	0.0	0.0	0.0	151.60	696.5	0.00220
2	698.6	314.0	348.2	0.0	0.0	0.0	348.20	697.8	0.00135
3	699.0	444.1	571.2	0.0	0.0	0.0	571.20	698.0	0.00174
4	699.3	586.6	663.0	0.0	0.0	0.0	663.00	698.1	0.00131
5	699.5	720.9	912.9	0.0	0.0	0.0	912.90	698.3	0.00152

SEGMENT TABLE FOR SECTION 22.30

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	152.	11.	139.	1.
152.	VELOCITY FPS	2.78	0.50	2.83	0.33
2	DISCHARGE CFS	348.	120.	187.	41.
348.	VELOCITY FPS	2.17	0.81	2.72	0.42
3	DISCHARGE CFS	571.	218.	258.	95.
571.	VELOCITY FPS	2.44	1.09	3.38	0.57
4	DISCHARGE CFS	663.	264.	253.	145.
663.	VELOCITY FPS	2.10	1.06	3.06	0.57
5	DISCHARGE CFS	913.	371.	311.	231.
913.	VELOCITY FPS	2.26	1.26	3.52	0.68
1	ELEV 697.7 KD	3173.	159.	3011.	2.
2	ELEV 698.6 KD	9196.	3039.	5292.	865.
3	ELEV 699.0 KD	13602.	5195.	6273.	2134.
4	ELEV 699.3 KD	18101.	7224.	7174.	3703.
5	ELEV 699.5 KD	23345.	9492.	8038.	5814.

RATING TABLE FOR SECTION 22.40 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	696.0	0.0	0.0						
BANK FULL	696.0	0.0	0.0	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	699.6	202.5	151.6	0.0	0.0	0.0	151.60	697.8	0.00071
2	700.7	462.8	348.2	0.0	0.0	0.0	348.20	698.5	0.00058
3	701.2	648.6	571.2	0.0	0.0	0.0	571.20	698.9	0.00074
4	701.4	726.8	663.0	0.0	0.0	0.0	663.00	699.1	0.00075
5	701.8	943.7	912.9	0.0	0.0	0.0	912.90	699.3	0.00080

SEGMENT TABLE FOR SECTION 22.40

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	152.	11.	96.	44.
152.	VELOCITY FPS	1.01	0.44	1.22	0.45
2	DISCHARGE CFS	348.	36.	154.	159.
348.	VELOCITY FPS	1.03	0.37	1.38	0.62
3	DISCHARGE CFS	571.	89.	211.	271.
571.	VELOCITY FPS	1.21	0.49	1.67	0.80
4	DISCHARGE CFS	663.	114.	232.	317.
663.	VELOCITY FPS	1.24	0.51	1.76	0.85
5	DISCHARGE CFS	913.	211.	285.	417.
913.	VELOCITY FPS	1.31	0.62	1.95	0.91
1	ELEV 699.6 KD		5702.	408.	3626.	1668.
2	ELEV 700.7 KD		14411.	1448.	6438.	6525.
3	ELEV 701.2 KD		20862.	2972.	7949.	9941.
4	ELEV 701.4 KD		24008.	3905.	8585.	11518.
5	ELEV 701.8 KD		31962.	6973.	10154.	14835.

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
1.1714	1.1714	0.0	0.0	0.0	0.0	0.4878	1.0000	1.0000	47.7127	390.2705	197.0872
DCRIT	698.30	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	51.1236	390.2705	197.0872
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	51.1236	390.2705	197.0872
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	51.1236	390.2705	197.0872
DCRIT	-1.00	KBCRIT=									
0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0000	1.0000	51.1236	390.2705	197.0872
DCRIT	-1.00	KBCRIT=									

ROAD SECTION 22.45

NO.	HW	CFS	HL	TW	CSM
0	696.10	0.00	0.00	0.00	0.00
1	699.85	151.60	0.18	699.67	151.60
2	701.71	348.20	0.98	700.74	348.20
3	702.11	571.20	0.86	701.25	571.20
4	702.21	663.00	0.76	701.45	563.00
5	702.43	912.90	0.52	701.92	912.90

MIN ROAD ELEVATION 701.50

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 699.80 OPENING NO.= 1

RATING TABLE FOR SECTION 22.50 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	696.3	0.0	0.0						
BANK FULL	698.2	62.9	80.2	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	699.9	341.4	151.6	0.0	0.0	0.0	151.60	697.3	0.00028
2	701.7	1019.6	348.2	0.0	0.0	0.0	348.20	698.3	0.00016
3	702.1	1229.9	571.2	0.0	0.0	0.0	571.20	698.6	0.00027
4	702.3	1288.3	663.0	0.0	0.0	0.0	663.00	698.7	0.00032
5	702.5	1426.2	912.9	0.0	0.0	0.0	912.90	699.0	0.00047

SEGMENT TABLE FOR SECTION 22.50

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	152.	20.	99.	33.
152.	VELOCITY FPS	0.75	0.21	0.92	0.23
2	DISCHARGE CFS	348.	84.	150.	114.
348.	VELOCITY FPS	0.62	0.22	0.90	0.24
3	DISCHARGE CFS	571.	152.	223.	196.
571.	VELOCITY FPS	0.83	0.32	1.24	0.34
4	DISCHARGE CFS	663.	181.	252.	231.
663.	VELOCITY FPS	0.91	0.36	1.37	0.38
5	DISCHARGE CFS	913.	260.	328.	324.
913.	VELOCITY FPS	1.11	0.46	1.71	0.49
1	ELEV 699.9 KD	8991.	1164.	5865.	1962.
2	ELEV 701.7 KD	27878.	6623.	12151.	9104.
3	ELEV 702.1 KD	34832.	9109.	13794.	11929.
4	ELEV 702.3 KD	36888.	9882.	14235.	12772.
5	ELEV 702.5 KD	42139.	11907.	15299.	14934.

RATING TABLE FOR SECTION 22.60 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	698.2	0.0	0.0						
BANK FULL	700.2	34.0	78.3	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	702.1	133.5	151.6	0.0	0.0	0.0	151.60	699.8	0.00100
2	703.1	466.1	348.2	0.0	0.0	0.0	348.20	700.7	0.00074
3	703.6	710.3	571.2	0.0	0.0	0.0	571.20	701.4	0.00078
4	703.9	830.6	663.0	0.0	0.0	0.0	663.00	701.6	0.00072
5	704.2	1011.8	912.9	0.0	0.0	0.0	912.90	702.4	0.00086

SEGMENT TABLE FOR SECTION 22.60

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	152.	5.	137.	10.
152.	VELOCITY FPS	1.60	0.27	1.65	0.31
2	DISCHARGE CFS	348.	70.	186.	93.
348.	VELOCITY FPS	1.33	0.40	1.69	0.51
3	DISCHARGE CFS	571.	159.	233.	179.
571.	VELOCITY FPS	1.34	0.49	1.89	0.67
4	DISCHARGE CFS	663.	203.	245.	215.
663.	VELOCITY FPS	1.27	0.51	1.89	0.70
5	DISCHARGE CFS	913.	318.	292.	303.
913.	VELOCITY FPS	1.40	0.62	2.12	0.85
1	ELEV 702.1 KD	4591.	94.	4372.	126.
2	ELEV 703.1 KD	12673.	2349.	7017.	3307.
3	ELEV 703.6 KD	20145.	5359.	8526.	6261.
4	ELEV 703.9 KD	24704.	7423.	9256.	8026.
5	ELEV 704.2 KD	30881.	10395.	10230.	10256.

RATING TABLE FOR SECTION 22.70 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	699.5	0.0	0.0						
BANK FULL	701.5	34.0	81.3	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	703.2	161.7	151.6	0.0	0.0	0.0	151.60	701.1	0.00084
2	704.2	357.3	348.2	0.0	0.0	0.0	348.20	702.1	0.00085
3	704.8	535.7	571.2	0.0	0.0	0.0	571.20	702.7	0.00093
4	705.1	610.4	663.0	0.0	0.0	0.0	663.00	702.9	0.00090
5	705.5	777.3	912.9	0.0	0.0	0.0	912.90	703.2	0.00099

SEGMENT TABLE FOR SECTION 22.70

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	152.	1.	116.	35.
152.	VELOCITY FPS	1.32	0.37	1.46	0.44
2	DISCHARGE CFS	348.	2.	187.	159.
348.	VELOCITY FPS	1.40	0.24	1.79	0.65
3	DISCHARGE CFS	571.	12.	245.	315.
571.	VELOCITY FPS	1.51	0.36	2.03	0.82
4	DISCHARGE CFS	663.	17.	266.	380.
663.	VELOCITY FPS	1.49	0.37	2.10	0.87
5	DISCHARGE CFS	913.	42.	318.	553.
913.	VELOCITY FPS	1.61	0.48	2.31	1.00
1	ELEV 703.2 KD		5189.	22.	4056.	1111.
2	ELEV 704.2 KD		11891.	63.	6473.	5354.
3	ELEV 704.8 KD		18521.	286.	8178.	10058.
4	ELEV 705.1 KD		22077.	538.	8918.	12621.
5	ELEV 705.5 KD		28804.	1135.	10278.	17391.

RATING TABLE FOR SECTION 22.80 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	699.9	0.0	0.0						
BANK FULL	701.7	20.8	61.4	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	704.3	103.6	151.6	0.0	0.0	0.0	151.60	701.9	0.00121
2	705.6	287.7	348.2	0.0	0.0	0.0	348.20	702.8	0.00148
3	706.2	457.6	571.2	0.0	0.0	0.0	571.20	704.0	0.00171
4	706.4	529.6	663.0	0.0	0.0	0.0	663.00	704.3	0.00170
5	706.9	677.0	912.9	0.0	0.0	0.0	912.90	704.8	0.00183

SEGMENT TABLE FOR SECTION 22.80

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	152.	6.	140.	6.
152.	VELOCITY FPS	1.99	0.32	2.05	0.32
2	DISCHARGE CFS	348.	56.	245.	47.
348.	VELOCITY FPS	2.33	0.50	2.72	0.54
3	DISCHARGE CFS	571.	138.	322.	111.
571.	VELOCITY FPS	2.46	0.67	3.17	0.73
4	DISCHARGE CFS	663.	179.	343.	141.
663.	VELOCITY FPS	2.43	0.72	3.23	0.80
5	DISCHARGE CFS	913.	286.	406.	221.
913.	VELOCITY FPS	2.50	0.86	3.54	0.97
1	ELEV 704.3 KD	4320.	149.	4045.	126.
2	ELEV 705.6 KD	9013.	1395.	6419.	1199.
3	ELEV 706.2 KD	13709.	3239.	7854.	2617.
4	ELEV 706.4 KD	16003.	4218.	8432.	3352.
5	ELEV 706.9 KD	21206.	6538.	9591.	5077.

----------80/80 LIST OF INPUT DATA----------

```
CHANGE    DISCHARGE                                                    00000348
DISCHARGE -1.       140.0     324.7     534.4     620.0     857.2      00000349
TITLE     PRESENT CONDITIONS- AMTRAK TO HASS ROAD                      00000350
END                                                                    00000351
ROAD      23.00     2.7       270.0     240.0                          00000352
BPR       23.00     A         3                                        00000353
GIRDER    708.5     707.96    0.        .8        2.7                  00000354
          -8.       712.3     -7.       707.96    7.        707.96     00000355
          8.        712.3                                              00000356
ENDTABLE                                                               00000357
SECTION   23.00                                                        00000358
          -810.     715.9     -271.     713.8     -8.       712.3      00000359
          -7.       702.      7.        702.      8.        712.3      00000360
          578.      712.7                                              00000361
ENDTABLE                                                               00000362
REACH     23.50     1.        215.0     180.0                          00000363
SEGMENT   23.50     1         N         -10.                           00000364
NVALUE    .07                                                          00000365
SEGMENT   23.50     2         C         10.                            00000366
NVALUE    .04                                                          00000367
SEGMENT   23.50     3         N         517.                           00000368
NVALUE    .07                                                          00000369
SECTION   23.50                                                        00000370
          -109.     713.5     -86.      705.1     -10.      704.0      00000371
          -5.       701.6     0.        700.5     7.        700.9      00000372
          10.       704.3     131.      707.6     495.      707.1      00000373
          517.      713.2                                              00000374
ENDTABLE                                                               00000376
ROAD      24.00     2.7       135.      135.                           00000377
CULV1     24.00     1.        12333                                    00000378
CULV2     8.                  36.       701.08    700.97             00000379
SECTION   24.00                                                        00000380
          -1394.    716.4     -1065.    713.6     -619.     711.6      00000381
          -222.     710.8     -84.      713.8     0.        710.7      00000382
          174.      707.3     690.      709.6     1093.     715.1      00000383
ENDTABLE                                                               00000384
REACH     24.10     1.        200.      200.                           00000385
SEGMENT   24.10     1         N         -10.                           00000386
NVALUE    .05                                                          00000387
SEGMENT   24.10     2         C         10.                            00000388
NVALUE    .04                                                          00000389
SEGMENT   24.10     3         N         517.                           00000390
NVALUE    .05                                                          00000391
SECTION   24.10                                                        00000392
          -109.     713.5     -86.      705.1     -10.      704.       00000393
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----------80/80 LIST OF INPUT DATA----------

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          -5.       701.6     0.        700.5     7.        700.9     00000394
          10.       704.3     131.      707.6     495.      707.1     00000395
          517.      713.2                                             00000396
ENDTABLE                                                            00000397
REACH     24.90     1.        1700.     1700.                       00000398
REACH2    25.10     -0.1                                            00000399
ROAD      25.00     2.7       50.       50.                         00000400
BPR       25.00     A         3                                     00000401
GIRDER    710.5     709.9     0.        .8        2.7               00000402
          -13.      710.      -12.9     709.9     13.9      710.2   00000403
          14.       710.3                                           00000404
ENDTABLE                                                            00000405
REACH     25.10     1.        50.       50.                         00000406
SEGMENT   25.10     1         N         -8.                         00000407
NVALUE    .05                                                       00000408
SEGMENT   25.10     2         C         7.                          00000409
NVALUE    .04                                                       00000410
SEGMENT   25.10     3         N         590.                        00000411
NVALUE    .05                                                       00000412
SECTION   25.10                                                     00000413
          -525.     712.4     -301.     707.3     -8.       706.    00000414
          -4.       703.3     0.        702.8     3.        703.3   00000415
          7.        706.6     131.      707.6     495.      709.4   00000416
          590.      717.8                                           00000417
ENDTABLE                                                            00000418
SECTION   25.00                                                     00000419
          -525.     712.4     -301.     710.      -13.      710.    00000420
          -8.       706.      -4.       703.3     0.        702.8   00000421
          3.        703.3     7.        704.8     14.       710.3   00000422
          202.      710.2     590.      717.8                       00000423
ENDTABLE                                                            00000424
COMPUTE   22.80     25.10     22.70                                 00000425
```

----------END OF 80/80 LIST----------

COMPUTE 22.80 25.10 22.70 00000425

----------STARTING DATA FROM PREVIOUS COMPUTATIONS----------

RATING TABLE FOR SECTION 22.80 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	699.9	0.0	0.0						
BANK FULL	701.7	20.8	57.5	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	704.3	97.8	140.0	0.0	0.0	0.0	140.00	701.8	0.00111
2	705.4	257.4	324.7	0.0	0.0	0.0	324.70	702.7	0.00155
3	706.1	433.6	534.4	0.0	0.0	0.0	534.40	703.6	0.00168
4	706.4	526.2	620.0	0.0	0.0	0.0	620.00	704.2	0.00151
5	706.9	681.7	857.2	0.0	0.0	0.0	857.20	704.8	0.00159

SEGMENT TABLE FOR SECTION 22.80

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	140.	5.	131.	4.
140.	VELOCITY FPS	1.89	0.31	1.94	0.30
2	DISCHARGE CFS	325.	46.	239.	40.
325.	VELOCITY FPS	2.38	0.49	2.73	0.53
3	DISCHARGE CFS	534.	125.	309.	101.
534.	VELOCITY FPS	2.44	0.65	3.09	0.71
4	DISCHARGE CFS	620.	166.	322.	132.
620.	VELOCITY FPS	2.29	0.68	3.04	0.75
5	DISCHARGE CFS	857.	269.	380.	208.
857.	VELOCITY FPS	2.33	0.80	3.30	0.90
1	ELEV 704.3 KD	4168.	131.	3929.	108.
2	ELEV 705.4 KD	8179.	1101.	6109.	969.
3	ELEV 706.1 KD	12889.	2891.	7643.	2355.
4	ELEV 706.4 KD	15901.	4175.	8407.	3320.
5	ELEV 706.9 KD	21399.	6627.	9629.	5142.

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	OGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
0.0	0.0	0.0	0.0	0.0	0.0	1.0402	1.0000	1.0000	46.2040	43.0799	52.4069
DCRIT	703.45	KBCRIT=									
0.2666	0.2666	0.0	0.0	0.0	0.0	0.8360	1.0000	1.0000	65.5399	122.1951	111.7980
DCRIT	704.54	KBCRIT=									
1.4819	1.4819	0.0	0.0	0.0	0.0	0.4557	1.0000	1.0000	78.1394	449.7927	235.1055
DCRIT	705.53	KBCRIT=									
1.4520	1.4520	0.0	0.0	0.0	0.0	0.4629	1.0000	1.0000	89.3958	428.6826	284.3203
DCRIT	705.90	KBCRIT=									
1.4636	1.4636	0.0	0.0	0.0	0.0	0.4601	1.0000	1.0000	89.3958	436.7461	395.3831
DCRIT	706.82	KBCRIT=									

ROAD SECTION 23.00

NO.	HW	CFS	HL	TW	CSM
0	702.00	0.00	0.00	0.00	0.00
1	705.23	140.00	0.0	705.23	140.00
2	706.54	324.70	0.0	706.54	324.70
3	708.48	534.40	1.10	707.38	534.40
4	708.80	620.00	1.16	707.64	620.00
5	710.28	857.20	2.22	708.06	857.20

$dA = 10\ db_w^2$

MIN ROAD ELEVATION 712.30

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 707.96 OPENING NO.= 1

RATING TABLE FOR SECTION 23.50 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	700.5	0.0	0.0						
BANK FULL	704.0	48.4	99.3	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	705.4	169.4	140.0	0.0	0.0	0.0	140.00	702.4	0.00029
2	706.8	395.5	324.7	0.0	0.0	0.0	324.70	703.6	0.00025
3	708.5	1211.4	534.4	0.0	0.0	0.0	534.40	704.8	0.00009
4	708.9	1403.7	620.0	0.0	0.0	0.0	620.00	704.9	0.00008
5	710.3	2267.2	857.2	0.0	0.0	0.0	857.20	705.2	0.00004

SEGMENT TABLE FOR SECTION 23.50

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	140.	25.	108.	7.
140.	VELOCITY FPS	1.28	0.37	1.41	0.28
2	DISCHARGE CFS	325.	106.	170.	49.
325.	VELOCITY FPS	1.25	0.60	1.63	0.42
3	DISCHARGE CFS	534.	161.	161.	212.
534.	VELOCITY FPS	0.72	0.50	1.16	0.28
4	DISCHARGE CFS	620.	174.	164.	281.
620.	VELOCITY FPS	0.70	0.50	1.13	0.31
5	DISCHARGE CFS	857.	199.	157.	501.
857.	VELOCITY FPS	0.50	0.42	0.90	0.31
1	ELEV 705.4 KD	8184.	1326.	6510.	348.
2	ELEV 706.8 KD	20471.	6628.	10833.	3010.
3	ELEV 708.5 KD	57666.	17497.	17533.	22636.
4	ELEV 708.9 KD	68829.	19866.	18898.	30065.
5	ELEV 710.3 KD	138333.	32413.	25521.	80397.

ROAD SECTION 24.00

NO.	HW	CFS	HL	TW	CSM
0	701.08	0.00	0.00	0.00	0.00
1	706.13	140.00	0.64	705.49	140.00
2	707.80	324.70	0.96	706.84	324.70
3	708.64	534.40	0.08	708.56	534.40
4	708.96	620.00	0.08	708.88	620.00
5	710.31	857.20	0.0	710.31	857.20

MIN ROAD ELEVATION 707.30

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	12333.	8.00		36.00	701.08	700.97	0.024

RATING TABLE FOR SECTION 24.10 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	700.5	0.0	0.0						
BANK FULL	704.0	48.4	86.7	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	706.2	278.4	140.0	0.0	0.0	0.0	140.00	702.4	0.00008
2	707.8	782.5	324.7	0.0	0.0	0.0	324.70	703.6	0.00006
3	708.7	1277.1	534.4	0.0	0.0	0.0	534.40	704.8	0.00005
4	709.0	1467.5	620.0	0.0	0.0	0.0	620.00	704.9	0.00005
5	710.3	2274.2	857.2	0.0	0.0	0.0	857.20	705.2	0.00002

SEGMENT TABLE FOR SECTION 24.10

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	140.	45.	78.	17.
140.	VELOCITY FPS	0.69	0.36	0.86	0.26
2	DISCHARGE CFS	325.	126.	113.	85.
325.	VELOCITY FPS	0.65	0.49	0.91	0.21
3	DISCHARGE CFS	534.	168.	126.	240.
534.	VELOCITY FPS	0.57	0.51	0.90	0.30
4	DISCHARGE CFS	620.	182.	129.	309.
620.	VELOCITY FPS	0.56	0.51	0.88	0.32
5	DISCHARGE CFS	857.	208.	125.	524.
857.	VELOCITY FPS	0.43	0.44	0.72	0.32
1	ELEV 706.2 KD	15343.	4900.	8678.	1765.
2	ELEV 707.8 KD	40548.	16244.	14595.	9709.
3	ELEV 708.7 KD	74341.	23818.	17993.	32530.
4	ELEV 709.0 KD	89253.	26964.	19361.	42928.
5	ELEV 710.3 KD	173372.	42381.	25578.	105413.

RATING TABLE FOR SECTION 24.90 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	702.7	0.0	0.0						
BANK FULL	705.9	36.5	102.8	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	707.1	228.6	140.0	0.0	0.0	0.0	140.00	705.1	0.00040
2	708.1	706.1	324.7	0.0	0.0	0.0	324.70	706.4	0.00015
3	708.8	1228.3	534.4	0.0	0.0	0.0	534.40	706.7	0.00010
4	709.1	1446.1	620.0	0.0	0.0	0.0	620.00	706.8	0.00008
5	710.4	2581.7	857.2	0.0	0.0	0.0	857.20	707.0	0.00003

SEGMENT TABLE FOR SECTION 24.90

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	140.	68.	65.	7.
140.	VELOCITY FPS	1.10	0.43	1.37	0.30
2	DISCHARGE CFS	325.	208.	65.	52.
325.	VELOCITY FPS	0.64	0.45	1.04	0.29
3	DISCHARGE CFS	534.	336.	71.	128.
534.	VELOCITY FPS	0.54	0.46	0.95	0.30
4	DISCHARGE CFS	620.	385.	74.	162.
620.	VELOCITY FPS	0.51	0.46	0.94	0.30
5	DISCHARGE CFS	857.	467.	63.	327.
857.	VELOCITY FPS	0.36	0.35	0.65	0.29
1	ELEV 707.1 KD	6744.	3042.	3502.	199.
2	ELEV 708.1 KD	25740.	16477.	5550.	3713.
3	ELEV 708.8 KD	53281.	33843.	7349.	12088.
4	ELEV 709.1 KD	67763.	42149.	8084.	17529.
5	ELEV 710.4 KD	153572.	84294.	11525.	57752.

TABLE OF VALUES FOR BPR EQUATION

COEFK	AKB	DGTAK	SIGMA	DKE	DKS	M	ALPHA	ALPHA2	BRIDA	APPAR	AEXIT
1.5850	1.5850	0.0	0.0	0.0	0.0	0.4314	1.0000	1.0000	54.0588	265.8289	197.8509
DCRIT	705.04	KBCRIT=									
2.9485	2.9485	0.0	0.0	0.0	0.0	0.1547	1.0000	1.0000	74.5415	1242.2075	656.0012
DCRIT	706.20	KBCRIT=									
3.2233	3.2233	0.0	0.0	0.0	0.0	0.1057	1.0000	1.0000	91.8947	2307.3540	1157.8181
DCRIT	706.90	KBCRIT=									
3.2441	3.2441	0.0	0.0	0.0	0.0	0.1021	1.0000	1.0000	98.8192	2427.8071	1370.8704
DCRIT	706.87	KBCRIT=									
3.2684	3.2684	0.0	0.0	0.0	0.0	0.0978	1.0000	1.0000	122.3619	2582.3469	2488.3799
DCRIT	707.27	KBCRIT=									

ROAD SECTION 25.00

NO.	HW	CFS	HL	TW	CSM
0	702.80	0.00	0.00	0.00	0.00
1	707.24	140.00	0.16	707.08	140.00
2	708.93	324.70	0.86	708.08	324.70
3	710.16	534.40	1.32	708.84	534.40
4	710.29	620.00	1.16	709.13	620.00
5	710.57	857.20	0.20	710.37	857.20

MIN ROAD ELEVATION 710.00

BRIDGE TYPE 2 GIRDER BOTTOM ELEVATION = 709.90 OPENING NO.= 1

RATING TABLE FOR SECTION 25.10 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	702.8	0.0	0.0						
BANK FULL	706.0	36.5	100.6	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	707.3	264.1	140.0	0.0	0.0	0.0	140.00	705.2	0.00030
2	708.9	1228.5	324.7	0.0	0.0	0.0	324.70	706.5	0.00004
3	710.2	2288.9	534.4	0.0	0.0	0.0	534.40	706.8	0.00002
4	710.3	2409.6	620.0	0.0	0.0	0.0	620.00	706.9	0.00002
5	710.6	2677.0	857.2	0.0	0.0	0.0	857.20	707.1	0.00003

SEGMENT TABLE FOR SECTION 25.10

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	140.	72.	59.	9.
140.	VELOCITY FPS	0.94	0.39	1.20	0.27
2	DISCHARGE CFS	325.	204.	43.	78.
325.	VELOCITY FPS	0.33	0.28	0.58	0.18
3	DISCHARGE CFS	534.	299.	43.	192.
534.	VELOCITY FPS	0.26	0.25	0.47	0.19
4	DISCHARGE CFS	620.	343.	48.	229.
620.	VELOCITY FPS	0.28	0.27	0.51	0.22
5	DISCHARGE CFS	857.	464.	62.	332.
857.	VELOCITY FPS	0.35	0.33	0.62	0.28
1	ELEV 707.3 KD	7713.	3746.	3674.	293.
2	ELEV 708.9 KD	53292.	33850.	7350.	12092.
3	ELEV 710.2 KD	128859.	72521.	10622.	45715.
4	ELEV 710.3 KD	138608.	77220.	10990.	50399.
5	ELEV 710.6 KD	162433.	88412.	11827.	62194.

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: McCoy Creek FPMS

3) WATERCOURSE: McCoy Creek

4) DOCUMENT TYPE: Summary to Schermer PK

00BREAK00

FINAL

80/80 LIST OF INPUT DATA

WSP2	15.						1
TITLE	MCCOY CREEK FPMS - BUCHANAN, MICHIGAN (WSP2/MCCOY.RR)						2
TITLE	PRESENT CONDITIONS - ST. JOE RIVER TO JUST ABOVE SCHERMER PK						3
DISCHARGE	-1.	227.24	505.23	823.04	952.45	1287.59	4
STARTE	9.80	642.	642.	642.	642.	642.	7
TRIB	10.20	21.51	22.70				10
OUTPUT	PSK						11
REACH	9.80	1.	0.	0.			12
SEGMENT	9.80	1	N	-22.			13A
NVALUE	.06						13B
SEGMENT	9.80	2	C	22.			13C
NVALUE	.04						13D
SEGMENT	9.80	3	N	130.			13E
NVALUE	.06						13F
SECTION	9.80						13G
	-110.	650.	-97.	640.	-22.	638.	13H
	-10.	634.	10.	634.	22.	638.	13I
	31.	640.	53.	642.	80.	644.	13J
	110.	646.	120.	648.	130.	650.	13K
ENDTABLE							13L
REACH	9.9	1.	250. (channel)	180. (FP-L)			14
REACH2	10.10	-1.5					15
ROAD	10.00	2.7	10.	10.			16
CULV1	10.00	2.	12311				17
CULV2	9.		228.0	634.9	634.1		18
SECTION	10.00						19
	-336.	681.3	-144.	675.2	0.	670.3	20
	110.	667.7	228.	667.1	426.	669.8	21
ENDTABLE							22
REACH	10.10	1.	10.	10.			23
SEGMENT	10.10	1	N	-11.			24
NVALUE	0.06						25
SEGMENT	10.10	2	C	13.			26
NVALUE	0.04						27
SEGMENT	10.10	3	N	225.0			28
NVALUE	0.06						29
SECTION	10.10						30
	-133.	657.5	-86.	649.2	-11.	640.4	31
	-5.	637.1	0.	635.5	9.	637.3	32
	13.	638.1	81.	639.5	167.	644.3	33
	194.	650.5	225.	656.0			34
ENDTABLE							35
REACH	10.20	1.	1050	600.			36
SEGMENT	10.20	1	N	-16.			37A
NVALUE	.06						37B

645 ?

----------80/80 LIST OF INPUT DATA----------

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SEGMENT   10.20     2         C         22.                                  37C
NVALUE    .04                                                                37D
SEGMENT   10.20     3         N         34.                                  37E
NVALUE    .06                                                                37F
SECTION   10.20                                                              37G
          -290.     660.      -265.     650.      -259.     648.             37H
          -250.     646.      -175.     644.2     -50.      644.2            37I
          -16.      644.      -8.       643.      8.        643.             37J
          22.       650.      34.       660.                                 37K
ENDTABLE                                                                     37L
COMPUTE   9.80      10.20     9.80                                           37M
```

----------END OF 80/80 LIST----------

COMPUTE 9.80 10.20 9.80 37M

----------STARTING DATA FROM GIVEN ELEVATION----------

RATING TABLE FOR SECTION 9.80 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	634.0	0.0	0.0						
BANK FULL	638.0	128.7	113.6	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	642.0	580.6	227.2	0.0	0.0	0.0	227.24	635.5	0.00002
2	642.0	580.6	505.2	0.0	0.0	0.0	505.23	636.4	0.00009
3	642.0	580.6	823.0	0.0	0.0	0.0	823.04	637.2	0.00024
4	642.0	580.6	952.4	0.0	0.0	0.0	952.45	637.4	0.00032
5	642.0	580.6	1287.6	0.0	0.0	0.0	1287.59	638.3	0.00058

SEGMENT TABLE FOR SECTION 9.80

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	227.	49.	171.	7.
227.	VELOCITY FPS	0.50	0.22	0.56	0.14
2	DISCHARGE CFS	505.	109.	381.	16.
505.	VELOCITY FPS	1.11	0.48	1.25	0.32
3	DISCHARGE CFS	823.	177.	621.	25.
823.	VELOCITY FPS	1.81	0.78	2.04	0.52
4	DISCHARGE CFS	952.	205.	718.	29.
952.	VELOCITY FPS	2.10	0.90	2.36	0.60
5	DISCHARGE CFS	1288.	277.	971.	40.
1288.	VELOCITY FPS	2.84	1.22	3.19	0.81
1	ELEV 642.0	KD	53326.	11483.	40207.	1636.
2	ELEV 642.0	KD	53326.	11483.	40207.	1636.
3	ELEV 642.0	KD	53326.	11483.	40207.	1636.
4	ELEV 642.0	KD	53326.	11483.	40207.	1636.
5	ELEV 642.0	KD	53326.	11483.	40207.	1636.

KD TABLE FOR CROSS SECTION 9.80

ELEVATION	AREA	KD	KD BY SEGMENT		
634.00	0.				
635.	23.	784.	1.	782.	1.
636.	52.	2637.	1.	2635.	1.
637.	87.	5524.	1.	5522.	1.
638.	129.	9628.	3.	9623.	2.
639.	196.	15919.	263.	15538.	31.
640.	302.	24961.	1857.	22722.	204.
641.	435.	37469.	5733.	30968.	642.
642.	581.	53327.	11483.	40207.	1636.
643.	741.	72242.	18536.	50369.	3336.
644.	915.	94379.	26885.	61427.	6066.
645.	1106.	119739.	36444.	73346.	9948.
646.	1312.	148561.	47148.	86095.	15316.
647.	1531.	181919.	58887.	99640.	23264.
648.	1756.	218648.	71721.	113971.	32805.
649.	1986.	258687.	85605.	129068.	43883.
650.	2222.	302427.	100606.	144909.	56793.
651.	2462.	349517.	116487.	161441.	71361.
652.	2702.	396842.	132010.	178523.	85010.
653.	2942.	447491.	148593.	196342.	100316.
654.	3182.	501503.	166247.	214889.	117376.

RATING TABLE FOR SECTION 9.9 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	634.0	0.0	0.0						
BANK FULL	636.6	29.9	73.8	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	642.0	659.2	227.2	0.0	0.0	0.0	227.24	637.0	0.00002
2	642.0	664.2	505.2	0.0	0.0	0.0	505.23	637.7	0.00010
3	642.1	674.8	823.0	0.0	0.0	0.0	823.04	638.2	0.00025
4	642.1	680.0	952.4	0.0	0.0	0.0	952.45	638.3	0.00033
5	642.2	697.5	1287.6	0.0	0.0	0.0	1287.59	638.7	0.00056

SEGMENT TABLE FOR SECTION 9.9

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	227.	7.	85.	135.
227.	VELOCITY FPS	0.41	0.17	0.55	0.29
2	DISCHARGE CFS	505.	16.	189.	300.
505.	VELOCITY FPS	0.90	0.39	1.22	0.64
3	DISCHARGE CFS	823.	27.	305.	490.
823.	VELOCITY FPS	1.44	0.63	1.96	1.03
4	DISCHARGE CFS	952.	32.	352.	568.
952.	VELOCITY FPS	1.66	0.73	2.25	1.19
5	DISCHARGE CFS	1288.	46.	470.	772.
1288.	VELOCITY FPS	2.19	0.97	2.96	1.57
1	ELEV 642.0 KD	50752.	1601.	19044.	30106.
2	ELEV 642.0 KD	51220.	1633.	19166.	30421.
3	ELEV 642.1 KD	52208.	1701.	19421.	31085.
4	ELEV 642.1 KD	52700.	1736.	19548.	31417.
5	ELEV 642.2 KD	54385.	1856.	19977.	32552.

KD TABLE FOR CROSS SECTION 9.9

ELEVATION	AREA	KD	KD BY SEGMENT		
634.00	0.				
635.	5.	103.	1.	101.	1.
636.	17.	651.	1.	648.	1.
637.	41.	1965.	1.	1925.	39.
638.	108.	5121.	1.	3966.	1080.
639.	208.	11284.	3.	6661.	4578.
640.	333.	20795.	86.	10187.	10456.
641.	483.	33799.	548.	14327.	18875.
642.	658.	50643.	1594.	19016.	30033.
643.	861.	72116.	3359.	24207.	44549.
644.	1081.	99895.	6013.	29887.	63996.
645.	1314.	132067.	9693.	36036.	86337.
646.	1560.	168645.	14531.	42637.	111476.
647.	1821.	209558.	20616.	49668.	139222.
648.	2093.	255320.	28371.	57126.	169733.
649.	2375.	305601.	37817.	65000.	202690.
650.	2668.	360157.	48871.	73277.	237936.
651.	2972.	418955.	61427.	81948.	275533.
652.	3288.	482312.	75495.	90998.	315768.
653.	3616.	550283.	91118.	100420.	358657.
654.	3953.	623908.	108469.	110216.	405158.
655.	4300.	703903.	127579.	120380.	455943.
656.	4656.	793149.	149298.	130883.	512894.
657.	5013.	884351.	171988.	141677.	570081.
658.	5371.	978195.	195832.	152777.	628063.
659.	5729.	1077552.	221803.	164240.	689211.
660.	6087.	1182504.	249994.	176062.	753562.

ROAD SECTION 10.00

NO.	HW	CFS	HL	TW	CSM
0	634.90	0.00	0.00	0.00	0.00
1	642.16	227.24	0.16	642.01	227.24
2	642.91	505.23	0.88	642.03	505.23
3	644.32	823.04	2.24	642.08	823.04
4	645.07	952.45	2.96	642.11	952.45
5	647.23	1287.59	5.04	642.20	1287.59

MIN ROAD ELEVATION 667.10

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	2	12311.	9.00		228.00	634.90	634.10	0.024

projection
n = .021

$A_2 = 122.2$

$KKOK = 1 + 3 + \frac{29 \times (.026)^2 \, 228}{(225)^{2/3}} = 3.42$

RATING TABLE FOR SECTION 10.10 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	635.5	0.0	0.0						
BANK FULL	638.1	29.9	88.7	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	642.2	429.2	227.2	0.0	0.0	0.0	227.24	638.5	0.00007
2	642.9	551.1	505.2	0.0	0.0	0.0	505.23	639.2	0.00019
3	644.3	823.7	823.0	0.0	0.0	0.0	823.04	639.7	0.00018
4	645.1	985.1	952.4	0.0	0.0	0.0	952.45	639.8	0.00015
5	647.2	1494.5	1287.6	0.0	0.0	0.0	1287.59	640.2	0.00008

SEGMENT TABLE FOR SECTION 10.10

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	227.	3.	109.	115.
227.	VELOCITY FPS	0.69	0.20	0.90	0.39
2	DISCHARGE CFS	505.	11.	223.	271.
505.	VELOCITY FPS	1.19	0.40	1.59	0.71
3	DISCHARGE CFS	823.	35.	312.	477.
823.	VELOCITY FPS	1.28	0.52	1.80	0.82
4	DISCHARGE CFS	952.	50.	332.	571.
952.	VELOCITY FPS	1.22	0.53	1.73	0.82
5	DISCHARGE CFS	1288.	103.	373.	812.
1288.	VELOCITY FPS	1.04	0.51	1.53	0.77
1	ELEV 642.2 KD	26512.	288.	12866.	13358.
2	ELEV 642.9 KD	36459.	754.	16157.	19548.
3	ELEV 644.3 KD	60993.	2503.	23207.	35283.
4	ELEV 645.1 KD	77901.	3987.	27334.	46579.
5	ELEV 647.2 KD	140453.	11102.	40819.	88532.

KD TABLE FOR CROSS SECTION 10.10

ELEVATION	AREA	KD	KD BY SEGMENT		
535.50	0.				
536.	1.	18.	1.	16.	1.
537.	10.	299.	1.	297.	1.
538.	27.	1174.	1.	1168.	2.
539.	68.	3170.	1.	2865.	260.
540.	155.	7401.	1.	5219.	2127.
541.	266.	14543.	18.	8348.	6148.
542.	403.	24647.	227.	12195.	12205.
543.	568.	37901.	831.	16599.	20425.
544.	759.	54812.	1985.	21531.	31217.
545.	971.	75424.	3843.	26972.	45525.
546.	1198.	102776.	6515.	32891.	63300.
547.	1437.	132925.	10115.	39270.	83478.
548.	1690.	166850.	14738.	46089.	105944.
549.	1955.	204805.	20594.	53345.	130802.
550.	2231.	246892.	27945.	61020.	157903.
551.	2519.	292609.	36680.	69096.	186806.
552.	2819.	341813.	46630.	77564.	217562.
553.	3130.	394908.	57869.	86419.	250531.
554.	3450.	452101.	70527.	95664.	285857.
555.	3782.	513328.	84556.	105279.	323471.
556.	4127.	580190.	99917.	115248.	364958.
557.	4478.	653483.	117214.	125583.	410613.
558.	4834.	732959.	136472.	136264.	460128.
559.	5192.	811981.	155832.	147181.	507996.
560.	5550.	895691.	176957.	158463.	558535.
561.	5908.	984158.	199926.	170106.	611775.

RATING TABLE FOR SECTION 10.20 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	643.0	0.0	0.0						
BANK FULL	644.0	22.8	122.2	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	644.9	162.3	227.2	0.0	0.0	0.0	227.24	644.3	0.00210
2	645.3	259.8	505.2	0.0	0.0	0.0	505.23	644.6	0.00266
3	645.9	418.2	823.0	0.0	0.0	0.0	823.04	644.9	0.00176
4	646.4	531.8	952.4	0.0	0.0	0.0	952.45	645.0	0.00112
5	647.7	880.9	1287.6	0.0	0.0	0.0	1287.59	645.1	0.00040

SEGMENT TABLE FOR SECTION 10.20

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	227.	130.	97.	0.
227.	VELOCITY FPS	1.74	1.10	2.21	0.0
2	DISCHARGE CFS	505.	340.	165.	0.
505.	VELOCITY FPS	2.20	1.67	2.93	0.0
3	DISCHARGE CFS	823.	611.	212.	0.
823.	VELOCITY FPS	2.11	1.78	2.82	0.0
4	DISCHARGE CFS	952.	738.	215.	0.
952.	VELOCITY FPS	1.89	1.66	2.43	0.0
5	DISCHARGE CFS	1288.	1054.	233.	0.
1288.	VELOCITY FPS	1.49	1.40	1.80	0.0
1	ELEV 644.9 KD	4893.	2688.	2204.	1.
2	ELEV 645.3 KD	9771.	6522.	3248.	1.
3	ELEV 645.9 KD	19583.	14507.	5075.	1.
4	ELEV 646.4 KD	28439.	21945.	6493.	1.
5	ELEV 647.7 KD	63977.	52348.	11627.	1.

KD TABLE FOR CROSS SECTION 10.20

ELEVATION	AREA	KD	KD BY SEGMENT		
643.00	0.				
644.	23.	696.	7.	684.	1.
645.	192.	6411.	3886.	2523.	1.
646.	434.	20786.	15510.	5274.	1.
647.	702.	44412.	35550.	8846.	1.
648.	975.	75288.	62071.	13208.	1.
649.	1255.	112814.	94459.	18347.	1.
650.	1539.	156699.	132302.	24393.	2.
651.	1828.	207229.	175325.	31894.	10.
652.	2121.	263474.	223064.	40343.	66.
653.	2417.	325161.	275398.	49569.	194.
654.	2717.	392125.	332168.	59539.	419.
655.	3020.	464228.	393242.	70226.	759.
656.	3328.	541282.	458444.	81597.	1230.
657.	3639.	623304.	527782.	93649.	1855.
658.	3954.	710194.	601162.	106361.	2651.
659.	4273.	801868.	678501.	119715.	3634.
660.	4594.	898726.	760195.	133694.	4823.
661.	4918.	1002323.	847777.	148279.	6251.
662.	5242.	1108015.	937123.	163314.	7483.
663.	5566.	1217709.	1029848.	178925.	8738.
664.	5890.	1332110.	1126547.	195157.	10126.
665.	6214.	1451186.	1227192.	212003.	11655.

102 WSEL=696.45

----------80/80 LIST OF INPUT DATA----------

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CHANGE    DISCHARGE                                                        37N
DISCHARGE -1.       181.74    411.71    671.62    777.94    1062.99      370
TITLE     PRESENT CONDITIONS- ABOVE SCHERMER PKWY TO MCCOY-MILL JUNC      37P
END                                                                        37Q
REACH     10.50     1.        730.      600.                             38
SEGMENT   10.50     1         N         -8.                              39
NVALUE    0.06                                                           40
SEGMENT   10.50     2         C         16.                              41
NVALUE    0.04                                                           42
SEGMENT   10.50     3         N         115.                             43
NVALUE    0.06                                                           44
SECTION   10.50                                                          45
          -124.     658.1     -34.      655.8     -8.       648.5        46
          -3.       645.6     0.        644.9     11.       645.8        47
          16.       648.7     58.       651.2     115.      661.2        48
ENDTABLE                                                                 49
REACH     10.70     1.        750.      750.                             50
SEGMENT   10.70     1         N         -14.                             51
NVALUE    0.06                                                           52
SEGMENT   10.70     2         C         12.                              53
NVALUE    0.04                                                           54
SEGMENT   10.70     3         N         54.                              55
NVALUE    0.06                                                           56
SECTION   10.70                                                          57
          -52.      682.3     -31.      666.9     -14.      652.3        58
          -7.       649.1     0.        649.2     6.        648.5        59
          12.       652.2     54.       681.8                            60
ENDTABLE                                                                 61
----------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 10.70 EXCEEDS  15. FEET----------
REACH     10.80     1.        156.      156.                             64
SEGMENT   10.80     1         N         -25.                             65
NVALUE    0.06                                                           66
SEGMENT   10.80     2         C         26.                              67
NVALUE    0.04                                                           68
SEGMENT   10.80     3         N         49.                              69
NVALUE    0.06                                                           70
SECTION   10.80                                                          71
          -58.      678.0     -56.      673.1     -25.      669.3        72
          -24.      659.2     0.        660.6     10.       660.6        73
          15.       661.9     26.       664.0     49.       677.4        74
ENDTABLE                                                                 75
ROAD      10.90     2.7       50.       50.                             75A
CULV1     10.90     1.        32111                                      75B
CULV2     6.        10.       54.       664.63    664.88                  76
SECTION   10.90                                                          78
          -58.      676.      0.        674.2     65.       676.
```

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----------80/80 LIST OF INPUT DATA----------
          -105.     688.0     105.      688.0                                  78A
ENDTABLE                                                                       80
----------DATA POINTS ON SECTION 10.90  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED----------
REACH     10.95     1.        200.      200.                                   81
SEGMENT   10.95     1         N         -29.9                                  82
NVALUE    0.03                                                                 82A
SEGMENT   10.95     2         C         26.                                    82B
NVALUE    0.04                                                                 82C
SEGMENT   10.95     3         N         313.                                   82D
NVALUE    0.03                                                                 82E
SECTION   10.95                                                                82F
          -235.     690.0     -150.     688.0     -149.9    700.0              82G
          -30.      700.0     -29.9     676.2     -9.0      663.8              82H
          0.        664.0     9.        664.6     26.       675.2              82I
          88.       677.5     150.      685.0     151.      684.5              82J
          180.      684.2     205.      684.2     213.      686.2              82K
          313.      711.2                                                      82L
ENDTABLE                                                                       82M
----------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 10.95  EXCEEDS  15. FEET----------
ROAD      11.00     2.7       240.      240.                                   83
CULV1     11.00     1.        22552                                            84
CULV2     7.5                 236.      665.5     663.1                        85
SECTION   11.00                                                                86
          -225.     690.7     0.        687.9     67.       687.5              87
          170.      690.0     235.      690.5     650.      692.0              87A
          651.      685.5     681.      684.2     706.      684.2              87B
          714.      686.2                                                      87C
ENDTABLE                                                                       88
REACH     11.10     1.        80.       80.                                    88A
SEGMENT   11.10     1         N         -27.                                   88B
NVALUE    0.03                                                                 88C
SEGMENT   11.10     2         C         23.                                    88D
NVALUE    0.04                                                                 88E
SEGMENT   11.10     3         N         949.                                   88F
NVALUE    0.03                                                                 88G
SECTION   11.10                                                                88H
          -440.     700.0     -115.     684.0     -30.      682.0              88I
          -27.      680.0     -9.       665.6     0.        665.8              88J
          9.        666.4     23.       680.0     80.       681.6              88K
          135.      682.0     200.      684.0     214.      684.2              88L
          214.1     700.0     544.      700.0     544.1     678.9              88M
          624.      679.0     625.      678.5     639.      678.7              88N
          649.      680.0     700.      680.3     749.      682.5              880
          949.      691.3                                                      88P
ENDTABLE                                                                       88N
----------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 11.10  EXCEEDS  15. FEET----------
REACH     11.90     1.        235.      235.                                   89
SEGMENT   11.90     1         N         -31.                                   90
```

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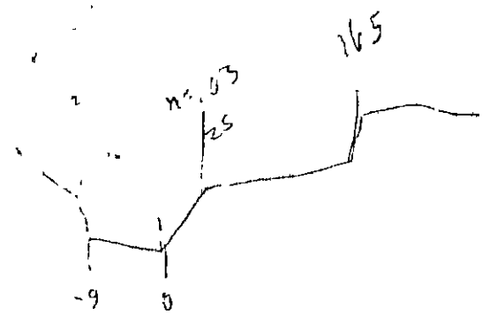
----------80/80 LIST OF INPUT DATA----------
NVALUE    .04                                                          91
SEGMENT   11.90     2         C         25.                           92
NVALUE    .03                                                          93
SEGMENT   11.90     3         N         165.1                         94
NVALUE    .04                                                          95
SECTION   11.90                                                        96
          -152.     682.1     -31.      679.7     -9.       667.3     98
          0.        667.5     25.       680.0     165.      682.0     99
          165.1     700.0     -440.     690.0                       100.
ENDTABLE                                                             101
----------DATA POINTS ON SECTION 11.90  REORDERED BY PROGRAM ACCORDING TO X VALUES
          DUPLICATE X POINTS NOT CHANGED----------
----------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 11.90  EXCEEDS  15. FEET----------
ROAD      12.00     2.7       60.       60.                           102
CULV1     12.00     1.        12133                                   103
CULV2     7.7       6.5       64.       668.3     668.2               104
SECTION   12.00                                                        105
          -360.     700.0     -295.1    700.0     -295.     682.0     106
          -275.     680.0     -235.     679.8     0.        679.4    106A
          22.       680.0     60.       681.0     60.1      700.0    106B
          -360.1    684.5     -405.     686.0     405.1     700.0    106C
ENDTABLE                                                             108
----------DATA POINTS ON SECTION 12.00  REORDERED BY PROGRAM ACCORDING TO X VALUES
          DUPLICATE X POINTS NOT CHANGED----------
----------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 12.00  EXCEEDS  15. FEET----------
REACH     12.50     1.        40.       40.                           109
SEGMENT   12.50     1         N         -20.                          110
NVALUE    .04                                                         110A
SEGMENT   12.50     2         C         18.                           110B
NVALUE    0.03                                                        110C
SEGMENT   12.50     3         N         735.0                         110D
NVALUE    0.04                                                        110E
SECTION   12.50                                                       110F
          -460.     686.0     -340.     684.0     -265.     682.0    110G
          -215.     680.0     -95.      678.4     -20.      678.0    110H
          -9.       668.3     0.        668.5     9.        669.1    110I
          18.       680.0     75.       681.0     75.1      700.0    110J
          700.      688.0     735.      690.0     -735.     690.0    110K
ENDTABLE                                                            110L
----------DATA POINTS ON SECTION 12.50  REORDERED BY PROGRAM ACCORDING TO X VALUES
          DUPLICATE X POINTS NOT CHANGED----------
----------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 12.50  EXCEEDS  15. FEET----------
ROAD      13.00     2.7       65.       65.                           111
CULV1     13.00     1.        32133                                   112
CULV2     7.0       16.0      120.      668.3     667.8     0.012     113
SECTION   13.00                                                       114
          -495.1    685.5     -495.     700.0     -365.1    700.      115
          -365.     684.0     -285.     682.0     -235.     680.5     116
          -210.     680.0     -170.     679.0     -169.9    700.0    116A
          40.       700.0     40.1      678.0     150.      680.0    116B
          150.1     700.0     -530.     686.0                        116C
ENDTABLE                                                            117
----------DATA POINTS ON SECTION 13.00  REORDERED BY PROGRAM ACCORDING TO X VALUES
          DUPLICATE X POINTS NOT CHANGED----------
----------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 13.00  EXCEEDS  15. FEET----------
REACH     13.10     1.        10.       10.                           118
SEGMENT   13.10     1         N         -9.                           119
```



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----------------------------80/80 LIST OF INPUT DATA-------------------------------
NVALUE    .04                                                              120
SEGMENT   13.10     2         C         9.                                 121
NVALUE    .02                                                              122
SEGMENT   13.10     3         N         106.                               123
NVALUE    .04                                                              124
SECTION   13.10                                                            125
          -927.     693.9     -191.     679.6     -9.       677.4          126
          -8.       668.3     8.        668.3     9.        677.4          127
          105.      680.9     106.      694.                               128
ENDTABLE                                                                   129
REACH     13.20     1.        2.        2.                                 130
SEGMENT   13.20     1         N         -26.                               130
NVALUE    .02                                                              131
SEGMENT   13.20     2         C         900.0                              132
NVALUE    .02                                                              133
SECTION   13.20                                                            134
          -510.     686.0     -350.     684.0     -320.     682.0          135
          -200.     680.      -149.     678.5     -96.      676.9          136
          -26.      676.6     -25.      673.2     11.       673.4         136A
          24.       677.1     24.1      700.0     650.      688.0         136B
          900.      690.0                                                136C
ENDTABLE                                                                   137
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 13.20  EXCEEDS  15. FEET------------
REACH     13.90     1.        330.      330.                               138
SEGMENT   13.90     1         N         -15.                               139
NVALUE    .04                                                              140
SEGMENT   13.90     2         C         22.                                141
NVALUE    .03                                                              142
SEGMENT   13.90     3         N         370.0                              143
NVALUE    .04                                                              144
SECTION   13.90                                                            145
          -540.     686.0     -375.     684.5     -374.9    700.0          146.
          -333.     700.0     -332.9    683.0     -313.     682.0          147
          -188.     680.0     -165.     682.0     -120.     687.0          148
          -50.      682.0     -15.      680.0     -7.       671.3        148.1
          7.        671.3     22.       680.0     70.       682.0        148.2
          170.      684.0     310.      686.0     370.      688.0        148.3
ENDTABLE                                                                   149
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 13.90  EXCEEDS  15. FEET------------
ROAD      14.00     2.7       15.       15.                                150
CULV1     14.00     1.        32111                                        151
CULV2     4.7       10.5      150.      673.4     671.3     0.029          152
SECTION   14.00                                                            153
          -445.     686.0     -280.     684.0     -240.     682.0          154
          -190.     680.3     -189.9    700.0     -40.      700.0          155
          -39.9     680.0     0.        680.5     75.       682.0          156
          125.      683.4     200.      684.0     275.      686.0          157
```

```
------------------------------80/80 LIST OF INPUT DATA-------------------------------
ENDTABLE                                                                        158
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 14.00  EXCEEDS  15. FEET-------------
REACH     14.90     1.        140.      140.                                    168
SEGMENT   14.90     1         N         -9.                                     169
NVALUE    .04                                                                   170
SEGMENT   14.90     2         C         8.                                      171
NVALUE    .03                                                                   172
SEGMENT   14.90     3         N         500.0                                   173
NVALUE    .04                                                                   174
SECTION   14.90                                                                 175
          -360.     700.0     -359.9    689.0     -320.     688.0               176
          -290.     687.0     -289.9    700.0     -23.1     700.0               177
          -23.      676.3     -9.       676.3     -7.       673.8               178
          0.        673.7     7.        673.4     8.        677.5               179
          20.       683.9     20.1      700.0     95.       700.0               180
          120.      683.4     160.      683.9     160.1     700.0               181
          275.      700.0     275.1     684.3     290.      683.7               182
          335.      683.7     350.      684.3     375.      684.5               183
          375.1     700.0     465.      700.0     465.1     686.0               184
          500.      688.0                                                       185
ENDTABLE                                                                        185
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 14.90  EXCEEDS  15. FEET-------------
COMPUTE   10.50     14.90     10.20                                             284
------------------------------END OF 80/80 LIST--------------------------------
```

COMPUTE 10.50 14.90 10.20 284

----------STARTING DATA FROM PREVIOUS COMPUTATIONS----------

RATING TABLE FOR SECTION 10.50 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	644.9	0.0	0.0						
1	648.1	47.8	181.7	0.0	0.0	0.0	181.74	647.0	0.00408
BANK FULL	648.5	57.9	285.5	0.0	0.0	0.0			
2	649.0	72.7	411.7	0.0	0.0	0.0	411.71	648.1	0.00625
3	650.0	113.2	671.6	0.0	0.0	0.0	671.62	649.2	0.00603
4	650.2	124.3	777.9	0.0	0.0	0.0	777.94	649.6	0.00660
5	651.1	178.4	1063.0	0.0	0.0	0.0	1062.99	650.2	0.00567

780

SEGMENT TABLE FOR SECTION 10.50

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	3.81	0.0	3.80	0.0
2	DISCHARGE CFS	412.	1.	410.	1.
412.	VELOCITY FPS	5.78	0.95	5.78	0.74
3	DISCHARGE CFS	672.	8.	637.	26.
672.	VELOCITY FPS	6.69	1.82	6.80	1.73
4	DISCHARGE CFS	778.	11.	728.	39.
778.	VELOCITY FPS	7.20	2.03	7.37	1.94
5	DISCHARGE CFS	1063.	28.	922.	112.
1063.	VELOCITY FPS	7.31	2.40	7.74	2.37
1	ELEV 648.1 KD		2845.	1.	2843.	1.
2	ELEV 649.0 KD		5207.	6.	5191.	10.
3	ELEV 650.0 KD		8587.	82.	8241.	263.
4	ELEV 650.2 KD		9500.	117.	8988.	396.
5	ELEV 651.1 KD		14050.	356.	12301.	1393.

KD TABLE FOR CROSS SECTION 10.50

ELEVATION	AREA	KD	KD BY SEGMENT		
544.90	0.				
545.	0.	3.	1.	2.	1.
546.	10.	260.	1.	257.	1.
547.	26.	1204.	1.	1202.	1.
548.	47.	2746.	1.	2743.	1.
549.	72.	5082.	6.	5066.	9.
550.	114.	8682.	83.	8269.	267.
551.	175.	13819.	337.	12094.	1310.
552.	252.	20989.	840.	16482.	3625.
553.	340.	30160.	1646.	21389.	7100.
554.	437.	41269.	2813.	26794.	11641.
555.	543.	54334.	4359.	32675.	17286.
556.	661.	68943.	5838.	39013.	24079.
557.	811.	84859.	6949.	45792.	32067.
558.	1005.	105764.	11402.	53000.	41304.
559.	1227.	133371.	20520.	60619.	51824.
560.	1456.	165349.	32664.	68645.	63716.
561.	1691.	201680.	46903.	77067.	77496.
562.	1929.	241107.	61962.	85843.	92883.
563.	2168.	280741.	75535.	94916.	108531.
564.	2407.	324227.	91105.	104383.	125757.
565.	2646.	371704.	108839.	114237.	144626.

RATING TABLE FOR SECTION 10.70 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	648.5	0.0	0.0						
1	651.6	48.5	181.7	0.0	0.0	0.0	181.74	650.6	0.00423
BANK FULL	652.2	63.1	298.6	0.0	0.0	0.0			
2	652.8	78.5	411.7	0.0	0.0	0.0	411.71	651.7	0.00509
3	653.7	106.3	671.6	0.0	0.0	0.0	671.62	652.5	0.00529
4	654.2	120.4	777.9	0.0	0.0	0.0	777.94	652.8	0.00485
5	655.0	145.3	1063.0	0.0	0.0	0.0	1062.99	653.6	0.00520

SEGMENT TABLE FOR SECTION 10.70

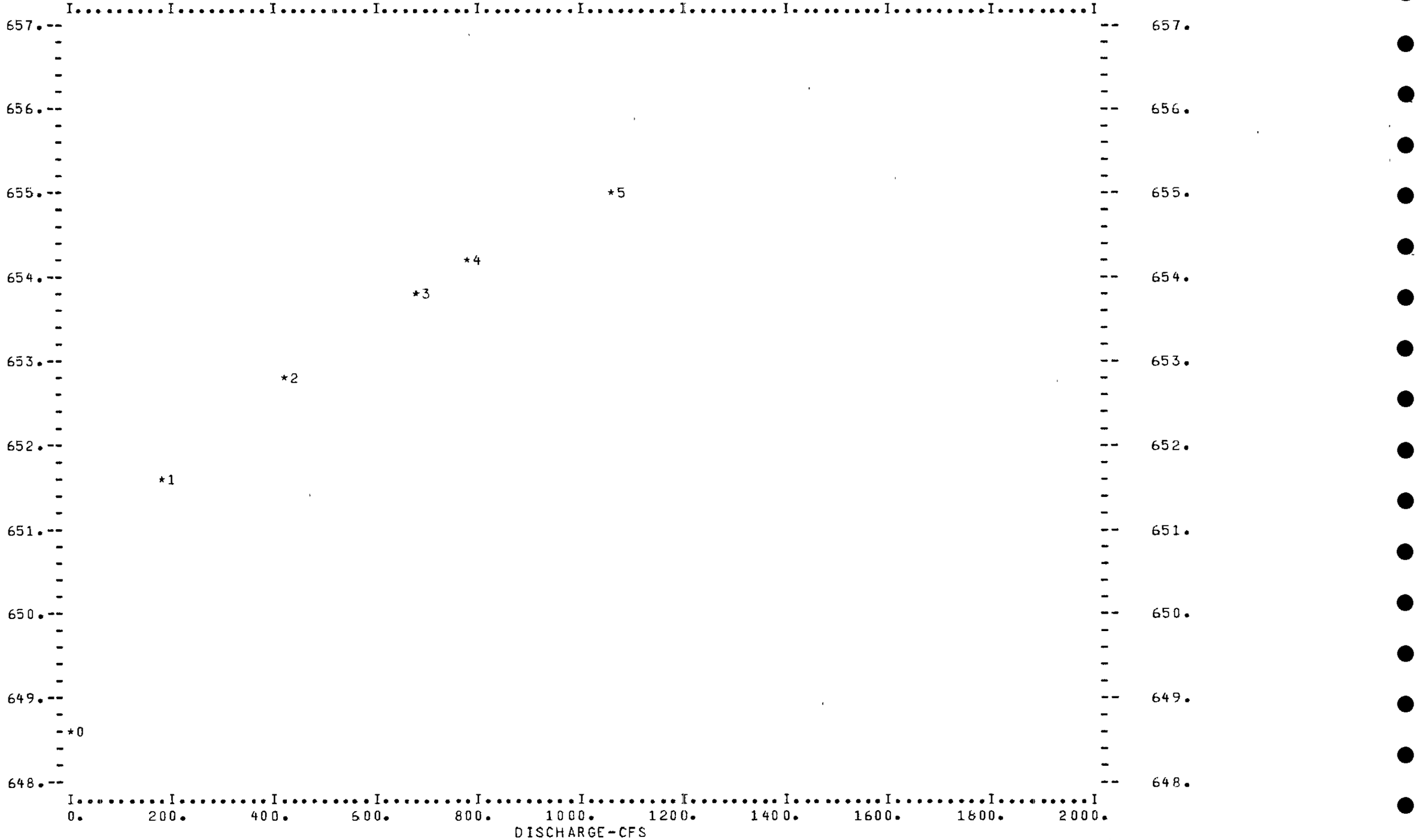
CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	3.76	0.0	3.75	0.0
2	DISCHARGE CFS	412.	0.	412.	0.
412.	VELOCITY FPS	5.28	0.0	5.28	0.0
3	DISCHARGE CFS	672.	2.	667.	3.
672.	VELOCITY FPS	6.48	1.30	6.47	1.41
4	DISCHARGE CFS	778.	3.	770.	5.
778.	VELOCITY FPS	6.66	1.43	6.68	1.55
5	DISCHARGE CFS	1063.	8.	1044.	11.
1063.	VELOCITY FPS	7.65	1.83	7.71	1.97
1	ELEV 651.6	KD	2795.	1.	2793.	1.
2	ELEV 652.8	KD	5771.	2.	5767.	2.
3	ELEV 653.7	KD	9223.	19.	9176.	29.
4	ELEV 654.2	KD	11164.	42.	11060.	61.
5	ELEV 655.0	KD	14734.	105.	14481.	148.

KD TABLE FOR CROSS SECTION 10.70

ELEVATION	AREA	KD	KD BY SEGMENT		
548.50	0.				
549.	1.	21.	1.	18.	1.
550.	16.	521.	1.	519.	1.
551.	35.	1741.	1.	1739.	1.
552.	58.	3616.	1.	3614.	1.
553.	85.	6505.	4.	6494.	5.
554.	114.	10279.	30.	10199.	45.
555.	146.	14799.	106.	14540.	150.
556.	180.	20058.	246.	19466.	338.
557.	217.	26062.	465.	24952.	631.
558.	257.	32819.	780.	30977.	1047.
559.	299.	40330.	1203.	37510.	1603.
560.	344.	48606.	1744.	44534.	2312.
561.	391.	57655.	2416.	52028.	3190.
562.	441.	67490.	3232.	59988.	4254.
563.	493.	78119.	4201.	68395.	5516.
564.	548.	89557.	5332.	77232.	6986.
565.	606.	101817.	6634.	86490.	8676.
566.	667.	114913.	8118.	96163.	10601.
567.	730.	128842.	9792.	106250.	12780.
568.	795.	143606.	11645.	116735.	15218.
569.	864.	159272.	13721.	127601.	17920.
570.	935.	175834.	16037.	138858.	20909.
571.	1008.	193309.	18606.	150496.	24196.
572.	1085.	211747.	21436.	162495.	27777.
573.	1165.	231125.	24541.	174866.	31679.
574.	1246.	251459.	27933.	187603.	35912.
575.	1332.	272812.	31613.	200683.	40469.
576.	1420.	295138.	35603.	214124.	45382.
577.	1510.	318491.	39906.	227908.	50648.
578.	1604.	342891.	44529.	242029.	56275.
579.	1699.	368299.	49496.	256499.	62291.
580.	1799.	394822.	54794.	271290.	68676.
581.	1900.	422415.	60471.	286424.	75504.
582.	2005.	451568.	66613.	301872.	83013.
583.	2110.	481465.	72970.	317636.	90718.
584.	2216.	511630.	79236.	333674.	98164.
585.	2322.	542769.	85844.	350043.	105989.
586.	2428.	574884.	92802.	366740.	114200.

CROSS SECTION 10.70

SCALES ARE 1 INCH = 200. CFS, AND 1.2 FEET/ ELEVATION



RATING TABLE FOR SECTION 10.80 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM		CRIT ELEV	FRICTION SLOPE
0	659.2	0.0	0.0							
1	661.1	33.0	181.7	0.0	0.0	0.0	181.74	C	661.1	0.02735
2	661.7	58.6	411.7	0.0	0.0	0.0	411.71	C	661.7	0.02280
3	662.4	83.4	671.6	0.0	0.0	0.0	671.62	C	662.4	0.02075
4	662.6	92.8	777.9	0.0	0.0	0.0	777.94	C	662.6	0.02030
5	663.1	116.9	1063.0	0.0	0.0	0.0	1062.99	C	663.1	0.01927

SEGMENT TABLE FOR SECTION 10.80

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	5.63	0.0	5.51	0.0
2	DISCHARGE CFS	412.	0.	412.	0.
412.	VELOCITY FPS	7.09	0.0	7.03	0.0
3	DISCHARGE CFS	672.	0.	672.	0.
672.	VELOCITY FPS	8.09	0.0	8.05	0.0
4	DISCHARGE CFS	778.	0.	778.	0.
778.	VELOCITY FPS	8.42	0.0	8.38	0.0
5	DISCHARGE CFS	1063.	0.	1063.	0.
1063.	VELOCITY FPS	9.12	0.0	9.09	0.0
1	ELEV 661.1 KD	1099.	1.	1097.	1.
2	ELEV 661.7 KD	2727.	1.	2725.	1.
3	ELEV 662.4 KD	4662.	1.	4660.	1.
4	ELEV 662.6 KD	5460.	1.	5458.	1.
5	ELEV 663.1 KD	7657.	1.	7655.	1.

KD TABLE FOR CROSS SECTION 10.80

ELEVATION	AREA	KD	KD BY SEGMENT		
559.20	0.				
560.	6.	109.	1.	107.	1.
561.	31.	990.	1.	988.	1.
562.	69.	3478.	1.	3476.	1.
563.	111.	7124.	1.	7122.	1.
564.	159.	11941.	1.	11939.	1.
565.	210.	18678.	1.	18662.	11.
566.	264.	26551.	1.	26470.	74.
567.	319.	35471.	1.	35239.	225.
568.	375.	45345.	1.	44850.	486.
569.	434.	56148.	1.	55255.	884.
570.	497.	68393.	23.	66908.	1440.
571.	569.	82082.	239.	79615.	2175.
572.	652.	97264.	849.	93193.	3103.
573.	743.	114112.	2073.	107627.	4250.
574.	841.	132727.	4074.	122885.	5633.
575.	941.	153073.	6797.	138945.	7269.
576.	1044.	174945.	9984.	155787.	9173.
577.	1149.	198241.	13439.	173356.	11346.
578.	1255.	223093.	17373.	191690.	13931.
579.	1362.	249153.	21540.	210718.	16793.
580.	1469.	275215.	25143.	230232.	19273.
581.	1576.	302586.	29136.	250508.	21976.
582.	1683.	331268.	33540.	271541.	24911.

ROAD SECTION 10.90

NO.	HW	CFS	HL	TW	CSM
0	664.88	0.00	0.00	0.00	0.00
1	669.38	181.74	2.64	666.74	181.74
2	672.94	411.71	5.52	667.42	411.71
3	675.32	671.62	7.28	668.04	671.62
4	675.54	777.94	7.28	668.26	777.94
5	676.08	1062.99	7.28	668.80	1062.99

$\sqrt{0.2}$ $\Delta h = 7.28'$

MIN ROAD ELEVATION 674.20

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	32111.	6.44	9.52	54.00	664.63	664.88	0.032

Pipe Arch
n = .032
projecting

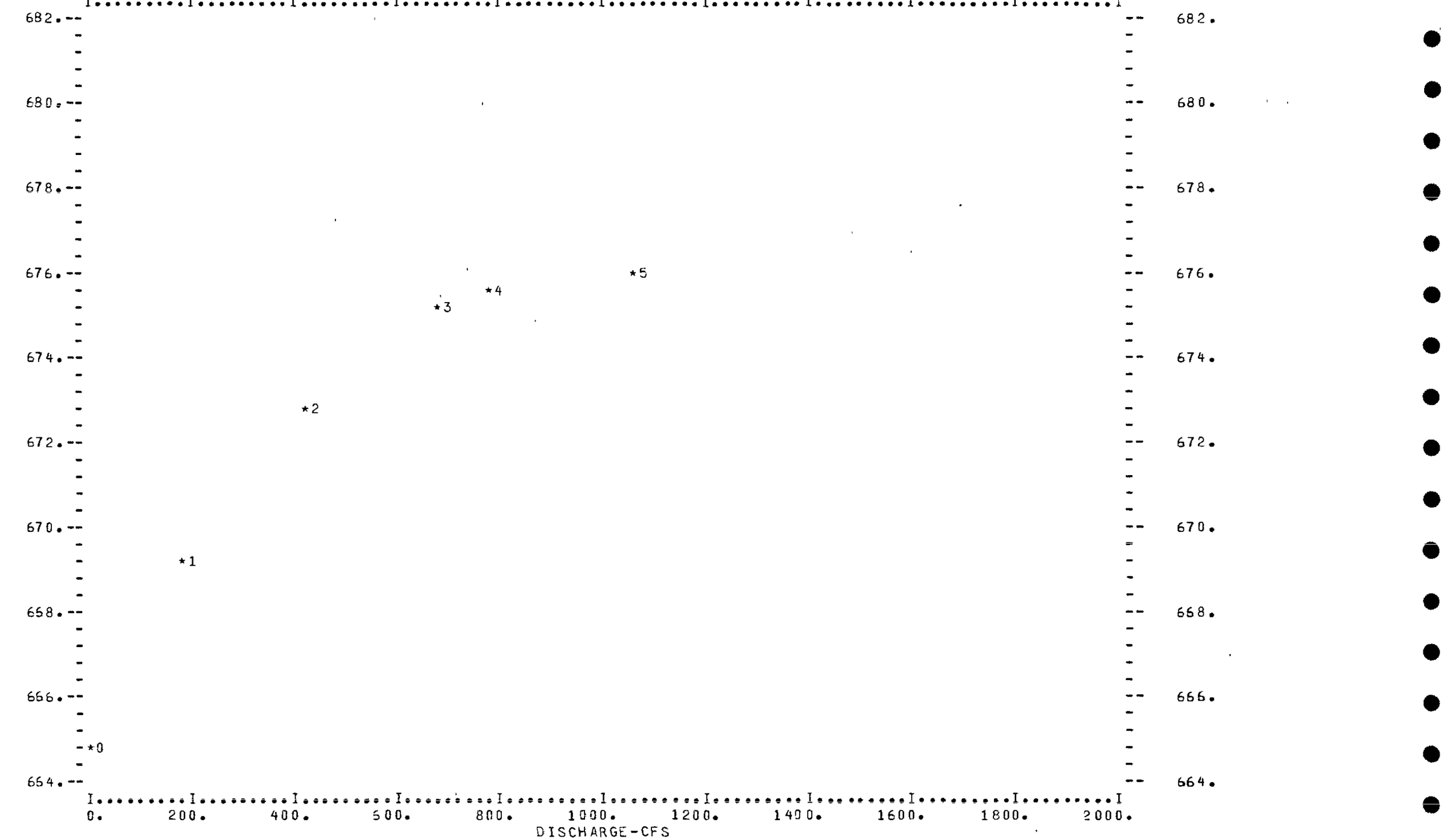
$XKOR = 1 + 9 + \frac{29.1(.032)^2 54}{(1.87)^{6.4}} = 2.60$

$49 ft^2$

$Q_p = 49\sqrt{\frac{7.28(60.4)}{2.60}} = 658 \Rightarrow Q_w = 122$

ROAD SECTION 10.90

SCALES ARE 1 INCH = 200. CFS, AND 2.4 FEET/ ELEVATION



RATING TABLE FOR SECTION 10.95 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	663.8	0.0	0.0						
1	669.4	141.5	181.7	0.0	0.0	0.0	181.74	665.5	0.00021
2	673.0	287.5	411.7	0.0	0.0	0.0	411.71	666.4	0.00015
BANK FULL	675.2	401.6	654.1	0.0	0.0	0.0			
3	675.4	411.1	671.6	0.0	0.0	0.0	671.62	667.3	0.00015
4	675.6	424.8	777.9	0.0	0.0	0.0	777.94	667.6	0.00019
5	676.2	469.1	1063.0	0.0	0.0	0.0	1062.99	668.3	0.00028

SEGMENT TABLE FOR SECTION 10.95

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	1.29	0.0	1.28	0.0
2	DISCHARGE CFS	412.	0.	412.	0.
412.	VELOCITY FPS	1.43	0.0	1.43	0.0
3	DISCHARGE CFS	672.	0.	671.	1.
672.	VELOCITY FPS	1.64	0.0	1.64	0.27
4	DISCHARGE CFS	778.	0.	777.	1.
778.	VELOCITY FPS	1.85	0.0	1.85	0.30
5	DISCHARGE CFS	1063.	0.	1052.	11.
1063.	VELOCITY FPS	2.32	0.0	2.32	0.68
1	ELEV 669.4 KD	12591.	1.	12589.	1.
2	ELEV 673.0 KD	33429.	1.	33427.	1.
3	ELEV 675.4 KD	54232.	1.	54216.	15.
4	ELEV 675.6 KD	56713.	1.	56670.	42.
5	ELEV 676.2 KD	63607.	1.	63338.	268.

KD TABLE FOR CROSS SECTION 10.95

ELEVATION	AREA	KD	KD BY SEGMENT		
563.80	0.				
564.	1.	9.	1.	7.	1.
565.	18.	578.	1.	576.	1.
566.	40.	2022.	1.	2020.	1.
567.	66.	4203.	1.	4201.	1.
568.	94.	7110.	1.	7108.	1.
569.	127.	10769.	1.	10767.	1.
570.	162.	15205.	1.	15203.	1.
571.	201.	20455.	1.	20453.	1.
572.	243.	26570.	1.	26568.	1.
573.	288.	33573.	1.	33571.	1.
574.	337.	41511.	1.	41509.	1.
575.	390.	50557.	1.	50536.	3.
576.	455.	61711.	1.	61330.	178.
577.	543.	76288.	2.	74266.	2014.
578.	660.	95694.	3.	88594.	6615.
579.	786.	119154.	4.	103950.	14634.
580.	921.	145564.	4.	120293.	25815.
581.	1063.	177880.	5.	137577.	39919.
582.	1213.	213260.	6.	155841.	57409.
583.	1374.	252533.	7.	174674.	77315.
584.	1554.	287562.	7.	194835.	92719.
585.	1756.	324328.	8.	215689.	108159.
586.	1996.	387151.	9.	237344.	149265.
587.	2241.	456363.	9.	259779.	195577.
588.	2494.	532959.	19.	285105.	249388.
589.	2772.	615605.	428.	307161.	306861.
590.	3088.	707339.	3191.	332010.	369912.
591.	3427.	808698.	11747.	357688.	439247.
592.	3777.	918486.	21404.	384017.	511304.
593.	4130.	1036825.	35127.	411150.	589574.
594.	4487.	1162828.	50225.	439012.	672498.
595.	4849.	1295929.	67243.	467590.	760210.
596.	5213.	1436949.	86150.	496924.	853454.
597.	5584.	1583555.	105540.	526906.	950389.
598.	5955.	1738823.	127363.	557672.	1053782.
599.	6334.	1898293.	148718.	589026.	1160005.
700.	6737.	2064063.	170220.	621145.	1272598.
701.	7231.	2225801.	182854.	653878.	1388796.
702.	7729.	2402218.	202662.	687352.	1511216.
703.	8243.	2615723.	254276.	721420.	1637194.
704.	8759.	2840963.	314690.	756212.	1769304.
705.	9282.	3074621.	375770.	791594.	1905134.
706.	9806.	3319895.	444605.	827682.	2047018.
707.	10336.	3572972.	514232.	864348.	2192754.
708.	10868.	3837438.	590758.	901704.	2344462.
709.	11407.	4109078.	667810.	939627.	2500059.
710.	11946.	4393380.	752834.	978263.	2662269.
711.	12493.	4691412.	836495.	1017414.	2836301.
712.	13039.	5002787.	927405.	1057262.	3017710.
713.	13587.	5314211.	1011671.	1097472.	3201637.
714.	14135.	5634738.	1097976.	1138273.	3391466.
715.	14683.	5967719.	1189725.	1179743.	3588485.
716.	15231.	6313340.	1287137.	1221876.	3792792.

ROAD SECTION 11.00

NO.	HW	CFS	HL	TW	CSM
0	665.50	0.00	0.00	0.00	0.00
1	670.27	181.74	0.80	669.47	181.74
2	675.17	411.71	2.16	673.01	411.71
3	681.23	671.62	5.84 8.23	675.39	671.62
4	683.39	777.94	7.76	675.64	777.94
5	685.59	1062.99	9.36	676.23	1062.99

683.6 ok

MIN ROAD ELEVATION 684.20

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	22552.	7.50		236.00	665.50	663.10	0.012

Socket end RCCP w/headwall

$XKOR = 1 + 2 + \frac{29.1(.013)^2 236}{(7.5)^{4/3}} = 1.63$

A = 44

RATING TABLE FOR SECTION 11.10 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	665.6	0.0	0.0						
1	670.3	101.1	181.7	0.0	0.0	0.0	181.74	667.3	0.00049
2	675.2	264.6	411.7	0.0	0.0	0.0	411.71	668.3	0.00017
BANK FULL	680.0	590.1	618.5	0.0	0.0	0.0			
3	681.2	876.9	671.6	0.0	0.0	0.0	671.62	669.2	0.00004
4	683.4	1723.3	777.9	0.0	0.0	0.0	777.94	669.5	0.00001
5	685.6	2983.8	1063.0	0.0	0.0	0.0	1062.99	670.2	0.00001

SEGMENT TABLE FOR SECTION 11.10

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	1.80	0.0	1.80	0.0
2	DISCHARGE CFS	412.	0.	412.	0.
412.	VELOCITY FPS	1.56	0.0	1.56	0.0
3	DISCHARGE CFS	672.	0.	536.	135.
672.	VELOCITY FPS	0.91	0.19	0.99	0.40
4	DISCHARGE CFS	778.	10.	420.	348.
778.	VELOCITY FPS	0.54	0.17	0.65	0.34
5	DISCHARGE CFS	1063.	56.	379.	629.
1063.	VELOCITY FPS	0.39	0.21	0.50	0.32
1	ELEV 670.3	KD	8231.	1.	8229.	1.
2	ELEV 675.2	KD	31535.	1.	31533.	1.
3	ELEV 681.2	KD	107833.	35.	86387.	21411.
4	ELEV 683.4	KD	210643.	1625.	116980.	92039.
5	ELEV 685.6	KD	419683.	20703.	151807.	247173.

KD TABLE FOR CROSS SECTION 11.10

ELEVATION	AREA	KD	KD BY SEGMENT		
665.60	0.				
666.	3.	47.	1.	45.	1.
667.	21.	788.	1.	786.	1.
668.	43.	2323.	1.	2321.	1.
669.	67.	4487.	1.	4485.	1.
670.	93.	7257.	1.	7255.	1.
671.	121.	10627.	1.	10625.	1.
672.	152.	14605.	1.	14603.	1.
673.	185.	19210.	1.	19208.	1.
674.	220.	24459.	1.	24457.	1.
675.	257.	30366.	1.	30364.	1.
676.	297.	36957.	1.	36955.	1.
677.	339.	44251.	1.	44249.	1.
678.	384.	52289.	1.	52273.	4.
679.	451.	61911.	1.	61038.	108.
680.	590.	76265.	1.	70575.	5677.
681.	819.	101149.	19.	83242.	16907.
682.	1128.	135468.	109.	96765.	38087.
683.	1540.	187804.	708.	111092.	73070.
684.	2030.	259296.	4636.	126263.	127141.
685.	2615.	355180.	13269.	142153.	198059.
686.	3252.	472526.	26687.	158761.	284991.
687.	3926.	612479.	45723.	176140.	389463.
688.	4636.	774140.	70557.	194263.	509308.
689.	5411.	952122.	99666.	212976.	638048.
690.	6213.	1154809.	136402.	232457.	785096.
691.	7057.	1379259.	179819.	252615.	946268.
692.	7943.	1639504.	229663.	273388.	1135359.
693.	8846.	1932817.	288159.	294877.	1349400.
694.	9775.	2245088.	353683.	316961.	1573739.
695.	10724.	2579530.	427618.	339679.	1811361.
696.	11688.	2939217.	511110.	363069.	2064622.
697.	12681.	3315406.	602492.	387014.	2324997.
698.	13681.	3720302.	705165.	411656.	2603473.
699.	14718.	4137658.	815326.	436793.	2884669.
700.	15819.	4530322.	941796.	462609.	3123009.
701.	17170.	4715841.	1097268.	488957.	3123009.
702.	18536.	5037823.	1258168.	515798.	3261646.
703.	19925.	5586790.	1413156.	543003.	3623480.
704.	21314.	6179683.	1582377.	570869.	4014297.
705.	22703.	6815628.	1766719.	599393.	4435572.

RATING TABLE FOR SECTION 11.90 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	667.3	0.0	0.0						
1	670.6	49.0	181.7	0.0	0.0	0.0	181.74	669.4	0.00204
2	675.2	185.4	411.7	0.0	0.0	0.0	411.71	670.6	0.00028
BANK FULL	679.7	404.6	605.5	0.0	0.0	0.0			
3	681.2	614.6	671.6	0.0	0.0	0.0	671.62	671.6	0.00005
4	683.4	1275.6	777.9	0.0	0.0	0.0	777.94	671.9	0.00002
5	685.6	2157.3	1063.0	0.0	0.0	0.0	1062.99	672.7	0.00001

SEGMENT TABLE FOR SECTION 11.90

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	3.72	0.0	3.71	0.0
2	DISCHARGE CFS	412.	0.	412.	0.
412.	VELOCITY FPS	2.22	0.0	2.22	0.0
3	DISCHARGE CFS	672.	16.	641.	14.
672.	VELOCITY FPS	1.31	0.24	1.33	0.22
4	DISCHARGE CFS	778.	88.	590.	99.
778.	VELOCITY FPS	0.88	0.26	0.98	0.30
5	DISCHARGE CFS	1063.	216.	627.	220.
1063.	VELOCITY FPS	0.70	0.27	0.86	0.34
1	ELEV 670.6	KD	4028.	1.	4026.	1.
2	ELEV 675.2	KD	24572.	1.	24570.	1.
3	ELEV 681.2	KD	95760.	1482.	93302.	977.
4	ELEV 683.4	KD	175663.	18855.	135619.	21189.
5	ELEV 685.6	KD	312542.	63129.	184875.	64538.

KD TABLE FOR CROSS SECTION 11.90

ELEVATION	AREA	KD	KD BY SEGMENT		
567.30	0.				
568.	6.	198.	1.	196.	1.
569.	19.	1086.	1.	1084.	1.
570.	36.	2650.	1.	2648.	1.
571.	57.	4951.	1.	4949.	1.
572.	81.	8073.	1.	8071.	1.
573.	110.	12094.	1.	12092.	1.
574.	142.	17096.	1.	17094.	1.
575.	178.	23150.	1.	23148.	1.
576.	217.	30335.	1.	30333.	1.
577.	261.	38719.	1.	38717.	1.
578.	308.	48375.	1.	48373.	1.
579.	358.	59371.	1.	59369.	1.
580.	427.	73131.	31.	72888.	18.
581.	567.	92031.	923.	89129.	518.
582.	806.	119308.	5197.	107658.	4959.
583.	1132.	158536.	14345.	127566.	16182.
584.	1500.	209589.	28471.	148734.	31816.
585.	1910.	271196.	47901.	171087.	50693.
586.	2351.	344170.	74433.	194795.	73880.
587.	2823.	429065.	108507.	219784.	100531.
588.	3340.	525109.	149471.	245827.	129118.
589.	3894.	633421.	198956.	273048.	160578.
590.	4473.	757671.	260471.	301458.	194889.
591.	5077.	903504.	340262.	330949.	231334.
592.	5682.	1062548.	430063.	361498.	269866.
593.	6287.	1235886.	532224.	393237.	311238.
594.	6892.	1418800.	638441.	425884.	353752.
595.	7497.	1612999.	754185.	459638.	398659.
596.	8102.	1818608.	878281.	494464.	445718.
597.	8707.	2030461.	1005984.	530151.	493737.
598.	9312.	2256174.	1144583.	567005.	544491.
599.	9917.	2487046.	1285948.	604680.	595986.
700.	10522.	2729869.	1436472.	643438.	649766.
701.	11127.	2979666.	1591581.	683086.	704712.
702.	11732.	3231552.	1747494.	723412.	759757.
703.	12338.	3485686.	1902374.	764364.	814522.
704.	12943.	3747704.	2066129.	806405.	871558.
705.	13548.	4023818.	2239000.	849535.	930891.

ROAD SECTION 12.00

NO.	HW	CFS	HL	TW	CSM
0	668.30	0.00	0.00	0.00	0.00
1	673.86	181.74	3.12	670.75	181.74
2	677.92	411.71	2.72	675.20	411.71
3	681.31	671.62	0.08	681.23	671.62
4	683.39	777.94	0.0	683.39	777.94
5	685.58	1062.99	0.0	685.58	1062.99

MIN ROAD ELEVATION 679.40

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	12133.	7.70		64.00	668.30	668.20	0.032

comp w/ headwall D=2.2ft

$XKOR = 1 + .5 + \frac{29(.032)^2 64}{(2.2/4)^{4/3}} = 3.30$ sub

RATING TABLE FOR SECTION 12.50 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	668.3	0.0	0.0						
1	673.9	121.9	181.7	0.0	0.0	0.0	181.74	670.0	0.00016
2	677.9	258.0	411.7	0.0	0.0	0.0	411.71	671.0	0.00010
BANK FULL	678.0	261.2	417.4	0.0	0.0	0.0			
3	681.3	936.9	671.6	0.0	0.0	0.0	671.62	671.9	0.00004
4	683.4	1675.8	777.9	0.0	0.0	0.0	777.94	672.2	0.00001
5	685.6	2661.8	1063.0	0.0	0.0	0.0	1062.99	673.0	0.00001

SEGMENT TABLE FOR SECTION 12.50

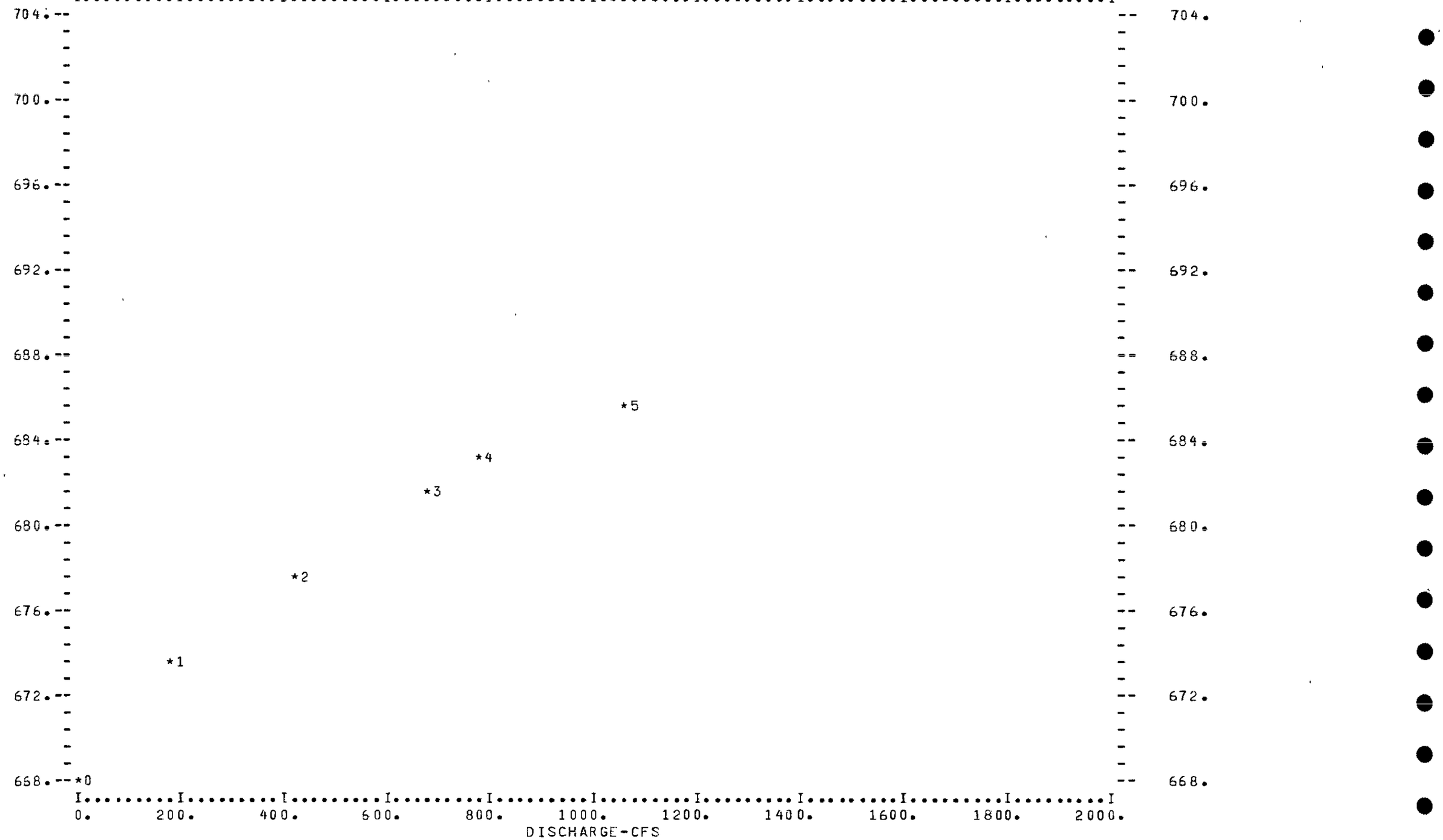
CSM			TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS		182.	0.	182.	0.
182.	VELOCITY FPS		1.49	0.0	1.49	0.0
2	DISCHARGE CFS		412.	1.	411.	0.
412.	VELOCITY FPS		1.63	0.11	1.63	0.0
3	DISCHARGE CFS		672.	199.	462.	11.
672.	VELOCITY FPS		1.04	0.39	1.22	0.22
4	DISCHARGE CFS		778.	342.	390.	46.
778.	VELOCITY FPS		0.65	0.33	0.85	0.28
5	DISCHARGE CFS		1063.	554.	417.	92.
1063.	VELOCITY FPS		0.54	0.30	0.77	0.32
1	ELEV	673.9 KD	14537.	1.	14535.	1.
2	ELEV	677.9 KD	40311.	17.	40293.	1.
3	ELEV	681.3 KD	108209.	31350.	75785.	1073.
4	ELEV	683.4 KD	205010.	89427.	103891.	11691.
5	ELEV	685.6 KD	347557.	180317.	137310.	29930.

KD TABLE FOR CROSS SECTION 12.50

ELEVATION	AREA	KD	KD BY SEGMENT		
568.30	0.				
569.	8.	215.	1.	213.	1.
570.	27.	1560.	1.	1558.	1.
571.	49.	3822.	1.	3819.	1.
572.	72.	6867.	1.	6865.	1.
573.	98.	10650.	1.	10648.	1.
574.	126.	15164.	1.	15162.	1.
575.	155.	20415.	1.	20413.	1.
576.	187.	26410.	1.	26408.	1.
577.	220.	33171.	1.	33169.	1.
578.	261.	40956.	24.	40896.	1.
579.	374.	52358.	1226.	49945.	1.
580.	569.	70533.	9299.	60214.	10.
581.	845.	98823.	24552.	71921.	359.
582.	1168.	137102.	47542.	84753.	3668.
583.	1526.	184939.	76690.	98422.	9284.
584.	1920.	242074.	112600.	112900.	16436.
585.	2365.	305802.	152763.	128139.	24745.
586.	2881.	381143.	202460.	144108.	34024.
587.	3452.	469315.	263328.	160858.	44632.
588.	4084.	570673.	336898.	178361.	55155.
589.	4839.	677622.	425236.	196533.	55156.
590.	5720.	817937.	539378.	215411.	62293.
591.	6682.	994018.	680889.	234995.	77231.
592.	7709.	1211813.	849746.	255244.	105806.
593.	8795.	1452448.	1032183.	276146.	142656.
594.	9914.	1720472.	1232836.	297742.	189563.
595.	11108.	2008369.	1441003.	319932.	246112.
596.	12343.	2323109.	1664863.	342781.	314216.
597.	13621.	2664425.	1902826.	366274.	394960.
598.	14978.	3026688.	2147580.	390334.	486869.
599.	16352.	3421548.	2410344.	415064.	595614.
700.	17805.	3848734.	2678675.	440342.	727192.
701.	19262.	4299928.	2955901.	466182.	872727.
702.	20732.	4754306.	3224548.	492411.	1016282.
703.	22202.	5241271.	3508669.	519282.	1178190.
704.	23672.	5762127.	3808679.	546794.	1360169.

CROSS SECTION 12.50

SCALES ARE 1 INCH = 200. CFS, AND 4.8 FEET/ ELEVATION



ROAD SECTION 13.00

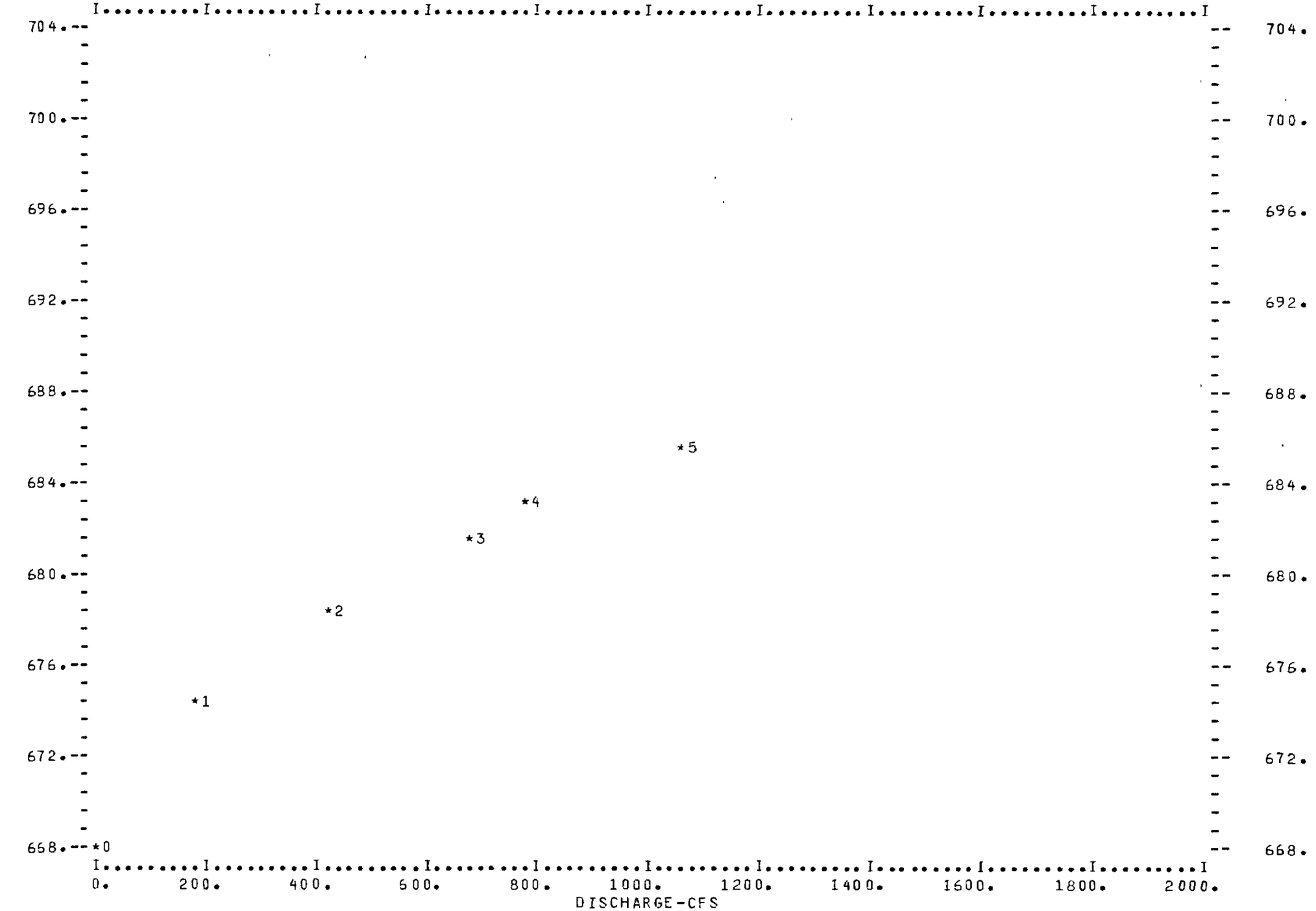
NO.	HW	CFS	HL	TW	CSM
0	668.30	0.00	0.00	0.00	0.00
1	674.04	181.74	0.16	673.88	181.74
2	678.42	411.71	0.48	677.94	411.71
3	681.39	671.62	0.08	681.31	671.62
4	683.47	777.94	0.08	683.39	777.94
5	685.66	1062.99	0.08	685.58	1062.99

MIN ROAD ELEVATION 678.00

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	32133.	8.44	13.40	120.00	663.30	667.80	0.012

ROAD SECTION 13.00

SCALES ARE 1 INCH = 200. CFS, AND 4.8 FEET/ ELEVATION



RATING TABLE FOR SECTION 13.10 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	668.3	0.0	0.0						
1	674.0	95.6	181.7	0.0	0.0	0.0	181.74	669.9	0.00012
BANK FULL	677.4	159.2	358.2	0.0	0.0	0.0			
2	678.4	235.9	411.7	0.0	0.0	0.0	411.71	671.0	0.00011
3	681.4	1054.3	671.6	0.0	0.0	0.0	671.62	672.1	0.00004
4	683.5	1975.7	777.9	0.0	0.0	0.0	777.94	672.4	0.00001
5	685.7	3190.1	1063.0	0.0	0.0	0.0	1062.99	673.4	0.00001

SEGMENT TABLE FOR SECTION 13.10

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	1.90	0.0	1.90	0.0
2	DISCHARGE CFS	412.	13.	394.	4.
412.	VELOCITY FPS	2.24	0.28	2.28	0.28
3	DISCHARGE CFS	672.	233.	355.	83.
672.	VELOCITY FPS	1.18	0.38	1.57	0.39
4	DISCHARGE CFS	778.	376.	263.	139.
778.	VELOCITY FPS	0.64	0.29	1.00	0.34
5	DISCHARGE CFS	1063.	606.	252.	206.
1063.	VELOCITY FPS	0.48	0.27	0.83	0.33
1	ELEV 674.0	KD	16267.	1.	16265.	1.
2	ELEV 678.4	KD	39064.	932.	37824.	309.
3	ELEV 681.4	KD	110997.	38160.	59285.	13551.
4	ELEV 683.5	KD	223272.	107138.	76450.	39684.
5	ELEV 685.7	KD	403208.	228608.	96464.	78136.

KD TABLE FOR CROSS SECTION 13.10

ELEVATION	AREA	KD	KD BY SEGMENT		
568.30	0.				
569.	11.	627.	1.	625.	1.
570.	28.	2581.	1.	2579.	1.
571.	44.	5282.	1.	5280.	1.
572.	61.	8509.	1.	8507.	1.
573.	78.	12134.	1.	12132.	1.
574.	95.	16085.	1.	16083.	1.
575.	112.	20310.	1.	20308.	1.
576.	130.	24777.	1.	24775.	1.
577.	148.	29458.	1.	29456.	1.
578.	197.	35814.	110.	35162.	50.
579.	336.	46786.	3009.	41718.	997.
580.	580.	66028.	12158.	48761.	3953.
581.	914.	95427.	28775.	56236.	9884.
582.	1305.	138851.	53958.	64133.	19724.
583.	1749.	194092.	88178.	72440.	32930.
584.	2242.	262146.	132360.	81148.	48469.
585.	2790.	343226.	186914.	90245.	65877.
586.	3399.	437639.	252400.	99721.	84909.
587.	4050.	547280.	331108.	109576.	106111.
588.	4745.	672729.	423624.	119801.	129183.
589.	5505.	813214.	529105.	130384.	153392.
590.	6315.	970459.	649549.	141323.	179156.
591.	7171.	1145453.	786049.	152614.	206487.
592.	8080.	1338149.	938529.	164248.	235044.
593.	9047.	1549133.	1107664.	176220.	264774.
594.	10043.	1784476.	1299662.	188531.	296065.
595.	11076.	2078031.	1547965.	201168.	328053.
596.	12109.	2377240.	1800644.	214121.	360193.
597.	13142.	2674932.	2049014.	227383.	392137.
598.	14175.	2997760.	2321346.	240971.	425673.
599.	15208.	3346897.	2619030.	254880.	460823.

RATING TABLE FOR SECTION 13.20 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM		CRIT ELEV	FRICTION SLOPE
0	673.2	0.0	0.0							
1	674.2	33.9	181.7	0.0	0.0	0.0	181.74	C	674.2	0.00661
BANK FULL	676.6	141.7	310.9	0.0	0.0	0.0				
2	678.5	393.1	411.7	0.0	0.0	0.0	411.71		674.9	0.00005
3	681.4	1069.3	671.6	0.0	0.0	0.0	671.62		675.4	0.00001
4	683.5	1782.1	777.9	0.0	0.0	0.0	777.94		675.6	0.00000
5	685.7	2795.7	1063.0	0.0	0.0	0.0	1062.99		676.2	0.00000

SEGMENT TABLE FOR SECTION 13.20

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C
1	DISCHARGE CFS	182.	0.	182.
182.	VELOCITY FPS	5.42	0.0	5.37
2	DISCHARGE CFS	412.	102.	310.
412.	VELOCITY FPS	1.22	0.63	1.34
3	DISCHARGE CFS	672.	337.	335.
672.	VELOCITY FPS	0.72	0.49	0.88
4	DISCHARGE CFS	778.	490.	288.
778.	VELOCITY FPS	0.47	0.38	0.60
5	DISCHARGE CFS	1063.	727.	336.
1063.	VELOCITY FPS	0.42	0.33	0.57
1	ELEV 674.2	KD	2235.	1.	2234.
2	ELEV 678.5	KD	59030.	13860.	45170.
3	ELEV 681.4	KD	197109.	98206.	98903.
4	ELEV 683.5	KD	388112.	243584.	144428.
5	ELEV 685.7	KD	623302.	424821.	198482.

KD TABLE FOR CROSS SECTION 13.20

ELEVATION	AREA	KD	KD BY SEGMENT	
573.20	0.			
574.	26.	1468.	1.	1467.
575.	66.	6481.	1.	6480.
576.	110.	14178.	1.	14177.
577.	178.	25288.	257.	24511.
578.	314.	46035.	8005.	38027.
579.	487.	77307.	23298.	53765.
580.	694.	118783.	47163.	71373.
581.	948.	171340.	80494.	90659.
582.	1263.	241975.	130192.	111437.
583.	1611.	338896.	204832.	133601.
584.	1980.	445252.	288024.	157031.
585.	2426.	537704.	356052.	181632.
586.	2999.	677165.	469240.	207299.
587.	3619.	879184.	643785.	233993.
588.	4272.	1123673.	871050.	250428.
589.	4993.	1376063.	1124620.	250429.
590.	5875.	1653496.	1402940.	250555.
591.	6900.	1991294.	1699127.	292098.
592.	7969.	2404453.	2021052.	381054.
593.	9081.	2893652.	2366629.	526000.
594.	10252.	3427326.	2730801.	695376.
595.	11482.	4007263.	3113713.	891486.
596.	12757.	4637861.	3517675.	1118302.
597.	14079.	5318886.	3941251.	1376438.
598.	15468.	6047025.	4380419.	1664079.
599.	16890.	6834843.	4841095.	1992432.
700.	18376.	7688542.	5316315.	2369816.
701.	19877.	8581329.	5794060.	2768538.
702.	21387.	9518869.	6278731.	3192685.
703.	22897.	10521808.	6785315.	3663941.
704.	24407.	11591795.	7313999.	4185681.

RATING TABLE FOR SECTION 13.90 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	671.3	0.0	0.0						
1	674.8	66.2	181.7	0.0	0.0	0.0	181.74	672.9	0.00088
2	678.5	169.7	411.7	0.0	0.0	0.0	411.71	674.0	0.00033
BANK FULL	680.0	225.6	545.8	0.0	0.0	0.0			
3	681.4	391.4	671.6	0.0	0.0	0.0	671.62	675.0	0.00018
4	683.5	1024.6	777.9	0.0	0.0	0.0	777.94	675.3	0.00005
5	685.7	2166.6	1063.0	0.0	0.0	0.0	1062.99	676.1	0.00002

SEGMENT TABLE FOR SECTION 13.90

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	2.75	0.0	2.75	0.0
2	DISCHARGE CFS	412.	0.	412.	0.
412.	VELOCITY FPS	2.43	0.0	2.43	0.0
3	DISCHARGE CFS	672.	39.	622.	10.
672.	VELOCITY FPS	2.21	0.42	2.27	0.41
4	DISCHARGE CFS	778.	218.	499.	60.
778.	VELOCITY FPS	1.19	0.44	1.43	0.34
5	DISCHARGE CFS	1063.	403.	480.	180.
1063.	VELOCITY FPS	0.79	0.35	1.11	0.31

1	ELEV	674.8	KD	6128.	1.	6126.	1.
2	ELEV	678.5	KD	22743.	1.	22741.	1.
3	ELEV	681.4	KD	49593.	2520.	46419.	655.
4	ELEV	683.5	KD	107561.	29566.	70048.	7947.
5	ELEV	685.7	KD	219524.	83276.	99204.	37045.

KD TABLE FOR CROSS SECTION 13.90

ELEVATION	AREA	KD	KD BY SEGMENT		
671.30	0.				
672.	10.	386.	1.	384.	1.
673.	28.	1717.	1.	1715.	1.
674.	48.	3808.	1.	3806.	1.
675.	70.	6632.	1.	6630.	1.
676.	95.	10212.	1.	10210.	1.
677.	123.	14578.	1.	14576.	1.
678.	153.	19768.	1.	19766.	1.
679.	186.	25814.	1.	25812.	1.
680.	226.	33136.	14.	33100.	6.
681.	329.	44109.	695.	42307.	182.
682.	538.	62091.	6494.	52878.	1598.
683.	850.	90650.	20072.	64369.	5116.
684.	1253.	131827.	41544.	76724.	12171.
685.	1768.	182389.	66962.	89956.	24636.
686.	2429.	247511.	97383.	104023.	45010.
687.	3230.	350007.	153523.	118899.	77220.
688.	4082.	482334.	228483.	134540.	118881.
689.	4949.	638282.	313172.	150915.	172930.
690.	5817.	817521.	410552.	168071.	238161.
691.	6685.	1016788.	518655.	185978.	312014.
692.	7553.	1229183.	633197.	204561.	391037.
693.	8421.	1458362.	756730.	223853.	477386.
694.	9289.	1704487.	889313.	243852.	571102.
695.	10157.	1964287.	1028952.	264520.	670581.
696.	11025.	2237248.	1175422.	285845.	775714.
697.	11893.	2527214.	1330984.	307864.	888318.
698.	12761.	2825796.	1490687.	330484.	1004443.
699.	13630.	3113018.	1631896.	353765.	1127040.
700.	14501.	3382325.	1748963.	377691.	1255583.
701.	15407.	3697929.	1917167.	401950.	1377641.
702.	16317.	4034869.	2100612.	426845.	1505120.
703.	17227.	4390226.	2294877.	452409.	1639738.
704.	18137.	4764373.	2500228.	478638.	1781650.

ROAD SECTION 14.00

NO.	HW	CFS	HL	TW	CSM
0	673.40	0.00	0.00	0.00	0.00
1	677.81	181.74	2.96	674.85	181.74
2	681.00	411.71	2.48	678.52	411.71
3	681.88	671.62	0.48	681.40	671.62
4	683.63	777.94	0.16	683.47	777.94
5	685.74	1062.99	0.08	685.66	1062.99

MIN ROAD ELEVATION 680.00

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	32111.	5.93	8.62	150.00	673.40	671.30	0.029

RATING TABLE FOR SECTION 14.90 DA= 1.0

1	DISCHARGE CFS	182.	23.	158.	0.
182.	VELOCITY FPS	2.23	1.05	2.35	0.0
2	DISCHARGE CFS	412.	93.	309.	10.
412.	VELOCITY FPS	2.32	1.40	2.55	0.82
3	DISCHARGE CFS	672.	157.	491.	23.
672.	VELOCITY FPS	3.24	1.99	3.60	1.25
4	DISCHARGE CFS	778.	186.	545.	46.
778.	VELOCITY FPS	2.91	1.80	3.29	0.83
5	DISCHARGE CFS	1063.	208.	591.	263.

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ROAD SECTION 13.00

NO.	HW	CFS	HL	TW	CSM
0	668.30	0.00	0.00	0.00	0.00
1	674.04	181.74	0.16	673.88	181.74
2	678.42	411.71	0.48	677.94	411.71
3	681.39	671.62	0.08	681.31	671.62
4	683.47	777.94	0.08	683.39	777.94
5	685.66	1062.99	0.08	685.58	1062.99

MIN ROAD ELEVATION 678.00

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	32133.	8.44	13.40	120.00	668.30	667.80	0.012

RATING TABLE FOR SECTION 13.10 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	668.3	0.0	0.0						
1	674.0	95.6	181.7	0.0	0.0	0.0	181.74	669.9	0.00012
BANK FULL	677.4	159.2	358.2	0.0	0.0	0.0			
2	678.4	235.9	411.7	0.0	0.0	0.0	411.71	671.0	0.00011
3	681.4	1054.3	671.6	0.0	0.0	0.0	671.62	672.1	0.00004
4	683.5	1975.7	777.9	0.0	0.0	0.0	777.94	672.4	0.00001
5	685.7	3190.1	1063.0	0.0	0.0	0.0	1062.99	673.4	0.00001

SEGMENT TABLE FOR SECTION 13.10

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	1.90	0.0	1.90	0.0
2	DISCHARGE CFS	412.	13.	394.	4.
412.	VELOCITY FPS	2.24	0.28	2.28	0.28
3	DISCHARGE CFS	672.	233.	355.	83.
672.	VELOCITY FPS	1.18	0.38	1.57	0.39
4	DISCHARGE CFS	778.	376.	263.	139.
778.	VELOCITY FPS	0.64	0.29	1.00	0.34
5	DISCHARGE CFS	1063.	606.	252.	206.
1063.	VELOCITY FPS	0.48	0.27	0.83	0.33
1	ELEV 674.0 KD	16267.	1.	16265.	1.
2	ELEV 678.4 KD	39064.	932.	37824.	309.
3	ELEV 681.4 KD	110997.	38160.	59285.	13551.
4	ELEV 683.5 KD	223272.	107138.	76450.	39684.
5	ELEV 685.7 KD	403208.	228608.	96464.	78136.

KD TABLE FOR CROSS SECTION 13.10

ELEVATION	AREA	KD	KD BY SEGMENT		
568.30	0.				
569.	11.	627.	1.	625.	1.
570.	28.	2581.	1.	2579.	1.
571.	44.	5282.	1.	5280.	1.
572.	61.	8509.	1.	8507.	1.
573.	78.	12134.	1.	12132.	1.
574.	95.	16085.	1.	16083.	1.
575.	112.	20310.	1.	20308.	1.
576.	130.	24777.	1.	24775.	1.
577.	148.	29458.	1.	29456.	1.
578.	197.	35814.	110.	35162.	50.
579.	336.	46786.	3009.	41718.	997.
580.	580.	66028.	12158.	48761.	3953.
581.	914.	96427.	28775.	56236.	9884.
582.	1305.	138851.	53958.	64133.	19724.
583.	1749.	194092.	88178.	72440.	32930.
584.	2242.	262146.	132360.	81148.	48469.
585.	2790.	343226.	186914.	90245.	65877.
586.	3399.	437639.	252400.	99721.	84909.
587.	4050.	547280.	331108.	109576.	106111.
588.	4745.	672729.	423624.	119801.	129183.
589.	5505.	813214.	529105.	130384.	153392.
590.	6315.	970459.	649549.	141323.	179156.
591.	7171.	1145453.	786049.	152614.	206487.
592.	8080.	1338149.	938529.	164248.	235044.
593.	9047.	1549133.	1107664.	176220.	264774.
594.	10043.	1784476.	1299662.	188531.	296066.
595.	11076.	2078031.	1547965.	201168.	328053.
596.	12109.	2377240.	1800644.	214121.	360193.
597.	13142.	2674932.	2049014.	227383.	392137.
598.	14175.	2997760.	2321346.	240971.	425673.
599.	15208.	3346897.	2619030.	254880.	460823.

RATING TABLE FOR SECTION 13.20 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM		CRIT ELEV	FRICTION SLOPE
0	673.2	0.0	0.0							
1	674.2	33.9	181.7	0.0	0.0	0.0	181.74	C	674.2	0.00661
BANK FULL	676.6	141.7	310.9	0.0	0.0	0.0				
2	678.5	393.1	411.7	0.0	0.0	0.0	411.71		674.9	0.00005
3	681.4	1069.3	671.6	0.0	0.0	0.0	671.62		675.4	0.00001
4	683.5	1782.1	777.9	0.0	0.0	0.0	777.94		675.6	0.00000
5	685.7	2795.7	1063.0	0.0	0.0	0.0	1062.99		676.2	0.00000

SEGMENT TABLE FOR SECTION 13.20

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C
1	DISCHARGE CFS	182.	0.	182.
182.	VELOCITY FPS	5.42	0.0	5.37
2	DISCHARGE CFS	412.	102.	310.
412.	VELOCITY FPS	1.22	0.63	1.34
3	DISCHARGE CFS	672.	337.	335.
672.	VELOCITY FPS	0.72	0.49	0.88
4	DISCHARGE CFS	778.	490.	288.
778.	VELOCITY FPS	0.47	0.38	0.60
5	DISCHARGE CFS	1063.	727.	336.
1063.	VELOCITY FPS	0.42	0.33	0.57

1	ELEV	674.2	KD	2235.	1.	2234.
2	ELEV	678.5	KD	59030.	13860.	45170.
3	ELEV	681.4	KD	197109.	98206.	98903.
4	ELEV	683.5	KD	388112.	243684.	144428.
5	ELEV	685.7	KD	623302.	424821.	198482.

KD TABLE FOR CROSS SECTION 13.20

ELEVATION	AREA	KD	KD BY SEGMENT	
573.20	0.			
574.	26.	1468.	1.	1467.
575.	66.	6481.	1.	6480.
576.	110.	14178.	1.	14177.
577.	178.	25288.	257.	24511.
578.	314.	46035.	8005.	38027.
579.	487.	77307.	23298.	53765.
580.	694.	118783.	47163.	71373.
581.	948.	171340.	80494.	90659.
582.	1263.	241975.	130192.	111437.
583.	1611.	338896.	204832.	133601.
584.	1980.	445252.	288024.	157031.
585.	2426.	537704.	356052.	181632.
586.	2999.	677165.	469240.	207299.
587.	3619.	879184.	643785.	233993.
588.	4272.	1123673.	871050.	250428.
589.	4993.	1376063.	1124620.	250429.
590.	5875.	1653496.	1402940.	250555.
591.	6900.	1991294.	1699127.	292098.
592.	7969.	2404453.	2021052.	381054.
593.	9081.	2893652.	2366629.	526000.
594.	10252.	3427326.	2730801.	695376.
595.	11482.	4007263.	3113713.	891486.
596.	12757.	4637861.	3517675.	1118302.
597.	14079.	5318886.	3941251.	1376438.
598.	15468.	6047025.	4380419.	1664079.
599.	16890.	6834843.	4841095.	1992432.
700.	18376.	7688542.	5316315.	2369816.
701.	19877.	8581329.	5794060.	2768538.
702.	21387.	9518869.	6278731.	3192685.
703.	22897.	10521808.	6785315.	3663941.
704.	24407.	11591795.	7313999.	4185681.

RATING TABLE FOR SECTION 13.90 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	671.3	0.0	0.0						
1	674.8	66.2	181.7	0.0	0.0	0.0	181.74	672.9	0.00088
2	678.5	169.7	411.7	0.0	0.0	0.0	411.71	674.0	0.00033
BANK FULL	680.0	225.6	545.8	0.0	0.0	0.0			
3	681.4	391.4	671.6	0.0	0.0	0.0	671.62	675.0	0.00018
4	683.5	1024.6	777.9	0.0	0.0	0.0	777.94	675.3	0.00005
5	685.7	2166.6	1063.0	0.0	0.0	0.0	1062.99	676.1	0.00002

SEGMENT TABLE FOR SECTION 13.90

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	2.75	0.0	2.75	0.0
2	DISCHARGE CFS	412.	0.	412.	0.
412.	VELOCITY FPS	2.43	0.0	2.43	0.0
3	DISCHARGE CFS	672.	39.	622.	10.
672.	VELOCITY FPS	2.21	0.42	2.27	0.41
4	DISCHARGE CFS	778.	218.	499.	60.
778.	VELOCITY FPS	1.19	0.44	1.43	0.34
5	DISCHARGE CFS	1063.	403.	480.	180.
1063.	VELOCITY FPS	0.79	0.35	1.11	0.31
1	ELEV 674.8	KD	6128.	1.	6126.	1.
2	ELEV 678.5	KD	22743.	1.	22741.	1.
3	ELEV 681.4	KD	49593.	2520.	46419.	655.
4	ELEV 683.5	KD	107561.	29556.	70048.	7947.
5	ELEV 685.7	KD	219524.	83276.	99204.	37045.

KD TABLE FOR CROSS SECTION 13.90

ELEVATION	AREA	KD	KD BY SEGMENT		
671.30	0.				
672.	10.	386.	1.	384.	1.
673.	28.	1717.	1.	1715.	1.
674.	48.	3808.	1.	3806.	1.
675.	70.	6632.	1.	6630.	1.
676.	95.	10212.	1.	10210.	1.
677.	123.	14578.	1.	14576.	1.
678.	153.	19768.	1.	19766.	1.
679.	186.	25814.	1.	25812.	1.
680.	226.	33136.	14.	33100.	6.
681.	329.	44109.	695.	42307.	182.
682.	538.	62091.	6494.	52878.	1598.
683.	850.	90650.	20072.	64369.	5116.
684.	1253.	131827.	41544.	76724.	12171.
685.	1768.	182389.	66962.	89956.	24636.
686.	2429.	247511.	97383.	104023.	45010.
687.	3230.	350007.	153523.	118899.	77220.
688.	4082.	482334.	228483.	134540.	118881.
689.	4949.	638282.	313172.	150915.	172930.
690.	5817.	817521.	410552.	168071.	238161.
691.	6685.	1015788.	518655.	185978.	312014.
692.	7553.	1229183.	633197.	204561.	391037.
693.	8421.	1458362.	756730.	223853.	477386.
694.	9289.	1704487.	889313.	243852.	571102.
695.	10157.	1964287.	1028952.	264520.	670581.
696.	11025.	2237248.	1175422.	285845.	775714.
697.	11893.	2527214.	1330984.	307864.	888318.
698.	12761.	2825796.	1490687.	330484.	1004443.
699.	13630.	3113018.	1631896.	353765.	1127040.
700.	14501.	3382325.	1748963.	377691.	1255583.
701.	15407.	3697929.	1917167.	401950.	1377641.
702.	16317.	4034869.	2100612.	426845.	1505120.
703.	17227.	4390226.	2294877.	452409.	1639738.
704.	18137.	4764373.	2500228.	478638.	1781650.

ROAD SECTION 14.00

NO.	HW	CFS	HL	TW	CSM
0	673.40	0.00	0.00	0.00	0.00
1	677.81	181.74	2.96	674.85	181.74
2	681.00	411.71	2.48	678.52	411.71
3	681.88	671.62	0.48	681.40	671.62
4	683.63	777.94	0.16	683.47	777.94
5	685.74	1062.99	0.08	685.66	1062.99

MIN ROAD ELEVATION 680.00

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	32111.	5.93	8.62	150.00	673.40	671.30	0.029

RATING TABLE FOR SECTION 14.90 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	673.4	0.0	0.0						
BANK FULL	676.3	41.8	117.5	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	677.9	89.8	181.7	0.0	0.0	0.0	181.74	675.3	0.00049
2	681.0	199.1	411.7	0.0	0.0	0.0	411.71	676.7	0.00026
3	681.9	234.2	671.6	0.0	0.0	0.0	671.62	677.4	0.00045
4	683.7	324.9	777.9	0.0	0.0	0.0	777.94	677.7	0.00029
5	685.8	665.0	1063.0	0.0	0.0	0.0	1062.99	678.3	0.00018

SEGMENT TABLE FOR SECTION 14.90

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	23.	158.	0.
182.	VELOCITY FPS	2.23	1.05	2.35	0.0
2	DISCHARGE CFS	412.	93.	309.	10.
412.	VELOCITY FPS	2.32	1.40	2.55	0.82
3	DISCHARGE CFS	672.	157.	491.	23.
672.	VELOCITY FPS	3.24	1.99	3.60	1.25
4	DISCHARGE CFS	778.	186.	545.	46.
778.	VELOCITY FPS	2.91	1.80	3.29	0.83
5	DISCHARGE CFS	1063.	208.	591.	263.
1063.	VELOCITY FPS	2.36	1.57	2.94	0.80
1	ELEV 677.9 KD	8193.	1024.	7165.	4.
2	ELEV 681.0 KD	25279.	5710.	18990.	579.
3	ELEV 681.9 KD	31697.	7418.	23211.	1068.
4	ELEV 683.7 KD	45732.	10960.	32114.	2658.
5	ELEV 685.8 KD	78615.	15548.	44451.	18516.

KD TABLE FOR CROSS SECTION 14.90

ELEVATION	AREA	KD	KD BY SEGMENT		
573.40	0.				
574.	5.	120.	1.	118.	1.
575.	20.	1079.	1.	1077.	1.
576.	36.	2648.	2.	2643.	1.
577.	62.	5066.	278.	4787.	1.
578.	93.	8683.	1149.	7515.	5.
579.	126.	13319.	2423.	10836.	59.
580.	161.	18788.	3930.	14618.	229.
581.	198.	25072.	5650.	18843.	565.
582.	236.	32142.	7530.	23486.	1106.
583.	277.	39993.	9548.	28531.	1894.
584.	364.	48853.	11676.	33960.	3173.
585.	522.	63410.	13895.	39761.	8646.
586.	709.	84666.	16189.	45922.	21719.
587.	910.	109349.	17608.	52434.	38766.
588.	1139.	136757.	17609.	59287.	59550.
589.	1410.	170787.	17634.	66474.	86676.
590.	1707.	217579.	26522.	73982.	116840.
591.	2006.	269767.	37564.	81808.	149994.
592.	2306.	327247.	50583.	89949.	186512.
593.	2608.	389100.	64901.	98397.	225800.
594.	2911.	453177.	79633.	107141.	266258.
595.	3216.	521158.	95543.	116183.	309314.
596.	3523.	592594.	112410.	125517.	354620.
597.	3831.	665282.	129752.	135136.	401310.
598.	4141.	742877.	147849.	145036.	449919.
599.	4452.	822550.	166773.	155218.	500558.
700.	4969.	833163.	166773.	165669.	500558.
701.	5624.	892220.	181173.	176386.	531933.
702.	6484.	1033890.	221250.	187354.	615981.
703.	7344.	1192004.	268344.	198593.	709723.
704.	8204.	1367817.	323382.	210099.	813893.

FINAL

```
-----------------------------80/80 LIST OF INPUT DATA-----------------------------
WSP2      15.                                                                00000100
TITLE     MCCOY CREEK FPMS - BUCHANAN, BERRIEN COUNTY, MICHIGAN              00000200
TITLE     TUNNEL _ SEC 14.90 TO SEC 15.03  (WSP2/MCCOY.TUNL)                 00000300
DISCHARGE -1.       181.7                                                    00000400
STARTE    14.90     677.9                                                    00000500
OUTPUT    S                                                                  00000600
REACH     14.90     1.        0.0       0.0                                  00000700
SEGMENT   14.90     1         N         -9.                                  00000800
NVALUE    .02                                                                00000900
SEGMENT   14.90     2         C         8.                                   00001000
NVALUE    .03                                                                00001100
SEGMENT   14.90     3         N         620.1                                00001200
NVALUE    .02                                                                00001300
SECTION   14.90                                                              00001400
          -23.      676.3     -9.       676.3     -7.       673.8            00001500
          0.        673.7     7.        673.4     8.        677.5            00001600
          20.       683.9     -360.     700.0     -359.9    689.0            00001700
          -320.     688.0     -290.     687.0     -289.9    700.0            00001800
          -23.1     700.0     21.       700.      80.       700.             00001900
          80.1      700.0     150.      700.0     150.1     681.0            00002000
          255.      682.0     450.      684.0     620.      684.0            00002100
          620.1     700.0                                                    00002200
ENDTABLE                                                                     00002300
---------------------DATA POINTS ON SECTION 14.90  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 14.90  EXCEEDS  15. FEET-------------
ROAD      15.00     2.7       65.       65.                                  00002400
CULV1     15.00     1.        32233                                          00002500
CULV2     6.0       13.0      195.      674.91    674.19    0.030            00002600
SECTION   15.00                                                              00002700
          -380.     688.      0.        683.4     250.      683.4            00002800
          580.      688.                                                     00002900
ENDTABLE                                                                     00003000
REACH     15.02     1.        5.0       5.0                                  00003100
SEGMENT   15.02     1         N         -5.1                                 00003200
NVALUE    0.04                                                               00003300
SEGMENT   15.02     2         C         5.1                                  00003400
NVALUE    0.015                                                              00003500
SEGMENT   15.02     3         N         590.0                                00003600
NVALUE    0.04                                                               00003700
SECTION   15.02                                                              00003800
          -400.     692.0     -370.     692.0     -369.     700.0            00003900
          -100.     700.0     -99.      685.0     -80.      685.0            00004000
          -79.      700.0     -5.2      700.      -5.1      681.9            00004100
          -5.       674.9     5.        674.9     5.1       681.9            00004200
          35.       683.8     75.       684.      76.       700.0            00004300
          200.      700.0     201.      684.0     235.      684.0            00004400
          236.      700.0     350.      700.0     351.      684.0            00004500
```

```
----------------------------80/80 LIST OF INPUT DATA--------------------------------
          490.      686.0     515.      688.0     590.      690.0        00004600
ENDTABLE                                                                 00004700
----------------MAX ELEV DIFFERENCE BETWEEN POINTS ON SECTION 15.02  EXCEEDS  15. FEET-----------
REACH     15.03     1.        490.0     490.0                            00004710
REACH2    15.02     1.8                                                  00004720
REACH     15.25     1.0       290.      250.                             00004800
SEGMENT   15.25     1         N         -10.                             00004900
NVALUE    0.09                                                           00005000
SEGMENT   15.25     2         C         12.                              00005100
NVALUE    0.03                                                           00005200
SEGMENT   15.25     3         N         658.                             00005300
NVALUE    0.09                                                           00005400
SECTION   15.25                                                          00005500
          -524.     696.      -523.     691.1     -502.     690.2        00005600
          -343.     686.4     -318.     686.4     -273.     686.9        00005700
          -229.     686.8     -193.     685.4     -149.     685.6        00005800
          -102.     684.5     -10.      682.4     -9.       678.6        00005900
          0.        678.6     6.        678.4     12.       680.4        00006000
          99.       683.2     162.      683.8     227.      685.8        00006100
          287.      686.6     321.      686.9     386.      686.7        00006200
          398.      687.5     484.      687.5     534.      689.3        00006300
          585.      694.3     632.      693.9     658.      695.7        00006400
ENDTABLE                                                                 00006500
COMPUTE   14.90     15.25     14.90                                      00006500
----------------------------END OF 80/80 LIST---------------------------------
```

```
                    COMPUTE   14.90     16.25     14.90                                        00006600
*****SECT.14.90 KD VALUES REVERSED ON SEGMENT 1  AT ELEVATION    687.80  VALUE CHANGED TO EQUAL PREVIOUS VALUE*****
*****SECT.14.90 KD VALUES REVERSED ON SEGMENT 1  AT ELEVATION    689.00  VALUE CHANGED TO EQUAL PREVIOUS VALUE*****
*****SECT.14.90 KD VALUES REVERSED ON SEGMENT 1  AT ELEVATION    700.60  VALUE CHANGED TO EQUAL PREVIOUS VALUE*****


----------------------------STARTING DATA FROM GIVEN ELEVATION-----------------------------
```

RATING TABLE FOR SECTION 14.90 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	673.4	0.0	0.0						
BANK FULL	676.3	41.8	117.1	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	677.9	90.3	181.7	0.0	0.0	0.0	181.70	675.3	0.00038

SEGMENT TABLE FOR SECTION 14.90

CSM		TOTAL	SEG NO 1	2	3
			N	C	N
1	DISCHARGE CFS	182.	42.	140.	0.
182.	VELOCITY FPS	2.03	1.86	2.07	0.0
1	ELEV 677.9 KD	9294.	2078.	7210.	6.

*****SECT.15.02 KD VALUES REVERSED ON SEGMENT 1 AT ELEVATION 700.50 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****
*****SECT.15.02 KD VALUES REVERSED ON SEGMENT 3 AT ELEVATION 700.50 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****

ROAD SECTION 15.00

NO.	HW	CFS	HL	TW	CSM
0	674.91	0.00	0.00	0.00	0.00
1	679.10	181.70	1.20	677.90	181.70

MIN ROAD ELEVATION 683.40

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	32233.	7.09	10.92	195.00	674.91	674.19	0.030

RATING TABLE FOR SECTION 15.02 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	674.9	0.0	0.0						
1	679.1	42.3	181.7	0.0	0.0	0.0	181.70	677.1	0.00062

SEGMENT TABLE FOR SECTION 15.02

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	4.30	0.0	4.29	0.0
1	ELEV 679.1 KD	7302.	1.	7300.	1.

*****SECT.15.03 KD VALUES REVERSED ON SEGMENT 1 AT ELEVATION 702.30 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****
*****SECT.15.03 KD VALUES REVERSED ON SEGMENT 3 AT ELEVATION 702.30 VALUE CHANGED TO EQUAL PREVIOUS VALUE*****

RATING TABLE FOR SECTION 15.03 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	676.7	0.0	0.0						
1	679.6	29.5	181.7	0.0	0.0	0.0	181.70	678.9	0.00170

SEGMENT TABLE FOR SECTION 15.03

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	182.	0.	182.	0.
182.	VELOCITY FPS	6.17	0.0	6.17	0.0
1	ELEV 679.6 KD	4409.	1.	4407.	1.

RATING TABLE FOR SECTION 16.25 DA= 1.0

NO.	ELEV	AREA	CFS	ACRES FLOODED DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED NON-DAM	STARTING CSM	CRIT ELEV	FRICTION SLOPE
0	678.4	0.0	0.0						
BANK FULL	680.4	34.0	146.0	0.0	0.0	0.0			
*****WARNING-BANKFULL OR ZERO DAMAGE ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****									
1	680.9	49.0	181.7	0.0	0.0	0.0	181.70	680.1	0.00287

SEGMENT TABLE FOR SECTION 16.25

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	182.	0.	180.	2.
182.	VELOCITY FPS	4.03	0.0	4.03	0.46
1	ELEV 680.9 KD	3382.	1.	3358.	22.

----------80/80 LIST OF INPUT DATA----------

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ENDJOB                                                          00006700
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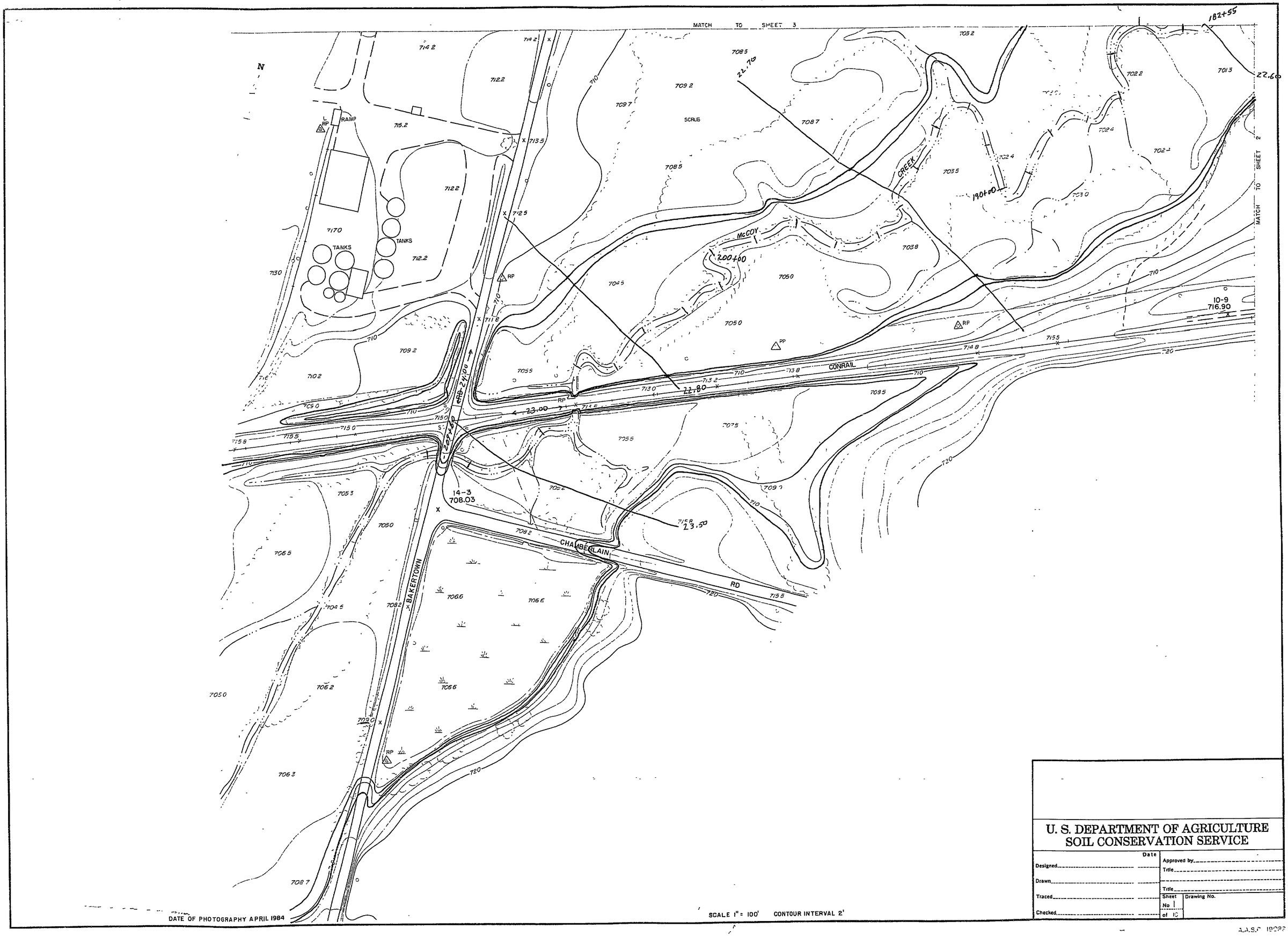
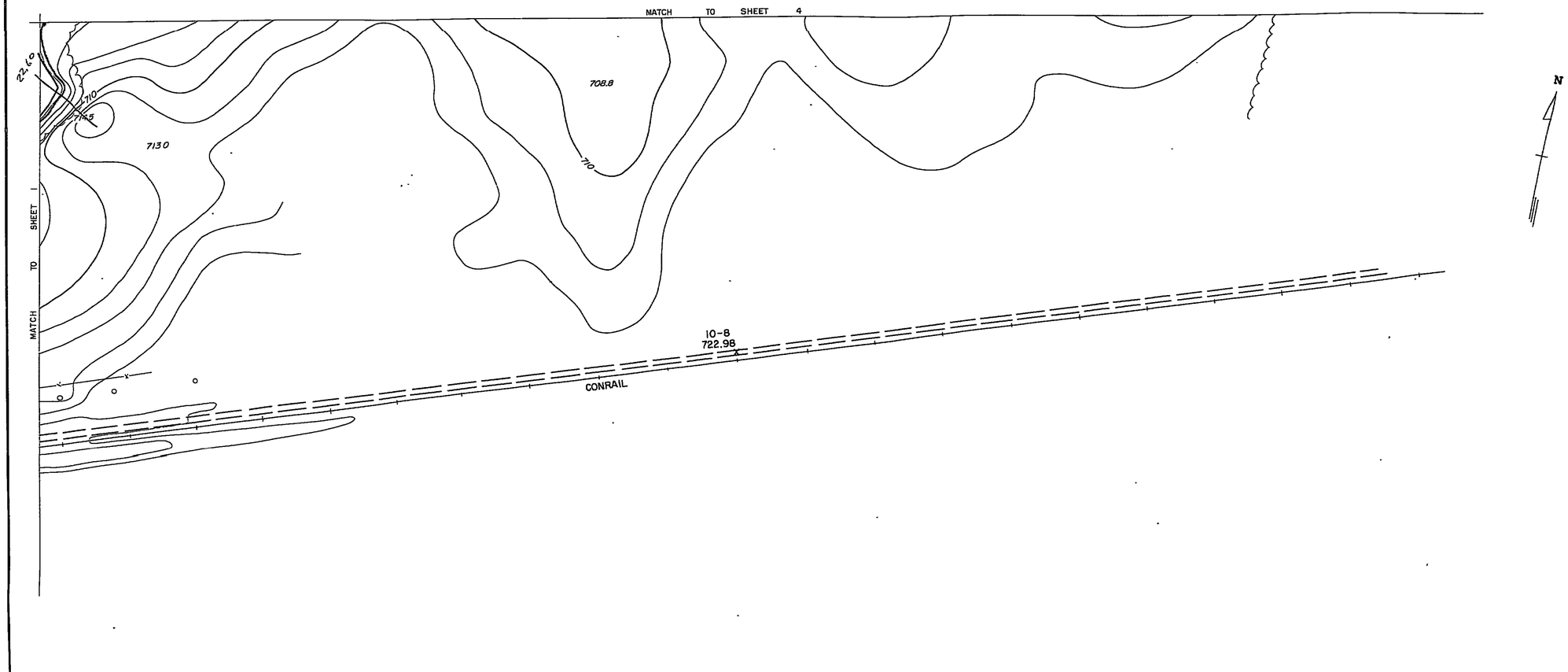
**********NORMAL END OF JOB----------



U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

	Date		
Designed		Approved by	
Drawn		Title	
Traced		Title	
Checked		Sheet No. 1 of 10	Drawing No.

A.A.S.C. 19082



DATE OF PHOTOGRAPHY APRIL 1984

SCALE 1" = 100' CONTOUR INTERVAL 2'

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SOIL CONSERVATION SERVICE

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Drawn	Title
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A.A.S.C. 19082



DATE OF PHOTOGRAPHY APRIL 1984

SCALE 1" = 100' CONTOUR INTERVAL 2'

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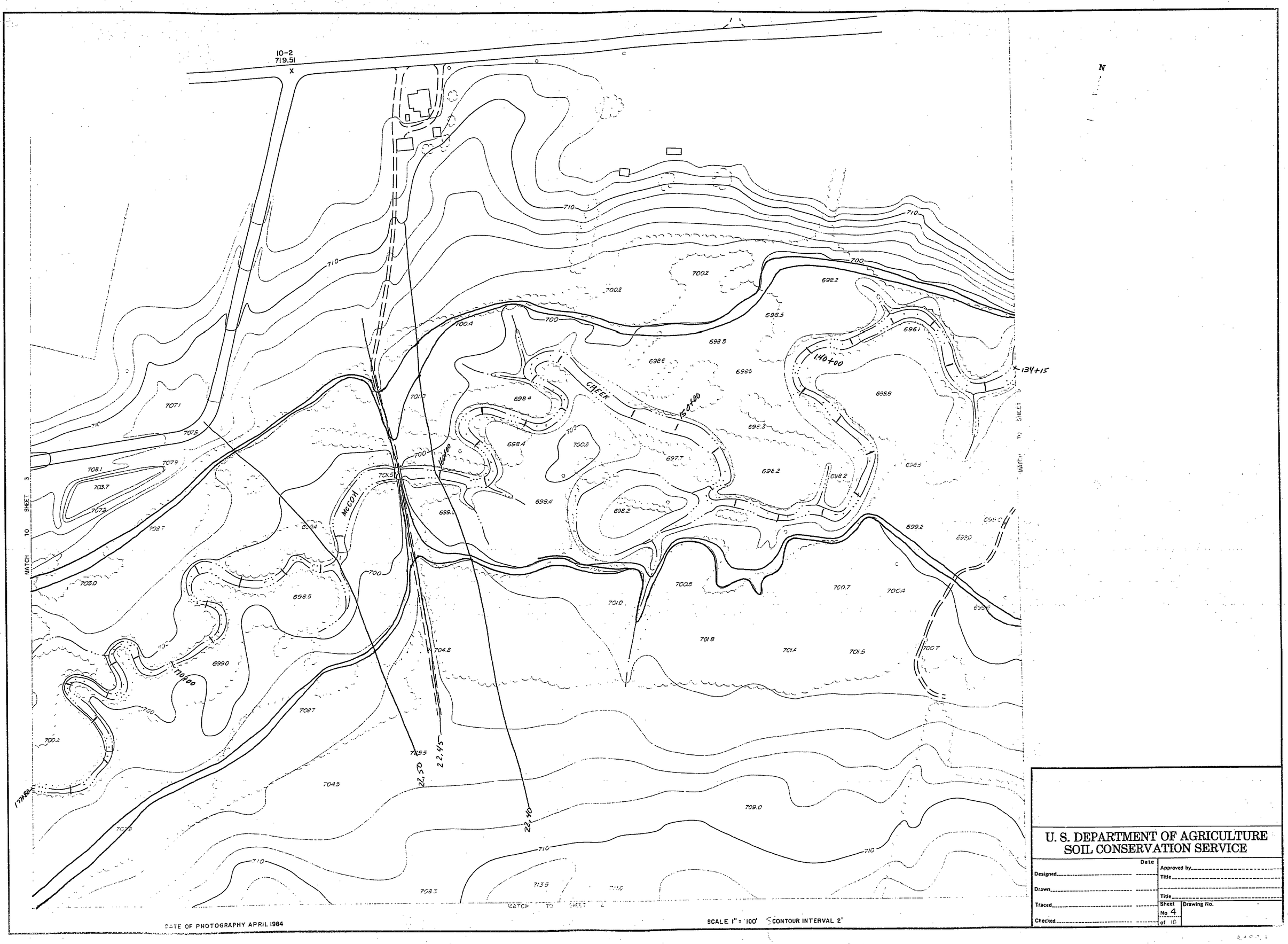
A.A.S.C. 19082



DATE OF PHOTOGRAPHY APRIL 1984

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SOIL CONSERVATION SERVICE

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DATE OF PHOTOGRAPHY APRIL 1984

SCALE 1" = 100' CONTOUR INTERVAL 2'

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SOIL CONSERVATION SERVICE

	Date	
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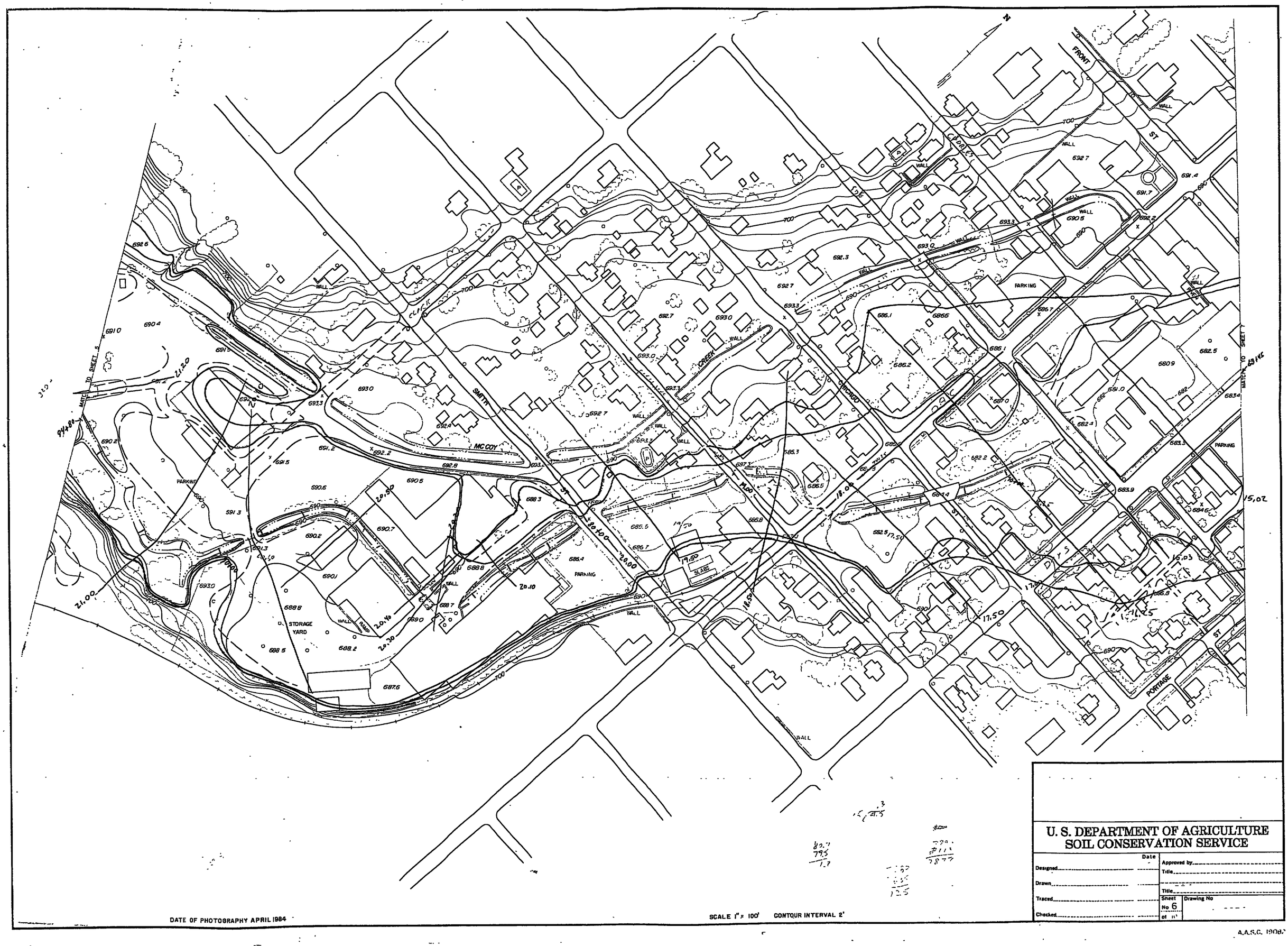
Traced		Title
Checked		Sheet No 5 of 10 — Drawing No.



DATE OF PHOTOGRAPHY APRIL 1984

SCALE 1" = 100' CONTOUR INTERVAL 2'

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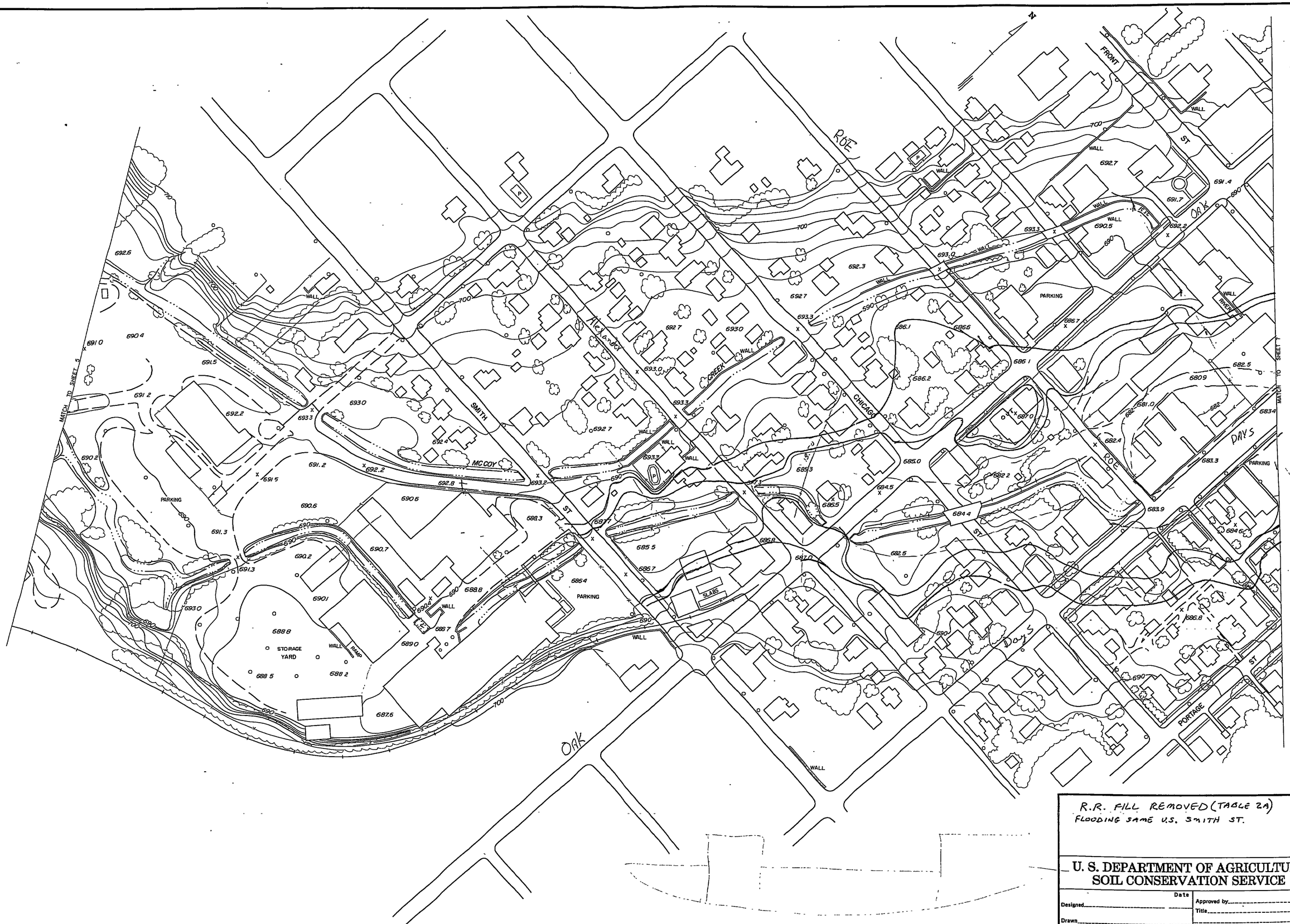
SOIL CONSERVATION SERVICE

	Date		
Designed		Approved by	
Drawn		Title	
Traced		Title	
Checked		Sheet No 6 of 11	Drawing No

A.A.S.C. 1908?



R.R. FILL REMOVED (TABLE 2A)
FLOODING SAME U.S. SMITH ST.

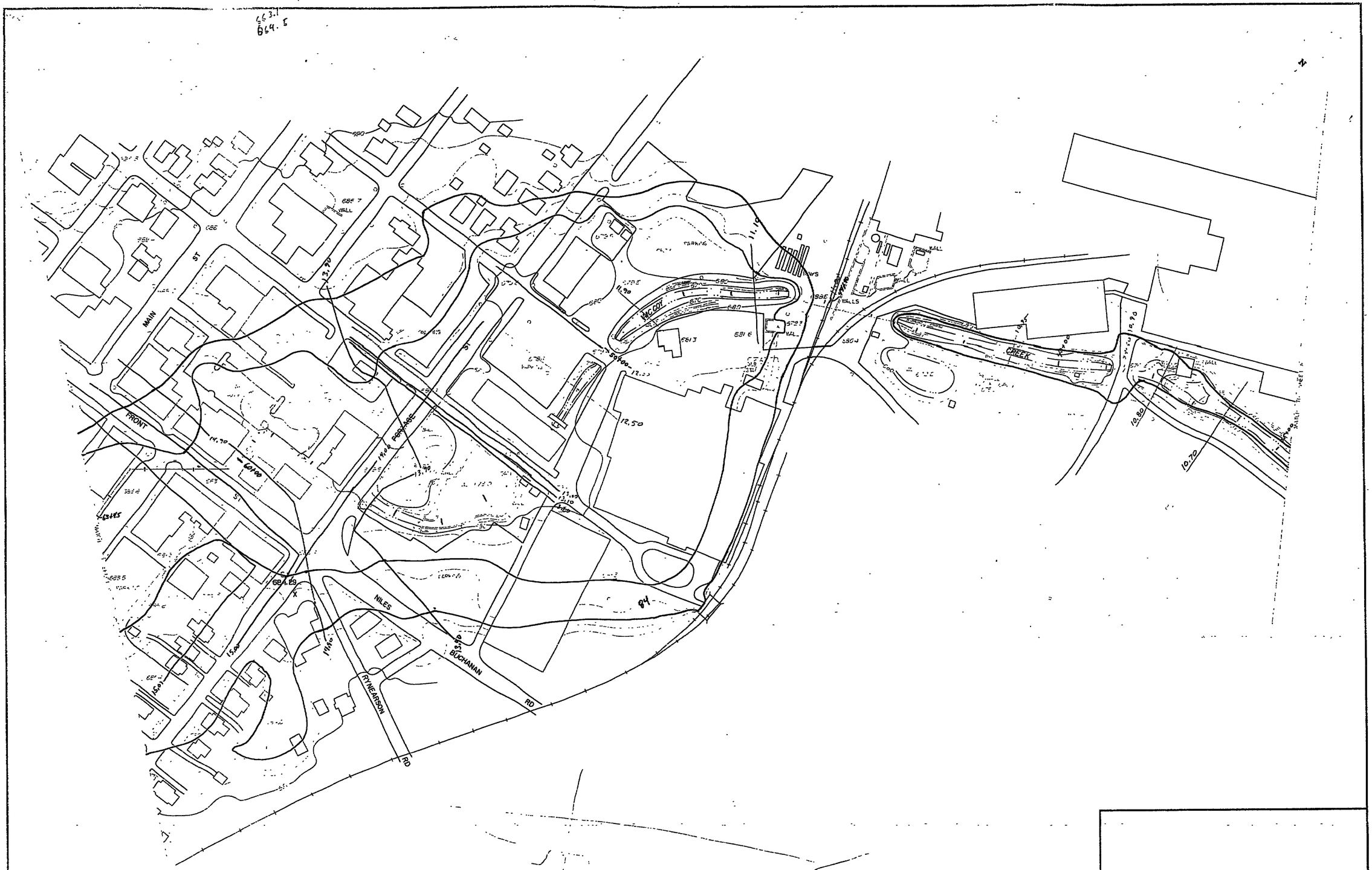
U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

	Date		
Designed		Approved by	
Drawn		Title	
Traced		Sheet No 6 of 10	Drawing No.
Checked			

DATE OF PHOTOGRAPHY APRIL 1984

SCALE 1" = 100' CONTOUR INTERVAL 2'

A.A.S.C. 19082



DATE OF PHOTOGRAPHY APRIL 1964

SCALE 1" = 100' CONTOUR INTERVAL 2'

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

	Date		
Designed		Approved by	
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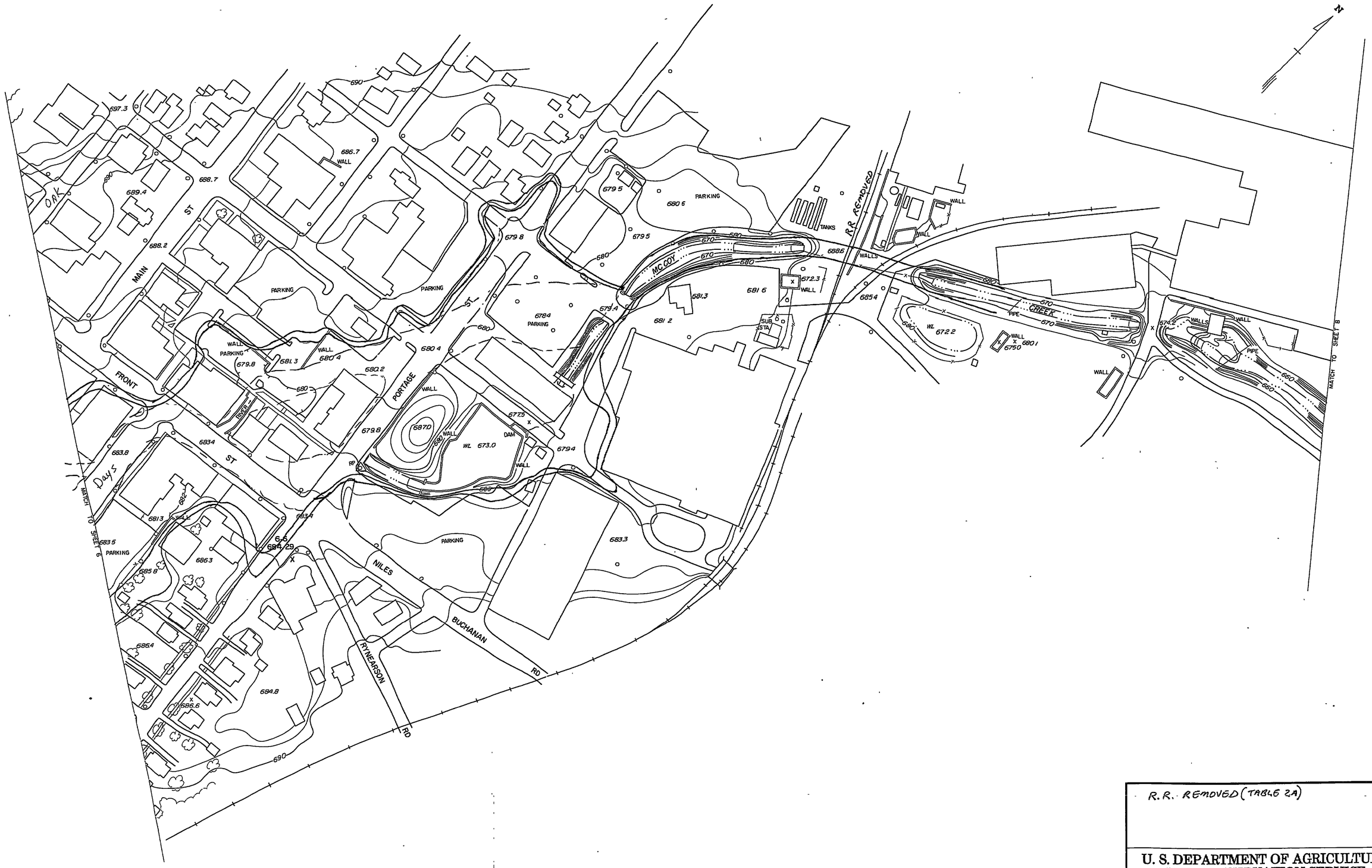
Traced		Sheet No. 7 of	Drawing No.
Checked			



R.R. REMOVED (TABLE 2A)

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

	Date		
Designed		Approved by	
		Title	
Drawn			
		Title	
Traced		Sheet No. 7 of 10	Drawing No.
Checked			

DATE OF PHOTOGRAPHY APRIL 1984

SCALE 1" = 100' CONTOUR INTERVAL 2'

A.A.S.C. 19082



DATE OF PHOTOGRAPHY APRIL 1984

SCALE 1" = 100' CONTOUR INTERVAL 2'

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

	Date		
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		Title	
Drawn			
		Title	
Traced		Sheet No 8 of 10	Drawing No.
Checked			

A.A.S.C. 1908

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Michiana, ~~Grand Beach~~

3) WATERCOURSE: White Creek

4) DOCUMENT TYPE: 100-YEAR

00BREAK00

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**********************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08,09
MODIFICATIONS 52,53,54,55,56,57,58
**********************************************
C
T1      INDIANA   JOB NO. 5555-40-01
T2        100 YEAR FLOOD
T3        WHITE CREEK
J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        -0.       2.        -0.       -0. -0.000000    =0.00     -0.0      -0.     580.960   -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     8.000     4.000     3.000    10.000    11.000    12.000    -0.000    -0.000    -0.000
NC       .070      .070      .035      .300      .500     -0.000    -0.000    -0.000    -0.000    -0.000
QT      5.000   660.000   305.000   560.000   660.000   895.000    -0.000    -0.000    -0.000    -0.000
X1      0.000     9.000    42.000   124.000    -0.000    -0.000    -0.000    -0.000     -.400    -0.000
GR    596.300     0.000   592.800    10.000   592.000    42.000   582.700    57.000   582.100    72.000
GR    581.900    87.000   580.600    97.000   581.800   107.000   596.600   124.000    -0.000    -0.000
X1     49.000    -0.000    -0.000    -0.000    49.000    49.000    49.000    -0.000      .090    -0.000
X1     98.000    -0.000    -0.000    -0.000    49.000    49.000    49.000    -0.000      .090    -0.000
X1    154.000    -0.000    -0.000    -0.000    56.000    56.000    56.000    -0.000      .110    -0.000
X1    210.000    -0.000    -0.000    -0.000    56.000    56.000    56.000    -0.000      .110    -0.000
NC       .070      .070      .060     -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
X1    251.000    11.000    93.000   101.000    41.000    41.000    41.000    -0.000     -1.200    -0.000
X3     10.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000   585.200   585.200    -0.000
GR    596.300     0.000   592.800    10.000   592.000    42.000   582.700    57.000   582.100    72.000
GR    581.900    87.000   581.100    93.000   580.600    97.000   581.100   101.000   581.800   107.000
GR    596.600   124.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
SB     -0.000     2.780     2.800    -0.000     8.000    -0.000    66.600    -0.000   577.900   579.400
X1    280.000     8.000   110.000   118.000    29.000    29.000    29.000    -0.000    -0.000    -0.000
X2     -0.000    -0.000     1.000   587.500   589.100    -0.000    -0.000    -0.000    -0.000    -0.000
X3     10.000    -0.000    -0.000    60.000    -0.000   130.000    -0.000   589.100   589.100    -0.000
BT      5.000    60.000   589.800     0.000   110.000   589.100   587.500   114.000   589.100   587.500
BT    118.000   589.100   587.500   130.000   589.270     0.000    -0.000    -0.000    -0.000    -0.000
GR    594.000     0.000   589.800    60.000   577.900   110.000   579.300   114.000   580.200   118.000
GR    589.270   130.000   589.800   168.000   594.000   228.000    -0.000    -0.000    -0.000    -0.000
NC       .100      .070      .040     -0.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
X1    289.000     9.000    42.000   124.000     8.000     8.000     8.000    -0.000     -2.660    -0.000
GR    596.300     0.000   592.800    10.000   592.000    42.000   582.700    57.000   582.100    72.000
GR    581.900    87.000   580.600    97.000   581.800   107.000   596.600   124.000    -0.000    -0.000
X1    540.000    12.000   174.000   250.000   252.000   252.000   252.000    -0.000     -2.700    -0.000
X3     -0.000    -0.000    -0.000   100.000    -0.000    -0.000    -0.000    -0.000    -0.000    -0.000
GR    597.300     0.000   588.400    16.000   589.800    98.000   589.700   154.000   584.000   159.000
GR    595.200   174.000   592.600   182.000   581.900   188.000   583.300   194.000   586.100   207.000
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X1	780.000	-0.000	-0.000	-0.000	240.000	240.000	240.000	-0.000	1.200	-0.000
X3	-0.000	-0.000	-0.000	100.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
QT	5.000	610.000	285.000	520.000	610.000	820.000	-0.000	-0.000	-0.000	-0.000
X1	1080.000	-0.000	-0.000	-0.000	300.000	300.000	300.000	-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
X1	1304.000	50.000	154.700	219.000	223.000	223.000	224.000	-0.000	-.400	-0.000
GR	598.400	0.000	592.600	11.000	591.100	22.100	591.300	33.100	591.400	44.200
GR	591.600	55.200	591.800	66.300	591.900	77.300	592.000	88.400	590.900	99.400
GR	590.300	110.500	590.300	121.500	590.100	132.600	585.800	143.600	586.400	154.700
GR	585.300	157.900	584.300	161.100	583.700	164.300	583.600	167.600	584.200	170.800
GR	584.800	174.000	585.300	177.200	585.800	180.400	586.500	183.600	587.300	186.800
GR	588.200	190.000	589.000	193.200	590.100	196.500	591.300	199.700	592.500	202.900
GR	593.700	206.100	594.800	209.300	596.000	212.500	597.200	215.700	598.400	219.000
GR	598.400	221.300	598.400	223.600	598.600	226.000	599.000	228.300	599.200	230.600
GR	599.300	233.000	599.300	235.300	599.400	237.600	599.500	239.900	599.500	242.300
GR	599.500	244.600	599.500	246.900	599.700	249.300	600.400	251.600	601.000	254.000
QT	5.000	607.000	283.000	517.000	607.000	816.000	-0.000	-0.000	-0.000	-0.000
X1	1526.000	50.000	135.500	188.000	222.000	222.000	222.000	-0.000	-.800	-0.000
GR	599.500	0.000	594.900	9.600	593.800	19.300	593.900	29.000	594.000	38.700
GR	594.100	48.300	594.200	58.000	594.300	67.700	594.400	77.400	592.200	87.100
GR	590.900	96.700	591.000	106.400	590.600	116.100	587.500	125.800	587.700	135.500
GR	586.800	138.100	585.900	140.700	585.400	143.300	585.200	146.000	585.400	148.600
GR	585.700	151.200	585.900	153.800	586.100	156.400	586.600	159.100	587.300	161.700
GR	588.000	164.300	588.700	166.900	589.600	169.600	590.500	172.200	591.500	174.800
GR	592.500	177.400	593.500	180.100	594.500	182.700	595.500	185.300	596.500	188.000
GP	596.500	192.600	596.500	197.300	596.900	202.000	597.600	206.600	598.100	211.300
GR	598.200	215.900	598.300	220.600	598.400	225.300	598.600	229.900	598.700	234.600
GR	598.700	239.300	598.600	243.900	599.000	248.600	600.400	253.300	601.700	258.000
X1	1749.000	50.000	116.200	157.000	223.000	223.000	223.000	-0.000	-.750	-0.000
GR	600.600	0.000	597.200	8.300	596.400	16.600	596.500	24.900	596.500	33.200
GR	596.600	41.500	596.600	49.800	596.700	58.100	596.700	66.400	593.400	74.700
GR	591.500	83.000	591.600	91.300	591.100	99.600	589.200	107.900	589.000	116.200
GR	588.200	118.200	587.500	120.300	587.000	122.300	586.700	124.400	586.600	126.400
GR	586.600	128.400	586.500	130.500	586.400	132.500	586.700	134.500	587.300	136.600
GR	587.800	138.600	588.400	140.700	589.000	142.700	589.700	144.700	590.500	146.800
GR	591.300	148.800	592.100	150.800	592.900	152.900	593.700	154.900	594.600	157.000
GR	594.600	164.000	594.600	171.000	595.100	177.900	596.200	184.900	596.900	191.900
GR	597.100	198.900	597.300	205.900	597.400	212.900	597.700	219.900	597.800	226.900
GR	597.900	233.900	597.700	240.900	598.300	247.900	600.400	254.900	602.400	262.000
QT	5.000	604.000	282.000	515.000	604.000	912.000	-0.000	-0.000	-0.000	-0.000
X1	1808.000	-0.000	-0.000	-0.000	59.000	59.000	59.000	-0.000	.380	-0.000
NC	.070	.070	.024	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1882.000	17.000	104.000	115.000	74.000	74.000	74.000	-0.000	-.100	-0.000
X3	10.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	591.750	591.750	-0.000
GR	601.800	0.000	599.200	8.000	599.100	56.000	592.200	66.000	592.300	76.000
GR	590.300	97.000	589.100	100.000	588.000	104.000	586.600	109.000	588.300	115.000
GR	589.200	118.000	592.700	126.000	592.700	149.000	595.800	169.000	597.200	226.000
GR	596.800	244.000	603.100	266.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
SB	-0.000	1.960	2.950	-0.000	8.000	-0.000	39.270	-0.000	586.900	586.500
X1	1919.000	20.000	124.500	135.500	37.000	37.000	37.000	-0.000	-0.000	-0.000
X2	-0.000	-0.000	1.000	591.900	597.200	-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	597.200	597.200	-0.000
BT	18.000	0.000	601.700	0.000	27.000	601.000	0.000	124.500	597.200	590.200
BT	124.900	597.200	590.800	125.700	597.200	591.600	127.000	597.200	591.900	128.300
BT	597.200	591.600	129.100	597.200	590.800	129.500	597.200	590.200	130.500	597.200
BT	590.300	130.900	597.200	590.900	131.700	597.200	591.700	133.000	597.200	592.000
BT	134.300	597.200	591.700	135.100	597.200	590.900	135.500	597.200	590.300	227.000
BT	598.200	0.000	292.000	601.900	0.000	-0.000	-0.000	-0.000	-0.000	-0.000

GR	603.300	0.000	593.400	40.000	592.800	46.000	593.700	52.000	602.400	65.000
X1	4935.000	8.000	0.000	65.000	420.000	380.000	400.000	-0.000	-0.000	-0.000
NC	.070	.050	.040	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	4535.000	-0.000	-0.000	-0.000	500.000	440.000	468.000	-0.000	.550	-0.000
QT	5.000	594.000	277.000	506.000	594.000	800.000	-0.000	-0.000	-0.000	-0.000
X1	4067.000	-0.000	-0.000	-0.000	57.000	57.000	57.000	-0.000	.070	-0.000
GR	607.600	300.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	599.100	184.000	592.600	194.000	591.700	203.000	592.700	211.000	604.100	225.000
GR	608.000	0.000	606.500	10.000	604.100	72.000	600.100	95.000	598.600	125.000
X3	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	3870.000	11.000	184.000	225.000	226.000	226.000	226.000	.090	-0.000	-0.000
QT	5.000	597.000	279.000	509.000	597.000	804.000	-0.000	-0.000	-0.000	-0.000
X1	3644.000	-0.000	-0.000	-0.000	275.000	275.000	275.000	-0.000	.630	-0.000
X1	3369.000	-0.000	-0.000	-0.000	550.000	550.000	550.000	-0.000	1.250	-0.000
GR	606.100	238.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	590.600	92.000	596.600	100.000	596.400	170.000	600.000	187.000	599.400	230.000
GR	604.800	0.000	601.800	12.000	598.700	63.000	590.400	73.000	589.400	82.000
X1	2819.000	11.000	63.000	100.000	765.000	765.000	765.000	-0.000	-0.000	-0.000
QT	5.000	601.000	280.000	512.000	601.000	808.000	-0.000	-0.000	-0.000	-0.000
NC	.100	.100	.050	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	2001.000	-0.000	-0.000	-0.000	53.000	53.000	53.000	-0.000	.170	-0.000
GR	592.700	149.000	595.800	169.000	597.200	226.000	596.800	244.000	603.100	266.000
GR	590.300	97.000	589.100	100.000	586.600	109.000	589.200	118.000	592.700	126.000
GR	601.800	0.000	599.200	4.000	599.100	56.000	592.200	66.000	592.300	76.000
X3	-0.000	-0.000	-0.000	-0.000	215.000	-0.000	-0.000	-0.000	-0.000	-0.000
X1	1969.000	15.000	97.000	126.000	50.000	50.000	50.000	-0.000	-0.000	-0.000
NC	.090	.090	.030	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
GR	588.100	135.100	588.700	135.500	597.750	185.800	598.200	227.000	601.900	292.000
GR	588.700	130.500	588.100	130.900	587.300	131.700	587.300	133.000	587.300	134.300
GR	587.200	125.700	586.900	127.000	587.200	128.300	588.000	129.100	588.600	129.500
GR	601.700	0.000	601.000	27.000	597.750	110.400	588.600	124.500	588.000	124.900



-0.000 -0.000 -0.000 -0.000 -0.000 -0.000 -0.000 -0.000 -0.000 -0.000 EJ

CCHV= .300 CEHV= .500

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
0.00	2.96	583.16	583.16	580.96	584.00	.84	0.00	0.00	591.60
660.	0.	660.	0.	0.	90.	0.	0.	0.	596.20
0.00	0.00	7.36	0.00	.070	.035	.070	0.000	580.20	55.62
.015475	-0.	-0.	-0.	0	25	1	0.00	53.40	109.02
49.00	3.84	584.13	0.00	0.00	584.48	.35	.34	.15	591.69
660.	0.	660.	0.	0.	138.	0.	0.	0.	596.29
.00	0.00	4.78	0.00	.070	.035	.070	.034	580.29	54.19
.003941	49.	49.	49.	2	0	1	0.00	55.85	110.04
98.00	3.97	584.35	0.00	0.00	584.67	.32	.18	.01	591.78
660.	0.	660.	0.	0.	146.	0.	0.	0.	596.38
.01	0.00	4.53	0.00	.070	.035	.070	.034	580.38	53.97
.003332	49.	49.	49.	2	0	1	0.00	56.22	110.19
154.00	4.07	584.56	0.00	0.00	584.86	.30	.18	.01	591.89
660.	0.	660.	0.	0.	151.	0.	0.	0.	596.49
.01	0.00	4.37	0.00	.070	.035	.070	.034	580.49	53.82
.002981	56.	56.	56.	0	0	1	0.00	56.48	110.30

VALLEY SECTION #9

210.00	4.14	584.74	0.00	0.00	585.02	.28	.16	.00	592.00
660.	0.	660.	0.	0.	155.	0.	1.	0.	596.60
.01	0.00	4.27	0.00	.070	.035	.070	.034	580.60	53.71
.002760	56.	56.	56.	0	0	1	0.00	56.66	110.38

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
251.00	5.99	585.39	585.39	0.00	585.49	.10	.09	0.00	579.90
660.	409.	152.	99.	174.	46.	44.	1.	0.	579.90
.02	2.35	3.31	2.24	.070	.060	.070	.038	579.40	50.73
.001755	41.	41.	41.	30	14	1	0.00	61.78	112.50

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.78	2.80	-0.00	8.00	-0.00	66.60	-0.00	577.90	579.40

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

PRESSURE AND WEIR FLOW

EGPRS	EGLVC	H3	QWEIR	QBR	BAREA	ELLC	ELTRD	CLASS
589.63	588.64	0.00	11.	643.	67.	587.50	589.10	30.00

3470 ENCROACHMENT STATIONS= 60.0 130.0 TYPE= 1 TARGET= 70.000

BRIDGE SECTION #8 RAVINE ROAD BRIDGE

280.00	11.46	589.36	0.00	0.00	589.41	.05	3.92	0.00	577.90
660.	399.	200.	61.	276.	82.	56.	1.	0.	580.20
.02	1.45	2.45	1.10	.070	.060	.070	.040	577.90	61.83
.000469	29.	29.	29.	2	0	2	0.00	68.16	130.00
288.00	11.47	589.41	0.00	0.00	589.42	.02	.00	.01	589.34
660.	0.	660.	0.	0.	644.	0.	1.	0.	593.94
.02	.00	1.02	0.00	.100	.040	.070	.040	577.94	39.30
.000050	8.	8.	8.	2	0	1	0.00	79.50	118.79

3470 ENCROACHMENT STATIONS= 100.0 250.0 TYPE= 1 TARGET= -100.000

540.00	10.22	589.42	0.00	0.00	589.45	.03	.02	.01	582.50
660.	131.	529.	0.	267.	344.	0.	5.	1.	99997.30
.08	.49	1.54	0.00	.100	.040	.070	.040	579.20	100.00
.000149	252.	252.	252.	2	0	1	0.00	127.21	227.21

3470 ENCROACHMENT STATIONS= 100.0 250.0 TYPE= 1 TARGET= -100.000

780.00	9.06	589.46	0.00	0.00	589.51	.05	.05	.01	583.70
660.	109.	551.	0.	181.	284.	0.	8.	2.	598.90
.12	.61	1.94	0.00	.100	.040	.070	.040	580.40	100.00
.000281	240.	240.	240.	1	0	1	0.00	124.00	224.00

3470 ENCROACHMENT STATIONS= 100.0 250.0 TYPE= 1 TARGET= -100.000

VALLEY SECTION #7

1080.00	7.66	589.56	0.00	0.00	589.64	.08	.11	.02	585.20
610.	83.	527.	0.	88.	217.	0.	10.	2.	600.40
.15	.95	2.43	0.00	.100	.040	.070	.040	581.90	154.13
.000565	300.	300.	300.	2	0	1	0.00	66.03	220.16
1304.00	6.50	589.70	0.00	0.00	589.83	.13	.17	.02	586.00
610.	71.	539.	0.	68.	177.	0.	12.	3.	598.00
.18	1.04	3.05	0.00	.100	.040	.070	.040	583.20	132.60

.001021	223.	224.	223.	2	0	1	0.00	63.90	196.50

1526.00	5.56	589.96	0.00	0.00	590.16	.21	.30	.04	586.90
607.	56.	551.	0.	47.	144.	0.	13.	3.	595.70
.19	1.19	3.83	0.00	.100	.040	.070	.040	584.40	112.31
.001823	222.	222.	222.	2	0	1	0.00	60.56	172.87

1749.00	4.79	590.44	0.00	0.00	590.84	.40	.58	.09	588.25
607.	35.	572.	0.	26.	110.	0.	14.	3.	593.85
.20	1.34	5.20	0.00	.100	.040	.070	.040	585.65	98.08
.003991	223.	223.	223.	2	0	1	0.00	50.45	148.53

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

1808.00	4.64	590.67	0.00	0.00	591.11	.43	.25	.02	588.63
604.	32.	572.	0.	24.	105.	0.	14.	3.	594.23
.21	1.36	5.43	0.00	.100	.040	.070	.040	586.03	99.85
.004548	59.	59.	59.	2	0	1	0.00	48.31	148.16

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

1882.00	5.29	591.79	591.79	0.00	593.11	1.31	.30	0.00	587.90
604.	66.	500.	38.	33.	50.	18.	14.	3.	588.20
.21	1.99	10.07	2.14	.070	.024	.070	.039	586.50	80.27
.003732	74.	74.	74.	30	17	1	0.00	43.89	124.16

SPECIAL BRIDGE

SB	XK	XKOR	COFG	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	1.96	2.95	-0.00	8.00	-0.00	39.27	-0.00	586.90	586.50

3301 HV CHANGED MORE THAN HVINS

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	ELLC	ELTRD	CLASS
598.99	594.40	0.00	53.	553.	39.	591.90	597.20	30.00

1971.00	10.80	597.70	0.00	0.00	597.82	.12	.71	0.00	588.60
604.	45.	381.	177.	64.	111.	225.	14.	3.	588.70
.21	.71	3.43	.79	.070	.024	.070	.039	586.90	110.47
.000188	37.	37.	37.	2	0	4	0.00	75.07	185.54

3470 ENCROACHMENT STATIONS= .0 215.0 TYPE= 1 TARGET= 214.999

VALLEY SECTION #5

1969.00	11.22	597.82	0.00	0.00	597.85	.03	.01	.03	590.30
604.	93.	430.	81.	216.	258.	256.	15.	4.	592.70
.23	.43	1.67	.31	.090	.030	.090	.039	586.60	57.85
.000066	50.	50.	50.	2	0	1	0.00	157.15	215.00
2001.00	11.06	597.83	0.00	0.00	597.86	.03	.00	.00	590.47
604.	92.	433.	79.	209.	254.	261.	16.	4.	592.87
.24	.44	1.71	.30	.090	.030	.090	.038	586.77	58.09
.000071	53.	53.	53.	0	0	1	0.00	188.91	247.00

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

VALLEY SECTION #4

2819.00	8.52	597.92	0.00	0.00	598.01	.09	.13	.03	598.70
601.	0.	548.	53.	0.	220.	105.	25.	6.	596.60
.33	0.00	2.49	.50	.100	.050	.100	.042	589.40	63.93
.000744	765.	765.	765.	2	0	1	0.00	113.26	177.20
3369.00	7.77	598.42	0.00	0.00	598.56	.14	.52	.02	599.95
601.	0.	582.	19.	0.	193.	48.	29.	8.	597.85
.38	0.00	3.01	.40	.100	.050	.100	.043	590.65	64.84
.001243	550.	550.	550.	2	0	1	0.00	108.80	173.64
3644.00	7.50	598.78	0.00	0.00	598.94	.16	.37	.01	600.58
601.	0.	592.	9.	0.	184.	29.	30.	9.	598.48
.40	0.00	3.22	.31	.100	.050	.100	.043	591.28	65.16
.001497	275.	275.	275.	2	0	1	0.00	107.21	172.38

3470 ENCROACHMENT STATIONS= 184.0 222.0 TYPE= 1 TARGET= 38.000

3870.00	7.35	599.14	0.00	0.00	599.33	.18	.37	.01	599.19
597.	0.	597.	0.	0.	174.	0.	31.	9.	100000.09
.42	0.00	3.44	0.00	.100	.050	.100	.044	591.79	184.07
.001823	226.	226.	226.	2	0	1	0.00	34.73	218.80

3301 HV CHANGED MORE THAN HVINS

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 599.40 ELREA= 599.40

3920.00	7.02	598.92	0.00	0.00	599.71	.79	.08	.30	592.20
597.	0.	597.	0.	0.	84.	0.	31.	9.	592.70

.42	0.00	7.14	0.00	.070	.024	.070	.04-	591.90	196.80
.001418	50.	50.	50.	2	0	1	0.00	12.40	209.20

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	-0.00	2.12	2.95	-0.00	9.75	-0.00	77.00	-0.00	592.50	591.90

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.000 EGLWC= 600.332 ELLC= 600.400 PCWSE= 598.920 ELTRD= 602.600

NORMAL BRIDGE,NRD=10 MIN ELTRD= 602.60 MAX ELLC= 600.40

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 602.60 ELREA= 602.60

BRIDGE SECTION #3 CHICKGAMI TR. CULVERT

3960.00	6.32	598.82	0.00	0.00	599.99	1.17	.09	.19	594.10
597.	0.	597.	0.	0.	69.	0.	31.	9.	594.10
.43	0.00	8.68	0.00	.070	.024	.070	.043	592.50	193.80
.004255	40.	40.	40.	2	0	1	-14.34	12.40	213.28

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= 147.0 300.0 TYPE= 1 TARGET= -147.000

VALLEY SECTION #2

4010.00	8.59	600.29	0.00	0.00	600.39	.10	.08	.32	599.10
597.	32.	565.	0.	50.	218.	0.	32.	9.	604.10
.43	.65	2.59	0.00	.080	.050	.080	.043	591.70	147.00
.000821	50.	50.	50.	3	0	1	0.00	73.33	220.33
4067.00	8.59	600.36	0.00	0.00	600.44	.08	.04	.01	599.17
597.	68.	529.	0.	113.	218.	0.	32.	9.	604.17
.44	.60	2.43	0.00	.080	.050	.080	.044	591.77	93.91
.000723	57.	57.	57.	2	0	1	0.00	126.41	220.32
4535.00	8.40	600.72	0.00	0.00	600.81	.09	.36	.01	599.72
594.	56.	538.	0.	96.	211.	0.	35.	11.	604.72
.49	.58	2.55	0.00	.080	.050	.080	.044	592.32	94.99
.000823	500.	468.	440.	0	0	1	0.00	125.10	220.09

VALLEY SECTION #1

4935.00	8.20	601.00	0.00	0.00	601.08	.09	.27	.00	603.30
594.	0.	594	0.	0.	250.	0.	38.	11.	602.40

.54	0.00	2.37	0.00	.070	.040	.050	.044	592.80	9.31
.000566	420.	400.	380.	2	0	1	0.00	53.59	62.90

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

GRANGER DRAIN TRIB.

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
2275.00	7.00	0.00	0.00	634.12	35.00	638.37	0.00	638.38	17.00	.99	0.00	0.00
2275.00	7.00	0.00	0.00	634.12	41.00	639.41	0.00	639.42	17.00	.58	0.00	0.00
2275.00	7.00	0.00	0.00	634.12	43.00	639.59	0.00	639.60	17.00	.56	0.00	0.00
2275.00	7.00	0.00	0.00	634.12	46.00	640.18	0.00	640.18	17.00	.45	0.00	0.00
2293.00	18.00	0.00	0.00	633.90	35.00	638.37	0.00	638.38	17.00	.81	.01	.02
2293.00	18.00	0.00	0.00	633.90	41.00	639.41	0.00	639.42	17.00	.50	.01	.03
2293.00	18.00	0.00	0.00	633.90	43.00	639.59	0.00	639.60	17.00	.49	.01	.03
2293.00	18.00	0.00	0.00	633.90	46.00	640.18	0.00	640.19	17.00	.39	.01	.03
2318.00	25.00	0.00	0.00	633.60	35.00	638.38	0.00	638.38	17.00	.62	.02	.06
2318.00	25.00	0.00	0.00	633.60	41.00	639.41	0.00	639.42	17.00	.41	.02	.07
2318.00	25.00	0.00	0.00	633.60	43.00	639.59	0.00	639.60	17.00	.40	.02	.08
2318.00	25.00	0.00	0.00	633.60	46.00	640.18	0.00	640.19	17.00	.33	.02	.09
2368.00	50.00	0.00	0.00	632.60	35.00	638.38	0.00	638.38	17.00	.31	.05	.13
2368.00	50.00	0.00	0.00	632.60	41.00	639.42	0.00	639.42	17.00	.24	.05	.17
2368.00	50.00	0.00	0.00	632.60	43.00	639.60	0.00	639.60	17.00	.24	.05	.18
2368.00	50.00	0.00	0.00	632.60	46.00	640.19	0.00	640.19	17.00	.21	.06	.20
2473.00	105.00	0.00	0.00	632.85	35.00	638.38	0.00	638.39	17.00	.36	.11	.32
2473.00	105.00	0.00	0.00	632.85	41.00	639.42	0.00	639.42	17.00	.27	.12	.40
2473.00	105.00	0.00	0.00	632.85	43.00	639.60	0.00	639.60	17.00	.27	.12	.41
2473.00	105.00	0.00	0.00	632.85	46.00	640.19	0.00	640.19	17.00	.23	.12	.46
2578.00	105.00	0.00	0.00	633.10	35.00	638.39	0.00	638.39	17.00	.42	.17	.49
2578.00	105.00	0.00	0.00	633.10	41.00	639.42	0.00	639.43	17.00	.31	.18	.61
2578.00	105.00	0.00	0.00	633.10	43.00	639.60	0.00	639.61	17.00	.31	.18	.63
2578.00	105.00	0.00	0.00	633.10	46.00	640.19	0.00	640.19	17.00	.26	.19	.70
2683.00	105.00	0.00	0.00	633.35	35.00	638.39	0.00	638.40	17.00	.50	.22	.65
2683.00	105.00	0.00	0.00	633.35	41.00	639.43	0.00	639.43	17.00	.35	.24	.81
2683.00	105.00	0.00	0.00	633.35	43.00	639.61	0.00	639.61	17.00	.35	.24	.84
2683.00	105.00	0.00	0.00	633.35	46.00	640.19	0.00	640.20	17.00	.29	.25	.94
2788.00	105.00	0.00	0.00	633.60	35.00	638.40	0.00	638.40	17.00	.61	.27	.80
2788.00	105.00	0.00	0.00	633.60	41.00	639.43	0.00	639.43	17.00	.41	.30	1.01
2788.00	105.00	0.00	0.00	633.60	43.00	639.61	0.00	639.61	17.00	.40	.29	1.04
2788.00	105.00	0.00	0.00	633.60	46.00	640.20	0.00	640.20	17.00	.33	.30	1.16
2893.00	105.00	0.00	0.00	633.90	35.00	638.40	0.00	638.41	20.13	.59	.33	.95
2893.00	105.00	0.00	0.00	633.90	41.00	639.43	0.00	639.44	22.71	.35	.36	1.21
2893.00	105.00	0.00	0.00	633.90	43.00	639.61	0.00	639.62	22.95	.34	.35	1.25
2893.00	105.00	0.00	0.00	633.90	46.00	640.20	0.00	640.20	23.73	.26	.37	1.40
2998.00	105.00	0.00	0.00	634.15	35.00	638.41	0.00	638.42	19.52	.73	.37	1.10
2998.00	105.00	0.00	0.00	634.15	41.00	639.44	0.00	639.44	22.12	.43	.41	1.40
2998.00	105.00	0.00	0.00	634.15	43.00	639.62	0.00	639.62	22.58	.41	.41	1.46
2998.00	105.00	0.00	0.00	634.15	46.00	640.20	0.00	640.21	23.40	.31	.43	1.64

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
3103.00	105.00	0.00	0.00	634.40	35.00	638.42	0.00	638.43	18.90	.93	.42	1.23
3103.00	105.00	0.00	0.00	634.40	41.00	639.44	0.00	639.45	21.50	.52	.46	1.59
3103.00	105.00	0.00	0.00	634.40	43.00	639.62	0.00	639.63	21.95	.49	.46	1.65
3103.00	105.00	0.00	0.00	634.40	46.00	640.21	0.00	640.21	23.07	.36	.49	1.86
3208.00	105.00	0.00	0.00	634.65	35.00	638.43	0.00	638.44	18.29	1.18	.46	1.35
3208.00	105.00	0.00	0.00	634.65	41.00	639.45	0.00	639.45	20.88	.63	.51	1.76
3208.00	105.00	0.00	0.00	634.65	43.00	639.63	0.00	639.63	21.33	.60	.51	1.83
3208.00	105.00	0.00	0.00	634.65	46.00	640.21	0.00	640.21	22.74	.44	.54	2.08
3313.00	105.00	0.00	0.00	634.90	35.00	638.44	0.00	638.45	17.69	1.53	.50	1.47
3313.00	105.00	0.00	0.00	634.90	41.00	639.45	0.00	639.46	20.26	.77	.56	1.92
3313.00	105.00	0.00	0.00	634.90	43.00	639.63	0.00	639.64	20.71	.73	.56	2.00
3313.00	105.00	0.00	0.00	634.90	46.00	640.21	0.00	640.22	22.19	.53	.59	2.28
3418.00	105.00	0.00	0.00	635.15	35.00	638.46	0.00	638.47	17.10	1.99	.53	1.57
3418.00	105.00	0.00	0.00	635.15	41.00	639.46	0.00	639.47	19.65	.96	.60	2.07
3418.00	105.00	0.00	0.00	635.15	43.00	639.64	0.00	639.65	20.10	.90	.60	2.16
3418.00	105.00	0.00	0.00	635.15	46.00	640.22	0.00	640.23	21.57	.63	.64	2.46
3553.00	135.00	0.00	0.00	635.25	46.00	638.49	0.00	638.51	16.93	3.73	.56	1.69
3553.00	135.00	0.00	0.00	635.25	61.00	639.48	0.00	639.50	19.43	2.30	.64	2.25
3553.00	135.00	0.00	0.00	635.25	63.00	639.66	0.00	639.67	19.87	2.09	.63	2.35
3553.00	135.00	0.00	0.00	635.25	66.00	640.23	0.00	640.24	21.33	1.41	.68	2.69
3688.00	135.00	0.00	0.00	635.36	46.00	638.54	0.00	638.57	16.80	3.97	.59	1.81
3688.00	135.00	0.00	0.00	635.36	61.00	639.51	0.00	639.53	19.23	2.48	.67	2.42
3688.00	135.00	0.00	0.00	635.36	63.00	639.69	0.00	639.70	19.67	2.25	.67	2.54
3688.00	135.00	0.00	0.00	635.36	66.00	640.25	0.00	640.26	21.11	1.51	.72	2.91
3823.00	135.00	0.00	0.00	635.47	46.00	638.60	0.00	638.62	16.65	4.26	.62	1.93
3823.00	135.00	0.00	0.00	635.47	61.00	639.55	0.00	639.56	19.03	2.67	.70	2.59
3823.00	135.00	0.00	0.00	635.47	63.00	639.72	0.00	639.73	19.48	2.42	.70	2.72
3823.00	135.00	0.00	0.00	635.47	66.00	640.27	0.00	640.28	20.88	1.63	.76	3.13
3958.00	135.00	0.00	0.00	635.58	46.00	638.66	0.00	638.68	16.53	4.53	.65	2.04
3958.00	135.00	0.00	0.00	635.58	61.00	639.58	0.00	639.60	18.89	2.82	.74	2.76
3958.00	135.00	0.00	0.00	635.58	63.00	639.75	0.00	639.77	19.31	2.57	.74	2.89
3958.00	135.00	0.00	0.00	635.58	66.00	640.29	0.00	640.31	20.68	1.74	.80	3.34
4093.00	135.00	0.00	0.00	635.69	46.00	638.72	0.00	638.75	16.40	4.83	.68	2.16
4093.00	135.00	0.00	0.00	635.69	61.00	639.62	0.00	639.64	18.71	3.03	.77	2.92
4093.00	135.00	0.00	0.00	635.69	63.00	639.78	0.00	639.81	19.12	2.76	.77	3.07
4093.00	135.00	0.00	0.00	635.69	66.00	640.32	0.00	640.33	20.46	1.87	.84	3.54
4228.00	135.00	0.00	0.00	635.80	46.00	638.79	0.00	638.81	16.29	5.10	.71	2.27
4228.00	135.00	0.00	0.00	635.80	61.00	639.66	0.00	639.69	18.54	3.25	.80	3.08
4228.00	135.00	0.00	0.00	635.80	63.00	639.82	0.00	639.84	18.94	2.96	.80	3.23
4228.00	135.00	0.00	0.00	635.80	66.00	640.34	0.00	640.36	20.25	2.01	.87	3.74

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EG	TOPWID	10K*S	TIME	VOL
4363.00	135.00	0.00	0.00	635.91	46.00	638.86	0.00	638.88	16.20	5.36	.74	2.38
4363.00	135.00	0.00	0.00	635.91	61.00	639.71	0.00	639.73	18.37	3.47	.83	3.24
4363.00	135.00	0.00	0.00	635.91	63.00	639.86	0.00	639.89	18.76	3.17	.83	3.40
4363.00	135.00	0.00	0.00	635.91	66.00	640.37	0.00	640.39	20.04	2.16	.91	3.94
4498.00	135.00	0.00	0.00	636.02	46.00	638.93	0.00	638.96	16.10	5.65	.77	2.48
4498.00	135.00	0.00	0.00	636.02	61.00	639.76	0.00	639.78	18.21	3.71	.86	3.39
4498.00	135.00	0.00	0.00	636.02	63.00	639.91	0.00	639.93	18.59	3.39	.86	3.56
4498.00	135.00	0.00	0.00	636.02	66.00	640.40	0.00	640.42	19.83	2.33	.94	4.13
4633.00	135.00	0.00	0.00	636.13	46.00	639.01	0.00	639.04	16.01	5.93	.80	2.59
4633.00	135.00	0.00	0.00	636.13	61.00	639.81	0.00	639.83	18.05	3.96	.89	3.54
4633.00	135.00	0.00	0.00	636.13	63.00	639.95	0.00	639.98	18.42	3.63	.89	3.71
4633.00	135.00	0.00	0.00	636.13	66.00	640.43	0.00	640.45	19.63	2.50	.98	4.31
4768.00	135.00	0.00	0.00	636.23	46.00	639.09	0.00	639.12	15.95	6.11	.82	2.69
4768.00	135.00	0.00	0.00	636.23	61.00	639.86	0.00	639.89	17.93	4.17	.92	3.68
4768.00	135.00	0.00	0.00	636.23	63.00	640.00	0.00	640.03	18.29	3.83	.92	3.87
4768.00	135.00	0.00	0.00	636.23	66.00	640.47	0.00	640.49	19.46	2.67	1.01	4.49

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
2275.000	35.000	638.370	0.000	0.000	0.000	16.999	0.000	7.000
2275.000	41.000	639.410	1.040	0.000	0.000	16.999	-.000	7.000
2275.000	43.000	639.590	.180	0.000	0.000	16.999	-.000	7.000
2275.000	46.000	640.180	.590	0.000	0.000	16.999	-.000	7.000
2293.000	35.000	638.373	0.000	.003	0.000	16.999	0.000	18.000
2293.000	41.000	639.412	1.039	.002	0.000	16.999	-.000	18.000
2293.000	43.000	639.592	.180	.002	0.000	16.999	-.000	18.000
2293.000	46.000	640.181	.590	.001	0.000	16.999	-.000	18.000
2318.000	35.000	638.376	0.000	.003	0.000	16.999	0.000	25.000
2318.000	41.000	639.414	1.038	.002	0.000	16.999	-.000	25.000
2318.000	43.000	639.594	.180	.002	0.000	16.999	-.000	25.000
2318.000	46.000	640.183	.589	.002	0.000	16.999	-.000	25.000
2368.000	35.000	638.381	0.000	.005	0.000	16.999	0.000	50.000
2368.000	41.000	639.417	1.036	.003	0.000	16.999	-.000	50.000
2368.000	43.000	639.597	.180	.003	0.000	16.999	-.000	50.000
2368.000	46.000	640.186	.589	.003	0.000	16.999	-.000	50.000
2473.000	35.000	638.384	0.000	.003	0.000	16.999	0.000	105.000
2473.000	41.000	639.419	1.036	.003	0.000	16.999	-.000	105.000
2473.000	43.000	639.599	.180	.003	0.000	16.999	-.000	105.000
2473.000	46.000	640.188	.588	.002	0.000	16.999	-.000	105.000
2578.000	35.000	638.388	0.000	.004	0.000	16.999	0.000	105.000
2578.000	41.000	639.422	1.035	.003	0.000	16.999	-.000	105.000
2578.000	43.000	639.602	.180	.003	0.000	16.999	-.000	105.000
2578.000	46.000	640.190	.588	.002	0.000	16.999	-.000	105.000
2683.000	35.000	638.392	0.000	.005	0.000	16.999	0.000	105.000
2683.000	41.000	639.426	1.033	.003	0.000	16.999	-.000	105.000
2683.000	43.000	639.605	.180	.003	0.000	16.999	-.000	105.000
2683.000	46.000	640.193	.588	.003	0.000	16.999	-.000	105.000
2788.000	35.000	638.398	0.000	.005	0.000	16.999	0.000	105.000
2788.000	41.000	639.429	1.031	.004	0.000	16.999	-.000	105.000
2788.000	43.000	639.609	.180	.004	0.000	16.999	-.000	105.000
2788.000	46.000	640.196	.587	.003	0.000	16.999	.000	105.000

2893.000	35.000	638.405	0.000	.007	0.000	20.135	0.000	105.000
2893.000	41.000	639.434	1.030	.005	0.000	22.707	-2.573	105.000
2893.000	43.000	639.614	.180	.005	0.000	22.947	-2.813	105.000
2893.000	46.000	640.200	.586	.004	0.000	23.729	-3.595	105.000
2998.000	35.000	638.411	0.000	.006	0.000	19.517	0.000	105.000
2998.000	41.000	639.438	1.027	.004	0.000	22.122	-2.604	105.000
2998.000	43.000	639.618	.180	.004	0.000	22.577	-3.060	105.000
2998.000	46.000	640.203	.585	.003	0.000	23.400	-3.883	105.000
3103.000	35.000	638.419	0.000	.008	0.000	18.902	0.000	105.000
3103.000	41.000	639.443	1.023	.005	0.000	21.499	-2.597	105.000
3103.000	43.000	639.622	.180	.004	0.000	21.954	-3.052	105.000
3103.000	46.000	640.206	.584	.003	0.000	23.071	-4.169	105.000
3208.000	35.000	638.429	0.000	.010	0.000	18.290	0.000	105.000
3208.000	41.000	639.448	1.019	.006	0.000	20.878	-2.587	105.000
3208.000	43.000	639.627	.179	.005	0.000	21.332	-3.042	105.000
3208.000	46.000	640.210	.583	.004	0.000	22.742	-4.452	105.000
3313.000	35.000	638.443	0.000	.013	0.000	17.685	0.000	105.000
3313.000	41.000	639.455	1.012	.007	0.000	20.260	-2.575	105.000
3313.000	43.000	639.634	.179	.006	0.000	20.713	-3.028	105.000
3313.000	46.000	640.215	.581	.005	0.000	22.188	-4.503	105.000
3418.000	35.000	638.460	0.000	.017	0.000	17.103	0.000	105.000
3418.000	41.000	639.463	1.004	.008	0.000	19.645	-2.542	105.000
3418.000	43.000	639.642	.178	.008	0.000	20.098	-2.995	105.000
3418.000	46.000	640.221	.579	.006	0.000	21.568	-4.465	105.000
3553.000	46.000	638.493	0.000	.033	0.000	16.929	0.000	135.000
3553.000	61.000	639.479	.987	.016	0.000	19.434	-2.506	135.000
3553.000	63.000	639.656	.177	.015	0.000	19.872	-2.944	135.000
3553.000	66.000	640.230	.574	.010	0.000	21.334	-4.406	135.000
3688.000	46.000	638.544	0.000	.051	0.000	16.799	0.000	135.000
3688.000	61.000	639.511	.967	.032	0.000	19.230	-2.431	135.000
3688.000	63.000	639.685	.174	.029	0.000	19.667	-2.869	135.000
3688.000	66.000	640.250	.564	.019	0.000	21.105	-4.306	135.000
3823.000	46.000	638.599	0.000	.055	0.000	16.652	0.000	135.000
3823.000	61.000	639.545	.946	.034	0.000	19.033	-2.382	135.000
3823.000	63.000	639.716	.171	.031	0.000	19.477	-2.825	135.000
3823.000	66.000	640.271	.554	.021	0.000	20.876	-4.225	135.000
3958.000	46.000	638.658	0.000	.059	0.000	16.529	0.000	135.000
3958.000	61.000	639.582	.924	.037	0.000	18.893	-2.364	135.000
3958.000	63.000	639.749	.167	.033	0.000	19.309	-2.780	135.000
3958.000	66.000	640.293	.543	.022	0.000	20.682	-4.153	135.000
4093.000	46.000	638.720	0.000	.063	0.000	16.401	0.000	135.000
4093.000	61.000	639.621	.901	.039	0.000	18.708	-2.307	135.000
4093.000	63.000	639.785	.164	.035	0.000	19.116	-2.715	135.000
4093.000	66.000	640.317	.532	.024	0.000	20.461	-4.060	135.000
4228.000	46.000	638.787	0.000	.067	0.000	16.295	0.000	135.000
4228.000	61.000	639.663	.876	.042	0.000	18.537	-2.243	135.000
4228.000	63.000	639.823	.160	.038	0.000	18.935	-2.641	135.000
4228.000	66.000	640.343	.520	.026	0.000	20.249	-3.954	135.000
4363.000	46.000	638.857	0.000	.070	0.000	16.199	0.000	135.000
4363.000	61.000	639.707	.851	.045	0.000	18.374	-2.176	135.000
4363.000	63.000	639.864	.156	.041	0.000	18.762	-2.563	135.000
4363.000	66.000	640.370	.507	.028	0.000	20.042	-3.843	135.000

4498.000	46.000	638.931	0.000	.074	0.000	16.099	0.000	135.000
4498.000	61.000	639.755	.825	.048	0.000	18.211	-2.112	135.000
4498.000	63.000	639.907	.152	.044	0.000	18.588	-2.489	135.000
4498.000	66.000	640.400	.493	.030	0.000	19.835	-3.736	135.000
4633.000	46.000	639.008	0.000	.078	0.000	16.009	0.000	135.000
4633.000	61.000	639.806	.798	.051	0.000	18.055	-2.046	135.000
4633.000	63.000	639.954	.148	.047	0.000	18.422	-2.413	135.000
4633.000	66.000	640.432	.478	.032	0.000	19.633	-3.624	135.000
4768.000	46.000	639.089	0.000	.081	0.000	15.953	0.000	135.000
4768.000	61.000	639.861	.772	.054	0.000	17.933	-1.979	135.000
4768.000	63.000	640.004	.143	.050	0.000	18.289	-2.335	135.000
4768.000	66.000	640.467	.463	.034	0.000	19.462	-3.509	135.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	24.000	.979	0.000
2	0.000	24.000	1.084	.105
3	0.000	24.000	1.102	.123
4	0.000	24.000	1.159	.180

WHITE CREEK

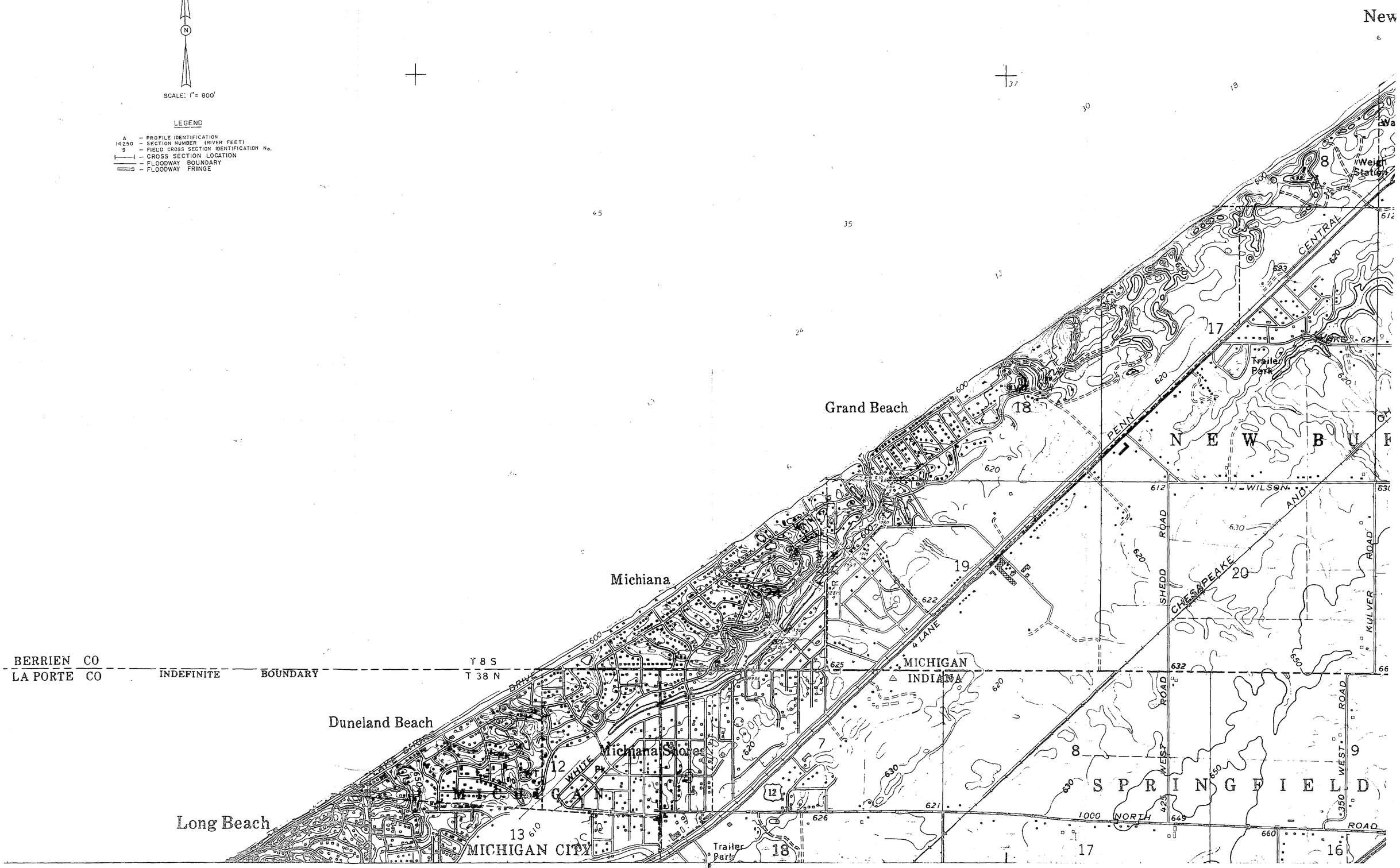
VILLAGE OF MICHIANA, FIS

J & A FILE No. 5555-40

SCALE: 1" = 800'

LEGEND

A – PROFILE IDENTIFICATION
14250 – SECTION NUMBER (RIVER FEET)
9 – FIELD CROSS SECTION IDENTIFICATION No.
– CROSS SECTION LOCATION
– FLOODWAY BOUNDARY
– FLOODWAY FRINGE



00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Michiana ~~Grand Beach~~

3) WATERCOURSE: White Creek

4) DOCUMENT TYPE: Report

00BREAK00

100-year

WATERCOURSE: White Creek
VILLAGE: Michiana
COUNTY: Berrien

STATION	LOCATION	CWSEL	EG	Q
0	Mouth of Lake Michigan-Lc	583.16	584.00	660
49	49' u/s of mouth	584.13	584.48	660
98	153' d/s of Ravine Road	584.35	584.67	660
154	97' d/s of Ravine Road	584.56	584.86	660
210	41' d/s of Ravine Road	584.74	585.02	660
251	d/s face of Ravine Road	585.39	585.49	660
280	u/s face of Ravine Road	589.36	589.41	660
288	8' u/s of Ravine Road	589.41	589.42	660
540	260' u/s of Ravine Road	589.42	589.45	660
780	500' u/s of Ravine Road	589.46	589.51	660
1080	800' u/s of Ravine Road	589.56	589.64	610
1304	1024' u/s of Ravine Road	589.70	589.83	610
1526	356' d/s of Dogwood Drive	589.96	590.16	607
1749	133' d/s of Dogwood Drive	590.44	590.84	607
1808	74' d/s of Dogwood Drive	590.67	591.11	604
1882	d/s face of Dogwood Drive	591.79	593.11	604
1919	u/s face of Dogwood Drive	597.70	597.82	604
1969	50' u/s of Dogwood Drive	597.82	597.85	604
2001	103' u/s of Dogwood Drive	597.83	597.86	604
2819	868' u/s of Dogwood Drive	597.92	598.01	601
3369	1418' u/s of Dogwood Drive	598.42	598.56	601
3644	1693' u/s of Dogwood Drive	598.78	598.94	601
3870	50' d/s of Chickgami Trail	599.14	599.33	597
3920	d/s face of Chickgami Trail	598.92	599.71	597
3960	u/s face of Chickgami Trail	598.82	599.99	597
4010	50' u/s of Chickgami Trail	600.29	600.39	597
4067	107' u/s of Chickgami Trail	600.36	600.44	597
4535	575' u/s of Chickgami Trail	600.72	600.81	594
4935	975' u/s of Chickgami Trail	601.00	601.08	594

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: New Buffalo Township

3) WATERCOURSE: Galien River

4) DOCUMENT TYPE: 100-year encroached

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

T1      GALIEN RIVER W/ ENCROACHMENTS          WILLIAMS AND WORKS, INC.
T2      NEW BUFFALO AREA                       83996
T3      GALIEN R. 100 YR. FLOOD                FEBRUARY, 1978

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.        3.        0.        0.  0.0           0.0      -1.0        0.   580.000     0.0

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
    2.000       0.0    -1.000       0.0       0.0       0.0       0.0       0.0       0.0        0.0
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*PROF 2

CCHV=   0.100 CEHV=   0.300
*SECNO .0
 2800 NAT Q1=    9660.83  WSEL=     580.00  ENC Q1=    9784.10  WSEL=     580.10  RATIO= -0.0128
 NAT Q1=    9784.  RATIOS LOB,CH,ROB=  0.0      1.0000  0.0      WSEL=     580.10
    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      XLOBP     ITRIAL    IDC       ICONT     CDRAR     TOPWID     ENDST


3470 ENCROACHMENT STATIONS=      100.0      410.0  TYPE=      4  TARGET=        0.0

           CROSS SECTION A

      0.0      15.20    580.00      0.0    580.00    580.04      0.04      0.0       0.0    587.30
     5836.        0.    5836.        0.       0.     3671.        0.        0.        0.    587.30
      0.0       0.0      1.59       0.0     0.030     0.030     0.030      0.0    564.80    105.00
 0.000036         0.       0.        0.         0         0         0      0.0    295.00    400.00

*SECNO .600

3470 ENCROACHMENT STATIONS=      450.0      650.0  TYPE=      1  TARGET=      200.000
 ELENCL=     585.00  ELENCR=     585.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       585.70 ELREA=       585.00

           CROSS SECTION B

      0.60     11.71    579.91      0.0    579.91    580.15      0.24      0.05      0.06    585.70
     5836.        0.    5836.        0.       0.     1476.        0.       35.        3.    585.00
      0.04       0.0      3.95       0.0     0.030     0.030     0.030     0.030    568.20    450.00
 0.000458       600.     600.       600.         2         0         0      0.0    200.00    650.00

*SECNO .800
 2800 NAT Q1=    1851.09  WSEL=     579.82  ENC Q1=    1880.96  WSEL=     579.92  RATIO= -0.0161
 NAT Q1=    1881.  RATIOS LOB,CH,ROB=  0.0000  0.9999  0.0000  WSEL=     579.92

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=      408.0      535.0  TYPE=      4  TARGET=        0.000

           CROSS SECTION C

      0.80     11.32    579.82      0.0    579.82    580.38      0.56      0.13      0.09    579.50
     5836.        0.    5836.        0.       0.      973.        0.       41.        4.    579.50
      0.05       0.0      6.00       0.0     0.030     0.030     0.030     0.030    568.50    408.00
 0.001002       200.     200.       300.         2         0         0      0.0    125.98    535.00


*SECNO 1.450

3470 ENCROACHMENT STATIONS=     1072.0     1267.0  TYPE=      1  TARGET=      195.000

           CROSS SECTION D
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     1.45    12.23   580.53     0.0    580.53   580.80     0.27     0.39     0.03   579.90
    5836.       0.    5836.      0.       1.    1407.       1.      59.       6.    579.90
     0.[illegible]     0.23     4.15     0.23    0.060    0.030    0.060    [illegible].030   568.30  1079.89
 0.0004[illegible]     650.     650.     650.        2        0        0      0.0   169.21  1249.10

*SECNO 1.750
 2800 NAT Q1=   4008.70  WSEL=    580.74  ENC Q1=   4076.00  WSEL=    580.84  RATIO= -0.0168
 NAT Q1=   4077.  RATIOS LOB,CH,ROB=  0.0001  0.9998  0.0001  WSEL=    580.84
   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=     685.0     885.0  TYPE=     4  TARGET=       0.000

          CROSS SECTION E

     1.75    12.64   580.74     0.0    580.74   580.90     0.15     0.09     0.01   579.90
    5836.       0.    5836.      0.       0.    1851.       0.      70.       8.    579.90
     0.12     0.0     3.15     0.0    0.060    0.030    0.060    0.030   568.10   685.00
 0.000215     400.     300.     250.        2        0        0      0.0   200.00   885.00

*SECNO 1.860
 2800 NAT Q1=   2884.84  WSEL=    580.67  ENC Q1=   2934.55  WSEL=    580.77  RATIO= -0.0172
 NAT Q1=   2935.  RATIOS LOB,CH,ROB=  0.0001  0.9999  0.0000  WSEL=    580.77

3470 ENCROACHMENT STATIONS=     290.0     426.0  TYPE=     4  TARGET=       0.000

          CROSS SECTION F  DOWNSTREAM OF WHITTAKER AVE. BRIDGE

     1.86    12.77   580.67     0.0    580.67   580.98     0.31     0.03     0.05   579.90
    5836.       0.    5836.      0.       0.    1316.       0.      74.       8.    579.90
     0.13     0.0     4.43     0.0    0.060    0.030    0.060    0.030   567.90   290.00
 0.000416     200.     110.      50.        2        0        0      0.0   136.00   426.00

CCHV=   0.200 CEHV=   0.500
*SECNO 1.890
 2800 NAT Q1=   2882.94  WSEL=    580.68  ENC Q1=   2933.60  WSEL=    580.78  RATIO= -0.0176
 NAT Q1=   2934.  RATIOS LOB,CH,ROB=  0.0     1.0000  0.0     WSEL=    580.78

3470 ENCROACHMENT STATIONS=     290.0     426.0  TYPE=     4  TARGET=       0.0

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      597.60 ELREA=      597.60

     1.89    12.78   580.68     0.0    580.68   580.99     0.30     0.01     0.00   579.90
    5836.       0.    5836.      0.       0.    1318.       0.      75.       8.    579.90
     0.13     0.0     4.43     0.0    0.060    0.030    0.060    0.030   567.90   290.00
 0.000414      30.      30.      30.        0        0        0      0.0   136.00   426.00

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.95      1.50      2.50      0.0      66.00      4.00    3260.00     2.40     571.60    571.60

*SECNO 1.990

3301 HV CHANGED MORE THAN HVINS

CLASS A LOW FLOW
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3420 BRIDGE W.S.=    580.57 BRIDGE VELOCITY=,      7.79      CALCULATED CHANNEL AREA=,      749.

 EGPRS      EGLWC       H3       QWEIR       QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                  AREA
    0.0     582.33      0.02        0.     5836.     3260.     3598.      599.50     600.60

    1.99      9.20   580.80      0.0    580.70   582.33      1.53      1.34      0.0    600.60
   5836.        0.    5836.       0.        0.     589.        0.       77.        8.    597.70
    0.13       0.0     9.92      0.0     0.060    0.030     0.060     0.030    571.60    622.23
0.004027      100.     100.     100.         0        0         0       0.0    102.49    724.71

CCHV=   0.100 CEHV=   0.300
*SECNO 2.120

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     425.0      728.0  TYPE=     1  TARGET=     303.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      582.90 ELREA=      579.90

          CROSS SECTION H

    2.12     12.33   582.43      0.0    582.39   582.51      0.08      0.04      0.15    582.90
   5836.        0.    5832.       4.        0.     2633.       17.       82.        9.    579.90
    0.15       0.0     2.21      0.25     0.070    0.030     0.070     0.030    570.10    426.19
0.000105      130.     130.     130.         2        0         0       0.0    299.33    725.52

1490 NH CARD USED
*SECNO 2.670
 2800 NAT Q1=   2830.95  WSEL=    582.38  ENC Q1=   2830.95  WSEL=    582.48  RATIO=  0.0000
 NAT Q1=   2910.  RATIOS LOB,CH,ROB=  0.1529  0.8429  0.0042  WSEL=    582.48

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     1TRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

3470 ENCROACHMENT STATIONS=     709.8     1258.0  TYPE=     4  TARGET=       0.027

          CROSS SECTION I

    2.67     11.51   582.41      0.0    582.38   582.67      0.26      0.10      0.06    570.90
   5836.      759.    5077.       0.      791.     1159.        0.      111.       14.    581.30
    0.19      0.96     4.38      0.0     0.062    0.060     0.060     0.030    570.90    709.76
0.000440      550.     550.     550.         2        0         0       0.0    508.63   1258.00

CCHV=   0.100 CEHV=   0.300
*SECNO 3.570
 2800 NAT Q1=   2171.09  WSEL=    582.80  ENC Q1=   2187.45  WSEL=    582.90  RATIO= -0.0075
 NAT Q1=   2216.  RATIOS LOB,CH,ROB=  0.0042  0.9871  0.0088  WSEL=    582.90

3470 ENCROACHMENT STATIONS=    1216.0     1357.0  TYPE=     4  TARGET=       0.013

          CROSS SECTION J
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      3.57     11.95    582.85      0.0     582.80    583.21      0.35      0.51      0.03    579.90
      5836.       0.      5836.       0.        0.      1222.       0.       143.       20.     579.90
       0.3       0.0      4.78       0.0      0.070     0.035     0.070      .031    570.90   1216.00
  0.00078       800.      900.      1000.         2         0         0       0.0    141.00   1357.00


 1490 NH CARD USED
 *SECNO 4.170
  2800 NAT Q1=    4900.33  WSEL=     583.30  ENC Q1=    4900.33  WSEL=     583.40  RATIO=  0.0
  NAT Q1=    5071.  RATIOS LOB,CH,ROB=  0.2882  0.6990  0.0128  WSEL=     583.40

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=      663.8     2125.0  TYPE=      4  TARGET=        0.034

           CROSS SECTION K

      4.17     12.17    583.37      0.0     583.30    583.41      0.05      0.18      0.03    580.00
      5836.     1599.     4237.       0.      3165.     2137.       0.       195.       34.     580.20
       0.35      0.51      1.98       0.0      0.070     0.070     0.066     0.032    571.20   663.84
  0.000145       800.      600.       600.         2         0         0       0.0    1437.00  2125.00


 1490 NH CARD USED
 *SECNO 5.070
  2800 NAT Q1=    3885.59  WSEL=     583.43  ENC Q1=    3885.59  WSEL=     583.53  RATIO=  0.0
  NAT Q1=    4014.  RATIOS LOB,CH,ROB=  0.4297  0.5297  0.0406  WSEL=     583.53

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=      610.1     1653.8  TYPE=      4  TARGET=        0.032

           CROSS SECTION L   =A in New Buffalo Twp

      5.07     10.70    583.50      0.0     583.43    583.56      0.07      0.14      0.01    579.90
      5836.     2489.     3200.      147.      2437.     1224.      261.      271.       53.     579.90
       0.47      1.02      2.61       0.56     0.057     0.035     0.070     0.033    572.80   610.13
  0.000229       600.      900.       950.         1         0         0       0.0    1003.05  1653.79


 1490 NH CARD USED
 *SECNO 5.920
  2800 NAT Q1=    5471.85  WSEL=     583.61  ENC Q1=    5471.85  WSEL=     583.71  RATIO=  0.0
  NAT Q1=    5647.  RATIOS LOB,CH,ROB=  0.5468  0.4506  0.0026  WSEL=     583.71

 3470 ENCROACHMENT STATIONS=      799.1     2104.0  TYPE=      4  TARGET=        0.031

           CROSS SECTION M   B

      5.92     11.28    583.68      0.0     583.61    583.71      0.03      0.15      0.00    579.60
      5935.     3167.     2768.       0.      4437.     1423.       0.       378.       78.     579.60
       0.67      0.71      1.95       0.0      0.058     0.070     0.069     0.033    572.40   799.15
  0.000120       1000.     850.       750.         2         0         0       0.0    1304.85  2104.00


 1490 NH CARD USED
 *SECNO 6.820
  2800 NAT Q1=    7381.73  WSEL=     583.71  ENC Q1=    7381.73  WSEL=     583.81  RATIO=  0.0000
  NAT Q1=    7660.  RATIOS LOB,CH,ROB=  0.7359  0.2550  0.0091  WSEL=     583.81
    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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= 554.7 2360.0 TYPE= 4 TARGET= 0.036

CROSS SECTION N C

6.82	9.99	583.79	0.0	583.71	583.80	0.01	0.08	0.00	579.80
5935.	4359.	1576.	0.	6414.	1169.	0.	530.	114.	579.80
0.98	0.68	1.35	0.0	0.044	0.070	0.070	0.033	573.80	554.73
0.000066	1000.	900.	900.	2	0	0	0.0	1805.27	2360.00

1490 NH CARD USED
*SECNO 7.800
2800 NAT Q1= 5795.75 WSEL= 583.80 ENC Q1= 5795.75 WSEL= 583.90 RATIO= 0.0
NAT Q1= 6017. RATIOS LOB,CH,ROB= 0.6175 0.3314 0.0511 WSEL= 583.90

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 360.9 2837.5 TYPE= 4 TARGET= 0.037

CROSS SECTION O D

7.80	8.38	583.88	0.0	583.80	583.89	0.02	0.09	0.00	580.50
5935.	3684.	2051.	200.	7114.	1252.	709.	751.	170.	580.00
1.33	0.52	1.64	0.28	0.070	0.035	0.100	0.032	575.50	360.91
0.000107	1200.	980.	980.	0	0	0	0.0	2421.65	2837.46

1490 NH CARD USED
*SECNO 10.950
2800 NAT Q1= 3739.67 WSEL= 584.06 ENC Q1= 3739.67 WSEL= 584.16 RATIO= 0.0
NAT Q1= 3894. RATIOS LOB,CH,ROB= 0.0005 0.3685 0.6309 WSEL= 584.16

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 260.0 2060.9 TYPE= 4 TARGET= 0.040

CROSS SECTION P E

10.95	12.04	584.14	0.0	584.06	584.20	0.05	0.29	0.01	579.80
5935.	0.	2239.	3696.	0.	797.	4978.	985.	228.	579.80
1.66	0.0	2.81	0.74	0.100	0.035	0.070	0.038	572.10	260.00
0.000260	1000.	3150.	1200.	2	0	0	0.0	1678.93	2060.91

1490 NH CARD USED
*SECNO 11.520
2800 NAT Q1= 4536.00 WSEL= 584.20 ENC Q1= 4536.00 WSEL= 584.30 RATIO= 0.0
NAT Q1= 4696. RATIOS LOB,CH,ROB= 0.0174 0.3782 0.6045 WSEL= 584.30

3470 ENCROACHMENT STATIONS= 286.9 1802.4 TYPE= 4 TARGET= 0.034

CROSS SECTION Q

11.52	10.49	584.29	0.0	584.20	584.32	0.03	0.12	0.00	579.80
5935.	1.	2327.	3607.	5.	1134.	3968.	1059.	250.	579.80
1.78	0.18	2.05	0.91	0.100	0.035	0.051	0.037	573.80	286.93
0.000173	500.	570.	600.	2	0	0	0.0	1515.50	1802.43

1490 NH CARD USED
*SECNO 11.900
2800 NAT Q1= 4924.86 WSEL= 584.28 ENC Q1= 4924.85 WSEL= 584.38 RATIO= 0.0000

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NAT QI= SUM3. RATIOS LOB,CH,ROB= 0.0253 0.3557 0.5190 WSEL= 580.61

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 275.0 1951.6 TYPE= 4 TARGET= 0.031

CROSS SECTION R F

11.90	10.57	584.37	0.0	584.28	584.40	0.03	0.07	0.00	579.80
6034.	62.	2219.	3753.	54.	1146.	4128.	1116.	267.	579.80
1.88	1.14	1.94	0.91	0.035	0.035	0.049	0.037	573.80	274.99
0.000152	380.	380.	500.	1	0	0	0.0	1501.34	1951.61

1490 NH CARD USED
*SECNO 12.800

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/PIGHT
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 1680.0 TYPE= 1 TARGET= 1679.999

CROSS SECTION S G

12.80	11.93	584.53	0.0	584.45	584.57	0.04	0.17	0.00	579.80
6034.	656.	2074.	3304.	1101.	869.	3284.	1251.	303.	579.80
2.09	0.60	2.39	1.01	0.076	0.035	0.052	0.036	572.60	283.08
0.000174	900.	900.	1200.	0	0	0	0.0	1298.63	1680.00

1490 NH CARD USED
*SECNO 13.630

3470 ENCROACHMENT STATIONS= 730.0 1100.0 TYPE= 1 TARGET= 370.000

13.63	11.16	584.56	0.0	584.48	585.01	0.45	0.31	0.12	580.70
6034.	479.	5395.	161.	368.	950.	154.	1325.	322.	580.70
2.14	1.30	5.68	1.04	0.070	0.035	0.050	0.036	573.40	730.00
0.000995	800.	830.	1100.	2	0	0	0.0	370.00	1100.00

*SECNO 14.080

3470 ENCROACHMENT STATIONS= 843.0 988.0 TYPE= 1 TARGET= 145.000

CROSS SECTION T H

14.08	11.55	584.95	0.0	584.89	585.50	0.55	0.46	0.03	580.70
6034.	46.	5943.	44.	44.	991.	34.	1338.	325.	580.70
2.16	1.06	6.00	1.32	0.070	0.035	0.050	0.036	573.40	843.00
0.001046	450.	450.	450.	2	0	0	0.0	145.00	988.00

CCHV= 0.200 CEHV= 0.500
*SECNO 14.110

3470 ENCROACHMENT STATIONS= 854.0 979.0 TYPE= 1 TARGET= 125.000

14.11	11.57	584.97	0.0	584.91	585.53	0.56	0.03	0.01	580.70
6034.	15.	6002.	17.	21.	995.	18.	1339.	325.	580.70
2.16	0.73	6.03	0.93	0.100	0.035	0.070	0.036	573.40	854.00

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0.001056      30.      30.      30.       0        0        0      0.0     125.00    979.00
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SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.25      1.41      2.60      0.0     104.00      4.00     830.00     0.0      573.30    573.30

*SECNO 14.210
 WATER EL=X5 CARD=   585.552
 2800 NAT Q1=   1747.74  WSEL=    585.50  ENC Q1=   1775.34  WSEL=    585.60  RATIO= -0.0158
 NAT Q1=   1775.  RATIOS LOB,CH,ROB=  0.0      1.0000  0.0      WSEL=    585.60
 WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS=      696.0      800.0  TYPE=      4  TARGET=        0.0
    14.21     12.26    585.56      0.0    585.50    586.12      0.57      0.11      0.00    588.50
    6034.        0.     6034.       0.        0.      999.        0.     1341.      325.    588.50
     2.17       0.0      6.04      0.0     0.100     0.035     0.070     0.036    573.30    696.00
 0.001170      100.      100.     100.         0         0         0       0.0    104.00    800.00

*SECNO 14.240

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=      779.0      889.0  TYPE=      1  TARGET=      110.000

          CROSS SECTION U

    14.24     10.18    585.28      0.0    585.21    586.51      1.24      0.06      0.34100000.00
    6034.        0.     5972.      62.        0.      666.       38.     1342.      325.    583.50
     2.17       0.0      8.97     1.64     0.100     0.035     0.070     0.036    575.10    779.00
 0.003334       30.       30.      30.         2         0         0       0.0    110.00    889.00

1490 NH CARD USED
*SECNO 14.360
 2800 NAT Q1=   1146.20  WSEL=    585.63  ENC Q1=   1170.55  WSEL=    585.73  RATIO= -0.0212
 NAT Q1=   1171.  RATIOS LOB,CH,ROB=  0.0      1.0000  0.0      WSEL=    585.73

3470 ENCROACHMENT STATIONS=      580.0      866.0  TYPE=      4  TARGET=        0.0

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      589.60 ELREA=      587.50

          CROSS SECTION V

    14.36     10.57    585.67      0.0    585.63    586.88      1.20      0.36      0.01    589.60
    6034.        0.     6034.       0.        0.      685.        0.     1344.      326.    587.50
     2.17       0.0      8.80      0.0     0.100     0.070     0.070     0.036    575.10    780.64
 0.002713      140.      120.      85.         2         0         0       0.0     84.83    865.46

*SECNO 14.460
3280 CROSS SECTION      14.46 EXTENDED       0.65 FEET
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3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     752.0     936.0  TYPE=     1  TARGET=     184.000
 ELENCL=    590.00  ELENCR=    590.00

          CROSS SECTION W

    14.46    11.55   586.65      0.0   586.62   587.20     0.55     0.19     0.13   590.00
    6034.       0.     5735.     299.      0.      938.     192.     1346.     326.    583.50
     2.18      0.0      6.11     1.56    0.100    0.068    0.070    0.036   575.10   752.00
 0.001466     100.     100.     100.        3        0        0      0.0   184.00   936.00


 CCHV=   0.100 CEHV=   0.300
 1490 NH CAPD USED
 *SECNO 16.510
  2800 NAT Q1=    5131.87  WSEL=    587.81  ENC Q1=    5131.87  WSEL=    587.91  RATIO=  0.0
  NAT Q1=    5247.  RATIOS LOB,CH,ROB=  0.3732  0.5214  0.1054  WSEL=    587.91

 3470 ENCROACHMENT STATIONS=     769.4    1667.5  TYPE=     4  TARGET=       0.022

          CROSS SECTION X

    16.51    14.84   587.84      0.0   587.81   587.90     0.06     0.65     0.05   579.60
    6034.     2226.     3228.     580.     3690.     1269.     1034.     1479.     345.    579.60
     2.51      0.60     2.54     0.56    0.100    0.035    0.100    0.036   573.00   769.44
 0.000142     1400.     2150.     1400.        2        0        0      0.0   898.07  1667.51


 CCHV=   0.100 CEHV=   0.300
 *SECNO 17.860
  2800 NAT Q1=    5629.75  WSEL=    588.00  ENC Q1=    5629.75  WSEL=    588.10  RATIO=  0.0000
  NAT Q1=    5772.  RATIOS LOB,CH,ROB=  0.0010  0.2900  0.7090  WSEL=    588.10

 3470 ENCROACHMENT STATIONS=     199.0    1662.5  TYPE=     4  TARGET=       0.025

          CROSS SECTION Y

    17.86    13.15   588.05      0.0   588.00   588.07     0.02     0.17     0.00   583.60
    6034.       0.     1756.     4278.      0.      818.     8102.     1701.     380.    583.20
     2.87      0.0      2.15     0.53    0.100    0.035    0.100    0.036   574.90   199.00
 0.000121     1000.     1350.     1400.        2        0        0      0.0  1463.48  1662.48


 *SECNO 18.320
  2800 NAT Q1=    6545.74  WSEL=    588.04  ENC Q1=    6545.74  WSEL=    588.14  RATIO=  0.0
  NAT Q1=    6690.  RATIOS LOB,CH,ROB=  0.0097  0.3152  0.6752  WSEL=    588.14
     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=     380.0    2007.7  TYPE=     4  TARGET=       0.022

          CROSS SECTION Z

    18.32    14.39   588.09      0.0   588.04   588.11     0.02     0.04     0.00   580.40
    6034.       0.     1871.     4163.      0.      947.     9075.     1785.     394.    580.40
     2.99      0.0      1.98     0.46    0.100    0.035    0.100    0.036   573.70   380.00
 0.000090      580.     460.      380.        0        0        0      0.0  1627.72  2007.71


 1490 NH CAPD USED
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*SECNO 20.440
 2800 NAT Q1=    6877.09  WSEL=     588.16  ENC Q1=    6877.09  WSEL=     588.26  RATIO=  0.0
 NAT Q1=    7035.  RATIOS LOB,CH,ROB=  0.6953  0.2046  0.1002  WSEL=     588.26

 3470 ENCROACHMENT STATIONS=     360.6     1417.9  TYPE=     4  TARGET=        0.022

            CROSS SECTION AA

      20.44     12.41    588.21      0.0    588.16    588.23      0.02      0.11      0.00    581.20
      6034.     4222.     1266.     545.     6055.     712.      783.     2019.     429.     585.00
       3.39      0.70      1.78      0.70     0.072     0.050     0.050    0.038    575.80    360.63
  0.000079     1000.     2120.     1100.         0         0         0       0.0   1057.29   1417.92
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00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: New Buffalo Township

3) WATERCOURSE: Galien River

4) DOCUMENT TYPE: 100-year - Natural

00BREAK00

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

C
T1      HUD FLOOD INSURANCE STUDIES                 WILLIAMS AND WORKS, INC.
T2      NEW BUFFALO AREA                            83996
T3      GALIEN R. PROFILES      100 YR. FLOOD WITH FLOW DISTRIBUTION

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC   HVINS    Q        WSEL     FQ
        0.       2.       0.       0.  0.0          0.0     -1.0      0.  580.000    0.0

J2  NPROF     IPLOT    PRFVS    XSECV    XSECH    FN       ALLDC    IBW      CHNIM    ITRACE
      0.0      0.0   -1.000      0.0      0.0      0.0      0.0      0.0      0.0    15.000

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    38.000   39.000   43.000    1.000    3.000    5.000    4.000   42.000   10.000   27.000

    28.000   34.000   25.000      0.0      0.0      0.0      0.0      0.0      0.0      0.0

NC    0.030    0.030    0.030    0.100    0.300      0.0      0.0      0.0      0.0      0.0
QT    5.000 5836.000 5836.000 6551.000 5364.000 3714.000      0.0      0.0      0.0      0.0
ET      0.0      0.0    1.400      0.0      0.0      0.0      0.0      0.0      0.0      0.0

          CROSS SECTION A

X1      0.0   16.000  100.000  410.000      0.0      0.0      0.0      0.0      0.0      0.0
GR  587.300  100.000  580.000  105.000  577.800  110.000  573.500  120.000  569.600  130.000
GR  566.400  140.000  565.000  150.000  564.800  190.000  565.500  220.000  565.800  270.000
GR  566.000  310.000  567.300  350.000  570.000  370.000  574.500  390.000  580.000  400.000
GR  587.300  410.000      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0

          CROSS SECTION B

X1    0.600   22.000  100.000  800.000  600.000  600.000  600.000      0.0      0.0      0.0
X3   10.000      0.0      0.0  450.000  585.000  650.000  585.000      0.0      0.0      0.0
GR  585.700  100.000  580.000  110.000  574.100  200.000  574.300  220.000  573.800  240.000
GR  576.200  270.000  578.400  300.000  578.200  350.000  577.300  400.000  578.000  450.000
GR  574.000  500.000  569.800  520.000  568.200  550.000  568.200  560.000  568.500  580.000
GR  571.800  610.000  578.700  640.000  578.600  690.000  579.400  710.000  581.000  800.000
GR  580.000  900.000  585.100  910.000      0.0      0.0      0.0      0.0      0.0      0.0

          CROSS SECTION C

X1    0.800   17.000  408.000  535.000  200.000  300.000  200.000      0.0      0.0      0.0
GR  591.600  100.000  587.000  155.000  585.700  378.000  579.500  408.000  579.900  412.000
GR  571.700  435.000  569.100  460.000  568.500  485.000  570.900  510.000  579.500  535.000
GR  583.200  555.000  583.200  590.000  584.700  660.000  588.100  675.000  587.100  710.000
GR  588.800  890.000  592.400  920.000      0.0      0.0      0.0      0.0      0.0      0.0
NC    0.060    0.060      0.0      0.0      0.0      0.0      0.0      0.0      0.0      0.0
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NOTE: REACH LENGTHS ADJUSTED TO 700' IN SANDY

CROSS SECTION D

X1	1.450	22.000	1082.000	1245.000	650.000	650.000	650.000	0.0	0.0	0.0
X3	0.0	0.0	0.0	1072.000	0.0	1267.000	0.0	0.0	0.0	0.0
GR	582.600	100.000	583.100	112.000	579.600	127.000	579.600	449.000	582.800	457.000
GR	582.900	487.000	579.600	502.000	579.600	724.000	582.900	742.000	582.400	860.000
GR	582.900	1072.000	579.900	1082.000	570.900	1107.000	568.300	1132.000	568.300	1157.000
GR	569.200	1182.000	571.700	1207.000	578.500	1232.000	579.900	1245.000	583.300	1267.000
GR	589.700	1287.000	592.700	1307.000	0.0	0.0	0.0	0.0	0.0	0.0

CROSS SECTION E

X1	1.750	19.000	685.000	885.000	400.000	250.000	300.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	588.200	100.000	587.200	180.000	584.900	300.000	581.100	390.000	583.700	420.000
GR	584.800	480.000	583.500	665.000	579.900	685.000	573.900	710.000	572.000	735.000
GR	568.400	760.000	568.100	785.000	568.900	810.000	570.300	835.000	570.400	860.000
GR	579.900	885.000	583.500	905.000	594.800	960.000	600.400	985.000	0.0	0.0

CROSS SECTION F DOWNSTREAM OF WHITTAKER AVE. BRIDGE

X1	1.660	12.000	290.000	426.000	200.000	50.000	110.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	591.000	100.000	588.500	180.000	589.700	260.000	579.900	290.000	568.800	305.000
GR	568.000	330.000	568.000	355.000	567.900	380.000	575.800	405.000	579.900	426.000
GR	589.500	445.000	594.800	455.000	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.200	0.500	0.0	0.0	0.0	0.0	0.0

X1	1.890	0.0	0.0	0.0	30.000	30.000	30.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	597.600	597.600	0.0
SR	0.950	1.500	2.500	0.0	66.000	4.000	3260.000	2.400	571.600	571.600

X1	1.990	13.000	574.000	772.000	100.000	100.000	100.000	0.0	0.0	0.0
X2	0.0	0.0	1.000	599.500	600.600	0.0	0.0	0.0	0.0	0.0
BT	3.000	574.000	600.600	597.600	673.000	602.500	599.500	772.000	600.600	597.700
GR	600.600	574.000	594.800	574.000	594.800	579.000	579.900	625.000	577.300	639.000
GR	575.300	641.000	571.600	673.000	574.500	705.000	574.900	707.000	579.900	722.000
GR	594.800	767.000	594.800	772.000	597.700	772.000	0.0	0.0	0.0	0.0
NC	0.070	0.070	0.030	0.100	0.300	0.0	0.0	0.0	0.0	0.0

CROSS SECTION H

X1	2.120	18.000	425.000	712.000	130.000	130.000	130.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	425.000	0.0	728.000	0.0	0.0	0.0	0.0
GR	586.900	100.000	582.900	328.000	582.900	425.000	573.100	450.000	573.300	475.000
GR	572.800	500.000	573.000	525.000	571.100	550.000	570.500	575.000	570.100	600.000
GP	570.900	625.000	572.800	650.000	574.900	675.000	579.900	712.000	582.900	728.000
GR	582.500	775.000	583.600	975.000	585.400	1175.000	0.0	0.0	0.0	0.0
NH	4.000	0.070	800.000	0.060	1125.000	0.030	1258.000	0.060	1840.000	0.0

CROSS SECTION I

X1	2.670	37.000	1125.000	1258.000	550.000	550.000	550.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	605.300	100.000	599.300	177.000	585.900	300.000	591.800	500.000	590.700	520.000
GR	587.800	540.000	581.900	550.000	581.300	629.000	581.700	645.000	580.200	660.000
GR	580.200	800.000	581.600	816.000	583.200	823.000	583.000	835.000	580.600	860.000
GR	580.800	1077.000	583.300	1078.000	583.900	1093.000	580.500	1099.000	570.900	1125.000

GR	570.900	1150.000	.71.700	1175.000	573.600	1200.000	575.800	1225.000	578.200	1250.000
GR	581.300	1258.000	582.700	1268.000	581.000	1348.000	583.800	1360.000	587.000	1564.000
GR	5[illegible]700	1742.000	594.600	1759.000	595.000	1[illegible]000	595.100	1797.000	598.100	1812.000
GR	59[illegible]800	1833.000	600.900	1840.000	0.0	[illegible].0	0.0	0.0	0.0	0.0
NC	0.070	0.070	0.035	0.100	0.300	0.0	0.0	0.0	0.0	0.0

CROSS SECTION J

X1	3.570	18.000	1216.000	1357.000	800.000	1000.000	900.000	0.0	0.0	0.0
GR	593.200	100.000	591.100	300.000	589.600	500.000	587.800	700.000	588.800	900.000
GR	588.400	1100.000	583.400	1190.000	579.900	1216.000	576.700	1225.000	570.900	1250.000
GR	570.900	1275.000	573.800	1300.000	575.300	1325.000	577.800	1350.000	579.900	1357.000
GR	582.200	1380.000	582.200	1430.000	600.000	1503.000	0.0	0.0	0.0	0.0
NH	6.000	0.100	401.000	0.070	1759.000	0.070	1846.000	0.035	2125.000	0.070
NH	2194.000	0.060	2411.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CROSS SECTION K

X1	4.170	29.000	1846.000	2125.000	800.000	600.000	600.000	0.0	0.0	0.0
GR	608.700	100.000	606.700	125.000	602.700	140.000	602.000	186.000	592.600	336.000
GR	583.200	401.000	582.200	534.000	580.100	694.000	580.100	1074.000	581.700	1431.000
GR	580.200	1751.000	583.900	1759.000	584.400	1776.000	580.800	1797.000	580.000	1846.000
GR	577.200	1876.000	575.100	1901.000	571.600	1926.000	571.200	1951.000	573.300	1976.000
GR	580.200	2125.000	582.400	2174.000	592.000	2194.000	592.500	2204.000	588.400	2211.000
GR	580.100	2334.000	591.600	2342.000	591.900	2361.000	600.100	2411.000	0.0	0.0
NH	7.000	0.100	401.000	0.070	694.000	0.050	870.000	0.070	1395.000	0.035
NH	1543.000	0.070	1809.000	0.060	2144.000	0.0	0.0	0.0	0.0	0.0

CROSS SECTION L

X1	5.070	33.000	1395.000	1543.000	600.000	950.000	900.000	0.0	0.0	0.0
GR	608.700	100.000	606.700	125.000	602.700	140.000	602.000	186.000	592.600	336.000
GR	583.200	401.000	582.200	534.000	579.900	694.000	577.900	719.000	576.900	744.000
GR	576.200	769.000	576.000	794.000	576.500	819.000	577.700	844.000	579.900	870.000
GR	582.000	934.000	580.800	974.000	580.800	1244.000	584.000	1304.000	582.800	1380.000
GR	579.900	1395.000	574.400	1419.000	572.800	1444.000	573.400	1469.000	574.200	1494.000
GR	576.900	1519.000	579.900	1543.000	582.500	1584.000	580.600	1610.000	582.900	1809.000
GR	590.000	1829.000	594.400	1944.000	597.000	2144.000	0.0	0.0	0.0	0.0
NH	7.000	0.100	555.000	0.070	1739.000	0.035	1849.000	0.070	1939.000	0.035
NH	2104.000	0.070	2194.000	0.050	2534.000	0.0	0.0	0.0	0.0	0.0

CROSS SECTION M

X1	5.920	28.000	1939.000	2104.000	1000.000	750.000	850.000	0.0	0.0	0.0
QT	5.000	5935.000	5935.000	6660.000	5460.000	3797.000	0.0	0.0	0.0	0.0
GR	615.200	100.000	613.200	119.000	603.300	152.000	596.700	318.000	593.100	533.000
GR	586.800	555.000	583.000	586.000	580.000	809.000	580.500	916.000	580.500	1124.000
GR	580.500	1324.000	580.500	1524.000	577.500	1739.000	577.500	1849.000	579.600	1904.000
GR	580.300	1934.000	579.600	1939.000	578.200	1959.000	574.200	1984.000	572.600	2009.000
GR	572.400	2034.000	573.000	2059.000	576.800	2084.000	579.600	2104.000	583.300	2114.000
GR	583.000	2194.000	595.300	2331.000	599.900	2534.000	0.0	0.0	0.0	0.0
NH	6.000	0.100	144.000	0.070	530.000	0.035	675.000	0.050	2000.000	0.035
NH	2360.000	0.070	2775.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CROSS SECTION N

X1	6.820	35.000	2210.000	2360.000	1000.000	900.000	900.000	0.0	0.0	0.0
GR	618.800	100.000	617.500	124.000	601.000	144.000	600.000	156.000	598.100	161.000
GR	592.500	268.000	584.600	310.000	584.000	375.000	581.800	500.000	579.800	530.000
GR	578.100	575.000	577.000	595.000	576.000	615.000	576.300	635.000	578.100	655.000
GR	579.300	675.000	580.500	975.000	579.800	2000.000	579.800	2210.000	579.800	2225.000

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GR	575.600	2200.000	574.100	2275.000	573.800	2300.000	574.400	2325.000	577.600	2350.000
GR	579.800	2360.000	582.400	2380.000	582.000	2473.000	584.600	2495.000	583.300	2595.000
GR	5[illegible]100	2675.000	600.800	2723.000	609.800	2[illegible]000	607.500	2766.000	607.500	2775.000
NH	[illegible]000	0.100	203.000	0.070	2325.000	[illegible]035	2498.000	0.100	2839.000	0.070
NH	3047.000	0.060	3205.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CROSS SECTION O

X1	7.800	24.000	2325.000	2498.000	1200.000	980.000	980.000	0.0	0.0	0.0
GR	621.000	100.000	618.000	130.000	585.800	188.000	588.200	193.000	588.100	198.000
GR	583.600	203.000	580.000	365.000	580.500	2325.000	578.000	2355.000	575.500	2380.000
GR	575.800	2405.000	575.600	2430.000	575.600	2455.000	575.500	2480.000	580.000	2498.000
GR	580.800	2505.000	583.900	2510.000	588.400	2550.000	582.300	2570.000	580.400	2839.000
GR	583.300	2992.000	597.000	3047.000	617.200	3114.000	620.200	3205.000	0.0	0.0
NH	6.000	0.100	260.000	0.035	350.000	0.100	400.000	0.070	2308.000	0.100
NH	2389.000	0.050	2435.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CROSS SECTION P

X1	10.950	41.000	260.000	350.000	1000.000	1200.000	3150.000	0.0	0.0	0.0
GR	599.300	100.000	591.900	195.000	593.800	245.000	579.800	260.000	577.400	270.000
GR	572.100	290.000	573.400	310.000	574.500	320.000	577.100	340.000	579.800	350.000
GR	583.300	356.000	588.600	388.000	581.700	400.000	581.300	440.000	585.800	450.000
GR	582.000	465.000	581.100	550.000	580.500	650.000	579.500	700.000	580.600	750.000
GR	581.100	945.000	587.100	1000.000	587.100	1030.000	581.200	1070.000	581.200	1085.000
GR	581.300	1250.000	580.400	1450.000	581.200	1650.000	580.800	1850.000	581.300	2170.000
GR	588.100	2225.000	584.500	2240.000	585.400	2287.000	583.300	2308.000	586.500	2310.000
GR	597.100	2355.000	597.900	2389.000	595.800	2397.000	596.000	2412.000	596.400	2429.000
GR	600.000	2435.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NH	7.000	0.100	288.000	0.035	448.000	0.100	528.000	0.070	1500.000	0.035
NH	1610.000	0.070	1850.000	0.050	3275.000	0.0	0.0	0.0	0.0	0.0

CROSS SECTION Q

X1	11.520	30.000	288.000	448.000	500.000	600.000	570.000	0.0	0.0	0.0
GR	601.000	100.000	594.700	140.000	591.300	175.000	582.800	203.000	581.300	238.000
GR	580.700	273.000	579.800	288.000	579.200	328.000	578.400	348.000	574.300	368.000
GR	573.800	388.000	574.800	408.000	577.800	428.000	579.800	448.000	582.600	458.000
GR	584.100	528.000	582.000	568.000	581.500	1068.000	581.900	1450.000	579.800	1500.000
GR	576.300	1510.000	574.800	1530.000	574.200	1550.000	578.300	1600.000	579.800	1610.000
GR	582.000	1640.000	581.500	1850.000	584.500	1900.000	586.500	1975.000	596.000	3275.000
NH	7.000	0.100	273.000	0.035	448.000	0.100	538.000	0.035	648.000	0.100
NH	1239.000	0.070	1573.000	0.050	2228.000	0.0	0.0	0.0	0.0	0.0

CROSS SECTION R

X1	11.900	33.000	288.000	448.000	380.000	500.000	380.000	0.0	0.0	0.0
QT	5.000	6034.000	6034.000	6767.000	5554.000	3879.000	0.0	0.0	0.0	0.0
GR	601.300	100.000	594.700	138.000	591.300	175.000	582.800	203.000	581.300	238.000
GR	580.700	273.000	579.800	288.000	579.200	328.000	578.400	348.000	574.300	368.000
GR	573.800	388.000	574.800	408.000	577.800	428.000	579.800	448.000	582.600	458.000
GR	584.100	528.000	579.800	538.000	576.300	548.000	574.800	568.000	574.200	588.000
GR	578.300	638.000	579.800	648.000	587.300	675.000	587.600	769.000	582.100	889.000
GR	581.900	1239.000	581.300	1553.000	581.100	1803.000	580.500	1938.000	581.600	1981.000
GR	587.500	2048.000	597.800	2133.000	601.400	2228.000	0.0	0.0	0.0	0.0
NH	8.000	0.100	400.000	0.070	603.000	0.035	700.000	0.100	1196.000	0.035
NH	1360.000	0.100	1431.000	0.070	2303.000	0.100	2486.000	0.0	0.0	0.0

CROSS SECTION S

X1	12.[illegible]00	49.000	603.000	700.000	900.000	1200.000	900.000	0.0	0.0	0.0

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X3	0.0	0.0	0.0	0.0	0.0	1680.000	0.0	0.0	0.0	0.0
GR	601.300	100.000	597.800	112.000	595.300	165.000	589.300	265.000	582.700	290.000
GR	5[illegible]00	400.000	580.800	500.000	581.200	5[illegible]000	579.800	603.000	576.800	630.000
GR	57[illegible]400	650.000	572.900	660.000	572.600	6[illegible]000	572.800	680.000	576.500	690.000
GR	579.800	700.000	583.900	710.000	584.100	720.000	580.800	730.000	580.500	770.000
GR	584.000	790.000	580.800	810.000	580.700	900.000	580.300	1000.000	581.300	1080.000
GR	590.100	1095.000	590.100	1100.000	581.300	1115.000	581.900	1163.000	589.300	1186.000
GR	583.600	1196.000	579.800	1211.000	576.000	1260.000	576.000	1286.000	576.000	1300.000
GR	579.800	1360.000	583.600	1376.000	584.500	1396.000	586.000	1431.000	581.600	1481.000
GR	581.800	1659.000	580.300	1706.000	580.300	1906.000	580.400	2239.000	581.600	2303.000
GR	583.700	2341.000	590.400	2405.000	595.000	2466.000	600.400	2486.000	0.0	0.0
NH	4.000	0.100	115.000	0.070	863.000	0.035	970.000	0.050	2470.000	0.0
X1	13.630	29.000	863.000	970.000	800.000	1100.000	830.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	730.000	0.0	1100.000	0.0	0.0	0.0	0.0
GR	605.700	100.000	593.700	115.000	586.200	235.000	584.000	370.000	581.100	570.000
GR	581.100	770.000	583.100	860.000	580.700	863.000	575.600	880.000	573.900	890.000
GR	573.400	900.000	573.700	910.000	574.700	920.000	575.300	940.000	575.400	950.000
GR	577.400	960.000	580.700	970.000	583.200	972.000	583.800	1170.000	582.200	1370.000
GR	581.700	1570.000	582.000	1770.000	582.500	1970.000	582.700	2170.000	585.400	2270.000
GR	586.900	2278.000	591.500	2370.000	593.500	2435.000	603.300	2470.000	0.0	0.0

CROSS SECTION T

X1	14.080	0.0	0.0	0.0	450.000	450.000	450.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	843.000	0.0	988.000	0.0	0.0	0.0	0.0
NC	0.100	0.070	0.035	0.200	0.500	0.0	0.0	0.0	0.0	0.0
X1	14.110	0.0	0.0	0.0	30.000	30.000	30.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	854.000	0.0	979.000	0.0	0.0	0.0	0.0
SB	1.250	1.410	2.600	0.0	104.000	4.000	830.000	0.0	573.300	573.300
X1	14.210	12.000	696.000	800.000	100.000	100.000	100.000	0.0	0.0	0.0
X2	0.0	0.0	1.000	584.500	588.500	0.0	0.0	0.0	0.0	0.0
X5	-1.000	0.0	0.580	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BT	3.000	696.000	588.500	584.300	746.000	588.700	584.500	800.000	588.500	584.300
GR	602.700	100.000	597.500	200.000	590.900	400.000	587.900	600.000	588.500	696.000
GR	579.000	696.000	575.500	722.000	574.400	746.000	573.300	750.000	575.800	776.000
GR	579.000	800.000	588.500	800.000	0.0	0.0	0.0	0.0	0.0	0.0

CROSS SECTION U

X1	14.240	12.000	580.000	866.000	30.000	30.000	30.000	0.0	0.0	0.0
X3	0.0	0.0	0.0	779.000	0.0	889.000	0.0	0.0	0.0	0.0
GR	584.000	580.000	580.700	782.000	579.100	799.000	577.300	809.000	576.500	819.000
GR	575.100	829.000	575.500	839.000	577.200	849.000	577.200	861.000	580.700	864.000
GR	583.500	866.000	586.000	1080.000	0.0	0.0	0.0	0.0	0.0	0.0
NH	5.000	0.100	580.000	0.070	782.000	0.035	864.000	0.070	1080.000	0.050
NH	2580.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CROSS SECTION V

X1	14.360	26.000	580.000	866.000	140.000	85.000	120.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	603.100	100.000	588.600	200.000	586.400	280.000	585.300	380.000	584.900	480.000
GR	589.600	580.000	588.000	780.000	580.700	782.000	579.100	799.000	577.300	809.000
GR	576.500	819.000	575.100	829.000	575.500	839.000	577.200	849.000	577.200	861.000
GR	580.700	864.000	587.500	866.000	586.000	1080.000	586.400	1280.000	586.000	1480.000
GR	585.200	1680.000	584.900	1880.000	585.200	2080.000	588.700	2280.000	596.400	2480.000
GR	600.000	2580.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CROSS SECTION W

X1	14.460	12.000	580.000	866.000	100.000	100.000	100.000	0.0	0.0	0.0
X3	0.0	0.0	0.0	752.000	590.000	936.000	590.000	0.0	0.0	0.0
GR	584.000	580.000	580.700	782.000	579.100	799.000	577.300	809.000	576.500	819.000
GR	575.100	829.000	575.500	839.000	577.200	849.000	577.200	861.000	580.700	864.000
GR	583.500	866.000	586.000	1080.000	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.100	0.300	0.0	0.0	0.0	0.0	0.0
NH	5.000	0.070	802.000	0.100	1377.000	0.035	1488.000	0.100	1744.000	0.070
NH	1804.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CROSS SECTION X

X1	16.510	24.000	1377.000	1488.000	1400.000	1400.000	2150.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	618.000	300.000	597.900	333.000	587.700	497.000	585.900	802.000	580.900	817.000
GR	581.300	1010.000	582.200	1139.000	582.100	1284.000	579.600	1377.000	578.800	1408.000
GR	578.500	1418.000	575.600	1428.000	573.300	1438.000	573.000	1448.000	573.100	1458.000
GR	573.800	1468.000	576.100	1478.000	579.600	1488.000	582.400	1492.000	581.400	1610.000
GR	586.200	1732.000	588.300	1744.000	598.600	1771.000	600.300	1804.000	0.0	0.0
NC	0.100	0.100	0.035	0.100	0.300	0.0	0.0	0.0	0.0	0.0

CROSS SECTION Y

X1	17.860	20.000	199.000	272.000	1000.000	1400.000	1350.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	625.000	100.000	598.700	153.000	598.200	165.000	583.600	199.000	580.400	200.000
GR	576.100	215.000	575.800	225.000	575.500	235.000	574.900	245.000	575.600	255.000
GR	580.400	270.000	583.200	272.000	581.700	470.000	583.100	670.000	582.100	870.000
GR	582.600	1105.000	582.200	1305.000	580.700	1470.000	583.300	1713.000	600.400	1795.000

CROSS SECTION Z

X1	18.320	23.000	380.000	458.000	580.000	380.000	460.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	690.000	100.000	628.600	130.000	599.000	220.000	589.400	290.000	583.400	372.000
GR	580.400	380.000	576.100	393.000	575.300	403.000	573.700	413.000	573.800	423.000
GR	574.600	433.000	576.000	443.000	580.400	458.000	582.700	460.000	582.500	658.000
GR	581.700	790.000	583.100	990.000	582.100	1190.000	582.600	1425.000	582.200	1625.000
GR	580.700	1790.000	583.300	2033.000	600.400	2115.000	0.0	0.0	0.0	0.0
NH	4.000	0.100	470.000	0.070	1170.000	0.035	1237.000	0.050	1610.000	0.0

CROSS SECTION AA

X1	20.440	23.000	1170.000	1238.000	1000.000	1100.000	2120.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	618.200	100.000	601.100	170.000	594.200	270.000	583.400	340.000	580.100	470.000
GR	580.100	570.000	580.400	670.000	580.400	770.000	580.200	870.000	580.500	970.000
GR	580.900	1070.000	583.400	1164.000	581.200	1170.000	576.400	1187.000	575.800	1197.000
GR	576.000	1207.000	576.400	1215.000	581.200	1237.000	585.000	1238.000	584.800	1270.000
GR	582.600	1370.000	585.600	1450.000	628.000	1610.000	0.0	0.0	0.0	0.0
EJ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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*PROF 1

CCHV=   0.100 CEHV=   0.300
*SECNO .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


          CROSS SECTION A

     0.0      15.20    580.00      0.0     580.00    580.04      0.04      0.0       0.0      587.30
    5836.       0.     5836.       0.        0.      3671.       0.        0.        0.       587.30
     0.0       0.0      1.59       0.0      0.030     0.030     0.030     0.0      564.80     105.00
0.000036       0.        0.        0.         0         0         0       0.0      295.00     400.00

FLOW DISTRIBUTION FOR SECNO=      0.0          CWSEL=    580.00

STA=     105.     410.
  PER Q=    100.0
   AREA=   3671.0
    VEL=      1.6

*SECNO .600

3470 ENCROACHMENT STATIONS=     450.0     650.0  TYPE=     1  TARGET=     200.000
 ELENCL=    585.00  ELENCR=    585.00

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      585.70 ELREA=      585.00


          CROSS SECTION B

     0.60      11.71    579.91      0.0       0.0     580.15      0.24      0.05      0.06     585.70
    5836.       0.     5836.       0.        0.      1476.       0.        35.       3.       585.00
     0.04      0.0       3.95       0.0      0.030     0.030     0.030     0.030    568.20     450.00
0.000458       600.      600.       600.        2         0         0       0.0      200.00     650.00

FLOW DISTRIBUTION FOR SECNO=      0.60         CWSEL=    579.91

STA=     450.     800.
  PER Q=    100.0
   AREA=   1476.2
    VEL=      4.0

*SECNO .800

3265 DIVIDED FLOW


          CROSS SECTION C

     0.80      11.32    579.82      0.0       0.0     580.38      0.56      0.13      0.09     579.50
    5836.       0.     5836.       0.        0.       972.       0.        41.       4.       579.50
     0.05      0.45      6.00       0.45     0.030     0.030     0.030     0.030    568.50     406.46
0.000994       200.      200.       300.        2         0         0       0.0      129.24     536.73
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FLC DISTRIBUTION FOR SECNO= 0.80 CWSEL= 579.82

STA=	[illegible]06.	408.	535.	537.
PER Q=	0.0	100.0	0.0	
AREA=	0.2	972.4	0.3	
VEL=	0.5	6.0	0.5	

*SECNO 1.450

3470 ENCROACHMENT STATIONS= 1072.0 1267.0 TYPE= 1 TARGET= 195.000

CROSS SECTION D

1.45	12.23	580.53	0.0	0.0	580.80	0.27	0.39	0.03	579.90
5836.	0.	5836.	0.	1.	1407.	1.	59.	6.	579.90
0.09	0.22	4.15	0.23	0.060	0.030	0.060	0.030	568.30	1079.89
0.000405	650.	650.	650.	2	0	0	0.0	169.20	1249.09

FLOW DISTRIBUTION FOR SECNO= 1.45 CWSEL= 580.53

STA=	1080.	1082.	1245.	1249.
PER Q=	0.0	100.0	0.0	
AREA=	0.7	1407.1	1.3	
VEL=	0.2	4.1	0.2	

*SECNO 1.750

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

CROSS SECTION E

1.75	12.64	580.74	0.0	0.0	580.90	0.15	0.09	0.01	579.90
5836.	0.	5835.	0.	2.	1852.	2.	70.	8.	579.90
0.12	0.20	3.15	0.20	0.060	0.030	0.060	0.030	568.10	680.29
0.000212	400.	300.	250.	1	0	0	0.0	209.42	889.71

FLOW DISTRIBUTION FOR SECNO= 1.75 CWSEL= 580.74

STA=	680.	685.	885.	890.
PER Q=	0.0	100.0	0.0	
AREA=	2.0	1852.1	2.0	
VEL=	0.2	3.2	0.2	

*SECNO 1.860

CROSS SECTION F DOWNSTREAM OF WHITTAKER AVE. BRIDGE

1.86	12.77	580.67	0.0	0.0	580.97	0.31	0.03	0.05	579.90
5836.	0.	5836.	0.	1.	1316.	1.	74.	8.	579.90
0.13	0.26	4.44	0.25	0.060	0.030	0.060	0.030	567.90	287.65
0.000409	200.	110.	50.	2	0	0	0.0	139.87	427.52

FLOW DISTRIBUTION FOR SECNO= 1.86 CWSEL= 580.67

STA=	288.	290.	426.	428.
PER Q=	0.0	100.0	0.0	
AREA=	0.9	1315.7	0.6	
VEL=	0.3	4.4	0.2	

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CCHV= 0.200 CEHV= 0.500
*SECNO 1.890

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 597.60 ELREA= 597.60

1.89	12.78	580.68	0.0	0.0	580.99	0.30	0.01	0.00	579.90
5836.	0.	5836.	0.	0.	1317.	0.	75.	8.	579.90
0.13	0.0	4.43	0.0	0.060	0.030	0.060	0.030	567.90	290.00
0.000410	30.	30.	30.	0	0	0	0.0	136.00	426.00

FLOW DISTRIBUTION FOR SECNO= 1.89 CWSEL= 580.68

STA= 290. 426.
PER Q= 100.0
AREA= 1316.9
VEL= 4.4

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.95	1.50	2.50	0.0	66.00	4.00	3260.00	2.40	571.60	571.60

*SECNO 1.990

3301 HV CHANGED MORE THAN HVINS

CLASS A LOW FLOW

3420 BRIDGE W.S.= 580.57 BRIDGE VELOCITY= 7.79 CALCULATED CHANNEL AREA= 749.

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
0.0	582.28	0.02	0.	5836.	3260.	3598.	599.50	600.60

1.99	9.10	580.70	0.0	0.0	582.28	1.58	1.29	0.0	600.60
5836.	0.	5836.	0.	0.	578.	0.	77.	9.	597.70
0.13	0.0	10.09	0.0	0.060	0.030	0.060	0.030	571.60	622.53
0.004234	100.	100.	100.	0	0	0	0.0	101.88	724.41

FLOW DISTRIBUTION FOR SECNO= 1.99 CWSEL= 580.70

STA= 623. 772.
PER Q= 100.0
AREA= 578.3
VEL= 10.1

CCHV= 0.100 CEHV= 0.300
*SECNO 2.120

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 425.0 728.0 TYPE= 1 TARGET= 303.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.90 ELREA= 579.90

CROSS SECTION H

2.12	12.29	582.39	0.0	0.0	582.47	0.08	0.04	0.15	582.90
5836.	0.	5832.	4.	0.	2621.	17.	82.	9.	579.90
0.15	0.0	2.22	0.25	0.070	0.030	0.070	0.030	570.10	426.29

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0.000106     130.     130.     130.        2        0        0      0.0    299.02    725.31

FLOW DI[illegible]IBUTION FOR SECNO=      2.12          CWSEL=    582.39

STA=      426.      712.      725.
  PER Q=      99.9       0.1
   AREA=    2621.3      16.6
    VEL=       2.2       0.3

1490 NH CARD USED
*SECNO 2.670

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


          CROSS SECTION I

     2.67     11.48    582.38      0.0       0.0    582.63      0.25      0.10      0.05    570.90
    5836.      855.     4960.       21.      986.     1155.       53.      112.       16.    581.30
     0.19      0.87      4.30      0.39     0.063     0.030     0.060     0.030    570.90    549.19
 0.000425      550.      550.      550.         3         0         0       0.0    747.31   1353.92

FLOW DISTRIBUTION FOR SECNO=      2.67          CWSEL=    582.38

STA=      549.      800.     1077.     1125.     1258.     1354.
  PER Q=       4.5       4.9       5.2      85.0       0.4
   AREA=     402.6     406.1     177.3    1154.8      53.1
    VEL=       0.7       0.7       1.7       4.3       0.4

CCHV=   0.100 CEHV=   0.300
*SECNO 3.570

          CROSS SECTION J

     3.57     11.90    582.80      0.0       0.0    583.14      0.35      0.49      0.03    579.90
    5836.       23.     5768.       45.       31.     1214.       71.      148.       25.    579.90
     0.24      0.73      4.75      0.64     0.070     0.035     0.070     0.031    570.90   1194.49
 0.000723      800.      900.     1000.         2         0         0       0.0    237.95   1432.44

FLOW DISTRIBUTION FOR SECNO=      3.57          CWSEL=    582.80

STA=     1194.     1216.     1357.     1380.     1430.     1432.
  PER Q=       0.4      98.8       0.6       0.2       0.0
   AREA=      31.1    1213.8      40.1      29.8       0.7
    VEL=       0.7       4.8       0.8       0.4       0.2

1490 NH CARD USED
*SECNO 4.170

3265 DIVIDED FLOW

          CROSS SECTION K

     4.17     12.10    583.30      0.0       0.0    583.34      0.04      0.17      0.03    580.00
    5836.     1634.     4131.       71.     3421.     2118.      178.      204.       43.    580.20
     0.36      0.48      1.95      0.40     0.070     0.035     0.066     0.032    571.20    400.30
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0.000142	800.	600.	600.	2	0	0	0.0	1800.53	2336.23

FLOW DISTRIBUTION FOR SECNO= 4.17 CWSEL= 583.30

STA=	400.	1074.	1431.	1751.	1846.	2125.	2336.
PER Q=	14.2	6.7	5.8	1.4	70.8	1.2	
AREA=	1640.3	857.1	752.3	170.8	2118.4	178.4	
VEL=	0.5	0.5	0.4	0.5	2.0	0.4	

1490 NH CARD USED
*SECNO 5.070

3265 DIVIDED FLOW

CROSS SECTION L =A? in Twp of New Buffalo

5.07	10.63	583.43	0.0	0.0	583.49	0.06	0.14	0.01	579.90
5836.	2483.	3129.	224.	2612.	1213.	474.	287.	68.	579.90
0.48	0.95	2.58	0.47	0.057	0.035	0.070	0.033	572.80	399.43
0.000226	600.	900.	950.	2	0	0	0.0	1364.06	1810.49

FLOW DISTRIBUTION FOR SECNO= 5.07 CWSEL= 583.43

STA=	399.	694.	744.	769.	794.	819.	844.	934.	1244.	1395.	1543.	1809.	1810.
PER Q=	4.1	6.2	4.8	5.3	5.1	4.1	4.1	8.1	0.7	53.6	3.8	0.0	
AREA=	477.3	263.9	171.9	183.2	179.4	158.2	278.9	790.5	108.4	1212.8	473.9	0.4	
VEL=	0.5	1.4	1.6	1.7	1.7	1.5	0.9	0.6	0.4	2.6	0.5	0.1	

1490 NH CARD USED
*SECNO 5.920

CROSS SECTION M B

5.92	11.21	583.61	0.0	0.0	583.64	0.03	0.15	0.00	579.60
5935.	3215.	2707.	13.	4790.	1411.	60.	402.	100.	579.60
0.69	0.67	1.92	0.22	0.059	0.035	0.070	0.033	572.40	581.04
0.000118	1000.	850.	750.	2	0	0	0.0	1619.74	2200.77

FLOW DISTRIBUTION FOR SECNO= 5.92 CWSEL= 583.61

STA=	581.	809.	916.	1124.	1324.	1524.	1739.	1849.	1904.	1939.	2104.	2201.
PER Q=	3.0	3.1	5.3	5.1	5.1	10.6	17.4	3.2	1.2	45.6	0.2	
AREA=	471.6	359.3	646.5	621.6	621.6	990.8	671.9	278.2	128.0	1410.9	60.3	
VEL=	0.4	0.5	0.5	0.5	0.5	0.6	1.5	0.7	0.5	1.9	0.2	

1490 NH CARD USED
*SECNO 6.820

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

CROSS SECTION N C

6.82	9.91	583.71	0.0	0.0	583.72	0.01	0.08	0.00	579.80
5935.	4347.	1537.	51.	6587.	1157.	212.	562.	143.	579.80
1.01	0.66	1.33	0.24	0.044	0.035	0.070	0.033	573.80	391.50

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0.000065    1 00.     900.     900.        2        0        0      0.0   2130.26   2597.78

FLOW DISTRIBUTION FOR SECNO=      6.82          CWSEL=    583.71

STA=     391.     575.     615.     635.     675.     975.    2000.    2210.    2360.    2598.
  PER Q=      4.3      5.5      3.3      4.1     10.0     34.2     11.7     25.9      0.9
   AREA=    405.1    267.4    151.2    225.4   1067.9   3648.6    821.0   1157.4    212.0
    VEL=      0.6      1.2      1.3      1.1      0.6      0.6      0.8      1.3      0.2

1490 NH CARD USED
*SECNO 7.800

3265 DIVIDED FLOW


          CROSS SECTION O      D

     7.80     8.30   583.80      0.0      0.0   583.81     0.02     0.09     0.00   580.50
    5935.    3642.    1999.      295.    7294.    1240.     995.     794.     207.   580.00
     1.37     0.50     1.61     0.30    0.070    0.035    0.090    0.032   575.50   202.77
 0.000105    1200.     980.     980.        0        0        0      0.0  2736.04  2994.03


FLOW DISTRIBUTION FOR SECNO=      7.80          CWSEL=    583.80

STA=     203.    2325.    2498.    2839.    2994.
  PER Q=     61.4     33.7      3.3      1.7
   AREA=   7294.0   1240.1    695.4    299.7
    VEL=      0.5      1.6      0.3      0.3

1490 NH CARD USED
*SECNO 10.950

3265 DIVIDED FLOW


          CROSS SECTION P      E

    10.95    11.96   584.06      0.0      0.0   584.11     0.05     0.28     0.01   579.80
    5935.       3.    2235.     3697.      10.     789.    5182.    1036.     271.   579.80
     1.71     0.32     2.83     0.71    0.100    0.035    0.070    0.038   572.10   255.44
 0.000252    1000.    3150.     1200.        2        0        0      0.0  1820.29  2308.47


FLOW DISTRIBUTION FOR SECNO=     10.95          CWSEL=    584.06

STA=     255.     260.     350.     550.     650.     750.     945.    1250.    1450.    1650.    1850.    2170.    2308.
  PER Q=      0.1     37.7      3.5      4.1      5.8      7.7      6.2      7.9      8.1      7.3     11.4      0.2
   AREA=      9.7    789.1    353.8    325.7    403.2    625.3    573.8    641.4    651.4    611.4    962.2     33.8
    VEL=      0.3      2.8      0.6      0.7      0.9      0.7      0.6      0.7      0.7      0.7      0.7      0.4

1490 NH CARD USED
*SECNO 11.520

          CROSS SECTION Q

    11.52    10.40   584.20      0.0      0.0   584.23     0.03     0.12     0.00   579.80
    5935.     101.    2270.     3564.     250.    1120.    4035.    1114.     295.   579.80
     1.83     0.40     2.03     0.88    0.100    0.035    0.051    0.037   573.80   198.39
 0.000171     500.     570.     600.        2        0        0      0.0  1696.62  1895.01


FLOW DISTRIBUTION FOR SECNO=     11.52          CWSEL=    584.20

STA=     199.     288.     448.    1068.    1450.    1510.    1530.    1550.    1600.    1850.    1895.
```

PER Q=	1.7	38.2	11.0	8.2	3.6	6.8	8.3	14.8	6.8	0.5
AREA=	249.8	1120.1	1360.8	955.2	229.0	173.0	194.0	397.5	665.1	60.8
VEL=	0.4	2.0	0.5	0.5	0.9	2.3	2.5	2.2	0.6	0.5

1490 NH CARD USED
*SECNO 11.900

3265 DIVIDED FLOW

CROSS SECTION R F5

11.90	10.48	584.28	0.0	0.0	584.30	0.03	0.07	0.00	579.80
6034.	151.	2167.	3716.	257.	1133.	4156.	1173.	313.	579.80
1.93	0.59	1.91	0.89	0.066	0.035	0.049	0.037	573.80	198.12
0.000150	380.	380.	500.	1	0	0	0.0	1636.11	2011.47

FLOW DISTRIBUTION FOR SECNO= 11.90 CWSEL= 584.28

STA=	198.	288.	448.	568.	588.	638.	1239.	1553.	1803.	1938.	2011.
PER Q=	2.5	35.9	8.6	7.7	13.9	5.9	7.0	9.9	6.5	2.1	
AREA=	257.2	1133.3	356.4	195.7	401.6	939.5	842.4	770.7	470.2	179.9	
VEL=	0.6	1.9	1.5	2.4	2.1	0.4	0.5	0.8	0.8	0.7	

1490 NH CARD USED
*SECNO 12.800

3265 DIVIDED FLOW

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

3470 ENCROACHMENT STATIONS= 0.0 1680.0 TYPE= 1 TARGET= 1679.999

CROSS SECTION S G

12.80	11.84	584.45	0.0	0.0	584.49	0.04	0.18	0.00	579.80
6034.	645.	2094.	3294.	1073.	860.	3204.	1308.	352.	579.80
2.14	0.60	2.43	1.03	0.076	0.035	0.052	0.036	572.60	283.42
0.000183	900.	900.	1200.	0	0	0	0.0	1294.47	1680.00

FLOW DISTRIBUTION FOR SECNO= 12.80 CWSEL= 584.45

STA=	283.	500.	603.	700.	900.	1000.	1163.	1260.	1286.	1300.	1360.	1659.	1680.
PER Q=	6.6	4.1	34.7	4.6	3.3	3.3	11.4	8.7	4.7	13.0	5.1	0.6	
AREA=	707.0	365.5	860.3	617.9	393.7	443.9	372.0	219.4	118.1	392.2	584.5	62.4	
VEL=	0.6	0.7	2.4	0.4	0.5	0.4	1.9	2.4	2.4	2.0	0.5	0.5	

1490 NH CARD USED
*SECNO 13.630

3470 ENCROACHMENT STATIONS= 730.0 1100.0 TYPE= 1 TARGET= 370.000

13.63	11.08	584.48	0.0	0.0	584.94	0.47	0.33	0.13	580.70
6034.	466.	5423.	146.	357.	941.	144.	1381.	370.	580.70
2.18	1.31	5.76	1.01	0.070	0.035	0.050	0.036	573.40	730.00
0.001036	800.	830.	1100.	2	0	0	0.0	370.00	1100.00

FLOW DISTRIBUTION FOR SECNO= 13.63 CWSEL= 584.48

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STA=      730.      770.      860.      863.      970.     1100.
  PER Q=      3.3       4.3       0.1      89.9       2.4
   AREA=    135.1     213.9       7.7     940.9     143.6
    VEL=      1.5       1.2       1.1       5.8       1.0

*SECNO 14.080

3470 ENCROACHMENT STATIONS=      843.0      988.0  TYPE=      1  TARGET=      145.000

          CROSS SECTION T  #

    14.08     11.49    584.89      0.0       0.0    585.44      0.56      0.47      0.03    580.70
    6034.       45.     5947.       43.       43.      985.       32.     1394.      373.    580.70
     2.20      1.05      6.04      1.31     0.070     0.035     0.050     0.036    573.40    843.00
 0.001071      450.      450.      450.         2         0         0       0.0    145.00    988.00

FLOW DISTRIBUTION FOR SECNO=      14.08          CWSEL=     584.89

STA=      843.      863.      970.      988.
  PER Q=      0.7      98.6       0.7
   AREA=     42.5     984.7      32.5
    VEL=      1.1       6.0       1.3

CCHV=   0.200 CEHV=   0.500
*SECNO 14.110

3470 ENCROACHMENT STATIONS=      854.0      979.0  TYPE=      1  TARGET=      125.000
    14.11     11.51    584.91      0.0       0.0    585.48      0.57      0.03      0.01    580.70
    6034.       15.     6003.       17.       20.      988.       18.     1395.      373.    580.70
     2.21      0.73      6.08      0.92     0.100     0.035     0.070     0.036    573.40    854.00
 0.001079       30.       30.       30.         0         0         0       0.0    125.00    979.00

FLOW DISTRIBUTION FOR SECNO=      14.11          CWSEL=     584.91

STA=      854.      860.      863.      970.      972.      979.
  PER Q=      0.1       0.1      99.5       0.1       0.2
   AREA=     11.3       9.1     988.0       5.9      11.9
    VEL=      0.6       0.9       6.1       1.1       0.9

SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     1.25      1.41      2.60       0.0    104.00      4.00    830.00      0.0     573.30    573.30

*SECNO 14.210
PRESSURE FLOW

 EGPRS      EGLWC       H3       QWEIR      QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                                AREA
   586.07    585.62      0.06        0.     6034.      830.     1120.      584.50    588.50

                                I
    14.21     12.20    585.50      0.0       0.0    586.07      0.57      0.59      0.0     588.50
    6034.        0.     6034.        0.        0.      993.        0.     1397.      373.    588.50
     2.21       0.0      6.07      0.0     0.100     0.035     0.070     0.036    573.30    696.00
 0.001192      100.      100.      100.         2         0         0       0.0    104.00    800.00

FLOW DISTRIBUTION FOR SECNO=      14.21          CWSEL=     585.50

STA=      696.      800.
  PER Q=     100.0
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   AREA=     593.3
    VEL=       6.1

*SECNO [illegible]240

3301 HV CHANGED HORE THAN HVINS

   SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
   Q        QLOB     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    TOPWID     ENDST


3470 ENCROACHMENT STATIONS=     779.0     889.0  TYPE=     1  TARGET=     110.000

          CROSS SECTION U

    14.24    10.11   585.21     0.0      0.0    586.47     1.26     0.06     0.34100000.00
    6034.       0.    5975.      59.       0.     660.      36.    1398.      373.    583.50
     2.21      0.0     9.06     1.62    0.100    0.035    0.070    0.036   575.10   779.00
 0.003434      30.      30.      30.        2        0        0      0.0   110.00   889.00

FLOW DISTRIBUTION FOR SECNO=     14.24          CWSEL=    585.21

STA=      779.      866.      889.
  PER Q=     99.0       1.0
   AREA=    659.8      36.2
    VEL=      9.1       1.6

1490 NH CARD USED
*SECNO 14.360

3265 DIVIDED FLOW

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      589.60 ELREA=      587.50

          CROSS SECTION V

    14.36    10.53   585.63     0.0      0.0    586.85     1.22     0.37     0.01   589.60
    6034.       0.    6034.       0.       0.     681.       0.    1399.      374.    587.50
     2.22      0.0     8.86     0.0    0.100    0.070    0.070    0.036   575.10   780.65
 0.002771     140.     120.      85.        2        0        0      0.0    84.80   866.00

FLOW DISTRIBUTION FOR SECNO=     14.36          CWSEL=    585.63

STA=      781.      866.
  PER Q=    100.0
   AREA=    680.8
    VEL=      8.9

*SECNO 14.460
3280 CROSS SECTION      14.46 EXTENDED      0.62 FEET


3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS=     752.0     936.0  TYPE=     1  TARGET=     184.000
 ELENCL=    590.00  ELENCR=    590.00
```

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CROSS SECTION W

14	11.52	586.62	0.0	0.0	587.18	0.56	0.20	0.13	590.00	
60	0.	5739.	295.	0.	935.	190.	1402.	374.	583.50	
2.22	0.0	6.14	1.56	0.100	0.068	0.070	0.036	575.10	752.00	
0.001486	100.	100.	100.	3	0	0	0.0	184.00	936.00	

FLOW DISTRIBUTION FOR SECNO= 14.46 CWSEL= 586.62

STA=	752.	866.	936.
PER Q=	95.1	4.9	
AREA=	934.8	189.6	
VEL=	6.1	1.6	

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED
*SECNO 16.510

3301 HV CHANGED MORE THAN HVINS

CROSS SECTION X

16.51	14.81	587.81	0.0	0.0	587.86	0.05	0.63	0.05	579.60
6034.	2233.	3171.	630.	3918.	1266.	1221.	1541.	399.	579.60
2.56	0.57	2.51	0.52	0.099	0.035	0.100	0.036	573.00	495.25
0.000138	1400.	2150.	1400.	3	0	0	0.0	1245.95	1741.19

FLOW DISTRIBUTION FOR SECNO= 16.51 CWSEL= 587.81

STA=	495.	1010.	1139.	1284.	1377.	1488.	1610.	1732.	1741.
PER Q=	15.1	7.5	7.5	6.8	52.5	6.8	3.6	0.0	
AREA=	1668.7	781.6	820.5	647.2	1265.6	724.5	489.1	7.4	
VEL=	0.5	0.6	0.6	0.6	2.5	0.6	0.4	0.1	

CCHV= 0.100 CEHV= 0.300
*SECNO 17.860

CROSS SECTION Y

17.86	13.10	588.00	0.0	0.0	588.03	0.02	0.16	0.00	583.60
6034.	6.	1767.	4261.	23.	814.	8342.	1773.	440.	583.20
2.93	0.25	2.17	0.51	0.100	0.035	0.100	0.036	574.90	188.75
0.000115	1000.	1350.	1400.	2	0	0	0.0	1546.80	1735.55

FLOW DISTRIBUTION FOR SECNO= 17.86 CWSEL= 588.00

STA=	189.	199.	272.	470.	670.	870.	1105.	1305.	1470.	1713.	1736.
PER Q=	0.1	29.3	9.1	9.3	8.8	11.1	9.3	10.0	12.7	0.2	
AREA=	22.6	814.3	1099.4	1120.5	1080.4	1328.3	1120.5	1081.1	1458.6	53.0	
VEL=	0.3	2.2	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.3	

*SECNO 18.320

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	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

CROSS SECTION Z

18.32	14.34	588.04	0.0	0.0	588.07	0.02	0.04	0.00	580.40

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6034.	57.	1920.	4057.	197.	943.	9187.	1860.	454.	580.40
3.05	0.29	2.03	0.44	0.100	0.035	0.100	0.036	573.70	308.39
0.0000	580.	460.	380.	1	0	0	0.0	1747.41	2055.80

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FLOW DISTRIBUTION FOR SECNO= 18.32 CWSEL= 588.04

STA=	308.	380.	458.	658.	790.	990.	1190.	1425.	1625.	1790.	2033.	2056.
PER Q=	0.9	31.8	7.7	5.9	8.1	7.7	9.7	8.1	8.7	11.1	0.2	
AREA=	197.3	943.5	1092.9	786.0	1130.8	1090.8	1340.5	1130.8	1089.7	1471.2	54.2	
VEL=	0.3	2.0	0.4	0.5	0.4	0.4	0.4	0.4	0.5	0.5	0.2	

1490 NH CARD USED
*SECNO 20.440

CROSS SECTION AA N

20.44	12.36	588.16	0.0	0.0	588.18	0.02	0.11	0.00	581.20
6034.	4197.	1243.	594.	6193.	709.	887.	2101.	492.	585.00
3.46	0.68	1.75	0.67	0.073	0.050	0.050	0.038	575.80	309.15
0.000077	1000.	2120.	1100.	2	0	0	0.0	1150.51	1459.66

FLOW DISTRIBUTION FOR SECNO= 20.44 CWSEL= 588.16

STA=	309.	470.	570.	670.	770.	870.	970.	1070.	1164.	1170.	1238.	1370.	1450.
STA=	1460.												
PER Q=	6.5	10.0	9.7	9.4	9.6	9.5	8.8	5.8	0.3	20.6	6.2	3.6	
PER Q=	0.1												
AREA=	906.7	806.0	791.0	776.0	786.0	781.0	746.0	564.9	35.2	709.0	550.3	324.8	
AREA=	12.4												
VEL=	0.4	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	1.8	0.7	0.7	
VEL=	0.3												

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00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: New Buffalo Township

3) WATERCOURSE: Galien River

4) DOCUMENT TYPE: Report

00BREAK00

27 Aug 79 J.W.G says this is latest data from contractor
Add 50 ft to all secnos to Correspond to Revised Proof

HYDRAULIC ANALYSIS OF GALIEN RIVER
NEW BUFFALO TOWNSHIP, BERRIEN COUNTY

A. Historical Flooding:

There are no records of significant flooding along the Galien River in New Buffalo Township. Discussions with local officials indicate that flooding is generally confined to the well defined floodplain are along the river. There were no recollections of flooding of roads along the river in the past 20 to 25 years. In the lower reaches, and especially in the City of New Buffalo, high water levels due to Lake Michigan seem to be a greater problem than riverine flooding.

B. Hydraulic Computations

The river was analyzed using the November 1976 (updated August, 1977) version of the Corps of Engineers HEC-2 water surface profile computer program.

The flood discharges used in the analyses were as follows:

10 year - 3,714 cfs

50 year - 5,364 cfs

100 year - 5,836 cfs

500 year - 6,551 cfs

These discharges were computed using the S.C.S. TR-20 hydrology program and were approved by the D.N.R.

The starting water surface elevation utilized in the computations was 580.0 (USGS datum), which is the approximate mean lake level of Lake Michigan.

The Mannings roughness coefficients which were used in the analyses are shown on the plotted cross-sections. Overbank roughness coefficients ranged from a 0.05 for relatively wide, flat, areas with light brush cover to 0.10 for areas with heavy brush and scattered trees. A roughness coefficient of 0.035 was utilized for the channel area as being representative of the relatively wide, meandering river channel. The roughness coefficients were varied horizontally across the cross-sections to reflect changes in overbank conditions. Gradual expansion and contraction coefficients of 0.3 and 0.1 were used between sections. The coefficients were increased to 0.5 and 0.2 at the Whittaker and Red Arrow Highway bridges to reflect the more abrupt flow transitions at these points.

In the hydraulic analysis, artificial encroachment stations were utilized at Cross Sections B, D, T, U, and W to delete ineffective flow areas from the hydraulic computations. The locations of the artificial encroachments were based upon an examination of flow patterns upstream and downstream from these sections. The encroachments are shown on the plotted cross-sections.

The determination of the floodway area was made utilizing Method 4 of the HEC-2 program. A maximum allowable flood stage increase of 0.10 feet above the natural 100-year flood stage was specified. The floodways shown are the plan and the cross-sections.

C. Results

In the hydraulic analysis, it was found that the flood elevations of Lake Michigan exceed the computed riverine flood elevations upstream to the approximate vicinity of Cross Section R. These elevations, as taken from the Corps of Engineers Study, Great Lakes Open-Coast Flood Levels, are as follows:

10 year	583.0
50 year	583.9
100 year	584.2
500 year	584.8

Upstream of Cross Section R, the computed riverine flood elevations exceed the lake elevations. The computed flood elevations at the upstream study limits (Cross Section AA) are as follows:

10 year	586.1
50 year	587.6
100 year	588.1
500 year	588.7

As reflected on the plotted river profiles, the Red Arrow Highway bridge crossing and associated roadway fill is the most significant obstruction to the passage of the flood waters in the upper reaches of the study area. The bridge, together with the previous bridge abutments at Cross Section V, causes a backwater effect of approximately 2 feet at the 100 year flood discharge.

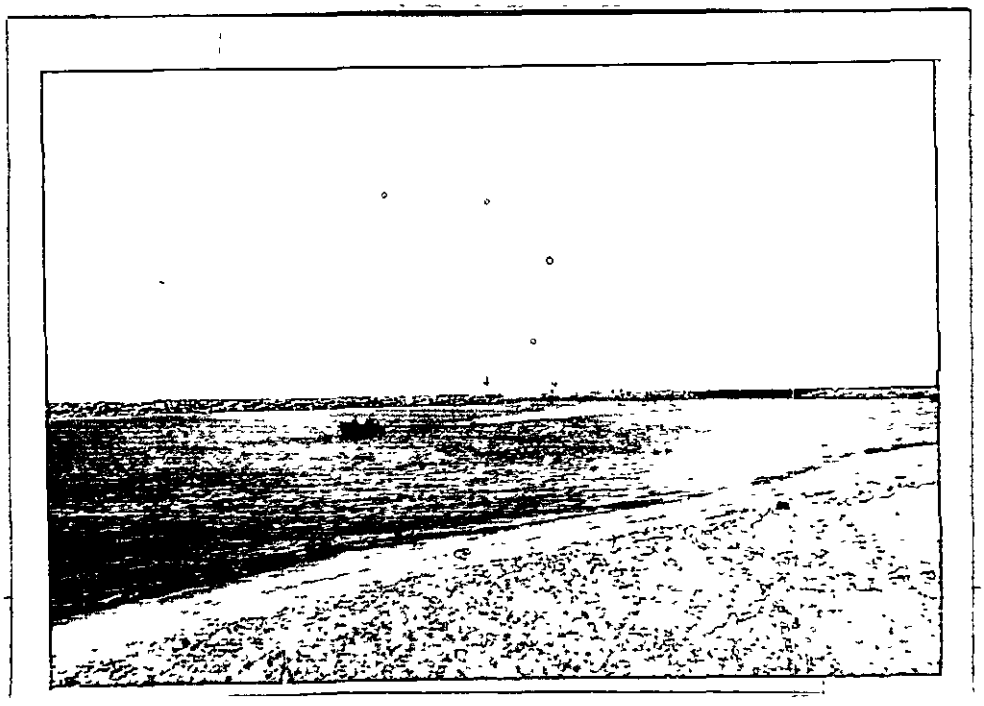
As noted previously, there are no historical flood records for the Galien River. Thus, comparisons of the computed flood profile with historical data is not possible.

WILLIAMS & WORKS
ENGINEERS / SURVEYORS / PLANNERS / GEOLOGISTS
GRAND RAPIDS MICHIGAN

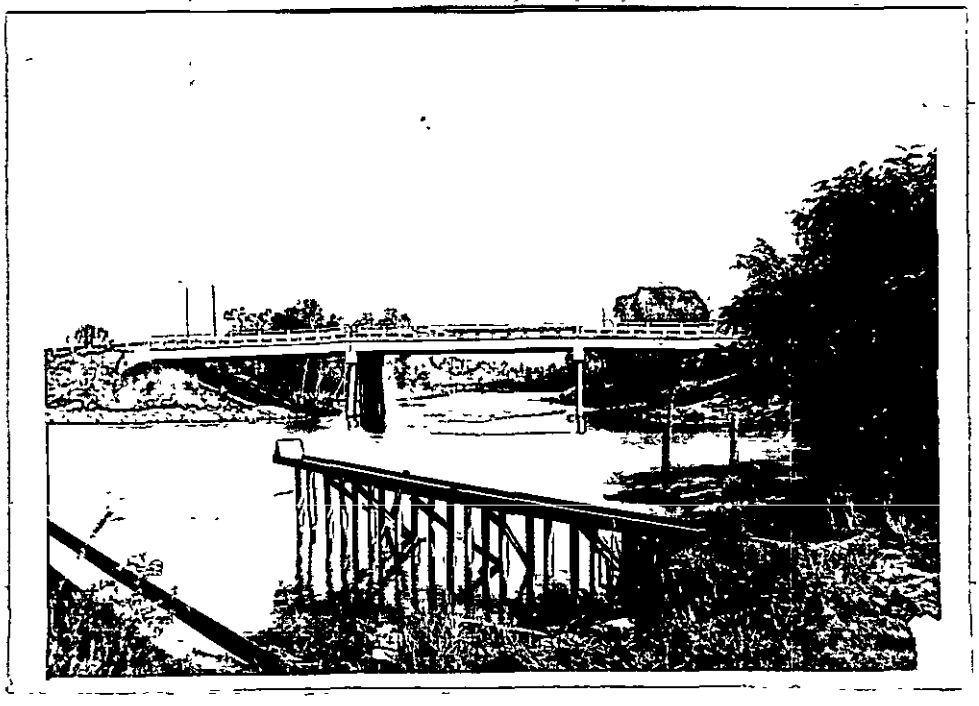
Calculation Sheet

Computed by _____ Subject _____ Sheet 1 of _____
Checked by _____ _____ Job No. _____
Client _____ Date _____

GALIEN R. PHOTOS



AT CONFLUENCE w/ LAKE MICHIGAN



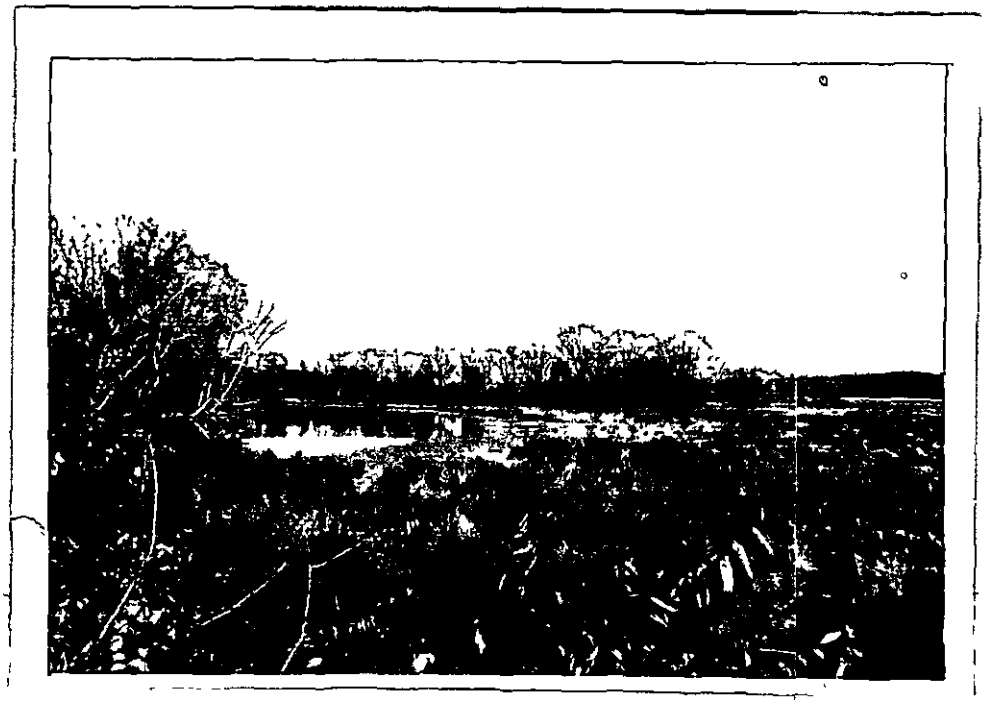
WHITTAKER AVE. BRIDGE: VIEWED FROM EAST BANK LOOKING UPSTREAM



LOOKING UPSTREAM FROM WHITTAKER AVE. BRIDGE



LOOKING UPSTREAM FROM WEST BANK AT SECT. I (2.67)



LOOKING UPSTREAM FROM SOUTH BANK AT SECT. J (3.57)



LOOKING UPSTREAM FROM SOUTH BANK AT SECT. N (6.52)



LOOKING DOWNSTREAM FROM RED ARROW HIGHWAY BRIDGE



LOOKING DOWNSTREAM AT RED ARROW HIGHWAY BRIDGE FROM SECT. V (13.11)



Looking Upstream from Red Arrow Highway Bridge

WILLIAMS & WORKS
ENGINEERS / SURVEYORS / PLANNERS / GEOLOGISTS
GRAND RAPIDS, MICHIGAN

Calculation Sheet

Computed by	Subject	Sheet ____ of ____
Checked by		Job No.
	Client	Date

GALIEN RIVER CROSS SECTION - IDENTIFICATION

HEC-2 (7-26-78)	New Buffalo City F.I.S.	New Buffalo Twp. F.I.S.
0.00 A	A	
0.60 B	B	
0.80 C	C	
1.45 D	D	
1.75 E	E	
1.86 F	F	
1.89	Not Used "G" = E Whittaker Br.	
1.99	Not Used	
2.12 H	H	
2.67 I	I	
3.57 J	J	
4.17 K	K	
5.07 L		A
5.92 M		B
6.82 N		C
7.80 O		D
10.95 P		E
11.52 Q		Not Used
11.90 R		F
12.80 S		G

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Calculation Sheet

Computed by _____ Subject _____ Sheet ____ of ____
Checked by _____ _____ Job No. _____
Client _____ Date _____

13.63		Not Used
14.08	T	H
14.11		Not Used "I" - & Red Arrow Br
14.21		Not Used
14.24	U	Not Used
14.36	V	J
14.46	W	Not Used
16.51	X	K
17.86	Y	L
18.32	Z	M
20.44	AA	N

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: New Buffalo Township

3) WATERCOURSE: Galien River

4) DOCUMENT TYPE: Summary

00BREAK00

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HEC2 RELEASE DATED NOV 76 UPDATED AUG1977
ERROR CORR - 01,02
MODIFICATION - 50,51,52,53
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

GALIEN R. PROFILES

SUMMARY PRINTOUT

SECNO	XLCH	Q	CWSEL	EG	10K*S	TOPWID	ELMIN	HV	STENCL	STENCR	.01K	AREA
0.0	0.0	5836.00	580.00	580.04	0.36	295.00	564.80	0.04	0.0	0.0	9660.83	3670.99
0.0	0.0	5836.00	580.00	580.04	0.36	295.00	564.80	0.04	100.00	410.00	9660.83	3670.99
0.0	0.0	6551.00	580.00	580.05	0.46	295.00	564.80	0.05	0.0	0.0	9660.83	3670.99
0.0	0.0	5364.00	580.00	580.03	0.31	295.00	564.80	0.03	0.0	0.0	9660.83	3670.99
0.0	0.0	3714.00	580.00	580.02	0.15	295.00	564.80	0.02	0.0	0.0	9660.83	3670.99
0.600	600.00	5836.00	579.91	580.15	4.58	200.00	568.20	0.24	450.00	650.00	2728.22	1476.19
0.600	600.00	5836.00	579.91	580.15	4.58	200.00	568.20	0.24	450.00	650.00	2728.22	1476.19
0.600	600.00	6551.00	579.89	580.19	5.83	200.00	568.20	0.31	450.00	650.00	2713.66	1471.32
0.600	600.00	5364.00	579.92	580.13	3.84	200.00	568.20	0.20	450.00	650.00	2736.89	1479.09
0.600	600.00	3714.00	579.96	580.06	1.81	200.00	568.20	0.10	450.00	650.00	2760.68	1487.02
0.800	200.00	5836.00	579.82	580.38	9.94	129.24	568.50	0.56	0.0	0.0	1851.09	972.90
0.800	200.00	5836.00	579.82	580.38	10.02	125.98	568.50	0.56	408.00	535.00	1843.36	972.53
0.800	200.00	6551.00	579.77	580.48	12.71	128.08	568.50	0.71	0.0	0.0	1837.31	966.44
0.800	200.00	5364.00	579.85	580.32	8.32	129.92	568.50	0.47	0.0	0.0	1859.30	976.75
0.800	200.00	3714.00	579.93	580.15	3.88	131.40	568.50	0.22	0.0	0.0	1885.45	987.28
1.450	650.00 *	5836.00	580.53	580.80	4.05	169.20	568.30	0.27	1072.00	1267.00	2900.12	1409.10
1.450	650.00	5836.00	580.53	580.80	4.05	169.21	568.30	0.27	1072.00	1267.00	2901.08	1409.39
1.450	650.00	6551.00	580.68	581.00	4.83	170.60	568.30	0.33	1072.00	1267.00	2981.03	1433.47
1.450	650.00	5364.00	580.45	580.68	3.53	168.37	568.30	0.23	1072.00	1267.00	2853.13	1394.91
1.450	650.00	3714.00	580.21	580.33	1.86	166.06	568.30	0.12	1072.00	1267.00	2722.74	1355.38
1.750	300.00	5836.00	580.74	580.90	2.12	209.42	568.10	0.15	0.0	0.0	4008.70	1856.11
1.750	300.00	5836.00	580.74	580.90	2.15	200.00	568.10	0.15	685.00	885.00	3980.51	1851.29
1.750	300.00	6551.00	580.93	581.12	2.50	211.44	568.10	0.19	0.0	0.0	4140.76	1894.28
1.750	300.00	5364.00	580.63	580.76	1.87	208.17	568.10	0.13	0.0	0.0	3927.49	1832.56
1.750	300.00	3714.00	580.30	580.37	1.01	204.48	568.10	0.07	0.0	0.0	3692.16	1763.96
1.860	110.00	5836.00	580.67	580.97	4.09	139.87	567.90	0.31	0.0	0.0	2884.84	1317.14
1.860	110.00	5836.00	580.67	580.98	4.16	136.00	567.90	0.31	290.00	426.00	2862.79	1316.09
1.860	110.00	6551.00	580.84	581.21	4.87	140.73	567.90	0.37	0.0	0.0	2969.99	1341.00
1.860	110.00	5364.00	580.57	580.83	3.58	139.36	567.90	0.26	0.0	0.0	2834.53	1302.97
1.860	110.00	3714.00	580.27	580.41	1.90	137.88	567.90	0.13	0.0	0.0	2691.72	1262.47

* REACH LENGTH ADJUSTED TO 700' IN STUDY.

SECNO	XLCH	Q	CWSEL	EG	10K*S	TOPWID	ELMIN	HV	STENCL	STENCR	.01K	AREA
1.890	30.00	5836.00	580.68	580.99	4.10	136.00	567.90	0.30	0.0	0.0	2882.94	1316.94
1.890	30.00	5836.00	580.68	580.99	4.14	136.00	567.90	0.30	290.00	426.00	2869.55	1317.67
1.890	30.00	6551.00	580.85	581.22	4.88	136.00	567.90	0.37	0.0	0.0	2966.99	1340.25
1.890	30.00	5364.00	580.58	580.84	3.59	136.00	567.90	0.26	0.0	0.0	2832.85	1302.93
1.890	30.00	3714.00	580.28	580.41	1.91	136.00	567.90	0.13	0.0	0.0	2690.70	1262.65
1.990	100.00	5836.00	580.70	582.28	42.34	101.88	571.60	1.58	0.0	0.0	896.85	578.30
1.990	100.00	5836.00	580.80	582.33	40.27	102.49	571.60	1.53	0.0	0.0	919.62	588.50
1.990	100.00	6551.00	580.88	582.75	48.82	102.96	571.60	1.87	0.0	0.0	937.63	596.53
1.990	100.00	5364.00	580.59	581.98	37.77	101.22	571.60	1.39	0.0	0.0	872.79	567.44
1.990	100.00	3714.00	580.28	581.03	21.25	99.35	571.60	0.74	0.0	0.0	805.63	536.69
2.120	130.00	5836.00	582.39	582.47	1.06	299.02	570.10	0.08	425.00	728.00	5663.91	2637.94
2.120	130.00	5836.00	582.43	582.51	1.05	299.33	570.10	0.08	425.00	728.00	5704.11	2649.99
2.120	130.00	6551.00	582.88	582.97	1.13	302.89	570.10	0.09	425.00	728.00	6161.95	2785.65
2.120	130.00	5364.00	582.08	582.15	1.00	296.53	570.10	0.07	425.00	728.00	5353.21	2544.00
2.120	130.00	3714.00	581.08	581.12	0.71	288.67	570.10	0.04	425.00	728.00	4420.30	2252.25
2.670	550.00	5836.00	582.38	582.63	4.25	747.31	570.90	0.25	0.0	0.0	2830.95	2193.95
2.670	550.00	5836.00	582.41	582.67	4.40	508.63	570.90	0.26	709.76	1258.00	2781.15	1949.46
2.670	550.00	6551.00	582.88	583.13	4.07	776.14	570.90	0.24	0.0	0.0	3245.29	2577.44
2.670	550.00	5364.00	582.06	582.30	4.27	723.27	570.90	0.24	0.0	0.0	2596.69	1964.80
2.670	550.00	3714.00	581.06	581.24	3.55	539.73	570.90	0.18	0.0	0.0	1970.05	1327.08
3.570	900.00	5836.00	582.80	583.14	7.23	237.95	570.90	0.35	0.0	0.0	2171.09	1315.56
3.570	900.00	5836.00	582.85	583.21	7.65	141.00	570.90	0.35	1216.00	1357.00	2109.70	1221.74
3.570	900.00	6551.00	583.26	583.65	7.53	243.36	570.90	0.39	0.0	0.0	2387.36	1428.53
3.570	900.00	5364.00	582.48	582.80	6.95	234.37	570.90	0.32	0.0	0.0	2034.80	1242.23
3.570	900.00	3714.00	581.43	581.63	5.31	167.64	570.90	0.20	0.0	0.0	1612.12	1041.38
4.170	600.00	5836.00	583.30	583.34	1.42	1800.53	571.20	0.04	0.0	0.0	4900.33	5717.30
4.170	600.00	5836.00	583.37	583.41	1.45	1437.00	571.20	0.05	663.84	2125.00	4849.20	5302.29
4.170	600.00	6551.00	583.81	583.85	1.27	1816.95	571.20	0.04	0.0	0.0	5802.85	6631.13
4.170	600.00	5364.00	582.96	583.01	1.52	1759.51	571.20	0.04	0.0	0.0	4345.78	5112.60
4.170	600.00	3714.00	581.78	581.83	1.84	1582.99	571.20	0.05	0.0	0.0	2737.60	3137.37
5.070	900.00	5836.00	583.43	583.49	2.26	1364.06	572.80	0.06	0.0	0.0	3885.59	4298.84
5.070	900.00	5836.00	583.50	583.56	2.29	1003.05	572.80	0.07	610.13	1653.79	3860.56	3923.23
5.070	900.00	6551.00	583.92	583.98	2.08	1409.30	572.80	0.06	0.0	0.0	4543.17	4982.00
5.070	900.00	5364.00	583.10	583.16	2.37	1321.39	572.80	0.06	0.0	0.0	3485.90	3857.75
5.070	900.00	3714.00	581.95	582.01	2.53	1036.07	572.80	0.06	0.0	0.0	2335.04	2497.29
5.920	850.00	5935.00	583.61	583.64	1.18	1619.74	572.40	0.03	0.0	0.0	5471.85	6260.77
5.920	850.00	5935.00	583.68	583.71	1.20	1304.85	572.40	0.03	799.15	2104.00	5427.89	5860.25
5.920	850.00	6660.00	584.09	584.12	1.10	1628.99	572.40	0.03	0.0	0.0	6340.64	7039.98
5.920	850.00	5460.00	583.29	583.32	1.23	1607.48	572.40	0.03	0.0	0.0	4913.81	5727.39
5.920	850.00	3797.00	582.14	582.17	1.36	1460.55	572.40	0.03	0.0	0.0	3252.54	3999.18
6.820	900.00	5935.00	583.71	583.72	0.65	2130.26	573.80	0.01	0.0	0.0	7381.73	7956.03
6.820	900.00	5935.00	583.79	583.80	0.66	1805.27	573.80	0.01	554.73	2360.00	7319.21	7582.97
6.820	900.00	6660.00	584.18	584.19	0.58	2210.06	573.80	0.01	0.0	0.0	8743.56	8980.40
6.820	900.00	5460.00	583.40	583.41	0.70	2083.48	573.80	0.01	0.0	0.0	6539.19	7294.50
6.820	900.00	3797.00	582.27	582.28	0.94	1970.52	573.80	0.01	0.0	0.0	3926.74	4999.48

SECNO	XLCH	Q	CWSEL	EG	10K*S	TOPWID	ELMIN	HV	STENCL	STENCR	.01K	AREA
7.800	980.00	5935.00	583.80	583.81	1.05	2736.04	575.50	0.02	0.0	0.0	5795.75	9529.30
7.800	980.00	5935.00	583.88	583.89	1.07	2421.65	575.50	0.02	360.91	2837.46	5734.26	9074.41
7.800	980.00	6660.00	584.26	584.28	0.92	2743.40	575.50	0.01	0.0	0.0	6946.23	10803.39
7.800	980.00	5460.00	583.49	583.51	1.15	2728.43	575.50	0.02	0.0	0.0	5086.54	8685.69
7.800	980.00	3797.00	582.40	582.42	1.68	2624.36	575.50	0.02	0.0	0.0	2929.66	5717.43
10.950	3150.00	5935.00	584.06	584.11	2.52	1820.29	572.10	0.05	0.0	0.0	3739.67	5980.84
10.950	3150.00	5935.00	584.14	584.20	2.60	1678.93	572.10	0.05	260.00	2060.91	3677.45	5774.71
10.950	3150.00	6660.00	584.48	584.53	2.27	1841.45	572.10	0.05	0.0	0.0	4415.92	6760.69
10.950	3150.00	5460.00	583.78	583.84	2.69	1806.55	572.10	0.06	0.0	0.0	3329.93	5479.05
10.950	3150.00	3797.00	582.84	582.91	3.21	1766.74	572.10	0.07	0.0	0.0	2120.68	3802.07
11.520	570.00	5935.00	584.20	584.23	1.71	1696.62	573.80	0.03	0.0	0.0	4536.00	5405.26
11.520	570.00	5935.00	584.29	584.32	1.73	1515.50	573.80	0.03	286.93	1802.43	4517.33	5106.83
11.520	570.00	6660.00	584.61	584.64	1.63	1707.18	573.80	0.03	0.0	0.0	5218.41	6105.86
11.520	570.00	5460.00	583.93	583.96	1.75	1680.27	573.80	0.03	0.0	0.0	4122.28	4952.54
11.520	570.00	3797.00	583.02	583.05	1.72	1602.15	573.80	0.03	0.0	0.0	2892.26	3455.98
11.900	380.00	6034.00	584.28	584.30	1.50	1636.11	573.80	0.03	0.0	0.0	4924.86	5546.77
11.900	380.00	6034.00	584.37	584.40	1.52	1501.34	573.80	0.03	274.99	1951.61	4897.75	5327.66
11.900	380.00	6767.00	584.69	584.71	1.44	1652.59	573.80	0.03	0.0	0.0	5637.68	6223.01
11.900	380.00	5554.00	584.01	584.04	1.53	1621.52	573.80	0.03	0.0	0.0	4493.96	5115.74
11.900	380.00	3879.00	583.10	583.12	1.50	1539.36	573.80	0.02	0.0	0.0	3166.15	3657.81
12.800	900.00	6034.00	584.45	584.49	1.83	1294.47	572.60	0.04	0.00	1680.00	4458.24	5136.88
12.800	900.00	6034.00	584.53	584.57	1.74	1298.63	572.60	0.04	0.00	1680.00	4578.95	5254.32
12.800	900.00	6767.00	584.85	584.89	1.82	1313.42	572.60	0.04	0.00	1680.00	5013.63	5667.39
12.800	900.00	5554.00	584.18	584.22	1.82	1282.48	572.60	0.04	0.00	1680.00	4118.05	4798.72
12.800	900.00	3879.00	583.26	583.29	1.62	1223.03	572.60	0.03	0.00	1680.00	3047.09	3652.96
13.630	830.00	6034.00	584.48	584.94	10.36	370.00	573.40	0.47	730.00	1100.00	1874.24	1441.23
13.630	830.00	6034.00	584.56	585.01	9.95	370.00	573.40	0.45	730.00	1100.00	1913.23	1471.41
13.630	830.00	6767.00	584.86	585.36	10.77	370.00	573.40	0.50	730.00	1100.00	2062.43	1583.14
13.630	830.00	5554.00	584.22	584.66	9.99	370.00	573.40	0.44	730.00	1100.00	1757.44	1347.99
13.630	830.00	3879.00	583.34	583.64	7.70	287.97	573.40	0.31	730.00	1100.00	1397.81	1030.65
14.080	450.00	6034.00	584.89	585.44	10.71	145.00	573.40	0.56	843.00	988.00	1843.65	1059.67
14.080	450.00	6034.00	584.95	585.50	10.46	145.00	573.40	0.55	843.00	988.00	1865.30	1068.60
14.080	450.00	6767.00	585.27	585.91	11.69	145.00	573.40	0.64	843.00	988.00	1979.28	1114.83
14.080	450.00	5554.00	584.63	585.13	10.02	145.00	573.40	0.50	843.00	988.00	1754.48	1022.40
14.080	450.00	3879.00	583.67	583.98	7.26	145.00	573.40	0.32	843.00	988.00	1440.05	883.10
14.110	30.00	6034.00	584.91	585.48	10.79	125.00	573.40	0.57	854.00	979.00	1836.79	1026.27
14.110	30.00	6034.00	584.97	585.53	10.56	125.00	573.40	0.56	854.00	979.00	1857.23	1033.84
14.110	30.00	6767.00	585.29	585.95	11.83	125.00	573.40	0.66	854.00	979.00	1967.46	1074.09
14.110	30.00	5554.00	584.65	585.17	10.07	125.00	573.40	0.51	854.00	979.00	1750.51	993.92
14.110	30.00	3879.00	583.69	584.01	7.22	125.00	573.40	0.32	854.00	979.00	1443.44	872.92
14.210	100.00	6034.00	585.50	586.07	11.92	104.00	573.30	0.57	0.0	0.0	1747.74	993.26
* 14.210	100.00	6034.00	585.56	586.12	11.70	104.00	573.30	0.57	696.00	800.00	1764.01	999.19
14.210	100.00	6767.00	586.11	586.75	12.34	104.00	573.30	0.64	0.0	0.0	1926.17	1057.31
14.210	100.00	5554.00	585.11	585.63	11.50	104.00	573.30	0.53	0.0	0.0	1637.64	952.69
14.210	100.00	3879.00	583.72	584.08	9.41	104.00	573.30	0.36	0.0	0.0	1264.83	808.10

SECNO	XLCH	Q	CWSEL	EG	10K*S	TOPWID	ELMIN	HV	STENCL	STENCR	.01K	AREA
14.240	30.00	6034.00	585.21	586.47	34.34	110.00	575.10	1.26	779.00	889.00	1029.71	696.08
14.240	30.00	6034.00	585.28	586.51	33.34	110.00	575.10	1.24	779.00	889.00	1044.94	703.43
14.240	30.00	6767.00	585.82	587.16	33.36	110.00	575.10	1.34	779.00	889.00	1171.56	762.95
14.240	30.00	5554.00	584.83	586.02	34.56	110.00	575.10	1.20	779.00	889.00	944.71	654.20
14.240	30.00	3879.00	583.50	584.39	33.11	87.00	575.10	0.89	779.00	889.00	673.95	510.94
14.360	120.00	6034.00	585.63	586.85	27.71	84.80	575.10	1.22	0.0	0.0	1146.20	680.82
14.360	120.00	6034.00	585.67	586.88	27.13	84.83	575.10	1.20	580.00	866.00	1158.56	685.32
14.360	120.00	6767.00	586.18	587.52	27.98	85.11	575.10	1.34	0.0	0.0	1279.26	728.34
14.360	120.00	5554.00	585.27	586.40	27.11	84.60	575.10	1.13	0.0	0.0	1066.64	651.44
14.360	120.00	3879.00	583.95	584.75	24.45	83.85	575.10	0.80	0.0	0.0	784.53	539.90
14.460	100.00	6034.00	586.62	587.18	14.86	184.00	575.10	0.56	752.00	936.00	1565.54	1124.36
14.460	100.00	6034.00	586.65	587.20	14.66	184.00	575.10	0.55	752.00	936.00	1576.19	1130.38
14.460	100.00	6767.00	587.29	587.87	14.27	184.00	575.10	0.58	752.00	936.00	1791.65	1248.27
14.460	100.00	5554.00	586.17	586.72	15.20	184.00	575.10	0.54	752.00	936.00	1424.65	1042.94
14.460	100.00	3879.00	584.55	585.01	16.18	184.00	575.10	0.47	752.00	936.00	964.39	743.54
16.510	2150.00	6034.00	587.81	587.86	1.38	1245.95	573.00	0.05	0.0	0.0	5131.87	6404.67
16.510	2150.00	6034.00	587.84	587.90	1.42	898.07	573.00	0.06	769.44	1667.51	5064.91	5992.90
16.510	2150.00	6767.00	588.46	588.52	1.30	1259.75	573.00	0.05	0.0	0.0	5932.49	7227.86
16.510	2150.00	5554.00	587.37	587.42	1.43	1186.11	573.00	0.05	0.0	0.0	4646.68	5870.50
16.510	2150.00	3879.00	585.73	585.78	1.56	917.64	573.00	0.05	0.0	0.0	3105.49	4161.96
17.860	1350.00	6034.00	588.00	588.03	1.15	1546.80	574.90	0.02	0.0	0.0	5629.75	9178.60
17.860	1350.00	6034.00	588.05	588.07	1.21	1463.48	574.90	0.02	199.00	1662.48	5495.49	8919.62
17.860	1350.00	6767.00	588.65	588.67	1.06	1551.40	574.90	0.02	0.0	0.0	6566.72	10178.78
17.860	1350.00	5554.00	587.57	587.60	1.21	1543.74	574.90	0.03	0.0	0.0	5040.59	8514.02
17.860	1350.00	3879.00	585.96	585.99	1.57	1532.24	574.90	0.03	0.0	0.0	3092.48	6033.02
18.320	460.00	6034.00	588.04	588.07	0.85	1747.41	573.70	0.02	0.0	0.0	6545.74	10327.64
18.320	460.00	6034.00	588.09	588.11	0.90	1627.72	573.70	0.02	380.00	2007.72	6346.16	10021.34
18.320	460.00	6767.00	588.69	588.71	0.79	1759.25	573.70	0.02	0.0	0.0	7595.54	11452.58
18.320	460.00	5554.00	587.62	587.64	0.89	1739.51	573.70	0.02	0.0	0.0	5885.48	9582.34
18.320	460.00	3879.00	586.02	586.05	1.10	1709.96	573.70	0.03	0.0	0.0	3703.88	6821.75
20.440	2120.00	6034.00	588.16	588.18	0.77	1150.51	575.80	0.02	0.0	0.0	6877.09	7789.19
20.440	2120.00	6034.00	588.21	588.23	0.79	1057.29	575.80	0.02	360.63	1417.92	6802.85	7550.27
20.440	2120.00	6767.00	588.79	588.81	0.73	1157.01	575.80	0.02	0.0	0.0	7906.02	8520.41
20.440	2120.00	5554.00	587.74	587.75	0.80	1146.19	575.80	0.02	0.0	0.0	6228.89	7305.57
20.440	2120.00	3879.00	586.17	586.19	0.91	1130.12	575.80	0.01	0.0	0.0	4077.18	5521.62

SUMMARY OF ERRORS

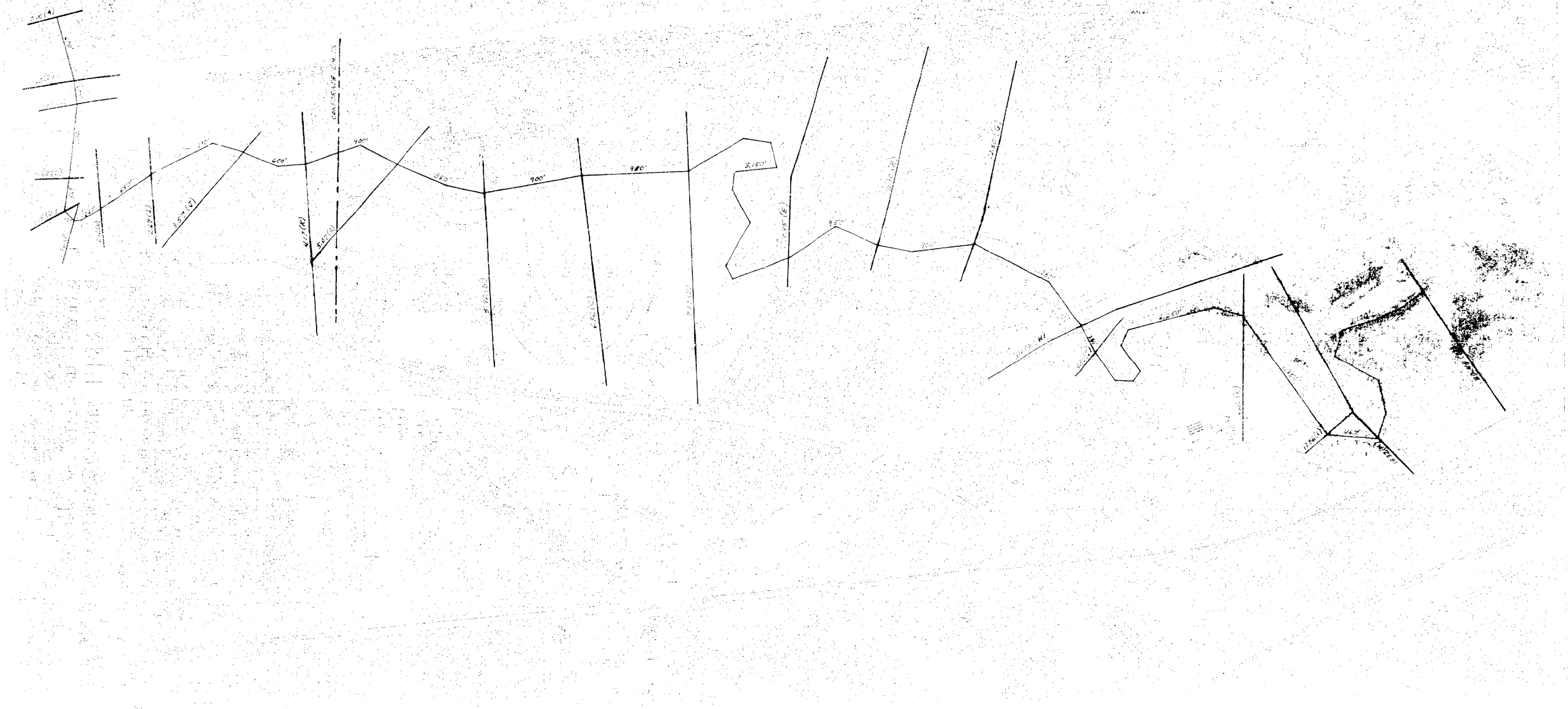
NOTE SECNO= 14.210 PROFILE= 2 WSEL BASED ON X5 CARD

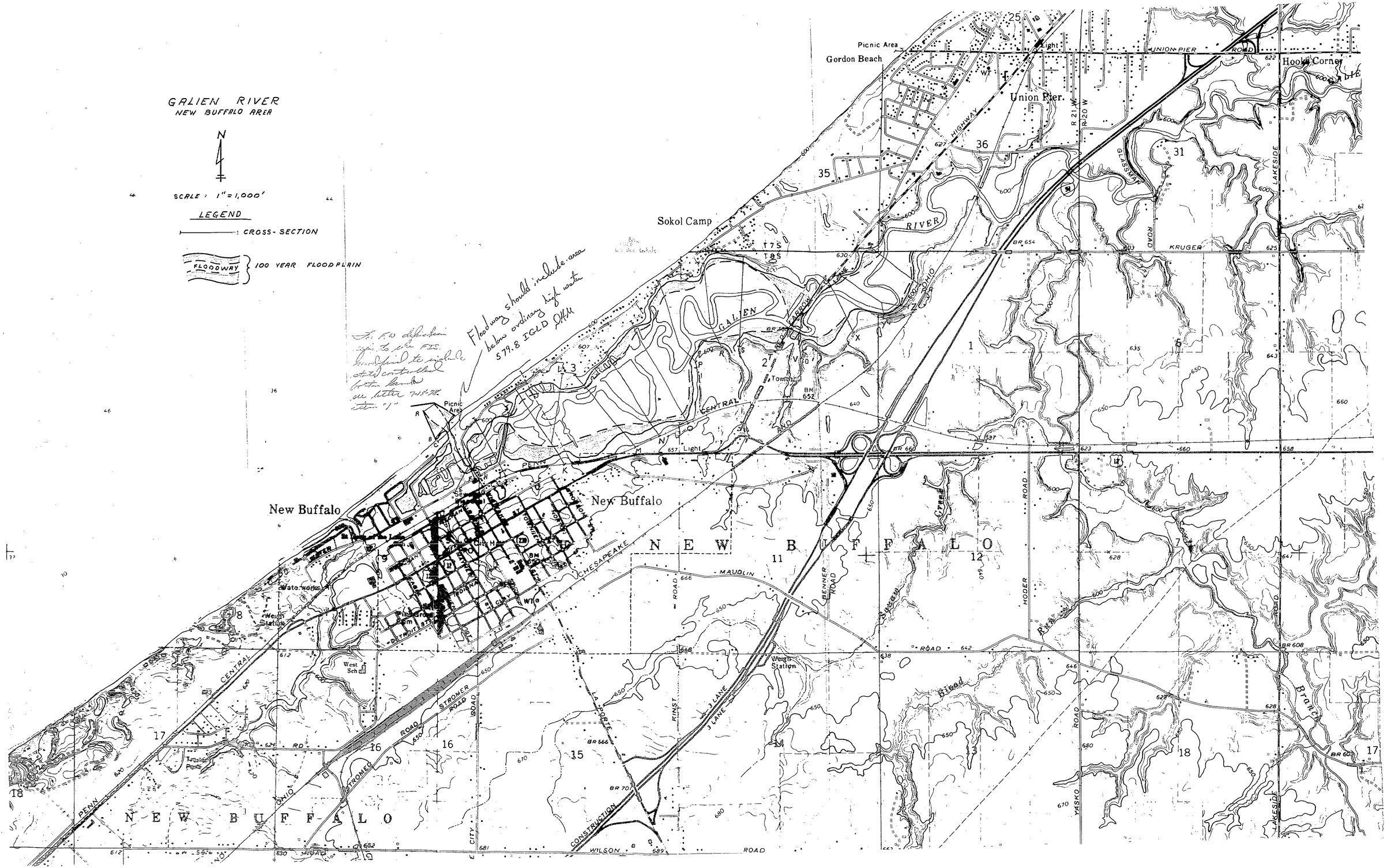
CALVIN RIVER CROSS SECTION LOCATIONS

NEW BUFFALO CITY & TOWNSHIP F.I.S.

4.19 - SEC 2 DESIGNATION

(K) - F.I.S. DESIGNATION


CALVIN AVE.
600'
400'
900'
980'
3,150'
5.01% (K)
4.17% (K)
2.67% (K)
2.67% (K)
2.67


GALIEN RIVER
NEW BUFFALO AREA
N
SCALE: 1" = 1,000'
LEGEND
CROSS-SECTION
FLOODWAY
100 YEAR FLOODPLAIN
Floodway should include area below ordinary high water 579.8 IGLD DHM
Picnic Area
Gordon Beach
Union Pier
Hooks Corner
Sokol Camp
New Buffalo
NEW BUFFALO
GALIEN RIVER
UNION PIER ROAD
HIGHWAY
KRUGER
LAKESIDE
GLASSMAN ROAD
CENTRAL
PENN
CHESAPEAKE
MAUDLIN
BENNER ROAD
HODER ROAD
YASKO ROAD
STROMER ROAD
LA PORTE
KINST
3 LANE
CONSTRUCTION
WILSON ROAD
Weigh Station
West Sch
Waterworks
Weigh Station
Trucker Park
Picnic Area
Light
Town
BM 652
BR 654
BR 660
BR 608
BR 666
BR 701
BR 607
T 7 S
T 8 S
R 21 W
R 20 W
Sugar Creek
Blood Run
Branch

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Niles, City of

3) WATERCOURSE: Dowagiac River

4) DOCUMENT TYPE: 100-year encroached

00BREAK00

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                                                                                THIS RUN EXECUTED 15-MAY-85  14:15:16
*************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55
*************************************************

T1      CITY OF NILES FLOOD INSURANCE STUDY   AUGUST  1984
T2      JOB# 1055F  DOWAG.HEC    100 YR. FLOOD AND ENCROACHMENT PROFILE RUN
T3        DOWAGIAC RIVER  100 YEAR

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        6.        0.        0.  0.000000      0.00       0.0        0.   640.500     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 2

 CCHV=   0.100 CEHV=   0.300
 *SECNO 1.000
  2800 NAT Q1=     687.35  WSEL=     640.50  ENC Q1=     694.01  WSEL=     640.60  RATIO= -0.0097
  NAT Q1=     708.  RATIOS LOB,CH,ROB=  0.0021  0.9796  0.0183  WSEL=     640.60

 3470 ENCROACHMENT STATIONS=     2000.0     2092.1  TYPE=      4  TARGET=        0.020
          400' U/S OF THE ST. JOSEPH RIVER.
       1.00      8.20    640.50      0.00    640.50    640.62      0.12      0.00      0.00    639.20
     1580.         0.    1580.         0.        0.       558.        0.        0.        0.    639.40
       0.00      0.00      2.83      0.00     0.000     0.040     0.000     0.000    632.30   2000.00
  0.000566         0.         0.         0         0         0         0      0.00     92.10   2092.10

 *SECNO 2.000
  2800 NAT Q1=     595.92  WSEL=     640.88  ENC Q1=     595.92  WSEL=     640.98  RATIO=  0.0000
  NAT Q1=     620.  RATIOS LOB,CH,ROB=  0.0026  0.9595  0.0380  WSEL=     640.98

 3470 ENCROACHMENT STATIONS=     2000.0     2122.4  TYPE=      4  TARGET=        0.039
          1020' U/S OF THE ST. JOSEPH RIVER.
       2.00      7.20    640.90      0.00    640.88    641.03      0.12      0.40      0.00    640.30
     1580.         0.    1578.         2.        0.       564.        4.        8.        2.    639.10
       0.06      0.00      2.80      0.41     0.000     0.040     0.100     0.000    633.70   2000.00
  0.000748       690.       620.       500.         2         0         0      0.00    122.44   2122.44

 *SECNO 3.100

 3470 ENCROACHMENT STATIONS=        0.0     2179.3  TYPE=      1  TARGET=     2179.299
          490' D/S OF U.S. 31-33 BRIDGE.
       3.10      7.18    641.08      0.00    641.05    641.20      0.12      0.17      0.00    638.00
     1580.        10.      1405.       165.        12.       486.       276.        12.        3.    638.00
       0.09      0.83      2.89      0.60     0.050     0.040     0.100     0.000    633.90   1992.29
  0.000487       380.       290.       250.         2         0         0      0.00    187.01   2179.30

 CCHV=   0.300 CEHV=   0.500
 *SECNO 3.200
  2800 NAT Q1=     497.39  WSEL=     641.37  ENC Q1=     514.02  WSEL=     641.47  RATIO= -0.0334
  NAT Q1=     514.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     641.47

 3470 ENCROACHMENT STATIONS=     2024.6     2126.9  TYPE=      4  TARGET=        0.000
```

FORM 1411 5 GB
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      D/S FACE OF U.S. 31-33 BRIDGE.
    3.20     7.00   641.40     0.00   641.37   641.55     0.16     0.33     0.02   647.10
    1580.       0.    1580.       0.       0.     497.       0.      20.       4.   647.40
     0.14     0.00     3.18     0.00    0.000    0.040    0.000    0.000   634.40  2024.71
0.000989     350.     490.     600.        2        0        0     0.00   102.14  2126.85

*SECNO 3.300
    3700.  BRIDGE STENCL=  2024.65  STENCR=  2126.90
 2800 NAT Q1=   546.37  WSEL=   641.36  ENC Q1=   563.59  WSEL=   641.46  RATIO= -0.0315
 NAT Q1=   564.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=   641.46

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD=  649.30 MAX ELLC=  647.40

3470 ENCROACHMENT STATIONS=   2024.6   2126.9  TYPE=     4  TARGET=     0.000
      1' INSIDE D/S FACE OF U.S. 31-33 BRIDGE.
    3.30     6.99   641.39     0.00   641.36   641.56     0.16     0.00     0.00   647.10
    1580.       0.    1580.       0.       0.     487.       0.      20.       4.   647.40
     0.14     0.00     3.25     0.00    0.000    0.033    0.000    0.000   634.40  2024.71
0.000820       1.       1.       1.        0        0        0   -10.66   102.14  2126.85

*SECNO 3.400
 2800 NAT Q1=   554.96  WSEL=   641.41  ENC Q1=   572.61  WSEL=   641.51  RATIO= -0.0318
 NAT Q1=   573.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=   641.51

3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD=  649.30 MAX ELLC=  647.40

3470 ENCROACHMENT STATIONS=   2024.6   2126.9  TYPE=     4  TARGET=     0.000
      1' INSIDE U/S FACE OF U.S. 31-33 BRIDGE.
    3.40     7.04   641.44     0.00   641.41   641.60     0.16     0.05     0.00   647.10
    1580.       0.    1580.       0.       0.     491.       0.      20.       4.   647.40
     0.14     0.00     3.22     0.00    0.000    0.033    0.000    0.000   634.40  2024.70
0.000799      56.      56.      56.        0        0        0   -10.73   102.14  2126.85

*SECNO 3.500
 2800 NAT Q1=   505.43  WSEL=   641.42  ENC Q1=   523.68  WSEL=   641.52  RATIO= -0.0361
 NAT Q1=   524.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=   641.52

3470 ENCROACHMENT STATIONS=   2024.6   2126.9  TYPE=     4  TARGET=     0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=   654.10 ELREA=   654.50

      U/S FACE OF U.S. 31-33 BRIDGE.
    3.50     7.05   641.45     0.00   641.42   641.61     0.15     0.00     0.00   647.10
    1580.       0.    1580.       0.       0.     502.       0.      20.       4.   647.40
     0.14     0.00     3.15     0.00    0.000    0.040    0.000    0.000   634.40  2024.70
0.000959       1.       1.       1.        0        0        0     0.00   102.14  2126.85
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FORM 1411 4 GB

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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 3.600

3470 ENCROACHMENT STATIONS=    1904.7    2580.0  TYPE=      1  TARGET=   -1904.700
          120' U/S OF U.S. 31-33 BRIDGE.
       3.60      6.74   641.64      0.00   641.61   641.68      0.04      0.04      0.03   638.00
     1580.       107.    1463.        9.     277.     866.       33.       23.        5.   638.00
       0.16      0.39     1.69      0.28    0.100    0.040     0.100     0.000   634.90  1904.70
   0.000169      120.     120.       120.        2        0         0      0.00   243.49  2148.19

  CCHV=   0.100 CEHV=   0.300
  *SECNO 5.100
   2800 NAT Q1=    470.98  WSEL=    641.67  ENC Q1=    480.16  WSEL=    641.77  RATIO= -0.0195
   NAT Q1=    487.  RATIOS LOB,CH,ROB=  0.0066  0.9848  0.0066  WSEL=    641.77

3470 ENCROACHMENT STATIONS=    2000.0    2080.0  TYPE=      4  TARGET=       0.013
          320' D/S OF CONRAIL R.R. BRIDGE.
       5.10      5.49   641.70      0.00   641.67   641.91      0.21      0.18      0.05   640.00
     1580.        0.    1580.        0.       0.     425.        0.       32.        7.   640.00
       0.20      0.00     3.72      0.00    0.000    0.040     0.000     0.000   636.20  2000.00
   0.001198      400.     500.       600.        2        0         0      0.00    80.00  2080.00

  CCHV=   0.300 CEHV=   0.500
  *SECNO 5.200
   2800 NAT Q1=    292.79  WSEL=    642.12  ENC Q1=    303.80  WSEL=    642.22  RATIO= -0.0376
   NAT Q1=    304.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    642.22

3470 ENCROACHMENT STATIONS=    2016.7    2091.8  TYPE=      4  TARGET=       0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=    647.40 ELREA=    648.10
          D/S FACE OF CONRAIL R.R. BRIDGE.
       5.20      5.06   642.16      0.00   642.12   642.53      0.37      0.54      0.08   647.40
     1580.        0.    1580.        0.       0.     323.        0.       34.        7.   648.10
       0.22      0.00     4.89      0.00    0.000    0.040     0.000     0.000   637.10  2016.76
   0.002820      390.     310.       270.        2        0         0      0.00    74.98  2091.74

  *SECNO 5.300
       3700.   BRIDGE STENCL=    2016.70    STENCR=    2091.80
   2800 NAT Q1=    289.46  WSEL=    642.08  ENC Q1=    300.19  WSEL=    642.18  RATIO= -0.0371
   NAT Q1=    300.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    642.18
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FORM 1411 5 GB
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    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= 19 MIN ELTRD=  651.60 MAX ELLC=  648.10

 3470 ENCROACHMENT STATIONS=    2016.7    2091.8  TYPE=      4  TARGET=        0.000
          1  INSIDE D/S FACE OF CONRAIL R.R. BRIDGE.
      5.30      5.02   642.12      0.00   642.08   642.58      0.46      0.00      0.04   647.40
    1580.         0.    1580.         0.      0.      291.         0.      34.         7.   648.10
      0.22      0.00     5.42      0.00    0.000    0.033     0.000     0.000   637.10  2016.76
 0.002884         1.       1.        1.        2        0         0    -28.77    74.98  2091.74

 *SECNO 5.400
  2800 NAT Q1=     292.61  WSEL=     642.11  ENC Q1=     304.30  WSEL=     642.21  RATIO= -0.0399
  NAT Q1=     304.   RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     642.21

 3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD=  651.60 MAX ELLC=  648.10

 3470 ENCROACHMENT STATIONS=    2016.7    2091.8  TYPE=      4  TARGET=        0.000
          1  INSIDE U/S FACE OF CONRAIL R.R. BRIDGE.
      5.40      5.06   642.16      0.00   642.11   642.61      0.45      0.03      0.00   647.40
    1580.         0.    1580.         0.      0.      293.         0.      34.         7.   648.10
      0.22      0.00     5.39      0.00    0.000    0.033     0.000     0.000   637.10  2016.76
 0.002826        10.      10.       10.        0        0         0    -28.93    74.98  2091.74

 *SECNO 5.500
  2800 NAT Q1=     307.81  WSEL=     642.25  ENC Q1=     318.95  WSEL=     642.35  RATIO= -0.0362
  NAT Q1=     319.   RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     642.35

 3470 ENCROACHMENT STATIONS=    2016.7    2091.8  TYPE=      4  TARGET=        0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      647.40 ELREA=      648.10

          U/S FACE OF CONRAIL R.R. BRIDGE.
      5.50      5.19   642.29      0.00   642.25   642.64      0.35      0.00      0.03   647.40
    1580.         0.    1580.         0.      0.      333.         0.      34.         7.   648.10
      0.22      0.00     4.75      0.00    0.000    0.040     0.000     0.000   637.10  2016.75
 0.002562         1.       1.        1.        2        0         0      0.00    74.98  2091.74
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FORM 1411 3-78
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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 5.600
  2800 NAT Q1=    652.69  WSEL=    642.68  ENC Q1=    654.42  WSEL=    642.78  RATIO= -0.0027
  NAT Q1=    675.  RATIOS LOB,CH,ROB=  0.0061  0.9691  0.0248  WSEL=    642.78

 3470 ENCROACHMENT STATIONS=    2000.0    2110.0  TYPE=      4  TARGET=       0.031
        100' U/S OF CONRAIL R.R. BRIDGE.
      5.60      5.31    642.71      0.00    642.68    642.83      0.12      0.12      0.07    640.00
    1580.         0.    1580.         0.        0.       577.         0.       35.       7.    640.00
      0.23      0.00      2.74      0.00      0.000     0.040     0.000     0.000   632.40   2000.00
  0.000650      100.      100.      100.          2         0         0      0.00   110.00   2110.00

 CCHV=  0.100 CEHV=  0.300
 *SECNO 6.000
  2800 NAT Q1=    285.29  WSEL=    643.10  ENC Q1=    295.96  WSEL=    643.20  RATIO= -0.0374
  NAT Q1=    296.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    643.20

 3470 ENCROACHMENT STATIONS=    2000.0    2115.8  TYPE=      4  TARGET=       0.000
        600' U/S OF CONRAIL R.R. BRIDGE.
      6.00      4.67    643.17      0.00    643.10    643.48      0.31      0.60      0.06    644.40
    1580.         0.    1580.         0.        0.       354.         0.       41.       9.    643.70
      0.26      0.00      4.46      0.00      0.000     0.040     0.000     0.000   638.50   2002.23
  0.002903      450.      500.      550.          2         0         0      0.00   104.85   2107.08

 *SECNO 6.100
  2800 NAT Q1=    391.56  WSEL=    644.17  ENC Q1=    402.46  WSEL=    644.27  RATIO= -0.0278
  NAT Q1=    412.  RATIOS LOB,CH,ROB=  0.0000  0.9758  0.0242  WSEL=    644.27

 3470 ENCROACHMENT STATIONS=    2000.0    2115.9  TYPE=      4  TARGET=       0.024
        1030' U/S OF CONRAIL R.R. BRIDGE.
      6.10      5.11    644.21      0.00    644.17    644.41      0.20      0.92      0.01    645.20
    1580.         0.    1580.         0.        0.       435.         0.       45.      10.    643.50
      0.29      0.00      3.63      0.00      0.000     0.040     0.000     0.000   639.10   2001.67
  0.001642      470.      430.      400.          2         0         0      0.00   114.23   2115.90

 *SECNO 6.600
  2800 NAT Q1=    449.62  WSEL=    644.81  ENC Q1=    460.82  WSEL=    644.91  RATIO= -0.0249
  NAT Q1=    469.  RATIOS LOB,CH,ROB=  0.0000  0.9829  0.0171  WSEL=    644.91

 3470 ENCROACHMENT STATIONS=    2000.0    2115.9  TYPE=      4  TARGET=       0.017
        1460' U/S OF CONRAIL R.R. BRIDGE.
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FORM 1411 ½ GB
PRINTED IN U.S.A.

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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	5.16	644.86	0.00	644.81	645.03	0.17	0.61	0.00	646.00
1580.	0.	1580.	0.	0.	473.	0.	49.	11.	643.30
0.33	0.00	3.34	0.00	0.000	0.040	0.000	0.000	639.70	2001.78
0.001250	470.	430.	400.	2	0	0	0.00	114.12	2115.90

*SECNO 7.000
2800 NAT Q1= 521.03 WSEL= 645.31 ENC Q1= 539.32 WSEL= 645.41 RATIO= -0.0351
NAT Q1= 540. RATIOS LOB,CH,ROB= 0.0000 0.9992 0.0008 WSEL= 645.41

3470 ENCROACHMENT STATIONS= 2000.0 2116.0 TYPE= 4 TARGET= 0.001
1900' U/S OF CONRAIL R.R. BRIDGE.

7.00	5.66	645.36	0.00	645.31	645.50	0.14	0.47	0.00	646.80
1580.	0.	1580.	0.	0.	526.	0.	54.	12.	643.10
0.37	0.00	3.01	0.00	0.000	0.040	0.000	0.000	639.70	2002.01
0.000911	470.	440.	430.	2	0	0	0.00	113.99	2116.00

*SECNO 8.000
2800 NAT Q1= 428.99 WSEL= 645.97 ENC Q1= 443.44 WSEL= 646.07 RATIO= -0.0337
NAT Q1= 443. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 646.07

3470 ENCROACHMENT STATIONS= 2000.0 2126.4 TYPE= 4 TARGET= 0.000
2530' U/S OF CONRAIL R.R. BRIDGE.

8.00	6.71	646.01	0.00	645.97	646.20	0.19	0.69	0.01	648.30
1580.	0.	1580.	0.	0.	455.	0.	61.	14.	649.40
0.42	0.00	3.47	0.00	0.000	0.040	0.000	0.000	639.30	2003.91
0.001324	630.	630.	630.	2	0	0	0.00	107.69	2111.60

FORM 1411 5-83 GB
PRINTED IN U.S.A.

THIS RUN EXECUTED 15-MAY-85 14:17:12

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

DOWAGIAC RIVER 100 Y

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	632.30	1580.00	640.50	0.00	640.62	5.28	2.78	655.01	687.35
1.000	0.00	0.00	0.00	632.30	1580.00	640.50	0.00	640.62	5.66	2.83	557.99	664.18
2.000	620.00	0.00	0.00	633.70	1580.00	640.88	0.00	640.99	7.03	2.71	721.29	595.92
2.000	620.00	0.00	0.00	633.70	1580.00	640.90	0.00	641.03	7.48	2.80	567.74	577.59
3.100	290.00	0.00	0.00	633.90	1580.00	641.05	0.00	641.16	4.97	2.91	766.71	708.65
3.100	290.00	0.00	0.00	633.90	1580.00	641.08	0.00	641.20	4.87	2.89	773.53	716.13
3.200	490.00	0.00	0.00	634.40	1580.00	641.37	0.00	641.52	10.09	3.20	494.09	497.39
3.200	490.00	0.00	0.00	634.40	1580.00	641.40	0.00	641.55	9.89	3.18	497.12	502.31
3.300	1.00	649.30	647.40	634.40	1580.00	641.36	0.00	641.53	8.36	3.27	483.54	546.37
3.300	1.00	649.30	647.40	634.40	1580.00	641.39	0.00	641.56	8.20	3.25	486.55	551.68
3.400	56.00	649.30	647.40	634.40	1580.00	641.41	0.00	641.58	8.11	3.24	488.40	554.96
3.400	56.00	649.30	647.40	634.40	1580.00	641.44	0.00	641.60	7.99	3.22	490.64	558.94
3.500	1.00	0.00	0.00	634.40	1580.00	641.42	0.00	641.58	9.77	3.17	499.04	505.43
3.500	1.00	0.00	0.00	634.40	1580.00	641.45	0.00	641.61	9.59	3.15	501.94	510.16
3.600	120.00	0.00	0.00	634.90	1580.00	641.61	0.00	641.65	1.72	1.70	1170.02	1206.24
3.600	120.00	0.00	0.00	634.90	1580.00	641.64	0.00	641.68	1.69	1.69	1176.44	1215.01
5.100	500.00	0.00	0.00	636.20	1580.00	641.67	0.00	641.88	11.25	3.69	465.27	470.98
5.100	500.00	0.00	0.00	636.20	1580.00	641.70	0.00	641.91	11.98	3.72	425.19	456.53
5.200	310.00	0.00	0.00	637.10	1580.00	642.12	0.00	642.50	29.12	4.94	319.83	292.79
5.200	310.00	0.00	0.00	637.10	1580.00	642.16	0.00	642.53	28.20	4.89	323.06	297.53
5.300	1.00	651.60	648.10	637.10	1580.00	642.08	0.00	642.54	29.79	5.48	288.25	289.46
5.300	1.00	651.60	648.10	637.10	1580.00	642.12	0.00	642.58	28.84	5.42	291.31	294.21

FORM 1411 ½ GB
PRINTED IN U.S.A.

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
5.400	10.00	651.60	648.10	637.10	1580.00	642.11	0.00	642.57	29.16	5.44	290.28	292.61
5.400	10.00	651.60	648.10	637.10	1580.00	642.16	0.00	642.61	28.26	5.39	293.24	297.21
5.500	1.00	0.00	0.00	637.10	1580.00	642.25	0.00	642.61	26.35	4.79	330.02	307.81
5.500	1.00	0.00	0.00	637.10	1580.00	642.29	0.00	642.64	25.62	4.75	332.91	312.14
5.600	100.00	0.00	0.00	637.40	1580.00	642.68	0.00	642.79	5.86	2.67	633.07	652.69
5.600	100.00	0.00	0.00	637.40	1580.00	642.71	0.00	642.83	6.50	2.74	577.36	619.69
6.000	500.00	0.00	0.00	638.50	1580.00	643.10	0.00	643.42	30.67	4.56	346.33	285.29
6.000	500.00	0.00	0.00	638.50	1580.00	643.17	0.00	643.48	29.03	4.46	353.94	293.27
6.100	430.00	0.00	0.00	639.10	1580.00	644.17	0.00	644.37	16.28	3.61	522.26	391.56
6.100	430.00	0.00	0.00	639.10	1580.00	644.21	0.00	644.41	16.42	3.63	435.06	389.95
6.600	430.00	0.00	0.00	639.70	1580.00	644.81	0.00	644.98	12.35	3.32	522.73	449.62
6.600	430.00	0.00	0.00	639.70	1580.00	644.86	0.00	645.03	12.50	3.34	473.30	446.86
7.000	440.00	0.00	0.00	639.70	1580.00	645.31	0.00	645.45	9.20	3.04	522.72	521.03
7.000	440.00	0.00	0.00	639.70	1580.00	645.36	0.00	645.50	9.11	3.01	525.79	523.58
8.000	630.00	0.00	0.00	639.30	1580.00	645.97	0.00	646.16	13.56	3.50	451.64	428.99
8.000	630.00	0.00	0.00	639.30	1580.00	646.01	0.00	646.20	13.24	3.47	455.28	434.20

FORM 1411 3-76 GB
PRINTED IN U.S.A.

DOWAGIAC RIVER 100 Y

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.000	1580.00	640.50	0.00	0.00	0.00	228.78	0.00
1.000	1580.00	640.50	0.00	0.00	0.00	92.10	0.00
2.000	1580.00	640.88	0.00	0.38	0.00	310.70	620.00
2.000	1580.00	640.90	0.02	0.40	0.02	122.44	620.00
3.100	1580.00	641.05	0.00	0.16	0.00	186.91	290.00
3.100	1580.00	641.08	0.04	0.18	0.04	187.01	290.00
3.200	1580.00	641.37	0.00	0.32	0.00	102.14	490.00
3.200	1580.00	641.40	0.03	0.31	0.03	102.14	490.00
3.300	1580.00	641.36	0.00	0.00	0.00	102.14	1.00
3.300	1580.00	641.39	0.03	0.00	0.03	102.14	1.00
3.400	1580.00	641.41	0.00	0.05	0.00	102.14	56.00
3.400	1580.00	641.44	0.03	0.05	0.03	102.14	56.00
3.500	1580.00	641.42	0.00	0.01	0.00	102.14	1.00
3.500	1580.00	641.45	0.03	0.01	0.03	102.14	1.00
3.600	1580.00	641.61	0.00	0.19	0.00	243.36	120.00
3.600	1580.00	641.64	0.03	0.19	0.03	243.49	120.00
5.100	1580.00	641.67	0.00	0.06	0.00	130.16	500.00
5.100	1580.00	641.70	0.02	0.06	0.02	80.00	500.00
5.200	1580.00	642.12	0.00	0.45	0.00	74.98	310.00
5.200	1580.00	642.16	0.04	0.47	0.04	74.98	310.00
5.300	1580.00	642.08	0.00	-0.04	0.00	74.98	1.00
5.300	1580.00	642.12	0.04	-0.04	0.04	74.98	1.00
5.400	1580.00	642.11	0.00	0.04	0.00	74.98	10.00
5.400	1580.00	642.16	0.04	0.04	0.04	74.98	10.00
5.500	1580.00	642.25	0.00	0.14	0.00	74.98	1.00
5.500	1580.00	642.29	0.04	0.13	0.04	74.98	1.00
5.600	1580.00	642.68	0.00	0.43	0.00	163.92	100.00
5.600	1580.00	642.71	0.03	0.42	0.03	110.00	100.00
6.000	1580.00	643.10	0.00	0.42	0.00	103.50	500.00
6.000	1580.00	643.17	0.07	0.46	0.07	104.85	500.00
6.100	1580.00	644.17	0.00	1.07	0.00	494.04	430.00
6.100	1580.00	644.21	0.04	1.04	0.04	114.23	430.00

FORM 1411 ½ GB
PRINTED IN U.S.A.

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
6.600	1580.00	644.81	0.00	0.64	0.00	186.32	430.00
6.600	1580.00	644.86	0.04	0.65	0.04	114.12	430.00
7.000	1580.00	645.31	0.00	0.49	0.00	116.49	440.00
7.000	1580.00	645.36	0.05	0.50	0.05	113.99	440.00
8.000	1580.00	645.97	0.00	0.66	0.00	107.48	630.00
8.000	1580.00	646.01	0.04	0.65	0.04	107.69	630.00

FORM 1411 ¼ G8
PRINTED IN U.S.A.

SUMMARY OF ERRORS AND SPECIAL NOTES

FORM 1411 X GB
PRINTED IN U.S.A.

FLOODWAY DATA, DOWAGIAC RIVER 100 Y
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
1.000	92.	558.	2.8	640.5	640.5	0.0
2.000	122.	568.	2.8	640.9	640.9	0.0
3.100	187.	774.	2.0	641.0	641.0	0.0
3.200	102.	497.	3.2	641.4	641.4	0.0
3.300	102.	487.	3.2	641.4	641.4	0.0
3.400	102.	491.	3.2	641.4	641.4	0.0
3.500	102.	502.	3.1	641.4	641.4	0.0
3.600	243.	1176.	1.3	641.6	641.6	0.0
5.100	80.	425.	3.7	641.7	641.7	0.0
5.200	75.	323.	4.9	642.1	642.1	0.0
5.300	75.	291.	5.4	642.1	642.1	0.0
5.400	75.	293.	5.4	642.1	642.1	0.0
5.500	75.	333.	4.7	642.3	642.3	0.0
5.600	110.	577.	2.7	642.7	642.7	0.0
6.000	105.	354.	4.5	643.2	643.1	0.1
6.100	114.	435.	3.6	644.2	644.2	0.0
6.600	114.	473.	3.3	644.8	644.8	0.0
7.000	114.	526.	3.0	645.4	645.3	0.1
8.000	108.	455.	3.5	646.0	646.0	0.0

FORM 1411 ¼ GB
PRINTED IN U.S.A.

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Niles, City of

3) WATERCOURSE: Dowagiac River

4) DOCUMENT TYPE: 100-year Natural

00BREAK00

THIS RUN EXECUTED 15-MAY-85 14:12:19

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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
**************************************************

C
T1      CITY OF NILES  FLOOD INSURANCE STUDY  AUGUST 1984
T2      JOB #1055F  DOWAG.HEC  100 YR. FLOOD PROFILE RUN
T3      DOWAGIAC RIVER  100 YR.
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.        4.        0.        0.  0.000000    0.00      0.0       0.    640.500     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
    150.000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

QT      1.000  1270.000  1490.000  1580.000  1800.000  1580.000     0.000     0.000     0.000     0.000
NC      0.100     0.100     0.040     0.100     0.300     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
        400' U/S OF THE ST. JOSEPH RIVER.
X1      1.000    15.000  2000.000  2092.100     0.000     0.000     0.000     0.000     0.000     0.000
GR    641.000  1977.000   639.200  2000.000   637.000  2001.000   636.300  2002.300   633.000  2015.600
GR    632.300  2030.600   633.600  2045.800   634.100  2059.600   635.000  2073.000   636.200  2082.000
GR    637.000  2082.900   639.400  2092.100   639.300  2117.900   642.000  2330.000   642.700  2620.000

        1020' U/S OF THE ST. JOSEPH RIVER.
X1      2.000    17.000  2000.000  2120.100   690.000   500.000   620.000     0.000     0.000     0.000
GR    644.000  1235.000   642.500  1710.000   642.000  1970.000   640.400  1977.600   640.300  2000.000
GR    636.500  2007.900   634.200  2012.000   633.700  2020.400   635.000  2041.100   635.900  2057.600
GR    635.200  2070.400   636.200  2088.000   636.600  2089.900   638.300  2091.200   639.100  2120.100
GR    642.000  2390.000   642.500  2630.000     0.000     0.000     0.000     0.000     0.000     0.000

NC      0.050     0.100     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
        490' D/S OF U.S. 31-33 BRIDGE.
X1      3.100     9.000  2000.000  2070.000   380.000   250.000   290.000     0.000     0.000     0.000
X3      0.000     0.000     0.000     0.000     0.000  2179.300     0.000     0.000     0.000     0.000
GR    646.000  1740.000   644.000  1800.000   644.000  1980.000   642.000  1990.000   638.000  2000.000
GR    633.900  2004.100   633.900  2065.900   638.000  2070.000   642.000  2460.000     0.000     0.000
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FORM 1411 ½ GB
PRINTED IN U.S.A.

NC	0.000	0.000	0.000	0.300	0.500	0.000	0.000	0.000	0.000	0.000
	D/S FACE OF U.S. 31-33 BRIDGE.									
X1	3.200	22.000	2027.600	2142.100	350.000	600.000	490.000	0.893	0.000	0.000
GR	649.300	2000.000	653.400	2019.700	654.100	2023.000	647.100	2027.600	638.400	2027.700
GR	638.000	2043.000	636.900	2061.000	635.000	2078.000	634.400	2083.500	634.400	2083.600
GR	635.500	2085.400	635.500	2085.500	635.800	2095.000	635.900	2103.000	636.600	2115.000
GR	636.500	2128.000	636.200	2142.000	647.400	2142.100	654.500	2147.000	654.500	2150.200
GR	653.900	2154.000	653.900	2174.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	1' INSIDE D/S FACE OF U.S. 31-33 BRIDGE.									
X1	3.300	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.893	0.000
BT	22.000	2000.000	649.300	630.000	2019.700	653.400	630.000	2023.000	654.100	630.000
BT	2027.600	654.100	647.100	2027.700	654.100	647.100	2043.000	653.200	647.100	2061.000
BT	653.300	647.200	2078.000	653.400	647.200	2083.500	653.400	647.200	2083.600	653.400
BT	634.400	2085.400	653.400	635.500	2085.500	653.400	647.300	2095.000	653.500	647.300
BT	2103.000	653.500	647.300	2115.000	653.500	647.400	2128.000	653.500	647.400	2142.000
BT	653.600	647.400	2142.100	653.600	647.400	2147.000	654.500	630.000	2150.200	654.500
BT	630.000	2154.000	653.900	630.000	2174.000	653.900	630.000	0.000	0.000	0.000
	1' INSIDE U/S FACE OF U.S. 31-33 BRIDGE.									
X1	3.400	0.000	0.000	0.000	56.000	56.000	56.000	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
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	U/S FACE OF U.S. 31-33 BRIDGE.									
X1	3.500	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	654.100	654.500	0.000
NC	0.100	0.100	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	120' U/S OF U.S. 31-33 BRIDGE.									
X1	3.600	14.000	2000.000	2130.000	120.000	120.000	120.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1904.700	0.000	0.000	0.000	0.000	0.000	0.000
GR	646.000	1780.000	644.000	1810.000	642.000	1850.000	640.000	1870.000	638.000	2000.000
GR	634.900	2003.100	634.900	2126.900	638.000	2130.000	642.000	2150.000	644.000	2180.000
GR	646.000	2200.000	648.000	2210.000	650.000	2220.000	650.000	2580.000	0.000	0.000
NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
	320' D/S OF CONRAIL R.R. BRIDGE.									
X1	5.100	12.000	2000.000	2080.000	400.000	600.000	500.000	0.000	0.000	0.000
GR	646.000	1830.000	644.000	1870.000	642.000	1970.000	640.000	2000.000	636.200	2003.800
GR	636.200	2076.200	640.000	2080.000	642.000	2110.000	644.000	2250.000	646.000	2260.000
GR	648.000	2270.000	650.000	2280.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.300	0.500	0.000	0.000	0.000	0.000	0.000

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	D/S FACE OF CONRAIL R.R. BRIDGE.									
X1	5.200	20.000	2016.700	2091.800	390.000	270.000	310.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	647.400	648.100	0.000
GR	651.700	2000.000	651.700	2012.000	651.600	2013.900	647.400	2016.700	638.000	2016.800
GR	638.000	2025.000	637.900	2032.000	637.700	2040.000	637.300	2051.200	637.300	2051.300
GR	637.100	2057.100	637.100	2057.200	638.400	2065.700	637.800	2075.100	638.200	2086.000
GR	638.600	2091.700	648.100	2091.800	651.700	2094.700	651.700	2096.100	651.800	2100.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	1' INSIDE D/S FACE OF CONRAIL R.R. BRIDGE.									
X1	5.300	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	19.000	2000.000	651.700	630.000	2012.000	651.600	630.000	2013.900	651.600	630.000
BT	2016.700	652.000	647.400	2016.800	652.000	647.400	2025.000	652.000	647.400	2032.000
BT	652.000	648.000	2040.000	652.000	648.000	2051.200	652.000	648.000	2051.300	652.000
BT	637.300	2057.100	652.000	637.100	2057.200	652.000	648.000	2065.700	652.000	648.000
BT	2075.100	651.900	648.000	2086.000	651.900	648.100	2091.800	651.900	648.100	2094.700
BT	651.700	630.000	2096.100	651.700	630.000	2100.000	651.800	630.000	0.000	0.000
	1' INSIDE U/S FACE OF CONRAIL R.R. BRIDGE.									
X1	5.400	0.000	0.000	0.000	10.000	10.000	10.000	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
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000
NC	0.000	0.050	0.040	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	U/S FACE OF CONRAIL R.R. BRIDGE.									
X1	5.500	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	647.400	648.100	0.000
	100' U/S OF CONRAIL R.R. BRIDGE.									
X1	5.600	11.000	2000.000	2110.000	100.000	100.000	100.000	0.000	0.000	0.000
GR	646.000	1700.000	644.000	1970.000	642.000	1990.000	640.000	2000.000	637.400	2002.600
GR	637.400	2107.400	640.000	2110.000	642.000	2130.000	644.000	2180.000	646.000	2230.000
GR	648.000	2280.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.100	0.100	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
	600' U/S OF CONRAIL R.R. BRIDGE.									
X1	6.000	18.000	2000.000	2115.800	450.000	550.000	500.000	0.000	0.000	0.000
GR	650.000	1620.000	646.000	1680.000	644.700	1974.200	644.400	2000.000	641.000	2006.200
GR	639.100	2011.800	638.500	2017.200	639.300	2026.600	638.500	2057.900	639.200	2078.400
GR	640.800	2089.000	642.300	2092.500	643.700	2115.800	644.000	2200.000	644.000	2310.000
GR	643.800	2400.000	643.800	2600.000	650.000	2900.000	0.000	0.000	0.000	0.000
	1030' U/S OF CONRAIL R.R. BRIDGE.									
X1	6.100	19.000	2000.000	2115.900	470.000	400.000	430.000	0.000	0.000	0.000
GR	650.000	1210.000	648.000	1220.000	646.000	1730.000	645.600	1600.000	645.200	2000.000
GR	641.700	2005.900	640.000	2012.300	639.400	2017.600	639.600	2026.500	639.400	2036.200
GR	639.200	2047.400	639.100	2058.000	639.600	2076.900	641.100	2087.900	641.700	2095.300
GR	643.500	2115.900	644.000	2225.000	644.000	2475.000	646.000	2715.000	0.000	0.000

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	1460' U/S OF CONRAIL R.R. BRIDGE.									
X1	6.600	17.000	2000.000	2115.900	470.000	400.000	430.000	0.000	0.000	0.000
GR	650.000	1520.000	648.000	1600.000	646.000	2000.000	642.400	2005.600	640.900	2012.800
GR	640.300	2018.000	639.900	2026.500	639.800	2036.400	639.700	2047.800	639.700	2058.000
GR	640.000	2075.400	641.400	2086.800	641.100	2098.100	643.300	2115.900	646.000	2245.000
GR	646.000	2635.000	648.000	2875.000	0.000	0.000	0.000	0.000	0.000	0.000
	1900' U/S OF CONRAIL R.R. BRIDGE.									
X1	7.000	18.000	2000.000	2116.000	470.000	430.000	440.000	0.000	0.000	0.000
GR	650.000	1910.000	646.500	1968.200	646.800	2000.000	643.000	2005.300	641.900	2013.400
GR	640.500	2023.700	640.100	2029.200	640.100	2036.500	639.900	2042.000	640.300	2048.200
GR	640.100	2064.100	640.400	2073.800	641.600	2085.600	640.600	2101.000	639.700	2108.800
GR	640.300	2115.600	643.100	2116.000	672.600	2150.300	0.000	0.000	0.000	0.000
	2530' U/S OF CONRAIL R.R. BRIDGE.									
X1	8.000	15.000	2000.000	2126.400	630.000	630.000	630.000	0.000	0.000	0.000
GR	650.000	1940.000	647.800	1974.000	648.300	2000.000	643.500	2008.200	642.400	2022.900
GR	640.500	2034.900	639.600	2045.100	639.500	2055.100	639.300	2065.000	640.500	2082.500
GR	641.500	2087.600	644.000	2088.800	645.100	2091.200	644.800	2106.300	649.400	2126.400
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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

  *PROF 1

  CCHV=   0.100 CEHV=   0.300
  *SECNO 1.000
          400' U/S OF THE ST. JOSEPH RIVER.
       1.00       8.20     640.50       0.00     640.50     640.62       0.12       0.00       0.00     639.20
     1580.          3.       1552.        25.        11.       558.        86.         0.         0.     639.40
       0.00       0.26       2.78       0.29      0.100      0.040      0.100      0.000     632.30    1983.39
   0.000528         0.         0.         0.          0          0          0       0.00     228.78    2212.17


  *SECNO 2.000
          1020' U/S OF THE ST. JOSEPH RIVER.
       2.00       7.18     640.88       0.00       0.00     640.99       0.11       0.37       0.00     640.30
     1580.          3.       1523.        54.        12.       561.       148.         9.         3.     639.10
       0.07       0.25       2.71       0.36      0.100      0.040      0.100      0.000     633.70    1975.31
   0.000703        690.        620.       500.          2          0          0       0.00     310.70    2286.01

  *SECNO 3.100

  3470 ENCROACHMENT STATIONS=        0.0     2179.3  TYPE=       1  TARGET=     2179.299
          490' D/S OF U.S. 31-33 BRIDGE.
       3.10       7.15     641.05       0.00       0.00     641.16       0.12       0.17       0.00     638.00
     1580.         10.       1407.       163.        12.       483.       272.        14.         5.     638.00
       0.10       0.83       2.91       0.60      0.050      0.040      0.100      0.000     633.90    1992.38
   0.000497        380.        290.       250.          2          0          0       0.00     186.91    2179.30


  CCHV=   0.300 CEHV=   0.500
  *SECNO 3.200
          D/S FACE OF U.S. 31-33 BRIDGE.
       3.20       6.97     641.37       0.00       0.00     641.52       0.16       0.34       0.02     647.10
     1580.          0.       1580.         0.         0.       494.         0.        22.         7.     647.40
       0.14       0.00       3.20       0.00      0.000      0.040      0.000      0.000     634.40    2024.71
   0.001009        350.        490.       600.          2          0          0       0.00     102.14    2126.85


  *SECNO 3.300

  3370 NORMAL BRIDGE,NRD= 22 MIN ELTRD=  649.30 MAX ELLC=  647.40

          1' INSIDE D/S FACE OF U.S. 31-33 BRIDGE.
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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
3.30	6.96	641.36	0.00	0.00	641.53	0.17	0.00	0.00	647.10
1580.	0.	1580.	0.	0.	484.	0.	22.	7.	647.40
0.14	0.00	3.27	0.00	0.000	0.033	0.000	0.000	634.40	2024.71
0.000836	1.	1.	1.	0	0	0	-10.61	102.14	2126.85

*SECNO 3.400

3370 NORMAL BRIDGE, NRD= 22 MIN ELTRD= 649.30 MAX ELLC= 647.40

1' INSIDE U/S FACE OF U.S. 31-33 BRIDGE.

3.40	7.01	641.41	0.00	0.00	641.58	0.16	0.05	0.00	647.10
1580.	0.	1580.	0.	0.	488.	0.	22.	7.	647.40
0.14	0.00	3.24	0.00	0.000	0.033	0.000	0.000	634.40	2024.71
0.000811	56.	56.	56.	0	0	0	-10.70	102.14	2126.85

*SECNO 3.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 654.10 ELREA= 654.50

U/S FACE OF U.S. 31-33 BRIDGE.

3.50	7.02	641.42	0.00	0.00	641.58	0.16	0.00	0.00	647.10
1580.	0.	1580.	0.	0.	499.	0.	22.	7.	647.40
0.14	0.00	3.17	0.00	0.000	0.040	0.000	0.000	634.40	2024.71
0.000977	1.	1.	1.	0	0	0	0.00	102.14	2126.85

*SECNO 3.600

3470 ENCROACHMENT STATIONS= 1904.7 2580.0 TYPE= 1 TARGET= -1904.700

120' U/S OF U.S. 31-33 BRIDGE.

3.60	6.71	641.61	0.00	0.00	641.65	0.04	0.04	0.03	638.00
1580.	107.	1464.	9.	274.	863.	33.	25.	7.	638.00
0.16	0.39	1.70	0.28	0.100	0.040	0.100	0.000	634.90	1904.70
0.000172	120.	120.	120.	2	0	0	0.00	243.36	2148.06

CCHV= 0.100 CEHV= 0.300

*SECNO 5.100

320' D/S OF CONRAIL R.R. BRIDGE.

5.10	5.47	641.67	0.00	0.00	641.88	0.21	0.18	0.05	640.00
1580.	9.	1561.	9.	21.	423.	21.	34.	9.	640.00
0.20	0.44	3.69	0.44	0.100	0.040	0.100	0.000	636.20	1974.92
0.001125	400.	500.	600.	2	0	0	0.00	130.16	2105.08

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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 5.200

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 647.40 ELREA= 648.10

D/S FACE OF CONRAIL R.R. BRIDGE.

5.20	5.02	642.12	0.00	0.00	642.50	0.38	0.53	0.09	647.40
1580.	0.	1580.	0.	0.	320.	0.	37.	10.	648.10
0.22	0.00	4.94	0.00	0.000	0.040	0.000	0.000	637.10	2016.76
0.002912	390.	310.	270.	2	0	0	0.00	74.98	2091.74

*SECNO 5.300

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD= 651.60 MAX ELLC= 648.10

1' INSIDE D/S FACE OF CONRAIL R.R. BRIDGE.

5.30	4.98	642.08	0.00	0.00	642.54	0.47	0.00	0.04	647.40
1580.	0.	1580.	0.	0.	288.	0.	37.	10.	648.10
0.22	0.00	5.48	0.00	0.000	0.033	0.000	0.000	637.10	2016.76
0.002979	1.	1.	1.	2	0	0	-28.51	74.98	2091.74

*SECNO 5.400

3370 NORMAL BRIDGE,NRD= 19 MIN ELTRD= 651.60 MAX ELLC= 648.10

1' INSIDE U/S FACE OF CONRAIL R.R. BRIDGE.

5.40	5.01	642.11	0.00	0.00	642.57	0.46	0.03	0.00	647.40
1580.	0.	1580.	0.	0.	290.	0.	37.	10.	648.10
0.22	0.00	5.44	0.00	0.000	0.033	0.000	0.000	637.10	2016.76
0.002916	10.	10.	10.	0	0	0	-28.68	74.98	2091.74

*SECNO 5.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 647.40 ELREA= 648.10

U/S FACE OF CONRAIL R.R. BRIDGE.

5.50	5.15	642.25	0.00	0.00	642.61	0.36	0.00	0.03	647.40
1580.	0.	1580.	0.	0.	330.	0.	37.	10.	648.10
0.22	0.00	4.79	0.00	0.000	0.040	0.000	0.000	637.10	2016.75
0.002635	1.	1.	1.	2	0	0	0.00	74.98	2091.74

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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

*SECNO 5.600
          100' U/S OF CONRAIL R.R. BRIDGE.
      5.60      5.28    642.68      0.00      0.00    642.79      0.11      0.11      0.07    640.00
    1580.         9.    1535.        36.       19.     574.        40.       38.        10.    640.00
      0.23      0.46      2.67      0.92     0.100     0.040     0.050     0.000    637.40   1983.17
 0.000586      100.      100.      100.         2         0         0      0.00    163.92   2147.08

CCHV=   0.100 CEHV=   0.300
*SECNO 6.000
          600' U/S OF CONRAIL R.R. BRIDGE.
      6.00      4.60    643.10      0.00      0.00    643.42      0.32      0.57      0.06    644.40
    1580.         0.    1580.         0.        0.     346.         0.       43.        12.    643.70
      0.26      0.00      4.56      0.00     0.000     0.040     0.000     0.000    638.50   2002.36
 0.003067      450.      500.      550.         2         0         0      0.00    103.50   2105.87

*SECNO 6.100
          1030' U/S OF CONRAIL R.R. BRIDGE.
      6.10      5.07    644.17      0.00      0.00    644.37      0.20      0.94      0.01    645.20
    1580.         0.    1556.        24.        0.     431.        91.       48.        15.    643.50
      0.29      0.00      3.61      0.26     0.000     0.040     0.100     0.000    639.10   2001.73
 0.001628      470.      430.      400.         2         0         0      0.00    494.04   2495.78

*SECNO 6.600
          1460' U/S OF CONRAIL R.R. BRIDGE.
      6.60      5.11    644.81      0.00      0.00    644.98      0.17      0.61      0.00    646.00
    1580.         0.    1556.        24.        0.     468.        55.       53.        18.    643.30
      0.33      0.00      3.32      0.43     0.000     0.040     0.100     0.000    639.70   2001.85
 0.001235      470.      430.      400.         2         0         0      0.00    186.32   2188.17

*SECNO 7.000
          1900' U/S OF CONRAIL R.R. BRIDGE.
      7.00      5.61    645.31      0.00      0.00    645.45      0.14      0.47      0.00    646.80
    1580.         0.    1579.         1.        0.     520.         3.       58.        20.    643.10
      0.37      0.00      3.04      0.40     0.000     0.040     0.100     0.000    639.70   2002.08
 0.000920      470.      440.      430.         2         0         0      0.00    116.49   2118.57

*SECNO 8.000
          2530' U/S OF CONRAIL R.R. BRIDGE.
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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	
8.00	6.67	645.97	0.00	0.00	646.16	0.19	0.70	0.01	648.30	
1580.	0.	1580.	0.	0.	452.	0.	65.	21.	649.40	
0.42	0.00	3.50	0.00	0.000	0.040	0.000	0.000	639.30	2003.97	
0.001356	630.	630.	630.	1	0	0	0.00	107.48	2111.45	

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1) COUNTY: Berrien

2) STUDY NAME: Niles, City of

3) WATERCOURSE: Dowagiac River

4) DOCUMENT TYPE: Summary



THIS RUN EXECUTED 15-MAY-85 14:09:31

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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
****

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

DOWAGIAC RIVER 100 YR

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	632.30	1270.00	640.50	0.00	640.58	3.41	2.24	655.01	687.35
1.000	0.00	0.00	0.00	632.30	1490.00	640.50	0.00	640.61	4.70	2.62	655.01	687.35
1.000	0.00	0.00	0.00	632.30	1580.00	640.50	0.00	640.62	5.28	2.78	655.01	687.35
1.000	0.00	0.00	0.00	632.30	1800.00	640.50	0.00	640.65	6.86	3.17	655.01	687.35
2.000	620.00	0.00	0.00	633.70	1270.00	640.75	0.00	640.83	5.04	2.26	681.97	565.53
2.000	620.00	0.00	0.00	633.70	1490.00	640.84	0.00	640.94	6.46	2.59	709.01	586.45
2.000	620.00	0.00	0.00	633.70	1580.00	640.88	0.00	640.99	7.03	2.71	721.29	595.92
2.000	620.00	0.00	0.00	633.70	1800.00	640.99	0.00	641.12	8.40	3.01	754.21	621.20
3.100	290.00	0.00	0.00	633.90	1270.00	640.87	0.00	640.95	3.55	2.42	735.07	674.37
3.100	290.00	0.00	0.00	633.90	1490.00	640.99	0.00	641.10	4.56	2.77	756.78	697.80
3.100	290.00	0.00	0.00	633.90	1580.00	641.05	0.00	641.16	4.97	2.91	766.71	708.65
3.100	290.00	0.00	0.00	633.90	1800.00	641.18	0.00	641.33	5.97	3.23	792.19	736.81
3.200	490.00	0.00	0.00	634.40	1270.00	641.10	0.00	641.22	7.80	2.72	467.41	454.88
3.200	490.00	0.00	0.00	634.40	1490.00	641.29	0.00	641.43	9.45	3.06	486.17	484.63
3.200	490.00	0.00	0.00	634.40	1580.00	641.37	0.00	641.52	10.09	3.20	494.09	497.39
3.200	490.00	0.00	0.00	634.40	1800.00	641.56	0.00	641.75	11.54	3.50	513.89	529.82
3.300	1.00	649.30	647.40	634.40	1270.00	641.10	0.00	641.22	6.43	2.78	457.30	500.72
3.300	1.00	649.30	647.40	634.40	1490.00	641.29	0.00	641.44	7.82	3.13	475.75	532.68
3.300	1.00	649.30	647.40	634.40	1580.00	641.36	0.00	641.53	8.36	3.27	483.54	546.37
3.300	1.00	649.30	647.40	634.40	1800.00	641.56	0.00	641.76	9.59	3.58	503.04	581.11
3.400	56.00	649.30	647.40	634.40	1270.00	641.14	0.00	641.26	6.27	2.75	461.06	507.19
3.400	56.00	649.30	647.40	634.40	1490.00	641.33	0.00	641.48	7.59	3.10	480.31	540.67
3.400	56.00	649.30	647.40	634.40	1580.00	641.41	0.00	641.58	8.11	3.24	488.40	554.96
3.400	56.00	649.30	647.40	634.40	1800.00	641.61	0.00	641.81	9.27	3.54	508.59	591.12
3.500	1.00	0.00	0.00	634.40	1270.00	641.15	0.00	641.26	7.60	2.70	471.18	460.80
3.500	1.00	0.00	0.00	634.40	1490.00	641.34	0.00	641.48	9.17	3.04	490.80	492.07
3.500	1.00	0.00	0.00	634.40	1580.00	641.42	0.00	641.58	9.77	3.17	499.04	505.43
3.500	1.00	0.00	0.00	634.40	1800.00	641.63	0.00	641.81	11.10	3.46	520.19	540.29

FORM 1411 X 68
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SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	01K
3.600	120.00	0.00	0.00	634.90	1270.00	641.29	0.00	641.32	1.33	1.45	1091.08	1100.24
3.600	120.00	0.00	0.00	634.90	1490.00	641.52	0.00	641.55	1.61	1.63	1146.67	1174.50
3.600	120.00	0.00	0.00	634.90	1580.00	641.61	0.00	641.65	1.72	1.70	1170.02	1206.24
3.600	120.00	0.00	0.00	634.90	1800.00	641.85	0.00	641.90	1.96	1.86	1228.26	1286.75
5.100	500.00	0.00	0.00	636.20	1270.00	641.34	0.00	641.49	9.12	3.18	423.45	420.56
5.100	500.00	0.00	0.00	636.20	1490.00	641.57	0.00	641.77	10.68	3.55	452.64	455.86
5.100	500.00	0.00	0.00	636.20	1580.00	641.67	0.00	641.88	11.25	3.69	465.27	470.98
5.100	500.00	0.00	0.00	636.20	1800.00	641.91	0.00	642.16	12.49	4.00	497.65	509.39
5.200	310.00	0.00	0.00	637.10	1270.00	641.71	0.00	642.01	25.91	4.39	289.41	249.49
5.200	310.00	0.00	0.00	637.10	1490.00	642.00	0.00	642.36	28.30	4.79	311.09	280.10
5.200	310.00	0.00	0.00	637.10	1580.00	642.12	0.00	642.50	29.12	4.94	319.83	292.79
5.200	310.00	0.00	0.00	637.10	1800.00	642.40	0.00	642.83	30.83	5.28	340.89	324.16
5.300	1.00	651.60	648.10	637.10	1270.00	641.68	0.00	642.05	26.21	4.87	260.82	248.08
5.300	1.00	651.60	648.10	637.10	1490.00	641.96	0.00	642.40	28.86	5.31	280.36	277.36
5.300	1.00	651.60	648.10	637.10	1580.00	642.08	0.00	642.54	29.79	5.48	288.25	289.46
5.300	1.00	651.60	648.10	637.10	1800.00	642.35	0.00	642.88	31.79	5.86	307.23	319.23
5.400	10.00	651.60	648.10	637.10	1270.00	641.71	0.00	642.08	25.66	4.84	262.62	250.74
5.400	10.00	651.60	648.10	637.10	1490.00	642.00	0.00	642.43	28.24	5.28	282.33	280.38
5.400	10.00	651.60	648.10	637.10	1580.00	642.11	0.00	642.57	29.16	5.44	290.28	292.61
5.400	10.00	651.60	648.10	637.10	1800.00	642.39	0.00	642.92	31.12	5.82	309.39	322.68
5.500	1.00	0.00	0.00	637.10	1270.00	641.82	0.00	642.10	23.73	4.27	297.46	260.71
5.500	1.00	0.00	0.00	637.10	1490.00	642.13	0.00	642.46	25.68	4.65	320.66	294.00
5.500	1.00	0.00	0.00	637.10	1580.00	642.25	0.00	642.61	26.35	4.79	330.02	307.81
5.500	1.00	0.00	0.00	637.10	1800.00	642.55	0.00	642.96	27.71	5.11	352.51	341.93
5.600	100.00	0.00	0.00	637.40	1270.00	642.17	0.00	642.26	5.46	2.41	553.75	543.54
5.600	100.00	0.00	0.00	637.40	1490.00	642.54	0.00	642.64	5.77	2.60	609.43	620.35
5.600	100.00	0.00	0.00	637.40	1580.00	642.68	0.00	642.79	5.86	2.67	633.07	652.69
5.600	100.00	0.00	0.00	637.40	1800.00	643.03	0.00	643.15	6.01	2.83	692.85	734.00
6.000	500.00	0.00	0.00	638.50	1270.00	642.57	0.00	642.86	30.03	4.32	293.69	231.74
6.000	500.00	0.00	0.00	638.50	1490.00	642.95	0.00	643.26	30.61	4.50	330.90	269.29
6.000	500.00	0.00	0.00	638.50	1580.00	643.10	0.00	643.42	30.67	4.56	346.33	285.29
6.000	500.00	0.00	0.00	638.50	1800.00	643.46	0.00	643.80	30.40	4.67	385.07	326.47
6.100	430.00	0.00	0.00	639.10	1270.00	643.65	0.00	643.84	17.46	3.41	374.98	303.98
6.100	430.00	0.00	0.00	639.10	1490.00	644.03	0.00	644.23	16.75	3.57	452.23	364.04
6.100	430.00	0.00	0.00	639.10	1580.00	644.17	0.00	644.37	16.28	3.61	522.26	391.56
6.100	430.00	0.00	0.00	639.10	1800.00	644.50	0.00	644.70	15.01	3.65	691.58	464.63
6.600	430.00	0.00	0.00	639.70	1270.00	644.32	0.00	644.46	12.30	3.06	436.61	362.08
6.600	430.00	0.00	0.00	639.70	1490.00	644.68	0.00	644.84	12.27	3.25	498.72	425.45
6.600	430.00	0.00	0.00	639.70	1580.00	644.81	0.00	644.98	12.35	3.32	522.73	449.62
6.600	430.00	0.00	0.00	639.70	1800.00	645.10	0.00	645.29	12.66	3.51	579.14	505.89

FORM 1411 X GB
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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
7.000	440.00	0.00	0.00	639.70	1270.00	644.80	0.00	644.92	8.70	2.75	464.05	430.54
7.000	440.00	0.00	0.00	639.70	1490.00	645.17	0.00	645.31	9.03	2.95	506.83	495.93
7.000	440.00	0.00	0.00	639.70	1580.00	645.31	0.00	645.45	9.20	3.04	522.72	521.03
7.000	440.00	0.00	0.00	639.70	1800.00	645.62	0.00	645.78	9.65	3.24	558.64	579.32
8.000	630.00	0.00	0.00	639.30	1270.00	645.44	0.00	645.60	13.19	3.22	394.46	349.75
8.000	630.00	0.00	0.00	639.30	1490.00	645.83	0.00	646.01	13.41	3.42	436.05	406.91
8.000	630.00	0.00	0.00	639.30	1580.00	645.97	0.00	646.16	13.56	3.50	451.64	428.99
8.000	630.00	0.00	0.00	639.30	1800.00	646.31	0.00	646.52	13.97	3.69	487.80	481.52

FORM 1411 % GB
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DOWAGIAC RIVER 100 YR

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.000	1270.00	640.50	0.00	0.00	0.00	228.78	0.00
1.000	1490.00	640.50	0.00	0.00	0.00	228.78	0.00
1.000	1580.00	640.50	0.00	0.00	0.00	228.78	0.00
1.000	1800.00	640.50	0.00	0.00	0.00	228.78	0.00
2.000	1270.00	640.75	0.00	0.25	0.00	298.07	620.00
2.000	1490.00	640.84	0.09	0.34	0.00	306.81	620.00
2.000	1580.00	640.88	0.04	0.38	0.00	310.70	620.00
2.000	1800.00	640.99	0.10	0.49	0.00	320.90	620.00
3.100	1270.00	640.87	0.00	0.12	0.00	186.49	290.00
3.100	1490.00	640.99	0.12	0.15	0.00	186.78	290.00
3.100	1580.00	641.05	0.05	0.16	0.00	186.91	290.00
3.100	1800.00	641.18	0.14	0.20	0.00	187.26	290.00
3.200	1270.00	641.10	0.00	0.23	0.00	102.14	490.00
3.200	1490.00	641.29	0.18	0.30	0.00	102.14	490.00
3.200	1580.00	641.37	0.08	0.32	0.00	102.14	490.00
3.200	1800.00	641.56	0.19	0.38	0.00	102.15	490.00
3.300	1270.00	641.10	0.00	0.00	0.00	102.14	1.00
3.300	1490.00	641.29	0.18	0.00	0.00	102.14	1.00
3.300	1580.00	641.36	0.08	0.00	0.00	102.14	1.00
3.300	1800.00	641.56	0.19	0.00	0.00	102.15	1.00
3.400	1270.00	641.14	0.00	0.04	0.00	102.14	56.00
3.400	1490.00	641.33	0.19	0.05	0.00	102.14	56.00
3.400	1580.00	641.41	0.08	0.05	0.00	102.14	56.00
3.400	1800.00	641.61	0.20	0.06	0.00	102.15	56.00
3.500	1270.00	641.15	0.00	0.01	0.00	102.14	1.00
3.500	1490.00	641.34	0.19	0.01	0.00	102.14	1.00
3.500	1580.00	641.42	0.08	0.01	0.00	102.14	1.00
3.500	1800.00	641.63	0.20	0.01	0.00	102.15	1.00
3.600	1270.00	641.29	0.00	0.14	0.00	241.74	120.00
3.600	1490.00	641.52	0.23	0.17	0.00	242.88	120.00
3.600	1580.00	641.61	0.10	0.19	0.00	243.36	120.00
3.600	1800.00	641.85	0.24	0.22	0.00	244.56	120.00
5.100	1270.00	641.34	0.00	0.05	0.00	120.14	500.00
5.100	1490.00	641.57	0.24	0.06	0.00	127.22	500.00
5.100	1580.00	641.67	0.10	0.06	0.00	130.16	500.00
5.100	1800.00	641.91	0.24	0.06	0.00	137.42	500.00

FORM 1411 5 GB
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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
5.200	1270.00	641.71	0.00	0.37	0.00	74.97	310.00
5.200	1490.00	642.00	0.29	0.43	0.00	74.98	310.00
5.200	1580.00	642.12	0.12	0.45	0.00	74.98	310.00
5.200	1800.00	642.40	0.28	0.48	0.00	74.99	310.00
5.300	1270.00	641.68	0.00	-0.03	0.00	74.97	1.00
5.300	1490.00	641.96	0.28	-0.04	0.00	74.98	1.00
5.300	1580.00	642.08	0.11	-0.04	0.00	74.98	1.00
5.300	1800.00	642.35	0.27	-0.05	0.00	74.99	1.00
5.400	1270.00	641.71	0.00	0.03	0.00	74.97	10.00
5.400	1490.00	642.00	0.29	0.04	0.00	74.98	10.00
5.400	1580.00	642.11	0.12	0.04	0.00	74.98	10.00
5.400	1800.00	642.39	0.28	0.04	0.00	74.99	10.00
5.500	1270.00	641.82	0.00	0.11	0.00	74.97	1.00
5.500	1490.00	642.13	0.31	0.13	0.00	74.98	1.00
5.500	1580.00	642.25	0.12	0.14	0.00	74.98	1.00
5.500	1800.00	642.55	0.30	0.16	0.00	74.99	1.00
5.600	1270.00	642.17	0.00	0.35	0.00	146.00	100.00
5.600	1490.00	642.54	0.37	0.41	0.00	158.79	100.00
5.600	1580.00	642.68	0.15	0.43	0.00	163.92	100.00
5.600	1800.00	643.03	0.35	0.48	0.00	176.22	100.00
6.000	1270.00	642.57	0.00	0.40	0.00	93.64	500.00
6.000	1490.00	642.95	0.38	0.41	0.00	100.71	500.00
6.000	1580.00	643.10	0.15	0.42	0.00	103.50	500.00
6.000	1800.00	643.46	0.36	0.42	0.00	110.20	500.00
6.100	1270.00	643.65	0.00	1.09	0.00	147.52	430.00
6.100	1490.00	644.03	0.38	1.08	0.00	476.48	430.00
6.100	1580.00	644.17	0.14	1.07	0.00	494.04	430.00
6.100	1800.00	644.50	0.33	1.05	0.00	534.12	430.00
6.600	1270.00	644.32	0.00	0.66	0.00	161.90	430.00
6.600	1490.00	644.68	0.36	0.65	0.00	179.85	430.00
6.600	1580.00	644.81	0.13	0.64	0.00	186.32	430.00
6.600	1800.00	645.10	0.29	0.60	0.00	200.71	430.00
7.000	1270.00	644.80	0.00	0.48	0.00	115.19	440.00
7.000	1490.00	645.17	0.37	0.49	0.00	116.14	440.00
7.000	1580.00	645.31	0.14	0.49	0.00	116.49	440.00
7.000	1800.00	645.62	0.31	0.51	0.00	117.27	440.00
8.000	1270.00	645.44	0.00	0.64	0.00	104.20	630.00
8.000	1490.00	645.83	0.39	0.65	0.00	106.60	630.00
8.000	1580.00	645.97	0.15	0.66	0.00	107.48	630.00
8.000	1800.00	646.31	0.33	0.69	0.00	109.51	630.00

FORM 1411 ¾ GB

PRINTED IN U.S.A.

SUMMARY OF ERRORS AND SPECIAL NOTES

FORM 1411 ½ GB

PRINTED IN U.S.A.

FLOOD INSURANCE ZONE DATA FOR DOWAGIAC RIVER 100 YR

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10	2	0.2
1.000	0.	0.00	0.00	0.00
2.000	620.	-0.13	-0.04	0.10
3.100	910.	-0.18	-0.05	0.14
3.200	1400.	-0.26	-0.08	0.19
3.300	1401.	-0.26	-0.08	0.19
3.400	1457.	-0.27	-0.08	0.20
3.500	1458.	-0.28	-0.08	0.20
3.600	1578.	-0.33	-0.10	0.24
5.100	2078.	-0.33	-0.10	0.24
5.200	2388.	-0.41	-0.12	0.28
5.300	2389.	-0.40	-0.11	0.27
5.400	2399.	-0.40	-0.12	0.28
5.500	2400.	-0.43	-0.12	0.30
5.600	2500.	-0.51	-0.15	0.35
6.000	3000.	-0.53	-0.15	0.36
6.100	3430.	-0.52	-0.14	0.33
6.600	3860.	-0.49	-0.13	0.29
7.000	4300.	-0.51	-0.14	0.31
8.000	4930.	-0.53	-0.15	0.33
WEIGHTED AVG FOR REACH		-0.37	-0.10	0.25

FHF FOR THE REACH = 005 WITH 100.0 PERCENT OF THE REACH WITHIN 0.5 FEET
ZONE FOR THE REACH = A 1

FORM 1411 ½ GB
PRINTED IN U.S.A.



1) COUNTY: Berrien

2) STUDY NAME: Niles, City of

3) WATERCOURSE: St. Joseph

4) DOCUMENT TYPE: 100-year Natural



B1102LEX.

THIS RUN EXECUTED 29-MAY-85 08:44:26

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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
**************************************************

C
T1      CITY OF NILES FLOOD INSURANCE STUDY APRIL 1985 JTP
T2      JOB # 1055F STJOEENC.HEC [SHEFF]  *SLOPE AREA START*
T3      ST JOSEPH RIVER    100 YR-FLOOD  ***ENCROACHMENT RUN***

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.      4.        0.        0.  0.000440      0.00      0.0       0.    639.000     0.000

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

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150.000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

QT      6.000  15700.000  20200.000  22000.000  26400.000  22000.000  19900.000      0.000      0.000      0.000
NC      0.100      0.100      0.034      0.100      0.300      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
        4430' D/S OF CONRAIL R.R. BRIDGE.
X1      1.000     17.000   2000.000   2395.600      0.000      0.000      0.000      0.000      0.000      0.000
GR    654.400   1972.100    645.900   2000.000    638.600   2000.100    637.300   2006.900    633.600   2050.400
GR    631.000   2106.300    629.700   2167.300    630.900   2231.600    631.600   2260.800    632.000   2308.700
GR    633.600   2366.600    637.000   2391.700    641.900   2395.600    642.600   2401.700    644.000   2480.000
GR    646.000   2680.000    648.000   3040.000      0.000      0.000      0.000      0.000      0.000      0.000

        3580' D/S OF CONRAIL R.R. BRIDGE.
X1      2.000     12.000   2011.000   2325.900    940.000    850.000    850.000      0.000      0.000      0.000
GR    659.400   2000.000    639.200   2011.000    637.700   2011.100    630.800   2042.000    629.300   2072.600
GR    638.200   2159.700    632.000   2230.400    634.900   2292.900    637.500   2314.600    642.500   2325.900
GR    643.400   2341.800    646.000   2370.000      0.000      0.000      0.000      0.000      0.000      0.000

        2650'D/S OF CONRAIL R.R. BRIDGE.
X1      2.500     11.000   2000.000   2260.000   1050.000    770.000    950.000      0.000      0.000      0.000
GR    660.000   1950.000    650.000   1970.000    640.600   2000.000    636.000   2020.000    631.500   2080.000
GR    630.000   2130.000    630.500   2180.000    633.000   2240.000    640.000   2260.000    650.000   2360.000
GR    660.000   2420.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

        1710' D/S OF CONRAIL R.R. BRIDGE.
X1      3.000     14.000   2000.000   2305.600   1040.000    840.000    940.000      0.000      0.000      0.000
GR    650.000   1540.000    644.000   1580.000    641.200   1933.800    641.900   2000.000    639.500   2004.500
GR    637.700   2006.100    632.400   2054.500    632.100   2101.100    631.100   2169.000    630.800   2226.200
GR    631.000   2279.200    637.400   2305.600    653.400   2330.200    654.600   2344.000      0.000      0.000
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ET	0.000	9.100	9.100	9.100	9.100	0.000	0.000	0.000	1968.000	2650.000
	580' D/S OF CONRAIL R.R. BRIDGE.									
X1	4.000	16.000	2000.000	2273.500	940.000	1260.000	1130.000	0.000	0.000	0.000
GR	647.800	1440.000	646.000	1700.000	644.000	1900.000	644.200	1982.400	643.300	2000.000
GR	637.600	2010.100	632.900	2032.300	629.700	2057.300	625.600	2121.500	627.300	2173.800
GR	633.100	2214.000	637.800	2243.200	655.700	2273.500	656.000	2320.000	658.000	2610.000
GR	660.000	2650.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.100	0.100	0.034	0.300	0.500	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
	D/S FACE OF CONRAIL R.R. BRIDGE.									
X1	5.200	40.000	2029.000	2660.000	500.000	610.000	580.000	0.866	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	686.800	686.800	0.000
GR	685.200	2000.000	685.000	2029.000	673.300	2031.000	673.300	2033.900	672.000	2034.000
GR	649.600	2060.000	647.900	2081.000	637.000	2108.000	634.400	2124.000	634.600	2137.000
GR	635.800	2154.000	636.600	2182.000	636.600	2182.100	635.900	2188.000	635.900	2188.100
GR	635.900	2190.000	635.200	2204.000	632.600	2225.000	632.200	2244.000	633.200	2265.000
GR	635.800	2285.000	637.100	2305.000	637.100	2305.100	636.400	2311.000	636.400	2311.100
GR	636.400	2313.100	635.500	2330.000	630.600	2347.000	629.700	2370.000	635.300	2397.000
GR	636.900	2410.000	643.000	2426.000	643.000	2426.100	644.300	2432.000	644.300	2432.100
GR	644.300	2434.100	646.000	2480.000	648.000	2560.000	650.000	2610.000	686.000	2660.000
NC	0.000	0.000	0.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	1' INSIDE D/S FACE OF CONRAIL R.R. BRIDGE.									
X1	5.300	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.866	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	686.800	686.800	0.000
BT	40.000	2000.000	686.800	628.000	2029.000	686.800	628.000	2031.000	673.300	628.000
BT	2033.900	673.300	628.000	2034.000	672.000	628.000	2060.000	686.800	651.600	2081.000
BT	686.800	651.600	2108.000	686.800	651.600	2124.000	686.800	651.600	2137.000	686.400
BT	651.600	2154.000	686.800	651.600	2182.000	686.800	651.600	2182.100	686.800	636.600
BT	2188.000	686.800	635.900	2188.100	686.800	651.600	2190.000	686.800	651.600	2204.000
BT	686.800	651.600	2225.000	686.800	651.600	2244.000	686.800	651.600	2265.000	686.800
BT	651.600	2285.000	686.800	651.600	2305.000	686.800	651.600	2305.100	686.800	637.100
BT	2311.000	686.800	636.400	2311.100	686.800	651.600	2313.100	686.800	651.600	2330.000
BT	686.800	651.600	2347.000	686.800	651.600	2370.000	686.800	651.600	2397.000	686.800
BT	651.600	2410.000	686.800	651.600	2426.000	686.800	651.600	2426.100	686.800	643.000
BT	2432.000	686.800	644.300	2432.100	686.800	651.600	2434.100	686.800	651.600	2480.000
BT	686.800	651.600	2560.000	686.800	651.600	2610.000	686.800	651.600	2660.000	686.000
BT	628.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	1' INSIDE U/S FACE OF CONRAIL R.R. BRIDGE.									
X1	5.400	0.000	0.000	0.000	28.400	28.400	28.400	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	686.800	686.800	0.000
NC	0.000	0.000	0.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	U/S FACE OF CONRAIL R.R. BRIDGE.									
X1	5.500	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	686.800	686.800	0.000

ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	0.000	9.100	0.000	1933.000	3250.000
NH	7.000	0.100	2000.000	0.034	2310.000	0.100	2365.000	10.000	2450.000	0.100
NH	2860.000	10.000	2920.000	0.100	3250.000	0.000	0.000	0.000	0.000	0.000
300' U/S OF CONRAIL R.R. BRIDGE.										
X1	5.600	20.000	2000.000	2310.000	160.000	440.000	300.000	0.000	0.000	0.000
GR	650.000	1790.000	644.000	1830.000	644.000	1900.000	644.000	1960.000	642.000	1990.000
GR	642.000	2000.000	633.000	2060.000	632.000	2140.000	632.000	2270.000	637.000	2300.000
GR	642.000	2310.000	642.000	2320.000	644.000	2340.000	645.000	2365.000	645.000	2450.000
GR	646.000	2480.000	647.300	2860.000	647.500	2920.000	648.000	3225.000	650.000	3250.000
NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
610' U/S OF CONRAIL R.R. BRIDGE.										
X1	6.000	18.000	2000.000	2315.800	300.000	310.000	310.000	0.000	0.000	0.000
GR	670.000	1600.000	654.000	1660.000	652.000	1880.000	651.100	1957.800	648.200	2000.000
GR	638.400	2012.900	637.000	2021.600	632.700	2046.900	632.000	2071.700	631.400	2110.100
GR	632.500	2195.800	634.300	2254.900	634.900	2285.100	636.900	2315.800	647.000	2330.100
GR	647.000	2358.700	648.000	2550.000	650.000	3070.000	0.000	0.000	0.000	0.000
NH	7.000	0.100	2000.000	0.034	2290.000	0.100	2350.000	10.000	2410.000	0.100
NH	2570.000	10.000	2780.000	0.100	3000.000	0.000	0.000	0.000	0.000	0.000
1130' U/S OF CONRAIL R.R. BRIDGE.										
X1	6.500	18.000	2000.000	2290.000	530.000	510.000	520.000	0.000	0.000	0.000
GR	670.000	1950.000	660.000	1970.000	650.000	1990.000	645.000	2000.000	634.000	2040.000
GR	633.000	2090.000	633.000	2145.000	633.000	2200.000	634.000	2250.000	642.000	2290.000
GR	644.000	2300.000	645.000	2350.000	645.000	2410.000	646.000	2470.000	647.500	2570.000
GR	648.000	2620.000	648.000	2780.000	650.000	3000.000	0.000	0.000	0.000	0.000
420' D/S OF MAIN ST. BRIDGE.										
X1	7.000	16.000	2037.300	2359.300	620.000	420.000	540.000	0.000	0.000	0.000
GR	676.800	2000.000	642.600	2037.300	642.000	2042.300	641.300	2046.000	635.200	2067.800
GR	636.200	2102.300	636.600	2152.000	637.700	2259.700	638.000	2259.700	639.400	2309.200
GR	641.900	2341.700	643.100	2352.000	646.800	2359.300	649.200	2393.200	650.000	2540.000
GR	652.000	2830.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000
D/S FACE OF MAIN ST. BRIDGE.										
X1	8.200	49.000	2019.000	2400.000	440.000	400.000	420.000	0.940	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	672.000	2000.000	668.800	2000.100	666.200	2019.000	651.200	2019.100	649.400	2028.000
GR	642.200	2036.000	640.400	2042.000	637.400	2048.000	635.400	2057.000	633.300	2066.000
GR	632.500	2071.400	629.500	2080.000	626.200	2089.000	631.000	2100.000	632.600	2105.000
GR	633.400	2107.100	633.200	2115.000	632.300	2118.000	629.500	2125.000	626.700	2131.000
GR	626.800	2144.000	626.900	2156.000	629.800	2166.000	632.600	2176.000	635.100	2185.000
GR	635.100	2192.000	635.200	2196.000	636.500	2204.000	636.400	2209.000	636.300	2220.000
GR	636.200	2229.000	635.000	2240.000	634.200	2246.000	634.200	2260.000	634.100	2268.000
GR	634.500	2277.000	634.700	2284.000	634.900	2287.000	634.800	2295.000	634.800	2298.000
GR	635.200	2307.000	635.400	2318.000	635.800	2324.000	637.400	2335.100	638.300	2343.000
GR	638.800	2350.000	640.300	2358.000	642.100	2365.800	671.000	2400.000	0.000	0.000

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NC      0.000     0.000     0.023     0.000     0.000     0.000     0.000     0.000     0.000     0.000
        1' INSIDE D/S FACE OF MAIN ST. BRIDGE.
X1      8.300     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
X2      0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.940     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
BT     49.000  2000.000   672.000   626.000  2000.100   671.800   626.000  2019.000   671.700   626.000
BT   2019.100   671.700   626.000  2028.000   671.600   626.000  2036.000   671.500   642.200  2042.000
BT    671.400   651.200  2048.000   671.400   656.000  2057.000   671.200   659.300  2066.000   671.100
BT    660.600  2071.400   671.000   660.800  2080.000   670.900   660.200  2089.000   670.800   658.300
BT   2100.000   670.600   651.600  2105.000   670.600   645.500  2107.100   670.600   633.400  2115.000
BT    670.400   633.200  2118.000   670.400   647.700  2125.000   670.300   654.100  2131.000   670.200
BT    657.000  2144.000   670.100   660.200  2156.000   669.900   660.800  2166.000   669.800   660.200
BT   2176.000   669.600   658.000  2185.000   669.500   653.000  2192.000   669.400   647.700  2196.000
BT    669.300   635.200  2204.000   669.200   636.500  2209.000   669.200   649.800  2220.000   669.000
BT    656.900  2229.000   668.900   659.500  2240.000   668.800   660.700  2246.000   668.700   660.700
BT   2260.000   668.500   659.100  2268.000   668.400   657.000  2277.000   668.300   653.000  2284.000
BT    668.200   646.000  2287.000   668.100   634.900  2295.000   668.000   634.800  2298.000   668.000
BT    649.700  2307.000   667.800   656.800  2318.000   667.700   659.900  2324.000   667.600   660.800
BT   2335.100   667.500   660.700  2343.000   667.400   659.300  2350.000   667.300   656.700  2358.000
BT    667.200   650.900  2365.800   667.100   642.100  2400.000   672.000   626.000     0.000     0.000
        1' INSIDE U/S FACE OF MAIN ST. BRIDGE.
X1      8.400     0.000     0.000     0.000    42.000    42.000    42.000     0.000     0.000     0.000
X2      0.000     0.000     0.000     0.000     0.000     0.000     1.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      0.000     0.000     0.034     0.000     0.000     0.000     0.000     0.000     0.000     0.000
        U/S FACE OF MAIN ST. BRIDGE.* H.W. ELEV. OF 648.*U.S.G.S. GAGE STA.
X1      8.500     0.000     0.000     0.000     1.000     1.000     1.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000
ET      0.000     0.000     0.000     0.000     0.000     1.400     0.000     0.000     0.000     0.000
NC      0.080     0.080     0.025     0.000     0.000     0.000     0.000     0.000     0.000     0.000
        410' D/S OF GRANT ST. BRIDGE.
X1      9.000    22.000  2000.000  2296.200   670.000   480.000   540.000     0.000     0.000     0.000
GR    680.000  1840.000   649.000  1930.000   648.200  1975.800   645.400  2000.000   641.000  2013.900
GR    639.900  2015.300   638.600  2022.800   635.800  2041.200   634.600  2059.700   635.400  2113.200
GR    635.100  2152.100   636.500  2245.400   637.700  2281.800   638.400  2295.700   643.400  2296.200
GR    645.600  2301.300   646.900  2306.400   652.100  2321.700   655.500  2359.400   658.000  2430.000
GR    660.000  2500.000   661.000  2660.000     0.000     0.000     0.000     0.000     0.000     0.000
NC      0.080     0.080     0.025     0.200     0.400     0.000     0.000     0.000     0.000     0.000
ET      0.000     0.000     0.000     0.000     0.000     1.410     0.000     0.000     0.000     0.000
        D/S FACE OF GRANT ST. BRIDGE.
X1     10.200    34.000  2000.000  2331.000   350.000   500.000   410.000     0.000     0.000     0.000
X3     10.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000   655.400   656.100
GR    655.400  2000.000   653.700  2005.000   645.500  2036.000   640.200  2047.000   637.800  2062.000
GR    636.400  2067.000   635.100  2077.000   635.100  2077.100   633.800  2079.900   633.800  2080.000
GR    633.500  2095.000   632.000  2119.000   626.400  2137.000   626.400  2137.100   628.600  2139.900
GR    628.600  2140.000   629.800  2155.000   630.400  2180.000   629.800  2197.000   629.800  2197.100
GR    632.200  2199.900   632.200  2200.000   630.000  2215.000   631.400  2239.000   630.800  2257.000
GR    630.800  2257.100   632.800  2259.900   632.800  2260.000   635.700  2273.500   637.800  2287.000
GR    639.900  2301.000   645.800  2317.000   654.400  2331.000   656.100  2336.000     0.000     0.000
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NC	0.000	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	1' INSIDE D/S FACE OF GRANT ST. BRIDGE.									
X1	10.300	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	655.400	656.100
BT	34.000	2000.000	655.400	626.000	2005.000	655.400	653.700	2036.000	655.500	653.800
BT	2047.000	655.500	653.800	2062.000	655.600	653.800	2067.000	655.600	653.800	2077.000
BT	655.600	653.900	2077.100	655.600	635.100	2079.900	655.600	633.800	2080.000	655.600
BT	653.900	2095.000	655.700	653.900	2119.000	655.800	653.900	2137.000	655.800	654.000
BT	2137.100	655.800	626.400	2139.900	655.800	628.600	2140.000	655.800	654.400	2155.000
BT	655.900	654.000	2180.000	655.900	654.100	2197.000	656.000	654.100	2197.100	655.900
BT	629.800	2199.900	655.900	632.200	2200.000	655.900	654.100	2215.000	656.000	654.100
BT	2239.000	656.000	654.200	2257.000	656.000	654.200	2257.100	656.000	630.800	2259.900
BT	656.000	632.800	2260.000	656.000	654.200	2273.500	656.000	654.300	2287.000	656.000
BT	654.300	2301.000	656.100	654.300	2317.000	656.100	654.400	2331.000	656.100	654.400
BT	2336.000	656.100	626.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	1' INSIDE U/S FACE OF GRANT ST. BRIDGE.									
X1	10.400	0.000	0.000	0.000	42.000	42.000	42.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	655.400	656.100
NC	0.000	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	U/S FACE OF GRANT ST. BRIDGE.									
X1	10.500	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	655.400	656.100
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	390' U/S OF GRANT ST. BRIDGE									
X1	11.000	23.000	2000.000	2306.400	340.000	430.000	390.000	0.000	0.000	0.000
GR	660.000	1620.000	656.000	1660.000	654.000	1840.000	643.000	1978.700	641.400	2000.000
GR	638.400	2000.300	637.800	2005.500	636.700	2025.600	635.200	2059.400	634.200	2099.500
GR	631.900	2145.800	630.900	2175.800	632.800	2232.600	633.900	2262.300	637.400	2290.400
GR	639.700	2303.700	644.400	2306.400	644.800	2330.600	647.200	2357.100	650.000	2370.000
GR	650.000	2400.000	650.000	2445.000	660.000	2460.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
	820' U/S OF GRANT ST. BRIDGE.									
X1	12.100	16.000	2000.000	2250.000	410.000	480.000	430.000	0.000	0.000	0.000
GR	670.000	1630.000	658.000	1760.000	656.000	1800.000	654.000	1930.000	652.000	1960.000
GR	644.000	2000.000	633.200	2010.000	633.200	2250.000	644.000	2260.000	648.000	2280.000
GR	648.000	2450.000	650.000	2500.000	650.000	2520.000	650.000	2600.000	650.000	2620.000
GR	660.000	2650.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.200	0.400	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.080	2000.000	0.025	2160.000	0.035	2248.900	0.025	2621.700	0.080
NH	2900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000

1420' U/S OF GRANT ST. BRIDGE. D/S FACE OF TIMBER WALKWAY BRIDGE.

X1	12.200	72.000	2000.000	2621.700	600.000	480.000	600.000	0.000	0.000	0.000
GR	660.000	1810.000	656.000	1870.000	654.000	1940.000	650.000	1980.000	647.400	2000.000
GR	643.000	2000.100	638.000	2015.400	638.000	2015.500	638.000	2016.300	638.000	2016.500
GR	635.900	2030.600	635.900	2030.700	635.900	2031.500	635.900	2031.600	634.200	2038.200
GR	636.400	2045.800	636.400	2045.900	636.400	2046.700	636.400	2046.800	636.200	2060.800
GR	636.200	2060.900	636.100	2061.700	636.100	2061.800	635.700	2075.900	635.700	2076.000
GR	635.700	2076.800	635.700	2076.900	633.700	2090.800	633.700	2090.900	633.700	2091.700
GR	633.700	2091.800	636.000	2105.300	636.000	2105.400	636.000	2106.200	636.000	2106.300
GR	636.900	2119.900	636.900	2120.000	636.900	2120.800	636.900	2120.900	637.400	2135.200
GR	637.400	2135.300	637.400	2136.100	637.400	2136.200	638.700	2137.000	642.100	2142.900
GR	644.900	2145.400	647.200	2145.500	644.100	2160.000	644.000	2177.700	644.300	2202.800
GR	643.100	2240.300	641.200	2241.400	638.000	2248.900	635.600	2264.600	635.500	2274.300
GR	636.000	2301.900	637.000	2342.100	636.700	2386.000	636.200	2426.500	636.300	2459.200
GR	636.900	2491.700	636.500	2526.800	636.700	2588.200	637.200	2601.600	638.100	2616.200
GR	642.800	2621.700	646.900	2642.700	648.000	2670.000	650.000	2730.000	650.000	2750.000
GR	650.000	2870.000	660.000	2900.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.080	2000.000	0.022	2160.000	0.035	2248.900	0.025	2621.700	0.080
NH	2900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1' INSIDE D/S FACE OF TIMBER WALKWAY BRIDGE.

X1	12.300	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
BT	48.000	1810.000	660.000	630.000	1870.000	656.000	630.000	1940.000	654.000	630.000
BT	1980.000	650.000	630.000	2000.000	649.000	647.400	2000.100	652.500	647.400	2015.400
BT	652.500	647.400	2015.500	652.500	638.000	2016.300	652.500	638.000	2016.500	652.500
BT	647.400	2030.600	652.400	647.300	2030.700	652.400	635.900	2031.500	652.400	635.900
BT	2031.600	652.400	647.300	2038.200	652.400	647.300	2045.800	652.400	647.300	2045.900
BT	652.400	636.400	2046.700	652.400	636.400	2046.800	652.400	647.300	2060.800	652.400
BT	647.300	2060.900	652.400	636.200	2061.700	652.400	636.100	2061.800	652.400	647.300
BT	2075.900	652.400	647.300	2076.000	652.400	635.700	2076.800	652.400	635.700	2076.900
BT	652.400	647.300	2090.800	652.300	647.200	2090.900	652.300	633.700	2091.700	652.300
BT	633.700	2091.800	652.300	647.200	2105.300	652.300	647.200	2105.400	652.300	636.000
BT	2106.200	652.300	636.000	2106.300	652.300	647.200	2119.900	652.300	647.200	2120.000
BT	652.300	636.900	2120.800	652.300	636.900	2120.900	652.300	647.200	2135.200	652.300
BT	647.200	2135.300	652.300	637.400	2136.100	652.300	637.400	2136.200	652.300	647.200
BT	2137.000	652.300	647.200	2142.900	652.300	647.200	2145.400	650.000	644.900	2145.500
BT	647.200	647.200	2160.000	644.100	630.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.080	2000.000	0.022	2160.000	0.035	2248.900	0.025	2621.700	0.080
NH	2900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

1' INSIDE U/S FACE OF TIMBER WALKWAY BRIDGE.

X1	12.400	0.000	0.000	0.000	10.800	10.800	10.800	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
NH	5.000	0.080	2000.000	0.022	2160.000	0.035	2248.900	0.025	2621.700	0.080
NH	2900.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

U/S FACE OF TIMBER WALKWAY BRIDGE * H.W. @ EL. 648.8 * 325 PARKWAY ST.

X1	12.500	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000

PRINTED IN U.S.A.

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NH      5.000      0.080   2000.000      0.025   2100.000      0.035   2300.000      0.025   2680.000      0.080
NH   2840.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
NC      0.080      0.080      0.025      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
        160' U/S OF TIMBER WALKWAY BRIDGE.
X1     12.600     22.000   2000.000   2680.000    180.000    230.000    160.000      0.000      0.000      0.000
GR    670.000   1600.000    668.000   1620.000    666.000   1670.000    666.000   1780.000    668.000   1810.000
GR    660.000   1870.000    650.000   1980.000    645.000   2000.000    636.900   2010.000    636.900   2090.000
GR    644.000   2100.000    645.000   2110.000    645.000   2280.000    644.000   2300.000    636.700   2310.000
GR    636.700   2670.000    644.000   2680.000    646.000   2710.000    648.000   2720.000    648.000   2760.000
GR    650.000   2800.000    660.000   2840.000      0.000      0.000      0.000      0.000      0.000      0.000

NC      0.080      0.080      0.023      0.200      0.400      0.000      0.000      0.000      0.000      0.000
ET      0.000      0.000      0.000      0.000      0.000      1.410      0.000      0.000      0.000      0.000
        WASHED OUT FOOT BRIDGE 1274' D/S OF FRENCH PAPER CO. DAM.
X1     13.200     36.000   2000.000   2415.900    940.000   1000.000    940.000      0.000      0.000      0.000
GR    655.000   1950.000    652.000   1960.000    650.000   1980.000    649.400   2000.000    640.800   2016.300
GR    638.800   2021.900    636.900   2038.400    638.000   2057.300    637.400   2077.300    637.100   2097.800
GR    636.800   2118.100    636.300   2138.600    635.600   2158.200    635.400   2178.300    634.500   2199.200
GR    633.400   2217.400    634.200   2239.400    634.800   2259.500    634.200   2278.300    631.300   2300.800
GR    632.400   2315.200    632.200   2327.400    631.700   2342.400    629.800   2357.400    632.100   2378.300
GR    636.900   2398.100    638.800   2413.800    648.200   2415.900    650.300   2435.500    651.900   2451.700
GR    652.000   2460.000    654.000   2590.000    654.000   2620.000    652.000   2640.000    652.000   2680.000
GR    660.000   2715.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000

NC      0.000      0.000      0.021      0.000      0.000      0.000      0.000      0.000      0.000      0.000
        INSIDE D/S FACE OF WASHED OUT FOOT BRIDGE.
X1     13.300     90.000   2000.000   2415.900      1.000      1.000      1.000      0.000      0.000      0.000
GR    655.000   1950.000    652.000   1960.000    650.000   1980.000    649.400   2000.000    640.800   2016.300
GR    648.200   2016.400    648.200   2017.400    640.800   2017.500    638.800   2021.900    636.900   2038.400
GR    648.200   2038.500    648.200   2039.500    636.900   2039.600    638.000   2057.300    648.200   2057.400
GR    648.200   2058.400    638.000   2058.500    637.400   2077.300    648.200   2077.400    648.200   2078.400
GR    637.400   2078.500    637.100   2097.800    648.200   2097.900    648.200   2098.900    637.100   2099.000
GR    636.800   2118.100    648.200   2118.200    648.200   2119.200    636.800   2119.300    636.300   2138.600
GR    648.200   2138.700    648.200   2139.700    636.300   2139.800    635.600   2158.200    648.200   2158.300
GR    648.200   2159.300    635.600   2159.400    635.400   2178.300    648.200   2178.400    648.200   2179.400
GR    635.400   2179.500    634.500   2199.200    648.200   2199.300    648.200   2200.300    634.500   2200.400
GR    633.400   2217.400    648.200   2217.500    648.200   2218.500    633.400   2218.600    634.200   2239.400
GR    634.800   2259.500    638.800   2259.600    638.800   2260.600    634.800   2260.700    634.200   2278.000
GR    631.300   2300.800    648.200   2300.900    648.200   2301.900    631.300   2302.000    632.400   2315.200
GR    632.200   2327.400    638.800   2327.500    638.800   2328.500    632.200   2328.600    631.700   2342.400
GR    629.800   2357.400    638.800   2357.500    638.800   2358.500    629.800   2358.600    632.100   2378.300
GR    638.800   2378.400    638.800   2379.400    632.100   2379.500    636.900   2398.100    638.800   2398.200
GR    638.800   2399.200    636.900   2399.300    638.800   2413.800    644.200   2415.900    648.200   2416.000
GR    648.200   2417.000    644.200   2417.100    650.300   2435.500    651.900   2451.700    652.000   2460.000
GR    654.000   2590.000    654.000   2620.000    652.000   2640.000    652.000   2680.000    660.000   2715.000

        INSIDE U/S FACE OF WASHED OUT FOOT BRIDGE.
X1     13.400      0.000      0.000      0.000     12.000     12.000     12.000      0.000      0.000      0.000
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NC	0.000	0.000	0.021	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	U/S FACE OF WASHED OUT FOOT BRIDGE.									
X1	13.500	36.000	2000.000	2415.900	1.000	1.000	1.000	0.000	0.000	0.000
GR	655.000	1950.000	652.000	1960.000	650.000	1980.000	649.400	2000.000	640.800	2016.300
GR	638.800	2021.900	636.900	2038.400	638.000	2057.300	637.400	2077.300	637.100	2097.800
GR	636.800	2118.100	636.300	2138.600	635.600	2158.200	635.400	2178.300	634.500	2199.200
GR	633.400	2217.400	634.200	2239.400	634.800	2259.500	634.200	2278.300	631.300	2300.800
GR	632.400	2315.200	632.200	2327.400	631.700	2342.400	629.800	2357.400	632.100	2378.300
GR	636.900	2398.100	638.800	2413.800	648.200	2415.900	650.300	2435.500	651.900	2451.700
GR	652.000	2460.000	654.000	2590.000	654.000	2620.000	652.000	2640.000	652.000	2680.000
GR	660.000	2715.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.025	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
	560' D/S OF FRENCH PAPER CO. DAM.									
X1	14.000	26.000	2000.000	2329.700	550.000	860.000	700.000	0.000	0.000	0.000
GR	660.000	1510.000	656.000	1540.000	654.000	1965.000	651.400	1986.500	651.100	2000.000
GR	639.200	2015.000	637.300	2018.800	632.600	2022.700	630.200	2036.600	633.400	2065.600
GR	636.700	2110.000	633.900	2160.500	633.500	2188.300	634.800	2225.100	634.800	2259.500
GR	635.500	2279.800	636.000	2286.200	639.200	2295.600	640.400	2299.100	645.200	2317.400
GR	652.600	2329.700	654.000	2380.000	656.000	2440.000	656.000	2540.000	658.000	2780.000
GR	660.000	2860.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.025	0.200	0.400	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000
	FRENCH PAPER CO. DAM *H.W. EL. 649.0 1982(BTW. X-SEC. 14 & X-SEC. 15.1)									
X1	15.100	12.000	2000.000	2320.000	480.000	530.000	560.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	662.500	662.500	0.000
GR	662.500	1920.000	662.500	1999.900	652.800	2000.000	638.500	2020.000	634.700	2050.000
GR	634.700	2260.000	641.600	2280.000	653.500	2320.000	662.500	2320.100	662.500	2350.000
GR	662.500	2380.000	662.500	2800.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.500	3.900	0.000	1.000	0.000	5.000	0.000	634.700	634.700
	FRENCH PAPER CO. DAM									
X1	15.200	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	640.000	652.800	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	662.500	662.500	0.000
BT	4.000	2000.000	652.800	630.000	2050.000	652.900	630.000	2260.000	653.400	630.000
BT	2320.000	653.500	630.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	R.R. BRIDGE 380' U/S OF FRENCH PAPER CO. DAM.									
X1	16.200	74.000	2000.000	2359.500	420.000	430.000	380.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	663.600	663.100	0.000
GR	670.000	1100.000	668.000	1150.000	666.000	1220.000	664.000	1280.000	662.000	1400.000
GR	663.300	2000.000	661.600	2001.000	653.600	2004.000	654.200	2009.000	652.500	2013.000
GR	649.500	2028.000	649.500	2028.100	645.700	2032.900	645.700	2033.000	646.300	2053.000
GR	646.300	2053.100	646.500	2057.900	646.500	2058.000	644.400	2078.000	644.900	2078.100
GR	644.900	2082.900	645.900	2083.000	645.000	2103.000	645.000	2103.100	644.500	2107.900
GR	644.500	2108.000	646.100	2128.000	646.100	2128.100	644.700	2132.900	644.700	2133.000
GR	641.900	2153.000	641.900	2153.100	639.700	2157.900	639.700	2158.000	636.500	2178.000
GR	636.500	2178.100	636.700	2182.900	636.700	2183.000	636.000	2203.000	636.000	2203.100
GR	637.100	2207.900	637.100	2208.000	638.800	2228.000	638.800	2228.100	637.500	2232.900
GR	637.500	2233.000	636.900	2253.000	636.900	2253.100	638.600	2257.900	638.600	2258.000

GR	639.300	2278.000	639.300	2278.100	639.100	2282.900	639.100	2283.000	642.000	2303.000
GR	642.000	2303.100	643.400	2307.900	643.400	2308.000	647.700	2328.000	647.700	2328.100
GR	650.600	2332.900	650.600	2333.000	652.500	2344.000	652.500	2344.100	655.900	2345.900
GR	655.900	2346.000	653.000	2358.000	660.900	2358.400	663.100	2359.500	662.600	2362.000
GR	660.000	2690.000	661.000	2850.000	663.000	2900.000	669.000	2960.000	0.000	0.000
NC	0.000	0.000	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1' INSIDE D/S FACE OF R.R. BRIDGE.										
X1	16.300	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	663.600	663.100	0.000
BT	64.000	2000.000	663.300	630.000	2001.000	663.300	661.600	2004.000	663.300	661.100
BT	2009.000	663.300	661.100	2013.000	663.300	661.100	2028.000	663.300	661.100	2028.100
BT	663.300	649.500	2032.900	663.300	645.700	2033.000	663.300	661.100	2053.000	663.300
BT	661.100	2053.100	663.300	646.300	2057.900	663.300	646.500	2058.000	663.300	661.100
BT	2078.000	663.300	661.100	2078.100	663.300	644.900	2082.900	663.300	645.900	2083.000
BT	663.300	661.100	2103.000	663.300	661.100	2103.100	663.300	645.000	2107.900	663.300
BT	644.500	2108.000	663.300	661.100	2128.000	663.300	661.100	2128.100	663.300	646.100
BT	2132.900	663.300	644.700	2133.000	663.300	661.100	2153.000	663.300	661.100	2153.100
BT	663.300	641.900	2157.900	663.300	639.700	2158.000	663.300	661.100	2178.000	663.300
BT	661.000	2178.100	663.300	636.500	2182.900	663.300	636.700	2183.000	663.200	661.100
BT	2203.000	663.300	661.100	2203.100	663.300	636.000	2207.900	663.300	637.100	2208.000
BT	663.300	661.100	2228.000	663.300	661.100	2228.100	663.300	638.800	2232.900	663.300
BT	637.500	2233.000	663.300	661.100	2253.000	663.300	661.100	2253.100	663.300	636.900
BT	2257.900	663.300	638.600	2258.000	663.300	661.100	2278.000	663.300	661.100	2278.100
BT	663.300	639.300	2282.900	663.300	639.100	2283.000	663.300	661.100	2303.000	663.300
BT	661.100	2303.100	663.300	642.000	2307.900	663.300	643.400	2308.000	663.300	661.100
BT	2328.000	663.300	661.000	2328.100	663.300	647.700	2332.900	663.300	650.600	2333.000
BT	663.300	661.100	2344.000	663.300	661.100	2344.100	663.300	652.500	2345.900	663.100
BT	655.900	2346.000	663.100	660.900	2358.000	663.000	660.900	2358.400	663.100	660.900
BT	2359.500	663.100	660.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1' INSIDE U/S FACE OF R.R. BRIDGE.										
X1	16.400	0.000	0.000	0.000	16.500	16.500	16.500	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	663.300	663.100	0.000
NC	0.000	0.000	0.020	0.000	0.000	0.000	0.000	0.000	0.000	0.000
U/S FACE OF R.R. BRIDGE.										
X1	16.500	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	663.300	663.100	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.025	0.000	0.000	0.000	0.000	0.000	0.000	0.000
640' U/S OF R.R. BRIDGE.										
X1	17.000	27.000	2000.000	2460.700	510.000	740.000	640.000	0.000	0.000	0.000
GR	680.000	1750.000	670.000	1780.000	668.000	1800.000	666.000	1990.000	664.300	2000.000
GR	661.400	2003.100	653.900	2008.000	644.000	2028.400	642.000	2048.600	642.200	2090.700
GR	643.300	2136.300	644.400	2182.200	648.000	2252.800	650.900	2306.100	653.200	2354.600
GR	650.200	2394.700	646.200	2412.600	649.800	2431.800	652.300	2440.600	653.100	2444.900
GR	653.800	2447.900	658.700	2460.700	658.100	2489.600	658.000	2630.000	660.000	2690.000
GR	662.000	2820.000	670.000	3040.000	0.000	0.000	0.000	0.000	0.000	0.000

```
NC      0.000      0.000      0.000      0.100      0.300      0.000      0.000      0.000      0.000      0.000
NH      5.000      0.100   2000.000      0.025   2550.000      0.040   2580.000      0.025   2770.500      0.100
NH   3000.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000      0.000
          2440' U/S OF R.R. BRIDGE. (*NOTE- SMALL ISLAND IN CHANNEL*)
X1     18.000     30.000   2000.000   2770.500   2400.000   1110.000   1800.000      0.000      0.000      0.000
GR    670.000   1600.000    660.000   1680.000    656.300   1979.300    654.200   2000.000    652.200   2025.000
GR    653.200   2045.100    653.300   2066.300    653.700   2132.900    653.300   2161.000    652.900   2197.500
GR    651.900   2261.300    651.900   2321.000    651.000   2368.100    650.100   2423.200    649.500   2467.300
GR    648.100   2543.300    660.000   2563.400    644.700   2597.400    642.000   2633.200    643.900   2658.900
GR    643.700   2685.300    646.900   2704.900    648.000   2723.800    654.000   2754.200    654.000   2770.500
GR    655.200   2771.500    657.000   2792.100    666.000   2848.000    670.000   2900.000    680.000   3000.000
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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FORM 1411 3 79

PRINTED IN U.S.A.

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     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=   0.100 CEHV=   0.300
*SECNO 1.000
          4430' D/S OF CONRAIL R.R. BRIDGE.
      1.00     14.28    643.98      0.00    639.00    644.33      0.35      0.00      0.00    645.90
  22000.         0.     21982.       18.        0.     4613.       63.         0.        0.    641.90
      0.00      0.00      4.77      0.28     0.000     0.034     0.100     0.000    629.70   2000.03
 0.000449         0.        0.        0.         0         0         4      0.00    478.64   2478.66


*SECNO 2.000
          3580' D/S OF CONRAIL R.R. BRIDGE.
      2.00     14.98    644.28      0.00      0.00    645.01      0.73      0.57      0.11    639.20
  22000.         4.     21982.       14.         7.     3213.       25.       77.         8.    642.50
      0.03      0.56      6.84      0.54     0.100     0.034     0.100     0.000    629.30   2008.23
 0.001094       940.      850.      850.         2         0         0      0.00    343.13   2351.36


*SECNO 2.500
          2650'D/S OF CONRAIL R.R. BRIDGE.
      2.50     15.19    645.19      0.00      0.00    645.88      0.69      0.87      0.00    640.60
  22000.        24.     21871.      106.        34.     3275.      135.       150.       15.    640.00
      0.07      0.70      6.68      0.78     0.100     0.034     0.100     0.000    630.00   1985.34
 0.000781      1050.      950.      770.         2         0         0      0.00    326.61   2311.94


*SECNO 3.000
          1710' D/S OF CONRAIL R.R. BRIDGE.
      3.00     15.25    646.05      0.00      0.00    646.42      0.37      0.51      0.03    641.90
  22000.      1068.     20892.       40.      1534.     4173.       58.       251.       27.    637.40
      0.13      0.70      5.01      0.70     0.100     0.034     0.100     0.000    630.80   1566.31
 0.000394      1040.      940.      840.         2         0         0      0.00    752.59   2318.90


*SECNO 4.000

3470 ENCROACHMENT STATIONS=    1968.0    2650.0  TYPE=       1  TARGET=     682.000
          580' D/S OF CONRAIL R.R. BRIDGE.
      4.00     20.84    646.44      0.00      0.00    646.91      0.47      0.46      0.03    643.30
  22000.        43.     21957.         0.        80.     3975.         0.      375.       40.    655.70
      0.19      0.54      5.52      0.00     0.100     0.034     0.000     0.000    625.60   1968.00
 0.000416       940.      1130.     1260.         2         0         0      0.00    289.82   2257.82
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A

B D/S Encroachment Limit

1.5 / 950

C

D

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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     IBC        ICONT      CORAR     TOPWID    ENDST

 CCHV=   0.300 CEHV=   0.500
 *SECNO 5.200
 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      686.80 ELREA=      686.80
        D/S FACE OF CONRAIL R.R. BRIDGE.
      5.20      17.03    646.73     0.00      0.00    647.33     0.60      0.35      0.06    685.00
     22000.        0.    22000.       0.        0.    3538.        0.     425.       44.     686.00
      0.21       0.00      6.22      0.00     0.000     0.034     0.000     0.000   629.70  2072.66
  0.000984        500.      580.      610.         2         0         0      0.00   368.19  2440.85

 *SECNO 5.300
 3370 NORMAL BRIDGE,NRD= 40 MIN ELTRD=  672.00 MAX ELLC=  651.60

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      686.80 ELREA=      686.80
        1' INSIDE D/S FACE OF CONRAIL R.R. BRIDGE.
      5.30      17.00    646.70     0.00      0.00    647.35     0.65      0.00      0.02    685.00
     22000.        0.    22000.       0.        0.    3408.        0.     425.       44.     686.00
      0.21       0.00      6.45      0.00     0.000     0.027     0.000     0.000   629.70  2072.71
  0.000803          1.        1.        1.         2         0         0  -121.18   367.36  2440.07

 *SECNO 5.400
 3370 NORMAL BRIDGE,NRD= 40 MIN ELTRD=  672.00 MAX ELLC=  651.60

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      686.80 ELREA=      686.80
        1' INSIDE U/S FACE OF CONRAIL R.R. BRIDGE.
      5.40      17.03    646.73     0.00      0.00    647.37     0.64      0.02      0.00    685.00
     22000.        0.    22000.       0.        0.    3417.        0.     428.       44.     686.00
      0.21       0.00      6.44      0.00     0.000     0.027     0.000     0.000   629.70  2072.66
  0.000799         28.       28.       28.         0         0         0  -121.57   368.30  2440.95

 *SECNO 5.500
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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=      686.80 ELREA=      686.80
          U/S FACE OF CONRAIL R.R. BRIDGE.
        5.50     17.10    646.80      0.00      0.00    647.39      0.59      0.00      0.02    685.00
     22000.        0.     22000.        0.        0.     3565.        0.      428.       44.    686.00
        0.21      0.00      6.17      0.00     0.000     0.034     0.000     0.000    629.70   2072.51
 0.000968         1.        1.        1.         2         0         0      0.00     370.89   2443.39

 1490 NH CARD USED
 *SECNO 5.600

 3470 ENCROACHMENT STATIONS=     1933.0     3250.0  TYPE=        1  TARGET=     1317.000
          300' U/S OF CONRAIL R.R. BRIDGE.
        5.60     15.23    647.23      0.00      0.00    647.63      0.40      0.18      0.06    642.00
     22000.      202.     21570.      228.      266.     4201.      668.      458.       50.    642.00
        0.23      0.76      5.13      0.34     0.100     0.034     0.143     0.000    632.00   1933.00
 0.000419       160.      300.      440.         2         0         0      0.00     906.54   2839.54


 CCHV=    0.100 CEHV=    0.300
 *SECNO 6.000
          610' U/S OF CONRAIL R.R. BRIDGE.
        6.00     15.96    647.36      0.00      0.00    647.76      0.40      0.13      0.00    648.20
     22000.        0.     21935.       65.        0.     4309.      100.      492.       54.    636.90
        0.25      0.00      5.09      0.65     0.000     0.034     0.100     0.000    631.40   2001.11
 0.000408       300.      310.      310.         2         0         0      0.00     426.14   2427.25


 1490 NH CARD USED
 *SECNO 6.500
          1130' U/S OF CONRAIL R.R. BRIDGE.
        6.50     14.52    647.52      0.00      0.00    648.05      0.53      0.25      0.04    645.00
     22000.        2.     21744.      253.        6.     3701.      546.      544.       60.    642.00
        0.27      0.39      5.87      0.46     0.100     0.034     0.140     0.000    633.00   1994.96
 0.000594       530.      520.      510.         2         0         0      0.00     577.25   2572.21


 *SECNO 7.000
          420' D/S OF MAIN ST. BRIDGE.
        7.00     12.66    647.86      0.00      0.00    648.60      0.75      0.49      0.06    642.60
     22000.       41.     21959.        0.       15.     3166.        8.      589.       66.    646.80
        0.29      2.70      6.94      0.00     0.034     0.844    10.000     0.000    635.20   2031.57
 0.001532       620.      540.      420.         2         0         0      0.00     342.67   2374.24
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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 8.200
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      666.20 ELREA=      671.00
          D/S FACE OF MAIN ST. BRIDGE.
      8.20     22.44    648.64     0.00      0.00    648.99     0.35      0.27      0.12    666.20
   22000.        0.    22000.       0.        0.      4622.       0.       627.      69.     671.00
      0.32      0.00      4.76     0.00      0.000     0.034     0.000     0.000   626.20   2027.11
 0.000350       440.      420.      400.         2         0         0      0.00   324.01   2351.13

*SECNO 8.300
3370 NORMAL BRIDGE,NRD= 49 MIN ELTRD=  667.10 MAX ELLC=  660.80

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      666.20 ELREA=      671.00
          1' INSIDE D/S FACE OF MAIN ST. BRIDGE.
      8.30     22.39    648.59     0.00      0.00    649.04     0.45      0.00      0.05    666.20
   22000.        0.    22000.       0.        0.      4075.       0.       627.      69.     671.00
      0.32      0.00      5.40     0.00      0.000     0.023     0.000     0.000   626.20   2027.17
 0.000316         1.        1.        1.         2         0         0  -530.05   323.90   2351.07

*SECNO 8.400
3370 NORMAL BRIDGE,NRD= 49 MIN ELTRD=  667.10 MAX ELLC=  660.80

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      666.20 ELREA=      671.00
          1' INSIDE U/S FACE OF MAIN ST. BRIDGE.
      8.40     22.40    648.60     0.00      0.00    649.06     0.45      0.01      0.00    666.20
   22000.        0.    22000.       0.        0.      4079.       0.       631.      69.     671.00
      0.32      0.00      5.39     0.00      0.000     0.023     0.000     0.000   626.20   2027.15
 0.000315        42.       42.       42.         0         0         0  -531.04   323.93   2351.09

*SECNO 8.500
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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=      666.20 ELREA=      671.00

          U/S FACE OF MAIN ST. BRIDGE.* H.W. ELEV. OF 648.*U.S.G.S. GAGE STA.
        8.50      22.54     648.74      0.00      0.00     649.09      0.35      0.00      0.03     666.20
     22000.         0.     22000.         0.         0.     4654.         0.      631.        69.     671.00
        0.32       0.00       4.73       0.00     0.000      0.034     0.000     0.000    626.20    2027.01
 0.000343          1.         1.         1.         2          0         0      0.00     324.23    2351.24


 *SECNO 9.000
          410' D/S OF GRANT ST. BRIDGE.
        9.00      14.23     648.83      0.00      0.00     649.38      0.55      0.19      0.10     645.40
     22000.        29.     21941.        30.        60.     3692.        41.      683.        73.     643.40
        0.34       0.48       5.94       0.73     0.080      0.025     0.080     0.000    634.60    1939.83
    0.000355     670.       540.       480.         2          0         0      0.00     372.24    2312.07


 CCHV=    0.200 CEHV=    0.400
 *SECNO 10.200

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      655.40 ELREA=      655.40

          D/S FACE OF GRANT ST. BRIDGE.
       10.20      22.73     649.13      0.00      0.00     649.52      0.39      0.11      0.03     655.40
     22000.         0.     22000.         0.         0.     4395.         0.      722.        77.     654.40
        0.37       0.00       5.01       0.00     0.000      0.025     0.000     0.000    626.40    2022.29
    0.000205     350.       410.       500.         2          0         0      0.00     300.13    2322.42


 *SECNO 10.300

 3370 NORMAL BRIDGE,NRD= 34 MIN ELTRD=  655.40 MAX ELLC=  654.40

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      655.40 ELREA=      655.40

          1' INSIDE D/S FACE OF GRANT ST. BRIDGE.
       10.30      22.70     649.10      0.00      0.00     649.53      0.43      0.00      0.02     655.40
     22000.         0.     22000.         0.         0.     4182.         0.      722.        77.     654.40
        0.37       0.00       5.26       0.00     0.000      0.021     0.000     0.000    626.40    2022.38
    0.000273          1.         1.         1.         2          0         0   -206.24     299.99    2322.38
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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 10.400
3370 NORMAL BRIDGE,NRD= 34 MIN ELTRD=  655.40 MAX ELLC=  654.40

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      655.40 ELREA=      655.40

      1' INSIDE U/S FACE OF GRANT ST. BRIDGE.
     10.40     22.71    649.11      0.00      0.00    649.54      0.43      0.01      0.00    655.40
   22000.        0.    22000.        0.        0.      4185.       0.       726.       77.    654.40
      0.37      0.00      5.26      0.00     0.000     0.021     0.000     0.000    626.40   2022.34
 0.000272        42.       42.       42.         0         0         0   -206.36    300.05   2322.39

*SECNO 10.500
3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      655.40 ELREA=      655.40

      U/S FACE OF GRANT ST. BRIDGE.
     10.50     22.77    649.17      0.00      0.00    649.55      0.39      0.00      0.01    655.40
   22000.        0.    22000.        0.        0.      4407.       0.       726.       77.    654.40
      0.37      0.00      4.99      0.00     0.000     0.021     0.000     0.000    626.40   2022.14
 0.000144         1.        1.        1.         2         0         0      0.00    300.33   2322.48

*SECNO 11.000
      390' U/S OF GRANT ST. BRIDGE
     11.00     18.39    649.29      0.00      0.00    649.62      0.33      0.06      0.01    641.40
   22000.      263.     21611.       126.      401.     4638.      211.       769.       80.    644.40
      0.39      0.66      4.66      0.60     0.080     0.025     0.080     0.000    630.90   1899.35
 0.000168       340.      390.      430.         2         0         0      0.00    467.39   2366.74

CCHV=   0.100 CEHV=   0.300
*SECNO 12.100
      820' U/S OF GRANT ST. BRIDGE.
     12.10     16.08    649.28      0.00      0.00    649.75      0.46      0.08      0.04    644.00
   22000.       36.     21739.       224.       70.     3967.      411.       817.       85.    633.20
      0.42      0.52      5.48      0.55     0.080     0.025     0.080     0.000    633.20   1973.58
 0.000219       410.      430.      480.         2         0         0      0.00    508.53   2482.10
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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= 0.200 CEHV= 0.400

1490 NH CARD USED

*SECNO 12.200

1420' U/S OF GRANT ST. BRIDGE, D/S FACE OF TIMBER WALKWAY BRIDGE.

12.20	16.06	649.76	0.00	0.00	649.89	0.14	0.08	0.07	647.40
22000.	4.	21916.	80.	21.	7402.	212.	900.	93.	642.80
0.47	0.20	2.96	0.38	0.080	0.028	0.080	0.000	633.70	1981.88
0.000092	600.	600.	480.	2	0	0	0.00	740.80	2722.68

1490 NH CARD USED

*SECNO 12.300

3370 NORMAL BRIDGE,NRD= 48 MIN ELTRD= 644.10 MAX ELLC= 647.40

1' INSIDE D/S FACE OF TIMBER WALKWAY BRIDGE.

12.30	16.05	649.75	0.00	0.00	649.90	0.15	0.00	0.01	647.40
22000.	10.	21895.	95.	30.	6946.	212.	900.	93.	642.80
0.47	0.34	3.15	0.45	0.080	0.026	0.080	0.000	633.70	1981.92
0.000132	1.	1.	1.	1	0	0	-444.22	740.60	2722.52

1490 NH CARD USED

*SECNO 12.400

3370 NORMAL BRIDGE,NRD= 48 MIN ELTRD= 644.10 MAX ELLC= 647.40

1' INSIDE U/S FACE OF TIMBER WALKWAY BRIDGE.

12.40	16.05	649.75	0.00	0.00	649.90	0.15	0.00	0.00	647.40
22000.	1.	21905.	95.	6.	6944.	211.	902.	94.	642.80
0.47	0.11	3.15	0.45	0.080	0.026	0.080	0.000	633.70	1981.95
0.000132	11.	11.	11.	0	0	0	-468.03	740.44	2722.39

1490 NH CARD USED

*SECNO 12.500

U/S FACE OF TIMBER WALKWAY BRIDGE * H.W. @ EL. 648.8 * 325 PARKWAY ST.

12.50	16.07	649.77	0.00	0.00	649.90	0.14	0.00	0.00	647.40
22000.	4.	21919.	77.	22.	7410.	214.	902.	94.	642.80
0.47	0.19	2.96	0.36	0.080	0.028	0.080	0.000	633.70	1981.78
0.000086	1.	1.	1.	2	0	0	0.00	741.28	2723.06

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

1490 NH CARD USED

*SECNO 12.600

160' U/S OF TIMBER WALKWAY BRIDGE.

12.60	13.08	649.78	0.00	0.00	649.92	0.15	0.02	0.00	645.00
22000.	16.	21862.	122.	46.	7083.	275.	930.	97.	644.00
0.49	0.36	3.09	0.44	0.080	0.025	0.080	0.000	636.70	1980.87
0.000121	180.	160.	230.	1	0	0	0.00	814.81	2795.67

CCHV= 0.200 CEHV= 0.400

*SECNO 13.200

WASHED OUT FOOT BRIDGE 1274' D/S OF FRENCH PAPER CO. DAM.

13.20	20.04	649.84	0.00	0.00	650.05	0.21	0.10	0.02	649.40
22000.	0.	21998.	2.	3.	6024.	13.	1075.	110.	648.20
0.56	0.07	3.65	0.16	0.080	0.023	0.080	0.000	629.80	1985.28
0.000094	940.	940.	1000.	2	0	0	0.00	445.94	2431.22

*SECNO 13.300

INSIDE D/S FACE OF WASHED OUT FOOT BRIDGE.

13.30	20.03	649.83	0.00	0.00	650.05	0.22	0.00	0.01	649.40
22000.	0.	21978.	21.	3.	5841.	50.	1075.	110.	644.20
0.56	0.09	3.76	0.42	0.080	0.021	0.080	0.000	629.80	1985.28
0.000189	1.	1.	1.	0	0	0	0.00	448.84	2434.12

*SECNO 13.400

INSIDE U/S FACE OF WASHED OUT FOOT BRIDGE.

13.40	20.04	649.84	0.00	0.00	650.06	0.22	0.00	0.00	649.40
22000.	0.	21978.	21.	3.	5838.	50.	1077.	110.	644.20
0.56	0.09	3.76	0.42	0.080	0.021	0.080	0.000	629.80	1985.47
0.000189	12.	12.	12.	0	0	0	0.00	448.63	2434.10

*SECNO 13.500

U/S FACE OF WASHED OUT FOOT BRIDGE.

13.50	20.05	649.85	0.00	0.00	650.06	0.21	0.00	0.00	649.40
22000.	0.	21998.	2.	3.	6025.	13.	1077.	111.	648.20
0.56	0.06	3.65	0.14	0.080	0.021	0.080	0.000	629.80	1985.20
0.000078	1.	1.	1.	1	0	0	0.00	446.04	2431.24

```
   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 14.000
        560' D/S OF FRENCH PAPER CO. DAM.
    14.00     19.64    649.84      0.00      0.00    650.20      0.36      0.08      0.06    651.10
   22000.        0.    22000.        0.        0.     4574.        0.     1162.      117.    652.60
     0.60      0.00      4.81      0.00     0.000     0.025     0.000     0.000    630.20   2001.58
 0.000199      550.      700.      860.         2         0         0      0.00    323.53   2325.12


CCHV=   0.200 CEHV=   0.400
*SECNO 15.100

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       662.50 ELREA=       662.50

        FRENCH PAPER CO. DAM *H.W. EL. 649.0 1982(BTW. X-SEC. 14 & X-SEC. 15.1)
    15.10     15.21    649.91      0.00      0.00    650.37      0.46      0.13      0.04    652.80
   22000.        0.    22000.        0.        0.     4037.        0.     1218.      121.    653.50
     0.63      0.00      5.45      0.00     0.000     0.025     0.000     0.000    634.70   2004.03
 0.000274      480.      560.      530.         0         0         0      0.00    303.92   2307.95


SPECIAL BRIDGE

SB  XK        XKOR      COFQ      RDLEN     BWC       BWP       BAREA     SS        ELCHU     ELCHD
     0.00      1.50      3.90      0.00      1.00      0.00      5.00      0.00    634.70    634.70

*SECNO 15.200
PRESSURE AND WEIR FLOW


 EGPRS      EGLWC      H3        QWEIR     QPR       BAREA     TRAPEZOID     ELLC      ELTRD
                                                                AREA
451581.59    650.37     0.00     21923.     104.        5.        5.      640.00    652.80


3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       662.50 ELREA=       662.50

        FRENCH PAPER CO. DAM
    15.20     25.07    659.77      0.00      0.00    659.92      0.15      9.54      0.00    652.80
   22000.        0.    22000.        0.        0.     7163.        0.     1220.      121.    653.50
     0.63      0.00      3.07      0.00     0.000     0.025     0.000     0.000    634.70   2000.00
 0.000044       16.       16.       16.         2         0         7      0.00    320.00   2320.00
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     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 16.200

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      663.60 ELREA=      663.10

          R.R. BRIDGE 380' U/S OF FRENCH PAPER CO. DAM.
       16.20     23.75    659.75      0.00      0.00    659.97      0.22      0.02      0.03    663.30
     22000.        0.    22000.        0.        0.     5830.        0.     1276.      124.     663.10
        0.66      0.00      3.77      0.00     0.000     0.025     0.000     0.000    636.00   2001.69
   0.000105       420.      380.      430.         2         0         0      0.00    356.65   2358.34

 *SECNO 16.300

 3370 NORMAL BRIDGE,NRD=  64 MIN ELTRD=  663.00 MAX ELLC=  661.60

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      663.60 ELREA=      663.10

          1' INSIDE D/S FACE OF R.R. BRIDGE.
       16.30     23.68    659.68      0.00      0.00    660.02      0.34      0.00      0.05    663.30
     22000.        0.    22000.        0.        0.     4691.        0.     1277.      124.     663.10
        0.66      0.00      4.69      0.00     0.000     0.020     0.000     0.000    636.00   2001.72
   0.000363         1.        1.        1.         2         0         0  -1112.81    356.62   2358.34

 *SECNO 16.400

 3370 NORMAL BRIDGE,NRD=  64 MIN ELTRD=  663.00 MAX ELLC=  661.60

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      663.30 ELREA=      663.10

          1' INSIDE U/S FACE OF R.R. BRIDGE.
       16.40     23.68    659.68      0.00      0.00    660.02      0.34      0.01      0.00    663.30
     22000.        0.    22000.        0.        0.     4693.        0.     1278.      124.     663.10
        0.66      0.00      4.69      0.00     0.000     0.020     0.000     0.000    636.00   2001.72
   0.000363        17.       17.       17.         0         0         0  -1113.07    356.62   2358.34

 *SECNO 16.500

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      663.30 ELREA=      663.10
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          U/S FACE OF R.R. BRIDGE.
    16.50    23.83   659.83     0.00     0.00   660.05     0.22     0.00     0.02   663.30
 22000.        0.  22000.        0.        0.  5859.        0.     1278.      124.   663.10
     0.66     0.00     3.75     0.00     0.000    0.020    0.000    0.000   636.00  2001.66
0.000066        1.       1.       1.        2        0        0     0.00   356.68  2358.35

*SECNO 17.000
          640' U/S OF R.R. BRIDGE.
    17.00    17.89   659.89     0.00     0.00   660.11     0.23     0.06     0.00   664.30
 22000.        0.  21888.      112.        0.  5684.      354.     1366.      132.   658.70
     0.71     0.00     3.85     0.32     0.000    0.025    0.080    0.000   642.00  2004.09
0.000149      510.     640.     740.        2        0        0     0.00   682.46  2686.55


CCHV=   0.100 CEHV=   0.300
1490 NH CARD USED
*SECNO 18.000
          2440' U/S OF R.R. BRIDGE. (*NOTE- SMALL ISLAND IN CHANNEL*)
    18.00    18.23   660.23     0.00     0.00   660.36     0.13     0.23     0.01   654.20
 22000.      209.  21747.       44.      725.  7434.      123.     1663.      169.   654.00
     0.88     0.29     2.93     0.36     0.100    0.034    0.100    0.000   642.00  1678.18
0.000115     2400.    1800.    1110.        2        0        0     0.00  1133.96  2812.15
```



Note: Topography based upon an aerial survey performed by Abrams Aerial Survey Corporation on 5-83.

STS Consultants Ltd.
Consulting Engineers

- 500 YEAR FLOOD BOUNDARY
- 100 YEAR FLOOD BOUNDARY
- FLOODWAY BOUNDARY
- FLOODWAY
- FLOODWAY BOUNDARY
- 100 YEAR FLOOD BOUNDARY
- 500 YEAR FLOOD BOUNDARY
- CORPORATE LIMITS
- CROSS SECTION (A)

CLIENT/PROJECT: Federal Emergency Management Agency
City Of Niles Flood Insurance Study
Floodway - Flood Boundary Map

SCALE:	DRAWN BY:		APPROVED BY: WJW
1"=400'	CJD		REVISED
DATE: 5-21-85	STS JOB NO. 1055	DRAWING NO. 1	

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Niles, City of

3) WATERCOURSE: St. Joseph River

4) DOCUMENT TYPE: 100-year ENCROACHED

00BREAK00

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                                                                                THIS RUN EXECUTED 29-MAY-85  08:52:38
*****************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55
*****************************************************

T1      CITY OF NILES FLOOD INSURANCE STUDY
T2      JOB # 1055F STJOEENC.HEC [SHEFF]
T3      ST. JOSEPH RIVER      ENCROACHMENT RUN **NORMAL DEPTH + 0.1***

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
       0.        6.        0.        0.  0.000000      0.00       0.0        0.   643.980     0.000

J2  NPROF     IPLOT     PREVS     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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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS   BANK ELEV
      Q       QLOB      QCH       QROB      ALOB      ACH       AROB      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=   0.100 CEHV=   0.300
 *SECNO 1.000
  2800 NAT Q1=  10386.17  WSEL=    643.98  ENC Q1=  10524.74  WSEL=    644.08  RATIO= -0.0133
  NAT Q1=  10535.  RATIOS LOB,CH,ROB=  0.0000  0.9990  0.0010  WSEL=    644.08

 3470 ENCROACHMENT STATIONS=   2000.0   2395.6  TYPE=    4  TARGET=     0.001
        4430' D/S OF CONRAIL R.R. BRIDGE.
     1.00    14.28   643.98     0.00   643.98   644.33     0.35     0.00     0.00   645.90
   22000.       0.  22000.        0.       0.   4614.        0.       0.       0.   641.90
     0.00     0.00     4.77     0.00    0.000    0.034    0.000    0.000   629.70  2000.03
 0.000452       0.       0.       0.        0        0        0     0.00   395.57  2395.60


 *SECNO 2.000
  2800 NAT Q1=   6651.97  WSEL=    644.28  ENC Q1=   6755.45  WSEL=    644.38  RATIO= -0.0156
  NAT Q1=   6761.  RATIOS LOB,CH,ROB=  0.0002  0.9991  0.0007  WSEL=    644.38

 3470 ENCROACHMENT STATIONS=   2011.0   2325.9  TYPE=    4  TARGET=     0.001
        3580' D/S OF CONRAIL R.R. BRIDGE.
     2.00    14.99   644.29     0.00   644.28   645.02     0.73     0.58     0.11   639.20
   22000.       0.  22000.        0.       0.   3217.        0.       76.       7.   642.50
     0.03     0.00     6.84     0.00    0.000    0.034    0.000    0.000   629.30  2011.00
 0.001122      940.     850.     850.        2        0        0     0.00   314.90  2325.90


 *SECNO 2.500
  2800 NAT Q1=   7870.31  WSEL=    645.19  ENC Q1=   7927.83  WSEL=    645.29  RATIO= -0.0073
  NAT Q1=   7976.  RATIOS LOB,CH,ROB=  0.0011  0.9939  0.0050  WSEL=    645.29

 3470 ENCROACHMENT STATIONS=   2000.0   2260.0  TYPE=    4  TARGET=     0.006
        2650' D/S OF CONRAIL R.R. BRIDGE.
     2.50    15.23   645.23     0.00   645.19   645.93     0.70     0.91     0.00   640.60
   22000.       0.  22000.        0.       0.   3285.        0.      147.      13.   640.00
     0.07     0.00     6.70     0.00    0.000    0.034    0.000    0.000   630.00  2000.00
 0.000822      1050.     950.     770.        2        0        0     0.00   260.00  2260.00


 *SECNO 3.000
  2800 NAT Q1=  11077.15  WSEL=    646.05  ENC Q1=  11077.15  WSEL=    646.15  RATIO=  0.0000
  NAT Q1=  11232.  RATIOS LOB,CH,ROB=  0.0501  0.9481  0.0019  WSEL=    646.15
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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=     1745.1     2305.6  TYPE=      4  TARGET=       0.014
         1710' D/S OF CONRAIL R.R. BRIDGE.
       3.00     15.31    646.11      0.00    646.05    646.49      0.38      0.53      0.03    641.90
      22000.      859.    21141.        0.     1089.     4192.        0.       241.        22.    637.40
       0.13      0.79      5.04      0.00     0.100     0.034     0.000     0.000    630.80   1745.07
   0.000413     1040.      940.      840.         2         0         0      0.00    560.53   2305.60

 *SECNO 4.000
  2800 NAT Q1=   10792.86  WSEL=     646.44  ENC Q1=   10883.02  WSEL=     646.54  RATIO= -0.0084
  NAT Q1=   11014.  RATIOS LOB,CH,ROB=  0.0118  0.9882  0.0000  WSEL=     646.54

 3470 ENCROACHMENT STATIONS=     2000.0     2273.5  TYPE=      4  TARGET=       0.012
         580' D/S OF CONRAIL R.R. BRIDGE.
       4.00     20.92    646.52      0.00    646.44    646.99      0.47      0.47      0.03    643.30
      22000.        0.    22000.        0.        0.     3996.        0.       359.        32.    655.70
       0.18      0.00      5.50      0.00     0.000     0.034     0.000     0.000    625.60   2000.00
   0.000417      940.      1130.     1260.         2         0         0      0.00    257.96   2257.96


 CCHV=   0.300 CEHV=   0.500
 *SECNO 5.200
  2800 NAT Q1=    7014.88  WSEL=     646.73  ENC Q1=    7090.85  WSEL=     646.83  RATIO= -0.0108
  NAT Q1=    7091.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     646.83

 3470 ENCROACHMENT STATIONS=     2025.1     2571.6  TYPE=      4  TARGET=       0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       686.80 ELREA=       686.80

         D/S FACE OF CONRAIL R.R. BRIDGE.
       5.20     17.11    646.81      0.00    646.73    647.40      0.59      0.35      0.06    685.00
      22000.        0.    22000.        0.        0.     3569.        0.       409.        37.    686.00
       0.21      0.00      6.16      0.00     0.000     0.034     0.000     0.000    629.70   2072.48
   0.000966      500.      580.      610.         2         0         0      0.00    371.29   2443.77


 *SECNO 5.300
  2800 NAT Q1=    7763.16  WSEL=     646.70  ENC Q1=    7842.35  WSEL=     646.80  RATIO= -0.0102
  NAT Q1=    7842.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     646.80

 3370 NORMAL BRIDGE,NRD= 40 MIN ELTRD=   672.00 MAX ELLC=   651.60
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    SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
    TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN       SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST


 3470 ENCROACHMENT STATIONS=    2025.1    2571.6  TYPE=      4  TARGET=        0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       686.80 ELREA=       686.80

       1' INSIDE D/S FACE OF CONRAIL R.R. BRIDGE.
      5.30     17.09    646.79      0.00    646.70    647.42      0.64      0.00      0.02    685.00
     22000.        0.    22000.        0.        0.      3438.       0.       409.       37.    686.00
      0.21      0.00      6.40      0.00     0.000     0.027     0.000     0.000    629.70   2072.53
  0.000789         1.        1.        1.         2         0         0   -122.50    370.48   2443.01


 *SECNO 5.400
  2800 NAT Q1=    7783.13  WSEL=     646.73  ENC Q1=    7864.07  WSEL=     646.83  RATIO= -0.0104
  NAT Q1=    7864.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     646.83

 3370 NORMAL BRIDGE,NRD= 40 MIN ELTRD=  672.00 MAX ELLC=  651.60


 3470 ENCROACHMENT STATIONS=    2025.1    2571.6  TYPE=      4  TARGET=        0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       686.80 ELREA=       686.80

       1' INSIDE U/S FACE OF CONRAIL R.R. BRIDGE.
      5.40     17.12    646.82      0.00    646.73    647.45      0.63      0.02      0.00    685.00
     22000.        0.    22000.        0.        0.      3446.       0.       412.       37.    686.00
      0.21      0.00      6.38      0.00     0.000     0.027     0.000     0.000    629.70   2072.48
  0.000786        28.       28.       28.         0         0         0   -122.85    371.30   2443.78


 *SECNO 5.500
  2800 NAT Q1=    7070.61  WSEL=     646.80  ENC Q1=    7147.51  WSEL=     646.90  RATIO= -0.0109
  NAT Q1=    7148.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     646.90

 3470 ENCROACHMENT STATIONS=    2025.1    2571.6  TYPE=      4  TARGET=        0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       686.80 ELREA=       686.80

        U/S FACE OF CONRAIL R.R. BRIDGE.
      5.50     17.18    646.88      0.00    646.80    647.46      0.58      0.00      0.02    685.00
     22000.        0.    22000.        0.        0.      3596.       0.       412.       37.    686.00
      0.21      0.00      6.12      0.00     0.000     0.034     0.000     0.000    629.70   2072.33
  0.000951         1.        1.        1.         2         0         0      0.00    373.94   2446.26
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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS    BANK ELEV
     Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
     TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST


 1490 NH CARD USED
 *SECNO 5.600
  2800 NAT Q1=  10753.26  WSEL=    647.23  ENC Q1=  10753.26  WSEL=    647.33  RATIO=  0.0000
  NAT Q1=  11021.  RATIOS LOB,CH,ROB=  0.0206  0.9684  0.0110  WSEL=    647.33

 3470 ENCROACHMENT STATIONS=    1955.0    2310.0  TYPE=     4  TARGET=       0.024
          300' U/S OF CONRAIL R.R. BRIDGE.
       5.60     15.28    647.28      0.00    647.23    647.70      0.41      0.18      0.05    642.00
    22000.      160.     21840.        0.      198.     4218.        0.       439.        39.    642.00
       0.23      0.81      5.18      0.00     0.100     0.100     0.000     0.000    632.00   1955.00
  0.000423      160.      300.      440.         2         0         0      0.00    355.00   2310.00


 CCHV=   0.100  CEHV=   0.300
 *SECNO 6.000
  2800 NAT Q1=  10891.36  WSEL=    647.36  ENC Q1=  10987.78  WSEL=    647.46  RATIO= -0.0089
  NAT Q1=  11022.  RATIOS LOB,CH,ROB=  0.0000  0.9969  0.0031  WSEL=    647.46

 3470 ENCROACHMENT STATIONS=    2000.0    2315.8  TYPE=     4  TARGET=       0.003
          610' U/S OF CONRAIL R.R. BRIDGE.
       6.00     16.03    647.43      0.00    647.36    647.83      0.40      0.13      0.00    648.20
    22000.        0.     22000.        0.        0.     4328.        0.       470.        42.    636.90
       0.24      0.00      5.08      0.00     0.000     0.034     0.000     0.000    631.40   2001.03
  0.000423      300.      310.      310.         1         0         0      0.00    314.77   2315.80


 1490 NH CARD USED
 *SECNO 6.500
  2800 NAT Q1=   9025.81  WSEL=    647.52  ENC Q1=   9037.61  WSEL=    647.62  RATIO= -0.0013
  NAT Q1=   9151.  RATIOS LOB,CH,ROB=  0.0001  0.9877  0.0122  WSEL=    647.62

 3470 ENCROACHMENT STATIONS=    2000.0    2290.0  TYPE=     4  TARGET=       0.012
          1130' U/S OF CONRAIL R.R. BRIDGE.
       6.50     14.59    647.59      0.00    647.52    648.13      0.54      0.26      0.04    645.00
    22000.        0.     22000.        0.        0.     3721.        0.       518.        45.    642.00
       0.27      0.00      5.91      0.00     0.000     0.100     0.000     0.000    633.00   2000.00
  0.000605      530.      520.      510.         2         0         0      0.00    290.00   2290.00


 *SECNO 7.000
  2800 NAT Q1=   5620.01  WSEL=    647.86  ENC Q1=   5698.23  WSEL=    647.96  RATIO= -0.0139
  NAT Q1=   5709.  RATIOS LOB,CH,ROB=  0.0019  0.9981  0.0000  WSEL=    647.96
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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=    2037.3    2359.3  TYPE=      4  TARGET=       0.002
          420' D/S OF MAIN ST. BRIDGE.
        7.00     12.75    647.95      0.00    647.86    648.68      0.74      0.49      0.06    642.60
    22000.        0.    22000.        0.        0.      3195.       0.       561.       49.    646.80
       0.29      0.00      6.88      0.00      0.000     0.858     0.000     0.000    635.20   2037.30
  0.001539      620.      540.      420.         2         0         0      0.00    322.00   2359.30

  CCHV=   0.300 CEHV=   0.500
  *SECNO 8.200
   2800 NAT Q1=   11752.29  WSEL=     648.64  ENC Q1=   11882.68  WSEL=     648.74  RATIO= -0.0111
   NAT Q1=   11883.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     648.74

  3470 ENCROACHMENT STATIONS=     2017.9    2376.0  TYPE=      4  TARGET=       0.000

  3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       666.20 ELREA=       671.00

          D/S FACE OF MAIN ST. BRIDGE.
        8.20     22.52    648.72      0.00    648.64    649.07      0.35      0.27      0.12    666.20
    22000.        0.    22000.        0.        0.      4648.       0.       599.       52.    671.00
       0.32      0.00      4.73      0.00      0.000     0.034     0.000     0.000    626.20   2027.03
  0.000344      440.      420.      400.         2         0         0      0.00    324.19   2351.22

  *SECNO 8.300
       3700.   BRIDGE STENCL=    2017.86    STENCR=    2376.00
   2800 NAT Q1=   12383.06  WSEL=     648.59  ENC Q1=   12490.04  WSEL=     648.69  RATIO= -0.0086
   NAT Q1=   12490.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     648.69

  3370 NORMAL BRIDGE,NRD= 49 MIN ELTRD=   667.10 MAX ELLC=   660.80

  3470 ENCROACHMENT STATIONS=     2017.9    2376.0  TYPE=      4  TARGET=       0.000

  3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       666.20 ELREA=       671.00

          1' INSIDE D/S FACE OF MAIN ST. BRIDGE.
        8.30     22.47    648.67      0.00    648.59    649.12      0.45      0.00      0.05    666.20
    22000.        0.    22000.        0.        0.      4096.       0.       599.       52.    671.00
       0.32      0.00      5.37      0.00      0.000     0.023     0.000     0.000    626.20   2027.08
  0.000311         1.        1.        1.         2         0         0   -535.78    324.08   2351.16
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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 8.400
 2800 NAT Q1=  12398.04  WSEL=    648.60  ENC Q1=  12505.30  WSEL=    648.70  RATIO= -0.0087
 NAT Q1=  12505.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    648.70

3370 NORMAL BRIDGE,NRD= 49 MIN ELTRD=  667.10 MAX ELLC=  660.80


3470 ENCROACHMENT STATIONS=    2017.9    2376.0  TYPE=      4  TARGET=      0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     666.20 ELREA=     671.00

       1' INSIDE U/S FACE OF MAIN ST. BRIDGE.
     8.40     22.48    648.68      0.00    648.60    649.13      0.45      0.01      0.00    666.20
   22000.        0.   22000.        0.        0.    4099.         0.       603.       53.    671.00
     0.32      0.00      5.37      0.00     0.000     0.023     0.000     0.000    626.20   2027.07
 0.000311        42.       42.       42.         0         0         0   -536.71    324.11   2351.17


*SECNO 8.500
 2800 NAT Q1=  11883.83  WSEL=    648.74  ENC Q1=  12015.13  WSEL=    648.84  RATIO= -0.0110
 NAT Q1=  12015.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    648.84

3470 ENCROACHMENT STATIONS=    2017.9    2376.0  TYPE=      4  TARGET=      0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     666.20 ELREA=     671.00

       U/S FACE OF MAIN ST. BRIDGE.* H.W. ELEV. OF 648.*U.S.G.S. GAGE STA.
     8.50     22.62    648.82      0.00    648.74    649.16      0.34      0.00      0.03    666.20
   22000.        0.   22000.        0.        0.    4680.         0.       603.       53.    671.00
     0.32      0.00      4.70      0.00     0.000     0.034     0.000     0.000    626.20   2026.93
 0.000337         1.        1.        1.         2         0         0      0.00    324.40   2351.33


*SECNO 9.000
 2800 NAT Q1=  11673.71  WSEL=    648.83  ENC Q1=  11798.49  WSEL=    648.93  RATIO= -0.0107
 NAT Q1=  11832.  RATIOS LOB,CH,ROB=  0.0015  0.9971  0.0014  WSEL=    648.93

3470 ENCROACHMENT STATIONS=    2000.0    2296.2  TYPE=      4  TARGET=      0.003
       410' D/S OF GRANT ST. BRIDGE.
     9.00     14.31    648.91      0.00    648.83    649.45      0.54      0.19      0.10    645.40
   22000.        0.   22000.        0.        0.    3716.         0.       655.       56.    643.40
     0.34      0.00      5.92      0.00     0.000     0.025     0.000     0.000    634.60   2000.00
 0.000364       670.      540.      480.         2         0         0      0.00    296.20   2296.20
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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=    0.200 CEHV=    0.400
 *SECNO 10.200
  2800 NAT Q1=  15349.72  WSEL=    649.13  ENC Q1=  15505.31  WSEL=    649.23  RATIO= -0.0101
  NAT Q1=  15505.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    649.23

 3470 ENCROACHMENT STATIONS=    2000.0    2331.0  TYPE=     4  TARGET=       0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     655.40 ELREA=     655.40

        D/S FACE OF GRANT ST. BRIDGE.
      10.20     22.81    649.21      0.00    649.13    649.59      0.38      0.11      0.03    655.40
     22000.        0.     22000.        0.        0.     4420.        0.      693.        59.    654.40
       0.37      0.00      4.98      0.00     0.000     0.025     0.000     0.000    626.40   2021.98
  0.000202       350.      410.      500.         2         0         0      0.00    300.57   2322.55

 *SECNO 10.300
      3700.   BRIDGE STENCL=   2000.00    STENCR=   2331.00
  2800 NAT Q1=  13316.60  WSEL=    649.10  ENC Q1=  13441.73  WSEL=    649.20  RATIO= -0.0094
  NAT Q1=  13442.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    649.20

 3370 NORMAL BRIDGE,NRD= 34 MIN ELTRD=  655.40 MAX ELLC=  654.40

 3470 ENCROACHMENT STATIONS=    2000.0    2331.0  TYPE=     4  TARGET=       0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     655.40 ELREA=     655.40

        1' INSIDE D/S FACE OF GRANT ST. BRIDGE.
      10.30     22.78    649.18      0.00    649.10    649.61      0.42      0.00      0.02    655.40
     22000.        0.     22000.        0.        0.     4205.        0.      693.        59.    654.40
       0.37      0.00      5.23      0.00     0.000     0.021     0.000     0.000    626.40   2022.07
  0.000269         1.        1.        1.         2         0         0   -207.21    300.44   2322.51

 *SECNO 10.400
  2800 NAT Q1=  13329.14  WSEL=    649.11  ENC Q1=  13457.03  WSEL=    649.21  RATIO= -0.0096
  NAT Q1=  13457.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    649.21

 3370 NORMAL BRIDGE,NRD= 34 MIN ELTRD=  655.40 MAX ELLC=  654.40

 3470 ENCROACHMENT STATIONS=    2000.0    2331.0  TYPE=     4  TARGET=       0.000
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     SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HL         OLOSS    BANK ELEV
     Q          QLOB       QCH        QROB       ALOB       ACH        AROB       VOL        TWA    LEFT/RIGHT
     TIME       VLOB       VCH        VROB       XNL        XNCH       XNR        WTN        ELMIN      SSTA
     SLOPE      XLOBL      XLCH       XLOBR      ITRIAL     IDC        ICONT      CORAR      TOPWID     ENDST

  3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      655.40 ELREA=      655.40

        1' INSIDE U/S FACE OF GRANT ST. BRIDGE.
       10.40     22.80    649.20      0.00    649.11    649.62      0.42       0.01       0.00    655.40
     22000.        0.     22000.        0.       0.      4208.        0.        697.       59.     654.40
       0.37      0.00      5.23      0.00     0.000     0.021     0.000      0.000    626.40   2022.03
   0.000268       42.       42.       42.         0         0         0    -207.34    300.50   2322.53

  *SECNO 10.500
   2800 NAT Q1=   18345.19  WSEL=     649.17  ENC Q1=   18530.79  WSEL=     649.27  RATIO= -0.0101
   NAT Q1=   18531.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     649.27

  3470 ENCROACHMENT STATIONS=     2000.0     2331.0  TYPE=      4  TARGET=        0.000

  3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      655.40 ELREA=      655.40

        U/S FACE OF GRANT ST. BRIDGE.
       10.50     22.85    649.25      0.00    649.17    649.63      0.38       0.00       0.01    655.40
     22000.        0.     22000.        0.       0.      4431.        0.        698.       59.     654.40
       0.37      0.00      4.96      0.00     0.000     0.021     0.000      0.000    626.40   2021.84
   0.000141         1.        1.        1.         2         0         0       0.00    300.77   2322.61

  *SECNO 11.000
   2800 NAT Q1=   16951.32  WSEL=     649.29  ENC Q1=   16951.32  WSEL=     649.39  RATIO=  0.0000
   NAT Q1=   17146.  RATIOS LOB,CH,ROB=  0.0122  0.9819  0.0059  WSEL=     649.39

  3470 ENCROACHMENT STATIONS=     1976.9     2308.3  TYPE=      4  TARGET=        0.011
          390' U/S OF GRANT ST. BRIDGE
       11.00     18.46    649.36      0.00    649.29    649.70      0.34       0.06       0.01    641.40
     22000.      140.     21857.        3.      164.      4658.        9.        739.       62.     644.40
       0.39      0.86      4.69      0.30     0.080     0.025     0.080      0.000    630.90   1976.87
   0.000170       340.      390.      430.         2         0         0       0.00    331.42   2308.29

  CCHV=    0.100 CEHV=    0.300
  *SECNO 12.100
   2800 NAT Q1=   14883.19  WSEL=     649.28  ENC Q1=   14883.19  WSEL=     649.38  RATIO=  0.0000
   NAT Q1=   15049.  RATIOS LOB,CH,ROB=  0.0017  0.9876  0.0107  WSEL=     649.38

  3470 ENCROACHMENT STATIONS=     2000.0     2253.6  TYPE=      4  TARGET=        0.011
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          820' U/S OF GRANT ST. BRIDGE.
    12.10    16.15   649.35     0.00   649.28   649.82     0.47     0.08     0.04   644.00
   22000.       0.   21971.      29.      0.    3983.      51.     783.       65.   633.20
     0.41     0.00     5.52     0.57    0.000    0.025    0.080    0.000   633.20  2000.00
 0.000226      410.     430.     480.        2        0        0     0.00   253.60  2253.60

 CCHV=   0.200 CEHV=   0.400
 1490 NH CARD USED
 *SECNO 12.200
  2800 NAT Q1=  22891.30  WSEL=    649.76  ENC Q1=  23110.62  WSEL=    649.86  RATIO= -0.0096
  NAT Q1=  23203.  RATIOS LOB,CH,ROB=  0.0002  0.9960  0.0038  WSEL=    649.86

 3470 ENCROACHMENT STATIONS=    2000.0    2621.7  TYPE=       4  TARGET=       0.004
          1420' U/S OF GRANT ST. BRIDGE, D/S FACE OF TIMBER WALKWAY BRIDGE.
    12.20    16.14   649.84     0.00   649.76   649.97     0.14     0.08     0.07   647.40
   22000.       0.   22000.      0.       0.    7452.      0.      862.       71.   642.80
     0.47     0.00     2.95     0.00    0.000    0.067    0.000    0.000   633.70  2000.00
 0.000092      600.     600.     480.        2        0        0     0.00   621.70  2621.70

 1490 NH CARD USED
 *SECNO 12.300
      3700.   BRIDGE STENCL=   2000.00    STENCR=   2621.70
  2800 NAT Q1=  19144.15  WSEL=    649.75  ENC Q1=  19272.98  WSEL=    649.85  RATIO= -0.0067
  NAT Q1=  19365.  RATIOS LOB,CH,ROB=  0.0003  0.9953  0.0045  WSEL=    649.85

 3370 NORMAL BRIDGE,NRD= 48 MIN ELTRD=  644.10 MAX ELLC=  647.40


 3470 ENCROACHMENT STATIONS=    2000.0    2621.7  TYPE=       4  TARGET=       0.005
          1' INSIDE D/S FACE OF TIMBER WALKWAY BRIDGE.
    12.30    16.12   649.82     0.00   649.75   649.98     0.15     0.00     0.01   647.40
   22000.       0.   22000.      0.       0.    6984.      0.      862.       71.   642.80
     0.47     0.00     3.15     0.00    0.000    0.073    0.000    0.000   633.70  2000.00
 0.000131        1.       1.       1.        1        0        0 -464.30   621.70  2621.70

 1490 NH CARD USED
 *SECNO 12.400
  2800 NAT Q1=  19126.18  WSEL=    649.75  ENC Q1=  19275.80  WSEL=    649.85  RATIO= -0.0078
  NAT Q1=  19368.  RATIOS LOB,CH,ROB=  0.0003  0.9953  0.0045  WSEL=    649.85

 3370 NORMAL BRIDGE,NRD= 48 MIN ELTRD=  644.10 MAX ELLC=  647.40

 3470 ENCROACHMENT STATIONS=    2000.0    2621.7  TYPE=       4  TARGET=       0.005
          1' INSIDE U/S FACE OF TIMBER WALKWAY BRIDGE.
    12.40    16.13   649.83     0.00   649.75   649.98     0.15     0.00     0.00   647.40
   22000.       0.   22000.      0.       0.    6982.      0.      864.       71.   642.80
     0.47     0.00     3.15     0.00    0.000    0.073    0.000    0.000   633.70  2000.00
 0.000131       11.      11.      11.        0        0        0 -463.68   621.70  2621.70
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     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


 1490 NH CARD USED
 *SECNO 12.500
  2800 NAT Q1=  23790.99  WSEL=    649.77  ENC Q1=  24022.16  WSEL=    649.87  RATIO= -0.0097
  NAT Q1=  24115.  RATIOS LOB,CH,ROB=  0.0002  0.9961  0.0037  WSEL=    649.87

 3470 ENCROACHMENT STATIONS=    2000.0    2621.7  TYPE=      4  TARGET=       0.004
         U/S FACE OF TIMBER WALKWAY BRIDGE * H.W. @ EL. 648.8 * 325 PARKWAY ST.
     12.50     16.15    649.85      0.00    649.77    649.98      0.14      0.00      0.00    647.40
   22000.         0.   22000.         0.        0.    7460.         0.     864.       71.    642.80
      0.47      0.00      2.95      0.00     0.000     0.065     0.000     0.000   633.70   2000.00
  0.000085         1.        1.        1.         2         0         0      0.00   621.70   2621.70


 1490 NH CARD USED
 *SECNO 12.600
  2800 NAT Q1=  20012.82  WSEL=    649.78  ENC Q1=  20187.79  WSEL=    649.88  RATIO= -0.0087
  NAT Q1=  20320.  RATIOS LOB,CH,ROB=  0.0008  0.9935  0.0057  WSEL=    649.88

 3470 ENCROACHMENT STATIONS=    2000.0    2680.0  TYPE=      4  TARGET=       0.006
          160' U/S OF TIMBER WALKWAY BRIDGE.
     12.60     13.16    649.86      0.00    649.78    650.00      0.15      0.02      0.01    645.00
   22000.         0.   22000.         0.        0.    7136.         0.     891.       74.    644.00
      0.49      0.00      3.08      0.00     0.000     0.025     0.000     0.000   636.70   2000.00
  0.000122       180.      160.      230.         1         0         0      0.00   680.00   2680.00


 CCHV=   0.200 CEHV=   0.400
 *SECNO 13.200
  2800 NAT Q1=  22715.87  WSEL=    649.84  ENC Q1=  22975.53  WSEL=    649.94  RATIO= -0.0114
  NAT Q1=  22978.  RATIOS LOB,CH,ROB=  0.0000  0.9999  0.0001  WSEL=    649.94

 3470 ENCROACHMENT STATIONS=    2000.0    2415.9  TYPE=      4  TARGET=       0.000
          WASHED OUT FOOT BRIDGE 1274' D/S OF FRENCH PAPER CO. DAM.
     13.20     20.12    649.92      0.00    649.84    650.13      0.20      0.10      0.02    649.40
   22000.         0.   22000.         0.        0.    6057.         0.    1033.       86.    648.20
      0.56      0.00      3.63      0.00     0.000     0.023     0.000     0.000   629.80   2000.00
  0.000093       940.      940.     1000.         2         0         0      0.00   415.90   2415.90


 *SECNO 13.300
  2800 NAT Q1=  16022.32  WSEL=    649.83  ENC Q1=  16182.55  WSEL=    649.93  RATIO= -0.0100
  NAT Q1=  16199.  RATIOS LOB,CH,ROB=  0.0000  0.9990  0.0010  WSEL=    649.93
```

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


  3470 ENCROACHMENT STATIONS=    2000.0    2415.9  TYPE=      4  TARGET=        0.001
          INSIDE D/S FACE OF WASHED OUT FOOT BRIDGE.
       13.30     20.11    649.91     0.00    649.83    650.13      0.22      0.00      0.01    649.40
     22000.         0.   22000.         0.        0.    5874.         0.    1033.        86.    644.20
        0.56      0.00      3.75      0.00     0.000     0.021     0.000     0.000    629.80   2000.00
   0.000187         1.        1.        1.         0         0         0      0.00    415.90   2415.90


  *SECNO 13.400
   2800 NAT Q1=  16011.14  WSEL=    649.84  ENC Q1=  16186.63  WSEL=    649.94  RATIO= -0.0110
   NAT Q1=  16203.  RATIOS LOB,CH,ROB=  0.0000  0.9990  0.0010  WSEL=    649.94

  3470 ENCROACHMENT STATIONS=    2000.0    2415.9  TYPE=      4  TARGET=        0.001
          INSIDE U/S FACE OF WASHED OUT FOOT BRIDGE.
       13.40     20.12    649.92     0.00    649.84    650.13      0.22      0.00      0.00    649.40
     22000.         0.   22000.         0.        0.    5872.         0.    1035.        86.    644.20
        0.56      0.00      3.75      0.00     0.000     0.021     0.000     0.000    629.80   2000.00
   0.000188        12.       12.       12.         0         0         0      0.00    415.90   2415.90


  *SECNO 13.500
   2800 NAT Q1=  24886.02  WSEL=    649.85  ENC Q1=  25193.17  WSEL=    649.95  RATIO= -0.0123
   NAT Q1=  25196.  RATIOS LOB,CH,ROB=  0.0000  0.9999  0.0001  WSEL=    649.95

  3470 ENCROACHMENT STATIONS=    2000.0    2415.9  TYPE=      4  TARGET=        0.000
          U/S FACE OF WASHED OUT FOOT BRIDGE.
       13.50     20.13    649.93     0.00    649.85    650.14      0.20      0.00      0.00    649.40
     22000.         0.   22000.         0.        0.    6059.         0.    1035.        86.    648.20
        0.56      0.00      3.63      0.00     0.000     0.021     0.000     0.000    629.80   2000.00
   0.000077         1.        1.        1.         1         0         0      0.00    415.90   2415.90


  *SECNO 14.000
   2800 NAT Q1=  15587.42  WSEL=    649.84  ENC Q1=  15760.58  WSEL=    649.94  RATIO= -0.0111
   NAT Q1=  15761.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    649.94

  3470 ENCROACHMENT STATIONS=    2000.0    2329.7  TYPE=      4  TARGET=        0.000
          560' D/S OF FRENCH PAPER CO. DAM.
       14.00     19.72    649.92     0.00    649.84    650.28      0.36      0.08      0.06    651.10
     22000.         0.   22000.         0.        0.    4600.         0.    1120.        92.    652.60
        0.60      0.00      4.78      0.00     0.000     0.025     0.000     0.000    630.20   2001.48
   0.000196       550.      700.      860.         2         0         0      0.00    323.77   2325.25
```

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

CCHV= 0.200 CEHV= 0.400

*SECNO 15.100

2800 NAT Q1= 13280.44 WSEL= 649.91 ENC Q1= 13426.99 WSEL= 650.01 RATIO= -0.0110

NAT Q1= 13427. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 650.01

3470 ENCROACHMENT STATIONS= 2000.0 2320.0 TYPE= 4 TARGET= 0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 662.50 ELREA= 662.50

FRENCH PAPER CO. DAM *H.W. EL. 649.0 1982(BIW. X-SEC. 14 & X-SEC. 15.1)

15.10	15.29	649.99	0.00	649.91	650.45	0.46	0.13	0.04	652.80
22000.	0.	22000.	0.	0.	4060.	0.	1176.	96.	653.50
0.63	0.00	5.42	0.00	0.000	0.025	0.000	0.000	634.70	2003.93
0.000270	480.	560.	530.	2	0	0	0.00	304.28	2308.21

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RBLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.50	3.90	0.00	1.00	0.00	5.00	0.00	634.70	634.70

*SECNO 15.200

3700. BRIDGE STENCL= 2000.00 STENCR= 2320.00

2800 NAT Q1= 33289.29 WSEL= 659.77 ENC Q1= 33537.46 WSEL= 659.87 RATIO= -0.0075

NAT Q1= 33537. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 659.87

PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
451581.69	650.45	0.00	21924.	103.	5.	5.	640.00	652.80

3470 ENCROACHMENT STATIONS= 2000.0 2320.0 TYPE= 4 TARGET= 0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 662.50 ELREA= 662.50

FRENCH PAPER CO. DAM

15.20	25.07	659.77	0.00	659.77	659.92	0.15	9.47	0.00	652.80
22000.	0.	22000.	0.	0.	7163.	0.	1178.	96.	653.50
0.63	0.00	3.07	0.00	0.000	0.025	0.000	0.000	634.70	2000.00
0.000045	16.	16.	16.	2	0	7	0.00	320.00	2320.00

No flood through bridge
No operating procedure

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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 16.200
 2800 NAT Q1=  21513.45  WSEL=    659.75  ENC Q1=  21725.21  WSEL=    659.85  RATIO= -0.0098
 NAT Q1=  21725.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    659.85

 3470 ENCROACHMENT STATIONS=     2000.0     2359.5  TYPE=      4  TARGET=         0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       663.60 ELREA=       663.10

      R.R. BRIDGE 380' U/S OF FRENCH PAPER CO. DAM.
    16.20     23.75    659.75      0.00    659.75    659.97      0.22      0.02      0.03    663.30
  22000.        0.   22000.        0.        0.    5830.        0.    1235.        99.    663.10
    0.66      0.00      3.77      0.00     0.000     0.025     0.000     0.000    636.00   2001.69
0.000105      420.      380.      430.         2         0         0      0.00    356.65   2358.34


*SECNO 16.300
      3700.   BRIDGE STENCL=    2000.00     STENCR=    2359.50
 2800 NAT Q1=  11545.96  WSEL=    659.68  ENC Q1=  11635.20  WSEL=    659.78  RATIO= -0.0077
 NAT Q1=  11635.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    659.78

 3370 NORMAL BRIDGE,NRD= 64 MIN ELTRD=  663.00 MAX ELLC=  661.60

 3470 ENCROACHMENT STATIONS=     2000.0     2359.5  TYPE=      4  TARGET=         0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       663.60 ELREA=       663.10

      1' INSIDE D/S FACE OF R.R. BRIDGE.
    16.30     23.68    659.68      0.00    659.68    660.02      0.34      0.00      0.05    663.30
  22000.        0.   22000.        0.        0.    4692.        0.    1235.        99.    663.10
    0.66      0.00      4.69      0.00     0.000     0.020     0.000     0.000    636.00   2001.72
0.000363        1.        1.        1.         2         0         0 -1112.84    356.62   2358.34


*SECNO 16.400
 2800 NAT Q1=  11549.43  WSEL=    659.68  ENC Q1=  11640.74  WSEL=    659.78  RATIO= -0.0079
 NAT Q1=  11641.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    659.78

 3370 NORMAL BRIDGE,NRD= 64 MIN ELTRD=  663.00 MAX ELLC=  661.60

 3470 ENCROACHMENT STATIONS=     2000.0     2359.5  TYPE=      4  TARGET=         0.000
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      SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
      Q         QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA    LEFT/RIGHT
      TIME      VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
      SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      663.30 ELREA=      663.10

          1' INSIDE U/S FACE OF R.R. BRIDGE.
       16.40     23.68    659.68      0.00    659.68    660.03      0.34      0.01      0.00    663.30
     22000.         0.   22000.         0.       0.    4693.         0.    1237.        99.    663.10
        0.66      0.00      4.69      0.00     0.000     0.020     0.000     0.000    636.00   2001.72
   0.000363       17.       17.       17.         0         0         0  -1113.24    356.62   2358.34

 *SECNO 16.500
  2800 NAT Q1=   27106.58  WSEL=     659.83  ENC Q1=   27372.18  WSEL=     659.93  RATIO= -0.0098
  NAT Q1=   27372.  RATIOS LOB,CH,ROB=   0.0000   1.0000   0.0000  WSEL=     659.93

 3470 ENCROACHMENT STATIONS=     2000.0     2359.5  TYPE=       4  TARGET=        0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=       663.30 ELREA=       663.10

          U/S FACE OF R.R. BRIDGE.
       16.50     23.83    659.83      0.00    659.83    660.05      0.22      0.00      0.02    663.30
     22000.         0.   22000.         0.       0.    5859.         0.    1237.        99.    663.10
        0.66      0.00      3.75      0.00     0.000     0.020     0.000     0.000    636.00   2001.66
   0.000066          1.        1.        1.         2         0         0      0.00    356.68   2358.35

 *SECNO 17.000
  2800 NAT Q1=   18029.00  WSEL=     659.89  ENC Q1=   18175.07  WSEL=     659.99  RATIO= -0.0081
  NAT Q1=   18276.  RATIOS LOB,CH,ROB=   0.0000   0.9945   0.0055  WSEL=     659.99

 3470 ENCROACHMENT STATIONS=     2000.0     2460.7  TYPE=       4  TARGET=        0.006

          640' U/S OF R.R. BRIDGE.
       17.00     17.88    659.88      0.00    659.89    660.12      0.23      0.06      0.01    664.30
     22000.         0.   22000.         0.       0.    5687.         0.    1322.       105.    658.70
        0.70      0.00      3.87      0.00     0.000     0.025     0.000     0.000    642.00   2004.09
   0.000151       510.      640.      740.         1         0         0      0.00    456.61   2460.70

 CCHV=    0.100 CEHV=    0.300
 1490 NH CARD USED
 *SECNO 18.000
  2800 NAT Q1=   20497.92  WSEL=     660.23  ENC Q1=   20603.00  WSEL=     660.33  RATIO= -0.0051
  NAT Q1=   20855.  RATIOS LOB,CH,ROB=   0.0100   0.9879   0.0021  WSEL=     660.33
```

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
3470 ENCROACHMENT STATIONS=		2000.0	2770.5	TYPE=	4	TARGET=	0.012		
2440' U/S OF R.R. BRIDGE. (*NOTE- SMALL ISLAND IN CHANNEL*)									
18.00	18.23	660.23	0.00	660.23	660.37	0.14	0.24	0.01	654.20
22000.	0.	22000.	0.	0.	7436.	0.	1593.	130.	654.00
0.87	0.00	2.96	0.00	0.000	0.065	0.000	0.000	642.00	2000.00
0.000119	2400.	1800.	1110.	2	0	0	0.00	770.50	2770.50

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THIS RUN EXECUTED 29-MAY-85 08:57:11

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

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

ST JOSEPH RIVER 100 Y

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	629.70	22000.00	643.98	0.00	644.33	4.49	4.77	4676.16	10386.17
1.000	0.00	0.00	0.00	629.70	22000.00	643.98	0.00	644.33	4.52	4.77	4614.21	10347.98
2.000	850.00	0.00	0.00	629.30	22000.00	644.28	0.00	645.01	10.94	6.84	3245.55	6651.97
2.000	850.00	0.00	0.00	629.30	22000.00	644.29	0.00	645.02	11.22	6.84	3217.29	6566.73
2.500	950.00	0.00	0.00	630.00	22000.00	645.19	0.00	645.88	7.81	6.68	3443.10	7870.31
2.500	950.00	0.00	0.00	630.00	22000.00	645.23	0.00	645.93	8.22	6.70	3284.70	7673.17
3.000	940.00	0.00	0.00	630.80	22000.00	646.05	0.00	646.42	3.94	5.01	5764.27	11077.15
3.000	940.00	0.00	0.00	630.80	22000.00	646.11	0.00	646.49	4.13	5.04	5280.70	10826.37
4.000	1130.00	0.00	0.00	625.60	22000.00	646.44	0.00	646.91	4.16	5.52	4054.95	10792.86
4.000	1130.00	0.00	0.00	625.60	22000.00	646.52	0.00	646.99	4.17	5.50	3996.37	10775.50
5.200	580.00	0.00	0.00	629.70	22000.00	646.73	0.00	647.33	9.84	6.22	3537.63	7014.88
5.200	580.00	0.00	0.00	629.70	22000.00	646.81	0.00	647.40	9.66	6.16	3568.77	7078.85
5.300	1.00	672.00	651.60	629.70	22000.00	646.70	0.00	647.35	8.03	6.45	3408.22	7763.16
5.300	1.00	672.00	651.60	629.70	22000.00	646.79	0.00	647.42	7.89	6.40	3438.14	7830.17
5.400	28.40	672.00	651.60	629.70	22000.00	646.73	0.00	647.37	7.99	6.44	3417.15	7783.13
5.400	28.40	672.00	651.60	629.70	22000.00	646.82	0.00	647.45	7.86	6.38	3446.05	7847.96
5.500	1.00	0.00	0.00	629.70	22000.00	646.80	0.00	647.39	9.68	6.17	3564.76	7070.61
5.500	1.00	0.00	0.00	629.70	22000.00	646.88	0.00	647.46	9.51	6.12	3595.60	7134.23
5.600	300.00	0.00	0.00	632.00	22000.00	647.23	0.00	647.63	4.19	5.13	5135.44	10753.26
5.600	300.00	0.00	0.00	632.00	22000.00	647.28	0.00	647.70	4.23	5.18	4415.84	10691.07
6.000	310.00	0.00	0.00	631.40	22000.00	647.36	0.00	647.76	4.08	5.09	4409.15	10891.36
6.000	310.00	0.00	0.00	631.40	22000.00	647.43	0.00	647.83	4.23	5.08	4328.37	10702.54

SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
6.500	520.00	0.00	0.00	633.00	22000.00	647.52	0.00	648.05	5.94	5.87	4253.97	9025.81
6.500	520.00	0.00	0.00	633.00	22000.00	647.59	0.00	648.13	6.05	5.91	3721.11	8947.31
7.000	540.00	0.00	0.00	635.20	22000.00	647.86	0.00	648.60	15.32	6.94	3189.26	5620.01
7.000	540.00	0.00	0.00	635.20	22000.00	647.95	0.00	648.68	15.39	6.88	3195.47	5607.74
8.200	420.00	0.00	0.00	626.20	22000.00	648.64	0.00	648.99	3.50	4.76	4621.58	11752.29
8.200	420.00	0.00	0.00	626.20	22000.00	648.72	0.00	649.07	3.44	4.73	4647.56	11857.05
8.300	1.00	667.10	660.80	626.20	22000.00	648.59	0.00	649.04	3.16	5.40	4075.25	12383.06
8.300	1.00	667.10	660.80	626.20	22000.00	648.67	0.00	649.12	3.11	5.37	4095.59	12469.14
8.400	42.00	667.10	660.80	626.20	22000.00	648.60	0.00	649.06	3.15	5.39	4078.79	12398.04
8.400	42.00	667.10	660.80	626.20	22000.00	648.68	0.00	649.13	3.11	5.37	4098.87	12483.05
8.500	1.00	0.00	0.00	626.20	22000.00	648.74	0.00	649.09	3.43	4.73	4654.19	11883.83
8.500	1.00	0.00	0.00	626.20	22000.00	648.82	0.00	649.16	3.37	4.70	4679.93	11988.04
9.000	540.00	0.00	0.00	634.60	22000.00	648.83	0.00	649.38	3.55	5.94	3793.21	11673.71
9.000	540.00	0.00	0.00	634.60	22000.00	648.91	0.00	649.45	3.64	5.92	3715.60	11537.70
10.200	410.00	0.00	0.00	626.40	22000.00	649.13	0.00	649.52	2.05	5.01	4395.17	15349.72
10.200	410.00	0.00	0.00	626.40	22000.00	649.21	0.00	649.59	2.02	4.98	4419.60	15476.36
10.300	1.00	655.40	654.40	626.40	22000.00	649.10	0.00	649.53	2.73	5.26	4181.64	13316.60
10.300	1.00	655.40	654.40	626.40	22000.00	649.18	0.00	649.61	2.69	5.23	4205.20	13418.85
10.400	42.00	655.40	654.40	626.40	22000.00	649.11	0.00	649.54	2.72	5.26	4184.53	13329.14
10.400	42.00	655.40	654.40	626.40	22000.00	649.20	0.00	649.62	2.68	5.23	4208.43	13432.84
10.500	1.00	0.00	0.00	626.40	22000.00	649.17	0.00	649.55	1.44	4.99	4406.80	18345.19
10.500	1.00	0.00	0.00	626.40	22000.00	649.25	0.00	649.63	1.41	4.96	4431.08	18495.17
11.000	390.00	0.00	0.00	630.90	22000.00	649.29	0.00	649.62	1.68	4.66	5249.70	16951.32
11.000	390.00	0.00	0.00	630.90	22000.00	649.36	0.00	649.70	1.70	4.69	4831.40	16881.47
12.100	430.00	0.00	0.00	633.20	22000.00	649.28	0.00	649.75	2.19	5.48	4448.30	14883.19
12.100	430.00	0.00	0.00	633.20	22000.00	649.35	0.00	649.82	2.26	5.52	4034.43	14623.44
12.200	600.00	0.00	0.00	633.70	22000.00	649.76	0.00	649.89	0.92	2.96	7635.75	22891.30
12.200	600.00	0.00	0.00	633.70	22000.00	649.84	0.00	649.97	0.92	2.95	7451.63	22992.70
12.300	1.00	644.10	647.40	633.70	22000.00	649.75	0.00	649.90	1.32	3.15	7187.56	19144.15
12.300	1.00	644.10	647.40	633.70	22000.00	649.82	0.00	649.98	1.31	3.15	6983.77	19230.56
12.400	10.80	644.10	647.40	633.70	22000.00	649.75	0.00	649.90	1.32	3.15	7160.69	19126.18
12.400	10.80	644.10	647.40	633.70	22000.00	649.83	0.00	649.98	1.31	3.15	6981.74	19220.79
12.500	1.00	0.00	0.00	633.70	22000.00	649.77	0.00	649.90	0.86	2.96	7645.18	23790.99
12.500	1.00	0.00	0.00	633.70	22000.00	649.85	0.00	649.98	0.85	2.95	7459.78	23893.97

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
12.600	160.00	0.00	0.00	636.70	22000.00	649.78	0.00	649.92	1.21	3.09	7403.15	20012.82
12.600	160.00	0.00	0.00	636.70	22000.00	649.86	0.00	650.00	1.22	3.08	7136.43	19932.43
13.200	940.00	0.00	0.00	629.80	22000.00	649.84	0.00	650.05	0.94	3.65	6039.80	22715.87
13.200	940.00	0.00	0.00	629.80	22000.00	649.92	0.00	650.13	0.93	3.63	6057.47	22844.55
13.300	1.00	0.00	0.00	629.80	22000.00	649.83	0.00	650.05	1.89	3.76	5894.55	16022.32
13.300	1.00	0.00	0.00	629.80	22000.00	649.91	0.00	650.13	1.87	3.75	5874.47	16072.93
13.400	12.00	0.00	0.00	629.80	22000.00	649.84	0.00	650.06	1.89	3.76	5891.92	16011.14
13.400	12.00	0.00	0.00	629.80	22000.00	649.92	0.00	650.13	1.88	3.75	5872.19	16062.65
13.500	1.00	0.00	0.00	629.80	22000.00	649.85	0.00	650.06	0.78	3.65	6040.88	24886.02
13.500	1.00	0.00	0.00	629.80	22000.00	649.93	0.00	650.14	0.77	3.63	6058.52	25027.21
14.000	700.00	0.00	0.00	630.20	22000.00	649.84	0.00	650.20	1.99	4.81	4573.66	15587.42
14.000	700.00	0.00	0.00	630.20	22000.00	649.92	0.00	650.28	1.96	4.78	4599.81	15727.21
15.100	560.00	0.00	0.00	634.70	22000.00	649.91	0.00	650.37	2.74	5.45	4037.45	13280.44
15.100	560.00	0.00	0.00	634.70	22000.00	649.99	0.00	650.45	2.70	5.42	4060.44	13395.34
15.200	16.00	652.80	640.00	634.70	22000.00	659.77	0.00	659.92	0.44	3.07	7163.21	33289.29
15.200	16.00	652.80	640.00	634.70	22000.00	659.77	0.00	659.92	0.45	3.07	7163.24	32871.59
16.200	380.00	0.00	0.00	636.00	22000.00	659.75	0.00	659.97	1.05	3.77	5829.92	21513.45
16.200	380.00	0.00	0.00	636.00	22000.00	659.75	0.00	659.97	1.05	3.77	5830.05	21514.22
16.300	1.00	663.00	661.60	636.00	22000.00	659.68	0.00	660.02	3.63	4.69	4691.40	11545.96
16.300	1.00	663.00	661.60	636.00	22000.00	659.68	0.00	660.02	3.63	4.69	4691.53	11546.37
16.400	16.50	663.00	661.60	636.00	22000.00	659.68	0.00	660.02	3.63	4.69	4692.53	11549.43
16.400	16.50	663.00	661.60	636.00	22000.00	659.68	0.00	660.03	3.63	4.69	4693.27	11551.73
16.500	1.00	0.00	0.00	636.00	22000.00	659.83	0.00	660.05	0.66	3.75	5858.85	27106.58
16.500	1.00	0.00	0.00	636.00	22000.00	659.83	0.00	660.05	0.66	3.75	5859.01	27107.75
17.000	640.00	0.00	0.00	642.00	22000.00	659.89	0.00	660.11	1.49	3.85	6038.23	18029.00
17.000	640.00	0.00	0.00	642.00	22000.00	659.88	0.00	660.12	1.51	3.87	5686.87	17919.75
18.000	1800.00	0.00	0.00	642.00	22000.00	660.23	0.00	660.36	1.15	2.93	8281.56	20497.92
18.000	1800.00	0.00	0.00	642.00	22000.00	660.23	0.00	660.37	1.19	2.96	7435.56	20186.13

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ST JOSEPH RIVER 100 Y

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.000	22000.00	643.98	0.00	0.00	4.98	478.64	0.00
1.000	22000.00	643.98	0.00	0.00	0.00	395.57	0.00
2.000	22000.00	644.28	0.00	0.31	0.00	343.13	850.00
2.000	22000.00	644.29	0.01	0.31	0.01	314.90	850.00
2.500	22000.00	645.19	0.00	0.91	0.00	326.61	950.00
2.500	22000.00	645.23	0.04	0.94	0.04	260.00	950.00
3.000	22000.00	646.05	0.00	0.86	0.00	752.59	940.00
3.000	22000.00	646.11	0.06	0.88	0.06	560.53	940.00
4.000	22000.00	646.44	0.00	0.38	0.00	289.82	1130.00
4.000	22000.00	646.52	0.08	0.40	0.08	257.96	1130.00
5.200	22000.00	646.73	0.00	0.29	0.00	368.19	580.00
5.200	22000.00	646.81	0.08	0.29	0.08	371.29	580.00
5.300	22000.00	646.70	0.00	-0.02	0.00	367.36	1.00
5.300	22000.00	646.79	0.08	-0.02	0.08	370.48	1.00
5.400	22000.00	646.73	0.00	0.03	0.00	368.30	28.40
5.400	22000.00	646.82	0.08	0.03	0.08	371.30	28.40
5.500	22000.00	646.80	0.00	0.07	0.00	370.89	1.00
5.500	22000.00	646.88	0.08	0.07	0.08	373.94	1.00
5.600	22000.00	647.23	0.00	0.43	0.00	906.54	300.00
5.600	22000.00	647.28	0.05	0.40	0.05	355.00	300.00
6.000	22000.00	647.36	0.00	0.13	0.00	426.14	310.00
6.000	22000.00	647.43	0.07	0.14	0.07	314.77	310.00
6.500	22000.00	647.52	0.00	0.16	0.00	577.25	520.00
6.500	22000.00	647.59	0.07	0.16	0.07	290.00	520.00
7.000	22000.00	647.86	0.00	0.34	0.00	342.67	540.00
7.000	22000.00	647.95	0.09	0.36	0.09	322.00	540.00
8.200	22000.00	648.64	0.00	0.78	0.00	324.01	420.00
8.200	22000.00	648.72	0.08	0.77	0.08	324.19	420.00
8.300	22000.00	648.59	0.00	-0.05	0.00	323.90	1.00
8.300	22000.00	648.67	0.08	-0.05	0.08	324.08	1.00
8.400	22000.00	648.60	0.00	0.01	0.00	323.93	42.00
8.400	22000.00	648.68	0.08	0.01	0.08	324.11	42.00

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
8.500	22000.00	648.74	0.00	0.14	0.00	324.23	1.00
8.500	22000.00	648.82	0.08	0.14	0.08	324.40	1.00
9.000	22000.00	648.83	0.00	0.09	0.00	372.24	540.00
9.000	22000.00	648.91	0.08	0.09	0.08	296.20	540.00
10.200	22000.00	649.13	0.00	0.30	0.00	300.13	410.00
10.200	22000.00	649.21	0.08	0.30	0.08	300.57	410.00
10.300	22000.00	649.10	0.00	-0.02	0.00	299.99	1.00
10.300	22000.00	649.18	0.08	-0.02	0.08	300.44	1.00
10.400	22000.00	649.11	0.00	0.01	0.00	300.05	42.00
10.400	22000.00	649.20	0.08	0.01	0.08	300.50	42.00
10.500	22000.00	649.17	0.00	0.05	0.00	300.33	1.00
10.500	22000.00	649.25	0.08	0.05	0.08	300.77	1.00
11.000	22000.00	649.29	0.00	0.13	0.00	467.39	390.00
11.000	22000.00	649.36	0.07	0.11	0.07	331.42	390.00
12.100	22000.00	649.28	0.00	-0.01	0.00	508.53	430.00
12.100	22000.00	649.35	0.07	-0.01	0.07	253.60	430.00
12.200	22000.00	649.76	0.00	0.47	0.00	740.80	600.00
12.200	22000.00	649.84	0.08	0.49	0.08	621.70	600.00
12.300	22000.00	649.75	0.00	-0.01	0.00	740.60	1.00
12.300	22000.00	649.82	0.08	-0.01	0.08	621.70	1.00
12.400	22000.00	649.75	0.00	0.00	0.00	740.44	10.80
12.400	22000.00	649.83	0.08	0.00	0.08	621.70	10.80
12.500	22000.00	649.77	0.00	0.02	0.00	741.28	1.00
12.500	22000.00	649.85	0.08	0.02	0.08	621.70	1.00
12.600	22000.00	649.78	0.00	0.01	0.00	814.81	160.00
12.600	22000.00	649.86	0.08	0.01	0.08	680.00	160.00
13.200	22000.00	649.84	0.00	0.06	0.00	445.94	940.00
13.200	22000.00	649.92	0.08	0.07	0.08	415.90	940.00
13.300	22000.00	649.83	0.00	-0.01	0.00	448.84	1.00
13.300	22000.00	649.91	0.08	-0.01	0.08	415.90	1.00
13.400	22000.00	649.84	0.00	0.00	0.00	448.63	12.00
13.400	22000.00	649.92	0.08	0.00	0.08	415.90	12.00
13.500	22000.00	649.85	0.00	0.02	0.00	446.04	1.00
13.500	22000.00	649.93	0.08	0.02	0.08	415.90	1.00

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
14.000	22000.00	649.84	0.00	-0.01	0.00	323.53	700.00
14.000	22000.00	649.92	0.08	-0.01	0.08	323.77	700.00
15.100	22000.00	649.91	0.00	0.07	0.00	303.92	560.00
15.100	22000.00	649.99	0.08	0.07	0.08	304.28	560.00
15.200	22000.00	659.77	0.00	9.86	0.00	320.00	16.00
15.200	22000.00	659.77	0.00	9.78	0.00	320.00	16.00
16.200	22000.00	659.75	0.00	-0.02	0.00	356.65	380.00
16.200	22000.00	659.75	0.00	-0.02	0.00	356.65	380.00
16.300	22000.00	659.68	0.00	-0.07	0.00	356.62	1.00
16.300	22000.00	659.68	0.00	-0.07	0.00	356.62	1.00
16.400	22000.00	659.68	0.00	0.01	0.00	356.62	16.50
16.400	22000.00	659.68	0.00	0.01	0.00	356.62	16.50
16.500	22000.00	659.83	0.00	0.15	0.00	356.68	1.00
16.500	22000.00	659.83	0.00	0.15	0.00	356.68	1.00
17.000	22000.00	659.89	0.00	0.05	0.00	682.46	640.00
17.000	22000.00	659.88	0.00	0.05	0.00	456.61	640.00
18.000	22000.00	660.23	0.00	0.34	0.00	1133.96	1800.00
18.000	22000.00	660.23	0.00	0.35	0.00	270.50	1800.00

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FLOODWAY DATA, ST JOSEPH RIVER 100 Y
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
1.000	396.	4614.	4.8	644.0	644.0	0.0
2.000	315.	3217.	6.8	644.3	644.3	0.0
2.500	260.	3285.	6.7	645.2	645.2	0.0
3.000	561.	5281.	4.2	646.2	646.1	0.1
4.000	258.	3996.	5.5	646.5	646.4	0.1
5.200	371.	3569.	6.2	646.8	646.7	0.1
5.300	370.	3438.	6.4	646.8	646.7	0.1
5.400	371.	3446.	6.4	646.8	646.7	0.1
5.500	374.	3596.	6.1	646.9	646.8	0.1
5.600	355.	4416.	5.0	647.3	647.2	0.1
6.000	315.	4328.	5.1	647.5	647.4	0.1
6.500	290.	3721.	5.9	647.6	647.5	0.1
7.000	322.	3195.	6.9	648.0	647.9	0.1
8.200	324.	4648.	4.7	648.7	648.6	0.1
8.300	324.	4096.	5.4	648.7	648.6	0.1
8.400	324.	4099.	5.4	648.7	648.6	0.1
8.500	324.	4680.	4.7	648.8	648.7	0.1
9.000	296.	3716.	5.9	648.9	648.8	0.1
10.200	301.	4420.	5.0	649.2	649.1	0.1
10.300	300.	4205.	5.2	649.2	649.1	0.1
10.400	300.	4208.	5.2	649.2	649.1	0.1
10.500	301.	4431.	5.0	649.3	649.2	0.1
11.000	331.	4831.	4.6	649.4	649.3	0.1
12.100	254.	4034.	5.5	649.4	649.3	0.1
12.200	622.	7452.	3.0	649.9	649.8	0.1
12.300	622.	6984.	3.2	649.8	649.7	0.1
12.400	622.	6982.	3.2	649.8	649.7	0.1
12.500	622.	7460.	2.9	649.9	649.8	0.1
12.600	680.	7136.	3.1	649.9	649.8	0.1
13.200	416.	6057.	3.6	649.9	649.8	0.1
13.300	416.	5874.	3.7	649.9	649.8	0.1
13.400	416.	5872.	3.7	649.9	649.8	0.1
13.500	416.	6059.	3.6	650.0	649.9	0.1
14.000	324.	4600.	4.8	649.9	649.8	0.1
15.100	304.	4060.	5.4	650.0	649.9	0.1
15.200	320.	7163.	3.1	659.8	659.8	0.0
16.200	357.	5830.	3.8	659.7	659.7	0.0
16.300	357.	4692.	4.7	659.7	659.7	0.0
16.400	357.	4693.	4.7	659.7	659.7	0.0
16.500	357.	5859.	3.8	659.8	659.8	0.0
17.000	457.	5687.	3.9	659.9	659.9	0.0
18.000	771.	7436.	3.0	660.2	660.2	0.0

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1) COUNTY: Berrien

2) STUDY NAME: Niles, City of

3) WATERCOURSE: St. Joseph River

4) DOCUMENT TYPE: Report





STS Consultants Ltd.
Consulting Engineers

Miles

Report

6113

FEDERAL EMERGENCY MANAGEMENT AGENCY
REGION V
300 SOUTH WACKER DRIVE
24TH FLOOR
CHICAGO, ILLINOIS 60606

CITY OF NILES FLOOD INSURANCE STUDY

HYDRAULIC ANALYSIS REPORT

STS JOB NO. 1055F

MAY 1985

STS Consultants Ltd.
Consulting Engineers
3340 Ranger Road
Lansing, Michigan 48906
(517) 321-4964

May 28, 1985

Mr. Steve Miller
Michigan Department of Natural Resources
Water Management Division
P.O. Box 30028
Lansing, Michigan 48909

RE: City of Niles Flood Insurance Study
HYDRAULIC ANALYSIS REPORT

Dear Steve:

Enclosed is the hydraulic analysis report for the St. Joseph River, the Dowagiac River and the West Tributary in the City of Niles, Berrien County, Michigan. This report is in partial fulfillment of the City of Niles Flood Insurance Study (FIS) which is being developed by STS Consultants, Ltd. under contract to the Federal Emergency Management Agency (FEMA).

The objective of this report is to summarize the technical analyses which were performed to develop flood plain elevations and limits for the St. Joseph River, the Dowagiac River and the West Tributary. Floods which were investigated include the 10-, 50-, 100-, and the 500-year frequency events.

Your review of this report is requested. Upon receipt of approval of this report from your office, STS will proceed with

finalizing the FIS for the City of Niles. In the meantime, if you have any questions regarding this report, please feel free to call at (517) 321-4964.

Sincerely,

STS CONSULTANTS, LTD.

Bernard B. Sheff, EIT
Assistant Project Engineer

William J. Weaver, P.E.
Project Manager

Enclosure

cc: Don Glondys, FEMA w/enclosure

STS Job No. 1055F

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1.0 INTRODUCTION

This hydraulic analysis report has been developed as part of the City of Niles Flood Insurance Study (FIS) which STS Consultants, Ltd. is performing under contract with the Federal Emergency Management Agency (FEMA). The objective of this study is to develop flood plain limits and elevations for the St. Joseph River, the Dowagiac River, and the West Tributary; to define floodway areas sensitive to development; and estimate the relative risk of flooding. The purpose of this report is to summarize the technical analyses which were performed in the development of flood elevations and delineations.

The scope of this study includes the analysis of the 10-, 50-, 100-, and 500-year frequency flood events for the following streams:

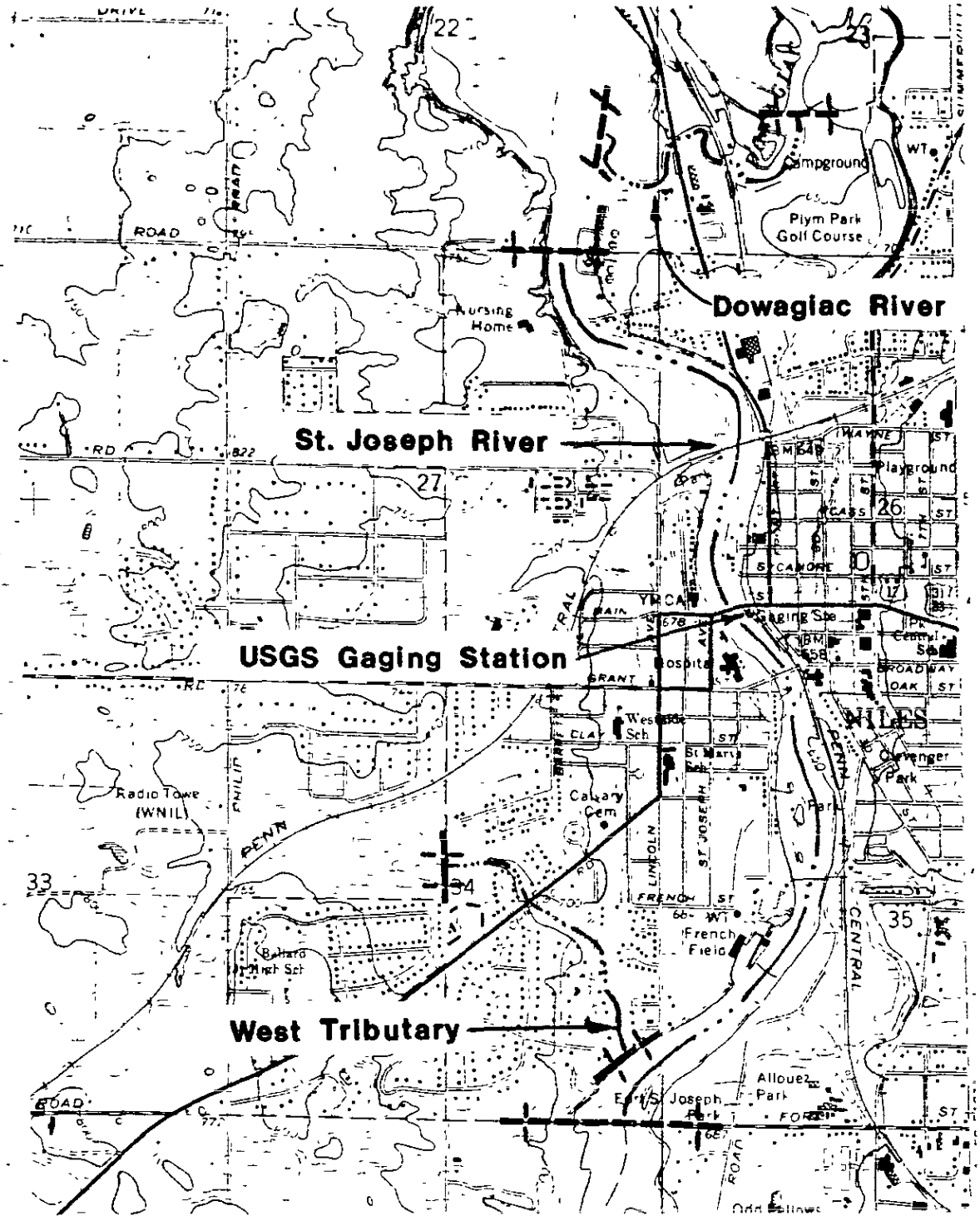
a. St. Joseph River - Beginning at a point approximately 1,000 feet downstream from the downstream city limits, and ending upstream at the city limits, a distance of approximately 2.7 miles.

b. Dowagiac River - Beginning at the confluence of the Dowagiac River and the St. Joseph River, and extending approximately 0.7 miles upstream.

c. West Tributary - Beginning at the confluence of West Tributary and the St. Joseph River, and extending upstream approximately 0.7 miles to the city limits.

A vicinity map of the study area is presented in Figure 1. The drainage area of the St. Joseph River above the Main Street Bridge is approximately 3,666 square miles. The Dowagiac River is tributary to the St. Joseph River. The confluence of these streams is located approximately 1,000' downstream from the City of Niles city limits. The drainage area of the Dowagiac River at the mouth is approximately 288 square miles.

West Tributary is an unnamed tributary to the St. Joseph River. This tributary is located in the southwest corner of the City of Niles, and has a total drainage area of approximately 2.66 square miles.



STS Consultants Ltd. FIGURE SHEET	PROJECT: City of Niles FIS			FIGURE NO.: 1
	TITLE: Vicinity Map			JOB NO.: 1055
	DATE: 3 / 85	DRAWN BY: TMR	APPROVED BY: WJW	SCALE: 1" = 2000'

2.0 HYDROLOGIC ANALYSIS

Peak discharges which were utilized in the development of the 10-, 50-, 100- and 500-year flood profiles are summarized on Table 1. A detailed description of the hydrologic analyses that were performed in the development of these discharges is presented in the City of Niles Hydrologic Analysis Report (Reference 4).

TABLE 1

SUMMARY OF DISCHARGES

Flooding Source and Location	Drainage Area (square miles)	PEAK DISCHARGE (cfs) 10-Year	50-Year	100-Year	500-Year	Mean Annual Flood
ST. JOSEPH RIVER Upstream of Confluence with Dowagiac River	3666	15,700	20,200	22,000	26,400	10,800
DOWAGIAC RIVER Confluence with St. Joseph River	288	1,270	1,490	1,580	1,800	1,050
WEST TRIBUTARY Confluence with St. Joseph River	2.66	210	340	400	500	-

*2.33-year recurrence interval.

3.0 HYDRAULIC ANALYSIS

3.1 General

Hydraulic analyses were performed for the St. Joseph River, Dowagiac River and West Tributary to develop the 10-, 50-, 100-, and 500-year flood elevations and delineations. A floodway was then developed to identify areas of the flood plain which are sensitive to development. Finally, flood hazard analyses were performed to determine the relative degree of risk at different locations along the river systems.

Following is a discussion of the methodologies that were employed in the assessment of flood conditions in the City of Niles.

3.2 Methodology

For all three streams, the U.S. Army Corps of Engineers HEC-2 computer model (Reference 1) was utilized to simulate the 10-, 50-, 100-, and 500-year flood events and to estimate water surface elevations. This program simulates water surface profiles in natural or man made channels based upon the solution of the one-dimensional energy equation. Energy losses due to friction are evaluated using Manning's equation. The program has the capability to assess the impacts of various

obstructions to flow including bridges, culverts, weirs and dams. The computational procedure utilized by the program is generally known as the standard step method. Parameters which were input to the HEC-2 computer model include stream, bridge, culvert and dam cross section dimensions and elevations, Manning's roughness coefficients associated with stream bed and overbank areas, expansion and contraction coefficients, and the distances between cross sections and structures.

3.3 Cross Section Development

Stream and bridge cross section data which were utilized in the backwater analyses of the St. Joseph River, Dowagiac River and West Tributary were obtained as follows:

1. A land survey was performed in September, 1983 by STS to obtain below water channel elevations and detailed dimensions and elevations of all river crossings.

2. An aerial survey was performed in May, 1983 to obtain elevations in overbank areas (Reference 3).

3. Results of both surveys were spliced to form composite river valley cross sections.

Plots of these cross sections are presented in Appendix C.

3.4 St. Joseph River

3.4.1 Starting Conditions

The St. Joseph River is very flat and has a uniform cross section near Niles. Therefore, the slope-area method was utilized to provide starting conditions for the backwater analysis that was performed. Three different methodologies were used to estimate the starting friction slope for this method. These methodologies included: a) an average regional slope was obtained from the invert elevation of Cross Section 1, and the invert elevation downstream of the French Paper Company Dam; b) a computed slope from water surface elevations at Cross Sections 1 and 2; and c) a localized slope obtained from the invert elevations at Cross Sections 1 and 2. The resultant slope which was selected, which is an average of all three slopes, is 0.00044 feet per foot. The range of the three slopes was from 0.00040 to 0.00047. The selected friction slope was utilized for the starting condition for all four flood profiles.

3.4.2 Backwater Analysis

Backwater analyses which were performed for the St. Joseph River began approximately 800 feet downstream from the

corporate boundary. The HEC-2 computer model was utilized for this analysis (Reference 1). Distances between cross sections and structures for both the channel and overbank areas were obtained from the work map presented in Appendix C. This map was generated from an aerial survey. Table 2 presents a cross reference between cross section designations for the HEC-2 model, the land survey, and the work map and profiles. Descriptions of cross section locations are also provided.

Manning's roughness coefficients (Reference 5) utilized in the computer model varied between 0.025 and 0.034 for the stream channel, and ranged from 0.08 to 0.1 in the stream overbank areas. Manning's roughness coefficients for bridge sections were estimated based upon a weighted average between the stream channel and the structural surfaces. Contraction and expansion coefficients (Reference 1) were established as 0.1 and 0.3, respectively, for smooth transitions, and ranged from 0.2 and 0.4 to 0.3 and 0.5 for abrupt transitions, respectively. Selection of these parameters was based upon extensive field investigations. All bridges which cross the St. Joseph River are not expected to flow under pressure during the flood events which were analyzed; therefore, these bridges were modeled with the HEC-2 normal bridge routine.

TABLE 2

CITY OF NILES FLOOD INSURANCE STUDY
CROSS SECTION - CROSS REFERENCE
ST. JOSEPH RIVER

HEC-2 Designation	Land Survey Cross Section	FIS Map Designation	Description
1.0	1.0	A	4,430' D/S from Conrail Bridge
2.0	2.0	B	3,580' D/S from Conrail Bridge
3.0	3.0	C	1,710' D/S from Conrail Bridge
4.0	4.0	D	580' D/S from Conrail Bridge
5.2	-	E	D/S Face of Conrail Bridge
5.5	5.0	F	U/S Face of Conrail Bridge
6.0	6.0	G	610' U/S of Conrail Bridge
7.0	7.0	H	420' D/S from Main Street Bridge
8.2	-	I	D/S face of Main Street Bridge
8.5	8.0	J	U/S Face of Main Street Bridge
9.0	9.0	K	410' D/S from Grant Street Bridge
10.2	-	L	D/S Face of Grant Street Bridge
10.5	10.0	M	U/S Face of Grant Street Bridge

TABLE 2 (Continued)

CITY OF NILES FLOOD INSURANCE STUDY
CROSS SECTION - CROSS REFERENCE
ST. JOSEPH RIVER

HEC-2 Designation	Land Survey Cross Section	FIS Map Designation	Description
11.0	11.0	N	390' U/S of Grant Street Bridge
12.2	-	O	D/S Face of Timber Walkway Bridge
12.5	12.0	P	U/S Face of Timber Walkway Bridge
13.5	13.0	Q	U/S Face of Abandoned Bridge
14.0	14.0	R	560' D/S from French Paper Company Dam
15.1	-	S	16' D/S from French Paper Company Dam
15.2	15.0	T	Crest of French Paper Company Dam
16.2	-	U	D/S Face of Railroad Bridge
16.5	16.0	V	U/S Face of Railroad Bridge
17.0	17.0	W	640' U/S of Railroad Bridge
18.0	18.0	X	2,440' U/S of Railroad Bridge

The French Paper Company Dam was modeled with the HEC-2 Special Bridge routine. The dam owner/operator indicated that the wooden flashboards at the dam crest are normally in place; however, during flood events, the flashboards usually fail and are washed out. Therefore, the dam was modeled without the flashboards. Furthermore, there is no established operational procedure for the powerhouse which is adjacent to the dam. Thus, it was assumed that no flow would pass through the powerhouse during a flood event. The entire discharge was assumed to pass over the primary spillway.

The ogee shaped concrete spillway of the French Paper Company Dam is approximately 320 feet long (Reference 6). Flashboards have been placed on the upstream side of the spillway. The weir coefficient used to describe the spillway in the hydraulic model was 3.9 (Reference 7). The crest elevation of the dam is 652.8 NGVD. With flashboards in place, the weir crest is raised to approximately 655.3 NGVD. During flood conditions, the flashboards are released and the weir crest becomes elevation 652.8.

3.4.3 Historic High Water Mark Assessment

Available historic high water marks were utilized to calibrate the hydraulic model of the St. Joseph River. The elevation of these high water marks were estimated by the Michigan Department of Natural Resources. The flood which was utilized to calibrate the hydraulic model occurred in March of 1982 and peaked at approximately 3:00 a.m. March 21, 1982. The flow at the peak has been estimated to be approximately 19,900 cubic feet per second (Reference 8). This flow is based on a peak water surface elevation of 647.99 (NGVD) at the USGS flow gage in Niles which is located at the Main Street Bridge. Other high water marks were surveyed at the following locations: #1 Parkway, approximately 250' upstream of the Broadway Street Bridge at the base of a growth of Lilac bushes; #325 Parkway, just upstream of the Island Bridge on the door of the house; downstream of the French Paper Company Dam at a stairway on the left bank; upstream of the French Paper Company Dam recorded on the floor of the powerhouse.

In order to calibrate the HEC-2 computer model profile to the historic flood, the Mannings "n" values and contraction and expansion coefficients were modified until the flood profiles matched. Both overbank and channel "n" values were modified. Specifically, channel "n" values

were selected as 0.034 for the lower section of the river, below Main Street Bridge, and 0.025 above the Main Street Bridge. The expansion and contraction coefficients were modified from 0.3 and 0.5 for abrupt changes to 0.2 and 0.4 in some cases. Table 3 shows a comparison of historic water surface elevations versus simulated water surface elevations based on the HEC-2 calibration model.

Inspection of Table 3 illustrates that the water surface elevations match closely with the historic high water marks. Two historic high water marks (HWM) were discarded. These included the following: a) the HWM at the private residence at a building at #1 Parkway, and b) the headwater upstream from the French Paper Company Dam. Specifically, the HWM at #1 Parkway was not utilized because it was inexplicably 0.17 feet lower than the nearest downstream HWM at the Main Street Bridge. The HWM from the headwater of the French Paper Company Dam was discarded because the powerhouse operating procedures could not be determined during the time of the flood. Specifically, the flow through the powerhouse, which bypasses the dam, was not known; therefore, the flow passing over the dam could not be determined. It is estimated that the flow through the powerhouse was approximately 3,000 cfs during the flood of March 1982.

TABLE 3

CITY OF NILES FLOOD INSURANCE STUDY
COMPARISON OF HISTORIC AND SIMULATED FLOOD ELEVATIONS
FOR THE MARCH 1982 FLOOD EVENT

Location	Description	Historic High Water Mark** (ft)*	Simulated Flood Elevation (ft)***
USGS Staff Gage	Approximately 100' U/S from Main Street Bridge	648.0	648.0
#325 Parkway	Approximately 100' U/S of the Island Park Pedestrian Bridge	648.8	649.0
French Paper Company Dam	Approximately 100' to 200' D/S of Dam	649.0	649.1

* Referenced to National Geodetic Vertical Datum

** Measured by Michigan DNR

***Based Upon Backwater Analysis with HEC-2 Computer Model

The calibrated HEC-2 computer model was used to estimate the 10-, 50-, 100-, and 500-year flood profiles for the St. Joseph River.

3.5 Dowagiac River

3.5.1 Starting Conditions

Starting conditions for the backwater analysis of the Dowagiac River were established as the mean annual flood elevation of the St. Joseph River at the confluence of these two rivers. This elevation is estimated to be 640.5 and was obtained from a stage-frequency curve developed for the St. Joseph River. This curve and the calculations which accompany it are presented in Appendix E.

3.5.2 Backwater Analysis

Backwater analyses for the Dowagiac River were started at its confluence with the St. Joseph River, and ended at the upstream corporate boundary. The HEC-2 computer model was utilized for this analysis (Reference 1).

Distances between cross sections and structures for this model were obtained from the work map generated from the aerial survey. This map is presented in Appendix A.

Table 4 presents a cross reference between cross section designations for the HEC-2 model, the land survey, and the work map and profiles. Descriptions of cross section locations are also provided.

All bridges across the Dowagiac River are not expected to run under pressure for the flood events which were analyzed. Therefore, these structures were modeled with the Normal Bridge Routine. Manning's roughness coefficients utilized in the computer model ranged from 0.033 to 0.040 for the stream channel, and ranged from 0.05 to 0.10 for the overbank areas. Contraction and expansion coefficients (Reference 1) were established as 0.1 and 0.3 for smooth transitions and 0.3 and 0.5 for abrupt transitions, respectively. Selection of these parameters was based upon extensive field investigations.

3.6 West Tributary

3.6.1 Starting Conditions

Starting conditions for the backwater analysis of the West Tribuatary were based on a slope area start. The slope area start was utilized because the mean annual flood elevation of the St. Joseph River at the confluence of West Tributary was too low to provide suitable starting

TABLE 4

CITY OF NILES FLOOD INSURANCE STUDY
CROSS SECTION - CROSS REFERENCE
DOWAGIAC RIVER

HEC-2 Designation	Land Survey Cross Section	FIS Map Designation	Description
1.0	1.0	A	400' U/S of the St. Joseph River
2.0	2.0	B	1,020' U/S of the St. Joseph River
3.2	-	C	D/S Face of U.S. 31-33
3.5	3.0	D	U/S Face of U.S. 31-33
5.2	-	E	D/S Face of Conrail R.R. Bridge
5.5	5.0	F	U/S Face of Conrail R.R. Bridge
6.0	6.0	G	600' U/S of Conrail R.R. Bridge
7.0	7.0	H	1,900' U/S of Conrail R.R. Bridge
8.0	8.0	I	2,530' U/S of Conrail R.R. Bridge

conditions. To estimate the starting slope, surveyed invert elevations of the West Tributary were utilized which yielded a slope of 0.008. Slope calculations are provided in Appendix F.

3.6.2 Backwater Analysis

Backwater analyses for the West Tributary were started at its confluence with the St. Joseph River, and ended near the upstream corporate boundary. The HEC-2 computer model was utilized for this analysis (Reference 1).

Distances between cross sections and structures for both the stream channel and overbank areas were obtained from the work map generated from the aerial survey. This map is presented in Appendix A. Table 5 presents a cross reference between cross section designations for the HEC-2 model, the land survey, and the work map and profiles. Descriptions of cross section locations are also provided.

The Normal Bridge Routine was utilized to model five structures which cross the West Tributary. These structures include three foot bridges, a fully submerged culvert at Chicago Road, and an old concrete weir. The other four structures which cross this stream were modeled with the Special Bridge Routine. Manning's roughness

TABLE 5

CITY OF NILES FLOOD INSURANCE STUDY
CROSS SECTION - CROSS REFERENCE
WEST TRIBUTARY

HEC-2 Designation	Land Survey Cross Section	FIS Map Designation	Description
1.0	1.0	A	150' U/S of Confluence with St. Joseph River
2.6	-	B	D/S Face of Concrete Weir 750' U/S of Confluence with St. Joseph River.
2.8	2.5	C	U/S Face of Concrete Weir 750' U/S of confluence with St. Joseph River
3.0	3.0	D	810' U/S of Confluence with St. Joseph River
4.4	4.0	E	U/S Face of Wood Foot Bridge 1,270' U/S of Confluence with St. Joseph River
4.8	4.5	F	U/S Face of Wood Foot Bridge 1,390' U/S of Confluence with St. Joseph River
5.0	-	G	D/S Face of 3' x 5' Concrete Box Culvert at Topinabee Road
5.2	5.0	H	U/S Face of 3' x 5' Concrete Box Culvert at Topinabee Road

TABLE 5 (Continued)

CITY OF NILES FLOOD INSURANCE STUDY
CROSS SECTION - CROSS REFERENCE
WEST TRIBUTARY

HEC-2 Designation	Land Survey Cross Section	FIS Map Designation	Description
6.0	6.0	I	1,750' U/S of Confluence with St. Joseph River
7.0	-	J	D/S Face of Box Culvert under Wesaw Road
7.2	7.0	K	U/S Face of Box Culvert under Wesaw Road
8.0	8.0	L	2,180' U/S of Confluence with St. Joseph River
9.0	-	M	D/S Face of Concrete Box Culvert at Chicago Road
9.2	9.0	N	U/S Face of Concrete Box Culvert at Chicago Road
9.5	9.5	O	D/S Face, C.M.P. Arch Culvert 2,600' U/S of Confluence with St. Joseph River
9.7	-	P	U/S Face of 44" x 72" C.M.P. Arch at Chicago Road

TABLE 5 (Continued)

CITY OF NILES FLOOD INSURANCE STUDY
CROSS SECTION - CROSS REFERENCE
WEST TRIBUTARY

HEC-2 Designation	Land Survey Cross Section	FIS Map Designation	Description
10.0	10.0	Q	3,000' U/S of Confluence with St. Joseph River
11.0	11.0	R	3,700' U/S of Confluence with St. Joseph River
11.8	11.5	S	U/S Face of Wood and Steel Foot Bridge 4,000' U/S of Confluence with St. Joseph River
12.0	12.0	T	4,400' U/S of Confluence with St. Joseph River

coefficients utilized in the computer model ranged from 0.03 to 0.06 for the stream channel, and 0.035 to 0.10 for the overbank areas. Contraction and expansion coefficients (Reference 1) were established as 0.1 and 0.3 for smooth transitions and 0.3 and 0.5 for abrupt transitions, respectively. Selection of these parameters was based upon extensive field investigations.

Detailed calculations which were performed to estimate bridge loss and weir flow coefficients for the Special Bridge Routines that were set up are presented in Appendix F. Bridge losses which are accounted for include friction, expansion, contraction, entrance and exit losses, and varied between 1.65 to 1.90 for the three structures that were analyzed with this routine. Weir flow coefficients were selected as 3.0 in all cases to reflect flow over the roadway embankment (Reference 1).

3.7 Floodway Development

One of the major objectives of the Flood Insurance Study is to develop a floodway for the river systems which were analyzed. The floodway is the portion of the flood hazard area adjacent to the river which is necessary for the passage of flood water, and is an area in which development is restricted such that flood conditions are not worsened.

The floodway for the City of Niles FIS was developed with the HEC-2 computer model. Stream encroachment method number four (4) was utilized for all of the river systems which were analyzed. This method utilizes the equal conveyance reduction method to compute the floodway limits. As required by the Michigan Department of Natural Resources, an allowable rise in flood stage of 0.1 feet after encroachment was utilized.

Plate 1, Appendix A, illustrates the resultant floodway limits for the St. Joseph River, Dowagiac River, and West Tributary.

4.0 HYDRAULIC ANALYSIS RESULTS

4.1 General

Results of the hydraulic analysis include an estimation of 10-, 50-, 100-, and 500-year flood elevations for the St. Joseph River, the Dowagiac River, and West Tributary. In addition, the estimated limits of the 100- and 500-year flood plain were delineated. Finally, floodway limits were established to estimate the area of the 100-year flood plain which should be reserved as open space to maintain existing flood conveyance capacities of the streams without adversely impacting flood elevations.

Table No. 6 presents a summary of 10-, 50-, 100-, and 500-year flood elevations at selected locations along the detailed study reach of the St. Joseph River. Table Nos. 7 and 8 present similar information for the Dowagiac River and West Tributary, respectively. Flood profiles which illustrate estimated flood elevations at all locations along the study reaches are presented in Appendix B. Note that the flood profiles do not reflect the results of the HEC-2 backwater analysis on the Dowagiac River near its confluence with the St. Joseph River, and also on the West Tributary near its confluence with the St. Joseph River. In these areas, the higher flood elevations of

TABLE 6

CITY OF NILES FLOOD INSURANCE STUDY
HYDROLOGIC/HYDRAULIC ANALYSIS SUMMARY
FOR SELECTED LOCATIONS

ST. JOSEPH RIVER

Cross Section Designation	Location	FLOOD ELEVATION (ft)* 10-Year	50-Year	100-Year	500-Year
	DISCHARGE (cfs)	15,700	20,200	22,000	26,400
A	4,430' D/S from Conrail Bridge	641.9	643.4	644.0	645.4
E	D/S Face of Conrail Bridge	644.5	646.1	646.7	648.2
F	U/S Face of Conrail Bridge	644.5	646.2	646.8	648.2
I	D/S Face of Main Street Bridge	646.3	648.0	648.6	650.1
J	U/S Face of Main Street Bridge	646.4	648.1	648.7	650.2
L	D/S Face of Grant Street Bridge	646.7	648.5	649.1	650.6
M	U/S Face of Grant Street Bridge	646.8	648.5	649.1	650.6
O	D/S Face of Timber Walkway Bridge	647.3	649.1	649.8	651.3
P	U/S Face of Timber Walkway Bridge	647.3	649.1	649.7	651.3
S	16' D/S from French Paper Company Dam	647.4	649.2	649.9	651.4
T	Crest of French Paper Company Dam	658.5	659.4	659.8	660.6
U	D/S Face of Railroad Bridge	658.5	659.4	659.8	660.6
V	U/S Face of Railroad Bridge	658.5	659.5	659.8	660.7
X	2,440' U/S of Railroad Bridge (city limits)	658.8	659.8	660.2	661.2

*Referenced to National Geodetic Vertical Datum

TABLE 7

CITY OF NILES FLOOD INSURANCE STUDY
HYDROLOGIC/HYDRAULIC ANALYSIS SUMMARY
FOR SELECTED LOCATIONS

DOWAGIAC RIVER

Cross Section Designation	Location	FLOOD ELEVATION (ft)*			
		10-Year	50-Year	100-Year	500-Yea
	DISCHARGE (cfs)	1,270	1,490	1,580	1,800
A	400' U/S of the confluence of St. Joseph River and Dowagiac River	640.5	640.5	640.5	640.5
C	D/S face of U.S. 31-33	641.1	641.3	641.4	641.6
D	U/S face of U.S. 31-33	641.2	641.3	641.4	641.6
E	D/S face of Conrail Railroad Bridge	641.7	642.0	642.1	642.4
F	U/S face of Conrail Railraod Bridge	641.8	642.1	642.3	642.6
I	2,530' U/S of Conrail Railroad Bridge	645.4	645.8	646.0	646.3

*Referenced to National Geodetic Vertical Datum

TABLE 8

CITY OF NILES FLOOD INSURANCE STUDY
HYDROLOGIC/HYDRAULIC ANALYSIS SUMMARY
FOR SELECTED LOCATIONS

WEST TRIBUTARY

Cross Section Designation	Location	FLOOD ELEVATION (ft)*			
		10-Year	50-Year	100-Year	500-Year
	DISCHARGE (cfs)	210	340	395	500
A	150' U/S of confluence with the St. Joseph River	657.9	658.6	658.8	659.3
C	U/S face of concrete weir	670.6	672.7	673.4	674.6
H	U/S face of concrete box culvert at Topinabee Road	691.9	692.3	692.4	692.5
J	D/S face of box culvert at Wesaw Road	692.5	693.1	693.2	693.6
K	U/S face of box culvert at Wesaw Road	693.2	693.65	693.8	694.0
N	U/S face of concrete box culvert at Chicago Road	702.0	702.9	703.0	703.2
P	U/S face of 44" x 72" C.M.P. Arch culvert at Chicago Road	702.0	702.9	703.1	703.3
T	U/S City limits	705.3	705.7	705.8	706.0

*Referenced to National Geodetic Vertical Datum

the St. Joseph River were superimposed upon the flood profiles of the Dowagiac River and West Tributary to reflect the impact of backwater from the larger St. Joseph River.

Plate 1, which illustrates the location of cross sections, limits of the floodway, and 100- and 500-year flood plain delineations, is presented in Appendix A. HEC-2 computer printouts are presented in Appendix H. Detailed computation sheets for the parameters which were utilized in the backwater analyses are presented in Appendices D, E and F.

5.0 SUMMARY

Hydraulic studies were performed to develop flood elevations, floodway limits and flood plain delineations for the St. Joseph River, the Dowagiac River and the West Tributary to the St. Joseph River for the City of Niles FIS. This study included the following tasks: reconnaissance; data collection and field surveys; computer aided hydraulic analyses; and development of flood profiles, flood plain delineations, and floodway limits.

Flood discharges which were utilized in the hydraulic analysis were obtained from a hydrologic analysis report (Reference 4) which was developed for the Niles FIS. Tables 4, 5 and 6 present hydrologic/hydraulic analyses summaries including estimated flows and elevations of selected locations for the 10-, 50-, 100-, and 500-year flood events.

The flood plain delineation map was developed based upon the results of the backwater analyses and is illustrated on Plate 1 in Appendix A. This map shows the estimated boundaries of the 100- and 500-year floods, and the floodway. In the event that the 500-year and 100-year boundaries coincide, only the 100-year boundary is shown. Furthermore, only the floodway line is shown where the delineation is coincident with the 100- and 500-year boundaries.

Water surface profiles which illustrate the estimated elevations of the 10-, 50-, 100- and 500-year flood events for the St. Joseph River, the Dowagiac River, and West Tributary are presented in Appendix B. Plots of cross sections which were used for the backwater analysis are enclosed in Appendix C. Computation sheets for the development of parameters which were input to the backwater analyses are presented in Appendices D, E and F for the St. Joseph River, the Dowagiac River, and the West Tributary, respectively. Bridge survey notes are presented in Appendix G. All HEC-2 computer printouts for the backwater analyses which were performed are presented in Appendix H under separate cover.

6.0 REFERENCES

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2. U.S. Geological Survey, 7.5 Minute Series Topographic Maps; Scale 1:24000, Contour Interval 10 feet: West Niles Quadrangle, Photo Revised 1980.

3. Abrams Aerial Survey Corporation, Aerial Topographic Map of Niles, Michigan, 2' Contour Interval, Scale 1:4800, Photography May 1983.

4. STS Consultants, Ltd., City of Niles Flood Insurance Study - Report on Hydrologic Analyses, Lansing, Michigan, June 1984.

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6. U.S. Army Corps of Engineers, St. Joseph River French Paper Company Dam Niles - Berrien County, Michigan, Inventory #536, National Dam Safety Program, Inspection Report, Detroit, Michigan, August 1979.

7. Brater, F. Ernest, Handbook of Hydraulics, McGraw Hill, New York, 6th Ed. 1976.

8. Michigan Department of Natural Resources, High Water Mark Survey of 1982 Niles Flood, Lansing, Michigan, April 12, 1983.

APPENDIX C

CITY OF NILES FLOOD INSURANCE STUDY
CROSS SECTION PLOTS

APPENDIX D

CITY OF NILES FLOOD INSURANCE STUDY
ST. JOSEPH RIVER COMPUTATION SHEETS

CALCULATION COVER SHEET

STS Consultants Ltd.

PROJECT NILES E.I.S. JOB NO 1055F DIVISION H&H

SUBJECT ST. JOSEPH RIVER HYDRAULICS FILE NO 1055F

CALC NO

ORIGINATOR TAR DATE 3/85

CHECKER WLL DATE 3/85 NO OF SHEETS 9

RECORD OF ISSUES

NO	DESCRIPTION	BY	DATE	CHKD	DATE	APPRD		
△								
△								
△								
△								
△								
△								

PRELIMINARY CALC ☐

SUPERSEDED CALC ☐ FINAL CALC ☒

BRIEF SUMMARY OF CALCULATIONS INCLUDING SCOPE AND RESULTS

SUMMARY OF COMPUTATIONS FOR HEC-2 MODEL

	SUBJECT	PG
1.0	STARTING CONDITIONS FOR THE ST. JOSEPH RIVER.	1-2
2.0	COMPOSITE 'n' VALUES	3-5
	CONRAIL BRIDGE (SEC 5.3) $\bar{n}$ = .027	
	MAIN ST BRIDGE (SEC 8 3) $\bar{n}$ = .023	
	GRANT ST. BRIDGE (SEC. 10. 3) $\bar{n}$ = .021	
	TIMBER WALKWAY (SEC 12 3) $\bar{n}$ = .022	
	ABANDONED FOOT BRIDGE (SEC. 13.3) $\bar{n}$ = .021	
	R.R. BRIDGE (SEC 16 3) $\bar{n}$ = .020	
3.0	SPECIAL BRIDGE COMPUTATIONS FOR THE FRENCH PAPER COMPANY DAM.	5-8
4.0	SUMMARY OF HIGH WATER MARKS DATA FROM HIGH WATER MARK Survey	9-10-18

BBS 8251

STS Consultants Ltd.
CALCULATION SHEET

PROJECT: NILES F.I.S. - FEMA. JOB NO.: 1055F PAGE 1 OF 18

SUBJECT: STARTING CONDITIONS FOR ST JOE RIVER DIVISION: H+H

ORIGINATOR: BRS DATE: Jan 85 CHECKED BY: [illegible] DATE: 2/85

1.0 GENERAL

THE PURPOSE OF THESE CALCULATIONS IS to ESTIMATE the FRICTION SLOPE OF FLOW IN the St. Joseph River. THIS FRICTION SLOPE WILL BE USED as the starting CONDITION FOR the HEC-2 MODEL OF THE ST. JOSEPH RIVER.

2.0 Calculations

SLOPES WILL BE DETERMINED USING Both RIVER INVERT ELEVATION and Water Surface ELEVATION DATA FROM THE SURVEY PERFORMED IN THE FALL (SEPT.) OF 1983.

2.1 Regional Slope Estimation

SINCE THE U.S.G.S. QUAD MAP OF NILES DOES NOT SHOW CONTOUR DATA WHICH IS NOT AFFECTED BY A DAM, A SLOPE CANT BE ESTIMATED FROM THE QUAD MAPS.

FOR Regional SLOPE WILL USE INVERT AT X-SEC. 1 compared W/ INVERT AT (D/S of) DAM (X-SEC. 15.1)

$$\frac{634.7 - 629.7}{11400} = 0.00044$$

$$S = 0.00044 \text{ ft/ft}$$

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CALCULATION SHEET

PROJECT: CITY OF NILES F.I.S. JOB NO. 1055 F PAGE 2 OF 18

SUBJECT ST. JOSEPH RIVER HYDRAULICS DIVISION. H/H

ORIGINATOR THR DATE 3/85 CHECKED BY BBS DATE 4/85

2.2 SLOPE FROM WATER SURFACE ELEVATIONS TAKEN FROM THE SURVEY:

WATER SURFACE ELEVATION AT SECTION 1:

$H_1 = 637.2'$

WATER SURFACE ELEVATION AT SECTION 2:

$H_2 = 637.6'$

$$S = \frac{637.6 - 637.2}{850} = 0.000471$$

2.3 SLOPE FROM INVERTS NEAR POINT OF BEGINNING.

@ Sec 1 INVERT ELEV. = 629.7

@ Sec. 2 INVERT ELEV. = 630.8

$$S = \frac{630.8 - 629.7}{2740} = 0.000401 \checkmark$$

$S = 0.0004 \checkmark$

2.4 AVERAGE

$$S = \frac{0.0004 + 0.00044 + 0.00047}{3}$$

$S = 0.00044$ ✓

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CALCULATION SHEET

PROJECT. NILES F.I.S JOB NO. 1055F PAGE 3 OF 18

SUBJECT ST. JOE RIVER HYDRAULICS DIVISION H/H

ORIGINATOR BBS DATE: 2-85 CHECKED BY [illegible] DATE 3/8/

COMPOSITE = "n" values

1.0 INTRODUCTION

The occurance of bridges along the St. Joe River in Niles Michigan alter the channel roughness to which flow is subjected The objective of these calculations is to estimate these changes in roughness for modeling purposes.

2.0 Calculations

ALL approximations of roughness will be based on Chow's "OPEN Channel Hydraulics" 1964.

Below is a listing of the Mannings # U.S. Bridge type

Concrete	0.013 – 0.015
Steel	0.012
WOOD	0.017

2.1 Bridges

2.1.1 CONRAIL BRIDGE (section 5.0)

Bridge is composed of mostly steel girders w/ 3 cement cassions. (see computer plot)

≈ 2.0% Concrete

≈ 30.0% Steel Lattice Work

≈ 68% Stream channel ("n" = 0.034)

$\bar{n} = (0.02)(0.013) + 0.30(0.012) + .68(0.034)$

$\cong 0.027$

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CALCULATION SHEET

PROJECT: NILES E.I.S JOB NO.: 1055E PAGE 4 OF 18

SUBJECT: ST JOE RIVER HYDRAULICS DIVISION: H/H

ORIGINATOR: TRM DATE: 2/85 CHECKED BY: BBS/WJW DATE: 3/85

2.1.2 MAIN 56 Bridge

Bridge is all concrete Arches.
Of AVAILABLE FLOW AREA

50 % CONCRETE
50% Stream Channel

$\overline{n} = .50\ (0.013) + 0.5(0.033)$
$= 0.023$

2.1.3 GRANT 56. Bridge

Bridge has 4 concrete piers (round nose).

30% Concrete
70% Channel

$\overline{n} = 0.3\ (0.013) + 0.7(0.023)$
$\overline{n} = .0\ 021$

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CALCULATION SHEET

PROJECT. NILES F.I.S JOB NO. 1055F PAGE 5 OF 18

SUBJECT ST JOE RIVER HYDRAULICS DIVISION H/H

ORIGINATOR TMB DATE: 2-85 CHECKED BY 4/4 DATE 3/85

2.1.4 TIMBER WALKWAY BRIDGE:

BRIDGE HAS 9 WOOD PIERS

40% WOOD

60% CHANNEL

$\bar{n} = 0.40(0.017) + 0.60(0.023) = 0.022$

2.1.5. WASHED OUT FOOT BRIDGE.

BRIDGE HAS 17 WOOD PIERS.

50% WOOD

50% CHANNEL

$\bar{n} = 0.5(0.017) + .5(0.023) = 0.021$

2.1.6 R.R BRIDGE, X-SECTION 16.2 - 16.5:

BRIDGE HAS 14 CONCRETE PIERS

70% CHANNEL

30% CONCRETE

$\bar{n} = 07(0.023) + 0.3(0.012) = 0.020$

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CALCULATION SHEET

PROJECT: NILES F.I.S. JOB NO.: 1055F PAGE 6 OF 18

SUBJECT: FRENCH PAPER CO. DAM DIVISION: H+H

ORIGINATOR: BBS DATE: 3/85 CHECKED BY: _____ DATE: _____

Bridge Location: Dam at French Paper Co St Joe River
Bridge Losses - SB Card

1. XK (Pier Shape Coefficient) 0.0
XKOR (Loss Coefficient) = 1.0 + k, $k = k_f + k_e + k_p$

where k_f = friction loss coefficient
k_e = entrance loss coefficient
k_p = loss from intermediate piers

HEC-2 Manual

Description of Bridge: THIS IS A DAM - ∴ WILL ONLY MODEL
$k_f = 29.1 n^2 L/R^{4/3}$ for English units FOR WIER FLOW
Area = 0.1 = 0.1 wp = 320.
R = A/sp $R^{4/3}$ = 0.00 L = 5.0 (APPROX)
n(composite) = 0.012
$k_f = 29.1 \times (0.012)^2 \times (0.00)/5.0 = 0.0$
k_e = 0.0
k_p = 0 if bridge has no intermediate piers
k_p = 0.05 if bridge has intermediate piers

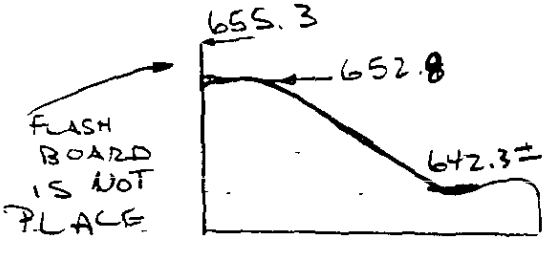
Hydraulic Charts for Selection of Highway Culverts Circular No. 5, December 1965, Page 49.
HEC-2 Manual

2. XKOR = 1 + 0 + 0 + 0 = 1.5
3. COFQ = Coefficient of discharge = 3.9 sec pg 8
4. RDLEN = Length of weir = 0 (0 if read off BT cards)
5. BWC = Bottom width of bridge opening (inc. piers) = 1.0
6. BWP = Total width of obstruction = 0
7. BAREA = Bridge opening inc. piers = 5.0
8. SS = Side slope = 0 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 634.7
(0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 634.7
(0 if equal to minimum elevation in previous X-sect.)

~~HEC-2 Manual~~

field data

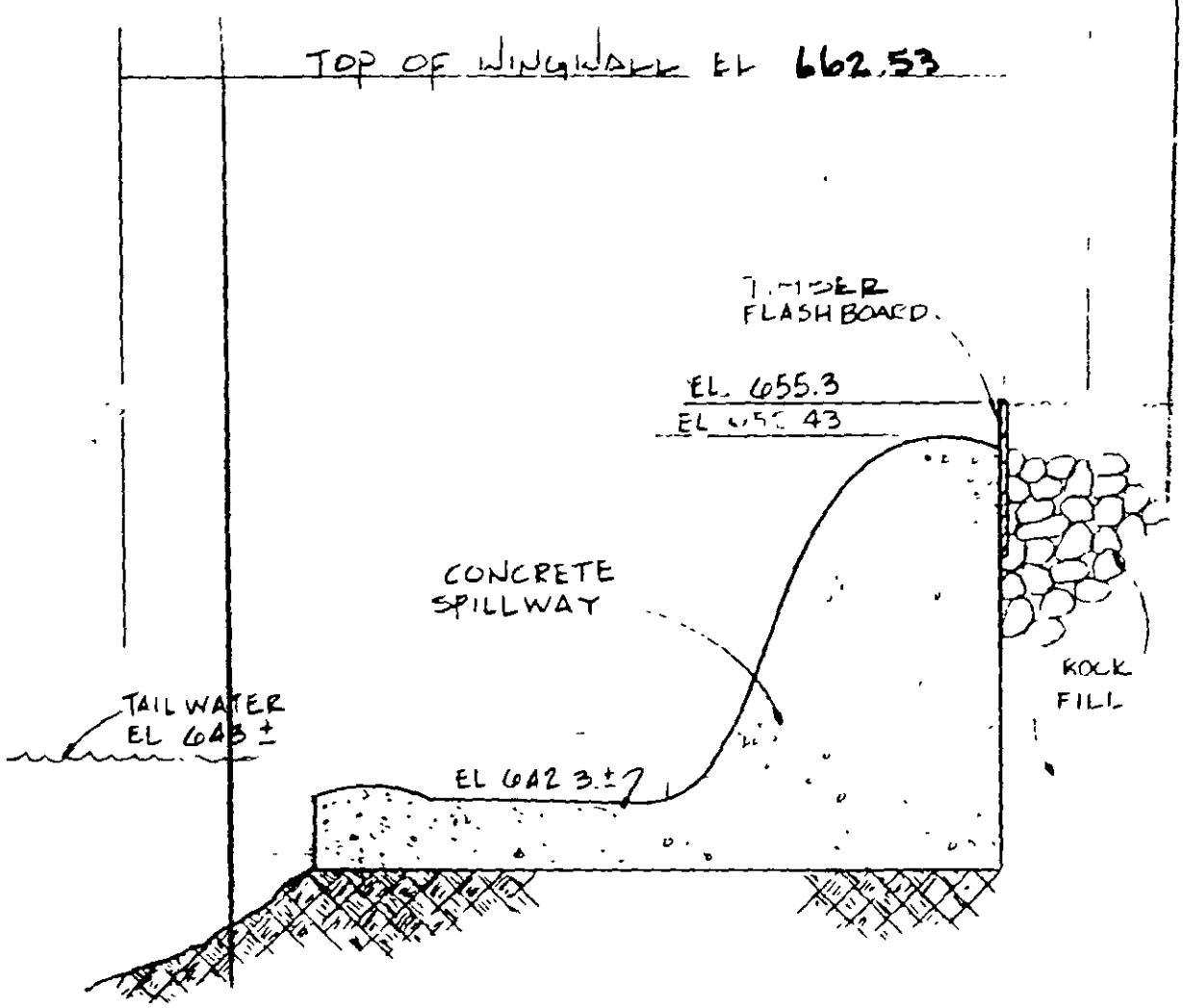
WILL ASSUME THAT FLASH BOARD IS NOT IN PLACE $Q = CLH^{3/2}$



NOTE THE C VALUE MIGHT CHANGE IF SUBMERGENCE OCCURES

15.2 7/8

15J



SECTION THRU-FRENCH PAPER CO. DAM

NO SCALE

NATIONAL DAM SAFETY PROGRAM
FRENCH PAPER COMPANY DAM
NILES, MICHIGAN
SPILLWAY PROFILE
U.S. ARMY ENGINEER DISTRICT, DETROIT

FIGURE NO. 6

STS Consultants Ltd.
CALCULATION SHEET

PROJECT: NILES E.I.S. JOB NO. 1655F PAGE 8 OF 18

SUBJECT ST. JOE RIVER HYDRAULICS DIVISION H/H

ORIGINATOR: TMR DATE 2/85 CHECKED BY _____ DATE _____

1.0 DISCHARGE COEFFICIENT FOR THE FRENCH PAPER COMPANY DAM:

REF: DESIGN OF SMALL DAMS, BUREAU OF RECLAMATION, REVISED 1977.

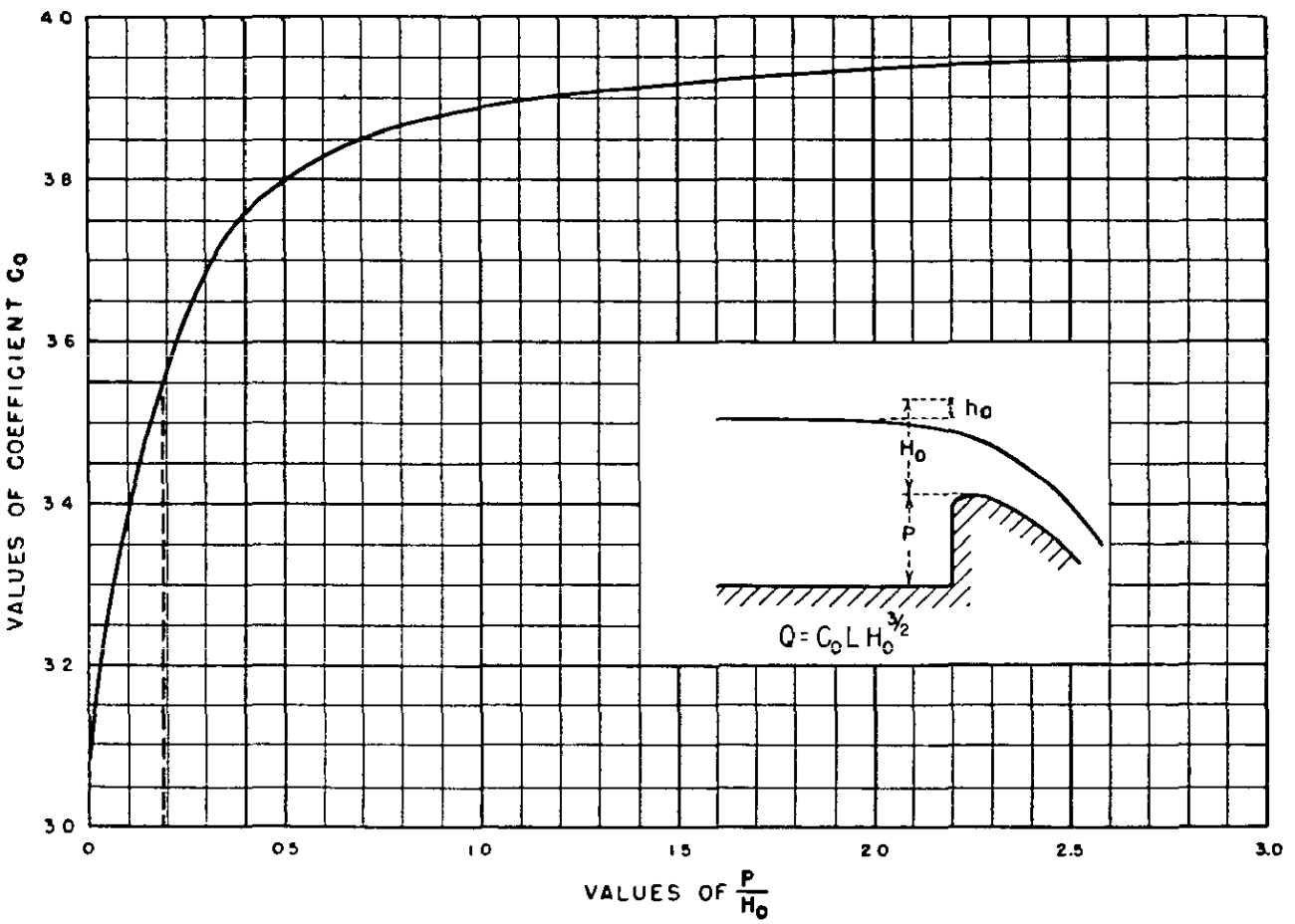


Figure 249 Discharge coefficients for vertical-faced ogee crest 288-D-2409

$P \doteq 18'$

$H_o \doteq 7.34$ (BASED ON PRELIM 100-YR FLOOD PROFILE)

$P/H_o = 18/4.34 = 2.45$

$\therefore C_o = 3.94$ (USE 3.9)

STS Consultants Ltd.
CALCULATION SHEET

PROJECT: NILES FIS JOB NO 1055F PAGE 9 OF 18

SUBJECT ST. JOSEPH RIVER HYDRAULICS DIVISION H&H

ORIGINATOR BBS DATE 3/85 CHECKED BY LMB DATE 5/85

Summary of Highwater Data For NILES MICHIGAN

Data For 1982 FLOOD — MAR 16-18
Based on Survey Performed BY
MICHIGAN Dept. of Natural Resources
By R. Podd + C. Leap

LOCATION (Description)	FLOWRATE	PEAK ELEV (USGS)
U.S.G.S. GAGE @ MAIN ST	19900	647.99
#1 PARKWAY ST.		647.82 *
325 PARKWAY ST.		648.82 *
T/W FRENCH PAPER CO. DAM		649.03 *
H/W FRENCH PAPER CO. DAM	19900	657.83 *

* CORRECTED FOR 0.162' ERROR IN U.S.C.&G.S BENCH ELEV. BENCH #15 S-23 @ OLD JAIL ELEV OF BENCH SHOULD BE 657.77' NOT 657.932'

Notes from follow up survey 10/18

APPENDIX D
NILES FIS

①

BERTRAND

@ 1ST US RES	664.64
@ BERTRAND RD BR	664.22

* NILES (NEED DATUM CONFIRMATION) Usage gage 647.99

U.S. FRENCH DAM Co DAM	657.99	657.83
DS OF DAM	649.18	649.03
WEAVER RES	648.98	648.82
Yetaic RES (250 US BROADWAY ST)	647.98	647.82

* NILES HW MARKS ARE BASED ON USC&GS BM S-23 @ OLD JAIL, ELEV 657.932. THERE MAY BE ±.2 ERROR IN THIS ELEV.

Based on Level Loops Performed By STS Consultants 9/7/83-9/13/83 Show that B.M. is 0.162 Ft. in error

657.77

-0.162

APPENDIX D (9)
NILES F.I.S

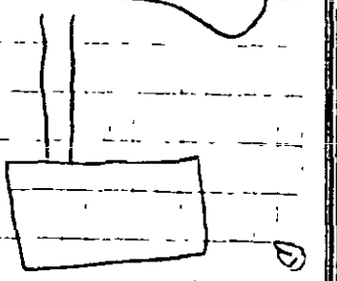
11/18

CUST HOUSE

684-0030
JAMES A. ROTHFUCHS
1110 SHORELAND DR
NILES 49120

✓ ON FIS-INFO

S ✓ BAG INFO



HW MARK @ WHITE PINE =
715.37

(17)

JOHN B WEAVER
[redacted]25 PARKWAY
NILES

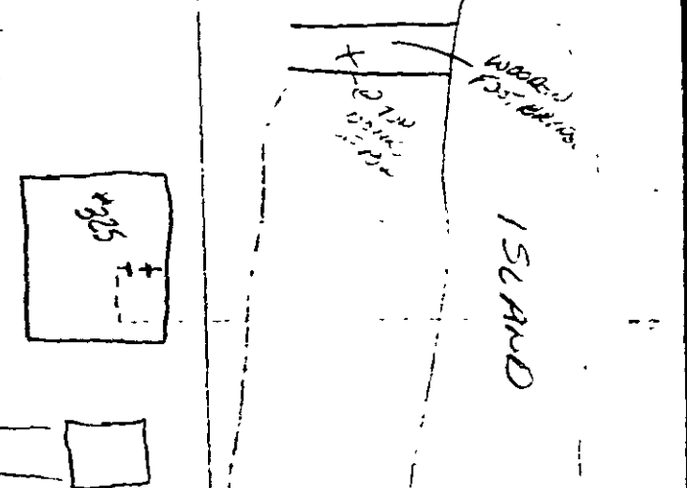
684-4772

Appendix D
NILES FIS

12/18

WATER — [redacted]

HWM MARK IN CRACK OF DOOR
[redacted] LOWER LEVEL UNDER
RAISED DECK @ SE COR OF
[redacted]SE



T/SLAB @ LOWER BACK DOOR: 646.28

HW MARK IS 2.7 ft ABOVE GRADE

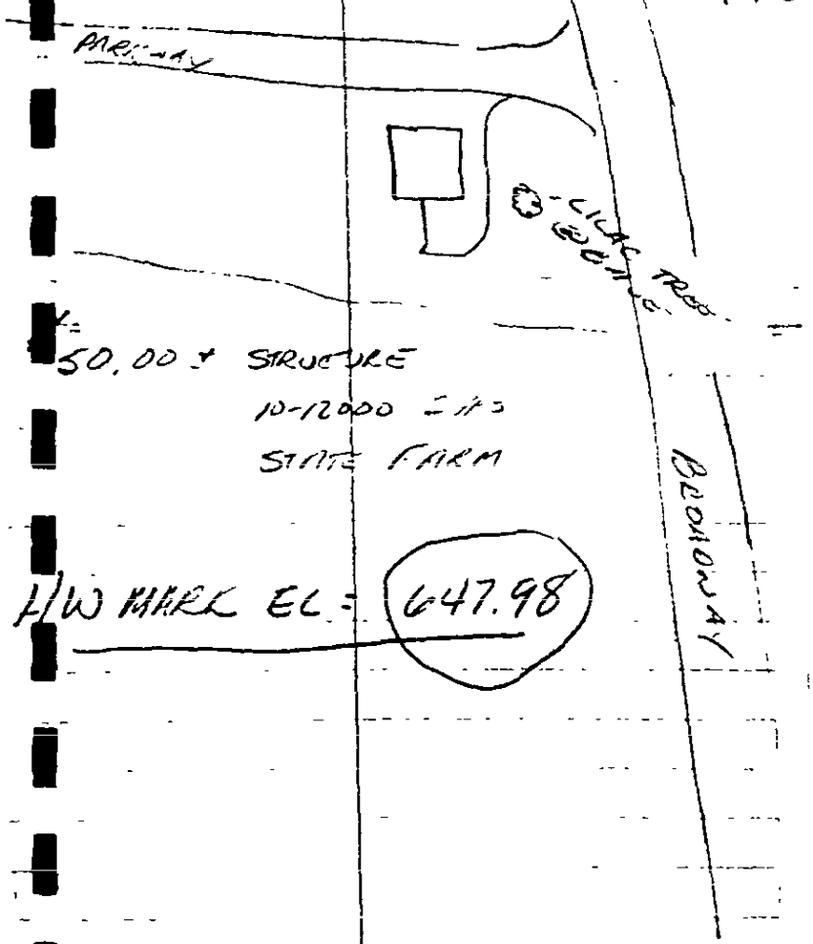
HW MARK EL = 648.98

(19)

PETHICK 683-0395 APPENDIX
PARKWAY NILES FIS
NILES 49120

N

13/18



50.00 ± STRUCTURE
10-12000 SQ FT
STATE FARM

H/W MARK EL = 647.98

(36)

	+	|||	—	ELEV
PUST [illegible] BM	[illegible] 78				688.44
TP 1 B	.71	687.78	5.15		687.07
TP 2 F	1.28 / 1.44	670.02 / 677.19	19.04		668.74
[illegible]	[illegible]	[illegible]	12.75 / 12.79		657.29
BM@[illegible]			2.96		657.90

(37)

LOOP TO FRENCH PAPER MILL & DNR BMARKS

BM DESC. S 23 ~~USGS~~ USC&GS, ELEV 657.932
ON WALL OF OLD JAIL NEAR BROADWAY ST. BRIDGE

Appendix D
NILES F.I.S.

14/18

(42)

(43)

FRENCH PAPER C

1914 CONC DAM 100 FRENCH ST

375 [illegible] NILES 49120

GEORGE HALLIWELL 616(683-1155

BILL VALANE

U.S

ROY HOYSLER (DNR) BM'S ON CITY DATUM CONVERSION?

HW US ±657 ON HOYSLERS DATUM

US HW ½ WAY UP SECOND BOARD

DS HW

8'3" TO CONC FLOOR @ STAIRWELL

Appendix D
NILES FIS.

15/18

APPENDIX D
NILES FIS

16/18

4-12-83 AM
K. Berry
C Lemp

ERGNEER

8.81 DIST. BET
TWO HWY OF DAM
(Horizontal)

(46)

	+	HI	-	ELEV
TP#1	5.1	662.4		657.3
2' [illegible] = HI				662.4
CREST ADD 2'		(DATUM?)		664.4

* HW MARKED ON COLUMN (INSIDE POWER HOUSE)

NOTE DNR BM = 657.74, NOT 657.5

THIS WAS VERIFIED ON 4/13/83 BY RP & CL ON CHECK LOOP FROM USC&GS BM S-23 @ OLD JAIL (ELEV 657.932)

DATUM OF THIS BM IS PRESUMED 1929, UNCORRECTED.

(47)

THERE FORE, ADD .24 TO HWELS @ FRENCH PAPER CO

UPSTREAM HIGHWATER
657.75 + .24 = 657.99

DOWNSTREAM HIGHWATER
648.94 + .24 = 649.18

HIGHWATER AS RECORDED ON STEEL COLUMN (ALL TIME HIGH, EXACT DATE UNKNOWN)
664.4 + .24 = 664.64

DNR B.MARK #2 (RR SPIKE IN TREE DOWN RIVER BANK N. OF POWER HOUSE
644.37 + .24 = 644.61

Appendix D
DIVES FIS

17/18

Appendix D
NILES F.I.S.

From mich D.N.R. DA 3666

USGS gage at Niles as noted by Steve Miller & Data from Jack Miller of USGS. "0" = 633.02 18/18

March	Elev Gage	Elev Aux Gage @ W.W.T.P	Mean Q	Remarks
11			4320	
12			5660	
13	641.63	640.08	9240	
14			15600	1st peak
15	646.96	645.00	17200	
16			16200	
17			18100	
18	647.85	645.86	19200	1:00 am
19			18500	
20			19200	Peak flow 19900
21	647.99	647.99	$\boxed{19800}$*	3:00 am peak flow estimated up graded to 19,900 cfs by USGS
22			19100	
23			18200	
24			17400	
25			16400	
26			15500	
27			14400	
28			13500	
29			12600	
30			12100	

yield at the peak $= \frac{19800}{3666} = 5.43$ cfs/sqm

APPENDIX E

CITY OF NILES FLOOD INSURANCE STUDY
DOWAGIAC RIVER COMPUTATION SHEETS

CALCULATION COVER SHEET

STS Consultants Ltd.

PROJECT NILES E.I.S. JOB NO 1055 E DIVISION H & H

SUBJECT DOWAGIAC RIVER HYDRAULICS FILE NO 1055 E

CALC NO

ORIGINATOR JMB DATE 3/85

CHECKER LJW DATE 3/85 NO OF SHEETS 4

RECORD OF ISSUES

NO	DESCRIPTION	BY	DATE	CHKD	DATE	APPRD		
△								
△								
△								
△								
△								
△								

PRELIMINARY CALC ☐

SUPERSEDED CALC ☐ FINAL CALC ☒

BRIEF SUMMARY OF CALCULATIONS INCLUDING SCOPE AND RESULTS

SUMMARY OF INPUT COMPUTATIONS FOR THE HEC-2 MODEL.

SUBJECT	PG.
1.0 · COMPOSITE 'n' VALUES	1 - 2
2.1.1 : U.S. 31 - 33 BRIDGE (SEC 8.5) $\bar{n}$ = .037	1
2.1.2 · CONRAIL RR. BRIDGE (SEC. 6.5) $\bar{n}$ = .036	2
3.0 DISCHARGE VS FREQUENCY CURVE (ST. JOSEPH RIVER - TO ESTIMATE MEAN ANNUAL STARTING ELEV. FOR THE DOWAGIAC RIVER).	3
3.1 : STAGE VS. DISCHARGE CURVE, ST. JOSEPH RIVER (SEE 3.0)	4

STS Consultants Ltd.
CALCULATION SHEET

PROJECT: NILES F.I.S. JOB NO.: 1655F PAGE: 1 OF 4

SUBJECT: DOWAGIAC RIVER HYDRAULICS DIVISION H/H

ORIGINATOR: TMR DATE: 2/85 CHECKED BY: [illegible] DATE: 3/85

1.0 : COMPOSITE "n" VALUES (MANNING'S COEFFICIENT)

1.1 : OBJECTIVE.

THE OBJECTIVE OF THESE COMPUTATIONS IS TO ESTIMATE EQUIVALENT ROUGHNESS COEFFICIENTS, n, FOR MODEL SECTIONS WERE BRIDGES OCCUR.

2.0 : CALCULATIONS:

APPROXIMATE ROUGHNESS COEFFICIENTS, n, ARE BASED ON:

CHOW, OPEN CHANNEL HYDRAULICS, McGRAW-HILL, 1959. PGS. 109 - 113.

CHANNEL DESCRIPTION	n
CONCRETE	0.013
STEEL	0.012
WOOD	0.017
NATURAL STREAM	0.040

2.1 : BRIDGES

2.1.1 : U.S. 31-33 BRIDGE OVER THE DOWAGIAC RIVER (HEC-2 X-SECTIONS 3.2 - 3.5)

	P	%
CONCRETE BRIDGE PIERS	15'	12
CHANNEL BOTTOM	110'	88

STS Consultants Ltd.
CALCULATION SHEET

PROJECT. NILES F.I.S JOB NO. 1055 F PAGE 2 OF 4

SUBJECT DOWAGIAC RIVER HYDRAULICS DIVISION H/H

ORIGINATOR TMR DATE 2/85 CHECKED BY U/L DATE 3/85

2.1.1 CONT.:

$\bar{n} = 0.013(.12) + 0.040(.88) = 0.037$

2.1.2 CONRAIL R.R BRIDGE OVER THE DOWAGIAC RIVER (HEC-2 X-SECTIONS 5.2 - 5.5)

	P	%
CONCRETE BRIDGE PIERS	13	15
CHANNEL BOTTOM	75	85

$\bar{n} = 0.013(.15) + 0.040(.85) = 0.036$

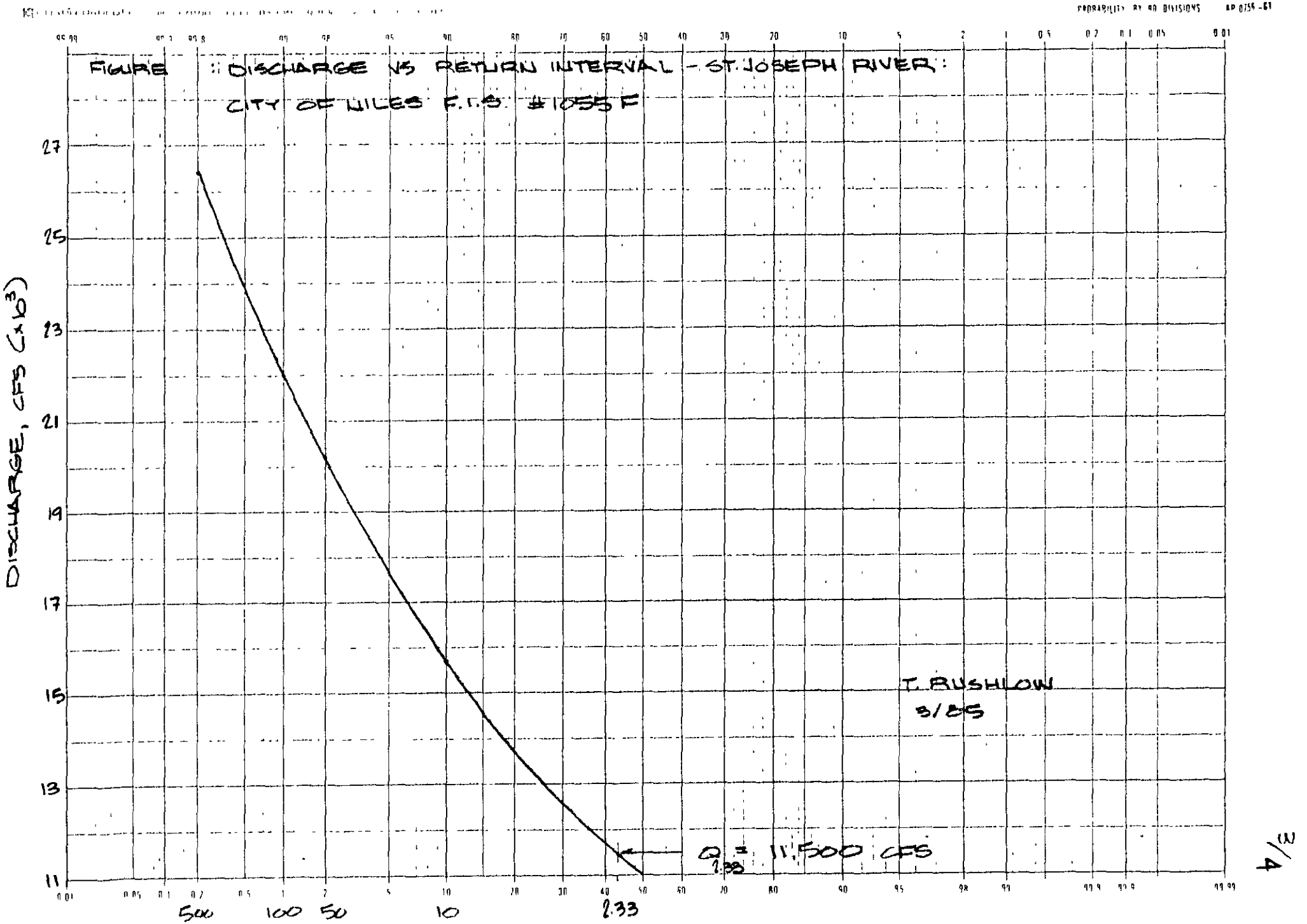


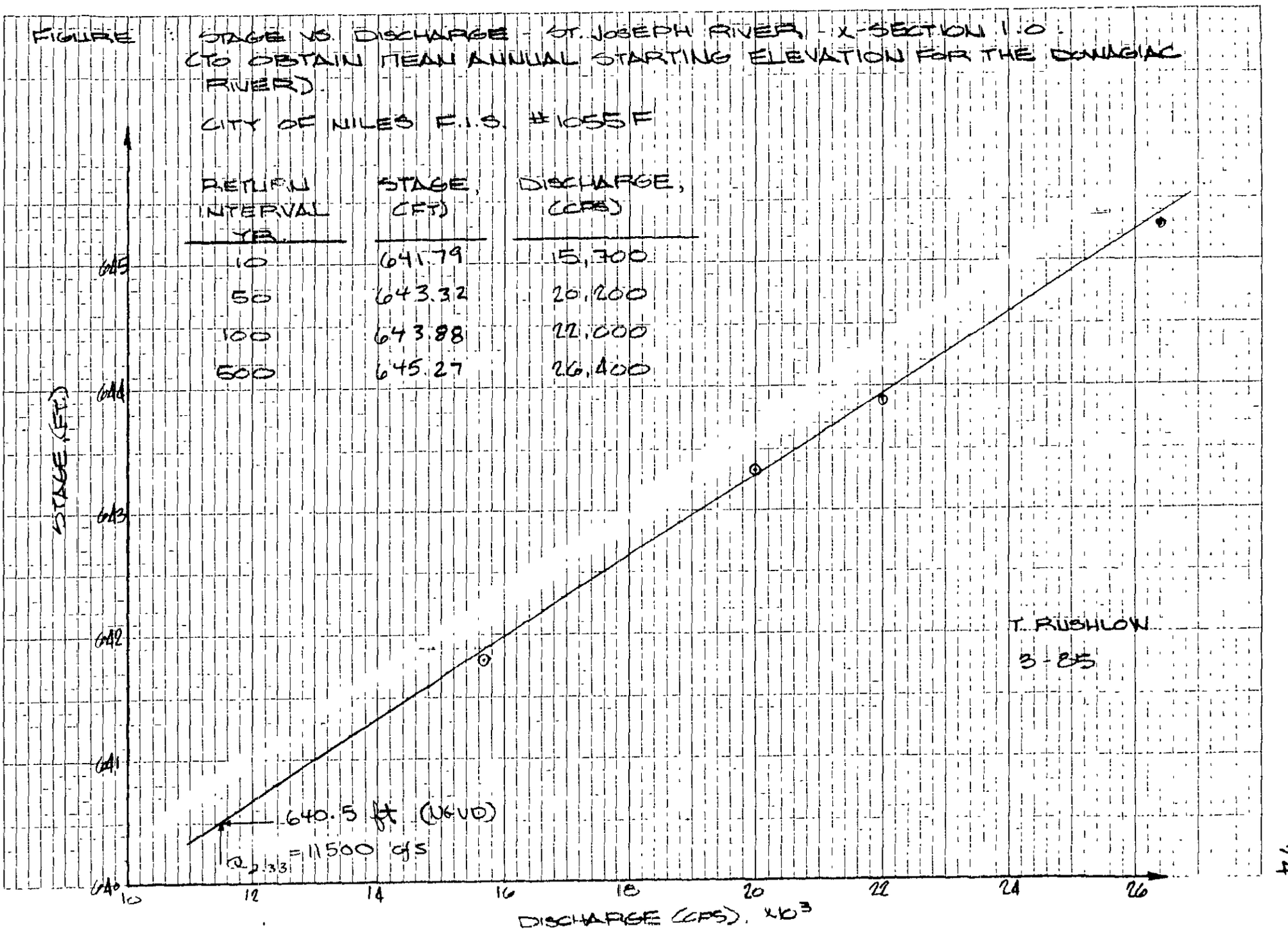
FIGURE : DISCHARGE VS RETURN INTERVAL - ST. JOSEPH RIVER:
CITY OF NILES F.I.S. #1055 F
DISCHARGE, CFS (x10^3)
27
25
23
21
19
17
15
13
11
500
100
50
10
2.33
Q = 11,500 CFS
2.33
T. RUSHLOW
3/85

3/4

FIGURE : STAGE VS. DISCHARGE - ST. JOSEPH RIVER, X-SECTION 1.0 (TO OBTAIN MEAN ANNUAL STARTING ELEVATION FOR THE DOWAGIAC RIVER).

CITY OF NILES F.I.S. #1055F

RETURN INTERVAL YR.	STAGE, (FT)	DISCHARGE, (CFS)
10	641.79	15,700
50	643.32	20,200
100	643.88	22,000
500	645.27	26,400



APPENDIX F

CITY OF NILES FLOOD INSURANCE STUDY
WEST TRIBUTARY COMPUTATION SHEETS

CALCULATION COVER SHEET

STS Consultants Ltd.

PROJECT NILES F.I.S JOB NO 1055F DIVISION H & H

SUBJECT WEST TRIBUTARY HYDRAULICS FILE NO 1055F

CALC NO

ORIGINATOR TMR DATE 3/85

CHECKER DJL DATE 3/85 NO OF SHEETS 7

RECORD OF ISSUES								
NO	DESCRIPTION	BY	DATE	CHKD	DATE	APPRD		

PRELIMINARY CALC ☐

SUPERSEDED CALC ☐ FINAL CALC ☑

BRIEF SUMMARY OF CALCULATIONS INCLUDING SCOPE AND RESULTS

SUMMARY OF INPUT COMPUTATIONS FOR THE HEC-2 MODEL.

SUBJECT			PG.
1.0	COMPOSITE 'n' VALUES		1-2
1.1	INTRODUCTION		1
1.2	CALCULATIONS		1
1.2.1	x-SEC. 2.5	$\bar{n}$ = 0.038	1-2
1.2.2	x-SEC 4.0	$\bar{n}$ = 0.038	2
1.2.3	x-SEC. 4.5	$\bar{n}$ = 0.039	2
1.2.4	x-SEC. 11.5	$\bar{n}$ = 0.048	2
2.0	SPECIAL BRIDGE COMPUTATIONS		3-6
	x-SEC. 5		3
	x-SEC 7		4
	x-SEC. 9		5
	x-SEC. 9.5		6
3.0	STAGE VS DISCHARGE, ST. JOSEPH RIVER		7

CALCULATION COVER SHEET

PROJECT Niles F.I.S. JOB NO 1055F DIVISION H+H

SUBJECT _____ FILE NO 1055F

_____ CALC NO _____

ORIGINATOR TRM DATE 3/05

CHECKER _____ DATE 3/05 NO OF SHEETS 8

RECORD OF ISSUES

NO	DESCRIPTION	BY	DATE	CHKD	DATE	APPRD		
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△								

PRELIMINARY CALC ☐

SUPERSEDED CALC ☐ FINAL CALC ☒

BRIEF SUMMARY OF CALCULATIONS INCLUDING SCOPE AND RESULTS

Subject	Pg.
3.1 Estimation of Starting Slope For Hec-2 MODEL	8
3.1.1 Calculations	8

STS Consultants Ltd.
CALCULATION SHEET

PROJECT NILES F.I.S JOB NO: 1055F PAGE 1 OF 8

SUBJECT WEST TRIBUTARY HYDRAULICS DIVISION H/H

ORIGINATOR EBS DATE: 3/85 CHECKED BY: [illegible] DATE: 4/85

1.0 COMPOSITE "n" VALUES

1.1 INTRODUCTION

THE BRIDGES WHICH ARE SITUATED ALONG THE WEST TRIB. ALTER THE CHANNEL ROUGHNESS IN THE BRIDGE. THE OBJECTIVE OF THESE CALCULATIONS IS TO ESTIMATE THESE CHANGES IN ROUGHNESS FOR MODELING PURPOSES.

1.2 CALCULATIONS

ALL APPROXIMATIONS OF ROUGHNESS WILL BE BASED ON CHOWS, OPEN CHANNEL HYDRAULICS; 1964

BELOW IS A LISTING OF MANNINGS "n" U.S. MATERIAL TYPE

CONCRETE	0.013 — 0.015
STEEL	0.012
WOOD	0.017

A SIMPLE ARITHMATIC WEIGHTING WILL BE USED:

$$\bar{n} = \%x(n) + \%y(n)$$

x, y, = Material types

$\bar{n}$ = weighted n value

n = roughness for material

12.1 X-SEC 2.5 WEIR

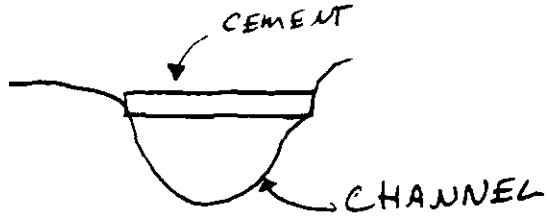
≈ 50% Concrete (weathered)
≈ 50% Channel (overgrown — Brush)

1.2.1 CONTINUED

$(0.015).5 + (0.06).5 = 0.0375$

USE "n'' = 0.038

1.2.2 CONCRETE FOOT BRIDGE (K-SEC 4.0)



50% CONCRETE (n = 0.06)
50% CHANNEL (n = 0.015)

= n'' = 0.038

1.2.3 WOOD FOOT BRIDGE (K-SEC. 4.5)



50% WOOD (0.017)
50% CHANNEL (0.06)

"n' = 0.039

1.2.4 STEEL & WOOD FOOT BRIDGE: (K-SEC. 11.5)

25% STEEL (0.012)
75% CHANNEL (0.045)

$\bar{n} = 0.048$

STS Consultants Ltd.
CALCULATION SHEET

PROJECT: NILES F.I.S JOB NO: 1055F PAGE 3 OF 8

SUBJECT: West TRIB. SPECIAL Bridge DIVISION: H+H

ORIGINATOR: BBS DATE: OCT 84 CHECKED BY: WW DATE: 3/85

Bridge Location: Cross Section #5 West TRIB

Bridge Losses - SB Card

1. XK (Pier Shape Coefficient) 0.0 — HEC-2 Manual

XKOR (Loss Coefficient) = 1.0 + k, $k = k_f + k_e + k_p$

where k_f = friction loss coefficient
k_e = entrance loss coefficient
k_p = loss from intermediate piers

Description of Bridge:

$k_f = 29.1 n^2 L/R^{4/3}$ for English units

Area = 15.0 = 15.0 wp = 19.0

R = A/sp = 0.79 $R^{4/3}$ = 0.73 L = 18.0

n(composite) = 0.015 (CONCRETE)

k_f = 29.1 x (0.015)^2 x 18.0 / 0.73 = 0.16

k_e = 0.7 (pg. 5-49) ALL SIDES / Square

k_p = 0 if bridge has no intermediate piers

k_p = 0.05 if bridge has intermediate piers

Hydraulic Charts for Selection of Highway Culverts Circular No. 5, December 1965, Page 49. HEC-2 Manual

2. XKOR = 1 + 0.16 + 0.7 + 0.0 = 1.86

3. COFQ = Coefficient of discharge = 3.0 — HEC-2 Manual

4. RDLEN = Length of weir = 0 (0 if read off BT cards)

5. BWC = Bottom width of bridge opening (inc. piers) = 5.0

6. BWP = Total width of obstruction = 0

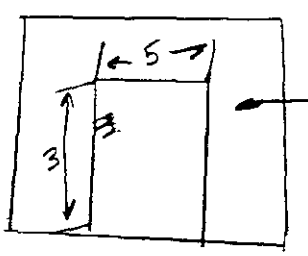
7. BAREA = Bridge opening inc. piers = 15.0 ← field data

8. SS = Side slope = 0.0 (horizontal per 1 vertical unit)

9. ELCHU = Elevation of channel invert U/S side = 687.2
(0 if equal to minimum elevation in previous X-sect.)

10. ELCHD = Elevation of channel invert D/S side = 687.2
(0 if equal to minimum elevation in previous X-sect.)

MOST FLOW WILL BE OVER ROADWAY APPROACHES TO CULVERT ∴ USE COFQ OF 3.0 (see HEC-2 MANUAL)



WEATHERED CONCRETE

STS Consultants Ltd.
CALCULATION SHEET

PROJECT: YUKES F.I.S. JOB NO: 1055F PAGE 4 OF 8

SUBJECT: West TRIB Special Bridge DIVISION HHH

ORIGINATOR: SBS. DATE: 10 OCT. 84 CHECKED BY: U | W DATE: 4/18

Bridge Location: Cross Section #7 West TRIB

Bridge Losses - SB Card

1. XK (Pier Shape Coefficient) 0.0 — HEC-2 Manual

XKOR (Loss Coefficient) = 1.0 + k, $k = k_f + k_e + k_p$

where k_f = friction loss coefficient
k_e = entrance loss coefficient
k_p = loss from intermediate piers

Description of Bridge:

$k_f = 29.1 n^2 L/R^{4/3}$ for English units

Area = 22.6 = 22.6 ft² wp = 19.1

R = A/wp = 1.18 $R^{4/3}$ = 1.25 L = 18.0

n(composite) = [3.9(0.015) + 5.2(0.03)]/19.1 = 0.019

k_f = 29.1 x (0.019)² x 18.0/1.25 = 0.15 — GRAVEL + DIRT UNIFORM

k_e = 0.5 square 3 EDGES

k_p = 0 if bridge has no intermediate piers ✓

k_p = 0.05 if bridge has intermediate piers

Hydraulic Charts for Selection of Highway Culverts, Circular No. 5, December 1965, Page 49.

HEC-2 Manual

2. XKOR = 1 + 0.15 + 0.5 + 0.0 = 1.65

3. COFQ = Coefficient of discharge = 3.0 ← OVER ROAD — HEC-2 Manual

4. RDLEN = Length of weir = 0 (0 if read off BT cards)

5. BWC = Bottom width of bridge opening (inc. piers) = 5.2

6. BWP = Total width of obstruction = 0

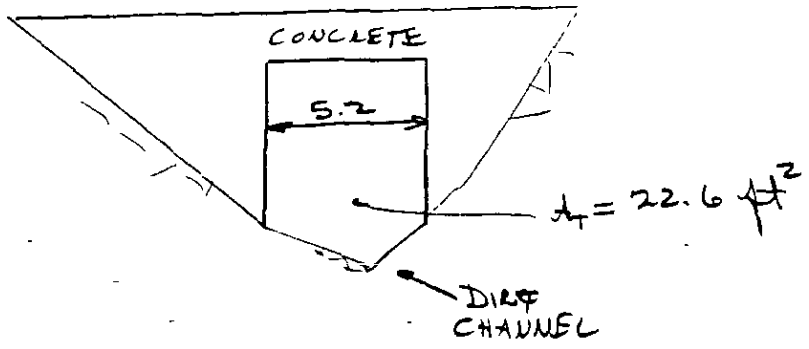
7. BAREA = Bridge opening inc. piers = 22.6 — field data

8. SS = Side slope = 0 (horizontal per 1 vertical unit)

9. ELCHU = Elevation of channel invert U/S side = 6874
(0 if equal to minimum elevation in previous X-sect.)

10. ELCHD = Elevation of channel invert D/S side = 6874
(0 if equal to minimum elevation in previous X-sect.)

WEIR FLOW IS OVER ROADWAY APPROACH TO BRIDGE



STS Consultants Ltd.
CALCULATION SHEET

PROJECT NILES F.I.S. JOB NO. 1055F PAGE 6 OF 8

SUBJECT West TRIB Special Bridge DIVISION W.R.

ORIGINATOR BBS DATE 20CT.84 CHECKED BY UW DATE 4/85

Bridge Location: Survey X-Sect 9. on West TRIB

Bridge Losses - SB Card

1. XK (Pier Shape Coefficient) 0 — HEC-2 Manual

XKOR (Loss Coefficient) = 1.0 + k, $k = k_f + k_e + k_p$

where k_f = friction loss coefficient
k_e = entrance loss coefficient
k_p = loss from intermediate piers

Description of Bridge:

$k_f = 29.1 n^2 L/R^{4/3}$ for English units

Area = 15.75 = 1575 wp = 15.4

R = A/wp 1.02 $R^{4/3}$ = 103 L = 55.3

n(composite) = 11.4(0.015)+4(0.03)/15.4 = 0.019

k_f = 29.1 x (0.019)^2 x 55.3/1.03 = 0.56

k_e = 0.7 WINGS @ TO SIDES SQUARE EDGE

k_p = 0 if bridge has no intermediate piers

k_p = 0.05 if bridge has intermediate piers

Hydraulic Charts for Selection of Highway Culverts Circular No. 5, December 1965, Page 49. HEC-2 Manual

2. XKOR = 1 + 0.56 + 0.7 + 0 = 2.26
3. COFQ = Coefficient of discharge = 3.0 — HEC-2 Manual
4. RDLEN = Length of weir = 0 (0 if read off BT cards)
5. BWC = Bottom width of bridge opening (inc. piers) = 4.0
6. BWP = Total width of obstruction = 0 — field data
7. BAREA = Bridge opening inc. piers = 15.8
8. SS = Side slope = 0 (horizontal per 1 vertical unit)
9. ELCHU = Elevation of channel invert U/S side = 693.8
   (0 if equal to minimum elevation in previous X-sect.)
10. ELCHD = Elevation of channel invert D/S side = 693.8
    (0 if equal to minimum elevation in previous X-sect.)

CHICKEN Ld.

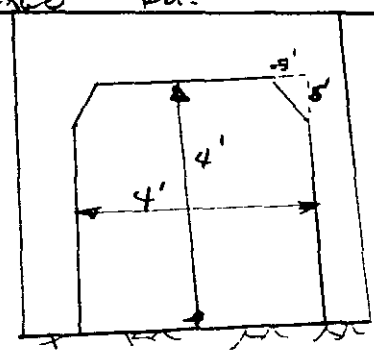
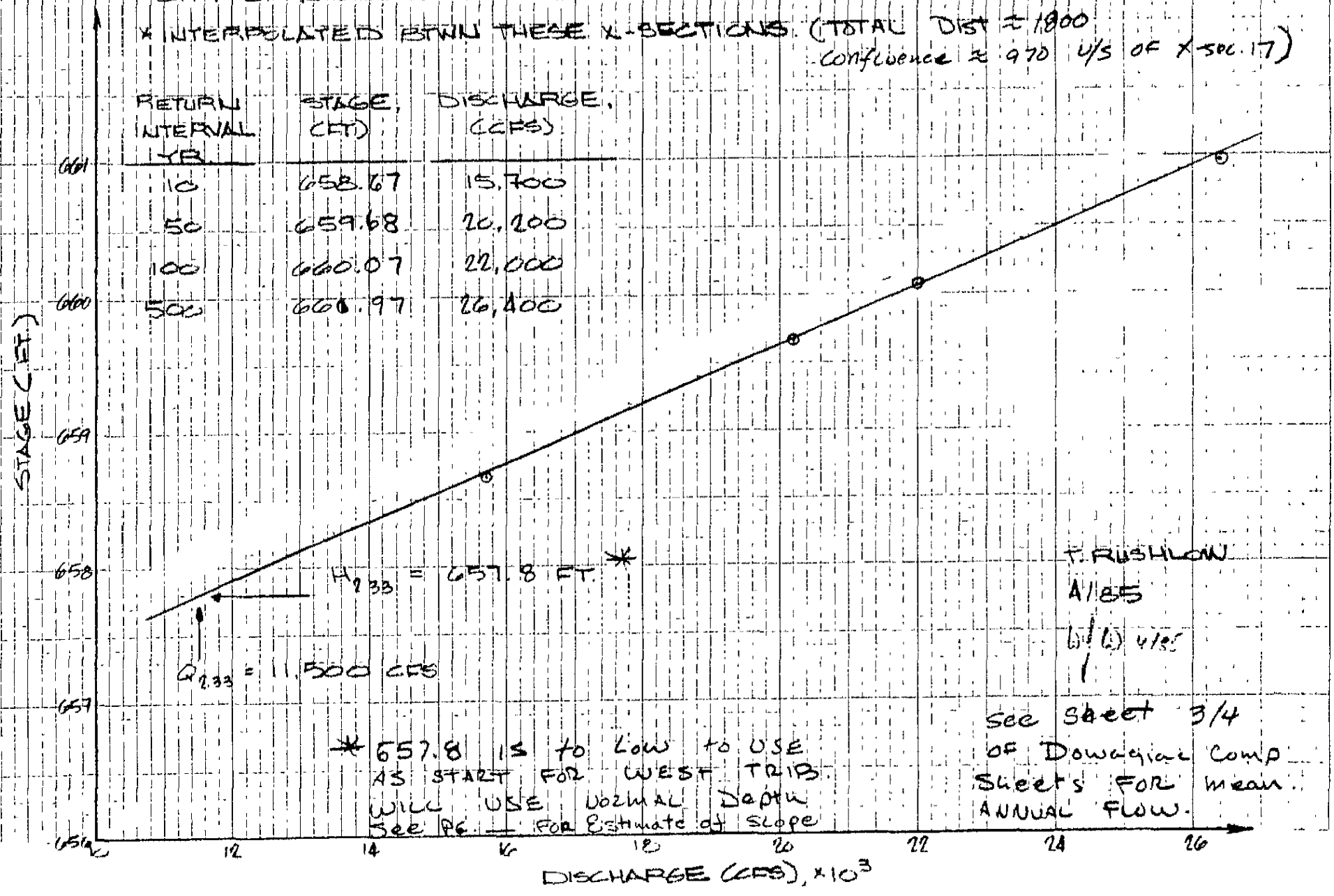


FIGURE : STAGE VS DISCHARGE - ST. JOSEPH RIVER - X-SECTION (17 - 18)*
(TO OBTAIN MEAN ANNUAL STARTING ELEVATION FOR THE WEST TRIBUTARY)
CITY OF NILES F.I.S. #1055 F

* INTERPOLATED BTWN THESE X-SECTIONS. (TOTAL DIST ≈ 1800
confluence ≈ 970 U/S OF X-SEC. 17)

RETURN INTERVAL YR.	STAGE, (FT)	DISCHARGE, (CFS)
10	658.67	15,700
50	659.68	20,200
100	660.07	22,000
500	661.97	26,400



T. RUSHLOW
4/85
W/W 4/85

* 657.8 IS to Low to USE AS START FOR WEST TRIB. WILL USE NORMAL Depth See Pg. — FOR Estimate of Slope

See Sheet 3/4 OF Dowagiac Comp Sheets FOR mean ANNUAL FLOW.

7/8

STS Consultants Ltd.
CALCULATION SHEET

PROJECT: Niles F.I.S. JOB NO. 1055F PAGE 8 OF 8

SUBJECT West TRIB. Hydraulics DIVISION. H+N

ORIGINATOR RBS DATE 3/85 CHECKED BY LMB DATE 5/85

3.1 Estimate of Starting Slope

Since the mean annual W/S elev in the St. Joseph River is to low to be used as a starting condition for HEC-2 RUNS, A Slope-area start must be USED

This method uses a know W/S Slope or the Slope of the Channel invert to begin Calculations.

3.1.1 Calculations

Invert elev @ X-Sec. 1 = 654.2

Invert ELEV @ X-sec. 2 = 656.8

Distance btw X-Sections $\doteq$ 330 ft

$$\frac{656.8 - 654.2}{330} = 0.0079$$

say 0.008

APPENDIX G

CITY OF NILES FLOOD INSURANCE STUDY
BRIDGE SURVEY NOTES

CALCULATION COVER SHEET

PROJECT NILES EIS JOB NO 1055F DIVISION H & H

SUBJECT ST. JOSEPH RIVER, DOWAGIAC RIVER, WEST TRIBUTARY HYDRAULICS. FILE NO

CALC NO

ORIGINATOR THR DATE 3/85

CHECKER DATE NO OF SHEETS 40

RECORD OF ISSUES								
NO	DESCRIPTION	BY	DATE	CHKD	DATE	APPRD		
△								
△								
△								
△								
△								
△								

PRELIMINARY CALC ☐

SUPERSEDED CALC ☐ FINAL CALC ☐

BRIEF SUMMARY OF CALCULATIONS INCLUDING SCOPE AND RESULTS

SUMMARY OF INPUT COMPUTATIONS FOR THE HEC-2 MODEL:

	SUBJECT	PG.
1.0	BRIDGE SURVEY NOTES	1 - 40
1.1 :	ST JOSEPH RIVER	
	XS-5, CONRAIL RR BRIDGE	1 - 4
	XS-8, MAIN ST. BRIDGE	5 - 8
	XS-10, BROADWAY ST. BRIDGE	9 - 11
	XS-12, WALKWAY BRIDGE	12 - 15
	XS-13, PEDESTRIAN BRIDGE REMAINS	16 - 18
	XS-15, FRENCH PAPER CO DAM	19
	XS-16, RR BRIDGE	20 - 22

CALCULATION COVER SHEET

PROJECT NILES EIS JOB NO 1055F DIVISION H & H

SUBJECT ST JOSEPH RIVER, DOWAGIAC RIVER, WEST TRIBUTARY HYDRAULICS FILE NO

CALC NO

ORIGINATOR TMR DATE 3/85

CHECKER DATE NO OF SHEETS 40

RECORD OF ISSUES

NO	DESCRIPTION	BY	DATE	CHKD	DATE	APPRD		
△								
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PRELIMINARY CALC ☐

SUPERSEDED CALC ☐ FINAL CALC ☐

BRIEF SUMMARY OF CALCULATIONS INCLUDING SCOPE AND RESULTS

PG.

1.0 BRIDGE SURVEY NOTES

1.2 DOWAGIAC RIVER

XS - 3, US 31-33 BRIDGE 23 - 25

XS - 5, RR BRIDGE 26 - 28

1.3 WEST TRIBUTARY

XS - 2, CONCRETE WEIR 29 - 30

XS - 4, FOOT BRIDGE 31 - 32

XS - 5, TOPINABEE RD BRIDGE 33 - 34

XS - 7, WESAW RD BRIDGE 34 - 35

XS - 9, CHICAGO RD BRIDGE & CULVERT 36 - 38

XS - 11, FOOT BRIDGE 39 - 40

	A D 53-29-45	29/46.5	92-15-42		℄ × ℄	FRONT & [illegible]
[illegible] 92	℄ 233 [illegible]-45					
	21-02-40.5					
	B D 74-32-30	32/27	89-57-21		℄ [illegible]	
[illegible] 6.76	℄ 254-32-[illegible]					
	9-30-83					
	[illegible]					
	X-SECTION-5 @ BRIDGE					
	DROP TAKEN FROM T/RAIL					
	SOUTH SIDE OF BRIDGE					
	689.00					
20+00		3.8	685.20		GRD @ RR GRADE	
20+29		4.0	685.00		T/CONC. ABUT. W/S	
20+31		15.75	673.25		T/LEDGE	
20+34		17.05	671.95		" ℄ GRD	

1/40

STA	689.00			
20+40		30.75'	658.55	T/ ABUT
		29.45	649.55	P/ ABUT GEO
20+81		41.15	647.85	GEO
21+08		51.95	637.05	@ WATER EDGE
21+24		54.60	634.40	CHANNEL
21+37		54.40	634.60	"
21+54		53.2	635.80	"
21+82		52.45	636.55	W/EDGE PIER E-1
21+85		41.70	648.30	T/ PIER E-1 &
21+88		53.10	635.90	E/ EDGE E-1
22+04		53.80	635.20	CHANNEL
22+25		56.40	632.60	"
22+44		56.80	632.20	"
22+65		55.80	633.20	"
22+85		53.2	635.80	"

FE[illegible]

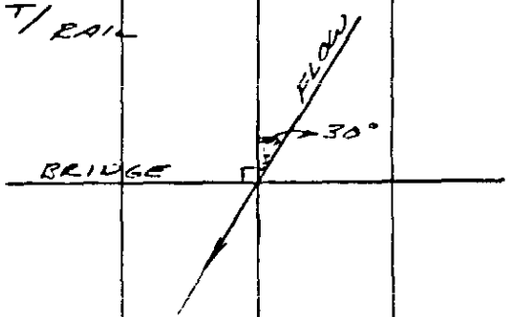
X-SEC-5 CONT

STA.	689.00			
23+05		51.9	637.10	W/EDGE PIER E-2 @ [illegible]
23+08		40.8	648.20	T/℄ PIER
23+11		52.6	636.40	E/EDGE PIER E-2 @ [illegible]
23+30		53.5	635.50	CHANNEL
23+47		58.4	630.60	"
23+70		59.3	629.70	℄ "
23+97		53.7	635.30	"
24+10		52.1	636.90	GND @ [illegible]
24+26		46.05	642.95	W/EDGE PIER E-3 @ [illegible]
24+29		40.75	648.25	T/℄ PIER E-3
24+32		44.7	644.30	E/EDGE E-3 @ [illegible]
		2.2	686.80	T/RAIL

FROM PIER W/USC & GS

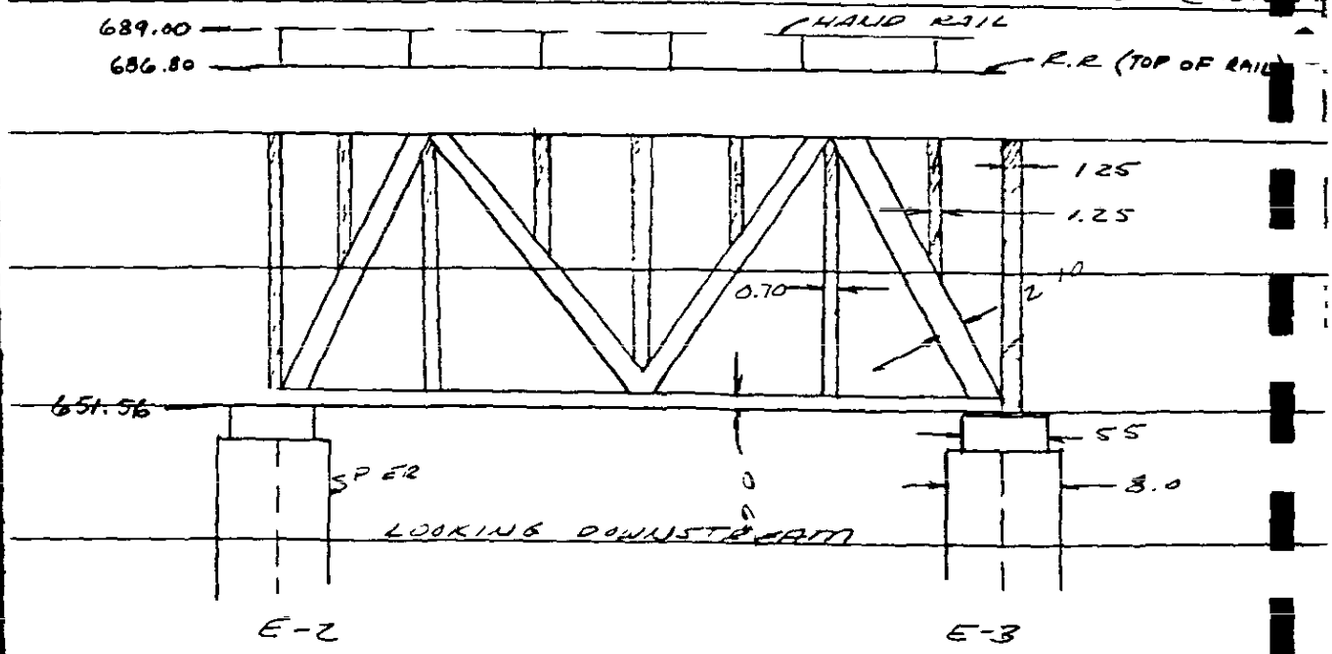
BENCH TO [illegible] UNDER FRAME (LOW CHORD OF BRIDGE)

2.32 651.56 649.24



3/40

RAILROAD BRIDGE OVER ST JOE RIVER @ WIL



28.4' WIDE

CROSS SECTION - 8

MAIN STREET BRIDGE

STA	BS	HI	FS	TN	ELEV
PM	6.01	662.71			656.76
	10.56	670.01		3.32	659.45
20+00			-2.03		672.03
"			-2.03		672.03
20+14			-1.05		671.06
"			-1.05		671.06
20+30			-0.59		670.60
20+36			-0.39		670.40
20+42			-0.29		670.30
20+48			-0.18		670.19
20+54			-0.09		670.10
20+57			-0.03		670.04
20+60			0.11		669.90
20+74			0.17		669.84
"					

OBVIOUS.

PAGE 9 FLANGE INFO

T/GRATE ON C&G.

		T/CONC RAIL
		GRD
3.2	668.83	
		T/CONC WALL
4.9	666.18	
		B/CONC WALL AND
19.9	651.16	T/BANK
21.2	649.40	
		GRD
23.2	642.20	
		GRD
29.9	640.40	
		EDGE/WATER
32.75	637.44	
		ACCN 1/4"
11.2	658.90	
		ORNAMNTL
34.6	635.44	
		"
36.6	633.30	
		" E ACCN (OPENING)
9.1	660.84	
		CANNMTL
37.3	632.54	

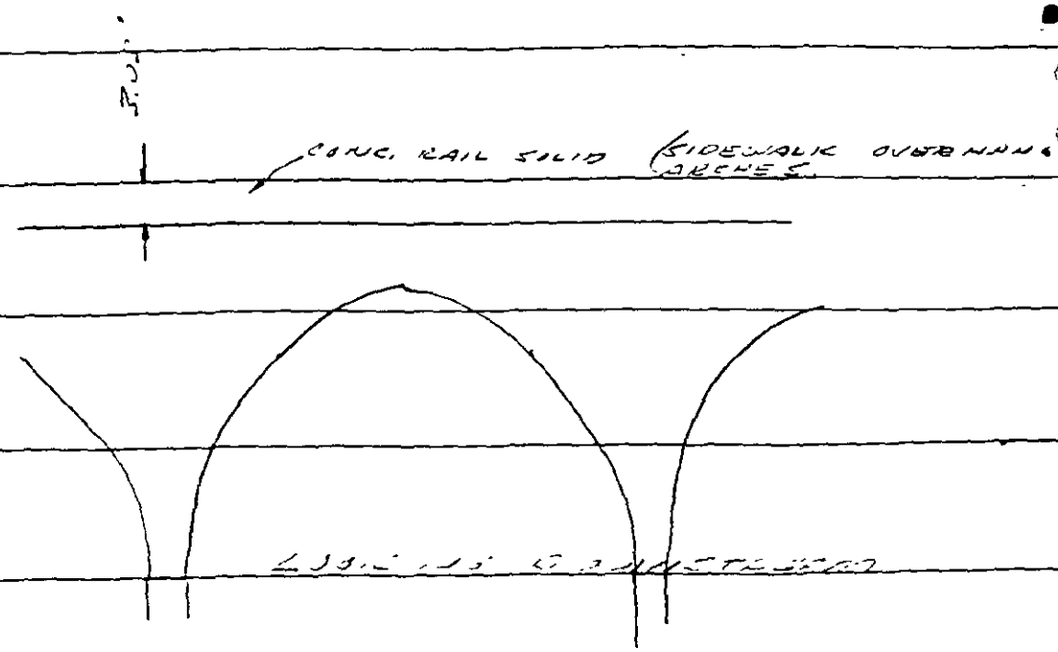


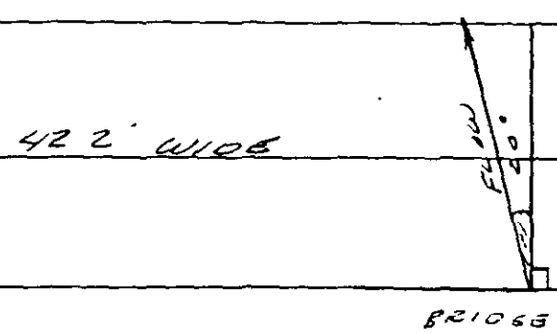
5/46

STA	RT	RT	F	TP	ELEV			
		670.01						DESK
20+			0.45		669.52	11.2	658.32	
20+83			0.45		669.52	43.3	626.22	CHANNEL
21+17.1			0.75		669.26	35.9	633.36	
21+15			0.84		669.17	36.0	633.17	EO/FACE PIER
21+21			1.14		668.87	42.2	626.67	CHANNEL
21+31			1.54		668.47	41.6	626.87	"
21+35			1.92		668.09	33.0	635.09	"
21+40			2.11		667.90	32.7	635.20	EO/FACE PIER
21+			2.22		667.79	31.3	636.49	EO/FACE PIER
22+29			2.62		667.39	31.2	636.19	CHANNEL
22+76			2.89		667.12	32.9	634.22	"
22+89			3.21		666.80	32.7	634.10	
22+97			3.49		666.52	31.6	634.92	EO/FACE W/F.ICE
22+			3.58		666.43	31.6	634.83	E/FACE PIER
23+07			3.77		666.24	31.0	635.24	CHANNEL

STA	BS	HI	FS	TP	ELEV				
22+24		670.01 ~~[illegible]~~	4.04		665.97		30.2	635.77	[illegible]
22+35.1			4.19		665.82		28.4	637.42	EDGE/WATER
22+50			4.42		665.59		26.8	638.79	TOE/BANK GRD
22+65.8			4.62		665.39		23.25	642.14	TOE/BANK
22+78.3			5.08		664.93		7.0	657.93	T/BANK
22+70.5			4.7		665.31				BREAK IN RAIL
20+32			7.09		670.40				BREAK IN RAIL SLOPE
	3.31	662.76		1056	659.45				
BM.				600	656.16	(656.70)		~~T/[illegible]~~	
STA	BS	HI	FS	TP	ELEV.				
BM	9.35	668.80			659.45			T/GRATE PG. 57	
			1.86		666.94			W/EDGE BRIDGE & ROAD	
			4.43		664.37			℄ BRIDGE × ℄ ROAD	
			7.10		661.70			E/EDGE BRIDGE × ℄ ROAD	
BM				9.35	659.45				

7/40


CONC. RAIL SOLID (SIDEWALK OVERHANG ARCHES
LOOKING DOWNSTREAM


42.2' WIDE
FLOW
20°
BRIDGE

8/40

XS-10

BRIDGE @ BROADWAY

NOTE: STATIONING [illegible]

REVERSE → UPSTREAM SIDE

STA	BS	HI	FS	TP	ELEV.
BM	4.24	662.01			657.77
20+00			5.95		656.06
20+19			1.03		660.98
-					
20+35			1.63		660.38
20+49			1.69		660.32
20+62.5			1.72		660.29
20+76			1.72		660.29
20+79			1.73		660.28
20+97			1.80		660.21
21+21			1.86		660.15
21+36			1.87		660.14
21+59			1.87		660.14

S-23 PG. 9

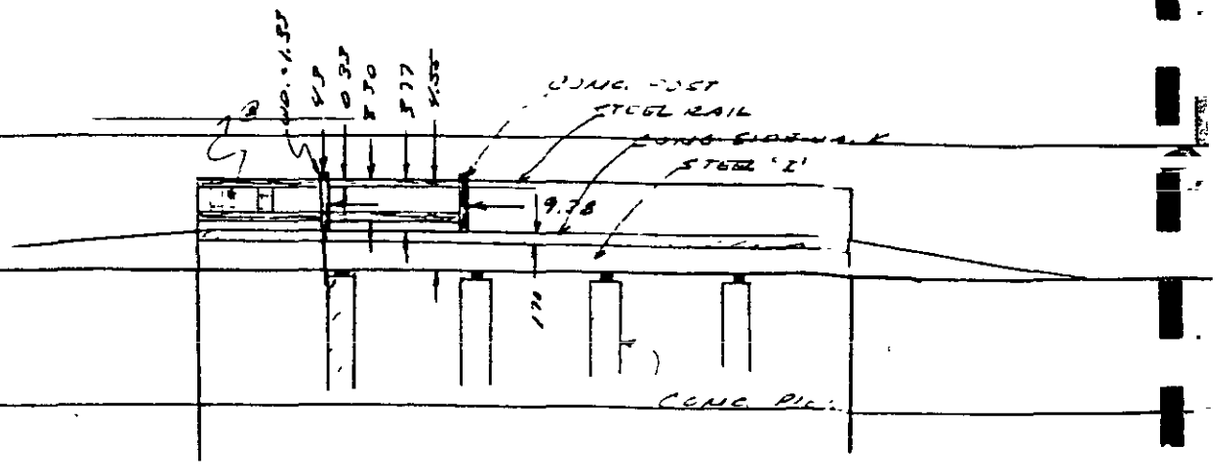
DROPS

		GED	
		T/CONC. RAIL	
15.2	645.78	E/FACE WALL GRD	
20.5	639.88	SLOPE/LANE	
22.7	637.62	EW/W	
24.6	635.69	CH.	
27.5	632.79	PIER	E/S
29.5	630.78	PIER	W/S
28.8	631.41	CH.	
30.2	629.95	"	
27.9	632.24	PIER	E/S
30.3	629.84	PIER	W/S

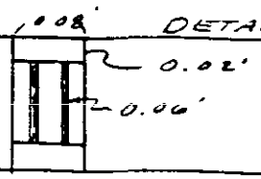
9/40

STA	BS	HI	FS	TP	ELEV.					
21+56		662.01	1.96		660.05	297	630.35		CH.	
21+81			2.01		660.00	30.2	629.80		CH.	
21+96			2.01		660.00	31.4	628.60		PI[illegible]	e/s
21+99			2.01		66000	33.6	626.40		"	w/s
22+17			2.12		65989	27.9	631.99		CH	
22+41			2.15		65986	26.4	633.46		CH.	
22+56			2.16		65985	26.1	633.75		PIER	e/s
22+59			2.17		[illegible]	24.7	635.14		"	w/s
22+69			2.20		[illegible]	[illegible]	[illegible]			
[illegible]			2.25		[illegible]	27.0	[illegible]			[illegible]
[illegible]			[illegible]		[illegible]	19.5	[illegible]			
[illegible]			[illegible]			14.3	[illegible]			
[illegible]			[illegible]			[illegible]				
[illegible]			[illegible]							
	[illegible]									
						W.[illegible]				
			6.[illegible]							
			6.20							
			[illegible]							
[illegible]					[illegible]					

10/60



42 WIDE



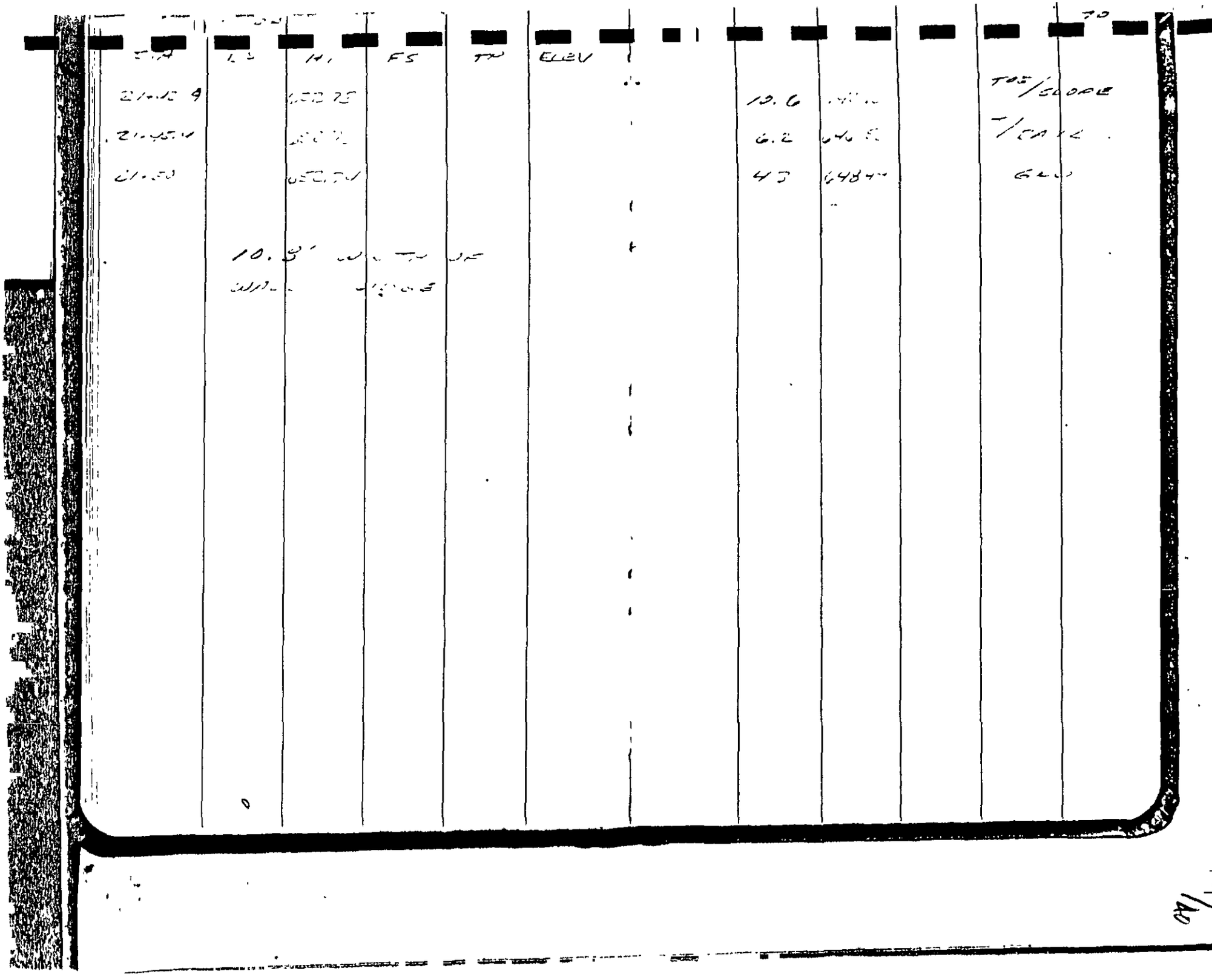
DETAIL OF STEEL RAIL GRID

9/11

	X5-12										
	⊼ @ X5-12										
A	D 171-10-30			88-1[illegible]-56			℄ RO	x	℄ [illegible]		
721.20	R										
	347-54-45										
B	D 159-05 15			90-52-24			℄ BRIDGE @ [illegible]				
84.[illegible]2	R										
STA	BS	HI	FS	TO	ELEV.						
BM	2.00	660.4			658.14		27-[illegible]	PG 13			
			765		652.49			T/RAIL [illegible]			
			752		652.62			[illegible]			
			7.40		652.74			T/RAIL [illegible]			
	1.27	646.55	[illegible]	1486	646.28		HI - USED TO [illegible]				
X5-12			175		644.80		[illegible]				
	1426	659.54		127	645.28						
BM.				140	658.14	([illegible])					

12/26

STA	BS	HI	FS	TP	ELEV	DROP CH			
20+00		652.49							
						3.52	648.97	T/LANK	T/WALK GRD
						9.5	642.99		B/WALL GRD
20+15.4		652.52				14.5	638.02	E/WATER	E/S (1' PILE)
20+30.6		652.54				16.6	635.94		W/S PILE
						16.6	635.94		E/S PILE
20+45.8		[illegible]				16.2	636.37		W/S "
						16.2	636.37		E/S "
20+38.2		652.[illegible]				18.4	634.[illegible]		CH
20+75.9		652.[illegible]				16.9	635.72		"
20+90.8		652.64				18.9	633.74		"
21+05.3		652.67				16.7	635.[illegible]		"
21+19.9		652.69				15.8	636.[illegible]		"
21+34.6		652.[illegible]				~~[illegible]~~			[illegible]
21+35.2		652.72				15.3	6[illegible]74[illegible]		CH
21+37		652.72				14.0	638.72		E/WATER



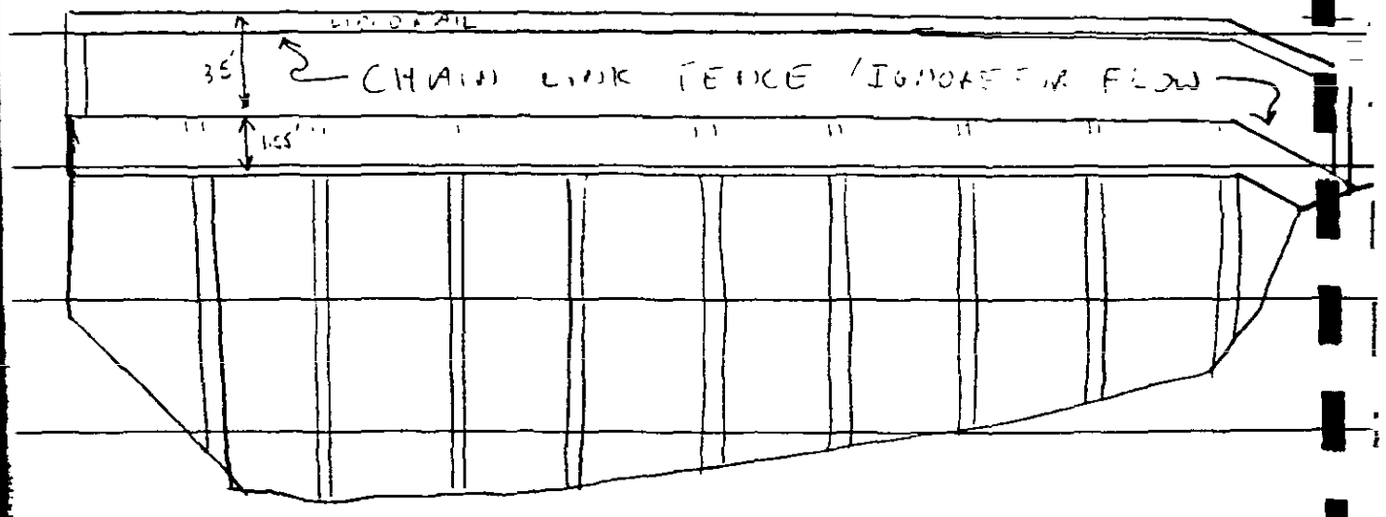
[illegible]	[illegible]	HI	FS	TN	ELEV					TO
[illegible]		[illegible]				10.6	[illegible]			TOS/SLOPE
[illegible]		[illegible]				6.2	[illegible]			T/[illegible]
[illegible]		[illegible]				4.3	648[illegible]			[illegible]

10.8' [illegible]

[illegible]

14/40

CROSS SECTION # 12
(Island Park Bridge)



15/40

10-7-83 FEMA - FIS

CITY OF NILES, MICH

JOB # 1055 65°F CLEAR

D. COLE, J FROST

CONTINUATION OF 'NILES'

FIELDBOOK RE X-SECTIONS

OF [illegible] RIVER, NILES

CROSS-SECTION 13

— REMAINS OF PEDESTRIAN BRIDGE

								647.12		
						-0.05	15	+ .05		
								647.17		
						XS-12				
						HI - 647.17				
	⊼ @	XS-13				HI - 6.04 +				
A	D	208-01-18		~~89-54-40~~ 90-12	XS-14	HI - 4.80 -		642.32 =		647.12
885750	R	28-01-21		269-59-24						
				72						
—	WIRE	—	AZ	∢	ROD	VERT	∢	—	DESC.	—
52.52			67-56-00	2	8.00	76-01-12			GRD	
39.6			54-34-12	3 —	4.40	78-57-42		T. SANK		

41

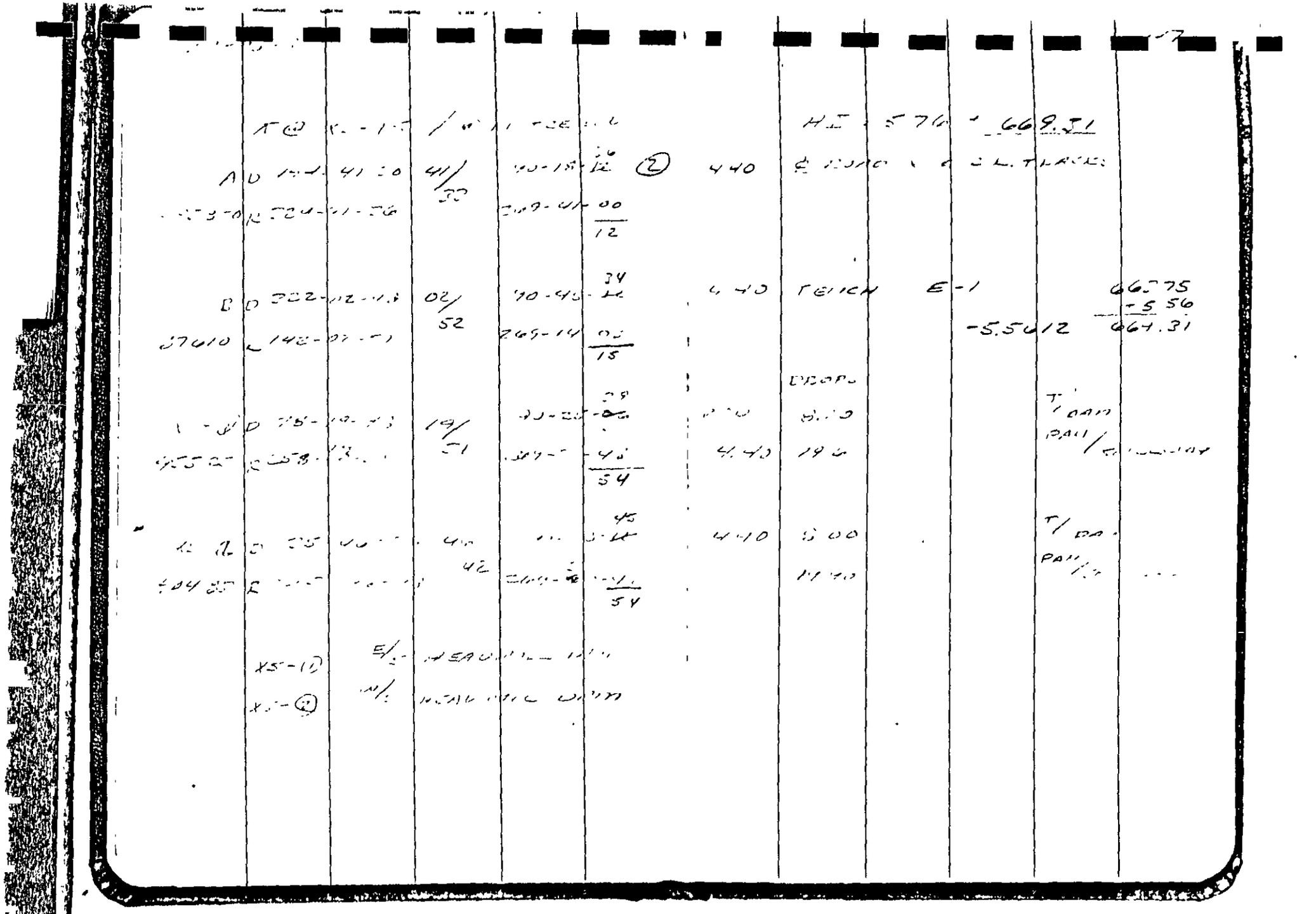
10-7-[illegible]

X5-13

—	WIRE	—	[illegible]		[illegible]	[illegible]	—	DESC	—
26 62			26-19-20	4	0	87-4[illegible]		T/ PILE 17	
27 92			20-5[illegible]	5	4.40	92-16-54		EDGE / WATER	
20 42			347-54-00	6	.	101-[illegible]-20		[illegible] PILE 16	
40 28			320-59-00	7	11.10	95-[illegible]-1[illegible]		CH @ PILE 1[illegible]	
57 46			306-[illegible]1-00	8	11.70	95-[illegible]-45		CH @ PILE 1[illegible]	
~~[illegible]~~			~~24~~	9	7.50	[illegible]		CH	
8[illegible] 12			2[illegible]-5[illegible]-00	10	7 30	95-06-[illegible]0		CH @ REMAINS PIER 145	
97 [illegible]			296-[illegible]-00	11	740	[illegible] 12 [illegible] PIERS 145-13			
109 [illegible]3			240-57-00	12	8.40	9[illegible]-54-54		CH @ PIER 1[illegible]	
1[illegible] 42			285-11-00	13	5.50	93-17-21		CH	
149.58			285-43-00	14	4 80	92-5[illegible]-06		CH	
170.90			287-4[illegible]-00	15	5 50	92-2[illegible]-42		CH	
192 52			286-31-00	16	6 0	92-13-09		CH	
210.50			285-44-00	17	5 2	92-02-4[illegible]		CH	
2[illegible]0.[illegible]2			28[illegible]-[illegible]-00	18	10.0	[illegible]-2[illegible]-[illegible]		CH	
249 [illegible]			231-42-00	19	4 30	91-[illegible]-30		CH	

—	XS-13 WIRE		A7 4		ROD	VERT 4	—	[illegible]	—
269.66			282-08-00	20	4.60	91-20-24	CN		
290.06			281-37-00	21	3.20	91-23-48	CN		
310.24			281-17-00	22	3.50	91-12-33	CN		
330.82			281-14-00	23	2.70	91-13-15	CN		
350.84			281-04-00	24	1.80	91-12-42	CN		
369.66			280-50-00	25	4.10	90-57-36	CN		
386.10			280-49-00	26	3.50	90-43-30	EDGE/WATER		
391.66			280-4[illegible]-00	27	3.50	90-25-12	TOE/BANK		
407.9[illegible]			280-[illegible]-00	28	1.20	89-51-09	T/BANK		
385.58			280-4[illegible]-00	29	0	89-51-54	T/[illegible]		

18/40



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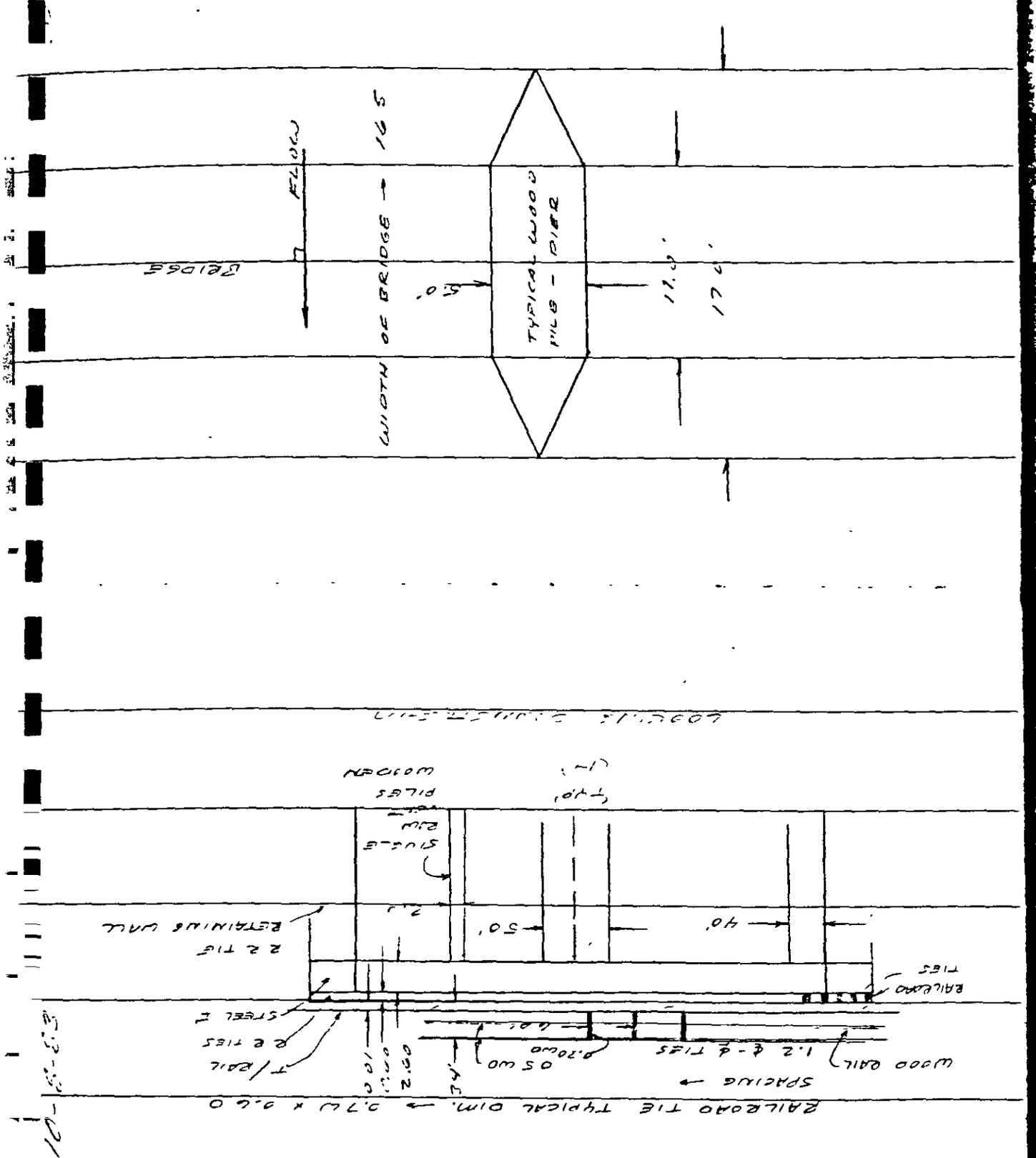
10-08-70

STA	BS	HI	FS	TN	ELEV	DESC		
		E-1						
20+00		6652.7	0.50		6652.2	GRD		
20+09			1.12		6651.58	CH.		
			9.6		6643.1	WATER		
20+15			11.5		6641.2	ON		
20+28		6652.76 E-2	14.0		6638.76	ON	W/S	PIER
20+30			12.1		6640.66	ON	E/S	PIER
20+33		6652.71 E-3	12.4		6640.31	ON	W/S	PIER
20+38			12.2		6640.51	ON	E/S	PIER
20+38		6652.71 E-4	12.7		6639.41	ON	W/S	PIER
20+45			12.3		6639.41	ON	E/S	PIER
20+53		6652.72 E-5	12.7		6639.02	ON	W/S	PIER
20+58			12.2		6639.51	ON	E/S	PIER
21+09		6652.71 E-6	12.6		6639.11	ON	W/S	
21+20			12.2		6639.71	ON	E/S	
21+33		6652.71 E-7	12.3		6639.91	ON	W/S	PIER

20/20


FLOW
BRIDGE
WIDTH OF BRIDGE → 16.5
TYPICAL WOOD PILE - PIER
5.0'
17.0'
17.0'
2.2 TIE RETAINING WALL
STEEL I
R.R. TIES
T/RAIL
SINGLE RIM
PILES
WOODEN
50'
40'
RAILROAD TIES
WOOD RAIL
1.2 ¢-¢ TIES
0.30 WD
0.5 WD
SPACING →
RAILROAD TIE TYPICAL DIM. → 0.7W x 0.6 D

U.S. 31 BRIDGE - DOWNING

RIVER AT MILES

PROFILE: UPSTREAM FACE

LOOKING DOWNSTREAM

STATIONING LEFT TO RIGHT

STATIONING AT STA 2000+00

STA	BS	HI	FS	TP	ELEV	OFFSET		
BM1	1.23	654.56			653.33		BM1 - 1 'O'	PAGE 1
20+00			1.23		653.33	4.0 649.33		SE COR
2049.7		0.49 659.07	1.15		653.41			BREAKING T/ WALL
20+23			0.46		654.10	13.4 640.70	3)	BANK - NEW
20+27.7		1.40 653.16	0.42		654.14	15.7 638.44	7.00	BREAK T/WALL
20+43			1.34		653.22	15.25 637.97		REG RECORD ON W EDGE WATER
20+61			1.26		653.30	16.4 636.90		CHANNEL
20+78			1.16		653.40	18.4 635.00		"

23/40

PROFILE - [illegible]

STA	BS	HI	FS	TP	ELEV.	DROPS			
20+82.5		654.56	1.12		653.44	19.0 634.44			S./EDGE PIER [illegible]
20+84.5			1.12		653.44	17.42 646.02			BRIDGE ST/PIER
20+85.5			1.12		653.44	17.9 635.54			N/EDGE PIER (EU)
[illegible]+95			1.09		653.47	17.7 635.77			CHANNEL
21+0[illegible]			1.09		653.47	17.6 635.87			"
21+15			1.09		653.50	16.9 636.60			"
21+28			1.0[illegible]		653.53	17.0 636.53			"
21+42.0		0.05 654.5	1.[illegible]		653.56	17.4 636.16			END [illegible] T/WALL [illegible]
21+47			0.04		654.52	16.5 638.02			ED/WATER BANK - GRD
21+50.2		0.71 653.85	0.04		654.52		1.09 'I' 647.43		BREAK IN GUARD RAIL T/WALL
21+54			0.69		653.87	11.9 641.97			BANK - GRD
21+74.0			0.62		653.94	3.5 650.44			END GUARD [illegible] T/BANK

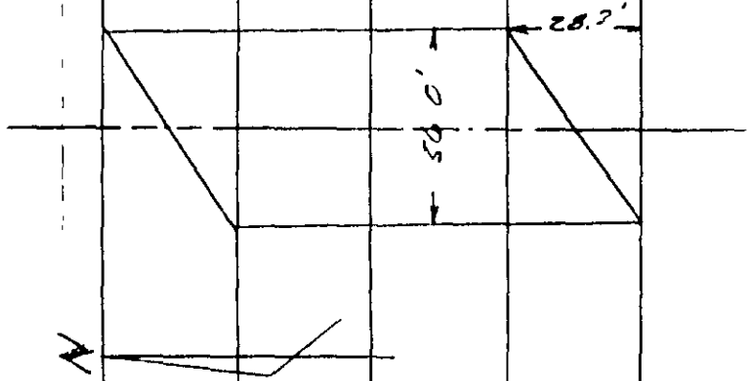
NOTE: GUARD RAIL - CO[illegible]

24/[illegible]

STA	BS	HI	FS	TP	ELEV.		
		654.56	3.99		650.57		℄ ROAD & N./END BRIDGE
			4.14		650.42		℄ ROAD & ℄ BRIDGE
			4.45		650.11		℄ ROAD & S./END BRIDGE
BM				1.23	653.33	(653.33)	

BRIDGE 56.0' WIDE

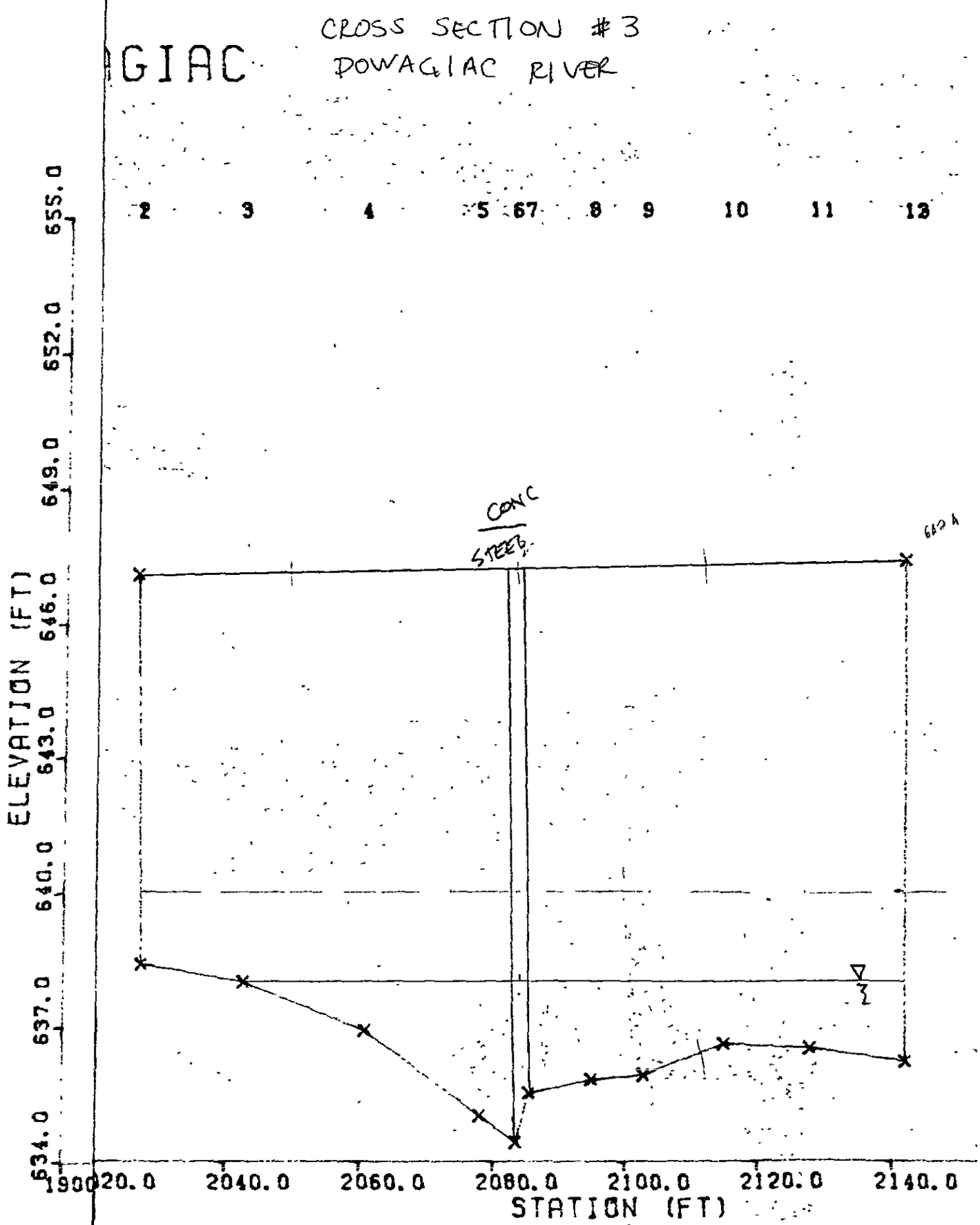
28.3' SKEW



0 0.0 0.0 0.0

9.3
653.4
0 654.1

634.4
635.5



X-SECTION & PROFILE
OF R.R. BRIDGE OVER
THE DO[illegible] RIVER

STA	BS	HI	FS	TP	ELEV.	DROPS	
BM	5.50	657.20			651.70		T/BOLT R.R. FOUND. PAGE 22
20+00			5.50		651.70		E./RAIL TIE
20+12			5.60		651.60		S./EDGE ABUTMENT
20+13.9			5.60		651.60		4.28 'I' 647.35 N/EDGE [illegible]
20+13.9			10.50		646.70		[illegible]
20+16.8			5.21		651.99		
20+16.8			10.75		646.47	14.0 632.47	
20+26			5.21		651.99	14.0 637.99	
20+32			5.22		651.97	14.1 637.87	
20+40			5.22		651.98	14.3 637.68	
20+51.2			5.28		651.92	14.6 637.32	

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STA	BS	HI	FS	TP	ELEV.				
20+5[illegible]		657.20	10.74		646.46				T/PIER
						14.8			
20+57.2			5.27		651.93		637.1		N/END PIER
						13.6			
20+65.7			5.24		651.96		638.4		CHANNEL
						14.1			
20+75.1			5.78		651.92		637.8		
						13.7			
20+86			5.27		651.93		638.2		
						15.[illegible]			
20+91.7			5.[illegible]		651.90		638.6		
						12.30			WATER LEVEL
20+91.7			10.75		646.45		634.2		SHELF
20+94.7			5.49		651.71				
20+96.1			5.49		651.71				
						.7			RAIL TIE [illegible]
21+00			5.38		651.82				
									E./RAIL
			4.49		652.71				N/END [illegible]
									E./RAIL
			.196		652.24				S./END BRIDGE
									W/RAIL
			[illegible]		651.89				S/END BRIDGE
									W/RAIL
			[illegible]		651.89				N./END BRIDGE
BM.				5.50	651.70				

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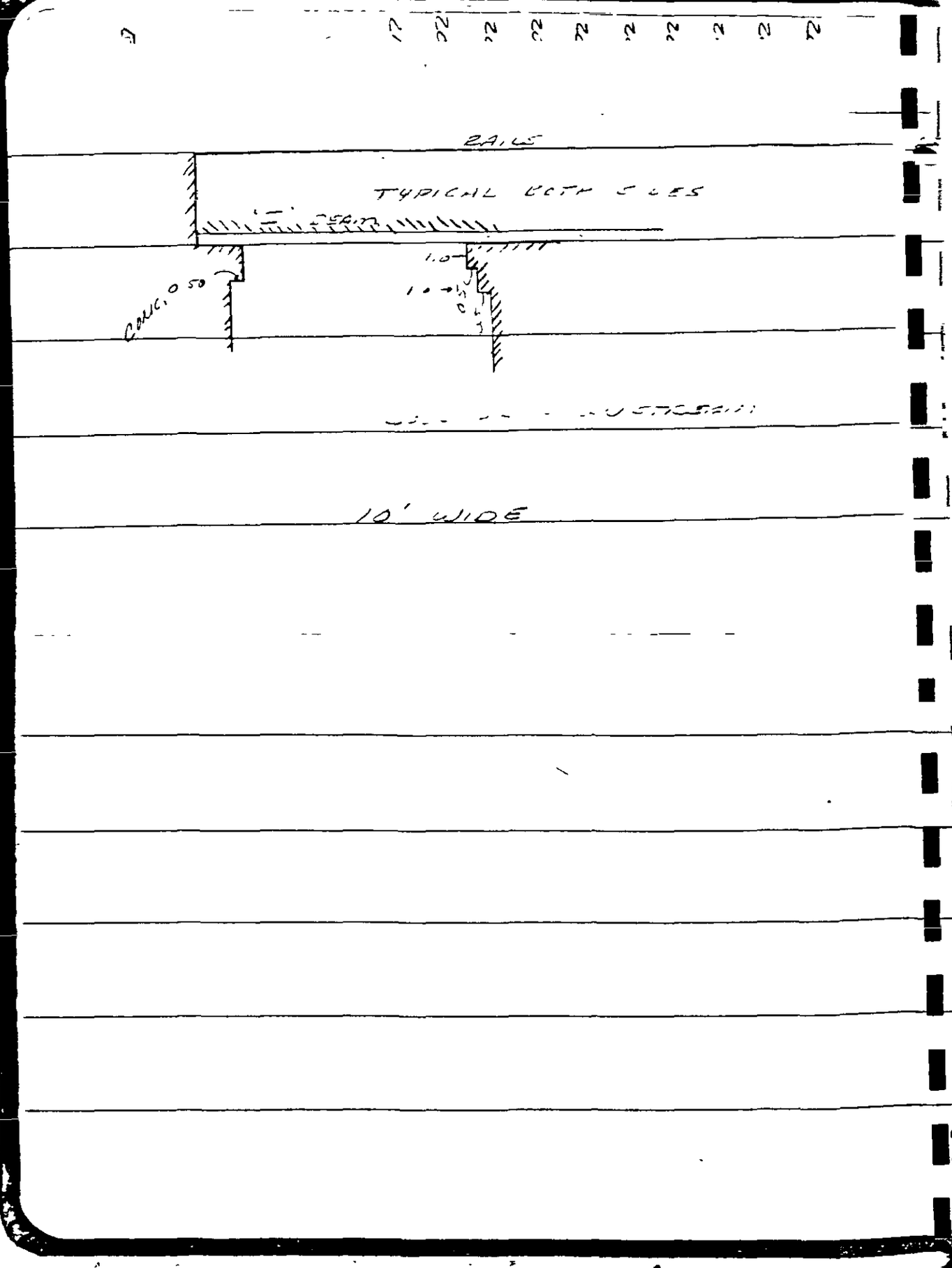
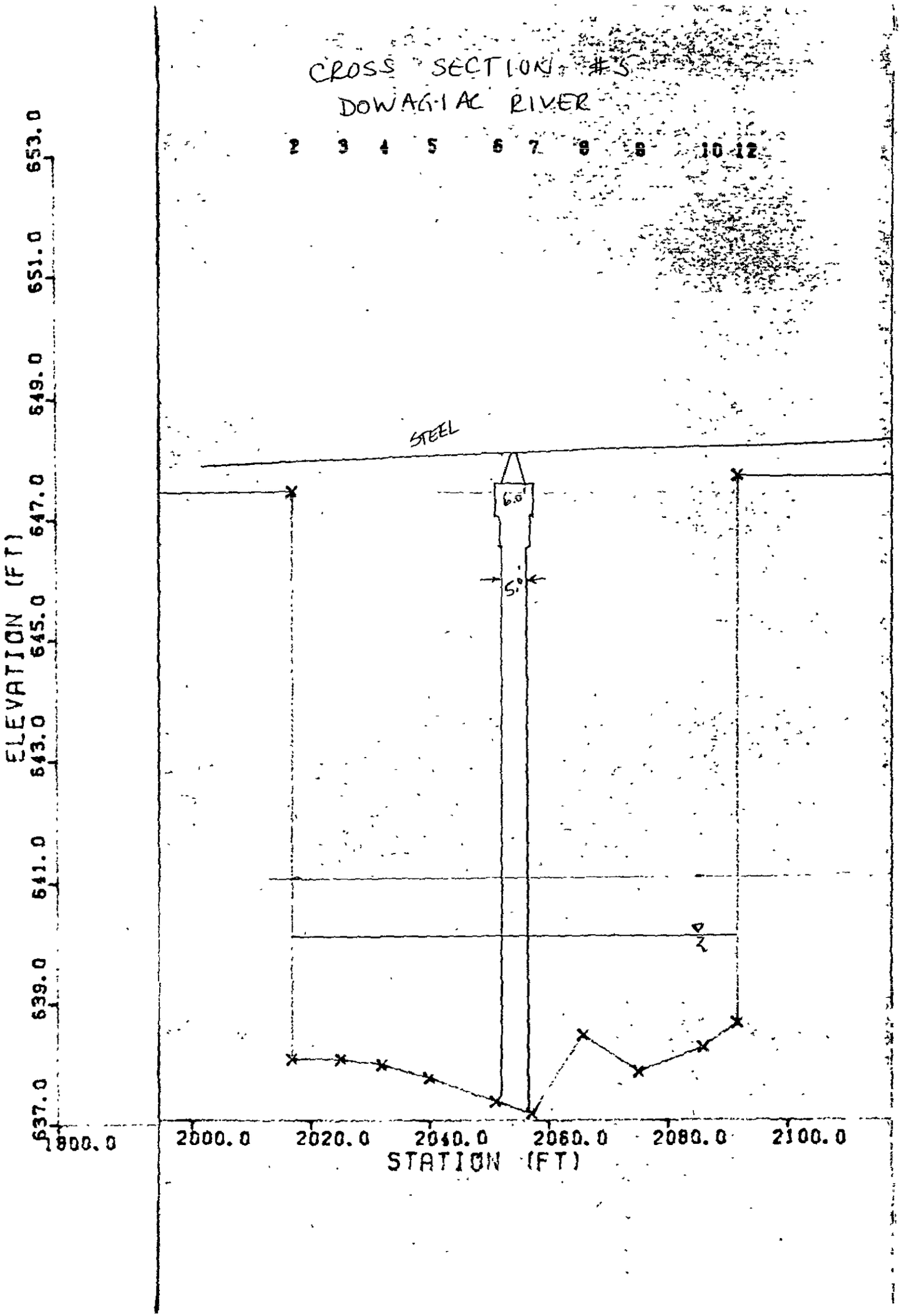


28/4


CROSS SECTION #5
DOWAGIAC RIVER
2 3 4 5 6 7 8 9 10 12
STEEL
6.0'
5.0'
ELEVATION (FT)
637.0
639.0
641.0
643.0
645.0
647.0
649.0
651.0
653.0
1800.0
2000.0
2020.0
2040.0
2060.0
2080.0
2100.0
STATION (FT)

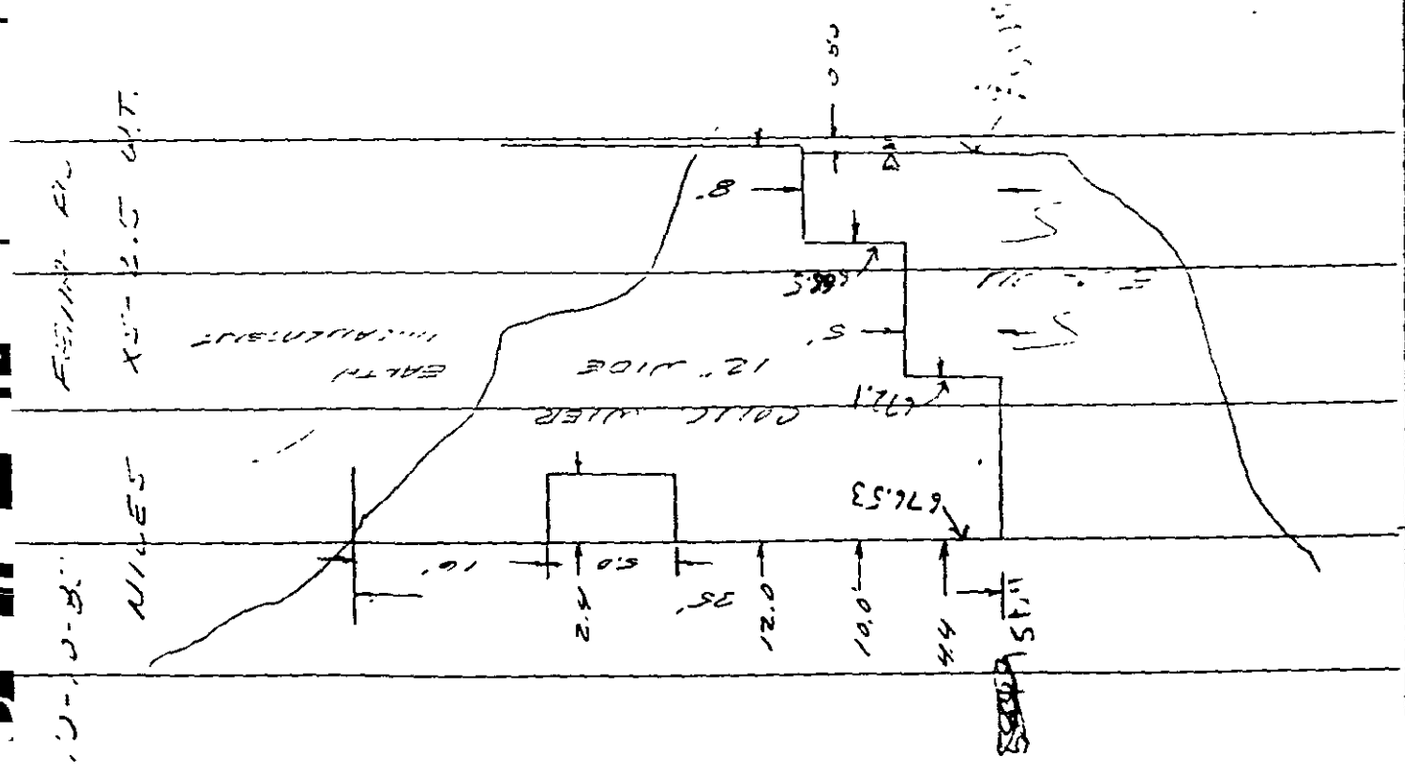
[illegible]-10-83 FEMA - FIS X - SEC 2.5 W.T. 6

CROSS - SECTION OF CONC WIER

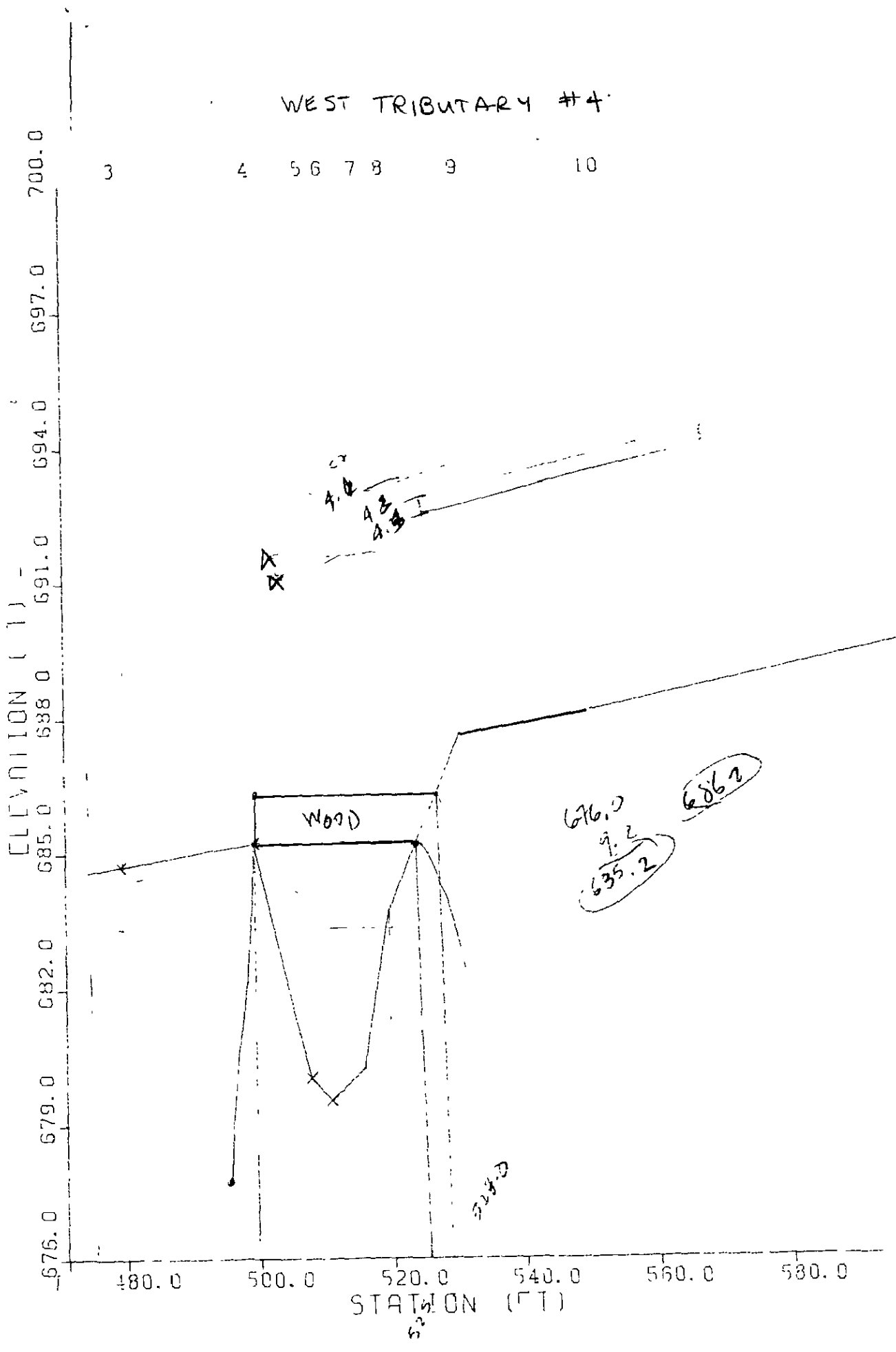
NOT ON AERIAL PHOTOS

STA	BS	HI	FS	TP	ELEV					
		684.37						PG. 59		
4+80			9.2		680.2				GRD	E/S
5+00			9.6		674.8				T/BANK	
5+16			12.84		676.53				E/ED WIRE	
5+17			23.5		665.9				B/BANK	
5+19			23.8		665.6				E/WATER	
5+22			24.3		665.1				℄ CH	
5+27			23.8		665.6				E/WATER	
5+30			19.6		669.8				MID. PT.	
5+35			19.4		670.0				"	
5+38			16.4		673.0				"	
5+49			12.84		676.53				"	T/DAM
5+61			5.0		684.4				T/BANK	
5+81			5.0		684.4				GRD.	W/S

29/40

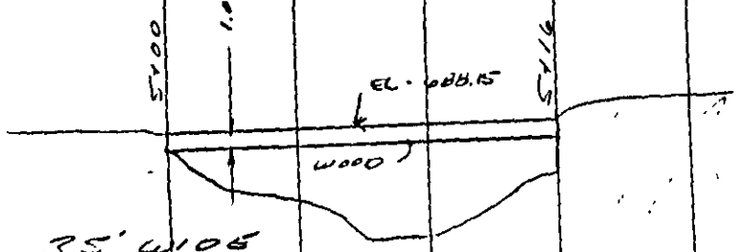


490.0 450.0


WEST TRIBUTARY #4
3 4 5 6 7 8 9 10
700.0
697.0
694.0
691.0
688.0
685.0
682.0
679.0
676.0
ELEVATION (FT)
WOOD
686.2
676.0
9.2
635.2
480.0
500.0
520.0
540.0
560.0
580.0
STATION (FT)

10-10-85 [illegible] CROSS-SECTION 4.5 W.T.

LOCATED ON AERIAL PHOTO

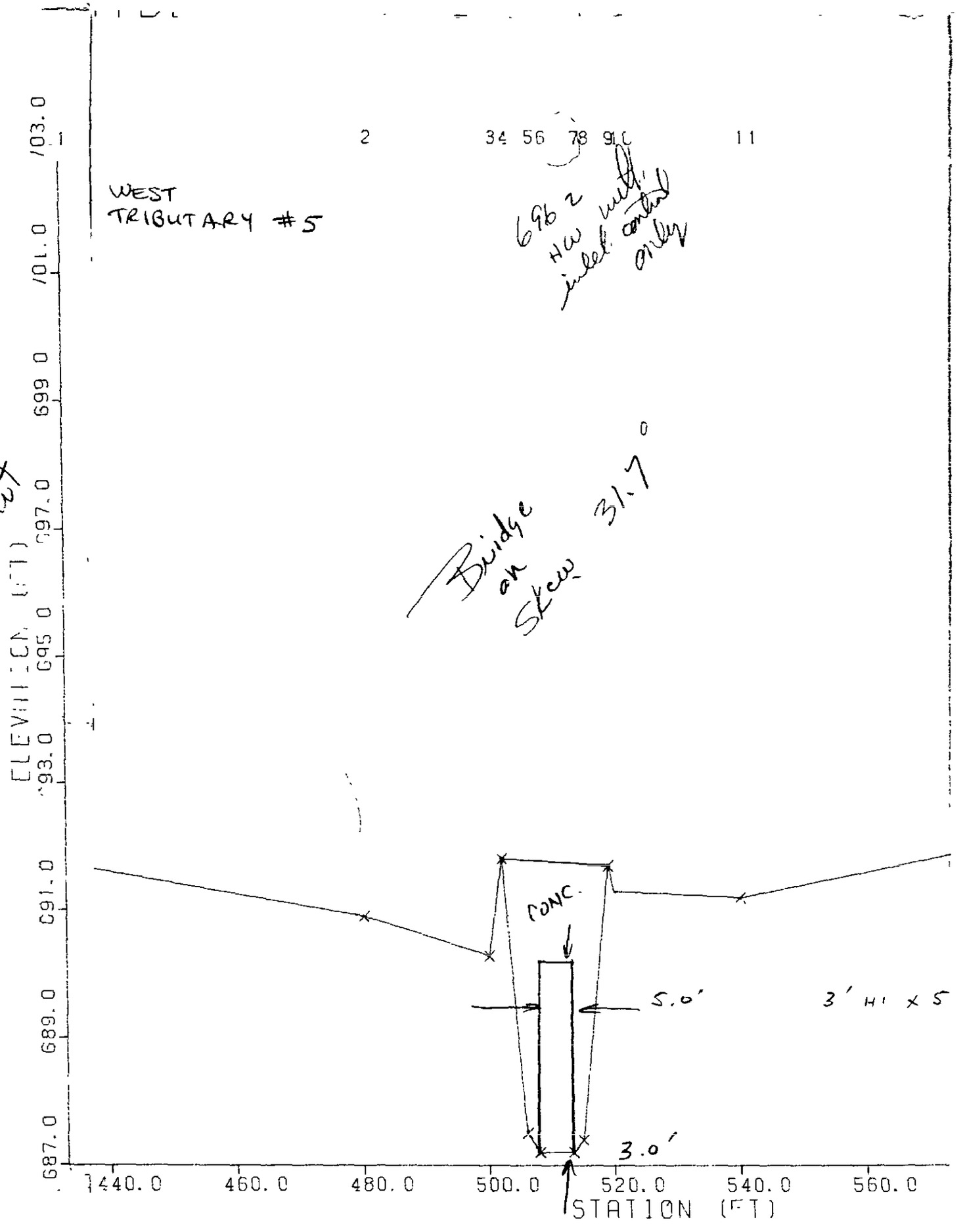


3.5' WIDE

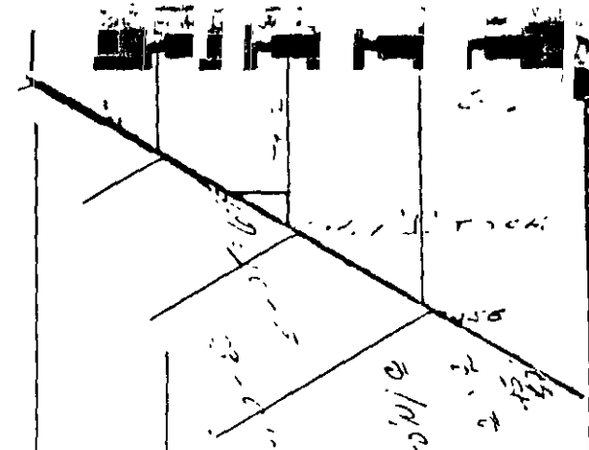
NO WATER

		DEPTH OFF BRIDGE DECK		
5+00	688.15	0	688.15	T/WING
5+06		4.6	683.55	B/CAP
5+10		5.5	682.65	℄ CH
5+11		5.2	682.95	B/CAP
5+15		2.1	685.05	T/SLOPE B/WALL
5+16	688.15	0	688.15	T/WING

32
40


WEST
TRIBUTARY #5
696.2
HW with inlet control
Bridge on Skew 31.7°
CONC.
5.0'
3' HI x 5
3.0'
ELEVATION (FT)
STATION (FT)
687.0
689.0
691.0
693.0
695.0
697.0
699.0
701.0
703.0
440.0
460.0
480.0
500.0
520.0
540.0
560.0

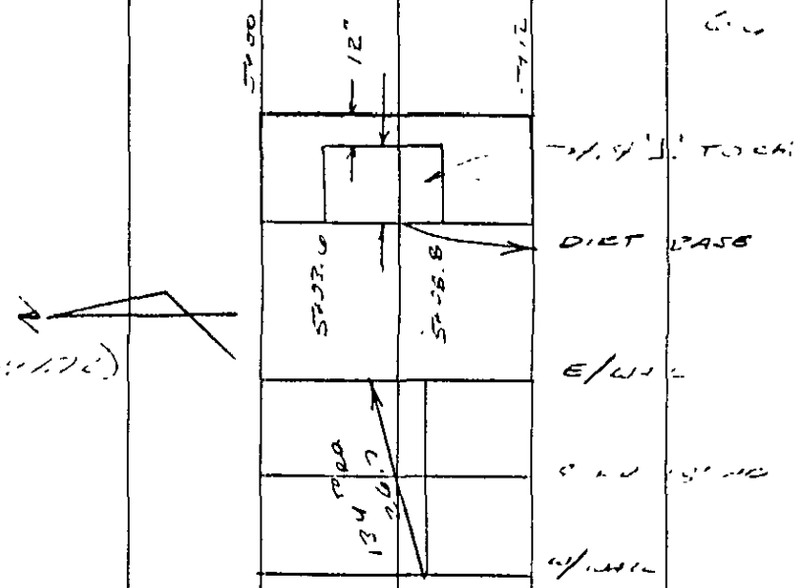
STA	BS	HI	FS	TP	ELEV.			
BM.		695.80						
	CROSS-SECTION							
4+80			4.9		690.90			
5+00			5.4		690.40			T/[illegible]
5+05			8.0		687.50			B/BANK
5+10			8.1		687.70			B/BANK
5+12			5.1		690.70			T/BANK
5+32			4.4		691.40			GRD
	CROSS-SECTION - 7 OUT							
4+80			3.0		692.00			GRD
5+00			5.[illegible]		692.72			T/BANK & N/BD HDWALL
5+05			8.10		681.70			N/BD OPEN [illegible]
[illegible]			8.75		687.05			℄ FLOW
5+[illegible]			8.[illegible]7		687.43			[illegible]
5+12			6.7[illegible]		689.08	T/3.06	692.74	[illegible] HDWALL & T/BANK
5+32			2.1		693.70			GRD



10-[illegible]

[illegible] (WESAW)

[illegible]		[illegible]		691.31
[illegible]		[illegible]		692.51
[illegible]		[illegible]		695.31
[illegible]			1.08	694.72 (694.72)



10-11-8[illegible] FEMA - FL[illegible]

[illegible] 6[illegible]°F CLEAR

[illegible]

WEST [illegible]

[illegible]-11-8[illegible] F[illegible], NILES

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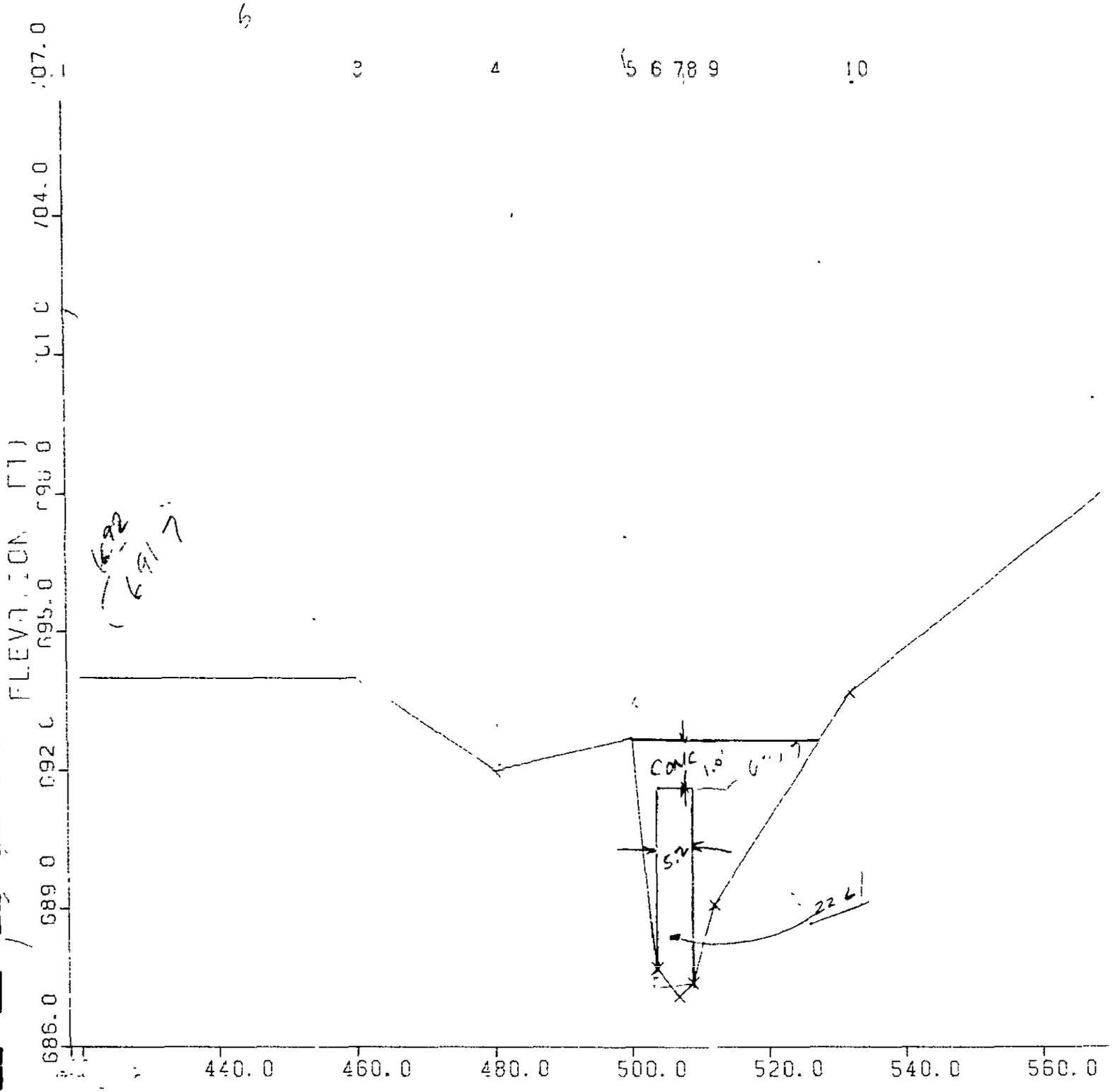
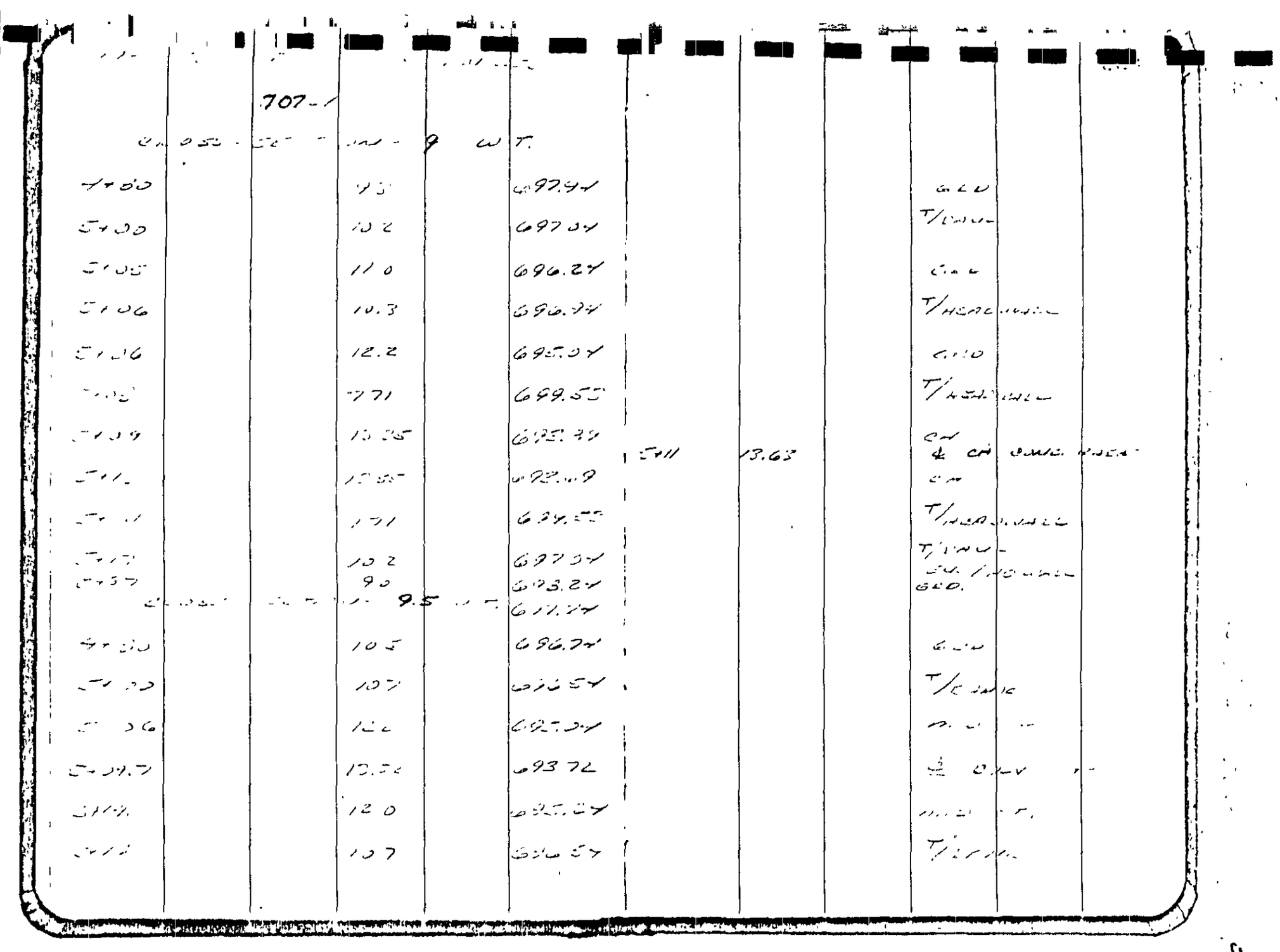
STA	BS	HI	F.	TP	ELEV.		
BM	0.64	710.52			709.8[illegible]	T/BOLT	CENTER GAS VALVE COVER PG. 14 NILES BOOK
	6.71	7[illegible].22		7.07	703.4[illegible]	VALVE COVER	
	4.45	701.56		13.11	697.11		
CROSS-SECTION - 8 W.T							
[illegible]+30			8.4		693.16		GLD
[illegible]			8.0		693.56		GLD
[illegible]+95			6.7		694.86		T/BERM
[illegible]+00			7.7		693.86		T/BANK
[illegible]			9.3		692.26		T/OVERBANK
[illegible]			10.4		691.16		CH
[illegible]			10.7		690.[illegible]		℄ CH
[illegible]+08			10.6		690.96		CH & [illegible]
[illegible]			6.9		694.66		T/BANK
[illegible]+54			5.7		695.[illegible]		GLD
	13.53	710.64		4.45	697.11		
	3.13	70[illegible].24		7.13	703.[illegible]		

DRY CHANNEL

3/4/80

WEST TRIBUTARY #7





707-1

[illegible] 9 WT.

4+00			9.5		697.94				GLD
5+00			10.2		697.04				T/[illegible]
5+05			11.0		696.24				[illegible]
5+06			10.3		696.94				T/HEADWALL
5+06			12.2		695.04				GLD
[illegible]			7.71		699.55				T/HEADWALL
5+09			13.25		695.39				CH
						5+11	13.63		& CH [illegible]
5+1[illegible]			13.55		693.[illegible]9				CH
5+[illegible]			1.71		694.55				T/HEADWALL
5+17			10.2		697.04				T/[illegible]
5+37			9.0		693.24				[illegible]
[illegible]			9.5		697.74				GLD.
4+00			10.5		696.74				GLD
5+00			10.7		696.54				T/[illegible]
5+06			12.2		695.04				[illegible]
5+09.7			13.52		693.72				& [illegible]
5+1[illegible]			12.0		695.24				[illegible]
5+1[illegible]			10.7		696.54				T/[illegible]

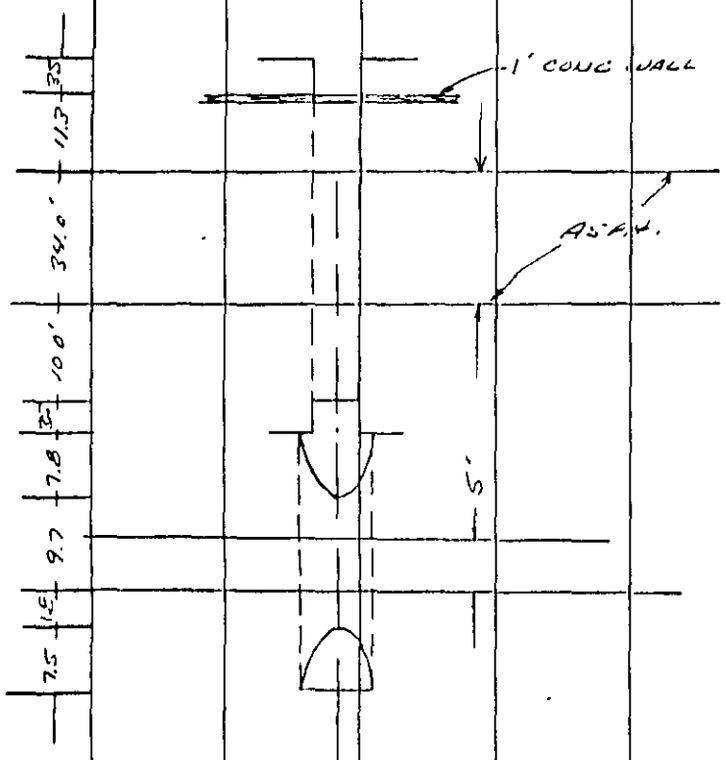
37/40

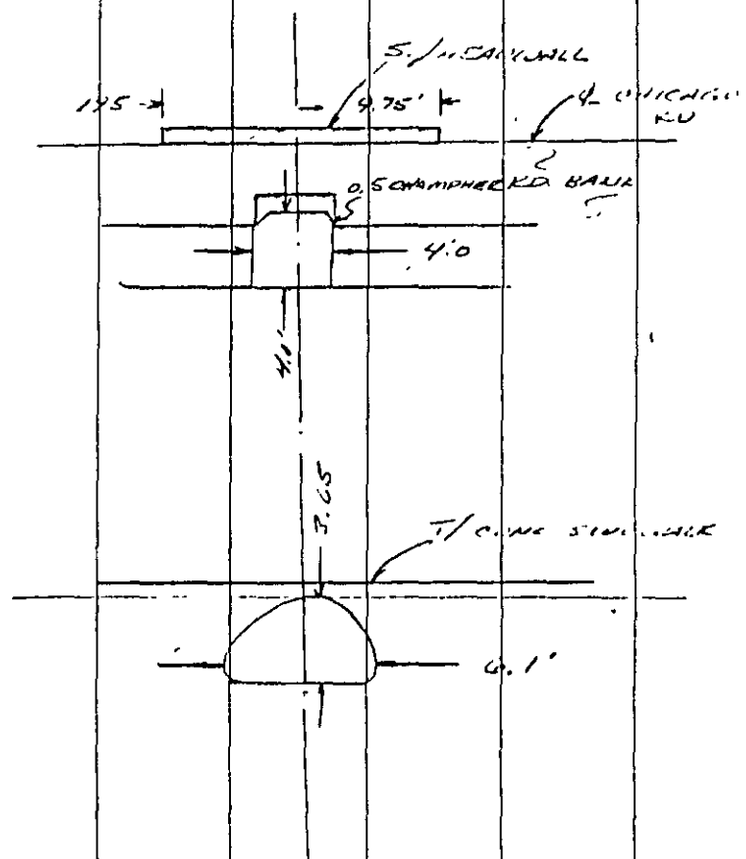
10-11-83 [illegible] HLW

7.07.24

5-1-8 10.2

GED



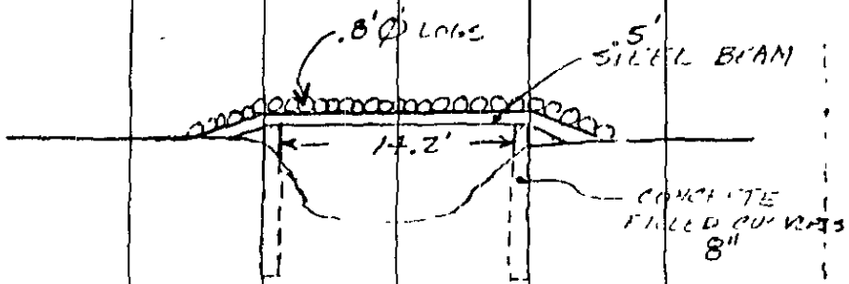


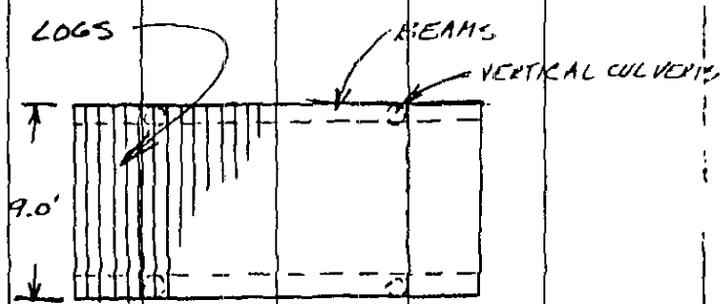
8.52	698.72	50' W / ℄ CUL.
9.46	697.73	℄ SIDEWALK & ℄ CUL.
[illegible]	697.94	50' E / ℄ CUL

38/40

10-11-83

707.46





CROSS SECTION #11.5 WEST TRIB.

STA.	B.S.	[illegible]	[illegible]	[illegible]	[illegible] EV.	DESC.
4+10		707.46	5.8		701.6[illegible]	START OF RAMP T[illegible]
4+80			5.6		701.8[illegible]	[illegible]
[illegible]			2.0		705.4[illegible]	W. LOG[illegible] OF [illegible] (TOP [illegible])
5+00			6.5		700.9[illegible]	TOP BANK

39/40

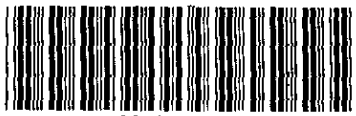
10-11-83

	B.S.	M.I.	F.S.	T.P	ELEV.	
5+05		707.46	8.4		699.06	℄ CHANNEL (BOT. BANK)
5+09.8			2.2		705.26	S. EDGE/OPENING (TOP/LOGS)
5+11			4.3		703.16	TOP/BANK
5+33			5.0		702.46	GRND
5+45			4.7		702.76	START OF RAMP TO BR.
	8.34	109.15		6.65	700.81	TOP/STONE IN EAST DAM
		CROSS-SECTION		#12	W.T.	
4+80			4.7		704.45	GRND
5+00			5.2		703.95	TOP/BANK
5+02			6.4		702.75	BOT./BANK ([illegible])
5+04			7.0		702.15	℄ CHANNEL
5+07			6.5		702.65	BOT./BANK ([illegible])
5+08			5.6		703.55	TOP/BANK
5+[illegible]			4.8		704.35	GRND

40/40

APPENDIX H

CITY OF NILES FLOOD INSURANCE STUDY
HEC-2 COMPUTER PRINTOUT (SEPARATE COVER)



1) COUNTY: Berrien

2) STUDY NAME: Niles, City of

3) WATERCOURSE: St. Joseph River

4) DOCUMENT TYPE: Summary



THIS RUN EXECUTED 29-MAY-85 08:29:18

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

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

ST JOSEPH RIVER 10 YR

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	629.70	15700.00	641.88	0.00	642.14	4.41	4.15	3781.80	7479.60
1.000	0.00	0.00	0.00	629.70	20200.00	643.42	0.00	643.75	4.45	4.60	4417.52	9574.05
1.000	0.00	0.00	0.00	629.70	22000.00	643.98	0.00	644.33	4.49	4.77	4676.16	10386.17
1.000	0.00	0.00	0.00	629.70	26400.00	645.38	0.00	645.78	4.41	5.09	5444.96	12569.68
1.000	0.00	0.00	0.00	629.70	19900.00	643.32	0.00	643.65	4.45	4.57	4374.63	9436.78
2.000	850.00	0.00	0.00	629.30	15700.00	642.23	0.00	642.81	11.74	6.11	2570.66	4581.90
2.000	850.00	0.00	0.00	629.30	20200.00	643.74	0.00	644.42	11.09	6.64	3059.94	6067.09
2.000	850.00	0.00	0.00	629.30	22000.00	644.28	0.00	645.01	10.94	6.84	3245.55	6651.97
2.000	850.00	0.00	0.00	629.30	26400.00	645.64	0.00	646.45	10.35	7.23	3722.67	8206.48
2.000	850.00	0.00	0.00	629.30	19900.00	643.64	0.00	644.32	11.12	6.61	3028.27	5968.48
2.500	950.00	0.00	0.00	630.00	15700.00	643.18	0.00	643.68	7.18	5.70	2810.95	5860.56
2.500	950.00	0.00	0.00	630.00	20200.00	644.65	0.00	645.29	7.64	6.41	3268.90	7308.02
2.500	950.00	0.00	0.00	630.00	22000.00	645.19	0.00	645.88	7.81	6.68	3443.10	7870.31
2.500	950.00	0.00	0.00	630.00	26400.00	646.51	0.00	647.31	8.03	7.23	3883.10	9315.04
2.500	950.00	0.00	0.00	630.00	19900.00	644.56	0.00	645.19	7.61	6.37	3239.31	7213.11
3.000	940.00	0.00	0.00	630.80	15700.00	643.89	0.00	644.18	3.83	4.40	4153.81	8019.80
3.000	940.00	0.00	0.00	630.80	20200.00	645.47	0.00	645.82	3.92	4.85	5327.46	10200.80
3.000	940.00	0.00	0.00	630.80	22000.00	646.05	0.00	646.42	3.94	5.01	5764.27	11077.15
3.000	940.00	0.00	0.00	630.80	26400.00	647.46	0.00	647.87	3.91	5.32	6828.97	13343.92
3.000	940.00	0.00	0.00	630.80	19900.00	645.37	0.00	645.72	3.92	4.82	5252.78	10054.28
4.000	1130.00	0.00	0.00	625.60	15700.00	644.27	0.00	644.60	3.43	4.59	3431.94	8481.25
4.000	1130.00	0.00	0.00	625.60	20200.00	645.86	0.00	646.29	3.96	5.27	3887.57	10150.84
4.000	1130.00	0.00	0.00	625.60	22000.00	646.44	0.00	646.91	4.16	5.52	4054.95	10792.86
4.000	1130.00	0.00	0.00	625.60	26400.00	647.82	0.00	648.39	4.54	6.07	4456.56	12392.23
4.000	1130.00	0.00	0.00	625.60	19900.00	645.76	0.00	646.18	3.89	5.20	4128.40	10089.61

FORM 141 X 68
PRINTED IN U.S.A.

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
5.200	580.00	0.00	0.00	629.70	15700.00	644.49	0.00	644.98	8.52	5.62	2791.18	5378.14
5.200	580.00	0.00	0.00	629.70	20200.00	646.12	0.00	646.70	9.42	6.08	3322.57	6582.69
5.200	580.00	0.00	0.00	629.70	22000.00	646.73	0.00	647.33	9.84	6.22	3537.63	7014.88
5.200	580.00	0.00	0.00	629.70	26400.00	648.16	0.00	648.80	10.31	6.43	4103.65	8222.07
5.200	580.00	0.00	0.00	629.70	19900.00	646.02	0.00	646.59	9.34	6.06	3285.93	6510.83
5.300	1.00	672.00	651.60	629.70	15700.00	644.47	0.00	645.00	6.63	5.81	2704.16	6095.25
5.300	1.00	672.00	651.60	629.70	20200.00	646.10	0.00	646.72	7.62	6.31	3203.58	7316.69
5.300	1.00	672.00	651.60	629.70	22000.00	646.70	0.00	647.35	8.03	6.45	3408.22	7763.16
5.300	1.00	672.00	651.60	629.70	26400.00	648.14	0.00	648.83	8.55	6.68	3949.71	9028.70
5.300	1.00	672.00	651.60	629.70	19900.00	646.00	0.00	646.61	7.55	6.28	3168.74	7242.54
5.400	28.40	672.00	651.60	629.70	15700.00	644.49	0.00	645.02	6.61	5.80	2707.99	6104.37
5.400	28.40	672.00	651.60	629.70	20200.00	646.13	0.00	646.74	7.59	6.29	3211.55	7333.66
5.400	28.40	672.00	651.60	629.70	22000.00	646.73	0.00	647.37	7.99	6.44	3417.15	7783.13
5.400	28.40	672.00	651.60	629.70	26400.00	648.17	0.00	648.86	8.50	6.67	3960.56	9056.77
5.400	28.40	672.00	651.60	629.70	19900.00	646.02	0.00	646.63	7.51	6.26	3176.57	7259.46
5.500	1.00	0.00	0.00	629.70	15700.00	644.54	0.00	645.03	8.40	5.59	2809.35	5418.57
5.500	1.00	0.00	0.00	629.70	20200.00	646.19	0.00	646.76	9.28	6.04	3346.44	6629.78
5.500	1.00	0.00	0.00	629.70	22000.00	646.80	0.00	647.39	9.68	6.17	3564.76	7070.61
5.500	1.00	0.00	0.00	629.70	26400.00	648.24	0.00	648.87	10.11	6.38	4137.73	8302.35
5.500	1.00	0.00	0.00	629.70	19900.00	646.09	0.00	646.65	9.21	6.01	3309.19	6556.38
5.600	300.00	0.00	0.00	632.00	15700.00	644.94	0.00	645.25	4.05	4.46	3772.81	7805.75
5.600	300.00	0.00	0.00	632.00	20200.00	646.63	0.00	647.00	4.09	4.93	4885.72	9984.22
5.600	300.00	0.00	0.00	632.00	22000.00	647.24	0.00	647.63	4.09	5.08	5433.67	10871.66
5.600	300.00	0.00	0.00	632.00	26400.00	648.69	0.00	649.12	4.03	5.39	6748.08	13156.21
5.600	300.00	0.00	0.00	632.00	19900.00	646.52	0.00	646.88	4.10	4.90	4797.93	9833.73
6.000	310.00	0.00	0.00	631.40	15700.00	645.08	0.00	645.37	3.75	4.36	3642.37	8107.95
6.000	310.00	0.00	0.00	631.40	20200.00	646.75	0.00	647.12	3.99	4.89	4186.53	10114.13
6.000	310.00	0.00	0.00	631.40	22000.00	647.36	0.00	647.76	4.08	5.09	4410.39	10895.14
6.000	310.00	0.00	0.00	631.40	26400.00	648.79	0.00	649.25	4.20	5.50	5239.37	12889.40
6.000	310.00	0.00	0.00	631.40	19900.00	646.64	0.00	647.01	3.98	4.86	4151.32	9979.80
6.500	520.00	0.00	0.00	633.00	15700.00	645.24	0.00	645.65	5.96	5.16	3114.19	6431.96
6.500	520.00	0.00	0.00	633.00	20200.00	646.91	0.00	647.41	5.94	5.69	3914.83	8286.62
6.500	520.00	0.00	0.00	633.00	22000.00	647.52	0.00	648.05	5.94	5.87	4255.60	9029.32
6.500	520.00	0.00	0.00	633.00	26400.00	648.95	0.00	649.55	5.86	6.26	5342.34	10903.81
6.500	520.00	0.00	0.00	633.00	19900.00	646.80	0.00	647.30	5.95	5.66	3857.36	8159.13
7.000	540.00	0.00	0.00	635.20	15700.00	645.59	0.00	646.23	17.49	6.44	2442.18	3753.81
7.000	540.00	0.00	0.00	635.20	20200.00	647.25	0.00	647.97	15.74	6.79	2984.54	5091.91
7.000	540.00	0.00	0.00	635.20	22000.00	647.86	0.00	648.61	15.31	6.93	3190.13	5622.25
7.000	540.00	0.00	0.00	635.20	26400.00	649.27	0.00	650.09	14.50	7.27	3688.65	6932.97
7.000	540.00	0.00	0.00	635.20	19900.00	647.15	0.00	647.86	15.84	6.77	2948.88	5000.66

FORM 1411 ½ GB
PRINTED IN U.S.A.

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
8.200	420.00	0.00	0.00	626.20	15700.00	646.35	0.00	646.61	3.09	4.04	3886.59	8924.62
8.200	420.00	0.00	0.00	626.20	20200.00	648.03	0.00	648.35	3.39	4.57	4423.35	10963.35
8.200	420.00	0.00	0.00	626.20	22000.00	648.64	0.00	648.99	3.50	4.76	4622.23	11754.88
8.200	420.00	0.00	0.00	626.20	26400.00	650.07	0.00	650.49	3.76	5.19	5087.50	13620.22
8.200	420.00	0.00	0.00	626.20	19900.00	647.92	0.00	648.24	3.38	4.53	4388.67	10827.30
8.300	1.00	667.10	660.80	626.20	15700.00	646.32	0.00	646.64	2.50	4.50	3488.18	9919.84
8.300	1.00	667.10	660.80	626.20	20200.00	647.98	0.00	648.39	2.96	5.15	3920.59	11731.48
8.300	1.00	667.10	660.80	626.20	22000.00	648.59	0.00	649.04	3.16	5.40	4075.75	12385.20
8.300	1.00	667.10	660.80	626.20	26400.00	650.00	0.00	650.55	3.62	5.96	4426.49	13873.47
8.300	1.00	667.10	660.80	626.20	19900.00	647.88	0.00	648.28	2.93	5.11	3893.21	11616.70
8.400	42.00	667.10	660.80	626.20	15700.00	646.33	0.00	646.65	2.50	4.50	3491.32	9932.78
8.400	42.00	667.10	660.80	626.20	20200.00	648.00	0.00	648.41	2.96	5.15	3924.00	11745.80
8.400	42.00	667.10	660.80	626.20	22000.00	648.61	0.00	649.06	3.15	5.39	4079.30	12400.20
8.400	42.00	667.10	660.80	626.20	26400.00	650.02	0.00	650.57	3.61	5.96	4430.28	13889.28
8.400	42.00	667.10	660.80	626.20	19900.00	647.89	0.00	648.29	2.93	5.11	3896.62	11631.00
8.500	1.00	0.00	0.00	626.20	15700.00	646.42	0.00	646.67	3.04	4.02	3906.85	8998.90
8.500	1.00	0.00	0.00	626.20	20200.00	648.12	0.00	648.43	3.33	4.54	4452.08	11076.52
8.500	1.00	0.00	0.00	626.20	22000.00	648.74	0.00	649.09	3.43	4.73	4654.83	11886.43
8.500	1.00	0.00	0.00	626.20	26400.00	650.20	0.00	650.61	3.66	5.15	5131.11	13793.26
8.500	1.00	0.00	0.00	626.20	19900.00	648.01	0.00	648.32	3.31	4.51	4416.79	10937.57
9.000	540.00	0.00	0.00	634.60	15700.00	646.51	0.00	646.93	3.61	5.22	3022.46	8265.09
9.000	540.00	0.00	0.00	634.60	20200.00	648.20	0.00	648.72	3.56	5.75	3572.77	10706.92
9.000	540.00	0.00	0.00	634.60	22000.00	648.83	0.00	649.38	3.55	5.94	3793.93	11676.79
9.000	540.00	0.00	0.00	634.60	26400.00	650.29	0.00	650.91	3.51	6.36	4355.29	14088.00
9.000	540.00	0.00	0.00	634.60	19900.00	648.10	0.00	648.60	3.56	5.72	3536.37	10541.87
10.200	410.00	0.00	0.00	626.40	15700.00	646.78	0.00	647.06	1.74	4.24	3706.47	11907.81
10.200	410.00	0.00	0.00	626.40	20200.00	648.50	0.00	648.85	1.97	4.80	4207.06	14384.68
10.200	410.00	0.00	0.00	626.40	22000.00	649.13	0.00	649.52	2.05	5.00	4395.72	15352.54
10.200	410.00	0.00	0.00	626.40	26400.00	650.60	0.00	651.06	2.22	5.45	4841.98	17711.93
10.200	410.00	0.00	0.00	626.40	19900.00	648.39	0.00	648.74	1.96	4.77	4174.45	14219.24
10.300	1.00	655.40	654.40	626.40	15700.00	646.76	0.00	647.07	2.22	4.45	3525.20	10540.95
10.300	1.00	655.40	654.40	626.40	20200.00	648.47	0.00	648.87	2.59	5.05	4001.59	12541.08
10.300	1.00	655.40	654.40	626.40	22000.00	649.10	0.00	649.53	2.73	5.26	4182.17	13318.88
10.300	1.00	655.40	654.40	626.40	26400.00	650.57	0.00	651.08	3.02	5.73	4609.63	15199.93
10.300	1.00	655.40	654.40	626.40	19900.00	648.36	0.00	648.75	2.57	5.01	3970.37	12407.65
10.400	42.00	655.40	654.40	626.40	15700.00	646.77	0.00	647.08	2.22	4.45	3525.02	10540.23
10.400	42.00	655.40	654.40	626.40	20200.00	648.49	0.00	648.88	2.59	5.04	4004.30	12552.66
10.400	42.00	655.40	654.40	626.40	22000.00	649.12	0.00	649.55	2.72	5.26	4185.06	13331.43
10.400	42.00	655.40	654.40	626.40	26400.00	650.58	0.00	651.09	3.01	5.72	4612.87	15214.39
10.400	42.00	655.40	654.40	626.40	19900.00	648.38	0.00	648.77	2.57	5.01	3973.09	12419.27

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	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	01K
	10.500	1.00	0.00	0.00	626.40	15700.00	646.81	0.00	647.09	1.22	4.23	3714.72	14223.24
	10.500	1.00	0.00	0.00	626.40	20200.00	648.53	0.00	648.89	1.38	4.79	4217.76	17189.39
	10.500	1.00	0.00	0.00	626.40	22000.00	649.17	0.00	649.55	1.44	4.99	4407.34	18348.54
	10.500	1.00	0.00	0.00	626.40	26400.00	650.64	0.00	651.10	1.55	5.44	4855.80	21174.42
	10.500	1.00	0.00	0.00	626.40	19900.00	648.42	0.00	648.77	1.37	4.76	4185.03	16991.50
	11.000	390.00	0.00	0.00	630.90	15700.00	646.90	0.00	647.15	1.55	3.99	4182.44	12608.73
	11.000	390.00	0.00	0.00	630.90	20200.00	648.65	0.00	648.96	1.65	4.48	4952.76	15724.41
	11.000	390.00	0.00	0.00	630.90	22000.00	649.29	0.00	649.63	1.68	4.66	5250.51	16954.68
	11.000	390.00	0.00	0.00	630.90	26400.00	650.79	0.00	651.18	1.74	5.05	6028.14	19987.07
	11.000	390.00	0.00	0.00	630.90	19900.00	648.54	0.00	648.84	1.65	4.45	4901.79	15515.16
	12.100	430.00	0.00	0.00	633.20	15700.00	646.92	0.00	647.25	1.93	4.63	3501.13	11295.17
	12.100	430.00	0.00	0.00	633.20	20200.00	648.65	0.00	649.07	2.13	5.26	4130.33	13854.65
	12.100	430.00	0.00	0.00	633.20	22000.00	649.29	0.00	649.75	2.18	5.48	4449.20	14886.10
	12.100	430.00	0.00	0.00	633.20	26400.00	650.77	0.00	651.31	2.28	5.94	5324.58	17478.30
	12.100	430.00	0.00	0.00	633.20	19900.00	648.54	0.00	648.96	2.12	5.22	4076.22	13680.40
	12.200	600.00	0.00	0.00	633.70	15700.00	647.26	0.00	647.37	1.00	2.68	5903.89	15732.81
	12.200	600.00	0.00	0.00	633.70	20200.00	649.08	0.00	649.21	0.94	2.88	7147.08	20846.62
	12.200	600.00	0.00	0.00	633.70	22000.00	649.76	0.00	649.89	0.92	2.96	7637.05	22896.74
	12.200	600.00	0.00	0.00	633.70	26400.00	651.32	0.00	651.47	0.89	3.13	9000.46	28025.57
	12.200	600.00	0.00	0.00	633.70	19900.00	648.97	0.00	649.10	0.94	2.87	7063.84	20499.90
	12.300	1.00	644.10	647.40	633.70	15700.00	647.26	0.00	647.37	1.26	2.72	5807.74	14003.81
	12.300	1.00	644.10	647.40	633.70	20200.00	649.08	0.00	649.22	1.32	3.04	6780.05	17614.03
	12.300	1.00	644.10	647.40	633.70	22000.00	649.75	0.00	649.90	1.32	3.15	7188.57	19147.98
*	12.300	1.00	100000.00	100000.00	633.70	26400.00	651.32	0.00	651.47	0.82	3.13	9003.84	29088.65
	12.300	1.00	644.10	647.40	633.70	19900.00	648.96	0.00	649.10	1.31	3.02	6715.20	17354.01
	12.400	10.80	644.10	647.40	633.70	15700.00	647.26	0.00	647.38	1.26	2.72	5807.17	14002.21
	12.400	10.80	644.10	647.40	633.70	20200.00	649.08	0.00	649.22	1.32	3.04	6775.99	17597.79
	12.400	10.80	644.10	647.40	633.70	22000.00	649.75	0.00	649.90	1.32	3.15	7161.63	19129.88
*	12.400	10.80	0.00	0.00	633.70	26400.00	651.33	0.00	651.48	0.82	3.12	9012.92	29124.62
	12.400	10.80	644.10	647.40	633.70	19900.00	648.96	0.00	649.10	1.32	3.02	6711.38	17338.68
	12.500	1.00	0.00	0.00	633.70	15700.00	647.27	0.00	647.38	0.93	2.68	5903.35	16316.79
	12.500	1.00	0.00	0.00	633.70	20200.00	649.09	0.00	649.22	0.87	2.88	7148.07	21632.07
	12.500	1.00	0.00	0.00	633.70	22000.00	649.77	0.00	649.91	0.85	2.96	7646.39	23796.24
*	12.500	1.00	0.00	0.00	633.70	26400.00	651.34	0.00	651.49	0.82	3.12	9022.00	29160.61
	12.500	1.00	0.00	0.00	633.70	19900.00	648.98	0.00	649.11	0.88	2.87	7064.85	21272.28
	12.600	160.00	0.00	0.00	636.70	15700.00	647.27	0.00	647.40	1.55	2.91	5462.79	12599.82
	12.600	160.00	0.00	0.00	636.70	20200.00	649.10	0.00	649.25	1.28	3.03	6859.34	17874.10
	12.600	160.00	0.00	0.00	636.70	22000.00	649.78	0.00	649.93	1.21	3.09	7404.49	20018.14
	12.600	160.00	0.00	0.00	636.70	26400.00	651.35	0.00	651.51	1.08	3.20	8705.36	25403.14
	12.600	160.00	0.00	0.00	636.70	19900.00	648.99	0.00	649.13	1.29	3.03	6765.96	17513.07

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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*8	VCH	AREA	01K
13.200	940.00	0.00	0.00	629.80	15700.00	647.37	0.00	647.52	0.88	3.14	4998.64	16779.69
13.200	940.00	0.00	0.00	629.80	20200.00	649.18	0.00	649.37	0.92	3.51	5751.30	21015.25
13.200	940.00	0.00	0.00	629.80	22000.00	649.84	0.00	650.05	0.94	3.65	6040.50	22719.98
13.200	940.00	0.00	0.00	629.80	26400.00	651.40	0.00	651.64	0.96	3.95	6761.88	26941.83
13.200	940.00	0.00	0.00	629.80	19900.00	649.06	0.00	649.25	0.92	3.49	5702.26	20731.13
13.300	1.00	0.00	0.00	629.80	15700.00	647.36	0.00	647.52	1.70	3.25	4840.98	12029.87
13.300	1.00	0.00	0.00	629.80	20200.00	649.17	0.00	649.37	1.87	3.63	5602.73	14778.07
13.300	1.00	0.00	0.00	629.80	22000.00	649.84	0.00	650.06	1.88	3.76	5895.27	16025.36
13.300	1.00	0.00	0.00	629.80	26400.00	651.39	0.00	651.64	1.91	4.06	6617.31	19109.12
13.300	1.00	0.00	0.00	629.80	19900.00	649.05	0.00	649.25	1.87	3.61	5552.81	14568.48
13.400	12.00	0.00	0.00	629.80	15700.00	647.36	0.00	647.53	1.71	3.25	4838.88	12022.81
13.400	12.00	0.00	0.00	629.80	20200.00	649.17	0.00	649.37	1.87	3.63	5600.23	14767.53
13.400	12.00	0.00	0.00	629.80	22000.00	649.84	0.00	650.06	1.89	3.76	5892.63	16014.17
13.400	12.00	0.00	0.00	629.80	26400.00	651.39	0.00	651.65	1.91	4.06	6614.44	19096.78
13.400	12.00	0.00	0.00	629.80	19900.00	649.05	0.00	649.26	1.87	3.61	5550.31	14558.02
13.500	1.00	0.00	0.00	629.80	15700.00	647.38	0.00	647.53	0.73	3.14	4999.57	18383.24
13.500	1.00	0.00	0.00	629.80	20200.00	649.19	0.00	649.38	0.77	3.51	5752.35	23023.36
13.500	1.00	0.00	0.00	629.80	22000.00	649.85	0.00	650.06	0.78	3.65	6041.59	24890.56
13.500	1.00	0.00	0.00	629.80	26400.00	651.41	0.00	651.65	0.80	3.95	6763.08	29513.14
13.500	1.00	0.00	0.00	629.80	19900.00	649.07	0.00	649.26	0.77	3.49	5703.29	22712.02
14.000	700.00	0.00	0.00	630.20	15700.00	647.38	0.00	647.65	1.84	4.15	3786.95	11583.31
14.000	700.00	0.00	0.00	630.20	20200.00	649.18	0.00	649.51	1.95	4.63	4360.30	14462.46
14.000	700.00	0.00	0.00	630.20	22000.00	649.84	0.00	650.20	1.99	4.81	4574.16	15590.09
14.000	700.00	0.00	0.00	630.20	26400.00	651.38	0.00	651.80	2.07	5.20	5077.53	18358.79
14.000	700.00	0.00	0.00	630.20	19900.00	649.07	0.00	649.40	1.94	4.60	4323.38	14270.66
15.100	560.00	0.00	0.00	634.70	15700.00	647.45	0.00	647.81	2.58	4.75	3302.94	9775.63
15.100	560.00	0.00	0.00	634.70	20200.00	649.25	0.00	649.68	2.70	5.26	3837.01	12291.56
15.100	560.00	0.00	0.00	634.70	22000.00	649.91	0.00	650.37	2.74	5.45	4037.91	13282.75
15.100	560.00	0.00	0.00	634.70	26400.00	651.45	0.00	651.98	2.82	5.85	4512.22	15712.76
15.100	560.00	0.00	0.00	634.70	19900.00	649.14	0.00	649.56	2.69	5.23	3802.44	12123.38
15.200	16.00	652.80	640.00	634.70	15700.00	658.47	0.00	658.56	0.27	2.33	6747.92	30135.23
15.200	16.00	652.80	640.00	634.70	20200.00	659.41	0.00	659.54	0.39	2.87	7049.55	32413.64
15.200	16.00	652.80	640.00	634.70	22000.00	659.77	0.00	659.92	0.44	3.07	7163.21	33289.29
15.200	16.00	652.80	640.00	634.70	26400.00	660.59	0.00	660.79	0.56	3.55	7427.33	35360.15
15.200	16.00	652.80	640.00	634.70	19900.00	659.35	0.00	659.48	0.38	2.83	7030.25	32265.88
16.200	380.00	0.00	0.00	636.00	15700.00	658.46	0.00	658.59	0.69	2.92	5369.79	18847.76
16.200	380.00	0.00	0.00	636.00	20200.00	659.40	0.00	659.59	0.95	3.54	5703.91	20770.91
16.200	380.00	0.00	0.00	636.00	22000.00	659.75	0.00	659.97	1.05	3.77	5829.92	21513.45
16.200	380.00	0.00	0.00	636.00	26400.00	660.57	0.00	660.86	1.29	4.31	6122.85	23275.24
16.200	380.00	0.00	0.00	636.00	19900.00	659.34	0.00	659.53	0.93	3.50	5682.52	20645.77

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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
16.300	1.00	663.00	661.60	636.00	15700.00	658.42	0.00	658.62	2.27	3.63	4325.79	10427.36
16.300	1.00	663.00	661.60	636.00	20200.00	659.33	0.00	659.63	3.23	4.40	4591.55	11239.29
16.300	1.00	663.00	661.60	636.00	22000.00	659.68	0.00	660.02	3.63	4.69	4691.40	11545.96
16.300	1.00	663.00	661.60	636.00	26400.00	660.48	0.00	660.92	4.64	5.36	4922.96	12260.42
16.300	1.00	663.00	661.60	636.00	19900.00	659.27	0.00	659.57	3.16	4.35	4574.58	11187.23
16.400	16.50	663.00	661.60	636.00	15700.00	658.42	0.00	658.62	2.27	3.63	4326.48	10429.46
16.400	16.50	663.00	661.60	636.00	20200.00	659.34	0.00	659.64	3.23	4.40	4592.53	11242.30
16.400	16.50	663.00	661.60	636.00	22000.00	659.68	0.00	660.02	3.63	4.69	4692.53	11549.43
16.400	16.50	663.00	661.60	636.00	26400.00	660.48	0.00	660.93	4.63	5.36	4924.35	12264.74
16.400	16.50	663.00	661.60	636.00	19900.00	659.28	0.00	659.57	3.16	4.35	4575.53	11190.16
16.500	1.00	0.00	0.00	636.00	15700.00	658.51	0.00	658.64	0.44	2.91	5386.89	23680.70
16.500	1.00	0.00	0.00	636.00	20200.00	659.47	0.00	659.66	0.60	3.53	5729.32	26149.84
16.500	1.00	0.00	0.00	636.00	22000.00	659.83	0.00	660.05	0.66	3.75	5858.85	27106.58
16.500	1.00	0.00	0.00	636.00	26400.00	660.68	0.00	660.96	0.81	4.28	6161.07	29385.85
16.500	1.00	0.00	0.00	636.00	19900.00	659.41	0.00	659.59	0.59	3.49	5707.33	25988.67
17.000	640.00	0.00	0.00	642.00	15700.00	658.54	0.00	658.69	1.11	3.09	5147.60	14876.91
17.000	640.00	0.00	0.00	642.00	20200.00	659.51	0.00	659.72	1.39	3.65	5787.77	17129.58
17.000	640.00	0.00	0.00	642.00	22000.00	659.89	0.00	660.11	1.49	3.85	6038.23	18029.00
17.000	640.00	0.00	0.00	642.00	26400.00	660.75	0.00	661.03	1.70	4.30	6650.02	20223.51
17.000	640.00	0.00	0.00	642.00	19900.00	659.45	0.00	659.65	1.37	3.61	5745.71	16979.31
18.000	1800.00	0.00	0.00	642.00	15700.00	658.79	0.00	658.88	0.99	2.47	6719.78	15787.37
18.000	1800.00	0.00	0.00	642.00	20200.00	659.83	0.00	659.95	1.11	2.81	7835.28	19130.36
18.000	1800.00	0.00	0.00	642.00	22000.00	660.23	0.00	660.36	1.15	2.93	8281.56	20497.92
18.000	1800.00	0.00	0.00	642.00	26400.00	661.15	0.00	661.31	1.22	3.19	9334.43	23897.96
18.000	1800.00	0.00	0.00	642.00	19900.00	659.76	0.00	659.88	1.11	2.79	7760.71	18906.55

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SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
1.000	15700.00	641.88	0.00	0.00	2.88	395.53	0.00
1.000	20200.00	643.42	1.54	0.00	4.42	447.39	0.00
1.000	22000.00	643.98	0.56	0.00	4.98	478.64	0.00
1.000	26400.00	645.38	1.40	0.00	6.38	617.95	0.00
1.000	19900.00	643.32	-2.06	0.00	4.32	441.99	0.00
2.000	15700.00	642.23	0.00	0.36	0.00	315.95	850.00
2.000	20200.00	643.74	1.50	0.32	0.00	336.91	850.00
2.000	22000.00	644.28	0.55	0.31	0.00	343.13	850.00
2.000	26400.00	645.64	1.36	0.26	0.00	358.62	850.00
2.000	19900.00	643.64	-2.00	0.32	0.00	335.84	850.00
2.500	15700.00	643.18	0.00	0.94	0.00	299.99	950.00
2.500	20200.00	644.65	1.48	0.92	0.00	319.49	950.00
2.500	22000.00	645.19	0.54	0.91	0.00	326.61	950.00
2.500	26400.00	646.51	1.31	0.87	0.00	343.92	950.00
2.500	19900.00	644.56	-1.95	0.92	0.00	318.27	950.00
3.000	15700.00	643.89	0.00	0.71	0.00	721.20	940.00
3.000	20200.00	645.47	1.58	0.82	0.00	747.81	940.00
3.000	22000.00	646.05	0.58	0.86	0.00	752.59	940.00
3.000	26400.00	647.46	1.40	0.95	0.00	764.11	940.00
3.000	19900.00	645.37	-2.09	0.81	0.00	746.99	940.00
4.000	15700.00	644.27	0.00	0.39	0.00	286.16	1130.00
4.000	20200.00	645.86	1.58	0.39	1.58	288.84	1130.00
4.000	22000.00	646.44	0.58	0.38	2.16	289.82	1130.00
4.000	26400.00	647.82	1.38	0.36	3.54	292.16	1130.00
4.000	19900.00	645.76	-2.06	0.39	0.00	532.70	1130.00
5.200	15700.00	644.49	0.00	0.22	0.00	302.73	580.00
5.200	20200.00	646.12	1.64	0.27	1.64	346.04	580.00
5.200	22000.00	646.73	0.60	0.29	2.24	368.19	580.00
5.200	26400.00	648.16	1.43	0.34	3.67	421.09	580.00
5.200	19900.00	646.02	-2.14	0.26	0.00	342.12	580.00
5.300	15700.00	644.47	0.00	-0.02	0.00	302.69	1.00
5.300	20200.00	646.10	1.63	-0.02	1.63	345.27	1.00
5.300	22000.00	646.70	0.60	-0.02	2.23	367.36	1.00
5.300	26400.00	648.14	1.43	-0.02	3.66	420.29	1.00
5.300	19900.00	646.00	-2.14	-0.02	0.00	341.39	1.00
5.400	15700.00	644.49	0.00	0.02	0.00	303.03	28.40
5.400	20200.00	646.13	1.64	0.03	1.64	346.16	28.40
5.400	22000.00	646.73	0.60	0.03	2.24	368.30	28.40
5.400	26400.00	648.17	1.43	0.03	3.67	421.16	28.40
5.400	19900.00	646.02	-2.14	0.03	0.00	342.24	28.40

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
5.500	15700.00	644.54	0.00	0.05	0.00	304.26	1.00
5.500	20200.00	646.19	1.65	0.06	1.65	348.56	1.00
5.500	22000.00	646.80	0.61	0.07	2.26	370.89	1.00
5.500	26400.00	648.24	1.44	0.08	3.70	423.70	1.00
5.500	19900.00	646.09	-2.16	0.06	0.00	344.61	1.00
5.600	15700.00	644.94	0.00	0.40	0.00	523.58	300.00
5.600	20200.00	646.63	1.68	0.43	1.68	823.10	300.00
5.600	22000.00	647.24	0.62	0.44	2.30	910.00	300.00
5.600	26400.00	648.69	1.44	0.45	3.74	910.00	300.00
5.600	19900.00	646.52	-2.17	0.43	1.57	791.31	300.00
6.000	15700.00	645.08	0.00	0.13	0.00	323.27	310.00
6.000	20200.00	646.75	1.67	0.12	1.67	327.84	310.00
6.000	22000.00	647.36	0.61	0.12	2.28	426.70	310.00
6.000	26400.00	648.79	1.43	0.10	3.71	763.62	310.00
6.000	19900.00	646.64	-2.15	0.12	1.56	327.54	310.00
6.500	15700.00	645.24	0.00	0.16	0.00	424.73	520.00
6.500	20200.00	646.91	1.67	0.16	1.67	534.60	520.00
6.500	22000.00	647.52	0.61	0.16	2.29	577.54	520.00
6.500	26400.00	648.95	1.43	0.17	3.72	892.85	520.00
6.500	19900.00	646.80	-2.15	0.16	1.57	527.17	520.00
7.000	15700.00	645.59	0.00	0.35	0.00	322.87	540.00
7.000	20200.00	647.25	1.66	0.34	1.66	333.46	540.00
7.000	22000.00	647.86	0.61	0.34	2.27	342.71	540.00
7.000	26400.00	649.27	1.41	0.32	3.68	375.94	540.00
7.000	19900.00	647.15	-2.12	0.34	1.56	331.83	540.00
8.200	15700.00	646.35	0.00	0.76	0.00	319.08	420.00
8.200	20200.00	648.03	1.67	0.77	1.67	322.69	420.00
8.200	22000.00	648.64	0.62	0.78	2.29	324.02	420.00
8.200	26400.00	650.07	1.43	0.80	3.71	329.50	420.00
8.200	19900.00	647.92	-2.15	0.77	1.57	322.46	420.00
8.300	15700.00	646.32	0.00	-0.03	0.00	319.02	1.00
8.300	20200.00	647.98	1.66	-0.04	1.66	322.59	1.00
8.300	22000.00	648.59	0.61	-0.05	2.27	323.91	1.00
8.300	26400.00	650.00	1.41	-0.07	3.68	329.11	1.00
8.300	19900.00	647.88	-2.13	-0.04	1.55	322.36	1.00
8.400	15700.00	646.33	0.00	0.01	0.00	319.04	42.00
8.400	20200.00	648.00	1.66	0.01	1.66	322.62	42.00
8.400	22000.00	648.61	0.61	0.01	2.27	323.94	42.00
8.400	26400.00	650.02	1.41	0.02	3.68	329.20	42.00
8.400	19900.00	647.89	-2.13	0.01	1.55	322.39	42.00

FORM 141 5 08
PRINTED IN U.S.A.

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
8.500	15700.00	646.42	0.00	0.08	0.00	319.22	1.00
8.500	20200.00	648.12	1.70	0.12	1.70	322.88	1.00
8.500	22000.00	648.74	0.63	0.14	2.32	324.23	1.00
8.500	26400.00	650.20	1.46	0.18	3.78	330.26	1.00
8.500	19900.00	648.01	-2.19	0.12	1.59	322.65	1.00
9.000	15700.00	646.51	0.00	0.09	0.00	314.46	540.00
9.000	20200.00	648.20	1.70	0.09	1.70	334.71	540.00
9.000	22000.00	648.83	0.63	0.09	2.32	372.36	540.00
9.000	26400.00	650.29	1.46	0.09	3.78	390.10	540.00
9.000	19900.00	648.10	-2.19	0.09	1.59	333.22	540.00
10.200	15700.00	646.78	0.00	0.27	0.00	287.45	410.00
10.200	20200.00	648.50	1.71	0.29	1.71	296.72	410.00
10.200	22000.00	649.13	0.63	0.30	2.35	300.14	410.00
10.200	26400.00	650.60	1.47	0.31	3.81	308.07	410.00
10.200	19900.00	648.39	-2.21	0.29	1.60	296.12	410.00
10.300	15700.00	646.76	0.00	-0.02	0.00	287.40	1.00
10.300	20200.00	648.47	1.71	-0.02	1.71	296.60	1.00
10.300	22000.00	649.10	0.63	-0.02	2.34	300.00	1.00
10.300	26400.00	650.57	1.46	-0.03	3.80	307.92	1.00
10.300	19900.00	648.36	-2.20	-0.02	1.60	296.00	1.00
10.400	15700.00	646.77	0.00	0.01	0.00	287.40	42.00
10.400	20200.00	648.49	1.71	0.01	1.71	296.65	42.00
10.400	22000.00	649.12	0.63	0.01	2.34	300.06	42.00
10.400	26400.00	650.58	1.46	0.01	3.81	307.98	42.00
10.400	19900.00	648.38	-2.21	0.01	1.60	296.05	42.00
10.500	15700.00	646.81	0.00	0.04	0.00	287.60	1.00
10.500	20200.00	648.53	1.72	0.05	1.72	296.91	1.00
10.500	22000.00	649.17	0.63	0.05	2.36	300.34	1.00
10.500	26400.00	650.64	1.47	0.06	3.83	308.31	1.00
10.500	19900.00	648.42	-2.22	0.05	1.61	296.31	1.00
11.000	15700.00	646.90	0.00	0.09	0.00	424.35	390.00
11.000	20200.00	648.65	1.75	0.12	1.75	456.32	390.00
11.000	22000.00	649.29	0.64	0.13	2.39	467.42	390.00
11.000	26400.00	650.79	1.50	0.15	3.89	565.74	390.00
11.000	19900.00	648.54	-2.25	0.12	1.63	454.39	390.00
12.100	15700.00	646.92	0.00	0.01	0.00	289.18	430.00
12.100	20200.00	648.65	1.73	0.00	1.73	489.41	430.00
12.100	22000.00	649.29	0.64	-0.01	2.37	508.58	430.00
12.100	26400.00	650.77	1.49	-0.02	3.86	656.18	430.00
12.100	19900.00	648.54	-2.24	0.00	1.62	486.08	430.00

FORM 1411 1/3 GB
PRINTED IN U.S.A.

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	12.200	15700.00	647.26	0.00	0.34	0.00	651.68	600.00
	12.200	20200.00	649.08	1.82	0.44	1.82	715.50	600.00
	12.200	22000.00	649.76	0.67	0.47	2.50	740.87	600.00
	12.200	26400.00	651.32	1.56	0.54	4.05	907.11	600.00
	12.200	19900.00	648.97	-2.35	0.43	1.71	711.11	600.00
	12.300	15700.00	647.26	0.00	0.00	0.00	651.68	1.00
	12.300	20200.00	649.08	1.82	-0.01	1.82	715.51	1.00
	12.300	22000.00	649.75	0.67	-0.01	2.49	740.66	1.00
*	12.300	26400.00	651.32	1.57	0.00	4.06	907.16	1.00
	12.300	19900.00	648.96	-2.36	-0.01	1.70	711.11	1.00
	12.400	15700.00	647.26	0.00	0.00	0.00	651.65	10.80
	12.400	20200.00	649.08	1.82	0.00	1.82	715.23	10.80
	12.400	22000.00	649.75	0.67	0.00	2.49	740.50	10.80
*	12.400	26400.00	651.33	1.58	0.01	4.07	907.29	10.80
	12.400	19900.00	648.96	-2.37	0.00	1.70	710.85	10.80
	12.500	15700.00	647.27	0.00	0.00	0.00	651.66	1.00
	12.500	20200.00	649.09	1.83	0.02	1.83	715.56	1.00
	12.500	22000.00	649.77	0.68	0.02	2.50	741.34	1.00
*	12.500	26400.00	651.34	1.57	0.01	4.07	907.42	1.00
	12.500	19900.00	648.98	-2.36	0.02	1.71	711.16	1.00
	12.600	15700.00	647.27	0.00	0.01	0.00	725.51	160.00
	12.600	20200.00	649.10	1.83	0.01	1.83	798.63	160.00
	12.600	22000.00	649.78	0.68	0.01	2.51	814.85	160.00
	12.600	26400.00	651.35	1.57	0.01	4.08	840.33	160.00
	12.600	19900.00	648.99	-2.36	0.01	1.71	795.82	160.00
	13.200	15700.00	647.37	0.00	0.09	0.00	411.86	940.00
	13.200	20200.00	649.18	1.81	0.07	1.81	424.57	940.00
	13.200	22000.00	649.84	0.67	0.06	2.48	446.01	940.00
	13.200	26400.00	651.40	1.55	0.04	4.03	480.54	940.00
	13.200	19900.00	649.06	-2.34	0.07	1.69	423.28	940.00
	13.300	15700.00	647.36	0.00	-0.01	0.00	409.58	1.00
	13.300	20200.00	649.17	1.81	-0.01	1.81	431.68	1.00
	13.300	22000.00	649.84	0.67	-0.01	2.48	448.90	1.00
	13.300	26400.00	651.39	1.55	-0.01	4.03	480.54	1.00
	13.300	19900.00	649.05	-2.34	-0.01	1.69	431.11	1.00
	13.400	15700.00	647.36	0.00	0.00	0.00	409.56	12.00
	13.400	20200.00	649.17	1.81	0.00	1.81	431.65	12.00
	13.400	22000.00	649.84	0.67	0.00	2.48	448.69	12.00
	13.400	26400.00	651.39	1.55	0.00	4.03	480.42	12.00
	13.400	19900.00	649.05	-2.34	0.00	1.69	431.09	12.00

FORM 1411 ½ GB
PRINTED IN U.S.A.

SECNO	Q	CWSEL	DIFWSF	DIFWSX	DIFKWS	TOPWID	XLCH
13.500	15700.00	647.38	0.00	0.01	0.00	411.86	1.00
13.500	20200.00	649.19	1.81	0.02	1.81	424.60	1.00
13.500	22000.00	649.85	0.67	0.02	2.48	446.11	1.00
13.500	26400.00	651.41	1.55	0.02	4.03	480.59	1.00
13.500	19900.00	649.07	-2.34	0.02	1.69	423.30	1.00
14.000	15700.00	647.38	0.00	0.01	0.00	316.35	700.00
14.000	20200.00	649.18	1.80	0.00	1.80	321.60	700.00
14.000	22000.00	649.84	0.66	-0.01	2.46	323.54	700.00
14.000	26400.00	651.38	1.54	-0.02	4.00	340.48	700.00
14.000	19900.00	649.07	-2.32	0.00	1.68	321.26	700.00
15.100	15700.00	647.45	0.00	0.07	0.00	292.19	560.00
15.100	20200.00	649.25	1.80	0.07	1.80	300.76	560.00
15.100	22000.00	649.91	0.66	0.07	2.46	303.93	560.00
15.100	26400.00	651.45	1.54	0.07	4.00	311.27	560.00
15.100	19900.00	649.14	-2.32	0.07	1.68	300.22	560.00
15.200	15700.00	658.47	0.00	11.02	0.00	320.00	16.00
15.200	20200.00	659.41	0.94	10.16	0.94	320.00	16.00
15.200	22000.00	659.77	0.36	9.86	1.30	320.00	16.00
15.200	26400.00	660.59	0.83	9.14	2.12	320.00	16.00
15.200	19900.00	659.35	-1.24	10.22	0.88	320.00	16.00
16.200	15700.00	658.46	0.00	-0.01	0.00	356.10	380.00
16.200	20200.00	659.40	0.94	-0.02	0.94	356.50	380.00
16.200	22000.00	659.75	0.35	-0.02	1.29	356.65	380.00
16.200	26400.00	660.57	0.82	-0.02	2.11	357.00	380.00
16.200	19900.00	659.34	-1.23	-0.02	0.88	356.47	380.00
16.300	15700.00	658.42	0.00	-0.04	0.00	356.08	1.00
16.300	20200.00	659.33	0.92	-0.06	0.92	356.47	1.00
16.300	22000.00	659.68	0.34	-0.07	1.26	356.62	1.00
16.300	26400.00	660.48	0.80	-0.09	2.06	356.96	1.00
16.300	19900.00	659.27	-1.20	-0.06	0.86	356.45	1.00
16.400	15700.00	658.42	0.00	0.00	0.00	356.08	16.50
16.400	20200.00	659.34	0.92	0.01	0.92	356.47	16.50
16.400	22000.00	659.68	0.35	0.01	1.26	356.62	16.50
16.400	26400.00	660.48	0.80	0.01	2.06	356.96	16.50
16.400	19900.00	659.28	-1.20	0.01	0.86	356.45	16.50
16.500	15700.00	658.51	0.00	0.09	0.00	356.12	1.00
16.500	20200.00	659.47	0.96	0.13	0.96	356.53	1.00
16.500	22000.00	659.83	0.36	0.15	1.32	356.68	1.00
16.500	26400.00	660.68	0.85	0.19	2.17	357.04	1.00
16.500	19900.00	659.41	-1.27	0.13	0.90	356.50	1.00

FORM 1411 ½ G8
PRINTED IN U.S.A.

SECNO	Q	CWSEL	DIFWSF	DIFWSX	DIFKWS	TOPWID	XLCH
17.000	15700.00	658.54	0.00	0.03	0.00	632.97	640.00
17.000	20200.00	659.51	0.98	0.05	0.98	671.12	640.00
17.000	22000.00	659.89	0.37	0.05	1.35	682.46	640.00
17.000	26400.00	660.75	0.87	0.07	2.21	735.24	640.00
17.000	19900.00	659.45	-1.30	0.05	0.91	669.19	640.00
18.000	15700.00	658.79	0.00	0.25	0.00	1020.36	1800.00
18.000	20200.00	659.83	1.04	0.32	1.04	1115.43	1800.00
18.000	22000.00	660.23	0.40	0.34	1.44	1133.96	1800.00
18.000	26400.00	661.15	0.92	0.40	2.36	1147.08	1800.00
18.000	19900.00	659.76	-1.39	0.31	0.98	1109.33	1800.00

FORM 1411 X GB
PRINTED IN U.S.A.

SUMMARY OF ERRORS AND SPECIAL NOTES

NOTE SECNO= 12.300 PROFILE= 4 WSEL BASED ON X5 CARD

NOTE SECNO= 12.400 PROFILE= 4 WSEL BASED ON X5 CARD

NOTE SECNO= 12.500 PROFILE= 4 WSEL BASED ON X5 CARD

FORM 1411 3-GB

PRINTED IN U.S.A.

FLOOD INSURANCE ZONE DATA FOR ST JOSEPH RIVER 10 YR

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10	2	0.2
1.000	0.	-2.10	-0.56	1.40
2.000	850.	-2.05	-0.55	1.36
2.500	1800.	-2.02	-0.54	1.31
3.000	2740.	-2.17	-0.58	1.40
4.000	3870.	-2.16	-0.58	1.38
5.200	4450.	-2.24	-0.60	1.43
5.300	4451.	-2.23	-0.60	1.43
5.400	4479.	-2.24	-0.60	1.43
5.500	4480.	-2.26	-0.61	1.44
5.600	4780.	-2.30	-0.62	1.44
6.000	5090.	-2.28	-0.61	1.43
6.500	5610.	-2.29	-0.61	1.43
7.000	6150.	-2.27	-0.61	1.41
8.200	6570.	-2.29	-0.62	1.43
8.300	6571.	-2.27	-0.61	1.41
8.400	6613.	-2.27	-0.61	1.41
8.500	6614.	-2.32	-0.63	1.46
9.000	7154.	-2.32	-0.63	1.46
10.200	7564.	-2.35	-0.63	1.47
10.300	7565.	-2.34	-0.63	1.46
10.400	7607.	-2.34	-0.63	1.46
10.500	7608.	-2.36	-0.63	1.47
11.000	7998.	-2.39	-0.64	1.50
12.100	8428.	-2.37	-0.64	1.49
12.200	9028.	-2.50	-0.67	1.56
12.300	9029.	-2.49	-0.67	1.57
12.400	9040.	-2.49	-0.67	1.58
12.500	9041.	-2.50	-0.68	1.57
12.600	9201.	-2.51	-0.68	1.57
13.200	10141.	-2.48	-0.67	1.55
13.300	10142.	-2.48	-0.67	1.55
13.400	10154.	-2.48	-0.67	1.55
13.500	10155.	-2.48	-0.67	1.55
14.000	10855.	-2.46	-0.66	1.54
15.100	11415.	-2.46	-0.66	1.54
15.200	11431.	-1.30	-0.36	0.83
16.200	11811.	-1.29	-0.35	0.82
16.300	11812.	-1.26	-0.34	0.80
16.400	11829.	-1.26	-0.35	0.80
16.500	11830.	-1.32	-0.36	0.85
17.000	12470.	-1.35	-0.37	0.87
18.000	14270.	-1.44	-0.40	0.92

FORM 1411 ½ GB
PRINTED IN U.S.A.



1) COUNTY: Berrien

2) STUDY NAME: Niles, City of

3) WATERCOURSE: St. Joseph River, West Trib.

4) DOCUMENT TYPE: 100-year Encroached



THIS RUN EXECUTED 23-MAY-85 12:29:12

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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
*****************************************************

T1      NILES FLOOD INSURANCE STUDY   MARCH 1985
T2      ENCROCHMENT RUN OF THE WEST TRIBUTARY  *WESTRIB.NEW [SHEEF]*
T3      WEST TRIBUTARY     USE 100-YR. ELEV. FROM NATURAL RUN

J1  ICHECK    INQ      NINV     IDIR     STRT     METRIC    HVINS     Q        WSEL     FQ

      0.       6.       0.       0.  0.000000     0.00      0.0       0.   658.820   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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    SECNO      DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HL        OLOSS     BANK ELEV
    Q          QLOB      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 2

CCHV=   0.100 CEHV=   0.300
*SECNO 1.000
        SURVEY SEC. #1 150 FT. U/S OF ST. JOE RIVER
      1.00      4.62    658.82      0.00    658.82    659.11      0.29      0.00      0.00    656.60
       395.        6.      387.        2.        4.       89.        2.        0.        0.    657.30
      0.00      1.31      4.37      1.01     0.100     0.060     0.100     0.000    654.20   2045.97
 0.008155         0.        0.        0.         0         0         0      0.00     37.49   2083.46


*SECNO 1.200
        XXXXX
      1.20      4.77    659.67      0.00      0.00    659.93      0.26      0.82      0.00    657.30
       395.        6.      386.        2.        5.       93.        2.        0.        0.    658.00
      0.01      1.25      4.14      0.99     0.100     0.060     0.100     0.000    654.90   2045.70
 0.006839        80.       110.       140.         2         0         0      0.00     38.01   2083.71


*SECNO 1.500
        XXXXX
      1.50      4.73    660.43      0.00      0.00    660.70      0.27      0.77      0.00    658.10
       395.        6.      387.        2.        5.       92.        2.        0.        0.    658.80
      0.01      1.27      4.20      0.99     0.100     0.060     0.100     0.000    655.70   2045.77
 0.007139        110.      110.      110.         2         0         0      0.00     37.88   2083.65


*SECNO 2.000
        XXXXX
      2.00      4.50    661.30      0.00      0.00    661.62      0.32      0.90      0.02    659.20
       395.        5.      388.        2.        4.       85.        2.        1.        0.    659.90
      0.02      1.36      4.58      1.03     0.100     0.060     0.100     0.000    656.80   2046.19
 0.009464        110.      110.      110.         2         0         0      0.00     37.07   2083.25


*SECNO 2.100
        XXXXX
      2.10      3.54    661.84      0.00      0.00    662.62      0.78      0.86      0.14    660.70
       395.        2.      393.        0.        1.       55.        0.        1.        0.    661.40
      0.02      1.88      7.12      0.99     0.100     0.060     0.100     0.000    658.30   2047.88
 0.040754        50.       50.       50.         2         0         0      0.00     33.76   2081.64
```

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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 2.200									
XXXXX									
2.20	3.77	663.67	0.00	0.00	664.28	0.61	1.64	0.02	662.30
395.	3.	392.	0.	2.	62.	0.	1.	0.	663.00
0.03	1.73	6.30	1.07	0.100	0.060	0.100	0.000	659.90	2047.48
0.027086	50.	50.	50.	3	0	0	0.00	34.55	2082.03
*SECNO 2.300									
XXXXX									
2.30	3.68	665.08	0.00	0.00	665.75	0.67	1.45	0.02	663.80
395.	3.	392.	0.	1.	60.	0.	1.	0.	664.50
0.03	1.79	6.58	1.05	0.100	0.060	0.100	0.000	661.40	2047.63
0.031335	50.	50.	50.	3	0	0	0.00	34.26	2081.88
*SECNO 2.400									
XXXXX									
2.40	3.79	666.89	0.00	0.00	667.49	0.61	1.73	0.01	665.50
395.	3.	392.	0.	2.	62.	0.	1.	0.	666.20
0.03	1.73	6.27	1.07	0.100	0.060	0.100	0.000	663.10	2047.46
0.026677	60.	60.	60.	1	0	0	0.00	34.58	2082.04
*SECNO 2.450									
XXXXX									
2.45	3.46	667.56	0.00	0.00	668.25	0.68	0.73	0.02	667.50
395.	0.	395.	0.	0.	60.	0.	1.	0.	667.50
0.03	0.02	6.62	0.02	0.100	0.060	0.000	0.000	664.10	499.82
0.022399	30.	30.	30.	2	0	0	0.00	23.29	523.12

CCHV= 0.300 CEHV= 0.500

*SECNO 2.500

2800 NAT Q1= 17.17 WSEL= 668.92 ENC Q1= 17.98 WSEL= 669.02 RATIO= -0.0467

NAT Q1= 18. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 669.02

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

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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=     514.0     550.7  TYPE=      4  TARGET=        0.000
        5.0 FT. D/S FROM CEMENT WEIR ** FLOW IS AROUND WEIR IN EROSION CHANNEL
        2.50      3.83    668.93    668.93    668.92    670.46      1.53      0.82      0.42    676.50
        395.        0.      395.        0.        0.       40.        0.        1.        0.    677.80
        0.03      0.00      9.93      0.00     0.000     0.060     0.000     0.000    665.10    516.24
   0.052866       25.       25.       25.        20         8         0      0.00     13.13    529.38

 *SECNO 2.600
      3700.   BRIDGE STENCL=     514.00     STENCR=     550.70
  2800 NAT Q1=      12.88  WSEL=     670.50  ENC Q1=      13.23  WSEL=     670.60  RATIO= -0.0272
  NAT Q1=      13.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     670.60

 3301 HV CHANGED MORE THAN HVINS


 3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD=  662.80 MAX ELLC=  677.80

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL
 3693 PROBABLE MINIMUM SPECIFIC ENERGY
 3720 CRITICAL DEPTH ASSUMED

 3470 ENCROACHMENT STATIONS=     514.0     550.7  TYPE=      4  TARGET=        0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     677.80 ELREA=     677.80

          SEC. 2.6 IN CONCRETE WEIR 1 FT. FROM D/S FACE
        2.60      5.40    670.50    670.50    670.50    672.83      2.33      0.35      0.40    676.50
        395.        0.      395.        0.        0.       32.        0.        1.        0.    677.80
        0.03      0.00     12.25      0.00     0.000     0.038     0.000     0.000    665.10    515.72
   0.094073         5.        5.        5.        20        12         0    -32.47     19.86    535.58

 *SECNO 2.700
  2800 NAT Q1=      18.00  WSEL=     671.80  ENC Q1=      18.46  WSEL=     671.90  RATIO= -0.0257
  NAT Q1=      18.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     671.90

 3301 HV CHANGED MORE THAN HVINS


 3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD=  662.80 MAX ELLC=  677.80
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     SECNO     DEPTH     CWSEL     CRIWS     WSELK     EG        HV        HI.       QLOSS     RANK ELEV
       Q       QLOB      QCH       QROB      ALOB      ACH       AROB      VOL       TWA     LEFT/RIGHT
      TIME     VLOB      VCH       VROB      XNL       XNCH      XNR       WTN       ELMIN      SSTA
      SLOPE    XLOBL     XLCH      XLORR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

 3685 20 TRIALS ATTEMPTED WSEL,CWSEL

 3470 ENCROACHMENT STATIONS=      514.0      550.7  TYPE=       4  TARGET=        0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      677.80 ELREA=      677.80

          SEC. 2.7 IN CONCRETE WEIR 1 FT. FROM U/S FACE
       2.70      6.70    671.80    670.50    671.80    673.18      1.37      0.07      0.29    676.50
      395.        0.      395.        0.        0.       42.        0.        1.        0.    677.80
       0.03      0.00      9.40      0.00      0.000     0.038     0.000     0.000   665.10    515.34
  0.048171         1.        1.        1.        23        12         0    -49.68    21.50    536.84

 *SECNO 2.800
  2800 NAT Q1=      77.06  WSEL=    673.40  ENC Q1=      78.88  WSEL=    673.50  RATIO=  -0.0236
  NAT Q1=      79.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    673.50

 3301 HV CHANGED MORE THAN HVINS

 3470 ENCROACHMENT STATIONS=      514.0      550.7  TYPE=       4  TARGET=        0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      677.80 ELREA=      677.80

          U/S FACE OF WEIR - FLOW AROUND END OF EXPOSED WIER
       2.80      8.30    673.40      0.00    673.40    673.55      0.15      0.01      0.37    676.50
      395.        0.      395.        0.        0.      128.        0.        1.        0.    677.80
       0.03      0.00      3.09      0.00      0.000     0.060     0.000     0.000   665.10    514.88
  0.002627         1.        1.        1.         3         0         0      0.00    24.38    539.27

 *SECNO 3.000
  2800 NAT Q1=      43.50  WSEL=    673.56  ENC Q1=      45.00  WSEL=    673.66  RATIO=  -0.0347
  NAT Q1=      45.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    673.66

 3470 ENCROACHMENT STATIONS=      500.0      549.5  TYPE=       4  TARGET=        0.000
          SURVEY SEC. #3
       3.00      6.36    673.56      0.00    673.56    673.91      0.35      0.26      0.10    684.60
      395.        0.      395.        0.        0.       83.        0.        1.        1.    682.30
       0.04      0.00      4.76      0.00      0.000     0.060     0.000     0.000   667.20    524.53
  0.008246        90.       60.       40.         2         0         0      0.00    21.45    545.98
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     SECNO      DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS    BANK ELEV
       Q        QLOB      QCH       QROB      ALOB       ACH       AROB      VOL      TWA    LEFT/RIGHT
     TIME       VLOB      VCH       VROB      XNL        XNCH      XNR       WTN      ELMIN     SSTA
     SLOPE      XLOBL     XLCH      XLOBR     ITRIAL     IBC       ICONT     CORAR    TOPWID    ENDST

 CCHV=   0.100 CEHV=   0.300
 *SECNO 3.050
  2800 NAT Q1=      30.80  WSEL=    673.96  ENC Q1=      32.05  WSEL=    674.06  RATIO=  -0.0406
  NAT Q1=      32.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    674.06

 3470 ENCROACHMENT STATIONS=     503.5     549.0  TYPE=     4  TARGET=       0.000
        XXXXX
     3.05     5.36   673.96     0.00   673.96   674.55     0.59     0.57     0.07   684.50
     395.        0.     395.        0.       0.      64.        0.       1.       1.   682.50
     0.04     0.00     6.16     0.00    0.000    0.060    0.000    0.000   668.60   526.44
 0.016453      40.      50.      50.        2        0        0     0.00    19.33   545.77

 *SECNO 3.100
  2800 NAT Q1=      26.37  WSEL=    674.81  ENC Q1=      27.50  WSEL=    674.91  RATIO=  -0.0429
  NAT Q1=      27.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    674.91

 3470 ENCROACHMENT STATIONS=     507.0     550.0  TYPE=     4  TARGET=       0.000
        XXXXX
     3.10     4.91   674.81     0.00   674.81   675.55     0.74     0.95     0.04   684.50
     395.        0.     395.        0.       0.      57.        0.       1.       1.   682.60
     0.04     0.00     6.89     0.00    0.000    0.060    0.000    0.000   669.90   527.52
 0.022364      40.      50.      50.        1        0        0     0.00    18.71   546.23

 *SECNO 3.150
  2800 NAT Q1=      25.77  WSEL=    675.95  ENC Q1=      26.95  WSEL=    676.05  RATIO=  -0.0460
  NAT Q1=      27.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    676.05

 3470 ENCROACHMENT STATIONS=     509.0     550.0  TYPE=     4  TARGET=       0.000
        XXXXX
     3.15     4.65   675.95     0.00   675.95   676.70     0.75     1.15     0.00   684.50
     395.        0.     395.        0.       0.      57.        0.       1.       1.   682.60
     0.04     0.00     6.96     0.00    0.000    0.060    0.000    0.000   671.30   526.91
 0.023604      20.      50.      55.        2        0        0     0.00    19.55   546.46

 *SECNO 3.200
  2800 NAT Q1=      25.50  WSEL=    677.14  ENC Q1=      26.75  WSEL=    677.24  RATIO=  -0.0493
  NAT Q1=      27.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    677.24

 3470 ENCROACHMENT STATIONS=     511.0     550.0  TYPE=     4  TARGET=       0.000
        XXXXX
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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
3.20	4.44	677.14	0.00	677.14	677.89	0.75	1.19	0.00	684.50
395.	0.	395.	0.	0.	57.	0.	2.	1.	682.90
0.04	0.00	6.95	0.00	0.000	0.060	0.000	0.000	622.20	526.22
0.023965	20.	50.	55.	2	0	0	0.00	20.25	546.47

*SECNO 3.250
2800 NAT Q1= 26.90 WSEL= 678.34 ENC Q1= 28.22 WSEL= 678.44 RATIO= -0.0490
NAT Q1= 28. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 678.44

3470 ENCROACHMENT STATIONS= 514.0 550.0 TYPE= 4 TARGET= 0.000
XXXXX

3.25	4.34	678.34	0.00	678.34	679.03	0.70	1.14	0.01	684.50
395.	0.	395.	0.	0.	59.	0.	2.	1.	683.10
0.05	0.00	6.71	0.00	0.000	0.060	0.000	0.000	674.00	526.52
0.021766	40.	50.	50.	2	0	0	0.00	20.70	547.22

*SECNO 3.300
2800 NAT Q1= 24.57 WSEL= 679.44 ENC Q1= 25.85 WSEL= 679.54 RATIO= -0.0519
NAT Q1= 26. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 679.54

3470 ENCROACHMENT STATIONS= 518.0 550.0 TYPE= 4 TARGET= 0.000
XXXXX

3.30	4.05	679.45	0.00	679.44	680.24	0.79	1.18	0.03	684.50
395.	0.	395.	0.	0.	55.	0.	2.	1.	683.20
0.05	0.00	7.13	0.00	0.000	0.060	0.000	0.000	675.40	527.10
0.025618	40.	50.	50.	2	0	0	0.00	20.34	547.43

*SECNO 3.350
2800 NAT Q1= 22.33 WSEL= 680.76 ENC Q1= 23.51 WSEL= 680.86 RATIO= -0.0528
NAT Q1= 24. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 680.86

3470 ENCROACHMENT STATIONS= 522.0 550.0 TYPE= 4 TARGET= 0.000
XXXXX

3.35	3.96	680.76	0.00	680.76	681.70	0.94	1.41	0.04	684.50
395.	0.	395.	0.	0.	51.	0.	2.	1.	683.40
0.05	0.00	7.77	0.00	0.000	0.060	0.000	0.000	676.80	528.65
0.031342	50.	50.	50.	2	0	0	0.00	19.15	547.80

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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 3.400
 2800 NAT Q1=      22.59  WSEL=     682.30  ENC Q1=      23.73  WSEL=     682.40  RATIO= -0.0503
 NAT Q1=      24.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     682.40

3470 ENCROACHMENT STATIONS=      527.0      550.0  TYPE=      4  TARGET=        0.000
        XXXXX
     3.40      4.20    682.30      0.00    682.30    683.25      0.95      1.55      0.00    684.50
     395.        0.      395.        0.        0.       50.        0.        2.        1.    683.50
     0.05      0.00      7.83      0.00     0.000     0.060     0.000     0.000    678.10    530.43
 0.030554       50.       50.       50.         2         0         0      0.00     18.30    548.72

CCHV=   0.300 CEHV=   0.500
*SECNO 4.000
 2800 NAT Q1=      22.90  WSEL=     683.83  ENC Q1=      23.83  WSEL=     683.93  RATIO= -0.0408
 NAT Q1=      24.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     683.93

3470 ENCROACHMENT STATIONS=      500.0      531.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      685.20 ELREA=      687.60

        SURVEY SEC. #4 D/S FACE OF CONCRETE FOOT BRIDGE
     4.00      4.33    683.83      0.00    683.83    684.77      0.94      1.52      0.00    685.20
     395.        0.      395.        0.        0.       51.        0.        2.        1.    687.70
     0.05      0.00      7.80      0.00     0.000     0.060     0.000     0.000    679.50    502.20
 0.030194       50.       50.       50.         2         0         0      0.00     18.21    520.40

*SECNO 4.200
     3700.   BRIDGE STENCL=     500.00    STENCR=     531.00
 2800 NAT Q1=      36.53  WSEL=     683.87  ENC Q1=      38.25  WSEL=     683.97  RATIO= -0.0472
 NAT Q1=      38.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     683.97

3370 NORMAL BRIDGE,NRD=  4 MIN ELTRD=  685.20 MAX ELLC=  685.20

3470 ENCROACHMENT STATIONS=      500.0      531.0  TYPE=      4  TARGET=        0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      685.20 ELREA=      687.60

         1 FT. U/S OF D/S FACE OF CONCRETE FOOT BRIDGE
     4.20      4.48    683.98      0.00    683.87    684.82      0.84      0.02      0.03    685.20
     395.        0.      395.        0.        0.       54.        0.        2.        1.    687.70
     0.05      0.00      7.34      0.00     0.000     0.038     0.000     0.000    679.50    501.94
 0.010477        1.        1.        1.         2         0         0      0.00     19.03    520.97
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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       FI-MIN    SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID    ENDST

*SECNO 4.300
 2800 NAT Q1=      41.19  WSEL=    684.14  ENC Q1=      42.83  WSEL=     684.24  RATIO= -0.0399
 NAT Q1=      43.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     684.24

3370 NORMAL BRIDGE,NRD=  4 MIN ELTRD=  685.20 MAX ELLC=  685.20

3470 ENCROACHMENT STATIONS=     500.0     531.0  TYPE=      4  TARGET=      0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      685.20 ELREA=      687.60

          1 FT. D/S FROM U/S FACE OF CONCRETE FOOT BRIDGE
      4.30      4.65    684.15      0.00    684.14    684.90      0.75      0.05      0.03    685.20
      395.        0.      395.        0.        0.       57.        0.        2.        1.    687.70
      0.05      0.00      6.93      0.00     0.000     0.038     0.000     0.000    679.50    501.69
  0.009118         5.        5.        5.         2         0         0      0.00     19.82    521.51

*SECNO 4.400
 2800 NAT Q1=      26.12  WSEL=    684.15  ENC Q1=      27.31  WSEL=     684.25  RATIO= -0.0455
 NAT Q1=      27.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     684.25

3470 ENCROACHMENT STATIONS=     500.0     531.0  TYPE=      4  TARGET=      0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      685.20 ELREA=      687.60

          U/S FACE OF CONCRETE FOOT BRIDGE
      4.40      4.67    684.17      0.00    684.15    684.91      0.74      0.01      0.00    685.20
      395.        0.      395.        0.        0.       57.        0.        2.        1.    687.70
      0.05      0.00      6.90      0.00     0.000     0.060     0.000     0.000    679.50    501.67
  0.022513         1.        1.        1.         0         0         0      0.00     19.88    521.55

*SECNO 4.450
 2800 NAT Q1=      20.06  WSEL=    685.71  ENC Q1=      21.09  WSEL=     685.81  RATIO= -0.0512
 NAT Q1=      21.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=     685.81

3470 ENCROACHMENT STATIONS=    2001.0    2020.0  TYPE=      4  TARGET=      0.000
          XXXXX
      4.45      4.51    685.71      0.00    685.71    686.86      1.15      1.74      0.20    686.50
      395.        0.      395.        0.        0.       46.        0.        2.        1.    687.50
      0.06      0.00      8.60      0.00     0.000     0.060     0.000     0.000    681.20   2001.40
  0.038792        60.       60.       60.         2         0         0      0.00     16.45   2017.85
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    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       WIN       ELMIN      SSTA
    SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID     ENDST

 *SECNO 4.500
 2800 NAT Q1=    22.15  WSEL=    687.58  ENC Q1=    23.09  WSEL=    687.68  RATIO= -0.0425
 NAT Q1=    23.  RATIOS LOB,CH,ROB=  0.0000  1.0000  0.0000  WSEL=    687.68

 3470 ENCROACHMENT STATIONS=     500.0     516.0  TYPE=     4  TARGET=       0.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     688.20 ELREA=     688.20

       SURVEY SEC. #4.5 WOOD FOOT BRIDGE D/S FACE
      4.50      4.88    687.58      0.00    687.58    688.64      1.05      1.75      0.03    688.20
      395.        0.     395.        0.        0.       48.        0.        2.        1.     688.20
      0.06      0.00      8.24      0.00     0.000     0.060     0.000     0.000    682.70    500.81
 0.031836       50.       50.       50.         3         0         0      0.00     14.99    515.80

 *SECNO 4.600

 3370 NORMAL BRIDGE,NRD=   0 MIN ELTRD=   688.20 MAX ELLC=   687.20

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     688.50 ELREA=     688.50

       WOOD FOOT BRIDGE 1 FT. U/S OF D/S FACE
      4.60      4.77    687.47    687.05    687.47    688.82      1.35      0.04      0.15    688.20
      395.        0.     395.        0.        0.       42.        0.        2.        1.     688.20
      0.06      0.00      9.34      0.00     0.000     0.039     0.000     0.000    682.70    500.95
 0.041630         1.        1.        1.         4        10         0     -3.92     14.81    515.76

 *SECNO 4.700

 3370 NORMAL BRIDGE,NRD=   0 MIN ELTRD=   688.20 MAX ELLC=   687.20

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=     688.50 ELREA=     688.50

       WOOD FOOT BRIDGE 1 FT. D/S FROM U/S FACE
      4.70      4.91    687.61    687.05    687.61    688.97      1.35      0.15      0.00    688.20
      395.        0.     395.        0.        0.       42.        0.        2.        1.     688.20
      0.06      0.00      9.34      0.00     0.000     0.039     0.000     0.000    682.70    500.77
 0.041630         4.        4.        4.         4        10         0     -5.97     15.03    515.81
```

FORM 1411 5 GB
PRINTED IN U.S.A.

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

*SECNO 4.800
2800 NAT Q1= 34.16 WSEL= 688.63 ENC Q1= 35.70 WSEL= 688.73 RATIO= -0.0451
NAT Q1= 36. RATIOS LOB,CH,ROB= 0.0000 1.0000 0.0000 WSEL= 688.73

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 500.0 516.0 TYPE= 4 TARGET= 0.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 692.00 ELREA= 692.00

WOOD FOOT BRIDGE U/S FACE

4.80	5.93	688.63	0.00	688.63	689.22	0.59	0.02	0.23	688.20
395.	0.	395.	0.	0.	64.	0.	2.	1.	688.20
0.06	0.00	6.14	0.00	0.000	0.060	0.000	0.000	682.20	500.00
0.013752	1.	1.	1.	4	0	0	0.00	16.00	516.00

*SECNO 4.900
2800 NAT Q1= 33.21 WSEL= 690.28 ENC Q1= 33.21 WSEL= 690.38 RATIO= 0.0000
NAT Q1= 35. RATIOS LOB,CH,ROB= 0.0003 0.9114 0.0882 WSEL= 690.38

3470 ENCROACHMENT STATIONS= 1995.0 2016.5 TYPE= 4 TARGET= 0.057
XXXXX

4.90	5.12	690.32	0.00	690.28	690.95	0.62	1.71	0.02	690.30
395.	0.	383.	12.	0.	60.	7.	2.	1.	689.00
0.06	0.00	6.43	1.83	0.000	0.060	0.100	0.000	685.20	1995.00
0.015043	200.	120.	40.	2	0	0	0.00	21.46	2016.46

*SECNO 5.000

3470 ENCROACHMENT STATIONS= 300.0 760.0 TYPE= 1 TARGET= 460.000
SURVEY SEC. #5 D/S FACE OF 3X5 CONCRETE BOX CULVERT @TOPINABEE RD.

5.00	4.81	692.01	0.00	691.90	692.23	0.22	1.16	0.12	690.30
395.	82.	284.	30.	64.	64.	31.	2.	1.	691.30
0.07	1.28	4.40	0.94	0.100	0.060	0.100	0.000	687.20	415.72
0.008607	150.	100.	80.	2	0	0	0.00	164.52	580.25

FORM 1411 5 GB
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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	RWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.86	3.00	0.00	5.00	0.00	15.00	0.00	687.20	687.20

*SECNO 5.200
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
712.03	692.23	0.00	332.	64.	15.	15.	690.20	691.50

3470 ENCROACHMENT STATIONS= 430.0 570.0 TYPE= 1 TARGET= 140.000
U/S FACE OF 3X5 CONCRETE BOX CULVERT @TOPIAREE RD.

5.20	5.19	692.39	0.00	692.38	692.53	0.14	0.30	0.00	690.30
395.	100.	242.	53.	72.	65.	52.	3.	1.	691.30
0.08	1.40	3.70	1.02	0.100	0.060	0.100	0.000	687.20	430.00
0.005469	67.	67.	67.	2	0	8	0.00	136.18	566.18

*SECNO 6.000
2800 NAT Q1= 61.98 WSEL= 692.80 ENC Q1= 61.98 WSEL= 692.90 RATIO= 0.0000
NAT Q1= 69. RATIOS LOB,CH,ROB= 0.3827 0.4635 0.1488 WSEL= 692.90

3470 ENCROACHMENT STATIONS= 444.1 528.9 TYPE= 4 TARGET= 0.099
SURVEY SEC. #6

6.00	5.29	692.79	0.00	692.80	692.94	0.14	0.40	0.00	690.40
395.	145.	207.	43.	99.	52.	31.	3.	2.	690.70
0.09	1.47	3.95	1.40	0.100	0.060	0.100	0.000	687.50	444.09
0.004534	60.	80.	140.	0	0	0	0.00	84.82	528.91

*SECNO 7.000

3470 ENCROACHMENT STATIONS= 200.0 620.0 TYPE= 1 TARGET= 420.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 691.80 ELREA= 694.00

SURVEY SEC. #7 D/S FACE OF BOX CULVERT ON WESAW RD.

7.00	6.18	693.28	0.00	693.24	693.60	0.31	0.57	0.09	691.40
395.	89.	306.	0.	64.	60.	0.	3.	2.	689.10
0.09	1.40	5.06	0.00	0.100	0.060	0.000	0.000	687.10	415.07
0.005978	110.	110.	120.	2	0	0	0.00	96.93	512.00

FORM 1411 ½ GB
PRINTED IN U.S.A.

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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      1.65      3.00      0.00      5.20      0.00     22.60      0.00    687.40    687.40

 *SECNO 7.200
 PRESSURE AND WEIR FLOW

  EGPRS     EGLWC     H3        QWEIR     QPR       BAREA   TRAPEZOID      ELLC      ELTRD
                                                           AREA
   701.11    693.90     0.00      276.      120.      23.       22.       691.70    692.00

 3470 ENCROACHMENT STATIONS=      410.0      520.0  TYPE=      1  TARGET=      110.000
 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      692.00 ELREA=      695.80
          U/S FACE OF BOX CULVERT ON WESAW RD.
       7.20      6.73    693.83      0.00    693.82    694.00      0.17      0.40      0.00    691.40
       395.      129.      266.        0.      113.      67.        0.        4.        2.     689.10
       0.10      1.14      3.97      0.00      0.100     0.060     0.000     0.000   687.10    410.00
  0.003205        18.       18.       18.         2         0         7      0.00    102.00    512.00

 *SECNO 8.000
  2800 NAT Q1=       63.47  WSEL=      695.04  ENC Q1=       63.47  WSEL=      695.14  RATIO=   0.0000
  NAT Q1=       70.  RATIOS LOB,CH,ROB=  0.7386  0.2602  0.0013  WSEL=      695.14

 3470 ENCROACHMENT STATIONS=      359.9      514.0  TYPE=      4  TARGET=      0.095
          SURVEY SEC. #8
       8.00      4.19    695.09      0.00    695.04    695.14      0.06      1.11      0.03    693.90
       395.      281.      114.        0.      215.      40.        0.        5.        3.     694.70
       0.14      1.30      2.88      0.00      0.100     0.060     0.000     0.000   690.90    359.90
  0.004325       300.      300.      300.         2         0         0      0.00    154.10    514.00

 CCHV=    0.100 CEHV=    0.300
 *SECNO 8.500
  2800 NAT Q1=       38.78  WSEL=      696.04  ENC Q1=       38.78  WSEL=      696.14  RATIO=   0.0000
  NAT Q1=       43.  RATIOS LOB,CH,ROB=  0.5392  0.4359  0.0249  WSEL=      696.14

 3470 ENCROACHMENT STATIONS=      400.1      517.0  TYPE=      4  TARGET=      0.102
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FORM 1411 ½ GB
PRINTED IN U.S.A.

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          XXXXX
      8.50     3.86   696.16     0.00   696.04   696.32     0.16     1.15     0.03   694.90
       395.     208.      187.      0.      122.      44.      0.       6.       3.   695.20
       0.16     1.71     4.26     0.00    0.100    0.060    0.000    0.000   692.30   400.07
   0.010283     180.      180.     180.        2        0        0     0.00   116.93   517.00

 *SECNO 8.750
  2800 NAT Q1=      28.32  WSEL=    697.03  ENC Q1=      28.32  WSEL=    697.13  RATIO=   0.0000
  NAT Q1=      32.  RATIOS LOB,CH,ROB=  0.2838  0.6753  0.0409  WSEL=     697.13

 3470 ENCROACHMENT STATIONS=     448.3     517.0  TYPE=      4  TARGET=       0.102
          XXXXX
      8.75     4.13   697.13     0.00   697.03   697.59     0.46     1.18     0.09   696.00
       395.     101.      294.      0.       50.      47.      0.       6.       3.   696.10
       0.16     2.04     6.23     0.00    0.100    0.060    0.000    0.000   693.00   448.29
   0.020321       75.       90.     115.        2        0        0     0.00    68.71   517.00

 CCHV=   0.300 CEHV=   0.500
 *SECNO 9.000

 3470 ENCROACHMENT STATIONS=      390.0      600.0  TYPE=      1  TARGET=      210.000
          SURVEY SEC. #9 D/S FACE OF CONCRETE BOX CULVERT ON CHICAGO RD.
      9.00     4.82   698.52     0.00   698.40   698.85     0.34     1.22     0.04   697.00
       395.      47.      310.      38.       35.      59.      29.       6.       4.   697.00
       0.17     1.34     5.21     1.32    0.100    0.060    0.100    0.000   693.70   453.81
   0.010002       75.       90.     115.        2        0        0     0.00   109.32   563.13


 SPECIAL BRIDGE

 SB   XK          XKOR        COFQ        RDLEN       BWC         BWP         BAREA       SS          ELCHU       ELCHD
       0.00        1.90        3.00        0.00        4.20        0.00       17.60        0.00      693.70      693.70

 *SECNO 9.200
 PRESSURE AND WEIR FLOW

  EGPRS       EGLWC       H3          QWEIR       QPR         BAREA    TRAPEZOID AREA      ELLC        ELTRD
  713.38      699.23      0.00        177.        219.        18.         18.          697.90      702.20

          U/S FACE OF CONCRETE BOX CULVERT ON CHICAGO RD.
      9.20     9.30   703.00     0.00   703.00   703.07     0.06     4.21     0.00   701.00
       395.      47.      304.      44.       73.      134.      63.       7.       4.   697.00
       0.18     0.65     2.27     0.71    0.035    0.030    0.035    0.000   693.70   423.67
   0.000202       55.       55.      55.        2        0        7     0.00   154.75   578.42
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FORM 1411 ½ GB
PRINTED IN U.S.A.

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


*SECNO 9.500
*2800 NAT Q1=    934.56  WSEL=    703.08  ENC Q1=    934.56  WSEL=    703.18  RATIO=  0.0000
 NAT Q1=    1227.  RATIOS LOB,CH,ROB=  0.5357  0.0439  0.4204  WSEL=    703.18

3470 ENCROACHMENT STATIONS=     422.8     580.0  TYPE=     4  TARGET=       0.238
        SURVEY SEC. #9.5 D/S FACE OF 44X72 IN. C.M.P. ARCH @CHICAGO RD.
     9.50      9.38   703.08      0.00   703.08   703.09      0.00      0.00      0.02   697.80
     395.       216.      23.      156.      414.       46.      312.       7.        4.    697.80
     0.18       0.52     0.50      0.50     0.035     0.030     0.035     0.000   693.70   422.77
 0.000019        10.      10.       10.         2         0         0      0.00   157.23   579.99


*SECNO 9.600
     3700.  BRIDGE STENCI=    422.77  STENCR=    579.99
 2800 NAT Q1=    927.58  WSEL=    703.08  ENC Q1=    927.58  WSEL=    703.18  RATIO=  0.0000
 NAT Q1=    1217.  RATIOS LOB,CH,ROB=  0.5400  0.0361  0.4238  WSEL=    703.18

3370 NORMAL BRIDGE,NRD=  4 MIN EL TRD=  697.80 MAX ELLC=  697.40


3470 ENCROACHMENT STATIONS=     422.4     580.4  TYPE=     4  TARGET=       0.238
        1' U/S FROM D/S FACE OF 44X72 IN. C.M.P ARCH @ CHICAGO RD.
     9.60      9.38   703.08      0.00   703.08   703.09      0.00      0.00      0.00   697.80
     395.       218.      19.      158.      416.       44.      313.       7.        4.    697.80
     0.18       0.53     0.43      0.50     0.035     0.024     0.035     0.000   693.70   422.43
 0.000019          1.       1.        1.         0         0         0     -1.96   157.94   580.38


*SECNO 9.700
 2800 NAT Q1=    927.60  WSEL=    703.08  ENC Q1=    927.60  WSEL=    703.18  RATIO=  0.0000
 NAT Q1=    1217.  RATIOS LOB,CH,ROB=  0.5400  0.0361  0.4238  WSEL=    703.18

3370 NORMAL BRIDGE,NRD=  4 MIN EL TRD=  697.80 MAX ELLC=  697.40


3470 ENCROACHMENT STATIONS=     422.4     580.4  TYPE=     4  TARGET=       0.238
        1' D/S FROM U/S FACE OF 44X72 IN. C.M.P. ARCH @ CHICAGO RD.
     9.70      9.38   703.08      0.00   703.08   703.09      0.00      0.00      0.00   697.80
     395.       218.      19.      158.      416.       44.      313.       7.        4.    697.80
     0.19       0.53     0.43      0.50     0.035     0.024     0.035     0.000   693.70   422.44
 0.000019         12.      12.       12.         0         0         0     -1.96   157.94   580.37
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FORM 1411 ¼ GB
PRINTED IN U.S.A.

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   SECNO      DEPTH      CWSEL      CRIWS      WSELK      EG         HV         HI         OI OSS     BANK ELEV
     Q         QLOB       QCH        QROB       ALOB       ACH        AROB       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 9.800
  2800 NAT Q1=    1179.22  WSEL=     703.08  ENC Q1=     898.92  WSEL=     703.08  RATIO=  0.2377
  NAT Q1=    1179.  RATIOS LOB,CH,ROB=  0.5369  0.0448  0.4183  WSEL=     703.08

 3470 ENCROACHMENT STATIONS=      423.1      578.9  TYPE=       0  TARGET=        0.238
        U/S FACE OF 44X72 IN. C.M.P. ARCH @ CHICAGO RD.
      9.80       9.38    703.08       0.00    703.08    703.09       0.00       0.00       0.00    697.80
       395.       217.       23.       155.       413.       46.       308.         7.         4.    697.80
      0.19       0.52       0.51       0.50      0.035      0.030      0.035      0.000    693.70    423.13
  0.000019         1.         1.         1.          0          0          0       0.00    155.78    578.91


 1490 NH CARD USED
 *SECNO 10.000
  2800 NAT Q1=     575.04  WSEL=     703.08  ENC Q1=     575.04  WSEL=     703.18  RATIO=  0.0000
  NAT Q1=     595.  RATIOS LOB,CH,ROB=  0.5153  0.1030  0.3817  WSEL=     703.18

 3470 ENCROACHMENT STATIONS=      381.0      579.5  TYPE=       4  TARGET=        0.034
        SURVEY SEC. #10
      10.00       7.89    703.09       0.00    703.08    703.09       0.00       0.00       0.00    697.20
       395.       204.       42.       148.       643.       37.       323.       10.         4.    696.00
      0.28       0.32       1.13       0.46      0.100      0.030      0.060      0.000    695.20    380.99
  0.000050       140.       155.       175.          0          0          0       0.00    198.51    579.50


 CCHV=    0.100  CEHV=    0.300
 1490 NH CARD USED
 *SECNO 11.000
  2800 NAT Q1=     119.99  WSEL=     703.11  ENC Q1=     119.99  WSEL=     703.21  RATIO=  0.0000
  NAT Q1=     131.  RATIOS LOB,CH,ROB=  0.2970  0.2813  0.4217  WSEL=     703.21

 3470 ENCROACHMENT STATIONS=      464.4      574.0  TYPE=       4  TARGET=        0.081
        SURVEY SEC. #11
      11.00       4.51    703.11       0.00    703.11    703.17       0.05       0.06       0.01    700.60
       395.       110.       124.       162.       77.       47.       120.       17.         6.    701.00
      0.36       1.43       2.63       1.35      0.060      0.045      0.060      0.000    698.60    464.37
  0.001239       530.       460.       380.          2          0          0       0.00    109.64    574.00


 *SECNO 11.250
  2800 NAT Q1=      72.25  WSEL=     703.25  ENC Q1=      72.25  WSEL=     703.35  RATIO=  0.0000
  NAT Q1=      83.  RATIOS LOB,CH,ROB=  0.3571  0.4230  0.2199  WSEL=     703.35
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FORM 1411 9 GB
PRINTED IN U.S.A.

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    SECNO     DEPTH     CWSEL     CRIWS     WSELK      EG        HV        HL       OLOSS    BANK ELEV
      Q       QLOB      QCH       QROR      ALOB      ACH       AROR      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=      471.0      533.8  TYPE=      4  TARGET=       0.126
     11.25      4.46    703.26      0.00    703.25    703.43      0.17      0.23      0.04    700.80
      395.       130.       194.       71.        58.       46.       35.       17.        6.    701.40
      0.37       2.24       4.22      2.01     0.060     0.045     0.060     0.000    698.80    471.01
 0.003337       100.       125.       130.         2         0         0      0.00     62.77    533.79


 CCHV=   0.300 CEHV=   0.500
 *SECNO 11.500
  2800 NAT Q1=      68.33  WSEL=     703.64  ENC Q1=      68.33  WSEL=     703.74  RATIO=  0.0000
  NAT Q1=      79.  RATIOS LOB,CH,ROB=  0.3290  0.3979  0.2731  WSEL=     703.74

 3470 ENCROACHMENT STATIONS=      468.0      591.3  TYPE=      4  TARGET=       0.138
         SURVEY SEC. #11.5 SMALL FOOT BRIDGE W/ STEEL I.C. D/S FACE
     11.50      4.61    703.71      0.00    703.64    703.85      0.14      0.41      0.01    701.40
      395.       118.       185.       93.        52.       47.       70.       18.        7.    701.90
      0.38       2.27       3.89      1.33     0.060     0.045     0.060     0.000    699.10    468.02
 0.003545       100.       125.       130.         2         0         0      0.00    123.31    591.33


 *SECNO 11.600
  2800 NAT Q1=      46.69  WSEL=     703.58  ENC Q1=      46.69  WSEL=     703.68  RATIO=  0.0000
  NAT Q1=      53.  RATIOS LOB,CH,ROB=  0.2547  0.5021  0.2432  WSEL=     703.68

 3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  701.70 MAX ELLC=  704.20


 3470 ENCROACHMENT STATIONS=      464.9      599.8  TYPE=      4  TARGET=       0.124
           1 FT. INSIDE FOOT BRIDGE FROM D/S FACE
     11.60      4.55    703.65      0.00    703.58    703.92      0.27      0.01      0.07    701.40
      395.        85.       230.       80.        40.       44.       52.       18.        7.    701.90
      0.38       2.12       5.25      1.53     0.060     0.037     0.060     0.000    699.10    464.87
 0.007606         1.         1.         1.         2         0         0    -35.75    134.96    599.83


 *SECNO 11.700
  2800 NAT Q1=      53.75  WSEL=     703.72  ENC Q1=      53.75  WSEL=     703.82  RATIO=  0.0000
  NAT Q1=      63.  RATIOS LOB,CH,ROB=  0.2488  0.4520  0.2992  WSEL=     703.82

 3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD=  701.70 MAX ELLC=  704.20
```

FORM 1411 5 GB
PRINTED IN U.S.A.

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

3470 ENCROACHMENT STATIONS= 465.4 611.2 TYPE= 4 TARGET= 0.143
1 FT. INSIDE OF U/S FACE

11.70	4.72	703.82	0.00	703.72	704.00	0.18	0.06	0.03	701.40
395.	80.	208.	108.	43.	46.	73.	18.	7.	701.90
0.38	1.85	4.49	1.48	0.060	0.037	0.060	0.000	699.10	465.42
0.005365	9.	9.	9.	2	0	0	-40.93	145.75	611.17

*SECNO 11.800
2800 NAT Q1= 86.42 WSEL= 703.85 ENC Q1= 86.42 WSEL= 703.95 RATIO= 0.0000
NAT Q1= 102. RATIOS LOB,CH,ROB= 0.3113 0.3475 0.3412 WSEL= 703.95

3470 ENCROACHMENT STATIONS= 468.5 611.5 TYPE= 4 TARGET= 0.150
U/S FACE OF WOOD AND STEEL FOOT BRIDGE

11.80	4.85	703.95	0.00	703.85	704.03	0.08	0.00	0.03	701.40
395.	108.	162.	126.	57.	51.	107.	18.	7.	701.90
0.38	1.89	3.15	1.17	0.060	0.045	0.060	0.000	699.10	468.48
0.002089	1.	1.	1.	2	0	0	0.00	143.06	611.53

*SECNO 11.900
2800 NAT Q1= 51.57 WSEL= 704.52 ENC Q1= 51.57 WSEL= 704.62 RATIO= 0.0000
NAT Q1= 58. RATIOS LOB,CH,ROB= 0.2940 0.3377 0.3683 WSEL= 704.62

3470 ENCROACHMENT STATIONS= 474.0 567.3 TYPE= 4 TARGET= 0.114
XXXXX

11.90	4.01	704.61	0.00	704.52	704.82	0.21	0.73	0.06	702.70
395.	105.	151.	139.	41.	29.	66.	19.	7.	702.80
0.40	2.56	5.14	2.12	0.060	0.045	0.060	0.000	700.60	474.03
0.005954	220.	220.	220.	2	0	0	0.00	93.23	567.26

*SECNO 12.000
2800 NAT Q1= 55.67 WSEL= 705.78 ENC Q1= 55.67 WSEL= 705.88 RATIO= 0.0000
NAT Q1= 62. RATIOS LOB,CH,ROB= 0.2185 0.2606 0.5209 WSEL= 705.88

3470 ENCROACHMENT STATIONS= 481.0 573.4 TYPE= 4 TARGET= 0.109
SURVEY SEC. #12

12.00	3.68	705.88	0.00	705.78	706.04	0.15	1.20	0.02	704.00
395.	73.	115.	207.	31.	25.	92.	19.	8.	703.60
0.42	2.32	4.65	2.25	0.060	0.045	0.060	0.000	702.20	480.98
0.004996	220.	220.	220.	2	0	0	0.00	92.39	573.37

FORM 1411 ½ GB
PRINTED IN U.S.A.

THIS RUN EXECUTED 23-MAY-85 12:13:42

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

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

WEST TRIBUTARY OF ST.

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	1.000	658.82	0.92	659.11	37.49	5.72	387.31	1.97	0.00	0.00	2049.90	2080.90	0.00
	1.000	658.82	0.00	659.11	37.49	5.72	387.31	1.97	0.00	0.00	2049.90	2080.90	0.00
	1.200	659.67	0.00	659.93	38.01	6.24	386.44	2.32	0.00	0.00	2049.90	2080.90	0.00
	1.200	659.67	0.00	659.93	38.01	6.24	386.44	2.32	0.00	0.00	2049.90	2080.90	0.00
	1.500	660.43	0.00	660.70	37.88	6.11	386.66	2.23	0.00	0.00	2049.90	2080.90	0.00
	1.500	660.43	0.00	660.70	37.88	6.11	386.66	2.23	0.00	0.00	2049.90	2080.90	0.00
	2.000	661.30	0.00	661.62	37.07	5.30	388.00	1.69	0.00	0.00	2049.90	2080.90	0.00
	2.000	661.30	0.00	661.62	37.07	5.30	388.00	1.69	0.00	0.00	2049.90	2080.90	0.00
	2.100	661.84	0.00	662.62	33.76	2.16	392.67	0.16	0.00	0.00	2049.90	2080.90	0.00
	2.100	661.84	0.00	662.62	33.76	2.16	392.67	0.16	0.00	0.00	2049.90	2080.90	0.00
	2.200	663.67	0.00	664.28	34.55	2.87	391.72	0.40	0.00	0.00	2049.90	2080.90	0.00
	2.200	663.67	0.00	664.28	34.55	2.87	391.72	0.40	0.00	0.00	2049.90	2080.90	0.00
	2.300	665.08	0.00	665.75	34.26	2.61	392.09	0.30	0.00	0.00	2049.90	2080.90	0.00
	2.300	665.08	0.00	665.75	34.26	2.61	392.09	0.30	0.00	0.00	2049.90	2080.90	0.00
	2.400	666.89	0.00	667.49	34.58	2.90	391.68	0.41	0.00	0.00	2049.90	2080.90	0.00
	2.400	666.89	0.00	667.49	34.58	2.90	391.68	0.41	0.00	0.00	2049.90	2080.90	0.00
	2.450	667.56	0.00	668.25	23.29	0.00	395.00	0.00	0.00	0.00	500.00	523.00	0.00
	2.450	667.56	0.00	668.25	23.29	0.00	395.00	0.00	0.00	0.00	500.00	523.00	0.00
*	2.500	668.92	0.00	670.46	13.13	0.00	395.00	0.00	0.00	0.00	514.00	550.70	0.00
*	2.500	668.93	0.00	670.46	13.13	0.00	395.00	0.00	0.00	514.00	514.00	550.70	550.70
*	2.600	670.50	0.00	672.83	19.86	0.00	395.00	0.00	0.00	0.00	514.00	550.70	0.00
*	2.600	670.50	0.00	672.83	19.86	0.00	395.00	0.00	0.00	514.00	514.00	550.70	550.70

FORM 1411 ½ GB
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	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOR	QCH	QROB	PERENC	STENCL	STCHI	STCHR	STENCR
*	2.700	671.80	0.00	673.18	21.50	0.00	395.00	0.00	0.00	0.00	514.00	550.70	0.00
*	2.700	671.80	0.00	673.18	21.50	0.00	395.00	0.00	0.00	514.00	514.00	550.70	550.70
	2.800	673.40	0.00	673.55	24.38	0.00	395.00	0.00	0.00	0.00	514.00	550.70	0.00
	2.800	673.40	0.00	673.55	24.38	0.00	395.00	0.00	0.00	514.00	514.00	550.70	550.70
	3.000	673.56	0.00	673.91	21.45	0.00	395.00	0.00	0.00	0.00	500.00	549.50	0.00
	3.000	673.56	0.00	673.91	21.45	0.00	395.00	0.00	0.00	500.00	500.00	549.50	549.50
	3.050	673.96	0.00	674.55	19.33	0.00	395.00	0.00	0.00	0.00	503.50	549.00	0.00
	3.050	673.96	0.00	674.55	19.33	0.00	395.00	0.00	0.00	503.50	503.50	549.00	549.00
	3.100	674.81	0.00	675.55	18.70	0.00	395.00	0.00	0.00	0.00	507.00	550.00	0.00
	3.100	674.81	0.00	675.55	18.71	0.00	395.00	0.00	0.00	507.00	507.00	550.00	550.00
	3.150	675.95	0.00	676.70	19.56	0.00	395.00	0.00	0.00	0.00	509.00	550.00	0.00
	3.150	675.95	0.00	676.70	19.55	0.00	395.00	0.00	0.00	509.00	509.00	550.00	550.00
	3.200	677.14	0.00	677.89	20.25	0.00	395.00	0.00	0.00	0.00	511.00	550.00	0.00
	3.200	677.14	0.00	677.89	20.25	0.00	395.00	0.00	0.00	511.00	511.00	550.00	550.00
	3.250	678.34	0.00	679.03	20.73	0.00	395.00	0.00	0.00	0.00	514.00	550.00	0.00
	3.250	678.34	0.00	679.03	20.70	0.00	395.00	0.00	0.00	514.00	514.00	550.00	550.00
	3.300	679.44	0.00	680.24	20.31	0.00	395.00	0.00	0.00	0.00	518.00	550.00	0.00
	3.300	679.45	0.01	680.24	20.34	0.00	395.00	0.00	0.00	518.00	518.00	550.00	550.00
	3.350	680.76	0.00	681.70	19.16	0.00	395.00	0.00	0.00	0.00	522.00	550.00	0.00
	3.350	680.76	0.00	681.70	19.15	0.00	395.00	0.00	0.00	522.00	522.00	550.00	550.00
	3.400	682.30	0.00	683.25	18.29	0.00	395.00	0.00	0.00	0.00	527.00	550.00	0.00
	3.400	682.30	0.00	683.25	18.30	0.00	395.00	0.00	0.00	527.00	527.00	550.00	550.00
	4.000	683.83	0.00	684.76	18.29	0.00	395.00	0.00	0.00	0.00	500.00	531.00	0.00
	4.000	683.83	0.00	684.77	18.21	0.00	395.00	0.00	0.00	500.00	500.00	531.00	531.00
	4.200	683.87	0.00	684.79	18.40	0.00	395.00	0.00	0.00	0.00	500.00	531.00	0.00
	4.200	683.98	0.11	684.82	19.03	0.00	395.00	0.00	0.00	500.00	500.00	531.00	531.00
	4.300	684.14	0.00	684.89	19.77	0.00	395.00	0.00	0.00	0.00	500.00	531.00	0.00
	4.300	684.15	0.01	684.90	19.82	0.00	395.00	0.00	0.00	500.00	500.00	531.00	531.00
	4.400	684.15	0.00	684.90	19.79	0.00	395.00	0.00	0.00	0.00	500.00	531.00	0.00
	4.400	684.17	0.02	684.91	19.88	0.00	395.00	0.00	0.00	500.00	500.00	531.00	531.00
	4.450	685.71	0.00	686.86	16.45	0.00	395.00	0.00	0.00	0.00	2001.00	2020.00	0.00
	4.450	685.71	0.00	686.86	16.45	0.00	395.00	0.00	0.00	2001.00	2001.00	2020.00	2020.00
	4.500	687.58	0.00	688.64	15.00	0.00	395.00	0.00	0.00	0.00	500.00	516.00	0.00
	4.500	687.58	0.00	688.64	14.99	0.00	395.00	0.00	0.00	500.00	500.00	516.00	516.00

FORM 1411 X GB
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SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOR	QCH	QROR	PERENC	STENCL	STCHL	STCHR	STENCR
4.600	687.47	0.00	688.82	14.81	0.00	395.00	0.00	0.00	0.00	500.00	516.00	0.00
4.600	687.47	0.00	688.82	14.81	0.00	395.00	0.00	0.00	0.00	500.00	516.00	0.00
4.700	687.61	0.00	688.97	15.03	0.00	395.00	0.00	0.00	0.00	500.00	516.00	0.00
4.700	687.61	0.00	688.97	15.03	0.00	395.00	0.00	0.00	0.00	500.00	516.00	0.00
4.800	688.63	0.00	689.22	16.00	0.00	395.00	0.00	0.00	0.00	500.00	516.00	0.00
4.800	688.63	0.00	689.22	16.00	0.00	395.00	0.00	0.00	500.00	500.00	516.00	516.00
4.900	690.28	0.00	690.84	56.36	0.00	365.57	29.43	0.00	0.00	1995.00	2011.00	0.00
4.900	690.32	0.04	690.95	21.46	0.00	382.90	12.10	0.06	1995.00	1995.00	2011.00	2016.47
5.000	691.90	0.00	692.17	153.66	75.30	295.31	24.38	0.00	0.00	500.00	520.00	0.00
5.000	692.01	0.10	692.23	164.52	81.75	283.59	29.66	460.00	300.00	500.00	520.00	760.00
5.200	692.38	0.00	692.52	135.66	99.26	243.70	52.04	140.00	430.00	481.20	499.32	570.00
5.200	692.39	0.02	692.53	136.18	99.80	242.23	52.97	140.00	430.00	481.20	499.32	570.00
6.000	692.80	0.00	692.92	102.00	141.41	195.79	57.80	102.00	440.00	500.00	512.00	542.00
6.000	692.79	0.00	692.94	84.82	144.96	207.27	42.76	0.10	444.09	500.00	512.00	528.91
7.000	693.24	0.00	693.57	90.89	86.58	308.42	0.00	0.00	0.00	500.00	512.00	0.00
7.000	693.28	0.04	693.60	96.93	89.04	305.95	0.00	420.00	200.00	500.00	512.00	620.00
7.200	693.82	0.00	693.99	102.00	128.19	266.81	0.00	110.00	410.00	500.00	512.00	520.00
7.200	693.83	0.01	694.00	102.00	128.89	266.11	0.00	110.00	410.00	500.00	512.00	520.00
8.000	695.04	0.00	695.09	195.93	287.69	107.04	0.28	0.00	0.00	500.00	514.00	0.00
8.000	695.09	0.05	695.14	154.10	280.56	114.44	0.00	0.10	359.90	500.00	514.00	514.00
8.500	696.04	0.00	696.19	152.56	206.27	180.03	8.70	0.00	0.00	500.00	517.00	0.00
8.500	696.16	0.12	696.32	116.93	208.00	187.00	0.00	0.10	400.07	500.00	517.00	517.00
8.750	697.03	0.00	697.45	108.68	101.61	279.06	14.33	0.00	0.00	500.00	517.00	0.00
8.750	697.13	0.10	697.59	68.71	101.10	293.90	0.00	0.10	448.29	500.00	517.00	517.00
9.000	698.40	0.00	698.80	107.29	41.11	321.38	32.51	0.00	0.00	500.00	517.00	0.00
9.000	698.52	0.12	698.85	109.32	47.25	309.87	37.88	210.00	390.00	500.00	517.00	600.00
9.200	703.00	0.00	703.06	154.36	46.75	304.20	44.05	0.00	0.00	500.00	517.00	0.00
9.200	703.00	0.01	703.07	154.75	47.06	303.65	44.29	0.00	0.00	500.00	517.00	0.00
9.500	703.08	0.00	703.08	165.00	222.27	22.31	150.42	165.00	415.00	507.30	512.30	580.00
9.500	703.08	0.01	703.09	157.23	216.09	23.05	155.86	0.24	422.77	507.30	512.30	579.99
9.600	703.08	0.00	703.08	165.00	224.61	18.36	152.02	165.00	415.00	507.30	512.30	580.00
9.600	703.08	0.01	703.09	157.94	218.36	18.95	157.69	0.24	422.43	507.30	512.30	580.38
9.700	703.08	0.00	703.08	165.00	224.61	18.36	152.02	165.00	415.00	507.30	512.30	580.00
9.700	703.08	0.01	703.09	157.94	218.36	18.95	157.69	0.24	422.44	507.30	512.30	580.38

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SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
9.800	703.08	0.00	703.08	165.00	222.28	22.28	150.44	165.00	415.00	507.30	512.30	580.00
9.800	703.08	0.01	703.09	155.78	216.78	23.20	155.02	0.24	423.13	507.30	512.30	578.91
10.000	703.08	0.00	703.08	353.13	204.11	41.19	149.70	0.00	0.00	500.00	505.00	0.00
10.000	703.09	0.01	703.09	198.51	204.10	42.50	148.40	0.03	380.99	500.00	505.00	579.50
11.000	703.11	0.00	703.15	222.36	115.67	115.00	164.32	0.00	0.00	500.00	513.00	0.00
11.000	703.11	0.00	703.17	109.64	109.50	123.57	161.93	0.08	464.37	500.00	513.00	574.00
11.250	703.25	0.00	703.38	249.70	146.33	182.47	66.20	0.00	0.00	500.00	513.00	0.00
11.250	703.26	0.01	703.43	62.77	130.20	193.78	71.02	0.13	471.01	500.00	513.00	533.79
11.500	703.64	0.00	703.76	169.16	135.49	171.49	88.02	224.00	390.00	494.00	509.80	614.00
11.500	703.71	0.07	703.85	123.31	117.69	184.74	92.57	0.14	468.02	494.00	509.80	591.33
11.600	703.58	0.00	703.82	168.56	103.43	216.82	74.75	224.00	390.00	494.00	509.80	614.00
11.600	703.65	0.06	703.92	134.96	85.38	229.93	79.69	0.12	464.87	494.00	509.80	599.83
11.700	703.72	0.00	703.90	170.41	104.19	200.21	90.60	224.00	390.00	494.00	509.80	614.00
11.700	703.82	0.10	704.00	145.75	79.54	207.87	107.59	0.14	465.42	494.00	509.80	611.17
11.800	703.85	0.00	703.93	172.11	132.76	153.52	108.71	224.00	390.00	494.00	509.80	614.00
11.800	703.95	0.10	704.03	143.06	107.80	161.52	125.68	0.15	468.48	494.00	509.80	611.53
11.900	704.52	0.00	704.70	187.90	115.42	143.04	136.53	0.00	0.00	500.00	509.00	0.00
11.900	704.61	0.09	704.82	93.23	104.81	150.96	139.23	0.11	474.03	500.00	509.00	567.26
12.000	705.78	0.00	705.91	179.02	85.73	109.32	199.94	0.00	0.00	500.00	508.00	0.00
12.000	705.88	0.10	706.04	92.39	72.63	115.03	207.34	0.11	480.98	500.00	508.00	573.37

FORM 1411 ¼ G8
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WEST TRIBUTARY OF ST.

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	FG	10K*S	VCH	AREA	.01K
	1.000	0.00	0.00	0.00	654.20	395.00	658.82	0.00	659.11	81.50	4.37	94.91	43.75
	1.000	0.00	0.00	0.00	654.20	395.00	658.82	0.00	659.11	81.55	4.37	94.89	43.74
	1.200	110.00	0.00	0.00	654.90	395.00	659.67	0.00	659.93	68.38	4.14	100.59	47.77
	1.200	110.00	0.00	0.00	654.90	395.00	659.67	0.00	659.93	68.39	4.14	100.59	47.76
	1.500	110.00	0.00	0.00	655.70	395.00	660.43	0.00	660.70	71.39	4.20	99.16	46.75
	1.500	110.00	0.00	0.00	655.70	395.00	660.43	0.00	660.70	71.39	4.20	99.16	46.75
	2.000	110.00	0.00	0.00	656.80	395.00	661.30	0.00	661.62	94.64	4.58	90.35	40.60
	2.000	110.00	0.00	0.00	656.80	395.00	661.30	0.00	661.62	94.64	4.58	90.35	40.60
	2.100	50.00	0.00	0.00	658.30	395.00	661.84	0.00	662.62	407.58	7.12	56.43	19.57
	2.100	50.00	0.00	0.00	658.30	395.00	661.84	0.00	662.62	407.54	7.12	56.44	19.57
	2.200	50.00	0.00	0.00	659.90	395.00	663.67	0.00	664.28	270.81	6.30	64.26	24.00
	2.200	50.00	0.00	0.00	659.90	395.00	663.67	0.00	664.28	270.86	6.30	64.25	24.00
	2.300	50.00	0.00	0.00	661.40	395.00	665.08	0.00	665.75	313.40	6.58	61.33	22.31
	2.300	50.00	0.00	0.00	661.40	395.00	665.08	0.00	665.75	313.35	6.58	61.34	22.31
	2.400	60.00	0.00	0.00	663.10	395.00	666.89	0.00	667.49	266.76	6.27	64.57	24.18
	2.400	60.00	0.00	0.00	663.10	395.00	666.89	0.00	667.49	266.77	6.27	64.57	24.18
	2.450	30.00	0.00	0.00	664.10	395.00	667.56	0.00	668.25	223.98	6.62	59.65	26.39
	2.450	30.00	0.00	0.00	664.10	395.00	667.56	0.00	668.25	223.99	6.62	59.65	26.39
*	2.500	25.00	0.00	0.00	665.10	395.00	668.92	668.92	670.46	528.99	9.93	39.79	17.17
*	2.500	25.00	0.00	0.00	665.10	395.00	668.93	668.93	670.46	528.66	9.93	39.80	17.18
*	2.600	5.00	667.80	677.80	665.10	395.00	670.50	670.50	672.83	940.73	12.25	32.25	12.88
*	2.600	5.00	667.80	677.80	665.10	395.00	670.50	670.50	672.83	940.73	12.25	32.25	12.88
*	2.700	1.00	667.80	677.80	665.10	395.00	671.80	670.50	673.18	481.71	9.40	42.01	18.00
*	2.700	1.00	667.80	677.80	665.10	395.00	671.80	670.50	673.18	481.71	9.40	42.01	18.00
	2.800	1.00	0.00	0.00	665.10	395.00	673.40	0.00	673.55	26.27	3.09	127.93	77.06
	2.800	1.00	0.00	0.00	665.10	395.00	673.40	0.00	673.55	26.27	3.09	127.93	77.06
	3.000	60.00	0.00	0.00	667.20	395.00	673.56	0.00	673.91	82.47	4.76	82.97	43.50
	3.000	60.00	0.00	0.00	667.20	395.00	673.56	0.00	673.91	82.46	4.76	82.97	43.50
	3.050	50.00	0.00	0.00	668.60	395.00	673.96	0.00	674.55	164.48	6.16	64.13	30.80
	3.050	50.00	0.00	0.00	668.60	395.00	673.96	0.00	674.55	164.53	6.16	64.13	30.79
	3.100	50.00	0.00	0.00	669.90	395.00	674.81	0.00	675.55	224.40	6.90	57.24	26.37
	3.100	50.00	0.00	0.00	669.90	395.00	674.81	0.00	675.55	223.64	6.89	57.31	26.41

FORM7411 ½ GB
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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
3.150	50.00	0.00	0.00	671.30	395.00	675.95	0.00	676.70	235.02	6.95	56.84	25.77
3.150	50.00	0.00	0.00	671.30	395.00	675.95	0.00	676.70	236.04	6.96	56.75	25.71
3.200	50.00	0.00	0.00	672.70	395.00	677.14	0.00	677.89	240.03	6.96	56.79	25.50
3.200	50.00	0.00	0.00	672.70	395.00	677.14	0.00	677.89	239.65	6.95	56.82	25.52
3.250	50.00	0.00	0.00	674.00	395.00	678.34	0.00	679.03	215.59	6.69	59.08	26.90
3.250	50.00	0.00	0.00	674.00	395.00	678.34	0.00	679.03	217.66	6.71	58.88	26.77
3.300	50.00	0.00	0.00	675.40	395.00	679.44	0.00	680.24	258.41	7.15	55.22	24.57
3.300	50.00	0.00	0.00	675.40	395.00	679.45	0.00	680.24	256.18	7.13	55.40	24.68
3.350	50.00	0.00	0.00	676.80	395.00	680.76	0.00	681.70	312.86	7.77	50.87	22.33
3.350	50.00	0.00	0.00	676.80	395.00	680.76	0.00	681.70	313.42	7.77	50.84	22.31
3.400	50.00	0.00	0.00	678.10	395.00	682.30	0.00	683.25	305.77	7.83	50.43	22.59
3.400	50.00	0.00	0.00	678.10	395.00	682.30	0.00	683.25	305.54	7.83	50.44	22.60
4.000	50.00	0.00	0.00	679.50	395.00	683.83	0.00	684.76	297.51	7.75	50.97	22.90
4.000	50.00	0.00	0.00	679.50	395.00	683.83	0.00	684.77	301.94	7.80	50.66	22.73
4.200	1.00	685.20	685.20	679.50	395.00	683.87	0.00	684.79	116.95	7.68	51.41	36.53
4.200	1.00	685.20	685.20	679.50	395.00	683.98	0.00	684.82	104.77	7.34	53.81	38.59
4.300	5.00	685.20	685.20	679.50	395.00	684.14	0.00	684.89	91.98	6.96	56.79	41.19
4.300	5.00	685.20	685.20	679.50	395.00	684.15	0.00	684.90	91.18	6.93	56.99	41.37
4.400	1.00	0.00	0.00	679.50	395.00	684.15	0.00	684.90	228.69	6.95	56.85	26.12
4.400	1.00	0.00	0.00	679.50	395.00	684.17	0.00	684.91	225.13	6.90	57.22	26.33
4.450	60.00	0.00	0.00	681.20	395.00	685.71	0.00	686.86	387.24	8.60	45.95	20.06
4.450	60.00	0.00	0.00	681.20	395.00	685.71	0.00	686.86	387.92	8.60	45.94	20.06
4.500	50.00	0.00	0.00	682.70	395.00	687.58	0.00	688.64	318.10	8.24	47.94	22.15
4.500	50.00	0.00	0.00	682.70	395.00	687.58	0.00	688.64	318.36	8.24	47.92	22.14
4.600	1.00	688.20	687.20	682.70	395.00	687.47	687.05	688.82	416.30	9.34	42.31	19.36
4.600	1.00	688.20	687.20	682.70	395.00	687.47	687.05	688.82	416.30	9.34	42.31	19.36
4.700	3.50	688.20	687.20	682.70	395.00	687.61	687.05	688.97	416.30	9.34	42.31	19.36
4.700	3.50	688.20	687.20	682.70	395.00	687.61	687.05	688.97	416.30	9.34	42.31	19.36
4.800	1.00	0.00	0.00	682.70	395.00	688.63	0.00	689.22	133.72	6.14	64.31	34.16
4.800	1.00	0.00	0.00	682.70	395.00	688.63	0.00	689.22	137.52	6.14	64.30	33.68
4.900	120.00	0.00	0.00	685.20	395.00	690.28	0.00	690.84	141.49	6.20	80.12	33.21
4.900	120.00	0.00	0.00	685.20	395.00	690.32	0.00	690.95	150.43	6.43	66.18	32.21
5.000	100.00	0.00	0.00	687.20	395.00	691.90	0.00	692.17	103.83	4.73	143.47	38.76
5.000	100.00	0.00	0.00	687.20	395.00	692.01	0.00	692.23	86.07	4.40	159.63	42.58

FORM 1411 % GB
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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	101K
5.200	66.50	691.50	690.20	687.20	395.00	692.38	0.00	692.52	56.21	3.74	186.72	52.69
5.200	66.50	691.50	690.20	687.20	395.00	692.39	0.00	692.53	54.69	3.70	188.97	53.41
6.000	80.00	0.00	0.00	687.50	395.00	692.80	0.00	692.92	40.62	3.74	201.13	61.98
6.000	80.00	0.00	0.00	687.50	395.00	692.79	0.00	692.94	45.34	3.95	181.80	58.66
7.000	110.00	0.00	0.00	687.10	395.00	693.24	0.00	693.57	62.29	5.14	120.46	50.05
7.000	110.00	0.00	0.00	687.10	395.00	693.28	0.00	693.60	59.78	5.06	124.00	51.09
7.200	18.00	692.00	691.70	687.10	395.00	693.82	0.00	693.99	32.42	3.99	178.82	69.38
7.200	18.00	692.00	691.70	687.10	395.00	693.83	0.00	694.00	32.05	3.97	179.85	69.77
8.000	300.00	0.00	0.00	690.90	395.00	695.04	0.00	695.09	38.73	2.74	285.55	63.47
8.000	300.00	0.00	0.00	690.90	395.00	695.09	0.00	695.14	43.25	2.88	254.89	60.06
8.500	180.00	0.00	0.00	692.30	395.00	696.04	0.00	696.19	103.72	4.29	179.27	38.78
8.500	180.00	0.00	0.00	692.30	395.00	696.16	0.00	696.32	102.83	4.26	165.79	38.95
8.750	90.00	0.00	0.00	693.00	395.00	697.03	0.00	697.45	194.56	6.15	112.98	28.32
8.750	90.00	0.00	0.00	693.00	395.00	697.13	0.00	697.59	203.21	6.23	96.76	27.71
9.000	90.00	0.00	0.00	693.70	395.00	698.40	0.00	698.80	119.76	5.58	111.49	36.09
9.000	90.00	0.00	0.00	693.70	395.00	698.52	0.00	698.85	100.02	5.21	123.48	39.50
9.200	55.00	702.20	697.90	693.70	395.00	703.00	0.00	703.06	2.04	2.28	268.13	276.81
9.200	55.00	702.20	697.90	693.70	395.00	703.00	0.00	703.07	2.02	2.27	269.20	277.72
9.500	10.00	0.00	0.00	693.70	395.00	703.08	0.00	703.08	0.18	0.49	799.71	934.56
9.500	10.00	0.00	0.00	693.70	395.00	703.08	0.00	703.09	0.19	0.50	771.78	906.61
9.600	1.00	697.80	697.40	693.70	395.00	703.08	0.00	703.08	0.18	0.42	799.20	927.58
9.600	1.00	697.80	697.40	693.70	395.00	703.08	0.00	703.09	0.19	0.43	772.57	899.78
9.700	11.50	697.80	697.40	693.70	395.00	703.08	0.00	703.08	0.18	0.42	799.21	927.60
9.700	11.50	697.80	697.40	693.70	395.00	703.08	0.00	703.09	0.19	0.43	772.57	899.79
9.800	1.00	0.00	0.00	693.70	395.00	703.08	0.00	703.08	0.18	0.49	801.17	937.33
9.800	1.00	0.00	0.00	693.70	395.00	703.08	0.00	703.09	0.19	0.51	766.28	900.83
10.000	155.00	0.00	0.00	695.20	395.00	703.08	0.00	703.08	0.47	1.10	1305.42	575.04
10.000	155.00	0.00	0.00	695.20	395.00	703.09	0.00	703.09	0.50	1.13	1003.63	558.32
11.000	460.00	0.00	0.00	698.60	395.00	703.11	0.00	703.15	10.84	2.45	317.55	119.99
11.000	460.00	0.00	0.00	698.60	395.00	703.11	0.00	703.17	12.39	2.63	243.59	112.21
11.250	125.00	0.00	0.00	698.80	395.00	703.25	0.00	703.38	29.89	3.99	263.30	72.25
11.250	125.00	0.00	0.00	698.80	395.00	703.26	0.00	703.43	33.37	4.22	139.36	68.38
11.500	125.00	0.00	0.00	699.10	395.00	703.64	0.00	703.76	33.42	3.71	192.17	68.33
11.500	125.00	0.00	0.00	699.10	395.00	703.71	0.00	703.85	35.45	3.89	169.05	66.34

FORM 1411 5 GB
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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
11.600	1.00	701.70	704.20	699.10	395.00	703.58	0.00	703.82	71.57	5.06	150.53	46.69
11.600	1.00	701.70	704.20	699.10	395.00	703.65	0.00	703.92	76.06	5.25	136.11	45.29
11.700	9.00	701.70	704.20	699.10	395.00	703.72	0.00	703.90	54.01	4.46	170.43	53.75
11.700	9.00	701.70	704.20	699.10	395.00	703.82	0.00	704.00	53.65	4.49	162.05	53.93
11.800	1.00	0.00	0.00	699.10	395.00	703.85	0.00	703.93	20.89	3.08	230.79	86.42
11.800	1.00	0.00	0.00	699.10	395.00	703.95	0.00	704.03	20.89	3.15	215.86	86.42
11.900	220.00	0.00	0.00	700.60	395.00	704.52	0.00	704.70	58.67	5.01	165.97	51.57
11.900	220.00	0.00	0.00	700.60	395.00	704.61	0.00	704.82	59.54	5.14	136.19	51.19
12.000	220.00	0.00	0.00	702.20	395.00	705.78	0.00	705.91	50.34	4.56	179.82	55.67
12.000	220.00	0.00	0.00	702.20	395.00	705.88	0.00	706.04	49.96	4.65	148.33	55.88

FORM 1411 5 GB
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WEST TRIBUTARY OF ST.

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIEWSP	DIEWSX	DIEKWS	TOPWID	XLCH
	1.000	395.00	658.82	0.00	0.00	0.92	37.49	0.00
	1.000	395.00	658.82	0.00	0.00	0.00	37.49	0.00
	1.200	395.00	659.67	0.00	0.85	0.00	38.01	110.00
	1.200	395.00	659.67	0.00	0.85	0.00	38.01	110.00
	1.500	395.00	660.43	0.00	0.76	0.00	37.88	110.00
	1.500	395.00	660.43	0.00	0.76	0.00	37.88	110.00
	2.000	395.00	661.30	0.00	0.86	0.00	37.07	110.00
	2.000	395.00	661.30	0.00	0.86	0.00	37.07	110.00
	2.100	395.00	661.84	0.00	0.54	0.00	33.76	50.00
	2.100	395.00	661.84	0.00	0.54	0.00	33.76	50.00
	2.200	395.00	663.67	0.00	1.83	0.00	34.55	50.00
	2.200	395.00	663.67	0.00	1.83	0.00	34.55	50.00
	2.300	395.00	665.08	0.00	1.41	0.00	34.26	50.00
	2.300	395.00	665.08	0.00	1.41	0.00	34.26	50.00
	2.400	395.00	666.89	0.00	1.80	0.00	34.58	60.00
	2.400	395.00	666.89	0.00	1.80	0.00	34.58	60.00
	2.450	395.00	667.56	0.00	0.68	0.00	23.29	30.00
	2.450	395.00	667.56	0.00	0.68	0.00	23.29	30.00
*	2.500	395.00	668.92	0.00	1.36	0.00	13.13	25.00
*	2.500	395.00	668.93	0.00	1.36	0.00	13.13	25.00
*	2.600	395.00	670.50	0.00	1.57	0.00	19.86	5.00
*	2.600	395.00	670.50	0.00	1.57	0.00	19.86	5.00
*	2.700	395.00	671.80	0.00	1.31	0.00	21.50	1.00
*	2.700	395.00	671.80	0.00	1.31	0.00	21.50	1.00
	2.800	395.00	673.40	0.00	1.60	0.00	24.38	1.00
	2.800	395.00	673.40	0.00	1.60	0.00	24.38	1.00
	3.000	395.00	673.56	0.00	0.16	0.00	21.45	60.00
	3.000	395.00	673.56	0.00	0.16	0.00	21.45	60.00
	3.050	395.00	673.96	0.00	0.40	0.00	19.33	50.00
	3.050	395.00	673.96	0.00	0.40	0.00	19.33	50.00
	3.100	395.00	674.81	0.00	0.85	0.00	18.70	50.00
	3.100	395.00	674.81	0.00	0.85	0.00	18.71	50.00

FORM 1411 ¼ GB
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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
3.150	395.00	675.95	0.00	1.14	0.00	19.56	50.00
3.150	395.00	675.95	0.00	1.14	0.00	19.55	50.00
3.200	395.00	677.14	0.00	1.19	0.00	20.25	50.00
3.200	395.00	677.14	0.00	1.19	0.00	20.25	50.00
3.250	395.00	678.34	0.00	1.20	0.00	20.23	50.00
3.250	395.00	678.34	0.00	1.20	0.00	20.70	50.00
3.300	395.00	679.44	0.00	1.11	0.00	20.31	50.00
3.300	395.00	679.45	0.01	1.12	0.01	20.34	50.00
3.350	395.00	680.76	0.00	1.32	0.00	19.16	50.00
3.350	395.00	680.76	0.00	1.31	0.00	19.15	50.00
3.400	395.00	682.30	0.00	1.53	0.00	18.29	50.00
3.400	395.00	682.30	0.00	1.54	0.00	18.30	50.00
4.000	395.00	683.83	0.00	1.53	0.00	18.29	50.00
4.000	395.00	683.83	0.00	1.53	0.00	18.21	50.00
4.200	395.00	683.87	0.00	0.04	0.00	18.40	1.00
4.200	395.00	683.98	0.11	0.16	0.11	19.03	1.00
4.300	395.00	684.14	0.00	0.27	0.00	19.77	5.00
4.300	395.00	684.15	0.01	0.17	0.01	19.82	5.00
4.400	395.00	684.15	0.00	0.02	0.00	19.79	1.00
4.400	395.00	684.17	0.02	0.02	0.02	19.88	1.00
4.450	395.00	685.71	0.00	1.56	0.00	16.45	60.00
4.450	395.00	685.71	0.00	1.54	0.00	16.45	60.00
4.500	395.00	687.58	0.00	1.87	0.00	15.00	50.00
4.500	395.00	687.58	0.00	1.87	0.00	14.99	50.00
4.600	395.00	687.47	0.00	-0.11	0.00	14.81	1.00
4.600	395.00	687.47	0.00	-0.11	0.00	14.81	1.00
4.700	395.00	687.61	0.00	0.15	0.00	15.03	3.50
4.700	395.00	687.61	0.00	0.15	0.00	15.03	3.50
4.800	395.00	688.63	0.00	1.02	0.00	16.00	1.00
4.800	395.00	688.63	0.00	1.02	0.00	16.00	1.00
4.900	395.00	690.28	0.00	1.65	0.00	56.36	120.00
4.900	395.00	690.32	0.04	1.69	0.04	21.46	120.00
5.000	395.00	691.90	0.00	1.62	0.00	153.66	100.00
5.000	395.00	692.01	0.10	1.68	0.10	164.52	100.00

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
5.200	395.00	692.38	0.00	0.47	0.00	135.66	66.50
5.200	395.00	692.39	0.02	0.39	0.02	136.18	66.50
6.000	395.00	692.80	0.00	0.42	0.00	102.00	80.00
6.000	395.00	692.79	0.00	0.40	0.00	84.82	80.00
7.000	395.00	693.24	0.00	0.45	0.00	90.89	110.00
7.000	395.00	693.28	0.04	0.49	0.04	96.93	110.00
7.200	395.00	693.82	0.00	0.57	0.00	102.00	18.00
7.200	395.00	693.83	0.01	0.55	0.01	102.00	18.00
8.000	395.00	695.04	0.00	1.22	0.00	195.93	300.00
8.000	395.00	695.09	0.05	1.26	0.05	154.10	300.00
8.500	395.00	696.04	0.00	1.00	0.00	152.56	180.00
8.500	395.00	696.16	0.12	1.08	0.12	116.93	180.00
8.750	395.00	697.03	0.00	0.98	0.00	108.68	90.00
8.750	395.00	697.13	0.10	0.97	0.10	68.71	90.00
9.000	395.00	698.40	0.00	1.37	0.00	107.29	90.00
9.000	395.00	698.52	0.12	1.39	0.12	109.32	90.00
9.200	395.00	703.00	0.00	4.60	0.00	154.36	55.00
9.200	395.00	703.00	0.01	4.49	0.01	154.75	55.00
9.500	395.00	703.08	0.00	0.08	0.00	165.00	10.00
9.500	395.00	703.08	0.01	0.08	0.01	157.23	10.00
9.600	395.00	703.08	0.00	0.00	0.00	165.00	1.00
9.600	395.00	703.08	0.01	0.00	0.01	157.94	1.00
9.700	395.00	703.08	0.00	0.00	0.00	165.00	11.50
9.700	395.00	703.08	0.01	0.00	0.01	157.94	11.50
9.800	395.00	703.08	0.00	0.00	0.00	165.00	1.00
9.800	395.00	703.08	0.01	0.00	0.01	155.78	1.00
10.000	395.00	703.08	0.00	0.01	0.00	353.13	155.00
10.000	395.00	703.09	0.01	0.00	0.01	198.51	155.00
11.000	395.00	703.11	0.00	0.03	0.00	222.36	460.00
11.000	395.00	703.11	0.00	0.03	0.00	109.64	460.00
11.250	395.00	703.25	0.00	0.13	0.00	249.70	125.00
11.250	395.00	703.26	0.01	0.14	0.01	62.77	125.00
11.500	395.00	703.64	0.00	0.39	0.00	169.16	125.00
11.500	395.00	703.71	0.07	0.45	0.07	123.31	125.00

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
11.600	395.00	703.58	0.00	-0.06	0.00	168.56	1.00
11.600	395.00	703.65	0.06	-0.06	0.06	134.96	1.00
11.700	395.00	703.72	0.00	0.14	0.00	170.41	9.00
11.700	395.00	703.82	0.10	0.17	0.10	145.75	9.00
11.800	395.00	703.85	0.00	0.13	0.00	172.11	1.00
11.800	395.00	703.95	0.10	0.13	0.10	143.06	1.00
11.900	395.00	704.52	0.00	0.67	0.00	187.90	220.00
11.900	395.00	704.61	0.09	0.66	0.09	93.23	220.00
12.000	395.00	705.78	0.00	1.26	0.00	179.02	220.00
12.000	395.00	705.88	0.10	1.27	0.10	92.39	220.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 2.500 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.500 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.500 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2.500 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.500 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.500 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 2.600 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.600 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.600 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2.600 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.600 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.600 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 2.700 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2.700 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL

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FLOODWAY DATA, WEST TRIBUTARY OF ST.
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
1.000	37.	95.	4.2	658.8	658.8	0.0
1.200	38.	101.	3.9	659.7	659.7	0.0
1.500	38.	99.	4.0	660.4	660.4	0.0
2.000	37.	90.	4.4	661.3	661.3	0.0
2.100	34.	56.	7.0	661.8	661.8	0.0
2.200	35.	64.	6.1	663.7	663.7	0.0
2.300	34.	61.	6.4	665.1	665.1	0.0
2.400	35.	65.	6.1	666.9	666.9	0.0
2.450	23.	60.	6.6	667.6	667.6	0.0
2.500	13.	40.	9.9	668.9	668.9	0.0
2.600	20.	32.	12.2	670.5	670.5	0.0
2.700	21.	42.	9.4	671.8	671.8	0.0
2.800	24.	128.	3.1	673.4	673.4	0.0
3.000	21.	83.	4.8	673.6	673.6	0.0
3.050	19.	64.	6.2	674.0	674.0	0.0
3.100	19.	57.	6.9	674.8	674.8	0.0
3.150	20.	57.	7.0	675.9	675.9	0.0
3.200	20.	57.	7.0	677.1	677.1	0.0
3.250	21.	59.	6.7	678.3	678.3	0.0
3.300	20.	55.	7.1	679.4	679.4	0.0
3.350	19.	51.	7.8	680.8	680.8	0.0
3.400	18.	50.	7.8	682.3	682.3	0.0
4.000	18.	51.	7.8	683.8	683.8	0.0
4.200	19.	54.	7.3	684.0	683.9	0.1
4.300	20.	57.	6.9	684.1	684.1	0.0
4.400	20.	57.	6.9	684.2	684.2	0.0
4.450	16.	46.	8.6	685.7	685.7	0.0
4.500	15.	48.	8.2	687.6	687.6	0.0
4.600	15.	42.	9.3	687.5	687.5	0.0
4.700	15.	42.	9.3	687.6	687.6	0.0
4.800	16.	64.	6.1	688.6	688.6	0.0
4.900	21.	66.	6.0	690.3	690.3	0.0
5.000	165.	160.	2.5	692.0	691.9	0.1
5.200	136.	189.	2.1	692.4	692.4	0.0
6.000	85.	182.	2.2	692.8	692.8	0.0
7.000	97.	124.	3.2	693.2	693.2	0.0
7.200	102.	180.	2.2	693.8	693.8	0.0
8.000	154.	255.	1.5	695.0	695.0	0.0
8.500	117.	166.	2.4	696.1	696.0	0.1
8.750	69.	97.	4.1	697.1	697.0	0.1
9.000	109.	123.	3.2	698.5	698.4	0.1
9.200	155.	269.	1.5	703.0	703.0	0.0

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FLOODWAY DATA, WEST TRIBUTARY OF ST.
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
9.500	157.	772.	0.5	703.1	703.1	0.0
9.600	158.	773.	0.5	703.1	703.1	0.0
9.700	158.	773.	0.5	703.1	703.1	0.0
9.800	156.	766.	0.5	703.1	703.1	0.0
10.000	199.	1004.	0.4	703.1	703.1	0.0
11.000	110.	244.	1.6	703.1	703.1	0.0
11.250	63.	139.	2.8	703.2	703.2	0.0
11.500	123.	169.	2.3	703.7	703.6	0.1
11.600	135.	136.	2.9	703.7	703.6	0.1
11.700	146.	162.	2.4	703.8	703.7	0.1
11.800	143.	216.	1.8	704.0	703.9	0.1
11.900	93.	136.	2.9	704.6	704.5	0.1
12.000	92.	148.	2.7	705.9	705.8	0.1

FORM 1411 5 G8
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00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: City of Niles, City of

3) WATERCOURSE: St. Joseph River, West Trib

4) DOCUMENT TYPE: 100-year Natural

00BREAK00

THIS RUN EXECUTED 23-MAY-85 12:17:47

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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
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C
T1        CITY OF NILES FLOOD INSURANCE STUDY  SEPTEMBER 1984
T2        JOB #1055F   WESTRIB.NEW    100 YR. FLOOD PROFILE RUN
T3        WEST TRIBUTARY OF ST. JOSEPH RIVER  100 YR.
J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     R         WSEL      FQ
        0.       4.        0.        0.  0.008000      0.00      0.0       0.    652.900     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
    150.000   110.000   200.000     0.000     0.000     0.000     0.000     0.000     0.000     0.000

QT      4.000   210.000   340.000   395.000   500.000   395.000     0.000     0.000     0.000     0.000
NC      0.100     0.100     0.060     0.100     0.300     0.000     0.000     0.000     0.000     0.000
        SURVEY SEC. #1 150 FT. U/S OF ST. JOF RIVER
X1      1.000    12.000  2049.900  2080.900     0.000     0.000     0.000     0.000     0.000     0.000
GR    685.000  1990.100   684.800  2000.000   656.600  2049.900   656.200  2065.200   655.200  2066.700
GR    654.800  2072.200   654.200  2073.000   654.800  2075.200   656.600  2077.000   657.300  2080.900
GR    682.000  2122.500   684.000  2145.200     0.000     0.000     0.000     0.000     0.000     0.000

        XXXXX
X1      1.200     0.000     0.000     0.000    80.000   140.000   110.000     0.000     0.700     0.000

        XXXXX
X1      1.500     0.000     0.000     0.000   110.000   110.000   110.000     0.000     0.800     0.000

        XXXXX
X1      2.000     0.000     0.000     0.000   110.000   110.000   110.000     0.000     1.100     0.000

        XXXXX
X1      2.100     0.000     0.000     0.000    50.000    50.000    50.000     0.000     1.500     0.000

        XXXXX
X1      2.200     0.000     0.000     0.000    50.000    50.000    50.000     0.000     1.600     0.000
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     XXXXX
X1   2.300    0.000    0.000    0.000   50.000   50.000   50.000    0.000    1.500    0.000

     XXXXX
X1   2.400    0.000    0.000    0.000   60.000   60.000   60.000    0.000    1.700    0.000

     XXXXX
X1   2.450    7.000  500.000  523.000   30.000   30.000   30.000    0.000    0.000    0.000
GR 670.500  491.000  667.500  500.000  664.500  503.000  664.100  510.000  664.500  517.000
GR 667.500  523.000  670.500  529.000    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   0.000    0.000    0.000    0.300    0.500    0.000    0.000    0.000    0.000    0.000
     5.0 FT. D/S FROM CEMENT WEIR ** FLOW IS AROUND WEIR IN EROSION CHANNEL
X1   2.500   22.000  514.000  550.700   25.000   25.000   25.000    0.000    0.000    0.000
GR 680.200  480.000  679.800  500.000  676.500  514.000  669.500  516.000  669.500  516.100
GR 665.900  517.000  665.600  519.000  665.400  521.000  665.400  521.100  665.100  523.000
GR 665.300  524.000  665.300  524.100  665.600  527.000  669.800  530.000  669.800  530.100
GR 670.000  535.000  670.000  535.100  673.000  538.000  676.500  549.000  677.800  550.700
GR 684.400  561.000  683.400  581.000    0.000    0.000    0.000    0.000    0.000    0.000

ET   0.000    0.000    0.000    0.000    0.000    1.410    0.000    0.000    0.000    0.000
NC   0.000    0.000    0.038    0.000    0.000    0.000    0.000    0.000    0.000    0.000
     SEC. 2.6 IN CONCRETE WEIR 1 FT. FROM D/S FACE
X1   2.600    0.000    0.000    0.000    5.000    5.000    5.000    0.000    0.000    0.000
X3  10.000    0.000    0.000    0.000    0.000    0.000    0.000  677.800  677.800    0.000
BT  17.000  516.000  677.800  673.200  516.100  677.800  673.200  517.000  677.800  673.200
BT 519.000  677.800  673.200  521.000  677.800  673.200  521.100  677.800  667.600  523.000
BT 677.800  667.600  524.000  677.800  667.600  524.100  677.800  665.600  527.000  667.800
BT 665.600  530.000  677.800  669.800  530.100  675.400  669.800  535.000  675.400  670.000
BT 535.100  677.800  670.000  538.000  677.800  673.000  549.000  677.800  676.500  550.700
BT 677.800  677.800    0.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000

     SEC. 2.7 IN CONCRETE WEIR 1 FT. FROM U/S FACE
X1   2.700    0.000    0.000    0.000    1.000    1.000    1.000    0.000    0.000    0.000
X2   0.000    0.000    0.000    0.000    0.000    0.000    1.000    0.000    0.000    0.000
X3  10.000    0.000    0.000    0.000    0.000    0.000    0.000  677.800  677.800    0.000

ET   0.000    0.000    0.000    0.000    0.000    1.400    0.000    0.000    0.000    0.000
NC   0.000    0.000    0.060    0.000    0.000    0.000    0.000    0.000    0.000    0.000
     U/S FACE OF WEIR - FLOW AROUND END OF EXPOSED WIER
X1   2.800    0.000    0.000    0.000    1.000    1.000    1.000    0.000    0.000    0.000
X3  10.000    0.000    0.000    0.000    0.000    0.000    0.000  677.800  677.800    0.000

     SURVEY SEC. #3
X1   3.000    8.000  500.000  549.500   90.000   40.000   60.000    0.000    0.000    0.000
GR 685.000  495.000  684.600  500.000  667.500  538.000  667.200  540.000  667.200  542.000
GR 667.400  543.500  682.300  549.500  685.100  559.500    0.000    0.000    0.000    0.000
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NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
	XXXXX									
X1	3.050	10.000	503.500	549.000	40.000	50.000	50.000	0.000	0.000	0.000
GR	684.500	503.500	679.400	514.700	673.700	527.000	669.000	538.000	668.700	539.000
GR	668.600	541.000	668.700	542.800	669.300	544.000	682.500	549.000	685.000	559.000
	XXXXX									
X1	3.100	8.000	507.000	550.000	40.000	50.000	50.000	0.000	0.000	0.000
GR	684.500	507.000	680.000	516.000	674.600	528.000	670.300	538.000	669.900	541.000
GR	670.200	544.000	682.600	550.000	685.000	555.000	0.000	0.000	0.000	0.000
	XXXXX									
X1	3.150	8.000	509.000	550.000	20.000	55.000	50.000	0.000	0.000	0.000
GR	684.500	509.000	680.000	518.000	675.000	529.000	671.700	538.000	671.300	541.000
GR	671.700	544.200	682.600	550.000	685.000	556.000	0.000	0.000	0.000	0.000
	XXXXX									
X1	3.200	8.000	511.000	550.000	20.000	55.000	50.000	0.000	0.000	0.000
GR	684.500	511.000	680.000	520.000	675.400	530.000	673.100	538.000	672.700	541.000
GR	673.100	544.000	682.900	550.000	685.000	557.000	0.000	0.000	0.000	0.000
	XXXXX									
X1	3.250	8.000	514.000	550.000	40.000	50.000	50.000	0.000	0.000	0.000
GR	684.500	514.000	680.000	523.000	676.200	531.000	674.400	538.000	674.000	541.000
GR	674.500	545.000	683.100	550.000	685.000	557.000	0.000	0.000	0.000	0.000
	XXXXX									
X1	3.300	8.000	518.000	550.000	40.000	50.000	50.000	0.000	0.000	0.000
GR	684.500	518.000	680.000	526.000	677.000	532.000	675.800	538.000	675.400	541.000
GR	675.900	545.000	683.200	550.000	685.000	558.000	0.000	0.000	0.000	0.000
	XXXXX									
X1	3.350	8.000	522.000	550.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	684.500	522.000	680.000	530.000	678.000	534.000	677.200	538.000	676.800	541.000
GR	677.400	545.000	683.400	550.000	685.000	558.000	0.000	0.000	0.000	0.000
	XXXXX									
X1	3.400	8.000	527.000	550.000	50.000	50.000	50.000	0.000	0.000	0.000
GR	684.500	527.000	680.000	534.000	679.000	536.000	678.600	538.000	678.100	541.000
GR	678.800	545.000	683.500	550.000	685.000	559.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.300	0.500	0.000	0.000	0.000	0.000	0.000
	SURVEY SEC. #4 D/S FACE OF CONCRETE FOOT BRIDGE									
X1	4.000	16.000	500.000	531.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	685.200	687.600	0.000
GR	700.000	439.000	684.000	450.000	684.700	480.000	685.200	500.000	685.200	500.100
GR	680.000	508.000	679.500	511.000	680.200	516.000	683.700	520.000	685.200	525.000
GR	686.200	528.000	687.700	531.000	688.100	550.000	690.000	610.000	694.000	750.000
GR	700.000	790.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.038	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	1 FT. U/S OF D/S FACE OF CONCRETE FOOT BRIDGE									
X1	4.200	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	685.200	687.600	0.000
BT	4.000	500.000	685.200	685.200	500.100	686.200	685.200	525.000	686.200	685.200
BT	528.000	686.200	600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	1 FT. D/S FROM U/S FACE OF CONCRETE FOOT BRIDGE									
X1	4.300	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	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	685.200	687.600	0.000
NC	0.000	0.000	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	U/S FACE OF CONCRETE FOOT BRIDGE									
X1	4.400	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	685.200	687.600	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
	XXXXX									
X1	4.450	9.000	2001.000	2020.000	60.000	60.000	60.000	0.000	0.000	0.000
GR	686.700	1996.000	686.500	1999.000	686.500	2001.000	682.500	2003.000	681.200	2007.000
GR	682.700	2012.000	683.800	2014.000	685.000	2017.000	687.500	2020.000	0.000	0.000
	SURVEY SEC. #4.5 WOOD FOOT BRIDGE D/S FACE									
X1	4.500	8.000	500.000	516.000	50.000	50.000	50.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	688.200	688.200	0.000
GR	690.000	350.000	688.200	500.000	683.600	506.000	682.700	510.000	683.000	511.000
GR	685.100	515.000	688.200	516.000	690.000	580.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.410	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.039	0.000	0.000	0.000	580.000	690.000	0.000	0.000
	WOOD FOOT BRIDGE 1 FT. U/S OF D/S FACE									
X1	4.600	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	687.200	688.200	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	688.500	688.500	0.000
	WOOD FOOT BRIDGE 1 FT. D/S FROM U/S FACE									
X1	4.700	0.000	0.000	0.000	3.500	3.500	3.500	0.000	0.000	0.000
X2	0.000	0.000	0.000	687.200	688.200	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	688.500	688.500	0.000
NC	0.000	0.000	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	WOOD FOOT BRIDGE U/S FACE									
X1	4.800	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	692.000	692.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000

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	XXXXX									
X1	4.900	8.000	1995.000	2011.000	200.000	40.000	120.000	0.000	0.000	0.000
GR	692.000	1700.000	690.300	1995.000	685.500	2000.000	685.200	2004.000	685.400	2007.000
GR	689.000	2011.000	690.000	2035.000	692.000	2150.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	9.100	0.000	0.000	300.000	760.000
	SURVEY SEC. #5 D/S FACE OF 3X5 CONCRETE BOX CULVERT @TOPINABEE RD.									
X1	5.000	16.000	500.000	520.000	150.000	80.000	100.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	690.900	690.000	0.000
GR	694.000	300.000	690.900	480.000	690.300	500.000	691.800	502.000	687.500	506.000
GR	687.200	508.000	687.200	508.100	687.200	513.400	687.200	513.500	687.400	515.000
GR	691.700	519.000	691.300	520.000	691.200	540.000	692.000	580.000	694.000	650.000
GR	702.000	760.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.860	3.000	0.000	5.000	0.000	15.000	0.000	687.200	687.200
	U/S FACE OF 3X5 CONCRETE BOX CULVERT @TOPIABEE RD.									
X1	5.200	0.000	0.000	0.000	66.500	66.500	66.500	0.906	0.000	0.000
X2	0.000	0.000	1.000	690.200	691.500	0.000	0.000	0.000	0.906	0.000
X3	10.000	0.000	0.000	430.000	0.000	570.000	0.000	691.200	692.200	0.000
BT	16.000	300.000	694.000	694.000	480.000	691.100	690.900	500.000	691.500	690.300
BT	502.000	691.600	690.200	506.000	691.700	687.500	508.000	691.700	687.200	508.100
BT	691.700	690.200	513.400	691.700	690.200	513.500	691.700	687.200	515.000	691.700
BT	687.400	519.000	691.700	691.700	520.000	691.700	691.300	540.000	691.900	691.200
BT	580.000	692.200	692.000	650.000	694.000	694.000	760.000	702.000	702.000	0.000
NC	0.100	0.100	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	1.400	0.000	0.000	440.000	542.000
	SURVEY SEC. #6									
X1	6.000	9.000	500.000	512.000	60.000	140.000	80.000	0.000	0.000	0.000
GR	694.000	320.000	690.900	480.000	690.400	500.000	687.500	505.000	687.700	510.000
GR	690.700	512.000	691.400	532.000	694.000	570.000	702.000	630.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	9.100	0.000	0.000	200.000	620.000
	SURVEY SEC. #7 D/S FACE OF BOX CULVERT ON WESAW RD.									
X1	7.000	13.000	500.000	512.000	110.000	120.000	110.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	691.800	694.000	0.000
GR	702.000	200.000	694.000	300.000	693.000	460.000	691.500	480.000	691.400	500.000
GR	687.700	503.600	687.700	503.700	687.100	506.800	687.400	508.800	687.400	508.900
GR	689.100	512.000	693.700	532.000	704.000	620.000	0.000	0.000	0.000	0.000
SB	0.000	1.650	3.000	0.000	5.200	0.000	22.600	0.000	687.400	687.400
ET	0.000	9.100	9.100	9.100	9.100	9.100	0.000	0.000	410.000	520.000
	U/S FACE OF BOX CULVERT ON WESAW RD.									
X1	7.200	0.000	0.000	0.000	18.000	18.000	18.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	691.700	692.000	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	692.000	695.800	0.000
BT	13.000	200.000	702.000	702.000	300.000	694.000	694.000	460.000	694.000	693.000
BT	480.000	692.000	691.500	500.000	692.700	691.400	503.600	692.700	687.700	503.700
BT	692.700	691.700	506.800	692.700	691.700	508.800	692.700	691.700	508.900	692.700
BT	687.400	512.000	692.700	689.100	532.000	693.700	693.700	620.000	704.000	704.000

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ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
	SURVEY SEC. #8									
X1	8.000	14.000	500.000	514.000	300.000	300.000	300.000	0.000	0.000	0.000
GR	704.000	270.000	694.000	330.000	693.200	480.000	693.600	493.000	694.900	495.000
GR	693.900	500.000	692.300	503.000	691.200	503.100	690.900	506.000	691.000	508.000
GR	694.700	514.000	695.900	534.000	698.000	620.000	704.000	700.000	0.000	0.000
NC	0.000	0.000	0.000	0.100	0.300	0.000	0.000	0.000	0.000	0.000
	XXXXX									
X1	8.500	12.000	500.000	517.000	180.000	180.000	180.000	0.000	0.000	0.000
GR	704.000	340.000	695.000	385.000	694.900	500.000	694.800	505.000	693.600	506.000
GR	692.500	509.000	692.300	514.000	695.200	517.000	695.200	521.000	696.400	537.000
GR	696.400	561.000	704.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	0.000	0.000	0.000	0.000	0.000	0.000	477.000	539.000
	XXXXX									
X1	8.750	12.000	500.000	517.000	75.000	115.000	90.000	0.000	0.000	0.000
GR	704.000	420.000	696.500	425.000	696.000	500.000	695.500	505.000	694.300	506.000
GR	693.200	509.000	693.000	514.000	696.100	517.000	696.100	521.000	697.300	537.000
GR	697.300	561.000	704.000	600.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	0.000	0.000	0.000	0.000	9.100	0.000	0.000	390.000	600.000
NC	0.000	0.000	0.060	0.300	0.500	0.000	0.000	0.000	0.000	0.000
	SURVEY SEC. #9 D/S FACE OF CONCRETE BOX CULVERT ON CHICAGO RD.									
X1	9.000	20.000	500.000	517.000	75.000	115.000	90.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	698.000	698.000	0.000
GR	704.000	390.000	697.900	461.000	697.900	480.000	697.000	500.000	696.200	501.000
GR	696.200	505.000	695.000	506.000	693.900	509.000	693.900	509.100	693.900	509.600
GR	693.700	512.500	693.700	512.900	693.700	513.000	693.700	514.000	697.000	517.000
GR	697.000	520.000	697.000	521.000	698.200	537.000	698.200	561.000	704.000	600.000
NC	0.035	0.035	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SB	0.000	1.900	3.000	0.000	4.200	0.000	17.600	0.000	693.700	693.700
	U/S FACE OF CONCRETE BOX CULVERT ON CHICAGO RD.									
X1	9.200	20.000	500.000	517.000	55.000	55.000	55.000	0.000	0.000	0.000
X2	0.000	0.000	1.000	697.900	702.200	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	702.200	702.300	0.000
BT	18.000	390.000	704.000	600.000	461.000	702.300	600.000	480.000	702.200	600.000
BT	500.000	702.200	600.000	501.000	703.300	600.000	509.000	703.300	693.900	509.100
BT	703.300	697.400	509.600	703.300	697.900	512.500	703.300	697.900	512.900	703.300
BT	697.400	513.000	703.300	693.700	514.000	703.300	600.000	517.000	702.300	600.000
BT	520.000	702.300	600.000	521.000	702.700	600.000	537.000	702.300	698.200	561.000
BT	702.700	600.000	600.000	704.000	600.000	0.000	0.000	0.000	0.000	0.000
GR	704.000	390.000	701.900	461.000	701.900	480.000	701.000	500.000	696.200	501.000
GR	696.200	505.000	695.000	506.000	693.900	509.000	693.900	509.100	693.900	509.600
GR	693.700	512.500	693.700	512.900	693.700	513.000	693.700	514.000	697.000	517.000
GR	701.000	520.000	701.000	521.000	702.200	537.000	702.200	561.000	704.000	600.000

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ET	0.000	7.100	9.100	9.100	9.100	1.400	497.000	522.000	415.000	580.000
	SURVEY SEC. #9.5 D/S FACE OF 44X72 IN. C.M.P. ARCH @CHICAGO RD.									
X1	9.500	13.000	507.300	512.300	10.000	10.000	10.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	697.800	697.800	0.000
GR	704.000	370.000	700.000	390.000	698.000	460.000	697.800	507.300	697.400	507.400
GR	693.700	507.500	693.700	512.100	697.400	512.200	697.800	512.300	698.700	560.000
GR	700.000	600.000	702.000	640.000	704.000	700.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	1.410	0.000	0.000	415.000	580.000
NC	0.000	0.000	0.024	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	1' U/S FROM D/S FACE OF 44X72 IN. C.M.P ARCH @ CHICAGO RD.									
X1	9.600	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	697.800	697.800	0.000
BT	4.000	507.300	697.800	600.000	507.400	697.800	697.400	512.200	697.800	697.400
BT	512.300	697.800	600.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	9.100	9.100	9.100	9.100	0.000	0.000	0.000	415.000	580.000
	1' D/S FROM U/S FACE OF 44X72 IN. C.M.P. ARCH @ CHICAGO RD.									
X1	9.700	0.000	0.000	0.000	11.500	11.500	11.500	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	697.800	697.800	0.000
NC	0.035	0.035	0.030	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	9.100	9.100	9.100	497.000	522.000	0.000	415.000	580.000
	U/S FACE OF 44X72 IN. C.M.P. ARCH @ CHICAGO RD.									
X1	9.800	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	697.800	697.800	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
NC	0.100	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	7.000	0.100	340.000	10.000	380.000	0.100	500.000	0.030	505.100	0.060
NH	580.000	10.000	670.000	0.060	710.000	0.000	0.000	0.000	0.000	0.000
	SURVEY SEC. #10									
X1	10.000	17.000	500.000	505.000	140.000	175.000	155.000	0.000	0.000	0.000
GR	704.000	320.000	702.000	340.000	700.000	360.000	698.000	380.000	698.000	400.000
GR	697.400	480.000	697.200	500.000	695.900	500.100	695.200	503.000	696.000	505.000
GR	697.100	505.100	698.300	525.000	700.000	580.000	700.000	600.000	701.000	610.000
GR	702.000	650.000	704.000	710.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.060	0.060	0.045	0.100	0.300	0.000	0.000	0.000	0.000	0.000
NH	9.000	0.060	500.000	0.045	513.000	0.060	580.000	10.000	615.000	0.060
NH	640.000	10.000	700.000	0.060	730.000	10.000	800.000	0.060	850.000	0.000
	SURVEY SEC. #11									
X1	11.000	17.000	500.000	513.000	530.000	380.000	460.000	0.000	0.000	0.000
GR	710.000	350.000	704.000	410.000	700.900	480.000	700.600	500.000	699.200	503.000
GR	698.600	506.000	699.200	509.000	701.000	513.000	701.000	533.000	701.500	580.000
GR	702.000	600.000	703.000	615.000	703.000	640.000	703.500	700.000	703.500	730.000
GR	704.000	800.000	706.000	850.000	0.000	0.000	0.000	0.000	0.000	0.000

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X1	11.250	13.000	500.000	513.000	100.000	130.000	125.000	0.000	0.000	0.000
GR	709.000	320.000	704.500	410.000	701.400	480.000	700.800	500.000	699.400	503.000
GR	698.800	505.000	699.400	509.000	701.400	513.000	701.700	533.000	702.600	600.000
GR	704.000	790.000	706.000	840.000	708.000	870.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.000	0.300	0.500	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	9.100	9.100	9.100	0.000	460.000	544.000	390.000	614.000
SURVEY SEC. #11.5 SMALL FOOT BRIDGE W/ STEEL U.C. D/S FACE										
X1	11.500	22.000	494.000	509.800	100.000	130.000	125.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	701.700	702.500	0.000
GR	710.000	260.000	708.000	290.000	704.000	440.000	701.700	470.000	701.900	480.000
GR	701.400	494.000	701.400	494.100	701.400	494.700	701.400	494.800	701.000	500.000
GR	699.100	505.000	701.900	509.000	701.900	509.100	701.900	509.700	701.900	509.800
GR	703.200	511.000	702.500	533.000	702.800	545.000	704.000	790.000	706.000	810.000
GR	708.000	840.000	710.000	870.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.000	0.000	0.037	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	9.100	9.100	9.100	0.000	460.000	544.000	390.000	614.000
1 FT. INSIDE FOOT BRIDGE FROM D/S FACE										
X1	11.600	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	701.700	702.500	0.000
BT	12.000	470.000	701.700	650.000	480.000	703.200	701.900	494.000	705.500	704.200
BT	494.100	705.500	701.400	494.700	705.500	701.400	494.800	705.500	704.200	509.000
BT	705.300	704.000	509.100	705.300	701.900	509.700	705.300	701.900	509.800	705.300
BT	704.000	533.000	703.800	702.500	545.000	702.800	650.000	0.000	0.000	0.000
ET	0.000	7.100	9.100	9.100	9.100	0.000	460.000	544.000	390.000	614.000
1 FT. INSIDE OF U/S FACE										
X1	11.700	0.000	0.000	0.000	9.000	9.000	9.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	701.700	702.500	0.000
NC	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ET	0.000	7.100	9.100	9.100	9.100	0.000	460.000	544.000	390.000	614.000
U/S FACE OF WOOD AND STEEL FOOT BRIDGE										
X1	11.800	0.000	0.000	0.000	1.000	1.000	1.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	701.700	702.500	0.000
ET	0.000	0.000	0.000	0.000	0.000	1.400	0.000	0.000	0.000	0.000
XXXXX										
X1	11.900	14.000	500.000	509.000	220.000	220.000	220.000	0.000	0.000	0.000
GR	711.000	290.000	709.000	340.000	705.500	440.000	704.000	460.000	703.200	480.000
GR	702.700	500.000	701.200	502.000	700.600	504.000	701.100	507.000	702.800	509.000
GR	703.500	530.000	704.700	660.000	706.000	780.000	710.000	880.000	0.000	0.000
SURVEY SEC. #12										
X1	12.000	14.000	500.000	508.000	220.000	220.000	220.000	0.000	0.000	0.000
GR	712.000	320.000	710.000	390.000	708.000	420.000	706.000	460.000	704.500	480.000
GR	704.000	500.000	702.800	502.000	702.200	504.000	702.700	507.000	703.600	508.000
GR	704.400	528.000	706.000	660.000	708.000	770.000	710.000	890.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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

*PROF 1

CCHV= 0.100 CEHV= 0.300

*SECNO 1.000

SURVEY SEC. #1 150 FT. U/S OF ST. JOE RIVER

1.00	4.62	658.82	0.00	657.90	659.11	0.29	0.00	0.00	656.60
395.	6.	387.	2.	4.	89.	2.	0.	0.	657.30
0.00	1.31	4.37	1.01	0.100	0.060	0.100	0.000	654.20	2045.97
0.008150	0.	0.	0.	0	0	4	0.00	37.49	2083.46

*SECNO 1.200

XXXXX

1.20	4.77	659.67	0.00	0.00	659.93	0.26	0.82	0.00	657.30
395.	6.	386.	2.	5.	93.	2.	0.	0.	658.00
0.01	1.25	4.14	0.99	0.100	0.060	0.100	0.000	654.90	2045.70
0.006838	80.	110.	140.	2	0	0	0.00	38.01	2083.71

*SECNO 1.500

XXXXX

1.50	4.73	660.43	0.00	0.00	660.70	0.27	0.77	0.00	658.10
395.	6.	387.	2.	5.	92.	2.	0.	0.	658.80
0.01	1.27	4.20	0.99	0.100	0.060	0.100	0.000	655.70	2045.77
0.007139	110.	110.	110.	2	0	0	0.00	37.88	2083.65

*SECNO 2.000

XXXXX

2.00	4.50	661.30	0.00	0.00	661.62	0.32	0.90	0.02	659.20
395.	5.	388.	2.	4.	85.	2.	1.	0.	659.90
0.02	1.36	4.58	1.03	0.100	0.060	0.100	0.000	656.80	2046.19
0.009464	110.	110.	110.	2	0	0	0.00	37.07	2083.25

*SECNO 2.100

XXXXX

2.10	3.54	661.84	0.00	0.00	662.62	0.78	0.86	0.14	660.70
395.	2.	393.	0.	1.	55.	0.	1.	0.	661.40
0.02	1.88	7.12	0.99	0.100	0.060	0.100	0.000	658.30	2047.88
0.040758	50.	50.	50.	2	0	0	0.00	33.76	2081.64

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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	FI MIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 2.200									
XXXXX									
2.20	3.77	663.67	0.00	0.00	664.28	0.61	1.64	0.02	662.30
395.	3.	392.	0.	2.	62.	0.	1.	0.	663.00
0.03	1.73	6.30	1.07	0.100	0.060	0.100	0.000	659.90	2047.48
0.027081	50.	50.	50.	3	0	0	0.00	34.55	2082.03
*SECNO 2.300									
XXXXX									
2.30	3.68	665.08	0.00	0.00	665.75	0.67	1.45	0.02	663.80
395.	3.	392.	0.	1.	60.	0.	1.	0.	664.50
0.03	1.79	6.58	1.05	0.100	0.060	0.100	0.000	661.40	2047.63
0.031340	50.	50.	50.	3	0	0	0.00	34.26	2081.88
*SECNO 2.400									
XXXXX									
2.40	3.79	666.89	0.00	0.00	667.49	0.61	1.73	0.01	665.50
395.	3.	392.	0.	2.	62.	0.	1.	0.	666.20
0.03	1.73	6.27	1.07	0.100	0.060	0.100	0.000	663.10	2047.46
0.026676	60.	60.	60.	1	0	0	0.00	34.58	2082.04
*SECNO 2.450									
XXXXX									
2.45	3.46	667.56	0.00	0.00	668.25	0.68	0.73	0.02	667.50
395.	0.	395.	0.	0.	60.	0.	1.	0.	667.50
0.03	0.02	6.62	0.02	0.100	0.060	0.000	0.000	664.10	499.82
0.022398	30.	30.	30.	2	0	0	0.00	23.29	523.12

CCHV= 0.300 CEHV= 0.500

*SECNO 2.500

3301 HV CHANGED MORE THAN HVINS

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3693 PROBABLE MINIMUM SPECIFIC ENERGY

3720 CRITICAL DEPTH ASSUMED

5.0 Fl. D/S FROM CEMENT WEIR ** FLOW IS AROUND WEIR IN EROSION CHANNEL

2.50	3.82	668.92	668.92	0.00	670.46	1.53	0.82	0.42	676.50
395.	0.	395.	0.	0.	40.	0.	1.	0.	677.80
0.03	0.00	9.93	0.00	0.000	0.060	0.000	0.000	665.10	516.24
0.052899	25.	25.	25.	20	8	0	0.00	13.13	529.37

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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 2.600

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD= 667.80 MAX ELLC= 677.80

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 677.80 ELREA= 677.80

SEC. 2.6 IN CONCRETE WEIR 1 FT. FROM D/S FACE

2.60	5.40	670.50	670.50	0.00	672.83	2.33	0.35	0.40	676.50
395.	0.	395.	0.	0.	32.	0.	1.	0.	677.80
0.03	0.00	12.25	0.00	0.000	0.038	0.000	0.000	665.10	515.72
0.094073	5.	5.	5.	20	12	0	-32.47	19.86	535.58

*SECNO 2.700

3301 HV CHANGED MORE THAN HVINS

3370 NORMAL BRIDGE,NRD= 17 MIN ELTRD= 667.80 MAX ELLC= 677.80

3685 20 TRIALS ATTEMPTED WSEL,CWSEL

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 677.80 ELREA= 677.80

SEC. 2.7 IN CONCRETE WEIR 1 FT. FROM U/S FACE

2.70	6.70	671.80	670.50	0.00	673.18	1.37	0.07	0.29	676.50
395.	0.	395.	0.	0.	42.	0.	1.	0.	677.80
0.03	0.00	9.40	0.00	0.000	0.038	0.000	0.000	665.10	515.34
0.048171	1.	1.	1.	23	12	0	-49.68	21.50	536.84

*SECNO 2.800

3301 HV CHANGED MORE THAN HVINS

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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= 677.80 ELREA= 677.80

U/S FACE OF WEIR - FLOW AROUND END OF EXPOSED WIER

2.80	8.30	673.40	0.00	0.00	673.55	0.15	0.01	0.37	676.50
395.	0.	395.	0.	0.	128.	0.	1.	0.	677.80
0.03	0.00	3.09	0.00	0.000	0.060	0.000	0.000	665.10	514.88
0.002627	1.	1.	1.	3	0	0	0.00	24.38	539.27

*SECNO 3.000

SURVEY SEC. #3

3.00	6.36	673.56	0.00	0.00	673.91	0.35	0.26	0.10	684.60
395.	0.	395.	0.	0.	83.	0.	1.	1.	682.30
0.04	0.00	4.76	0.00	0.000	0.060	0.000	0.000	667.20	524.53
0.008247	90.	60.	40.	3	0	0	0.00	21.45	545.98

CCHV= 0.100 CEHV= 0.300

*SECNO 3.050

XXXXX

3.05	5.36	673.96	0.00	0.00	674.55	0.59	0.57	0.07	684.50
395.	0.	395.	0.	0.	64.	0.	1.	1.	682.50
0.04	0.00	6.16	0.00	0.000	0.060	0.000	0.000	668.60	526.44
0.016448	40.	50.	50.	2	0	0	0.00	19.33	545.77

*SECNO 3.100

XXXXX

3.10	4.91	674.81	0.00	0.00	675.55	0.74	0.95	0.05	684.50
395.	0.	395.	0.	0.	57.	0.	1.	1.	682.60
0.04	0.00	6.90	0.00	0.000	0.060	0.000	0.000	669.90	527.53
0.022440	40.	50.	50.	2	0	0	0.00	18.70	546.23

*SECNO 3.150

XXXXX

3.15	4.65	675.95	0.00	0.00	676.70	0.75	1.15	0.00	684.50
395.	0.	395.	0.	0.	57.	0.	1.	1.	682.60
0.04	0.00	6.95	0.00	0.000	0.060	0.000	0.000	671.30	526.90
0.023502	20.	50.	55.	2	0	0	0.00	19.56	546.46

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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	IBC	ICONT	CORAR	TOPWID	ENDST
*SECNO 3.200									
XXXXX									
3.20	4.44	677.14	0.00	0.00	677.89	0.75	1.19	0.00	684.50
395.	0.	395.	0.	0.	57.	0.	2.	1.	682.90
0.04	0.00	6.96	0.00	0.000	0.060	0.000	0.000	672.70	526.22
0.024003	20.	50.	55.	2	0	0	0.00	20.25	546.47
*SECNO 3.250									
XXXXX									
3.25	4.34	678.34	0.00	0.00	679.03	0.69	1.14	0.01	684.50
395.	0.	395.	0.	0.	59.	0.	2.	1.	683.10
0.05	0.00	6.69	0.00	0.000	0.060	0.000	0.000	674.00	526.50
0.021559	40.	50.	50.	2	0	0	0.00	20.73	547.23
*SECNO 3.300									
XXXXX									
3.30	4.04	679.44	0.00	0.00	680.24	0.79	1.18	0.03	684.50
395.	0.	395.	0.	0.	55.	0.	2.	1.	683.20
0.05	0.00	7.15	0.00	0.000	0.060	0.000	0.000	675.40	527.11
0.025841	40.	50.	50.	2	0	0	0.00	20.31	547.43
*SECNO 3.350									
XXXXX									
3.35	3.96	680.76	0.00	0.00	681.70	0.94	1.42	0.04	684.50
395.	0.	395.	0.	0.	51.	0.	2.	1.	683.40
0.05	0.00	7.77	0.00	0.000	0.060	0.000	0.000	676.80	528.64
0.031286	50.	50.	50.	2	0	0	0.00	19.16	547.80
*SECNO 3.400									
XXXXX									
3.40	4.20	682.30	0.00	0.00	683.25	0.95	1.55	0.00	684.50
395.	0.	395.	0.	0.	50.	0.	2.	1.	683.50
0.05	0.00	7.83	0.00	0.000	0.060	0.000	0.000	678.10	530.43
0.030577	50.	50.	50.	2	0	0	0.00	18.29	548.72

CCHV= 0.300 CEHV= 0.500
*SECNO 4.000

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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	XLORR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,FLLEA= 685.20 ELREA= 687.60

SURVEY SEC. #4 D/S FACE OF CONCRETE FOOT BRIDGE

4.00	4.33	683.83	0.00	0.00	684.76	0.93	1.51	0.01	685.20
395.	0.	395.	0.	0.	51.	0.	2.	1.	687.70
0.05	0.00	7.75	0.00	0.000	0.060	0.000	0.000	679.50	502.17
0.029751	50.	50.	50.	1	0	0	0.00	18.29	520.46

*SECNO 4.200

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 685.20 MAX ELLC= 685.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,FLLEA= 685.20 ELREA= 687.60

1 FT. U/S OF D/S FACE OF CONCRETE FOOT BRIDGE

4.20	4.37	683.87	0.00	0.00	684.79	0.92	0.02	0.00	685.20
395.	0.	395.	0.	0.	51.	0.	2.	1.	687.70
0.05	0.00	7.68	0.00	0.000	0.038	0.000	0.000	679.50	502.13
0.011695	1.	1.	1.	0	0	0	0.00	18.40	520.54

*SECNO 4.300

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 685.20 MAX ELLC= 685.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,FLLEA= 685.20 ELREA= 687.60

1 FT. D/S FROM U/S FACE OF CONCRETE FOOT BRIDGE

4.30	4.64	684.14	0.00	0.00	684.89	0.75	0.05	0.05	685.20
395.	0.	395.	0.	0.	57.	0.	2.	1.	687.70
0.05	0.00	6.96	0.00	0.000	0.038	0.000	0.000	679.50	501.71
0.009198	5.	5.	5.	2	0	0	0.00	19.77	521.48

*SECNO 4.400

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,FLLEA= 685.20 ELREA= 687.60

U/S FACE OF CONCRETE FOOT BRIDGE

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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	RANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
4.40	4.65	684.15	0.00	0.00	684.90	0.75	0.01	0.00	685.20
395.	0.	395.	0.	0.	57.	0.	2.	1.	687.70
0.05	0.00	6.95	0.00	0.000	0.060	0.000	0.000	679.50	501.70
0.022869	1.	1.	1.	0	0	0	0.00	19.79	521.49

*SECNO 4.450
XXXXX

4.45	4.51	685.71	0.00	0.00	686.86	1.15	1.76	0.20	686.50
395.	0.	395.	0.	0.	46.	0.	2.	1.	687.50
0.06	0.00	8.60	0.00	0.000	0.060	0.000	0.000	681.20	2001.40
0.038774	60.	60.	60.	3	0	0	0.00	16.45	2017.85

*SECNO 4.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 688.20 ELREA= 688.20

SURVEY SEC. #4.5 WOOD FOOT BRIDGE D/S FACE

4.50	4.88	687.58	0.00	0.00	688.64	1.05	1.75	0.03	688.20
395.	0.	395.	0.	0.	48.	0.	2.	1.	688.20
0.06	0.00	8.24	0.00	0.000	0.060	0.000	0.000	682.70	500.80
0.031810	50.	50.	50.	3	0	0	0.00	15.00	515.80

*SECNO 4.600

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 688.20 MAX ELLC= 687.20

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 688.50 ELREA= 688.50

WOOD FOOT BRIDGE 1 FT. U/S OF D/S FACE

4.60	4.77	687.47	687.05	0.00	688.82	1.35	0.04	0.15	688.20
395.	0.	395.	0.	0.	42.	0.	2.	1.	688.20
0.06	0.00	9.34	0.00	0.000	0.039	0.000	0.000	682.70	500.95
0.041630	1.	1.	1.	4	10	0	-3.92	14.81	515.76

*SECNO 4.700

3370 NORMAL BRIDGE,NRD= 0 MIN ELTRD= 688.20 MAX ELLC= 687.20

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROR	ALOB	ACH	AROB	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= 688.50 ELREA= 688.50

WOOD FOOT BRIDGE 1 FT. D/S FROM U/S FACE

4.70	4.91	687.61	687.05	0.00	688.97	1.35	0.15	0.00	688.20
395.	0.	395.	0.	0.	42.	0.	2.	1.	688.20
0.06	0.00	9.34	0.00	0.000	0.039	0.000	0.000	682.70	500.78
0.041630	4.	4.	4.	2	10	0	-5.97	15.03	515.81

*SECNO 4.800

3301 HV CHANGED MORE THAN HVINS

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 692.00 ELREA= 692.00

WOOD FOOT BRIDGE U/S FACE

4.80	5.93	688.63	0.00	0.00	689.22	0.59	0.02	0.23	688.20
395.	0.	395.	0.	0.	64.	0.	2.	1.	688.20
0.06	0.00	6.14	0.00	0.000	0.060	0.000	0.000	682.70	500.00
0.013372	1.	1.	1.	4	0	0	0.00	16.00	516.00

*SECNO 4.900

XXXXX

4.90	5.08	690.28	0.00	0.00	690.84	0.55	1.61	0.01	690.30
395.	0.	366.	29.	0.	59.	21.	2.	1.	689.00
0.06	0.00	6.20	1.39	0.000	0.060	0.100	0.000	685.20	1995.02
0.014149	200.	120.	40.	3	0	0	0.00	56.36	2051.38

*SECNO 5.000

SURVEY SEC. #5 D/S FACE OF 3X5 CONCRETE BOX CULVERT @TOPTNABEE RD.

5.00	4.70	691.90	0.00	0.00	692.17	0.27	1.25	0.09	690.30
395.	75.	295.	24.	55.	62.	26.	2.	1.	691.30
0.07	1.36	4.73	0.95	0.100	0.060	0.100	0.000	687.20	421.62
0.010383	150.	100.	80.	2	0	0	0.00	153.66	575.27

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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	1.86	3.00	0.00	5.00	0.00	15.00	0.00	687.20	687.20

*SECNO 5.200
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
711.93	692.17	0.00	326.	69.	15.	15.	690.20	691.50

3470 ENCROACHMENT STATIONS= 430.0 570.0 TYPE= 1 TARGET= 140.000
U/S FACE OF 3X5 CONCRETE BOX CULVERT @TOPIABEE RD.

5.20	5.18	692.38	0.00	0.00	692.52	0.14	0.35	0.00	690.30
395.	99.	244.	52.	71.	65.	51.	3.	1.	691.30
0.08	1.40	3.74	1.02	0.100	0.060	0.100	0.000	687.20	430.00
0.005621	67.	67.	67.	2	0	8	0.00	135.66	565.66

*SECNO 6.000

3470 ENCROACHMENT STATIONS= 440.0 542.0 TYPE= 1 TARGET= 102.000
SURVEY SEC. #6

6.00	5.30	692.80	0.00	0.00	692.92	0.12	0.39	0.01	690.40
395.	141.	196.	58.	103.	52.	45.	3.	2.	690.70
0.09	1.37	3.74	1.27	0.100	0.060	0.100	0.000	687.50	440.00
0.004062	60.	80.	140.	2	0	0	0.00	102.00	542.00

*SECNO 7.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 691.80 ELREA= 694.00

SURVEY SEC. #7 D/S FACE OF BOX CULVERT ON WESAW RD.

7.00	6.14	693.24	0.00	0.00	693.57	0.33	0.55	0.10	691.40
395.	87.	308.	0.	60.	60.	0.	4.	2.	689.10
0.09	1.43	5.14	0.00	0.100	0.060	0.000	0.000	687.10	421.11
0.006229	110.	110.	120.	2	0	0	0.00	90.89	512.00

FORM 141 % GB
PRINTED IN U.S.A.

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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	RWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.65	3.00	0.00	5.20	0.00	22.60	0.00	687.40	687.40

*SECNO 7.200
PRESSURE AND WEIR FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
701.07	693.87	0.00	274.	122.	23.	22.	691.70	692.00

3470 ENCROACHMENT STATIONS= 410.0 520.0 TYPE= 1 TARGET= 110.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 692.00 ELREA= 695.80

U/S FACE OF BOX CULVERT ON WESAW RD.

7.20	6.72	693.82	0.00	0.00	693.99	0.17	0.42	0.00	691.40
395.	128.	267.	0.	112.	67.	0.	4.	2.	689.10
0.10	1.15	3.99	0.00	0.100	0.060	0.000	0.000	687.10	410.00
0.003242	18.	18.	18.	2	0	7	0.00	102.00	512.00

*SECNO 8.000
SURVEY SEC. #8

8.00	4.14	695.04	0.00	0.00	695.09	0.05	1.06	0.04	693.90
395.	288.	107.	0.	246.	39.	1.	5.	3.	694.70
0.15	1.17	2.74	0.28	0.100	0.060	0.100	0.000	690.90	323.75
0.003873	300.	300.	300.	2	0	0	0.00	195.93	519.68

CCHV= 0.100 CEHV= 0.300

*SECNO 8.500
XXXXX

8.50	3.74	696.04	0.00	0.00	696.19	0.15	1.07	0.03	694.90
395.	206.	180.	9.	129.	42.	8.	6.	4.	695.20
0.17	1.60	4.29	1.06	0.100	0.060	0.100	0.000	692.30	379.76
0.010372	180.	180.	180.	2	0	0	0.00	152.56	532.32

FORM 1411 5 GB
PRINTED IN U.S.A.

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	WIN	ELMIN	SSTA
SLOPE	XLORL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
*SECNO 8.750									
XXXXX									
8.75	4.03	697.03	0.00	0.00	697.45	0.43	1.18	0.08	696.00
395.	102.	279.	14.	58.	45.	9.	6.	4.	696.10
0.17	1.75	6.15	1.52	0.100	0.060	0.100	0.000	693.00	424.65
0.019456	75.	90.	115.	3	0	0	0.00	108.68	533.33
CCHV= 0.300 CEHV= 0.500									
*SECNO 9.000									
SURVEY SEC. #9 D/S FACE OF CONCRETE BOX CULVERT ON CHICAGO RD.									
9.00	4.70	698.40	0.00	0.00	698.80	0.40	1.34	0.01	697.00
395.	41.	321.	33.	30.	58.	24.	7.	4.	697.00
0.18	1.36	5.58	1.38	0.100	0.060	0.100	0.000	693.70	455.10
0.011976	75.	90.	115.	1	0	0	0.00	107.29	562.39
SPECIAL BRIDGE									
SB	XK	XKOR	COEQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.00	1.90	3.00	0.00	4.20	0.00	17.60	0.00	693.70	693.70
*SECNO 9.200									
PRESSURE AND WEIR FLOW									
EGPRS	EGLWC	H3	QWEIR	QPR	BARFA	TRAPEZOID AREA		ELLC	ELTRD
713.26	699.17	0.00	174.	221.	18.	18.		697.90	702.20
U/S FACE OF CONCRETE BOX CULVERT ON CHICAGO RD.									
9.20	9.30	703.00	0.00	0.00	703.06	0.06	4.26	0.00	701.00
395.	47.	304.	44.	72.	134.	62.	7.	4.	697.00
0.18	0.65	2.28	0.71	0.035	0.030	0.035	0.000	693.70	423.91
0.000204	55.	55.	55.	2	0	7	0.00	154.36	578.27
*SECNO 9.500									
3420 ENCROACHMENT STATIONS= 415.0 580.0 TYPE= 1 TARGET= 165.000									
SURVEY SEC. #9.5 D/S FACE OF 44X72 IN. C.M.P. ARCH @CHICAGO RD.									
9.50	9.38	703.08	0.00	0.00	703.08	0.00	0.00	0.02	697.80
395.	222.	22.	150.	443.	46.	311.	7.	4.	697.80
0.19	0.50	0.49	0.48	0.035	0.030	0.035	0.000	693.70	415.00
0.000018	10.	10.	10.	1	0	0	0.00	165.00	580.00

FORM 1411 5 GB
PRINTED IN U.S.A.

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 9.600

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 697.80 MAX ELLC= 697.40

3470 ENCROACHMENT STATIONS= 415.0 580.0 TYPE= 1 TARGET= 165.000
1' U/S FROM D/S FACE OF 44X72 IN. C.M.P. ARCH @ CHICAGO RD.

9.60	9.38	703.08	0.00	0.00	703.08	0.00	0.00	0.00	697.80
395.	225.	18.	152.	444.	44.	311.	7.	4.	697.80
0.19	0.51	0.42	0.49	0.035	0.024	0.035	0.000	693.70	415.00
0.000018	1.	1.	1.	0	0	0	-1.96	165.00	580.00

*SECNO 9.700

3370 NORMAL BRIDGE,NRD= 4 MIN ELTRD= 697.80 MAX ELLC= 697.40

3470 ENCROACHMENT STATIONS= 415.0 580.0 TYPE= 1 TARGET= 165.000
1' D/S FROM U/S FACE OF 44X72 IN. C.M.P. ARCH @ CHICAGO RD.

9.70	9.38	703.08	0.00	0.00	703.08	0.00	0.00	0.00	697.80
395.	225.	18.	152.	444.	44.	311.	7.	4.	697.80
0.20	0.51	0.42	0.49	0.035	0.024	0.035	0.000	693.70	415.00
0.000018	12.	12.	12.	0	0	0	-1.96	165.00	580.00

*SECNO 9.800

3470 ENCROACHMENT STATIONS= 415.0 580.0 TYPE= 1 TARGET= 165.000
U/S FACE OF 44X72 IN. C.M.P. ARCH @ CHICAGO RD.

9.80	9.38	703.08	0.00	0.00	703.08	0.00	0.00	0.00	697.80
395.	222.	22.	150.	444.	46.	311.	7.	4.	697.80
0.20	0.50	0.49	0.48	0.035	0.030	0.035	0.000	693.20	415.00
0.000018	1.	1.	1.	0	0	0	0.00	165.00	580.00

1490 NH CARD USED
*SECNO 10.000
SURVEY SEC. #10

10.00	7.88	703.08	0.00	0.00	703.08	0.00	0.00	0.00	697.20
395.	204.	41.	150.	776.	37.	492.	11.	5.	696.00
0.31	0.26	1.10	0.30	0.114	0.030	0.078	0.000	695.20	329.22
0.000047	140.	155.	175.	0	0	0	0.00	353.13	682.35

FORM 1411 4 68
PRINTED IN U.S.A.

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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      FLMIN      SSTA
     SLOPE     XLOBL     XLCH      XLOBR     ITRIAL     IBC       ICONT     CORAR    TOPWID     ENDST

 CCHV=   0.100 CEHV=   0.300
 1490 NH CARD USED
 *SECNO 11.000
        SURVEY SEC. #11
      11.00      4.51    703.11      0.00      0.00    703.15      0.04      0.06      0.01    700.60
       395.       116.      115.      164.      102.       47.      169.       20.       8.    701.00
       0.40       1.13      2.45      0.97     0.060     0.045     0.072     0.000    698.60    430.21
   0.001084       530.      460.      380.         1         0         0      0.00    222.36    652.57

 *SECNO 11.250
      11.25      4.45    703.25      0.00      0.00    703.38      0.13      0.20      0.03    700.80
       395.       146.      182.       66.       82.       46.      136.       20.       9.    701.40
       0.41       1.79      3.99      0.49     0.060     0.045     0.172     0.000    698.80    438.27
   0.002989       100.      125.      130.         2         0         0      0.00    249.70    687.97


 CCHV=   0.300 CEHV=   0.500
 *SECNO 11.500

 3470 ENCROACHMENT STATIONS=     390.0     614.0  TYPE=       1  TARGET=     224.000
        SURVEY SEC. #11.5 SMALL FOOT BRIDGE W/ STEEL LC D/S FACE
      11.50      4.54    703.64      0.00      0.00    703.76      0.12      0.37      0.00    701.40
       395.       135.      171.       88.       70.       46.       76.       21.       9.    701.90
       0.43       1.93      3.71      1.16     0.060     0.045     0.060     0.000    699.10    444.84
   0.003342       100.      125.      130.         2         0         0      0.00    169.16    614.00

 *SECNO 11.600

 3370 NORMAL BRIDGE,NRD=  12 MIN ELTRD=  701.70 MAX FLLC=  704.20

 3470 ENCROACHMENT STATIONS=     390.0     614.0  TYPE=       1  TARGET=     224.000
          1 FT. INSIDE FOOT BRIDGE FROM D/S FACE
      11.60      4.48    703.58      0.00      0.00    703.82      0.24      0.00      0.06    701.40
       395.       103.      217.       75.       53.       43.       54.       21.       9.    701.90
       0.43       1.94      5.06      1.38     0.060     0.037     0.060     0.000    699.10    445.44
   0.007157         1.        1.        1.         2         0         0    -33.88    168.56    614.00

 *SECNO 11.700
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FORM 1411 ¼ GB
PRINTED IN U.S.A.

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

3370 NORMAL BRIDGE,NRD= 12 MIN ELTRD= 701.70 MAX ELLC= 704.20

3470 ENCROACHMENT STATIONS= 390.0 614.0 TYPE= 1 TARGET= 224.000
1 FT. INSIDE OF U/S FACE

11.70	4.62	703.72	0.00	0.00	703.90	0.18	0.06	0.02	701.40
395.	104.	200.	91.	59.	45.	66.	21.	9.	701.90
0.43	1.76	4.46	1.37	0.060	0.037	0.060	0.000	699.10	443.59
0.005401	9.	9.	9.	2	0	0	-38.00	170.41	614.00

*SECNO 11.800

3470 ENCROACHMENT STATIONS= 390.0 614.0 TYPE= 1 TARGET= 224.000
U/S FACE OF WOOD AND STEEL FOOT BRIDGE

11.80	4.75	703.85	0.00	0.00	703.93	0.08	0.00	0.03	701.40
395.	133.	154.	109.	82.	50.	99.	21.	9.	701.90
0.43	1.62	3.08	1.09	0.060	0.045	0.060	0.000	699.10	441.89
0.002089	1.	1.	1.	2	0	0	0.00	172.11	614.00

*SECNO 11.900
XXXXX

11.90	3.92	704.52	0.00	0.00	704.70	0.18	0.72	0.05	702.70
395.	115.	143.	137.	52.	29.	86.	22.	10.	702.80
0.45	2.23	5.01	1.59	0.060	0.045	0.060	0.000	700.60	453.02
0.005867	220.	220.	220.	2	0	0	0.00	187.90	640.92

*SECNO 12.000
SURVEY SEC. #12

12.00	3.58	705.78	0.00	0.00	705.91	0.13	1.19	0.01	704.00
395.	86.	109.	200.	42.	24.	114.	23.	11.	703.60
0.47	2.06	4.56	1.75	0.060	0.045	0.060	0.000	702.20	462.92
0.005034	220.	220.	220.	3	0	0	0.00	179.02	641.94

FORM 1411 5 GB
PRINTED IN U.S.A.

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Niles, City of

3) WATERCOURSE: St. Joseph River, West Trib

4) DOCUMENT TYPE: Summary

00BREAK00

THIS RUN EXECUTED 23-MAY-85 13:09:26

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

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

WEST TRIBUTARY OF ST.

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	654.20	210.00	657.93	0.00	658.11	81.53	3.41	62.98	23.26
	1.000	0.00	0.00	0.00	654.20	340.00	658.59	0.00	658.85	80.67	4.11	86.28	37.85
	1.000	0.00	0.00	0.00	654.20	395.00	658.84	0.00	659.12	80.69	4.36	95.22	43.97
	1.000	0.00	0.00	0.00	654.20	500.00	659.26	0.00	659.60	80.02	4.76	111.70	55.89
	1.200	110.00	0.00	0.00	654.90	210.00	658.76	0.00	658.92	66.01	3.20	67.38	25.85
	1.200	110.00	0.00	0.00	654.90	340.00	659.43	0.00	659.66	67.70	3.90	91.40	41.32
	1.200	110.00	0.00	0.00	654.90	395.00	659.67	0.00	659.93	68.22	4.14	100.67	47.82
	1.200	110.00	0.00	0.00	654.90	500.00	660.11	0.00	660.42	68.88	4.55	117.47	60.25
	1.500	110.00	0.00	0.00	655.70	210.00	659.51	0.00	659.68	71.61	3.28	65.64	24.82
	1.500	110.00	0.00	0.00	655.70	340.00	660.19	0.00	660.42	71.31	3.96	89.85	40.26
	1.500	110.00	0.00	0.00	655.70	395.00	660.44	0.00	660.70	71.32	4.20	99.19	46.77
	1.500	110.00	0.00	0.00	655.70	500.00	660.87	0.00	661.19	71.33	4.60	116.10	59.20
	2.000	110.00	0.00	0.00	656.80	210.00	660.41	0.00	660.62	101.06	3.64	58.82	20.89
	2.000	110.00	0.00	0.00	656.80	340.00	661.06	0.00	661.34	96.07	4.33	81.49	34.69
	2.000	110.00	0.00	0.00	656.80	395.00	661.30	0.00	661.62	94.64	4.58	90.35	40.60
	2.000	110.00	0.00	0.00	656.80	500.00	661.72	0.00	662.10	92.54	4.98	106.41	51.98
*	2.100	50.00	0.00	0.00	658.30	210.00	661.15	661.15	661.74	560.80	6.21	33.94	8.87
	2.100	50.00	0.00	0.00	658.30	340.00	661.64	661.59	662.38	452.05	6.93	49.72	15.99
	2.100	50.00	0.00	0.00	658.30	395.00	661.84	0.00	662.62	407.59	7.12	56.43	19.57
	2.100	50.00	0.00	0.00	658.30	500.00	662.19	0.00	663.06	354.61	7.50	68.55	26.55
	2.200	50.00	0.00	0.00	659.90	210.00	663.12	0.00	663.45	223.87	4.63	45.84	14.04
	2.200	50.00	0.00	0.00	659.90	340.00	663.54	0.00	664.06	253.01	5.81	59.68	21.37
	2.200	50.00	0.00	0.00	659.90	395.00	663.67	0.00	664.28	270.81	6.30	64.26	24.00
	2.200	50.00	0.00	0.00	659.90	500.00	663.91	0.00	664.68	296.31	7.10	72.63	29.05
	2.300	50.00	0.00	0.00	661.40	210.00	664.43	0.00	664.87	351.85	5.33	39.68	11.20
	2.300	50.00	0.00	0.00	661.40	340.00	664.90	0.00	665.51	323.58	6.26	55.22	18.90
	2.300	50.00	0.00	0.00	661.40	395.00	665.08	0.00	665.75	313.38	6.58	61.34	22.31
	2.300	50.00	0.00	0.00	661.40	500.00	665.40	0.00	666.18	302.49	7.14	72.15	28.75

FORM 1411 5 GB
PRINTED IN U.S.A.

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
	2.400	60.00	0.00	0.00	663.10	210.00	666.28	0.00	666.63	245.60	4.76	44.55	13.40
	2.400	60.00	0.00	0.00	663.10	340.00	666.72	0.00	667.25	258.81	5.85	59.26	21.13
	2.400	60.00	0.00	0.00	663.10	395.00	666.89	0.00	667.49	266.77	6.27	64.57	24.18
	2.400	60.00	0.00	0.00	663.10	500.00	667.17	0.00	667.90	268.16	6.89	75.01	30.53
	2.450	30.00	0.00	0.00	664.10	210.00	666.85	0.00	667.20	103.01	4.78	43.98	16.98
	2.450	30.00	0.00	0.00	664.10	340.00	667.37	0.00	667.96	208.77	6.16	55.23	23.53
	2.450	30.00	0.00	0.00	664.10	395.00	667.56	0.00	668.25	223.99	6.62	59.65	26.39
	2.450	30.00	0.00	0.00	664.10	500.00	667.84	0.00	668.73	253.99	7.56	66.44	31.37
*	2.500	25.00	0.00	0.00	665.10	210.00	667.78	667.78	668.84	538.12	8.27	25.40	9.05
*	2.500	25.00	0.00	0.00	665.10	340.00	668.61	668.61	670.02	532.83	9.53	35.68	14.73
*	2.500	25.00	0.00	0.00	665.10	395.00	668.93	668.93	670.46	528.63	9.92	39.80	17.18
*	2.500	25.00	0.00	0.00	665.10	500.00	669.49	669.49	671.22	519.51	10.54	47.43	21.94
*	2.600	5.00	667.80	677.80	665.10	210.00	668.23	668.23	670.15	982.44	11.12	18.88	6.70
*	2.600	5.00	667.80	677.80	665.10	340.00	669.92	669.92	672.14	956.73	11.96	28.42	10.99
*	2.600	5.00	667.80	677.80	665.10	395.00	670.50	670.50	672.83	940.73	12.25	32.25	12.88
*	2.600	5.00	667.80	677.80	665.10	500.00	671.42	671.42	673.97	930.03	12.81	39.04	16.40
*	2.700	1.00	667.80	677.80	665.10	210.00	669.39	668.23	670.47	494.23	8.37	25.10	9.45
*	2.700	1.00	667.80	677.80	665.10	340.00	671.20	669.92	672.49	481.37	9.10	37.35	15.50
*	2.700	1.00	667.80	677.80	665.10	395.00	671.80	670.50	673.18	481.71	9.40	42.01	18.00
*	2.700	1.00	667.80	677.80	665.10	500.00	672.86	671.42	674.35	470.41	9.81	50.98	23.05
	2.800	1.00	0.00	0.00	665.10	210.00	670.61	0.00	670.76	45.79	3.14	66.97	31.04
	2.800	1.00	0.00	0.00	665.10	340.00	672.70	0.00	672.84	27.84	3.05	111.44	64.44
	2.800	1.00	0.00	0.00	665.10	395.00	673.40	0.00	673.55	26.27	3.09	127.93	77.06
	2.800	1.00	0.00	0.00	665.10	500.00	674.61	0.00	674.76	24.32	3.13	159.76	101.39
	3.000	60.00	0.00	0.00	667.20	210.00	670.94	0.00	671.47	220.18	5.87	35.78	14.15
	3.000	60.00	0.00	0.00	667.20	340.00	672.87	0.00	673.25	100.86	4.95	68.73	33.85
	3.000	60.00	0.00	0.00	667.20	395.00	673.56	0.00	673.91	82.47	4.76	82.97	43.50
	3.000	60.00	0.00	0.00	667.20	500.00	674.74	0.00	675.06	61.78	4.53	110.44	63.61
	3.050	50.00	0.00	0.00	668.60	210.00	672.10	0.00	672.74	278.75	6.39	32.85	12.58
	3.050	50.00	0.00	0.00	668.60	340.00	673.38	0.00	674.01	198.98	6.37	53.41	24.10
	3.050	50.00	0.00	0.00	668.60	395.00	673.96	0.00	674.55	164.48	6.16	64.13	30.80
	3.050	50.00	0.00	0.00	668.60	500.00	675.02	0.00	675.54	119.84	5.81	86.02	45.67
	3.100	50.00	0.00	0.00	669.90	210.00	673.48	0.00	674.05	244.72	6.06	34.64	13.42
	3.100	50.00	0.00	0.00	669.90	340.00	674.41	0.00	675.13	239.68	6.81	49.96	21.96
	3.100	50.00	0.00	0.00	669.90	395.00	674.81	0.00	675.55	224.40	6.90	57.24	26.37
	3.100	50.00	0.00	0.00	669.90	500.00	675.62	0.00	676.34	185.92	6.83	73.17	36.67
	3.150	50.00	0.00	0.00	671.30	210.00	674.73	0.00	675.29	252.06	6.01	34.92	13.23
	3.150	50.00	0.00	0.00	671.30	340.00	675.62	0.00	676.33	240.90	6.73	50.49	21.91
	3.150	50.00	0.00	0.00	671.30	395.00	675.95	0.00	676.70	235.02	6.95	56.84	25.77
	3.150	50.00	0.00	0.00	671.30	500.00	676.57	0.00	677.37	218.34	7.20	69.42	33.84

FORM 1401 ½ GS
PRINTED IN U.S.A.

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
3.200	50.00	0.00	0.00	672.70	210.00	676.01	0.00	676.55	250.40	5.91	35.55	17.27
3.200	50.00	0.00	0.00	672.70	340.00	676.84	0.00	677.54	241.33	6.69	50.85	21.89
3.200	50.00	0.00	0.00	672.70	395.00	677.14	0.00	677.89	240.03	6.96	56.79	25.50
3.200	50.00	0.00	0.00	672.70	500.00	677.67	0.00	678.51	233.68	7.35	68.06	32.71
3.250	50.00	0.00	0.00	674.00	210.00	677.23	0.00	677.71	213.21	5.56	37.79	14.38
3.250	50.00	0.00	0.00	674.00	340.00	678.04	0.00	678.68	214.76	6.40	53.11	23.20
3.250	50.00	0.00	0.00	674.00	395.00	678.34	0.00	679.03	215.59	6.69	59.08	26.90
3.250	50.00	0.00	0.00	674.00	500.00	678.84	0.00	679.64	217.35	7.16	69.86	33.91
3.300	50.00	0.00	0.00	675.40	210.00	678.36	0.00	678.93	268.10	6.03	34.82	12.83
3.300	50.00	0.00	0.00	675.40	340.00	679.15	0.00	679.89	260.48	6.87	49.46	21.07
3.300	50.00	0.00	0.00	675.40	395.00	679.44	0.00	680.24	258.41	7.15	55.22	24.57
3.300	50.00	0.00	0.00	675.40	500.00	679.95	0.00	680.84	254.17	7.60	65.83	31.36
3.350	50.00	0.00	0.00	676.80	210.00	679.74	0.00	680.38	307.05	6.43	32.64	11.98
3.350	50.00	0.00	0.00	676.80	340.00	680.49	0.00	681.35	311.95	7.43	45.73	19.25
3.350	50.00	0.00	0.00	676.80	395.00	680.76	0.00	681.70	312.86	7.77	50.87	22.33
3.350	50.00	0.00	0.00	676.80	500.00	681.23	0.00	682.31	314.07	8.30	60.21	28.21
3.400	50.00	0.00	0.00	678.10	210.00	681.23	0.00	681.88	292.99	6.47	32.46	12.27
3.400	50.00	0.00	0.00	678.10	340.00	682.02	0.00	682.89	302.62	7.49	45.39	19.54
3.400	50.00	0.00	0.00	678.10	395.00	682.30	0.00	683.25	305.77	7.83	50.43	22.59
3.400	50.00	0.00	0.00	678.10	500.00	682.78	0.00	683.87	310.50	8.39	59.56	28.38
4.000	50.00	0.00	0.00	679.50	210.00	682.69	0.00	683.36	294.48	6.55	32.07	12.24
4.000	50.00	0.00	0.00	679.50	340.00	683.52	0.00	684.39	299.07	7.51	45.29	19.66
4.000	50.00	0.00	0.00	679.50	395.00	683.83	0.00	684.76	297.51	7.75	50.97	22.90
4.000	50.00	0.00	0.00	679.50	500.00	684.41	0.00	685.41	293.94	8.04	62.21	29.16
4.200	1.00	685.20	685.20	679.50	210.00	682.78	0.00	683.39	104.83	6.27	33.48	20.51
4.200	1.00	685.20	685.20	679.50	340.00	683.63	0.00	684.43	106.24	7.18	47.35	32.99
4.200	1.00	685.20	685.20	679.50	395.00	683.87	0.00	684.79	116.95	7.68	51.41	36.53
4.200	1.00	685.20	685.20	679.50	500.00	684.52	0.00	685.45	107.03	7.73	64.70	48.33
4.300	5.00	685.20	685.20	679.50	210.00	682.92	0.00	683.46	88.42	5.90	35.62	22.33
4.300	5.00	685.20	685.20	679.50	340.00	683.80	0.00	684.51	91.29	6.76	50.30	35.59
4.300	5.00	685.20	685.20	679.50	395.00	684.14	0.00	684.89	91.98	6.96	56.79	41.19
4.300	5.00	685.20	685.20	679.50	500.00	684.72	0.00	685.53	91.24	7.25	69.00	52.35
4.400	1.00	0.00	0.00	679.50	210.00	682.94	0.00	683.48	217.98	5.87	35.76	14.22
4.400	1.00	0.00	0.00	679.50	340.00	683.82	0.00	684.52	225.90	6.74	50.45	22.62
4.400	1.00	0.00	0.00	679.50	395.00	684.15	0.00	684.90	228.69	6.95	56.85	26.12
4.400	1.00	0.00	0.00	679.50	500.00	684.74	0.00	685.55	226.04	7.23	69.18	33.26
4.450	60.00	0.00	0.00	681.20	210.00	684.56	0.00	685.42	424.63	7.44	28.23	10.19
4.450	60.00	0.00	0.00	681.20	340.00	685.40	0.00	686.47	398.29	8.30	40.95	17.04
4.450	60.00	0.00	0.00	681.20	395.00	685.71	0.00	686.86	387.74	8.60	45.95	20.06
4.450	60.00	0.00	0.00	681.20	500.00	686.22	0.00	687.52	381.27	9.15	54.67	25.61

FORM 1411 X 08
PRINTED IN U.S.A.

SECNO	XLCH	ELTRN	ELLC	EL MIN	Q	CWSEL	CRIWS	FG	10K*S	VCH	AREA	.01K
4.500	50.00	0.00	0.00	682.70	210.00	686.48	0.00	687.13	264.67	6.49	32.37	12.91
4.500	50.00	0.00	0.00	682.70	340.00	687.30	0.00	688.24	302.11	7.77	43.77	19.56
4.500	50.00	0.00	0.00	682.70	395.00	687.58	0.00	688.64	318.10	8.24	47.94	22.15
4.500	50.00	0.00	0.00	682.70	500.00	688.08	0.00	689.34	342.50	9.01	55.50	27.02
4.600	1.00	688.20	687.20	682.70	210.00	686.51	0.00	687.15	107.86	6.40	32.79	20.22
4.600	1.00	688.20	687.20	682.70	340.00	687.30	0.00	688.30	308.44	8.04	42.31	19.36
4.600	1.00	688.20	687.20	682.70	395.00	687.47	687.05	688.82	416.30	9.34	42.31	19.36
4.600	1.00	688.20	687.20	682.70	500.00	687.67	687.20	689.84	667.04	11.82	42.31	19.36
4.700	3.50	688.20	687.20	682.70	210.00	686.62	0.00	687.20	95.81	6.14	34.22	21.45
4.700	3.50	688.20	687.20	682.70	340.00	687.41	0.00	688.41	308.44	8.04	42.31	19.36
4.700	3.50	688.20	687.20	682.70	395.00	687.61	687.05	688.97	416.30	9.34	42.31	19.36
4.700	3.50	688.20	687.20	682.70	500.00	687.91	687.20	690.08	667.04	11.82	42.31	19.36
4.800	1.00	0.00	0.00	682.70	210.00	686.64	0.00	687.22	224.40	6.11	34.35	14.02
4.800	1.00	0.00	0.00	682.70	340.00	687.89	0.00	688.54	183.25	6.47	52.59	25.12
4.800	1.00	0.00	0.00	682.70	395.00	688.63	0.00	689.22	133.72	6.14	64.31	34.16
4.800	1.00	0.00	0.00	682.70	500.00	690.09	0.00	690.59	76.25	5.70	87.68	57.26
4.900	120.00	0.00	0.00	685.20	210.00	689.03	0.00	689.46	152.89	5.29	39.72	16.98
4.900	120.00	0.00	0.00	685.20	340.00	689.96	0.00	690.51	147.74	6.07	65.22	27.97
4.900	120.00	0.00	0.00	685.20	395.00	690.28	0.00	690.84	141.49	6.20	80.12	33.21
4.900	120.00	0.00	0.00	685.20	500.00	691.21	0.00	691.45	60.70	4.71	229.04	64.17
5.000	100.00	0.00	0.00	687.20	210.00	690.55	0.00	690.96	144.80	5.12	41.03	17.45
5.000	100.00	0.00	0.00	687.20	340.00	691.64	0.00	691.95	120.63	4.90	107.37	30.96
5.000	100.00	0.00	0.00	687.20	395.00	691.90	0.00	692.17	103.83	4.73	143.47	38.76
5.000	100.00	0.00	0.00	687.20	500.00	692.06	0.00	692.38	125.71	5.37	167.85	44.60
5.200	66.50	691.50	690.20	687.20	210.00	691.93	0.00	692.03	40.22	2.89	104.67	33.11
5.200	66.50	691.50	690.20	687.20	340.00	692.28	0.00	692.41	48.66	3.42	174.30	48.74
5.200	66.50	691.50	690.20	687.20	395.00	692.38	0.00	692.52	56.21	3.74	186.72	52.69
5.200	66.50	691.50	690.20	687.20	500.00	692.49	0.00	692.68	74.26	4.39	203.01	58.02
6.000	80.00	0.00	0.00	687.50	210.00	692.22	0.00	692.30	27.37	2.79	142.49	40.14
6.000	80.00	0.00	0.00	687.50	340.00	692.65	0.00	692.76	36.91	3.48	186.20	55.96
6.000	80.00	0.00	0.00	687.50	395.00	692.80	0.00	692.92	40.62	3.74	201.13	61.98
6.000	80.00	0.00	0.00	687.50	500.00	693.04	0.00	693.18	47.55	4.19	225.70	72.51
7.000	110.00	0.00	0.00	687.10	210.00	692.52	0.00	692.70	37.81	3.61	79.78	34.15
7.000	110.00	0.00	0.00	687.10	340.00	693.06	0.00	693.35	56.34	4.77	106.27	45.30
7.000	110.00	0.00	0.00	687.10	395.00	693.24	0.00	693.57	62.29	5.14	120.46	50.05
7.000	110.00	0.00	0.00	687.10	500.00	693.56	0.00	693.93	69.89	5.67	157.11	59.81
7.200	18.00	692.00	691.70	687.10	210.00	693.16	0.00	693.26	19.31	2.83	113.24	47.79
7.200	18.00	692.00	691.70	687.10	340.00	693.65	0.00	693.81	28.90	3.69	162.11	63.24
7.200	18.00	692.00	691.70	687.10	395.00	693.82	0.00	693.99	32.42	3.99	178.82	69.38
7.200	18.00	692.00	691.70	687.10	500.00	693.97	0.00	694.20	43.95	4.73	194.23	75.42

FORM 1411 1/4 GB
PRINTED IN U.S.A.

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRTWS	FG	10K*S	VCH	AREA	.01K
8.000	300.00	0.00	0.00	690.90	210.00	694.24	0.00	694.34	88.37	3.44	135.76	22.34
8.000	300.00	0.00	0.00	690.90	340.00	694.84	0.00	694.89	43.39	2.77	248.25	51.61
8.000	300.00	0.00	0.00	690.90	395.00	695.04	0.00	695.09	38.73	2.74	285.55	63.47
8.000	300.00	0.00	0.00	690.90	500.00	695.37	0.00	695.41	33.96	2.76	349.73	85.80
8.500	180.00	0.00	0.00	692.30	210.00	695.69	0.00	695.79	74.06	3.27	126.10	24.40
8.500	180.00	0.00	0.00	692.30	340.00	695.92	0.00	696.07	102.69	4.13	161.06	33.55
8.500	180.00	0.00	0.00	692.30	395.00	696.04	0.00	696.19	103.72	4.29	179.27	38.78
8.500	180.00	0.00	0.00	692.30	500.00	696.27	0.00	696.43	102.10	4.51	213.78	49.48
8.750	90.00	0.00	0.00	693.00	210.00	696.47	0.00	696.92	215.63	5.53	46.91	14.30
8.750	90.00	0.00	0.00	693.00	340.00	696.90	0.00	697.31	190.91	5.90	99.32	24.61
8.750	90.00	0.00	0.00	693.00	395.00	697.03	0.00	697.45	194.56	6.15	112.98	28.32
8.750	90.00	0.00	0.00	693.00	500.00	697.24	0.00	697.70	201.30	6.58	136.31	35.24
9.000	90.00	0.00	0.00	693.70	210.00	697.87	0.00	698.16	90.76	4.33	48.49	22.04
9.000	90.00	0.00	0.00	693.70	340.00	698.24	0.00	698.62	114.20	5.28	95.16	31.82
9.000	90.00	0.00	0.00	693.70	395.00	698.40	0.00	698.80	119.76	5.58	111.49	36.09
9.000	90.00	0.00	0.00	693.70	500.00	698.67	0.00	699.10	127.03	6.03	139.58	44.36
9.200	55.00	702.20	697.90	693.70	210.00	702.02	0.00	702.07	1.51	1.79	117.05	170.92
9.200	55.00	702.20	697.90	693.70	340.00	702.87	0.00	702.92	1.71	2.06	248.34	260.18
9.200	55.00	702.20	697.90	693.70	395.00	703.00	0.00	703.06	2.04	2.28	268.13	276.81
9.200	55.00	702.20	697.90	693.70	500.00	703.21	0.00	703.29	2.66	2.65	302.55	306.73
9.500	10.00	0.00	0.00	693.70	210.00	702.03	0.00	702.07	3.27	1.93	123.95	116.16
9.500	10.00	0.00	0.00	693.70	340.00	702.93	0.00	702.93	0.15	0.44	776.13	890.08
9.500	10.00	0.00	0.00	693.70	395.00	703.08	0.00	703.08	0.18	0.49	799.71	934.56
9.500	10.00	0.00	0.00	693.70	500.00	703.31	0.00	703.32	0.24	0.58	840.15	1012.76
9.600	1.00	697.80	697.40	693.70	210.00	702.03	0.00	702.08	3.79	1.76	122.00	107.88
9.600	1.00	697.80	697.40	693.70	340.00	702.93	0.00	702.93	0.15	0.38	775.56	883.15
9.600	1.00	697.80	697.40	693.70	395.00	703.08	0.00	703.08	0.18	0.42	799.20	927.58
9.600	1.00	697.80	697.40	693.70	500.00	703.31	0.00	703.32	0.25	0.50	838.21	1002.73
9.700	11.50	697.80	697.40	693.70	210.00	702.03	0.00	702.08	3.78	1.76	122.10	108.02
9.700	11.50	697.80	697.40	693.70	340.00	702.93	0.00	702.94	0.15	0.38	775.57	883.17
9.700	11.50	697.80	697.40	693.70	395.00	703.08	0.00	703.08	0.18	0.42	799.21	927.60
9.700	11.50	697.80	697.40	693.70	500.00	703.31	0.00	703.32	0.25	0.50	838.24	1002.79
9.800	1.00	0.00	0.00	693.70	210.00	702.03	0.00	702.08	3.26	1.92	124.08	116.34
9.800	1.00	0.00	0.00	693.70	340.00	702.93	0.00	702.94	0.15	0.44	777.53	892.70
9.800	1.00	0.00	0.00	693.70	395.00	703.08	0.00	703.08	0.18	0.49	801.17	937.33
9.800	1.00	0.00	0.00	693.70	500.00	703.31	0.00	703.32	0.24	0.58	840.20	1012.86
10.000	155.00	0.00	0.00	695.20	210.00	702.10	0.00	702.10	0.28	0.76	927.73	400.39
10.000	155.00	0.00	0.00	695.20	340.00	702.94	0.00	702.94	0.39	0.98	1255.07	547.33
10.000	155.00	0.00	0.00	695.20	395.00	703.08	0.00	703.08	0.47	1.10	1305.42	575.04
10.000	155.00	0.00	0.00	695.20	500.00	703.32	0.00	703.32	0.64	1.31	1390.50	622.61

FORM 1411 1K GB
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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIMS	EG	10K*8	VCH	AREA	.01K
11.000	460.00	0.00	0.00	698.60	210.00	702.10	0.00	702.16	20.78	2.73	146.31	46.07
11.000	460.00	0.00	0.00	698.60	340.00	702.96	0.00	703.00	10.17	2.31	286.93	106.61
11.000	460.00	0.00	0.00	698.60	395.00	703.11	0.00	703.15	10.84	2.45	317.55	119.99
11.000	460.00	0.00	0.00	698.60	500.00	703.37	0.00	703.41	11.67	2.67	381.24	146.35
11.250	125.00	0.00	0.00	698.80	210.00	702.37	0.00	702.52	39.46	3.79	104.11	33.43
11.250	125.00	0.00	0.00	698.80	340.00	703.09	0.00	703.21	28.31	3.77	225.78	63.90
11.250	125.00	0.00	0.00	698.80	395.00	703.25	0.00	703.38	29.89	3.99	263.30	72.25
11.250	125.00	0.00	0.00	698.80	500.00	703.52	0.00	703.64	26.92	3.98	336.88	96.38
11.500	125.00	0.00	0.00	699.10	210.00	702.90	0.00	703.07	53.78	3.89	77.30	28.64
11.500	125.00	0.00	0.00	699.10	340.00	703.46	0.00	703.59	36.11	3.71	164.21	56.58
11.500	125.00	0.00	0.00	699.10	395.00	703.64	0.00	703.76	33.42	3.71	192.17	68.33
11.500	125.00	0.00	0.00	699.10	500.00	703.87	0.00	703.99	32.78	3.87	232.63	87.33
11.600	1.00	701.70	704.20	699.10	210.00	702.83	0.00	703.15	88.52	5.08	59.06	22.72
11.600	1.00	701.70	704.20	699.10	340.00	703.39	0.00	703.67	78.69	5.19	124.22	38.33
11.600	1.00	701.70	704.20	699.10	395.00	703.58	0.00	703.82	71.57	5.06	150.53	46.69
11.600	1.00	701.70	704.20	699.10	500.00	703.81	0.00	704.05	72.99	5.23	183.03	58.52
11.700	9.00	701.70	704.20	699.10	210.00	702.98	0.00	703.24	70.33	4.64	66.23	25.04
11.700	9.00	701.70	704.20	699.10	340.00	703.57	0.00	703.75	54.97	4.43	148.06	45.86
11.700	9.00	701.70	704.20	699.10	395.00	703.72	0.00	703.90	54.01	4.46	170.43	53.75
11.700	9.00	701.70	704.20	699.10	500.00	703.94	0.00	704.12	57.51	4.70	201.45	65.93
11.800	1.00	0.00	0.00	699.10	210.00	703.19	0.00	703.30	28.48	3.09	101.23	39.35
11.800	1.00	0.00	0.00	699.10	340.00	703.72	0.00	703.79	20.39	2.96	207.58	75.30
11.800	1.00	0.00	0.00	699.10	395.00	703.85	0.00	703.93	20.89	3.08	230.79	86.42
11.800	1.00	0.00	0.00	699.10	500.00	704.07	0.00	704.15	22.25	3.33	268.30	106.01
11.900	220.00	0.00	0.00	700.60	210.00	704.04	0.00	704.22	61.06	4.57	88.65	26.87
11.900	220.00	0.00	0.00	700.60	340.00	704.38	0.00	704.57	62.00	5.00	140.84	43.18
11.900	220.00	0.00	0.00	700.60	395.00	704.52	0.00	704.70	58.67	5.01	165.97	51.57
11.900	220.00	0.00	0.00	700.60	500.00	704.75	0.00	704.92	53.54	5.01	212.51	68.33
12.000	220.00	0.00	0.00	702.20	210.00	705.31	0.00	705.43	47.45	3.96	106.38	30.48
12.000	220.00	0.00	0.00	702.20	340.00	705.67	0.00	705.79	48.55	4.37	160.68	48.80
12.000	220.00	0.00	0.00	702.20	395.00	705.78	0.00	705.91	50.34	4.56	179.82	55.67
12.000	220.00	0.00	0.00	702.20	500.00	705.96	0.00	706.10	52.98	4.87	214.69	68.69

FORM 1411 5-GB
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WEST TRIBUTARY OF ST.

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	1.000	210.00	657.93	0.00	0.00	0.03	34.42	0.00
	1.000	340.00	658.59	0.66	0.00	1.59	36.69	0.00
	1.000	395.00	658.83	0.24	0.00	0.03	37.52	0.00
	1.000	500.00	659.26	0.43	0.00	-0.74	39.01	0.00
	1.200	210.00	658.76	0.00	0.83	0.00	34.86	110.00
	1.200	340.00	659.43	0.67	0.84	0.00	37.17	110.00
	1.200	395.00	659.67	0.25	0.84	0.00	38.02	110.00
	1.200	500.00	660.11	0.43	0.85	0.00	39.51	110.00
	1.500	210.00	659.51	0.00	0.75	0.00	34.69	110.00
	1.500	340.00	660.19	0.68	0.76	0.00	37.02	110.00
	1.500	395.00	660.44	0.25	0.76	0.00	37.88	110.00
	1.500	500.00	660.87	0.44	0.77	0.00	39.39	110.00
	2.000	210.00	660.41	0.00	0.90	0.00	34.00	110.00
	2.000	340.00	661.06	0.65	0.87	0.00	36.23	110.00
	2.000	395.00	661.30	0.24	0.86	0.00	37.07	110.00
	2.000	500.00	661.72	0.42	0.85	0.00	38.53	110.00
*	2.100	210.00	661.15	0.00	0.73	0.00	30.37	50.00
	2.100	340.00	661.64	0.49	0.58	0.00	33.07	50.00
	2.100	395.00	661.84	0.20	0.54	0.00	33.76	50.00
	2.100	500.00	662.19	0.36	0.47	0.00	34.98	50.00
	2.200	210.00	663.12	0.00	1.98	0.00	32.66	50.00
	2.200	340.00	663.54	0.42	1.90	0.00	34.09	50.00
	2.200	395.00	663.67	0.13	1.83	0.00	34.55	50.00
	2.200	500.00	663.91	0.24	1.72	0.00	35.38	50.00
	2.300	210.00	664.43	0.00	1.31	0.00	31.73	50.00
	2.300	340.00	664.90	0.47	1.37	0.00	33.64	50.00
	2.300	395.00	665.08	0.18	1.41	0.00	34.26	50.00
	2.300	500.00	665.40	0.31	1.49	0.00	35.33	50.00
	2.400	210.00	666.28	0.00	1.85	0.00	32.52	60.00
	2.400	340.00	666.72	0.44	1.82	0.00	34.05	60.00
	2.400	395.00	666.89	0.17	1.80	0.00	34.58	60.00
	2.400	500.00	667.17	0.28	1.77	0.00	35.61	60.00
	2.450	210.00	666.85	0.00	0.57	0.00	21.05	30.00
	2.450	340.00	667.37	0.52	0.65	0.00	22.60	30.00
	2.450	395.00	667.56	0.19	0.68	0.00	23.29	30.00
	2.450	500.00	667.84	0.28	0.67	0.00	24.71	30.00

FORM 1411 5-GB
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	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
*	2.500	210.00	667.78	0.00	0.93	0.00	12.03	25.00
*	2.500	340.00	668.61	0.83	1.23	0.00	12.83	25.00
*	2.500	395.00	668.93	0.32	1.36	0.00	13.13	25.00
*	2.500	500.00	669.49	0.57	1.65	0.00	13.68	25.00
*	2.600	210.00	668.23	0.00	0.45	0.00	12.46	5.00
*	2.600	340.00	669.92	1.69	1.31	0.00	17.22	5.00
*	2.600	395.00	670.50	0.57	1.57	0.00	19.86	5.00
*	2.600	500.00	671.42	0.93	1.93	0.00	21.03	5.00
*	2.700	210.00	669.39	0.00	1.15	0.00	13.57	1.00
*	2.700	340.00	671.20	1.82	1.28	0.00	20.75	1.00
*	2.700	395.00	671.80	0.60	1.31	0.00	21.50	1.00
*	2.700	500.00	672.86	1.05	1.43	0.00	22.82	1.00
	2.800	210.00	670.61	0.00	1.23	0.00	20.01	1.00
	2.800	340.00	672.70	2.09	1.49	0.00	22.62	1.00
	2.800	395.00	673.40	0.71	1.60	0.00	24.38	1.00
	2.800	500.00	674.61	1.20	1.75	0.00	28.51	1.00
	3.000	210.00	670.94	0.00	0.33	0.00	14.57	60.00
	3.000	340.00	672.87	1.93	0.17	0.00	19.63	60.00
	3.000	395.00	673.56	0.69	0.16	0.00	21.45	60.00
	3.000	500.00	674.74	1.18	0.14	0.00	24.58	60.00
	3.050	210.00	672.10	0.00	1.16	0.00	14.32	50.00
	3.050	340.00	673.38	1.28	0.51	0.00	17.80	50.00
	3.050	395.00	673.96	0.58	0.40	0.00	19.33	50.00
	3.050	500.00	675.02	1.06	0.27	0.00	22.01	50.00
	3.100	210.00	673.48	0.00	1.38	0.00	14.95	50.00
	3.100	340.00	674.41	0.93	1.03	0.00	17.60	50.00
	3.100	395.00	674.81	0.40	0.85	0.00	18.70	50.00
	3.100	500.00	675.62	0.81	0.60	0.00	20.88	50.00
	3.150	210.00	674.73	0.00	1.25	0.00	16.06	50.00
	3.150	340.00	675.62	0.89	1.22	0.00	18.65	50.00
	3.150	395.00	675.95	0.32	1.14	0.00	19.56	50.00
	3.150	500.00	676.57	0.62	0.95	0.00	21.24	50.00
	3.200	210.00	676.01	0.00	1.28	0.00	17.08	50.00
	3.200	340.00	676.84	0.83	1.22	0.00	19.41	50.00
	3.200	395.00	677.14	0.29	1.19	0.00	20.25	50.00
	3.200	500.00	677.67	0.54	1.11	0.00	21.74	50.00
	3.250	210.00	677.23	0.00	1.22	0.00	17.75	50.00
	3.250	340.00	678.04	0.81	1.20	0.00	19.94	50.00
	3.250	395.00	678.34	0.29	1.20	0.00	20.73	50.00
	3.250	500.00	678.84	0.51	1.17	0.00	22.08	50.00

FORM 1411 X CB
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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
3.300	210.00	678.36	0.00	1.13	0.00	17.41	50.00
3.300	340.00	679.15	0.79	1.11	0.00	19.54	50.00
3.300	395.00	679.44	0.29	1.11	0.00	20.31	50.00
3.300	500.00	679.95	0.51	1.10	0.00	21.67	50.00
3.350	210.00	679.74	0.00	1.38	0.00	16.43	50.00
3.350	340.00	680.49	0.75	1.34	0.00	18.45	50.00
3.350	395.00	680.76	0.27	1.32	0.00	19.16	50.00
3.350	500.00	681.23	0.47	1.29	0.00	20.39	50.00
3.400	210.00	681.23	0.00	1.49	0.00	15.51	50.00
3.400	340.00	682.02	0.78	1.53	0.00	17.56	50.00
3.400	395.00	682.30	0.28	1.53	0.00	18.29	50.00
3.400	500.00	682.78	0.48	1.55	0.00	19.56	50.00
4.000	210.00	682.69	0.00	1.46	0.00	14.93	50.00
4.000	340.00	683.52	0.82	1.50	0.00	17.13	50.00
4.000	395.00	683.83	0.31	1.53	0.00	18.29	50.00
4.000	500.00	684.41	0.58	1.63	0.00	21.06	50.00
4.200	210.00	682.78	0.00	0.09	0.00	15.18	1.00
4.200	340.00	683.63	0.85	0.11	0.00	17.45	1.00
4.200	395.00	683.87	0.24	0.04	0.00	18.40	1.00
4.200	500.00	684.52	0.65	0.12	0.00	21.63	1.00
4.300	210.00	682.92	0.00	0.14	0.00	15.55	5.00
4.300	340.00	683.80	0.88	0.17	0.00	18.11	5.00
4.300	395.00	684.14	0.34	0.27	0.00	19.77	5.00
4.300	500.00	684.72	0.58	0.19	0.00	22.57	5.00
4.400	210.00	682.94	0.00	0.02	0.00	15.58	1.00
4.400	340.00	683.82	0.88	0.02	0.00	18.15	1.00
4.400	395.00	684.15	0.33	0.02	0.00	19.79	1.00
4.400	500.00	684.74	0.59	0.02	0.00	22.61	1.00
4.450	210.00	684.56	0.00	1.61	0.00	13.92	60.00
4.450	340.00	685.40	0.84	1.58	0.00	15.93	60.00
4.450	395.00	685.71	0.31	1.56	0.00	16.45	60.00
4.450	500.00	686.22	0.52	1.49	0.00	17.33	60.00
4.500	210.00	686.48	0.00	1.92	0.00	13.20	50.00
4.500	340.00	687.30	0.82	1.90	0.00	14.54	50.00
4.500	395.00	687.58	0.28	1.87	0.00	15.00	50.00
4.500	500.00	688.08	0.50	1.86	0.00	15.80	50.00
4.600	210.00	686.51	0.00	0.04	0.00	13.25	1.00
4.600	340.00	687.30	0.78	0.00	0.00	14.53	1.00
4.600	395.00	687.47	0.17	-0.11	0.00	14.81	1.00
4.600	500.00	687.67	0.20	-0.41	0.00	15.14	1.00

FORM 1411 ½ GB
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SECND	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
4.700	210.00	686.62	0.00	0.10	0.00	13.43	3.50
4.700	340.00	687.41	0.79	0.11	0.00	14.71	3.50
4.700	395.00	687.61	0.21	0.15	0.00	15.03	3.50
4.700	500.00	687.91	0.29	0.23	0.00	15.52	3.50
4.800	210.00	686.64	0.00	0.02	0.00	13.44	1.00
4.800	340.00	687.89	1.25	0.48	0.00	15.49	1.00
4.800	395.00	688.63	0.75	1.02	0.00	16.00	1.00
4.800	500.00	690.09	1.45	2.18	0.00	16.00	1.00
4.900	210.00	689.03	0.00	2.39	0.00	15.37	120.00
4.900	340.00	689.96	0.93	2.07	0.00	38.91	120.00
4.900	395.00	690.28	0.32	1.65	0.00	56.36	120.00
4.900	500.00	691.21	0.92	1.12	0.00	267.75	120.00
5.000	210.00	690.55	0.00	1.52	0.00	15.94	100.00
5.000	340.00	691.64	1.09	1.68	0.00	125.17	100.00
5.000	395.00	691.90	0.26	1.62	0.00	153.66	100.00
5.000	500.00	692.06	0.15	0.85	0.00	169.11	100.00
5.200	210.00	691.93	0.00	1.37	0.00	69.32	66.50
5.200	340.00	692.28	0.36	0.64	0.00	132.72	66.50
5.200	395.00	692.38	0.09	0.47	0.00	135.66	66.50
5.200	500.00	692.49	0.12	0.44	0.00	139.41	66.50
6.000	210.00	692.22	0.00	0.29	0.00	102.00	80.00
6.000	340.00	692.65	0.43	0.36	0.43	102.00	80.00
6.000	395.00	692.80	0.15	0.42	0.57	102.00	80.00
6.000	500.00	693.04	0.24	0.55	0.82	102.00	80.00
7.000	210.00	692.52	0.00	0.30	0.00	45.63	110.00
7.000	340.00	693.06	0.53	0.41	0.53	61.00	110.00
7.000	395.00	693.24	0.19	0.45	0.72	90.89	110.00
7.000	500.00	693.56	0.31	0.52	1.04	141.38	110.00
7.200	210.00	693.16	0.00	0.63	0.00	77.15	18.00
7.200	340.00	693.65	0.50	0.60	0.50	102.00	18.00
7.200	395.00	693.82	0.16	0.57	0.66	102.00	18.00
7.200	500.00	693.97	0.15	0.41	0.81	102.00	18.00
8.000	210.00	694.24	0.00	1.09	0.00	180.38	300.00
8.000	340.00	694.84	0.60	1.19	0.60	191.23	300.00
8.000	395.00	695.04	0.20	1.22	0.80	195.93	300.00
8.000	500.00	695.37	0.32	1.40	1.12	203.22	300.00
8.500	210.00	695.69	0.00	1.45	0.00	146.03	180.00
8.500	340.00	695.92	0.23	1.08	0.23	150.35	180.00
8.500	395.00	696.04	0.12	1.00	0.35	152.56	180.00
8.500	500.00	696.27	0.23	0.91	0.58	156.65	180.00

FORM 1411 ¾ GB
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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
8.750	210.00	696.47	0.00	0.78	0.00	48.81	90.00
8.750	340.00	696.90	0.43	0.98	0.43	106.91	90.00
8.750	395.00	697.03	0.13	0.98	0.56	108.68	90.00
8.750	500.00	697.24	0.21	0.97	0.77	111.65	90.00
9.000	210.00	697.87	0.00	1.40	0.00	17.00	90.00
9.000	340.00	698.24	0.37	1.34	0.37	104.45	90.00
9.000	395.00	698.40	0.16	1.37	0.53	107.29	90.00
9.000	500.00	698.67	0.27	1.43	0.80	111.99	90.00
9.200	210.00	702.02	0.00	4.15	0.00	17.00	55.00
9.200	340.00	702.87	0.84	4.62	0.84	147.08	55.00
9.200	395.00	703.00	0.13	4.60	0.98	154.36	55.00
9.200	500.00	703.21	0.21	4.54	1.19	166.28	55.00
9.500	210.00	702.03	0.00	0.01	0.00	25.00	10.00
9.500	340.00	702.93	0.90	0.07	0.90	165.00	10.00
9.500	395.00	703.08	0.14	0.08	1.05	165.00	10.00
9.500	500.00	703.31	0.24	0.10	1.28	165.00	10.00
9.600	210.00	702.03	0.00	0.00	0.00	25.00	1.00
9.600	340.00	702.93	0.90	0.00	0.90	165.00	1.00
9.600	395.00	703.08	0.14	0.00	1.05	165.00	1.00
9.600	500.00	703.31	0.24	0.00	1.28	165.00	1.00
9.700	210.00	702.03	0.00	0.00	0.00	25.00	11.50
9.700	340.00	702.93	0.90	0.00	0.90	165.00	11.50
9.700	395.00	703.08	0.14	0.00	1.04	165.00	11.50
9.700	500.00	703.31	0.24	0.00	1.28	165.00	11.50
9.800	210.00	702.03	0.00	0.00	0.00	25.00	1.00
9.800	340.00	702.93	0.90	0.00	0.90	165.00	1.00
9.800	395.00	703.08	0.14	0.00	1.04	165.00	1.00
9.800	500.00	703.31	0.24	0.00	1.28	165.00	1.00
10.000	210.00	702.10	0.00	0.07	0.00	313.82	155.00
10.000	340.00	702.94	0.83	0.00	0.83	347.38	155.00
10.000	395.00	703.08	0.14	0.01	0.98	353.13	155.00
10.000	500.00	703.32	0.24	0.01	1.22	362.64	155.00
11.000	210.00	702.10	0.00	0.00	0.00	148.65	460.00
11.000	340.00	702.96	0.86	0.03	0.86	180.74	460.00
11.000	395.00	703.11	0.15	0.03	1.01	222.36	460.00
11.000	500.00	703.37	0.25	0.05	1.27	260.01	460.00
11.250	210.00	702.37	0.00	0.27	0.00	125.30	125.00
11.250	340.00	703.09	0.72	0.13	0.72	224.66	125.00
11.250	395.00	703.25	0.16	0.13	0.88	249.70	125.00
11.250	500.00	703.52	0.27	0.15	1.15	292.65	125.00

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SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
11.500	210.00	702.90	0.00	0.53	0.00	74.33	125.00
11.500	340.00	703.46	0.56	0.37	0.56	166.99	125.00
11.500	395.00	703.64	0.18	0.39	0.74	169.16	125.00
11.500	500.00	703.87	0.23	0.35	0.96	172.25	125.00
11.600	210.00	702.83	0.00	-0.07	0.00	72.12	1.00
11.600	340.00	703.39	0.56	-0.07	0.56	164.09	1.00
11.600	395.00	703.58	0.19	-0.06	0.75	168.56	1.00
11.600	500.00	703.81	0.23	-0.05	0.98	171.57	1.00
11.700	210.00	702.98	0.00	0.15	0.00	76.94	9.00
11.700	340.00	703.57	0.59	0.18	0.59	168.33	9.00
11.700	395.00	703.72	0.15	0.14	0.74	170.41	9.00
11.700	500.00	703.94	0.22	0.13	0.96	173.25	9.00
11.800	210.00	703.19	0.00	0.22	0.00	84.00	1.00
11.800	340.00	703.72	0.52	0.15	0.52	170.34	1.00
11.800	395.00	703.85	0.14	0.13	0.66	172.11	1.00
11.800	500.00	704.07	0.22	0.13	0.87	176.66	1.00
11.900	210.00	704.04	0.00	0.84	0.00	128.42	220.00
11.900	340.00	704.38	0.35	0.67	0.35	170.85	220.00
11.900	395.00	704.52	0.14	0.67	0.49	187.90	220.00
11.900	500.00	704.75	0.23	0.69	0.72	215.08	220.00
12.000	210.00	705.31	0.00	1.28	0.00	134.06	220.00
12.000	340.00	705.67	0.36	1.29	0.36	168.47	220.00
12.000	395.00	705.78	0.11	1.26	0.47	179.02	220.00
12.000	500.00	705.96	0.18	1.20	0.64	196.81	220.00

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SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 2.100 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.100 PROFILE= 1 MINIMUM SPECIFIC ENERGY

CAUTION SECNO= 2.500 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.500 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.500 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2.500 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.500 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.500 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2.500 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.500 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.500 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2.500 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.500 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.500 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 2.600 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.600 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.600 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2.600 PROFILE= 2 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.600 PROFILE= 2 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.600 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2.600 PROFILE= 3 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.600 PROFILE= 3 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.600 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2.600 PROFILE= 4 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 2.600 PROFILE= 4 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 2.600 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

CAUTION SECNO= 2.700 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2.700 PROFILE= 2 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2.700 PROFILE= 3 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 2.700 PROFILE= 4 20 TRIALS ATTEMPTED TO BALANCE WSEL

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FLOOD INSURANCE ZONE DATA FOR WEST TRIBUTARY OF ST.

FLOOD HAZARD FACTOR FOR ENTIRE REACH USING SECTIONS

SECTION NUMBER	CUMULATIVE DISTANCE	ELEVATION DIFFERENCE BETWEEN BASE FLOOD AND 10	2	0.2
1.000	0.	-0.90	-0.24	0.43
1.200	110.	-0.91	-0.25	0.43
1.500	220.	-0.93	-0.25	0.44
2.000	330.	-0.89	-0.24	0.42
2.100	380.	-0.69	-0.20	0.36
2.200	430.	-0.55	-0.13	0.24
2.300	480.	-0.65	-0.18	0.31
2.400	540.	-0.61	-0.17	0.28
2.450	570.	-0.71	-0.19	0.28
2.500	595.	-1.14	-0.32	0.57
2.600	600.	-2.26	-0.57	0.93
2.700	601.	-2.42	-0.60	1.05
2.800	602.	-2.79	-0.71	1.20
3.000	662.	-2.62	-0.69	1.18
3.050	712.	-1.86	-0.58	1.06
3.100	762.	-1.33	-0.40	0.81
3.150	812.	-1.22	-0.32	0.62
3.200	862.	-1.13	-0.29	0.54
3.250	912.	-1.11	-0.29	0.51
3.300	962.	-1.08	-0.29	0.51
3.350	1012.	-1.02	-0.27	0.47
3.400	1062.	-1.06	-0.28	0.48
4.000	1112.	-1.14	-0.31	0.58
4.200	1113.	-1.09	-0.24	0.65
4.300	1118.	-1.21	-0.34	0.58
4.400	1119.	-1.21	-0.33	0.59
4.450	1179.	-1.15	-0.31	0.52
4.500	1229.	-1.11	-0.28	0.50
4.600	1230.	-0.95	-0.17	0.20
4.700	1234.	-1.00	-0.21	0.29
4.800	1235.	-2.00	-0.75	1.45
4.900	1355.	-1.25	-0.32	0.92
5.000	1455.	-1.35	-0.26	0.15
5.200	1521.	-0.45	-0.09	0.12
6.000	1601.	-0.57	-0.15	0.24
7.000	1711.	-0.72	-0.19	0.31
7.200	1729.	-0.66	-0.16	0.15
8.000	2029.	-0.80	-0.20	0.32
8.500	2209.	-0.35	-0.12	0.23
8.750	2299.	-0.56	-0.13	0.21
9.000	2389.	-0.53	-0.16	0.27
9.200	2444.	-0.98	-0.13	0.21
9.500	2454.	-1.05	-0.14	0.24
9.600	2455.	-1.05	-0.14	0.24

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9.700	2467.	-1.04	-0.14	0.24
9.800	2468.	-1.04	-0.14	0.24
10.000	2623.	-0.98	-0.14	0.24
11.000	3083.	-1.01	-0.15	0.25
11.250	3208.	-0.88	-0.16	0.27
11.500	3333.	-0.74	-0.18	0.23
11.600	3334.	-0.75	-0.19	0.23
11.700	3343.	-0.74	-0.15	0.22
11.800	3344.	-0.66	-0.14	0.22
11.900	3564.	-0.49	-0.14	0.23
12.000	3784.	-0.47	-0.11	0.18

WEIGHTED AVG FOR REACH -0.91 -0.22 0.37

FHF FOR THE REACH = 010 WITH 92.4 PERCENT OF THE REACH WITHIN 0.5 FEET
ZONE FOR THE REACH = A 2

FORM 1411 5-GB
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00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Royalton TWP

3) WATERCOURSE: St. Joseph R.

4) DOCUMENT TYPE: 100-yr

00BREAK00

THIS RUN EXECUTED 01/24/90 17:04:44

Original FIS Data

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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    ROYALTON FIS  BERRIEN COUNTY
T2      FLOODWAY REVISION       CURRENT CONDITIONS
T3      ST JOSEPH RIVER

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     B         WSEL      FQ

       0.       2.        0.        0.   .000000       .00       .0        0.   588.310      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

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

QT      2.000 17430.000 21470.000 23150.000 27130.000      .000      .000      .000      .000      .000
NC       .000      .000      .000      .100      .300      .000      .000      .000      .000      .000
NH     5.000      .125   2200.000      .110   3800.000      .125   3845.000      .036   4334.000      .125
NH  6454.000      .000      .000      .000      .000      .000      .000      .000      .000      .000
                VALLEY SECTION I
X1      6.896    73.000  3845.000  4334.000   850.000   800.000   825.000      .000      .000      .000
X3     10.000      .000      .000  2550.000      .000  4834.000      .000      .000      .000      .000
GR    610.000      .000   585.100   200.000   585.700   400.000   585.200   600.000   586.000   800.000
GR    585.600  1000.000   586.000  1200.000   586.600  1400.000   586.500  1600.000   586.500  1800.000
GR    586.400  2000.000   585.800  2200.000   585.800  2270.000   585.800  2400.000   585.800  2600.000
GR    585.800  2800.000   585.800  3000.000   585.800  3200.000   586.000  3400.000   588.200  3600.000
GR    588.700  3770.000   588.500  3800.000   588.200  3845.000   584.100  3849.000   571.000  3854.000
GR    572.700  3874.000   570.600  3894.000   569.200  3914.000   569.000  3934.000   569.400  3954.000
GR    569.000  3974.000   569.300  3994.000   569.500  4014.000   569.600  4034.000   569.900  4054.000
GR    570.200  4074.000   570.500  4094.000   570.600  4114.000   570.800  4134.000   571.000  4154.000
GR    571.400  4174.000   571.800  4194.000   572.500  4214.000   573.400  4234.000   572.700  4254.000
GR    574.300  4274.000   574.600  4279.000   581.400  4283.000   581.900  4294.000   588.900  4334.000
GR    587.100  4479.000   588.200  4609.000   588.200  4629.000   585.500  4659.000   585.200  4679.000
GR    585.200  4699.000   585.200  4899.000   585.600  4959.000   587.200  5099.000   587.900  5299.000
GR    587.900  5479.000   586.800  5484.000   586.800  5499.000   597.400  5539.000   597.400  5584.000
GR    587.800  5634.000   588.000  5699.000   588.000  5899.000   587.000  5999.000   586.200  6099.000
GR    586.200  6299.000   586.200  6369.000   610.000  6454.000      .000      .000      .000      .000

NH      5.000      .125  2330.000      .110  3481.000      .036  3970.000      .075  5230.000      .125
NH   6755.000      .000      .000      .000      .000      .000      .000      .000      .000      .000
X1      7.052    73.000  3481.000  3970.000   750.000   825.000  1050.000      .000      .000      .000
X3     10.000      .000      .000  1550.000      .000  5320.000      .000      .000      .000      .000
GR    610.000      .000   601.700    35.000   601.500    50.000   592.600   130.000   584.700   330.000
GR    585.000   530.000   585.000   730.000   585.000   930.000   585.500  1130.000   586.700  1330.000
GR    586.500  1530.000   585.500  1730.000   585.800  1930.000   586.900  2130.000   587.000  2330.000
GR    587.000  2530.000   587.400  2630.000   585.600  2730.000   586.700  2830.000   588.800  2930.000
GR    589.300  3030.000   588.200  3130.000   588.500  3230.000   589.500  3330.000   589.100  3430.000
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GR    589.600   3450.000    588.100   3481.000    574.400   3490.000    575.800   3510.000    573.700   3530.000
GR    572.600   3650.000    572.700   3679.000    573.000   3690.000    573.300   3710.000    573.600   3730.000
GR    573.700   3750.000    573.900   3770.000    574.100   3790.000    574.500   3810.000    574.900   3830.000
GR    575.600   3850.000    576.500   3870.000    575.800   3890.000    577.400   3910.000    577.700   3915.000
GR    580.000   3919.000    580.500   3930.000    586.600   3970.000    587.400   4030.000    588.600   4130.000
GR    587.700   4230.000    587.700   4330.000    586.200   4430.000    587.200   4530.000    588.000   4630.000
GR    587.400   4730.000    587.000   4770.000    586.300   4830.000    586.100   4930.000    585.900   5030.000
GR    585.900   5230.000    585.800   5430.000    585.800   5630.000    586.100   5830.000    585.700   5845.000
GR    585.600   5940.000    585.600   6030.000    585.500   6160.000    585.300   6230.000    585.400   6430.000
GR    585.400   6485.000    591.800   6630.000    610.000   6755.000       .000      .000       .000      .000

NH      6.000       .075   1730.000       .125   2630.000       .850   3481.000       .036   3970.000       .075
NH   5430.000       .125   6755.000       .000       .000       .000       .000       .000       .000       .000
                VALLEY SECTION J
X1      7.207     78.000   3481.000   3970.000    800.000    900.000    818.000       .000       .000       .000
X3     10.000       .000       .000   1900.000       .000   5470.000       .000       .000       .000       .000
GR    610.000       .000    601.700     35.000    601.500     50.000    592.600    130.000    584.700    330.000
GR    585.000    530.000    585.000    730.000    585.000    930.000    585.500   1130.000    586.700   1330.000
GR    586.500   1530.000    585.500   1730.000    585.800   1930.000    586.900   2130.000    587.000   2330.000
GR    587.000   2530.000    587.400   2630.000    585.600   2730.000    586.700   2830.000    588.800   2930.000
GR    589.300   3030.000    588.200   3130.000    588.500   3230.000    589.500   3330.000    589.100   3430.000
GR    589.600   3450.000    588.100   3481.000    578.400   3490.000    578.000   3510.000    577.700   3530.000
GR    576.200   3550.000    576.100   3570.000    576.500   3590.000    576.100   3610.000    576.400   3630.000
GR    576.600   3650.000    576.700   3670.000    577.000   3690.000    577.200   3710.000    577.600   3730.000
GR    577.700   3750.000    577.900   3770.000    578.100   3790.000    578.500   3810.000    578.900   3830.000
GR    579.600   3850.000    580.500   3870.000    579.800   3890.000    581.400   3910.000    581.700   3915.000
GR    584.000   3919.000    584.500   3930.000    586.600   3970.000    587.400   4030.000    588.600   4130.000
GR    587.700   4230.000    587.700   4330.000    586.200   4430.000    587.200   4530.000    588.000   4630.000
GR    587.400   4730.000    587.000   4770.000    586.300   4830.000    586.100   4930.000    585.900   5030.000
GR    585.900   5230.000    585.800   5430.000    585.800   5630.000    586.100   5830.000    585.700   5845.000
GR    585.600   5940.000    585.600   6030.000    585.500   6160.000    585.300   6230.000    585.400   6430.000
GR    585.400   6485.000    591.800   6630.000    610.000   6755.000       .000      .000       .000      .000

NC       .125       .125       .035       .100       .300       .000       .000       .000       .000       .000
                VALLEY SECTION K
X1      7.801     42.000   1077.000   1393.000   3150.000   3100.000   3135.000       .000       .000       .000
X3     10.000       .000       .000    250.000       .000   1743.000       .000       .000       .000       .000
GR    594.700       .000    594.100    100.000    588.700    200.000    588.400    300.000    587.800    400.000
GR    588.400    500.000    587.800    600.000    588.600    700.000    587.000    800.000    590.100    892.000
GR    589.000    930.000    585.800    956.000    584.600   1000.000    586.500   1077.000    582.000   1080.000
GR    579.000   1090.000    576.200   1100.000    576.600   1120.000    575.300   1140.000    575.500   1160.000
GR    575.100   1180.000    574.300   1200.000    574.400   1220.000    575.000   1240.000    575.100   1260.000
GR    574.600   1280.000    574.200   1300.000    573.900   1320.000    574.200   1340.000    575.300   1360.000
GR    580.600   1380.000    582.200   1389.000    589.500   1393.000    589.500   1496.000    591.100   1525.000
GR    589.600   1600.000    588.000   1700.000    589.200   1860.000    591.300   1900.000    593.300   2000.000
GR    596.400   2072.000    605.200   2100.000       .000       .000       .000       .000       .000       .000

NH      4.000       .100   1198.000       .125   1345.000       .034   1661.000       .125   1812.000       .000
                VALLEY SECTION L
X1      7.934     45.000   1345.000   1661.000    550.000    700.000    700.000       .000       .000       .000
X3     10.000       .000       .000    646.000       .000       .000       .000       .000       .000       .000
GR    610.000       .000    599.700     30.000    596.000    200.000    593.200    400.000    591.800    440.000
GR    588.900    480.000    588.900    600.000    587.800    800.000    588.600   1050.000    589.300   1135.000
GR    587.200   1140.000    589.600   1150.000    589.900   1160.000    589.000   1198.000    585.800   1224.000
1
  01/24/90    17:04:44                                                                                  PAGE    3


GR    584.600   1268.000    586.500   1345.000    581.900   1348.000    578.900   1358.000    576.100   1368.000
GR    576.500   1388.000    575.200   1408.000    575.400   1428.000    575.000   1448.000    574.200   1468.000
GR    574.300   1488.000    574.900   1508.000    575.000   1528.000    574.500   1548.000    574.100   1568.000
GR    573.800   1588.000    574.100   1608.000    575.200   1628.000    580.700   1648.000    582.100   1657.000
GR    589.500   1661.000    589.500   1683.000    591.100   1689.000    589.600   1705.000    588.000   1726.000
GR    589.200   1760.000    591.300   1768.000    593.300   1776.000    596.400   1797.000    605.200   1812.000
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NH	4.000	.025	964.000	.125	1085.000	.034	1401.000	.125	1552.000	.000
		VALLEY SECTION M								
X1	7.945	42.000	1085.000	1401.000	60.000	60.000	60.000	.000	.000	.000
X3	10.000	.000	.000	386.000	.000	.000	.000	.000	.000	.000
GR	601.700	.000	598.000	100.000	595.250	200.000	592.500	300.000	591.000	400.000
GR	590.250	500.000	589.900	600.000	589.750	700.000	589.950	800.000	589.800	900.000
GR	589.000	938.000	585.800	964.000	584.600	1008.000	586.500	1085.000	581.900	1088.000
GR	578.900	1098.000	576.100	1108.000	576.500	1128.000	575.200	1148.000	575.400	1168.000
GR	575.000	1188.000	574.200	1208.000	574.300	1228.000	574.900	1248.000	575.000	1268.000
GR	574.500	1288.000	574.100	1308.000	573.800	1328.000	574.100	1348.000	575.200	1368.000
GR	580.700	1388.000	582.100	1397.000	589.500	1401.000	589.500	1423.000	591.100	1429.000
GR	589.600	1445.000	588.000	1466.000	589.200	1500.000	591.300	1508.000	593.300	1516.000
GR	596.400	1537.000	605.200	1552.000	.000	.000	.000	.000	.000	.000
NC	.125	.125	.034	.100	.300	.000	.000	.000	.000	.000
X1	7.956	45.000	1345.000	1661.000	.000	.000	.000	.000	.000	.000
X3	10.000	.000	.000	646.000	.000	.000	.000	.000	.000	.000
GR	610.000	.000	599.700	30.000	596.000	200.000	593.200	400.000	591.800	440.000
GR	588.900	480.000	588.900	600.000	587.800	800.000	588.600	1050.000	589.300	1135.000
GR	587.200	1140.000	589.600	1150.000	589.900	1160.000	589.000	1198.000	585.800	1224.000
GR	584.600	1268.000	586.500	1345.000	581.900	1348.000	578.900	1358.000	576.100	1368.000
GR	576.500	1388.000	575.200	1408.000	575.400	1428.000	575.000	1448.000	574.200	1468.000
GR	574.300	1488.000	574.900	1508.000	575.000	1528.000	574.500	1548.000	574.100	1568.000
GR	573.800	1588.000	574.100	1608.000	575.200	1628.000	580.700	1648.000	582.100	1657.000
GR	589.500	1661.000	589.500	1683.000	591.100	1689.000	589.600	1705.000	588.000	1726.000
GR	589.200	1760.000	591.300	1768.000	593.300	1776.000	596.400	1797.000	605.200	1812.000
NH	5.000	.125	440.000	.075	840.000	.125	1325.000	.034	1659.000	.125
NH	1702.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
		VALLEY SECTION N								
X1	8.241	39.000	1325.000	1659.000	1400.000	1650.000	1500.000	.000	.000	.000
X3	10.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	610.000	.000	589.000	60.000	589.000	110.000	590.200	140.000	591.400	190.000
GR	589.400	240.000	590.000	440.000	588.000	640.000	589.300	840.000	589.700	1040.000
GR	589.600	1060.000	589.600	1080.000	587.700	1085.000	589.600	1090.000	589.600	1325.000
GR	586.900	1337.000	583.800	1338.000	582.300	1345.000	578.300	1355.000	575.300	1365.000
GR	575.600	1385.000	574.500	1405.000	574.600	1425.000	574.300	1445.000	574.100	1465.000
GR	574.900	1485.000	574.900	1505.000	575.000	1525.000	574.400	1545.000	573.700	1557.000
GR	574.600	1585.000	575.600	1605.000	576.900	1625.000	579.400	1645.000	580.500	1657.000
GR	585.000	1659.000	586.300	1660.000	587.200	1665.000	612.200	1702.000	.000	.000
NH	5.000	.125	110.000	.075	1712.000	.085	1890.000	.034	2225.000	.125
NH	2267.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

1

		VALLEY SECTION O								
X1	8.345	42.000	1890.000	2225.000	500.000	550.000	550.000	.000	.000	.000
X3	10.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	610.000	.000	589.700	75.000	589.500	95.000	589.000	105.000	589.600	110.000
GR	589.000	305.000	589.600	505.000	591.600	705.000	591.800	905.000	592.000	1030.000
GR	592.100	1130.000	591.900	1230.000	590.600	1330.000	589.100	1430.000	589.400	1530.000
GR	588.600	1630.000	590.100	1712.000	589.000	1830.000	588.800	1890.000	586.900	1902.000
GR	583.800	1903.000	582.300	1910.000	578.300	1920.000	575.300	1930.000	575.600	1950.000
GR	574.500	1970.000	574.600	1990.000	574.300	2010.000	574.100	2030.000	574.900	2050.000
GR	574.900	2070.000	575.000	2090.000	574.400	2110.000	573.700	2130.000	574.600	2150.000
GR	575.600	2170.000	576.900	2190.000	579.400	2210.000	580.500	2222.000	586.300	2225.000
GR	587.200	2230.000	612.200	2267.000	.000	.000	.000	.000	.000	.000
NH	6.000	.125	110.000	.075	1905.000	.085	2254.000	.125	2255.000	.033
NH	2485.000	.125	2527.000	.000	.000	.000	.000	.000	.000	.000
		VALLEY SECTION P								
X1	8.552	42.000	2285.000	2485.000	400.000	1095.000	1095.000	.000	.000	.000
X3	10.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	610.000	.000	589.700	75.000	589.500	95.000	589.000	105.000	589.600	110.000

```
GR    589.000   305.000   589.600   505.000   591.600   705.000   593.400   905.000   591.800  1105.000
GR    590.000  1205.000   590.800  1305.000   591.400  1345.000   590.200  1465.000   591.000  1505.000
GR    589.600  1705.000   588.900  1905.000   590.100  1970.000   590.400  2005.000   589.300  2105.000
GR    590.200  2254.000   587.800  2255.000   587.800  2285.000   586.800  2292.000   587.300  2300.000
GR    574.400  2311.000   574.500  2322.000   574.200  2333.000   574.000  2344.000   574.800  2355.000
GR    574.800  2370.000   574.900  2385.000   574.300  2400.000   573.600  2415.000   574.500  2425.000
GR    575.500  2441.000   576.800  2452.000   579.300  2465.000   580.400  2482.000   586.300  2485.000
GR    587.200  2490.000   612.200  2527.000      .000      .000      .000      .000      .000      .000

QT      4.000 17260.000 21340.000 23040.000 27030.000      .000      .000      .000      .000      .000
NH      4.000      .125   660.000      .085  1258.000      .033  1625.000      .110  2625.000      .000
                VALLEY SECTION Q
X1      8.948    51.000  1258.000  1625.000   550.000  2300.000  2090.000      .000      .000      .000
X3       .000      .000      .000   200.000      .000  2225.000      .000      .000      .000      .000
GR    604.300      .000   596.000    25.000   592.200    60.000   590.600    92.000   589.100   160.000
GR    589.600   260.000   588.300   360.000   589.600   460.000   590.800   560.000   591.200   660.000
GR    591.000   760.000   591.700   860.000   591.700   960.000   591.800  1025.000   592.500  1125.000
GR    592.400  1158.000   592.200  1225.000   591.600  1258.000   578.000  1270.000   574.900  1285.000
GR    575.800  1305.000   573.400  1325.000   573.900  1345.000   574.400  1365.000   576.200  1385.000
GR    576.800  1405.000   577.600  1425.000   578.200  1445.000   578.600  1465.000   578.800  1485.000
GR    579.000  1505.000   579.200  1525.000   579.200  1545.000   579.300  1565.000   579.400  1585.000
GR    581.300  1605.000   581.600  1615.000   583.900  1622.000   589.300  1625.000   588.800  1725.000
GR    587.600  1825.000   587.300  1925.000   587.000  2012.000   584.500  2051.000   587.700  2084.000
GR    585.800  2125.000   591.100  2225.000   588.000  2325.000   589.800  2425.000   587.700  2525.000
GR    587.000  2625.000      .000      .000      .000      .000      .000      .000      .000      .000
EJ       .000      .000      .000      .000      .000      .000      .000      .000      .000      .000
1
 01/24/90    17:04:44                                                                          PAGE    5


   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


 #PROF 1

 CCHV=    .100 CEHV=    .300
 1490 NH CARD USED
 #SECNO 6.896

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=    2550.0    4834.0  TYPE=     1  TARGET=    2284.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      588.20 ELREA=      588.90

                VALLEY SECTION I
     6.90    19.31   588.31      .00   588.31   588.38      .07      .00      .00   588.20
   17430.     479.   16951.       0.    2358.    7739.       0.       0.       0.    588.90
      .00      .20     2.19      .00     .110     .036     .000     .000   569.00  2550.00
  .000073     850.     825.     800.        0        0        0      .00  1589.52  4330.63
0
 1490 NH CARD USED
 #SECNO 7.052

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=    1550.0    5320.0  TYPE=     1  TARGET=    3770.000
     7.05    15.79   588.39      .00      .00   588.48      .09      .10      .01   588.10
   17430.     557.   16241.     632.    2560.    6453.    2006.     232.      46.    586.60
      .12      .22     2.52      .31     .120     .036     .079     .000   572.60  1550.00
  .000122     750.     1050     825.        1        0        0       00  3240.77   535.00
```

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0
 1490 NH CARD USED
 #SECNO 7.207

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=    1900.0    5470.0  TYPE=     1  TARGET=    3570.000
                VALLEY SECTION J
     7.21    12.40   588.50      .00      .00   588.65      .15      .15      .02   588.10
   17430.     405.    15614.    1411.    1788.    4781.    2567.     425.     108.   586.60
      .20      .23     3.27      .55     .169     .036     .076     .000   576.10  1900.00
   .000304     800.     818.     900.        2        0        0      .00  3122.31  5470.00
0
1
  01/24/90    17:04:44                                                                  PAGE     6


    SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS    BANK ELEV
    Q        OLOB     OCH      ORGB     ALOB     ACH      AROB     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 7.801

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     250.0    1743.0  TYPE=     1  TARGET=    1493.000

 3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      586.50 ELREA=      589.50

                VALLEY SECTION K
     7.80    15.45   589.35      .00      .00   589.59      .24      .91      .03   586.50
   17430.     430.    17000.       0.    1301.    4288.       0.     954.     259.   589.50
      .42      .33     3.96      .00     .125     .035     .125     .000   573.90   250.00
   .000279    3150.    3135.    3100.        2        0        0      .00  1094.90  1392.92
0
 1490 NH CARD USED
 #SECNO 7.934

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     646.0    1812.0  TYPE=     1  TARGET=    -646.000
                VALLEY SECTION L
     7.93    15.75   589.55      .00      .00   589.77      .23      .18      .00   586.50
   17430.     422.    17000.       8.    1167.    4376.      49.    1040.     274.   589.50
      .47      .36     3.89      .17     .115     .034     .125     .000   573.80   646.00
   .000246     550.     700.     700.        0        0        0      .00  1067.32  1761.30
0
 1490 NH CARD USED
 #SECNO 7.945

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     386.0    1552.0  TYPE=     1  TARGET=    -386.000
                VALLEY SECTION M
     7.95    15.76   589.56      .00      .00   589.79      .23      .01      .00   586.50
   17430.     332.    17089.       9.     564.    4382.      50.    1047.     275.   589.50
      .48      .59     3.90      .17     .098     .034     .125     .000   573.80   911.36
   .000248      60.      60.      60.        0        0        0      .00   567.73  1501.37
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= .100 CEHV= .300
*SECNO 7.956

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 646.0 1812.0 TYPE= 1 TARGET= -646.000

7.96	15.76	589.56	.00	.00	589.79	.23	.00	.00	586.50
17430.	393.	17028.	8.	1178.	4381.	50.	1047.	275.	589.50
.48	.33	3.89	.17	.125	.034	.125	.000	573.80	646.00
.000246	0.	0.	0.	0	0	0	.00	1068.41	1761.36

0
1490 NH CARD USED
*SECNO 8.241

3265 DIVIDED FLOW

VALLEY SECTION N

8.24	16.23	589.93	.00	.00	590.15	.22	.35	.00	589.60
17430.	178.	17243.	9.	746.	4607.	26.	1234.	318.	585.00
.59	.24	3.74	.34	.084	.034	.125	.000	573.70	57.33
.000228	1400.	1500.	1650.	0	0	0	.00	1490.36	1669.05

0
1490 NH CARD USED
*SECNO 8.345

3265 DIVIDED FLOW

VALLEY SECTION O

8.35	16.36	590.06	.00	.00	590.27	.21	.12	.00	588.80
17430.	180.	17243.	8.	735.	4659.	23.	1302.	334.	586.30
.63	.24	3.70	.34	.077	.034	.125	.000	573.70	73.68
.000221	500.	550.	550.	0	0	0	.00	1338.24	2234.23

0
1490 NH CARD USED
*SECNO 8.552

3265 DIVIDED FLOW

VALLEY SECTION P

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

8.55	16.57	590.17	.00	.00	590.77	.60	.38	.12	587.80
17430.	446.	16970.	14.	807.	2693.	24.	1402.	351.	586.30
.68	.55	6.30	.59	.063	.033	.125	.000	573.60	73.27
.000653	400.	1095.	1095.	2	0	0	.00	1336.79	2494.39

0
1490 NH CARD USED

```
*SECNO 8.948

3265 DIVIDED FLOW

3280 CROSS SECTION      8.95 EXTENDED      4.28 FEET


3470 ENCROACHMENT STATIONS=     200.0    2225.0  TYPE=     1  TARGET=    2025.000
                VALLEY SECTION Q
     8.95    17.88   591.28      .00      .00   591.44      .16      .63      .04   591.60
   17260.     175.   16170.     915.     736.    4924.    2129.    1651.     391.    589.30
      .87      .24     3.28      .43     .125     .033     .110     .000   573.40   200.00
  .000173     550.    2090.    2300.        2        0        0      .00  1566.91  2225.00
0
1
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                                                                  THIS RUN EXECUTED 01/24/90   17:05:10
*************************************************
  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      50-YEAR
T2
T3

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        3.        0.        0.   .000000       .00        .0        0.   589.530      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

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

1
 01/24/90    17:04:44                                                                    PAGE   10


   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=    .100 CEHV=    .300
1490 NH CARD USED
*SECNO 6.896

3470 ENCROACHMENT STATIONS=    2550.0    4834.0  TYPE=     1  TARGET=    2284.000
                VALLEY SECTION I
     6.90    20.53   589.53      .00   589.53   589.61      .08      .00      .00   588.20
   21470.    1056.   20111.     302.    3901.    8334.    1328.       0.       0.    588.90
      .00      .27     2.41      .23     .110     .036     .125     .000   569.00  2550.00
  .000081     850.     825.     800.        0        0        0      .00  2284.00  4834.00
0
1490 NH CARD USED
*SECNO 7.052
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 3470 ENCROACHMENT STATIONS=    1550.0    5320.0  TYPE=     1  TARGET=    3770.000
      7.05    17.02   589.62      .00      .00   589.72      .09      .10      .00   588.10
    21470.    1301.   18616.    1552.    4655.    7060.    3676.     307.      57.   586.60
       .12      .28     2.64      .42      .119     .036     .078     .000   572.60  1550.00
   .000119     750.    1050.     825.        2        0        0      .00  3770.00  5320.00
0
 1490 NH CARD USED
 *SECNO 7.207

 3470 ENCROACHMENT STATIONS=    1900.0    5470.0  TYPE=     1  TARGET=    3570.000
                VALLEY SECTION J
      7.21    13.63   589.73      .00      .00   589.87      .14      .14      .01   588.10
    21470.     915.   17589.    2966.    3488.    5382.    4410.     582.     128.   586.60
       .20      .26     3.27      .67      .176     .036     .076     .000   576.10  1900.00
   .000260     800.     818.     900.        2        0        0      .00  3570.00  5470.00
0
 CCHV=    .100 CEHV=    .300
 *SECNO 7.801

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     250.0    1743.0  TYPE=     1  TARGET=    1493.000
                VALLEY SECTION K
1
  01/24/90    17:04:44                                                                  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


      7.80    16.61   590.51      .00      .00   590.79      .28      .88      .04   586.50
    21470.     977.   20381.     112.    2241.    4654.     406.    1321.     308.   589.50
       .41      .44     4.38      .28      .125     .035     .125     .000   573.90   250.00
   .000305    3150.    3135.    3100.        2        0        0      .00  1452.89  1743.00
0
 1490 NH CARD USED
 *SECNO 7.934

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     646.0    1812.0  TYPE=     1  TARGET=    -646.000
                VALLEY SECTION L
      7.93    16.92   590.72      .00      .00   590.99      .28      .20      .00   586.50
    21470.     962.   20465.      43.    1985.    4748.     153.    1428.     326.   589.50
       .46      .48     4.31      .28      .111     .034     .125     .000   573.80   646.00
   .000272     550.     700.     700.        2        0        0      .00  1114.30  1765.79
0
 1490 NH CARD USED
 *SECNO 7.945

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     386.0    1552.0  TYPE=     1  TARGET=    -386.000
                VALLEY SECTION M
      7.95    16.93   590.73      .00      .00   591.01      .28      .02      .00   586.50
    21470.     929.   20497.      44.    1128.    4753.     155.    1437.     328.   589.50
       .46      .82     4.31      .29      .066     .034     .125     .000   573.80   435.12
   .000272      60.      60.      60.        0        0        0      .00  1065.50  1505.85
0
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 CCHV=    .100 CEHV=    .300
 #SECNO 7.956

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     646.0    1812.0  TYPE=     1  TARGET=    -646.000
      7.96    16.93   590.73      .00      .00   591.01      .28      .00      .00   586.50
    21470.     863.  20563.      44.    1996.    4753.     155.    1437.     328.   589.50
       .46      .43     4.33      .29      .125     .034     .125     .000   573.80   646.00
   .000274       0.       0.       0.        0        0        0      .00  1114.58  1765.85
0
1
  01/24/90    17:04:44                                                                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


 1490 NH CARD USED
 #SECNO 8.241

 3265 DIVIDED FLOW

                VALLEY SECTION N
      8.24    17.45   591.15      .00      .00   591.40      .25      .39      .00   589.60
    21470.     832.  20622.      16.    2214.    5012.      39.    1676.     373.   585.00
       .57      .38     4.11      .41      .094     .034     .125     .000   573.70    53.87
   .000246    1400.    1500.    1650.        0        0        0      .00  1600.09  1670.84
0
 1490 NH CARD USED
 #SECNO 8.345

 3265 DIVIDED FLOW

                VALLEY SECTION O
      8.35    17.59   591.29      .00      .00   591.54      .24      .13      .00   588.80
    21470.     938.  20518.      14.    2099.    5071.      35.    1765.     391.   586.30
       .61      .45     4.05      .41      .078     .034     .125     .000   573.70    69.13
   .000236     500.     550.     550.        0        0        0      .00  1563.76  2236.05
0
 1490 NH CARD USED
 #SECNO 8.552

 3265 DIVIDED FLOW

                VALLEY SECTION P
      8.55    17.82   591.42      .00      .00   592.03      .61      .38      .11   587.80
    21470.    2041.  19404.      25.    2689.    2943.      36.    1889.     412.   586.30
       .66      .76     6.59      .69      .072     .033     .125     .000   573.60    68.66
   .000635     400.    1095.    1095.        2        0        0      .00  1987.89  2496.24
0
 1490 NH CARD USED
 #SECNO 8.948
 3280 CROSS SECTION      8.95 EXTENDED      5.51 FEET


 3470 ENCROACHMENT STATIONS=     200.0    2225.0  TYPE=     1  TARGET=    2025.000
                VALLEY SECTION Q
1
  01/24/90    17:04:44                                                                PAGE   13
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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


     8.95    19.11   592.51      .00      .00   592.69      .18      .62      .04   591.60
   21340.     534.   19284.    1522.    1741.    5376.    2869.    2193.     460.    589.30
      .82      .31     3.59      .53     .117     .033     .110     .000   573.40   200.00
  .000184     550.    2090.    2300.        2        0        0      .00  2025.00  2225.00
0
1
 01/24/90    17:04:44                                                                    PAGE   14



                                                                                THIS RUN EXECUTED 01/24/90   17:05:24
 ************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION 1.1
 ************************************************


 T1      100-YEAR
 T2
 T3

 J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        4.        0.        0.   .000000       .00        .0        0.   590.000      .000

 J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN       ALLDC     IBW       CHNIM     ITRACE

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

1
 01/24/90    17:04:44                                                                    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


 *PROF 3

 CCHV=    .100 CEHV=    .300
 1490 NH CARD USED
 *SECNO 6.896

 3470 ENCROACHMENT STATIONS=    2550.0    4834.0  TYPE=     1  TARGET=    2284.000
                VALLEY SECTION I
     6.90    21.00   590.00      .00   590.00   590.09      .09      .00      .00   588.20
   23150.    1345.   21414.     391.    4510.    8564.    1563.       0.       0.    588.90
      .00      .30     2.50      .25     .110     .036     .125     .000   569.00  2550.00
  .000084     850.     825.     800.        0        0        0      .00  2284.00  4834.00
0
 1490 NH CARD USED
 *SECNO 7.052

 3470 ENCROACHMENT STATIONS=    1550.0    5320.0  TYPE=     1  TARGET=    3770.000
     7.05    17.50   590.10      .00      .00   590.19      .09       10      .00   588.10
```

```
   23150.    1678.   19482.    1990.    5571.    7292.    4316.     334.      57.    586.60
      .12      .30     2.67      .46     .119     .036     .078     .000   572.60  1550.00
   .000117    750.    1050.     825.        2        0        0      .00  3770.00  5320.00
0
 1490 NH CARD USED
 #SECNO 7.207

 3470 ENCROACHMENT STATIONS=    1900.0    5470.0  TYPE=     1  TARGET=    3570.000
                VALLEY SECTION J
     7.21    14.11   590.21      .00      .00   590.34      .13      .14      .01   588.10
   23150.    1146.   18346.    3659.    4236.    5613.    5120.     642.     128.    586.60
      .21      .27     3.27      .71     .181     .036     .076     .000   576.10  1900.00
   .000245    800.     818.     900.        2        0        0      .00  3570.00  5470.00
0
 CCHV=    .100 CEHV=    .300
 #SECNO 7.801

 3265 DIVIDED FLOW


 3470 ENCROACHMENT STATIONS=     250.0    1743.0  TYPE=     1  TARGET=    1493.000
                VALLEY SECTION K
1
  01/24/90    17:04:44                                                                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


     7.80    17.06   590.96      .00      .00   591.26      .30      .87      .05   586.50
   23150.    1251.   21723.    175.    2609.    4794.    551.    1466.     309.    589.50
      .41      .48     4.53      .32     .125     .035     .125     .000   573.90   250.00
   .000314    3150.    3135.    3100.        2        0        0      .00  1483.17  1743.00
0
 1490 NH CARD USED
 #SECNO 7.934

 3470 ENCROACHMENT STATIONS=     646.0    1812.0  TYPE=     1  TARGET=    -646.000
                VALLEY SECTION L
     7.93    17.37   591.17      .00      .00   591.46      .29      .21      .00   586.50
   23150.    1231.   21854.     65.    2299.    4890.    199.    1581.     328.    589.50
      .46      .54     4.47      .33     .110     .034     .125     .000   573.80   646.00
   .000281     550.     700.     700.        2        0        0      .00  1121.50  1767.50
0
 1490 NH CARD USED
 #SECNO 7.945

 3470 ENCROACHMENT STATIONS=     386.0    1552.0  TYPE=     1  TARGET=    -386.000
                VALLEY SECTION M
     7.95    17.39   591.19      .00      .00   591.48      .29      .02      .00   586.50
   23150.    1411.   21674.     65.    1433.    4895.    201.    1590.     329.    589.50
      .46      .98     4.43      .32     .056     .034     .125     .000   573.80   387.60
   .000275     60.      60.      60.        0        0        0      .00  1119.96  1507.57
0
 CCHV=    .100 CEHV=    .300
 #SECNO 7.956

 3470 ENCROACHMENT STATIONS=     646.0    1812.0  TYPE=     1  TARGET=    -646.000
     7.96    17.38   591.18      .00      .00   591.48      .30      .00      .00   586.50
   23150.    1099.   21984.     67.    2316.    4897.    202.    1590.     329.    589.50
      .46      .47     4.49      .33     .125     .034     .125     .000   573.80   646.00
   .000283       0.       0.       0.        0        0        0      .00  1121.59  1767.59
```

```
1490 NH CARD USED
*SECNO 8.241
                VALLEY SECTION N
     8.24    17.92   591.62      .00      .00   591.88      .27      .40      .00   589.60
   23150.    1202.   21928.      20.    2805.    5167.      45.    1851.     374.    585.00
      .56      .43     4.24      .44     .096     .034     .125     .000   573.70    52.53
  .000252    1400.    1500.    1650.        1        0        0      .00  1619.00  1671.53
0
1
 01/24/90    17:04:44                                                                    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


1490 NH CARD USED
*SECNO 8.345

3265 DIVIDED FLOW

                VALLEY SECTION O
     8.35    18.07   591.77      .00      .00   592.02      .25      .13      .00   588.80
   23150.    1382.   21750.      18.    2707.    5230.      40.    1948.     394.    586.30
      .60      .51     4.16      .44     .078     .034     .125     .000   573.70    67.38
  .000239     500.     550.     550.        0        0        0      .00  1795.00  2236.75
0
1490 NH CARD USED
*SECNO 8.552

3265 DIVIDED FLOW

                VALLEY SECTION P
     8.55    18.30   591.90      .00      .00   592.49      .59      .37      .10   587.80
   23150.    3010.   20110.      30.    3572.    3040.      42.    2082.     417.    586.30
      .65      .84     6.62      .71     .073     .033     .125     .000   573.60    66.86
  .000612     400.    1095.    1095.        2        0        0      .00  2076.40  2496.96
0
1490 NH CARD USED
*SECNO 8.948
3280 CROSS SECTION      8.95 EXTENDED      5.96 FEET


3470 ENCROACHMENT STATIONS=     200.0    2225.0  TYPE=     1  TARGET=    2025.000
                VALLEY SECTION Q
     8.95    19.56   592.96      .00      .00   593.15      .19      .61      .04   591.60
   23040.     757.   20504.    1779.    2212.    5540.    3136.    2409.     465.    589.30
      .81      .34     3.70      .57     .114     .033     .110     .000   573.40   200.00
  .000188     550.    2090.    2300.        2        0        0      .00  2025.00  2225.00
0
1
 01/24/90    17:04:44                                                                    PAGE   18


                                                                  THIS RUN EXECUTED 01/24/90   17:05:38
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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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T1      500-YEAR
T2
T3

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        5.        0.        0.   .000000       .00        .0        0.   591.060      .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
 01/24/90    17:04:44                                                                          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


 #PROF 4

 CCHV=    .100 CEHV=    .300
 1490 NH CARD USED
 #SECNO 6.896

 3470 ENCROACHMENT STATIONS=    2550.0    4834.0  TYPE=     1  TARGET=    2284.000
                VALLEY SECTION I
      6.90     22.06    591.06      .00   591.06    591.16      .10      .00      .00   588.20
    27130.    2115.    24381.     634.    5882.     9083.    2093.       0.       0.   588.90
       .00      .36      2.68      .30      .110      .036     .125     .000   569.00  2550.00
   .000090     850.     825.      800.         0         0        0      .00  2284.00  4834.00
0
 1490 NH CARD USED
 #SECNO 7.052

 3470 ENCROACHMENT STATIONS=    1550.0    5320.0  TYPE=     1  TARGET=    3770.000
      7.05     18.57    591.17      .00      .00   591.26      .09      .10      .00   588.10
    27130.    2670.    21352.    3108.    7642.     7816.    5764.     394.      57.   586.60
       .12      .35      2.73      .54      .118      .036     .078     .000   572.60  1550.00
   .000111     750.     1050.     825.         2         0        0      .00  3770.00  5320.00
0
 1490 NH CARD USED
 #SECNO 7.207

 3470 ENCROACHMENT STATIONS=    1900.0    5470.0  TYPE=     1  TARGET=    3570.000
                VALLEY SECTION J
      7.21     15.17    591.27      .00      .00   591.40      .13      .13      .01   588.10
    27130.    1714.    20066.    5350.    5908.     6131.    6706.     779.     128.   586.60
       .21      .29      3.27      .80      .191      .036     .076     .000   576.10  1900.00
   .000219     800.     818.      900.         1         0        0      .00  3570.00  5470.00
0
 CCHV=    .100 CEHV=    .300
 #SECNO 7.801

 3470 ENCROACHMENT STATIONS=     250.0    1743.0  TYPE=     1  TARGET=    1493.000
                VALLEY SECTION K
      7.80     18.06    591.96      .00      .00   592.29      .33      .83      .06   586.50
    27130.    1983.    24769.     378.    3439.     5112.     902.    1792.     310.   589.50
       .41      .58      4.85      .42      .125      .035     .125     .000   573.90   250.00
   .000330    3150.    3135.     3100.         2         0        0      .00  1493.00  1743.00
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


 1490 NH CARD USED
 *SECNO 7.934

 3470 ENCROACHMENT STATIONS=     646.0    1812.0  TYPE=     1  TARGET=    -646.000
                VALLEY SECTION L
     7.93    18.38   592.18      .00      .00   592.51      .33      .22      .00   586.50
   27130.    1952.   25046.     132.     3004.   5209.     309.    1925.     328.   589.50
      .45      .65     4.81      .43      .109    .034     .125     .000   573.80   646.00
  .000299     550.     700.     700.        2       0        0      .00  1125.51  1771.51
0
 1490 NH CARD USED
 *SECNO 7.945

 3470 ENCROACHMENT STATIONS=     386.0    1552.0  TYPE=     1  TARGET=    -386.000
                VALLEY SECTION M
     7.95    18.44   592.24      .00      .00   592.53      .29      .02      .00   586.50
   27130.    2984.   24016.     130.     2168.   5228.     316.    1936.     330.   589.50
      .45     1.38     4.59      .41      .044    .034     .125     .000   573.80   386.00
  .000272       60.      60.      60.        2       0        0      .00  1125.75  1511.75
0
 CCHV=    .100 CEHV=    .300
 *SECNO 7.956

 3470 ENCROACHMENT STATIONS=     646.0    1812.0  TYPE=     1  TARGET=    -646.000
     7.96    18.40   592.20      .00      .00   592.54      .34      .00      .01   586.50
   27130.    1724.   25271.     135.     3024.   5217.     312.    1936.     330.   589.50
      .45      .57     4.84      .43      .125    .034     .125     .000   573.80   646.00
  .000303        0.       0.       0.        2       0        0      .00  1125.62  1771.62
0
 1490 NH CARD USED
 *SECNO 8.241
                VALLEY SECTION N
     8.24    18.98   592.68      .00      .00   592.97      .29      .42      .01   589.60
   27130.    2259.   24841.      29.     4163.   5523.      59.    2244.     375.   585.00
      .55      .54     4.50      .50      .098    .034     .125     .000   573.70    49.49
  .000259    1400.    1500.    1650.        2       0        0      .00  1623.62  1673.11
0
 1490 NH CARD USED
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 8.345
                VALLEY SECTION O
     8.35    19.14   592.84      .00      .00   593.10      .26      .14      .00   588.80
   27130.    2824.   24280.      26.     4594.   5589.      54.    2365.     397.   586.30
      .59      .61     4.34      .48      .077    .034     .125     .000   573.70    63.42
  .000239     500.     550.     550.        1       0        0      .00  2174.92  2238.34
0
 1490 NH CARD USED
 *SECNO 8.557
```

3265 DIVIDED FLOW

VALLEY SECTION P

8.55	19.40	593.00	.00	.00	593.53	.53	.34	.08	587.80
27130.	5723.	21366.	42.	5758.	3259.	56.	2525.	422.	586.30
.64	.99	6.56	.74	.074	.033	.125	.000	573.60	62.82
.000548	400.	1095.	1095.	2	0	0	.00	2340.66	2498.58

0

1490 NH CARD USED

#SECNO 8.948

3280 CROSS SECTION 8.95 EXTENDED 6.93 FEET

3470 ENCROACHMENT STATIONS= 200.0 2225.0 TYPE= 1 TARGET= 2025.000

VALLEY SECTION Q

8.95	20.53	593.93	.00	.00	594.14	.21	.58	.03	591.60
27030.	1401.	23230.	2399.	3243.	5898.	3720.	2901.	472.	589.30
.80	.43	3.94	.64	.109	.033	.110	.000	573.40	200.00
.000196	550.	2090.	2300.	2	0	0	.00	2025.00	2225.00

0

1

THIS RUN EXECUTED 01/24/90 17:05:52

****
HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION 1.1
****

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

ST JOSEPH RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
6.896	.00	.00	.00	569.00	17430.00	588.31	.00	588.38	.73	2.19	10097.30	20369.47
6.896	.00	.00	.00	569.00	21470.00	589.53	.00	589.61	.81	2.41	13563.58	23820.79
6.896	.00	.00	.00	569.00	23150.00	590.00	.00	590.09	.84	2.50	14637.00	25241.42
6.896	.00	.00	.00	569.00	27130.00	591.06	.00	591.16	.90	2.68	17058.03	28654.00
7.052	1050.00	.00	.00	572.60	17430.00	588.39	.00	588.48	1.22	2.52	11019.95	15778.23
7.052	1050.00	.00	.00	572.60	21470.00	589.62	.00	589.72	1.19	2.64	15390.55	19692.75
7.052	1050.00	.00	.00	572.60	23150.00	590.10	.00	590.19	1.17	2.67	17178.91	21413.73
7.052	1050.00	.00	.00	572.60	27130.00	591.17	.00	591.26	1.11	2.73	21221.80	25706.99
7.207	818.00	.00	.00	576.10	17430.00	588.50	.00	588.65	3.04	3.27	9136.16	10003.74
7.207	818.00	.00	.00	576.10	21470.00	589.73	.00	589.87	2.60	3.27	13280.65	13326.62
7.207	818.00	.00	.00	576.10	23150.00	590.21	.00	590.34	2.45	3.27	14968.47	14777.28
7.207	818.00	.00	.00	576.10	27130.00	591.27	.00	591.40	2.19	3.27	18745.47	18339.09
7.801	3135.00	.00	.00	573.90	17430.00	589.35	.00	589.59	2.79	3.96	5588.08	10435.88
7.801	3135.00	.00	.00	573.90	21470.00	590.51	.00	590.79	3.05	4.38	7301.23	12287.58
7.801	3135.00	.00	.00	573.90	23150.00	590.96	.00	591.26	3.14	4.53	7953.53	13061.51
7.801	3135.00	.00	.00	573.90	27130.00	591.96	.00	592.29	3.30	4.85	9452.11	14938.29

7.934	700.00	.00	.00	573.80	17430.00	589.55	.00	589.77	2.46	3.89	5591.47	11105.25
7.934	700.00	.00	.00	573.80	21470.00	590.72	.00	590.99	2.72	4.31	6886.25	13019.44
7.934	700.00	.00	.00	573.80	23150.00	591.17	.00	591.46	2.81	4.47	7388.14	13806.82
7.934	700.00	.00	.00	573.80	27130.00	592.18	.00	592.51	2.99	4.81	8521.85	15685.67
7.945	60.00	.00	.00	573.80	17430.00	589.56	.00	589.79	2.48	3.90	4996.48	11072.77
7.945	60.00	.00	.00	573.80	21470.00	590.73	.00	591.01	2.72	4.31	6036.62	13023.81
7.945	60.00	.00	.00	573.80	23150.00	591.19	.00	591.48	2.75	4.43	6529.49	13948.10
7.945	60.00	.00	.00	573.80	27130.00	592.24	.00	592.53	2.72	4.59	7710.66	16457.97
7.956	.00	.00	.00	573.80	17430.00	589.56	.00	589.79	2.46	3.89	5608.68	11108.31
7.956	.00	.00	.00	573.80	21470.00	590.73	.00	591.01	2.74	4.33	6903.59	12979.69
7.956	.00	.00	.00	573.80	23150.00	591.18	.00	591.48	2.83	4.49	7415.59	13761.13
7.956	.00	.00	.00	573.80	27130.00	592.20	.00	592.54	3.03	4.84	8552.83	15589.22

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SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
8.241	1500.00	.00	.00	573.70	17430.00	589.93	.00	590.15	2.28	3.74	5378.21	11541.37
8.241	1500.00	.00	.00	573.70	21470.00	591.15	.00	591.40	2.46	4.11	7264.55	13877.78
8.241	1500.00	.00	.00	573.70	23150.00	591.62	.00	591.88	2.52	4.24	8017.39	14596.03
8.241	1500.00	.00	.00	573.70	27130.00	592.68	.00	592.97	2.59	4.50	9744.88	16872.02
8.345	550.00	.00	.00	573.70	17430.00	590.06	.00	590.27	2.21	3.70	5416.75	11725.37
8.345	550.00	.00	.00	573.70	21470.00	591.29	.00	591.54	2.36	4.05	7205.40	13981.18
8.345	550.00	.00	.00	573.70	23150.00	591.77	.00	592.02	2.39	4.16	7976.57	14968.68
8.345	550.00	.00	.00	573.70	27130.00	592.84	.00	593.10	2.39	4.34	10237.43	17557.15
8.552	1095.00	.00	.00	573.60	17430.00	590.17	.00	590.77	6.53	6.30	3524.17	6823.08
8.552	1095.00	.00	.00	573.60	21470.00	591.42	.00	592.03	6.35	6.59	5668.45	8519.19
8.552	1095.00	.00	.00	573.60	23150.00	591.90	.00	592.49	6.12	6.62	6653.83	9356.29
8.552	1095.00	.00	.00	573.60	27130.00	593.00	.00	593.53	5.48	6.56	9072.92	11589.74
8.948	2090.00	.00	.00	573.40	17260.00	591.28	.00	591.44	1.73	3.28	7790.11	13129.97
8.948	2090.00	.00	.00	573.40	21340.00	592.51	.00	592.69	1.84	3.59	9985.55	15745.69
8.948	2090.00	.00	.00	573.40	23040.00	592.96	.00	593.15	1.88	3.70	10888.05	16807.53
8.948	2090.00	.00	.00	573.40	27030.00	593.97	.00	594.14	1.96	3.94	12860.77	19316.68

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ST JOSEPH RIVER

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
6.896	17430.00	588.31	.00	.00	.00	1589.52	.00
6.896	21470.00	589.53	1.22	.00	.00	2284.00	.00
6.896	23150.00	590.00	.47	.00	.00	2284.00	.00
6.896	27130.00	591.06	1.06	.00	.00	2284.00	.00
7.052	17430.00	588.39	.00	.08	.00	3240.77	1050.00
7.052	21470.00	589.62	1.23	.09	.00	3770.00	1050.00
7.052	23150.00	590.10	.47	.10	.00	3770.00	1050.00
7.052	27130.00	591.17	1.07	.11	.00	3770.00	1050.00
7.207	17430.00	588.50	.00	.11	.00	3122.31	818.00
7.207	21470.00	589.73	1.23	.11	.00	3570.00	818.00
7.207	23150.00	590.21	.47	.11	.00	3570.00	818.00
7.207	27130.00	591.27	1.07	.10	.00	3570.00	818.00

7.801	17430.00	589.35	.00	.85	.00	1094.90	3135.00
7.801	21470.00	590.51	1.16	.78	.00	1452.89	3135.00
7.801	23150.00	590.96	.44	.75	.00	1483.17	3135.00
7.801	27130.00	591.96	1.00	.69	.00	1493.00	3135.00
7.934	17430.00	589.55	.00	.19	.00	1067.32	700.00
7.934	21470.00	590.72	1.17	.21	.00	1114.30	700.00
7.934	23150.00	591.17	.45	.21	.00	1121.50	700.00
7.934	27130.00	592.18	1.01	.22	.00	1125.51	700.00
7.945	17430.00	589.56	.00	.01	.00	567.73	60.00
7.945	21470.00	590.73	1.18	.02	.00	1065.50	60.00
7.945	23150.00	591.19	.46	.02	.00	1119.96	60.00
7.945	27130.00	592.24	1.04	.06	.00	1125.75	60.00
7.956	17430.00	589.56	.00	.00	.00	1068.41	.00
7.956	21470.00	590.73	1.17	.00	.00	1114.58	.00
7.956	23150.00	591.18	.45	-.01	.00	1121.59	.00
7.956	27130.00	592.20	1.02	-.03	.00	1125.62	.00
8.241	17430.00	589.93	.00	.37	.00	1490.36	1500.00
8.241	21470.00	591.15	1.22	.42	.00	1600.09	1500.00
8.241	23150.00	591.62	.47	.43	.00	1619.00	1500.00
8.241	27130.00	592.68	1.06	.47	.00	1623.62	1500.00
8.345	17430.00	590.06	.00	.13	.00	1338.24	550.00
8.345	21470.00	591.29	1.23	.14	.00	1563.76	550.00
8.345	23150.00	591.77	.47	.15	.00	1795.00	550.00
8.345	27130.00	592.84	1.08	.16	.00	2174.92	550.00

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
8.552	17430.00	590.17	.00	.11	.00	1336.79	1095.00
8.552	21470.00	591.42	1.25	.12	.00	1987.89	1095.00
8.552	23150.00	591.90	.49	.14	.00	2076.40	1095.00
8.552	27130.00	593.00	1.10	.16	.00	2340.68	1095.00
8.948	17260.00	591.28	.00	1.11	.00	1566.91	2090.00
8.948	21340.00	592.51	1.23	1.10	.00	2025.00	2090.00
8.948	23040.00	592.96	.45	1.06	.00	2025.00	2090.00
8.948	27030.00	593.93	.97	.94	.00	2025.00	2090.00

SUMMARY OF ERRORS AND SPECIAL NOTES

THIS RUN EXECUTED 01/24/90 17:05:55

****

HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Royalton Twp

3) WATERCOURSE. St. Joseph R.

4) DOCUMENT TYPE: 100-Yr Channel Flow

00BREAK00

THIS RUN EXECUTED 01-06-89

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#################################################
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
#################################################


C
T1    ROYALTON FIS  BERRIEN COUNTY      NATURAL CONDITIONS
T2      100-YEAR FLOOD        CHANNEL FLOW
T3      ST JOSEPH RIVER                          ROYALTON FWY
```

J1	ICHECK	INQ	NINV	IOIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	3.	0.	0.	.000000	.00	0	0	590 000	000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	.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

OT	6.000	17430.000	23150.000	23150.000	23150.000	23150 000	27130 000	000	000	.000
NC	.000	000	.000	.100	.300	.000	000	000	.000	000
NH	5.000	.125	2200.000	.110	3800.000	.125	3845.000	036	4334 000	125
NH	6454.000	.000	000	000	000	000	000	000	000	000
ET	000	4 100	4.100	2550 000	4834.000	4.100	4.100	.000	000	000
		FIS XSEC 6	DS LIMIT OF FLOODWAY REVISION							
X1	6 896	73.000	3845 000	4334 000	850 000	800 000	825 000	000	.000	000
X3	000	.000	.000	000	000	000	.000	000	.000	000
GR	610.000	.000	585.100	200.000	585.700	400.000	585.200	600.000	586 000	800 000
GR	585.600	1000 000	586.000	1200.000	586 600	1400 000	586.500	1600.000	586.500	1800 000
GR	586 400	2000.000	585.800	2200.000	585.800	2270.000	585 800	2400.000	585 800	2600.000
GR	585.800	2800.000	585.800	3000.000	585.800	3200.000	586.000	3400.000	588 200	3600 000
GR	588.700	3770.000	588 500	3800.000	588 200	3845 000	584 100	3849 000	571.000	3854.000
GR	572 700	3874 000	570 600	3894.000	569 200	3914 000	569.000	3934 000	569 400	3954.000
GR	569 000	3974.000	569.300	3994.000	569.500	4014.000	569 600	4034.000	569 900	4054.000
GR	570.200	4074.000	570.500	4094 000	570.600	4114.000	570.800	4134.000	571.000	4154 000
GR	571 400	4174 000	571.800	4194.000	572.500	4214.000	573.400	4234 000	572 700	4254.000
GR	574.300	4274.000	574.600	4279.000	581 400	4283.000	581 900	4294.000	588.900	4334 000
GR	587 100	4479 000	588 200	4609 000	588.200	4629 000	585.500	4659 000	585.200	4679 000
GR	585 200	4699 000	585.200	4899.000	585 600	4959.000	587 200	5099 000	587 900	5299 000
GR	587.900	5479.000	586.800	5484.000	586 800	5499 000	597 400	5539.000	597.400	5584.000
GR	587 800	5634 000	588.000	5699 000	588 000	5899 000	587 000	5999 000	586 200	6099 000
GR	586 200	6299.000	586.200	6369 000	610 000	6454.000	000	.000	.000	.000

NH	5 000	.125	2330.000	110	3481 000	036	3970.000	.075	5230.000	.125
NH	6755.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
QT	6.000	17160 000	23150.000	.000	.000	22235.000	25690.000	.000	000	000
ET	.000	4 100	7.100	3381.000	5320.000	4.100	1550.000	5320.000	000	.000
X1	7.052	73.000	3481.000	3970.000	750 000	1050.000	825.000	.000	.000	.000
X3	000	000	.000	.000	.000	.000	.000	000	.000	000
GR	610.000	.000	601.700	35.000	601.500	50.000	592.600	130.000	584.700	330 000
GR	585.000	530.000	585.000	730.000	585.000	930.000	585.500	1130.000	586 700	1330.000
GR	586.500	1530.000	585.500	1730.000	585.800	1930.000	586.900	2130.000	587.000	2330 000
GR	587.000	2530.000	587.400	2630.000	585.600	2730.000	586.700	2830 000	588.800	2930 000
GR	589.300	3030.000	588.200	3130.000	588.500	3230.000	589.500	3330.000	589.100	3430.000
GR	589.600	3450.000	588.100	3481.000	574.400	3490.000	575.800	3510.000	573.700	3530.000
GR	572.600	3650.000	572.700	3670.000	573.000	3690.000	573.300	3710.000	573.600	3730.000
GR	573.700	3750.000	573.900	3770.000	574.100	3790.000	574.500	3810 000	574.900	3830.000
GR	575.600	3850.000	576.500	3870.000	575.800	3890.000	577.400	3910.000	577 700	3915 000
GR	580.000	3919.000	580.500	3930.000	586.600	3970.000	587.400	4030.000	588.600	4130 000
GR	587 700	4230.000	587.700	4330.000	586.200	4430.000	587.200	4530.000	588.000	4630.000
GR	587.400	4730.000	587.000	4770.000	586.300	4830.000	586.100	4930.000	585.900	5030.000
GR	585.900	5230.000	585.800	5430.000	585.800	5630.000	586.100	5830.000	585.700	5845.000
GR	585.600	5940.000	585.600	6030.000	585.500	6160 000	585.300	6230.000	585.400	6430.000
GR	585.400	6485.000	591.800	6630.000	610 000	6755.000	.000	.000	.000	.000
NH	6.000	.075	1730.000	.125	2630.000	.850	3481.000	.036	3970 000	075
NH	5430.000	.125	6755.000	.000	.000	.000	.000	.000	.000	000
ET	.000	4.100	7.100	3381.000	5470.000	4.100	1900.000	5470.000	000	.000
		FIS XSEC #								
X1	7.207	78.000	3481.000	3970.000	800 000	900 000	818 000	.000	.000	000
X3	.000	.000	.000	.000	.000	.000	.000	.000	000	.000
GR	610.000	.000	601.700	35.000	601.500	50.000	592.600	130 000	584.700	330 000
GR	585.000	530.000	585.000	730.000	585.000	930.000	585.500	1130.000	586.700	1330 000
GR	586.500	1530.000	585.500	1730.000	585.800	1930.000	586.900	2130.000	587 000	2330.000
GR	587.000	2530.000	587.400	2630.000	585.600	2730 000	586.700	2830.000	588 800	2930 000
GR	589.300	3030.000	588.200	3130.000	588.500	3230.000	589.500	3330.000	589.100	3430 000
GR	589.600	3450.000	588.100	3481.000	578.400	3490.000	578.000	3510.000	577.700	3530.000
GR	576.200	3550.000	576.100	3570.000	576 500	3590.000	576.100	3610.000	576 400	3630 000
GR	576.600	3650.000	576.700	3670.000	577.000	3690.000	577.200	3710.000	577 600	3730 000
GR	577 700	3750 000	577.900	3770.000	578.100	3790.000	578.500	3810.000	578.900	3830.000
GR	579.600	3850.000	580.500	3870.000	579.800	3890.000	581.400	3910.000	581.700	3915.000
GR	584.000	3919.000	584.500	3930.000	586.600	3970.000	587.400	4030 000	588 600	4130 000
GR	587.700	4230.000	587.700	4330 000	586.200	4430 000	587 200	4530 000	588 000	4630 000
GR	587 400	4730 000	587.000	4770 000	586 300	4830.000	586.100	4930 000	585.900	5030.000
GR	585 900	5230.000	585.800	5430.000	585.800	5630.000	586.100	5830.000	585 700	5845.000
GR	585.600	5940.000	585.600	6030.000	585.500	6160.000	585.300	6230.000	585 400	6430 000
GR	585.400	6485.000	591.800	6630 000	610.000	6755.000	000	.000	.000	000
NC	.125	.125	.035	.100	.300	000	000	000	000	000
ET	000	4.100	7.100	1000.000	1743.000	4.100	200 000	1793.000	000	00
X1	7.726	42.000	1077.000	1393 000	2750.000	2700 000	2735.000	.000	000	.000
X3	.000	.000	.000	000	.000	.000	.000	000	.000	000
GR	594.700	.000	594.100	100 000	588.700	200.000	588 400	300.000	587.800	400.000
GR	588.400	500.000	587.800	600.000	588.600	700.000	587 000	800.000	590 100	892.000
GR	589.000	930.000	585.800	956.000	584.600	1000 000	586 500	1077 000	582 000	1080 000
GR	579.000	1090.000	576.200	1100 000	576.600	1120 000	575.300	1140 000	575.500	1160 000

GR	575 100	1180 000	574 300	1200 000	574.400	1220.000	575 000	1240 000	575 100	1260 000
GR	574.600	1280 000	574 200	1300.000	573.900	1320.000	574.200	1340.000	575 200	1360 000
GR	580 600	1380.000	582.200	1389 000	589 500	1393.000	589.500	1496 000	591 100	1525.000
GR	589 600	1600.000	588.000	1700 000	589.200	1860.000	591.300	1900 000	593.300	2000 000
GR	596.400	2072 000	605.200	2100.000	000	.000	.000	000	.000	.000
NC	.125	.125	035	.100	.300	000	.000	000	.000	000
ET	.000	4 100	7.100	977.000	1743 000	4.100	250.000	1743 000	000	.000
		FIS XSEC I								
X1	7.801	42.000	1077.000	1393.000	400.000	400.000	400.000	000	.000	000
X3	000	.000	.000	.000	.000	.000	.000	000	000	000
GR	594.700	.000	594.100	100.000	588.700	200.000	588.400	300.000	587.800	400 000
GR	588.400	500 000	587.800	600 000	588.600	700 000	587.000	800.000	590.100	892.000
GR	589.000	930.000	585 800	956 000	584.600	1000 000	586.500	1077 000	582 000	1080 000
GR	579 000	1090.000	576.200	1100.000	576.600	1120.000	575.300	1140.000	575.500	1160.000
GR	575.100	1180.000	574.300	1200.000	574.400	1220.000	575 000	1240.000	575.100	1260 000
GR	574.600	1280.000	574 200	1300.000	573.900	1320.000	574.200	1340 000	575 300	1360 000
GR	580.600	1380.000	582 200	1389.000	589.500	1393.000	589.500	1496.000	591.100	1525.000
GR	589.600	1600.000	588.000	1700.000	589 200	1860.000	591.300	1900 000	593.300	2000.000
GR	596.400	2072.000	605.200	2100 000	.000	.000	.000	.000	000	000
ET	.000	4.100	7.100	977.000	1743.000	4.100	250 000	1743.000	.000	000
X1	7.877	.000	.000	000	310.000	400.000	400.000	000	.000	.000
NH	5.000	.100	1198.000	10.000	1224.000	.125	1345.000	034	1661.000	125
NH	1812.000	000	.000	.000	.000	.000	000	.000	.000	000
QT	6.000	17030.000	23150.000	.000	.000	21725.000	24880.000	000	.000	000
ET	.000	4.100	7.100	1148.000	1812 000	4.100	646.000	1812.000	000	.000
		XSEC J		DS OF BACON SCHOOL EXTENDED						
X1	7.934	45.000	1345 000	1661.000	240 000	300.000	300.000	.000	.000	000
X3	.000	.000	.000	.000	.000	.000	000	.000	000	.000
GR	610.000	000	599.700	30 000	596.000	200 000	593.200	400 000	591.800	440 000
GR	588.900	480.000	588.900	600.000	587.800	800.000	588.600	1050 000	589.700	1135.000
GR	587 200	1140.000	589.600	1150.000	589.900	1160.000	589 000	1198.000	585 800	1224 000
GR	584.600	1268.000	586.500	1345.000	581.900	1348.000	578 900	1358.000	576 100	1368 000
GR	576.500	1388 000	575.200	1408 000	575 400	1428 000	575 000	1448 000	574.200	1468 000
GR	574.300	1488.000	574.900	1508 000	575.000	1528.000	574 500	1548 000	574.100	1568.000
GR	573.800	1588.000	574.100	1608.000	575 200	1628.000	580 700	1648.000	582 100	1657 000
GR	589.500	1661.000	589 500	1683.000	591.100	1689.000	589.600	1705 000	588.000	1726 000
GR	589.200	1760.000	591.300	1768 000	593.300	1776 000	596.400	1797 000	605 200	1812 000
NH	5.000	.125	800 000	10.000	875 000	.125	1085 000	.034	1401 000	.125
NH	1552 000	.000	000	.000	.000	000	000	.000	000	.000
NC	.000	000	.000	100	300	.000	000	000	000	000
ET	.000	4.100	7.100	890 000	1552.000	4.100	386.000	1552.600	.000	000
		XSEC K		DS OF BACON SCHOOL EXTENDED						
		MANNINGS N OF 10 USED IN LOB TO DESCRIBE LINE OF BUILDINGS								
X1	7.945	42 000	1085.000	1401 000	60 000	60.000	60 000	.000	.000	000
X2	.000	.000	.000	000	.000	.000	000	000	.000	000
X4	1 000	589.800	875 000	.000	000	000	000	.000	000	000
GR	601 700	000	598.000	100 000	595.250	200 000	592.500	700 000	591 000	400 000
GR	590.250	500.000	589.900	600.000	589 750	700 000	589 950	800 000	589 800	900.000
GR	589.000	938 000	585 800	964 000	584.600	1008 000	586.500	1085.000	581.900	1088 000
GR	578 900	1098.000	576 100	1108.000	576.500	1128.000	575 200	1148 000	575.400	1168.000

GR	575.000	1188 000	574 200	1208 000	574.300	1228 000	574.900	1248.000	575.000	1268.000
GR	574 500	1288 000	574.100	1308.000	573.800	1328.000	574.100	1348.000	575.200	1368 000
GR	580.700	1388.000	582.100	1397.000	589 500	1401.000	589 500	1423 000	591.100	1429 000
GR	589.600	1445 000	588.000	1466 000	589.200	1500.000	591.300	1508.000	593 300	1516.000
GR	596 400	1537.000	605.200	1552.000	.000	.000	000	.000	000	000
NH	5 000	.125	1050.000	10.000	1135.000	.125	1345 000	034	1661.000	.125
NH	1812.000	.000	.000	.000	.000	.000	.000	.000	.000	000
ET	.000	4.100	7.100	1148.000	1812 000	4.100	646.000	1812.000	000	000
X1	7.956	45.000	1345.000	1661.000	60.000	60.000	60.000	000	.000	000
X3	.000	.000	.000	.000	.000	000	.000	000	.000	000
GR	610.000	.000	599.700	30.000	596.000	200.000	593.200	400.000	591 800	440 000
GR	588.900	480.000	588.900	600.000	587.800	800.000	588.600	1050.000	589.300	1135 000
GR	587.200	1140.000	589.600	1150.000	589.900	1160.000	589.000	1198 000	585 800	1224.000
GR	584.600	1268.000	586.500	1345.000	581.900	1348.000	578.900	1358.000	576.100	1368 000
GR	576.500	1388.000	575 200	1408.000	575.400	1428.000	575.000	1448.000	574.200	1468.000
GR	574.300	1488.000	574.900	1508.000	575.000	1528.000	574.500	1548 000	574.100	1568 000
GR	573.800	1588.000	574.100	1608.000	575.200	1628.000	580.700	1648 000	582 100	1657.000
GR	589.500	1661.000	589.500	1683.000	591 100	1689.000	589.600	1705.000	588.000	1725 000
GR	589.200	1760.000	591.300	1768.000	593 300	1776.000	596.400	1797.000	605.200	1812 000
NH	5.000	.125	440.000	.075	840.000	125	1325.000	.034	1659.000	125
NH	1702.000	.000	.000	.000	000	.000	.000	000	000	.000
ET	.000	4.100	7.100	1148.000	1812.000	4.100	646.000	1812 000	000	000
X1	7.965	.000	.000	.000	50 000	50.000	50.000	.000	.000	000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
NC	.125	.125	.034	.000	.000	000	.000	.000	.000	000
ET	.000	4 100	7.100	1170.000	1812.000	4.100	646.000	1812.000	.000	.000
X1	8 094	.000	.000	.000	620.000	720.000	680.000	.000	.000	000
X3	.000	000	.000	.000	.000	.000	.000	.000	.000	000
NH	5.000	.125	440.000	.075	840.000	125	1325 000	.034	1659.000	125
NH	1702.000	000	.000	.000	000	.000	.000	.000	000	000
QT	6.000	17000.000	23150.000	.000	.000	21325.000	24080.000	000	000	000
ET	000	4.100	.000	1275.000	1702.000	4.100	.000	000	000	000
X1	8.240	39.000	1325.000	1659 000	580 000	880.000	880.000	.000	000	.000
X3	.000	.000	.000	.000	.000	.000	000	.000	.000	000
GR	610.000	.000	589.000	60.000	589.000	110.000	590.200	140.000	591 400	190.000
GR	589.400	240.000	590.000	440.000	588 000	640.000	589.300	840 000	589.700	1040 00
GR	589.600	1060.000	589.600	1080.000	587 700	1085.000	589.600	1090.000	589.600	1325 000
GR	586.900	1337.000	583 800	1338.000	582.300	1345.000	578.300	1355.000	575.300	1365.000
GR	575.600	1385.000	574.500	1405.000	574.600	1425.000	574.300	1445.000	574.100	1465.000
GR	574.900	1485.000	574.900	1505.000	575.000	1525.000	574.400	1545.000	573.700	1557.000
GR	574.600	1585.000	575.600	1605.000	576 900	1625.000	579.400	1645 000	580.500	1657.000
GR	585.000	1659.000	586.300	1660.000	587.200	1665.000	612.200	1702.000	000	000
NH	5.000	125	110.000	.075	1712.000	.085	1890 000	.034	2225 000	125
NH	2267.000	000	000	000	000	.000	.000	.000	.000	.000
ET	.000	4.100	.000	1870.000	2267 000	4.100	4 100	000	000	000

X1	8.745	42.000	1890.000	2225.000	100.000	550.000	550.000	.000	.000	000
X2	.000	.000	.000	.000	000	.000	.000	.000	.00	.000
GR	610.000	000	589.700	75.000	589.500	95.000	589.000	105.000	589.600	110.000
GR	589.000	305.000	589.600	505.000	591.600	705.000	591.800	905.000	591.000	1030.000
GR	592.100	1130.000	591.900	1230.000	590.600	1330.000	589.100	1430.000	589.400	1530.000
GR	588.600	1630.000	590.100	1712.000	589.000	1830.000	588.800	1890.000	586.900	1902.000
GR	583.800	1903.000	582.300	1910.000	578.300	1920.000	575.200	1970.000	575.600	1950.000
GR	574.500	1970.000	574.600	1990.000	574.300	2010.000	574.100	2030.000	574.900	2050.000
GR	574.900	2070.000	575.000	2090.000	574.400	2110.000	573.700	2170.000	574.600	2150.000
GR	575.600	2170.000	576.900	2190.000	579.400	2210.000	580.500	2222.000	586.300	2225.000
GR	587.200	2230.000	612.200	2267.000	.000	000	.000	.000	.00	000
NC	.000	000	.000	300	.500	.000	.000	000	000	.000
NH	6.000	.125	110.000	.200	1905.000	.085	2220.000	10.000	2255.000	033
NH	2485.000	125	2527.000	000	.000	.000	.000	000	000	.000
ET	.000	4.100	000	2260.000	2527.000	4.100	4.100	.000	.000	000
X1	8.552	42.000	2285.000	2485.000	120.000	1095.000	1095.000	.000	000	.000
X3	000	.000	.000	000	.000	000	.000	000	.000	.000
GR	610.000	.000	589.700	75.000	589.500	95.000	589.000	105.000	589.600	110.000
GR	589.000	305.000	589.600	505.000	591.600	705.000	593.400	905.000	591.800	1105.000
GR	590.000	1205.000	590.800	1305.000	591.400	1345.000	590.200	1465.000	591.000	1505.000
GR	589.600	1705.000	588.900	1905.000	590.100	1970.000	590.400	2005.000	589.300	2105.000
GR	590.200	2254.000	587.800	2255.000	587.800	2285.000	586.800	2292.000	587.300	2300.000
GR	574.400	2311.000	574.500	2322.000	574.200	2333.000	574.000	2344.000	574.800	2355.000
GR	574.800	2370.000	574.900	2385.000	574.300	2400.000	577.600	2415.000	574.500	2425.000
GR	575.500	2441.000	576.800	2452.000	579.300	2465.000	580.400	2482.000	586.300	2485.000
GR	587.200	2490.000	612.200	2527.000	.000	.000	.000	000	.000	000
NH	4.000	.125	660.000	.085	1258.000	.033	1625.000	.110	2625.000	000
ET	.000	4.100	7.100	1240.000	1775.000	4.100	4.100	000	2100.000	000
X1	8.560	51.000	1258.000	1625.000	250.000	300.000	350.000	000	000	.000
X3	.000	.000	.000	.000	000	.000	000	.000	000	000
GR	604.300	.000	596.000	25.000	592.200	60.000	590.600	92.000	589.100	160.000
GR	589.600	260.000	588.300	360.000	589.600	460.000	590.800	560.000	591.200	660.000
GR	591.000	760.000	591.700	860.000	591.700	960.000	591.800	1025.000	592.500	1125.000
GR	592.400	1158.000	592.200	1225.000	591.600	1258.000	578.000	1270.000	574.900	1285.000
GR	575.800	1305.000	573.400	1325.000	573.900	1345.000	574.400	1365.000	576.200	1385.000
GR	576.800	1405.000	577.600	1425.000	578.200	1445.000	578.600	1465.000	578.800	1485.000
GR	579.000	1505.000	579.200	1525.000	579.200	1545.000	579.300	1565.000	579.400	1585.000
GR	581.300	1605.000	581.600	1615.000	583.900	1622.000	589.300	1625.000	588.800	1725.000
GR	587.600	1825.000	587.300	1925.000	587.000	2012.000	584.500	2051.000	587.700	2084.000
GR	585.800	2125.000	591.100	2225.000	588.000	2325.000	589.800	2425.000	587.700	2525.000
GR	587.000	2625.000	.000	.000	000	.000	000	.000	000	.000
QI	6.000	16830.000	23040.000	.000	000	21215.000	23980.000	.000	000	000
NC	.000	.000	.000	.100	.300	.000	.000	.000	000	.000
NH	4.000	125	660.000	.085	1258.000	033	1625.000	110	2625.000	000
ET	000	4.100	7.100	1240.000	2225.000	4.100	200.000	2225.000	000	.000
X1	8.948	.000	.000	000	130.000	2000.000	1740.000	000	000	000

QT	6.000	17260 000	23040 000	.000	.000	23040 000	27030 000	000	.000	000
ET	.000	4.100	4 100	200.000	2150 000	4.100	4 100	.000	000	000
X1	8 958	.000	.000	.000	170.000	170.000	170 000	.000	.000	000
ET	.000	4.100	4 100	958.000	2500.000	4 100	4.100	4.100	.000	000
X1	9 100	.000	.000	.000	830.000	350 000	830.000	000	000	000
NH	4.000	.125	349.000	033	753.000	.075	2041.000	.125	2293.000	000
ET	000	4.100	4.100	.000	1600.000	4.100	4 100	4 100	000	000
X1	9.405	49.000	349.000	753.000	1900.000	1480 000	1615 000	000	000	000
GR	626.200	.000	596 800	109.000	594.100	141 000	591.200	241 000	584 500	349 000
GR	581.300	361.000	576.800	381.000	576.200	401 000	576.600	421.000	578.400	441 000
GR	578.400	461.000	578.500	481 000	577.700	501.000	577.100	521.000	577.600	541.000
GR	577.000	561 000	577.000	581.000	577.000	601.000	577 200	621.000	577 800	641 000
GR	577.900	661.000	578.100	681.000	578.700	701 000	579.800	721.000	581.300	741 000
GR	583.600	753.000	590.900	777.000	591 200	789.000	591.400	812.000	590.600	841.000
GR	592.200	941.000	590.400	1041.000	590.200	1141.000	590.800	1241.000	590 900	1341.000
GR	590.200	1441.000	593.700	1541.000	594.500	1641.000	594.400	1741.000	594.600	1841.000
GR	593.600	1941.000	593.200	2041.000	592.800	2072.000	592.200	2089.000	592 400	2141.000
GR	592.400	2165.000	593.900	2165.000	600.800	2237 000	621 000	2293.000	.000	.000
NH	3 000	.075	785.000	.125	805 000	033	1149.000	.000	000	.000
X1	9.802	29.000	805.000	1149 000	2050.000	1750.000	2095.000	.000	000	.000
X3	10.000	.000	.000	234 000	.000	.000	.000	.000	000	.000
GR	601.500	.000	598.000	100.000	595.000	200.000	590.500	300.000	592.600	400 000
GR	592.700	500.000	591.500	600.000	588.600	700.000	590.600	785.000	591.100	805 000
GR	583.900	808.000	581 400	824.000	579.800	840.000	578.700	860.000	578.600	880.000
GR	577.900	900 000	577.000	920.000	576.100	940 000	575 400	960.000	574 400	980.000
GR	573.000	1000 000	573.600	1020.000	575.700	1040.000	577 000	1060.000	578.500	1080.000
GR	581.800	1100.000	583.100	1103 000	593.300	1120.000	615.800	1149.000	000	000
NC	.125	.125	.033	.000	.000	.000	.000	000	.000	.000
X1	10.354	29.000	395.000	700.000	2300.000	2915.000	2915.000	.000	000	000
GR	599.700	.000	588.300	30.000	587.400	68.000	588.900	168.000	590.700	268.000
GR	591 100	368.000	590.400	388.000	582 000	395 000	580.100	408.000	578.200	428.000
GR	577.400	448.000	576.600	468.000	576.100	488.000	575.600	508 000	575 500	528.000
GR	575.200	548.000	574 600	568.000	574.200	588.000	573.900	608.000	573.500	628.000
GR	573 100	648.000	574.700	658.000	576.000	668.000	577.900	678 000	580.000	687.000
GR	587.700	700.000	594.100	715.000	599.700	731.000	610.400	754.000	000	000
EJ	.000	.000	.000	.000	000	.000	.000	.000	000	000

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

#PROF 1

CCHV= .100 CEHV= 300
1490 NH CARD USED
#SECNO 6 896

3470 ENCROACHMENT STATIONS= 2550.0 4834 0 TYPE= 1 TARGET= 2284.000
FIS XSEC 6 OS LIMIT OF FLOODWAY REVISION

6.90	21 00	590.00	.00	.00	590.09	09	.00	00	588 29
23150.	1345	21414.	391.	4510.	8564.	1563.	0	0.	588 90
.00	.30	2.50	.25	.110	.036	.125	000	569.00	2550 00
.000084	850.	825.	800.	0	0	0	.00	2284.00	4834 00

1490 NH CARD USED
#SECNO 7.052

3470 ENCROACHMENT STATIONS= 1550 0 5320.0 TYPE= 1 TARGET= 3770.000

7 05	17.48	590.08	.00	.00	590 17	.09	.08	.00	588.10
23150.	1664	19512.	1974.	5525	7280.	4283	307.	59	586.60
.10	.30	2.68	46	.119	.036	.078	.000	572.60	1550 00
.000118	750.	825.	1050.	0	0	0	.00	3770 00	5320.00

1490 NH CARD USED
#SECNO 7.207

3470 ENCROACHMENT STATIONS= 1900.0 5470.0 TYPE= 1 TARGET= 3570.000
FIS XSEC H

7.21	14.09	590.19	00	.00	590 32	.13	14	.01	588.10
23150	1140	18368.	3642.	4208.	5605	5093.	614.	130.	586.60
.18	27	3.28	.72	.181	.036	.076	.000	576.10	1900 00
.000247	800.	818.	900.	2	0	0	00	3570.00	5470.00

CCHV= 100 CEHV= .300
#SECNO 7 726

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 200 0 1793.0 TYPE= 1 TARGET= 1593.000

7 73	16 94	590.84	.00	00	591.14	30	77	.05	586 50
23150.	1234.	21712.	203.	2621.	4757.	627	1332.	291.	589.50
.36	47	4 56	32	.125	035	125	000	573 90	200 00
000322	2750	2735.	2700.	2	0	0	.00	1575 08	1793 00

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

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CCHV=     100 CEHV=    .300
#SECND 7.801

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     250 0    1743.0  TYPE=     1  TARGET=    1493.000
                FIS XSEC I
     7.80    17.07   590.97     .00      .00   591.27      .30      .13       00   586.50
   23150.   1253.   21721.    176.    2612.    4796.     552.    1406.     305.    589 50
      .39      .48     4.53     .32     .125     .035     .125     .000   573.90   250.00
  .000314     400.     400.     400.        1        0        0      .00  1483.45  1743.00


#SECND 7.877

3265 DIVIDED FLOW


3470 ENCROACHMENT STATIONS=     250.0    1743.0  TYPE=     1  TARGET=    1493 000
     7.88    17.20   591.10     .00      .00   591.39      .29      .12      .00   586.50
   23150.   1313.   21644.    194.    2722.    4838.     598.    1474.     317.    589 50
      .41      .48     4.47     .32     .125      035     .125     .000   573.90   250 00
  .000303      310.     400.     400.        1        0        0      .00  1492.54  1743.00


1490 NH CARD USED
#SECND 7.934

3470 ENCROACHMENT STATIONS=     646.0    1812.0  TYPE=     1  TARGET=    1166.000
                XSEC J          DS OF BACON SCHOOL EXTENDED
     7.93    17.38   591.18     .00      .00   591.48      .29      .09      .00   586.50
   23150.   1195.   21889.     66.    2312.    4895.     201.    1524.     325.    589.50
      .43       52     4.47     .33     .114     .034     .125      000   573 80   646 00
  .000281      240.     300.     300.        0        0        0      .00  1121 57  1767.57


1490 NH CARD USED
CCHV=     100 CEHV=    .300
#SECND 7.945

3470 ENCROACHMENT STATIONS=     386.0    1552.0  TYPE=     1  TARGET=    1166 000
                XSEC K          US OF BACON SCHOOL EXTENDED
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MANNINGS N OF 10 USED IN LOB TO DESCRIBE LINE OF BUILDINGS

7 95	17.39	591 19	.00	.00	591 50	31	.02	01	586.50
23150.	680.	22400.	70.	1441.	4898.	202.	1534.	327.	589 50
44	47	4.57	.35	.125	.035	.125	.000	573.80	387.00
.000311	60.	60.	60.	1	0	0	.00	1120.59	1507.60

1490 NH CARD USED
$SECNO 7.956

3470 ENCROACHMENT STATIONS= 646.0 1812.0 TYPE= 1 TARGET= 1166.000

7.96	17.42	591.22	.00	.00	591 52	.30	.02	.00	586.50
23150.	1045.	22037.	68.	2331.	4904	204.	1543.	328.	589 50
.44	.45	4.49	.33	133	.034	.125	.000	573.80	646.00
.0002B3	60.	60.	60.	1	0	0	.00	1121.67	1767.67

1490 NH CARD USED
$SECNO 7.965

3470 ENCROACHMENT STATIONS= 646.0 1812.0 TYPE= 1 TARGET= 1166 000

7.97	17.48	591 28	.00	.00	591.54	26	.01	.00	586 50
23150.	1915.	21168.	67.	2374.	4924.	211.	1552.	330.	589.50
.44	.81	4.30	.32	.070	.034	.125	.000	573.80	646.00
.000252	50.	50.	50.	2	0	0	.00	1121 91	1767.91

$SECNO 8 094

3470 ENCROACHMENT STATIONS= 646.0 1812.0 TYPE= 1 TARGET= 1166.000

8.09	17.64	591.44	.00	.00	591.72	.28	18	.01	586.50
23150.	1193.	21879.	78.	2493.	4977	229	1668.	346	589 50
.49	.48	4.40	.34	.125	.034	.125	.000	573.80	646 00
.000266	620.	680.	720.	1	0	0	.00	1122.58	1768.58

1490 NH CARD USED
$SECNO 8.240

8.24	17 98	591.68	.00	.00	591.94	26	.22	00	589.60
23150.	1248.	21882.	20.	2893.	5198.	46.	1809	367.	585.00
55	.43	4.22	.44	096	.034	.125	.000	573 70	52.34
.000247	580.	880.	880.	2	0	0	00	1619.30	1671 63

1490 NH CARD USED
$SECNO 8.345

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	ARDB	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 35	18.12	591.82	.00	.00	592 07	.25	.13	.00	588.80
23150	1433.	21700.	18.	2796.	5250	41.	1882.	375.	586.30
.58	.51	4.13	.44	.078	.034	.125	.000	573 70	67.16
.000235	100.	550.	550.	2	0	0	.00	1852.06	2236.84

CCHV= 300 CEHV= .500
1490 NH CARD USED
#SECNO 8.552

3265 DIVIDED FLOW

8.55	18.38	591.98	.00	.00	592 69	.71	.39	.23	587.80
23150.	1651.	21466.	33.	3710	3055.	43.	1996.	387.	586.30
.63	.45	7.03	76	.149	.033	.125	.000	573.60	66.59
.000686	120.	1095.	1095.	2	0	0	.00	2094.16	2497.07

1490 NH CARD USED
#SECNO 8.560
3280 CROSS SECTION 8.56 EXTENDED 5.78 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 4.1 2625.0 TYPE= 1 TARGET= -4.100

8.56	19.38	592.78	.00	.00	592.96	.18	.11	.16	591.60
23150.	790.	19904.	2456.	2412.	5475.	4687.	2064.	401.	589 30
.66	.33	3.64	.52	.117	.033	.110	.000	573.40	54.65
.000184	250.	350.	300.	2	0	0	.00	2570.35	2625.00

CCHV= .100 CEHV= .300
1490 NH CARD USED
#SECNO 8.948
3280 CROSS SECTION 8.95 EXTENDED 6.09 FEET

3470 ENCROACHMENT STATIONS= 200.0 2225 0 TYPE= 1 TARGET= 2025.000

8.95	19.69	593.09	.00	00	593 27	.18	.31	.00	591 60
23040	812.	20413.	1815	2346.	5586.	3212.	2474	456.	589 30
.80	.35	3.65	.57	.113	033	110	000	573.40	200.00
.000181	130.	1740.	2000	2	0	0	00	2025 00	2225.00

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 8.958
3280 CROSS SECTION 8.96 EXTENDED 6.12 FEET

3470 ENCROACHMENT STATIONS= 200 0 2150.0 TYPE= 1 TARGET= 1950 000

8 96	19 72	593.12	.00	00	593.30	.19	.03	00	591.60
23040	831	20514.	1695.	2380	5598.	2931.	2517.	464.	589 30
.82	.35	3.66	58	.113	.033	110	000	573.40	200 00
.000182	170.	170.	170.	0	0	0	.00	1950.00	2150.00

#SECNO 9.100
3280 CROSS SECTION 9.10 EXTENDED 6.23 FEET

3470 ENCROACHMENT STATIONS= 958.0 2500.0 TYPE= 1 TARGET= 1542 000

9.10	19.83	593.23	00	.00	593.41	.18	11	.00	591 60
23040.	87.	20564.	2389.	338	5638.	4412.	2653.	488.	589.30
87	.26	3.65	.54	.085	.033	.110	.000	573.40	958.00
.000178	830.	630.	350.	0	0	0	.00	1542 00	2500.00

1490 NH CARD USED
#SECNO 9 405

9 40	17 30	593.50	.00	00	593.68	.18	27	00	584.50
23040.	305.	21703.	1033.	702.	6209.	2071.	3006.	541.	587.60
1 00	.43	3.50	.50	.125	.033	.075	000	576.20	161 56
.000158	1900.	1615.	1480.	2	0	0	.00	1373 82	1535 39

1490 NH CARD USED
#SECNO 9.802

3470 ENCROACHMENT STATIONS= 234.0 1149.0 TYPE= 1 TARGET= -234.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 591.10 ELREA= 100000 00

9 80	20 84	593.84	.00	00	594.13	.29	.41	03	591.10
23040.	911.	22129	0.	1440.	5003	0.	3367	591.	100000.00
1.14	.63	4.42	.00	.076	033	075	.000	573 00	234.00
.000252	2050.	2095.	1750.	0	0	0	.00	886 69	1120.69

SECNO	DEPTH	CWSEL	CRIWS	WSELR	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 10.354									
10.35	21.37	594.47	00	00	594 71	.24	.58	.01	582.00
23040	854.	22147	39	1892.	5583.	91	3813.	638.	582.70
1.35	.45	3.97	.43	.125	.033	.125	.000	573.10	13 75
000162	2300	2915.	2915.	2	0	0	.00	702.32	716.07

THIS RUN EXECUTED 01-06-89

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  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
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T1      100-YEAR FLOOD  ENCROACHED
T2
T3

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       6.        0.        0.   .000000       .00         0        0.   590.000       000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

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

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

#PROF 2

CCHV= .100 CEHV= 300
1490 NH CARD USED
#SECNO 6.896

3470 ENCROACHMENT STATIONS= 2550.0 4834.0 TYPE= 1 TARGET= 2284.000
FIS XSEC 6 DS LIMIT OF FLOODWAY REVISION

6.90	21.00	590.00	.00	590.00	590.09	.09	.00	.00	588 20
23150.	1345.	21414.	391.	4510.	8564.	1563.	0.	0.	588.90
.00	.30	2.50	.25	.110	.036	.125	.000	569.00	2550.00
.000084	850.	825.	800.	0	0	0	.00	2284.00	4834.00

1490 NH CARD USED
#SECNO 7.052

3470 ENCROACHMENT STATIONS= 3381.0 5320.0 TYPE= 1 TARGET= 1939.000

7.05	17.47	590.07	.00	590.08	590.18	.11	.08	.01	588.10
22235.	14.	20179.	2042.	95.	7280.	4283.	260.	44.	586.60
.09	.15	2.77	.48	.110	.036	.078	.000	572.60	3381.00
.000126	750.	825.	1050.	0	0	0	.00	1939.00	5320.00

1490 NH CARD USED
#SECNO 7.207

3470 ENCROACHMENT STATIONS= 3381.0 5470.0 TYPE= 1 TARGET= 2089.000
FIS XSEC H

7.21	14.09	590.19	.00	590.19	590.33	.14	.14	.01	588.10
22235.	3.	18550.	3682.	107.	5606.	5097.	480.	84.	586.60
.17	.03	3.31	.72	.850	.036	.076	.000	576.10	3381.00
.000252	800.	818.	900.	2	0	0	.00	2089 00	5470.00

CCHV= .100 CEHV= .300
#SECNO 7.726

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1000.0 1743.0 TYPE= 1 TARGET= 743.000

7.73	16.95	590.85	.00	590.84	591.17	.32	.78	.05	586.50
22235.	252.	21822.	161.	408.	4759.	514.	995.	172.	589 50
.34	.62	4.59	.31	.125	035	.125	.000	573.90	1000.00
.000325	2750.	2735.	2700.	2	0	0	.00	725 64	1743 00

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	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	IBC	ICONT	CORAR	TOPWID	ENDST

CCHV= 100 CEHV= .300
#SECNO 7.801

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 977.0 1743.0 TYPE= 1 TARGET= 766.000
FIS XSEC I

7.80	17.08	590.98	.00	590.97	591.29	.31	.13	.00	586.50
22235.	355.	21701.	179.	558.	4803.	561.	1049.	178.	589.50
.36	.64	4.52	.32	.125	.035	.125	.000	573.90	977.00
.000311	400.	400.	400.	2	0	0	.00	758.13	1743.00

#SECNO 7.877

3470 ENCROACHMENT STATIONS= 977.0 1743.0 TYPE= 1 TARGET= 766 000

7.88	17.21	591.11	.00	591.10	591.42	.30	.12	.00	586.50
22235.	363.	21676.	196.	570.	4842.	603.	1102.	185.	589 50
.39	.64	4.48	.32	.125	.035	.125	.000	573.90	977.00
.000303	310.	400.	400.	1	0	0	.00	766.00	1743.00

1490 NH CARD USED
#SECNO 7.934

3470 ENCROACHMENT STATIONS= 1148.0 1812.0 TYPE= 1 TARGET= 664.000
XSEC J DS OF BACON SCHOOL EXTENDED

7.93	17.42	591.22	.00	591.18	591.50	.28	.08	.00	586.50
21725.	465.	21195.	65.	886.	4906.	205.	1143.	190	589 50
.41	.52	4.32	.32	.136	.034	.125	.000	573.80	1148 00
.000261	240.	300.	300.	2	0	0	.00	619.70	1767.70

1490 NH CARD USED
CCHV= .100 CEHV= .300
#SECNO 7.945

3470 ENCROACHMENT STATIONS= 890.0 1552.0 TYPE= 1 TARGET= 662 000
XSEC K US OF BACON SCHOOL EXTENDED
MANNINGS N OF 10 USED IN LOB TO DESCRIBE LINE OF BUILDINGS

7 95	17.44	591.24	.00	591.19	591 52	.28	02	00	586 50
21725.	520.	21137	68.	887.	4911.	207.	1151.	191.	589.50
.41	.59	4.30	.33	.125	.035	125	.000	573.80	890.00
.000275	60.	60	60	0	0	0	.00	617.76	1507 76

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

1490 NH CARD USED
#SECNO 7.956

3470 ENCROACHMENT STATIONS= 1148 0 1812.0 TYPE= 1 TARGET= 664.000

7.96	17.46	591.26	.00	591.22	591.54	28	.02	.00	586.50
21725.	508.	21150.	67.	893.	4917.	209.	1159.	192.	589.50
.42	.57	4.30	.32	.125	.034	.125	.000	573.80	1148.00
.000258	60.	60.	60.	0	0	0	.00	619 83	1767.83

1490 NH CARD USED
#SECNO 7.965

3470 ENCROACHMENT STATIONS= 1148.0 1812.0 TYPE= 1 TARGET= 664 000

7.97	17.50	591.30	.00	591.28	591.55	.25	.01	.00	586.50
21725.	1184.	20476.	66.	902.	4930.	213.	1166.	192.	589.50
.42	1.31	4.15	.31	.052	.034	.125	.000	573.80	1148.00
.000235	50.	50.	50.	2	0	0	.00	619.99	1767.99

#SECNO 8.094

3470 ENCROACHMENT STATIONS= 1170.0 1812.0 TYPE= 1 TARGET= 642.000

8.09	17.65	591.45	.00	591.44	591.72	.27	.16	01	586.50
21725.	520.	21129.	76.	895.	4980.	230.	1260.	202.	589.50
.47	.58	4.24	.33	.125	034	.125	.000	573.80	1170.00
.000247	620.	680.	720.	1	0	0	.00	598.62	1768.62

1490 NH CARD USED
#SECNO 8.240

3470 ENCROACHMENT STATIONS= 1275.0 1702.0 TYPE= 1 TARGET= 427.000

8.24	17.97	591.67	.00	591.68	591.93	.26	.21	.00	589.60
21325.	30.	21276.	19.	104.	5186.	45.	1372.	211.	585.00
.53	.29	4.10	43	.125	.034	125	.000	573.70	1275.00
.000234	580.	880.	880.	2	0	0	.00	396.62	1671.62

1490 NH CARD USED
#SECNO 8.345

3470 ENCROACHMENT STATIONS= 1870.0 2267.0 TYPE= 1 TARGET= 397.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XWL	XNCH	XWR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
8.35	18.10	591.80	.00	591 82	592 06	.26	.13	00	588.80
21325.	29.	21278.	17.	59.	5243.	41.	1439.	215.	586 30
.56	.50	4 06	.43	.085	.034	.125	.000	573.70	1870.00
.000227	100.	550.	550.	2	0	0	.00	366.81	2236.81

CCHV= 300 CEHV= .500
1490 NH CARD USED
#SECNO 8.552

3470 ENCROACHMENT STATIONS= 2260.0 2527.0 TYPE= 1 TARGET= 267.000

8.55	18.36	591.96	.00	591.98	592.69	.73	.39	.24	587.80
21325.	281.	21013.	32.	104.	3051.	43.	1544	222.	586 30
.61	2.70	6 89	.74	.033	.033	.125	.000	573 60	2260.00
.000660	120.	1095.	1095.	2	0	0	.00	237.04	2497.04

1490 NH CARD USED
#SECNO 8.560
3280 CROSS SECTION 8.56 EXTENDED 5.73 FEET

3470 ENCROACHMENT STATIONS= 1240.0 1775.0 TYPE= 1 TARGET= 535.000

8.56	19.33	592.73	00	592.78	592.96	.23	12	.15	591 60
21325.	4	21048.	273.	17.	5455.	579.	1581.	225.	589 30
.63	.24	3.86	.47	.085	.033	.110	.000	573 40	1240.00
000208	250.	350.	300.	2	0	0	.00	535 00	1775.00

CCHV= .100 CEHV= .300
1490 NH CARD USED
#SECNO 8 948
3280 CROSS SECTION 8.95 EXTENDED 6.11 FEET

3470 ENCROACHMENT STATIONS= 1240.0 2225 0 TYPE= 1 TARGET= 985.000

8.95	19.71	593.11	.00	593 09	593.28	.17	.32	.01	591 60
21215.	6.	19469	1740.	24.	5596.	3227.	1889	257.	589.30
78	.26	3.48	.54	085	033	.110	.000	573 40	1240.00
.000164	130	1740	2000.	2	0	0	.00	985.00	2225.00

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 8.958
3280 CROSS SECTION 8.96 EXTENDED 6.14 FEET

3470 ENCROACHMENT STATIONS= 200.0 2150.0 TYPE= 1 TARGET= 1950.000

8.96	19.73	593.13	.00	593.12	593.32	.19	.03	.00	591.60
23040.	839.	20501.	1699.	2400.	5605.	2941.	1928.	263.	589.30
.80	.35	3.66	.58	.113	.033	.110	.000	573.40	200 00
.000181	170.	170.	170.	1	0	0	.00	1950.00	2150.00

#SECNO 9.100
3280 CROSS SECTION 9.10 EXTENDED 6.24 FEET

3470 ENCROACHMENT STATIONS= 958.0 2500.0 TYPE= 1 TARGET= 1542.000

9.10	19.84	593.24	.00	593.23	593 43	.18	.11	.00	591.60
23040.	88.	20558.	2393.	341.	5641.	4420.	2065.	287.	589.30
.85	.26	3.64	.54	.085	.033	.110	.000	573.40	958.00
.000178	830.	630.	350.	0	0	0	.00	1542.00	2500.00

1490 NH CARD USED
#SECNO 9.405

9.40	17.32	593.52	.00	593.50	593.70	.18	.27	.00	584.50
23040.	305.	21696.	1039.	705.	6215.	2081.	2418.	340.	583.60
.98	.43	3.49	.50	.125	.033	.075	.000	576.20	161.10
.000158	1900.	1615.	1480.	2	0	0	.00	1374.67	1535.77

1490 NH CARD USED
#SECNO 9.802

3470 ENCROACHMENT STATIONS= 234.0 1149.0 TYPE= 1 TARGET= -234.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 591.10 ELREA= 100000.00

9 80	20.85	593.85	.00	593.84	594.14	.29	.41	.03	591 10
23040.	916.	22124.	0.	1447.	5007.	0.	2780.	391.	100000.00
1.12	.63	4.42	.00	.076	.033	.075	.000	573 00	234.00
.000251	2050.	2095.	1750.	0	0	0	.00	886.70	1120.70

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 10.354

10.35	21.38	594.48	.00	594.47	594.72	.23	.57	.01	582.00
23040.	856.	22145.	39.	1895.	5586.	91.	3226.	437.	582.70
1.33	.45	3.96	.43	.125	.033	.125	.000	573.10	13.73
.000161	2300.	2915.	2915.	2	0	0	.00	702.37	716.10

THIS RUN EXECUTED 01-06-89

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 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION AUGUST 1985
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

ST JOSEPH RIVER

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	IOB*S	VCH	AREA	
G	6.896	.00	.00	.00	569.00	23150.00	590.00	.00	590 09	84	2.50	14637 00	25241 42
	6.896	.00	.00	.00	569.00	23150.00	590.00	00	590 09	84	2 50	14677 06	25241 42
	7 052	825.00	.00	.00	572.60	23150.00	590.08	.00	590 17	1.18	2 68	17086 02	21727.5
	7.052	825.00	.00	.00	572.60	22235.00	590 07	00	590.18	1.26	2 77	11658.54	19862 17
H	7.207	818.00	.00	.00	576.10	23150.00	590 19	.00	590 22	2.47	3.28	14905.71	14721 7
	7.207	818.00	.00	.00	576 10	22235 00	590.19	00	590 33	2.52	2 21	10810.36	14006 7
	7.726	2735.00	.00	.00	573.90	23150.00	590.84	.00	591.14	3.22	4.56	8004 88	12898.0
	7 726	2735.00	.00	.00	573.90	22235.00	590.85	00	591.17	3 25	4.59	5680 68	12337 5
I	7.801	400.00	.00	.00	573.90	23150.00	590.97	.00	591 27	3.14	4 53	7959 69	13068 9
	7 801	400 00	00	.00	573.90	22235.00	590.98	.00	591 29	3 11	4.52	5922 08	12598.2
	7.877	400.00	.00	.00	573.90	23150.00	591.10	00	591.39	3.03	4.47	8158 22	13308.1
	7 877	400.00	.00	.00	573.90	22235.00	591.11	.00	591.42	3.03	4 48	6015 98	12783 2
J	7.934	300.00	.00	00	573.80	23150.00	591.18	00	591 48	2 81	4 47	7408.47	13811 3
	7.934	300.00	.00	.00	573.80	21725.00	591 22	.00	591.50	2 61	4 32	5997 60	13474 6
K	7.945	60.00	00	.00	573.80	23150.00	591.19	.00	591.50	3 11	4.57	6541.41	17127 0
	7 945	60.00	00	00	573.80	21725.00	591.24	.00	591 52	2 75	4 30	6005 73	7110.1
	7.956	60.00	.00	.00	573.80	23150 00	591 22	.00	591.52	2.82	4.49	7479 95	13759 3
	7.956	60.00	.00	.00	573 80	21725.00	591 26	00	591.54	2.58	4 30	6019 50	12512.9
	7.965	50.00	.00	.00	573 80	23150 00	591 26	00	591.54	2.52	4.30	7508.06	14569.6
*	7.965	50 00	00	00	573.80	21725.00	591 30	00	591.55	2 35	4.15	6044.85	14167 2
	8 094	680.00	.00	.00	573.80	23150 00	591 44	00	591 72	2.66	4 40	7699 57	14205 5
	9 094	680 00	.00	00	573 80	21725.00	591 45	.00	591 72	2 47	4.24	6105 17	13817 1

	SECNO	YLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*FS	VCH	AREA	.01K
L	8 240	880.00	00	.00	573 70	22150.00	591.68	.00	591.94	2 47	4 22	8128 56	14735 41
	8 240	880 00	.00	00	573.70	21325.00	591.67	00	591.93	2 34	4.10	5335.37	13942.42
M	8.345	550.00	.00	.00	573 70	23150 00	591 82	.00	592.07	2 35	4.13	8086 46	15100 24
	8 345	550 00	.00	.00	573.70	21325.00	591.80	.00	592.06	2 27	4.06	5343 74	14157.11
N	8.552	1095.00	00	.00	573.60	23150.00	591 98	00	592.69	6 86	7.03	6807 32	8836.16
	8.552	1095 00	00	.00	573.60	21325.00	591.96	.00	592 69	6 60	6.89	3198 17	8200 49
	8.560	350 00	00	.00	573 40	23150 00	592 78	.00	592.96	1.84	3 64	12577 75	17056.72
	8.560	350 00	.00	.00	573.40	21325 00	592.73	.00	592 96	2.08	3 86	5051 62	14259.43
O	8.948	1740.00	.00	.00	573.40	23040 00	593.09	.00	593 27	1.81	3.65	11147.89	17118 80
	8.948	1740.00	00	.00	573.40	21215.00	593 11	00	593.28	1 64	3.48	8847 00	16573.43
	8 958	170.00	.00	.00	573 40	23040.00	593.12	00	593.30	1.82	3 66	10909.78	17094 89
	8.958	170.00	.00	.00	573.40	23040 00	593.13	00	593 32	1.81	3.66	10946 29	17141 35
	9.100	630.00	.00	00	573.40	23040.00	593.23	00	593.41	1.78	3 65	10387.87	17255.41
	9.100	630.00	.00	00	573.40	23040 00	593.24	.00	593 43	1.78	3.64	10402 55	17277 69
P	9.405	1615 00	00	.00	576.20	23040.00	593 50	.00	593.68	1.58	3 50	8982 22	18309.33
	9.405	1615.00	.00	00	576 20	23040.00	593.52	00	593.70	1.58	3.49	9000 59	18341 86
Q	9 802	2095 00	.00	.00	573.00	23040.00	593.84	00	594.13	2 52	4 42	6443 06	14522.79
	9.802	2095.00	.00	.00	573 00	23040.00	593.85	00	594 14	2.51	4.42	6454 04	14545 56
R	10.354	2915 00	00	.00	573.10	23040.00	594 47	00	594.71	1 62	3 97	7565.68	18119 15
	10.354	2915.00	.00	.00	573 10	23040.00	594.48	.00	594.72	1 61	3 96	7572.97	18177 94

ST JOSEPH RIVER

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
G	6.896	23150.00	590 00	.00	00	.00	2284.00	.00
	6 896	23150 00	590.00	.00	.00	.00	2284.00	.00
	7.052	23150.00	590.08	.00	.08	.00	3770.00	825.00
	7 052	22235.00	590.07	- 01	.07	-.01	1939.00	825.00
H	7.207	23150.00	590.19	.00	.11	.00	3570.00	818 00
	7.207	22235 00	590.19	.00	.12	.00	2089.00	818.00
	7.726	23150.00	590.84	00	.65	.00	1575.08	2735 00
	7.726	22235.00	590.85	01	.65	.01	725 64	2735 00
I	7.801	23150.00	590.97	.00	.13	00	1483 45	400.00
	7.801	22235.00	590.98	.02	.14	.02	758.17	400.00
	7.877	23150.00	591 10	.00	.13	00	1492 54	400.00
	7.877	22235.00	591.11	.01	.13	01	766.00	400.00
J	7.934	23150.00	591.18	.00	.08	.00	1121.57	300 00
	7.934	21725.00	591.22	.04	.11	.04	619 70	300.00
K	7.945	23150 00	591.19	.00	.00	.00	1120.59	60.00
	7.945	21725 00	591.24	.05	.02	.05	617.76	60.00
	7 956	23150.00	591.22	.00	.04	.00	1121.67	60.00
	7.956	21725.00	591 26	.03	.02	.03	619 83	60.00
	7.965	23150.00	591.28	.00	05	.00	1121.91	50 00
	7.965	21725.00	591 30	02	.04	.02	619.99	50.00
	8 094	23150.00	591 44	.00	.16	00	1122.58	680.00
	8.094	21725.00	591.45	.01	.15	01	598 62	680.00
L	8.240	23150.00	591 68	00	25	.00	1619.30	880 00
	8.240	21325.00	591.67	- 01	.22	-.01	396.62	880 00
M	8 345	23150.00	591.82	.00	.14	.00	1852 06	550.00
	8.345	21325.00	591.80	-.02	13	- 02	366 81	550.00
N	8.552	23150.00	591 98	00	.15	.00	2094.16	1095 00
	8.552	21325.00	591 96	- 02	.16	- 02	237 04	1095.00
	8 560	23150 00	592 78	.00	.80	00	2570 35	350.00
	8 560	21325.00	592.73	-.05	77	- 05	535 00	350 00
O	8 948	23040.00	593.09	00	.31	00	2025.00	1746 00
	8.948	21215.00	593 11	.02	38	.02	985 00	1746 00

01-05-89 15.21:12

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLC
	8 958	23040 00	593.12	.00	.03	00	1950 00	170.
	8.958	23040.00	593 13	.02	.02	.02	1950.04	170
	9 100	23040.00	593.23	00	.11	.00	1542 00	630.
	9.100	23040 00	593.24	01	11	.01	1542.00	630
P	9 405	23040.00	593.50	00	28	.00	1373.82	1615.
	9.405	23040 00	593 52	.01	28	.01	1374.67	1615
Q	9.802	23040.00	593 84	.00	.33	.00	886 69	2095
	9 802	23040.00	593.85	.01	.33	.01	886.70	2095
R	10.354	23040.00	594 47	.00	.64	00	702.32	2915
	10 354	23040.00	594.48	.01	.64	.01	702 37	2915

FLOODWAY DATA, ST JOSEPH RIVER
PROFILE NO. 2

	STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
G	6.896	2284.	14637	1 6	590.0	590 0	0
	7.052	1939.	11659.	1.9	590.1	590.1	.0
H	7.207	2089.	10810.	2.1	590.2	590.2	.0
	7.726	743.	5681	3.9	590.8	590.8	.0
I	7.801	766.	5922.	3.8	591.0	591.0	.0
	7.877	766	6016.	3.7	591.1	591.1	.0
J	7 934	620	5998	3.6	591.2	591.2	.0
K	7.945	618.	6006.	3.6	591.3	591.2	.1
	7.956	620.	6020.	3.6	591.2	591.2	.0
	7.965	620.	6045.	3.6	591.3	591.3	.0
	8.094	599.	6105.	3.6	591.4	591.4	0
L	8.240	397.	5335.	4.0	591.7	591.7	.0
M	8.345	367.	5344.	4.0	591.8	591.8	.0
N	8.552	237	3198.	6.7	592.0	592.0	.0
	8 560	535.	6052.	3.5	592.8	592.8	.0
O	8.948	985.	8847.	2.4	593.1	593.1	.0
	8.958	1950.	10946.	2.1	593.1	593.1	.0
	9.100	1542.	10403.	2.2	593.2	593.2	.0
P	9.405	1375.	9001.	2.6	593.5	593.5	.0
Q	9.802	887.	6454.	3.6	593.8	593.8	0
R	10.354	702.	7573.	3.0	594.5	594 5	.0

```
**********************************************************
*  WATER SURFACE PROFILES                                *
*  VERSION OF NOVEMBER 1976                              *
*  UPDATED MAY 1984                                      *
*  IBM-PC-XT VERSION AUGUST 1985                         *
*  RUN DATE  01-06-89   TIME  14:21.02                   *
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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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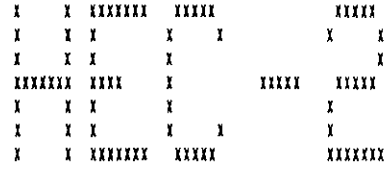

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Royal Rd

3) WATERCOURSE: St. Joseph R

4) DOCUMENT TYPE: Channel / Right Overbank

00BREAK00

CHANNEL/RIGHT OVERBANK
10-, 50-, 100-, 500-YR

THIS RUN EXECUTED 01-06-89

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**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION AUGUST 1985
**************************************************

C
T1   ROYALTON FIS  BERRIEN COUNTY      NATURAL CONDITIONS
T2     10 YEAR FLOOD       CHANNEL FLOW
T3     ST JOSEPH RIVER                          ROYALTON.FIS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       2.        0.        0    .000000       .00       .0        0.   588 310      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

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

J5  LPRNT     NUMSEC                      ********REQUESTED SECTION NUMBERS********

      .000      .000      .000      .000      .000      .000       000      .000      .000      .000

QT      6.000 17430.000 21470.000 23150.000 23150.000 23150.000 27130.000      .000      .000       000
NC       .000      .000      .000      .100      .300       000      .000      .000      .000      .000
NH      5.000      .125 2200.000      .110 3800.000      .125 3845.000       036 4334.000      .125
NH   6454.000      .000      .000      .000      .000      .000      .000      .000       000       000
ET       .000     4.100     4.100 2550 000 4834.000     4.100     4.100      .000      .000      .000
                FIS XSEC 6     DOWNSTREAM LIMIT OF FLOODWAY REVISION
X1      6.896    73.000 3845.000 4334.000  850.000  800.000  825.000      .000      .000       000
X3       .000      .000      .000      .000      .000      .000      .000      .000      .000      .000
GR   610.000       000  585.100  200.000  585.700  400.000  585.200  600.000  586 000  800 000
GR   585.600 1000.000  586.000 1200.000  586.600 1400.000  586 500 1600.000  586 500 1800 000
GR   586.400 2000.000  585.800 2200.000  585 800 2270.000  585.800 2400.000  585.800 2600 000
GR   585.800 2800.000  585.800 3000.000  585.800 3200.000  586.000 3400.000  588.200 3600.000
GR   588.700 3770.000  588.500 3800.000  588.200 3845.000  584 100 3849.000  571 000 3854 000
GR   572.700 3874.000  570.600 3894.000  569.200 3914.000  569.000 3934.000  569.400 3954 000
GR   569.000 3974.000  569.300 3994.000  569 500 4014.000  569.600 4034 000  569.900 4054.000
GR   570.200 4074.000  570 500 4094 000  570.600 4114.000  570 800 4134.000  571.000 4154 000
GR   571 400 4174.000  571.800 4194.000  572 500 4214.000  573.400 4234 000  572 700 4254 000
GR   574.300 4274 000  574.600 4279 000  581.400 4283.000  581.900 4294.000  588 900 4334.000
GR   587.100 4479.000  588.200 4609.000  588.200 4629.000  585 500 4659 000  585 200 4679.000
GR   585 200 4699.000  585.200 4899 000  585.600 4959 000  587.200 5099.000  587.900 5299 000
GR   587.900 5479 000  586.800 5484.000  586 800 5499 000  597.400 5539.000  597 400 5584 000
GR   587.800 5634 000  588 000 5699.000  588.000 5899 000  587.000 5999 000  586.200 6099 000
GR   586 200 6299.000  586.200 6369 000  610 000 6454.000       000      .000       000       000
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NH	5.000	.125	2330 000	.110	3481.000	.036	3970.000	.075	5230.000	125
NH	6755.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
QT	6.000	17160.000	20760 000	.000	.000	22235.000	25690.000	.000	.000	.000
ET	.000	4.100	4.100	3381.000	5320.000	4.100	4.100	000	.000	000
X1	7.052	73.000	3481.000	3970.000	750.000	1050.000	825.000	.000	.000	.000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	610.000	.000	601.700	35.000	601.500	50.000	592.600	130.000	584.700	330 000
GR	585.000	530.000	585.000	730.000	585.000	930.000	585.500	1130 000	586.700	1330.000
GR	586.500	1530.000	585.500	1730.000	585.800	1930.000	586.900	2130.000	587.000	2330.000
GR	587.000	2530.000	587.400	2630.000	585.600	2730.000	586.700	2830.000	588.800	2930.000
GR	589.300	3030.000	588.200	3130.000	588.500	3230.000	589.500	3330.000	589.100	3430.000
GR	589.600	3450.000	588.100	3481.000	574.400	3490.000	575.800	3510.000	573.700	3530 000
GR	572 600	3650.000	572.700	3670.000	573.000	3690.000	573.300	3710.000	573.600	3730.000
GR	573.700	3750.000	573.900	3770.000	574.100	3790.000	574.500	3810.000	574.900	3830.000
GR	575 600	3850.000	576.500	3870.000	575.800	3890.000	577.400	3910.000	577.700	3915.000
GR	580 000	3919.000	580.500	3930.000	586.600	3970.000	587.400	4030.000	588.600	4130 000
GR	587.700	4230.000	587.700	4330.000	586.200	4430.000	587.200	4530.000	588.000	4630 000
GR	587.400	4730.000	587.000	4770.000	586.300	4830.000	586.100	4930.000	585.900	5030.000
GR	585.900	5230.000	585.800	5430.000	585.800	5630.000	586 100	5830.000	585.700	5845 000
GR	585.600	5940.000	585.600	6030.000	585.500	6160.000	585.300	6230.000	585 400	6430.000
GR	585.400	6485.000	591.800	6630.000	610.000	6755.000	.000	.000	.000	.000
NH	6.000	.075	1730.000	.125	2630.000	.850	3481.000	036	3970.000	075
NH	5430.000	.125	6755.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	4.100	3381.000	5470.000	4.100	4.100	.000	000	.000
		XSEC H								
X1	7.207	78.000	3481.000	3970.000	800.000	900.000	818.000	.000	.000	.000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	610.000	.000	601.700	35.000	601.500	50.000	592.600	130 000	584.700	330.000
GR	585.000	530.000	585.000	730.000	585.000	930.000	585.500	1130.000	586.700	1330.000
GR	586.500	1530.000	585.500	1730.000	585.800	1930.000	586.900	2130.000	587.000	2330 000
GR	587.000	2530.000	587.400	2630.000	585.600	2730.000	586.700	2830.000	588.800	2930.000
GR	589.300	3030.000	588.200	3130.000	588.500	3230.000	589.500	3330.000	589.100	3430.000
GR	589.600	3450.000	588.100	3481.000	578.400	3490.000	578.000	3510.000	577.700	3530 000
GR	576.200	3550.000	576.100	3570.000	576.500	3590.000	576.100	3610 000	576.400	3630.000
GR	576.600	3650.000	576.700	3670.000	577.000	3690.000	577.200	3710 000	577 600	3730.000
GR	577.700	3750.000	577.900	3770.000	578.100	3790.000	578.500	3810.000	578 900	3830 000
GR	579.600	3850.000	580.500	3870.000	579.800	3890.000	581.400	3910 000	581.700	3915.000
GR	584.000	3919.000	584.500	3930.000	586.600	3970.000	587.400	4030 000	588.600	4130.000
GR	587.700	4230.000	587.700	4330.000	586.200	4430.000	587 200	4530.000	588.000	4630.000
GR	587.400	4730.000	587.000	4770.000	586.300	4830.000	586.100	4930.000	585 900	5030.000
GR	585.900	5230.000	585.800	5430.000	585.800	5630.000	586.100	5830.000	585 700	5845 000
GR	585 600	5940.000	585.600	6030.000	585.500	6160.000	585.300	6230.000	585.400	6430.000
GR	585.400	6485.000	591.800	6630.000	610.000	6755.000	.000	.000	.000	000
NC	.125	.125	.035	.100	.300	.000	.000	.000	.000	.000
ET	000	4 100	4.100	1000.000	1743.000	4 100	4.100	000	.000	000
X1	7 726	42.000	1077.000	1393.000	2750.000	2700 000	2735.000	.000	.000	000
X3	.000	.000	.000	.000	000	.000	000	.000	.000	000
GR	594.700	.000	594.100	100.000	588 700	200.000	588 400	300.000	587.800	400.000
GR	588.400	500.000	587.800	600.000	588.600	700.000	587 000	800 000	590.100	892.000
GR	589.000	930.000	585.800	956.000	584.600	1000.000	586.500	1077 000	582 000	1080 000
GR	579.000	1090.000	576.200	1100.000	576.600	1120.000	575.300	1140.000	575.500	1160.000

GR	575.100	1180.000	574.300	1200.000	574.400	1220.000	575.000	1240.000	575 100	1260 000
GR	574.600	1280.000	574.200	1300.000	573.900	1320.000	574 200	1340 000	575.300	1360.000
GR	580.600	1380.000	582.200	1389.000	589.500	1393.000	589.500	1496.000	591.100	1525.000
GR	589.600	1600.000	588.000	1700 000	589.200	1860.000	591.300	1900 000	593.300	2000 000
GR	596.400	2072.000	605.200	2100 000	000	.000	.000	.000	.000	.000
NC	125	125	035	.100	.300	000	000	.000	000	000
ET	.000	4.100	4.100	977.000	1743.000	4.100	4 100	.000	.000	000
		XSEC I								
X1	7 801	42.000	1077.000	1393.000	400 000	400.000	400 000	000	.000	000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	000
GR	594.700	.000	594.100	100.000	588.700	200.000	588.400	300.000	587 800	400.000
GR	588.400	500.000	587.800	600.000	588.600	700.000	587.000	800.000	590.100	892 000
GR	589.000	930.000	585.800	956.000	584.600	1000.000	586 500	1077 000	582.000	1080 000
GR	579.000	1090.000	576.200	1100.000	576.600	1120.000	575.300	1140.000	575.500	1160 000
GR	575.100	1180.000	574 300	1200.000	574 400	1220 000	575 000	1240 000	575.100	1260.000
GR	574.600	1280.000	574.200	1300.000	573.900	1320.000	574.200	1340.000	575.300	1360.000
GR	580.600	1380.000	582.200	1389.000	589.500	1393.000	589.500	1496.000	591 100	1525 000
GR	589.600	1600.000	588.000	1700.000	589.200	1860.000	591.300	1900.000	593.300	2000 000
GR	596.400	2072 000	605.200	2100.000	.000	.000	.000	.000	.000	000
ET	.000	4.100	4.100	977.000	1743.000	4.100	4.100	.000	.000	.000
X1	7.877	000	000	.000	310 000	400.000	400 000	000	000	000
NH	5.000	.100	1198.000	10.000	1224.000	.125	1345.000	034	1661.000	125
NH	1812.000	.000	.000	.000	.000	.000	.000	.000	000	.000
QT	6.000	17030.000	20380.000	.000	.000	21725.000	24880.000	.000	000	000
ET	.000	4.100	4.100	1148.000	1812.000	4.100	4.100	000	.000	.000
		XSEC J		DS OF BACON SCHOOL ROAD						
X1	7 934	45.000	1345.000	1661 000	240.000	300.000	300.000	.000	.000	.000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	000
GR	610.000	.000	599.700	30.000	596 000	200.000	593 200	400 000	591 800	440.000
GR	588.900	480.000	588.900	600.000	587.800	800.000	588.600	1050.000	589.300	1175.000
GR	587.200	1140.000	589.600	1150.000	589.900	1160.000	589.000	1198 000	585 800	1224.000
GR	584.600	1268 000	586 500	1345 000	581.900	1348.000	578 900	1358 000	576.100	1368 000
GR	576.500	1388.000	575.200	1408.000	575.400	1428.000	575.000	1448.000	574 200	1468.000
GR	574.300	1488.000	574.900	1508.000	575.000	1528.000	574.500	1548.000	574 100	1568 000
GR	573.800	1588.000	574.100	1608.000	575 200	1628 000	580 700	1648 000	582.100	1657 000
GR	589 500	1661 000	589.500	1683.000	591.100	1689.000	589 600	1705.000	588 000	1726 000
GR	589.200	1760.000	591.300	1768.000	593.300	1776.000	596.400	1797.000	605 200	1812 000
NH	5 000	125	800.000	10 000	875 000	.125	1085 000	034	1401 000	125
NH	1552.000	000	.000	.000	.000	.000	000	000	000	.000
NC	.000	.000	.000	.100	300	.000	000	000	.000	.000
ET	000	4 100	4 100	890.000	1552.000	4 100	4 100	000	000	.000
		XSEC K		US OF BACON SCHOOL ROAD						
X1	7.945	42.000	1085.000	1401.000	60.000	60.000	60.000	000	.000	000
X3	.000	000	000	000	000	000	000	000	000	000
X4	1 000	589 800	875 000	.000	.000	.000	.000	.000	001	000
GR	601 700	.000	598.000	100.000	595 250	200 000	592 500	300 000	591.000	401 000
GR	590.250	500 000	589.900	600.000	589.750	700 000	589.950	800.000	589 800	901 000
GR	589.000	938.000	585 800	964.000	584 600	1008.000	586 500	1085 000	581 900	1088 000
GR	578 900	1098.000	576 100	1109 000	576 500	1128 000	575.200	1148.000	575 400	1168 000
GR	575.000	1188.000	574 200	1208.000	574.300	1228.000	574 900	1248 000	575.000	1268 000

GR	574 500	1288 000	574.100	1308 000	573.800	1328.000	574.100	1348.000	575.200	1768.000
GR	580 700	1388.000	582 100	1397 000	589.500	1401.000	589 500	1423.000	591 100	1429 000
GR	589.600	1445.000	588.000	1466.000	589 200	1500.000	591 300	1508.000	593.300	1516.000
GR	596.400	1537.000	605.200	1552.000	.000	.000	.000	.000	.000	.000
NH	5 000	.125	1050 000	10.000	1135.000	.125	1345.000	.034	1661 000	125
NH	1812.000	.000	000	.000	000	000	.000	000	000	.000
ET	.000	4.100	4.100	1148 000	1812.000	4.100	4.100	000	000	100
X1	7.956	45 000	1345.000	1661 000	60.000	60.000	60 000	.000	.000	000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	610.000	.000	599.700	30.000	596.000	200 000	593.200	400.000	591.800	440 000
GR	588 900	480.000	588.900	600.000	587.800	800.000	588 600	1050.000	589.300	1135.000
GR	587.200	1140.000	589.600	1150.000	589.900	1160 000	589.000	1198.000	585.800	1224.000
GR	584.600	1268.000	586.500	1345.000	581.900	1348.000	578 900	1358.000	576.100	1368 000
GR	576.500	1388.000	575.200	1408.000	575.400	1428.000	575 000	1448.000	574 200	1468 000
GR	574.300	1488.000	574.900	1508.000	575.000	1528.000	574.500	1548.000	574.100	1568 000
GR	573.800	1588.000	574.100	1608.000	575.200	1628.000	580.700	1648.000	582.100	1657.000
GR	589.500	1661.000	589.500	1683.000	591.100	1689 000	589.600	1705.000	588.000	1725 000
GR	589.200	1760.000	591.300	1768.000	593.300	1776 000	596.400	1797 000	605.200	1812 000
NH	5.000	.125	440.000	.075	840.000	.125	1325.000	034	1659.000	125
NH	1702.000	.000	.000	.000	.000	.000	.000	000	000	000
ET	.000	4.100	4.100	1148.000	1812.000	4 100	4.100	.000	000	.000
X1	7.965	.000	.000	000	50.000	50.000	50 000	.000	000	000
X3	.000	.000	.000	000	.000	.000	.000	.000	000	000
NC	.125	.125	034	.000	.000	000	.000	000	000	000
ET	.000	4.100	4.100	1170.000	1812.000	4.100	4.100	.000	.000	.000
X1	8.094	.000	.000	.000	620.000	720.000	680.000	.000	.000	.000
X3	.000	.000	.000	000	.000	000	.000	.000	.000	.000
NH	5.000	.125	440.000	.075	840.000	.125	1325.000	.034	1659.000	125
NH	1702.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
BT	6.000	17000.000	20110.000	.000	.000	21325.000	24080.000	000	.000	000
ET	.000	4.100	4.100	1275.000	1702.000	4.100	4.100	.000	.000	000
X1	8.240	39.000	1325.000	1659.000	580.000	880.000	880.000	.000	000	.000
X3	.000	000	.000	.000	.000	.000	.000	.000	000	.000
GR	610.000	.000	589.000	60.000	589.000	110.000	590.200	140 000	591.400	190 000
GR	589.400	240 000	590.000	440.000	588.000	640 000	589.300	840.000	589 700	1040.000
GR	589.600	1060.000	589.600	1080.000	587.700	1085.000	589.600	1090.000	589 600	1325 000
GR	586.900	1337.000	583.800	1338.000	582.300	1345.000	578 300	1355.000	575.300	1365.000
GR	575.600	1385.000	574.500	1405.000	574 600	1425.000	574.300	1445.000	574.100	1465.000
GR	574.900	1485.000	574.900	1505.000	575.000	1525.000	574.400	1545 000	573 700	1557.000
GR	574 600	1585.000	575.600	1605 000	576.900	1625 000	579.400	1645 000	580.500	1657 000
GR	585.000	1659.000	586.300	1660.000	587 200	1665 000	612 200	1702.000	.000	.000
NH	5.000	.125	110.000	075	1712.000	.085	1890 000	034	2225 000	125
NH	2267.000	000	.000	000	.000	.000	.000	000	000	.000
ET	000	4 100	4.100	1870 000	2267.000	4.100	4 100	000	.000	000
X1	8.345	42 000	1890.000	2225.000	100.000	550.000	550 000	.000	.000	000
X3	.000	.000	.000	.000	000	.000	.000	000	000	000
GR	610.000	.000	589.700	75.000	589.500	95.000	589.000	105 000	589 600	110.000
GR	589.000	305.000	589.600	505.000	591.600	705 000	591.800	905 000	592.000	1030.000
GR	592.100	1130.000	591.900	1230.000	590.600	1330.000	589.100	1430.000	589 400	1530 000

GR	588.600	1630.000	590.100	1712.000	589.000	1830.000	588 800	1890.000	586 900	1902.000
GR	587.800	1903 000	582 300	1910.000	578.300	1920.000	575.300	1930.000	575 600	1950 000
GR	574.500	1970.000	574.600	1990 000	574 300	2010.000	574.100	2030.000	574.900	2050 000
GR	574.900	2070.000	575.000	2090.000	574.400	2110.000	573.700	2130.000	574 600	2150.000
GR	575.600	2170.000	576.900	2190 000	579 400	2210.000	580.500	2222 000	586.300	2225 000
GF	587 200	2230.000	612.200	2267.000	.000	.000	000	000	.000	.000
NC	.000	.000	.000	.300	500	.000	.000	.000	000	000
NH	6 000	.125	110.000	.075	1905.000	.085	2254.000	.125	2255.000	.033
NH	2485.000	.125	2527.000	.000	.000	.000	.000	000	000	000
ET	.000	4 100	4.100	2260.000	2527.000	4.100	4.100	000	.000	000
X1	8.552	42 000	2285.000	2485.000	120.000	1095.000	1095.000	000	.000	.000
X3	000	.000	.000	.000	.000	.000	000	.000	000	000
GR	610.000	.000	589.700	75.000	589 500	95 000	589.000	105.000	589.600	110 000
GR	589.000	305.000	589 600	505.000	591.600	705.000	593.400	905.000	591.800	1105.000
GR	590.000	1205.000	590.800	1305.000	591.400	1345.000	596 200	1465 000	591 000	1505 000
GR	589.600	1705.000	588.900	1905.000	590.100	1970.000	590.400	2005.000	589.300	2105.000
GR	590.200	2254.000	587.800	2255.000	587.800	2285.000	586.800	2292.000	587.300	2305.000
GR	574.400	2311 000	574 500	2322.000	574.200	2333.000	574 000	2344.000	574 800	2355 000
GR	574 800	2370.000	574.900	2385.000	574.300	2400.000	573 600	2415.000	574.500	2425.000
GR	575.500	2441 000	576.800	2452.000	579.300	2465.000	580.400	2482.000	586.300	2485 000
GR	587.200	2490.000	612.200	2527.000	.000	.000	000	.000	000	.000
NH	4.000	.125	660.000	.085	1258.000	.033	1625.000	.110	2625.000	000
ET	.000	4.100	4.100	1240.000	1775.000	4.100	4.100	.000	000	.000
X1	8.560	51.000	1258.000	1625.000	250.000	300 000	350.000	000	.000	000
X3	.000	.000	000	.000	.000	.000	.000	.000	.000	000
GR	604.300	.000	596.000	25.000	592.200	60.000	590.600	92 000	589.100	160.000
GR	589.600	260.000	588.300	360 000	589 600	460 000	590 800	560.000	591.200	660 000
GR	591.000	760.000	591.700	860.000	591.700	960.000	591.800	1025.000	592 500	1125.000
GR	592.400	1158.000	592.200	1225.000	591.600	1258.000	578.000	1270 000	574.900	1285.000
GR	575.800	1305.000	573.400	1325.000	573 900	1345.000	574.400	1365.000	576.200	1385.000
GR	576 800	1405.000	577.600	1425.000	578.200	1445.000	578 600	1465.000	578.800	1485 000
GR	579.000	1505.000	579.200	1525.000	579.200	1545.000	579 300	1565.000	579.400	1585.000
GR	581.300	1605.000	581.600	1615.000	583.900	1622.000	589.300	1625.000	588.800	1725.000
GR	587.600	1825.000	587.300	1925.000	587.000	2012.000	584.500	2051.000	587.700	2084 000
GR	585.800	2125.000	591.100	2225.000	588 000	2325.000	589 800	2425.000	587.700	2525.000
GR	587.000	2625.000	.000	.000	.000	.000	.000	000	.000	.000
QT	6.000	16830 000	19980.000	.000	.000	21215.000	23980.000	.000	.000	000
NC	.000	000	.000	.100	.300	.000	.000	.000	000	000
NH	4 000	.125	660.000	.085	1258.000	033	1625.000	110	2625.000	000
ET	000	4.100	4.100	1240.000	2225.000	4 100	4.100	000	.000	000
X1	8.948	.000	000	000	130.000	2000.000	1740 000	.000	.000	000
QT	6.000	17260.000	21340.000	000	.000	23040 000	27030.000	000	000	.000
ET	.000	4.100	4.100	200.000	2150.000	4.100	4 100	.000	.000	000
X1	8.958	.000	000	.000	170 000	170 000	170.000	.000	.000	.000

ET	.000	4.100	4 100	958.000	2500.000	4.100	4.100	4.100	.000	.00
X1	9.100	000	.000	.000	830.000	350.000	630.000	.000	.000	.00
NH	4.000	125	349.000	.033	753.000	.075	2041.000	.125	2293 000	.00
ET	000	4.100	4.100	.000	1600.000	4.100	4 100	4 100	000	00
X1	9 405	49.000	349.000	753.000	1900.000	1480 000	1615.000	.000	.000	00
GR	626.200	.000	596.800	109.000	594.100	141.000	591.200	241.000	584.500	349.00
GR	581.300	361.000	576.800	381.000	576.200	401.000	576.600	421.000	578 400	441 00
GR	578.400	461.000	578.500	481.000	577.700	501.000	577.100	521.000	577.600	541.00
GR	577.000	561.000	577.000	581.000	577.000	601.000	577.200	621 000	577.800	641 00
GR	577.900	661.000	578.100	681.000	578.700	701 000	579 800	721.000	581.300	741 00
GR	583 600	753.000	590.900	777 000	591.200	789.000	591.400	812.000	590.800	841.00
GR	592.200	941.000	590.400	1041.000	590.200	1141.000	590.800	1241.000	590.900	1341.00
GR	590.200	1441.000	593.700	1541.000	594.500	1641.000	594.400	1741.000	594.600	1841 00
GR	593.600	1941.000	593.200	2041 000	592.800	2072 000	592 200	2089 000	592.400	2141 00
GR	592.400	2165.000	593 900	2165.000	600.800	2237.000	621.000	2293.000	.000	.00
NH	3.000	.075	785.000	.125	805.000	.033	1149.000	.000	.000	00
X1	9.802	29.000	805.000	1149.000	2050.000	1750.000	2095.000	.000	.000	.00
X3	10.000	.000	.000	234.000	.000	.000	.000	.000	000	00
GR	601.500	.000	598.000	100.000	595.000	200.000	590 500	300.000	592.600	400.00
GR	592.700	500.000	591.500	600.000	588.600	700.000	590.600	785.000	591.100	805.00
GR	583.900	808.000	581.400	824.000	579.800	840.000	578.700	860.000	578.600	880 00
GR	577.900	900.000	577.000	920.000	576.100	940.000	575.400	960.000	574.400	980 00
GR	573.000	1000.000	573.600	1020.000	575.700	1040.000	577.000	1060.000	578 500	1080.00
GR	581.800	1100.000	583.100	1103 000	593.300	1120 000	615 800	1149.000	.000	.00
NC	.125	.125	.033	.000	.000	.000	.000	.000	.000	00
X1	10.354	29.000	395.000	700.000	2300.000	2915.000	2915.000	.000	.000	.00
GR	599.700	.000	588.300	30.000	587.400	68.000	588.900	168.000	590.700	268.00
GR	591.100	368.000	590.400	388.000	582.000	395.000	580.100	408.000	578 200	428.00
GR	577.400	448.000	576.600	468.000	576.100	488.000	575.600	508.000	575 500	528.00
GR	575.200	548.000	574.600	568.000	574.200	588.000	573.900	608.000	573.500	628.00
GR	573.100	648.000	574.700	658.000	576.000	668.000	577.900	678 000	580.000	687.00
GR	582.700	700.000	594.100	715.000	599 700	731.000	610.400	754 000	.000	.00
EJ	.000	.000	.000	.000	000	.000	.000	.000	.000	00

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

#PROF 1

CCHV= .100 CEHV= .300
1490 NH CARD USED
#SECNO 6.896

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 2550.0 4834.0 TYPE= 1 TARGET= 2284.000
FIS XSEC G DOWNSTREAM LIMIT OF FLOODWAY REVISION

6.90	19.31	588.31	.00	.00	588.38	.07	.00	.00	588.20
17430.	476.	16823.	131.	2358.	7739.	732.	0.	0.	588.90
.00	.20	2.17	18	.110	.036	.125	.000	569.00	2550 00
.000072	850.	825.	800.	0	0	0	.00	2041.99	4834.00

1490 NH CARD USED
#SECNO 7.052

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 3381.0 5320.0 TYPE= 1 TARGET= 1939.000

7.05	15.77	588.37	.00	.00	588.47	.10	08	.01	588.10
17160	0.	16523.	637.	1.	6448.	1993.	187.	40.	586 60
.09	04	2.56	.32	.110	.036	.079	.000	572.60	3475.36
000127	750.	825.	1050.	0	0	0	.00	1800.53	5320.00

1490 NH CARD USED
#SECNO 7.207

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 3381 0 5470.0 TYPE= 1 TARGET= 2089.000
XSEC H

7.21	12.38	588.48	.00	00	588.64	.16	16	.02	588 10
17160.	0	15755	1405.	2.	4771	2537.	340.	78.	586.60
17	.01	3.30	.55	850	036	076	000	576 10	3473 08
.000311	800.	818.	900	2	0	0	.00	1974.24	5470.00

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

CCHV= .100 CEHV= .300
#SECNO 7.726

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=			1000.0	1743.0	TYPE=	1	TARGET=	743 000	
7 73	15.34	589.24	.00	.00	589.48	.25	.82	.03	586 50
17160.	131.	17012.	17	284.	4251.	94.	713.	155.	589.50
.36	.46	4.00	.18	125	035	.125	.000	573.90	1000.00
.000287	2750.	2735.	2700.	2	0	0	.00	513.16	1743.00

CCHV= .100 CEHV= .300
#SECNO 7.801

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=			977.0	1743.0	TYPE=	1	TARGET=	766.000	
XSEC 1									
7.80	15.46	589.36	.00	.00	589.60	.24	.11	.00	586.50
17160.	190.	16950	20.	395.	4289.	109.	757.	160.	589.50
.39	.48	3.95	.18	.125	.035	.125	.000	573.90	977.00
.000277	400.	400.	400.	0	0	0	.00	543.71	1743.00

#SECNO 7 877

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=			977.0	1743.0	TYPE=	1	TARGET=	766.000	
7.88	15.57	589.47	.00	00	589 71	.24	11	.00	586.50
17160.	196.	16941.	23.	406.	4322.	123.	800	165.	589 50
42	.48	3.92	.19	.125	.035	.125	.000	573.90	977.00
.000270	310.	400.	400.	0	0	0	.00	550.34	1743.00

1490 NH CARD USED
#SECNO 7.934

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

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1148.0 1812.0 TYPE= 1 TARGET= 664 000
XSEC J DS OF BACON SCHOOL ROAD

7.93	15.76	589.56	.00	.00	589.78	.22	.08	.00	586.50
17030	238.	16784.	8.	563.	4379	50.	833.	169.	589.50
.44	.42	3.83	.17	.134	.034	.125	.000	573.80	1148.00
.000239	240.	300.	300.	1	0	0	.00	566 08	1761 34

1490 NH CARD USED
CCHV= .100 CEHV= .300
#SECNO 7.945

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 890.0 1552.0 TYPE= 1 TARGET= 662.000
XSEC K US OF BACON SCHOOL ROAD

7.95	15.78	589.58	.00	.00	589.80	.22	.01	.00	586 50
17030.	263.	16758.	9.	567.	4386.	51.	840.	170.	589.50
44	.46	3.82	.17	.125	.035	.125	.000	573.80	910.73
000252	60.	60.	60.	0	0	0	.00	568.63	1501 42

1490 NH CARD USED
#SECNO 7.956

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1148.0 1812.0 TYPE= 1 TARGET= 664.000

7.96	15.79	589.59	.00	.00	589.81	.22	.01	.00	586.50
17030.	257.	16764.	9.	569	4391.	53.	847.	170.	589.50
45	.45	3 82	17	.125	.034	.125	.000	573 80	1148.00
000237	60.	60.	60.	0	0	0	.00	568 57	1761 49

1490 NH CARD USED
#SECNO 7.965

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=			1148.0	1812.0	TYPE=	1	TARGET=	664 000	
	7.97	15.82	589.62	.00	.00	589.83	.21	01	.00	586.50
	17030.	626.	16396.	9.	572.	4397.	54.	853.	171.	589.50
	.45	1.09	3.73	.16	050	.034	.125	.000	573.80	1148.00
	.000220	50.	50.	50.	1	0	0	.00	570.15	1761.56

$SECNO 8.094

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=			1170.0	1812.0	TYPE=	1	TARGET=	642 000	
	8.09	15.96	589.76	.00	.00	589.98	.22	.15	.00	586.50
	17030.	272.	16746.	12.	600.	4448.	67.	931.	180.	589.50
	.50	.45	3.76	.18	.125	.034	.125	.000	573.80	1170.00
	.000226	620.	680.	720.	0	0	0	.00	573.02	1762.18

1490 NH CARD USED
$SECNO 8 240

3470 ENCROACHMENT STATIONS=			1275.0	1702.0	TYPE=	1	TARGET=	427 000	
	8.24	16.27	589.97	.00	.00	590.18	.21	.20	.00	589.60
	17000.	2.	16990.	9.	18.	4617.	26.	1028.	189.	585.00
	.57	.09	3.68	.33	.125	.034	.125	.000	573.70	1275.00
	.000220	580.	880.	880.	2	0	0	.00	394.09	1669.09

1490 NH CARD USED
$SECNO 8.345

3470 ENCROACHMENT STATIONS=			1870.0	2267.0	TYPE=	1	TARGET=	397.000	
	8.35	16 39	590 09	.00	.00	590.30	.21	.12	00	588.80
	17000.	7.	16985.	8.	25.	4670	23.	1087.	193.	586 30
	.61	.29	3.64	.33	085	034	125	.000	573.70	1870.00
	000213	100.	550.	550	2	0	0	00	364 28	2234 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

CCHV= 300 CEHV= 500
1490 NH CARD USED
#SECNO 8.552

3470 ENCROACHMENT STATIONS= 2260.0 2527.0 TYPE= 1 TARGET= 267.000

8.55	16.67	590.27	.00	.00	590.86	.60	37	.20	587.80
17000.	119.	16867	14.	61	2711	24	1180	200	586 30
.66	1.93	6.22	.59	.033	.033	.125	.000	573.60	2260.00
.000631	120	1095.	1095.	0	0	0	.00	234 52	2494 52

1490 NH CARD USED
#SECNO 8 560
3280 CROSS SECTION 8.56 EXTENDED 3.91 FEET

3470 ENCROACHMENT STATIONS= 1240.0 1775.0 TYPE= 1 TARGET= 535.000

8.56	17.51	590.91	.00	.00	591.10	.19	.12	.12	591.60
17000.	0.	16905.	95.	0.	4788	306	1212	203	589.30
69	00	3.53	.31	.033	033	.110	.000	573 40	1258.61
.000207	250.	350.	300.	2	0	0	.00	516.39	1775.00

CCHV= .100 CEHV= .300
1490 NH CARD USED
#SECNO 8 948
3280 CROSS SECTION 8.95 EXTENDED 4.28 FEET

3470 ENCROACHMENT STATIONS= 1240.0 2225.0 TYPE= 1 TARGET= 985.000

8.95	17.88	591.28	.00	00	591.43	.15	.33	.00	591.60
16830	0	15930.	900	0	4923	2126	1462.	235	589 30
.84	.00	3.24	.42	.033	.033	.110	.000	573.40	1258 29
000168	130.	1740.	2000	2	0	0	.00	966.71	2225.00

#SECNO 8 958

3265 DIVIDED FLOW

3280 CROSS SECTION 8 96 EXTENDED 4 31 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	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 200.0 2150.0 TYPE= 1 TARGET= 1950.000

8.96	17.90	591.30	00	.00	591.46	.16	.03	00	591.60
17260.	179.	16202.	879.	752.	4934.	1981.	1490.	240.	589.30
.86	.24	3.28	.44	.125	.033	.110	.000	573.40	200 00
000172	170.	170.	170.	0	0	0	.00	1495.75	2150.00

#SECNO 9.100
3280 CROSS SECTION 9.10 EXTENDED 4.41 FEET

3470 ENCROACHMENT STATIONS= 958.0 2500.0 TYPE= 1 TARGET= 1542.000

9.10	18.01	591 41	.00	.00	591.56	15	10	.00	591.60
17260.	0.	16126.	1134.	0.	4970.	2819.	1588.	256.	589.30
.91	.00	3.24	.40	125	033	.110	.000	573 40	1258 17
.000167	830.	630.	350.	0	0	0	.00	1241.83	2500.00

1490 NH CARD USED
#SECNO 9.405

3265 DIVIDED FLOW

9.40	15.47	591.67	.00	.00	591.82	.15	.25	.00	584.50
17260.	145.	16904.	211.	417.	5469.	702.	1851.	300	583 60
1.06	.35	3.09	.30	.125	.033	.075	.000	576.20	224.73
.000147	1900.	1615.	1480.	2	0	0	.00	1195.98	1483.05

1490 NH CARD USED
#SECNO 9.802

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 234 0 1149.0 TYPE= 1 TARGET= -234 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 591.10 ELREA= 100000.00

9.80	18.99	591.99	.00	00	592.22	.23	37	.02	591.10
17260.	219.	17041.	0.	504	4420.	0.	2124	341.	100000.00
1.21	.43	3.86	.00	076	033	075	000	573 00	267.11
000222	2050.	2095	1750.	0	0	0	.00	661.14	1117.80

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

SECNO 10.354									
10.35	19.45	592.55	.00	.00	592.72	.17	.50	.01	582.00
17260.	368.	16871.	22.	1161.	4995.	64.	2486.	382.	582.70
1.46	.32	3.38	.34	125	.033	.125	.000	573.10	18.83
000136	2300	2915.	2915.	2	0	0	00	694.13	712.95

THIS RUN EXECUTED 01-06-89

****
HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION AUGUST 1985
****

T1 50-YEAR FLOOD
T2
T3

	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
J1	0.	3.	0.	0.	.000000	.00	.0	0	589.530	.000

	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
J2	2.000	.000	-1.000	.000	.000	.000	.000	.000	.000	.000

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

$PROF 2

CCHV= .100 CEHV= .300
1490 NH CARD USED
$SECNO 6.896

3470 ENCROACHMENT STATIONS= 2550.0 4834.0 TYPE= 1 TARGET= 2284.000
FIS XSEC G DOWNSTREAM LIMIT OF FLOODWAY REVISION

6.90	20.53	589.53	.00	588.31	589.61	.08	.00	.00	588.20
21470.	1056.	20111.	302.	3901.	8334.	1328.	0.	0.	588.90
.00	.27	2.41	.23	.110	.036	.125	.000	569 00	2550 00
.000081	850.	825.	800.	0	0	0	.00	2284.00	4834.00

1490 NH CARD USED
$SECNO 7.052

3470 ENCROACHMENT STATIONS= 3381.0 5320.0 TYPE= 1 TARGET= 1939.000

7.05	17.00	589.60	.00	588.37	589.70	.11	.08	.01	588.10
20760.	5.	19173.	1582.	48.	7049.	3645.	240.	44	586 60
.09	.10	2.72	.43	.110	.036	.078	.000	572.60	3381.00
.000127	750.	825.	1050.	0	0	0	.00	1939.00	5320.00

1490 NH CARD USED
$SECNO 7.207

3470 ENCROACHMENT STATIONS= 3381.0 5470.0 TYPE= 1 TARGET= 2089.000
XSEC H

7.21	13.62	589.72	.00	588.48	589.86	.15	.15	01	588.10
20760.	1.	17779.	2980.	60.	5374.	4386.	440.	84.	586 60
17	.02	3.31	.68	850	.036	076	.000	576.10	3381 00
.000266	800.	818.	900.	2	0	0	.00	2089.00	5470.00

CCHV= .100 CEHV= .300
$SECNO 7.726

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1000 0 1743.0 TYPE= 1 TARGET= 743 000

7 73	16.50	590.40	.00	589.24	590.70	30	.79	.05	586.50
20760.	215.	20444.	101	373	4619.	372.	915	171.	589 50
.34	.58	4.43	.27	.125	035	.125	.000	573.90	1000.00
.000315	2750.	2735	2700.	2	0	0	00	695 31	1743 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

CCHV= 100 CEHV= 300
#SECNO 7.801

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=			977.0	1743.0	TYPE=	1	TARGET=	766 000	
XSEC I									
7.80	16.63	590.53	.00	589 36	590 82	29	.12	.00	586.50
20760.	305.	20342.	114.	512.	4658	411.	965.	177.	589.50
.37	.59	4.37	.28	.125	.035	.125	.000	573.90	977.00
.000303	400.	400.	400.	1	0	0	00	726.83	1743.00

#SECNO 7.877

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=			977.0	1743.0	TYPE=	1	TARGET=	766.000	
7.88	16.76	590.66	.00	589.47	590.94	28	.12	.00	586.50
20760.	312.	20320.	128.	525.	4699	451.	1016.	184.	589.50
.40	.59	4.32	.28	.125	.035	.125	000	573.90	977.00
.000294	310.	400.	400.	1	0	0	00	735 61	1743 00

1490 NH CARD USED
#SECNO 7.934

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=			1148.0	1812.0	TYPE=	1	TARGET=	664.000	
XSEC J			DS OF BACON SCHOOL ROAD						
7.93	16 96	590,76	.00	589.56	591.03	.27	.08	.00	586 50
20380.	392.	19944.	44.	794.	4758.	156.	1054.	188	589 50
.42	.49	4.19	.28	.136	.034	.125	.000	573.80	1148.00
000256	240.	300.	300.	1	0	0	.00	612.89	1765 91

1490 NH CARD USED
CCHV= 100 CEHV= 300

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

#SECND 7 945

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=			890.0	1552.0	TYPE=	1	TARGET=	662.000	
	XSEC K		US OF BACON SCHOOL ROAD						
7.95	16.98	590.78	.00	589.58	591.04	26	.02	.00	586.50
20380.	439.	19895.	46.	798.	4766.	159.	1062.	189.	589 50
.42	.55	4.17	.29	.125	035	125	000	573.80	890.00
.000269	60.	60.	60.	0	0	0	.00	611 35	1506.01

1490 NH CARD USED
#SECND 7.956

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=			1148.0	1812 0	TYPE=	1	TARGET=	664.000	
7.96	17.00	590.80	.00	589.59	591.06	.26	.02	.00	586.50
20380	429.	19906.	45.	803.	4772.	161.	1070	190.	589 50
.42	.53	4.17	28	.125	.034	.125	.000	573.80	1148.00
.000253	60	60.	60.	0	0	0	.00	613.68	1766.08

1490 NH CARD USED
#SECND 7.965

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS=			1148.0	1812.0	TYPE=	1	TARGET=	664.000	
7.97	17.03	590.83	.00	589.62	591.07	.24	.01	.00	586.50
20380.	1013.	19323.	45.	810	4784	164.	1077.	191.	589.50
43	1 25	4.04	27	051	.034	125	000	573 80	1148 00
000231	50.	50.	50.	2	0	0	.00	614.36	1766 22

#SECND 8 094

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= 1170.0 1812.0 TYPE= 1 TARGET= 642.000

8.09	17.18	590.98	.00	589.76	591.24	.26	.16	.00	586.50
20380.	443.	19885.	52.	813.	4833	180	1166.	200.	589.50
47	55	4.11	.29	.125	.034	.125	.000	573.80	1170 00
.000242	620.	680.	720.	1	0	0	.00	595.21	1766 81

1490 NH CARD USED
#SECNO 8.240

3470 ENCROACHMENT STATIONS= 1275 0 1702.0 TYPE= 1 TARGET= 427.000

8.24	17.50	591.20	.00	589.97	591.45	.25	.21	.00	589.60
20110.	19.	20075.	16.	80.	5029	40	1274.	209.	585.00
.53	.24	3.99	.40	.125	.034	125	.000	573 70	1275.00
000231	580.	880.	880.	2	0	0	.00	395.92	1670 92

1490 NH CARD USED
#SECNO 8.345

3470 ENCROACHMENT STATIONS= 1870.0 2267.0 TYPE= 1 TARGET= 397.000

8.35	17.63	591.33	.00	590.09	591.57	.24	.12	.00	588 80
20110.	22.	20073.	14.	50.	5085.	36.	1338.	214	586 30
.57	.45	3.95	.40	085	.034	.125	.000	573.70	1870.00
000224	100.	550.	550.	2	0	0	.00	366.11	2236.11

CCHV= .300 CEHV= .500
1490 NH CARD USED
#SECNO 8 552

3470 ENCROACHMENT STATIONS= 2260 0 2527.0 TYPE= 1 TARGET= 267 000

8.55	17.89	591.49	.00	590.27	592 18	.69	.39	.22	587.80
20110.	232.	19852.	26.	92	2959	37	1441.	221.	586 30
.62	2 51	6 71	70	033	.033	.125	000	573.60	2260.00
.000652	120	1095.	1095	1	0	0	.00	238 36	2496.36

1490 NH CARD USED
#SECNO 8.560
3280 CROSS SECTION 8 56 EXTENDED 5.23 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	IDC	ICONT	CORAR	TOPWID	ENDST

3470 ENCROACHMENT STATIONS= 1240.0 1775.0 TYPE= 1 TARGET= 535 000

8.56	18 83	592.23	.00	590.91	592.44	.22	12	14	591.60
20110.	1.	19892.	217.	8.	5271.	504.	1476.	224.	589 30
.65	.15	3.77	.43	085	.033	.110	.000	573.40	1240.00
.000209	250.	350.	300.	2	0	0	.00	535.00	1775.00

CCHV= .100 CEHV= .300
1490 NH CARD USED
#SECNO 8 940
3280 CROSS SECTION 8.95 EXTENDED 5.61 FEET

3470 ENCROACHMENT STATIONS= 1240.0 2225.0 TYPE= 1 TARGET= 985.000

8.95	19.21	592.61	.00	591.28	592.77	.17	.32	.01	591.60
19980.	3.	18488.	1489.	15.	5411.	2924.	1768.	256.	589 30
.80	.20	3.42	.51	.085	.033	.110	.000	573.40	1240.00
.000165	130.	1740.	2000.	2	0	0	.00	985.00	2225.00

#SECNO 8.958
3280 CROSS SECTION 8.96 EXTENDED 5.64 FEET

3470 ENCROACHMENT STATIONS= 200.0 2150.0 TYPE= 1 TARGET= 1950.000

8.96	19.23	592.63	.00	591.30	592 81	18	.03	.00	591.60
21340.	582.	19305.	1454.	1873.	5422.	2679.	1804.	261	589.30
.81	.31	3.56	.54	.116	.033	.110	.000	573.40	200.00
.000179	170.	170.	170.	0	0	0	.00	1950.00	2150.00

#SECNO 9.100
3280 CROSS SECTION 9.10 EXTENDED 5.73 FEET

3470 ENCROACHMENT STATIONS= 958.0 2500.0 TYPE= 1 TARGET= 1542.000

9.10	19.34	592.74	.00	591.41	592.91	.18	11	.00	591 60
21340.	35	19300	2006.	190	5457.	3980.	1929.	285.	589.30
.86	.18	3.54	.50	.085	.033	.110	.000	573.40	958 00
.000175	830.	630.	350.	0	0	0	00	1542 00	2500 00

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

1490 NH CARD USED
#SECNO 9.405

9.40	16.81	593.01	.00	591 67	593.18	.17	.26	.00	584.50
21340.	254.	20340.	746.	614.	6010.	1689.	2255.	338.	583.60
1.00	.41	3.38	.44	.125	.033	.075	.000	576.20	178 57
.000155	1900.	1615.	1480.	2	0	0	.00	1342.73	1521.30

1490 NH CARD USED
#SECNO 9.802

3470 ENCROACHMENT STATIONS= 234.0 1149.0 TYPE= 1 TARGET= -234.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 591.10 ELREA= 100000.00

9.80	20.34	593.34	.00	591.99	593.61	.27	.40	03	591.10
21340.	654.	20686.	0.	1155.	4845.	0.	2592.	388.	100000.00
1.14	.57	4.27	.00	.076	.033	.075	.000	573.00	237.00
.000244	2050.	2095.	1750.	0	0	0	.00	883.04	1120.04

#SECNO 10.354

10.35	20.86	593.96	.00	592.55	594.17	.22	.55	.01	582.00
21340.	700.	20606.	33.	1694.	5425.	83.	3013.	434.	582.70
1.36	.41	3.80	.40	.125	.033	.125	.000	573.10	15.12
.000154	2300.	2915.	2915.	2	0	0	.00	699.69	714.81

THIS RUN EXECUTED 01-06-89

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 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION AUGUST 1985
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T1      100-YEAR FLOOD
T2
T3

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       6.        0.        0.   .000000       .00       .0        0.   590.000      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     3.000      .000    -1.000      .000      .000      .000      .000       000      .000      .000
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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 3

CCHV= .100 CEHV= .300
1490 NH CARD USED
#SECNO 6 896

3470 ENCROACHMENT STATIONS= 2550.0 4834.0 TYPE= 1 TARGET= 2284.000
FIS XSEC 6 DOWNSTREAM LIMIT OF FLOODWAY REVISION

6.90	21.00	590.00	.00	588.31	590 09	09	.00	.00	588.20
23150.	1345	21414.	391.	4510	8564.	1563.	0	0.	588.90
.00	.30	2.50	.25	.110	.036	.125	000	569 00	2550 00
.000084	850.	825.	800.	0	0	0	.00	2284 00	4834 00

1490 NH CARD USED
#SECNO 7.052

3470 ENCROACHMENT STATIONS= 3381.0 5320.0 TYPE= 1 TARGET= 1939.000

7.05	17.47	590.07	.00	588.37	590 18	.11	.08	.01	588.10
22235.	14.	20179	2042.	95.	7280	4283.	260.	44.	586 60
.09	.15	2.77	48	110	.036	078	.000	572 60	3381 00
.000126	750.	825.	1050.	0	0	0	.00	1939.00	5320.00

1490 NH CARD USED
#SECNO 7.207

3470 ENCROACHMENT STATIONS= 3381.0 5470.0 TYPE= 1 TARGET= 2089.000
XSEC H

7.21	14.09	590.19	.00	588.48	590.33	.14	.14	01	588 10
22235.	3.	18550.	3682.	107.	5606.	5097.	480.	84.	586.60
.17	.03	3.31	.72	850	.036	.076	.000	576.10	3381.00
000252	800.	818.	900.	2	0	0	.00	2089.00	5470 00

CCHV= .100 CEHV= .300
#SECNO 7 726

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1000.0 1743.0 TYPE= 1 TARGET= 743 000

7.73	16.95	590.85	.00	589.24	591 17	32	.78	.05	586.50
22235.	252.	21822.	161.	408.	4759.	514	995	172	589 50
.14	62	4.59	.31	.125	035	125	000	573 90	1000.00
.000325	2750	2735	2700	2	0	0	.00	725 54	1743 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	IOC	ICONT	CORAR	TOPWID	ENDST

CCHV= .100 CEHV= .300
#SECNO 7.801

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 977.0 1743.0 TYPE= 1 TARGET= 766.000
XSEC I

7.80	17.08	590.98	.00	589.36	591.29	31	.13	.00	586.50
22235.	355.	21701.	179.	558.	4803.	561.	1049.	178.	589.50
.36	.64	4.52	.32	.125	.035	.125	000	573.90	977.00
.000311	400.	400.	400	2	0	0	.00	758.13	1743.00

#SECNO 7.877

3470 ENCROACHMENT STATIONS= 977.0 1743.0 TYPE= 1 TARGET= 766.000

7.88	17.21	591.11	.00	589.47	591.42	.30	.12	00	586.50
22235.	363.	21676.	196	570	4842	a03	1102.	185	589.50
.39	.64	4.48	.32	.125	.035	.125	.000	573.90	977.00
.000303	310.	400.	400.	1	0	0	.00	766.00	1743.00

1490 NH CARD USED
#SECNO 7.934

3470 ENCROACHMENT STATIONS= 1148.0 1812.0 TYPE= 1 TARGET= 664.000
XSEC J DS OF BACON SCHOOL ROAD

7.93	17.42	591.22	.00	589.56	591.50	.28	.08	.00	586.50
21725.	465.	21195.	65	886	4906	205.	1143.	190	589.50
41	52	4.32	32	.136	034	.125	.000	573.80	1148.00
.000261	240.	300.	300.	2	0	0	.00	619.70	1767.70

1490 NH CARD USED
CCHV= .100 CEHV= .300
#SECNO 7.945

3470 ENCROACHMENT STATIONS= 890.0 1552.0 TYPE= 1 TARGET= 662.000
XSEC Y US OF BACON SCHOOL ROAD

7.95	17.44	591.24	.00	589.58	591.52	.28	02	00	586.50
21725.	520.	21137.	68.	887.	4911	207.	1151.	191	589.50
.41	.59	4.30	.33	125	035	125	.000	573.80	890.00
000275	60	60.	60	0	0	0	00	617.76	1507.76

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

1490 NH CARD USED
#SECNO 7.956

3470 ENCROACHMENT STATIONS=			1148.0	1812.0	TYPE=	1	TARGET=	664.000	
7.96	17.46	591.26	.00	589.59	591.54	.28	.02	00	586.50
21725.	508.	21150.	67.	893.	4917.	209.	1159.	192.	589 50
.42	.57	4.30	.32	.125	.034	.125	.000	573.80	1148 00
.000258	60.	60.	60.	0	0	0	.00	619.83	1767.83

1490 NH CARD USED
#SECNO 7.965

3470 ENCROACHMENT STATIONS=			1148.0	1812.0	TYPE=	1	TARGET=	664.000	
7.97	17.50	591.30	.00	589.62	591.55	.25	.01	.00	586.50
21725.	1184.	20476.	66.	902.	4930.	213.	1166.	192.	589.50
.42	1.31	4.15	.31	.052	.034	.125	.000	573 80	1148.00
.000235	50.	50.	50.	2	0	0	.00	619.99	1767.99

#SECNO 8.094

3470 ENCROACHMENT STATIONS=			1170.0	1812.0	TYPE=	1	TARGET=	642 000	
8.09	17.65	591.45	.00	589.76	591.72	.27	.16	.01	586.50
21725.	520.	21129.	76	895.	4980.	230.	1260.	202	589.50
.47	.58	4.24	.33	.125	.034	.125	.000	573.80	1170.00
.000247	620.	680.	720.	1	0	0	.00	598.62	1768.62

1490 NH CARD USED
#SECNO 8.240

3470 ENCROACHMENT STATIONS=			1275.0	1702.0	TYPE=	1	TARGET=	427.000	
8.24	17.97	591.67	.00	589.97	591.93	.26	.21	.00	589.60
21325.	30.	21276.	19.	104.	5186.	45.	1372.	211	585.00
.53	.29	4.10	.43	.125	.034	.125	.000	573.70	1275.00
.000234	580.	880.	880	2	0	0	.00	396.62	1671.62

1490 NH CARD USED
#SECNO 8 345

3470 ENCROACHMENT STATIONS=			1870.0	2267.0	TYPE=	1	TARGET=	397 000	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	KV	KL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	JDC	ICONT	CORAR	TOPWID	ENDST
8.35	18.10	591.80	00	590.09	592.06	26	.13	.00	588.80
21325.	29	21278.	17.	59.	5243.	41.	1439.	215.	586.30
.56	.50	4.06	.43	.085	.034	.125	000	573.70	1870.00
.000227	100.	550.	550.	2	0	0	.00	366.81	2236.81

CCHV= .300 CEHV= .500
1490 NH CARD USED
#SECNO 8.552

3470 ENCROACHMENT STATIONS= 2260.0 2527.0 TYPE= 1 TARGET= 267.000

8.55	18.36	591.96	.00	590.27	592.69	.73	.39	.24	587.80
21325.	281.	21013.	32.	104.	3051.	43.	1544.	222.	586.30
.61	2.70	6.89	.74	.033	.033	.125	.000	573.60	2260 00
.000660	120.	1095.	1095.	2	0	0	.00	237.04	2497.04

1490 NH CARD USED
#SECNO 8.560
3280 CROSS SECTION 8.56 EXTENDED 5.73 FEET

3470 ENCROACHMENT STATIONS= 1240.0 1775.0 TYPE= 1 TARGET= 535.000

8.56	19.33	592.73	.00	590.91	592 96	.23	.12	.15	591.60
21325.	4.	21048.	273.	17.	5455.	579	1581.	225.	589.30
.63	.24	3.86	.47	.085	.033	.110	.000	573.40	1240.00
.000208	250.	350.	300.	2	0	0	.00	535.00	1775.00

CCHV= .100 CEHV= .300
1490 NH CARD USED
#SECNO 8.948
3280 CROSS SECTION 8.95 EXTENDED 6.11 FEET

3470 ENCROACHMENT STATIONS= 1240.0 2225.0 TYPE= 1 TARGET= 985 000

8.95	19.71	593.11	.00	591.28	593.28	17	.32	.01	591.60
21215.	6.	19469.	1740.	24.	5596.	3227.	1889.	257.	589 30
78	26	3.48	.54	.085	.033	.110	.000	573.40	1240.00
.000184	130.	1740.	2000.	2	0	0	00	985 00	2225.00

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 8.958
3280 CROSS SECTION 8.96 EXTENDED 6.14 FEET

3470 ENCROACHMENT STATIONS= 200 0 2150.0 TYPE= 1 TARGET= 1950.000

8.96	19.73	593.13	.00	591.30	593.32	.19	.03	00	591.60
23040.	839.	20501.	1699.	2400.	5605.	2941.	1928.	263.	589.30
80	35	3.66	.58	113	.033	.110	.000	573.40	200.00
.000181	170.	170.	170.	1	0	0	.00	1950.00	2150.00

#SECNO 9.100
3280 CROSS SECTION 9.10 EXTENDED 6 24 FEET

3470 ENCROACHMENT STATIONS= 958.0 2500.0 TYPE= 1 TARGET= 1542.000

9 10	19.84	593.24	.00	591.41	593.43	.18	.11	.00	591.60
23040.	88.	20558	2393.	341.	5641	4420.	2065.	287.	589.30
.85	.26	3.64	.54	.085	.033	.110	.000	573.40	958.00
.000178	830.	630.	350.	0	0	0	.00	1542.00	2500.00

1490 NH CARD USED
#SECNO 9.405

9.40	17.32	593.52	.00	591.67	593.70	.18	.27	.00	584.50
23040.	305.	21696.	1039.	705.	6215.	2081.	2418.	340.	583.60
.98	.43	3.49	.50	.125	.033	.075	.000	576.20	161.10
.000158	1900.	1615.	1480.	2	0	0	.00	1374.67	1535.77

1490 NH CARD USED
#SECNO 9.802

3470 ENCROACHMENT STATIONS= 234 0 1149.0 TYPE= 1 TARGET= -234.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 591.10 ELREA= 100000.00

9.80	20.85	593.85	.00	591.99	594.14	.29	.41	.03	591.10
23040.	916	22124.	0.	1447.	5007.	0.	2780	391	100000 00
1.12	.63	4.42	.00	.076	.033	.075	.000	573.00	234.00
000251	2050.	2095.	1750.	0	0	0	.00	886.70	1120.70

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	FDC	ICONT	CORAR	TOPWID	ENDST

#SECNO 10.354

10 35	21.38	594.48	.00	592.55	594.72	.23	.57	01	582.00
23040.	856.	22145.	39.	1895.	5586.	91	3226.	437.	582.70
1 33	.45	3.96	.43	.125	.033	.125	.000	573.10	13 73
.000161	2300.	2915.	2915.	2	0	0	.00	702.37	716.10

THIS RUN EXECUTED 01-06-89

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  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
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T1      500-YEAR FLOOD
T2
T3

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        7.        0.        0.   .000000       .00        .0         0   591.060       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	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 4

CCHV= .100 CEHV= .300
1490 NH CARD USED
#SECNO 6.896

3470 ENCROACHMENT STATIONS= 2550.0 4834.0 TYPE= 1 TARGET= 2284.000
FIS XSEC 6 DOWNSTREAM LIMIT OF FLOODWAY REVISION

6.90	22.06	591.06	.00	588.31	591.16	.10	.00	.00	588.20
27130.	2115.	24381.	634.	5882.	9083.	2093.	0.	0.	588.90
.00	.36	2.68	.30	.110	.036	.125	.000	569.00	2550.00
.000090	850.	825.	800.	0	0	0	.00	2284.00	4834.00

1490 NH CARD USED
#SECNO 7.052

3470 ENCROACHMENT STATIONS= 3381.0 5320.0 TYPE= 1 TARGET= 1939.000

7.05	18.54	591.14	.00	588.37	591.25	.11	.09	.00	588.10
25690.	48.	22409.	3233.	202.	7801.	5721.	306.	44.	586.60
.09	.24	2.87	.57	.110	.036	.078	.000	572.60	3381.00
.000123	750.	825.	1050.	0	0	0	.00	1939.00	5320.00

1490 NH CARD USED
#SECNO 7.207

3470 ENCROACHMENT STATIONS= 3381.0 5470.0 TYPE= 1 TARGET= 2089.000
XSEC H

7.21	15.16	591.26	.00	588.48	591.39	.14	.14	.01	588.10
25690.	9.	20281.	5400.	214.	6128.	6697.	569.	84.	586.60
.17	.04	3.31	.81	.850	.036	.076	.000	576.10	3381.00
.000224	800.	818.	900.	2	0	0	.00	2089.00	5470.00

CCHV= .100 CEHV= .300
#SECNO 7.726

3470 ENCROACHMENT STATIONS= 1000.0 1743.0 TYPE= 1 TARGET= 743.000

7.73	17.95	591.85	.00	589.24	592.21	.37	.75	.07	586.50
25690.	343.	24987.	360.	485.	5076.	862.	1177.	172.	589.50
.33	.71	4.92	.42	.125	.035	.125	.000	573.90	1000.00
.000344	2750.	2735.	2700.	2	0	0	.00	743.00	1743.00

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

CCHV= .100 CEHV= .300
#SECNO 7.801

3470 ENCROACHMENT STATIONS= 977.0 1743.0 TYPE= 1 TARGET= 766.000
XSEC I

7.80	18.10	592.00	.00	589.36	592.35	.35	.13	.00	586.50
25690.	480.	24824.	386.	659.	5123.	914.	1238.	179.	589.50
.36	.73	4.65	.42	.125	.035	.125	.000	573.90	977.00
.000329	400.	400.	400.	2	0	0	.00	766.00	1743.00

#SECNO 7.877

3470 ENCROACHMENT STATIONS= 977.0 1743.0 TYPE= 1 TARGET= 766.000

7.88	18.23	592.13	.00	589.47	592.48	.35	.13	.00	586.50
25690.	488.	24791.	411.	672.	5164.	960.	1298.	186.	589.50
.38	.73	4.80	.43	.125	.035	.125	.000	573.90	977.00
.000319	310.	400.	400.	1	0	0	.00	766.00	1743.00

1490 NH CARD USED
#SECNO 7.934

3470 ENCROACHMENT STATIONS= 1148.0 1812.0 TYPE= 1 TARGET= 664.000
XSEC J DS OF BACON SCHOOL ROAD

7.93	18.45	592.25	.00	589.56	592.57	.32	.09	.00	586.50
24880.	649.	24099.	131.	1089.	5231.	317.	1343.	191.	589.50
.40	.60	4.61	.41	.136	.034	.125	.000	573.80	1148.00
.000273	240.	300.	300.	2	0	0	.00	623.80	1771.80

1490 NH CARD USED
CCHV= .100 CEHV= .300
#SECNO 7.945

3470 ENCROACHMENT STATIONS= 890.0 1552.0 TYPE= 1 TARGET= 662 000
XSEC K US OF BACON SCHOOL ROAD

7.95	18.47	592.27	.00	589.58	592.59	.32	.02	.00	586.50
24880.	725.	24019.	136.	1088.	5237.	319.	1352.	191.	589.50
.40	.67	4.59	.43	.125	.035	.125	.000	573.80	890.00
.000286	60.	60.	60.	0	0	0	.00	621.87	1511.87

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

1490 NH CARD USED
#SECNO 7.956

3470 ENCROACHMENT STATIONS= 1148.0 1812.0 TYPE= 1 TARGET= 664.000

7.96	18.49	592.29	.00	589.59	592.60	32	02	00	586 50
24880.	709.	24038.	133.	1097.	5243.	321.	1361.	192.	589.50
.40	.65	4.58	.41	.125	.034	.125	.000	573.80	1148.00
.000270	60.	60.	60.	0	0	0	.00	623.95	1771.95

1490 NH CARD USED
#SECNO 7.965

3470 ENCROACHMENT STATIONS= 1148 0 1812 0 TYPE= 1 TARGET= 664.000

7.97	18.54	592.34	.00	589.62	592.62	.28	.01	.00	586.50
24880.	1610.	23140.	130.	1106.	5259.	327.	1369.	193.	589 50
.41	1.46	4 40	.40	.053	.034	125	.000	573 80	1148.00
.000243	50.	50.	50.	2	0	0	.00	624.15	1772.15

#SECNO 8.094

3470 ENCROACHMENT STATIONS= 1170.0 1812.0 TYPE= 1 TARGET= 642 000

8.09	18.69	592.49	.00	589 76	592.80	.31	.17	.01	586.50
24880.	710.	24025.	145.	1076.	5307.	343.	1473.	202.	589.50
.45	.66	4.53	.42	.125	.034	.125	.000	573 80	1170 00
.000259	620.	680.	720.	2	0	0	.00	602.75	1772.75

1490 NH CARD USED
#SECNO 8.240

3470 ENCROACHMENT STATIONS= 1275.0 1702.0 TYPE= 1 TARGET= 427.000

8.24	19.02	592.72	.00	589.97	593.02	.29	.22	.00	589.60
24080	59.	23993.	29.	156.	5539.	60.	1595.	212.	585.00
.51	.38	4.33	.48	.125	.034	.125	.000	573 70	1275 00
.000239	580.	880.	880.	2	0	0	00	398 18	1673 18

1490 NH CARD USED
#SECNO 8.345

3470 ENCROACHMENT STATIONS= 1870 0 2267 0 TYPE= 1 TARGET= 397 000

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
8 35	19.16	592.86	.00	590.09	593.15	.28	.13	00	588.80
24080.	48.	24006.	26.	81.	5598.	54.	1666.	216.	586.30
.54	.60	4.29	.48	.085	.034	.125	.000	573.70	1870 00
.000232	100.	550.	550.	2	0	0	.00	368 38	2238.38

CCHV= .300 CEHV= .500
1490 NH CARD USED
#SECNO 8.552

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 2260.0 2527.0 TYPE= 1 TARGET= 267.000

8.55	19.40	593.00	.00	590.27	593.80	.80	.40	.26	587.80
24080.	401.	23633.	46.	130.	3260.	56.	1779	223.	586.30
.58	3.08	7.25	.82	.033	.033	.125	.000	573 60	2260.00
.000670	120.	1095.	1095.	2	0	0	.00	238.58	2498.58

1490 NH CARD USED
#SECNO 8.560
3280 CROSS SECTION 8.56 EXTENDED 6.84 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 1240.0 1775.0 TYPE= 1 TARGET= 535.000

8.56	20.44	593.84	.00	590.91	594 09	.25	.12	.17	591.60
24080.	14.	23653.	412.	37.	5864.	746.	1819.	226.	589.30
.61	.38	4.03	.55	.085	.033	.110	.000	573.40	1240.00
000207	250.	350.	300.	2	0	0	.00	535.00	1775.00

CCHV= .100 CEHV= .300
1490 NH CARD USED
#SECNO 8 948
3280 CROSS SECTION 8.95 EXTENDED 7.23 FEET

3470 ENCROACHMENT STATIONS= 1240.0 2225 0 TYPE= 1 TARGET= 985.000

8 95	20.83	594.23	.00	591 28	594.41	.18	.32	01	591 60
23980.	17.	21625.	2339.	44.	6007.	3900	2163.	258	589.30
.76	37	3.60	.60	.085	.033	.110	.000	577.40	1240 00
.000160	130	1740.	2000.	2	0	0	.00	985 00	2225.00

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 B 958
3280 CROSS SECTION 8.96 EXTENDED 7.26 FEET

3470 ENCROACHMENT STATIONS= 200.0 2150.0 TYPE= 1 TARGET= 1950.000

8.96	20.85	594.25	.00	591.30	594.45	.20	.03	.00	591 60
27030.	1589.	23145.	2296.	3585.	6016	3529.	2208.	264.	589 30
.77	.44	3.85	65	.108	.033	.110	.000	573.40	200.00
.000182	170.	170.	170.	1	0	0	.00	1950 00	2150.00

#SECNO 9.100
3280 CROSS SECTION 9.10 EXTENDED 7.35 FEET

3470 ENCROACHMENT STATIONS= 958.0 2500.0 TYPE= 1 TARGET= 1542.000

9 10	20.96	594.36	.00	591 41	594.56	.20	.11	.00	591.60
27030.	275.	23402.	3353.	676.	6052.	5399.	2371.	288.	589.30
.82	.41	3.87	.62	.085	.033	.110	.000	573.40	958.00
.000182	830	630.	350.	0	0	0	.00	1542.00	2500.00

1490 NH CARD USED
#SECNO 9 405

9.40	18.44	594.64	.00	591.67	594.84	.20	28	00	584 50
27030.	445	24733.	1851.	934.	6668.	2966.	2784.	342.	583.60
.95	.48	3.71	.62	.125	.033	.075	.000	576 20	134.60
.000162	1900.	1615.	1480.	2	0	0	00	1406 40	1541 00

1490 NH CARD USED
#SECNO 9.802

3470 ENCROACHMENT STATIONS= 234 0 1149.0 TYPE= 1 TARGET= -234.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 591.10 ELREA= 100000.00

9.80	21.97	594.97	.00	591.99	595 30	.33	42	.04	591.10
27030	1653	25377.	0.	2094.	5365.	0.	3205.	393	100000.00
1.08	.79	4.73	.00	.076	.033	.075	.000	573 00	234.00
.000264	2050.	2095.	1750.	0	0	0	00	888 16	1122.16

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 10.354

10.35	22.55	595.65	.00	592.55	595.92	.28	.62	00	582 00
27030.	1256.	25718.	56.	2340.	5940	112.	3704.	440.	582.70
1.27	.54	4.33	.50	125	.033	.125	.000	573.10	10.67
.000177	2300.	2915.	2915.	2	0	0	00	708.74	719.41

THIS RUN EXECUTED 01-06-89

****
HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION AUGUST 1985
****

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

ST JOSEPH RIVER

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	IOK#S	VCH	AREA	.01P
	6.896	.00	.00	.00	569.00	17430.00	588.31	.00	588.38	.72	2.17	10829.32	20523.97
G	6.896	.00	.00	.00	569.00	21470.00	589.53	.00	589 61	81	2 41	13563 58	23820 79
	6.896	.00	.00	.00	569 00	23150 00	590 00	00	590 09	.84	2.50	14637.00	25241.42
	6 896	.00	.00	.00	569 00	27130.00	591 06	00	591 16	.90	2.68	17058 03	28654.00
	7.052	825.00	.00	.00	572.60	17160.00	588.37	00	588 47	1.27	2.56	8441.79	15249.01
	7.052	825.00	.00	.00	572.60	20760.00	589.60	.00	589.70	1.27	2 72	10742.70	18441.09
	7.052	825.00	.00	.00	572.60	22235.00	590.07	.00	590.18	1 26	2 77	11658 54	19802.19
	7.052	825.00	.00	00	572.60	25690 00	591.14	.00	591 25	1.23	2 87	13723.23	23117 98
	7.207	818.00	.00	.00	576.10	17160.00	588.48	.00	588 64	3.11	3 30	7310.04	9727.63
H	7.207	818.00	.00	.00	576.10	20760.00	589 72	00	589 86	2.66	3.31	9820 18	12717 11
	7.207	818.00	.00	.00	576.10	22235.00	590.19	.00	590.33	2.52	3.31	10810 76	14006 29
	7.207	818.00	.00	.00	576.10	25690.00	591.26	.00	591.39	2.24	3 31	13038 85	17167 75
	7.726	2735.00	.00	.00	573.90	17160.00	589.24	00	589 48	2 87	4 00	4629.04	10124.32
	7.726	2735.00	.00	.00	573.90	20760.00	590.40	.00	590 70	3.15	4 43	5364 43	11695 63
	7.726	2735.00	.00	.00	573.90	22235.00	590.85	.00	591.17	3.25	4.59	5680.68	12737 55
	7.726	2735.00	.00	.00	573.90	25690 00	591.85	.00	592.21	3 44	4 92	6422.01	13857 59
	7 801	400 00	00	.00	573.90	17160.00	589.36	00	589 60	2 77	3.95	4793.13	10309 89
I	7.801	400.00	.00	.00	573.90	20760.00	590.53	.00	590.82	3 03	4.37	5580.94	11922.40
	7.801	400.00	00	.00	573 90	22235 00	590.98	.00	591.29	3.11	4 52	5922 08	12598 27
	7.801	400 00	.00	00	573.90	25690.00	592.00	.00	592 35	3.29	4.85	6696.00	14165.62
	7 877	400 00	.00	.00	573.90	17160.00	589 47	.00	589 71	2 70	3.92	4850.69	10446.46
	7 877	400.00	.00	.00	573.90	20760 00	590 66	00	590.94	2 94	4.32	5675.19	12109.77
	7.877	400.00	.00	00	573 90	22235 00	591.11	.00	591 42	3.03	4 48	6015.98	12783 26
	7 877	400 00	00	00	573.90	25690 00	592 13	00	592.48	3 19	4 80	6795.86	14375.23
	7.934	300 00	.00	.00	573 80	17030.00	589.56	00	589.78	2.39	3.83	4991 60	11005 05
J	7 934	300.00	.00	.00	573 80	20380 00	590 76	00	591.07	2 56	4 19	5708.64	12726 28
	7.934	300.00	.00	.00	573.80	21725 00	591.22	.00	591.50	2 61	4 32	5997 60	13434 67
	7 934	300 00	.00	.00	573.80	24880.00	592 25	00	592.57	2 73	4.61	6637.37	15058 68

	SECNO	XLOC	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	IOUDS	VCH	AREA	.01F
	7.945	60.00	.00	.00	573.80	17030.00	589.58	.00	589.80	2.52	3.82	5003.94	10724.35
K	7.945	60.00	.00	.00	573.80	20380.00	590.78	.00	591.04	2.69	4.17	5722.70	12428.07
	7.945	60.00	.00	.00	573.80	21725.00	591.24	.00	591.52	2.75	4.30	6005.73	13110.16
	7.945	60.00	.00	.00	573.80	24880.00	592.27	.00	592.59	2.86	4.59	6644.07	14702.65
	7.956	60.00	.00	.00	573.80	17030.00	589.59	.00	589.81	2.37	3.82	5017.52	11067.29
	7.956	60.00	.00	.00	573.80	20380.00	590.80	.00	591.06	2.53	4.17	5735.29	12812.22
	7.956	60.00	.00	.00	573.80	21725.00	591.26	.00	591.54	2.58	4.30	6019.56	13515.95
	7.956	60.00	.00	.00	573.80	24880.00	592.29	.00	592.60	2.70	4.58	6660.90	15154.66
	7.965	50.00	.00	.00	573.80	17030.00	589.62	.00	589.83	2.20	3.73	5027.84	11479.16
	7.965	50.00	.00	.00	573.80	20380.00	590.83	.00	591.07	2.31	4.04	5758.11	13797.20
	7.965	50.00	.00	.00	573.80	21725.00	591.30	.00	591.55	2.35	4.15	6044.85	14167.27
	7.965	50.00	.00	.00	573.80	24880.00	592.34	.00	592.62	2.43	4.40	6691.98	15974.64
	8.094	680.00	.00	.00	573.80	17030.00	589.76	.00	589.98	2.26	3.76	5115.55	11322.72
	8.094	680.00	.00	.00	573.80	20380.00	590.98	.00	591.24	2.42	4.11	5826.72	13101.22
	8.094	680.00	.00	.00	573.80	21725.00	591.45	.00	591.72	2.47	4.24	6105.13	13817.19
	8.094	680.00	.00	.00	573.80	24880.00	592.49	.00	592.80	2.59	4.53	6725.95	15470.93
	8.240	880.00	.00	.00	573.70	17000.00	589.97	.00	590.18	2.20	3.68	4661.58	11467.67
L	8.240	880.00	.00	.00	573.70	20110.00	591.20	.00	591.45	2.31	3.99	5148.95	13236.40
	8.240	880.00	.00	.00	573.70	21325.00	591.67	.00	591.92	2.34	4.10	5375.23	13942.42
	8.240	880.00	.00	.00	573.70	24080.00	592.72	.00	593.02	2.39	4.33	5754.48	15577.01
	8.345	550.00	.00	.00	573.70	17000.00	590.09	.00	590.30	2.13	3.64	4717.70	11655.04
	8.345	550.00	.00	.00	573.70	20110.00	591.33	.00	591.57	2.24	3.95	5176.69	13447.21
M	8.345	550.00	.00	.00	573.70	21325.00	591.80	.00	592.06	2.27	4.06	5367.74	14157.11
	8.345	550.00	.00	.00	573.70	24080.00	592.86	.00	593.15	2.32	4.29	5772.50	15800.80
	8.552	1095.00	.00	.00	573.60	17000.00	590.27	.00	590.86	6.31	6.22	2796.76	9788.06
N	8.552	1095.00	.00	.00	573.60	20110.00	591.49	.00	592.18	6.52	6.71	3089.37	7827.46
	8.552	1095.00	.00	.00	573.60	21325.00	591.96	.00	592.69	6.60	6.89	3198.17	9700.49
	8.552	1095.00	.00	.00	573.60	24080.00	593.00	.00	593.80	6.78	7.25	3445.82	9307.05
	8.560	350.00	.00	.00	573.40	17000.00	590.91	.00	591.10	2.07	3.53	5094.36	11814.48
	8.560	350.00	.00	.00	573.40	20110.00	592.23	.00	592.44	2.09	3.77	5783.63	13919.22
	8.560	350.00	.00	.00	573.40	21325.00	592.73	.00	592.96	2.08	3.86	6051.12	14769.43
	8.560	350.00	.00	.00	573.40	24080.00	593.84	.00	594.09	2.07	4.07	6648.07	16741.95
	8.948	1740.00	.00	.00	573.40	16830.00	591.28	.00	591.43	1.68	3.24	7048.93	12987.84
O	8.948	1740.00	.00	.00	573.40	19960.00	592.61	.00	592.77	1.65	3.42	8350.06	15540.44
	8.948	1740.00	.00	.00	573.40	21215.00	593.11	.00	593.28	1.64	3.48	8847.00	16577.47
	8.948	1740.00	.00	.00	573.40	23980.00	594.23	.00	594.41	1.60	3.60	9951.58	18983.46
	8.958	170.00	.00	.00	573.40	17260.00	591.30	.00	591.46	1.72	3.28	7667.24	13146.77
	8.958	170.00	.00	.00	573.40	21240.00	592.63	.00	592.81	1.79	3.56	9977.77	15953.09
	8.958	170.00	.00	.00	573.40	23040.00	593.13	.00	593.32	1.81	3.66	10946.36	17141.35
	8.958	170.00	.00	.00	573.40	27030.00	594.25	.00	594.45	1.82	3.85	13130.38	20042.91

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	01K
	9 100	630 00	.00	.00	573.40	17260 00	591.41	00	591 56	1.57	3.24	7789.4.	13365.18
	9 100	630 00	.00	.00	573 40	21340.00	592.74	00	592 91	1 75	3 54	9626 66	16126 64
	9.100	630.00	.00	00	573 40	23040 00	593 24	.00	593.47	1 78	3.64	10402 55	17277 69
	9 100	630.00	00	00	573.40	27030 00	594.36	.00	594 56	1.82	3 87	12126 48	20017 53
	9.405	1615.00	.00	.00	576 20	17260.00	591 67	00	591 82	1 47	3 09	6588 00	14252 57
P	9.405	1615 00	00	00	576 20	21340 00	593 01	00	593.18	1 55	3 38	8312.45	17137.48
	9 405	1615.00	00	.00	576 20	23040.00	593.52	.00	593 70	1.58	3 49	9000 59	18341 86
	9.405	1615.00	.00	.00	576.20	27030 00	594 64	00	594 84	1 62	3 71	10568.33	21227 71
	9 802	2095 00	00	00	573.00	17260.00	591.99	.00	592.22	2.22	3 86	4923 80	11575 13
Q	9 802	2095.00	.00	.00	573.00	21340 00	593 34	00	593 61	2 44	4 27	6000 56	13666.70
	9.802	2095.00	00	00	573 00	23040.00	593.85	.00	594.14	2.51	4.42	6454 04	14545 56
	9 802	2095.00	.00	.00	573.00	27030.00	594 97	00	595 30	2 64	4 73	7458 57	16630 06
	10.354	2915.00	00	00	573.10	17260 00	592 55	.00	592.72	1.36	3 38	6219.67	14801 05
R	10 354	2915 00	.00	.00	573.10	21340.00	593.96	.00	594.17	1.54	3 80	7202 17	17193 02
	10.354	2915.00	.00	00	573 10	23040 00	594 48	00	594 72	1 61	3 96	7572 97	18127 94
	10.354	2915.00	.00	.00	573 10	27030.00	595 65	.00	595.92	1.77	4.33	8391.82	20298 05

ST JOSEPH RIVER

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
G	6.896	17430.00	588.31	.00	.00	00	2041 99	00
	6.896	21470.00	589.53	1.22	.00	1.22	2284.00	.00
	6.896	23150.00	590.00	.47	.00	1.69	2284.00	.00
	6.896	27130.00	591.06	1.06	00	2.75	2284.00	00
	7.052	17160.00	588.37	00	.06	.00	1800.53	825.00
	7.052	20760.00	589.60	1.23	.07	1.23	1939.00	825.00
	7.052	22235.00	590.07	.47	.07	1 70	1939.00	825.00
	7.052	25690.00	591.14	1.07	.08	2.77	1939.00	825.00
H	7.207	17160.00	588.48	.00	.12	.00	1974.24	818.00
	7.207	20760.00	589.72	1.23	.12	1.23	2089.00	818.00
	7.207	22235.00	590.19	.47	.12	1.71	2089.00	818.00
	7.207	25690.00	591 26	1.07	12	2 77	2089 00	818 00
	7.726	17160.00	589.24	.00	.75	.00	513 16	2735.00
	7.726	20760.00	590.40	1.16	68	1 16	695 31	2735 00
	7.726	22235.00	590.85	.45	.65	1.61	725.64	2735.00
	7.726	25690.00	591.85	1.00	.59	2.61	743.00	2735 00
I	7.801	17160.00	589.36	.00	.12	.00	543.71	400.00
	7 801	20760.00	590.53	1.18	.13	1.18	726 83	400 00
	7.801	22235.00	590.98	.45	.14	1.63	758.13	400.00
	7.801	25690.00	592.00	1.01	.15	2.64	766.00	400.00
	7.877	17160.00	589.47	.00	.11	.00	550.34	400.00
	7.877	20760.00	590.66	1.19	.13	1.19	735.61	400.00
	7.877	22235.00	591.11	.45	.13	1.64	766.00	400.00
	7.877	25690.00	592.13	1.02	.14	2.66	766 00	400 00
J	7 934	17030.00	589.56	.00	.09	.00	566.08	300.00
	7.934	20380.00	590.76	1.20	.10	1 20	612.89	300 00
	7.934	21725.00	591.22	.46	.11	1.66	619.70	300 00
	7.934	24880.00	592.25	1.03	.12	2.69	623.80	300.00
K	7.945	17030.00	589.58	.00	.02	.00	568.63	60 00
	7.945	20380.00	590.78	1.20	.02	1.20	611.35	60 00
	7.945	21725.00	591.24	.46	.02	1.66	617 76	60.00
	7 945	24880.00	592.27	1.03	.02	2.69	621.87	60.00
	7 956	17030 00	589.59	00	.01	.00	568.57	60.00
	7 956	20380.00	590.80	1.21	.02	1.21	613.68	60.00
	7.956	21725.00	591.26	.46	02	1.67	619.83	60 00
	7.956	24880.00	592.29	1 03	02	2 70	623 95	60 00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
	7.965	17030.00	589.62	00	03	.00	570.15	50.00
	7.965	20380.00	590.83	1.21	.04	1 21	614 36	50 00
	7 965	21725.00	591.30	.46	.04	1.68	619.99	50.00
	7.965	24880.00	592 34	1.04	05	2.72	624.15	50.00
	8 094	17030.00	589.76	.00	.15	.00	573.02	680.00
	8.094	20380.00	590.98	1.22	15	1.22	595.21	680.00
	8.094	21725.00	591.45	46	.15	1.68	598.62	680 00
	8.094	24880.00	592.49	1.04	.15	2.72	602 75	680.00
	8 240	17000.00	589.97	.00	.20	00	394.09	880.00
L	8.240	20110.00	591.20	1.23	.22	1.23	395.92	880.00
	8.240	21325.00	591.67	.47	.22	1.70	396.62	880.00
	8.240	24080.00	592.72	1.05	.24	2.76	398.18	880.00
	8.345	17000.00	590.09	.00	.12	.00	364.28	550 00
M	8.345	20110.00	591.33	1.24	.13	1.24	366.11	550.00
	8.345	21325.00	591.80	.47	.13	1.71	366.81	550.00
	8.345	24080.00	592.86	1.06	.14	2.77	368.38	550 00
	8.552	17000.00	590.27	.00	.18	.00	234.52	1095.00
N	8.552	20110.00	591.49	1.23	.16	1.23	236.36	1095.00
	8.552	21325.00	591.96	.47	.16	1.69	237.04	1095 00
	8.552	24080.00	593.00	1.04	.14	2.73	238.58	1095.00
	8.560	17000.00	590.91	.00	.64	.00	516.39	350.00
	8.560	20110.00	592.23	1.32	.73	1.32	535.00	350.00
	8.560	21325.00	592.73	.50	.77	1.82	535.00	350.00
	8.560	24080.00	593.84	1.11	.84	2.93	535.00	350.00
	8.948	16830.00	591.28	.00	.37	.00	966.71	1740 00
O	8.948	19980.00	592.61	1.33	.38	1.33	985.00	1740.00
	8.948	21215 00	593.11	.50	.38	1.83	985.00	1740.00
	8.948	23980.00	594.23	1.12	.39	2.96	985.00	1740.00
	8.958	17260.00	591.30	00	.03	00	1495.75	170.00
	8.958	21340.00	592.63	1.33	.02	1.33	1950.00	170.00
	8.958	23040.00	593.13	.50	.02	1.83	1950.00	170.00
	8.958	27030.00	594.25	1 12	.02	2.95	1950.00	170 00
	9.100	17260.00	591 41	.00	.11	00	1241 83	630.00
	9.100	21340.00	592.74	1.33	11	1 33	1542.00	630.00
	9.100	23040.00	593.24	50	.11	1.83	1542.00	630 00
	9.100	27030.00	594.36	1.12	.11	2.95	1542 00	630.00
	9 405	17260.00	591.67	.00	.26	.00	1195.98	1615.00
P	9.405	21340.00	593 01	1 34	.27	1 34	1342 73	1615.00
	9.405	23040.00	593.52	.51	.28	1.84	1374.67	1615.00
	9.405	27030.00	594.64	1 12	.28	2.97	1406 40	1615.00

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
Q	9.802	17260.00	591.99	.00	.32	.00	661.14	2095.00
	9.802	21340.00	593.34	1.35	.33	1.35	883.04	2095.00
	9.802	23040.00	593.85	.51	.33	1.86	886.70	2095.00
	9.802	27030.00	594.97	1.13	.33	2.99	888.16	2095.00
R	10.354	17260.00	592.55	.00	.56	.00	694.13	2915.00
	10.354	21340.00	593.96	1.41	.62	1.41	699.69	2915.00
	10.354	23040.00	594.48	.53	.64	1.94	702.37	2915.00
	10.354	27030.00	595.65	1.16	.67	3.10	708.74	2915.00

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Royalton Twp

3) WATERCOURSE: St. Joseph R.

4) DOCUMENT TYPE: Channel / Right Overbank

00BREAK00

THIS RUN EXECUTED 01-06-89

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************
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CHANNEL / RIGHT OVER BANK

FLOODWAY

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**********************************************************
*  WATER SURFACE PROFILES                                *
*  VERSION OF NOVEMBER 1976                              *
*  UPDATED MAY 1984                                      *
*  IBM-PC-XT VERSION AUGUST 1985                         *
*  RUN DATE  01-06-89   TIME  15:21:12                     *
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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
```

THIS RUN EXECUTED 01-06-89

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**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION AUGUST 1985
**************************************************

C
T1   ROYALTON FIS  BERRIEN COUNTY      NATURAL CONDITIONS
T2     100-YEAR FLOOD       CHANNEL FLOW
T3     ST JOSEPH RIVER                          ROYALTON.FIS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

      0.        3.        0.        0.   .000000       .00       .0        0.   590 000       000

J2  NPROF    IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     IBW       CHNIM     ITRACE

     .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


QT      6.000  17430.000  23150.000  23150.000  23150.000  23150 000  27130.000       .000       .000       .000
NC        000        000       .000       .100       .300        000       .000       .000       .000        000
NH      5.000       .125  2200.000        110  3800.000       .125  3845.000       .036  4334 000        125
NH   6454.000       .000       .000       .000       .000       .000       .000       .000        000        000
ET       .000   4 100      4 100      2550.000   4834.000   4.100      4.100      .000        000        000
                FIS XSEC 6    DS LIMIT OF FLOODWAY REVISION
X1      6.896      73.000  3845.000  4334.000   850.000   800 000   825.000       .000        000        000
X3       .000       .000       .000       .000       .000        000       .000       .000        000        000
GR    610.000       .000   585.100   200.000   585.700   400.000   585.200   600 000   586.000   800 000
GR    585.600  1000.000   586.000  1200.000   586 600  1400.000   586.500  1600.000   586.500  1800 000
GR    586.400  2000 000   585.800  2200.000   585.800  2270.000   585.800  2400 000   585 800  2600 000
GR    585.800  2800.000   585.800  3000.000   585.800  3200.000   586.000  3400.000   588.200  3600 000
GR    588.700  3770.000   588.500  3800.000   588 200  3845 000   584.100  3849 000   571 000  3854.000
GR    572 700  3874.000   570.600  3894.000   569 200  3914 000   569.000  3934.000   569 400  3954.000
GR    569 000  3974.000   569.300  3994.000   569.500  4014.000   569 600  4034.000   569.900  4054 000
GR    570.200  4074.000   570.500  4094 000   570.600  4114.000   570 800  4134.000   571 000  4154.000
GR    571 400  4174.000   571 800  4194.000   572.500  4214.000   573.400  4234 000   572 700  4254 000
GR    574.300  4274 000   574.600  4279 000   581.400  4283.000   581 900  4294 000   588.900  4334 000
GR    587 100  4479.000   588.200  4609.000   588.200  4629 000   585 500  4659.000   585 200  4679 000
GR    585 200  4699 000   585 200  4899.000   585 600  4959.000   587.200  5099 000   587.900  5299.000
GR    587.900  5479 000   586.800  5484 000   586 800  5499.000   597 400  5539 000   597 400  5584.000
GR    587.800  5634.000   588.000  5699.000   588.000  5899 000   587.000  5999.000   586.200  6099.000
GR    586.200  6299 000   586 200  6369 000   610 000  6454 000        000        000       .000        000
```

NH	5 000	125	2330.000	.110	3481 000	036	3970 000	.075	5230.000	.125
NH	6755 000	.000	.000	.000	000	.000	.000	000	000	.000
QT	6.000	17160.000	23150.000	.000	.000	22235.000	25690.000	000	.000	.000
ET	.000	4.100	7.100	3381.000	5320.000	4.100	1550.000	5320.000	000	.000
X1	7.052	73.000	3481.000	3970.000	750.000	1050.000	825.000	.000	.000	.000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	610 000	.000	601.700	35.000	601.500	50.000	592.600	130.000	584.700	330 000
GR	585.000	530.000	585.000	730.000	585.000	930.000	585.500	1130.000	586 700	1330.000
GR	586.500	1530.000	585.500	1730.000	585.800	1930.000	586.900	2130.000	587.000	2330.000
GR	587.000	2530.000	587.400	2630.000	585.600	2730.000	586.700	2830 000	588.800	2930 000
GR	589.300	3030.000	588.200	3130.000	588.500	3230.000	589.500	3330.000	589 100	3430 000
GR	589.600	3450.000	588.100	3481 000	574.400	3490.000	575.800	3510.000	573.700	3530.000
GR	572.600	3650.000	572.700	3670.000	573.000	3690 000	573.300	3710.000	573.600	3730.000
GR	573 700	3750.000	573.900	3770.000	574.100	3790.000	574.500	3810.000	574.900	3830 000
GR	575.600	3850.000	576.500	3870.000	575.800	3890.000	577.400	3910.000	577 700	3915.000
GR	580.000	3919.000	580.500	3930.000	586.600	3970.000	587.400	4030.000	588.600	4130 000
GR	587.700	4230.000	587.700	4330.000	586.200	4430.000	587.200	4530.000	588.000	4630.000
GR	587.400	4730.000	587.000	4770 000	586.300	4830.000	586.100	4930.000	585.900	5030 000
GR	585.900	5230.000	585.800	5430.000	585.800	5630.000	586 100	5830 000	585.700	5845.000
GR	585.600	5940.000	585.600	6030.000	585.500	6160.000	585.300	6230.000	585.400	6430 000
GR	585.400	6485 000	591.800	6630.000	610.000	6755.000	.000	.000	.000	.000
NH	6.000	.075	1730.000	.125	2630.000	.850	3481.000	.036	3970.000	.075
NH	5430.000	.125	6755.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	4.100	7.100	3381.000	5470 000	4.100	1900.000	5470.000	.000	000
		FIS XSEC H								
X1	7.207	78.000	3481.000	3970.000	800.000	900.000	818 000	.000	.000	000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	610.000	.000	601.700	35.000	601.500	50.000	592 600	130.000	584 700	330.000
GR	585.000	530.000	585.000	730.000	585.000	930.000	585.500	1130.000	586.700	1330.000
GR	586.500	1530.000	585.500	1730.000	585.800	1930.000	586.900	2130 000	587.000	2330.000
GR	587.000	2530.000	587.400	2630.000	585.600	2730 000	586.700	2830 000	588.800	2930.000
GR	589.300	3030.000	588.200	3130.000	588.500	3230.000	589.500	3330.000	589.100	3430.000
GR	589.600	3450.000	588.100	3481.000	578.400	3490 000	578.000	3510.000	577.700	3530.000
GR	576.200	3550.000	576.100	3570.000	576.500	3590.000	576.100	3610.000	576 400	3630 000
GR	576.600	3650.000	576.700	3670.000	577.000	3690 000	577 200	3710.000	577.600	3730 000
GR	577.700	3750.000	577 900	3770.000	578.100	3790.000	578.500	3810 000	578.900	3830.000
GR	579.600	3850.000	580.500	3870.000	579.800	3890.000	581.400	3910.000	581 700	3915 000
GR	584 000	3919.000	584.500	3930.000	586.600	3970.000	587 400	4030.000	588.600	4130.000
GR	587.700	4230.000	587.700	4330.000	586.200	4430 000	587.200	4530 000	588.000	4630.000
GR	587.400	4730.000	587.000	4770.000	586.300	4830.000	586.100	4930 000	585 900	5030.000
GR	585.900	5230.000	585.800	5430.000	585.800	5630.000	586.100	5830 000	585.700	5845 000
GR	585.600	5940.000	585.600	6030 000	585 500	6160.000	585.300	6230.000	585.400	6430.000
GR	585.400	6485.000	591.800	6630.000	610.000	6755.000	000	.000	.000	000
NC	125	.125	.035	.100	.300	.000	.000	.000	000	.000
ET	.000	4.100	7.100	1000.000	1743 000	4 100	200 000	1792.000	000	000
X1	7.726	42.000	1077 000	1393.000	2750.000	2700 000	2735.000	.000	.000	000
X3	.000	.000	.000	.000	000	.000	.000	.000	000	.000
GR	594.700	.000	594.100	100 000	588 700	200.000	588 400	300.000	587 800	400 000
GR	588.400	500.000	587.800	600.000	588 600	700 000	587 000	800.000	590 100	892 000
GR	589.000	930.000	585 800	956.000	584 600	1000 000	586 500	1077 000	582 000	1080.000
GR	579 000	1090.000	576.200	1100.000	576.600	1120.000	575.300	1140 000	575.500	1160.000

GR	575.100	1180 000	574.300	1260.000	574.400	1220.000	575.000	1240 000	575.100	1260.000
GR	574.600	1280.000	574.200	1300 000	573.900	1320.000	574 200	1340.000	575 300	1360 000
GR	580 600	1380 000	582.200	1389.000	589 500	1393.000	589.500	1496 000	591.100	1525 000
GR	589.600	1600 000	588.000	1700 000	589.200	1860.000	591.300	1900.000	593.300	2000.000
GR	596.400	2072 000	605.200	2100.000	000	.000	.000	000	000	000
NC	.125	.125	.035	100	.300	.000	.000	000	.000	.000
ET	.000	4 100	7.100	977.000	1743.000	4.100	250 000	1743 000	000	000
		FIS XSEC I								
X1	7.801	42.000	1077.000	1393.000	400.000	400.000	400 000	.000	000	000
X3	000	000	.000	.000	.000	.000	.000	000	000	000
GR	594.700	.000	594.100	100.000	588.700	200.000	588.400	300 000	587.800	400 000
GR	588.400	500.000	587 800	600.000	588.600	700 000	587.000	800 000	590.100	872 000
GR	589.000	930.000	585.800	956.000	584.600	1000.000	586 500	1077.000	582 000	1080 000
GR	579 000	1090 000	576.200	1100.000	576 600	1120.000	575.300	1140 000	575 500	1160 000
GR	575.100	1180.000	574 300	1200.000	574.400	1220.000	575.000	1240.000	575 100	1260 000
GR	574.600	1280.000	574 200	1300.000	573.900	1320.000	574 200	1340.000	575 300	1360.000
GR	580.600	1380.000	582.200	1389.000	589.500	1393.000	589 500	1496.000	591.100	1525 000
GR	589 600	1600.000	588.000	1700.000	589.200	1860.000	591.300	1900 000	593 300	2000 000
GR	596.400	2072.000	605.200	2100.000	.000	.000	.000	000	.000	000
ET	.000	4 100	7.100	977.000	1743.000	4.100	250.000	1743 000	.000	.000
X1	7.877	.000	.000	.000	310.000	400.000	400.000	.000	000	.000
NH	5.000	.100	1198.000	10.000	1224.000	.125	1345.000	034	1661.000	.125
NH	1812.000	.000	000	.000	.000	000	.000	.000	000	000
QT	6.000	17030.000	23150.000	.000	.000	21725.000	24880.000	.000	.000	000
ET	.000	4.100	7.100	1148.000	1812 000	4.100	846.000	1812.000	000	.000
		XSEC J		DS OF BACON SCHOOL EXTENDED						
X1	7.934	45.000	1345.000	1661.000	240.000	300.000	300.000	.000	.000	000
X3	.000	000	000	.000	000	.000	000	000	000	000
GR	610.000	.000	599.700	30.000	596.000	200 000	593.200	400.000	591.800	440 000
GR	588 900	480.000	588.900	600.000	587.800	800.000	588.600	1050.000	589.300	1135.000
GR	587 200	1140.000	589.600	1150.000	589 900	1160.000	589.000	1198.000	585 800	1224 000
GR	584.600	1268.000	586.500	1345.000	581.900	1348.000	578.900	1358 000	576 100	1368 000
GR	576.500	1388.000	575.200	1408.000	575.400	1428 000	575.000	1448.000	574.200	1468 000
GR	574.300	1488.000	574 900	1508.000	575.000	1528 000	574.500	1548.000	574.100	1568.000
GR	573.800	1588.000	574.100	1608 000	575.200	1628.000	580 700	1648 000	582 100	1657 000
GR	589.500	1661.000	589.500	1683.000	591.100	1689.000	589.600	1705.000	588.000	1726 000
GR	589 200	1760 000	591 300	1768.000	593.300	1776.000	596 400	1797.000	605 200	1812 000
NH	5.000	.125	800.000	10.000	875 000	.125	1085.000	034	1401.000	125
NH	1552 000	.000	.000	.000	.000	000	.000	000	.000	000
NC	.000	.000	.000	.100	.300	.000	000	.000	000	000
ET	.000	4.100	7.100	890.000	1552.000	4.100	386.000	1552 000	.000	000
		XSEC K		US OF BACON SCHOOL EXTENDED						
		MANNINGS N OF 10 USED IN LOB TO DESCRIBE LINE OF BUILDINGS								
X1	7.945	42 000	1085.000	1401.000	60 000	60.000	60.000	000	.000	000
X3	000	.000	.000	.000	.000	000	000	.000	000	000
X4	1.000	589.800	875.000	.000	.000	.000	000	000	.000	.000
GR	601 700	.000	598 000	100.000	595.250	200 000	592 500	300 000	591 000	400 000
GR	590.250	500.000	589.900	600 000	589 750	700.000	589 950	800 000	589.800	900.000
GR	589 000	938 000	585.800	964.000	584.600	1008 000	586 500	1085 000	581.900	1088.000
GR	578.900	1098.000	576.100	1108.000	576 500	1128.000	575 200	1148 000	575 400	1168.000

GR	575.000	1168.000	574 200	1208.000	574.300	1228 000	574 900	1248 000	575 000	1268.000
GR	574 500	1288 000	574 100	1308.000	573.800	1328 000	574 100	1348 000	575.200	1368 000
GR	580.700	1388 000	582.100	1397 000	589 500	1401.000	589.500	1423.000	591.100	1429 000
GR	589 600	1445 000	588.000	1466 000	589.200	1500.000	591.300	1508.000	593 300	1516.000
GR	596.400	1537.000	605.200	1552.000	.000	.000	.000	.000	000	000
NH	5 000	125	1050.000	10.000	1135.000	.125	1345.000	.034	1661 000	.125
Nh	1812.000	.000	.000	.000	.000	.000	.000	.000	.000	000
ET	.000	4.100	7.100	1148.000	1812 000	4.100	646 000	1812.000	.000	000
X1	7.956	45.000	1345.000	1661.000	60 000	60.000	60.000	000	000	000
X3	000	000	.000	.000	.000	.000	.000	.000	.000	00
GR	610.000	000	599 700	30.000	596.000	200.000	593 200	400 000	591.800	440.000
GR	588.900	480.000	588.900	600 000	587.800	800 000	588 600	1050 000	589.300	1135 000
GR	587.200	1140.000	589.600	1150.000	589.900	1160.000	589.000	1198.000	585.800	1224.000
GR	584.600	1268 000	586 500	1345.000	581.900	1348.000	578.900	1358.000	576.100	1368 000
GR	576.500	1388.000	575.200	1408 000	575 400	1428 000	575.000	1448 000	574.200	1468.000
GR	574.300	1488.000	574.900	1508.000	575.000	1528.000	574 500	1548 000	574 100	1568.000
GR	573.800	1588.000	574.100	1608.000	575.200	1628.000	580.700	1648.000	582.100	1657 000
GR	589.500	1661.000	589.500	1683.000	591.100	1689.000	589.600	1705.000	588 000	1726 000
GR	589 200	1760 000	591.300	1768.000	593.300	1776 000	596 400	1797.000	605.200	1812 000
NH	5.000	.125	440.000	.075	840.000	.125	1325.000	.034	1659.000	125
NH	1702.000	.000	000	.000	.000	000	000	000	000	000
ET	.000	4.100	7.100	1148 000	1812.000	4 100	646 000	1812 000	000	.000
X1	7 965	.000	.000	.000	50.000	50 000	50 000	000	.000	.000
X3	.000	.000	.000	.000	.000	000	.000	.000	.000	000
NC	.125	.125	.034	.000	.000	.000	.000	.000	000	000
ET	.000	4.100	7.100	1170.000	1812.000	4.100	646 000	1812.000	.000	000
X1	8.094	.000	.000	000	620 000	720 000	680 000	000	.000	.000
X3	.000	.000	.000	.000	.000	.000	.000	000	.000	.000
NH	5.000	.125	440.000	.075	840.000	.125	1325.000	.034	1659.000	.125
NH	1702.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
QT	6.000	17000.000	23150 000	.000	.000	21325.000	24080.000	000	000	.000
ET	000	4.100	.000	1275.000	1702.000	4.100	000	000	000	.000
X1	8.240	39.000	1325.000	1659 000	580.000	880 000	880.000	.000	000	000
X3	.000	.000	.000	.000	.000	.000	000	.000	.000	000
GR	610.000	.000	589.000	60.000	589.000	110.000	590.200	140.000	591.400	190 000
GR	589.400	240.000	590 000	440.000	588.000	640.000	589.300	840.000	589 700	1040 00
GR	589.600	1060.000	589.600	1080.000	587 700	1085 000	589.600	1090 000	589 600	1225.000
GR	586.900	1337.000	583.800	1338.000	582.300	1345.000	578.300	1355.000	575.300	1365 000
GR	575.600	1385.000	574.500	1405.000	574.600	1425.000	574 300	1445.000	574 100	1465 000
GR	574.900	1485 000	574.900	1505.000	575.000	1525.000	574.400	1545.000	573 700	1557 000
GR	574.600	1585.000	575.600	1605 000	576.900	1625.000	579.400	1645.000	580.500	1657 000
GR	585.000	1659.000	586.300	1660.000	587.200	1665 000	612.200	1702 000	000	00
NH	5.000	125	110.000	.075	1712 000	085	1890 000	.034	2225.000	125
Nh	2267.000	000	.000	.000	.000	000	000	.000	000	000
ET	.000	4 100	.000	1870.000	2267.000	4.100	4 100	000	.000	.000

X1	8.345	42.000	1890.000	2225.000	100 000	550 000	550 000	.000	.000	.000
X3	.000	.000	000	000	.000	.000	.000	.000	.00	.000
GR	610 000	.000	589.700	75 000	589 500	95 000	589 000	105.000	589.600	110 000
GR	589.000	305.000	589.600	505 000	591.600	705.000	591.800	905.000	592 000	1030.000
GR	592 100	1130.000	591 900	1230.000	590.600	1330 000	589 100	1430 000	589 400	1530 000
GR	588.600	1630 000	590.100	1712.000	589 000	1830.000	586 800	1890.000	586.900	1902.000
GR	583.800	1903.000	582.300	1910 000	578.300	1920.000	575.300	1930 000	575.600	1950 000
GR	574.500	1970 000	574 600	1990.000	574.300	2010 000	574.100	2030 000	574 900	2050 000
GR	574.900	2070 000	575.000	2090.000	574.400	2110 000	573.700	2130 000	574 600	2150 000
GR	575.600	2170.000	576.900	2190 000	579.400	2210.000	580 500	2222.000	586 300	2225 000
GR	587.200	2230 000	612.200	2267 000	.000	.000	.000	000	00	000
NC	.000	.000	000	.300	.500	000	.000	.000	.000	000
NH	6 000	.125	110.000	.200	1905.000	.085	2220.000	10.000	2255 000	033
NH	2485.000	.125	2527.000	.000	.000	000	.000	.000	000	000
ET	.000	4.100	.000	2260 000	2527.000	4 100	4 100	000	.000	.000
X1	8 552	42.000	2285.000	2485 000	120.000	1095.000	1095 000	000	.000	000
X3	000	000	.000	.000	000	.000	.000	000	.000	.000
GR	610.000	.000	589.700	75.000	589.500	95.000	589.000	105.000	589 600	110 000
GR	589.000	305.000	589.600	505.000	591.600	705.000	593.400	905.000	591.800	1105 000
GR	590.000	1205.000	590.800	1305.000	591 400	1345 000	590.200	1465.000	591 000	1505.000
GR	589.600	1705.000	588 900	1905.000	590.100	1970.000	590 400	2005.000	589.700	2105 000
GR	590.200	2254.000	587.800	2255 000	587.800	2285.000	586.800	2292 000	587.300	2300 000
GR	574.400	2311.000	574.500	2322.000	574 200	2333.000	574.000	2344 000	574 800	2355.000
GR	574.800	2370.000	574.900	2385.000	574.300	2400 000	573.600	2415.000	574 500	2425 000
GR	575.500	2441.000	576.800	2452.000	579.300	2465 000	580 400	2482 000	586.300	2485 000
GR	587 200	2490 000	612.200	2527.000	000	.000	.000	000	000	.000
NH	4.000	.125	660.000	085	1258.000	.033	1625.000	110	2625 000	.000
ET	000	4.100	7.100	1240.000	1775 000	4.100	4.100	000	2100 000	000
X1	8 560	51 000	1258.000	1625.000	250 000	300 000	350.000	.000	.000	000
X3	000	.000	.000	000	.000	.000	000	000	.000	000
GR	604 300	.000	596.000	25.000	592.200	60 000	590.600	92.000	589 100	160 000
GR	589.600	260.000	588.300	360.000	589.600	460.000	590.800	560.000	591.200	660.000
GR	591.000	760.000	591.700	860.000	591 700	960.000	591.800	1025.000	592 500	1125.000
GR	592 400	1158.000	592.200	1225.000	591.600	1258.000	578.000	1270.000	574.900	1285 000
GR	575.800	1305.000	573.400	1325.000	573.900	1345.000	574.400	1365.000	576.200	1385.000
GR	576 800	1405.000	577.600	1425 000	578.200	1445.000	578.600	1465 000	578.800	1485 000
GR	579.000	1505.000	579 200	1525.000	579.200	1545.000	579 300	1565.000	579.400	1585 000
GR	581.300	1605.000	581.600	1615.000	583.900	1622 000	589.300	1625 000	588.800	1725 000
GR	587.600	1825.000	587.300	1925.000	587.000	2012.000	584.500	2051.000	587.700	2084.000
GR	585.800	2125.000	591.100	2225 000	588.000	2325.000	589 800	2425.000	587 700	2525 000
GR	587 000	2625.000	.000	.000	.000	.000	000	000	000	000
BT	6 000	16830 000	23040.000	000	.000	21215.000	23980 000	000	000	000
NC	.000	.000	.000	.100	.300	.000	.000	000	000	000
NH	4.000	125	660.000	085	1258.000	033	1625.000	.110	2625.000	000
ET	000	4 100	7.100	1240.000	2225.000	4.100	200 000	2225 000	000	.000
X1	8.948	000	.000	.000	130 000	2000.000	1740 000	000	.000	000

BT	6.000	17260.000	23040.000	.000	000	23040.000	27030.000	.000	000	000
ET	.000	4.100	4.100	200.000	2150.000	4.100	4.100	000	.000	.000
X1	8.958	000	000	.000	170.000	170 000	170 000	000	000	000
ET	.000	4.100	4 100	958 000	2500.000	4 100	4 100	4.100	000	000
X1	9.100	.000	.000	.000	830.000	350.000	630.000	.000	000	.000
NH	4.000	.125	349.000	.033	753.000	.075	2041 000	125	2293.000	000
ET	.000	4.100	4.100	.000	1600 000	4 100	4.100	4.100	000	.000
X1	9.405	49.000	349.000	753.000	1900.000	1480.000	1615.000	.000	.000	000
GR	626.200	.000	596 800	109.000	594.100	141.000	591.200	241.000	584.500	349.000
GR	581.300	361.000	576.800	381.000	576.200	401.000	576.600	421.000	578.400	441 000
GR	578.400	461.000	578.500	481.000	577.700	501 000	577 100	521 000	577 600	541.000
GR	577.000	561.000	577 000	581.000	577.000	601 000	577.200	621.000	577.800	641.000
GR	577 900	661.000	578 100	681 000	578.700	701.000	579.800	721.000	581.300	741 000
GR	583 600	753 000	590 900	777.000	591.200	789.000	591.400	812.000	590.600	841.000
GR	592.200	941.000	590.400	1041.000	590.200	1141.000	590.800	1241.000	590 900	1341.000
GR	590.200	1441.000	593.700	1541.000	594.500	1641.000	594.400	1741.000	594.600	1841.000
GR	593.600	1941.000	593.200	2041.000	592.800	2072.000	592 200	2089.000	592 400	2141 000
GR	592.400	2165.000	593.900	2165.000	600 800	2237.000	621.000	2293.000	.000	.000
NH	3 000	075	785.000	.125	805.000	.033	1149.000	.000	000	000
X1	9.802	29.000	805.000	1149.000	2050.000	1750.000	2095 000	000	000	000
X3	10.000	.000	.000	234.000	.000	.000	.000	.000	.000	000
GR	601.500	.000	598.000	100.000	595.000	200.000	590.500	300.000	592.600	400 000
GR	592.700	500.000	591.500	600.000	588.600	700.000	590 600	785.000	591.100	805 000
GR	583.900	808.000	581.400	824 000	579.800	840 000	578.700	860.000	578.600	880.000
GR	577.900	900.000	577 000	920 000	576.100	940 000	575.400	960.000	574 400	980.000
GR	573.000	1000.000	573.600	1020.000	575.700	1040.000	577.000	1060.000	578 500	1080.000
GR	581.800	1100.000	583.100	1103 000	593.300	1120.000	615.800	1149.000	000	.000
NC	.125	.125	.033	.000	.000	.000	.000	000	000	.000
X1	10.354	29.000	395.000	700.000	2300.000	2915.000	2915.000	.000	000	000
GR	599 700	.000	588.300	30.000	587.400	68.000	588 900	168.000	590.700	268.000
GR	591.100	368.000	590.400	388.000	582.000	395.000	580.100	408.000	578.200	428 000
GR	577.400	448.000	576.600	468.000	576.100	488.000	575.600	508.000	575.500	528 000
GR	575.200	548.000	574.600	568.000	574 200	588.000	573.900	608.000	573 500	628 000
GR	573 100	648.000	574.700	658.000	576.000	668.000	577.900	678 000	580.000	687 000
GR	582.700	700.000	594.100	715.000	599.700	731.000	610.400	754 000	.000	000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	000	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

#PROF 1

CCHV= .100 CEHV= 300
1490 NH CARD USED
#SECNO 6.896

3470 ENCROACHMENT STATIONS= 2550.0 4834.0 TYPE= 1 TARGET= 2284.000
FIS XSEC 6 DS LIMIT OF FLOODWAY REVISION

6.90	21.00	590 00	.00	.00	590.09	.09	.00	00	588 20
23150	1345.	21414.	391.	4510.	8564.	1563.	0.	0.	588.90
.00	.30	2.50	- .25	110	.036	125	.000	569 00	2550 00
.000084	850.	825.	800.	0	0	0	00	2284 00	4834 00

1490 NH CARD USED
#SECNO 7.052

3470 ENCROACHMENT STATIONS= 1550.0 5320.0 TYPE= 1 TARGET= 3770 000

7.05	17.48	590.08	.00	.00	590.17	.09	08	.00	588 10
23150.	1664	19512.	1974.	5525.	7280	4283.	307.	59.	586.60
.10	.30	2.68	.46	119	.036	078	.000	572 60	1550.00
.000118	750.	825.	1050.	0	0	0	.00	3770.00	5320.00

1490 NH CARD USED
#SECNO 7 207

3470 ENCROACHMENT STATIONS= 1900.0 5470.0 TYPE= 1 TARGET= 3570.000
FIS XSEC H

7.21	14.09	590.19	.00	.00	590 32	.13	14	01	588 10
23150.	1140.	18368.	3642.	4208.	5605.	5093.	614.	130	586.60
18	.27	3.28	.72	.181	036	.076	.000	576.10	1900.00
.000247	800.	818.	900.	2	0	0	00	3570.00	5470 00

CCHV= .100 CEHV= .300
#SECNO 7 726

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 200.0 1793.0 TYPE= 1 TARGET= 1593.000

7.73	16.94	590.84	.00	.00	591.14	.30	77	.05	586.50
23150	1234.	21712.	203	2621	4757.	627	1332.	291	589 50
.36	.47	4.56	.32	.125	035	125	.000	573 90	200 00
.000322	2750	2735.	2700.	2	0	0	00	1575.08	1793 00

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

CCHV= .100 CEHV= .300
#SECNO 7.801

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 250.0 1743.0 TYPE= 1 TARGET= 1493.000

FIS XSEC I									
7.80	17.07	590.97	.00	.00	591.27	.30	.13	00	586.50
23150.	1253.	21721.	176.	2612.	4796	552.	1406.	305.	589.50
.39	.48	4.53	.32	.125	.035	.125	.000	573.90	250.00
.000314	400.	400.	400.	1	0	0	.00	1483.45	1743 00

#SECNO 7.877

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 250.0 1743.0 TYPE= 1 TARGET= 1493 000

7.88	17.20	591.10	.00	.00	591.39	.29	.12	.00	586 50
23150.	1313.	21644.	194.	2722.	4838.	598.	1474.	317.	589.50
.41	.48	4.47	.32	.125	.035	.125	.000	573.90	250.00
.000303	310.	400.	400.	1	0	0	.00	1492.54	1743.00

1490 NH CARD USED
#SECNO 7.934

3470 ENCROACHMENT STATIONS= 646.0 1812.0 TYPE= 1 TARGET= 1166 000

XSEC J			DS OF BACON SCHOOL EXTENDED						
7.93	17.38	591.18	.00	.00	591.48	.29	.09	.00	586.50
23150.	1195.	21889.	66.	2312.	4895.	201.	1524.	325.	589 50
.43	.52	4.47	.33	.114	.034	.125	000	573.80	646.00
000281	240.	300.	300.	0	0	0	.00	1121 57	1767.57

1490 NH CARD USED
CCHV= .100 CEHV= .300
#SECNO 7.945

3470 ENCROACHMENT STATIONS= 386 0 1552 0 TYPE= 1 TARGET= 1166 000

XSEC K US OF BACON SCHOOL EXTENDED

MANNINGS N OF 10 USED IN LOB TO DESCRIBE LINE OF BUILDINGS

7 95	17.39	591.19	00	.00	591.50	.31	02	.01	586.50
23150.	680.	22400.	70.	1441.	4898.	202.	1534.	327.	589 50
.44	.47	4 57	.35	.125	.035	.125	.000	573.80	387.00
000311	60.	60.	60.	1	0	0	.00	1120.59	1507.60

1490 NH CARD USED
#SECNO 7.956

3470 ENCROACHMENT STATIONS= 646.0 1812.0 TYPE= 1 TARGET= 1166.000

7.96	17.42	591.22	.00	00	591.52	30	02	00	586 50
23150.	1045.	22037.	68.	2331.	4904	204.	1543.	328.	589.50
.44	45	4.49	.33	.133	.034	.125	.000	573.80	646.00
.000283	60.	60.	60.	1	0	0	.00	1121.67	1767.67

1490 NH CARD USED
#SECNO 7.965

3470 ENCROACHMENT STATIONS= 646.0 1812.0 TYPE= 1 TARGET= 1166.000

7 97	17.48	591.28	.00	00	591 54	26	.01	.00	586.50
23150.	1915.	21168.	67.	2374.	4924.	211.	1552.	330.	589 50
.44	.81	4.30	.32	.070	.034	.125	.000	573.80	646.00
.000252	50.	50.	50.	2	0	0	.00	1121.91	1767.91

#SECNO 8.094

3470 ENCROACHMENT STATIONS= 646.0 1812.0 TYPE= 1 TARGET= 1166 000

8.09	17.64	591.44	.00	.00	591.72	.28	.18	.01	586 50
23150	1193.	21879.	78.	2493	4977.	229.	1668.	346.	589.50
.49	.48	4.40	.34	.125	.034	.125	000	573.80	646.00
.000266	620.	630.	720.	1	0	0	.00	1122 58	1768 58

1490 NH CARD USED
#SECNO 8.240

8.24	17.98	591.68	.00	.00	591.94	.26	.22	.00	589.60
23150.	1248.	21882.	20.	2893	5190.	46.	1809.	367.	585.00
55	.43	4.22	.44	.096	.034	.125	.000	573.70	52 34
.000247	580	880.	880.	2	0	0	00	1619.30	1671.63

1490 NH CARD USED
#SECNO 8.345

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
8.35	18.12	591.82	.00	.00	592.07	.25	.13	.00	588.80
23150.	1433.	21700.	18.	2796.	5250.	41.	1882.	375.	586.30
58	.51	4.13	.44	.078	.034	.125	.000	573.70	67.16
.000235	100.	550.	550.	2	0	0	.00	1852.06	2236.84

CCHV= .300 CEHV= .500
1490 NH CARD USED
#SECNO 8.552

3265 DIVIDED FLOW

8.55	18.38	591.98	.00	.00	592 69	.71	.39	.23	587.80
23150.	1651.	21466.	33.	3710	3055.	43.	1996.	387.	586.30
.63	.45	7.03	.76	.149	.033	.125	.000	573.60	66.59
.000686	120.	1095.	1095.	2	0	0	.00	2094.16	2497 07

1490 NH CARD USED
#SECNO 8.560
3280 CROSS SECTION 8.56 EXTENDED 5.78 FEET

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 4.1 2625.0 TYPE= 1 TARGET= -4.100

8.56	19.38	592.78	.00	.00	592.96	.18	.11	16	591.60
23150.	790.	19904.	2456.	2412.	5475.	4687.	2064.	401.	589.30
.66	.33	3.64	.52	.117	.033	.110	.000	573.40	54.65
000184	250.	350.	300.	2	0	0	.00	2570.35	2625.00

CCHV= .100 CEHV= .300
1490 NH CARD USED
#SECNO 8.948
3280 CROSS SECTION 8.95 EXTENDED 6.09 FEET

3470 ENCROACHMENT STATIONS= 200.0 2225.0 TYPE= 1 TARGET= 2025 000

8.95	19.69	593.09	.00	00	593.27	.18	.31	.00	591 60
23040.	812.	20413	1815	2346.	5586.	3212.	2474	456.	589.30
.80	.35	3.65	.57	.113	033	110	.000	573.40	200.00
.000181	130.	1740.	2000.	2	0	0	.00	2025 00	2225.00

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 8.958
3280 CROSS SECTION 8.96 EXTENDED 6.12 FEET

3470 ENCROACHMENT STATIONS= 200.0 2150.0 TYPE= 1 TARGET= 1950 000

8.96	19.72	593.12	.00	.00	593.30	19	.03	.00	591.60
23040.	831.	20514	1695	2380.	5598	2931.	2517.	464.	589.30
.82	35	3.66	.58	.113	.033	.110	.000	573.40	200 00
.000182	170.	170.	170	0	0	0	.00	1950.00	2150.00

#SECNO 9.100
3280 CROSS SECTION 9.10 EXTENDED 6.23 FEET

3470 ENCROACHMENT STATIONS= 958.0 2500 0 TYPE= 1 TARGET= 1542.000

9.10	19 83	593.23	.00	.00	593.41	.18	.11	.00	591.60
23040	87.	20564.	2389.	338.	5638.	4412.	2653.	488.	589.30
.87	.26	3.65	.54	.085	.033	.110	.000	573 40	958.00
.000178	830.	630.	350.	0	0	0	00	1542.00	2500.00

1490 NH CARD USED
#SECNO 9 405

9 40	17.30	593.50	.00	.00	593 68	.18	27	00	584 50
23040.	305	21703.	1033.	702.	6209.	2071.	3006.	541.	583.60
1.00	.43	3.50	.50	.125	.033	.075	.000	576.20	161 56
.000158	1900.	1615.	1480.	2	0	0	.00	1373 82	1535 39

1490 NH CARD USED
#SECNO 9.802

3470 ENCROACHMENT STATIONS= 234 0 1149.0 TYPE= 1 TARGET= -224 000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 591.10 ELREA= 100000.00

9 80	20 84	593 84	.00	.00	594.13	.29	.41	03	591 10
23040.	911.	22129.	0	1440.	5003	0.	3367.	591.	100000 00
1.14	63	4 42	00	.076	.033	075	000	573 00	234 00
000252	2050	2095.	1750.	0	0	0	.00	886 69	1120 69

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

#SECNO 10.354

10 35	21.37	594.47	.00	.00	594.71	.24	.58	.01	582.00
23040.	854.	22147.	39	1892.	5583	91	3813	678.	582.70
1.35	.45	3.97	.43	.125	033	.125	000	573 10	17.75
.000162	2300.	2915.	2915.	2	0	0	.00	702.32	716 07

THIS RUN EXECUTED 01-08-89

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************

T1      100-YEAR FLOOD  ENCROACHED
T2
T3

J1  ICHECK    INQ      NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.      6.        0.        0.   .000000        00        0        0.   590.000       000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN       ALLDC     IBW       CHNIM     ITRACE

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

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

$PROF 2

CCHV= .100 CEHV= .300
1490 NH CARD USED
$SECNO 6.896

3470 ENCROACHMENT STATIONS= 2550.0 4834.0 TYPE= 1 TARGET= 2284.000
FIS XSEC G DS LIMIT OF FLOODWAY REVISION

6.90	21.00	590.00	.00	590.00	590.09	.09	.00	.00	588 20
23150.	1345.	21414.	391.	4510.	8564.	1563.	0.	0.	588.90
.00	.30	2.50	.25	.110	.036	.125	.000	569.00	2550.00
.000084	850.	825.	800.	0	0	0	.00	2284.00	4834.00

1490 NH CARD USED
$SECNO 7.052

3470 ENCROACHMENT STATIONS= 3381.0 5320.0 TYPE= 1 TARGET= 1939.000

7.05	17.47	590.07	.00	590.08	590.18	.11	.08	.01	588.10
22235.	14.	20179.	2042.	95.	7280.	4283.	260.	44.	586.60
.09	.15	2.77	.48	.110	.036	.078	000	572.60	3381.00
.000126	750.	825.	1050.	0	0	0	.00	1939.00	5320.00

1490 NH CARD USED
$SECNO 7.207

3470 ENCROACHMENT STATIONS= 3381.0 5470.0 TYPE= 1 TARGET= 2089.000
FIS XSEC H

7.21	14.09	590.19	.00	590.19	590.33	.14	.14	.01	588.10
22235.	3.	18550.	3682.	107.	5606.	5097.	480.	84.	586.60
.17	.03	3.31	.72	.850	.036	.076	.000	576.10	3381.00
.000252	800.	818.	900.	2	0	0	.00	2089 00	5470.00

CCHV= .100 CEHV= .300
$SECNO 7.726

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1000.0 1743.0 TYPE= 1 TARGET= 743.000

7.73	16.95	590.85	.00	590.84	591.17	32	.78	.05	586.50
22235.	252.	21822.	161.	408.	4759.	514.	995.	172.	589.50
.34	62	4.59	.31	.125	.035	.125	.000	573.90	1000.00
.000325	2750.	2735.	2700.	2	0	0	.00	725.64	1743 00

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

CCHV= .100 CEHV= .300
#SECNO 7.801

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 977.0 1743.0 TYPE= 1 TARGET= 766.000
FIS XSEC I

7.80	17 08	590.98	.00	590.97	591.29	31	.13	.00	586.50
22235.	355.	21701.	179.	558.	4803.	561.	1049.	178	589.50
.36	.64	4.52	.32	.125	.035	.125	.000	573.90	977.00
.000311	400.	400.	400.	2	0	0	.00	758.13	1743.00

#SECNO 7.877

3470 ENCROACHMENT STATIONS= 977.0 1743.0 TYPE= 1 TARGET= 766 000

7.88	17.21	591.11	.00	591.10	591.42	.30	.12	.00	586.50
22235.	363.	21676.	196.	570.	4842.	603.	1102.	185.	589.50
.39	.64	4.48	.32	.125	.035	.125	.000	573.90	977 00
.000303	310.	400.	400.	1	0	0	.00	766.00	1743.00

1490 NH CARD USED
#SECNO 7.934

3470 ENCROACHMENT STATIONS= 1148.0 1812.0 TYPE= 1 TARGET= 664.000
XSEC J DS OF BACON SCHOOL EXTENDED

7.93	17 42	591.22	.00	591.18	591.50	.28	.08	.00	586.50
21725.	465.	21195.	65.	886.	4906.	205.	1143.	190.	589 50
.41	.52	4.32	.32	.136	.034	.125	.000	573.80	1148 00
.000261	240.	300.	300.	2	0	0	.00	619.70	1767.70

1490 NH CARD USED
CCHV= .100 CEHV= .300
#SECNO 7.945

3470 ENCROACHMENT STATIONS= 890.0 1552.0 TYPE= 1 TARGET= 662.000
XSEC K US OF BACON SCHOOL EXTENDED
MANNINGS N OF 10 USED IN LOB TO DESCRIBE LINE OF BUILDINGS

7.95	17.44	591 24	.00	591.19	591.52	.28	02	.00	586 50
21725.	520	21137.	68.	887.	4911.	707	1151.	191.	589 50
.41	.59	4.30	.33	125	.035	.125	.000	573 80	890.00
.000275	60.	60.	60.	0	0	0	.00	617 76	1507.76

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

1490 NH CARD USED
#SECNO 7.956

3470 ENCROACHMENT STATIONS= 1148.0 1812.0 TYPE= 1 TARGET= 664.000

7.96	17.46	591.26	.00	591.22	591.54	.28	.02	.00	586.50
21725.	508.	21150.	67.	893.	4917.	209.	1159.	192.	589.50
.42	.57	4.30	.32	.125	.034	.125	.000	573.80	1148.00
.000258	60.	60.	60.	0	0	0	.00	619.83	1767.83

1490 NH CARD USED
#SECNO 7.965

3470 ENCROACHMENT STATIONS= 1148.0 1812.0 TYPE= 1 TARGET= 664.000

7.97	17.50	591.30	.00	591.28	591.55	.25	.01	.00	586.50
21725.	1184.	20476.	66.	902	4930.	213.	1166.	192.	589.50
.42	1.31	4.15	.31	.052	.034	.125	.000	573.80	1148.00
.000235	50.	50.	50.	2	0	0	.00	619 99	1767.99

#SECNO 8.094

3470 ENCROACHMENT STATIONS= 1170.0 1812.0 TYPE= 1 TARGET= 642.000

8.09	17.65	591.45	.00	591.44	591.72	.27	.16	.01	586 50
21725.	520.	21129.	76.	895.	4980.	230.	1260.	202.	589 50
.47	.58	4.24	.33	.125	.034	.125	.000	573.80	1170.00
.000247	620.	680.	720.	1	0	0	.00	598.62	1768.62

1490 NH CARD USED
#SECNO 8.240

3470 ENCROACHMENT STATIONS= 1275.0 1702.0 TYPE= 1 TARGET= 427.000

8.24	17.97	591.67	00	591.68	591 93	.26	.21	.00	589.60
21325.	30.	21276.	19	104.	5186.	45.	1372	211.	585.00
.53	.29	4.10	.43	.125	.034	125	.000	573.70	1275.00
.000234	580.	880.	880.	2	0	0	.00	396.62	1671.62

1490 NH CARD USED
#SECNO 8 345

3470 ENCROACHMENT STATIONS= 1870 0 2267.0 TYPE= 1 TARGET= 397.000

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XWL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
8.35	18.10	591.80	.00	591 82	592 06	.26	13	.00	588.80
21325	29.	21278.	17.	59.	5243.	41.	1439.	215	586 30
.56	.50	4.06	.43	.085	.034	.125	.000	573.70	1870.00
000227	100.	550.	550.	2	0	0	.00	366 81	2236 81

CCHV= .300 CEHV= .500
1490 NH CARD USED
#SECNO 8.552

3470 ENCROACHMENT STATIONS= 2260.0 2527.0 TYPE= 1 TARGET= 267.000

8.55	18.36	591 96	.00	591.98	592.69	.73	.39	.24	587.80
21325.	281.	21013.	32.	104.	3051.	43.	1544	222.	586.30
.61	2.70	6.89	.74	.033	.033	.125	.000	573 60	2260 00
000660	120.	1095	1095.	2	0	0	.00	237.04	2497.04

1490 NH CARD USED
#SECNO 8.560
3280 CROSS SECTION 8.56 EXTENDED 5.73 FEET

3470 ENCROACHMENT STATIONS= 1240.0 1775 0 TYPE= 1 TARGET= 535.000

8.56	19.33	592.73	00	592.78	592 96	23	.12	.15	591.60
21325.	4.	21048.	273.	17.	5455.	579.	1581.	225	589 30
.63	24	3.86	.47	.085	.033	.110	.000	573.40	1240.00
.000208	250.	350.	300.	2	0	0	.00	535.00	1775.00

CCHV= 100 CEHV= .300
1490 NH CARD USED
#SECNO 8.948
3280 CROSS SECTION 8.95 EXTENDED 6 11 FEET

3470 ENCROACHMENT STATIONS= 1240.0 2225.0 TYPE= 1 TARGET= 985.000

8.95	19 71	593 11	00	593 09	593.28	.17	.32	.01	591.60
21215.	6.	19469.	1740.	24.	5596	3227	1889	257.	589.30
.78	.26	3 48	54	085	033	.110	.000	573.40	1240 00
.000164	130.	1740.	2000.	2	0	0	.00	985.00	2225.00

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

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#SECNO 8.958
3280 CROSS SECTION      8.96 EXTENDED      6.14 FEET

3470 ENCROACHMENT STATIONS=     200.0    2150.0  TYPE=     1  TARGET=    1950.000
     8.96    19.73   593.13     .00   593.12   593.32     .19     .03     .00   591.60
   23040.      839.  20501.    1699.    2400.    5605.    2941.    1928.     263.   589.30
      .80     .35     3.66     .58     .113     .033     .110     .000   573.40   200.00
  .000181     170.     170.     170.        1        0        0      .00  1950.00  2150.00


#SECNO 9.100
3280 CROSS SECTION      9.10 EXTENDED      6.24 FEET

3470 ENCROACHMENT STATIONS=     958.0    2500.0  TYPE=     1  TARGET=    1542 000
     9.10    19.84   593.24     .00   593.23   593.43     .18     .11     .00   591.60
   23040.       88.  20558.    2393.     341.    5641.    4420.    2065.     287.   589.30
      .85     .26     3.64     .54     .085     .033     .110     .000   573.40   958.00
  .000178      830.     630.     350.        0        0        0      .00  1542.00  2500.00


1490 NH CARD USED
#SECNO 9.405
     9.40    17.32   593.52     .00   593.50   593.70     .18     .27     .00   584.50
   23040.      305.  21696.    1039.     705.    6215.    2081.    2418.     340.   583.60
      .98     .43     3.49     .50     .125     .033     .075     .000   576.20   161.10
  .000158     1900.     1615.     1480.        2        0        0      .00  1374.67  1535.77


1490 NH CARD USED
#SECNO 9.802

3470 ENCROACHMENT STATIONS=     234.0    1149.0  TYPE=     1  TARGET=    -234.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      591.10 ELREA=   100000.00

     9.80    20 85   593.85     .00   593 84   594.14     .29     .41     .03   591.10
   23040.      916.  22124.       0.    1447.    5007.       0.    2780.     391. 100000.00
     1.12     .63     4.42     .00     .076     .033     .075     .000   573.00   234.00
  .000251     2050.     2095.     1750.        0        0        0      .00   886.70  1120.70
```

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

&SECNO 10 354

10.35	21.38	594.48	.00	594.47	594.72	.23	.57	.01	582.00
23040.	856.	22145.	39.	1895.	5586.	91.	3226.	437.	582.70
1.33	.45	3.96	.43	.125	.033	.125	.000	573.10	13.73
.000161	2300.	2915.	2915.	2	0	0	.00	702.37	716.10

THIS RUN EXECUTED 01-06-89

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HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION AUGUST 1985
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

ST JOSEPH RIVER

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	IOK#S	VCH	AREA	01K
G	6.896	.00	.00	.00	569.00	23150.00	590 00	.00	590.09	84	2 50	14637.00	25241.42
	6.896	.00	.00	.00	569.00	23150.00	590.00	.00	590.09	84	2 50	14637.00	25241 42
	7.052	825.00	.00	.00	572.60	23150.00	590.08	.00	590.17	1 18	2.68	17098 02	21322 51
	7.052	825.00	.00	00	572.60	22235.00	590.07	00	590 18	1.26	2 77	11658.54	19803 19
H	7 207	818.00	.00	00	576.10	23150.00	590.19	00	590.32	2.47	3.28	14905.71	14721 73
	7.207	818.00	.00	.00	576.10	22235.00	590.19	00	590 33	2.52	3.31	10810.36	14008 79
	7.726	2735.00	.00	.00	573.90	23150.00	590.84	.00	591.14	3.22	4.56	8004 88	12898.07
	7.726	2735.00	.00	.00	573.90	22235.00	590 85	.00	591.17	3.25	4 59	5680 68	12337.55
I	7 801	400.00	.00	.00	573.90	23150.00	590.97	.00	591 27	3.14	4 53	7959 69	13068 90
	7 801	400 00	.00	.00	573.90	22235.00	590 98	.00	591.29	3.11	4 52	5922 08	12598 27
	7.877	400.00	.00	.00	573.90	23150.00	591.10	.00	591.39	3 03	4 47	8158.22	13308.15
	7.877	400.00	.00	00	573 90	22235.00	591.11	00	591 42	3.03	4.49	6015 98	12783 26
J	7.934	300.00	.00	.00	573.80	23150 00	591.18	00	591.48	2 81	4.47	7408 47	13811 74
	7.934	300.00	.00	.00	573.80	21725.00	591 22	.00	591.50	2 61	4 32	5997 [illegible]	13474 [illegible]
K	7 945	60.00	.00	00	573 80	23150.00	591.19	00	591 50	3.11	4.57	654. 41	12127 07
	7.945	60.00	.00	.00	573.80	21725 00	591 24	00	591 52	2 75	4.70	6005 73	.7819 16
	7 956	60.00	.00	.00	573.80	23150.00	591.22	00	591.52	2.82	4.49	7479 55	13759 36
	7.956	60.00	.00	.00	573.80	21725.00	591 26	.00	591 54	2.56	4.30	6019 50	17917.95
	7 965	50.00	.00	00	573.80	23150 00	591.26	00	591 54	2.52	4.30	7508 08	14969 64
	7 965	50.00	.00	00	573.80	21725 00	591.30	00	591 55	2.75	4 15	6044 85	14167 27
	8.094	680 00	.00	.00	573 80	23150 00	591 44	00	591.72	2 66	4.40	7699 57	14.65 56
	8 094	680.00	00	00	573 80	21725 00	591 45	00	591 72	2.47	4 24	6105 17	13817 19

	SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*S	VCH	AREA	01K
L	8.240	880 00	00	.00	573 70	22150.00	591.68	00	591.94	2.47	4.22	8128 56	14735 41
	8 240	880.00	.00	.00	573.70	21325.00	591 67	00	591.97	2 34	4 10	5335.33	13942 42
M	8 345	550 00	00	.00	573.70	23150.00	591.82	.00	592 07	2.35	4.13	8086 46	15100 24
	8 345	550.00	.00	00	573.70	21325 00	591 80	.00	592 06	2.27	4 06	5343 74	14157 11
N	8.552	1095.00	00	.00	573.60	23150.00	591 98	00	592 69	6.86	7.03	6807 32	8836 16
	8.552	1095.00	00	.00	573 60	21325 00	591.96	.00	592.69	6 60	6 89	3196.17	6300.49
	8.560	350.00	.00	.00	573.40	23150.00	592.78	.00	592.96	1.84	3.64	12537 75	17056 72
	8 560	350 00	.00	00	573.40	21325.00	592.73	00	592 96	2 08	3.86	6051 62	14269 43
O	8.948	1740.00	.00	.00	573.40	23040.00	593.09	.00	593.27	1.81	3.65	11147 89	17118 80
	8 948	1740.00	.00	00	573.40	21215.00	593 11	.00	593 28	1 64	3 48	8847 00	16577.43
	8.958	170.00	.00	.00	573 40	23040.00	593.12	.00	593.30	1.82	3.66	10939.78	17094 89
	8.958	170.00	.00	.00	573.40	23040.00	593.13	.00	593.32	1.81	3.66	10946 79	17141 35
	9 100	630 00	.00	00	573 40	23040 00	593.23	00	593 41	1.78	3 65	10387.87	17255.41
	9.100	630.00	.00	00	573.40	23040.00	593.24	.00	593 43	1.78	3.64	10402 55	17277 69
P	9.405	1615 00	.00	00	576 20	23040 00	593 50	00	593 68	1.58	3 56	8982.22	18309.33
	9.405	1615.00	00	00	576.20	23040 00	593 52	00	593 70	1.58	3.49	9000.59	18241 86
Q	9.802	2095.00	.00	.00	573.00	23040.00	593.84	00	594 13	2 52	4.42	6443.06	14523.79
	9 802	2095 00	.00	00	573.00	23040.00	593 85	.00	594.14	2.51	4.42	6454 04	14545 56
R	10.354	2915.00	00	00	573.10	23040 00	594.47	00	594 71	1 62	3.97	7565.68	18119 15
	10 354	2915.00	00	.00	573 10	23040 00	594 48	.00	594.72	1.61	3 96	7572 97	18137 94

ST JOSEPH RIVER

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFFWS	TOPWID	XLCH
G	6.896	23150.00	590 00	.00	.00	.00	2284.00	.00
	6.896	23150.00	590.00	.00	.00	.00	2284.00	.00
	7.052	23150.00	590.08	.00	.08	.00	3770.00	825.00
	7.052	22235 00	590.07	-.01	.07	-.01	1939.00	825.00
H	7.207	23150.00	590 19	00	.11	.00	3570.00	818 00
	7.207	22235.00	590.19	.00	.12	.00	2089.00	818 00
	7.726	23150.00	590.84	.00	.65	.00	1575 08	2735.00
	7.726	22235.00	590.85	.01	.65	.01	725 64	2735 00
I	7.801	23150.00	590.97	.00	13	.00	1483.45	400 00
	7.801	22235.00	590.98	.02	.14	02	758.13	400.00
	7.877	23150.00	591.10	.00	.13	.00	1492.54	400 00
	7.877	22235.00	591.11	01	.13	.01	766.00	400 00
J	7.934	23150.00	591.18	.00	08	00	1121.57	300.00
	7 934	21725.00	591.22	.04	.11	.04	619 70	300 00
K	7.945	23150.00	591.19	00	.00	.00	1120.59	60 00
	7.945	21725.00	591.24	.05	.02	05	617.76	60 00
	7.956	23150.00	591.22	.00	.04	.00	1121.67	60.00
	7.956	21725.00	591.26	03	.02	03	619 83	60.00
	7.965	23150.00	591.28	.00	.05	.00	1121.91	50 00
	7.965	21725.00	591 30	.02	.04	.02	619.99	50.00
	8.094	23150.00	591.44	.00	.16	.00	1122.58	680.00
	8 094	21725.00	591.45	.01	.15	.01	598.62	680.00
L	8.240	23150.00	591.68	.00	.25	.00	1619.30	880.00
	8.240	21325.00	591.67	-.01	.22	- 01	396 62	880.00
M	8 345	23150.00	591.82	.00	.14	.00	1852 06	550 00
	8.345	21325.00	591.80	- 02	13	-.02	366 81	550 00
N	8.552	23150.00	591.98	.00	.15	.00	2094.16	1095.00
	8.552	21325.00	591 96	-.02	.16	- 02	237.04	1095.00
	8 560	23150 00	592 78	.00	.80	.00	2570 35	350 00
	8 560	21325 00	592.73	-.05	77	- 05	535 00	350 00
O	8.948	23040.00	597 09	.00	.31	00	2025 00	1740.00
	8.948	21215 00	593 11	.02	.38	02	985.00	1740 00

01-05-89 15.21.12

	SECNO	Q	CWSEL	DIFWSF	DIFWSX	DIFWS	TOPWID	XLCH
	8.958	23040.00	593.12	.00	.03	.00	1950.00	170.00
	8.958	23040.00	593.13	.02	.02	.02	1950.00	170.00
	9.100	23040.00	593.23	.00	.11	.00	1542.00	630.00
	9.100	23040.00	593.24	.01	.11	.01	1542.00	630.00
P	9.405	23040.00	593.50	.00	.28	.00	1373.82	1615.00
	9.405	23040.00	593.52	.01	.28	.01	1374.67	1615.00
Q	9.802	23040.00	593.84	.00	.33	.00	886.69	2095.00
	9.802	23040.00	593.85	.01	.33	.01	886.70	2095.00
R	10.354	23040.00	594.47	.00	.64	.00	702.32	2915.00
	10.354	23040.00	594.48	.01	.64	.01	702.37	2915.00

FLOODWAY DATA, ST JOSEPH RIVER
PROFILE NO. 2

	STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
G	6.896	2284.	14637.	1.6	590 0	590 0	.0
	7.052	1939	11659.	1.9	590.1	590.1	0
H	7 207	2089.	10810.	2.1	590.2	590.2	.0
	7 726	743.	5681.	3.9	590.8	590.8	.0
I	7 801	766.	5922.	3.8	591.0	591.0	.0
	7.877	766.	6016.	3.7	591.1	591.1	.0
J	7.934	620.	5998.	3 6	591.2	591.2	.0
K	7.945	618.	6006.	3.6	591.3	591.2	.1
	7.956	620.	6020.	3.6	591.2	591.2	0
	7.965	620.	6045.	3.6	591.3	591.3	0
	8.094	599.	6105	3.6	591.4	591.4	.0
L	8.240	397.	5335.	4.0	591.7	591.7	.0
M	8.345	367.	5344.	4.0	591.8	591.8	.0
N	8.552	237.	3198.	6.7	592.0	592.0	.0
	8.560	535.	6052.	3.5	592.8	592.8	.0
O	8.948	985.	8847.	2.4	593.1	593.1	0
	8.958	1950.	10946	2.1	593.1	593.1	.0
	9.100	1542.	10403.	2.2	593.2	593.2	.0
P	9.405	1375.	9001.	2.6	593.5	593.5	.0
Q	9.802	887.	6454.	3.6	593.8	593.8	.0
R	10.354	702	7573.	3.0	594.5	594.5	.0

```
**************************************************
*  WATER SURFACE PROFILES                        *
*  VERSION OF NOVEMBER 1976                      *
*  UPDATED MAY 1984                              *
*  IBM-PC-XT VERSION AUGUST 1985                 *
*  RUN DATE  01-06-89   TIME  14:21.02           *
**************************************************
```


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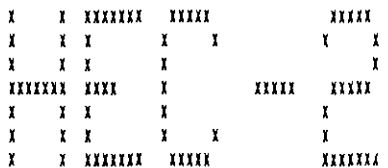
**************************************
*  U S. ARMY CORPS OF ENGINEERS      *
*  THE HYDROLOGIC ENGINEERING CENTER *
*  609 SECOND STREET  SUITE D        *
*  DAVIS, CALIFORNIA 95616           *
*  (916) 440-2105 (FTS) 448-2105     *
**************************************
```

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: Royalton

3) WATERCOURSE: St. Joseph R.

4) DOCUMENT TYPE: Left overbank

00BREAK00

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*************************************************
*  WATER SURFACE PROFILES                       *
*  VERSION OF NOVEMBER 1976                     *
*  UPDATED MAY 1984                             *
*  IBM-PC-AT VERSION AUGUST 1985                *
*  RUN DATE  01-09-89   TIME  11.04:19          *
*************************************************
```


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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    *
*************************************
```


```
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
```

LEFT OVER BANK ~~FLOODPLAIN~~

10-, 50-, 100-, 500-YR

THIS RUN EXECUTED 01-09-89

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**************************************************
 HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
 ERROR CORR -  01,02,03,04,05,06
 MODIFICATION -  50,51,52,53,54,55,56
 IBM-PC-XT VERSION AUGUST 1985
**************************************************

C
T1   ROYALTON FIS  BERRIEN COUNTY      NATURAL CONDITIONS
T2     10 YEAR FLOOD       LEFT OVERBANK FLOW
T3     ST JOSEPH RIVER                              ROYLEFT.FIS

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FB

       0        2         0.        0.   .000000       .00        .0        0    588 310       000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      .000      .000    -1 000      .000      .000       000       000       000       000       000

J5  LPRNT     NUMSEC                    ********REQUESTED SECTION NUMBERS********

       000       .000      .000      .000      .000      .000       000       .000      .000      .000

BT      6 000  17430.000  21470.000  23150.000  27130 000       .000       000       000       .000       .000
NC       .000       .000       .000       .100       .300       .000       .000       .000       .000       000
NH      5.000        125  2200.000       .110  3800.000       .125  3845.000       .03o  4334 000        125
NH   6454 000       .000       .000       .000       .000       .000       .000       000       .000       .000
ET       .000      6.100      6.100      6.100      6.100  2550.000  4834.000       .000       .000       000
                FIS XSEC 6    DS LIMIT OF FLOODWAY REVISION
X1      6.896     73.000  3845.000  4334.000     850.000     800.000     825.000       .000       000       000
X3       .000       .000       .000       .000       .000       000       000       000       .000       000
GR    610.000       .000    585.100    200.000    585.700    400.000    585.200    600 000    586 000    800.000
GR    585.600  1000.000    586.000  1200 000    586 600  1400.000    586.500  1600.000    586 500  1800 000
GR    586 400  2000.000    585 800  2200.000    585 800  2270.000    585 800  2400.000    585.800  2600 000
GR    585.800  2800.000    585.800  3000.000    585.800  3200.000    586.000  3400 000    588 200  3600.000
GR    588 700  3770.000    588.500  3800.000    588.200  3845 000    584.100  3849.000    571.000  3854 000
GR    572.700  3874.000    570.600  3894.000    569.200  3914.000    569 000  3934 000    569 400  3954.000
GR    569.000  3974.000    569.300  3994.000    569.500  4014.000    569.600  4034.000    569.900  4054 000
GR    570 200  4074 000    570 500  4094.000    570.600  4114.000    570.800  4134 000    571 800  4154.000
GR    571.400  4174.000    571.800  4194.000    572.500  4214.000    573 400  4234.000    572.700  4254 000
GR    574 300  4274 000    574 600  4279.000    581.400  4283.000    581.900  4294 000    588.900  4314.000
GR    587.100  4479.000    588.200  4609 000    588 200  4629.000    585.500  4659.000    585.200  4679 000
GR    585.200  4699.000    585.200  4899.000    585 600  4959.000    587.200  5099 000    587 900  5299 000
GR    587 900  5479.000    586.800  5484 000    586.800  5499 000    597 400  5539.000    597.400  5584.000
GR    587 800  5634 000    588 000  5699.000    588.000  5899 000    587.000  5999 000    586 200  6099 000
GR    586 200  6299.000    586.200  6369 000    610 000  6454 000       000       .000       .000       000
```

NH	5.000	.125	2330.000	.110	3481.000	.036	3970.000	.075	5230.000	.125
NH	6755.000	.000	.000	000	000	.000	.000	.000	.000	000
QT	6.000	270.000	710.000	915.000	1440.000	.000	.000	000	.000	000
ET	000	6.100	6.100	6.100	6.100	1710.000	2650.000	.000	000	000
X1	7.052	73.000	3481.000	3970.000	750.000	1050.000	825.000	.000	000	.000
X3	.000	.000	.000	000	.000	000	.000	.000	.000	.000
GR	610.000	.000	601.700	35.000	601.500	50.000	592.600	130.000	584.700	230.000
GR	585.000	530.000	585.000	730.000	585.000	930.000	585.500	1130.000	586.700	1330.000
GR	586.500	1530.000	585.500	1730.000	585.800	1930.000	586.900	2130.000	587.000	2330.000
GR	587.000	2530.000	587.400	2630.000	585.600	2730.000	586.700	2830.000	588.800	2930.000
GR	589.300	3030.000	588.200	3130.000	588.500	3230.000	589.500	3330.000	589.100	3430.000
GR	589.600	3450.000	588.100	3481.000	574.400	3490.000	575.800	3510.000	573.700	3530.000
GR	572.600	3650.000	572.700	3670.000	573.000	3690.000	573.300	3710.000	573.600	3730.000
GR	573.700	3750.000	573.900	3770.000	574.100	3790.000	574.500	3810.000	574.900	3830.000
GR	575.600	3850.000	576.500	3870.000	575.800	3890.000	577.400	3910.000	577.700	3915.000
GR	580.000	3919.000	580.500	3930.000	586.600	3970.000	587.400	4030.000	588.600	4130.000
GR	587.700	4230.000	587.700	4330.000	586.200	4430.000	587.200	4530.000	588.000	4630.000
GR	587.400	4730.000	587.000	4770.000	586.300	4830.000	586.100	4930.000	585.900	5030.000
GR	585.900	5230.000	585.800	5430.000	585.800	5630.000	586.100	5830.000	585.700	5845.000
GR	585.600	5940.000	585.600	6030.000	585.500	6160.000	585.300	6230.000	585.400	6430.000
GR	585.400	6485.000	591.800	6630.000	610.000	6755.000	.000	.000	000	000
NH	6.000	075	1730.000	.125	2630.000	.850	3481.000	.036	3970.000	075
NH	5430.000	.125	6755.000	000	000	.000	.000	.000	.000	.000
ET	.000	6.100	6.100	6.100	6.100	1900.000	2620.000	.000	000	.000
		FIS XSEC H								
X1	7.207	78.000	3481.000	3970.000	800.000	900.000	818.000	000	000	000
X3	.000	.000	.000	.000	000	.000	.000	.000	.000	000
GR	610.000	.000	601.700	35.000	601.500	50.000	592.600	130.000	584.700	230.000
GR	585.000	530.000	585.000	730.000	585.000	930.000	585.500	1130.000	586.700	1330.000
GR	586.500	1530.000	585.500	1730.000	585.800	1930.000	586.900	2130.000	587.000	2330.000
GR	587.000	2530.000	587.400	2630.000	585.600	2730.000	586.700	2830.000	588.800	2930.000
GR	589.300	3030.000	588.200	3130.000	588.500	3230.000	589.500	3330.000	589.100	3430.000
GR	589.600	3450.000	588.100	3481.000	578.400	3490.000	578.000	3510.000	577.700	3530.000
GR	576.200	3550.000	576.100	3570.000	576.500	3590.000	576.100	3610.000	576.400	3630.000
GR	576.600	3650.000	576.700	3670.000	577.000	3690.000	577.200	3710.000	577.600	3730.000
GR	577.700	3750.000	577.900	3770.000	578.100	3790.000	578.500	3810.000	578.900	3830.000
GR	579.600	3850.000	580.500	3870.000	579.800	3890.000	581.400	3910.000	581.700	3915.000
GR	584.000	3919.000	584.500	3930.000	586.600	3970.000	587.400	4030.000	588.600	4130.000
GR	587.700	4230.000	587.700	4330.000	586.200	4430.000	587.200	4530.000	588.000	4630.000
GR	587.400	4730.000	587.000	4770.000	586.300	4830.000	586.100	4930.000	585.900	5030.000
GR	585.900	5230.000	585.800	5430.000	585.800	5630.000	586.100	5830.000	585.700	5845.000
GR	585.600	5940.000	585.600	6030.000	585.500	6160.000	585.300	6230.000	585.400	6430.000
GR	585.400	6485.000	591.800	6630.000	610.000	6755.000	.000	.000	.000	000
NC	.125	.125	.035	.100	300	.000	000	.000	000	000
ET	.000	6.100	6.100	6.100	6.100	260.000	760.000	000	.000	.000
XI	7.726	42.000	1077.000	1393.000	2750.000	2700.000	2735.000	000	.000	.000
XY	.000	000	.100	.000	.000	000	.000	000	.000	.000
GR	594.700	.000	594.100	100.000	588.700	200.000	588.400	300.000	587.800	400.000
GR	588.400	500.000	587.800	600.000	588.600	700.000	587.000	800.000	590.100	892.000
GR	589.000	930.000	585.800	956.000	584.600	1000.000	586.500	1077.000	582.000	1080.000
GR	579.000	1090.000	576.200	1100.000	576.600	1120.000	575.300	1140.000	575.500	1160.000

GR	575.100	1180.000	574.300	1200.000	574.400	1220.000	575.000	1240.000	575.100	1260.000
GR	574.600	1280.000	574.200	1300.000	573.900	1320.000	574.200	1340.000	575.100	1360.000
GR	580.600	1380.000	582.200	1389.000	589.500	1393.000	589.500	1496.000	591.100	1525.000
GR	589.600	1600.000	588.000	1700.000	589.200	1860.000	591.300	1900.000	593.300	2000.000
GR	596.400	2072.000	605.200	2100.000	.000	.000	.000	.000	.000	.000
NC	.125	.125	.035	.100	.300	.000	.000	.000	.000	.000
ET	.000	6.100	6.100	6.100	6.100	410.000	977.000	.000	.000	.000
		ISEC I								
X1	7.801	42.000	1077.000	1393.000	400.000	400.000	400.000	.000	.000	.000
X*	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	594.700	.000	594.100	100.000	588.700	200.000	588.400	300.000	587.800	400.000
GR	588.400	500.000	587.800	600.000	588.600	700.000	587.000	800.000	590.100	892.000
GR	589.000	930.000	585.800	956.000	584.600	1000.000	586.500	1077.000	582.900	1080.000
GR	579.000	1090.000	576.200	1100.000	576.600	1120.000	575.300	1140.000	575.500	1160.000
GR	575.100	1180.000	574.300	1200.000	574.400	1220.000	575.000	1240.000	575.100	1260.000
GR	574.600	1280.000	574.200	1300.000	573.900	1320.000	574.200	134.000	575.100	1360.000
GR	580.600	1380.000	582.200	1389.000	589.500	1393.000	589.500	1496.000	591.100	1525.000
GR	589.600	1600.000	588.000	1700.000	589.200	1860.000	591.300	1900.000	593.300	2000.000
GR	596.400	2072.000	605.200	2100.000	.000	.000	.000	.000	.000	.000
ET	.000	6.100	6.100	6.100	6.100	400.000	977.000	.000	.000	.000
X1	7.877	.000	.000	.000	310.000	400.000	400.000	.000	.000	.000
NH	5.000	100	1198.000	10.000	1224.000	.125	1345.000	034	1661.000	125
NH	1812.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
QT	4.000	400.000	1090.000	1425.000	2250.000	.000	.000	.000	.000	.000
ET	.000	6.100	6.100	6.100	6.100	575.000	950.000	.000	.000	.000
		XSEC J		DS OF BACON SCHOOL ROAD						
X1	7.934	45.000	1345.000	1661.000	240.000	300.000	310.000	.000	.000	.000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	610.000	.000	599.700	30.000	596.000	200.000	593.200	400.000	591.800	440.000
GR	588.900	480.000	588.900	600.000	587.800	800.000	588.600	1050.000	589.300	1125.000
GR	587.200	1141.000	589.600	1150.000	589.900	1160.000	589.000	1198.000	585.600	1224.000
GR	584.600	1268.000	586.500	1345.000	581.900	1348.000	578.900	1358.000	576.100	1369.000
GR	576.500	1388.000	575.200	1408.000	575.400	1428.000	575.000	1448.000	574.200	1468.000
GR	574.300	1488.000	574.900	1508.000	575.000	1528.000	574.500	1548.000	574.100	1568.000
GR	573.800	1588.000	574.100	1608.000	575.200	1628.000	580.700	1648.000	582.100	1657.000
GR	589.500	1661.000	589.500	1683.000	591.100	1689.000	589.600	1705.000	588.000	1726.000
GR	589.200	1760.000	591.300	1768.000	593.300	1776.000	596.400	1797.000	605.200	1812.000
NH	5.000	125	800.000	10.000	875.000	.125	1085.000	034	1461.000	125
NH	1552.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
NC	.000	.000	.000	.100	.300	.000	.000	.000	.000	.000
ET	.000	6.100	6.100	6.100	6.100	300.000	600.000	.000	.000	.000
		XSEC K		DS OF BACON SCHOOL ROAD						
X1	7.945	42.000	1085.000	1401.000	60.000	60.000	60.000	.000	.000	.000
X*	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
X4	1.000	589.800	875.000	.000	.000	.000	.000	.000	.000	.000
GR	601.700	.000	598.000	100.000	595.250	200.000	592.500	300.000	591.000	610.000
GR	590.250	500.000	589.900	600.000	589.750	700.000	589.950	800.000	589.800	900.000
GR	589.000	938.000	585.800	964.000	584.600	1008.000	586.500	1085.000	581.900	1088.000
GR	578.900	1098.000	576.100	1108.000	576.500	1128.000	575.200	1148.000	575.000	1168.000
GR	575.000	1188.000	574.200	1208.000	574.300	1228.000	574.900	1248.000	575.000	1268.000

GR	574.500	.288.000	574.100	1308.000	573.800	1328 000	574.100	1348.000	575 200	1368 000
GR	582.700	1388 000	582.100	1347 000	589.500	1401.000	589.500	1427.000	591.100	1429.000
GR	563 600	1445 000	588.400	1466.000	589 200	1500 000	591 300	1508.000	597.200	1516 000
GR	596.400	1537 000	605.200	1552.000	000	000	.000	.000	.000	000
NH	5.000	.125	1050.000	10 000	1175.000	.125	1345.000	.034	1661 000	125
NH	1812.000	.000	000	000	.000	000	000	000	.000	.000
ET	000	6.100	6 100	6.100	6.100	575 000	950 000	000	000	000
X1	7 956	45.000	1345 000	1661.000	60 000	60.000	60.000	.000	000	0 0
X3	000	.000	.000	.000	.000	.000	.000	.000	000	00
GR	610.000	.000	599.700	30 000	596 000	200.000	597 200	400.000	591.800	440 000
GR	588.900	480 000	588 900	600.000	587.800	800 000	588.600	1050 000	589.700	1135.000
GR	587 200	1140.000	589 600	1150.000	589.900	1160 000	589.000	1198.000	585 800	1224 000
GR	584 600	1268.000	586.500	1245.000	581.900	1348.000	578.900	1358.000	576.100	1348 000
GR	576 500	1388.000	575.200	1408 000	575.400	1428.000	575 000	1448 000	574.200	1468.000
GR	574.300	1488.000	574.900	1508.000	575.000	1528.000	574 500	1548 000	574 100	1568.000
GR	573.800	1588 000	574 100	1608.000	575.200	1628 000	580.700	1648.000	582.100	1657 000
GR	589.500	1661.000	589.500	1683.000	591.100	1689.000	589.600	1705 000	588.000	1726.000
GR	589 200	1760.000	591.300	1768.000	593 300	1776.000	596.400	1797 000	600 200	1812 000
NH	5.000	.125	440 000	.075	840.000	.125	1325 000	.034	1659.000	.125
NH	1702.000	.000	000	.000	.000	.000	.000	.000	.000	000
ET	.000	6.100	6.100	6.100	6 100	575.000	950.000	000	000	000
X1	7.965	.000	.000	.000	50.000	50.000	50.000	000	000	000
X3	.000	.000	.000	.000	.000	.000	000	000	.000	000
NC	.125	.125	034	.000	000	.000	.000	.000	000	000
ET	.000	6.100	6.100	6.100	6.100	410.000	860.000	.000	.000	000
			SOME FLOW IN THE LOB DIVERTS BACK INTO THE CHANNEL							
X1	8.094	.000	.000	.000	620.000	720.000	680.000	.000	.000	000
X3	.000	.000	.000	.000	.000	.000	.000	000	.000	000
NH	5.000	.125	440.000	.075	840.000	.125	1325 000	.034	1659 000	.125
NH	1702.000	.000	.000	.000	.000	.000	.000	.000	.000	000
BT	6.000	430.000	1360.000	1825.000	3050.000	.000	.000	.000	.000	.000
ET	.000	6.100	6.100	6.100	6.100	30.000	770.000	.000	.000	000
		XSEC L								
X1	8.240	39.000	1325.000	1659.000	580.000	880.000	880.000	.000	000	000
X3	.000	.000	000	.000	.000	.000	.000	000	.000	.000
GR	610.000	.000	589.000	60.000	589.000	110.000	590.200	140.000	591.400	190 000
GR	589.400	240.000	590.000	440.000	588.000	640.000	589.300	840.000	589.700	1040.000
GR	589.600	1060.000	589.600	1080.000	587.700	1085.000	589.600	1090.000	589.600	1325 000
GR	586.900	1337.000	583.800	1338.000	582.300	1345 000	578.300	1355.000	575 300	1365 000
GR	575.600	1385.000	574.500	1405.000	574.600	1425.000	574.300	1445 000	574 100	1465.000
GR	574.900	1485.000	574.900	1505.000	575.000	1525.000	574.400	1545.000	573 700	1557 000
GR	574.600	1585.000	575.600	1605.000	576.900	1625.000	579 400	1645.000	580 500	1657 000
GR	585.000	1659.000	586.300	1660.000	587.200	1665.000	612.200	1702.000	.000	000
NH	5 000	.125	110.000	.075	1712.000	.085	1890.000	034	2225.000	.125
NH	2267 000	.000	.000	.000	.000	.000	000	.000	.000	000
ET	.000	6.100	6.100	6 100	6.100	60.000	700.000	000	.000	000

		XSEC N								
X1	8.745	42.000	1870.000	2225.000	100.000	550.000	550.000	.000	.000	000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	000
GR	610.000	.000	589.700	75.000	589.500	95.000	589.000	105.000	589.600	110.000
GR	589.000	305.000	589.600	505.000	591.600	705.000	591.800	905.000	592.000	1030.000
GR	592.100	1130.000	591.900	1230.000	590.600	1330.000	589.100	1470.000	587.400	1530.000
GR	588.600	1630.000	590.100	1712.000	589.000	1830.000	588.800	1890.000	586.900	1902.000
GR	587.800	1903.000	582.300	1910.000	578.300	1920.000	575.300	1930.000	575.600	1950.000
GR	574.500	1970.000	574.600	1990.000	574.300	2010.000	574.100	2030.000	574.900	2050.000
GR	574.900	2070.000	575.000	2090.000	574.400	2110.000	573.700	2130.000	574.600	2150.000
GR	575.600	2170.000	576.900	2190.000	579.400	2210.000	580.500	2222.000	586.300	2225.000
GR	587.200	2230.000	612.200	2267.000	.000	.000	.000	.000	.000	.000
NC	.000	.000	.000	.300	.500	.000	.000	.000	.000	.000
NH	6.000	.125	110.000	.675	1905.000	.085	2254.000	.125	2255.000	.072
NH	2485.000	.125	2527.000	.000	.000	.000	.000	.000	.000	.000
ET	.000	6.100	6.100	6.100	6.100	60.000	700.000	.000	.000	.000
		XSEC N								
X1	8.552	42.000	2285.000	2485.000	120.000	1095.000	1095.000	.000	.000	.000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	610.000	.000	589.700	75.000	589.500	95.000	589.000	105.000	589.600	110.000
GR	589.000	305.000	589.600	505.000	591.600	705.000	593.400	905.000	591.800	1105.000
GR	590.000	1205.000	590.800	1305.000	591.400	1345.000	590.200	1465.000	591.000	1505.000
GR	589.600	1705.000	588.900	1905.000	590.100	1970.000	590.400	2005.000	589.300	2105.000
GR	590.200	2254.000	587.800	2255.000	587.800	2285.000	586.800	2292.000	587.300	2300.000
GR	574.400	2311.000	574.500	2322.000	574.200	2333.000	574.000	2344.000	574.800	2355.000
GR	574.800	2370.000	574.900	2385.000	574.300	2400.000	573.600	2415.000	574.500	2425.000
GR	575.500	2441.000	576.800	2452.000	579.300	2465.000	580.400	2482.000	586.300	2485.000
GR	587.200	2490.000	612.200	2527.000	.000	.000	.000	.000	.000	.000
NH	4.000	.125	660.000	.085	1258.000	.033	1625.000	.110	2625.000	.000
ET	.000	6.100	6.100	6.100	6.100	100.000	720.000	.000	.000	.000
X1	8.560	51.000	1258.000	1625.000	250.000	300.000	350.000	.000	.000	.000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	604.300	.000	596.000	25.000	592.200	60.000	590.600	92.000	589.100	160.000
GR	589.600	260.000	588.300	360.000	589.600	460.000	590.800	560.000	591.200	660.000
GR	591.000	760.000	591.700	860.000	591.700	960.000	591.800	1025.000	592.500	1125.000
GR	592.400	1158.000	592.200	1225.000	591.600	1258.000	578.000	1270.000	574.900	1285.000
GR	575.800	1305.000	573.400	1325.000	573.900	1345.000	574.400	1365.000	576.200	1385.000
GR	576.800	1405.000	577.600	1425.000	578.200	1445.000	578.600	1465.000	578.800	1485.000
GR	579.000	1505.000	579.200	1525.000	579.200	1545.000	579.300	1565.000	579.400	1585.000
GR	581.300	1605.000	581.600	1615.000	583.900	1622.000	589.300	1625.000	588.800	1725.000
GR	587.600	1825.000	587.300	1925.000	587.000	2012.000	584.500	2051.000	587.700	2084.000
GR	585.800	2125.000	591.100	2225.000	588.000	2325.000	589.800	2425.000	587.700	2525.000
GR	587.000	2625.000	.000	.000	.000	.000	.000	.000	.000	.000
NC	.000	.000	.000	.100	.300	.000	.000	.000	.000	.000
NH	4.000	.125	660.000	.085	1258.000	.033	1625.000	.110	2625.000	.000
ET	.000	6.100	6.100	6.100	6.100	100.000	900.000	.000	.000	.000

XSEC 0 LOB FLOW DIVIDES FROM CHANNEL FLOW

X1	8.948	000	000	.000	130.000	2000 000	1740.000	000	.000	.000
QT	6 000	17260.000	21340.000	23040.000	27030.000	.000	000	000	000	.000
ET	.000	6.100	6.100	6.100	6 100	200.000	2150.000	.000	.000	.000
X1	8.958	.000	000	000	170 000	170 000	170 000	.000	.000	000
ET	.000	6.100	6 100	6.100	6.100	938.000	2500.000	000	.000	.000
X1	9 100	.000	.000	.000	830.000	350.000	630.000	.000	000	000
EJ	.000	.000	.000	.000	.000	.000	.000	.000	000	000

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

#PROF 1

CCHV= 100 CEHV= .300
1490 NH CARD USED
#SECNO 6 896

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 2550.0 4834.0 TYPE= 1 TARGET= 2284.000
FIS XSEC 6 DS LIMIT OF FLOODWAY REVISION

6.90	19.31	588.31	.00	.00	588.38	07	.00	.00	588.20
17430.	476.	16823	131	2358.	7739	732.	0.	0	588.90
.00	20	2.17	18	.110	.036	125	.000	569.00	2550.00
000072	850.	825.	800.	0	0	0	.00	2041.99	4834.00

1490 NH CARD USED
#SECNO 7.052

3470 ENCROACHMENT STATIONS= 1710.0 2650.0 TYPE= 1 TARGET= 940.000

7.05	2.94	588.44	.00	.00	588.44	00	.06	.01100000	00
270.	270.	0.	0	1772.	0.	0.	118.	28.100000	00
1.44	.15	.00	.00	.122	036	125	.000	585.50	1710.00
.000061	750.	825.	1050.	2	0	0	.00	940.00	2650.00

1490 NH CARD USED
#SECNO 7.207

3470 ENCROACHMENT STATIONS= 1900.0 2620.0 TYPE= 1 TARGET= 720.000
FIS XSEC H

7.21	2.76	588.52	.00	.00	588.52	.00	.07	.00100000	.00
270.	270.	0.	0.	1247.	0.	0.	145	43.100000	00
2.46	.22	.00	.00	.125	.036	.125	.000	585.76	1900.00
000154	800.	818	900	1	0	0	00	720.00	2620.00

CCHV= .100 CEHV= .300
#SECNO 7.726

3470 ENCROACHMENT STATIONS= 260.0 760.0 TYPE= 1 TARGET= 500.000

7.73	1.75	589.39	.00	.00	589.40	00	.08	.00100000	.00
270.	270.	0.	0	618.	0.	0.	204	81.100000	00
4.21	44	.00	.00	125	035	125	.000	587.64	260.00
001018	2750.	2735	2700.	2	0	0	00	500.00	760.00

SECNO	DEPTH	CWSEL	CRIWS	WSELV	EG	HV	HL	OLOSS	BANK ELEV
D	QLOB	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	CDRAR	TOPWID	ENDST

CCHV= .100 CEHV= .300
#SECNO 7.801

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 410.0 977.0 TYPE= 1 TARGET= 567 000
XSEC I

7.80	4.38	589 61	.00	00	589 61	.00	.22	00100000.00
270.	270	0.	0.	861	0.	0.	211.	86. 100000.00
4.56	.31	.00	.00	.125	.035	.125	000	585.23 410 00
000336	400.	400.	400.	1	0	0	.00	536.03 977.00

#SECNO 7.877

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 400.0 977.0 TYPE= 1 TARGET= 577.000

7.88	4.48	589.71	.00	.00	589.71	.00	.09	.00100000.00
270.	270.	0.	0.	927.	0.	0.	217.	90. 100000.00
4.86	.29	.00	.00	.125	.035	125	.000	585.23 400 00
.000275	310.	400.	400.	2	0	0	.00	551.62 977.00

1490 NH CARD USED
#SECNO 7.934

3470 ENCROACHMENT STATIONS= 575.0 950.0 TYPE= 1 TARGET= 375.000
XSEC J DS OF BACON SCHOOL ROAD

7.93	2.04	589.84	00	.00	589.84	.01	14	.00100000.00
400.	400.	0.	0.	590	0.	0.	222.	93. 100000.00
4.96	68	.00	.00	.100	035	.125	.000	587.80 575 00
001120	240.	300.	300.	2	0	0	.00	375.00 950.00

1490 NH CARD USED
CCHV= .100 CEHV= .300
#SECNO 7.945

3235 SLOPE TOO STEEP,EXCEEDS .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

3685 20 TRIALS ATTEMPTED WSEL,CWSEL
3693 PROBABLE MINIMUM SPECIFIC ENERGY
3720 CRITICAL DEPTH ASSUMED

3470 ENCROACHMENT STATIONS= 300.0 660.0 TYPE= 1 TARGET= 360.000
XSEC 4 US OF BACON SCHOOL ROAD

7.95	.77	590 57	590 57	00	590.82	.25	.24	.07	100000.00
400.	400.	0	0.	100.	0.	0.	222.	93	100000 00
4 96	4.01	.00	.00	.125	.035	125	000	589.80	456.93
.247655	60.	60.	60.	20	18	0	.00	203.07	660.00

1490 NH CARD USED
$SECNO 7.956

3470 ENCROACHMENT STATIONS= 575.0 950.0 TYPE= 1 TARGET= 375.000

7.96	3.11	590.91	.00	.00	590.92	.00	.07	02	100000 00
400.	400.	0.	0.	996.	0.	0.	223.	93.	100000.00
5.00	.40	.00	.00	.125	.035	.125	.000	587.80	575.00
.000313	60.	60.	60.	4	0	0	.00	375.00	950.00

1490 NH CARD USED
$SECNO 7.965

3470 ENCROACHMENT STATIONS= 575.0 950.0 TYPE= 1 TARGET= 375.000

7.97	3.13	590.93	.00	.00	590 93	00	01	.00	100000.00
400.	400.	0.	0.	996.	0.	0.	224.	94.	100000.00
5.04	.40	.00	.00	.092	.035	125	000	587.80	575.00
.000168	50.	50.	50.	2	0	0	.00	375.00	950.00

$SECNO 8.094

3470 ENCROACHMENT STATIONS= 410 0 860.0 TYPE= 1 TARGET= 450.000
SOME FLOW IN THE LOB DIVERTS BACK INTO THE CHANNEL

8.09	3.26	591.06	.00	.00	591.07	.00	.14	00	100000.00
400.	400.	0.	0.	1025.	0.	0.	238.	99.	100000.00
5.48	.39	00	.00	.125	.034	.125	.000	587.80	450 16
.000307	620.	680.	720.	2	0	0	00	409 84	860.00

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

1490 NH CARD USED
#SECNO 8 240

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 30 0 770.0 TYPE= 1 TARGET= 740.000

XSEC L									
8 24	3 18	591 18	00	00	591 18	.00	11	00100000 00	
430	430.	0	0.	1312	0	0	254.	107. 100000.00	
5.97	.33	.00	.00	086	.034	.125	.000	588.00	53.78
.000139	580.	880.	880	2	0	0	.00	701.40	770.00

1490 NH CARD USED
#SECNO 8 345

3470 ENCROACHMENT STATIONS= 60 0 700 0 TYPE= 1 TARGET= 640.000

XSEC M									
8.35	2.20	591.20	00	.00	591.20	.00	02	00100000.00	
430	430	0.	0.	941.	0.	0.	256.	108. 100000.00	
6.03	.46	.00	.00	.077	.034	.125	.000	589.00	69 47
.000274	100.	550	550.	2	0	0	00	595.09	664.56

CCHV= .300 CEHV= .500
1490 NH CARD USED
#SECNO 8.552

3470 ENCROACHMENT STATIONS= 60 0 700 0 TYPE= 1 TARGET= 640 000

XSEC N									
8.55	2.23	591.23	.00	.00	591.23	.00	.03	.00100000.00	
430.	430.	0.	0.	960.	0.	0.	259.	110. 100000.00	
6.11	.45	.00	.00	.077	.034	.125	000	589.00	69 36
.000258	120.	1095.	1095.	2	0	0	.00	598.41	667.77

1490 NH CARD USED
#SECNO 8 560
3280 CROSS SECTION 8.56 EXTENDED 4.32 FEET

3470 ENCROACHMENT STATIONS= 100 0 720 0 TYPE= 1 TARGET= 620.000

01-06-89 11:04:19

SECNO	DEPTH	CWSEL	CRIWS	WSELR	EG	HV	HL	BLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	ANL	XNCH	XNR	WTN	ELMIN	SSTA
ELOFF	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
8.50	3.02	591.32	.00	00	591.33	00	.10	.00100000	00
430.	430.	0.	0.	917	0.	0.	264	113.	100000.00
6.25	.47	.06	.00	.125	.034	.125	.000	588.30	100.00
.000655	250	350	300.	1	0	0	.00	620.00	720.00

CCHV= .100 CEHV= .300
1490 NH CARD USED
#SECNO 8.948
3280 CROSS SECTION 8.95 EXTENDED 4.40 FEET

3470 ENCROACHMENT STATIONS= 100.0 900.0 TYPE= 1 TARGET= 800.000
XSEC Q LOB FLOW DIVIDES FROM CHANNEL FLOW

8.95	3.10	591.40	.00	.00	591.41	.00	.08	.00100000 00
430.	430.	0	0	995.	0.	0.	267	115 100000.00
6.34	.43	.00	.00	124	034	125	.000	588.30 100.00
.000552	130.	1740.	2000	2	0	0	00	717.22 317.22

#SECNO 8.958

3265 DIVIDED FLOW

3280 CROSS SECTION 8.96 EXTENDED 4.33 FEET

3470 ENCROACHMENT STATIONS= 200.0 2150.0 TYPE= 1 TARGET= 1950.000

8.96	17.93	591.33	00	.00	591.48	.16	.03	05 591.60
17260.	182.	16195.	883.	763.	4941	1990.	284.	120. 589.30
6.35	.24	3.28	44	124	.033	.110	.000	573.40 200.00
.000171	170.	170.	170.	2	0	0	00	1498.26 2150.00

#SECNO 9.100
3280 CROSS SECTION 9.10 EXTENDED 4.43 FEET

3470 ENCROACHMENT STATIONS= 938.0 2500.0 TYPE= 1 TARGET= 1562.000

9.10	18.03	591.43	00	00	591.59	15	10	.00 591.60
17260	0.	16115.	1145.	0	4981.	2845.	383	128 589.70
6.41	.00	3.24	40	124	033	.110	000	573.40 1258.15
000165	830.	830.	350.	2	0	0	00	1241.85 2500.00

THIS RUN EXECUTED 01-09-89

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  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
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T1      50-YEAR FLOOD
T2
T3

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       3.        0.        0.    000000       .00        .0        0.   589.530      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     2.000       000    -1.000      .000      .000      .000       000       000       000       .000
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SECNO	DEPTH	CWSEL	CRIWS	WSELR	EG	HV	ML	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	QLOB	ACH	AFOB	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= .100 CEHV= 300
1490 NH CARD USED
#SECNO 6 896

3470 ENCROACHMENT STATIONS= 2550.0 4834.0 TYPE= 1 TARGET= 2284 000
FIS XSEC 6 DS LIMIT OF FLOODWAY REVISION

6 90	20.53	589.53	.00	588.31	589.61	08	.00	.00	588 20
21470	1056	20111	302	3901.	8334.	1728.	0.	0.	588 90
.00	27	2.41	.23	110	.036	125	000	569.00	2550.00
000081	850.	825.	800.	0	0	0	.00	2284.00	4834 00

1490 NH CARD USED
#SECNO 7.052

3470 ENCROACHMENT STATIONS= 1710.0 2a50.0 TYPE= 1 TARGET= 940.000

7.05	4 19	589 69	.00	588.44	589.69	.00	.06	01100000 00	
710.	710.	0.	0	2940	0	0	154.	30	100000 00
.91	.24	.00	00	.121	.036	.125	.000	585.50	1710.00
000082	750.	825.	1050.	2	0	0	.00	940 00	2650.00

1490 NH CARD USED
#SECNO 7.207

3470 ENCROACHMENT STATIONS= 1900.0 2620 0 TYPE= 1 TARGET= 720.000
FIS XSEC H

7.21	4.02	589.78	.00	588 52	589 78	00	09	00100000 00	
710.	710.	0.	0	2161.	0	0	201.	45.	100000.00
1.58	.33	.00	.00	125	.036	.125	.000	585.76	1900.00
000176	800.	818.	900.	2	0	0	.00	720.00	2620.00

CCHV= .100 CEHV= 300
#SECNO 7 726

3470 ENCROACHMENT STATIONS= 260 0 760 0 TYPE= 1 TARGET= 500.000

7 73	2 99	590.63	.00	589.39	590 64	.01	86	001 0000 00	
710.	710	0	0.	1239	0.	0	308.	84.	100000.00
2.92	.57	.00	00	125	.035	125	000	587 64	260 00
.000700	2750.	2735.	2700.	2	0	0	.00	500.00	760.00

SECNO	DEPTH	CWSEL	CRIWS	WSELR	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	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

CCHV= .100 CEHV= .300
#SECNO 7 B01

3470 ENCROACHMENT STATIONS= 410.0 977.0 TYPE= 1 TARGET= 567.000
XSEC I

7 B0	5 61	590.84	.00	589.61	590.84	00	20	.00100000 00	
710.	710.	0.	0.	1546.	0.	0.	321.	89.	100000.00
3.16	.46	.00	.00	.125	.035	.125	.000	585.23	410.00
.000381	400	400	400	2	0	0	.00	567 00	977.00

#SECNO 7.877

3470 ENCROACHMENT STATIONS= 400.0 977.0 TYPE= 1 TARGET= 577 000

7.88	5 72	590 95	.00	589.71	590 95	00	.11	00100000 00	
710.	710.	0.	0.	1639.	0.	0.	332.	93	100000.00
3.36	.43	.00	.00	.125	.035	.125	.000	585.23	400.00
.000323	310.	400.	400.	2	0	0	.00	577.00	977.00

1490 NH CARD USED
#SECNO 7.934

3470 ENCROACHMENT STATIONS= 575 0 950 0 TYPE= 1 TARGET= 375 000
XSEC J DS OF BACON SCHOOL ROAD

7.93	3.29	591.09	.00	589.84	591 11	.02	15	.00100000.00	
1090.	1090.	0.	0.	1061.	0.	0.	340.	95.	100000.00
3.42	1.03	.00	.00	.100	.035	.125	.000	587 80	575.00
.001203	240	300.	300	2	0	0	00	375.00	950.00

1490 NH CARD USED
CCHV= .100 CEHV= .300
#SECNO 7 945

3235 SLOPE TOO STEEP,EXCEEDS .10

3470 ENCROACHMENT STATIONS= 300.0 660.0 TYPE= 1 TARGET= 360.000
XSEC K US OF BACON SCHOOL ROAD

7.95	1.29	591.09	.00	590.57	591 46	.37	.25	.11100000.00	
1090.	1090.	0.	0.	224.	0.	0.	340.	96.	100000.00
3.42	4.88	.00	.00	.125	.035	.125	000	589.80	393.71
.179776	60.	60.	60.	2	0	0	.00	266.29	660 00

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	WTN	ELMIN	SSTA
SLOPE	ALOBL	ALCH	ALOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

1490 NH CARD USED
#SECNO 7 956

3470 ENCROACHMENT STATIONS= 575.0 950.0 TYPE= 1 TARGET= 375 000

7 96	3.89	591.69	00	590 91	591 70	01	.21	.04	100000.00
1090.	1090.	0.	0	1287	0.	0	341.	96	100000 00
2.44	85	00	00	.125	.035	.125	.000	587.80	575 00
000996	60	60	60	4	0	0	00	375 00	950.00

1490 NH CARD USED
#SECNO 7.965

3470 ENCROACHMENT STATIONS= 575.0 950.0 TYPE= 1 TARGET= 375.000

7 97	3.93	591.73	.00	590.93	591 74	.01	.03	00	100000 00
1090.	1090	0.	0	1300.	0.	0.	343	97	100000.00
3.46	84	.00	.00	.091	035	.125	.000	587.80	575 00
000511	50	50.	50.	3	0	0	00	375 00	950 00

#SECNO 8 094

3470 ENCROACHMENT STATIONS= 410 0 860 0 TYPE= 1 TARGET= 450.000
SOME FLOW IN THE LOB DIVERTS BACK INTO THE CHANNEL

8 09	4 31	592.11	.00	591 06	592 12	01	.38	00	100000.00
1090	1090.	0.	0.	1461	0	0.	363.	102	100000 00
3.69	.75	.00	00	125	.034	.125	000	587.80	431 22
.000733	620	680.	720.	2	0	0	.00	428.78	860.00

1490 NH CARD USED
#SECNO 8.240

3470 ENCROACHMENT STATIONS= 30.0 770 0 TYPE= 1 TARGET= 740 000
XSEC L

8 24	4 36	592.36	.00	591.18	592.37	01	25	00	100000 00
1360	1360.	0.	0.	2161	0	0.	387.	110.	100000.00
3.95	.63	00	00	.089	.034	.125	000	588.00	50 79
.000314	580.	880	880.	2	0	0	00	719.61	770 00

1490 NH CARD USED

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	KLOB	KLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

#SECNO 8.345

3470 ENCROACHMENT STATIONS= 60.0 700.0 TYPE= 1 TARGET= 640.000
XSEC M

8.35	3.40	592.40	00	591.20	592.41	.01	.04	00100000.00
1360.	1360.	0.	0.	1696.	0.	0	391	111. 100000.00
3.98	.80	.00	00	.077	.034	125	000	589.00 65.03
.000441	100.	550.	550.	2	0	0	.00	634.97 700.00

CCHV= .300 CEHV= .500
1490 NH CARD USED
#SECNO 8.552

3470 ENCROACHMENT STATIONS= 60.0 700.0 TYPE= 1 TARGET= 640.000
XSEC N

8.55	3.45	592.45	.00	591.23	592.46	.01	.05	.00100000.00
1360.	1360.	0.	0.	1729.	0.	0	396	113. 100000.00
4.02	.79	.00	00	.077	034	.125	000	589.00 64.84
.000415	120.	1095.	1095.	2	0	0	00	635.16 700.00

1490 NH CARD USED
#SECNO 8.560
3280 CROSS SECTION 8.56 EXTENDED 5.60 FEET

3470 ENCROACHMENT STATIONS= 100.0 720.0 TYPE= 1 TARGET= 620.000

8.56	4.30	592.60	.00	591.32	592.61	01	15	00100000.00
1360.	1360.	0.	0.	1716.	0.	0.	406.	117. 100000.00
4.11	.79	.00	.00	.123	.034	.125	.000	588.30 100.00
.001010	250	350.	300	2	0	0	.00	620.00 720.00

CCHV= 100 CEHV= .300
1490 NH CARD USED
#SECNO 8.948
3280 CROSS SECTION 8.95 EXTENDED 5.71 FEET

3470 ENCROACHMENT STATIONS= 100.0 900.0 TYPE= 1 TARGET= 800.000
XSEC D LOB FLOW DIVIDES FROM CHANNEL FLOW

8.95	4.42	592.72	.00	591.40	592.72	01	.11	.00100000.00
1360.	1360.	0.	0.	2026	0.	0.	411	119. 100000.00
4.17	.67	.00	00	119	.034	125	.000	588.30 100.00
.000718	130	1740.	2000.	2	0	0	00	800.00 900.00

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

#SECNO 8.958
*280 CROSS SECTION 8.96 EXTENDED 5.63 FEET

3470 ENCROACHMENT STATIONS= 200.0 2150.0 TYPE= 1 TARGET= 1950.000

8.96	19.23	592.63	.00	591.33	592.81	.18	.03	.05	591.60
21346.	579.	19309.	1452.	1864.	5419.	2675.	435.	124.	589.30
4.18	.31	3.56	.54	.116	.033	110	.000	573.40	200.00
.000179	170.	170.	170.	2	0	0	.00	1950.00	2150.00

#SECNO 9.100
3280 CROSS SECTION 9.10 EXTENDED 5.74 FEET

3470 ENCROACHMENT STATIONS= 938.0 2500.0 TYPE= 1 TARGET= 1562.000

9.10	19.34	592.74	.00	591.43	592.92	.18	.11	.00	591.60
21340.	40.	19291.	2009.	213.	5460.	3988.	560.	148.	589.30
4.23	.19	3.53	.50	.085	.033	110	.000	573.40	938.00
.000175	830.	630.	350.	2	0	0	.00	1562.00	2500.00

THIS RUN EXECUTED 01-09-87

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  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
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T1      100-YEAR FLOOD
T2
T3

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       4.        0.         0   .000000         00         0         0   590.000       000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

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

#FROF 3

CCHV= .100 CEHV= .300
1490 NH CARD USED
#SECNO 6.89c

3470 ENCROACHMENT STATIONS= 2550.0 4834.0 TYPE= 1 TARGET= 2284.000
FIS XSEC 6 DS LIMIT OF FLOODWAY REVISION

6.90	21.00	590.00	.00	588.31	590.09	09	.00	.00	588.20
23150.	1345	2E414.	391.	4510.	8564	1563.	0.	0.	588.90
.00	30	2.50	.25	110	.036	.125	.000	569.00	2550.00
.000084	850.	825.	800.	0	0	0	00	2284.00	4834.00

1490 NH CARD USED
#SECNO 7.052

3470 ENCROACHMENT STATIONS= 1710.0 2650.0 TYPE= 1 TARGET= 940.000

7.05	4.66	590.16	.00	588.44	590.17	.00	.07	.01	100000.00
915.	915	0.	0.	3389.	0.	0	16B	30	100000.00
.81	.27	.00	.00	.121	.036	125	.000	585.50	1710.00
.000086	750.	825	1050.	2	0	0	.00	940.00	2650.00

1490 NH CARD USED
#SECNO 7.207

3470 ENCROACHMENT STATIONS= 1900.0 2620.0 TYPE= 1 TARGET= 720.000
FIS XSEC H

7.21	4.50	590.26	.00	588.52	590.26	00	10	.00	100000.00
915.	915.	0.	0.	2507.	0	0.	222.	45.	100000.00
1.42	.36	.00	.00	.125	.036	.125	.000	585.76	1900.00
.000179	800.	818.	900.	2	0	0	00	720.00	2620.00

CCHV= .100 CEHV= .300
#SECNO 7.726

3470 ENCROACHMENT STATIONS= 260.0 760.0 TYPE= 1 TARGET= 500.000

7.73	3.46	591.10	.00	589.39	591.11	01	.85	00	100000.00
915.	915	0	0.	1475	0.	0.	348.	84.	100000.00
2.65	.62	.00	.00	.125	035	.125	000	587.64	260.00
.000653	2750.	2735.	2700.	2	0	0	.00	500.00	760.00

SECNO	DEPTH	CWSEL	CRIWS	WSELR	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 7.891

3470 ENCROACHMENT STATIONS= 410.0 977.0 TYPE= 1 TARGET= 567.000
XSEC I

7.80	6.08	591.30	.00	589.61	591.31	.00	.20	.00100000.00	
915	915.	0	0.	1809.	0.	0	363.	89	100000.00
2.87	51	.00	.00	.125	.035	125	.000	585.23	410.00
.000381	400.	400.	400	2	0	0	.00	567.00	977.00

#SECNO 7.877

3470 ENCROACHMENT STATIONS= 400.0 977.0 TYPE= 1 TARGET= 577.000

7.88	6.19	591.41	.00	589.71	591.42	.00	.11	.00100000.00	
915.	915.	0.	0.	1908.	0.	0.	376.	93.	100000.00
3.05	.48	.00	.00	.125	.035	.125	.000	585.23	400.00
.000329	310.	400.	400.	2	0	0	.00	577.00	977.00

1490 NH CARD USED
#SECNO 7.934

3470 ENCROACHMENT STATIONS= 575.0 950.0 TYPE= 1 TARGET= 375.000
XSEC J DS OF BACON SCHOOL ROAD

7.93	3.76	591.56	.00	589.84	591.58	.02	16	.01100000.00	
1425.	1425.	0.	0.	1237.	0.	0.	385.	95.	100000.00
3.11	1.15	.00	.00	.100	.035	.125	.000	587.80	575.00
.001242	240.	300.	300.	2	0	0	.00	575.00	950.00

1490 NH CARD USED
CCHV= .100 CEHV= .300
#SECNO 7.945

3470 ENCROACHMENT STATIONS= 300.0 660.0 TYPE= 1 TARGET= 360.000
XSEC K US OF BACON SCHOOL ROAD

7.95	1.85	591.65	.00	590.57	591.87	.22	.23	.06100000.00	
1425.	1425.	0.	0.	383.	0.	0.	386.	96.	100000.00
3.11	3.72	.00	.00	.125	.035	.125	.000	589.80	356.48
.061959	60.	60.	60.	2	0	0	.00	303.52	660.00

SECND	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

1490 NH CARD USED
#SECND 7.956

3470 ENCROACHMENT STATIONS= 575.0 950.0 TYPE= 1 TARGET= 375 000

7.96	4.29	592.09	.00	590.91	592 11	02	22	.02	100000.00
1425.	1425.	0.	0.	1436.	0.	0.	387.	96	100000 00
3.13	99	.00	.00	.125	.035	125	.000	587 80	575 00
.001183	60.	60.	60.	3	0	0	.00	375.00	950.00

1490 NH CARD USED
#SECND 7.965

3470 ENCROACHMENT STATIONS= 575.0 950.0 TYPE= 1 TARGET= 375.000

7.97	4.33	592.13	.00	590.93	592.15	.01	.04	.00	100000.00
1425.	1425.	0.	0.	1451.	0.	0	389	97.	100000 00
3.14	.98	.00	.00	.091	.035	.125	.060	587 80	575 00
.000605	50.	50.	50.	2	0	0	.00	375.00	950.00

#SECND 8.094

3470 ENCROACHMENT STATIONS= 410.0 860.0 TYPE= 1 TARGET= 450.000
SOME FLOW IN THE LOB DIVERTS BACK INTO THE CHANNEL

8.09	4 77	592 57	.00	591 06	592.59	01	.44	00	100000 00
1425.	1425.	0.	0.	1664.	0.	0.	411	102.	100000 00
3.34	.86	.00	.00	.125	.034	.125	.000	587.80	417.89
.000830	620	680.	720	2	0	0	.00	442.10	860.00

1490 NH CARD USED
#SECND 8.240

3470 ENCROACHMENT STATIONS= 30.0 770.0 TYPE= 1 TARGET= 740.000
XSEC L

8.24	4.86	592.86	.00	591.18	592.87	.01	.28	00	100000 00
1825.	1825.	0.	0.	2519.	0.	0.	439.	110.	100000.00
3 57	.72	.00	00	.090	.034	.125	000	588.00	48.97
.000352	580.	880.	880.	2	0	0	.00	721.03	770.00

1490 NH CARD USED

SECNO	DEPTH	QWSEL	QRIWS	WSELR	EG	HV	HL	QLOSS	BANK ELEV
I	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	XLOB	XCH	XROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CCHAR	TOPWID	ENDST

#SECNO 8.545

3470 ENCROACHMENT STATIONS= 60.0 700.0 TYPE= 1 TARGET= 640.000
XSEC M

8.35	3.90	592.90	.00	591.20	592.91	.01	04	00100000.00
1825.	1825	0	0	2014	0	0	444	112. 100000.00
7 60	.91	00	.00	.077	.034	.125	000	589.00 53.18
.000457	100.	550.	550	2	0	0	.00	636.82 700 00

CCHV= .300 CEHV= 500
1490 NH CARD USED
#SECNO 8.552

3470 ENCROACHMENT STATIONS= 60.0 700 0 TYPE= 1 TARGET= 640 000
XSEC N

8 55	3 95	592 95	.00	591.23	592.96	.01	05	00100000 00
1825	1825.	0.	0.	2048.	0.	0	450.	113. 100000 00
3.63	.89	.00	.00	077	.034	125	.000	589.10 62.98
.000433	120.	1095.	1095	2	0	0	.00	637.02 700 00

1490 NH CARD USED
#SECNO 8.560
3280 CROSS SECTION 8.56 EXTENDED 6.11 FEET

3470 ENCROACHMENT STATIONS= 100 0 720.0 TYPE= 1 TARGET= 620.000

8 56	4 81	593.11	.00	591.32	593.12	.01	16	00100000 00
1825	1825.	0.	0.	2031.	0	0	461.	117 100000.00
3 71	.90	.00	.00	.123	034	125	000	588.30 100.00
.001061	250.	350.	300	2	0	0	00	620.00 720.00

CCHV= 100 CEHV= .300
1490 NH CARD USED
#SECNO 8.948
3280 CROSS SECTION 8.95 EXTENDED 6.23 FEET

3470 ENCROACHMENT STATIONS= 100.0 900.0 TYPE= 1 TARGET= 800.000
XSEC O LOB FLOW DIVIDES FROM CHANNEL FLOW

8 95	4.93	593.23	.00	591.40	593.24	01	.11	.00100000 00
1825.	1825.	0.	0.	2436	0	0.	468.	119. 100000 00
3.76	75	00	.00	.118	.034	.125	000	588.70 100 00
.000717	130	1740	2000	2	0	0	00	800 00 900 00

SELNO	DEPTH	CWSEL	CRIWS	WSELR	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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 8.998
3280 CROSS SECTION 8 96 EXTENDED 6.14 FEET

3470 ENCROACHMENT STATIONS=			200.0	2150.0	TYPE=	1	TARGET=	1950.000	
8.96	19.74	593.14	.00	591.33	593.32	19	.03	05	591 60
23040.	841.	20499.	1700	2403	5606.	2942.	494.	125.	589.30
3.77	35	3.66	58	113	.033	.110	.000	573 40	200.00
000181	170.	170.	170.	2	0	0	00	1950 00	2150.00

#SECNO 9 100
3280 CROSS SECTION 9 10 EXTENDED 6.25 FEET

3470 ENCROACHMENT STATIONS=			938.0	2500.0	TYPE=	1	TARGET=	1562.000	
9.10	19.85	593.25	.00	591.43	593.43	.18	11	.00	591.60
23040.	99.	20542.	2399.	376	5647.	4434	632.	149.	589.30
3.82	.26	3.64	.54	.085	.033	.110	.000	573.40	938.00
.000177	830.	630.	350.	2	0	0	.00	1562.00	2500 00

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**********************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CODE =  01,02,03 04,05,06
  MODIFICATION    50,51,52,53 54,55,56
  IBM-PC-AT VERS ON AUGUST 1985
**********************************************

T1      500-YEAR FLOOD
T2
T3

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.       5.        0.        0.   .000000        00        0         0    591.060      .00

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLOC     IBW       CHNIM     ITRACE

     15.000      .000     -1.000     .000      .000      000       000       .00       .000      .000
```

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

#PROF 4

CCHV= 100 CEHV= .700
1490 NH CARD USED
#SECNO 6 896

3470 ENCROACHMENT STATIONS= 2550.0 4834.0 TYPE= 1 TARGET= 2284.000
FIS (SEC 6 DS LIMIT OF FLOODWAY REVISION

6 90	22.06	591.06	00	588 31	591.16	.10	.00	.00	588 20
27130	2115	24381.	634.	5882.	9083.	2093	0	0.	588.90
00	.36	2.68	.30	110	036	.125	.000	569.00	2550.00
.000090	850.	825	800.	0	0	0	.00	2284.00	4834 00

1490 NH CARD USED
#SECNO 7 052

3470 ENCROACHMENT STATIONS= 1710.0 2650.0 TYPE= 1 TARGET= 940 000

7.05	5.74	591.24	.00	588.44	591.24	00	07	.01	100000.00
1440.	1440.	0.	0.	4406	0	0.	200.	30.	100000.00
.67	.33	.00	.00	120	.036	.125	.000	585.50	1710.00
.000090	750.	825.	1050.	2	0	0	.00	940.00	2650.00

1490 NH CARD USED
#SECNO 7.207

3470 ENCROACHMENT STATIONS= 1900 0 2620.0 TYPE= 1 TARGET= 720.000
FIS XSEC H

7 21	5 58	591.34	00	588.52	591 34	.00	.10	00	100 00 00
1440.	1440.	0	0.	3283.	0.	0.	270	45	100000.00
1.17	.44	.00	.00	.125	.036	125	.000	585.76	1900 00
000182	800.	818.	900.	2	0	0	.00	720 00	2620 00

CCHV= .100 CEHV= 300
#SECND 7 726

3470 ENCROACHMENT STATIONS= 260.0 760.0 TYPE= 1 TARGET= 500 000

7 73	4 52	592.16	.00	589.39	592.17	01	83	00	100000.00
1440.	1440	0	0.	2003.	0.	0.	437.	84.	100000 00
2 24	72	.00	.00	.125	035	125	.000	587 64	260.00
000586	2750.	2735.	2700	2	0	0	00	500 00	760.00

```
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    COPAR    TOPWID     ENDST


CCHV=     100 CEHV=    .300
*SECNO 7.801

3470 ENCROACHMENT STATIONS=     410.0     977.0  TYPE=     1  TARGET=     567.000
                XSEC I
     7.80     7.12   592.35      .00   589.61   592.35      .01      .19      .00100000.00
    1440.    1440       0.       0.    2402.       0        0.     457.      89. 100000.00
     2.42       60       00      .00     .125     .035     .125     .000   585.23   410.00
  .000376     400.     400     400.        2        0        0      .00   567.00   977.00


*SECNO 7.877

3470 ENCROACHMENT STATIONS=     400.0     977.0  TYPE=     1  TARGET=     577.000
     7.88     7.23   592.46      .00   589.71   592.46      .01       11      .00100000.00
    1440.    1440.       0.       0.    2510.       0.       0.     475.      93 100000.00
     2.57      .57       00      .00     .125     .035     .125     .000   585.23   400.00
  .000332      310     400.     400.        2        0        0       00   577.00   977.00


1490 NH CARD USED
*SECNO 7.934

3470 ENCROACHMENT STATIONS=     575.0     950.0  TYPE=     1  TARGET=     375.000
                XSEC J        DS OF BACON SCHOOL ROAD
     7.93     4.80   592.60      .00   589.84   592.63      .03      .16      .01100000.00
    2250.    2250.       0.       0.    1627.       0        0      486      95. 100000.00
     2.62     1.38      .00      .00     .100     .035     .125      000   587.80   575.00
  .001252     240.     300.     300.        2        0        0      .00   375.00   950.00


1490 NH CARD USED
CCHV=    .100 CEHV=    .300
*SECNO 7.945

3470 ENCROACHMENT STATIONS=     300.0     660.0  TYPE=     1  TARGET=     360.000
                XSEC K        US OF BACON SCHOOL ROAD
     7.95     2.92   592.72      .00   590.57   592.86      .14      .20      .03100000.00
    2250.    2250.       0.       0.     742.       0.       0.     488.      96. 100000.00
     2.63     3.03      .00      .00     .125     .035     .125     .000   589.80   300.00
  .021945      60.      60.      60.        2        0        0      .00   360.00   660.00
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SECNO    DEPTH    CWSEL    CRIWS    WSELK    EG       HV       HL       OLOSS   BANK ELEV
Q        QLOB     QCH      QROB     ALOB     ACH      AROB     VOL      TWA   LEFT/RIGHT
TIME     VLOE     VCH      VROB     XNL      XNCH     XNR      WTN      ELMIN      SSTA
SLOPE    XLOBL    XLCH     XLOBR    ITRIAL   IDC      ICONT    CORAR    TOPWID     ENDST


1490 NH CARD USED
*SECNO 7 956

3470 ENCROACHMENT STATIONS=     575.0     950.0  TYPE=     1  TARGET=     375.000
     7 96     5 26   593 06      .00   590 91   593.09      .02      .21       01100000 00
    2250.    2250.       0        0     1799.       0.        0      490       96  100000.00
     2.64     1.25      .00      .00     .125     .035      125     .000   587.80   575.00
  .001403      60.      60.       60        2        0        0      .00   375.00   950.00


1490 NH CARD USED
*SECNO 7.965

3470 ENCROACHMENT STATIONS=     575 0     950.0  TYPE=     1  TARGET=     375.000
     7.97     5.31   593.11      .00   590.93   593.14      .02       05       00100000.00
    2250.    2250.       0.       0.     1818        0        0.     492.      97. 100000.00
     2.65     1.24      .00       00     .090     .035     .125     .000   587.80   575.00
  .000710      50.      50.      50.        2        0        0       00   375.00   950.00


*SECNO 8.094

3470 ENCROACHMENT STATIONS=     410.0     860.0  TYPE=     1  TARGET=     450 000
                        SOME FLOW IN THE LOB DIVERTS BACK INTO THE CHANNEL
     8.09     5.82   593.62      .00   591.06   593 64      .02      .50      .00100000.00
    2250.    2250.       0.       0.     2135.       0.       0.     520.     103. 100000.00
     2.81     1.05       00      .00     .125     .034     .125     .000   587 80   410 00
  .000944      620.     680.     720.        2        0        0       00   450 00   860.00


1490 NH CARD USED
*SECNO 8.240

3470 ENCROACHMENT STATIONS=      30.0     770 0  TYPE=     1  TARGET=     740.000
                XSEC L
     8.24     5.96   593.96      .00   591 18   593.97      .01      .33      .00100000.00
    3050.    3050.       0        0.     3310.       0.       0.     556.     110  100000 00
     2.99      .92      .00      .00     .091     .034     .125     .000   588 00    45 84
  .000416      580.     880.     880.        2        0        0      .00   724 16   770 00


1490 NH CARD USED
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SECNO	DEPTH	OWSEL	CRIWS	WSELR	EC	HV	HL	QLOSS	BANK ELEV
Q	FLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TAA	LEFT RIGHT
TIME	XLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SETA
SLOPE	YLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

#SECNO 3 345

3470 ENCROACHMENT STATIONS= 60 0 700.0 TYPE= 1 TARGET= 640.00

XSEC M

3 35	5 00	594 00	00	591 20	594 02	02	04	00100000 00
3050	3050	0.	0.	2715	0.	0.	563.	112. 100000.00
3 01	1 12	.00	.00	.077	.034	.125	.000	589.00 60.00
000483	100	550.	550.	2	0	0	00	640 00 700 00

CCHV= 300 CEHV= .500
1490 NH CARD USED
#SECNO 8 552

3470 ENCROACHMENT STATIONS= 60.0 700.0 TYPE= 1 TARGET= 640 000

XSEC N

5 55	5 05	594.05	.30	591.23	594.07	.02	.06	.00100000.00
3050	3050.	0.	0.	2752.	0.	0	571	114 100000 00
3.04	1.11	.00	.00	.077	.034	.125	000	589.00 60 00
.000463	120.	1095.	1095.	2	0	0	.00	640.00 700.00

1490 NH CARD USED
#SECNO 8.560
3280 CROSS SECTION 8.56 EXTENDED 7.23 FEET

3470 ENCROACHMENT STATIONS= 100.0 720.0 TYPE= 1 TARGET= 620 000

8.56	5.93	594.23	.00	591 32	594 25	02	17	00100000 00
3050	3050.	0.	0.	2722.	0.	0.	586.	117. 100000 00
3.11	1.12	.00	.00	.122	.034	.125	000	588 30 100.00
.001145	250.	350.	300.	2	0	0	.00	620.00 720.00

CCHV= .100 CEHV= .300
1490 NH CARD USED
#SECNO 8.948
3280 CROSS SECTION 8.95 EXTENDED 7 35 FEET

3470 ENCROACHMENT STATIONS= 100 0 900 0 TYPE= 1 TARGET= 800 000

XSEC 0 LOB FLOW DIVIDES FROM CHANNEL FLOW

8 95	6 05	594 35	.00	591.40	594.36	.01	.12	.00100000 00
3050.	3050.	0.	0.	3334.	0.	0.	595.	119 100000 00
3 15	.91	.00	.00	.116	.034	125	.000	588 30 100 00
00071B	130.	1740	2000	2	0	0	00	800.00 900.00

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

#SECNO 8.958
*2B0 CROSS SECTION 8.96 EXTENDED 7.2: FEET

*470 ENCROACHMENT STATIONS= 200.0 2150.0 TYPE= 1 TARGET= 1950 000

8 96	20 86	594.26	.00	591.23	594 45	.20	.03	.06	591 60
27030.	1589	23146.	2296	3584	6016	3528.	627	125	589 70
3.16	.44	3 85	.65	.108	.033	.110	.000	573.40	200 00
.000182	170.	170	170.	2	0	0	.00	1950.00	2150 00

#SECNO 9.100
*2B0 CROSS SECTION 9.10 EXTENDED 7 36 FEET

3470 ENCROACHMENT STATIONS= 938.0 2500 0 TYPE= 1 TARGET= 1562 000

9 10	20.96	594.36	.00	591.43	594.56	20	11	.00	591 60
27030.	300.	23376	3355.	732.	6055	5407.	792	149	589 70
3 21	.41	3.86	62	085	.033	110	.000	573.40	938.00
.000182	830	630	350.	2	0	0	.00	1562 00	2500 00

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HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CODE - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION AUGUST 1985
****

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

ST JOSEPH RIVER

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	IFRS	VCH	AREA	K
G	6.896	.00	.00	.00	569.00	17430.00	588.31	.00	588.38	.72	2.17	1829.72	24573.97
	6.896	.00	.00	.00	569.00	21470.00	589.53	.00	589.61	.81	2.41	1782.58	27820.79
	6.896	.00	.00	.00	569.00	23150.00	590.00	.00	590.09	.84	2.50	1467.77	29241.42
	6.896	.00	.00	.00	569.00	27130.00	591.06	.00	591.16	.90	2.68	17052.7	28654.40
H	7.052	825.00	.00	.00	585.50	270.00	588.44	.00	588.44	.61	.00	172.11	345.47
	7.052	825.00	.00	.00	585.50	710.00	589.69	.00	589.69	.82	.00	297.75	787.17
	7.052	825.00	.00	.00	585.50	915.00	590.16	.00	590.17	.86	.00	338.75	989.17
	7.052	825.00	.00	.00	585.50	1440.00	591.24	.00	591.24	.96	.00	439.72	1521.74
	7.207	818.00	.00	.00	585.76	270.00	588.52	.00	588.52	1.54	.00	124.97	217.79
	7.207	818.00	.00	.00	585.76	710.00	589.78	.00	589.78	1.76	.00	216.49	575.12
	7.207	818.00	.00	.00	585.76	915.00	590.26	.00	590.26	1.79	.00	252.97	682.57
	7.207	818.00	.00	.00	585.76	1440.00	591.34	.00	591.34	1.82	.00	347.40	1067.76
I	7.726	2735.00	.00	.00	587.64	270.00	589.39	.00	589.40	10.18	.00	617.91	64.64
	7.726	2735.00	.00	.00	587.64	710.00	590.63	.00	590.64	7.00	.00	1229.25	239.42
	7.726	2735.00	.00	.00	587.64	915.00	591.10	.00	591.11	6.53	.00	1474.22	358.20
	7.726	2735.00	.00	.00	587.64	1440.00	592.16	.00	592.17	5.86	.00	2442.89	734.96
J	7.801	400.00	.00	.00	585.23	270.00	589.61	.00	589.61	3.36	.00	861.74	147.71
	7.801	400.00	.00	.00	585.23	710.00	590.84	.00	590.84	3.81	.00	1546.28	367.62
	7.801	400.00	.00	.00	585.23	915.00	591.30	.00	591.31	3.84	.00	1809.44	468.49
	7.801	400.00	.00	.00	585.23	1440.00	592.35	.00	592.35	3.78	.00	2410.66	742.44
	7.877	400.00	.00	.00	585.23	270.00	589.71	.00	589.71	2.75	.00	926.98	182.81
	7.877	400.00	.00	.00	585.23	710.00	590.95	.00	590.95	3.23	.00	1639.27	395.08
	7.877	400.00	.00	.00	585.23	915.00	591.41	.00	591.42	3.29	.00	1907.05	504.87
	7.877	400.00	.00	.00	585.23	1440.00	592.46	.00	592.46	3.32	.00	2511.26	789.54
	7.934	300.00	.00	.00	587.80	400.00	589.84	.00	589.84	11.20	.00	571.15	119.52
	7.934	300.00	.00	.00	587.80	1090.00	591.09	.00	591.11	12.07	.00	861.76	314.21
	7.934	300.00	.00	.00	587.80	1425.00	591.56	.00	591.56	12.42	.00	1276.57	469.24
	7.934	300.00	.00	.00	587.80	2250.00	592.60	.00	592.62	12.52	.00	1621.88	835.92

	SECNO	XLOC	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	IOPTS	VCH	AREA	VHD
	7.745	60.00	.00	.00	589.80	400.00	590.57	590.57	596.82	2476.59	.00	99.84	8.04
	7.945	60.00	.00	.00	589.80	1090.00	591.09	.00	591.46	1797.76	.00	223.54	25.71
K	7.945	60.00	.00	.00	589.80	1425.00	591.65	.00	591.87	619.59	.00	382.64	57.25
	7.945	60.00	.00	.00	589.80	2250.00	592.72	.00	592.85	219.45	.00	742.07	151.88
	7.956	60.00	.00	.00	587.80	400.00	590.91	.00	590.92	3.17	.00	995.60	226.18
	7.956	60.00	.00	.00	587.80	1090.00	591.69	.00	591.70	9.96	.00	1286.71	345.42
	7.956	60.00	.00	.00	587.80	1425.00	592.09	.00	592.11	11.87	.00	1436.49	414.28
	7.956	60.00	.00	.00	587.80	2250.00	593.06	.00	593.09	14.03	.00	1799.16	600.66
	7.965	50.00	.00	.00	587.80	400.00	590.93	.00	590.97	1.68	.00	996.22	308.88
	7.965	50.00	.00	.00	587.80	1090.00	591.73	.00	591.74	5.11	.00	1299.78	482.26
	7.965	50.00	.00	.00	587.80	1425.00	592.13	.00	592.15	6.05	.00	1450.57	579.35
	7.965	50.00	.00	.00	587.80	2250.00	593.11	.00	593.14	7.10	.00	1818.22	844.40
	8.094	680.00	.00	.00	587.80	400.00	591.06	.00	591.07	3.07	.00	1044.58	228.29
	8.094	680.00	.00	.00	587.80	1090.00	592.11	.00	592.12	7.32	.00	1460.65	492.56
	8.094	680.00	.00	.00	587.80	1425.00	592.57	.00	592.59	8.30	.00	1667.72	694.56
	8.094	680.00	.00	.00	587.80	2250.00	593.62	.00	593.64	9.44	.00	2174.91	772.38
	8.240	880.00	.00	.00	588.00	430.00	591.18	.00	591.18	1.39	.00	1311.64	264.38
	8.240	880.00	.00	.00	588.00	1360.00	592.36	.00	592.37	3.14	.00	2161.20	767.34
L	8.240	880.00	.00	.00	588.00	1825.00	592.86	.00	592.87	3.52	.00	2519.12	972.98
	8.240	880.00	.00	.00	588.00	3050.00	593.96	.00	593.97	4.16	.00	3314.11	1494.65
	8.345	550.00	.00	.00	589.00	430.00	591.20	.00	591.20	2.74	.00	941.05	259.83
	8.345	550.00	.00	.00	589.00	1360.00	592.40	.00	592.41	4.41	.00	1696.17	647.48
M	8.345	550.00	.00	.00	589.00	1825.00	592.90	.00	592.91	4.57	.00	2017.96	853.86
	8.345	550.00	.00	.00	589.00	3050.00	594.00	.00	594.02	4.82	.00	2715.44	1387.26
	8.552	1095.00	.00	.00	589.00	430.00	591.23	.00	591.23	2.58	.00	960.18	267.80
	8.552	1095.00	.00	.00	589.00	1360.00	592.45	.00	592.46	4.15	.00	1729.00	667.72
	8.552	1095.00	.00	.00	589.00	1825.00	592.95	.00	592.96	4.33	.00	2048.21	877.46
	8.552	1095.00	.00	.00	589.00	3050.00	594.05	.00	594.07	4.63	.00	2752.16	1418.01
	8.560	350.00	.00	.00	588.30	430.00	591.32	.00	591.33	6.55	.00	917.15	187.97
	8.560	350.00	.00	.00	588.30	1360.00	592.60	.00	592.61	10.10	.00	1715.88	427.85
N	8.560	350.00	.00	.00	588.30	1825.00	593.11	.00	593.13	10.61	.00	2071.32	560.26
	8.560	350.00	.00	.00	588.30	3050.00	594.27	.00	594.29	11.45	.00	2721.59	901.21
	8.948	1740.00	.00	.00	588.30	430.00	591.40	.00	591.41	5.52	.00	995.10	183.07
	8.948	1740.00	.00	.00	588.30	1360.00	592.72	.00	592.72	7.18	.00	2025.82	507.57
O	8.948	1740.00	.00	.00	588.30	1825.00	593.23	.00	593.24	7.17	.00	2476.78	681.59
	8.948	1740.00	.00	.00	588.30	3050.00	594.35	.00	594.36	7.18	.00	3377.54	1176.56
	8.958	170.00	.00	.00	573.40	17260.00	591.33	.00	591.48	1.71	3.28	7622.51	13179.90
	8.958	170.00	.00	.00	573.40	21340.00	592.63	.00	592.81	1.79	3.56	9938.70	15974.75
	8.958	170.00	.00	.00	573.40	23040.00	593.14	.00	593.32	1.81	3.66	10951.87	17148.22
	8.958	170.00	.00	.00	573.40	27030.00	594.26	.00	594.45	1.82	3.85	13128.12	20078.75

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K#S	VCH	AREA	.01K
9.100	630.00	00	.00	573.40	17260.00	591.43	.00	591.59	1.65	3.24	7825.34	13421.09
9.100	630.00	.00	00	573.40	21340.00	592.74	00	592.92	1.75	3.53	9861.88	16151.21
9.100	630.00	00	.00	573.40	23040.00	593.25	.00	593.42	1.77	3.64	10456.61	17319.84
9.100	630.00	00	.00	573.40	27070.00	594.36	.00	594.56	1.82	3.86	12194.22	20058.79

ST JOSEPH RIVER

SUMMARY PRINTOUT TABLE 150

	SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFWS	TOPWID	XLCH
G	8.396	17420.00	588.31	.00	.00	.00	2041.99	.00
	8.076	21470.00	589.53	1.22	.00	1.22	2284.00	.00
	8.896	27150.00	590.00	.47	.00	1.69	2284.00	.00
	8.896	27130.00	591.06	1.06	.00	2.75	2284.00	.00
	7.052	270.00	588.44	.00	.13	.00	940.00	825.00
	7.052	710.00	589.69	1.24	.16	1.24	940.00	825.00
	7.052	915.00	590.16	.48	.16	1.72	940.00	825.00
	7.052	1440.00	591.24	1.08	.18	2.80	940.00	825.00
H	7.207	270.00	588.52	.00	.07	.00	720.00	818.00
	7.207	710.00	589.78	1.26	.09	1.26	720.00	818.00
	7.207	915.00	590.26	.48	.10	1.74	720.00	818.00
	7.207	1440.00	591.34	1.08	.10	2.82	720.00	818.00
	7.726	270.00	589.39	.00	.88	.00	500.00	2735.00
	7.726	710.00	590.63	1.24	.86	1.24	500.00	2735.00
	7.726	915.00	591.10	.47	.85	1.71	500.00	2735.00
	7.726	1440.00	592.16	1.05	.82	2.77	500.00	2735.00
I	7.801	270.00	589.61	.00	.22	.00	536.03	400.00
	7.801	710.00	590.84	1.23	.20	1.23	567.00	400.00
	7.801	915.00	591.30	.46	.20	1.69	567.00	400.00
	7.801	1440.00	592.35	1.04	.19	2.74	567.00	400.00
	7.877	270.00	589.71	.00	.09	.00	551.62	400.00
	7.877	710.00	590.95	1.24	.11	1.24	577.00	400.00
	7.877	915.00	591.41	.47	.11	1.71	577.00	400.00
	7.877	1440.00	592.46	1.04	.11	2.75	577.00	400.00
J	7.934	400.00	589.84	.00	.13	.00	375.00	300.00
	7.934	1090.00	591.09	1.26	.15	1.26	375.00	300.00
	7.934	1425.00	591.56	.47	.15	1.72	375.00	300.00
	7.934	2250.00	592.60	1.04	.14	2.76	375.00	300.00
K	7.945	400.00	590.57	.00	.74	.00	203.07	60.00
	7.945	1090.00	591.09	.52	.00	.52	266.29	60.00
	7.945	1425.00	591.65	.56	.09	1.08	303.52	60.00
	7.945	2250.00	592.72	1.06	.12	2.14	360.00	60.00
	7.956	400.00	590.91	.00	.34	.00	375.00	60.00
	7.956	1090.00	591.69	.78	.60	.78	375.00	60.00
	7.956	1425.00	592.09	.40	.44	1.18	375.00	60.00
	7.956	2250.00	593.06	.97	.34	2.15	375.00	60.00

SECNO Q CWSEL DIFWSP DIFWSX DIFWS TOPWID XLCH

	SECND	Q	CWSEL	DIFWSP	DIFWSX	DIFWS	TOPWID	XLCH
	7.965	400.00	590.97	.00	.01	.01	375.00	50.00
	7.965	1090.00	591.77	.80	.03	.80	375.00	50.00
	7.965	1425.00	592.13	.40	.04	1.21	375.00	50.00
	7.965	2250.00	593.11	.98	.05	2.19	375.00	50.00
	8.094	400.00	591.06	.00	.14	.00	409.84	680.00
	8.094	1090.00	592.11	1.04	.38	1.04	428.78	680.00
	8.094	1425.00	592.57	.47	.44	1.51	442.10	680.00
	8.094	2250.00	593.62	1.05	.51	2.56	450.00	680.00
	8.240	430.00	591.18	.00	.11	.00	701.40	880.00
L	8.240	1360.00	592.36	1.19	.26	1.19	719.61	880.00
	8.240	1825.00	592.86	.50	.29	1.68	721.03	880.00
	8.240	3050.00	593.96	1.09	.33	2.78	724.16	880.00
	8.345	430.00	591.20	.00	.02	.00	595.09	550.00
M	8.345	1360.00	592.40	1.20	.03	1.20	634.97	550.00
	8.345	1825.00	592.90	.50	.04	1.70	636.82	550.00
	8.345	3050.00	594.00	1.10	.04	2.80	640.00	550.00
	8.552	430.00	591.23	.00	.03	.00	598.41	1095.00
N	8.552	1360.00	592.45	1.22	.05	1.22	635.16	1095.00
	8.552	1825.00	592.95	.50	.05	1.72	637.02	1095.00
	8.552	3050.00	594.05	1.10	.06	2.83	640.00	1095.00
	8.560	430.00	591.32	.00	.10	.00	620.00	350.00
	8.560	1360.00	592.60	1.28	.15	1.28	620.00	350.00
	8.560	1825.00	593.11	.51	.16	1.79	620.00	350.00
	8.560	3050.00	594.23	1.11	.17	2.90	620.00	350.00
	8.948	430.00	591.40	.00	.08	.00	717.22	1740.00
O	8.948	1360.00	592.72	1.31	.11	1.31	800.00	1740.00
	8.948	1825.00	593.23	.51	.12	1.83	800.00	1740.00
	8.948	3050.00	594.35	1.12	.12	2.95	800.00	1740.00
	8.958	17260.00	591.33	.00	-.08	.00	1498.26	170.00
	8.958	21340.00	592.63	1.30	-.09	1.30	1950.00	170.00
	8.958	23040.00	593.14	.51	-.09	1.81	1950.00	170.00
	8.958	27030.00	594.26	1.12	-.09	2.93	1950.00	170.00
	9.100	17260.00	591.43	.00	.11	.00	1241.85	630.00
	9.100	21340.00	592.74	1.31	.11	1.31	1562.00	630.00
	9.100	23040.00	593.25	.51	.11	1.82	1562.00	630.00
	9.100	27030.00	594.36	1.11	.11	2.93	1562.00	630.00

SUMMARY OF ERRORS AND SPECIAL NOTES

CAUTION SECNO= 7.945 PROFILE= 1 CRITICAL DEPTH ASSUMED
CAUTION SECNO= 7.945 PROFILE= 1 PROBABLE MINIMUM SPECIFIC ENERGY
CAUTION SECNO= 7.945 PROFILE= 1 20 TRIALS ATTEMPTED TO BALANCE WSEL
CAUTION SECNO= 7.945 PROFILE= 1 SLOPE TOO STEEP
CAUTION SECNO= 7.945 PROFILE= 2 SLOPE TOO STEEP

00BREAK00

1) COUNTY: Bellin

2) STUDY NAME: Royalton Twp

3) WATERCOURSE: St. Joseph R

4) DOCUMENT TYPE: Left Overbank Floodway

00BREAK00

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**************************************************
*  WATER SURFACE PROFILES                        *
*  VERSION OF NOVEMBER 1976                      *
*  UPDATED MAY 1984                              *
*  IBM-PC-XT VERSION AUGUST 1985                 *
*  RUN DATE  01-06-89   TIME  15.10.45           *
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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
```

LEFT OVERBANK FLOODWAY

THIS RUN EXECUTED 01-06-89

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED MAY  1984
  ERROR CORR -  01,02,03,04,05,06
  MODIFICATION -  50,51,52,53,54,55,56
  IBM-PC-XT VERSION AUGUST 1985
**************************************************


C
T1    ROYALTON FIS  BERRIEN COUNTY      NATURAL CONDITIONS
T2      10 YEAR FLOOD       LEFT OVERBANK FLOW
T3      ST JOSEPH RIVER                          ROYLEFT.FIS

J1  ICHECK    INO       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        4         0         0.    000000        00        .0        0.   590.000      .000

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      .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


QT      6.000  17430.000  21470.000  23150.000  23150.000       .000       000       000       .000       .000
NC        000       .000       .000       .100       .300       000       .000       .000       .000       .000
NH      5.000       .125   2200.000       .110   3800.000       .125   3845.000       .036   4334 000       125
NH   6454 000       .000       .000       .000       .000       .000       .000       000       .000       .000
ET       .000      6.100      6.100      6.100      6.100   2550.000   4834.000       .000       .000       000
                FIS XSEC G      DS LIMIT OF FLOODWAY REVISION
X1      6.896     73.000   3845.000   4334 000    850.000    800 000    825 000       .000       .000       .000
X3        000        000       .000        000        000       .000        000       .000       .000       .000
GR    610.000       .000    585.100    200.000    585.700    400.000    585.200    600.000    586 000    800.000
GR    585.600   1000.000    586.000   1200 000    586.600   1400.000    586 500   1600 000    586.500   1800 000
GR    586.400   2000.000    585.800   2200.000    585.800   2270.000    585.800   2400.000    585 800   2600 000
GR    585.800   2800.000    585.800   3000.000    585.800   3200.000    586.000   3400.000    588.200   3600.000
GR    588 700   3770 000    588.500   3800 000    588.200   3845.000    584.100   3849 000    571.000   3854 000
GR    572.700   3874.000    570.600   3894.000    569 200   3914.000    569 000   3934 000    569 400   3954 000
GR    569.000   3974.000    569.300   3994.000    569.500   4014.000    569.600   4034.000    569 900   4054.000
GR    570.200   4074.000    570 500   4094.000    570.600   4114.000    570 800   4134 000    571.000   4154.000
GR    571.400   4174.000    571.800   4194.000    572.500   4214 000    573 400   4234.000    572 700   4254 000
GR    574.300   4274.000    574 600   4279.000    581.400   4283 000    581.900   4294 000    588.900   4334.000
GR    587 100   4479.000    588.200   4609.000    588.200   4629 000    585.500   4659 000    585 200   4679 000
GR    585 200   4699.000    585.200   4899.000    585 600   4959 000    587 200   5099 000    587 900   5299 000
GR    587 900   5479.000    586.800   5484.000    586.800   5499.000    597 400   5539.000    597.400   5584.000
GR    587 800   5634.000    588.000   5699 000    588.000   5899 000    587.000   5999 000    586.200   6099.000
GR    586.200   6299.000    586.200   6369.000    610.000   6454.000       .000       .000        000       .000
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NH	5 000	.125	2330 000	.110	3481.000	036	3970.000	.075	5230 000	.125
NH	6755 000	.000	.000	.000	.000	.000	000	.000	00	000
QT	6.000	270 000	710.000	915 000	915 000	.000	.000	.000	.000	000
ET	000	6.100	6.100	6 100	6.100	1710.000	2650.000	000	000	.000
X1	7.052	73 000	3481.000	3970.000	750.000	1050.000	825.000	006	000	000
X3	000	.000	.000	.000	.000	000	.000	000	.000	00
GR	610.000	000	601.700	35.000	601.500	50 000	592.600	130.000	584 700	370.000
GR	585.000	530.000	585 000	730.000	585.000	930.000	585 500	1130 000	586.700	1330 000
GR	586.500	1530.000	585.500	1730.000	585.800	1930.000	586.900	2130.000	587.000	2330 000
GR	587.000	2530.000	587.400	2630.000	585.600	2730.000	586.700	2830.000	588.800	2930.000
GR	589.300	3030.000	588.200	3130.000	588.500	3230.000	589.500	3330.000	589.100	3430 000
GR	589 600	3450.000	588.100	3481.000	574.400	3490.000	575.800	3510.000	577 700	3530 000
GR	572.600	3650.000	572.700	3670.000	573.000	3690.000	573 300	3710 000	573 600	3730.000
GR	573.700	3750.000	573.900	3770.000	574.100	3790.000	574.500	3810 000	574.900	3830 000
GR	575.600	3850.000	576 500	3870.000	575.800	3890.000	577.400	3910.000	577.700	3915 000
GR	580.000	3919.000	580.500	3930.000	586.600	3970.000	587.400	4030.000	588.600	4130 000
GR	587.700	4230.000	587.700	4330.000	586 200	4430.000	587.200	4530.000	588 000	4630.000
GR	587.400	4730.000	587.000	4770.000	586.300	4830.000	586.100	4930.000	585 900	5030.000
GR	585.900	5230.000	585.800	5430.000	585.800	5630 000	586.100	5830.000	585.700	5845 000
GR	585.600	5940.000	585.600	6030.000	585.500	6160.000	585 300	6230.000	585.400	6430 000
GR	585.400	6485.000	591.800	6630 000	610.000	6755.000	.000	000	.000	.000
NH	6.000	.075	1730.000	.125	2630 000	.850	3481.000	.036	3970.000	.075
NH	5430.000	.125	6755.000	.000	000	000	.000	.000	.000	.000
ET	000	6.100	6.100	6.100	6.100	1900 000	2620.000	.000	000	.000
		FIS XSEC H	FLOW IS	DIVIDED INTO	CHANNEL/RIGHT	AND LEFT				
X1	7.207	78.000	3481.000	3970.000	800.000	900.000	818.000	.000	000	000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	610.000	.000	601.700	35.000	601.500	50.000	592.600	130.000	584.700	33 000
GR	585.000	530.000	585.000	730.000	585.000	930.000	585.500	1130.000	586.700	1330 000
GR	586.500	1530.000	585.500	1730.000	585.800	1930.000	586.900	2130.000	587 000	2330.000
GR	587.000	2530.000	587.400	2630.000	585.600	2730.000	586 700	2830.000	588.800	2930 000
GR	589.300	3030.000	588 200	3130.000	588.500	3230 000	589.500	3330.000	589.100	3430 00
GR	589.600	3450.000	588.100	3481 000	578.400	3490.000	578.000	3510 000	577.700	3530.000
GR	576.200	3550.000	576.100	3570.000	576 500	3590.000	576.100	3610.000	576 400	3630 000
GR	576 600	3650.000	576.700	3670.000	577.000	3690.000	577.200	3710.000	577 600	3730 000
GR	577.700	3750.000	577.900	3770.000	578.100	3790 000	578.500	3810 000	578.900	3830 000
GR	579.600	3850.000	580.500	3870.000	579.800	3890.000	581 400	3910 000	581 700	3915.000
GR	584.000	3919.000	584.500	3930.000	586.600	3970.000	587.400	4030.000	588.600	4130 000
GR	587.700	4230.000	587.700	4330.000	586.200	4430.000	587.200	4530.000	588 000	4630 000
GR	587 400	4730.000	587.000	4770 000	586.300	4830.000	586.100	4930.000	585.900	5030.000
GR	585.900	5230.000	585.800	5430.000	585.800	5630.000	586.100	5830.000	585.700	5845.000
GR	585.600	5940.000	585 600	6030 000	585.500	6160.000	585.300	6230.000	585.400	6470 000
GR	585.400	6485.000	591.800	6630.000	610.000	6755 000	.000	000	000	.000
NC	125	.125	.035	.100	.300	.000	000	.000	.000	.000
ET	.000	6 100	6.100	6.100	6 100	260.000	760.000	.000	.000	000
X1	7.726	42.000	1077.000	1393.000	2750 000	2700.000	2735.000	.000	000	000
X3	000	.000	.000	.000	.000	000	.000	000	000	000
GR	594 700	.000	594.100	100.000	588 700	200.000	588.400	300.000	587.800	400.000
GR	588 400	500.000	587.800	600.000	588.600	700.000	587.000	800.000	590 100	892 000
GR	589.000	930 000	585.800	956 000	584.600	1000.000	586 500	1077.000	582.000	1080 000
GR	579 000	1090.000	576.200	1100.000	576 600	1120.000	575.300	1140.000	575.500	1160 000

GR	575.100	1180.000	574.300	1200.000	574.400	1220.000	575.000	1240.000	575.100	1260.000
GR	574.600	1280.000	574.200	1300.000	573.900	1320.000	574.200	1340.000	575.300	1360.000
GR	580.600	1380.000	582.200	1389.000	589.500	1393.000	589.500	1496.000	591.100	1525.000
GR	589.600	1600.000	588.000	1700.000	589.200	1860.000	591.300	1900.000	593.300	2000.000
GR	596.400	2072.000	605.200	2100.000	.000	.000	.000	.000	.000	.000
NC	.125	125	.035	.100	.300	.000	.000	.000	.000	.000
ET	.000	6.100	6.100	6.100	6.100	410.000	977.000	.000	.000	.000
		FIS XSEC I								
X1	7.801	42.000	1077.000	1393.000	400.000	400.000	400.000	.000	.000	.000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	594.700	.000	594.100	100.000	588.700	200.000	588.400	300.000	587.800	400.000
GR	588.400	500.000	587.800	600.000	588.600	700.000	587.000	800.000	590.100	892.000
GR	589.000	930.000	585.800	956.000	584.600	1000.000	586.500	1077.000	582.000	1080.000
GR	579.000	1090.000	576.200	1100.000	576.600	1120.000	575.300	1140.000	575.500	1160.000
GR	575.100	1180.000	574.300	1200.000	574.400	1220.000	575.000	1240.000	575.100	1260.000
GR	574.600	1280.000	574.200	1300.000	573.900	1320.000	574.200	1340.000	575.300	1360.000
GR	580.600	1380.000	582.200	1389.000	589.500	1393.000	589.500	1496.000	591.100	1525.000
GR	589.600	1600.000	588.000	1700.000	589.200	1860.000	591.300	1900.000	593.300	2000.000
GR	596.400	2072.000	605.200	2100.000	.000	.000	.000	.000	.000	.000
ET	.000	6.100	6.100	6.100	6.100	400.000	977.000	.000	.000	.000
X1	7.877	.000	.000	.000	310.000	400.000	400.000	.000	.000	.000
NH	5.000	.100	1198.000	10.000	1224.000	.125	1345.000	.034	1661.000	.125
NH	1812.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
QT	4.000	400.000	1090.000	1425.000	1425.000	.000	.000	.000	.000	.000
ET	.000	6.100	6.100	6.100	6.100	575.000	950.000	.000	.000	.000
		XSEC J		DS OF BACON SCHOOL ROAD EXTENDED						
X1	7.934	45.000	1345.000	1661.000	240.000	300.000	300.000	.000	.000	.000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
GR	610.000	.000	599.700	30.000	596.000	200.000	593.200	400.000	591.800	440.000
GR	588.900	480.000	588.900	600.000	587.800	800.000	588.600	1050.000	589.300	1135.000
GR	587.200	1140.000	589.600	1150.000	589.900	1160.000	589.000	1198.000	585.800	1224.000
GR	584.600	1268.000	586.500	1345.000	581.900	1348.000	578.900	1358.000	576.100	1368.000
GR	576.500	1388.000	575.200	1408.000	575.400	1428.000	575.000	1448.000	574.200	1468.000
GR	574.300	1488.000	574.900	1508.000	575.000	1528.000	574.500	1548.000	574.100	1568.000
GR	573.800	1588.000	574.100	1608.000	575.200	1628.000	580.700	1648.000	582.100	1657.000
GR	589.500	1661.000	589.500	1683.000	591.100	1689.000	589.600	1705.000	588.000	1726.000
GR	589.200	1760.000	591.300	1768.000	593.300	1776.000	596.400	1797.000	605.200	1812.000
NH	5.000	.125	800.000	10.000	875.000	.125	1085.000	.034	1401.000	.125
NH	1552.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
NC	.000	.000	.000	.100	.300	.000	.000	.000	.000	.000
ET	.000	6.100	6.100	6.100	6.100	300.000	660.000	.000	.000	.000
		XSEC K		US OF BACON SCHOOL ROAD EXTENDED						
X1	7.945	42.000	1085.000	1401.000	60.000	60.000	60.000	.000	.000	.000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
X4	1.000	589.800	875.000	.000	.000	.000	.000	.000	.000	.000
GR	601.700	.000	598.000	100.000	595.250	200.000	592.500	300.000	591.000	400.000
GR	590.250	500.000	589.900	600.000	589.750	700.000	589.950	800.000	589.800	900.000
GR	589.000	938.000	585.800	964.000	584.600	1008.000	586.500	1085.000	581.900	1088.000
GR	578.900	1098.000	576.100	1108.000	576.500	1128.000	575.200	1148.000	575.400	1168.000
GR	575.000	1188.000	574.200	1208.000	574.300	1228.000	574.900	1248.000	575.000	1268.000

GR	574 500	1288.000	574.100	1308 000	573 800	1328.000	574.100	1348 000	575 200	1368 000
GR	580 700	1388 000	582.100	1397.000	589.500	1401.000	589 500	1423.000	591.100	1429 000
GR	589.600	1445.000	588.000	1466.000	589.200	1500.000	591.300	1508.000	593 300	1516.000
GR	596.400	1537.000	605.200	1552.000	.000	.000	.000	.000	000	000
NH	5.000	125	1050.000	10.000	1135.000	.125	1345.000	.034	1661.000	.125
NH	1812.000	.000	.000	.000	.000	000	000	000	.000	000
ET	000	6 100	6.100	6.100	6.100	575 000	950 000	000	000	000
X1	7.956	45.000	1345.000	1661.000	60.000	60.000	60.000	.000	.000	.000
X3	.000	.000	.000	.000	.000	000	000	.000	000	000
GR	610 000	.000	599.700	30.000	596.000	200.000	593 200	400 000	591 800	440.000
GR	588.900	480.000	588 900	600.000	587.800	800.000	588.600	1050.000	589 300	1135 000
GR	587.200	1140.000	589.600	1150.000	589.900	1160 000	589.000	1198.000	585 800	1224.000
GR	584.600	1268.000	586.500	1345.000	581.900	1348 000	578 900	1358.000	576 10	1368 000
GR	576.500	1388.000	575.200	1408 000	575.400	1428.000	575.000	1448 000	574.200	1468 000
GR	574.300	1488.000	574.900	1508.000	575.000	1528.000	574.500	1548 000	574 100	1566.000
GR	573.800	1588.000	574 100	1608 000	575.200	1628.000	580.700	1648.000	582 100	1657.000
GR	589.500	1661.000	589.500	1683.000	591.100	1689.000	589.600	1705.000	588.000	1726 000
GR	589.200	1760.000	591.300	1768.000	593.300	1776.000	596.400	1797.000	605.200	1812 000
NH	5.000	.125	440.000	.075	840.000	125	1325 000	.034	1659.000	.125
NH	1702.000	.000	.000	.000	.000	.000	.000	000	000	000
ET	.000	6.100	6 100	6.100	6.100	575.000	950.000	000	000	000
X1	7.965	.000	.000	.000	50.000	50.000	50.000	000	000	.000
X3	.000	.000	.000	.000	.000	.000	.000	000	.000	000
NC	.125	.125	.034	.000	.000	.000	.000	.000	.000	000
ET	.000	6.100	6.100	6.100	6.100	410.000	860.000	000	000	000
X1	8.094	.000	.000	.000	620.000	720.000	680.000	000	.000	.000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	000
NH	5.000	.125	440.000	.075	840.000	.125	1325 000	.034	1659.000	125
NH	1702.000	.000	.000	.000	.000	.000	.000	.000	000	.000
QT	6.000	430.000	1360.000	1825.000	1825.000	.000	.000	.000	.000	000
ET	.000	6.100	6 100	6.100	6.100	30.000	770.000	.000	000	.000
X1	8.240	39.000	1325.000	1659.000	580.000	880.000	880.000	.000	000	000
X3	.000	.000	.000	.000	000	.000	.000	.000	.000	000
GR	610.000	.000	589.000	60.000	589.000	110 000	590 200	140 000	591 400	190.000
GR	589.400	240.000	590.000	440.000	588.000	640.000	589.300	840.000	589.700	1040 000
GR	589.600	1060.000	589.600	1080.000	587.700	1085.000	589.600	1090.000	589 600	1325.000
GR	586 900	1337.000	583.800	1338.000	582.300	1345.000	578 300	1355 000	575 300	1365 000
GR	575.600	1385.000	574.500	1405.000	574.600	1425.000	574.300	1445.000	574 100	1465 000
GR	574.900	1485.000	574.900	1505.000	575.000	1525.000	574.400	1545.000	573.700	1557.000
GR	574.600	1585.000	575.600	1605 000	576.900	1625.000	579.400	1645.000	580 500	1657 000
GR	585.000	1659.000	586.300	1660.000	587.200	1665 000	612 200	1702.000	000	.000
NH	5.000	.125	110.000	075	1712.000	.085	1890.000	034	2225.000	125
NH	2267.000	.000	000	.000	000	.000	000	000	000	000
ET	.000	6.100	6.100	6.100	6 100	60 000	700.000	.000	000	.000
X1	8.345	42.000	1890 000	2225.000	100 000	550 000	550.000	.000	000	000
X3	000	.000	.000	.000	.000	.000	.000	.000	000	000
GF	610 000	.000	589.700	75.000	589.500	95.000	589 400	165 000	589 600	110.000
GR	589.000	305.000	589.600	505.000	591.600	705.000	591 500	905.000	592.000	1130.000
GR	592 100	1130.000	591.900	1230.000	590.600	1330 000	589 100	1430 000	589 400	1530.000

GR	588 600	1630.000	590 100	1712.000	589 000	1830.000	588 800	1890.000	586.900	1902 000
GR	583.800	1903.000	582.300	1910.000	578.300	1920.000	575.300	1930.000	575.600	1950 000
GR	574.500	1970.000	574.600	1990.000	574.300	2010.000	574.100	2030.000	574.900	2050.000
GR	574.900	2070.000	575.000	2090.000	574.400	2110.000	573.700	2130.000	574.600	2150 000
GR	575.600	2170 000	576.900	2190.000	579.400	2210.000	580.500	2222 000	586.300	2225.000
GR	587 200	2230.000	612.200	2267.000	.000	000	.000	.000	000	.000
NC	.000	.000	.000	.300	.500	.000	.000	000	.000	000
NH	6 000	.125	110.000	.075	1905.000	.085	2254.000	.125	2255.000	037
NH	2485.000	.125	2527.000	.000	.000	.000	.000	000	.000	.000
ET	.000	6.100	6 100	6 100	6.100	60.000	700 000	000	000	000
X1	8.552	42.000	2285.000	2485.000	120.000	1095 000	1095 000	.000	.000	000
X3	.000	.000	.000	.000	.000	.000	.000	.000	.000	000
GR	610.000	.000	589.700	75.000	589.500	95.000	589.000	105 000	589.600	110.000
GR	589.000	305 000	589.600	505.000	591.600	705.000	593.400	905.000	591.800	1105.000
GR	590.000	1205.000	590.800	1305.000	591.400	1345.000	590.200	1465 000	591.000	1505.000
GR	589.600	1705.000	588.900	1905.000	590 100	1970.000	590.400	2005 000	589.300	2105 000
GR	590.200	2254.000	587 800	2255.000	587.800	2285.000	586 800	2292 000	587 300	2300.000
GR	574.400	2311.000	574.500	2322.000	574.200	2333.000	574.000	2344.000	574.800	2355.000
GR	574.800	2370.000	574.900	2385.000	574.300	2400.000	573.600	2415.000	574.500	2425.000
GR	575.500	2441.000	576 800	2452.000	579.300	2465.000	580.400	2482 000	586.300	2485.000
GR	587.200	2490.000	612.200	2527.000	.000	000	.000	.000	.000	.000
NH	4.000	.125	660.000	085	1258.000	.033	1625.000	110	2625.000	000
ET	.000	6.100	6.100	6.100	6.100	100.000	720.000	.000	.000	000
X1	8.560	51.000	1258.000	1625.000	250.000	300.000	350.000	.000	000	.000
X3	.000	.000	000	.000	.000	.000	.000	000	.000	000
GR	604.300	.000	596.000	25.000	592.200	60.000	590.600	92.000	589.100	160.000
GR	589.600	260.000	588.300	360.000	589.600	460.000	590.800	560.000	591.200	660.000
GR	591.000	760.000	591.700	860.000	591.700	960.000	591 800	1025.000	592.500	1125.000
GR	592.400	1158.000	592.200	1225.000	591 600	1258.000	578.000	1270.000	574 900	1285.000
GR	575.800	1305.000	573.400	1325.000	573.900	1345.000	574.400	1365.000	576.200	1385 000
GR	576 800	1405.000	577.600	1425.000	578.200	1445.000	578.600	1465.000	578 800	1485 000
GR	579.000	1505.000	579.200	1525.000	579.200	1545.000	579.300	1565.000	579.400	1585.000
GR	581.300	1605.000	581.600	1615.000	583.900	1622.000	589.300	1625.000	588.800	1725.000
GR	587.600	1825.000	587.300	1925.000	587.000	2012 000	584.500	2051.000	587.700	2084 000
GR	585.800	2125.000	591.100	2225.000	588.000	2325.000	589.800	2425.000	587.700	2525.000
GR	587.000	2625.000	.000	.000	.000	.000	000	000	000	000
NC	.000	.000	.000	.100	.300	.000	000	.000	.000	000
NH	4.000	125	660.000	.085	1258.000	.033	1625.000	.110	2625.000	.000
ET	.000	6.100	6.100	6.100	6.100	100.000	900.000	000	.000	000
X1	8.948	.000	000	000	130.000	2000.000	1740.000	.000	.000	000
QT	6.000	17260.000	21340.000	23040.000	23040.000	.000	.000	.000	.000	000
ET	.000	6.100	6.100	6.100	6 100	200.000	2150 000	.000	000	000
X1	8.958	.000	.000	.000	170.000	170.000	170.000	000	000	000
ET	.000	6 100	6.100	6.100	6.100	938 000	2500.000	000	.000	.000
X1	9 100	.000	000	000	830 000	350.000	630.000	.000	.000	000
EJ	.000	.000	.000	.000	.000	000	000	000	.000	.000

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

#PROF 1

CCHV= .100 CEHV= .300
1490 NH CARD USED
#SECNO 6 896

3470 ENCROACHMENT STATIONS= 2550.0 4834 0 TYPE= 1 TARGET= 2284.000
FIS XSEC G DS LIMIT OF FLOODWAY REVISION

6.90	21.00	590.00	.00	.00	590.09	.09	.00	.00	588 20
23150.	1345.	21414.	391.	4510.	8564.	1563.	0.	0.	588.90
00	.30	2.50	.25	.110	.036	.125	.000	569.00	2550.00
.000084	850.	825.	800.	0	0	0	.00	2284 00	4834.00

1490 NH CARD USED
#SECNO 7.052

3470 ENCROACHMENT STATIONS= 1710.0 2650.0 TYPE= 1 TARGET= 940.000

7.05	4.66	590.16	.00	.00	590.17	.00	.07	.01100000.00	
915.	915.	0.	0.	3389.	0	0.	168.	30.	100000.00
.81	.27	.00	.00	.121	.036	.125	000	585.50	1710.00
.000086	750.	825.	1050.	2	0	0	.00	940.00	2650.00

1490 NH CARD USED
#SECNO 7.207

3470 ENCROACHMENT STATIONS= 1900.0 2620.0 TYPE= 1 TARGET= 720.000
FIS XSEC H FLOW IS DIVIDED INTO CHANNEL/RIGHT AND LEFT

7.21	4.50	590.26	.00	.00	590.26	.00	.10	.00100000.00	
915.	915.	0.	0.	2507.	0.	0.	222.	45.	100000.00
1.42	.36	.00	.00	.125	.036	125	.000	585.76	1900 00
.000179	800.	818.	900.	2	0	0	00	720.00	2620.00

CCHV= 100 CEHV= .300
#SECNO 7.726

3470 ENCROACHMENT STATIONS= 260.0 760.0 TYPE= 1 TARGET= 500 000

7.73	3.46	591.10	.00	.00	591.11	.01	.85	.00100000.00	
915.	915	0.	0.	1475.	0.	0.	348.	84.	100000 00
2 65	.62	00	.00	.125	.035	.125	.000	587.64	260.00
.000653	2750.	2735.	2700.	2	0	0	00	500.00	760.00

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	XML	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

CCHV= 100 CEHV= 300
#SECNO 7.801

3470 ENCROACHMENT STATIONS= 410.0 977.0 TYPE= 1 TARGET= 567.000
FIS XSEC I

7.80	6.08	591.30	.00	.00	591.31	00	.20	.00100000	00
915.	915.	0.	0.	1809.	0	0.	363.	89. 100000.00	
2.87	.51	.00	.00	.125	.035	.125	.000	585.23	410.00
.000381	400	400.	400.	2	0	0	.00	567.00	977.00

#SECNO 7.877

3470 ENCROACHMENT STATIONS= 400.0 977.0 TYPE= 1 TARGET= 577 000

7.88	6.19	591.41	.00	.00	591.42	.00	.11	.00100000.00	
915.	915.	0.	0.	1908.	0.	0.	376.	93. 100000.00	
3.05	.48	.00	.00	.125	.035	.125	.000	585.23	400.00
.000329	310.	400.	400.	2	0	0	.00	577 00	977.00

1490 NH CARD USED
#SECNO 7.934

3470 ENCROACHMENT STATIONS= 575.0 950.0 TYPE= 1 TARGET= 375.000
XSEC J DS OF BACON SCHOOL ROAD EXTENDED

7.93	3.76	591.56	.00	.00	591.58	.02	.16	.01100000.00	
1425.	1425.	0.	0.	1237.	0.	0.	385.	95. 100000 00	
3.11	1.15	.00	.00	.100	.035	.125	.000	587.80	575.00
.001242	240.	300.	300.	2	0	0	.00	375.00	950.00

1490 NH CARD USED
CCHV= .100 CEHV= .300
#SECNO 7.945

3470 ENCROACHMENT STATIONS= 300.0 660.0 TYPE= 1 TARGET= 360.000
XSEC K US OF BACON SCHOOL ROAD EXTENDED

7 95	1.85	591.65	.00	.00	591.87	.22	23	06100000.00	
1425.	1425.	0.	0.	383.	0	0.	386.	96. 100000.00	
3.11	3.72	.00	.00	.125	.035	.125	000	589.80	356 48
.061959	60.	60.	60.	2	0	0	00	303.52	660 00

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

1490 NH CARD USED
#SECNO 7 956

3470 ENCROACHMENT STATIONS= 575.0 950.0 TYPE= 1 TARGET= 375.000

7.96	4.29	592.09	.00	00	592.11	.02	.22	.02100000 00	
1425	1425.	0.	0.	1436.	0.	0.	387.	96. 100000 00	
3.13	.99	.00	.00	.125	.035	.125	.000	587.80	575.00
.001183	60.	60.	60.	3	0	0	.00	375.00	950.00

1490 NH CARD USED
#SECNO 7.965

3470 ENCROACHMENT STATIONS= 575.0 950.0 TYPE= 1 TARGET= 375 000

7.97	4.33	592.13	.00	.00	592.15	.01	.04	.00100000.00	
1425.	1425.	0.	0.	1451.	0.	0.	389.	97. 100000 00	
3.14	.98	.00	.00	.091	.035	.125	.000	587.80	575 00
.000605	50.	50.	50.	2	0	0	.00	375.00	950.00

#SECNO 8.094

3470 ENCROACHMENT STATIONS= 410.0 860.0 TYPE= 1 TARGET= 450.000

8.09	4.77	592.57	.00	.00	592.59	.01	.44	.00100000 00	
1425.	1425.	0.	0.	1664.	0	0.	411.	102. 100000.00	
3.34	.86	.00	.00	.125	.034	.125	.000	587.80	417.89
.000830	620.	680.	720.	2	0	0	00	442.10	860.00

1490 NH CARD USED
#SECNO 8.240

3470 ENCROACHMENT STATIONS= 30.0 770.0 TYPE= 1 TARGET= 740.000

8.24	4.86	592.86	.00	.00	592.87	.01	.28	.00100000 00	
1825.	1825.	0.	0.	2519.	0.	0.	439.	110. 100000.00	
3.57	.72	.00	.00	.090	.034	.125	.000	588.00	48 97
.000352	580.	880.	880.	2	0	0	.00	721.03	770.00

1490 NH CARD USED
#SECNO 8 345

3470 ENCROACHMENT STATIONS= 60.0 700.0 TYPE= 1 TARGET= 640.000

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
8 35	3.90	592.90	.00	00	592.91	.01	.04	.00100000.00	
1825.	1825.	0.	0.	2014.	0.	0.	444.	112.	100000 00
3.60	.91	.00	00	.077	.034	.125	.000	589.00	63.18
.000457	100.	550.	550.	2	0	0	00	636 82	700 00
CCHV= 300 CEHV= 500									
1490 NH CARD USED									
#SECNO 8.552									
3470 ENCROACHMENT STATIONS=			60.0	700.0	TYPE=	1	TARGET=	640 000	
8.55	3.95	592.95	.00	.00	592.96	.01	.05	00100000 00	
1825.	1825.	0.	0.	2048.	0.	0.	450.	113.	100000.00
3.63	.89	.00	00	077	.034	125	000	589 00	62.98
.000433	120.	1095.	1095.	2	0	0	.00	637 02	700 00
1490 NH CARD USED									
#SECNO 8.560									
3280 CROSS SECTION		B 56 EXTENDED		6.11 FEET					
3470 ENCROACHMENT STATIONS=			100.0	720.0	TYPE=	1	TARGET=	620.000	
8.56	4.81	593.11	.00	.00	593.13	.01	.16	.00100000.0	
1825.	1825	0.	0	2031	0.	0.	461.	117.	100000 00
3.71	.90	.00	.00	.123	.034	125	.000	588 30	100 00
.001061	250.	350.	300.	2	0	0	.00	620.00	720.00
CCHV= .100 CEHV= .300									
1490 NH CARD USED									
#SECNO 8 948									
3280 CROSS SECTION		8.95 EXTENDED		6.23 FEET					
3470 ENCROACHMENT STATIONS=			100.0	900.0	TYPE=	1	TARGET=	800.000	
8.95	4.93	593.23	00	.00	593.24	.01	.11	00100000 00	
1825	1825	0.	0	2436.	0.	0.	468.	119.	100000.00
3.76	.75	.00	.00	.118	.034	.125	000	588.30	100 00
000717	130	1740.	2000.	2	0	0	.00	800 00	900 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 8.958
3280 CROSS SECTION 8.96 EXTENDED 6.14 FEET

3470 ENCROACHMENT STATIONS=			200 0	2150.0	TYPE=	1	TARGET=	1950 000	
8.96	19.74	593.14	.00	.00	593 32	.19	03	05	591.60
23040.	841.	20499.	1700.	2403.	5606.	2942.	494.	125.	589 30
3.77	.35	3 66	.58	.113	.033	110	.000	573 40	200 00
0001B1	170.	170.	170	2	0	0	.00	1950.00	2150.00

#SECNO 9 100
3280 CROSS SECTION 9 10 EXTENDED 6.25 FEET

3470 ENCROACHMENT STATIONS=			938.0	2500 0	TYPE=	1	TARGET=	1562 000	
9.10	19.85	593.25	.00	.00	593.43	18	.11	00	591 60
23040.	99	20542.	2399.	376.	5647.	4434.	632.	149.	589 30
3.82	.26	3.64	.54	.085	.033	.110	.000	573 40	938 00
000177	830.	630.	350.	2	0	0	.00	1562.00	2500.00

THIS RUN EXECUTED 01-06-89

****
HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION AUGUST 1985
****

T1 100-YEAR FLOOD
T2
T3

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	5.	0.	0.	.000000	.00	.0	0	590 100	000
J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15.000	.000	-1.000	.000	000	000	.000	.000	000	.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	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IOC	ICONT	CORAR	TOPWID	ENDST

#PROF 2

CCHV= 100 CEHV= .300
1490 NH CARD USED
#SECNO 6.896

3470 ENCROACHMENT STATIONS= 2550.0 4834 0 TYPE= 1 TARGET= 2284 000
FIS XSEC 6 DS LIMIT OF FLOODWAY REVISION

6.90	21.10	590.10	.00	590.00	590.19	.09	00	.00	588.20
23150.	1389.	21356.	405.	4639.	8613.	1613.	0.	0.	588 90
.00	.30	2.48	.25	110	.036	.125	.000	569 00	2550.00
.000082	850.	825.	800.	0	0	0	.00	2284 00	4834.00

1490 NH CARD USED
#SECNO 7.052

3470 ENCROACHMENT STATIONS= 1710.0 2650.0 TYPE= 1 TARGET= 940.000

7.05	4.76	590.26	.00	590.16	590.26	.00	.06	.01	100000.00
915.	915.	0.	0.	3479.	0.	0.	171	30	100000.00
.83	.26	.00	00	.121	.036	125	.000	585.50	1710.00
.000078	750.	825.	1050.	2	0	0	.00	940.00	2650.00

1490 NH CARD USED
#SECNO 7.207

3470 ENCROACHMENT STATIONS= 1900.0 2620.0 TYPE= 1 TARGET= 720.000
FIS XSEC H FLOW IS DIVIDED INTO CHANNEL/RIGHT AND LEFT

7.21	4.59	590.35	.00	590.26	590.35	00	.09	.00	100000.00
915.	915.	0.	0.	2571.	0.	0.	226.	45.	100000.00
1 46	.36	.00	.00	125	036	.125	000	585.76	1900.00
.000165	800	818.	900.	2	0	0	.00	720 00	2620.00

CCHV= .100 CEHV= .300
#SECNO 7 726

3470 ENCROACHMENT STATIONS= 260.0 760.0 TYFE= 1 TARGET= 500 000

7.73	3.50	591.14	00	591.10	591.14	.01	.79	.00	100000 00
915.	915.	0.	0.	1492	0.	0.	355.	84.	100000.00
2 70	61	.00	.00	.125	.035	.125	000	587.64	260.00
.000628	2750.	2735.	2700.	2	0	0	00	500.00	760 00

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

CCHV= 100 CEHV= .300
#SECNO 7.801

3470 ENCROACHMENT STATIONS= 410.0 977.0 TYPE= 1 TARGET= 567.000

	FIS XSEC I								
7 80	6.10	591.33	.00	591.30	591.33	.00	.19	00100000.00	
915.	915.	0.	0.	1825.	0.	0.	370.	89	100000.00
2.92	.50	.00	.00	.125	.035	.125	.000	585.23	410.00
.000371	400.	400.	400.	2	0	0	.00	567.00	977.00

#SECNO 7.877

3470 ENCROACHMENT STATIONS= 400.0 977.0 TYPE= 1 TARGET= 577.000

7.88	6.21	591.44	.00	591.41	591.44	.00	.11	.00100000.00	
915.	915.	0	0.	1922.	0.	0.	383.	93.	100000.00
3.10	.48	.00	.00	.125	.035	.125	.000	585.23	400.00
.000321	310.	400.	400.	2	0	0	.00	577.00	977.00

1490 NH CARD USED
#SECNO 7.934

3470 ENCROACHMENT STATIONS= 575.0 950.0 TYPE= 1 TARGET= 375.000

XSEC J			DS OF BACON SCHOOL ROAD EXTENDED						
7.93	3.78	591.58	.00	591.56	591.60	.02	.16	.01100000.00	
1425.	1425	0.	0.	1244.	0.	0.	392.	95.	100000 00
3.16	1.15	.00	.00	.100	.035	.125	.000	587.80	575.00
.001217	240.	300.	300.	2	0	0	.00	375 00	950.00

1490 NH CARD USED
CCHV= .100 CEHV= .300
#SECNO 7.945

3470 ENCROACHMENT STATIONS= 300.0 660.0 TYPE= 1 TARGET= 360.000

XSEC K			US OF BACON SCHOOL ROAD EXTENDED						
7.95	1 87	591.67	.00	591.65	591.88	.21	22	.06100000 00	
1425.	1425.	0.	0.	389.	0.	0.	393.	96	100000.00
3 17	3.67	.00	00	.125	.035	.125	.000	589.80	355.14
.059117	60.	60.	60.	2	0	0	00	304.86	660 00

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

1490 NH CARD USED
#SECNO 7.956

3470 ENCROACHMENT STATIONS=			575.0	950.0	TYPE=	1	TARGET=	375.000	
7.96	4.30	592.10	.00	592.09	592.12	.02	.22	.02	100000.00
1425.	1425.	0.	0.	1440.	0.	0.	394.	96.	100000.00
3.18	.99	.00	.00	.125	.035	.125	.000	587.80	575.00
.001174	60.	60.	60.	3	0	0	.00	375.00	950.00

1490 NH CARD USED
#SECNO 7.965

3470 ENCROACHMENT STATIONS=			575.0	950.0	TYPE=	1	TARGET=	375.000	
7.97	4.34	592.14	.00	592.13	592.16	.01	.04	.00	100000.00
1425.	1425.	0.	0.	1454.	0.	0.	396.	97.	100000.00
3.20	.98	.00	.00	.091	.035	.125	.000	587.80	575.00
.000600	50.	50.	50.	2	0	0	.00	375.00	950.00

#SECNO 8.094

3470 ENCROACHMENT STATIONS=			410.0	860.0	TYPE=	1	TARGET=	450 000	
8.09	4.78	592.58	.00	592.57	592.59	.01	.43	.00	100000.00
1425.	1425.	0.	0.	1667	0.	0.	418.	102.	100000.00
3.40	.86	.00	.00	.125	.034	.125	.000	587 80	417.71
.000826	620.	680.	720.	2	0	0	.00	442.29	860 00

1490 NH CARD USED
#SECNO 8.240

3470 ENCROACHMENT STATIONS=			30.0	770.0	TYPE=	1	TARGET=	740.000	
8.24	4 87	592.87	.00	592.86	592.88	.01	.28	.00	100000.00
1825.	1825.	0.	0.	2523.	0.	0.	446	110.	100000.00
3.62	.72	.00	.00	.090	034	.125	.000	588.00	48.96
.000350	580.	880.	880.	2	0	0	.00	721 04	770.00

1490 NH CARD USED
#SECNO 8.345

3470 ENCROACHMENT STATIONS=			60.0	700.0	TYPE=	1	TARGET=	640 000	

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IBC	ICONT	CORAR	TOPWID	ENDST
8.35	3.90	592 90	.00	592.90	592.92	.01	.04	.00100000.00	
1825.	1825.	0.	0.	2017.	0.	0.	451.	112.	100000 00
3.65	.90	.00	.00	.077	.034	.125	.000	589.00	63.16
.000455	100	550.	550	2	0	0	.00	636.83	700 00

CCHV= .300 CEHV= .500
1490 NH CARD USED
#SECNO 8.552

3470 ENCROACHMENT STATIONS= 60.0 700.0 TYPE= 1 TARGET= 640.000

8.55	3.96	592.96	.00	592.95	592.97	.01	.05	.00100000.00	
1825.	1825.	0.	0.	2051.	0.	0.	457.	113.	100000.00
3.69	.89	.00	.00	.077	.034	.125	.000	589.00	62.97
.000431	120.	1095.	1095.	2	0	0	.00	637 03	700.00

1490 NH CARD USED
#SECNO 8.560
3280 CROSS SECTION 8.56 EXTENDED 6.12 FEET

3470 ENCROACHMENT STATIONS= 100.0 720.0 TYPE= 1 TARGET= 620.000

8.56	4.82	593.12	.00	593.11	593.13	.01	.16	.00100000.00	
1825.	1825.	0.	0.	2034.	0.	0.	469.	117	100000 00
3.77	.90	.00	.00	.123	.034	125	.000	588.30	100.00
.001057	250.	350.	300.	2	0	0	.00	620.00	720.00

CCHV= .100 CEHV= .300
1490 NH CARD USED
#SECNO 8 948
3280 CROSS SECTION 8.95 EXTENDED 6.23 FEET

3470 ENCROACHMENT STATIONS= 100.0 900 0 TYPE= 1 TARGET= 800 000

8.95	4.93	593.23	00	593.23	593.24	.01	.11	.00100000 00	
1825.	1825	0.	0.	2439.	0.	0.	475.	119.	100000.00
3.82	.75	.00	00	118	034	.125	.000	588 30	100 00
.000714	130	1740.	2000	2	0	0	00	800 00	900 00

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

#SECNO 8.958
3280 CROSS SECTION 8.96 EXTENDED 6.14 FEET

3470 ENCROACHMENT STATIONS=			200.0	2150.0	TYPE=	1	TARGET=	1950.000	
8 96	19.74	593 14	.00	593.14	593 33	19	.03	.05	591.60
23040.	842	20497	1701.	2407.	5608.	2944	501.	125.	589.30
3.83	.35	3.66	.58	.113	.033	.110	000	573 40	200 00
.000180	170.	170.	170.	2	0	0	.00	1950 00	2150 00

#SECNO 9.100
3280 CROSS SECTION 9.10 EXTENDED 6.25 FEET

3470 ENCROACHMENT STATIONS=			938.0	2500.0	TYPE=	1	TARGET=	1562.000	
9.10	19.85	593.25	00	593.25	593 44	.18	.11	.00	591 60
23040.	100.	20540.	2401.	377.	5648.	4437.	639.	149.	589.30
3.88	26	3.64	.54	.085	.033	110	.000	573.40	938.00
.000177	830.	630.	350.	2	0	0	00	1562 00	2500.00

THIS RUN EXECUTED 01-06-89

****
HEC2 RELEASE DATED NOV 76 UPDATED MAY 1984
ERROR CORR - 01,02,03,04,05,06
MODIFICATION - 50,51,52,53,54,55,56
IBM-PC-XT VERSION AUGUST 1985
****

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

ST JOSEPH RIVER

SUMMARY PRINTOUT TABLE 150

	SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VCH	AREA	.01K
G	6.896	.00	.00	.00	569.00	23150.00	590.00	.00	590.09	.84	2 50	14637 00	25241.42
	6.896	.00	.00	.00	569.00	23150.00	590.10	00	590.19	.82	2.48	14865 74	25551.15
	7.052	825 00	00	00	585.50	915 00	590 16	00	590 17	86	00	3388.75	989.17
	7.052	825.00	.00	.00	585.50	915.00	590 26	.00	590.26	.78	.00	3479 17	1033 00
H	7.207	818.00	.00	.00	585.76	915.00	590 26	.00	590.26	1.79	.00	2506.97	683 53
	7.207	818.00	.00	.00	585.76	915.00	590.35	.00	590.35	1.65	00	2570 82	712 49
	7 726	2735 00	.00	.00	587 64	915 00	591 10	00	591.11	6.53	.00	1474.72	358.20
	7 726	2735.00	.00	.00	587.64	915 00	591.14	.00	591.14	6.28	.00	1491 66	365 05
I	7 801	400.00	.00	.00	585.23	915 00	591 30	00	591 31	3.81	.00	1809 44	468 49
	7 801	400.00	.00	00	585.23	915.00	591.33	.00	591 33	3.71	00	1824 66	474 90
	7.877	400.00	.00	.00	585.23	915.00	591.41	.00	591.42	3.29	.00	1907 66	504 87
	7 877	400 00	00	.00	585.23	915.00	591 44	00	591 44	3 21	00	1921 64	510 85
J	7.934	300.00	00	.00	587.80	1425 00	591.56	.00	591 58	12 42	00	1236 57	404 34
	7 934	300.00	00	.00	587 80	1425 00	591.58	00	591.60	12.17	00	1244.35	408 55
K	7.945	60.00	.00	.00	589.80	1425.00	591.65	00	591.87	619 59	.00	382 64	57 25
	7.945	60.00	00	00	589.80	1425 00	591 67	00	591 88	591.17	.00	388.75	58 61
	7.956	60 00	00	.00	587.80	1425.00	592.09	.00	592 11	11.83	00	1436 49	414 28
	7.956	60.00	.00	.00	587.80	1425.00	592 10	.00	592.12	11 74	00	1440.06	415.98
	7 965	50 00	00	00	587.80	1425 00	592 13	00	592 15	6 05	00	1450.57	579 35
	7.965	50.00	.00	00	587.80	1425.00	592 14	.00	592.16	6.00	00	1454 16	581 75
	8.094	680.00	.00	.00	587.80	1425.00	592 57	.00	592.59	8.30	00	1663 72	494 56
	8.094	680 00	.00	00	587.80	1425 00	592 58	00	592.59	8.26	.00	1666 56	495 88

	SECND	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K#S	VCH	AREA	.01K
L	8.240	880.00	.00	.00	588 00	1825.00	592 86	00	592.87	3.52	00	2519.12	972.98
	8 240	880.00	.00	.00	588.00	1825.00	592.87	00	592.88	3.50	00	2522 77	975.18
M	8.345	550.00	.00	00	589.00	1825.00	592.90	00	592.91	4.57	06	2013.96	853 86
	8.345	550.00	.00	.00	589.00	1825.00	592.90	.00	592.92	4 55	00	2016 95	855.91
N	8 552	1095.00	.00	.00	589.00	1825 00	592.95	.00	592.96	4.33	.00	2048.21	877 46
	8.552	1095.00	.00	.00	589.00	1825.00	592.96	.00	592.97	4.31	.00	2051 04	879 43
	8.560	350.00	.00	.00	588.30	1825.00	593.11	00	593.13	10.61	.00	2031.32	560 36
	8.560	350.00	.00	.00	588.30	1825.00	593.12	.00	593.13	10 57	.00	2033 75	561 43
O	8.948	1740.00	.00	.00	588 30	1825.00	593.23	.00	593.24	7.17	.00	2436.38	681.59
	8.948	1740.00	.00	.00	588.30	1825.00	593.23	.00	593.24	7.14	.00	2439 16	682 85
	8.958	170.00	.00	.00	573.40	23040.00	593.14	.00	593.32	1.81	3.66	10951.87	17148.22
	8.958	170.00	.00	.00	573.40	23040.00	593.14	.00	593.33	1.80	3 66	10958.89	17157 05
	9.100	630.00	.00	.00	573.40	23040.00	593.25	.00	593.43	1.77	3.64	10456 61	17319.84
	9.100	630.00	.00	.00	573.40	23040.00	593.25	00	593.44	1.77	3.64	10461.95	17327 88

ST JOSEPH RIVER

SUMMARY PRINTOUT TABLE 150

	SECND	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
G	6.896	23150.00	590.00	.00	.00	.00	2284.00	00
	6.896	23150.00	590 10	.10	.00	.10	2284.00	.00
	7.052	915.00	590.16	.00	.16	.00	940 00	825.00
	7.052	915.00	590 26	.10	16	10	940.00	825.00
H	7.207	915.00	590.26	.00	.10	.00	720.00	818 00
	7.207	915.00	590.35	09	.09	09	720.00	818.00
	7 726	915.00	591.10	.00	.85	00	500 00	2735 00
	7.726	915.00	591.14	03	.79	03	500.00	2735.00
I	7.801	915.00	591.30	.00	.20	.00	567 00	400.00
	7.801	915.00	591 33	03	.19	.03	567.00	400.00
	7.877	915.00	591.41	.00	11	.00	577.00	400.00
	7.877	915.00	591 44	02	.11	.02	577.00	400.00
J	7.934	1425.00	591.56	.00	.15	.00	375 00	300.00
	7.934	1425.00	591.58	.02	.14	.02	375.00	300.00
K	7 945	1425.00	591.65	.00	.09	.00	303.52	60 00
	7.945	1425.00	591.67	.02	.09	.02	304.86	60.00
	7 956	1425.00	592.09	.00	.44	.00	375.00	60.00
	7.956	1425.00	592.10	.01	.43	.01	375.00	60.00
	7 965	1425.00	592.13	.00	.04	.00	375.00	50.00
	7.965	1425.00	592.14	.01	.04	.01	375.00	50.00
	8.094	1425.00	592.57	.00	.44	.00	442.10	680.00
	8.094	1425.00	592.58	.01	.44	01	442.29	680 00
L	8.240	1825.00	592.86	.00	.29	.00	721.03	880 00
	8 240	1825.00	592.87	01	29	.01	721 04	880.00
M	8.345	1825 00	592 90	.00	.04	.00	636.82	550 00
	8 345	1825.00	592.90	.00	.04	.00	636.83	550.00
N	8 552	1825 00	592 95	.00	.05	.00	637 02	1095 00
	8.552	1825.00	592.96	.00	05	.00	637.03	1095.00
	8 560	1825.00	593.11	.00	.16	.00	620 00	350.00
	8.560	1825 00	593 12	00	16	00	620 00	350 00
O	8 948	1825.00	593.23	00	12	00	800.00	1740.00
	8 948	1825 00	593 23	.00	12	00	800 00	1740 00

FLOODWAY DATA, ST JOSEPH RIVER
PROFILE NO 2

	STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
G	6.896	2284.	14865.	1 6	590.1	590.0	.1
	7.052	940.	3479.	.3	590.3	590.2	.1
H	7.207	720.	2571.	.4	590.4	590.3	.1
	7.726	500.	1492.	.6	591.1	591.1	.0
I	7.801	567.	1825.	.5	591.3	591.3	.0
	7.877	577.	1922	.5	591.4	591.4	.0
J	7.934	375.	1244.	1.1	591.6	591.6	.0
K	7.945	305.	389.	3.7	591.7	591.7	.0
	7.956	375.	1440.	1.0	592.1	592.1	.0
	7.965	375.	1454.	1.0	592.1	592.1	.0
	8.094	442.	1667.	.9	592.6	592.6	.0
L	8 240	721.	2523.	.7	592.9	592.9	.0
M	8.345	637.	2017.	.9	592.9	592.9	.0
N	8.552	637.	2051.	.9	593.0	593 0	.0
	8.560	620.	2034.	.9	593.1	593.1	.0
O	8.948	800.	2439.	.7	593.2	593.2	.0
	8.958	1950.	10959.	2.1	593.1	593.1	.0
	9.100	1562.	10462.	2.2	593.3	593.3	.0

Royalton Twp
St. Joseph River
Berrien Co.

1" = 800'

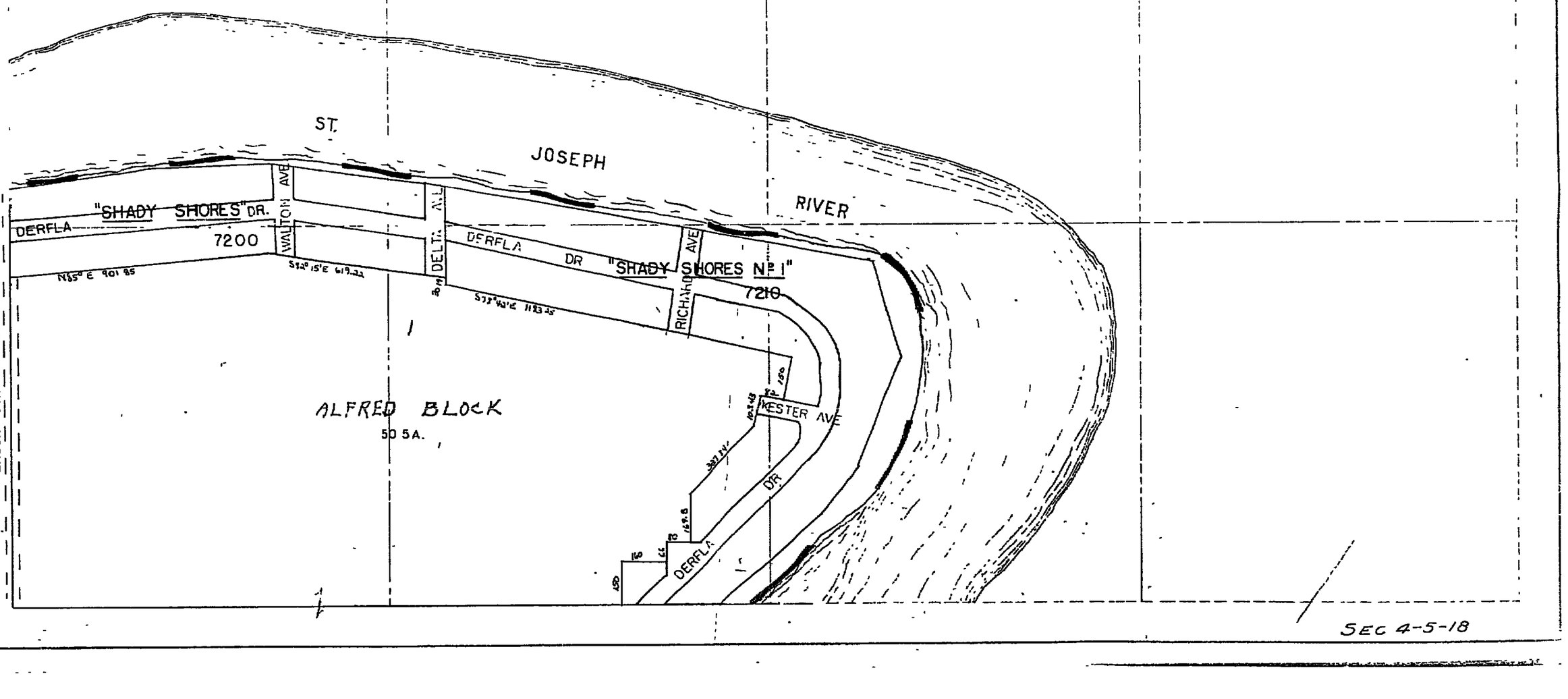
REV. 9-22-69

FRL. SEC. 4 T. 5S. R. 18W.

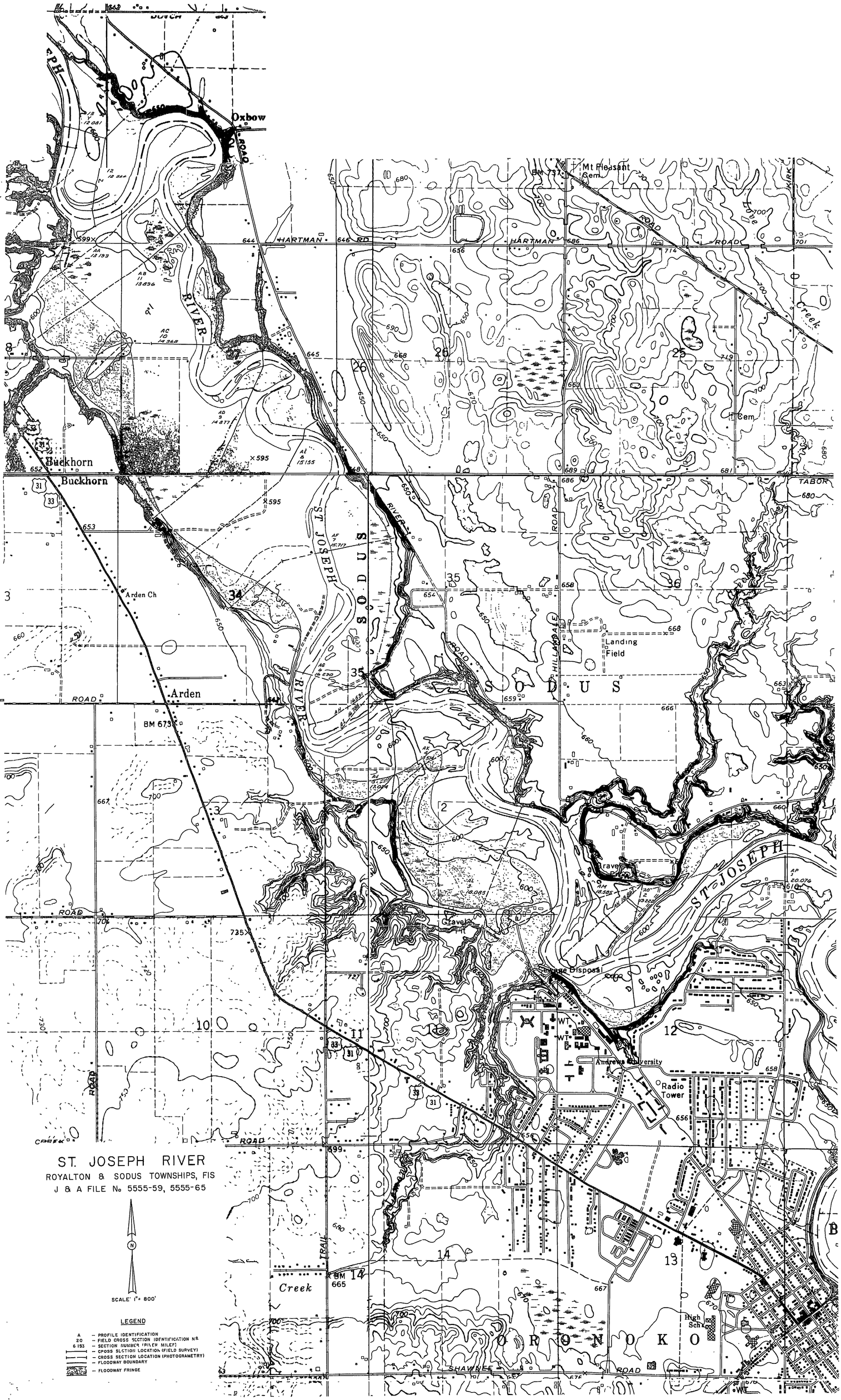
11-17-0004

ALL IN SCHOOL DISTRICT 11020 ST JOSEPH

ROYALTON TWP.



SEC 4-5-18



Oxbow
Buckhorn
Arden Ch
Arden
Mt Pleasant Cem
HARTMAN RD
HARTMAN ROAD
ST JOSEPH RIVER
SODUS
Landing Field
HILLANDALE ROAD
TABOR
Gravel
Sewage Disposal
Andrews University
Radio Tower
Creek
TRAIL
SHAWNEE ROAD
ORONOKO
High Sch
ST. JOSEPH RIVER
ROYALTON & SODUS TOWNSHIPS, FIS
J & A FILE No 5555-59, 5555-65
SCALE 1" = 800'
LEGEND
A – PROFILE IDENTIFICATION
20 – FIELD CROSS SECTION IDENTIFICATION No
6 193 – SECTION NUMBER (RIVER MILES)
– CROSS SECTION LOCATION (FIELD SURVEY)
– CROSS SECTION LOCATION (PHOTOGRAMETRY)
– FLOODWAY BOUNDARY
– FLOODWAY FRINGE

ST. JOSEPH RIVER

ROYALTON & SODUS TOWNSHIPS, FIS

J & A FILE No. 5555-59, 5555-65

SCALE 1"= 800'

LEGEND

- A – PROFILE IDENTIFICATION
- 20 – FIELD CROSS SECTION IDENTIFICATION Nº
- 6.183 – SECTION NUMBER (RIVER MILES)
- – CROSS SECTION LOCATION (FIELD SURVEY)
- – CROSS SECTION LOCATION (PHOTOGRAMETRY)
- – FLOODWAY BOUNDARY
- – FLOODWAY FRINGE

* See Revised Floodway Delineation Report enclosed

FAIR PLAIN

ROYALTON

ST JOSEPH

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: St. Joseph, & City

3) WATERCOURSE: St. Joseph R.

4) DOCUMENT TYPE: 100-yr Natural

00BREAK00

St. Joseph River
City of St. Joseph FIS
J&A File No. 5555-63
10-50-100-500 Year Flows

```
C
C     21
C   .398          VALLEY SECTION #43
C   .455          VALLEY SECTION FROM USCE MARCH 1975 DREDGING RECORDS
C   .568          VALLEY SECTION FROM USCE MARCH 1975 DREDGING RECORDS
C   .617          BRIDGE SECTION #42 CSX RAILROAD SKI [illegible] BRIDGE
C   .647          VALLEY SECTION FROM USCE MARCH 1975 DREDGING RECORDS
C   .722          VALLEY SECTION FROM USCE MARCH 1975 DREDGING RECORDS
C   .817          VALLEY SECTION #41
C   .865          BRIDGE SECTION #40 BLOSSOMLAND BRIDGE US-33
C   .913          VALLEY SECTION FROM USCE MARCH 1975 DREDGING RECORDS
C  1.184          VALLEY SECTION #39
C  1.227 VALLEY SECTION OF MAIN ST. BRIDGE FROM MOSHAT PLANS - 10-35 REMOVED
C  1.255          BRIDGE SECTION OF PROPOSED I-94 BL BRIDGE FROM MOSHAT PLANS
C  1.771          VALLEY SECTION #38
C  2.112          VALLEY SECTION # 3637
C  2.425          VALLEY SECTION #35
C  2.685          VALLEY SECTION #34
C  2.978          BRIDGE SECTION # 33 NAPIER ST. BRIDGE
C  3.043          VALLEY SECTION # 32
C  3.431          VALLEY SECTION # 31
C  3.910          VALLEY SECTION # 30
C  4.261          VALLEY SECTION # 29
T1       ST. JOSEPH RIVER  5555-63  BERRIEN CO.
T2       10 YEAR FLOOD
T3       ST. JOSEPH RIVER
J1          2                                                  500.76
J2                  -1
NC   .06     .05     .03     .2     .4
QT     4   18820   22460   24030   27900
X1  .398     35     885    1140
X3    10
GR 587.8       0   587.8     100   587.7     200   587.8     300   587.7     400
GR 587.6     500   587.8     600   587.6     700   587.5     800   586.3     450
GR 585.5     885   566.4     886   557.4     910   552.3     937   551.3     958
GR 550.4     977   551.3     997   551.4    1013   551.6    1030   552.2    1050
GR 554.9    1090   555.5    1100   558.4    1110   562.1    1139   595.5    1140
GR 585.5    1150   586.5    1200   589.1    1300   589.5    1400   590.1    1500
GR 590.6    1600   591.1    1700   591.6    1800   591.5    1900   591.[illegible]    2014
GR 592.0    2100
X1  .455      17            255     300     300     300
GR 585.5       0   566.0       0   557.5      27   554.1      47   552.4      67
GR 553.4      97   552.9     127   553.4     137   552.6     157   552.4     177
GR 553.4     187   554.4     207   555.4     227   558.0     237   560.4     247
GR 561.2     255   585.5     255
NC   .04     .06     .03
X1  .568      22            390     600     600     600
GR 585.5       0   574.0       0   571.4      12   567.9      22   561.2      42
GR 557.1      62   556.3      82   555.4     102   553.6     132   555.4     142
GR 553.9     172   553.4     192   554.3     222   555.6     242   558.1     262
GR 559.4     272   563.4     312   564.3     322   564.4     342   565.4     362
GR 571.0     390   585.5     390
X1  .616      34     204     743     250     250     250
GR 595.6       0   595.7     100   596.1     204   583.6     204   583.3     224
GR 583.3     244   583.5     256   583.6     286   583.0    289.5   582.9     300
GR 582.7     310   582.7     315   581.5     319   581.0     335   578.3     350
GR 568.7     365   560.6     389   556.2     404   553.9     424   553.0     444
GR 552.7     556   553.3     576   554.4     596   555.3     611   550.0     537
GR 561.4     545   565.8     690   567.1     705   570.1     720   577.3     743
GR 595.3     743   595.7     800   595.3     900   595.5    1000
NC   .04     .05    .035
X1  .617      53     204     743       1       1       1
BT    50     0.0   595.6     0.0   100.0   595.7     0.0   204.0   596.1   593.3
BT 224.0   596.2   593.3   244.0   595.2   593.3   244.0   596.2   593.3   245.0
```

	BT	596.3	588.4	597.0	596.3	588.4	673.0	596.3	588.4	673.0	596.3	
	BT	588.4	674.5	596.3	588.4	674.5	669.3	596.3	688.4	661.5	596.3	
	BT	688.5	596.3	588.4	688.5	596.3	588.4	690.0	596.3	588.4	690.0	
	BT	596.3	588.4	720.0	596.3	588.4	720.0	596.3	588.4	743.0	596.3	
	BT	588.4	800.0	596.3								
	GR	595.6	0	595.7	100	596.1	204	583.6	204	583.3	224	
	GR	583.3	244	582.3	246	583.6	266	583.0	286	583.6	286.5	
	GR	582.9	300	582.7	310	582.1	315	581.5	319	581.0	335	
	GR	578.3	350	568.7	365	568.1	374	567.9	377	587.4	377	
	GR	587.4	390	560.6	389	556.2	404	553.9	424	553.1	444	
	GR	553.9	464	569.4	464	587.9	484	587.9	516	551.3	516	
	GR	554.2	536	552.7	556	553.3	575	554.4	596	555.3	611	
	GR	588.3	611	588.4	623	563.6	623	462.8	626	560.0	637	
	GR	562.5	652	566.1	673	588.4	674.5	598.4	681.5	598.4	681.5	
	GR	565.8	690	567.1	705	570.1	720	577.6	743	596.3	743	
	GR	595.7	800	595.3	900	595.7	1000					
	X1	.619			12	12	12					
	X2											
	NC	.04	.06	.03								
	X1	.619	34	204	743	1	1	1				
	GR	595.6	0	595.7	100	596.1	204	583.6	204	583.3	224	
	GR	583.3	244	583.5	266	583.6	286	583.0	286.5	582.7	310	
	GR	582.7	310	582.7	315	581.5	319	581.0	335	578.8	350	
	GR	568.7	365	560.6	389	556.2	404	553.9	424	553.0	444	
	GR	552.7	556	553.3	576	554.4	596	555.3	611	560.0	637	
	GR	561.4	645	565.8	690	567.1	705	570.1	720	577.6	743	
	GR	596.3	743	595.7	800	595.3	900	595.5	1000			
	X1	.647	19		350	150	150	150				
	GR	585.5	0	561.0	0	560.4	12	559.3	22	557.5	42	
	GR	557.3	62	556.6	62	556.5	102	557.4	122	557.4	142	
	GR	555.6	162	552.4	182	554.6	232	555.2	252	556.2	292	
	GR	556.8	302	558.5	322	561.3	350	565.5	350			
	NC	.03	.04	.03								
	X1	.722	20		315	400	400	400				
	GR	585.5	0	571.0	0	568.6	12	562.4	22	559.2	82	
	GR	556.3	62	555.5	62	555.3	82	554.4	102	553.5	122	
	GR	554.4	132	554.4	182	555.3	202	555.8	232	556.3	242	
	GR	556.4	262	558.0	282	558.4	302	567.0	315	565.5	315	
	X1	.817	33	167	858	500	500	500				
	X3	10					550	545.5				
	GR	598.4	0	597.0	46	588.6	77	585.5	167	573.2	182	
	GR	572.2	179	565.9	202	559.0	217	556.3	237	553.5	267	
	GR	553.7	367	553.3	387	554.8	407	558.7	432	558.8	447	
	GR	567.1	462	569.5	477	572.5	497	572.6	517	571.8	547	
	GR	569.9	567	569.8	597	574.5	617	576.1	647	576.2	677	
	GR	576.3	707	576.4	737	576.1	797	575.4	807	579.0	827	
	GR	580.5	832	582.5	858	596.8	897					
	X1	.864	41	78.5	783.5	250	250	250	.90			
	GR	623.0	0	621.3	78.5	598.3	78.5	597.3	110	595.6	140.5	
	GR	589.4	146.5	587.5	177	587.1	208	587.8	208.5	587.7	214.5	
	GR	586.5	215	585.9	245	585.3	276.5	585.4	262.5	577.8	283	
	GR	575.1	309	565.4	336	559.7	362	559.5	388	556.0	396.5	
	GR	556.0	426.5	555.6	427	554.1	451	554.2	478	554.6	510	
	GR	553.3	525	546.5	549	556.6	575	561.0	573.5	557.8	611.5	
	GR	557.1	612	556.2	638	567.7	665	574.7	641	577.4	717	
	GR	583.4	717.5	593.6	723.5	588.8	741	597.7	758	596.4	778.5	
	GR	5[illegible]	80									

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NC	.03	.04	.032							
X1	.866	41	76.5	605.5	1					
X2										
BT	5	0.0	621.3	76.5	598.3	610.0	611.0	531.0	611.0	
BT	140.5	620.6	610.0	140.5	620.6	595.4	146.5	620.6	598.4	146.5
BT	620.6	610.0	177.0	620.3	610.0	208.0	620.1	610.0	208.5	620.1
BT	610.0	208.5	621.1	587.1	276.5	621.1	587.8	214.5	621.7	611.0
BT	215.0	620.0	610.0	245.0	610.0	610.0	276.5	610.0	610.0	276.5
BT	619.4	585.3	262.5	619.4	585.4	262.5	619.4	610.1	283.1	619.5
BT	610.0	309.0	619.9	610.0	335.0	619.9	610.0	362.0	619.9	610.0
BT	388.0	619.8	610.0	388.5	619.4	610.0	388.5	619.8	610.0	426.5
BT	619.8	583.6	426.5	619.8	610.0	427.0	619.8	610.0	451.0	619.8
BT	610.0	475.0	611.8	610.0	500.0	611.8	610.0	528.0	611.8	610.0
BT	549.0	619.8	610.0	573.5	611.8	610.0	573.5	610.0	611.8	597.5
BT	619.8	583.5	611.8	619.8	583.5	611.8	619.8	610.0	612.0	619.8
BT	610.0	638.0	619.9	610.0	717.0	619.8	610.0	717.5	619.8	610.0
BT	717.5	619.8	583.4	723.5	619.9	583.6	723.5	619.9	610.0	731.0
BT	619.9	610.0	758.0	619.9	610.0	785.5	619.8	610.0	800.0	619.3
BT	0.0									
GR	623.0	0	621.3	76.5	598.3	76.5	547.3	110	595.7	140.5
GR	588.4	146.5	587.5	177	587.1	208	587.8	208.5	587.7	214.5
GR	586.5	215	585.9	245	585.3	276.5	585.4	262.5	577.8	283
GR	575.1	309	569.4	335	558.7	362	558.5	388	556.0	384.5
GR	583.6	426.5	555.6	427	554.1	451	554.2	475	554.0	500
GR	553.3	525	546.8	549	556.8	573	557.0	573.5	557.0	611.5
GR	557.1	612	556.2	636	567.7	665	574.7	691	577.4	717
GR	583.4	717.5	583.6	723.5	584.8	731	597.7	758	609.4	785.5
GR	619.3	800								
X1	.876				58	58	56			
X2							1			
NC	.03	.04	.03							
X1	.877	41	76.5	745.5	1	1	1	.90		
GR	623.0	0	621.3	76.5	598.3	76.5	547.3	110	595.8	140.5
GR	588.4	146.5	587.5	177	587.1	208	587.8	208.5	587.7	214.5
GR	586.5	215	585.9	245	585.3	276.5	585.4	262.5	577.8	283
GR	575.1	309	569.4	335	558.7	362	558.5	388	556.0	384.5
GR	556.0	426.5	555.6	427	554.1	451	554.2	475	554.0	500
GR	553.3	525	546.8	549	556.8	573	557.0	573.5	557.0	611.5
GR	557.1	612	556.2	636	567.7	665	574.7	691	577.4	717
GR	583.4	717.5	583.6	723.5	584.8	731	597.7	758	609.4	785.5
GR	619.3	800								
X1	.913	21	250	702	199	199	199			
GR	600.0	0	590.0	100	585.5	250	576.4	252	574.2	290
GR	571.9	310	566.4	340	555.5	370	554.7	400	554.5	430
GR	553.9	460	553.4	490	555.4	520	557.4	550	553.4	580
GR	568.9	610	575.4	640	576.4	670	577.6	700	585.5	702
GR	600.0	800								
QT	4	17630	21620	23280	27240					
NH	9	.035	88	.04	88.5	.03	232.5	.04	239	.035
NH	1172	.04	1175	.05	1451	.04	1459	.05	1662	
X1	1.189	45	88	1459	1455	1455	1455			
X3	10									
GR	615.3	0	590.3	37	588.7	64	584.6	88	583.0	90.5
GR	574.0	89	569.6	99	569.2	112	568.8	129	569.7	149
GR	567.6	179	567.7	199	565.5	209	577.6	219	580.9	232
GR	583.0	232.5	584.2	233	584.3	477	584.7	569	582.3	659
GR	590.8	759	589.3	859	585.5	965	585.6	1059	585.1	1159
GR	585.2	1172	582.4	1175	575.3	1184	572.1	1189	565.3	1209
GR	563.8	1224	560.3	1259	558.7	1279	559.1	1309	559.4	1334
GR	559.1	1364	558.8	1389	561.7	1419	564.7	1429	565.2	1439
GR	566.2	1450	582.4	1451	583.9	1459	584.1	1659	583.2	1662
NC	.04	.04	.033							
X1	1.227	28	141	1725	200	200	200		1.35	
GR	620.0	0	610.0	25	600.0	50	590.0	71	584.0	126
GR	588.0	141	571.0	161	571.0	184	568.6	219	573.0	254
GR	586.0	254	568.0	334	586.5	1334	590.0	1349	570.1	1390

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	GR	568.0	1350	556.0	1362	556.0	1370	556.0	1378	556.0	1386
	GR	569.0	1352	568.0	1370	568.0	1378	568.0	1386	568.0	1394
	GR	570.0	1355	570.0	1378	570.0	1386	570.0	1394	570.0	1402
	X1	1.254	47	149	1655	1	1	1	-.035		
	GR	623.0	0	590.0	75	590.0	76	590.0	78	590.0	79
	GR	588.0	149	580.0	160	580.0	161	572.0	164	571.0	170
	GR	571.0	225	568.5	265	568.5	266	568.0	268	568.0	269
	GR	567.5	284	573.0	335	584.0	335	584.0	347	584.0	348
	GR	584.0	350	584.0	351	584.0	415	598.0	425	598.0	426
	GR	590.0	428	590.0	429	602.0	480	609.0	480	602.0	635
	GR	597.1	735	593.8	835	592.1	935	594.0	1035	596.5	1118
	GR	596.5	1320	567.5	1320	568.0	1336	568.0	1357	568.0	1343
	GR	567.0	1427	567.0	1443	568.0	1477	568.0	1484	570.0	1518
	GR	580.0	1639	596.5	1658						
	X1	1.255	55	149	1655	1	1	1	-.035		
	GR	623.0	0	590.0	75	622.3	75	622.3	79	590.0	79
	GR	588.0	149	580.0	160	617.6	160	617.6	164	571.0	170
	GR	571.0	225	568.5	265	612.2	265	612.2	264	564.0	264
	GR	567.5	284	573.0	335	584.0	335	584.0	347	608.7	347
	GR	608.7	351	584.0	351	584.0	415	598.0	425	605.4	425
	GR	605.4	429	590.0	429	602.0	490	609.0	480	602.0	635
	GR	597.1	735	593.5	835	592.1	935	594.0	1035	596.5	1118
	GR	596.5	1280	596.5	1290	596.5	1322	567.6	1322	558.9	1336
	GR	568.0	1357	568.0	1393	567.0	1427	567.0	1443	567.4	1457
	GR	607.5	1457	607.5	1484	568.0	1484	568.3	1557	594.1	1574
	GR	594.1	1578	564.4	1578	570.0	1618	580.0	1635	596.0	1655
	NC	.04	.04	.03							
	X1	1.269				75	75	75			
	X1	1.270	47	149	1658	1	1	1	-.035		
	GR	623.0	0	590.0	75	590.0	76	590.0	78	590.0	79
	GR	588.0	149	580.0	160	580.0	161	572.0	164	571.0	170
	GR	571.0	225	568.5	265	568.5	266	568.0	268	568.0	269
	GR	567.5	284	573.0	335	584.0	335	584.0	347	584.0	348
	GR	584.0	350	584.0	351	584.0	415	598.0	425	598.0	426
	GR	590.0	428	590.0	429	602.0	480	609.0	480	602.0	635
	GR	597.1	735	593.8	835	592.1	935	594.0	1035	596.5	1118
	GR	596.5	1320	567.5	1320	568.0	1336	568.0	1357	568.0	1343
	GR	567.0	1427	567.0	1443	568.0	1477	568.0	1484	570.0	1518
	GR	580.0	1639	596.5	1658						
	X1	1.279				49	49	49			
	NH	5	.06	859	.035	1062	.05	2713	.032	3368	.06
	NH	4460									
	X1	1.771	93	859	3468	2600	2600	2600			
	X3	10					3368	565.0			
	GR	606.6	0	589.6	40	584.6	66	586.4	168	545.1	234
	GR	583.9	369	583.1	418	585.0	468	588.5	568	549.2	598
	GR	584.1	668	583.8	768	584.0	859	571.6	660	569.3	869
	GR	569.3	883	568.3	903	566.4	926	569.3	948	571.2	978
	GR	573.4	998	574.2	1018	576.1	1032	579.6	1046	586.2	1051
	GR	581.7	1062	585.2	1068	583.8	1083	583.3	1168	583.3	1254
	GR	582.8	1368	584.1	1468	583.9	1568	584.2	1637	584.3	1568
	GR	584.6	1768	584.4	1868	584.5	1968	584.3	2068	584.0	2163
	GR	584.1	2268	584.0	2368	584.1	2468	583.7	2568	583.7	2668
	GR	583.4	2713	581.2	2718	576.2	2738	576.5	2758	576.8	2773
	GR	576.6	2803	576.2	2813	575.7	2888	576.6	2928	576.9	2955
	GR	577.2	2993	576.3	3018	573.2	3058	570.5	3098	570.5	3138
	GR	570.7	3158	570.0	3208	569.3	3253	570.2	3285	570.2	3318
	GR	573.2	3343	574.7	3368	571.2	3401	572.0	3428	581.1	3448
	GR	580.4	3458	585.4	3468	584.7	3505	584.5	3568	584.7	3608
	GR	584.8	3769	584.6	3868	584.4	3968	584.7	4068	584.0	4168
	GR	584.5	4261	584.3	4353	584.1	4450				
	NH	8	.005	143	.035	471	.005	4.82	.034	100	.045
	NH	1007	.032	1424	.04	1430	.07	6439			
	X1	2.112	65	181	1436	1800	1800	1800			
	X3	10									
	GR	611.3	0	584.3	60	584.9	82	585.2	131	533.7	183

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G	580.7	127	577.7	142	577.5	157	577.5	211	577.4	257
GR	574.7	287	577.0	342	577.2	417	577.5	457	577.4	517
GR	577.4	367	577.2	442	576.7	517	577.0	557	577.4	617
GR	580.6	447	581.2	542	582.1	617	582.1	657	581.4	717
GR	587.3	635	585.7	677	585.5	706	583.7	717	583.7	746
GR	584.9	836	585.0	936	584.1	1102	581.9	1007	580.1	1028
GR	576.6	1026	577.2	1136	577.3	1051	577.3	1056	577.4	1114
GR	569.4	1141	574.4	1156	574.1	1146	576.9	1236	574.5	1256
GR	568.8	1241	573.4	1316	574.1	1336	577.4	1361	577.4	1376
GR	578.4	1336	580.0	1405	579.7	1418	582.5	1428	586.1	1456
GR	585.3	1536	584.8	1556	584.1	1736	584.7	1636	584.9	1936
GR	584.9	2036	583.0	2136	585.3	2236	586.4	2336	587.3	2436
NH	5	.09	363	.032	928	.07	1171	.0	1252	.07
NH	1828									
X1	2.425	54	363	1328	1650	1650	1650			
X3	10				1329.1					
GR	605.5	0	589.8	75	587.1	40	583.7	155	583.6	265
GR	583.3	353	581.3	384	580.2	370	578.7	385	576.7	400
GR	576.2	420	574.7	440	573.8	465	574.1	490	574.2	515
GR	573.1	545	572.4	565	571.5	585	570.7	605	569.8	640
GR	569.7	665	569.7	685	569.7	715	570.4	740	570.2	795
GR	570.5	790	570.9	815	571.0	840	571.7	865	573.4	910
GR	575.5	893	580.4	911	581.6	922	583.9	923	586.2	924
GR	587.7	1000	587.2	1065	586.0	1165	582.1	1171	580.0	1176
GR	576.9	1180	576.4	1202	575.6	1221	572.4	1246	572.2	1265
GR	572.3	1290	575.3	1300	579.9	1415	581.7	1320	565.1	1332
GR	581.0	1347	580.1	1415	582.3	1527	583.5	1551	584.5	1565
GR	593.7	1632	595.1	1665	594.5	1765	594.1	1828		
NH	5	.07	220	.032	874	.08	985	.038	1152	.07
NH	1757									
X1	2.685	66	220	1172	1373	1373	1373			
X3	10									
GR	619.3	0	595.0	46	593.2	72	588.7	182	588.0	192
GR	584.0	220	581.1	234	578.6	237	577.3	242	575.5	272
GR	575.1	292	574.5	312	575.3	337	575.9	372	573.8	407
GR	574.9	442	574.0	467	572.7	502	571.2	542	571.3	572
GR	571.0	602	570.7	637	570.7	672	571.4	692	570.4	722
GR	569.3	737	570.4	766	571.6	787	573.4	809	574.4	837
GR	578.1	844	581.3	864	581.8	874	587.6	882	585.5	922
GR	586.5	968	583.1	985	580.5	997	575.3	1010	573.9	1022
GR	576.1	1036	577.3	1072	577.0	1092	575.5	1112	575.6	1129
GR	576.8	1138	580.9	1151	585.3	1152	587.5	1172	586.6	1272
GR	585.5	1372	585.4	1472	585.1	1572	585.1	1672	583.0	1719
GR	616.0	1757								
NC	.09	.04	.032							
X1	2.964	38	102	698	1475	1475	1475			
GR	629.2	0	626.4	102	617.4	102	616.8	105	593.9	149
GR	592.1	204	591.5	211	583.1	229.7	577.5	232.2	574.1	258
GR	568.3	286	567.4	315	567.9	344	569.2	373	567.6	398.7
GR	566.6	401.3	570.5	427	571.2	456	571.5	485	572.6	514
GR	572.8	542	570.8	567.7	570.9	570.3	573.7	596	574.1	620
GR	569.7	645	583.4	667	594.3	695	594.4	698	604.2	698
GR	602.4	722	599.9	800	598.0	900	597.6	1000	598.2	1100
GR	599.8	1200	602.8	1300	606.9	1400				
X1	2.977	38	102	698	74	74	74			
GR	629.2	0	626.4	102	617.4	102	616.8	105	593.9	149
GR	592.1	204	591.5	211	583.1	229.7	577.5	232.2	574.1	258
GR	568.3	286	567.4	315	567.9	344	569.2	373	567.6	398.7
GR	566.6	401.3	570.5	427	571.2	456	571.5	485	572.6	514
GR	572.8	542	570.8	567.7	570.9	570.3	573.7	596	574.1	620
GR	569.7	645	583.4	667	594.3	695	594.4	698	604.2	698
GR	602.4	722	599.9	800	598.0	900	597.6	1000	598.2	1100
GR	599.8	1200	602.8	1300	606.9	1400				
X1	2.978	44	102	698	1	1	1			
BT	42		629.2		102	626.4	619.1	105	625.3	616.8
BT	149.0	624.7	617.4	204.0	622.3	615.6	211.0	622.6	613.8	329.7

	BT	521.9	11.0									
	BT	610.9										
	BT	344.0										
	BT	615.5	608.6	611.3	604.3	611.3	604.3	611.3	604.3	611.3	604.3	
	BT	607.1	456.0	613.2	606.2	615.0	612.1	614.5	514.0	611.1	608.1	
	BT	542.0	610.0	602.8	567.7	609.0	598.1	567.7	609.0	598.1	570	
	BT	608.9	598.0	570.3	608.9	598.0	570.3	608.9	598.0	570.3	608.9	
	BT	599.8	604.2	602.1	574.9	567.0	574.1	574.1	595.0	574.2	567.0	
	BT	698.0	504.2	582.3	702.0	604.4	0.0	800.0	598.0	0.0	0.0	
	BT	598.0	0.0	1000.0	597.9	0.0	1100.0	596.2	0.0	1200.0	596.5	
	BT	0.0	1300.0	602.3	0.0	1400.0	606.9	0.0				
	GR	629.2	0	626.4	102	617.4	102	616.8	105	593.9	149	
	GR	592.1	214	591.5	211	588.1	229.7	577.5	429.7	610.4	232.2	
	GR	577.5	232.2	574.4	258	568.3	316	567.4	415	567.9	344	
	GR	569.2	373	567.5	393.7	605.7	394.7	604.3	401.3	566.5	401.3	
	GR	570.5	427	571.2	456	571.5	485	572.6	514	572.8	542	
	GR	570.8	567.7	598.1	567.7	598.0	570.3	570.9	570.3	573.7	596	
	GR	574.1	620	569.7	645	583.4	667	594.3	695	594.4	698	
	GR	604.2	698	608.4	722	599.9	800	596.9	900	594.5	1000	
	GR	598.2	1100	599.8	1200	602.8	1300	606.9	1400			
	XI	2.990				55	65	65				
	X2							1				
	XI	2.991	38	102	698	1	1	1				
	GR	629.2	0	626.4	102	617.4	102	616.8	105	593.9	149	
	GR	592.1	214	591.5	211	588.1	229.7	577.5	232.2	574.4	258	
	GR	568.3	246	567.4	315	567.3	344	567.4	373	567.4	393.7	
	GR	566.6	401.3	570.5	427	571.2	456	571.5	485	572.6	514	
	GR	572.8	542	570.8	567.7	570.9	570.3	573.7	596	574.1	620	
	GR	569.7	645	583.4	667	594.3	695	594.4	698	604.2	698	
	GR	602.4	722	599.9	800	599.0	900	597.6	1000	598.2	1100	
	GR	599.8	1200	602.8	1300	606.9	1400					
	NC	.05	.035	.035								
	XI	3.043	35	150	602	275	275	275				
	X3	10										
	GR	606.4	0	593.4	18	592.9	133	582.0	150	579.7	161	
	GR	578.4	167	572.2	177	570.8	197	569.9	222	569.7	242	
	GR	569.7	267	568.4	302	568.3	327	568.8	352	570.2	377	
	GR	572.0	412	572.2	452	573.1	472	574.0	507	573.7	527	
	GR	573.5	548	574.2	567	577.0	584	581.7	590	584.5	593	
	GR	586.7	602	584.1	702	581.3	802	583.7	902	583.5	1002	
	GR	583.1	1102	582.9	1202	582.1	1302	586.2	1402	587.9	1448	
	NC	.07	.035	.035								
	XI	3.431	46	436	970	2050	2050	2050				
	X3	10										
	GR	608.8	0	595.3	17	594.7	32	586.7	51	583.6	101	
	GR	583.5	163	583.6	167	582.8	267	581.7	367	582.9	436	
	GR	581.1	445	580.3	453	577.5	467	575.5	482	574.9	502	
	GR	575.4	532	574.6	567	573.9	607	576.9	626	573.4	657	
	GR	572.7	686	572.1	717	572.2	744	572.2	762	571.4	822	
	GR	571.6	857	571.3	880	570.0	904	582.3	941	586.3	966	
	GR	586.2	965	586.4	970	584.2	986	582.4	1167	581.8	1167	
	GR	582.6	1267	583.1	1367	582.5	1467	582.2	1567	581.6	1667	
	GR	581.7	1767	582.4	1867	582.7	1967	582.9	2067	583.5	2167	
	GR	586.0	2267									
	QT	4	17490	21510	23190	27130						
	NH	5	.005	1360	.035	1704	.009	2103	.034	2351	.014	
	NH	2440										
	XI	3.910	53	1340	2367	2530	2530	2530				
	X3	10			1172							
	GR	595.9	0	595.0	72	587.1	172	585.5	272	584.7	372	
	GR	584.4	472	584.0	572	583.6	672	584.0	772	584.3	872	
	GR	584.5	972	584.7	1072	585.1	1172	584.6	1272	583.7	1372	
	GR	582.9	1340	581.3	1346	574.2	1381	571.7	1382	572.7	1391	
	GR	573.1	1442	573.2	1477	573.3	1532	574.7	1582	576.1	1637	
	GR	575.9	1642	575.9	1670	582.3	1702	584.4	1704	584.1	1772	
	GR	583.5	1972	585.3	1972	585.7	2072	584.4	2040	584.2	2102	

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GR 587.5    2102   587.2    2119   587.7    2133   590.6    2138   591.2    2054
GR 590.9    2161   582.1    2163   577.7    2190   576.1    2217   574.9    2244
GR 574.7    2277   574.7    2315   577.5    2340   582.1    2351   586.2    2359
GR 591.8    2367   594.6    2397   601.2    2440
NC   .07     .07    .032
X1 4.261      35      15     457    1850    1850    1850
X3    10
GR 599.9       0   582.9      15   581.4      28   577.7      38   574.1      48
GR 572.3      68   571.5      88   570.9     108   571.3     128   571.4     168
GR 572.0     168   572.6     168   573.0     208   573.5     228   574.4     248
GR 575.0     268   575.5     288   575.5     308   575.8     328   575.8     348
GR 576.0     368   576.0     368   575.5     408   575.3     428   579.0     438
GR 581.3     448   582.1     457   584.7     461   583.5     568   582.4     658
GR 584.9     768   583.0     868   583.6     838   583.0    1096   602.7    1148
EU
T1      ST. JOSEPH RIVER  5555-63  BERRIEN CO.
T2      50 YEAR FLOOD
T3      ST. JOSEPH RIVER
J1   -10       3                                                  580.95
J2     2              -1
T1      ST. JOSEPH RIVER  5555-63  BERRIEN CO.
T2      100 YEAR FLOOD
T3      ST. JOSEPH RIVER SECT. 43-29
J1   -10       4                                                  580.96
J2     3              -1
T1      ST. JOSEPH RIVER  5555-63  BERRIEN CO.
T2      500 YEAR FLOOD
T3      ST. JOSEPH RIVER
J1   -10       5                                                  580.96
J2    15              -1

ER
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*****************************************
HEC2 VERSION UPDATED JAN 1975
ERROR CORRECTIONS 01,02,03,04,05,06,07,08
MODIFICATIONS 52,53,54,55,56,57,58
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T1      ST. JOSEPH RIVER  5555-63  BERRIEN CO.
T2      100 YEAR FLOOD
T3      ST. JOSEPH RIVER SECT. 43-2[illegible]

J1  ICHECK    INQ      WINV     IDIR     STRT     METRIC    HVINS     Q        WSEL     FR
     -10.      4.       -0.      -0.  -0.000000   -0.00     -0.0      -0.    510.[illegible]   -0.000

J2  NPROF     IPLOT    PREVS    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

CCHV=    .200 CE-V=    .400
   SECNO    DEPTH    CWSEL    CHIUS    USELK    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

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

                VALLEY SECTION #43

      .40    30.56   580.96     0.00   580.96   581.16      .20     0.00     0.00   585.50
   24030.       0.   24030.       0.       0.    6713.       0.       0.       0.   585.50
     0.00     0.00     3.58     0.00     .060     .030     .060    0.000   550.40   865.24
  .000079      -0.      -0.      -0.        0        0        1     0.00   254.57  1139.81

                VALLEY SECTION FROM USCE MARCH 1975 DREDGING RECORDS

      .46    28.58   580.98     0.00     0.00   581.19      .20      .02      .00   585.50
   24030.       0.   24030.       0.       0.    5629.       0.      46.       2.   585.50
      .02     0.00     3.62     0.00     .060     .030     .060     .030   552.40     0.00
  .000083     300.     300.     300.        0        0        1     0.00   255.00   255.00

                VALLEY SECTION FROM USCE MARCH 1975 DREDGING RECORDS

      .57    27.72   581.12     0.00     0.00   581.24      .13      .04      .02   585.50
   24030.       0.   24030.       0.       0.    8417.       0.     150.       6.   585.50
      .08     0.00     2.86     0.00     .040     .030     .060     .030   553.40     0.00
  .000059     600.     600.     600.        2        0        1     0.00   390.00   390.00

      .62    28.44   581.14     0.00     0.00   581.26      .12      .01      .00   585.50
   24030.       0.   24030.       0.       0.    8758.       0.     199.       4.   596.30
      .11     0.00     2.74     0.00     .040     .030     .060     .030   552.70   330.71
  .000054     250.     250.     250.        0        0        1     0.00   412.29   743.[illegible]
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3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=50 MIN ELTRD= 595.60 MAX ELLC= 593.40

BRIDGE SECTION #42 C&O RAILROAD SWING BRIDGE

.62	28.40	581.10	0.00	0.00	581.29	.19	.00	.03	596.10
24030.	0.	24030.	0.	0.	6816.	0.	199.	9.	596.30
.11	0.00	3.53	0.00	.040	.035	.060	.030	552.70	331.92
.000213	1.	1.	1.	2	0	1	0.00	340.11	743.00

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	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	IDRNID	FNDST

NORMAL BRIDGE,NRD=50 MIN ELTRD= 595.60 MAX ELLC= 593.40

.62	28.40	581.10	0.00	0.00	581.29	.19	.00	.00	596.10
24030.	0.	24030.	0.	0.	6816.	0.	201.	9.	596.30
.11	0.00	3.53	0.00	.040	.035	.060	.030	552.70	331.87
.000213	12.	12.	12.	0	0	1	0.00	340.16	743.00

.62	28.49	581.19	0.00	0.00	581.31	.12	.00	.02	596.10
24030.	0.	24030.	0.	0.	8782.	0.	201.	9.	596.30
.11	0.00	2.74	0.00	.040	.030	.060	.030	552.70	328.84
.000054	1.	1.	1.	2	0	1	0.00	414.11	743.00

VALLEY SECTION FROM USCE MARCH 1975 DREDGING RECORDS

.65	28.80	581.20	0.00	0.00	581.32	.12	.01	.00	585.50
24030.	0.	24030.	0.	0.	8633.	0.	231.	10.	585.50
.12	0.00	2.78	0.00	.040	.030	.060	.030	552.40	0.00
.000051	150.	150.	150.	1	0	1	0.00	350.00	350.00

VALLEY SECTION FROM USCE MARCH 1975 DREDGING RECORDS

.72	27.60	581.20	0.00	0.00	581.35	.15	.02	.01	585.50
24030.	0.	24030.	0.	0.	7645.	0.	306.	13.	585.50
.16	0.00	3.14	0.00	.030	.030	.040	.030	553.60	0.00
.000065	400.	400.	400.	2	0	1	0.00	315.00	315.00

3470 ENCROACHMENT STATIONS= .0 550.0 TYPE= 1 TARGET= 549.994

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

VALLEY SECTION #41

.82	27.94	581.24	0.00	0.00	581.39	.15	.00	.00	621.30	
24030.	0.	24030.	0.	0.	7432.	0.	449.	20.	609.40	
.25	0.00	3.05	0.00	.030	.032	.040	.030	548.40	254.20	
.000098	500.	500.	500.	0	0	1	0.00	322.53	645.59	
.86	34.47	581.27	0.00	0.00	581.41	.13	.00	.00	621.30	
24030.	0.	24030.	0.	0.	8173.	0.	449.	20.	609.40	
.23	0.00	2.97	0.00	.030	.032	.040	.030	546.40	254.20	
.000067	250.	250.	250.	1	0	1	0.00	341.04	645.59	

3265 DIVIDED FLOW

NORMAL BRIDGE.NRD=50 MIN ELTRD= 619.30 MAX ELLC= 610.00

BRIDGE SECTION R40 BLOSSOM ROAD BRIDGE 05-33

.87	34.42	581.22	0.00	0.00	581.44	.22	.00	.03	621.30
24030.	0.	24030.	0.	0.	6381.	0.	441.	19.	609.40
.23	0.00	3.77	0.00	.030	.032	.040	.030	548.40	254.20
.000183	1.	1.	1.	2	0	1	0.00	322.53	645.59

3265 DIVIDED FLOW

SECNO	DEPTH	CHSEL	CRWS	SELK	EG	HV	HL	QLOSS	RAW ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TEL	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	ATN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

NORMAL BRIDGE.NRD=50 MIN ELTRD= 619.30 MAX ELLC= 610.00

.88	34.43	581.23	0.00	0.00	581.45	.22	.01	.00	621.30
24030.	0.	24030.	0.	0.	6384.	0.	449.	20.	609.40
.23	0.00	3.76	0.00	.030	.032	.040	.030	548.40	254.20
.000183	58.	58.	58.	0	0	1	0.00	322.53	645.59
.88	34.53	581.33	0.00	0.00	581.47	.14	.00	.02	621.30
24030.	0.	24030.	0.	0.	8105.	0.	449.	20.	609.40
.23	0.00	2.96	0.00	.030	.030	.040	.030	546.80	254.45
.000067	1.	1.	1.	2	0	1	0.00	341.10	645.59

VALLEY SECTION FROM USCE MARCH 1975 DREDGING RECORDS

.91	27.94	581.34	0.00	0.00	581.49	.15	.02	.04	621.30
24030.	0.	24030.	0.	0.	7832.	0.	468.	22.	609.40
.25	0.00	3.07	0.00	.030	.030	.040	.030	553.40	254.20
.000098	199.	199.	199.	1	0	1	0.00	450.13	709.45

1490 NH CARD USED

3265 DIVIDED FLOW

FORM 1447A PRINTED BY THE STANDARD REGISTER COMPANY U.S.A.

V BRANK AREA ASSUMED NON-EFFECTIVE ELLEAR [illegible]

VALLEY SECTION 434

1.19	22.76	581.46	0.00	0.00	581.63	.17	.13	.01	584.80
23280.	0.	23280.	0.	0.	6955.	0.	733.	35.	[illegible]
.37	0.00	3.35	0.00	.030	.030	.040	.030	[illegible]	[illegible]
.000096	1455.	1455.	1455.	1	0	1	0.00	[illegible]	[illegible]

3265 DIVIDED FLOW

VALLEY SECTION OF MAIN ST. BRIDGE FROM MDSHWT PLANS , TO BE REMOVED

1.23	21.97	581.52	0.00	0.00	581.66	.14	.02	.01	587.65
23280.	0.	23280.	0.	0.	7684.	0.	766.	34.	[illegible]
.39	0.00	3.03	0.00	.040	.033	.040	.030	559.65	[illegible]
.000122	200.	200.	200.	2	0	1	0.00	[illegible]	[illegible]

3265 DIVIDED FLOW

1.25	14.85	581.50	0.00	0.00	581.72	.22	.03	.03	[illegible]
23280.	0.	23280.	0.	0.	6214.	0.	790.	40.	596.15
.40	0.00	3.75	0.00	.040	.033	.040	.030	566.65	157.46
.000261	149.	149.	149.	2	0	1	0.00	498.67	1641.13

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

BRIDGE SECTION OF PROPOSED I-94 HL BRIDGE FROM MDSHWT PLANS

1.26	14.82	581.47	0.00	0.00	581.74	.27	.00	.02	587.65
23280.	0.	23280.	0.	0.	5620.	0.	790.	40.	585.65
.40	0.00	4.14	0.00	.040	.033	.040	.030	566.65	157.50
.000405	1.	1.	1.	2	0	1	0.00	456.66	1644.76

3265 DIVIDED FLOW

1.27	14.85	581.50	0.00	0.00	581.76	.27	.03	.00	587.65
23280.	0.	23280.	0.	0.	5631.	0.	800.	41.	585.65
.40	0.00	4.13	0.00	.040	.030	.040	.030	566.65	157.46
.000333	75.	75.	75.	0	0	1	0.00	456.77	[illegible]

3265 DIVIDED FLOW

1.27	14.91	581.56	0.00	0.00	581.77	.22	.00	.01	587.65
23280.	0.	23280.	0.	0.	6244.	0.	800.	41.	596.15
.40	0.00	3.73	0.00	.040	.030	.040	.030	566.65	157.38
.000212	1.	1.	1.	2	0	1	0.00	[illegible]	[illegible]

FORM 1471 PRINTED BY THE STANDARD REGISTER COMPANY U.S.A.

3265 DIVIDED FLOW

	1.28	14.92	581.57	0.00	0.00	581.79	.22	.01	.00	587.65
	23260.	0.	23260.	0.	0.	4851.	0.	807.	41.	5700.15
	.41	0.00	3.72	0.00	.040	.030	.040	.030	556.69	1567.45
	.000212	44.	44.	44.	0	0	1	0.00	474.83	1501.21

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= .0 3368.0 TYPE= 1 TARGET= 3367.999

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.00 ELREA= 585.4

VALLEY SECTION #38

	1.77	13.92	582.22	0.00	0.00	582.36	.15	.57	.01	584.00
	23280.	0.	23280.	0.	0.	7517.	0.	1218.	42.	5455.44
	.64	0.00	3.10	0.00	.040	.038	.040	.030	564.39	1567.14
	.000224	2500.	2500.	2600.	2	2	1	0.00	484.05	3500.00

1490 NH CARD USED

3265 DIVIDED FLOW

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.20 ELREA= 586.10

VALLEY SECTION # 3537

	2.11	14.52	582.62	0.00	0.00	582.42	.20	.44	.02	585.20
	23280.	0.	23280.	0.	0.	6440.	0.	1506.	114.	586.00
	.78	0.00	3.62	0.00	.040	.033	.040	.030	568.10	1544.45
	.000266	1900.	1800.	1600.	1	0	1	0.00	719.02	1429.73

1490 NH CARD USED

3265 DIVIDED FLOW

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

3470 ENCROACHMENT STATIONS= .0 1328.1 TYPE= 1 TARGET= 1328.099

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.30 ELREA= 583.10

VALLEY SECTION #35

	2.43	13.47	583.07	0.00	0.00	583.24	.17	.41	.01	585.40
	23280.	0.	23280.	0.	0.	6952.	0.	1760.	141.	583.10
	.92	0.00	3.35	0.00	.040	.033	.040	.030	564.60	1553.14

.000234	1650.	1[illegible]0.	16[illegible]0.	[illegible]	[illegible]	1	0.00	[illegible]	[illegible]

1490 NH CARD USED

3265 DIVIDED FLOW

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLE= [illegible] ELRE= [illegible]

VALLEY SECTION #34

2.69	14.10	583.40	0.00	0.00	583.55	.15	.35	.01	584.00
23280.	0.	23280.	0.	0.	7567.	0.	19[illegible]	155.	587.5[illegible]
1.04	0.00	3.08	0.00	.040	.033	.040	.030	569.30	222.84
.000209	1373.	1373.	1373.	0	0	1	0.00	421.51	1151.57

2.96	17.09	583.69	0.00	0.00	583.97	.28	.37	.05	626.40
23280.	0.	23280.	0.	0.	5445.	0.	2204.	187.	604.20
1.14	0.00	4.28	0.00	.090	.032	.040	.030	566.60	228.39
.000304	1475.	1475.	1475.	2	0	1	0.00	439.36	667.75

2.98	17.11	583.71	0.00	0.00	584.00	.28	.02	.00	626.40
23280.	0.	23280.	0.	0.	5454.	0.	2215.	187.	604.20
1.14	0.00	4.27	0.00	.090	.032	.040	.030	566.60	228.34
.000303	74.	74.	74.	0	0	1	0.00	439.45	667.80

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=42 MIN ELTRD= 597.60 MAX ELLC= 619.10

BRIDGE SECTION # 33 NAPIER ST. BRIDGE

2.98	17.11	583.71	0.00	0.00	584.00	.29	.00	.00	626.40
23280.	0.	23280.	0.	0.	5369.	0.	2219.	187.	604.20
1.14	0.00	4.34	0.00	.090	.032	.040	.030	566.60	228.34
.000371	1.	1.	1.	0	0	1	0.00	431.75	667.50

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD=42 MIN ELTRD= 597.60 MAX ELLC= 619.10

2.99	17.13	583.73	0.00	0.00	584.03	.29	.02	.00	626.40
23280.	0.	23280.	0.	0.	5378.	0.	2227.	169.	604.20
1.15	0.00	4.33	0.00	.090	.032	.040	.030	566.60	228.29
.000370	65.	65.	65.	0	0	1	0.00	431.66	667.85

SECNO	DEPTH	CUSELF	CRIWS	WSELK	FG	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	TORMID	ENDST

2.99	17.15	583.75	0.00	0.00	584.03	.28	.00	.00	626.40
23280.	0.	23280.	0.	0.	5466.	0.	2227.	19[illegible].	604.20

1.15	0.00	4.26	.00	.090	.032	.040	.030	566.6[illegible]	[illegible]
.000301	1.	1.	1.	1	0	1	0.00	489.59	657.7[illegible]

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 582.00 ELREA= 586.70

VALLEY SECTION # 32

3.04	15.53	583.83	0.00	0.00	584.18	.30	.10	.01	582.00
23280.	1.	23279.	0.	3.	5276.	0.	2261.	191.	586.70
1.16	.50	4.41	0.00	.050	.035	.035	.030	56[illegible].3[illegible]	147.14
.000403	275.	275.	275.	0	0	1	0.00	445.14	[illegible]

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 582.90 ELREA= 586.40

VALLEY SECTION # 31

3.43	14.72	584.72	0.00	0.00	584.99	.26	.35	.01	582.90
23280.	461.	22819.	0.	655.	5475.	0.	2529.	222.	586.40
1.30	.70	4.17	0.00	.070	.035	.035	.031	570.00	82.86
.000428	2050.	2050.	2050.	2	0	1	0.00	879.10	961.96

1490 MH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1172.0 2440.0 TYPE= 1 TARGET= -1172.000

OVERBANK AREA ASSUMED NON-EFFECTIVE.ELLEA= 582.90 ELREA= 591.80

VALLEY SECTION # 30

3.91	14.10	585.80	0.00	0.00	586.00	.21	1.00	.01	582.90
23190.	226.	22964.	0.	234.	6291.	0.	2896.	279.	591.80
1.50	.96	3.65	0.00	.041	.036	.035	.031	571.70	1172.00
.000368	2530.	2530.	2530.	2	0	1	0.00	1096.21	2357.17

VALLEY SECTION # 29

4.26	15.49	586.39	0.00	0.00	586.54	.25	.32	.12	582.90
23190.	2.	21688.	1500.	6.	5191.	1922.	3186.	326.	582.10
1.63	.42	4.16	.78	.070	.032	.070	.032	570.90	11.73
.000305	1850.	1850.	1850.	2	0	1	0.00	1094.87	1106.50

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: St. Joseph, C. ty

3) WATERCOURSE: St. Joseph R.

4) DOCUMENT TYPE: Summary

00BREAK00

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

ST. JOSEPH RIVER /

SECTION NUMBER	CHANNEL LENGTH	FT IN FLOODWAY	FT OF FLOOD ZONE	MAX ELEV OF WSEL	MIN ELEV OF GROUND	DISCHARGE (CFS)	CSL	CWT	FR	TOP WIDTH	VEL	TYPE	VHD
	.40	0.00	0.00	0.00	550.40	18820.00	580.96	0.00	581.05	254.57	.48	0.00	0.00
	.40	0.00	0.00	0.00	550.40	22480.00	580.96	0.00	581.13	254.57	.56	0.00	0.00
	.40	0.00	0.00	0.00	550.40	24030.00	580.96	0.00	581.16	254.57	.79	0.00	0.00
	.40	0.00	0.00	0.00	550.40	27900.00	580.96	0.00	581.24	254.57	1.06	0.00	0.00
	.46	300.00	0.00	0.00	552.40	18820.00	580.97	0.00	581.10	255.00	.51	.03	45.94
	.46	300.00	0.00	0.00	552.40	22480.00	580.98	0.00	581.16	255.00	.73	.02	45.94
	.46	300.00	0.00	0.00	552.40	24030.00	580.98	0.00	581.19	255.00	.83	.02	45.94
	.46	300.00	0.00	0.00	552.40	27900.00	580.99	0.00	581.26	255.00	1.12	.02	45.95
	.57	600.00	0.00	0.00	553.40	18820.00	581.06	0.00	581.13	390.00	.37	.10	149.38
	.57	600.00	0.00	0.00	553.40	22480.00	581.10	0.00	581.21	380.00	.52	.09	149.51
	.57	600.00	0.00	0.00	553.40	24030.00	581.12	0.00	581.25	380.00	.59	.08	149.57
	.57	600.00	0.00	0.00	553.40	27900.00	581.17	0.00	581.34	390.00	.79	.07	149.73
	.62	250.00	0.00	0.00	552.70	18820.00	581.07	0.00	581.14	411.13	.33	.14	196.52
	.62	250.00	0.00	0.00	552.70	22480.00	581.12	0.00	581.22	411.59	.47	.11	198.74
	.62	250.00	0.00	0.00	552.70	24030.00	581.14	0.00	581.26	412.29	.54	.11	195.85
	.62	250.00	0.00	0.00	552.70	27900.00	581.21	0.00	581.36	414.41	.75	.09	199.16
	.62	1.00	595.60	593.40	552.70	18820.00	581.04	0.00	581.15	338.40	1.31	.14	198.69
	.62	1.00	595.60	593.40	552.70	22480.00	581.08	0.00	581.23	338.55	1.86	.11	198.92
	.62	1.00	595.60	593.40	552.70	24030.00	581.10	0.00	581.29	340.11	2.13	.11	199.03
	.62	1.00	595.60	593.40	552.70	27900.00	581.14	0.00	581.40	341.06	2.86	.09	199.34
	.62	12.00	595.60	593.40	552.70	18820.00	581.04	0.00	581.15	338.43	1.31	.14	200.57
	.62	12.00	595.60	593.40	552.70	22480.00	581.08	0.00	581.23	338.60	1.86	.12	200.80
	.62	12.00	595.60	593.40	552.70	24030.00	581.10	0.00	581.29	340.16	2.13	.11	200.91
	.62	12.00	595.60	593.40	552.70	27900.00	581.15	0.00	581.41	341.73	2.86	.09	201.22
	.62	1.00	0.00	0.00	552.70	18820.00	581.10	0.00	581.17	411.64	.33	.14	200.75
	.62	1.00	0.00	0.00	552.70	22480.00	581.16	0.00	581.25	413.19	.47	.12	200.98
	.62	1.00	0.00	0.00	552.70	24030.00	581.19	0.00	581.31	414.11	.54	.11	201.09
	.62	1.00	0.00	0.00	552.70	27900.00	581.27	0.00	581.43	41[illegible].71	.72	.09	201.40
	.65	150.00	0.00	0.00	552.40	18820.00	581.10	0.00	581.18	351.00	.32	.16	230.61
	.65	150.00	0.00	0.00	552.40	22480.00	581.17	0.00	581.27	350.00	.45	.13	230.92
	.65	150.00	0.00	0.00	552.40	24030.00	581.20	0.00	581.32	350.00	.51	.12	231.07
	.65	150.00	0.00	0.00	552.40	27900.00	581.28	0.00	581.44	350.00	.68	.11	231.50
	.72	400.00	0.00	0.00	553.60	18820.00	581.11	0.00	581.20	315.00	.40	.20	305.09
	.72	400.00	0.00	0.00	553.60	22480.00	581.17	0.00	581.30	315.00	.57	.17	305.57
	.72	400.00	0.00	0.00	553.60	24030.00	581.20	0.00	581.35	315.00	.65	.16	305.81
	.72	400.00	0.00	0.00	553.60	27900.00	581.28	0.00	581.49	315.00	.86	.14	306.50
	.82	500.00	0.00	0.00	553.30	18820.00	581.11	0.00	581.22	382.64	.46	.25	393.72
	.82	500.00	0.00	0.00	553.30	22480.00	581.21	0.00	581.34	382.65	.64	.22	394.45
	.82	500.00	0.00	0.00	553.30	24030.00	581.24	0.00	581.39	382.65	.73	.20	394.82
	.82	500.00	0.00	0.00	553.30	27900.00	581.34	0.00	581.54	382.76	.97	.18	395.89

FORM 1427, PRINTED BY THE STANDARD REGISTER COMPANY U.S.A.

SECTION NUMBER	CHANNEL LENGTH	ELEV OF ROADWAY	ELEV OF LOW CHORD	ELEV OF GROUND	DISCHARGE (CFS)	WSEL	CRIT WSEL	FR #	TOP WIDTH	VEL	TIME	VOL
.86	220.00	0.00	0.00	546.80	18820.00	581.14	0.00	581.24	391.05	.42	.24	439.23
.86	250.00	0.00	0.00	546.80	22480.00	581.28	0.00	581.38	391.05	.52	.24	440.11
.86	250.00	0.00	0.00	546.80	24030.00	581.37	0.00	581.41	391.05	.57	.23	440.52
.86	250.00	0.00	0.00	546.80	27900.00	581.58	0.00	581.62	391.05	.70	.20	441.08
.87	1.00	619.30	610.00	546.80	18820.00	581.13	0.00	581.26	322.51	1.14	.29	439.39
.87	1.00	619.30	610.00	546.80	22480.00	581.19	0.00	581.32	322.52	1.61	.24	440.28
.87	1.00	619.30	610.00	546.80	24030.00	581.22	0.00	581.44	322.53	1.83	.23	440.73
.87	1.00	619.30	610.00	546.80	27900.00	581.31	0.00	581.51	322.55	2.43	.20	442.04
.88	58.00	619.30	610.00	546.80	18820.00	581.13	0.00	581.26	322.51	1.14	.29	447.65
.88	58.00	619.30	610.00	546.80	22480.00	581.20	0.00	581.34	322.52	1.61	.24	448.76
.88	58.00	619.30	610.00	546.80	24030.00	581.23	0.00	581.45	322.53	1.83	.23	449.23
.88	58.00	619.30	610.00	546.80	27900.00	581.33	0.00	581.52	322.55	2.43	.20	450.55
.88	1.00	0.00	0.00	546.80	18820.00	581.19	0.00	581.27	391.09	.42	.24	444.01
.88	1.00	0.00	0.00	546.80	22480.00	581.29	0.00	581.41	391.10	.59	.25	449.93
.88	1.00	0.00	0.00	546.80	24030.00	581.33	0.00	581.47	391.10	.67	.23	449.40
.88	1.00	0.00	0.00	546.80	27900.00	581.46	0.00	581.64	391.10	.89	.20	450.75
.91	199.00	0.00	0.00	553.40	18820.00	581.19	0.00	581.27	450.00	.55	.32	484.14
.91	199.00	0.00	0.00	553.40	22480.00	581.29	0.00	581.42	450.11	.78	.27	485.24
.91	199.00	0.00	0.00	553.40	24030.00	581.34	0.00	581.49	450.13	.88	.25	485.80
.91	199.00	0.00	0.00	553.40	27900.00	581.47	0.00	581.67	450.18	1.16	.22	487.40
1.19	1455.00	0.00	0.00	558.70	17630.00	581.27	0.00	581.37	418.12	.57	.47	725.64
1.19	1455.00	0.00	0.00	558.70	21620.00	581.40	0.00	581.53	418.32	.84	.40	731.40
1.19	1455.00	0.00	0.00	558.70	23280.00	581.48	0.00	581.63	418.41	.96	.37	732.75
1.19	1455.00	0.00	0.00	558.70	27240.00	581.63	0.00	581.85	418.66	1.28	.32	736.42
1.23	200.00	0.00	0.00	559.65	17630.00	581.30	0.00	581.39	480.39	.73	.50	761.87
1.23	200.00	0.00	0.00	559.65	21620.00	581.45	0.00	581.57	481.00	1.05	.42	764.87
1.23	200.00	0.00	0.00	559.65	23280.00	581.52	0.00	581.66	481.35	1.22	.39	766.30
1.23	200.00	0.00	0.00	559.65	27240.00	581.71	0.00	581.90	482.17	1.61	.34	770.39
1.25	149.00	0.00	0.00	566.65	17630.00	581.29	0.00	581.42	494.16	1.57	.51	785.29
1.25	149.00	0.00	0.00	566.65	21620.00	581.43	0.00	581.62	495.30	2.29	.43	788.53
1.25	149.00	0.00	0.00	566.65	23280.00	581.50	0.00	581.73	495.87	2.61	.40	790.13
1.25	149.00	0.00	0.00	566.65	27240.00	581.68	0.00	581.97	496.13	3.41	.35	794.47
1.26	1.00	0.00	0.00	566.65	17630.00	581.29	0.00	581.43	455.75	2.43	.51	785.42
1.26	1.00	0.00	0.00	566.65	21620.00	581.41	0.00	581.64	456.37	3.54	.43	788.67
1.26	1.00	0.00	0.00	566.65	23280.00	581.47	0.00	581.74	456.66	4.05	.40	790.27
1.26	1.00	0.00	0.00	566.65	27240.00	581.64	0.00	582.00	457.47	5.32	.35	794.61
1.27	75.00	0.00	0.00	566.65	17630.00	581.29	0.00	581.43	455.82	2.00	.52	794.26
1.27	75.00	0.00	0.00	566.65	21620.00	581.43	0.00	581.66	456.47	2.91	.43	798.30
1.27	75.00	0.00	0.00	566.65	23280.00	581.50	0.00	581.76	456.77	3.33	.40	799.95
1.27	75.00	0.00	0.00	566.65	27240.00	581.68	0.00	582.03	457.62	4.36	.35	804.43

FORM 1471 PRINTED BY THE STANDARD REGISTER COMPANY U S A

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN GROUND	DISCHARGE (CFS)	CWSEL	CRIWS	EGL	TOPWID	VLOCITY	TIME	VOL
1.27	1.00	0.00	0.00	564.65	17630.00	581.33	0.00	581.46	496.24	1.29	.52	795.08
1.27	1.00	0.00	0.00	564.65	21620.00	581.49	0.00	581.67	446.53	1.87	.43	798.44
1.27	1.00	0.00	0.00	564.65	23280.00	581.56	0.00	581.77	444.62	2.12	.40	800.09
1.27	1.00	0.00	0.00	564.65	27240.00	581.76	0.00	582.03	443.34	2.76	.35	804.37
1.28	49.00	0.00	0.00	566.65	17630.00	581.33	1.00	581.46	494.20	1.29	.52	80 .96
1.28	49.00	0.00	0.00	566.65	21620.00	581.49	0.00	581.68	494.66	1.85	.44	805.42
1.28	49.00	0.00	0.00	566.65	23280.00	581.57	0.00	581.78	494.45	2.12	.41	807.12
1.28	49.00	0.00	0.00	566.65	27240.00	581.76	0.00	582.05	494.32	2.75	.35	811.71
1.77	2600.00	0.00	0.00	568.30	17630.00	581.79	0.00	581.83	454.10	1.53	.82	1197.15
1.77	2600.00	0.00	0.00	568.30	21620.00	582.07	0.00	582.20	455.84	2.04	.68	1211.38
1.77	2600.00	0.00	0.00	568.30	23280.00	582.22	0.00	582.35	456.05	2.24	.64	1218.02
1.77	2600.00	0.00	0.00	568.30	27240.00	582.60	0.00	582.79	456.62	2.69	.55	1235.60
2.11	1800.00	0.00	0.00	568.10	17630.00	582.02	0.00	582.15	706.22	1.85	.99	1468.38
2.11	1800.00	0.00	0.00	568.10	21620.00	582.48	0.00	582.62	707.57	2.44	.83	1494.35
2.11	1800.00	0.00	0.00	568.10	23280.00	582.62	0.00	582.82	709.02	2.66	.78	1506.38
2.11	1800.00	0.00	0.00	568.10	27240.00	583.69	0.00	583.34	712.10	3.14	.69	1557.81
2.43	1650.00	0.00	0.00	569.60	17630.00	583.13	0.00	583.15	715.08	1.71	1.15	1703.91
2.43	1650.00	0.00	0.00	569.60	21620.00	583.55	0.00	583.58	717.10	2.17	.97	1742.43
2.43	1650.00	0.00	0.00	569.60	23280.00	583.07	0.00	583.24	717.97	2.34	.92	1760.01
2.43	1650.00	0.00	0.00	569.60	27240.00	583.61	0.00	583.83	829.38	2.71	.81	1805.56
2.69	1373.00	0.00	0.00	569.30	17630.00	582.57	0.00	582.68	512.13	1.60	1.30	1913.80
2.69	1373.00	0.00	0.00	569.30	21620.00	583.16	0.00	583.24	514.65	1.95	1.10	1965.51
2.69	1373.00	0.00	0.00	569.30	23280.00	583.40	0.00	583.55	821.51	2.09	1.04	1988.83
2.69	1373.00	0.00	0.00	569.30	27240.00	584.00	0.00	584.16	828.37	2.36	.92	2048.55
2.96	1475.00	0.00	0.00	566.60	17630.00	582.80	0.00	582.99	439.22	2.21	1.42	2115.78
2.96	1475.00	0.00	0.00	566.60	21620.00	583.43	0.00	583.68	439.10	2.61	1.20	2150.40
2.96	1475.00	0.00	0.00	566.60	23280.00	583.69	0.00	583.97	439.36	3.04	1.14	2209.13
2.96	1475.00	0.00	0.00	566.60	27240.00	584.32	0.00	584.67	442.38	3.66	1.01	2281.40
2.98	74.00	0.00	0.00	566.60	17630.00	582.81	0.00	583.00	436.25	2.20	1.43	2124.38
2.98	74.00	0.00	0.00	566.60	21620.00	583.45	0.00	583.70	438.18	2.79	1.21	2189.46
2.98	74.00	0.00	0.00	566.60	23280.00	583.71	0.00	584.00	438.45	3.03	1.14	2218.39
2.98	74.00	0.00	0.00	566.60	27240.00	584.36	0.00	584.70	442.49	3.54	1.01	2291.63
2.98	1.00	597.60	619.10	566.60	17630.00	582.81	0.00	583.01	428.66	2.67	1.43	2124.50
2.98	1.00	597.60	619.10	566.60	21620.00	583.44	0.00	583.71	430.48	3.42	1.21	2189.58
2.98	1.00	597.60	619.10	566.60	23280.00	583.71	0.00	584.00	431.75	3.71	1.14	2218.52
2.98	1.00	597.60	619.10	566.60	27240.00	584.34	0.00	584.70	434.79	4.39	1.01	2291.76
2.99	65.00	597.60	619.10	566.60	17630.00	582.73	0.00	583.02	428.69	2.66	1.43	2131.94
2.99	65.00	597.60	619.10	566.60	21620.00	583.47	0.00	583.73	430.58	3.40	1.21	2197.43
2.99	65.00	597.60	619.10	566.60	23280.00	583.73	0.00	584.03	431.86	3.70	1.15	2226.53
2.99	65.00	597.60	619.10	566.60	27240.00	584.37	0.00	584.73	434.91	4.36	1.02	2300.19

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	CWSEL	CVTS	TOPWID	10K*S	TIME	VOL
3.99	1.00	0.00	0.00	556.50	17330.00	582.84	0.00	583.02	436.27	2.10	1.43	2132.05
3.99	1.00	0.00	0.00	556.50	21620.00	583.48	0.00	583.73	438.31	2.75	1.21	2197.57
3.99	1.00	0.00	0.00	556.50	23920.00	583.75	0.00	584.02	439.34	3.01	1.14	2225.65
3.99	1.00	0.00	0.00	556.50	27240.00	584.14	0.00	584.46	440.66	3.38	1.02	2300.32
3.04	275.00	0.00	0.00	568.30	17630.00	582.90	0.00	583.10	442.69	3.02	1.45	2163.41
3.04	275.00	0.00	0.00	568.30	21620.00	583.55	0.00	583.83	444.42	3.75	1.23	2330.70
3.04	275.00	0.00	0.00	568.30	23280.00	583.83	0.00	584.13	445.14	4.03	1.15	2400.57
3.04	275.00	0.00	0.00	568.30	27240.00	584.48	0.00	584.80	446.66	4.62	1.03	2535.05
3.43	2050.00	0.00	0.00	570.00	17630.00	583.58	0.00	583.74	845.28	3.68	1.61	2398.76
3.43	2050.00	0.00	0.00	570.00	21620.00	584.34	0.00	584.64	872.07	4.14	1.38	2469.41
3.43	2050.00	0.00	0.00	570.00	23280.00	584.72	0.00	584.99	875.10	4.28	1.30	2528.99
3.43	2050.00	0.00	0.00	570.00	27240.00	585.50	0.00	585.81	893.26	4.53	1.16	2627.57
3.91	2530.00	0.00	0.00	571.70	17430.00	584.49	0.00	584.67	843.61	3.40	1.32	2700.53
3.91	2530.00	0.00	0.00	571.70	21510.00	585.43	0.00	585.62	1025.74	3.60	1.57	2936.88
3.91	2530.00	0.00	0.00	571.70	23190.00	585.80	0.00	586.00	1095.21	3.68	1.50	2996.49
3.91	2530.00	0.00	0.00	571.70	27160.00	586.65	0.00	586.87	1098.61	3.90	1.35	3042.54
4.26	1850.00	0.00	0.00	570.90	17490.00	585.04	0.00	585.24	1040.14	2.80	1.96	2731.91
4.26	1850.00	0.00	0.00	570.90	21510.00	586.01	0.00	586.24	1053.54	2.99	1.71	3109.25
4.26	1850.00	0.00	0.00	570.90	23190.00	586.39	0.00	586.64	1094.87	3.05	1.63	3186.22
4.26	1850.00	0.00	0.00	570.90	27160.00	587.26	0.00	587.54	1097.68	3.16	1.47	3372.51

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH O	CWSEL DIFF EACH SECTION	CWSEL-SELF	TOPWID	TOPWID DIFF	LENGTH
.398	18820.000	580.960	0.000	0.000	0.000	254.568	0.000	-0.000
.398	22480.000	580.960	0.000	0.000	0.000	254.568	0.000	-0.000
.398	24030.000	580.960	0.000	0.000	0.000	254.568	0.000	-0.000
.398	27900.000	580.960	0.000	0.000	0.000	254.568	0.000	-0.000
.455	18820.000	580.973	0.000	.013	0.000	255.000	0.000	300.000
.455	22480.000	580.979	.006	.019	0.000	255.000	0.000	300.000
.455	24030.000	580.981	.003	.021	0.000	255.000	0.000	300.000
.455	27900.000	580.987	.005	.029	0.000	255.000	0.000	300.000
.568	18820.000	581.035	0.000	.054	0.000	340.000	0.000	600.000
.568	22480.000	581.046	.011	.065	0.000	340.000	0.000	600.000
.568	24030.000	581.116	.070	.135	0.000	340.000	0.000	600.000
.568	27900.000	581.171	.055	.182	0.000	340.000	0.000	600.000
.616	18820.000	581.071	0.000	.016	0.000	410.129	0.000	250.000
.616	22460.000	581.119	.048	.023	0.000	411.584	-1.452	250.000
.616	24030.000	581.142	.023	.026	0.000	412.287	-2.151	250.000
.616	27900.000	581.206	.064	.035	0.000	414.414	-4.285	250.000
.617	18820.000	581.043	0.000	-.028	0.000	338.400	0.000	1.000
.617	22480.000	581.079	.036	-.040	0.000	339.553	-1.154	1.000
.617	24030.000	581.095	.017	-.046	0.000	340.106	-1.705	1.000
.617	27900.000	581.143	.048	-.051	0.000	341.555	-3.252	1.000
.618	18820.000	581.045	0.000	.002	0.000	334.431	0.000	12.000
.618	22480.000	581.081	.037	.002	0.000	339.598	-1.167	12.000
.618	24030.000	581.099	.018	.003	0.000	340.155	-1.726	12.000
.618	27900.000	581.148	.049	.003	0.000	341.727	-3.298	12.000
.619	18820.000	581.101	0.000	.057	0.000	411.044	0.000	1.000
.619	22480.000	581.162	.061	.051	0.000	-13.345	-1.542	1.000
.619	24030.000	581.191	.029	.092	0.000	414.114	-2.671	1.000
.619	27900.000	581.272	.081	.126	0.000	-1.773	-5.464	1.000

.647	27900.000	581.279	.583	.007	0.000	380.000	0.000	150.000		
.722	18820.000	581.107	0.000	.002	0.000	315.000	0.000	400.000		
.722	22480.000	581.170	.053	.003	0.000	315.000	0.000	400.000		
.722	24030.000	581.209	.083	.003	0.000	315.000	0.000	400.000		
.722	27900.000	581.253	.134	.004	0.000	315.000	0.000	400.000		
.817	18820.000	581.134	0.000	.027	0.000	382.645	0.000	500.000		
.817	22480.000	581.203	.074	.039	0.000	382.550	-.003	500.000		
.817	24030.000	581.244	.036	.044	0.000	382.553	-.006	500.000		
.817	27900.000	581.343	.139	.060	0.000	382.562	-.017	500.000		
.864	18820.000	581.150	0.000	.016	0.000	391.079	0.000	250.000		
.864	22480.000	581.232	.081	.023	0.000	391.090	-.011	250.000		
.864	24030.000	581.271	.114	.027	0.000	391.096	-.016	250.000		
.864	27900.000	581.379	.194	.039	0.000	391.109	-.030	250.000		
.865	18820.000	581.140	0.000	-.031	0.000	322.509	0.000	1.000		
.865	22480.000	581.188	.069	-.043	0.000	322.523	-.014	1.000		
.865	24030.000	581.221	.033	-.050	0.000	322.529	-.020	1.000		
.865	27900.000	581.312	.191	-.066	0.000	322.545	-.039	1.000		
.876	18820.000	581.126	0.000	.007	0.000	322.511	0.000	58.000		
.876	22480.000	581.198	.071	.009	0.000	322.524	-.014	58.000		
.876	24030.000	581.232	.034	.011	0.000	322.531	-.021	58.000		
.876	27900.000	581.327	.095	.014	0.000	322.550	-.040	58.000		
.877	18820.000	581.185	0.000	.062	0.000	391.089	0.000	1.000		
.877	22480.000	581.286	.097	.084	0.000	391.095	-.013	1.000		
.877	24030.000	581.332	.046	.100	0.000	391.104	-.019	1.000		
.877	27900.000	581.461	.129	.135	0.000	391.121	-.037	1.000		
.913	18820.000	581.194	0.000	.006	0.000	450.362	0.000	199.000		
.913	22480.000	581.294	.100	.004	0.000	450.103	-.044	199.000		
.913	24030.000	581.342	.048	.009	0.000	450.127	-.006	199.000		
.913	27900.000	581.474	.132	.013	0.000	450.184	-.122	199.000		
1.189	17630.000	581.270	0.000	.075	0.000	418.121	0.000	1455.000		
1.189	21620.000	581.394	.124	.104	0.000	418.315	-.195	1455.000		
1.189	23280.000	581.459	.065	.117	0.000	418.411	-.291	1455.000		
1.189	27240.000	581.629	.169	.154	0.000	418.650	-.540	1455.000		
1.227	17630.000	581.304	0.000	.034	0.000	480.392	0.000	200.000		
1.227	21620.000	581.449	.145	.051	0.000	481.057	-.665	200.000		
1.227	23280.000	581.518	.069	.059	0.000	481.356	-.964	200.000		
1.227	27240.000	581.708	.190	.080	0.000	482.158	-1.776	200.000		
1.254	17630.000	581.292	0.000	-.012	0.000	498.165	0.000	149.000		
1.254	21620.000	581.432	.140	-.017	0.000	498.503	-.338	149.000		
1.254	23280.000	581.499	.066	-.020	0.000	498.670	-.505	149.000		
1.254	27240.000	581.682	.184	-.026	0.000	499.134	-.969	149.000		
1.255	17630.000	581.275	0.000	-.017	0.000	455.750	0.000	1.000		
1.255	21620.000	581.407	.132	-.025	0.000	456.365	-.616	1.000		
1.255	23280.000	581.470	.062	-.029	0.000	456.658	-.908	1.000		
1.255	27240.000	581.644	.174	-.039	0.000	457.470	-1.720	1.000		
1.269	17630.000	581.292	0.000	.017	0.000	455.820	0.000	75.000		
1.269	21620.000	581.432	.140	.025	0.000	456.458	-.638	75.000		
1.269	23280.000	581.499	.066	.029	0.000	456.774	-.954	75.000		
1.269	27240.000	581.682	.183	.038	0.000	457.622	-1.802	75.000		

1.277	17630.000	581.534	0.000	.007	0.000	436.238	0.000	49.000	
1.277	21620.000	581.448	.116	.110	0.000	435.855	-1.403	49.000	
1.277	23280.000	581.589	.065	.111	0.000	436.465	-2.347	49.000	
1.277	27240.000	581.787	.204	.114	0.000	437.251	-4.142	49.000	
1.771	17630.000	581.737	0.000	.403	0.000	554.101	0.000	2600.000	
1.771	21620.000	582.166	.329	.572	0.000	555.439	-1.383	2600.000	
1.771	23280.000	582.213	.149	.640	0.000	555.947	-1.745	2600.000	
1.771	27240.000	582.602	.337	.825	0.000	557.620	-3.013	2600.000	
2.112	17630.000	582.016	0.000	.279	0.000	704.218	0.000	1800.000	
2.112	21620.000	582.437	.421	.371	0.000	707.566	-3.448	1800.000	
2.112	23280.000	582.622	.185	.407	0.000	709.022	-4.804	1800.000	
2.112	27240.000	583.187	.445	.485	0.000	712.997	-7.268	1800.000	
2.425	17630.000	582.329	0.000	.313	0.000	713.433	0.000	1650.000	
2.425	21620.000	582.846	.517	.403	0.000	717.098	-2.016	1650.000	
2.425	23280.000	583.068	.228	.446	0.000	718.855	-2.983	1650.000	
2.425	27240.000	583.612	.544	.525	0.000	824.377	-114.265	1650.000	
2.685	17630.000	582.574	0.000	.245	0.000	812.130	0.000	1373.000	
2.685	21620.000	583.157	.592	.311	0.000	818.354	-5.524	1373.000	
2.685	23280.000	583.404	.247	.336	0.000	821.098	-9.378	1373.000	
2.685	27240.000	584.002	.598	.340	0.000	826.369	-16.239	1373.000	
2.964	17630.000	582.797	0.000	.225	0.000	433.213	0.000	1475.000	
2.964	21620.000	583.427	.629	.270	0.000	435.047	-1.374	1475.000	
2.964	23280.000	583.691	.264	.287	0.000	436.361	-3.144	1475.000	
2.964	27240.000	584.321	.630	.319	0.000	442.384	-6.166	1475.000	
2.977	17630.000	582.814	0.000	.017	0.000	436.247	0.000	74.000	
2.977	21620.000	583.448	.634	.022	0.000	436.181	-1.935	74.000	
2.977	23280.000	583.714	.266	.024	0.000	436.452	-3.206	74.000	
2.977	27240.000	584.349	.634	.024	0.000	442.448	-6.242	74.000	
2.978	17630.000	582.811	0.000	-.003	0.000	428.663	0.000	1.000	
2.978	21620.000	583.444	.633	-.005	0.000	430.483	-1.620	1.000	
2.978	23280.000	583.709	.265	-.005	0.000	431.754	-3.091	1.000	
2.978	27240.000	584.342	.633	-.006	0.000	434.740	-5.124	1.000	
2.990	17630.000	582.829	0.000	.018	0.000	429.693	0.000	65.000	
2.990	21620.000	583.467	.638	.023	0.000	430.579	-1.491	65.000	
2.990	23280.000	583.734	.267	.026	0.000	431.853	-3.171	65.000	
2.990	27240.000	584.372	.638	.030	0.000	434.714	-6.026	65.000	
2.991	17630.000	582.835	0.000	.007	0.000	436.269	0.000	1.000	
2.991	21620.000	583.477	.641	.010	0.000	438.309	-2.040	1.000	
2.991	23280.000	583.746	.269	.012	0.000	439.593	-3.324	1.000	
2.991	27240.000	584.387	.641	.014	0.000	442.557	-6.388	1.000	
3.043	17630.000	582.897	0.000	.060	0.000	442.647	0.000	275.000	
3.043	21620.000	583.554	.657	.076	0.000	444.416	-1.729	275.000	
3.043	23280.000	583.829	.275	.083	0.000	445.139	-2.452	275.000	
3.043	27240.000	584.483	.655	.096	0.000	446.863	-4.176	275.000	
3.431	17630.000	588.584	0.000	.638	0.000	845.275	0.000	2050.000	
3.431	21620.000	584.393	.809	.839	0.000	873.195	-27.791	2050.000	
3.431	23280.000	584.724	.332	.856	0.000	879.149	-33.624	2050.000	
3.431	27240.000	585.503	.778	1.020	0.000	893.277	-47.982	2050.000	
3.915	17490.000	584.495	0.000	.911	0.000	648.514	0.000	2530.000	

3.911	1510.000	[illegible]	[illegible]	1.083	0.000	[illegible]	[illegible]	2530.000
3.910	23190.000	535.795	[illegible]	1.075	0.000	[illegible]	[illegible]	2530.000
3.910	27160.000	[illegible]	[illegible]	1.152	0.000	[illegible]	[illegible]	2530.000
4.261	17490.000	535.038	0.000	.543	0.000	1090.177	0.000	1850.000
4.261	21510.000	586.007	.959	.561	0.000	1093.543	-3.866	1850.000
4.261	23190.000	566.389	[illegible]	.590	0.000	[illegible]	[illegible]	1850.000
4.261	27160.000	587.255	[illegible]	.600	0.000	[illegible]	-7.705	1850.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	0.000	310.394	0.000
2	0.000	0.000	321.691	11.296
3	0.000	0.000	325.800	15.405
4	0.000	0.000	331.226	20.832

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00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: St. Joseph Township

3) WATERCOURSE: St. Joseph River

4) DOCUMENT TYPE: Report

00BREAK00

HYDRAULIC ANALYSIS OF ST. JOSEPH RIVER
ST. JOSEPH TOWNSHIP, BERRIEN COUNTY

A. Historical Flooding

Major flooding is reported to have occurred on the St. Joseph River in 1876, 1887, 1892, 1903, 1904, 1908, 1937, 1943, 1947, and 1950. However, due to the absence of significant floodplain development within St. Joseph Township, no substantial property damage has been reported. Discussion with local officials regarding the St. Joseph River flooding did not reveal any historical problem areas in the Township.

B. Hydraulic Computations

The river was analyzed using the November, 1976 (updated August, 1977) version of the Corps of Engineers HEC-2 water surface profile computer program. The computer model was based upon the model previously prepared by the consulting firm of Johnson and Anderson, Inc. and used in conducting Flood Insurance Studies on the St. Joseph River for the communities of Benton Harbor and St. Joseph downstream and Benton and Royalton Townships upstream of St. Joseph Township.

The flood discharges used in the analysis were as follows:

10 year	-	17,630 cfs
50 year	-	21,620 cfs
100 year	-	23,280 cfs
500 year	-	27,240 cfs

These flows are based upon the hydrologic analysis conducted in conjunction with the previous Flood Insurance Studies and were approved by the DNR. The flows were slightly reduced upstream of the Hickory Creek confluence to reflect the reduction in drainage area.

The starting water surface elevations at the downstream corporate limits (Cross Section A) were selected from the Flood Insurance Study for the City of St. Joseph performed by Johnson and Anderson, Inc.

The Manning's roughness coefficients which were used in the analyses are shown on the plotted cross-sections. Overbank roughness coefficients ranged from 0.05 for areas with scattered brush or obstructions to 0.10 for areas with heavy brush and scattered trees. An "n" value of 0.032 to 0.035 was used for the channel and bank areas to reflect the relatively uniform, wide channel area. Gradual expansion and contraction coefficients of 0.3 and 0.1 were used except immediately upstream and downstream of the Napier Avenue Bridge where coefficients were increased to 0.5 and 0.2. In the hydraulic analyses, the roughness coefficients were varied horizontally to account for changes in the overbank conditions.

For the hydraulic computations, the right overbank area at Cross-Sections H and I was assumed to be non-effective for the conveyance of floodwaters due to a diked embankment which encloses the area. Also, an artificial encroachment station was set at Station 1250 of Cross-Section J to account for the impact of the marina which exists in the overbank area and to maintain a relatively uniform flow pattern between the Cross-Sections upstream and downstream.

The determination of the floodway area was made utilizing Method 4 of the HEC 2 program. A maximum allowable flood stage increase of 0.10 feet above the natural 100-year flood stage was specified. The floodways are shown on the plotted Cross-Section and on the plan.

C. RESULTS

In the hydraulic analyses it was found that the flood elevations of Lake Michigan exceed the computed riverine flood elevations to slightly downstream of Cross-Sections I. These elevations, as taken from the Corps of Engineers Study, Great Lakes Open-Coast Flood Levels, published in February, 1977, are as follows:

10 year	-	582.9
50 year	-	583.8
100 year	-	584.1
500 year	-	584.7

Upstream of Cross-Section I, the riverine flood elevations control. The computed flood elevations at the upstream study limits (Cross-Section M) are:

RECEIVED
JUL 25 1980
WATER MANAGEMENT

HYDRAULIC ANALYSIS REPORT

S.B.

KALAMAZOO RIVER AT

CITY OF ALBION, ALBION TOWNSHIP

AND

VILLAGE OF HOMER

Prepared By

COMMONWEALTH ASSOCIATES INC.
209 East Washington Avenue
Jackson, Michigan 49201

July, 1980

Introduction

This report presents the detailed study of the S. Branch of Kalamazoo River in the city of Albion, Albion Township, and the village of Homer, all of which are in Calhoun County, Michigan. One report is being submitted for these communities to the DNR for review, but three independent Flood Insurance Studies will be submitted to FEMA. The entire reach was studied and delineated as a detailed study with the exception of the portion between Cross Sections 35 and 36. This reach has been delineated as an approximate study.

For the entire reach of the Kalamazoo River, cross sections were located and surveyed by Commonwealth Associates in November and December, 1978. Preliminary U.S.G.S. topographical maps, city topographical maps, and aerial photos were obtained and utilized in the study.

This report was performed by Commonwealth Associates Inc. of Jackson, Michigan under the direction of Mr. R. D. Landis, Project Manager.

Method of Analyses

A. Hydrology

The flood flows for the Kalamazoo River were calculated by the drainage area proportion method utilizing an exponent of .9453. These results were submitted in two hydrologic analysis reports in March and May, 1979. These reports were approved by the DNR in July, 1979. (See Table, Appendix A).

B. Hydraulics

The water surface profile was computed and plotted at various cross sections using the HEC-2 computer program. The cross sections were taken at representative locations along the the river where changes occurred in slope, cross-sectional area, and hydraulic structures (dams, bridges, etc.). Bridges and dams were analyzed using the normal and special bridge routines. Utilizing the special bridge routine, small openings were coded into the dams to model the weir flow at the dam.

Variables and Coefficients

Manning's coefficient of roughness "n" depends on several factors such as:

1. Type and amount of vegetation
2. Channel configuration and stage
3. Material through which the channel is constricted
4. Channel meandering

Without an in-depth study of these factors, an "n" value can only be estimated. The values in this analysis were obtained by studying aerial photos, reviewing snapshots taken at the time of survey, inspection on numerous field trips, and engineering judgment. The initial "n" factors for the channel were low so all channel factors were multiplied by 1.29. This factor was based on other studies on the Kalamazoo River and the gage at F Drive South.

Manning's Roughness Coefficient

Natural channel	.02-.045
Overbank	.02-.09

The loss coefficients (contraction and expansion) were obtained from the "Application of the HEC-2 Bridge Routines," COE Training Document No. 6, June, 1974.

Coefficients for Natural Channels

Contraction	.1
Expansion	.3

Coefficients for Bridges and Constrictions

Contraction	.3
Expansion	.5

High-Water Marks

There were no high-water marks available within the study limits. However, there is a short-term gage at F Drive South with a maximum depth of 4.37 feet at 500 cfs. At the same location and flow, CAI's calculations show a gage height of 4.32 feet.

The profile in the COE's 308 Report for this reach of the Kalamazoo River was reviewed and compared to CAI's 100-year profile. The profiles compared favorably even though there have been some minor changes in the channel and the removal of one dam.

Starting Conditions

Starting water surface elevations for the city of Albion were determined by adding six cross sections downstream of the city boundary and by using a slope of .0015 in the slope-area method of calculation. A profile convergence was performed for the 100-year flow to verify the results of the slope-area calculations. ---- not submitted

Special Problems and Considerations

City of Albion

1. The special bridge routine was used at the abandoned railroad bridge at Cross Section 13.2 due to the large number of piers.

2. At the Superior Street bridge (Section 17) there are stores built over the river on both sides of the street. Because of this unique phenomenon, the opening size, low chord, and piers change. To analyze this, numerous bridge sections were used. Since pressure flow did not occur, the special bridge routine was not used, but the "n" factor in the channel was increased to reflect the piers and walls.

3. At the Victory Park dam (Section 21.5) the special bridge routine was used to model the weir flow at the dam. The flow going into the pond on the left overbank was considered to be negligible because of its close proximity to the Haven Road bridge and because the gates are inoperative.

   The results obtained in this study compare favorably with the Dam Safety Report for the Albion dam (3).

4. New bridge plans were used for the Haven Road bridge (Section 22).

5. The upper and lower mill ponds were dredged while this study was in progress. Information obtained from the city engineer was utilized to model the mill ponds after dredging.

Township of Albion

1. Cross Section 27.0 is an abandoned bridge which causes some constriction at the lower flows. However, the bridge is inundated during the 100-year flow.

2. Cross Section 27.5 is also an abandoned bridge.

   Cross Section 35.3 is a dam/spillway located within Homer Township. This reach is specified as an approximate study in the contract, but the special bridge routine was used to model the weir flow in this area.

Homer Village

The dam located at the Byron Road bridge (Section 39) has been abandoned. The center sections are breached, thus causing the critical depth message at Section 39.1.

References

1. Guide for Selecting Roughness Coefficient "n" Values for Channels, USDA Soil Conservation Service. December, 1963.

2. Open-Channel Hydraulics. CHOW

3. National Dam Safety Program, Inspection Report, Albion Dam - Kalamazoo River Basin Albion - Calhoun County, Michigan. November, 1978.

4. U.S. Army Corps of Engineers, HEC-2 Water Surface Profiles, Users Manual. August, 1979.

Appendix A - Hydrologic Table

Appendix B - Calculations for Special Bridge Routines and Bridge Sketches

Appendix C - Water Surface Profiles Indicating 10, 50, 100 and 500-Year Floods

Appendix D - Cross Section Plots

Appendix E - HEC-2 Printouts, Maps

APPENDIX A

HYDROLOGIC TABLE

FLOOD FLOWS IN SOUTH BRANCH KALAMAZOO RIVER AT ALBION AND HOMER

Location	Drainage Area Sq Mi	Flows (cfs) for 10-Yr	50-Yr	100-Yr	500-Yr
At Albion	255.2	970	1,430	1,600	1,790
At East Branch of the Kalamazoo River	156.3	535	675	735	875
At F Drive (S)	146.0	500	635	690	820
At Homer	138.5	475	605	655	780

7/6/79 by RCS

have consultant check TR20 run looks transposed 1970 q's

checked by RCS 5/14/79

APPENDIX B

CALCULATIONS FOR SPECIAL BRIDGE ROUTINES AND BRIDGE SKETCHES

CROSS Section Reference

CROSS SECTION ID on Profile	sec no. in Hec-2	Description
A	12.0	VALLEY section D/s Limit of the city of ALBION
B	13.1	D/s FACE of ABandoned RR Bridge
	13.2	U/s FACE of " " " special Bridge
C	14.5	D/s FACE of ALBION ST.
D	14.8	center Line of PEARL Street NO BRIDGE
E	15.1	D/s FACE of EATON ST.
	16.0	D/s FACE of CLINTON ST.
G	17.0	D/s face of SUPERIOR ST. & LANE ROAD with BUILDINGS over the river on the Downstream side. DIVIDED FLOW occurs BECAUSE PIERS
H	18.0	D/s face of west carr st. DIVIDED flows occurs BECAUSE PIERS.
I	19.0	D/s face of Porter WALK BRIDGE
J	20.0	D/s face of ERIE ST. BRIDGE
K	21.5	VICTORY PARK DAM USED SPECIAL BRIDGE Routine TO simulate WIER flow. The flow going through the POWER House By Pass channel was assumed to be INSIGNIFICANT
L	22.0	D/s face of HAVEN Rd BRIDGE.

CROSS section ID	sec no IN. HEC-2	DESCRIPTION
A	23.0	D/S face of south superior
N/A	24.0	SURVEYED VALLEY section D/S limit of ALBION TWP.
	24.1	interpolated CROSS section TO MODEL contracto
	24.2	interpolated CROSS section TO MODEL EXPANSION
B	25.0	SURVEYED CROSS section
C	26.0	DOWNSTREAM FACE of D drive South
D	27.0	SURVEYED VALLEY section
	27.5	INTERPOLATED CROSS section to model constrictio DUE to AN ABANDONED BRIDGE (NO Deck)
E	27.4	SURVEYED CROSS section
F	28.0	DOWNSTREAM face of F DRIVE South ABANDONED GAGE station
G	28.67	SURVEY CROSS section
H	29.0	D/S face of CONDUIT ROAD.
I	30.0	D/S face of H DRIVE South
J	31.0	SURVEYED VALLEY section
K	32.0	SURVEYED VALLEY section
L	33.0	SURVEYED VALLEY section
M	34.0	D/S face of 25½ mi ROAD

CROSS sect. ID ON PROFILE	cross sect NUMBER IN HEC-2	DESCRIPTION
N	35.0	D/s face of L DRIVE South U/s limit of ALBION TWP
-	35.3	SPILLWAY structure within Homer TOWNSHIP
A	36.0	SURVEYED VALLEY section D/s limit of the VILLAGE of Homer
B	37.0	D/s face of WEBSTER ST
C	38.0	D/s face of M-60 BRIDGE
D	39.0	D/s face of BYRON ROAD BRIDGE U/s limit of Homer VILLAGE
	39.1	BREACHED DAM section ON U/s face of BYRON ROAD BRIDGE

Note: CROSS section NUMBERS ON SURVEY NOTES Do NOT NECESSARILY CORRESPOND TO CROSS section NUMBERS IN HEC-2. ALTHOUGH The WHOLE NUMBERS SHOULD CORRESPOND But The DECIMALS WILL Not.

CLIENT/OWNER	FILING CODE / JOB NO.
CALC. BY/DATE (SIGNATURE) / CHECKED BY/DATE (SIGNATURE)	SUBJECT: ABANDONED RR BRIDGE
	SHEET OF / BOOK NO.

13.2 ⇒ SPECIAL BRIDGE ROUTINE

Pier shape coefficient

1.25 Due to the number of piers A High Loss coef. was used.

Loss Coefficient (X KOR)

A = 2725 n = .045 R = $115^2/262 = 4.397$

INTAKE Losses .3 L = 12'

$$X_{KOR} = \frac{29.1 n^2 L}{R^{4/3}} = \frac{29.1 (.045)^2 12}{(4.4)^{4/3}} + .3 + 1$$

$$= 1.40$$

Weir Coef.

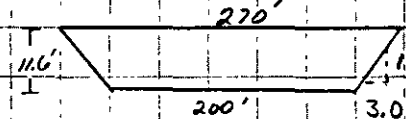
3.00 assumed Because Bridge will not Go WEIR flow

Bottom width of BRIDGE ⇒ 200'

Width of obstruction = 17 x 1.2' = 20.4

BRIDGE AREA = 2725 ft²

SS =



Gilbert/Commonwealth
ENGINEERS/CONSULTANTS Reading PA/Jackson MI

CALCULATION SHEET

REV

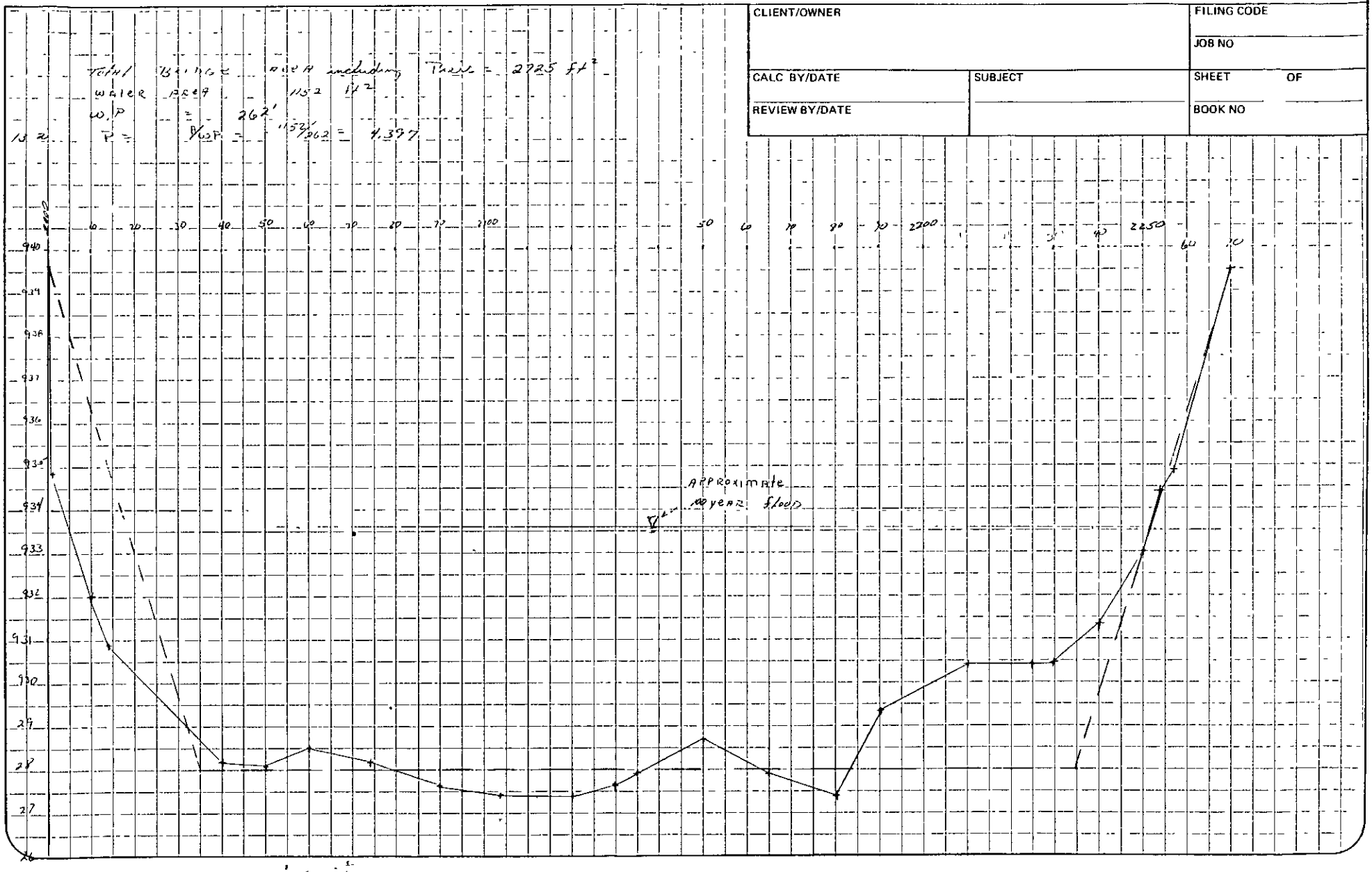
CLIENT/OWNER		FILING CODE / JOB NO
CALC BY/DATE	SUBJECT	SHEET OF
REVIEW BY/DATE		BOOK NO

Total Bridge Area including Piers = 2225 ft²

Water Area = 1152 ft²

W.P. = 262'

R = A/W.P. = 1152/262 = 4.397



General Fieldnote Form S-127

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, BEARINGER, HERR

DATE: 10-24-78

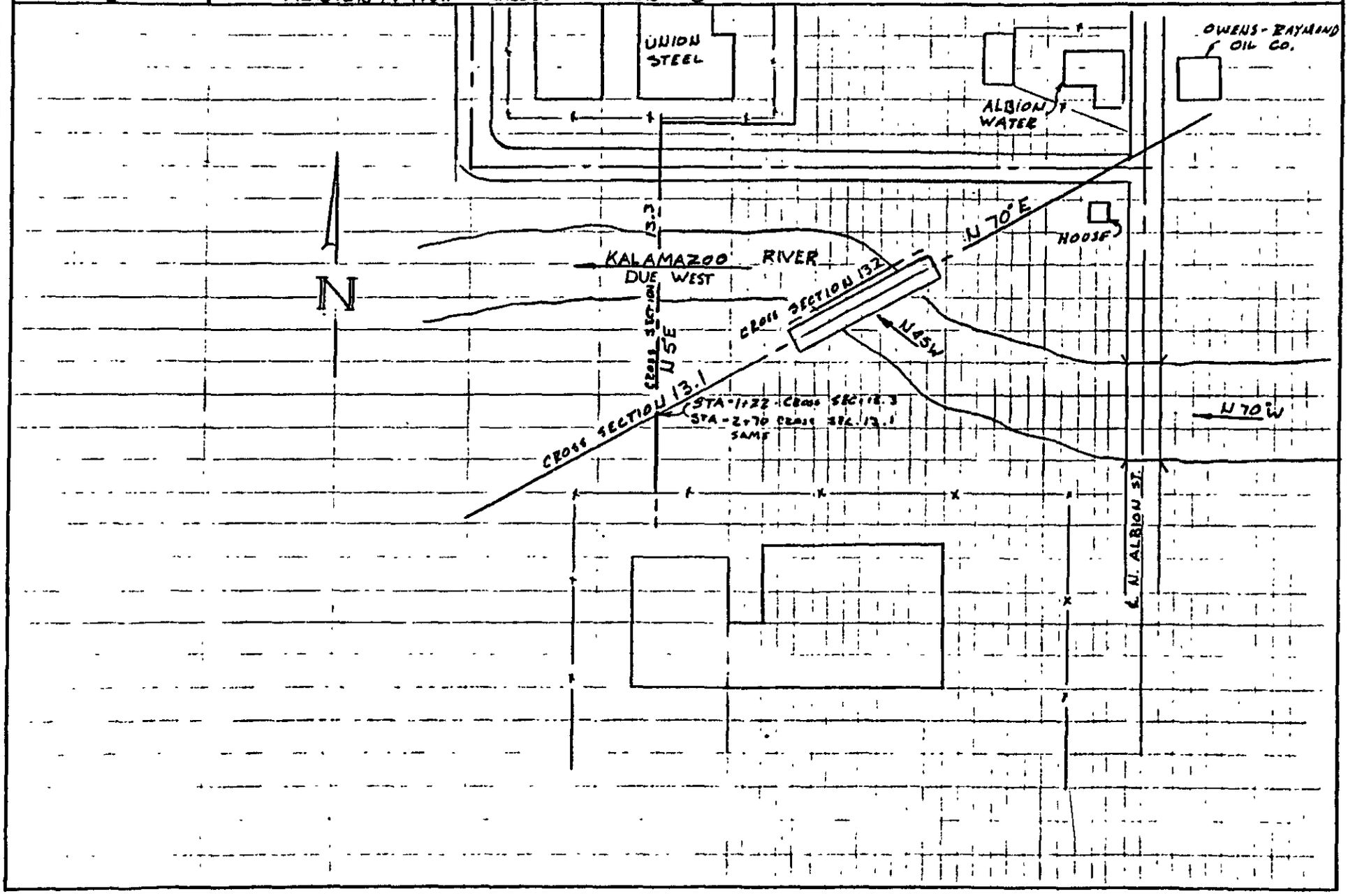
INSTRUMENTS:

TEMP (DRY BULB) 43 WET BULB RH % BAR.

PROJECT: HUD

LOCATION: ALBION, MICH. CROSS SECTION 13

CHECKED BY DATE



ACTIVITY Cross Section 13 BOOK 2.1-19 PAGE 35

PLAN VIEW STA.

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, BEARINGER, HERR

DATE: 10-20-78

INSTRUMENTS: NA-2

TEMP (DRY BULB) 50 WET BULB RH % BAR.

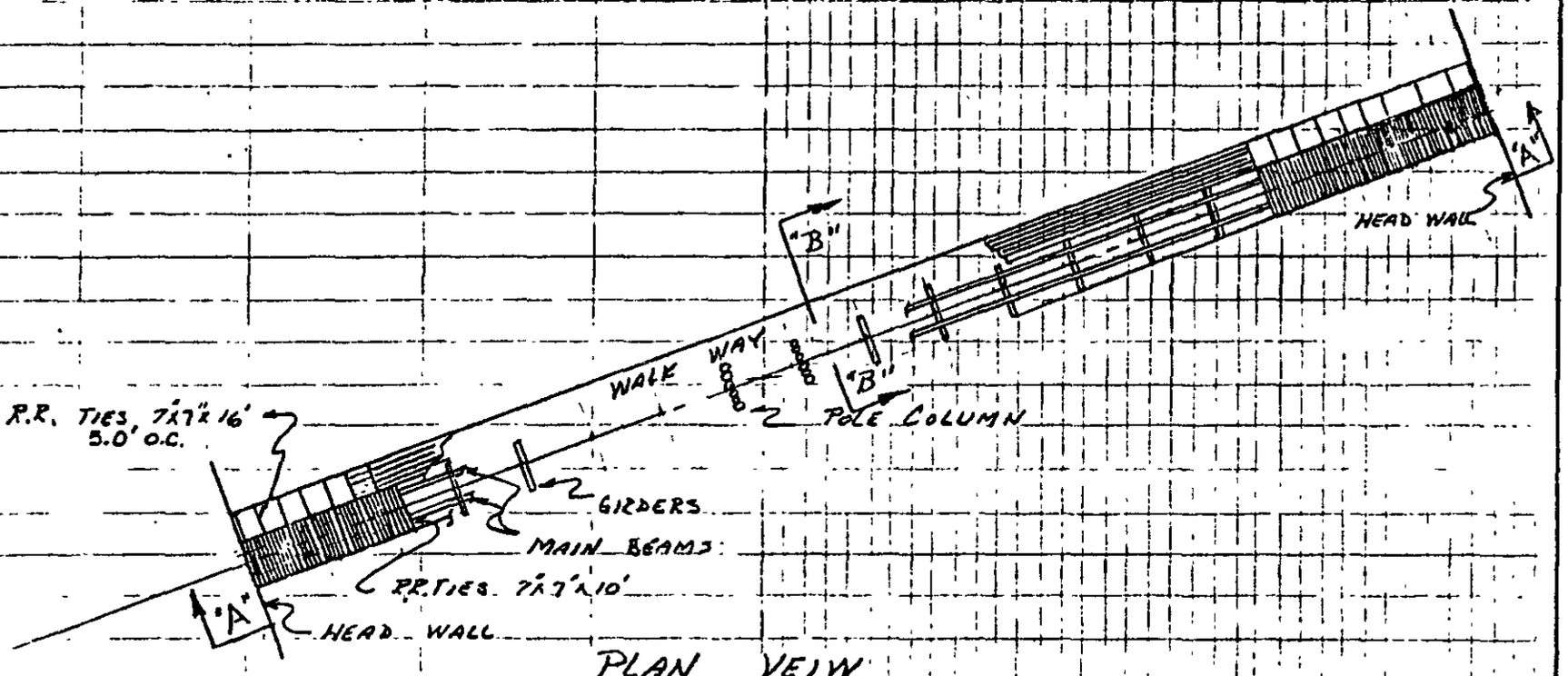
PROJECT: HUD

LOCATION: ALBION, MICH. CROSS SECTION 13.1

CHECKED BY DATE

ACTIVITY CROSS SECTION 13.1 BOOK 2.1-19 PAGE 40

PLAN OF CROSS SECTION STA.



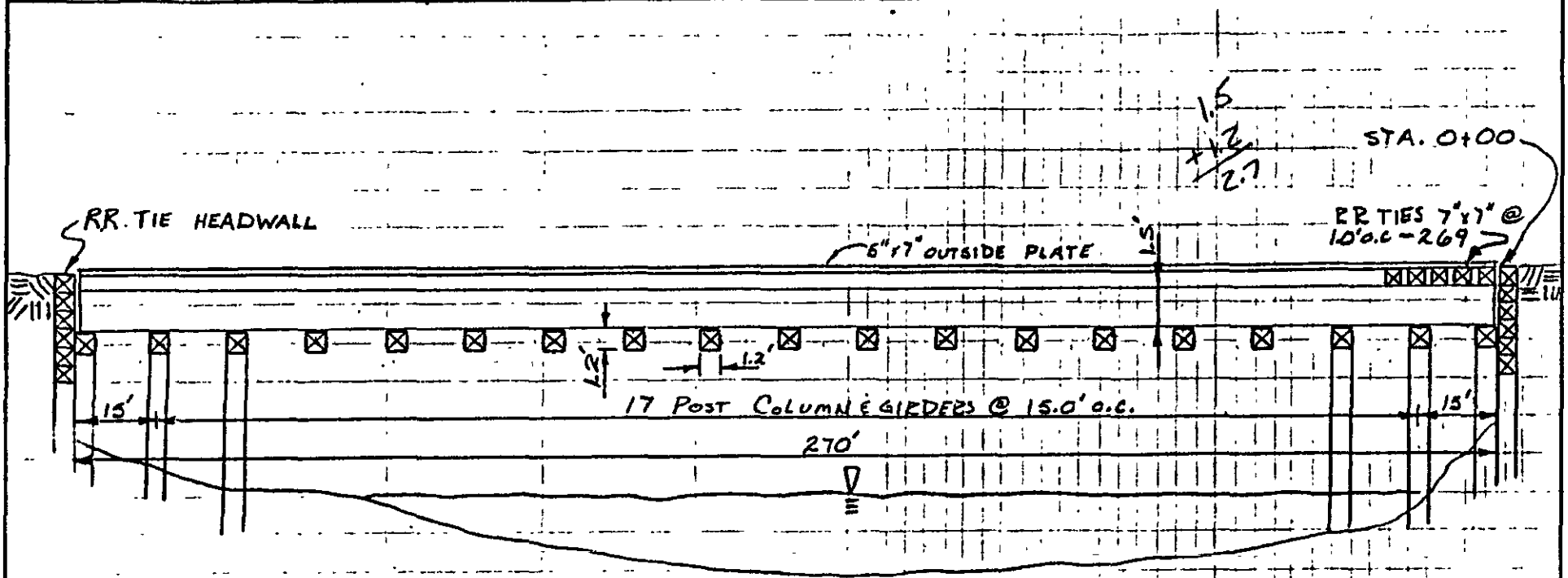
PLAN VEIW

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY, BEARINGER, HERR			
DATE: 10-23-78	INSTRUMENTS:	TEMP (DRY BULB)	WET BULB	RH %	BAR.
PROJECT: HUD	LOCATION: ALBION, MICH CROSS SECTION # 13 ℄			CHECKED BY DATE	

ACTIVITY Cross Section # 13.2 BOOK 2.1-19 PAGE 40A

STA.



SECTION "A-A"

SIDE VIEW LOOKING UPSTREAM

SKEW BRIDGE

ACTIVITY Cross Section 13.2 BOOK 2.1-19 PAGE 40 B

STA.

General Fieldn te Form S-127

COMMONWEALTH ASSOCIATES INC.

DATE: 10-23-78

PROJECT: HUD

INSTRUMENTS:

LOCATION: ALBION, MICH. CROSS SECTION 13.2

CREW: FOUTY, BEARINGER, HERR

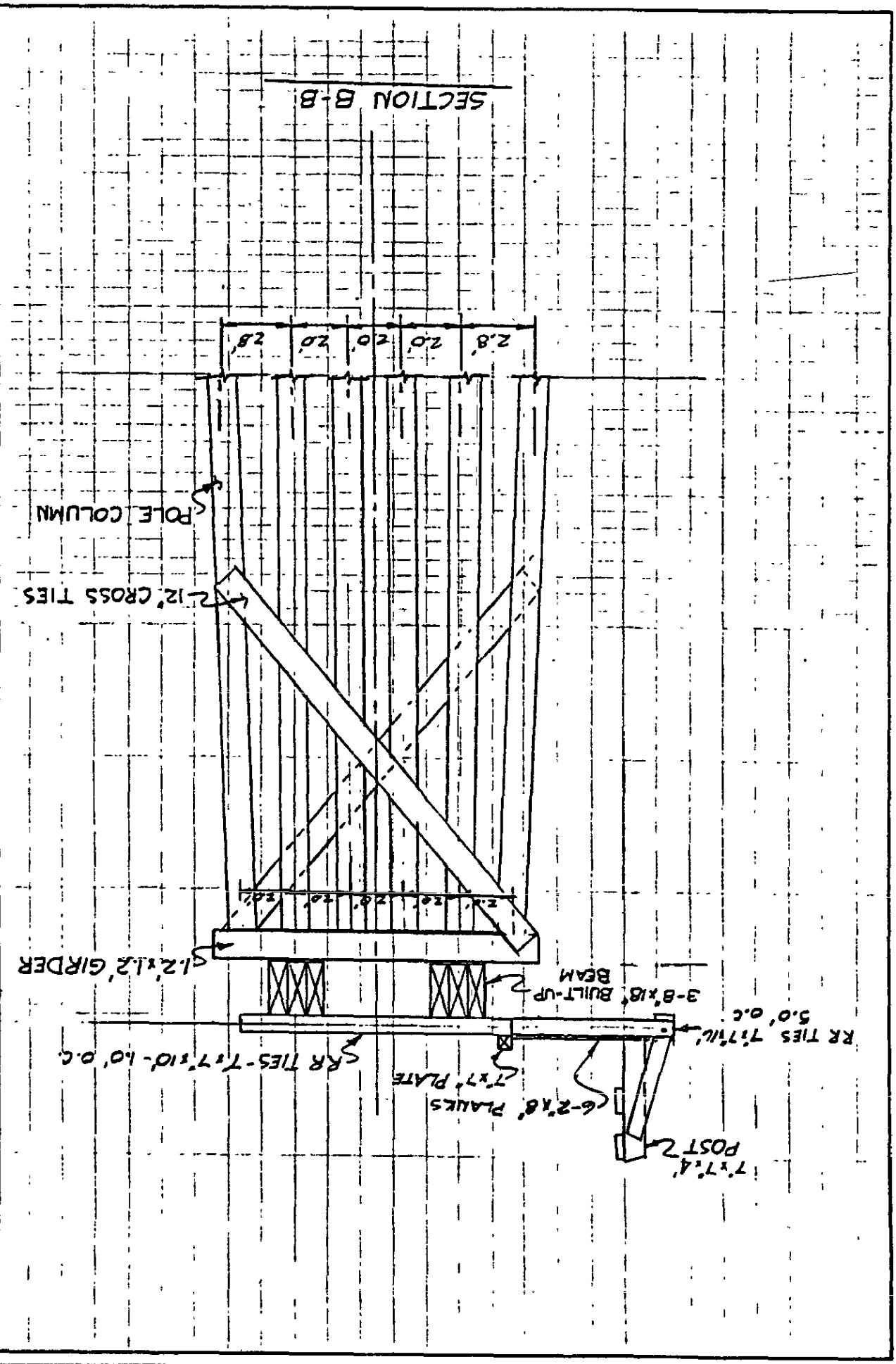
TEMP (DRY BULB)

WET BULB

RH %

BAR.

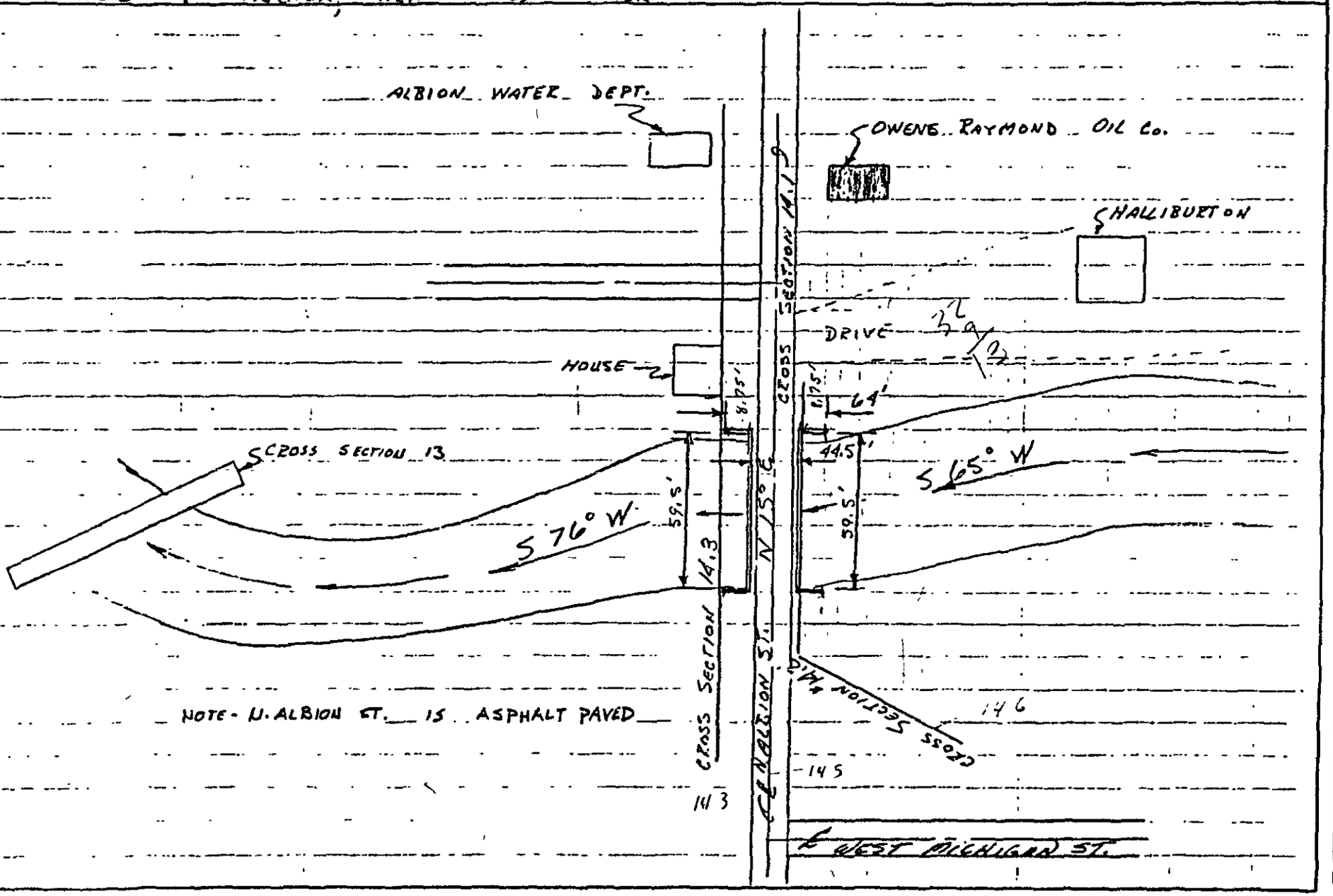
CHECKED BY DATE



62-C147-S14-1...

General Fieldnote Form S-127

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY BEARINGER, HERR			
DATE: 10-24-78	INSTRUMENTS:	TEMP (DRY ~~BULB~~) 46°	WET BULB	RH %	BAR.
PROJECT: HUD	LOCATION: ALBION, MICH CROSS SECTION #14			CHECKED BY DATE	



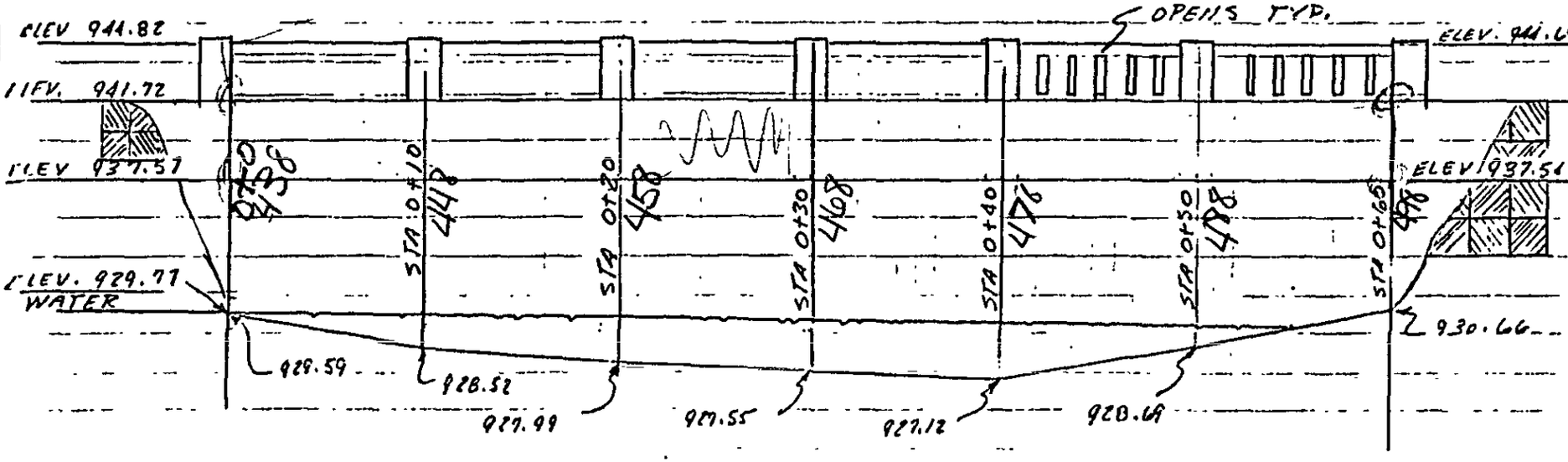
ACTIVITY PLAN of CROSS SECTION #14 BOOK 2.1-19 PAGE 50

STA. ℄ OF ALBION ST.

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY BEARINGER, HERR			
DATE: 10-24-78	INSTRUMENTS:	TEMP (DRY BULB) 45	WET BULB	RH %	BAR
PROJECT: HUD	LOCATION: ALBION MICH SIDE VIEW CROSS SEC. 14.2		CHECKED BY DATE		

ACTIVITY Cross Section 14.2 BOOK 2.1-19 PAGE 54
SIDE VIEW STA. 22+45



SIDE VIEW

NOTE - BRIDGE IS CONCRETE CONSTRUCTION

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, BEARINGER, HERR

DATE: 10-24-78

INSTRUMENTS:

TEMP (DRY BULB) 50

WET BULB

RH %

BAR.:

PROJECT: NUD

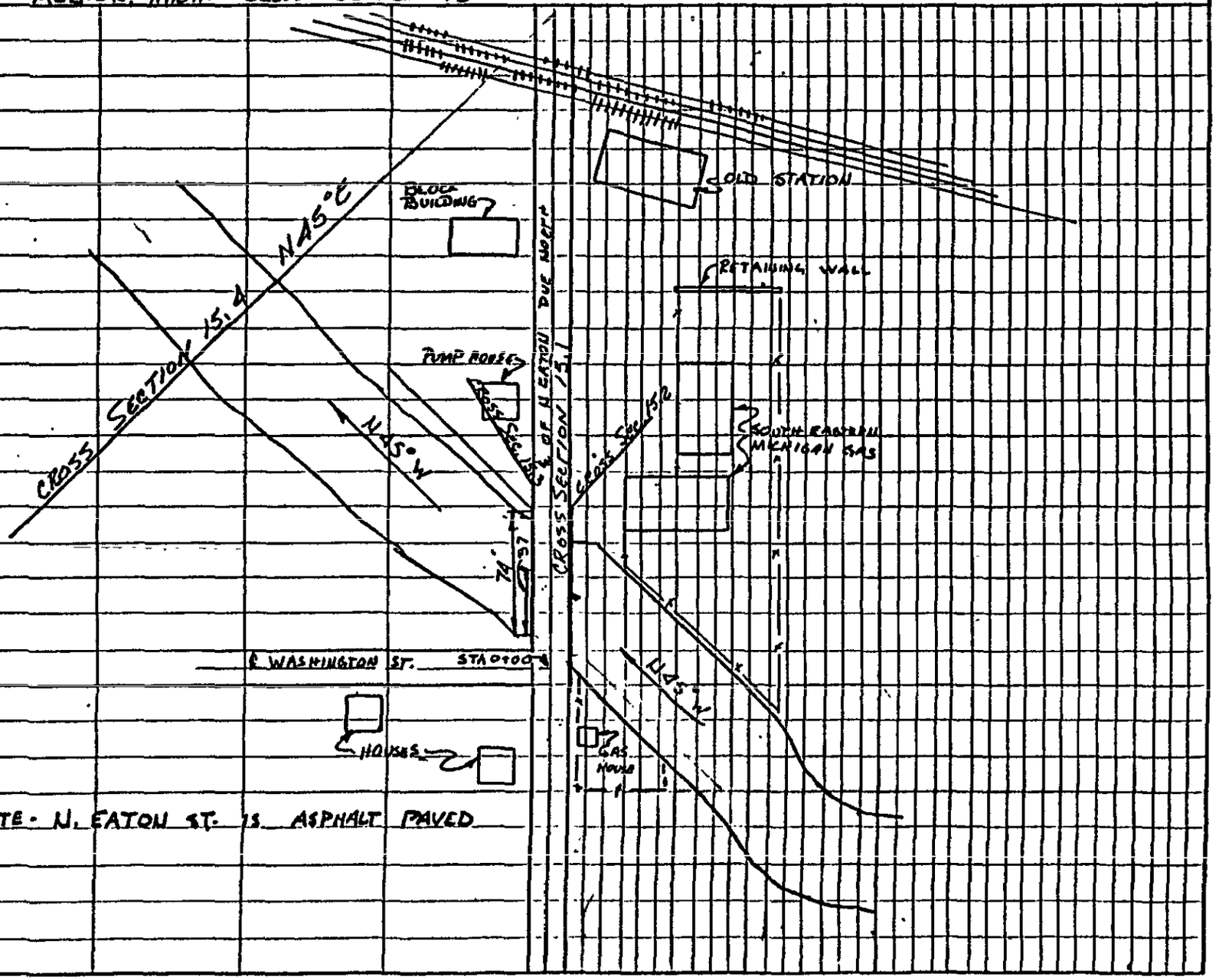
LOCATION: ALBION, MICH. CROSS SECTION #15

CHECKED BY

DATE

ACTIVITY CROSS SECTION 15 BOOK 21-19 PAGE 59

PLAN VIEW N. EATON ST. STA.



NOTE - N. EATON ST. IS ASPHALT PAVED

General Fieldnote Form S-127

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, BEARINGER, HEER

DATE: 10-26-78

INSTRUMENTS:

TEMP (DRY BULB)

WET BULB

RH %

BAR.

CHECKED BY

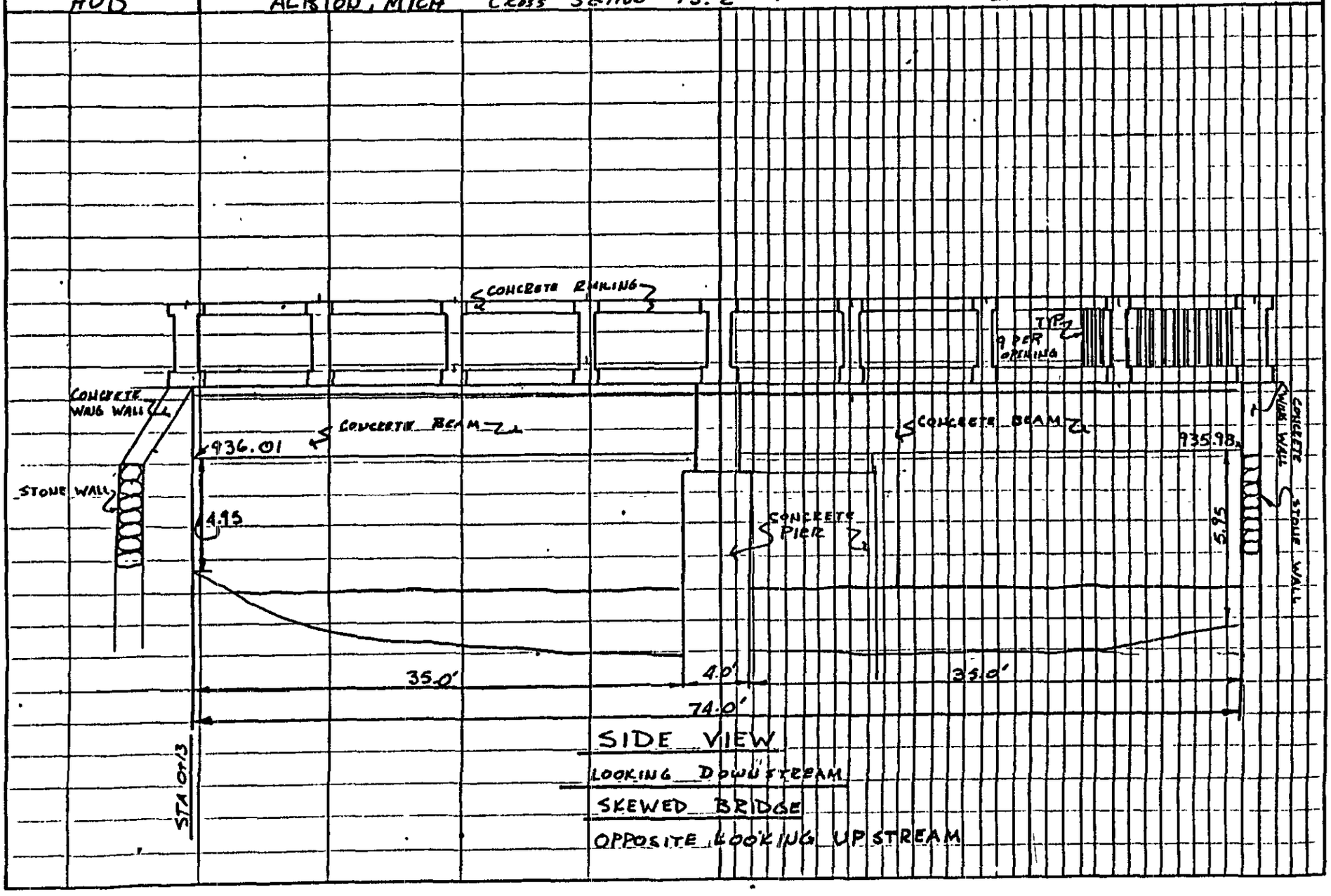
DATE

PROJECT: HUD

LOCATION: ALBION, MICH Cross Section 15.2

ACTIVITY Cross Section 15.2 BOOK 2.1-19 PAGE 64

E. of N. EATON ST. STA. 0+18 UPSTREAM



SIDE VIEW

LOOKING DOWNSTREAM

SKEWED BRIDGE

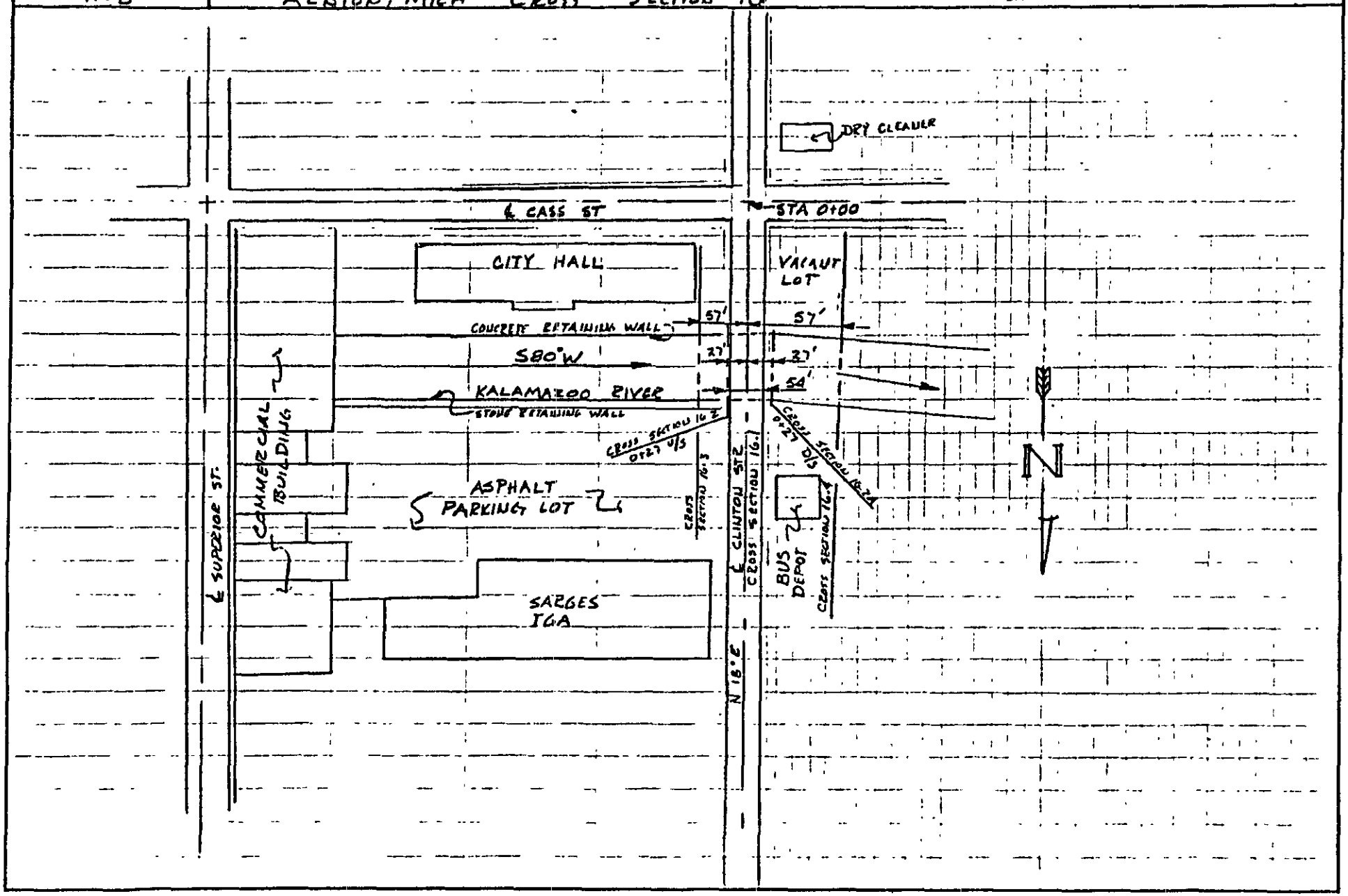
OPPOSITE LOOKING UPSTREAM

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, BEARINGER, HEER

DATE: 10-26-78 | INSTRUMENTS: | TEMP (DRY BULB) | WET BULB | RH % | BAR

PROJECT: HUD | LOCATION: ALBION, MICH CROSS SECTION 16 | CHECKED BY | DATE

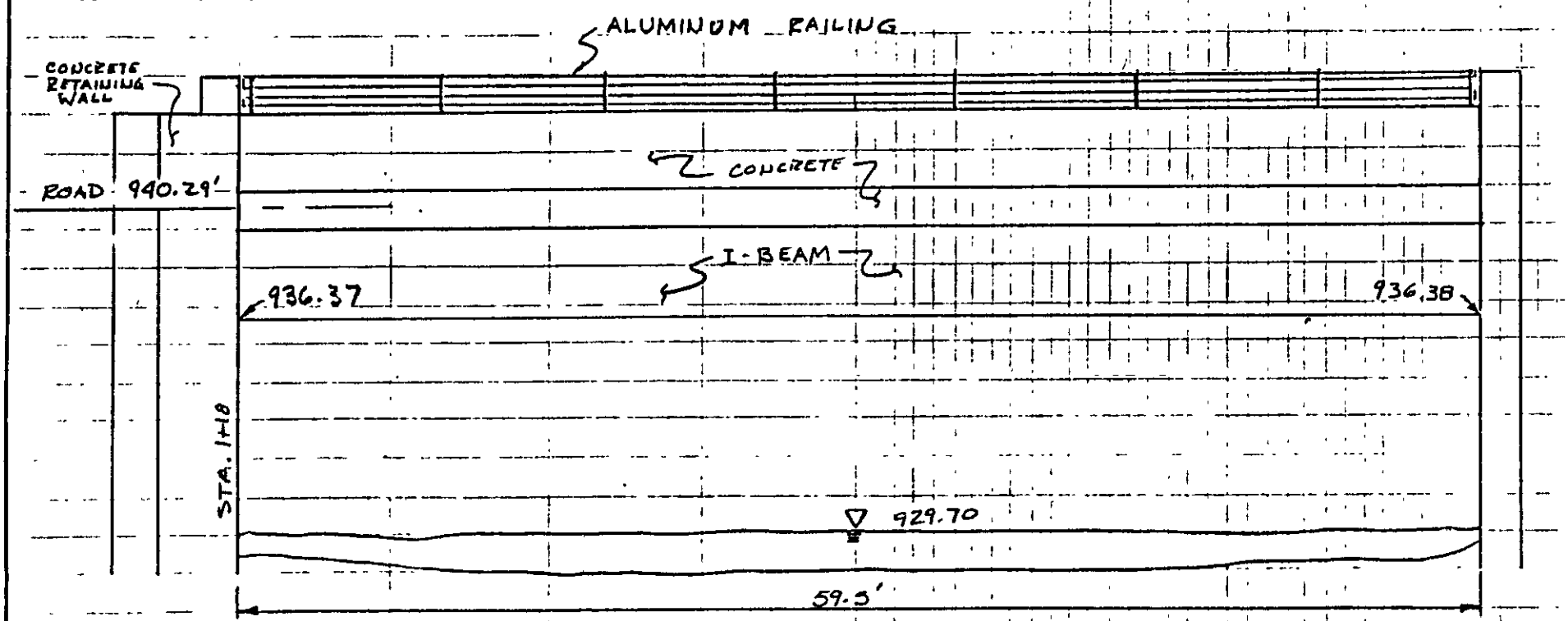


ACTIVITY PLAN VIEW - CROSS SECTION BOOK 2.1-19 PAGE 79

16 STA.

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY BEARINGER, HERR			
DATE: 10-26-78	INSTRUMENTS:	TEMP (DRY BULB)	WET BULB	RH %	BAR.
PROJECT: HUD	LOCATION: ALBION, MICH. CROSS SECTION 16.2			CHECKED BY DATE	



SIDE VIEW

LOOKING DOWN STREAM

FOR ELEVATION OF RIVER BOTTOM SEE PAGE 85

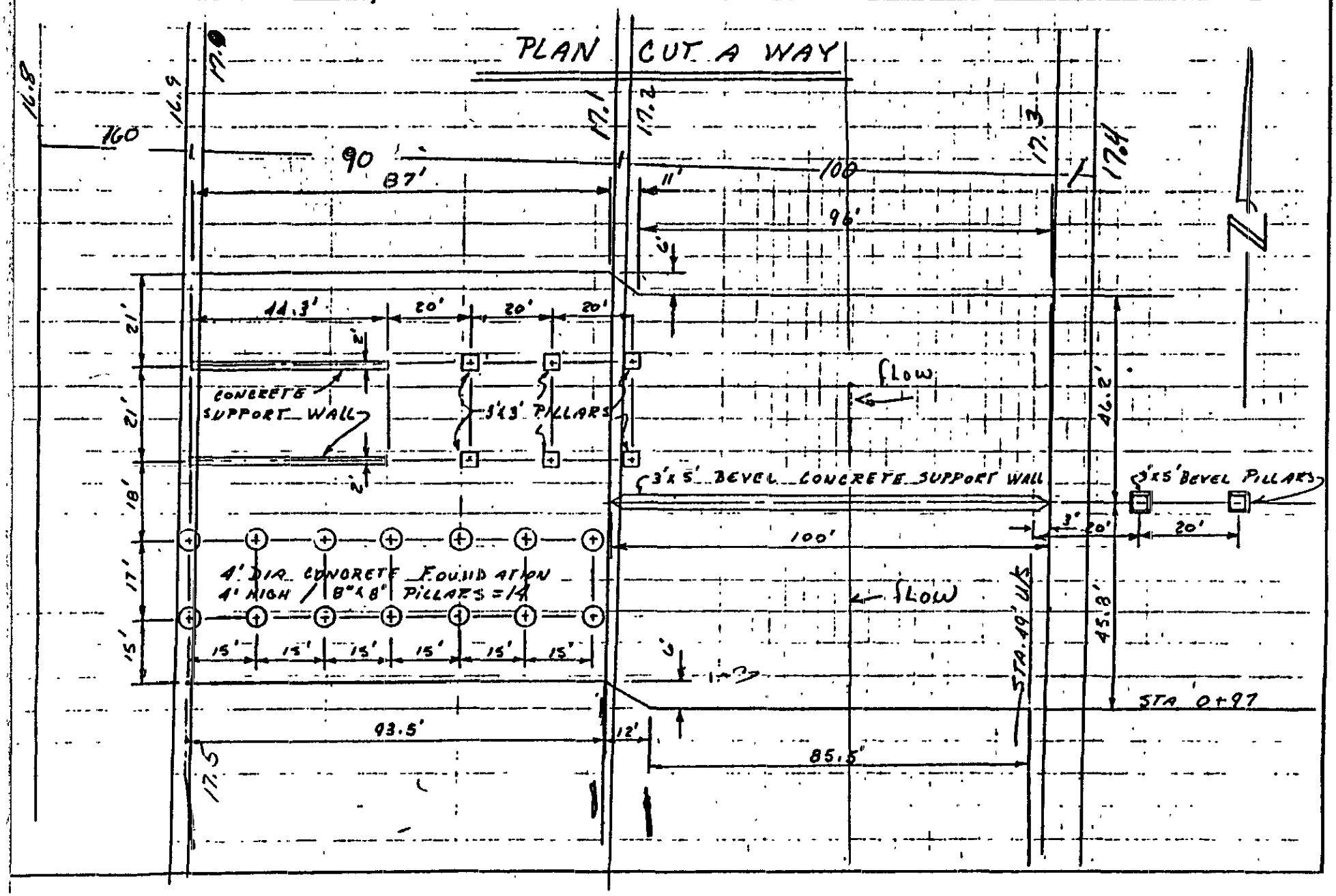
ACTIVITY CROSS SECTION 16.2 BOOK 2.1-16 PAGE 84

CLINTON STR. STA. 0+27 UPSTREAM

General Fieldnote Form S-127A

4

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY, BEARINGER, HERR			
DATE: 10-25-78	INSTRUMENTS:	TEMP (DRY BULB) 60	WET BULB	RH %	BAR.
PROJECT: HUD	LOCATION: ALBION, MICH. CROSS SECTION 17			CHECKED BY DATE	



ACTIVITY CROSS SECTION 17 BOOK 2.1-19 PAGE 93

STA. S. SUPERIOR ST

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY BEARINGER, HEDD

DATE: 10-25-78

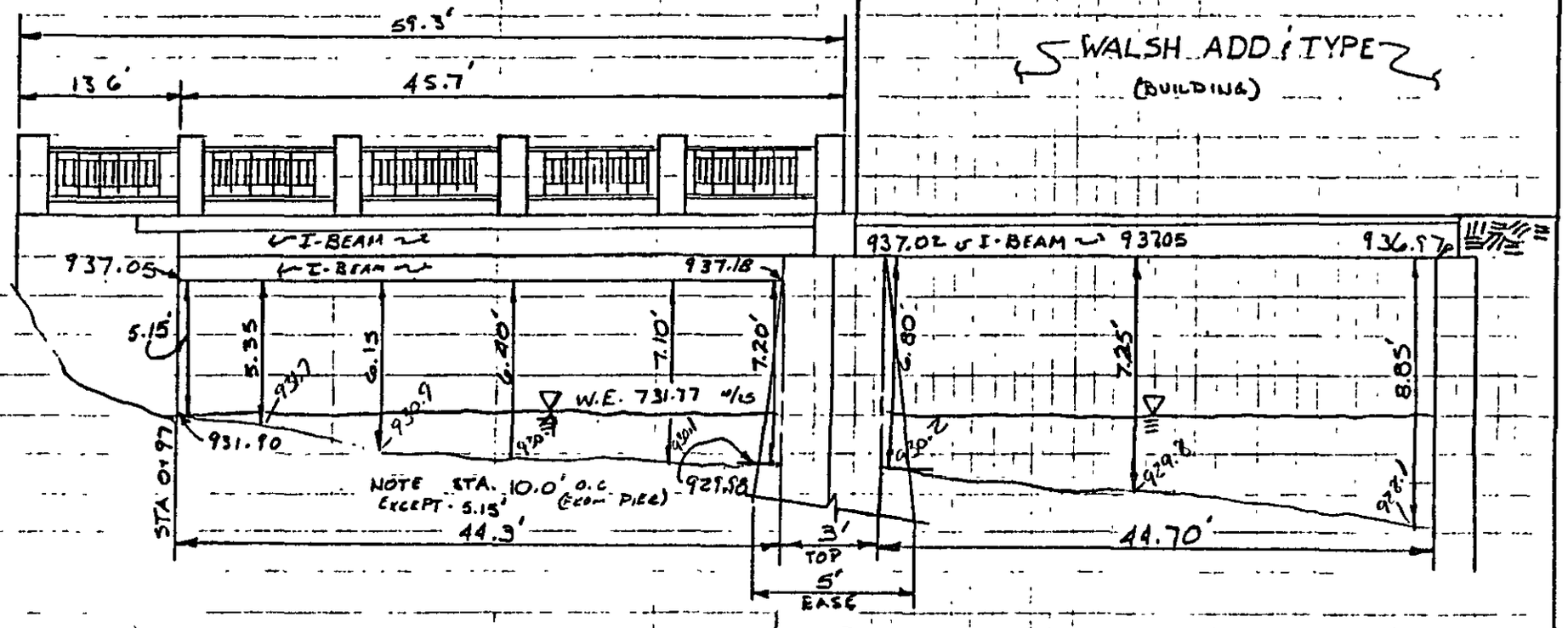
INSTRUMENTS:

TEMP (DRY BULB) | WET BULB | RH % | BAR.

PROJECT: HUD

LOCATION: ALBION MICH. CROSS SECTION 17.2

CHECKED BY DATE



CROSS SECTION 17.2

LOOKING DOWNSTREAM

ACTIVITY Cross Section 17.2 BOOK 21-12

East of S Superior St. PAGE 92

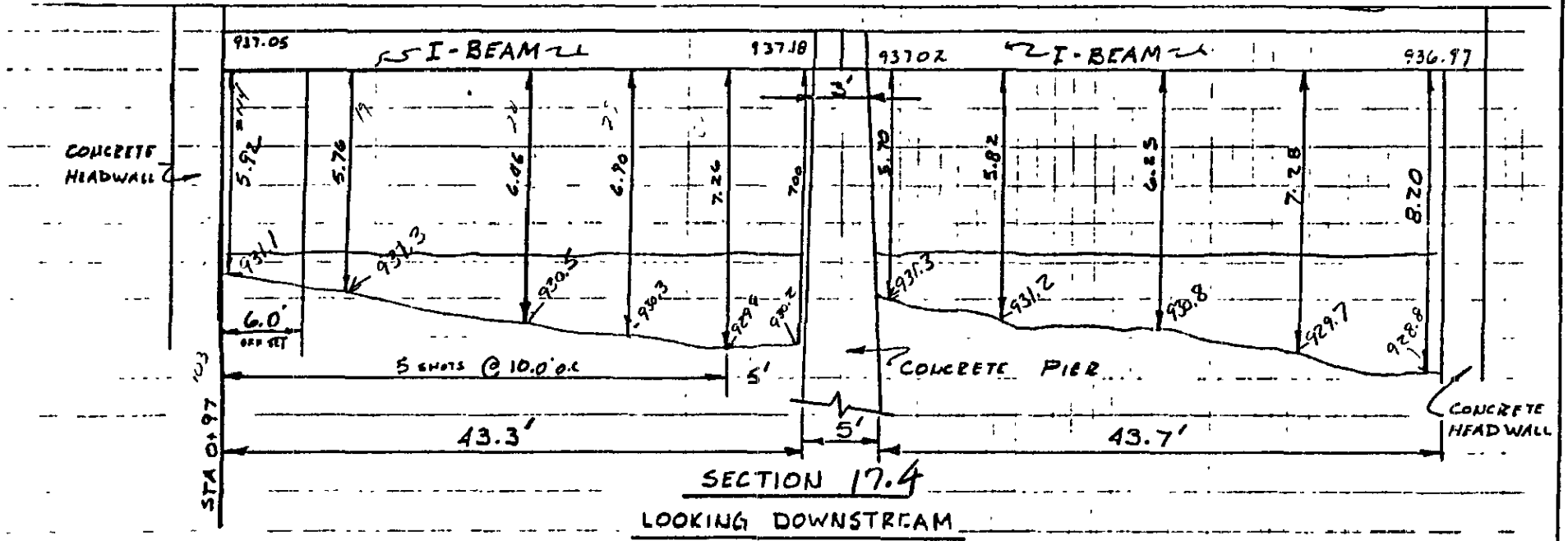
STA. 0+20 UPSTREAM

General Fieldnote Form S-127

COMMONWEALTH ASSOCIATES INC.			CREW: FOUTY, BEARINGER, HERR		
DATE: 10-25-78	INSTRUMENTS:	TEMP (DRY BULB)	WET BULB	RH %	BAR.
PROJECT: HUD	LOCATION: ALBION MICH. Cross Section 17.4			CHECKED BY DATE	

ACTIVITY Cross Section 17.4 BOOK 2.1-17 PAGE 104

WEST of S SUPERIOR ST. STA. 0+30 DOWN STREAM

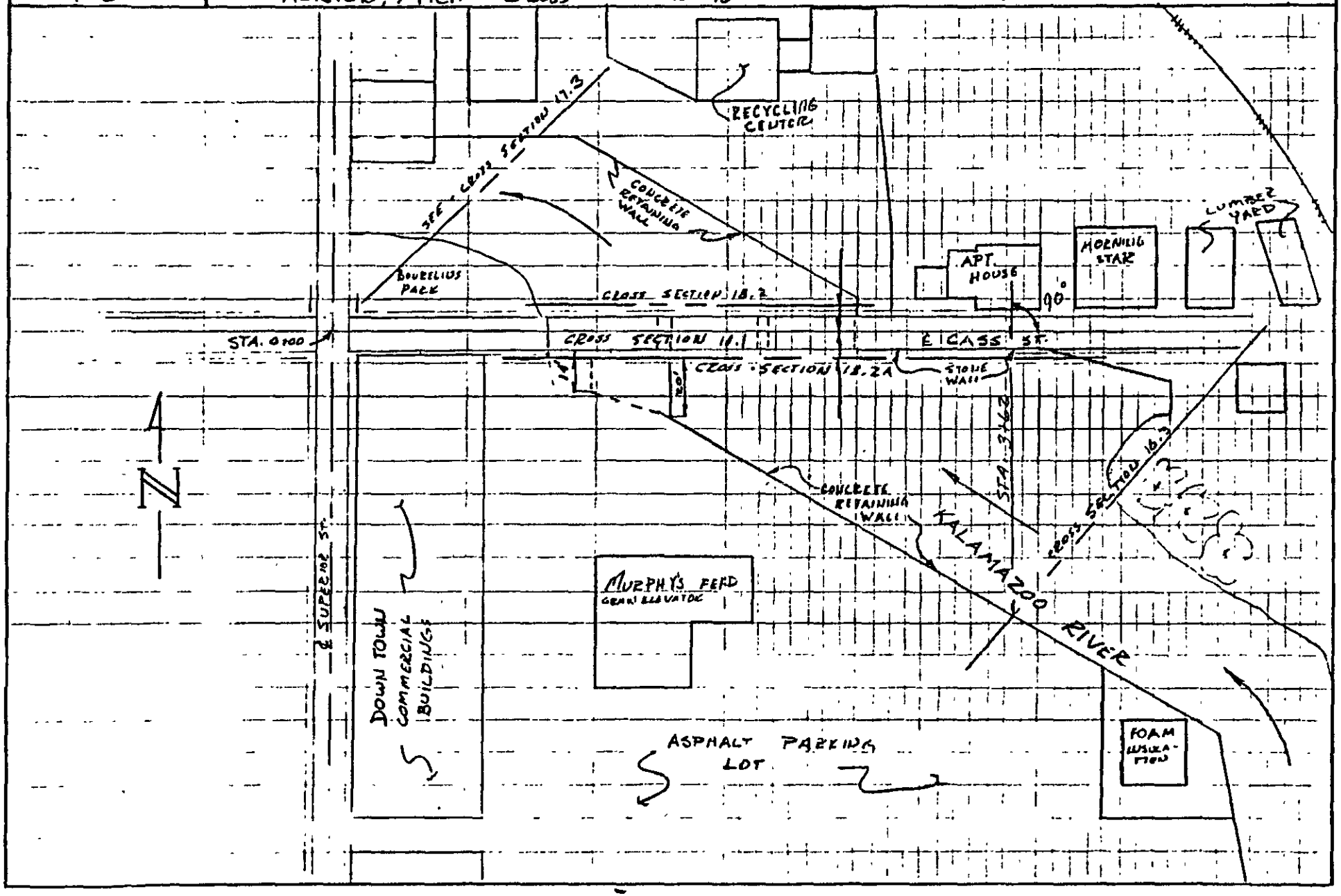


SECTION 17.4

LOOKING DOWNSTREAM

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.		CREW: FOOTY, BEARINGER, HERR			
DATE: 10-30-78	INSTRUMENTS:	TEMP (DRY BULB)	WET BULB	RH %	BAR.
PROJECT: HUD	LOCATION: ALBION, MICH CROSS SECTION 18			CHECKED BY DATE	



ACTIVITY CROSS SECTION 18 BOOK 21-19 PAGE 111

PLAN VIEW STA.

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

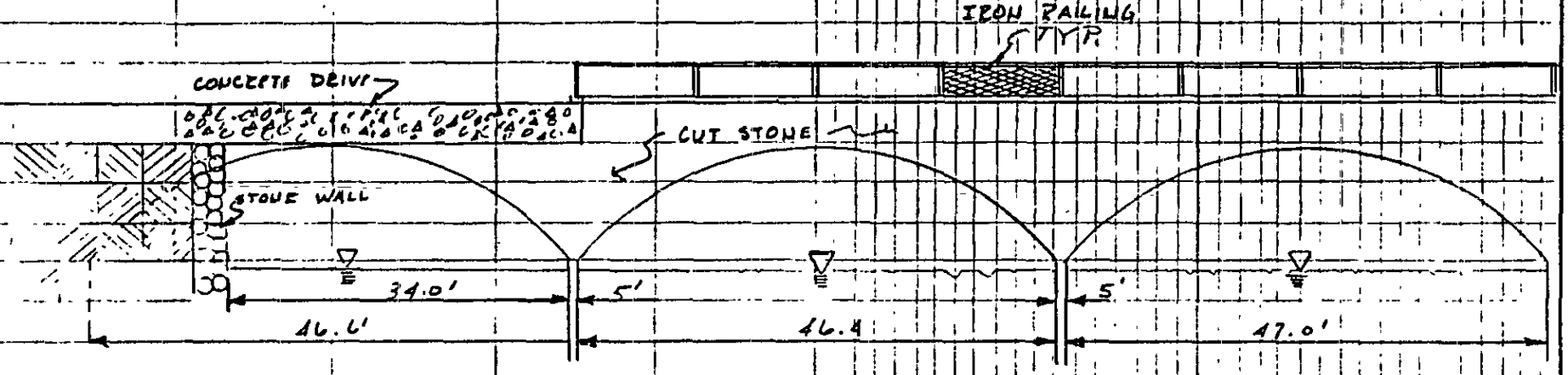
CREW: FOUTY, BEARINGER, HERR

DATE: 10-30-78 | INSTRUMENTS: | TEMP (DRY BULB) 40° | WET BULB | RH — % | BAR.

PROJECT: HUD | LOCATION: ALBION, MI. CROSS SECTION 18.2A | CHECKED BY | DATE

ACTIVITY CROSS SECTION 18.2A BOOK 21-12 PAGE 122

STA. 18' UPSTREAM



SIDE VIEW

LOOKING DOWNSTREAM

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, BEARINGER, HERR

DATE: 10-30-78

INSTRUMENTS:

TEMP (DRY BULB) 40°

WET BULB

RH %

BAR.

PROJECT: HUD

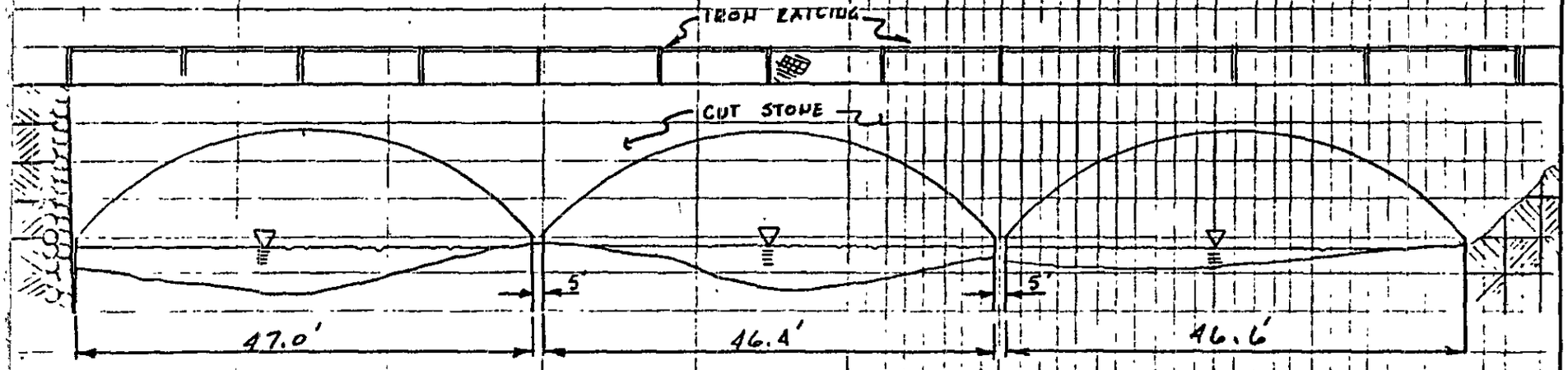
LOCATION: ALBION, MICH. CROSS SECTION 18.2

CHECKED BY

DATE

ACTIVITY CROSS SECTION 18.2 BOOK 2.1 - 19 PAGE 117

STA. 18' DOWNSTREAM



SIDE VIEW

LOOKING UP STREAM

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

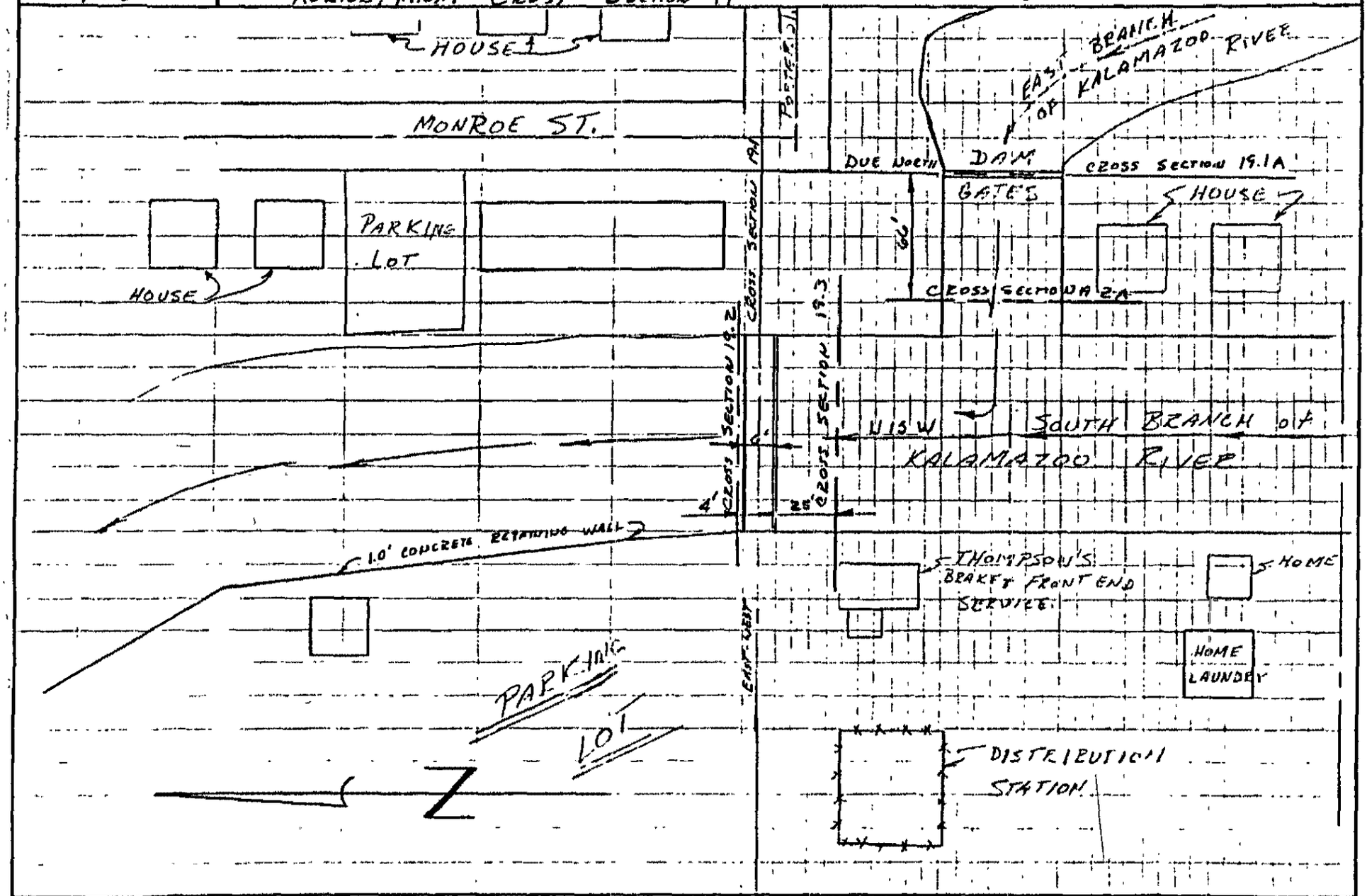
CREW: FOUTY BEARING FIT, HOWE

DATE: 10-30-78 | INSTRUMENTS: NA "2" | TEMP (DRY BULB) | WET BULB | RH % | BAR.

PROJECT: HUD | LOCATION: ALBION, MICH. CROSS SECTION 19 | CHECKED BY | DATE

ACTIVITY Cross Section 19 BOOK 2.1-19 PAGE 130

PLAN VIEW STA.



General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

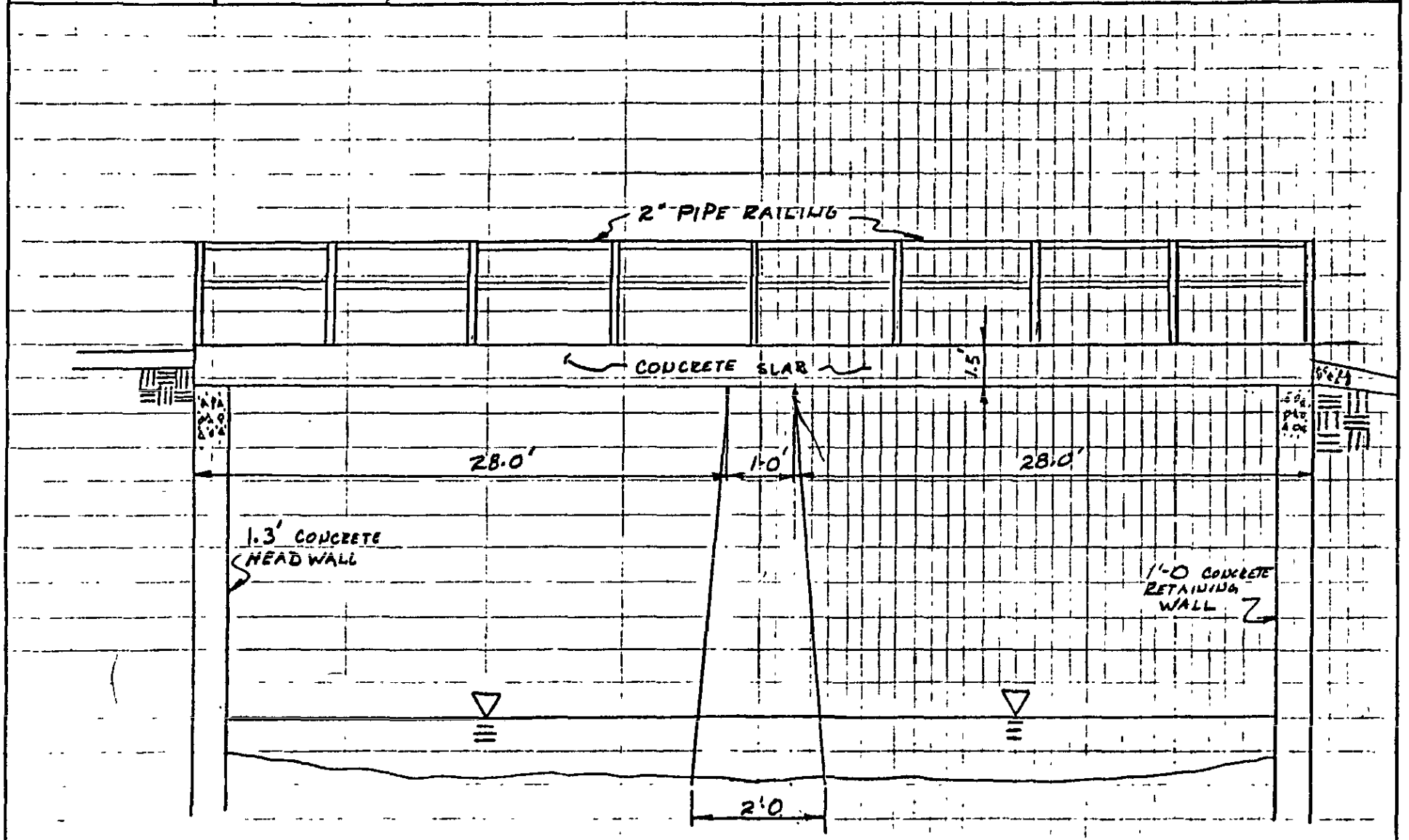
CREW: FOUTY, BEARINGER, HEITZ

DATE: 10-30-78 | INSTRUMENTS: | TEMP (DRY BULB) | WET BULB | RH % | BAR.

PROJECT: HUD | LOCATION: ALBION, MICH CROSS SECTION 19.2 | CHECKED BY | DATE

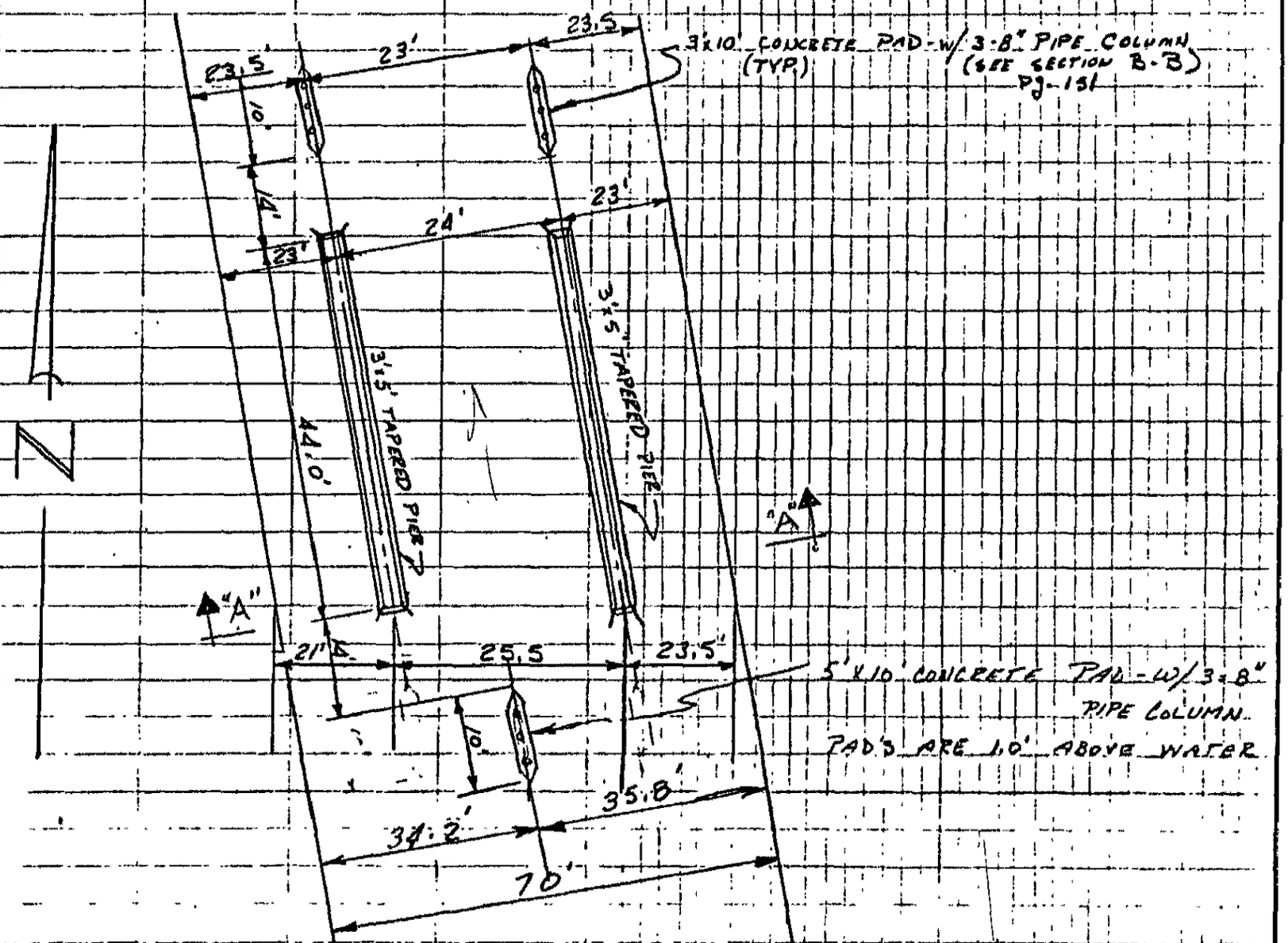
ACTIVITY Cross Section 19.2 BOOK 2-1-15 PAGE 135

STA. 4' Downstream



General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.				CREW: FOUTY, BEARINGER, HERR	
DATE: 10-31-78	INSTRUMENTS:	TEMP (DRY BULB)	WET BULB	RH %	BAR.
PROJECT: HUD	LOCATION: ALBION, MICH. CUT-A-WAY PLAN VIEW			CHECKED BY DATE	



ACTIVITY CUT-A-WAY PLAN VIEW BOOK 21-19 PAGE 150
SECT 20.0 STA. E. ERIE ST.

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

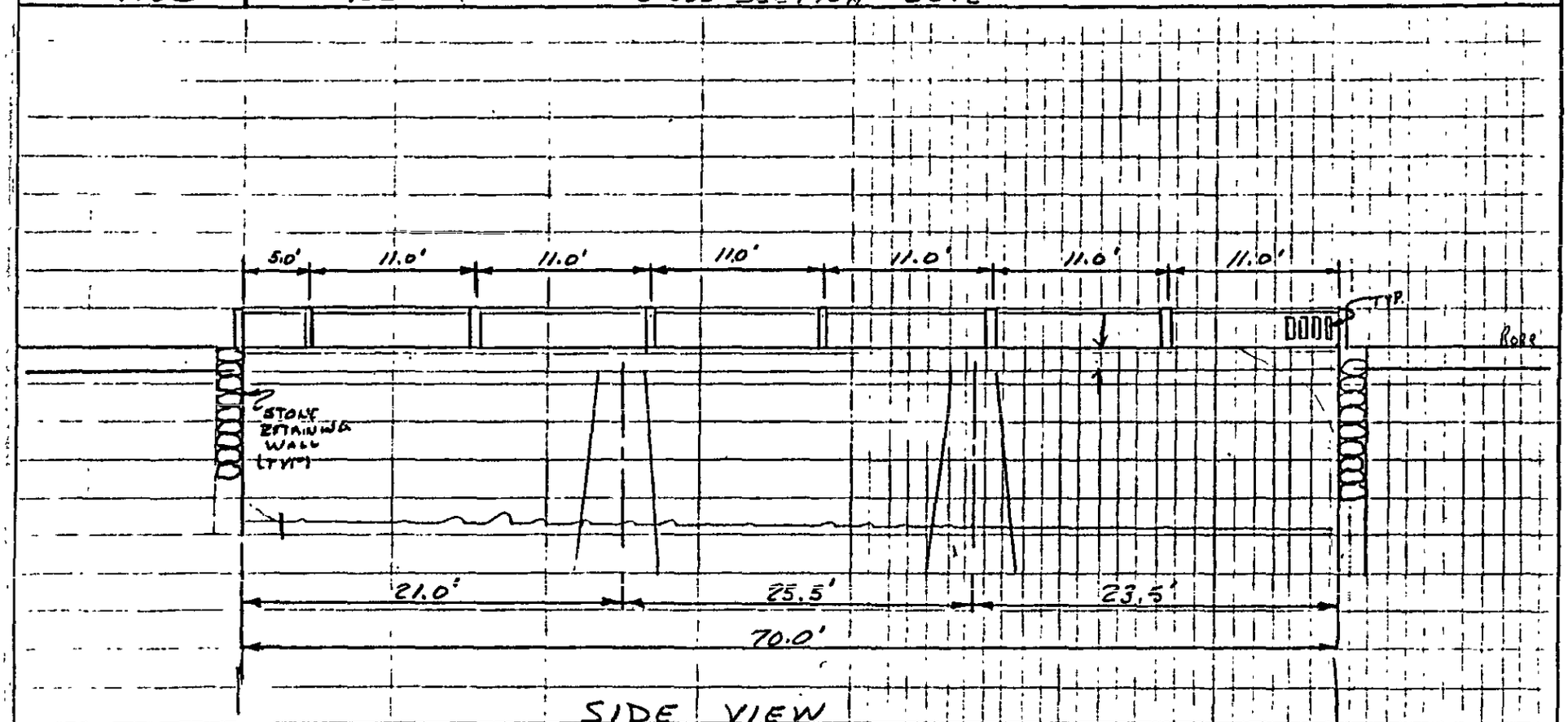
CREW: FOUTY, BEARINGER, HERB

DATE: 10-31-78 | INSTRUMENTS: NA 2 | TEMP (DRY BULB) | WET BULB | RH % | BAR.

PROJECT: HUD | LOCATION: ALBION, MICH. CROSS SECTION 20.2 | CHECKED BY | DATE

ACTIVITY Cross Section BOOK 21-19 PAGE 151

E. ERIE ST. STA. 22' UPSTREAM



SIDE VIEW
SECTION "A-A"

LOOKING DOWNSTREAM

ACTIVITY Cross Section 20 BOOK 2.1-19 PAGE 144

PLAN VIEW STA.

S-127A

General Fieldnote Form

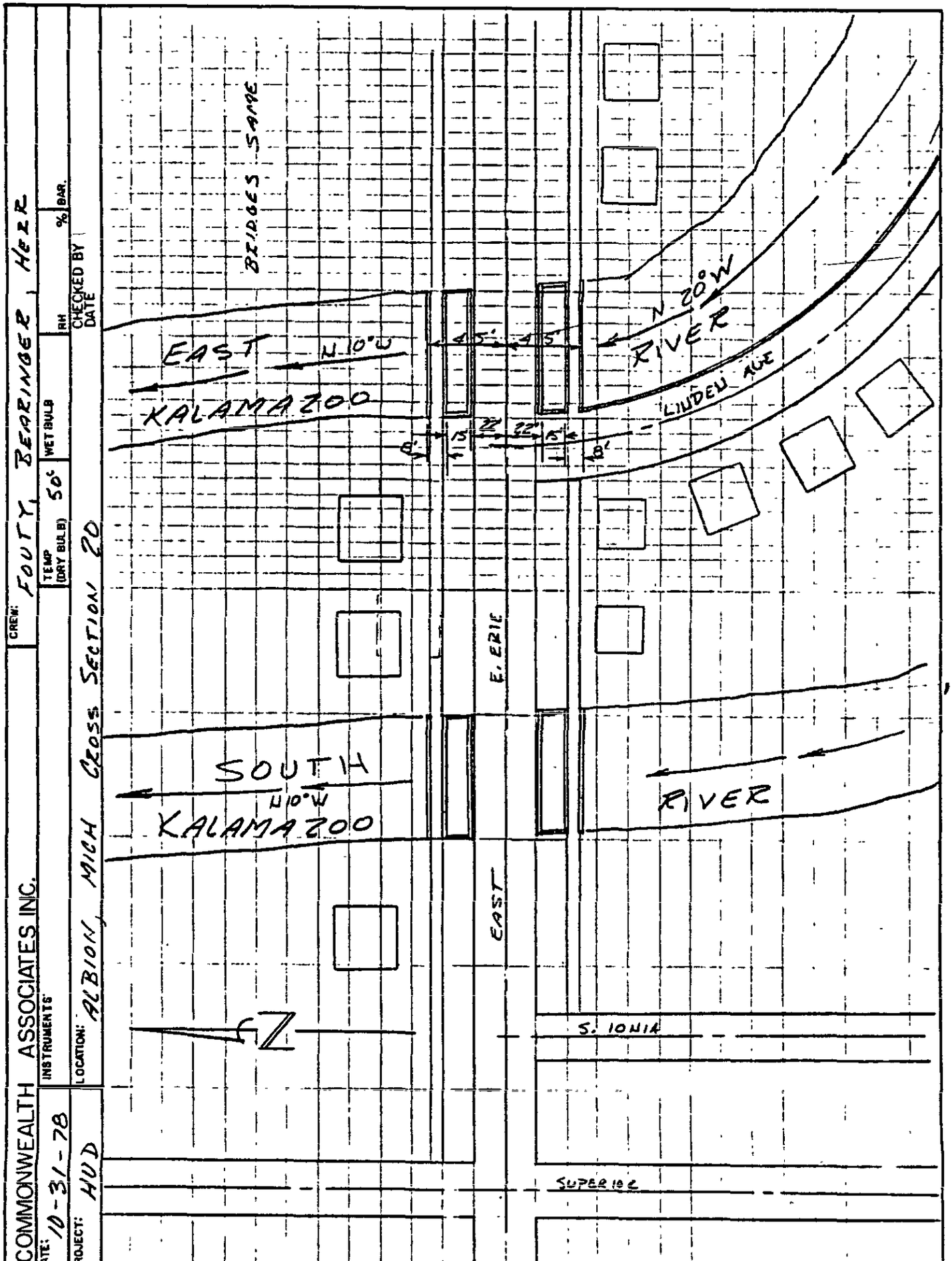
COMMONWEALTH ASSOCIATES INC.

DATE: 10-31-78 INSTRUMENTS: CREW: FOUTY, BERINGER, HOLZ

PROJECT: HUD LOCATION: ALBION, MICH Cross Section 20

TEMP (DRY BULB) 50° WET BULB RH % BAR.

CHECKED BY DATE



General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, BEARINGER, HERR

DATE: 10-31-78

INSTRUMENTS:

TEMP (DRY BULB) 50

WET BULB

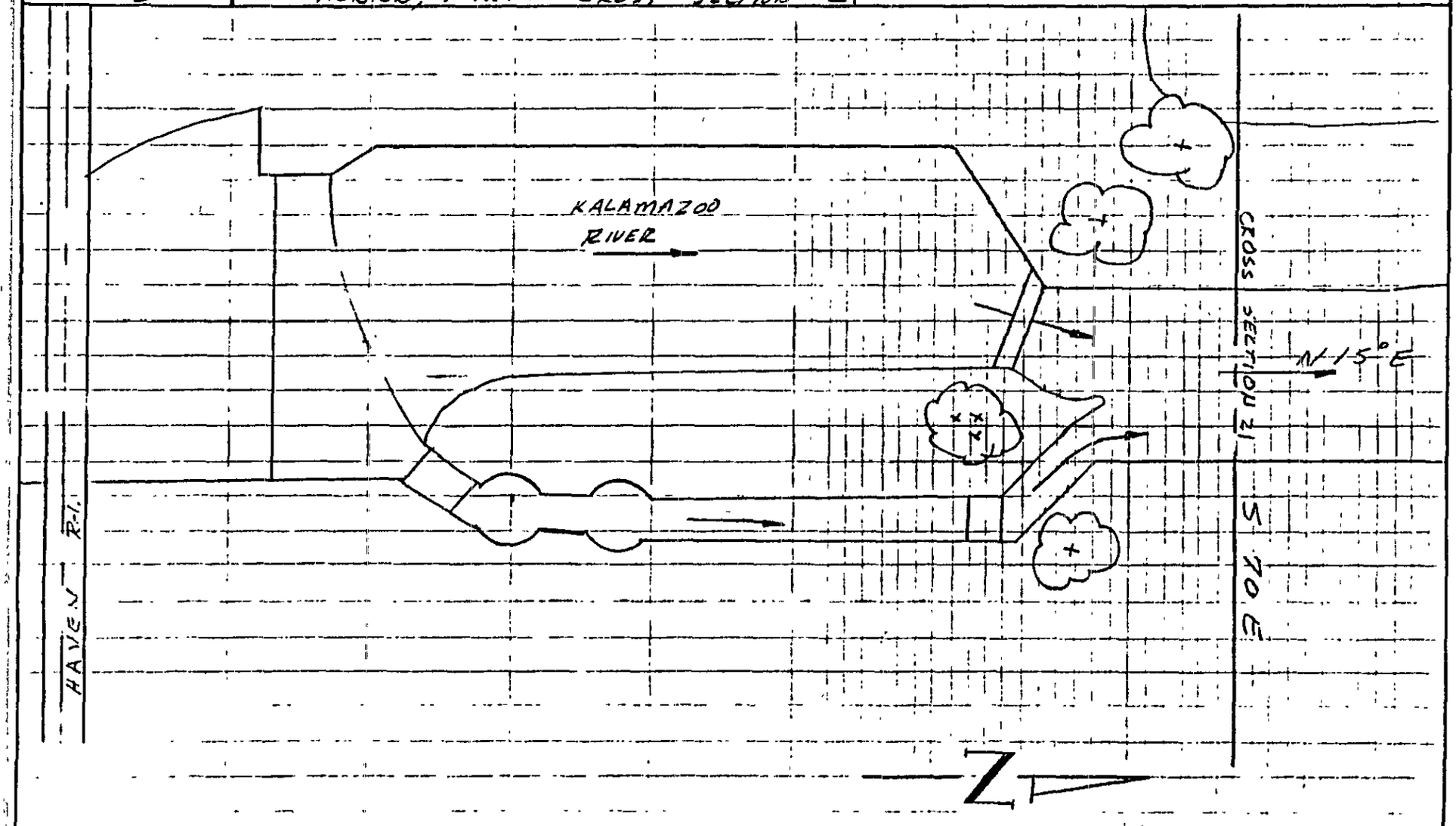
RH % BAR.

PROJECT: HUD

LOCATION: ALBION, MICH. CROSS SECTION Z1

CHECKED BY

DATE



ACTIVITY Cross Section Z1 BOOK Z1-17 PAGE 156

STA.

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

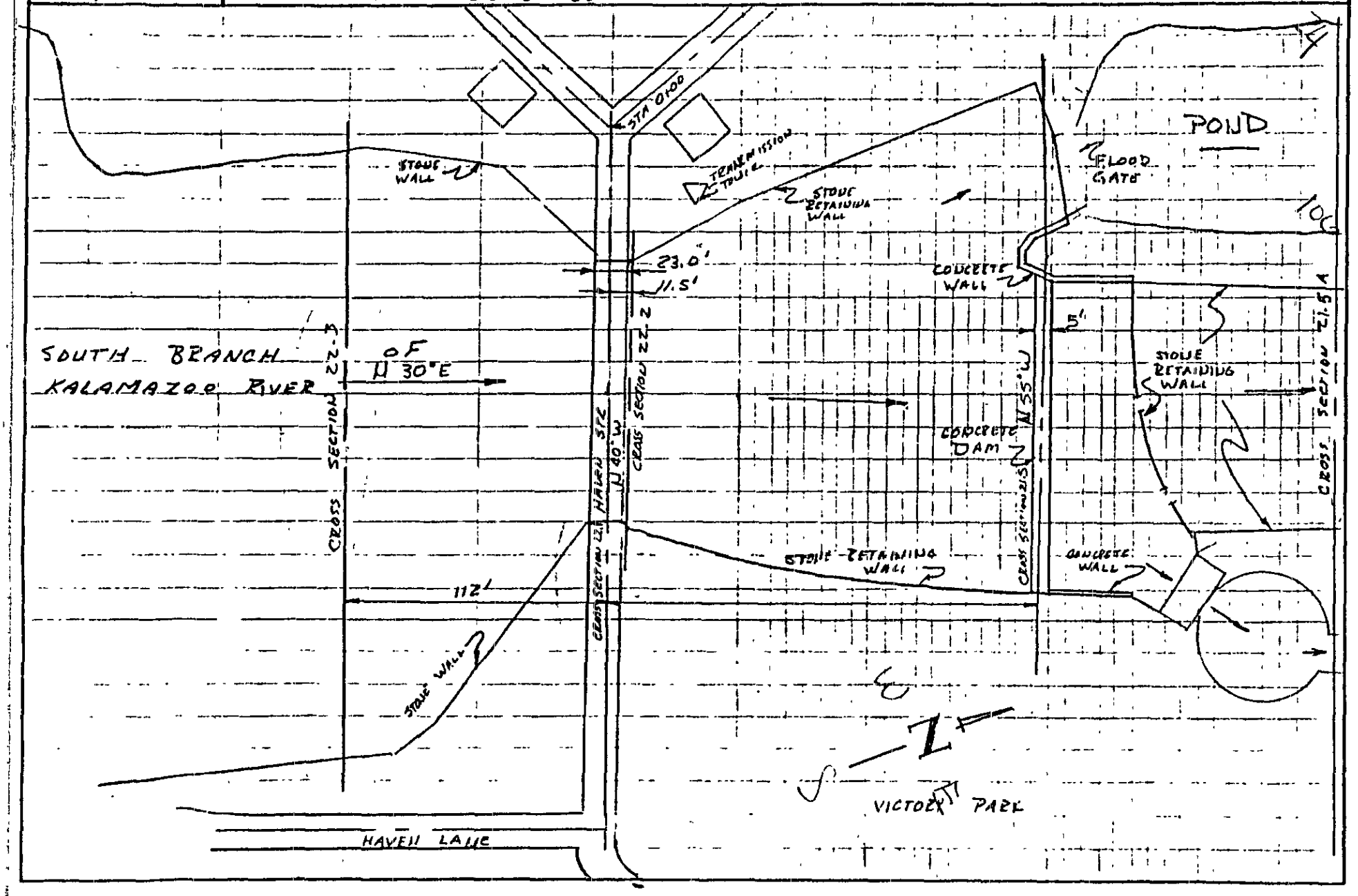
CREW: FOUTY, BEARINGER, HERZ

DATE: 11-1-78 | INSTRUMENTS: | TEMP (DRY BULB) 45 | WET BULB | RH % | BAR.

PROJECT: HUD | LOCATION: ALBION, MICH. CROSS SECTION 21.5 & 22 | CHECKED BY | DATE

ACTIVITY CROSS SECTION 21.5 & 22 BOOK 2-1-15 PAGE 165

PLAN VIEW STA. 0 OF HAVEN ST.



General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

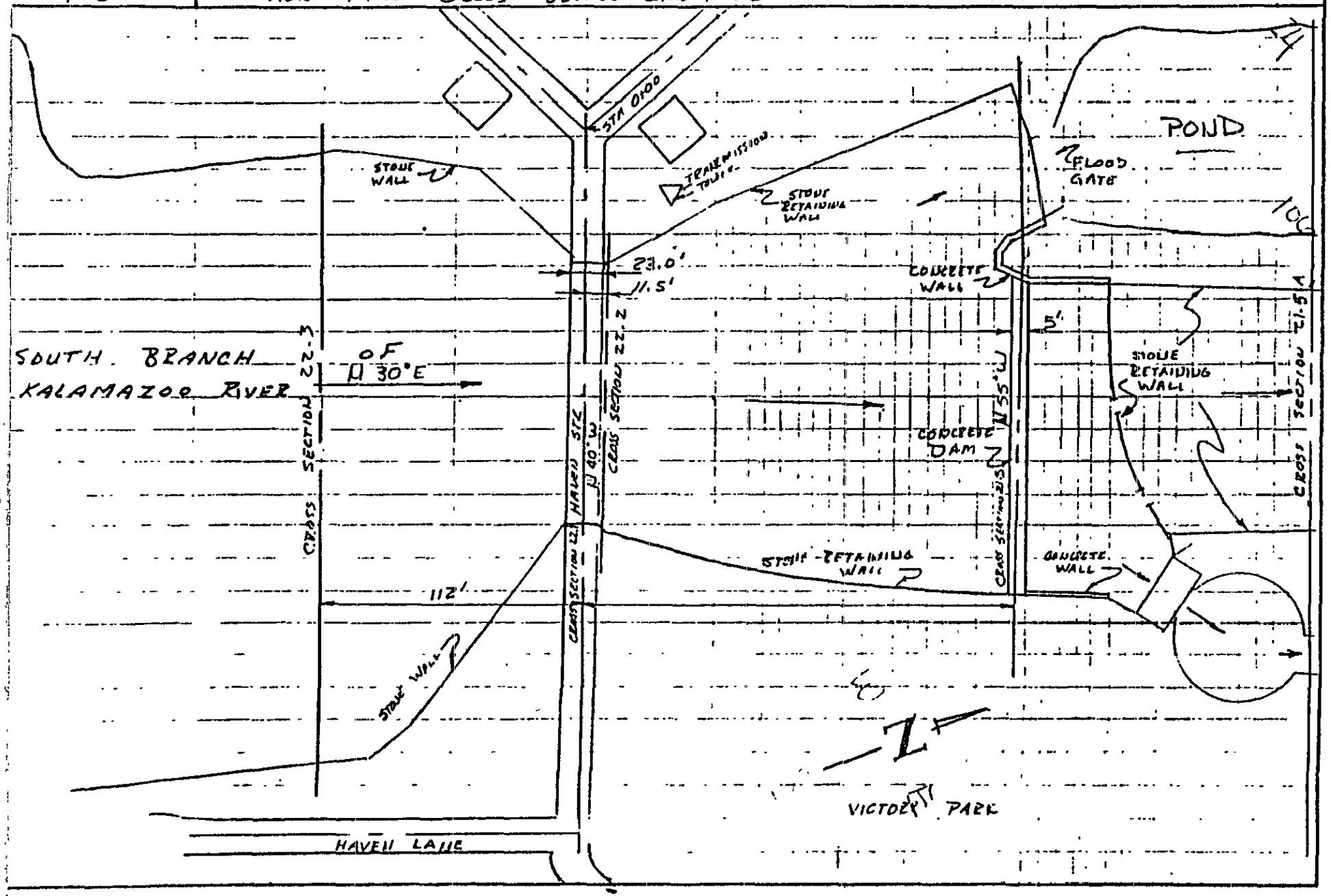
CREW: FOUTY, BRADINGER, HERR

DATE: 11-1-78 | INSTRUMENTS: | TEMP (DRY BULB) 45 | WET BULB | RH % | BAR.

PROJECT: HUC | LOCATION: ALBION, MICH. CROSS SECTION 21.5 & 22 | CHECKED BY | DATE

ACTIVITY CROSS SECTION 21.5 & 22 BOOK 21-19 PAGE 165

PLAN VIEW STA. 0 OF HAVEN ST.



General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, BEARWALK, HEITT

DATE: 11-3-78

INSTRUMENTS:

TEMP (DRY BULB) | WET BULB | RH % | BAR.

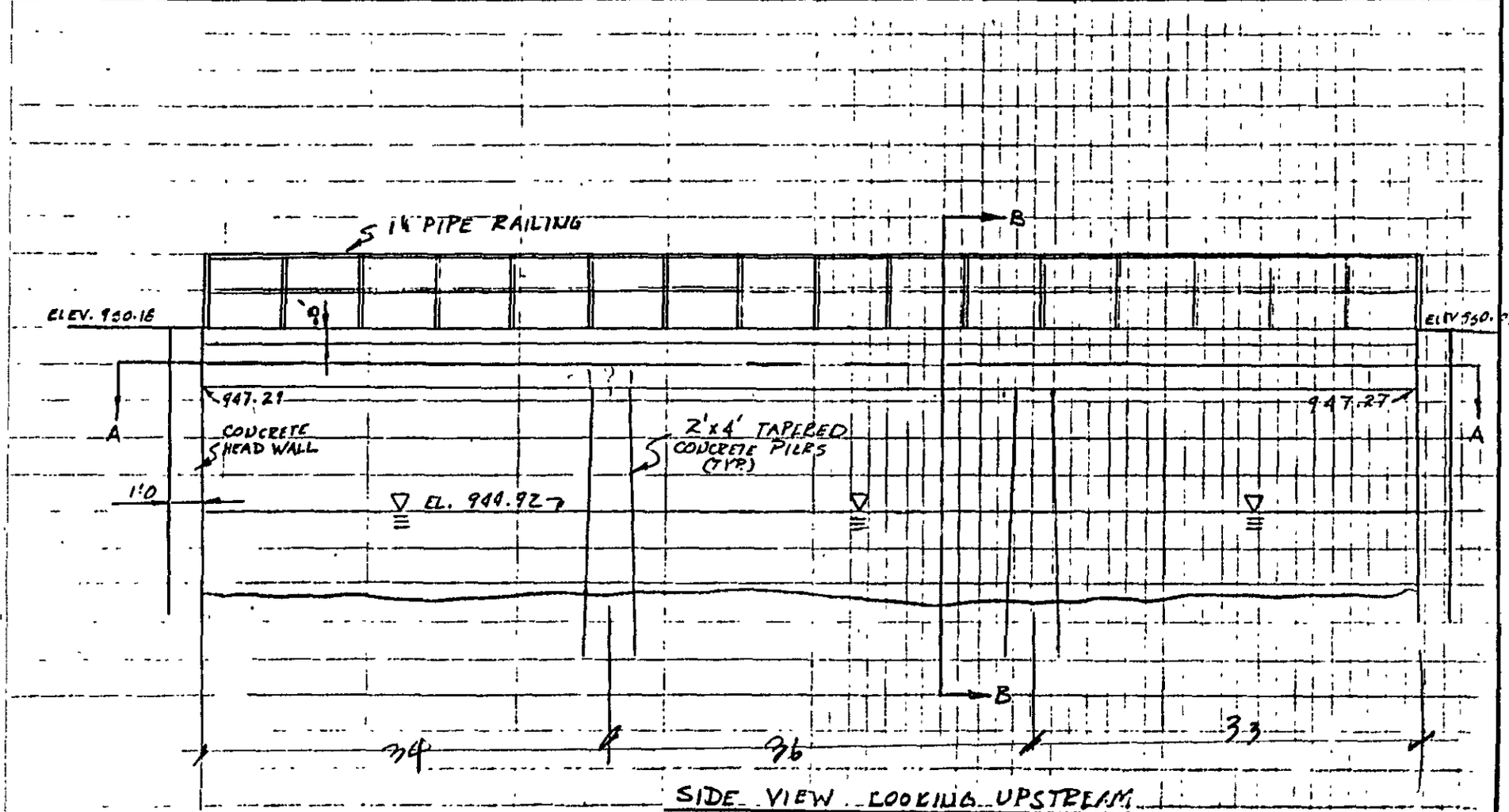
PROJECT: HUD

LOCATION: ALBION, MICH CROSS SECTION 22

CHECKED BY DATE

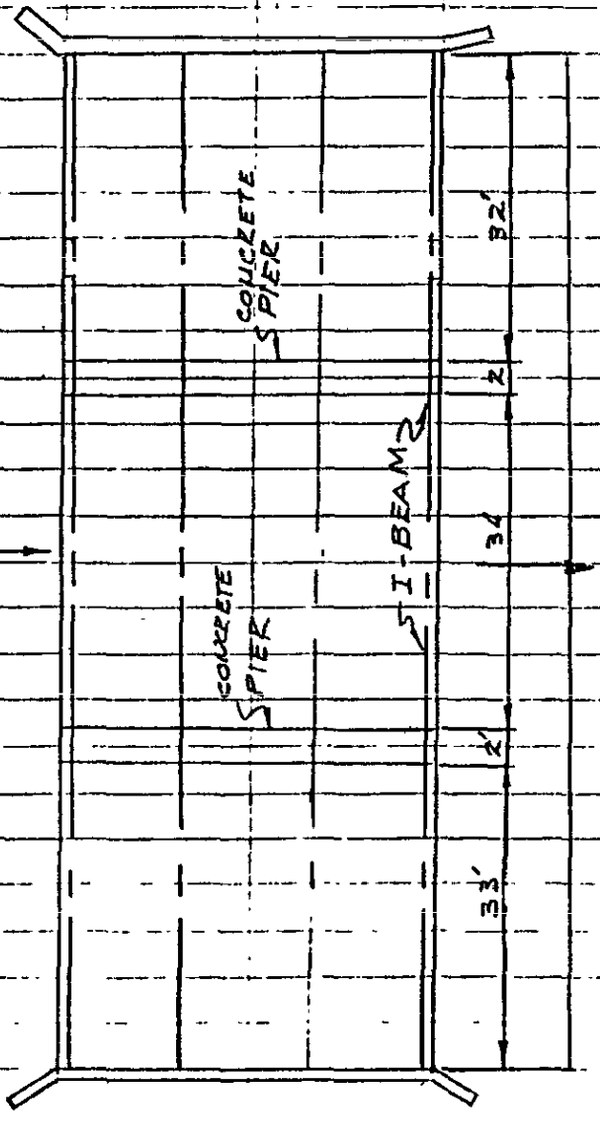
ACTIVITY CROSS SECTION 22 BOOK 2-1-19 PAGE 170

HAVEN ROAD STA.

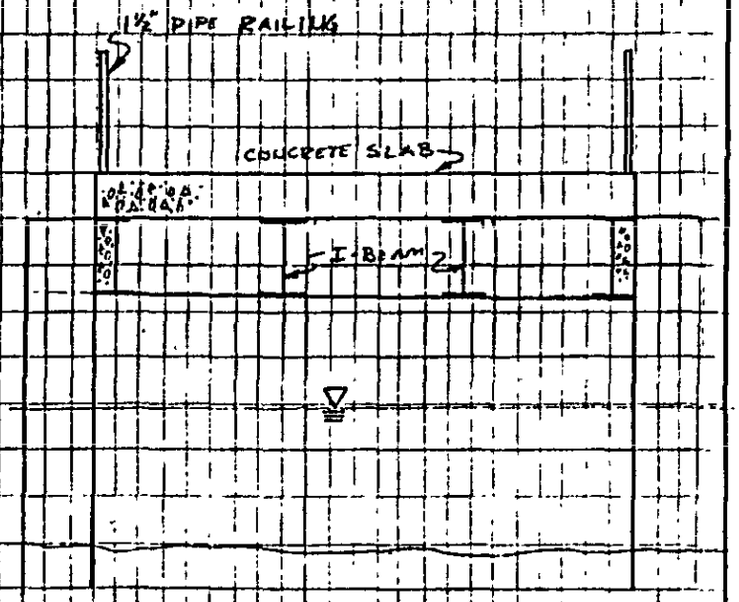


General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.		CREW: FONTY, BEARINGER HERR			
DATE: 11-3-78	INSTRUMENTS:	TEMP (DRY BULB)	WET BULB	RH %	BAR.
PROJECT: HUD	LOCATION: ALBION, MICH CROSS SECTION 22			CHECKED BY DATE	



SECTION A-A



SECTION B-B

ACTIVITY Cross Section 22 BOOK 2.1-19 PAGE 170A

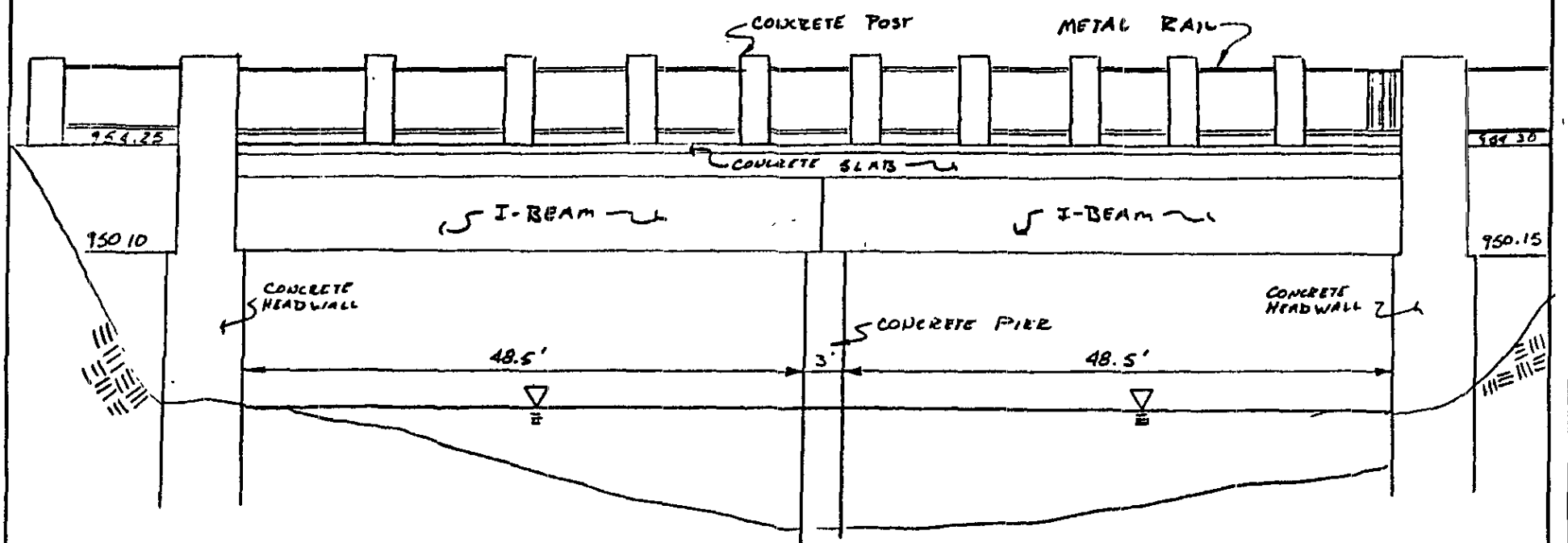
STA.

General Fieldnote Form S-127

COMMONWEALTH ASSOCIATES INC.			CREW: FOUTY, BEARINGER, HERR		
DATE: 11-9-78	INSTRUMENTS: NA 2	TEMP (DRY BULB) 50	WET BULB	RH %	BAR
PROJECT: HUD	LOCATION: ALBION, MICH CROSS SECTION 23.2A			CHECKED BY DATE	

ACTIVITY Cross Section 23.2A BOOK 7.1-11 PAGE 240

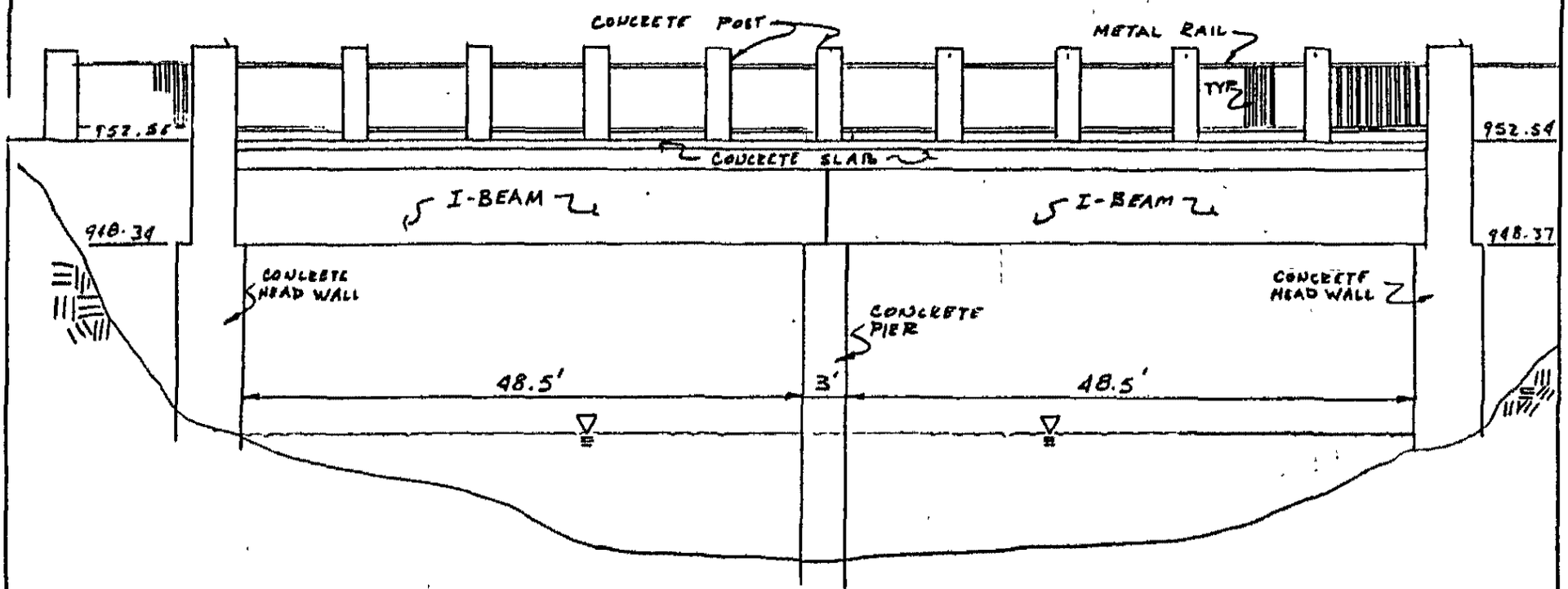
STA. 28' Downstream



SIDE VIEW LOOKING UPSTREAM

General Fieldnote Form S-127

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY, BEARINGER, HERR			
DATE: 11-9-78	INSTRUMENTS:	TEMP (DRY BULB)	WET BULB	RH %	BAR
PROJECT: HUD	LOCATION: ALBION, MICH CROSS SECTION 23-2			CHECKED BY DATE	



SIDE VIEW LOOKING DOWN STREAM

ACTIVITY Cross Section 23-2 BOOK 21-17 PAGE 238

STA. 28' UPSTREAM

General Fieldnote Form S-12

COMMONWEALTH ASSOCIATES INC.

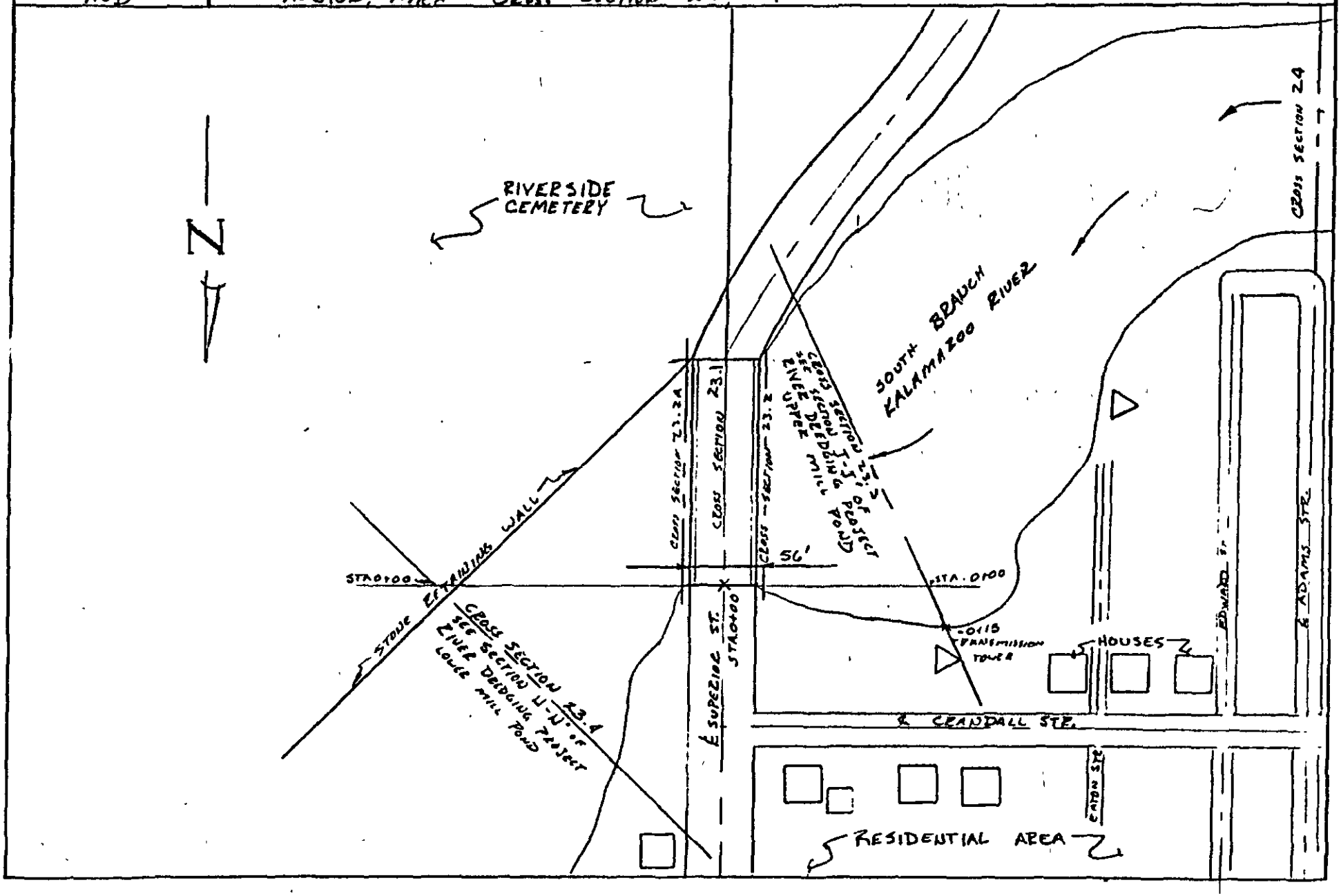
CREW: FOUTY, BEARINGER, HEPP

DATE: 11-9-78 | INSTRUMENTS | TEMP (DRY BULB) | WET BULB | RH % | BAR.

PROJECT: HUD | LOCATION: ALBION, MICH CROSS SECTION 23 & 24 | CHECKED BY | DATE

ACTIVITY Cross Section 23 & 24 BOOK 2-1-19 PAGE 232

PLAN VIEW STA.



Filename = FWSPCOLD.OUT

BEM
5/13/91

***** WSPE MICROCOMPUTER TEST VERSION *****

---------- LIST OF INPUT DATA WITH LIMITED EDITING----------

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TITLE      COLD CREEK FPMS,  02-15-91,    10,50,100 & 500 YR. STORMS           2
TITLE      DISCHARGE TO RANDALL LAKE                                            3
DISCHARGE -1.        985.       1610.      1840.      2770.                     4
STARTE     10.5      923.       923.       923.       923.                      7
TRIB       11.85     12.5       13.2       15.1       21.5       22.1
TRIB       24.5      26.1
COMMENT  STARTING ELEVATION FROM ESTABLISHED LEGAL LEVEL - 923.0 FT.
COMMENT  DISCHARGE FROM XSECTION 034 OF TR20COLD.OUT
OUTPUT     PSH                                                                  11
REACH      10.5      1.         1520.      1500.                               12
REACH      10.9      1.         2950.      1560.                               13
ROAD       11.0      2.63       65.        65.                                 14
COMMENT    CS 11.0 @ STA. 45+68 IS UNION CITY ROAD                             15
REACH      11.1      1.         69.        69.                                 16
REACH      11.5      1.         2652.      2216.                               17
REACH      11.7      1.         2644.      2088.                               18
REACH      11.75     1.         1239.      1200.                               19
ROAD       11.8      2.63       60.        60.                                 20
COMMENT    CS 11.8 @ STA. 112+85 IS CROSSING @ GRAVEL PIT                      21
REACH      11.85     1.         30.        30.                                 22
REACH      11.9      1.        -2845.     -2285.                               23
ROAD       12.0      2.63       65.        65.                                 24
COMMENT    CS 12.0 @ STA. 142+78 IS OLD 27 (MARSHALL STREET)                   25
REACH      12.1      1.         69.        69.                                 26
REACH      12.5      1.         3820.      3200.                               27
REACH      12.9      1.         3000.      2373.                               28
ROAD       13.0      2.63       66.        66.                                 29
COMMENT    CS 13.0 @ STA. 213+00 IS MICHIGAN ROAD                              30
REACH      13.1      1.         42.        42.                                 31
REACH      13.2      1.         392.       392.
REACH2     13.1      2.1
REACH      13.5      1.         993.       908.                                32
REACH      13.9      1.         865.       800.                                33
ROAD       15.0      2.63       150.       150.                                34
COMMENT    CS 15.0 @ STA. 240+10 IS I-69                                       35
REACH      15.1      1.         190.       190.                                36
REACH      15.5      1.         1514.      1200.                               37
REACH      15.6      1.         954.       900.                                38
ROAD       15.7      2.63       30.        30.                                 39
COMMENT    CS 15.7 @ STA. 267+18 IS FIELD BRIDGE                               40
REACH      15.8      1.         30.        30.                                 41
REACH      15.9      1.         1014.      900.                                42
ROAD       16.0      2.63       67.        67.                                 43
COMMENT    CS 16.0 @ STA. 278+82 IS JONESVILLE ROAD                            44
```

1 WSPE XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR. STORMS WS : PAGE
REV 03/14/88 DISCHARGE TO RANDALL LAKE ALT: 1

***** WSPE MICROCOMPUTER TEST VERSION *****

----------80/80 LIST OF INPUT DATA----------

```
REACH      16.1      1.         66.        66.                                 45
REACH      16.5      1.         490.       450.                                46
REACH      16.9      1.         1010.      900.                                47
ROAD       17.0      2.63       227.       227.                                48
COMMENT    CS 17.0 @ STA. 297+42 IS GORBELL ROAD                               49
REACH      17.1      1.         147.       147.                                50
```

```
COMMENT   SOUTH TRIBUTARY ENTERS COLD CREEK @ STA. 217+67                    51
REACH     20.5       1.          2120.       2000.                          52
REACH     20.9       1.          1374.       1300.                          53
ROAD      21.0       2.63        92.         92.                            54
COMMENT   CS 21.0 @ STA. 36+19 IS NEWTON ROAD                                55
REACH     21.5       1.          183.        183.                           56
REACH     21.9       1.          1.          1.
REACH2    21.5       0.
ROAD      22.0       2.63        423.        423.                           57
COMMENT   CS 22.0 @ STA. 43+25 IS MICHIGAN ROAD                              58
REACH     22.1       1.          117.        117.                           59
REACH     22.5       1.          755.        700.                           60
REACH     22.7       1.          1120.       1100.                          61
REACH     22.9       1.          1215.       1200                           62
ROAD      23.0       2.63        77.         77.                            63
COMMENT   CS 23.0 @ STA. 97+65 IS STATE ROAD                                 64
REACH     23.1       1.          77.         77.                            65
REACH     23.5       1.          800.        800.                           66
REACH     23.9       1.          450.        450.                           67
ROAD      24.0       2.63        84.         84.                            68
COMMENT   CS 24.0 @ STA. 112+15 IS PRIVATE ROAD                              69
REACH     24.1       1.          84.         84.                            70
REACH     24.5       1.          820.        820.                           71
REACH     24.9       1.          765.        765.                           72
ROAD      25.0       2.63        174.        174.                           73
COMMENT   CS 25.0 @ STA. 130+92 IS SEELEY ROAD                               74
REACH     25.1       1.          82.         82.                            75
REACH     25.9       1.          705.        705.                           76
ROAD      26.0       2.63        318.        318.                           77
COMMENT   CS 26.0 @ STA. 142+47 IS MICHIGAN ROAD                             78
REACH     26.1       1.          67.         67.                            79
REACH     26.2       1.          1.          1.
REACH2    26.1       0.
ROAD      26.5       2.63        813.        813.                           80
COMMENT   CS 26.5 @ STA. 152+00 IS PRIVATE DRIVE                             81
REACH     26.7       1.          860.        860.                           82
SEGMENT   10.5       1           N           0.                             91
NVALUE    .135                                                              92
SEGMENT   10.5       2           C           120.                           93
```



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*****  WSP2  MICROCOMPUTER  TEST  VERSION  *****

----------80/80 LIST OF INPUT DATA----------
NVALUE    .045                                                              94
SEGMENT   10.5       3           N           400.                           95
NVALUE    .130                                                              96
SECTION   10.5                                                              97
          -450.      928.4       -400.       925.8       -350.      925.2   98
          -250.      923.8       -150.       923.5       0.         923.7   99
          10.        923.0       20.         919.5       30.        914.    100
          60.        914.        90.         915.2       120.       923.2   101
          200.       924.9       300.        925.9       350.       928.1   102
          400.       928.8                                                  103
ENDTABLE                                                                    104
SEGMENT   10.9       1           N           -30.                           107
NVALUE    .140                                                              108
SEGMENT   10.9       2           C           0.                             107
NVALUE    .045                                                              108
SEGMENT   10.9       3           N           500.                           109
NVALUE    .130                                                              110
SECTION   10.9                                                              111
          -1000.     934.7       -800.       926.1       -600.      926.5   112
          -400.      925.8       -200.       927.4       -100.      925.3   113
```

```
                -30.        924.7       -25.        922.3       -20.        919.6       114
                -15.        916.6       -10.        917.4       -5.         921.6       115
                0.          924.6       50.         925.2       200.        923.4       116
                300.        925.2       400.        926.5       450.        930.2       117
                500.        933.5                                                       118
ENDTABLE                                                                                118A
BPR             11.0        A           3                                               119
GIRDER          927.3       926.8       0.          .8          2.63                    120
                -16.        930.        -16.        926.8       16.         926.8       121
                16.         930.                                                        122
ENDTABLE                                                                                123
SECTION         11.0                                                                    124
                -200.       933.8       -160        930.        -16.        920.2       125
                0.          917.6       16.         920.4       16.         930.        126
                200.        928.5       400.        929.1       500.        933.5       127
ENDTABLE                                                                                127A
SEGMENT         11.1        1           N           -15.                                128
NVALUE          .140                                                                    129
SEGMENT         11.1        2           C           15.                                 130
NVALUE          .070                                                                    131
SEGMENT         11.1        3           N           650.                                132
NVALUE          .135                                                                    133
SECTION         11.1                                                                    134
                250.        934.        -150.       930.        -50.        928.7       135
                -15.        924.9       -10.        920.6       0.          918.7       136
1    WSPG XEQ 02/18/91      10:57:06    COLD CREEK FPMS,  02-15-91,  10,50,100 & 500 YR. STORMS     WS :          PAGE
     REV 03/14/88                       DISCHARGE TO RANDALL LAKE                                   ALT:     3

     *****   WSPG  MICROCOMPUTER  TEST  VERSION   *****

 ----------------------------80/80 LIST OF INPUT DATA-------------------------------
                10.         919.6       15.         924.1       100.        924.9       137
                300.        924.4       500.        927.8       650.        932.5       138
ENDTABLE                                                                                138A
 --------------------MESSAGE - DATA POINTS ON SECTION 11.1   REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
SEGMENT         11.5        1           N           -650.                               139
NVALUE          .140                                                                    140
SEGMENT         11.5        2           C           -5.                                 141
NVALUE          .070                                                                    142
SEGMENT         11.5        3           N           550.                                143
NVALUE          .135                                                                    144
SECTION         11.5                                                                    145
                -700.       930.        -600.       925.7       -550.       924.7       146
                -450.       924.7       -350.       924.6       -250.       924.3       147
                -200.       924.6       -100.       924.3       -60.        922.6       148
                -45.        918.7       -30.        917.2       -20.        921.6       149
                -5.         922.6       0.          923.2       100.        923.9       150
                125.        925.3       200.        925.8       400.        925.4       151
                500.        928.        530.        929.8       550.        930.        152
ENDTABLE                                                                                152A
SEGMENT         11.7        1           N           -20.                                153
NVALUE          .135                                                                    154
SEGMENT         11.7        2           C           15.                                 155
NVALUE          .078                                                                    156
SEGMENT         11.7        3           N           150.                                157
NVALUE          .148                                                                    158
SECTION         11.7                                                                    159
                -600.       934.9       -550.       930.5       -500.       926.7       160
                -400.       926.6       -300.       926.4       -200.       926.5       161
                -100.       926.4       -20.        926.2       -12.        925.4       162
                -10.        923.1       0.          923.2       12.         923.4       163
                15.         925.3       50.         926.5       100.        929.9       164
                150.        934.6                                                       165
ENDTABLE                                                                                166
```

```
SEGMENT   11.75     1         N         -35.                                  167
NVALUE    .135                                                                168
SEGMENT   11.75     2         C         0.                                    169
NVALUE    .078                                                                170
SEGMENT   11.75     3         N         1300.                                 171
NVALUE    .148                                                                172
SECTION   11.75                                                               173
          -65.      929.4     -55.      929.5     -45.      929.5             174
          -35.      928.3     -25.      927.3     -15.      926.1             175
          -5.       927.4     0.        928.9     10.       935.3             176
          15.       936.      25.       935.7     35.       932.3             177
          50.       932.3     -400.     933.7     -800.     934.6             178
          -1100.    937.      1300.     938.8
1    WSP2 XEQ 02/18/91     10:57:06     COLD CREEK FPMS,  02-15-91,     10,50,100 & 500 YR. STORMS     WS :          PAGE
          REV 03/14/88                  DISCHARGE TO RANDALL LAKE                                      ALT:      4

     *****   WSP2  MICROCOMPUTER  TEST  VERSION   *****

-----------------------------80/80 LIST OF INPUT DATA-----------------------------
ENDTABLE                                                                      179
---------------------MESSAGE - DATA POINTS ON SECTION 11.75  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
CULV1     11.8      1.        12111.                                        180
CULV2     6.                  40.       925.58    925.38                    181
SECTION   11.8                                                                182
          -1200.    936.3     -1100.    937.      -900.     934.7             183
          -700.     935.      -600.     935.2     -500.     933.5             184
          -350.     933.3     -300.     931.8     -100.     931.3             185
          0.        931.5     50.       931.6     200.      931.2             186
          400.      932.7     500.      933.4     700.      931.6             187
          900.      933.      1100.     934.9     1200.     935.2             188
          1300.     938.8                                                     189
ENDTABLE                                                                      190
SEGMENT   11.85     1         N         -25.                                  191
NVALUE    .135                                                                192
SEGMENT   11.85     2         C         20.                                   193
NVALUE    .078                                                                194
SEGMENT   11.85     3         N         1300.                                 195
NVALUE    .148                                                                196
SECTION   11.85                                                               197
          0.        927.6     -20.      928.2     -25.      931.5             198
          -100.     931.3     -350.     933.3     -500.     933.5             199
          -600.     935.2     -800.     934.6     -1000.    935.4             200
          -1200.    936.3     15.       929.1     20.       931.2             201
          50.       931.6     200.      931.3     400.      932.7             202
          500.      932.4     900.      933.      1200.     935.2             203
          1300.     938.8                                                     204
ENDTABLE                                                                      205
---------------------MESSAGE - DATA POINTS ON SECTION 11.85  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
COMPUTE   10.5      11.85     10.5
-----------------------------END OF DATA LISTING-----------------------------
1                   COMPUTE   10.5      11.85     10.5


-----------------------------STARTING DATA FROM GIVEN ELEVATION-----------------------------

1    WSP2 XEQ 02/18/91     10:57:06     COLD CREEK FPMS,  02-15-91,     10,50,100 & 500 YR. STORMS     WS :          PAGE
          REV 03/14/88                  DISCHARGE TO RANDALL LAKE                                      ALT:            5

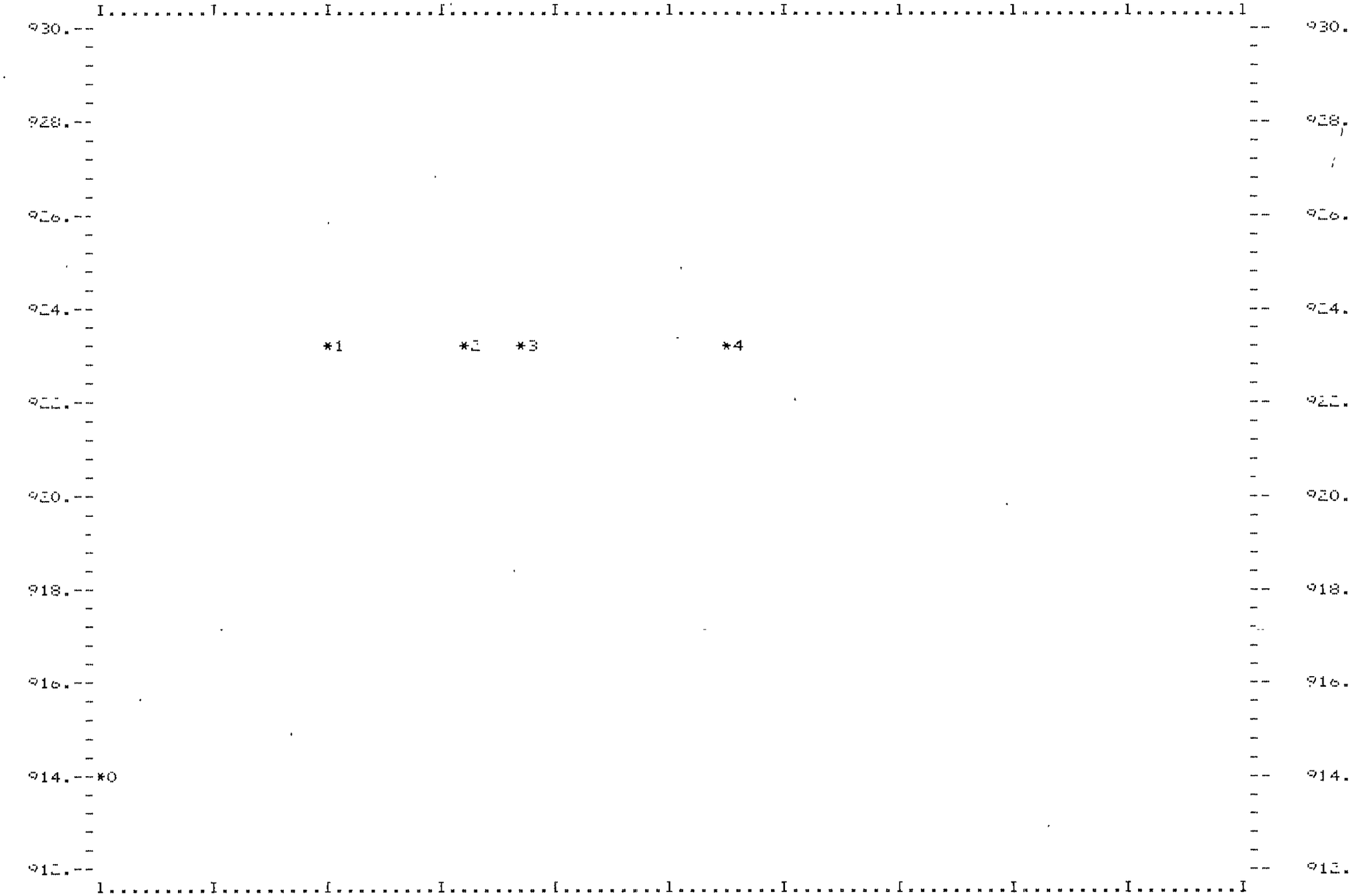
     *****   WSP2  MICROCOMPUTER  TEST  VERSION   *****

                                        RATING TABLE FOR SECTION 10.5          DA=   1.0 SQ MI
```

***** WSPE MICROCOMPUTER TEST VERSION *****

CROSS SECTION 10.5

SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION



***** WSPE MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 10.9 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV	FRICTION SLOPE	FLOW TOP WIDTH

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	914.0	0.0	0.0							
1	923.0	716.1	985.0	0.00	3.81	3.81	985.00	916.3	0.00015	109.2
2	923.0	716.1	1610.0	0.00	3.81	3.81	1610.00	917.0	0.00039	109.2
3	923.0	716.1	1840.0	0.00	3.81	3.81	1840.00	917.3	0.00051	109.2
4	923.0	716.1	2770.0	0.00	3.81	3.81	2770.00	918.2	0.00116	109.2

See Coltwater River FP.15

SEGMENT TABLE FOR SECTION 10.5

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	985.	0.	985.	0.
985.	VELOCITY FPS	1.38	0.00	1.38	0.00
2	DISCHARGE CFS	1610.	0.	1610.	0.
1610.	VELOCITY FPS	2.25	0.00	2.25	0.00
3	DISCHARGE CFS	1840.	0.	1840.	0.
1840.	VELOCITY FPS	2.57	0.00	2.57	0.00
4	DISCHARGE CFS	2770.	0.	2770.	0.
2770.	VELOCITY FPS	3.87	0.00	3.87	0.00
1	ELEV 923.0 H D	81362.	1.	81360.	1.
2	ELEV 923.0 H D	81362.	1.	81360.	1.
3	ELEV 923.0 H D	81362.	1.	81360.	1.
4	ELEV 923.0 H D	81362.	1.	81360.	1.

***** WSP2 MICROCOMPUTER TEST VERSION *****

H D TABLE FOR CROSS SECTION 10.5

ELEVATION FT	AREA SQ FT	TOP WIDTH FT	H.D TOTAL	H D BY SEGMENT 1	2	3
914.00	0.					
915.	44.	57.	1201.	1.	1199.	1.
916.	107.	67.	4805.	1.	4803.	1.
917.	176.	72.	10458.	1.	10456.	1.
918.	251.	78.	17921.	1.	17918.	1.
919.	332.	83.	27143.	1.	27141.	1.
920.	419.	89.	38026.	1.	38024.	1.
921.	511.	96.	50581.	1.	50579.	1.
922.	610.	103.	64997.	1.	64995.	1.
923.	716.	109.	81362.	1.	81360.	1.
924.	961.	402.	99352.	164.	98240.	63.
925.	1435.	544.	128950.	4778.	123084.	801.
926.	2067.	695.	166218.	12963.	150012.	2808.
927.	2792.	748.	212563.	25471.	178980.	7156.
928.	3565.	800.	266236.	42010.	210005.	13488.
929.	4383.	836.	323830.	62414.	242983.	22077.
930.	5231.	850.	399222.	86906.	277834.	34034.
931.	6081.	850.	469440.	107542.	313041.	43900.
932.	6931.	850.	546920.	131467.	350311.	55808.
933.	7781.	850.	631944.	158978.	389642.	70031.

				DAMAGE	CHANNEL				FI	FI/FI	FI
	0	916.6	0.0	0.0							
LOW	GRND	923.4	94.2	96.4	0.00	1.71	1.71				25.3
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****											
BANK	FULL	924.6	227.3	232.4	0.00	2.02	7.04				196.5
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****											
	1	926.2	963.1	985.0	0.00	2.03	25.28	985.00	923.3	0.00103	706.0
	2	926.8	1519.5	1610.0	0.00	2.03	34.90	1610.00	924.8	0.00117	1114.1
	3	926.9	1699.4	1840.0	0.00	2.03	40.17	1840.00	924.9	0.00140	1181.7
	4	927.5	2360.4	2770.0	0.00	2.03	42.76	2770.00	925.2	0.00138	1194.0

See Columbia River FPMS

SEGMENT TABLE FOR SECTION 10.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	985.	75.	524.	386.
985.	VELOCITY FPS	2.37	0.35	3.00	0.67
2	DISCHARGE CFS	1610.	206.	689.	715.
1610.	VELOCITY FPS	2.43	0.41	3.55	0.86
3	DISCHARGE CFS	1840.	270.	755.	816.
1840.	VELOCITY FPS	2.64	0.49	3.85	0.95
4	DISCHARGE CFS	2770.	702.	849.	1219.
2770.	VELOCITY FPS	3.52	0.68	3.95	1.09
1	ELEV 926.2 FD	29812.	1513.	16924.	11375.
2	ELEV 926.8 FD	46903.	5728.	20292.	20883.
3	ELEV 926.9 FD	48778.	6316.	20631.	21831.
4	ELEV 927.5 FD	72391.	15512.	24027.	32853.

***** WSP2 MICROCOMPUTER TEST VERSION *****

FD TABLE FOR CROSS SECTION 10.9

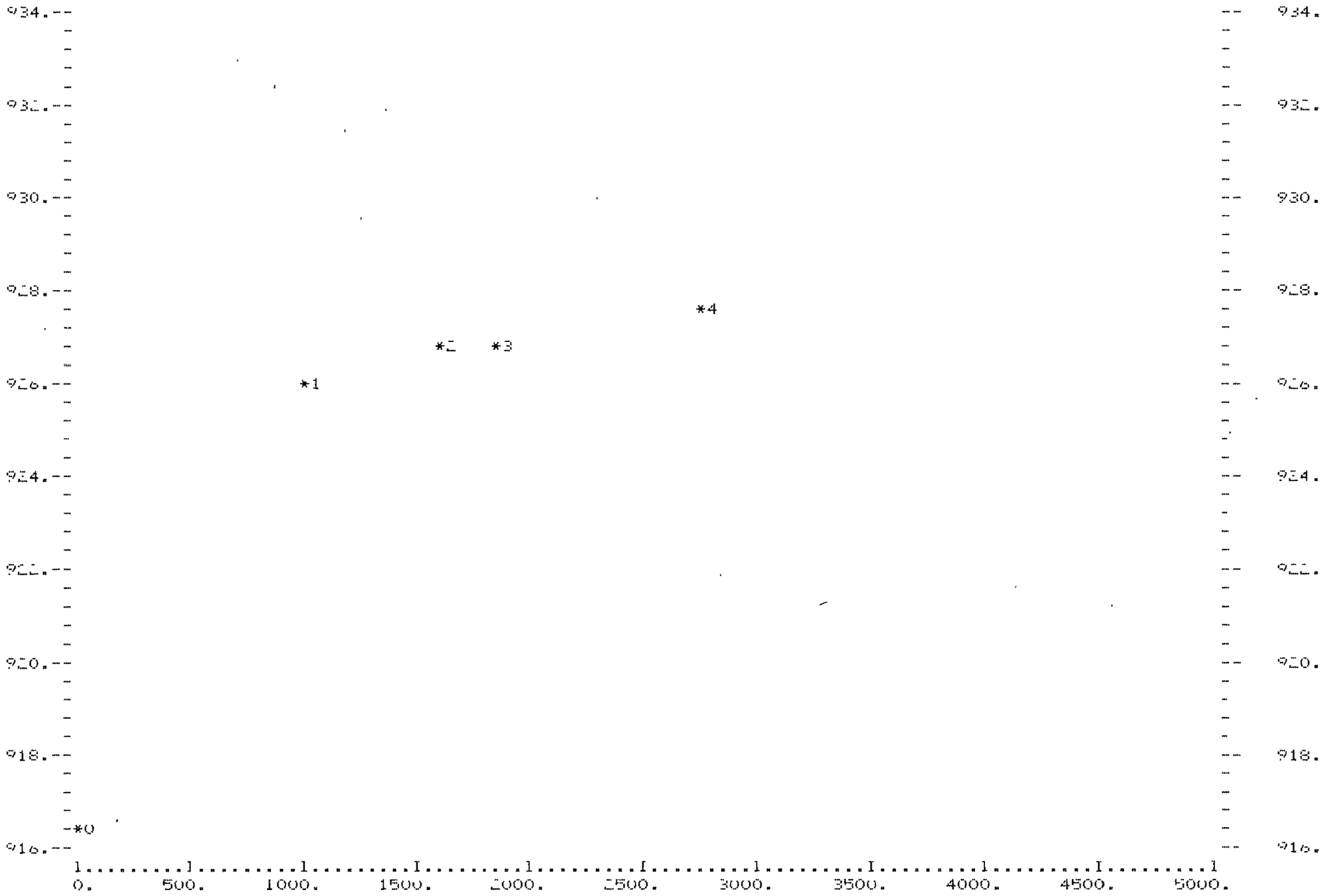
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	FD TOTAL	FD BY SEGMENT 1	2	3
916.60	0.					
917.	1.	3.	10.	1.	7.	1.
918.	7.	8.	194.	1.	191.	1.
919.	16.	11.	657.	1.	654.	1.
920.	29.	14.	1414.	1.	1411.	1.
921.	44.	17.	2512.	1.	2509.	1.
922.	63.	20.	3993.	1.	3990.	1.
923.	84.	24.	5898.	1.	5895.	1.
924.	144.	111.	8612.	1.	8341.	269.
925.	349.	296.	14282.	8.	11637.	2636.
926.	824.	598.	27336.	1058.	16125.	9602.
927.	1726.	1134.	52802.	7358.	21172.	23402.
928.	2931.	1248.	100174.	29431.	26783.	43961.
929.	4196.	1276.	162772.	60908.	32852.	68414.
930.	5488.	1305.	240424.	102825.	39427.	97741.
931.	6809.	1334.	331835.	153598.	46484.	131482.
932.	8158.	1364.	435863.	211305.	53997.	169379.
933.	9531.	1394.	553620.	279706.	61985.	211929.
934.	10942.	1414.	682918.	352052.	70344.	260399.
935.	12365.	1431.	826340.	432604.	79150.	314485.
936.	13802.	1446.	982926.	520726.	88386.	373777.
937.	15255.	1460.	1149477.	614943.	98006.	436487.
938.	16725.	1475.	1327662.	715189.	108001.	504472.

938.	16204.	1488.	1515560.	842070.	1184241.	873037.
940.	19701.	1497.	1716975.	941384.	1329190.	946338.
941.	21199.	1500.	1921201.	1060865.	1401841.	719779.
942.	22699.	1500.	2130032.	1183554.	1514451.	794094.
943.	24199.	1500.	2352172.	1314863.	1631223.	872762.
944.	25699.	1500.	2587913.	1455036.	1752216.	955861.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 10.9

SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION



1 TABLE OF VALUES FOR BPR EQUATION

IF AN * SYMBOL APPEARS BESIDE A VARIABLE IN THIS TABLE,IT IS
EXTRAPOLATED FROM FIGURES 6,7,10, OR 34 OF THE BPR MANUAL.

NO.	M	A/B	DLTA/B	SIGMA	D/S	COEF/	VN2 FPS	ALPHA	ALPHA2	ALPHA3	AEXIT SQ FT	APPAR SQ FT	DCRIT FT	CRIT COEF
1	0.50	1.30	0.00	0.00	0.00	1.30	4.27	3.38	2.19	3.85	412.68	1236.97	922.03	0.00
2	ORIFICE FLOW FOR THIS PROFILE. COEF = 0.80													
3	ORIFICE FLOW FOR THIS PROFILE. COEF = 0.80													
4	ORIFICE FLOW FOR THIS PROFILE. COEF = 0.80													

***** WSP2 MICROCOMPUTER TEST VERSION *****

ROAD SECTION 11.0

NO.	HW FT	CFS	HL FT	TW FT	STARTING CSM	BRIDGE CFS	BRIDGE AREA SQ FT	CULVERT CFS	CULVERT AREA SQ FT	WEIR CFS	WEIR AREA SQ FT	WEIR TOP WIDTH FT
0	917.60	0.0	0.00	917.60	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	927.28	985.0	1.12	926.16	985.00	985.0	230.9	0.0	0.0	0.0	0.0	0.0
2	927.82	1610.0	1.00	926.82	1610.00	1610.0	251.2	0.0	0.0	0.0	0.0	0.0
3	928.31	1840.0	1.32	926.89	1840.00	1840.0	251.2	0.0	0.0	0.0	0.0	0.0
4	929.50	2770.0	1.96	927.54	2770.00	2237.1	251.2	0.0	0.0	532.9	204.1	332.2

MIN ROAD ELEVATION = 928.50 FT

BRIDGE TYPE = BPR GIRDER BOTTOM ELEVATION = 926.80 FT

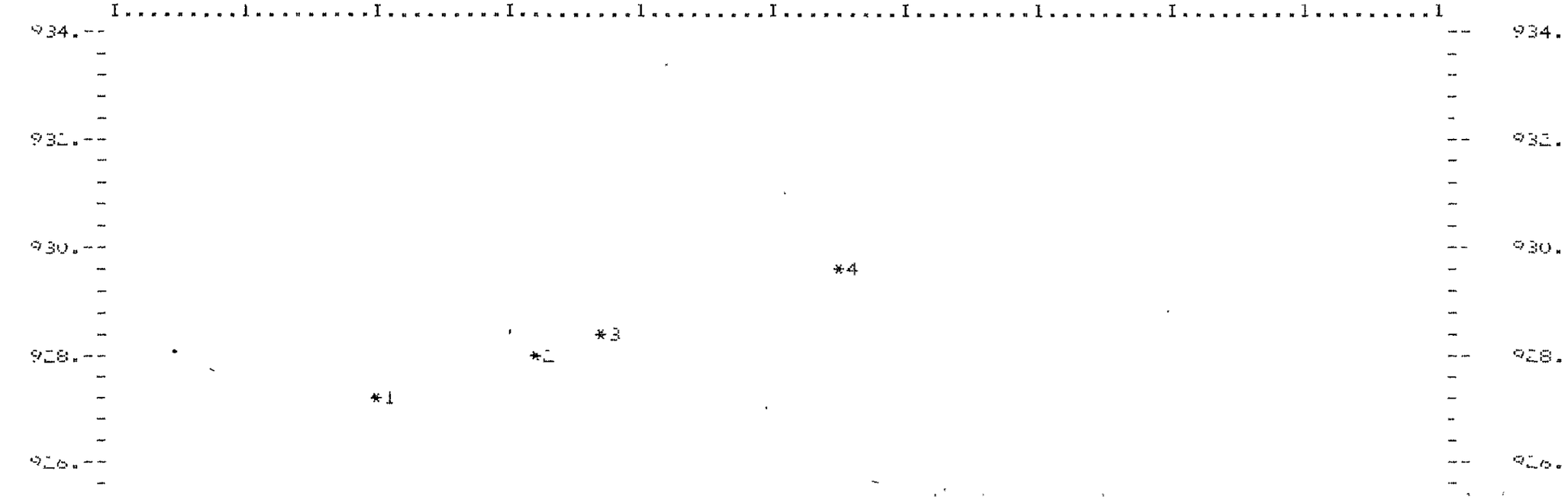
USE from Collector Rd, FPMS
926.3
927.2
927.5
928.6

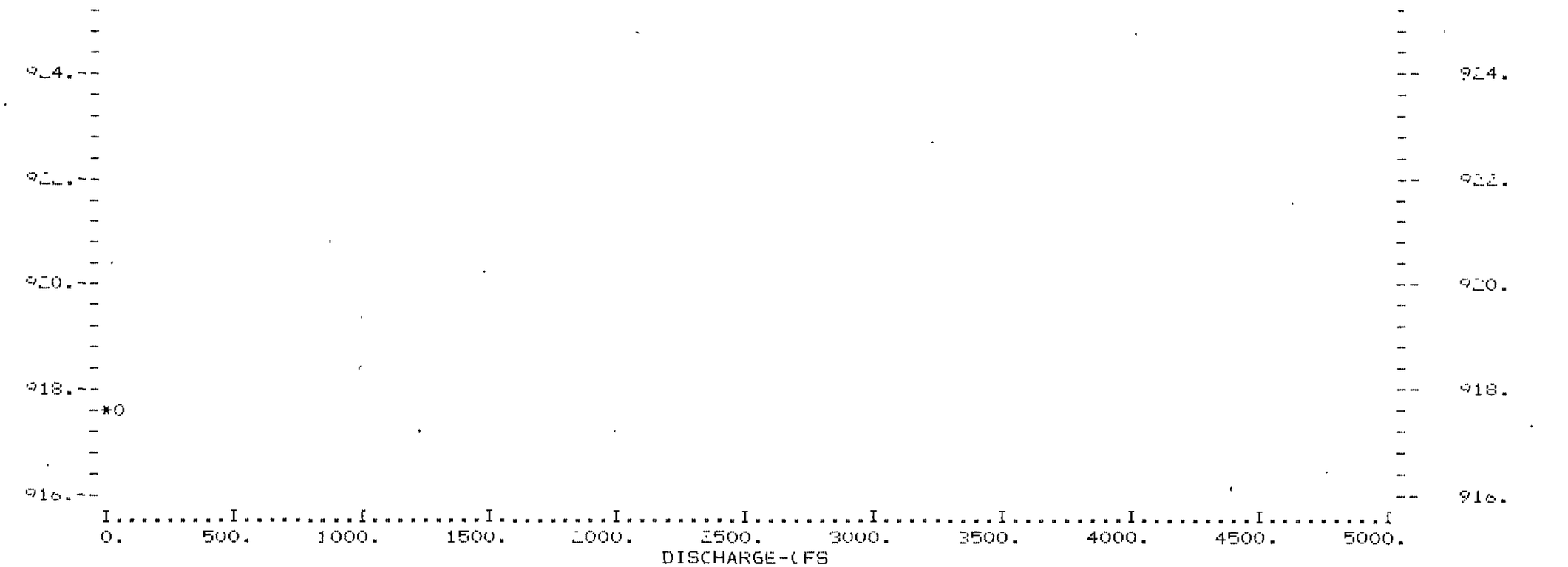
1 WSP2 XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR
REV 03/14/88 DISCHARGE TO RANDALL LAKE PAGE 7P

***** WSP2 MICROCOMPUTER TEST VERSION *****

ROAD SECTION 11.0

SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION





***** WSPE MICROCOMPUTER TEST VERSION *****

u/s Union Cty 11080

RATING TABLE FOR SECTION 11.1 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	918.7	0.0	0.0							
LOW GRND	924.1	112.4	135.5	0.00	0.09	0.09				29.1
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
BANK FULL	924.1	112.4	135.5	0.00	0.09	0.09				29.1
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	927.3	817.0	985.0	0.00	0.09	1.13	985.00	923.5	0.00158	366.7
2	927.9	1040.1	1610.0	0.00	0.09	1.27	1610.00	925.3	0.00256	413.2
3	928.3	1206.2	1840.0	0.00	0.09	1.35	1840.00	925.4	0.00243	438.4
4	929.6	1849.0	2770.0	0.00	0.09	1.79	2770.00	925.9	0.00213	581.1

SEGMENT TABLE FOR SECTION 11.1

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	985.	14.	592.	379.
985.	VELOCITY FPS	2.27	0.49	2.83	0.65
2	DISCHARGE CFS	1610.	31.	863.	716.
1610.	VELOCITY FPS	2.90	0.71	3.80	0.93
3	DISCHARGE CFS	1840.	41.	911.	888.
1840.	VELOCITY FPS	2.82	0.75	3.82	0.97
4	DISCHARGE CFS	2770.	76.	1105.	1589.
2770.	VELOCITY FPS	2.67	0.57	3.99	1.10

1	ELEV	927.3	FD	24554.	321.	15074.	9159.
2	ELEV	927.9	FD	31681.	580.	17226.	13875.
3	ELEV	928.3	FD	37152.	795.	18708.	17648.
4	ELEV	929.6	FD	60027.	1646.	24033.	34348.

***** WSPG MICROCOMPUTER TEST VERSION *****

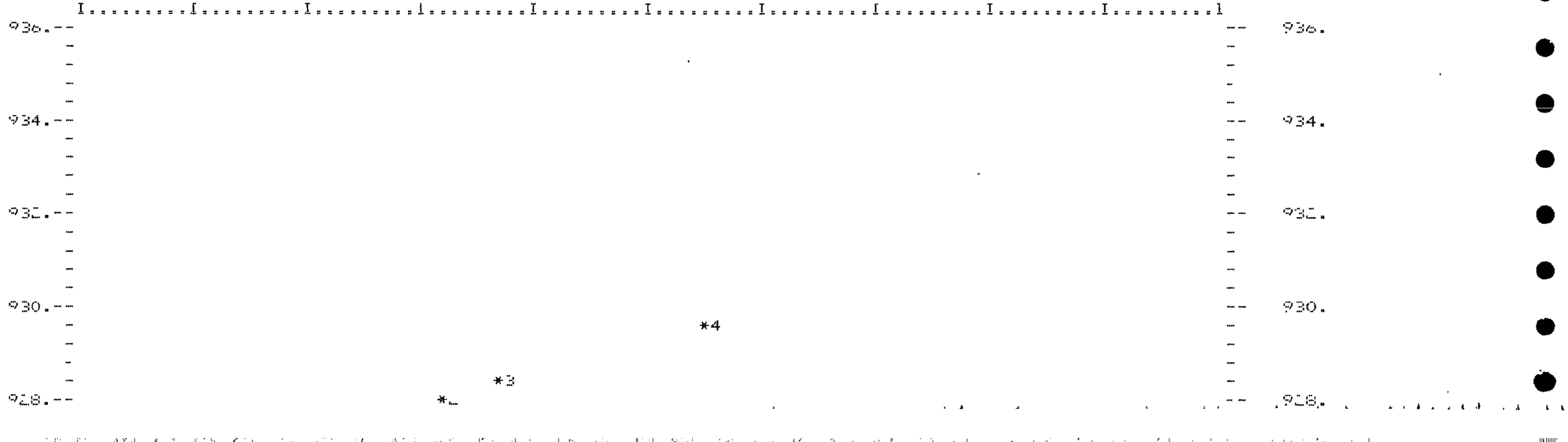
FD TABLE FOR CROSS SECTION 11.1

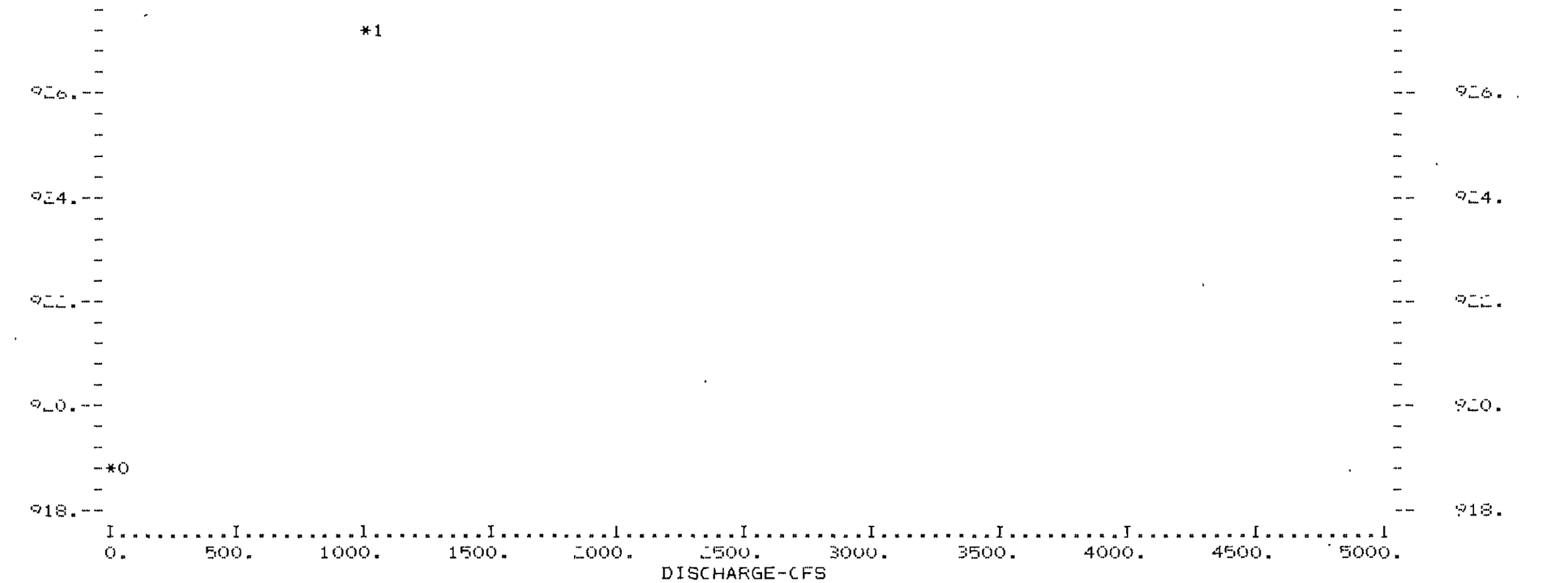
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	FD TOTAL	FD BY SEGMENT 1	2	3
918.70	0.					
919.	1.	5.	7.	1.	4.	1.
920.	13.	17.	227.	1.	225.	1.
921.	33.	22.	901.	1.	899.	1.
922.	56.	24.	2004.	1.	2002.	1.
923.	82.	27.	3468.	1.	3466.	1.
924.	110.	29.	5279.	1.	5277.	1.
925.	196.	156.	7988.	1.	7612.	302.
926.	403.	246.	13162.	33.	10537.	2391.
927.	694.	335.	21172.	213.	13843.	6951.
928.	1071.	418.	32789.	616.	17498.	14523.
929.	1532.	503.	48688.	1247.	21487.	25847.
930.	2097.	616.	68938.	2312.	25795.	40585.
931.	2750.	687.	95284.	5694.	30419.	59102.
932.	3464.	741.	127110.	10346.	35336.	81339.
933.	4228.	775.	165978.	15963.	40540.	109327.
934.	5016.	794.	211995.	22550.	46029.	143273.
935.	5813.	800.	260689.	29179.	51736.	179308.
936.	6613.	800.	310317.	35533.	57654.	215753.
937.	7413.	800.	360796.	42793.	63859.	256918.
938.	8213.	800.	412434.	51030.	70347.	303108.

***** WSPG MICROCOMPUTER TEST VERSION *****

CROSS SECTION 11.1

SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION





***** WSP2 MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 11.5 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	917.2	0.0	0.0							
LOW GRND	922.6	139.7	40.8	0.00	3.35	3.35				55.0
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
BANK FULL	922.6	139.7	40.8	0.00	3.35	3.35				55.0
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	927.7	3375.8	985.0	0.00	3.35	57.72	985.00	922.0	0.00009	1134.7
2	928.4	4219.1	1610.0	0.00	3.35	59.43	1610.00	923.5	0.00014	1168.2
3	928.8	4652.3	1840.0	0.00	3.35	60.25	1840.00	923.9	0.00013	1184.4
4	930.1	6191.5	2770.0	0.00	3.35	63.26	2770.00	924.6	0.00013	1243.5

WARNING**********PROFILE NO 4 EXCEEDS SURVEY DATA BY 0.1 FT. COMPUTATION BASED ON VERTICAL EXTENSION OF END POINTS**********

SEGMENT TABLE FOR SECTION 11.5

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	985.	408.	326.	251.
985.	VELOCITY FPS	0.49	0.23	0.78	0.21
2	DISCHARGE CFS	1610.	695.	453.	463.
1610.	VELOCITY FPS	0.60	0.32	0.98	0.30
3	DISCHARGE CFS	1840.	804.	486.	550.
1840.	VELOCITY FPS	0.60	0.33	1.01	0.31
4	DISCHARGE CFS	2770.	1256.	610.	903.

CHNL VELOCITY FPS	0.62	0.39	1.11	0.37	
1 ELEV 917.7 HD	101835.	42098.	33965.	25772.	
2 ELEV 918.4 HD	137665.	59241.	39495.	38929.	
3 ELEV 918.8 HD	159157.	69506.	42476.	47175.	
4 ELEV 930.1 HD	340848.	109189.	53278.	78381.	

***** WSPG MICROCOMPUTER TEST VERSION *****

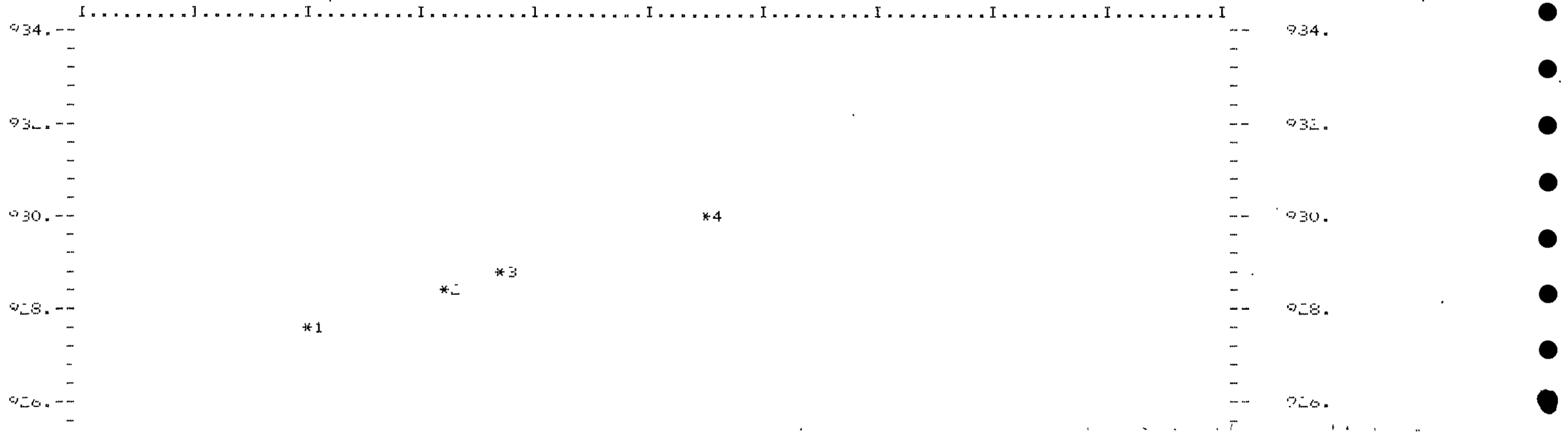
HD TABLE FOR CROSS SECTION 11.5

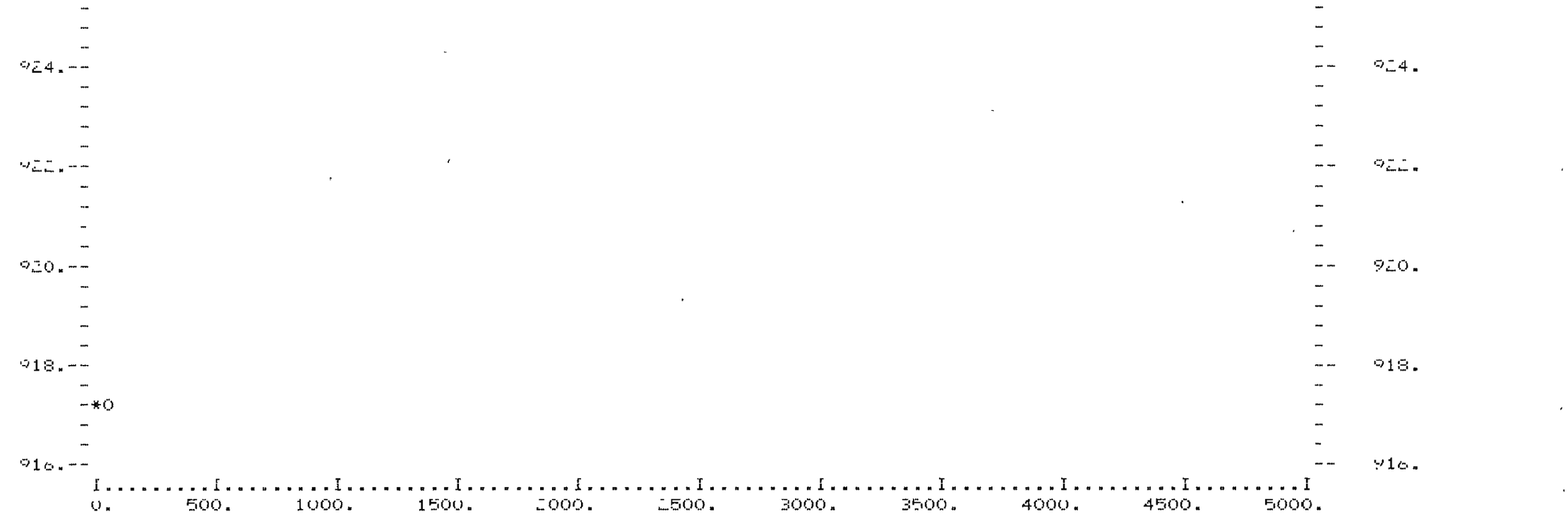
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	HD TOTAL	HD BY SEGMENT 1	2	3
917.20	0.					
918.	4.	10.	47.	1.	45.	1.
919.	20.	20.	402.	1.	400.	1.
920.	43.	27.	1240.	1.	1238.	1.
921.	73.	33.	2573.	1.	2571.	1.
922.	110.	45.	4178.	1.	4176.	1.
923.	164.	68.	6936.	7.	6926.	3.
924.	316.	273.	11933.	209.	11244.	489.
925.	725.	740.	30721.	1519.	16416.	2143.
926.	1543.	1030.	38806.	1139.	22336.	4512.
927.	2604.	1092.	72190.	27614.	28960.	15339.
928.	3726.	1150.	116570.	49073.	36249.	31043.
929.	4895.	1193.	172470.	75861.	44203.	52407.
930.	6116.	1241.	236504.	106996.	52726.	76643.
931.	7360.	1250.	301206.	137754.	61464.	100902.
932.	8610.	1250.	372632.	171518.	70719.	130395.
933.	9860.	1250.	454623.	210519.	80624.	159679.
934.	11110.	1250.	547925.	255158.	91179.	196626.

***** WSPG MICROCOMPUTER TEST VERSION *****

CROSS SECTION 11.5

SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION





***** WSP2 MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 11.7 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	923.1	0.0	0.0							
LOW GRND	925.3	50.5	30.6	0.00	1.63	1.63				26.9
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
BANK FULL	925.3	50.5	30.6	0.00	1.63	1.63				26.9
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	929.1	1623.7	985.0	0.00	2.12	29.68	985.00	926.6	0.00055	619.1
2	930.0	2214.4	1610.0	0.00	2.12	30.90	1610.00	926.9	0.00057	644.7
3 72	930.3	2389.9	1840.0	0.00	2.12	31.20	1840.00	927.0	0.00060	650.9
4	931.5	3189.4	2770.0	0.00	2.12	32.50	2770.00	927.2	0.00056	678.0

SEGMENT TABLE FOR SECTION 11.7

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	985.	686.	227.	71.
985.	VELOCITY FPS	0.77	0.53	1.27	0.44
2	DISCHARGE CFS	1610.	1178.	309.	123.
1610.	VELOCITY FPS	0.87	0.67	1.46	0.53
3	DISCHARGE CFS	1840.	1358.	337.	145.
1840.	VELOCITY FPS	0.92	0.71	1.53	0.56
4	DISCHARGE CFS	2770.	2096.	438.	236.
2770.	VELOCITY FPS	1.00	0.82	1.67	0.63

1	ELEV	929.1	F.D	42009.	29190.	9780.	3034.
2	ELEV	930.0	F.D	67426.	49311.	12956.	5159.
3	ELEV	930.3	F.D	75327.	55516.	13921.	5890.
4	ELEV	931.5	F.D	117163.	88579.	18622.	9961.

***** WSP2 MICROCOMPUTER TEST VERSION *****

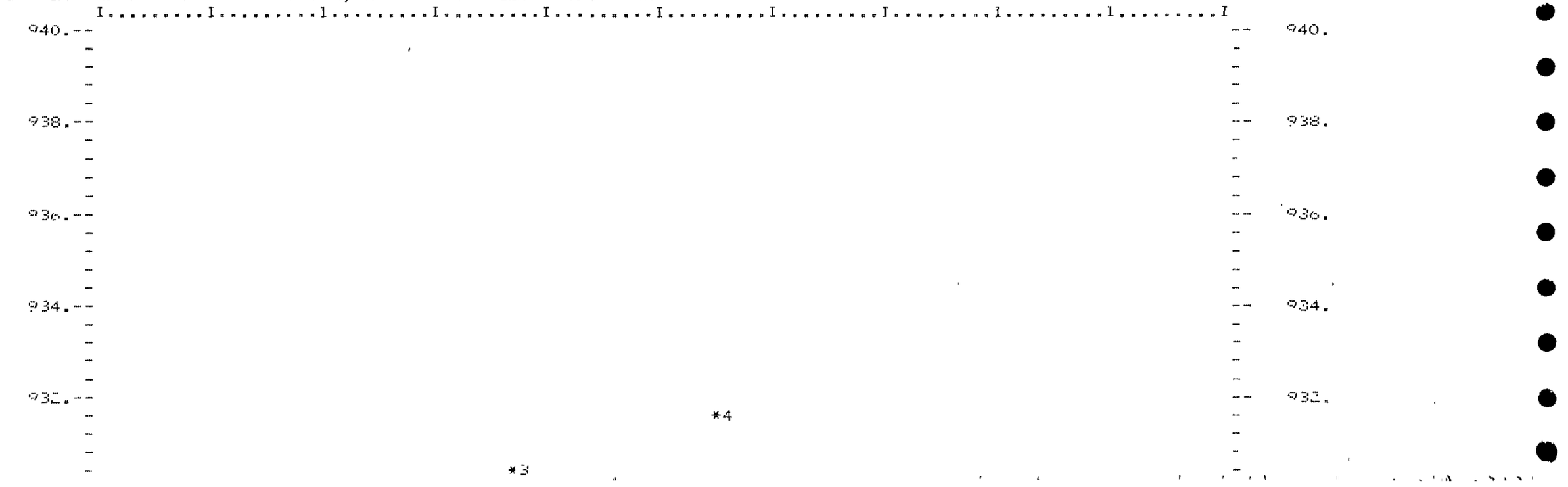
F.D TABLE FOR CROSS SECTION 11.7

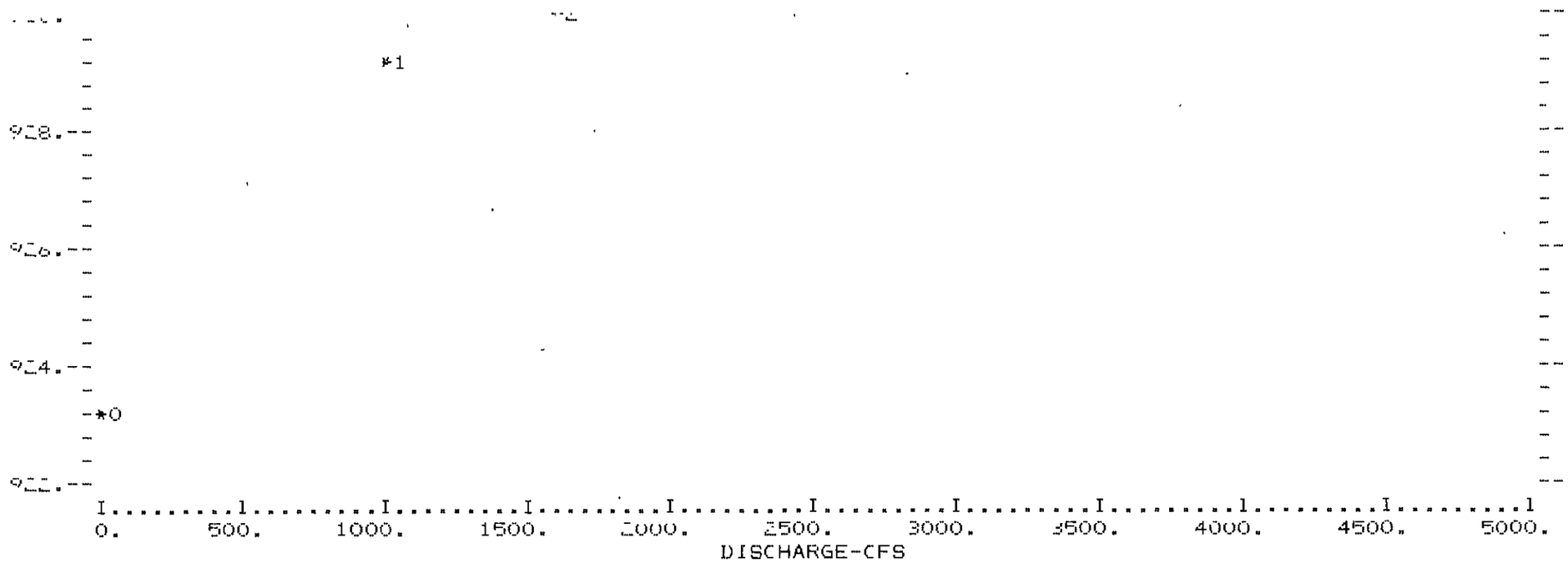
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	F.D TOTAL	F.D BY SEGMENT 1	2	3
923.10	0.					
924.	18.	24.	270.	1.	267.	1.
925.	43.	26.	1084.	1.	1081.	1.
926.	79.	53.	2246.	1.	2199.	33.
927.	400.	561.	6437.	1578.	4089.	424.
928.	975.	589.	19638.	11524.	6586.	1359.
929.	1578.	617.	40195.	27698.	9540.	2894.
930.	2207.	644.	67111.	49064.	12917.	5130.
931.	2863.	667.	99779.	74867.	16684.	8229.
932.	3542.	689.	138042.	105117.	20827.	12098.
933.	4243.	711.	181650.	139540.	25329.	16781.
934.	4964.	733.	230485.	177985.	30177.	22323.
935.	5707.	747.	285537.	220820.	35356.	29341.
936.	6458.	750.	342808.	265262.	40787.	36521.
937.	7208.	750.	404610.	313190.	46525.	44372.
938.	7958.	750.	472083.	365534.	52585.	53187.
939.	8708.	750.	545315.	422362.	58965.	63007.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 11.7

SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION





***** WSPG MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 11.75 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	926.1	0.0	0.0							
LOW GRND	928.3	37.8	56.0	0.00	0.94	0.94				33.0
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
BANK FULL	928.3	37.8	56.0	0.00	0.94	0.94				33.0
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	932.5	665.3	985.0	0.00	1.00	9.99	985.00	930.2	0.00299	362.7
2	933.6	1269.8	1610.0	0.00	1.00	19.89	1610.00	930.7	0.00272	721.9
3	933.8	1410.4	1840.0	0.00	1.00	22.31	1840.00	930.9	0.00307	810.0
4	934.7	2401.8	2770.0	0.00	1.00	34.63	2770.00	931.4	0.00279	1257.2

SEGMENT TABLE FOR SECTION 11.75

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	985.	409.	572.	4.
985.	VELOCITY FPS	2.45	0.88	3.12	0.24
2	DISCHARGE CFS	1610.	767.	743.	101.
1610.	VELOCITY FPS	2.40	0.92	3.35	0.47
3	DISCHARGE CFS	1840.	871.	825.	144.
1840.	VELOCITY FPS	2.56	0.96	3.62	0.53
4	DISCHARGE CFS	2770.	1373.	974.	423.
2770.	VELOCITY FPS	2.41	0.93	3.72	0.64
1	ELEV 932.5 FD	17991.	7454.	10463.	74.
2	ELEV 933.6 FD	30554.	14730.	14361.	1463.
3	ELEV 933.8 FD	34772.	15763.	15039.	1970.

***** WSP2 MICROCOMPUTER TEST VERSION *****

FD TABLE FOR CROSS SECTION 11.75

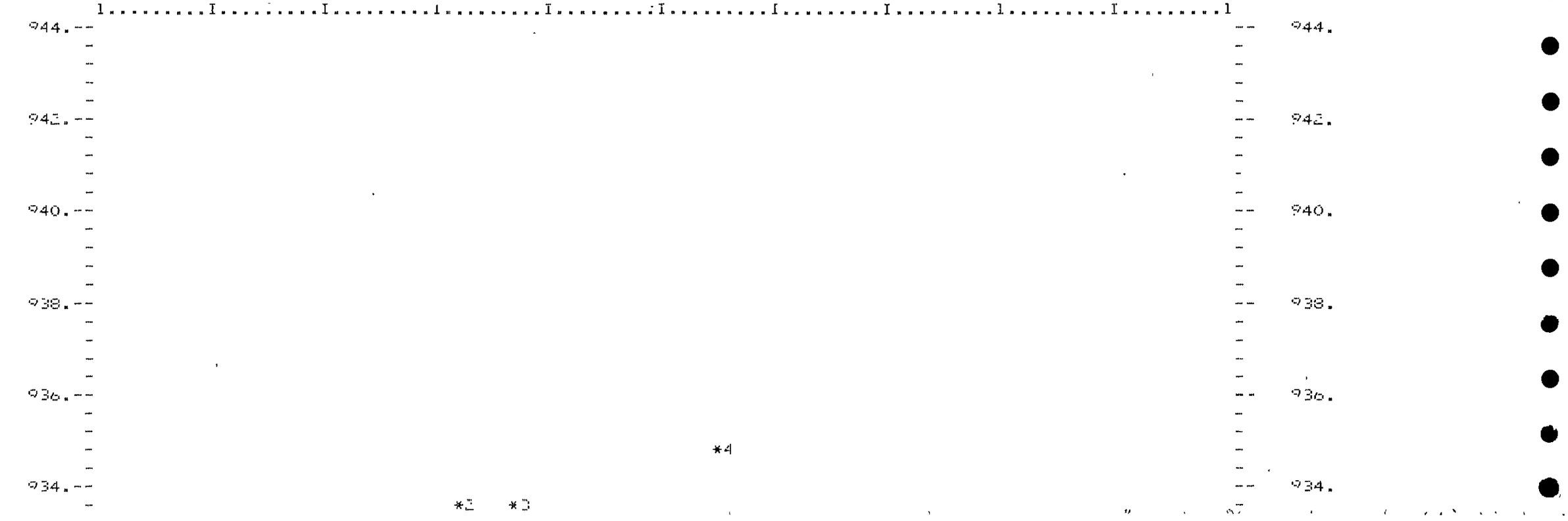
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	FD TOTAL	FD BY SEGMENT 1	2	3
926.10	0.					
927.	7.	14.	74.	1.	72.	1.
928.	29.	29.	536.	1.	534.	1.
929.	64.	44.	1708.	10.	1697.	1.
930.	135.	112.	3856.	218.	3596.	5.
931.	289.	193.	7732.	1645.	6023.	32.
932.	528.	293.	14019.	4959.	8918.	72.
933.	910.	504.	23689.	10827.	12257.	368.
934.	1605.	932.	36662.	17273.	16004.	2945.
935.	2768.	1373.	61114.	30724.	20143.	9766.
936.	4331.	1732.	102318.	55153.	24654.	22133.
937.	6220.	2028.	161185.	89796.	29521.	41550.
938.	8374.	2246.	240223.	136120.	34730.	68970.
939.	10684.	2366.	342193.	193055.	40276.	108378.
940.	13079.	2400.	459326.	254158.	46116.	158327.
941.	15479.	2400.	571448.	311808.	52192.	207312.
942.	17879.	2400.	700917.	377485.	58596.	259074.
943.	20279.	2400.	849075.	451698.	65321.	330938.

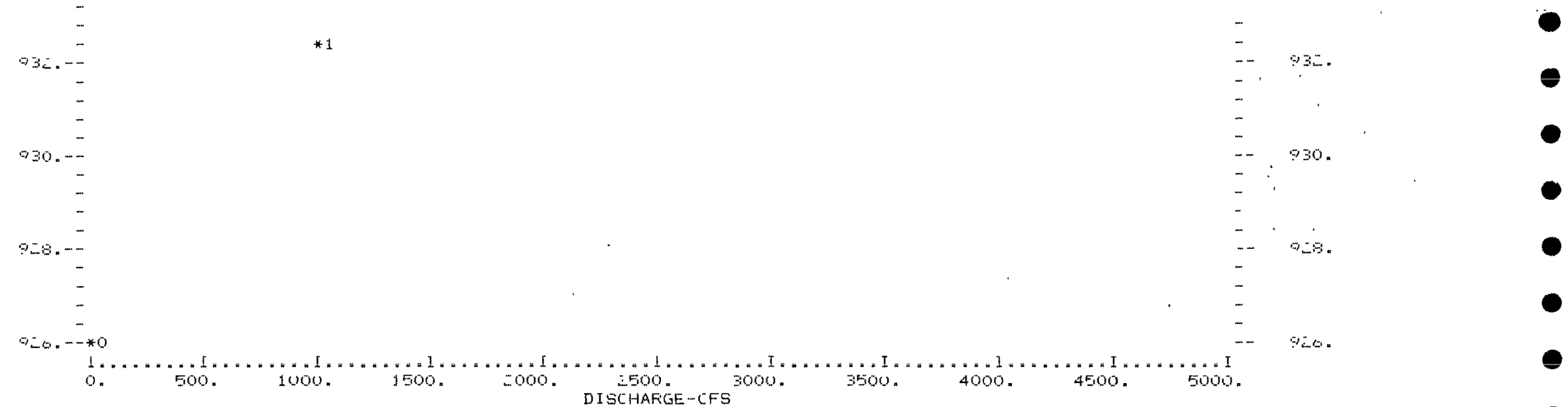
1 WSP2 XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR. STORMS WS : PAGE
REV 03/14/88 DISCHARGE TO RANDALL LAKE ALT: 11F

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 11.75

SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION





***** WSPG MICROCOMPUTER TEST VERSION *****

Gravel Pit Road

ROAD SECTION 11.8

NO.	HW FT	CFS	HL FT	TW FT	STARTING CSM	BRIDGE CFS	BRIDGE AREA SQ FT	CULVERT CFS	CULVERT AREA SQ FT	WEIR CFS	WEIR AREA SQ FT	WEIR TOP WIDTH FT
0	925.58	0.0	0.00	925.38	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	932.70	985.0	0.10	932.61	985.00	0.0	0.0	33.5	28.3	951.5	931.3	1010.1
2	933.78	1610.0	0.08	933.70	1610.00	0.0	0.0	27.8	28.3	1582.2	2298.0	1498.8
3	933.97	1840.0	0.08	933.89	1840.00	0.0	0.0	29.9	28.3	1810.1	2590.6	1530.5
4	934.94	2770.0	0.10	934.85	2770.00	0.0	0.0	30.1	28.3	2739.9	4175.8	1884.3

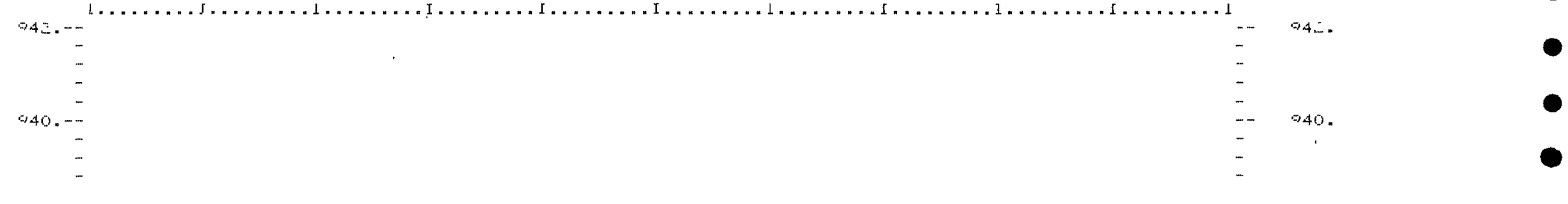
MIN ROAD ELEVATION = 931.20 FT

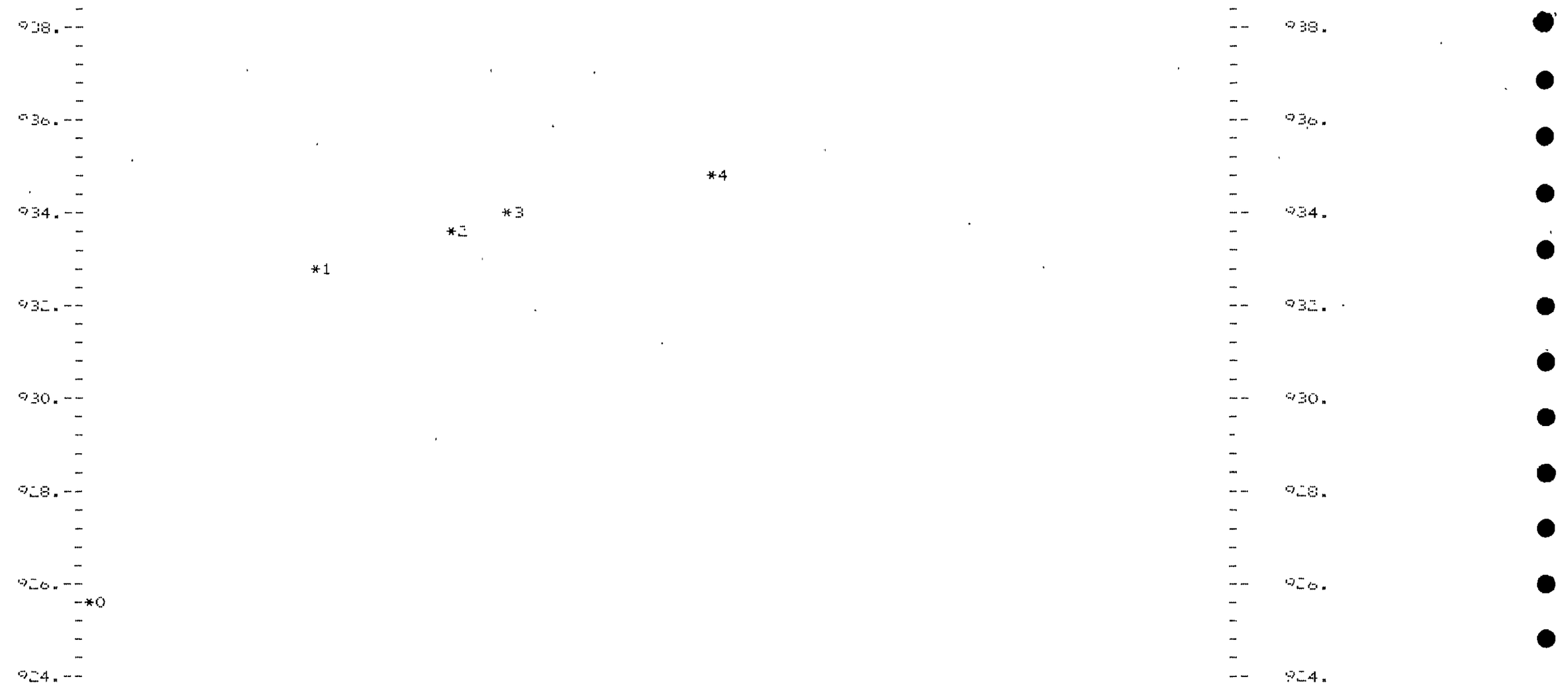
OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	12111.	6.00		40.00	925.58	925.38	0.032

***** WSPG MICROCOMPUTER TEST VERSION *****

ROAD SECTION 11.8

SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION





***** WSP2 MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 11.85 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	927.6	0.0	0.0							
LOW GRND	931.2	120.8	128.6	0.00	0.09	0.09				44.5
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
BANK FULL	931.2	120.8	128.6	0.00	0.09	0.09				44.5
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	932.7	925.4	985.0	0.00	0.09	1.81	985.00	930.9	0.00395	876.4
2	933.8	2271.6	1610.0	0.00	0.09	3.08	1610.00	931.9	0.00170	1491.6
3	934.0	2552.8	1840.0	0.00	0.09	3.23	1840.00	931.9	0.00162	1564.5
4	935.0	4227.4	2770.0	0.00	0.09	3.95	2770.00	932.2	0.00106	1913.6

SEGMENT TABLE FOR SECTION 11.85

CSM		TOTAL	Seg No 1 N	2 C	3 N
1	DISCHARGE CFS	985.	156.	557.	272.
985.	VELOCITY FPS	2.39	0.65	2.94	0.55
2	DISCHARGE CFS	1610.	344.	539.	727.
1610.	VELOCITY FPS	1.44	0.55	2.27	0.52
3	DISCHARGE CFS	1840.	400.	574.	865.
1840.	VELOCITY FPS	1.38	0.56	2.33	0.54
4	DISCHARGE CFS	2770.	671.	600.	1500.
2770.	VELOCITY FPS	1.10	0.52	2.07	0.57
1	ELEV 932.7 H.D	15275.	2231.	9235.	3809.
2	ELEV 933.8 H.D	38681.	8228.	13456.	16997.
3	ELEV 934.0 H.D	45761.	9954.	14295.	21512.
4	ELEV 935.0 H.D	84980.	20398.	18723.	45859.

***** WSP2 MICROCOMPUTER TEST VERSION *****

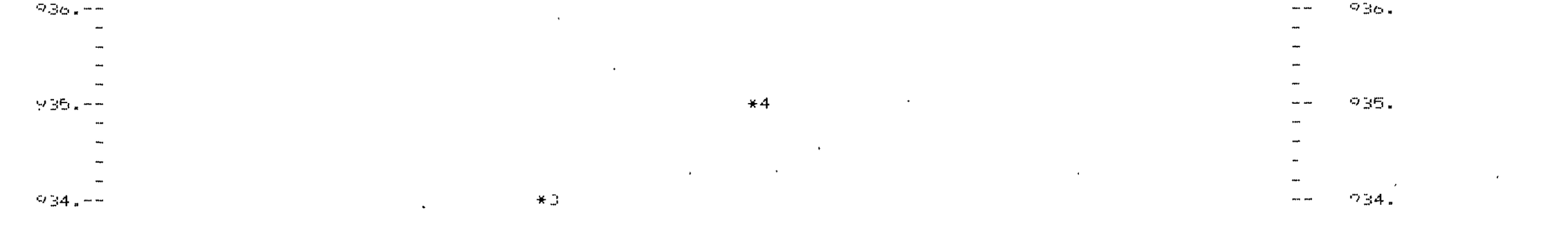
H.D TABLE FOR CROSS SECTION 11.85

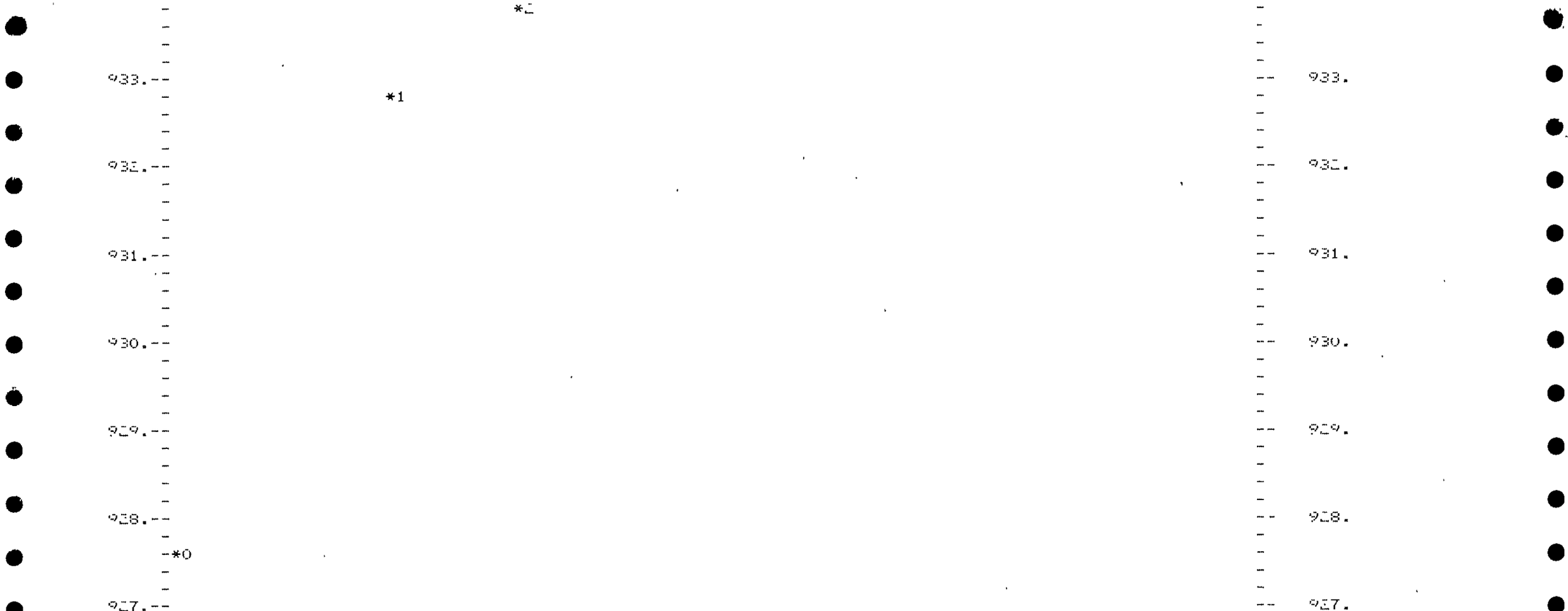
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	H.D TOTAL	H.D BY SEGMENT 1	2	3
927.60	0.					
928.	3.	17.	25.	1.	23.	1.
929.	32.	35.	581.	1.	579.	1.
930.	70.	40.	1925.	1.	1923.	1.
931.	112.	44.	3914.	1.	3912.	1.
932.	389.	488.	8215.	332.	6701.	505.
933.	1193.	1097.	19635.	3292.	10221.	5753.
934.	2558.	1566.	45897.	9987.	14310.	21600.
935.	4312.	1932.	87078.	20963.	18713.	47026.
936.	6501.	2333.	149079.	40789.	24025.	84005.
937.	8914.	2450.	237089.	77137.	29614.	130930.
938.	11378.	2478.	348108.	126235.	35661.	186084.
939.	13867.	2500.	476054.	184255.	42148.	249558.
940.	16367.	2500.	624432.	251328.	49067.	324037.
941.	18867.	2500.	762497.	311663.	56268.	393622.
942.	21367.	2500.	917793.	380540.	63893.	471498.
943.	23867.	2500.	1091048.	458450.	71935.	557974.
944.	26367.	2500.	1282969.	545873.	80386.	653350.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 11.85

SCALES ARE 1 INCH = 500. CFS, AND 1.2 FEET/ ELEVATION





***** WSPG MICROCOMPUTER TEST VERSION *****

---------- LIST OF INPUT DATA WITH LIMITED EDITING----------

```
TITLE     DISCHARGE TO OLD 27 (MARSHALL STREET)
CHANGE    DISCHARGE
DISCHARGE -1.       945.      1520.     1750.     2640.
COMMENT   DISCHARGE FROM XSECTION 026 OF TR20COLD.OUT
END
SEGMENT   11.9      1         N         -30.                          206
NVALUE    .134                                                        207
SEGMENT   11.9      2         C         0.                            208
NVALUE    .092                                                        209
SEGMENT   11.9      3         N         650.                          210
NVALUE    .144                                                        211
SECTION   11.9                                                        212
          -450.     938.2     -400.     935.9     -300.     933.3     213
          -225.     929.5     -100.     930.9     -30.      930.2     214
          -20.      924.8     -15.      924.7     -10.      924.9     215
          -5.       928.5     0.        930.4     100.      931.      216
          300.      930.2     500.      930.9     600.      932.3     217
          650.      937.7                                             218
ENDTABLE                                                              219
BPR       12.0      A         3.                                      220
GIRDER    932.5     932.      0.        .8        2.63                221
```

```
          -14.      934.7     -14.      932.      14.       932.      222
          14.       934.6                                             223
ENDTABLE                                                              224
SECTION   12.0                                                        225
          -400.     937.3     -200.     935.4     -14.0     934.7     226
          -14.0     924.5     0.        922.8     14.0      924.3     227
          14.0      934.6     200.0     934.3     400.0     934.3     228
          600.      935.0     800.0     937.5                         229
ENDTABLE                                                              230
SEGMENT   12.1      1         N         -45.                          231
NVALUE    .140                                                        232
SEGMENT   12.1      2         C         0.                            233
NVALUE    .080                                                        234
SEGMENT   12.1      3         N         900.                          235
NVALUE    .140                                                        236
SECTION   12.1                                                        237
          -300.0    938.7     -200.0    935.9     -100.0    931.2     238
          -95.0     929.6     -45.0     929.1     -20.0     928.5     239
          -10.0     928.5     0.0       929.7     100.0     930.2     240
          200.0     931.4     300.0     932.4     400.0     930.5     241
          600.0     931.6     700.0     934.0     900.0     938.5     242
ENDTABLE                                                              243
SEGMENT   12.5      1         N         -32.                          244
NVALUE    .140                                                        245
```

1 WSP2 XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR. STORMS WS : PAGE
REV 03/14/88 DISCHARGE TO OLD 27 (MARSHALL STREET) ALT: 15

***** WSP2 MICROCOMPUTER TEST VERSION *****

```
-----------------------------80/80 LIST OF INPUT DATA-----------------------------
SEGMENT   12.5      2         C         0.                            246
NVALUE    .080                                                        247
SEGMENT   12.5      3         N         200.                          248
NVALUE    .140                                                        249
SECTION   12.5                                                        250
          -250.0    937.7     -270.0    943.3     -50.0     937.7     251
          -32.0     935.2     -20.0     933.5     0.0       933.8     252
          3.0       937.3     100.0     938.2     200.0     943.9     253
ENDTABLE                                                              254
---------------------MESSAGE - DATA POINTS ON SECTION 12.5   REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
COMPUTE   11.9      12.5      11.85
-----------------------------END OF DATA LISTING-----------------------------
1                   COMPUTE   11.9      12.5      11.85
```

```
-----------------------------STARTING DATA FROM PREVIOUS COMPUTATIONS-----------------------------
```

1 WSP2 XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR. STORMS WS : PAGE
REV 03/14/88 DISCHARGE TO OLD 27 (MARSHALL STREET) ALT: 16

***** WSP2 MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 11.9 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	------ACRES FLOODED------- FLOODPLAIN DAMAGE	CHANNEL	TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	924.7	0.0	0.0							
LOW GRND	929.5	83.0	30.5	0.00	1.72	1.72				26.3

*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****

BANK FULL		930.2	129.3	47.5	0.00	1.92	5.55				109.8
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****											
	1	933.4	2571.9	945.0	0.00	1.96	48.20	945.00	930.5	0.00022	918.9
	2	934.4	3513.3	1520.0	0.00	1.96	50.54	1520.00	930.6	0.00022	963.5
	3	934.7	3745.5	1750.0	0.00	1.96	51.14	1750.00	930.7	0.00024	975.0
	4	935.7	4785.4	2640.0	0.00	1.96	53.69	2640.00	931.0	0.00026	1023.4

SEGMENT TABLE FOR SECTION 11.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	945.	270.	156.	520.
945.	VELOCITY FPS	0.45	0.35	0.78	0.32
2	DISCHARGE CFS	1520.	434.	199.	888.
1520.	VELOCITY FPS	0.50	0.41	0.87	0.40
3	DISCHARGE CFS	1750.	499.	219.	1031.
1750.	VELOCITY FPS	0.53	0.44	0.93	0.43
4	DISCHARGE CFS	2640.	763.	282.	1595.
2640.	VELOCITY FPS	0.61	0.51	1.05	0.53
1	ELEV 933.4 HD	63530.	18185.	10721.	34625.
2	ELEV 934.4 HD	102170.	29156.	13549.	59465.
3	ELEV 934.7 HD	112628.	32159.	14267.	66203.
4	ELEV 935.7 HD	163299.	47166.	17541.	98592.

***** WSP2 MICROCOMPUTER TEST VERSION *****

HD TABLE FOR CROSS SECTION 11.9

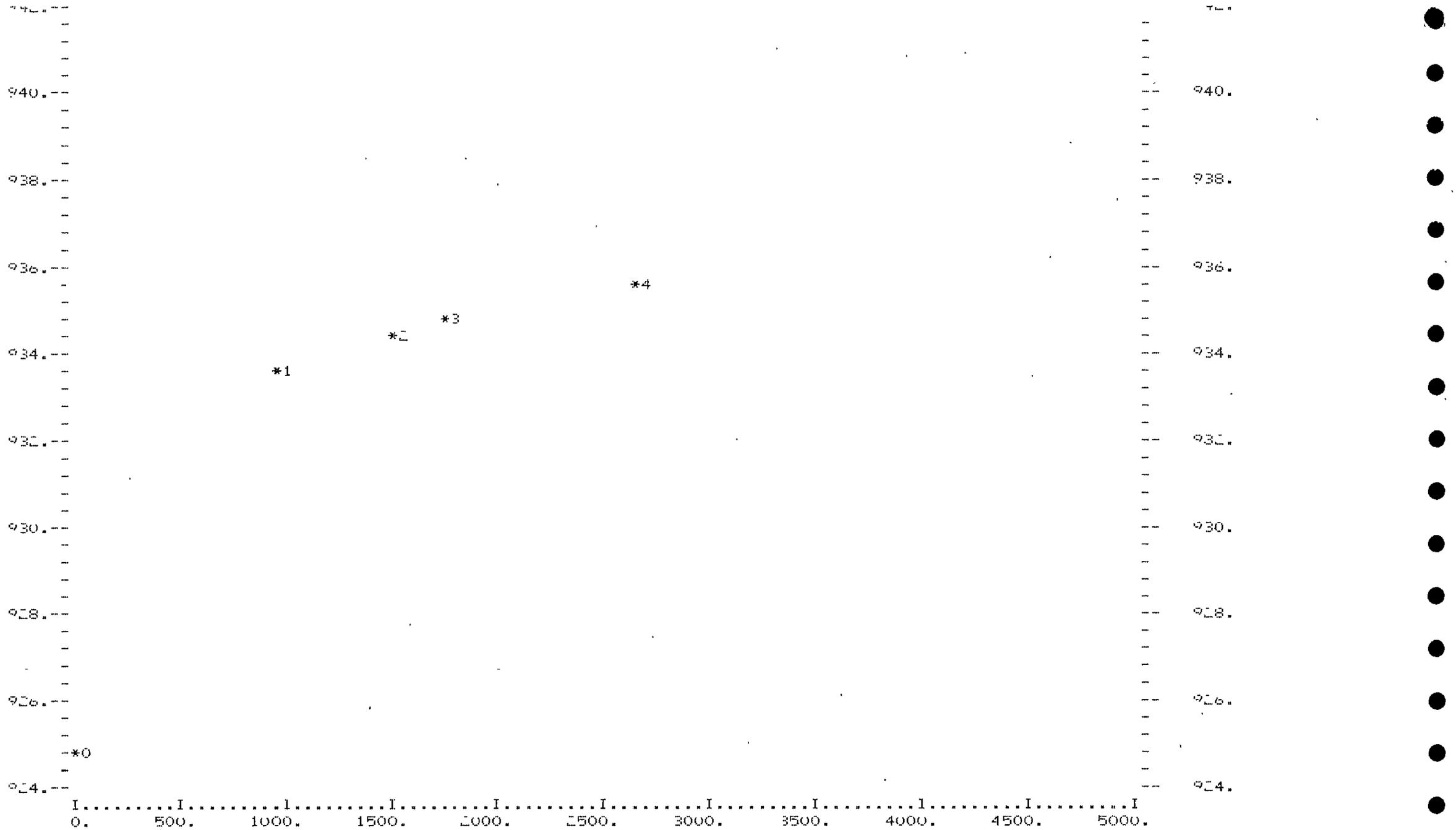
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	H.D TOTAL	H D BY SEGMENT 1	2	3
924.70	0.					
925.	2.	11.	16.	1.	13.	1.
926.	14.	14.	235.	1.	233.	1.
927.	30.	17.	670.	1.	668.	1.
928.	49.	20.	1324.	1.	1322.	1.
929.	71.	24.	2191.	1.	2189.	1.
930.	116.	83.	3430.	42.	3387.	1.
931.	517.	649.	8204.	1396.	5009.	830.
932.	1288.	853.	23809.	6539.	7156.	10113.
933.	2171.	901.	50219.	14378.	9586.	26254.
934.	3091.	943.	85106.	24238.	12293.	48575.
935.	4057.	990.	127974.	36550.	15261.	76162.
936.	5071.	1036.	178998.	51901.	18485.	108616.
937.	6127.	1067.	238707.	71412.	21938.	145322.
938.	7209.	1091.	307377.	94416.	25631.	187285.
939.	8305.	1100.	378810.	118852.	29475.	230205.
940.	9405.	1100.	453659.	144927.	33489.	274507.
941.	10505.	1100.	531128.	174515.	37743.	323707.
942.	11605.	1100.	612950.	207832.	42236.	377995.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 11.9

SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION

I .....I.....I.....I.....I.....I.....I.....I.....I.....I.....I



1 TABLE OF VALUES FOR BPR EQUATION

IF AN * SYMBOL APPEARS BESIDE A VARIABLE IN THIS TABLE,IT IS
EXTRAPOLATED FROM FIGURES 6,7,10, OR 34 OF THE BPR MANUAL.

NO.	M	AFB	DLTAF	SIGMA	DFS	COEFI	VNZ FPS	ALPHA	ALPHA2	ALPHA3	AEXIT SQ FT	APPAR SQ FT	DCRIT FT	CRIT COEF
1	ORIFICE FLOW FOR THIS PROFILE. COEF = 0.80													
2	ORIFICE FLOW FOR THIS PROFILE. COEF = 0.80													
3	ORIFICE FLOW FOR THIS PROFILE. COEF = 0.80													
4	ORIFICE FLOW FOR THIS PROFILE. COEF = 0.80													

***** WSPG MICROCOMPUTER TEST VERSION *****

ROAD SECTION 12.0

NO.	HW FT	CFS	HL FT	TW FT	STARTING CSM	BRIDGE CFS	BRIDGE AREA SQ FT	CULVERT CFS	CULVERT AREA SQ FT	WEIR CFS	WEIR AREA SQ FT	WEIR TOP WIDTH FT
0	922.80	0.0	0.00	922.80	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	933.84	945.0	0.40	933.44	945.00	945.0	235.2	0.0	0.0	0.0	0.0	0.0
2	934.90	1520.0	0.46	934.44	1520.00	993.9	235.2	0.0	0.0	526.1	269.6	640.4
3	935.06	1750.0	0.38	934.68	1750.00	924.1	235.2	0.0	0.0	825.9	379.5	716.0
4	935.89	2640.0	0.16	935.73	2640.00	580.2	235.2	0.0	0.0	2059.8	1066.2	922.2

Old 27 Marshall Rd.

Q=122

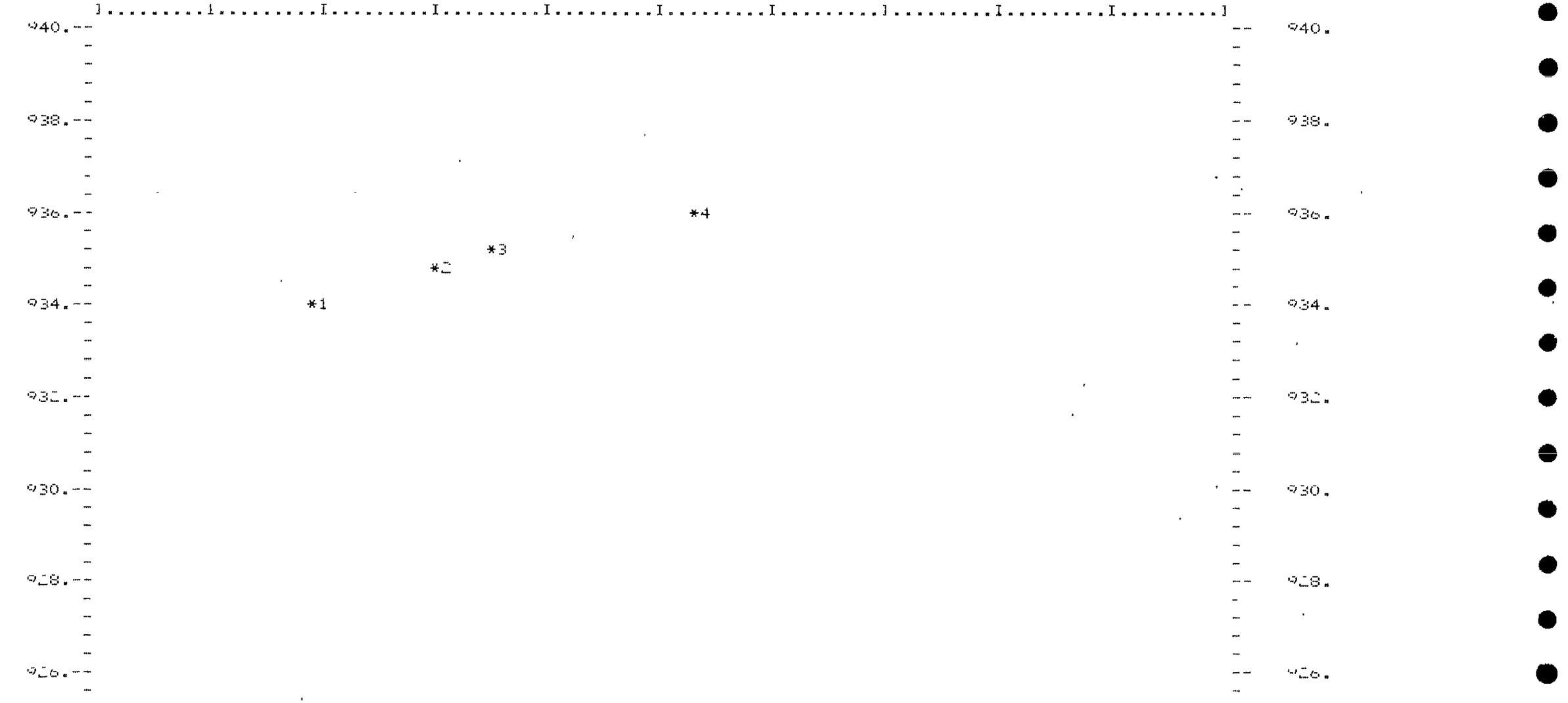
MIN ROAD ELEVATION = 934.30 FT

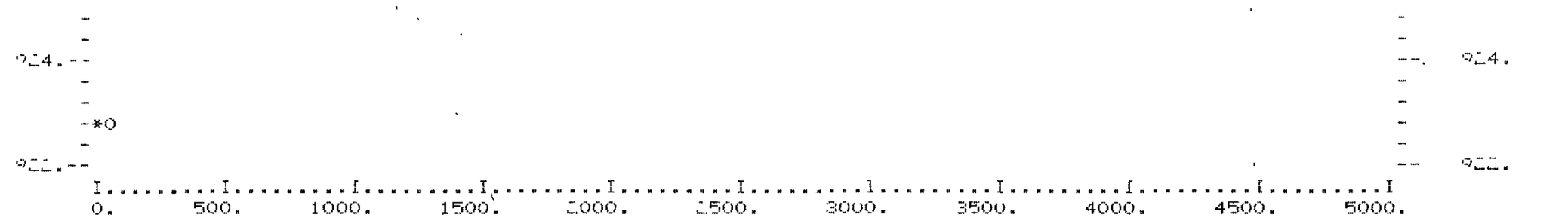
BRIDGE TYPE = BPR GIRDER BOTTOM ELEVATION = 932.00 FT OPENING NO.= 1

1 WSPG XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR. STORMS WS : PAGE
REV 03/14/88 DISCHARGE TO OLD 27 (MARSHALL STREET) ALT: 17P

***** WSPG MICROCOMPUTER TEST VERSION *****

ROAD SECTION 12.0
SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION





***** WSP2 MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 12.1 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	928.5	0.0	0.0							
LOW GRND	929.1	15.0	6.0	0.00	0.12	0.12				40.0
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
BANK FULL	929.1	15.0	6.0	0.00	0.12	0.12				40.0
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	933.9	2350.0	945.0	0.00	0.14	2.62	945.00	930.4	0.00029	850.8
2	934.9	3285.5	1520.0	0.00	0.14	3.83	1520.00	930.8	0.00029	919.9
3	935.1	3440.1	1750.0	0.00	0.14	3.86	1750.00	930.9	0.00033	930.7
4	935.9	4232.3	2640.0	0.00	0.14	3.04	2640.00	931.2	0.00042	987.2

SEGMENT TABLE FOR SECTION 12.1

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	945.	116.	211.	618.
945.	VELOCITY FPS	0.54	0.36	0.93	0.34
2	DISCHARGE CFS	1520.	180.	289.	1052.
1520.	VELOCITY FPS	0.59	0.40	1.05	0.41
3	DISCHARGE CFS	1750.	207.	325.	1218.
1750.	VELOCITY FPS	0.64	0.44	1.15	0.45
4	DISCHARGE CFS	2640.	310.	448.	1882.
2640.	VELOCITY FPS	0.77	0.52	1.40	0.57
1	ELEV 933.9 A	55046.	6775.	12443.	35827.
2	ELEV 934.9 A	89895.	10617.	17098.	62180.
3	ELEV 935.1 A	95828.	11318.	17866.	66644.
4	ELEV 935.9 A	129077.	15184.	21952.	91941.

***** WSP2 MICROCOMPUTER TEST VERSION *****

A TABLE FOR CROSS SECTION 12.1

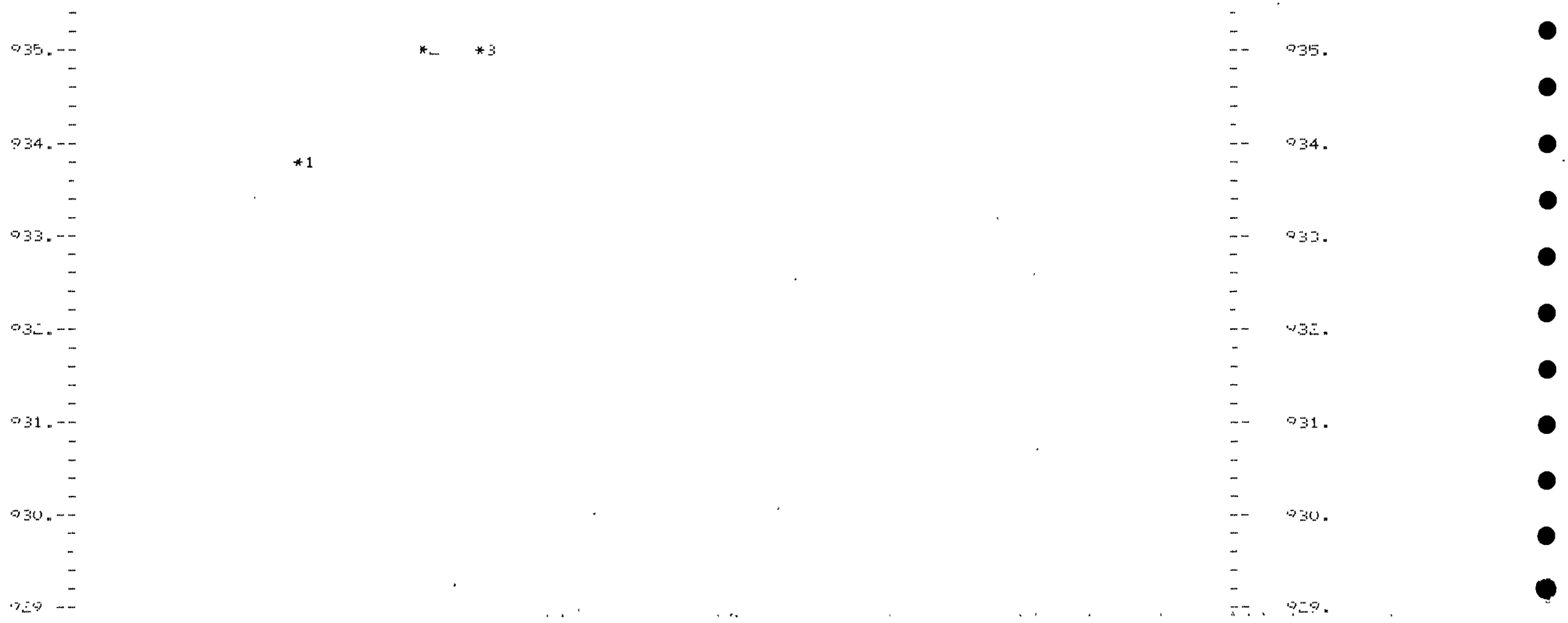
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	A TOTAL	A BY SEGMENT 1	2	3

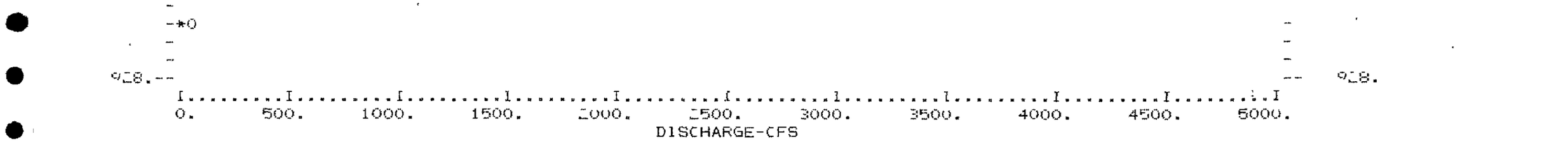
	928.50	0.					
	929.	12.	35.	101.	1.	99.	1.
	930.	99.	156.	1419.	246.	1127.	23.
	931.	354.	384.	5517.	1209.	3105.	1161.
	932.	892.	670.	14941.	2519.	5802.	6549.
	933.	1643.	797.	33003.	4452.	9130.	19354.
	934.	2470.	860.	59400.	7224.	13036.	39108.
	935.	3363.	925.	92836.	10963.	17479.	64383.
	936.	4324.	994.	133028.	15624.	22427.	94958.
	937.	5361.	1073.	179870.	21069.	27856.	130920.
	938.	6474.	1153.	234169.	28044.	33747.	172353.
	939.	7650.	1196.	300181.	37932.	40082.	222106.
	940.	8849.	1200.	374716.	49983.	46823.	277609.
	941.	10049.	1200.	452278.	63463.	53959.	334961.
	942.	11249.	1200.	538044.	76731.	61507.	398358.
	943.	12449.	1200.	632176.	92882.	69457.	467919.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 12.1

SCALES ARE 1 INCH = 500. CFS, AND 1.2 FEET/ ELEVATION





*****WARNING - SECT. 12.5 HD VALUES REVERSED ON SEGMENT 3 AT ELEVATION 937.40 VALUE CHANGED TO EQUAL PREVIOUS VALUE *****

***** WSPG MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 12.5 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	933.5	0.0	0.0							
LOW GRND	933.8	3.3	3.5	0.00	1.94	1.94				22.1
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
BANK FULL	933.8	3.3	3.5	0.00	1.94	1.94				22.1
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	939.8	898.4	945.0	0.00	2.81	28.27	945.00	936.9	0.00151	384.8
2	940.8	1289.2	1520.0	0.00	2.81	29.80	1520.00	938.1	0.00148	405.7
3	941.0	1370.5	1750.0	0.00	2.81	30.11	1750.00	938.2	0.00165	409.9
4	942.0	1810.7	2640.0	0.00	2.81	31.73	2640.00	938.5	0.00171	432.0

SEGMENT TABLE FOR SECTION 12.5

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	945.	358.	434.	153.
945.	VELOCITY FPS	1.68	0.75	2.32	0.66
2	DISCHARGE CFS	1520.	663.	558.	299.
1520.	VELOCITY FPS	1.72	0.94	2.55	0.82
3	DISCHARGE CFS	1750.	777.	620.	353.
1750.	VELOCITY FPS	1.84	1.04	2.75	0.90
4	DISCHARGE CFS	2640.	1247.	796.	597.
2640.	VELOCITY FPS	1.98	1.26	3.08	1.07
1	ELEV 939.8 HD	24259.	9118.	11375.	3867.
2	ELEV 940.8 HD	39456.	17143.	14621.	7692.
3	ELEV 941.0 HD	42993.	19026.	15340.	8626.
4	ELEV 942.0 HD	63702.	30045.	19322.	14335.

***** WSPG MICROCOMPUTER TEST VERSION *****

HD TABLE FOR CROSS SECTION 12.5

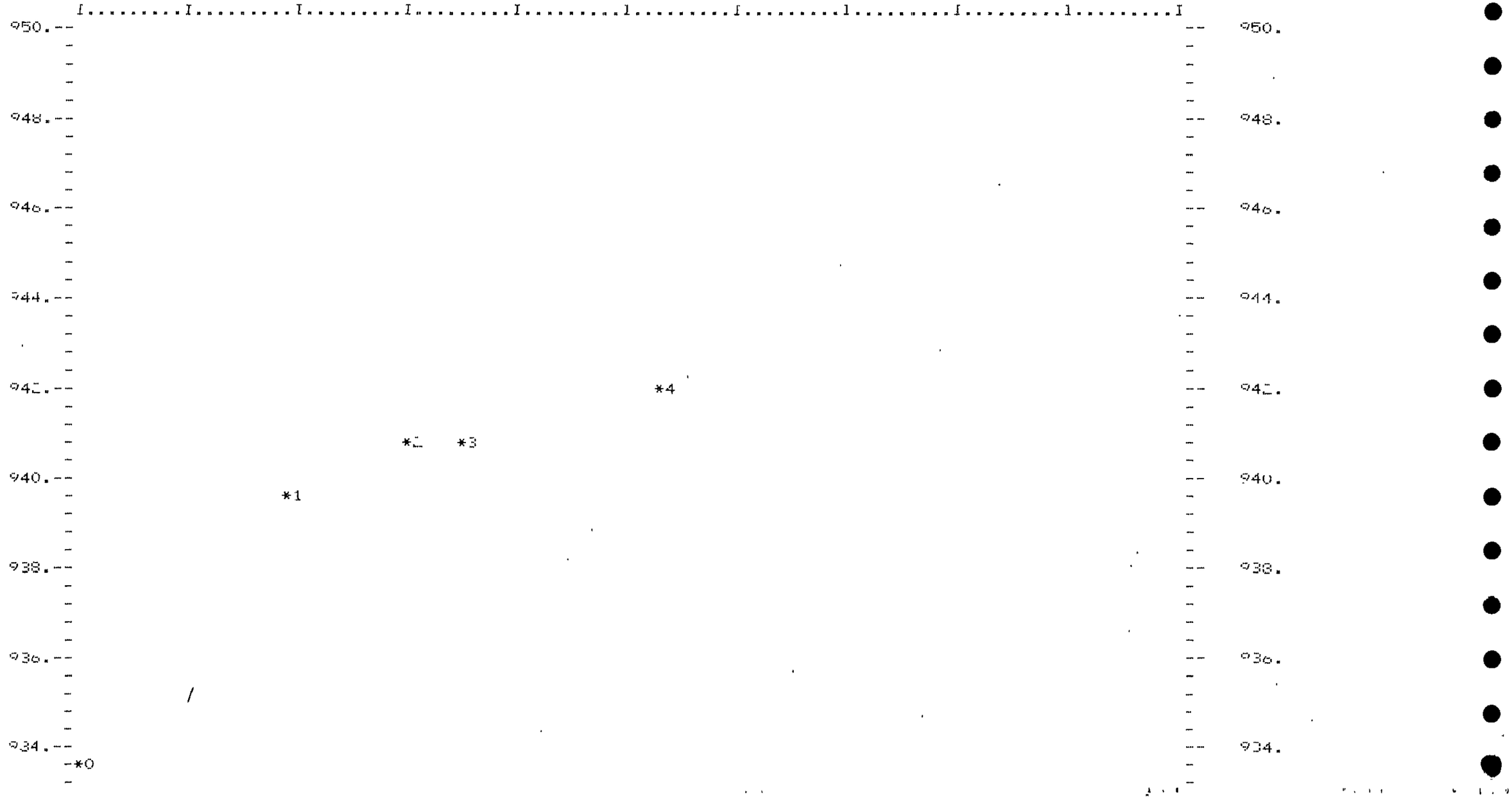
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	HD TOTAL	HD BY SEGMENT 1	2	3
933.50	0.					
934.	8.	24.	74.	1.	71.	2.

935.	36.	32.	714.	1.	708.	5.
936.	72.	40.	2052.	12.	2016.	19.
937.	115.	51.	4052.	123.	3880.	44.
938.	253.	330.	6974.	556.	6198.	220.
939.	610.	369.	15093.	4310.	8925.	1722.
940.	990.	390.	27569.	10784.	12037.	4639.
941.	1390.	411.	43921.	19494.	15513.	8859.
942.	1812.	432.	63804.	30073.	19331.	14350.
943.	2254.	453.	87207.	42480.	23479.	21214.
944.	2716.	467.	114645.	56813.	27942.	29858.
945.	3185.	470.	143037.	71026.	32675.	38918.
946.	3655.	470.	174092.	86369.	37699.	49087.
947.	4125.	470.	208708.	103457.	43020.	60816.
948.	4595.	470.	246984.	122336.	48631.	74202.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 12.5

SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION



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     *****   WSPG  MICROCOMPUTER  TEST  VERSION   *****

---------------------- LIST OF INPUT DATA WITH LIMITED EDITING----------------------
TITLE     DISCHARGE TO MICHIGAN ROAD
CHANGE    DISCHARGE
DISCHARGE -1.       880.       1410.      1610.      2375.
COMMENT   DISCHARGE FROM XSECTION 023 OF TR20COLD.OUT
END
SEGMENT   12.9      1          N          -30.                                  255
NVALUE    .140                                                                  256
SEGMENT   12.9      2          C          0.                                    257
NVALUE    .080                                                                  258
SEGMENT   12.9      3          N          730.                                  259
NVALUE    .140                                                                  260
SECTION   12.9                                                                  261
          -400.0    948.0      -300.0     944.5      -200.0     942.6           262
          -100.0    944.0      -20.0      936.8      -15.0      937.7           263
          -10.0     937.3      -5.0       938.0      0.0        942.5           264
          -30.0     942.6      -25.0      939.0      100.0      942.7           265
          200.0     942.0      400.0      942.5      630.0      947.5           266
          730.0     951.7                                                       267
ENDTABLE                                                                        268
--------------------MESSAGE - DATA POINTS ON SECTION 12.9   REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED--------------------
BPR       13.0      A          3                                               269
GIRDER    945.5     945.       0.         .8         2.63                      270
          -20.      947.       -20.       945.       20.        945.           271
          20.       947.                                                       272
ENDTABLE                                                                        273
SECTION   13.0                                                                  274
          -200.0    949.2      -20.       947.0      -20.0      936.8          275
          0.0       933.4      20.0       939.5      20.        947.           276
          200.0     947.3                                                      277
ENDTABLE                                                                        278
SEGMENT   13.1      1          N          -30.                                  279
NVALUE    .135                                                                  280
SEGMENT   13.1      2          C          0.                                    281
NVALUE    .067                                                                  282
SEGMENT   13.1      3          N          650.                                  283
NVALUE    .140                                                                  284
SECTION   13.1                                                                  285
          -350.     949.       -349.9     949.       -349.8     949.           286
          -200.     945.4      -100.      943.       -30.       942.           287
          -25.      938.5      -20.       935.5      -15.       935.6          288
          0.        942.3      75.0       942.5      125.0      942.4          289
          225.0     942.5      425.0      941.4      550.0      942.2          290
          650.0     947.1      650.0      951.8                                 291
ENDTABLE                                                                        292
COMPUTE   12.9      13.2       12.5
----------------------------------END OF DATA LISTING----------------------------------
1                   COMPUTE    12.9       13.2       12.5


--------------------------------STARTING DATA FROM PREVIOUS COMPUTATIONS--------------------------------
```

***** WSPG MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 12.9 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED FLOODPLAIN CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	936.8	0.0	0.0							
LOW GRND	942.0	103.6	84.3	0.00	1.97	1.97				28.6
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
BANK FULL	942.5	186.1	151.4	0.00	2.06	16.41				301.3
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	944.0	1081.6	880.0	0.00	2.07	39.06	880.00	941.4	0.00165	717.0
2	944.8	1679.7	1410.0	0.00	2.07	44.40	1410.00	942.8	0.00136	815.0
3	944.9	1794.2	1610.0	0.00	2.07	44.96	1610.00	942.8	0.00149	825.3
4	945.7	2460.6	2375.0	0.00	2.07	48.14	2375.00	943.0	0.00134	883.7

SEGMENT TABLE FOR SECTION 12.9

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	800.	86.	336.	459.
880.	VELOCITY FPS	1.48	0.45	2.05	0.63
2	DISCHARGE CFS	1410.	214.	392.	804.
1410.	VELOCITY FPS	1.31	0.55	2.09	0.73
3	DISCHARGE CFS	1610.	259.	426.	925.
1610.	VELOCITY FPS	1.37	0.61	2.22	0.79
4	DISCHARGE CFS	2375.	475.	499.	1401.
2375.	VELOCITY FPS	1.32	0.73	2.32	0.88
1	ELEV 944.0 A.D		21038.	1510.	8784.	10744.
2	ELEV 944.8 A D		37972.	5346.	10975.	21651.
3	ELEV 944.9 A D		41333.	6190.	11381.	23762.
4	ELEV 945.7 A D		64706.	12722.	13808.	38177.

***** WSPG MICROCOMPUTER TEST VERSION *****

A.D TABLE FOR CROSS SECTION 12.9

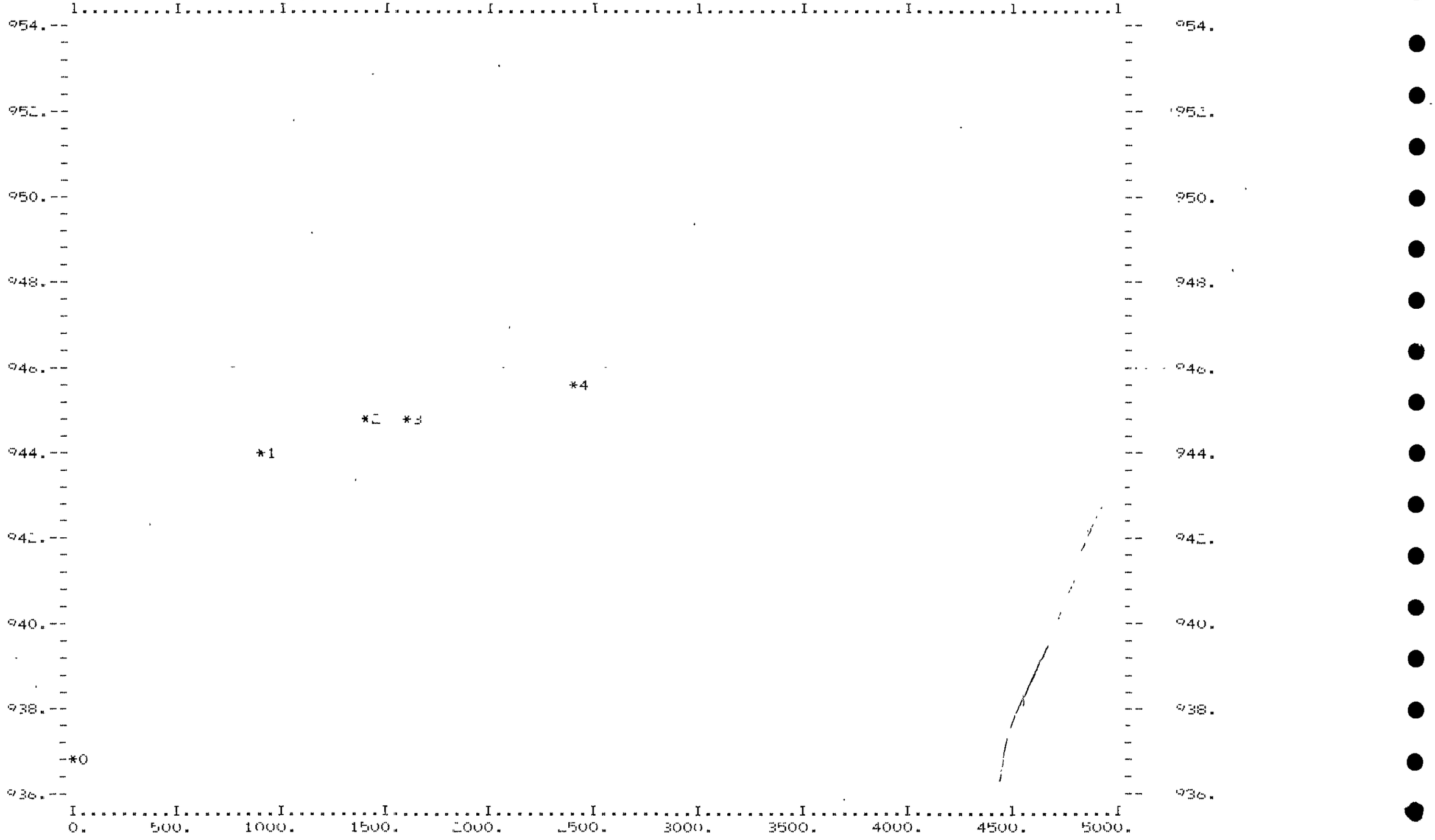
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	A.D TOTAL	A.D BY SEGMENT 1	2	3
936.80	0.					
937.	0.	2.	4.	1.	2.	1.
938.	10.	18.	120.	1.	117.	1.
939.	29.	21.	649.	1.	647.	1.
940.	52.	24.	1532.	1.	1530.	1.
941.	76.	26.	2733.	1.	2731.	1.
942.	104.	29.	4243.	1.	4240.	1.
943.	424.	523.	8587.	14.	6206.	1723.
944.	1060.	712.	21189.	1423.	8706.	10415.
945.	1839.	829.	43065.	6550.	11541.	24630.
946.	2705.	904.	73731.	15229.	14685.	43639.
947.	3647.	978.	112458.	26811.	18124.	67412.

948.	4656.	1034.	160337.	41689.	21843.	96677.
949.	5707.	1066.	218721.	60634.	25840.	132177.
950.	6783.	1090.	285699.	83136.	30101.	172443.
951.	7884.	1113.	359818.	108046.	34614.	217137.
952.	9008.	1126.	443335.	136319.	39372.	268607.
953.	10137.	1130.	527981.	162171.	44295.	321257.
954.	11267.	1130.	617079.	190057.	49430.	376987.
955.	12397.	1130.	714884.	220749.	54818.	438402.
956.	13527.	1130.	821697.	254352.	60468.	505722.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 12.9

SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION



DISCHARGE-CFS
TABLE OF VALUES FOR BPR EQUATION

IF AN * SYMBOL APPEARS BESIDE A VARIABLE IN THIS TABLE,IT IS
EXTRAPOLATED FROM FIGURES 6,7,10, OR 34 OF THE BPR MANUAL.

NO.	M	AREA	DELTAH	SIGMA	DRS	COEFF	VNE FPS	ALPHA	ALPHA2	ALPHA3	AEXIT SQ FT	APPAR SQ FT	DCRIT FT	CRIT COEF
1	0.22	2.61*	0.00	0.00	0.00*	2.61	2.65	2.18	1.26	1.49	4101.25	3363.27	938.05	0.00
2	ORIFICE FLOW FOR THIS PROFILE. COEF = 0.80													
3	ORIFICE FLOW FOR THIS PROFILE. COEF = 0.80													
4	ORIFICE FLOW FOR THIS PROFILE. COEF = 0.80													

***** WSPG MICROCOMPUTER TEST VERSION *****

ROAD SECTION 13.0

NO.	HW FT	CFS	HL FT	TW FT	STARTING CSM	BRIDGE CFS	BRIDGE AREA SQ FT	CULVERT CFS	CULVERT AREA SQ FT	WEIR CFS	WEIR AREA SQ FT	WEIR TOP WIDTH FT
0	933.40	0.0	0.00	933.40	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	944.42	880.0	0.36	944.06	880.00	880.0	331.6	0.0	0.0	0.0	0.0	0.0
2	945.52	1410.0	0.68	944.84	1410.00	1410.0	369.0	0.0	0.0	0.0	0.0	0.0
3	945.52	1610.0	0.54	944.98	1610.00	1610.0	369.0	0.0	0.0	0.0	0.0	0.0
4	946.78	2375.0	1.02	945.76	2375.00	2375.0	369.0	0.0	0.0	0.0	0.0	0.0

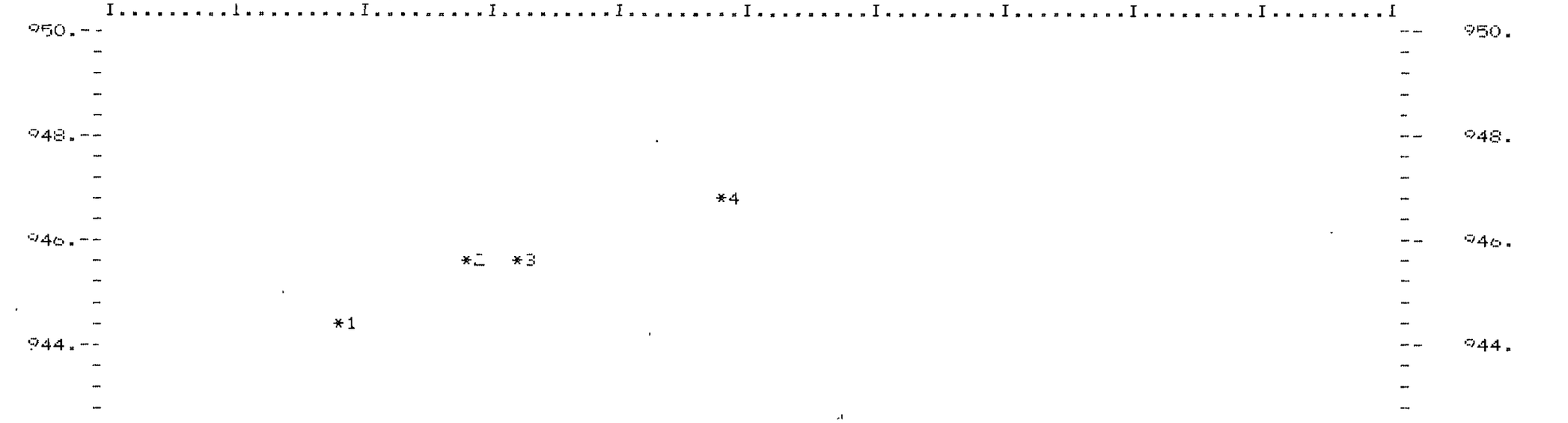
MIN ROAD ELEVATION = 947.00 FT

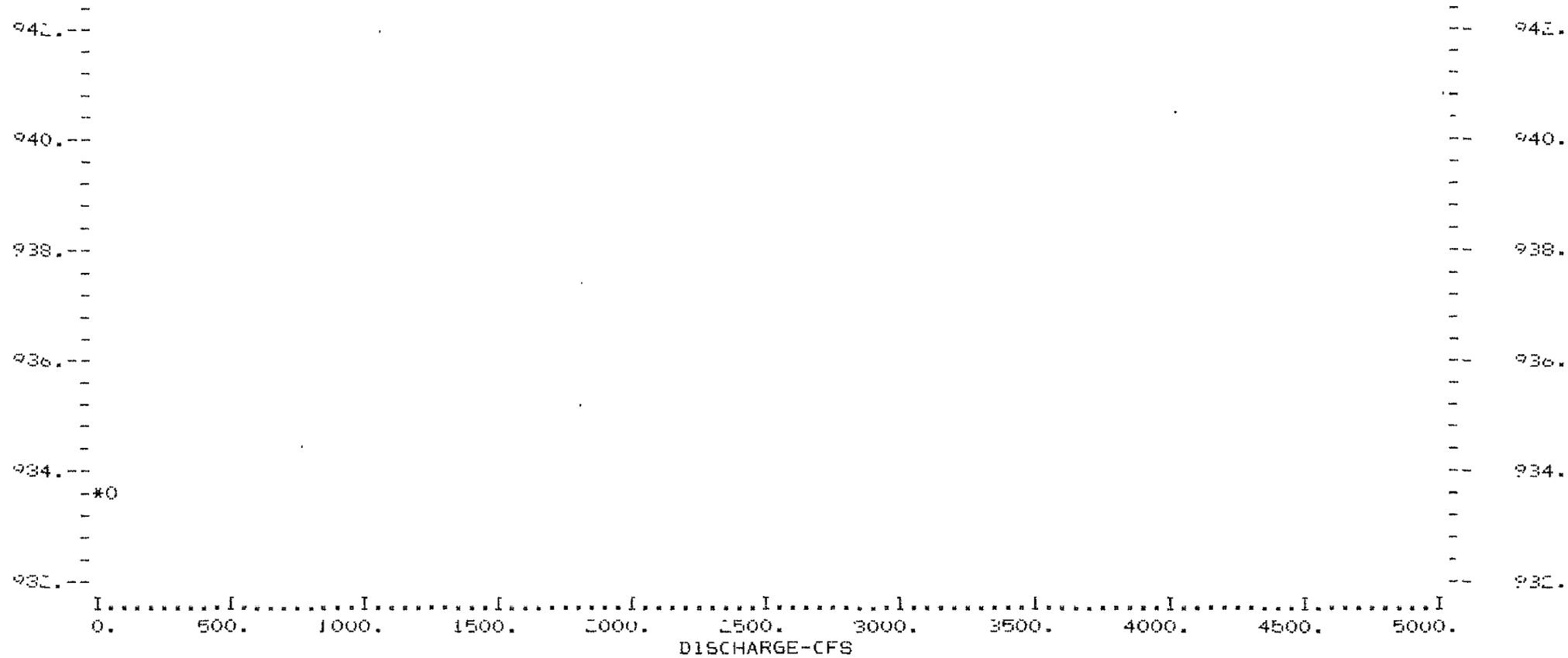
BRIDGE TYPE = BPR GIRDER BOTTOM ELEVATION = 945.00 FT OPENING NO.= 1

***** WSPG MICROCOMPUTER TEST VERSION *****

ROAD SECTION 13.0

SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION





***** WSPE MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 13.1 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	935.5	0.0	0.0							
LOW GRND	941.4	94.9	49.7	0.00	0.07	0.07				27.1
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
BANK FULL	942.0	172.7	90.4	0.00	0.07	0.58				232.2
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	944.4	1680.8	880.0	0.00	0.07	1.84	880.00	941.0	0.00051	744.0
2	945.5	2528.5	1410.0	0.00	0.07	2.00	1410.00	942.3	0.00043	806.1
3	945.5	2531.7	1610.0	0.00	0.07	2.00	1610.00	942.4	0.00055	806.4
4	946.8	3597.2	2375.0	0.00	0.07	2.17	2375.00	942.6	0.00045	876.4

SEGMENT TABLE FOR SECTION 13.1

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	880.	56.	286.	539.
880.	VELOCITY FPS	0.96	0.31	1.55	0.41
2	DISCHARGE CFS	1410.	124.	344.	942.
1410.	VELOCITY FPS	0.87	0.36	1.58	0.48
3	DISCHARGE CFS	1610.	142.	392.	1075.
1610.	VELOCITY FPS	1.02	0.41	1.80	0.55

4 DISCHARGE CFS	2375.	270.	460.	1645.	
2375. VELOCITY FPS	0.97	0.44	1.80	0.60	
1 ELEV 944.4 H.D	38716.	2389.	13826.	23701.	
2 ELEV 945.5 H.D	68215.	5900.	16835.	45480.	
3 ELEV 945.5 H.D	68331.	5915.	16851.	45565.	
4 ELEV 946.8 H.D	111982.	12453.	22000.	77528.	

***** WSP2 MICROCOMPUTER TEST VERSION *****

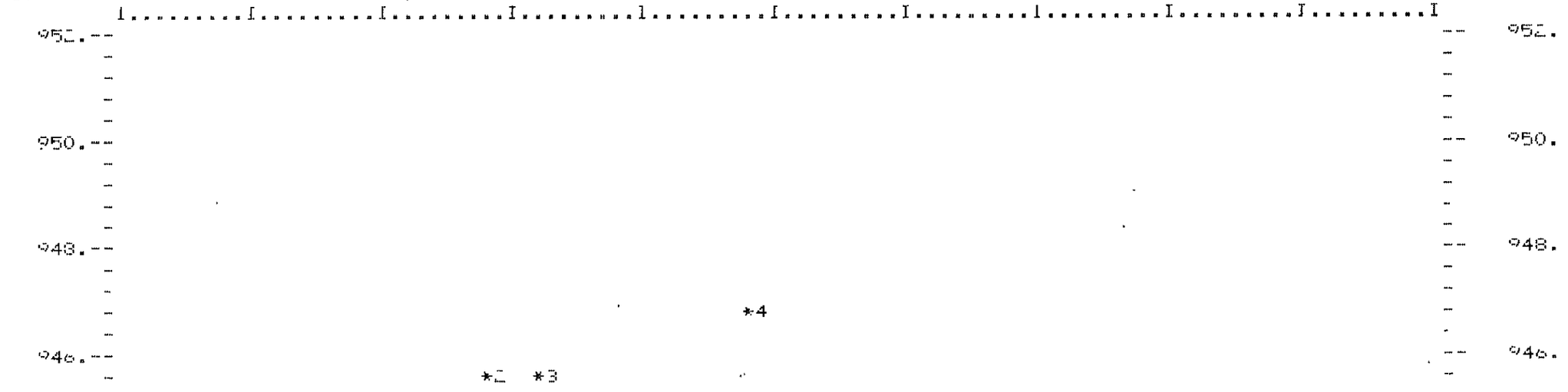
H.D TABLE FOR CROSS SECTION 13.1

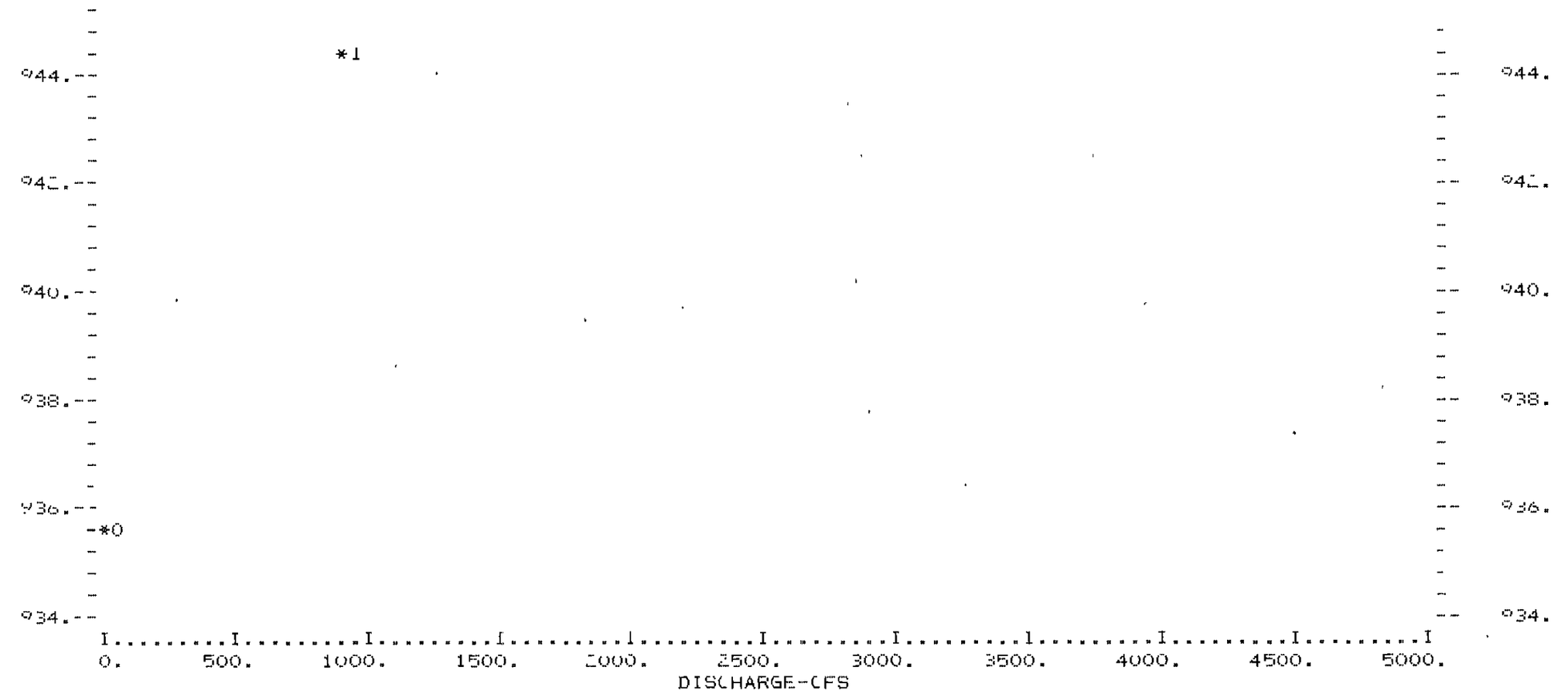
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	H D TOTAL	H D BY SEGMENT 1	2	3
935.50	0.					
936.	3.	7.	33.	1.	31.	1.
937.	11.	11.	253.	1.	251.	1.
938.	24.	15.	703.	1.	701.	1.
939.	40.	18.	1431.	1.	1429.	1.
940.	61.	22.	2475.	1.	2473.	1.
941.	84.	26.	3867.	1.	3865.	1.
942.	173.	232.	5933.	1.	5642.	289.
943.	687.	578.	13539.	163.	8235.	4166.
944.	1366.	719.	29322.	1398.	11342.	16153.
945.	2114.	776.	52992.	3939.	14843.	34008.
946.	2918.	833.	83463.	8015.	18709.	56611.
947.	3783.	888.	120523.	13844.	22915.	83609.
948.	4697.	938.	164898.	21779.	27466.	115531.
949.	5652.	976.	216928.	32461.	32344.	151993.
950.	6638.	990.	277314.	47324.	37536.	192412.
951.	7631.	996.	344326.	64905.	43023.	236349.
952.	8629.	999.	417336.	84303.	48794.	284111.
953.	9629.	1000.	492781.	104222.	54774.	333465.
954.	10629.	1000.	568900.	123646.	60935.	383379.
955.	11629.	1000.	645829.	145376.	67411.	433753.
956.	12629.	1000.	741780.	169545.	74198.	496061.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 13.1

SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION





***** WSPG MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 13.2 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	937.6	0.0	0.0							
LOW GRND	943.5	94.9	98.4	0.00	0.24	0.24				27.1
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
BANK FULL	944.1	172.7	179.0	0.00	0.26	2.09				232.2
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	945.4	848.8	880.0	0.00	0.27	6.01	880.00	943.1	0.00270	667.4
2	946.2	1456.1	1410.0	0.00	0.27	6.54	1410.00	944.4	0.00193	726.5
3	946.3	1512.5	1610.0	0.00	0.27	6.58	1610.00	944.5	0.00225	731.0
4	947.3	2293.1	2375.0	0.00	0.27	7.11	2375.00	944.7	0.00157	789.6

SEGMENT TABLE FOR SECTION 13.2

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	880.	25.	466.	389.
880.	VELOCITY FPS	2.33	0.45	3.11	0.60
2	DISCHARGE CFS	1410.	79.	506.	826.
1410.	VELOCITY FPS	1.88	0.55	2.88	0.73

3	DISCHARGE CFS	1610.	92.	565.	954.
1610.	VELOCITY FPS	2.02	0.61	3.17	0.81
4	DISCHARGE CFS	2375.	193.	621.	1561.
2375.	VELOCITY FPS	1.70	0.65	2.97	0.87

1	ELEV 945.4 FD	16716.	441.	9031.	7244.
2	ELEV 946.2 FD	31771.	1669.	11774.	18329.
3	ELEV 946.3 FD	33727.	1862.	12048.	19817.
4	ELEV 947.3 FD	59794.	4805.	15731.	39259.

***** WSP2 MICROCOMPUTER TEST VERSION *****

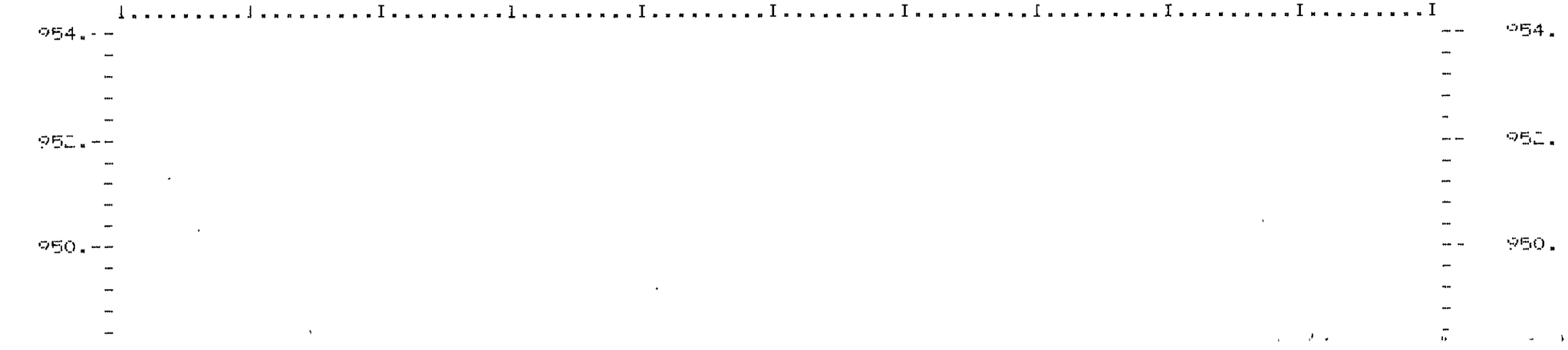
FD TABLE FOR CROSS SECTION 13.2

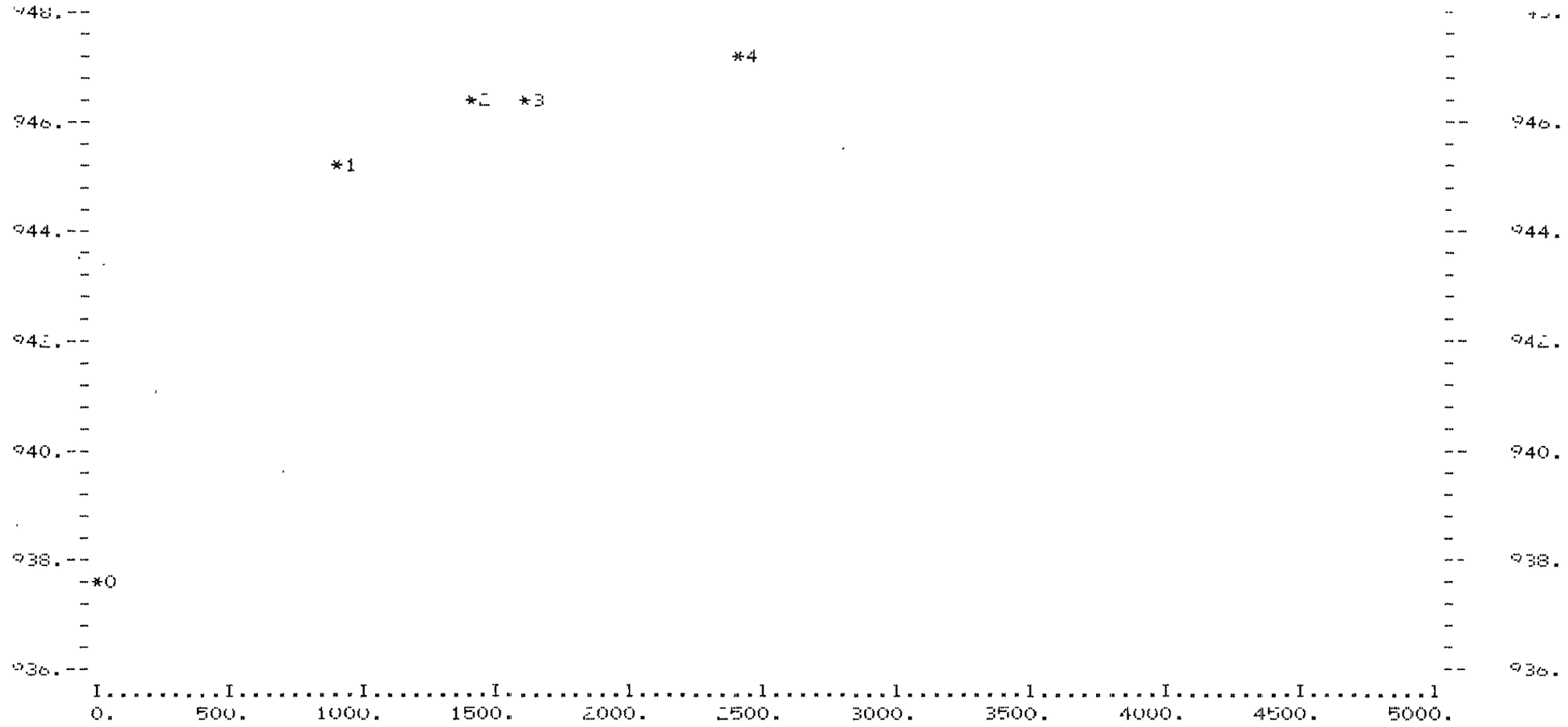
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	FD TOTAL	FD BY SEGMENT 1	2	3
937.60	0.					
938.	2.	6.	22.	1.	20.	1.
939.	10.	10.	221.	1.	219.	1.
940.	22.	14.	646.	1.	644.	1.
941.	39.	18.	1345.	1.	1343.	1.
942.	58.	22.	2355.	1.	2353.	1.
943.	82.	25.	3712.	1.	3710.	1.
944.	160.	198.	5682.	1.	5447.	117.
945.	626.	544.	12417.	111.	7933.	3363.
946.	1295.	714.	27296.	1214.	11010.	14609.
947.	2037.	770.	50267.	3613.	14474.	31957.
948.	2836.	827.	80072.	7522.	18305.	54103.
949.	3695.	882.	116481.	13169.	22479.	80679.
950.	4602.	933.	160191.	20901.	26999.	112182.
951.	5563.	974.	211425.	31200.	31846.	148285.
952.	6539.	990.	271156.	45798.	37008.	188350.
953.	7532.	995.	337170.	62946.	42457.	231679.
954.	8529.	998.	409655.	82219.	48202.	279100.
955.	9529.	1000.	485537.	102402.	54175.	328703.
956.	10529.	1000.	560987.	121602.	60305.	378200.
957.	11529.	1000.	643225.	143096.	66749.	431930.
958.	12529.	1000.	732465.	167015.	73506.	490011.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 13.2

SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION





***** WSPG MICROCOMPUTER TEST VERSION *****

---------- LIST OF INPUT DATA WITH LIMITED EDITING----------

```
TITLE     DISCHARGE TO CONFLUENCE COUNTY DRAIN NO.15
CHANGE    DISCHARGE
DISCHARGE -1.       805.      1250.     1430.     2105.
COMMENT   DISCHARGE FROM XSECTION 021 OF TR20COLD.OUT
END
SEGMENT   13.5      1         N         -20.                              293
NVALUE    .135                                                            294
SEGMENT   13.5      2         C         15.                               295
NVALUE    .067                                                            296
SEGMENT   13.5      3         N         500.                              297
NVALUE    .140                                                            298
SECTION   13.5                                                            299
          -70.0     961.7     -20.0     946.4     -13.0     946.0         300
          -9.0      943.0     0.0       943.1     9.0       943.6         301
          15.0      946.8     50.0      947.8     150.0     947.6         302
          250.0     947.0     350.0     946.4     400.0     947.0         303
          450.0     957.6     500.0     958.2                             304
ENDTABLE                                                                  305
SEGMENT   13.9      1         N         -29.                              306
NVALUE    .135                                                            307
SEGMENT   13.9      2         C         19.                               308
NVALUE    .067                                                            309
SEGMENT   13.9      3         N         175.                              310
NVALUE    .130                                                            311
SECTION   13.9                                                            312
```

```
          -54.0     960.3     -29.0     957.9     -9.0      947.2     313
          0.0       947.3     9.0       947.2     19.0      952.3     314
          39.0      951.4     54.0      950.6     84.0      951.5     315
          104.0     955.1     130.0     956.1     150.0     957.9     316
          175.0     959.4                                             317
ENDTABLE                                                              318
CULV1     15.0      2         41122                                   319
CULV2     10.       10.       310.      947.1     946.6               320
SECTION   15.0                                                        321
          -100.0    969.0     -15.0     969.0     0.0       969.0     322
          15.0      969.0     100.0     969.0                         323
ENDTABLE                                                              324
SEGMENT   15.1      1         N         -31.                          325
NVALUE    .134                                                        326
SEGMENT   15.1      2         C         16.                           327
NVALUE    .067                                                        328
SEGMENT   15.1      3         N         100.                          329
NVALUE    .134                                                        330
SECTION   15.1                                                        331
          -100.0    959.6     -60.0     957.9     -31.0     957.5     332
1    WSP2 XEQ 02/18/91      10:57:06     COLD CREEK FPMS,  02-15-91,    10,50,100 & 500 YR. STORMS     WS :          PAGE
          REV 03/14/88                  DISCHARGE TO CONFLUENCE COUNTY DRAIN NO.15                     ALT:           26

     *****   WSP2  MICROCOMPUTER  TEST  VERSION   *****

-----------------------------80/80 LIST OF INPUT DATA-----------------------------
          -28.0     955.5     -18.0     954.0     -8.0      949.4     333
          0.0       948.6     8.0       949.5     16.0      952.7     334
          40.0      951.7     65.0      952.8     90.0      957.5     335
          100.0     959.6                                             336
ENDTABLE                                                              337
COMPUTE   13.5      15.1      13.2
-----------------------------END OF DATA LISTING-----------------------------
1                   COMPUTE   13.5      15.1      13.2


-----------------------------STARTING DATA FROM PREVIOUS COMPUTATIONS-----------------------------

1    WSP2 XEQ 02/18/91      10:57:06     COLD CREEK FPMS,  02-15-91,    10,50,100 & 500 YR. STORMS     WS :          PAGE
          REV 03/14/88                  DISCHARGE TO CONFLUENCE COUNTY DRAIN NO.15                     ALT:           27

     *****   WSP2  MICROCOMPUTER  TEST  VERSION   *****

                                        RATING TABLE FOR SECTION 13.5          DA=   1.0 SQ MI
                                        ------------------------------

        NO.      ELEV      AREA      Q     ------ACRES FLOODED-------    STARTING      CRIT   FRICTION    FLOW TOP
                  FT       SQ FT     CFS   FLOODPLAIN            TOTAL     CSM         ELEV    SLOPE       WIDTH
                                           DAMAGE    CHANNEL                           FT     FT/FT        FT

         0      943.0       0.0       0.0
  LOW  GRND     946.4      74.0      88.6      0.00      0.78      0.78                                      34.3
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****
  BANK FULL     946.4      74.0      88.6      0.00      0.78      0.78                                      34.3
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****
         1      948.5     671.6     805.0      0.00      0.80      9.05    805.00      947.0   0.00283      433.9
         2      949.0     904.2    1250.0      0.00      0.80      9.13   1250.00      947.3   0.00318      438.2
6.2      3      949.2     981.5    1430.0      0.00      0.80      9.16   1430.00      947.5   0.00329      439.6
         4      950.0    1349.8    2105.0      0.00      0.80      9.30   2105.00      947.7   0.00289      446.2

                                        SEGMENT TABLE FOR SECTION 13.5
```

CSM		TOTAL	1 N	2 C	3 N
1	DISCHARGE CFS	805.	5.	432.	369.
805.	VELOCITY FPS	2.25	0.62	2.93	0.71
2	DISCHARGE CFS	1250.	9.	558.	683.
1250.	VELOCITY FPS	2.40	0.76	3.36	0.94
3	DISCHARGE CFS	1430.	10.	612.	808.
1430.	VELOCITY FPS	2.45	0.80	3.55	1.01
4	DISCHARGE CFS	2105.	19.	743.	1342.
2105.	VELOCITY FPS	2.40	0.90	3.69	1.19
1	ELEV 948.5 FD	15074.	82.	8227.	6765.
2	ELEV 949.0 FD	22034.	150.	10035.	11850.
3	ELEV 949.2 FD	24942.	181.	10676.	14086.
4	ELEV 950.0 FD	39132.	360.	13849.	24922.

***** WSP2 MICROCOMPUTER TEST VERSION *****

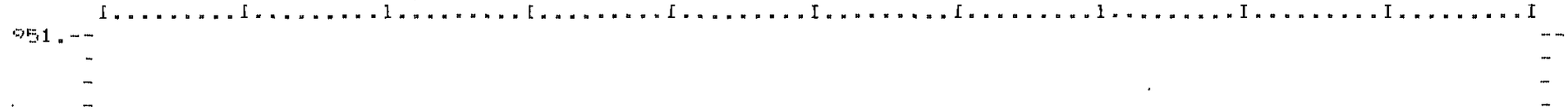
F.D TABLE FOR CROSS SECTION 13.5

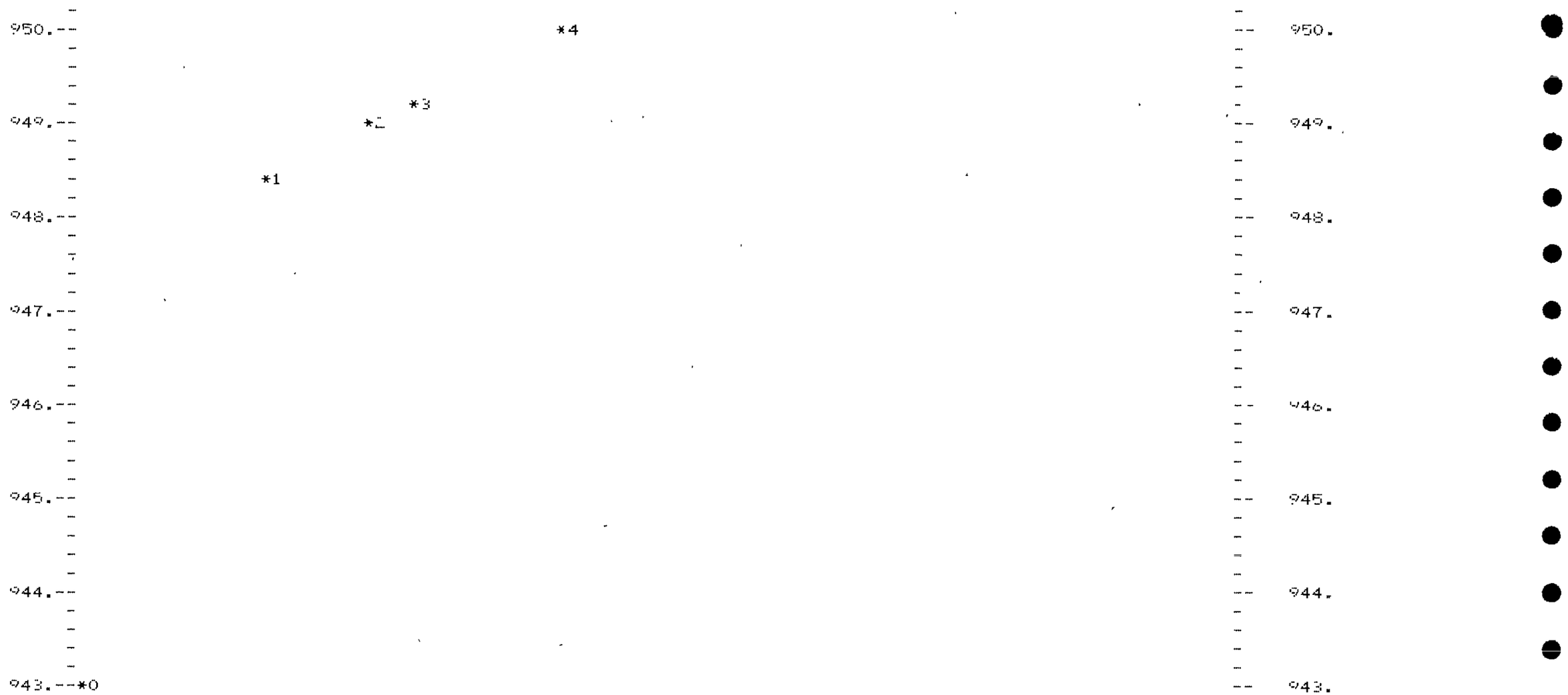
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	F D TOTAL	F'D BY SEGMENT 1	2	3
943.00	0.					
944.	15.	20.	276.	1.	274.	1.
945.	37.	23.	1083.	1.	1081.	1.
946.	62.	27.	2320.	1.	2318.	1.
947.	155.	182.	4261.	5.	3935.	167.
948.	462.	376.	10040.	38.	6654.	3045.
949.	890.	438.	21681.	145.	9921.	11473.
950.	1332.	446.	38427.	350.	13690.	24386.
951.	1782.	454.	59055.	673.	17917.	40464.
952.	2240.	462.	83414.	1138.	22587.	59689.
953.	2705.	470.	111293.	1763.	27680.	81849.
954.	3179.	478.	142538.	2569.	33180.	106790.
955.	3662.	486.	176904.	3568.	39064.	134255.
956.	4152.	494.	214511.	4784.	45331.	164375.
957.	4650.	502.	255256.	6232.	51968.	197035.
958.	5170.	525.	299119.	7929.	58965.	232209.
959.	5719.	561.	333609.	9888.	66312.	257391.
960.	6282.	564.	386587.	12123.	73997.	300448.
961.	6848.	568.	442618.	14645.	82012.	345930.
962.	7417.	570.	502099.	17622.	90359.	394088.
963.	7987.	570.	565026.	21218.	99032.	444777.
964.	8557.	570.	626661.	24327.	107914.	494191.
965.	9127.	570.	691680.	27715.	117124.	546410.
966.	9697.	570.	760102.	31392.	126658.	601455.
967.	10267.	570.	831944.	35368.	136513.	659346.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 13.5

SCALES ARE 1 INCH = 500. CFS, AND 1.2 FEET/ ELEVATION





1 WSP2 XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR. STORMS WS : PAGE
REV 03/14/88 DISCHARGE TO CONFLUENCE COUNTY DRAIN NO.15 ALT: 28

***** WSP2 MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 13.9 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM		CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	947.2	0.0	0.0								
LOW GRND	950.6	82.4	239.8	0.00	0.62	0.62					31.0
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****											
BANK FULL	952.3	208.5	606.5	0.00	0.75	1.96					107.0
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****											
1	952.9	276.7	805.0	0.00	0.77	2.05	805.00		951.0	0.00544	111.6
2	953.8	380.3	1250.0	0.00	0.80	2.17	1250.00		951.9	0.00607	118.3
3	954.3	434.3	1430.0	0.00	0.82	2.23	1430.00		952.1	0.00569	121.6

SEGMENT TABLE FOR SECTION 13.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	805.	0.	672.	133.
805.	VELOCITY FPS	3.79	0.00	4.09	1.18
2	DISCHARGE CFS	1250.	0.	958.	292.
1250.	VELOCITY FPS	4.28	0.00	4.79	1.62
3	DISCHARGE CFS	1430.	0.	1056.	374.
1430.	VELOCITY FPS	4.27	0.00	4.83	1.73
4	DISCHARGE CFS	2105.	0.	1469.	636.
2105.	VELOCITY FPS	4.77	0.00	5.53	2.04
1	ELEV 952.9 FD	10861.	1.	9146.	1714.
2	ELEV 953.8 FD	16034.	1.	12320.	3713.
3	ELEV 954.3 FD	18931.	1.	14042.	4888.
4	ELEV 955.4 FD	20843.	1.	18765.	8077.

***** WSP2 MICROCOMPUTER TEST VERSION *****

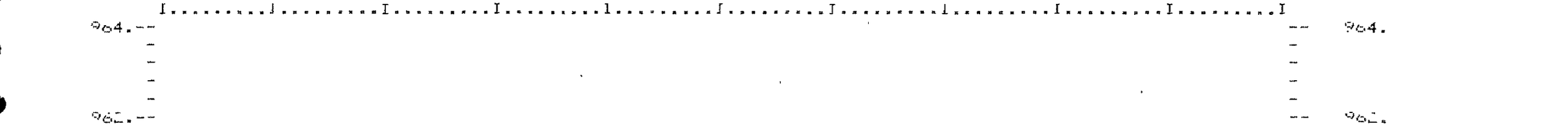
FD TABLE FOR CROSS SECTION 13.9

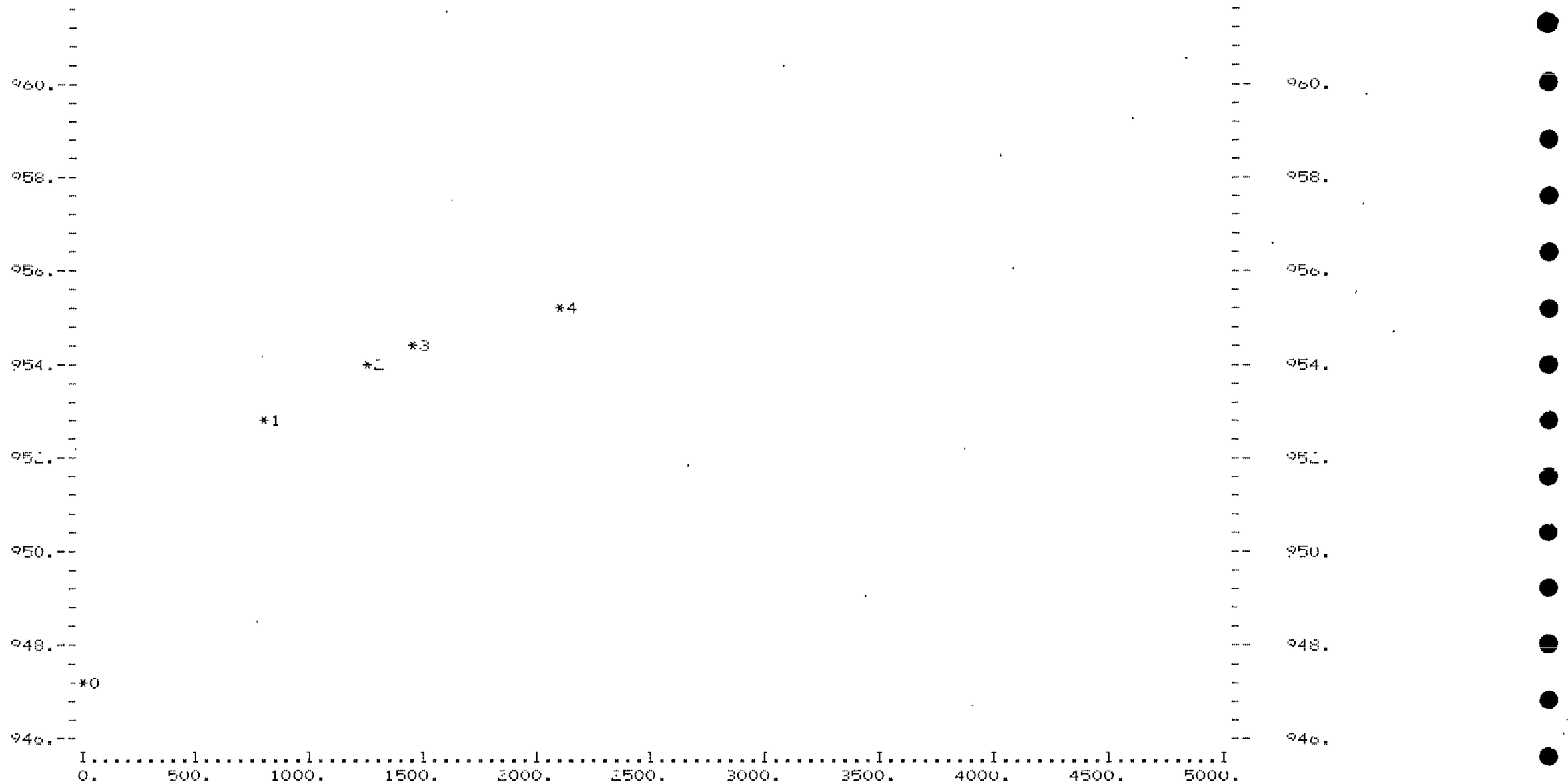
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	FD TOTAL	FD BY SEGMENT 1	2	3
947.20	0.					
948.	15.	21.	256.	1.	254.	1.
949.	38.	25.	1080.	1.	1078.	1.
950.	65.	29.	2383.	1.	2380.	1.
951.	102.	53.	4192.	1.	4160.	15.
952.	179.	97.	6934.	1.	6435.	472.
953.	285.	112.	11324.	1.	9410.	1880.
954.	401.	120.	17170.	1.	12988.	4171.
955.	526.	131.	24079.	1.	17075.	6994.
956.	666.	150.	31858.	1.	21674.	10166.
957.	826.	167.	41362.	1.	26785.	14554.
958.	1000.	182.	52671.	1.	32486.	20177.
959.	1195.	209.	65703.	44.	39516.	26333.
960.	1414.	225.	82263.	248.	47075.	34864.
961.	1641.	229.	99496.	533.	54876.	43680.
962.	1870.	229.	117940.	821.	63078.	53030.
963.	2099.	229.	138256.	1229.	71848.	65569.
964.	2328.	229.	160499.	1794.	81185.	75360.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 13.9

SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION





***** WSP2 MICROCOMPUTER TEST VERSION *****

I-69

ROAD SECTION 15.0

NO.	HW FT	CFS	HL FT	TW FT	STARTING CSM	BRIDGE CFS	BRIDGE AREA SQ FT	CULVERT CFS	CULVERT AREA SQ FT	WEIR CFS	WEIR AREA SQ FT	WEIR TOP WIDTH FT
0	947.10	0.0	0.00	946.60	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	954.44	805.0	1.06	953.38	805.00	0.0	0.0	805.0	146.7	0.0	0.0	0.0
2	956.25	1250.0	1.87	954.38	1250.00	0.0	0.0	1250.0	183.0	0.0	0.0	0.0
3	956.99	1430.0	2.18	954.82	1430.00	0.0	0.0	1430.0	197.9	0.0	0.0	0.0
4	959.43	2105.0	3.42	956.01	2105.00	0.0	0.0	2105.0	200.0	0.0	0.0	0.0

MIN ROAD ELEVATION = 959.00 FT

OPENING	NO.	CULV.	HEIGHT	WIDTH	LENGTH	U/S	D/S	(N)

						INVERT	INVERT	COEFF
1	2	41122.	10.00	10.00	310.00	947.10	946.60	0.012

1 WSP2 XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR. STORMS WS : PAGE
REV 03/14/88 DISCHARGE TO CONFLUENCE COUNTY DRAIN NO.15 ALT: 29P

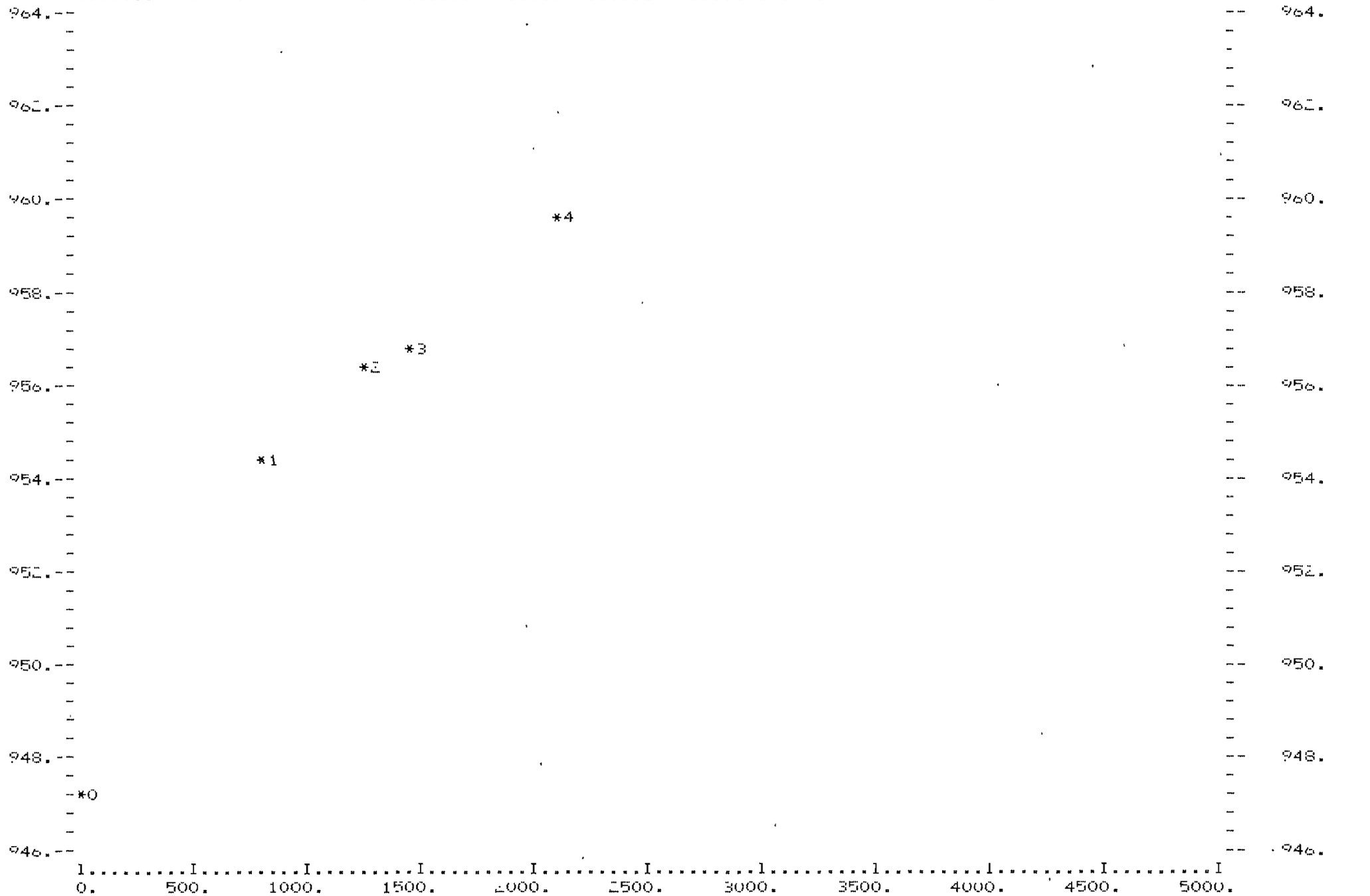
R.C BOX w/ 90°-15° W.W Flair

$$11.4 + \frac{29.1(.013)^2 310}{(100/40)^{4/3}}$$

***** WSP2 MICROCOMPUTER TEST VERSION *****

ROAD SECTION 15.0

SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION



***** WSP2 MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 15.1 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	948.6	0.0	0.0							
LOW GRND	951.7	54.6	134.3	0.00	0.21	0.21				26.5
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
BANK FULL	952.7	106.8	262.7	0.00	0.24	0.61				77.9
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	955.1	327.2	805.0	0.00	0.32	0.80	805.00	952.8	0.00409	103.0
2	956.8	507.2	1250.0	0.00	0.36	0.91	1250.00	953.3	0.00300	116.1
3	957.4	586.5	1430.0	0.00	0.37	0.94	1430.00	953.5	0.00260	120.7
4	959.7	969.2	2105.0	0.00	0.37	1.54	2105.00	954.2	0.00165	197.7

WARNING**********PROFILE NO 4 EXCEEDS SURVEY DATA BY 0.1 FT. COMPUTATION BASED ON VERTICAL EXTENSION OF END POINTS**********

SEGMENT TABLE FOR SECTION 15.1

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	805.	0.	595.	210.
805.	VELOCITY FPS	3.11	0.00	3.52	1.33
2	DISCHARGE CFS	1250.	0.	860.	390.
1250.	VELOCITY FPS	3.07	0.00	3.56	1.47
3	DISCHARGE CFS	1430.	0.	966.	464.
1430.	VELOCITY FPS	3.03	0.00	3.54	1.48
4	DISCHARGE CFS	2105.	58.	1328.	719.
2105.	VELOCITY FPS	2.92	0.60	3.50	1.46

1	ELEV 955.1	HD	12581.	1.	9312.	3268.
2	ELEV 956.8	HD	22811.	1.	15718.	7093.
3	ELEV 957.4	HD	28027.	1.	18941.	9085.
4	ELEV 959.7	HD	51707.	1296.	32738.	17672.

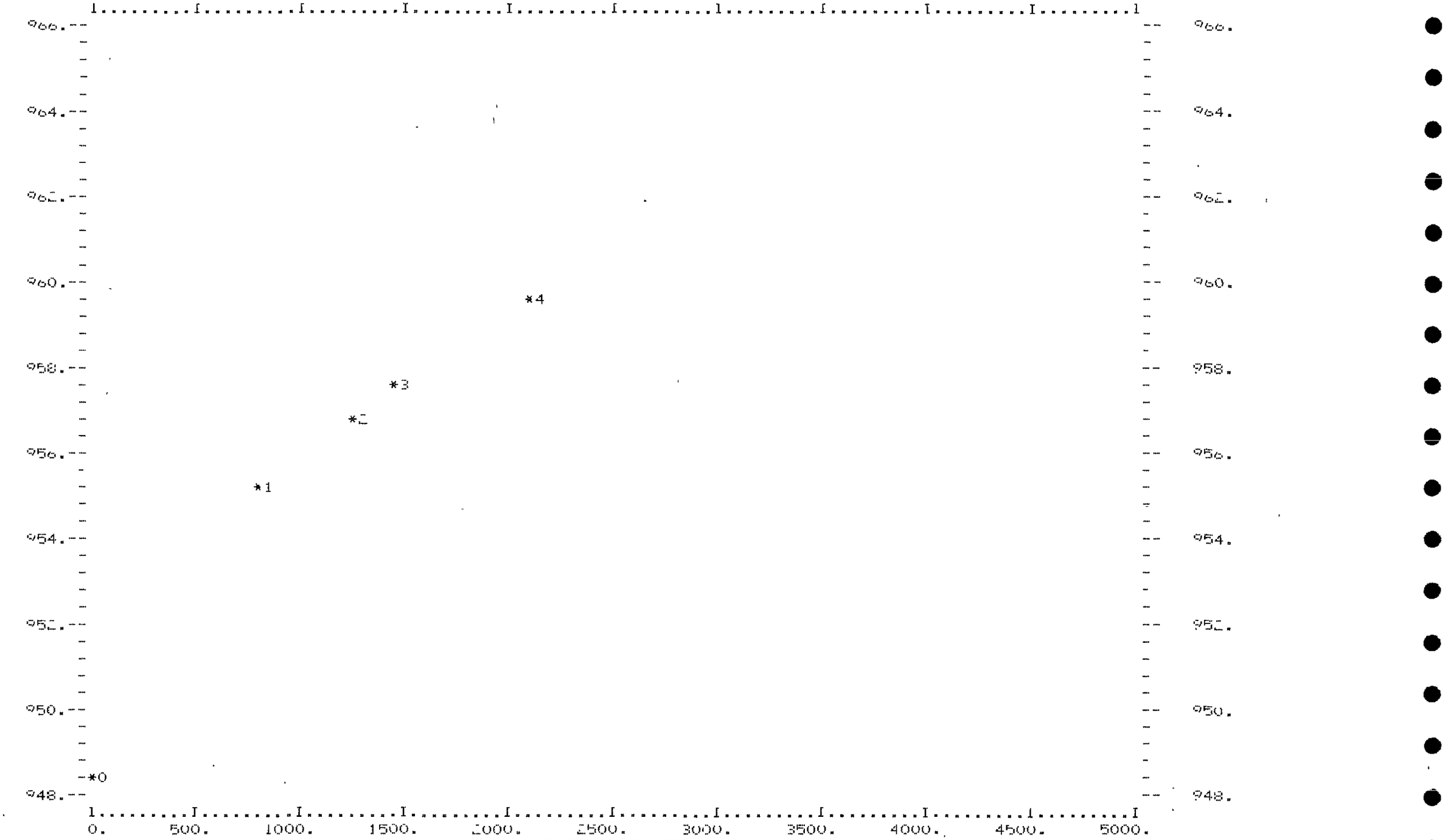
***** WSPG MICROCOMPUTER TEST VERSION *****

HD TABLE FOR CROSS SECTION 15.1

ELEVATION FT	AREA SQ FT	TOP WIDTH FT	HD TOTAL	HD BY SEGMENT 1	2	3
948.60	0.					
949.	2.	8.	13.	1.	11.	1.
950.	16.	19.	327.	1.	325.	1.
951.	37.	23.	1108.	1.	1106.	1.
952.	67.	42.	2347.	1.	2327.	7.
953.	132.	81.	4432.	1.	4072.	306.
954.	217.	90.	7759.	1.	6368.	1358.
955.	312.	101.	11881.	1.	8890.	2979.
956.	419.	111.	17430.	1.	12329.	5098.
957.	533.	118.	24498.	1.	16763.	7733.
958.	668.	145.	32954.	16.	21967.	10883.
959.	835.	183.	43248.	495.	28040.	14605.
960.	1026.	198.	55595.	1703.	34673.	19047.
961.	1226.	200.	69613.	3606.	41750.	24069.
962.	1426.	200.	83820.	5075.	48977.	29923.
963.	1626.	200.	99587.	6968.	56799.	34299.

***** WSPE MICROCOMPUTER TEST VERSION *****

CROSS SECTION 15.1
SCALES ARE 1 INCH = 500. CFS, AND 2.4 FEET/ ELEVATION



***** WSPE MICROCOMPUTER TEST VERSION *****

---------- LIST OF INPUT DATA WITH LIMITED EDITING----------

```
TITLE     DISCHARGE TO I-69
CHANGE    DISCHARGE
DISCHARGE -1.       560.      870.      995.      1470.
COMMENT   DISCHARGE FROM XSECTION 019 OF TR20COLD.OUT
END
SEGMENT   15.5      1         N         -50.                                 338
NVALUE    .134                                                               339
SEGMENT   15.5      2         C         17.                                  340
NVALUE    .067                                                               341
SEGMENT   15.5      3         N         400.                                 342
NVALUE    .134                                                               343
SECTION   15.5                                                               344
          -75.0     963.5     -50.0     963.0     -40.0     961.0            345
          -30.0     957.1     -10.0     955.2     -7.0      952.8            346
          0.0       952.6     5.0       952.7     10.0      953.7            347
          17.0      957.2     30.0      957.4     80.0      956.9            348
          155.0     958.7     255.0     964.6     -400.     970.             349
          400.      970.
ENDTABLE                                                                     350
----------------------MESSAGE - DATA POINTS ON SECTION 15.5   REORDERED BY PROGRAM ACCORDING TO X VALUES
                     DUPLICATE X POINTS NOT CHANGED----------------------
SEGMENT   15.6      1         N         -17.                                 351
NVALUE    .134                                                               352
SEGMENT   15.6      2         C         20.                                  353
NVALUE    .067                                                               354
SEGMENT   15.6      3         N         800.                                 355
NVALUE    .134                                                               356
SECTION   15.6                                                               357
          -100.0    961.9     -50.0     959.3     -25.0     959.1            358
          -17.0     959.0     -5.0      955.5     -3.0      954.2            359
          0.0       952.7     7.0       953.2     10.0      954.4            360
          20.0      958.7     55.0      960.0     100.0     960.5            361
          -350.     970.      800.      970.
ENDTABLE                                                                     362
----------------------MESSAGE - DATA POINTS ON SECTION 15.6   REORDERED BY PROGRAM ACCORDING TO X VALUES
                     DUPLICATE X POINTS NOT CHANGED----------------------
BPR       15.7      A         3                                              363
GIRDER    957.1     556.6     0.        .8        2.63                       364
          -8.       957.7     -8.       956.6     8.        956.6            365
          8.        957.7                                                    366
ENDTABLE                                                                     367
SECTION   15.7                                                               368
          -100.0    962.5     -50.0     959.1     -8.0      957.7            369
          -7.5      953.0     0.0       953.1     7.5       954.0            370
          8.0       957.7     25.0      957.8     50.0      959.0            371
          150.0     961.9     -350.     970.      800.      970.             372
ENDTABLE                                                                     373
----------------------MESSAGE - DATA POINTS ON SECTION 15.7   REORDERED BY PROGRAM ACCORDING TO X VALUES
                     DUPLICATE X POINTS NOT CHANGED----------------------
SEGMENT   15.8      1         N         -20.                                 374
NVALUE    .129                                                               375
1    WSP2 XEQ 02/18/91     10:57:06     COLD CREEK FPMS,  02-15-91,  10,50,100 & 500 YR. STORMS     WS :          PAGE
          REV 03/14/88                  DISCHARGE TO I-69                                          ALT:           32


     *****   WSP2  MICROCOMPUTER  TEST  VERSION   *****

-------------------------------80/80 LIST OF INPUT DATA--------------------------------
SEGMENT   15.8      2         C         10.                                  376
NVALUE    .059                                                               377
SEGMENT   15.8      3         N         800.                                 378
NVALUE    .109                                                               379
SECTION   15.8                                                               380
          -25.0     959.0     -20.0     957.5     -13.0     956.3            381
          -10.0     953.9     -5.0      953.0     0.0       953.2            382
          7.0       953.5     10.0      955.5     15.0      957.7            383
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          -20.0     960.3     -10.0     958.6     -5.0      955.0     436
          0.0       955.2     6.0       956.1     10.0      957.4     437
          25.0      961.6     125.0     962.7     225.0     963.0     438
          325.0     960.9     425.0     961.2     525.0     963.9     439
          1000.     970.      -1950.    970.
ENDTABLE                                                              440
----------------------MESSAGE - DATA POINTS ON SECTION 16.5   REORDERED BY PROGRAM ACCORDING TO X VALUES
                     DUPLICATE X POINTS NOT CHANGED----------------------
SEGMENT   16.9      1         N         -9.                             441
NVALUE    .070                                                          442
SEGMENT   16.9      2         C         9.                              443
NVALUE    .064                                                          444
SEGMENT   16.9      3         N         230.                            445
NVALUE    .070                                                          446
SECTION   16.9                                                          447
          -300.0    965.1     -270.0    963.4     -240.0    962.3     448
          -210.0    960.7     -180.0    959.6     -9.0      959.3     449
          -4.0      957.9     0.0       955.1     4.0       957.8     450
          9.0       958.7     54.0      960.1     80.0      958.4     451
          140.0     959.3     206.0     963.8     230.0     966.0     452
ENDTABLE                                                              453
CULV1     17.0      2         41122.                                  454
CULV2     6.        7.        66.       956.3     956.3               455
SECTION   17.0                                                        456
          -600.0    965.2     -400.0    963.8     -200.0    960.9     457
          0.0       965.7     50.0      966.7                         458
ENDTABLE                                                              459
SEGMENT   17.1      1         N         -14.                            460
NVALUE    .070                                                          461
SEGMENT   17.1      2         C         22.                             462
NVALUE    .064                                                          463
1    WSP2 XEQ 02/18/91     10:57:06     COLD CREEK FPMS,  02-15-91,   10,50,100 & 500 YR. STORMS     WS :          PAGE
     REV 03/14/88                       DISCHARGE TO I-69                                            ALT:           34

     *****   WSP2  MICROCOMPUTER  TEST  VERSION   *****

-------------------------------80/80 LIST OF INPUT DATA--------------------------------
SEGMENT   17.1      3         N         170.                            465
NVALUE    .070                                                          466
SECTION   17.1                                                          467
          -370.0    966.4     -334.0    964.3     -268.0    963.3     468
          -202.0    961.2     -146.0    960.2     -80.0     960.1     469
          -14.0     960.4     -4.0      958.4     0.0       957.1     470
          4.0       958.1     12.0      959.6     22.0      960.4     471
          52.0      960.2     80.0      960.4     110.0     961.9     472
          140.0     964.4     170.0     966.9                         473
ENDTABLE                                                              474
COMPUTE   15.5      17.1      15.1
-------------------------------END OF DATA LISTING--------------------------------
1                   COMPUTE   15.5      17.1      15.1


-------------------------------STARTING DATA FROM PREVIOUS COMPUTATIONS-------------------------------

1    WSP2 XEQ 02/18/91     10:57:06     COLD CREEK FPMS,  02-15-91,   10,50,100 & 500 YR. STORMS     WS :          PAGE
     REV 03/14/88                       DISCHARGE TO I-69                                            ALT:           35

     *****   WSP2  MICROCOMPUTER  TEST  VERSION   *****

                                        RATING TABLE FOR SECTION 15.5          DA=    1.0 SQ MI
                                        ------------------------------

          NO.       ELEV        AREA        Q       ------ACRES FLOODED-------     STARTING      CRIT    FRICTION    FLOW TOP
```

			FLOODPLAIN DAMAGE	CHANNEL	TOTAL	CSM	ELEV FT	SLOPE FT/FT	WIDTH FT
	0	952.6	0.0	0.0					
LOW	GRND	956.9	95.7	149.4	0.00	1.23	1.23			35.3
*****MESSAGE-	ELEV BELOW	FIRST	PROFILE.	FLOW	INTERPOLATED	LINEARLY	FROM CHANNEL	BOTTOM*****		
BANK	FULL	957.2	113.0	176.4	0.00	1.30	2.20			80.0
*****MESSAGE-	ELEV BELOW	FIRST	PROFILE.	FLOW	INTERPOLATED	LINEARLY	FROM CHANNEL	BOTTOM*****		
	1	958.8	358.6	560.0	0.00	1.60	5.13	560.00	955.9	0.00221	186.4
	2	959.8	548.1	870.0	0.00	1.77	5.71	870.00	956.8	0.00204	207.4
7.6	3	960.2	630.1	995.0	0.00	1.84	5.95	995.00	957.5	0.00190	215.9
	4	961.7	980.0	1470.0	0.00	2.10	6.86	1470.00	958.0	0.00133	249.2

SEGMENT TABLE FOR SECTION 15.5

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	560.	0.	431.	129.
560.	VELOCITY FPS	1.20	0.00	2.46	0.70
2	DISCHARGE CFS	870.	0.	571.	299.
870.	VELOCITY FPS	2.18	0.00	2.57	0.92
3	DISCHARGE CFS	995.	0.	620.	375.
995.	VELOCITY FPS	2.14	0.00	2.56	0.97
4	DISCHARGE CFS	1470.	0.	793.	677.
1470.	VELOCITY FPS	1.92	0.00	2.42	1.04
1	ELEV 958.8 FD	11910.	1.	9207.	2702.
2	ELEV 959.8 FD	19237.	1.	12736.	6500.
3	ELEV 960.2 FD	22738.	1.	14338.	8399.
4	ELEV 961.7 FD	40317.	1.	21777.	18538.

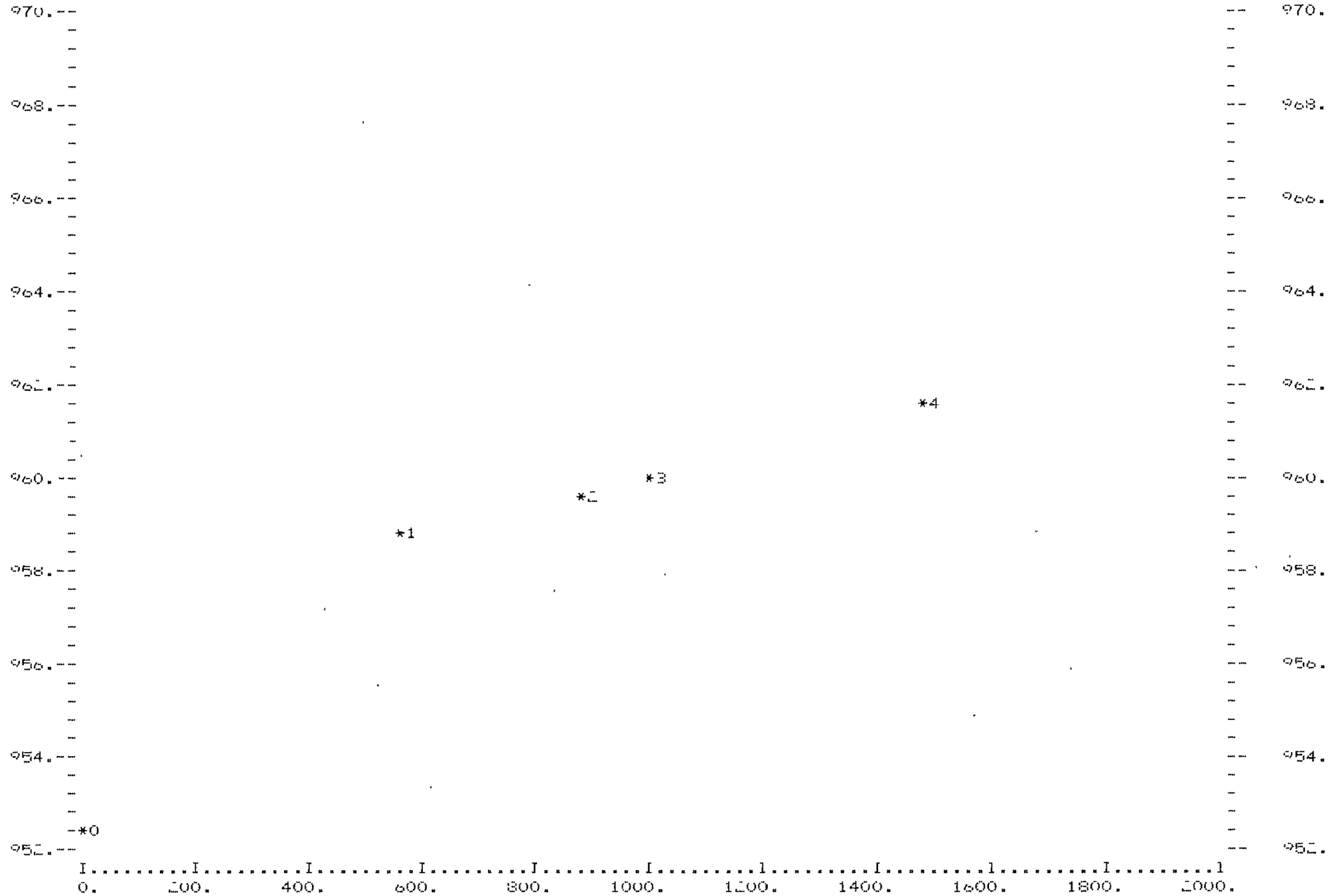
***** WSP2 MICROCOMPUTER TEST VERSION *****

FD TABLE FOR CROSS SECTION 15.5

ELEVATION FT	AREA SQ FT	TOP WIDTH FT	FD TOTAL	FD BY SEGMENT 1	2	3
952.60	0.					
953.	4.	14.	43.	1.	40.	1.
954.	21.	19.	481.	1.	479.	1.
955.	42.	22.	1350.	1.	1347.	1.
956.	67.	29.	2518.	1.	2516.	1.
957.	101.	50.	4190.	1.	4182.	3.
958.	215.	150.	7377.	1.	6617.	758.
959.	389.	190.	12978.	1.	9743.	3172.
960.	591.	212.	21095.	1.	13567.	7527.
961.	814.	234.	31596.	1.	18141.	13454.
962.	1059.	256.	44507.	1.	23516.	20961.
963.	1323.	278.	59951.	1.	29714.	30236.
964.	1642.	345.	79492.	130.	38198.	41033.
965.	2026.	417.	101955.	1116.	47546.	53027.
966.	2482.	493.	128112.	3520.	57717.	66565.
967.	3011.	569.	158799.	7768.	68673.	82085.
968.	3616.	646.	194756.	14234.	80377.	99950.
969.	4301.	723.	236504.	23174.	92786.	120304.
970.	5064.	774.	287475.	35793.	105872.	145273.
971.	5853.	800.	344293.	50640.	119430.	173027.
972.	6653.	800.	404307.	64659.	133334.	202201.
973.	7453.	800.	470963.	81551.	147796.	234450.

***** WSPE MICROCOMPUTER TEST VERSION *****

CROSS SECTION 15.5
SCALES ARE 1 INCH = 200. CFS, AND 2.4 FEET/ ELEVATION



***** WSPE MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 15.6 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	952.7	0.0	0.0							
LOW GRND	958.7	117.5	200.2	0.00	0.79	0.79				36.0
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
BANK FULL	958.7	117.5	200.2	0.00	0.79	0.79				36.0
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	960.6	328.6	560.0	0.00	0.81	3.76	560.00	956.9	0.00176	182.0
2	961.6	551.6	870.0	0.00	0.81	5.71	870.00	957.9	0.00182	276.4
3	961.8	619.6	995.0	0.00	0.81	6.20	995.00	958.2	0.00194	299.9
4	963.1	1072.4	1470.0	0.00	0.81	8.88	1470.00	959.6	0.00153	430.0

91

SEGMENT TABLE FOR SECTION 15.6

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	560.	37.	493.	31.
560.	VELOCITY FPS	2.50	0.54	2.61	0.42
2	DISCHARGE CFS	870.	93.	670.	107.
870.	VELOCITY FPS	2.69	0.69	2.99	0.55
3	DISCHARGE CFS	995.	114.	741.	139.
995.	VELOCITY FPS	2.79	0.75	3.17	0.60
4	DISCHARGE CFS	1470.	218.	902.	349.
1470.	VELOCITY FPS	2.56	0.78	3.22	0.68
1	ELEV 960.6 FD	13156.	737.	11865.	554.
2	ELEV 961.6 FD	20146.	2063.	15883.	2200.
3	ELEV 961.8 FD	22416.	2512.	16982.	2922.
4	ELEV 963.1 FD	37525.	5565.	23060.	8899.

***** WSP2 MICROCOMPUTER TEST VERSION *****

FD TABLE FOR CROSS SECTION 15.6

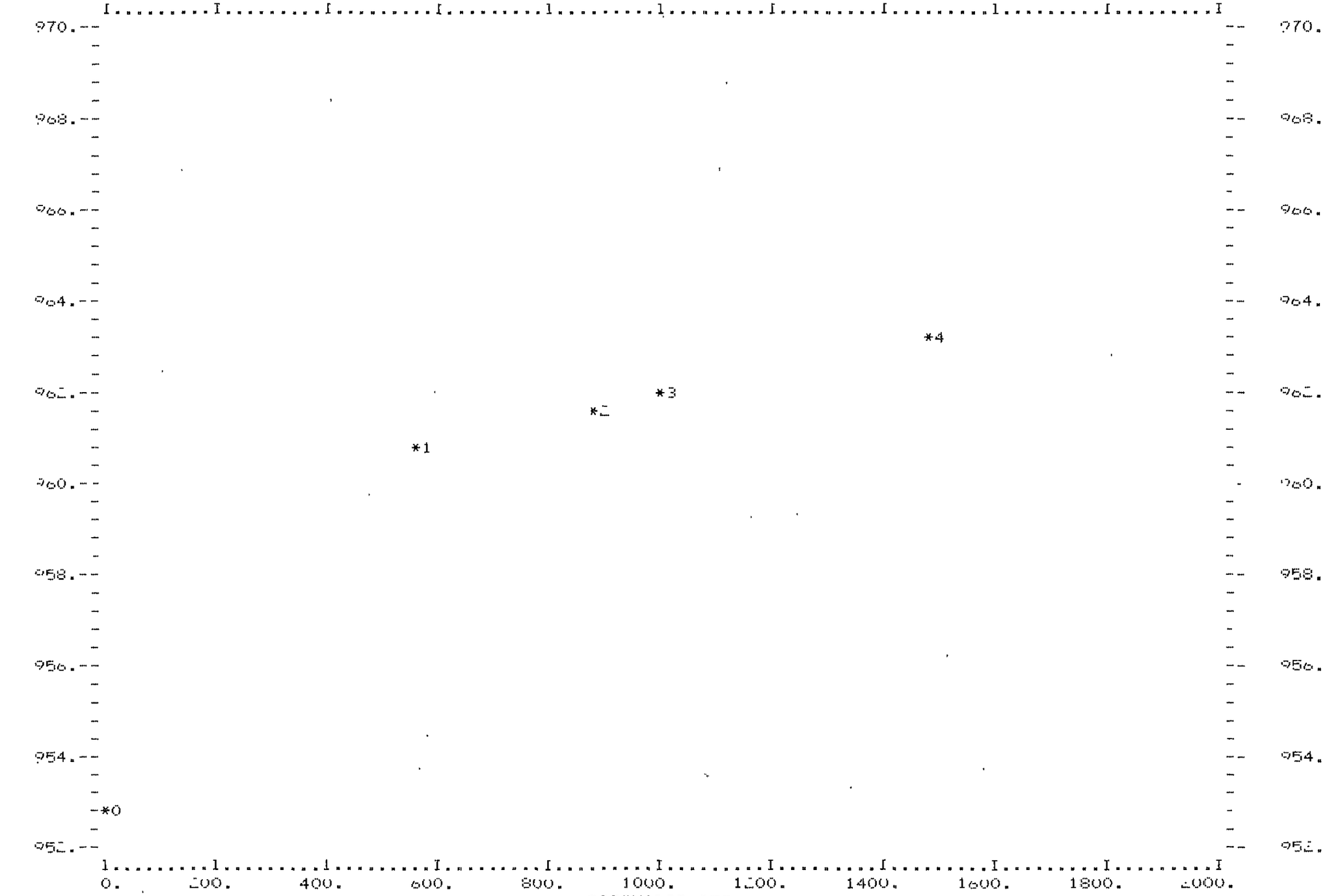
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	FD TOTAL	FD BY SEGMENT 1	2	3
952.70	0.					
953.	1.	5.	7.	1.	4.	1.
954.	10.	12.	192.	1.	190.	1.
955.	24.	16.	660.	1.	658.	1.
956.	42.	20.	1409.	1.	1406.	1.
957.	65.	26.	2513.	1.	2510.	1.
958.	94.	32.	4090.	1.	4087.	1.
959.	130.	49.	6289.	1.	6283.	3.
960.	223.	122.	10038.	218.	9534.	161.
961.	396.	219.	15684.	1199.	13365.	1027.
962.	662.	315.	24095.	3831.	17688.	3474.
963.	1028.	418.	35950.	5222.	22481.	8156.
964.	1503.	523.	52178.	8746.	27706.	15485.
965.	2087.	627.	73433.	13671.	33373.	26127.
966.	2767.	732.	100397.	20196.	39460.	40523.
967.	3547.	836.	133702.	28501.	45952.	59103.
968.	4428.	941.	173913.	38753.	52833.	82326.
969.	5432.	1045.	221405.	51023.	60074.	110130.
970.	6625.	1113.	280735.	66726.	67688.	146006.

971.	7662.	1150.	34883.	8487.	7507.	18753.
972.	8812.	1150.	41792.	10267.	8396.	22238.
973.	9962.	1150.	49039.	12295.	9175.	27468.
974.	11112.	1150.	58059.	14592.	10143.	32878.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 15.6

SCALES ARE 1 INCH = 200. CFS, AND 2.4 FEET/ ELEVATION



1 TABLE OF VALUES FOR BPR EQUATION

IF AN * SYMBOL APPEARS BESIDE A VARIABLE IN THIS TABLE,IT IS EXTRAPOLATED FROM FIGURES 6,7,10, OR 34 OF THE BPR MANUAL.

NO.	M	AFB	DLTAF	SIGMA	DFS	COEFF	VNE FPS	ALPHA	ALPHA2	ALPHA3	AEXIT SQ FT	APPAR SQ FT	DCRIT FT	CRIT COEF

1 ORIFICE FLOW FOR THIS PROFILE. COEF = 0.80
2 ORIFICE FLOW FOR THIS PROFILE. COEF = 0.80
3 ORIFICE FLOW FOR THIS PROFILE. COEF = 0.80
4 ORIFICE FLOW FOR THIS PROFILE. COEF = 0.80

***** WSPG MICROCOMPUTER TEST VERSION *****

ROAD SECTION 15.7

NO.	HW FT	CFS	HL FT	TW FT	STARTING CSM	BRIDGE CFS	BRIDGE AREA SQ FT	CULVERT CFS	CULVERT AREA SQ FT	WEIR CFS	WEIR AREA SQ FT	WEIR TOP WIDTH FT
0	953.00	0.0	0.00	953.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	960.83	560.0	0.16	960.67	560.00	116.6	50.5	0.0	0.0	443.4	345.7	188.7
2	961.82	870.0	0.18	961.64	870.00	130.6	50.5	0.0	0.0	739.4	555.9	237.3
3	962.09	995.0	0.20	961.89	995.00	133.2	50.5	0.0	0.0	861.8	622.4	259.2
4	963.35	1470.0	0.20	963.15	1470.00	140.8	50.5	0.0	0.0	1329.2	1029.8	394.3

MIN ROAD ELEVATION = 957.70 FT

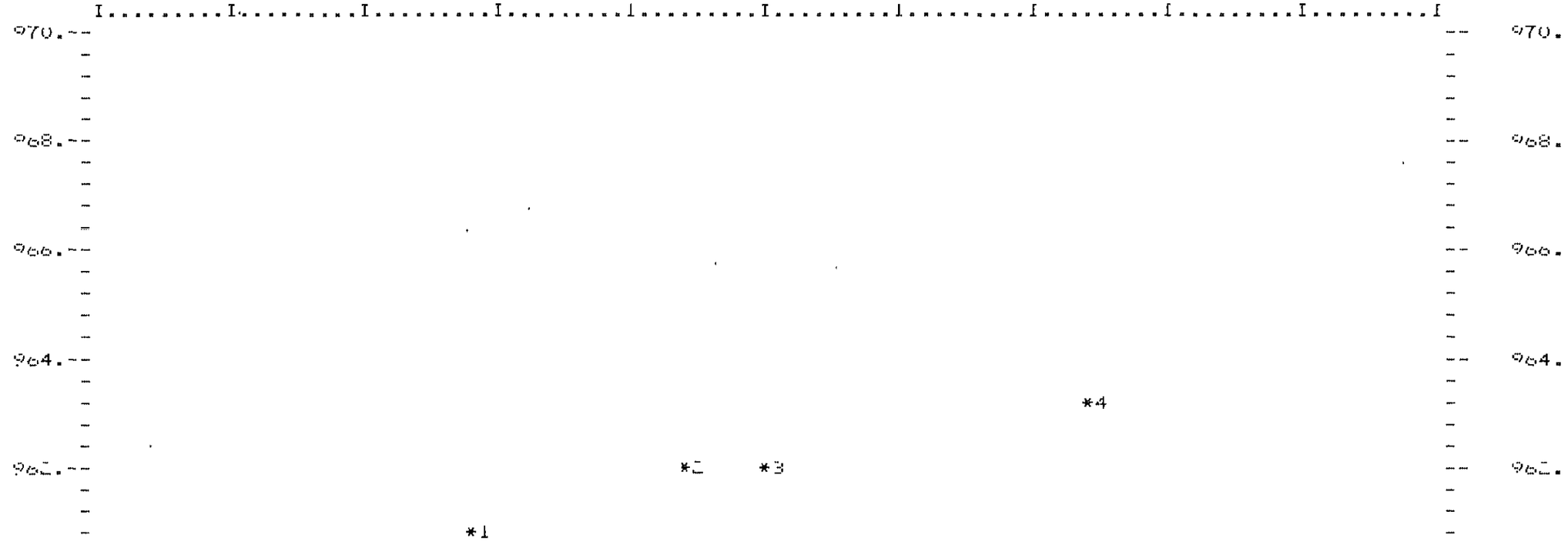
BRIDGE TYPE = BPR GIRDER BOTTOM ELEVATION = 556.60 FT OPENING NO.= 1

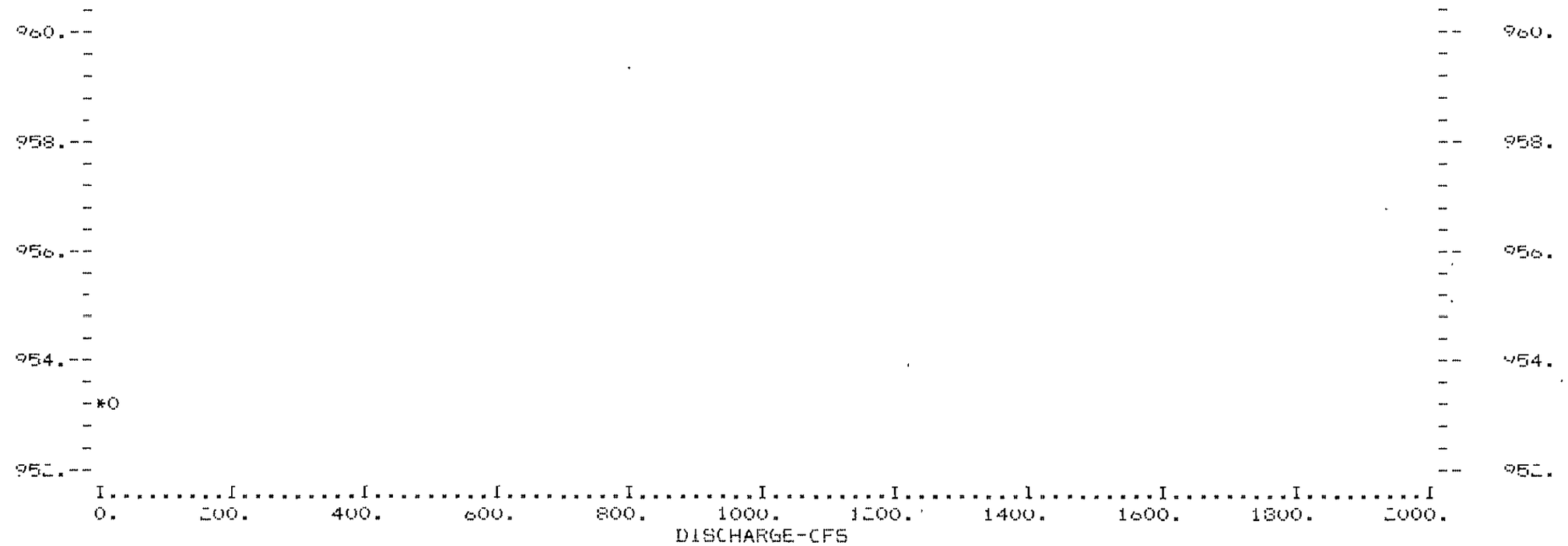
1 WSPG XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR. STORMS WS : PAGE
REV 03/14/88 DISCHARGE TO I-69 ALT: 37P

***** WSPG MICROCOMPUTER TEST VERSION *****

ROAD SECTION 15.7

SCALES ARE 1 INCH = 200. CFS, AND 2.4 FEET/ ELEVATION





***** WSPE MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 15.8 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	953.0	0.0	0.0							
LOW GRND	955.5	41.9	53.4	0.00	0.03	0.03				22.0
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
BANK FULL	955.5	41.9	53.4	0.00	0.03	0.03				22.0
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	960.9	439.3	560.0	0.00	0.04	0.33	560.00	956.4	0.00081	241.6
2	961.8	727.3	870.0	0.00	0.04	0.47	870.00	957.4	0.00086	339.9
3	962.1	828.9	995.0	0.00	0.04	0.51	995.00	957.7	0.00091	366.8
4	963.4	1369.8	1470.0	0.00	0.04	0.68	1470.00	959.1	0.00076	491.2

SEGMENT TABLE FOR SECTION 15.8

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	560.	22.	458.	79.
560.	VELOCITY FPS	2.17	0.34	2.38	0.44
2	DISCHARGE CFS	870.	63.	602.	205.
870.	VELOCITY FPS	2.28	0.45	2.71	0.56
3	DISCHARGE CFS	995.	82.	651.	263.
995.	VELOCITY FPS	2.34	0.49	2.83	0.61
4	DISCHARGE CFS	1470.	172.	766.	532.
1470.	VELOCITY FPS	2.14	0.55	2.86	0.67
1	ELEV 960.9 +D	19668.	762.	16158.	2747.
2	ELEV 961.8 +D	29544.	2106.	20521.	6917.

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3  ELEV   962.1  FD      32874.       2617.      21761.       8475.
4  ELEV   963.4  FD      53034.       6106.      28021.      18906.
1    WSP2 XEQ 02/18/91      10:57:06     COLD CREEK FPMS,  02-15-91,    10,50,100 & 500 YR. STORMS     WS :              PAGE
         REV 03/14/88                   DISCHARGE TO I-69                                              ALT:               38P

     *****   WSP2  MICROCOMPUTER  TEST  VERSION   *****

                                   FD TABLE FOR CROSS SECTION 15.8

        ELEVATION      AREA    TOP WIDTH      FD        FD BY SEGMENT
            FT        SQ FT        FT       TOTAL          1          2          3
            953.00       0.
            954.        12.        18.       229.          1.       227.          1.
            955.        31.        21.      1010.          1.      1008.          1.
            956.        53.        24.      2265.          1.      2261.          3.
            957.        80.        30.      3816.          1.      3788.         27.
            958.       115.        40.      6132.          3.      6028.         99.
            959.       161.        64.      9389.         28.      9131.        228.
            960.       271.       156.     13890.        203.     12714.        902.
            961.       477.       256.     20925.        900.     16755.       3185.
            962.       782.       355.     31492.       2392.     21230.       7788.
            963.      1187.       454.     46446.       4909.     26119.      15343.
            964.      1692.       554.     66552.       8655.     31404.      26413.
            965.      2296.       653.     92522.      13820.     37071.      41530.
            966.      3007.       753.    124970.      20556.     43105.      61108.
            967.      3813.       852.    164565.      29083.     49500.      85763.
            968.      4714.       951.    211935.      39562.     56247.     115938.
            969.      5714.      1049.    267911.      52198.     63335.     152217.
            970.      6804.      1141.    333705.      67325.     70758.     195549.
            971.      7948.      1150.    404658.      83113.     78390.     241210.
            972.      9098.      1150.    484860.     101120.     86348.     293339.

            973.     10248.      1150.    575593.     121796.     94642.     353170.
            974.     11398.      1150.    677609.     145374.    103269.     421370.
1    WSP2 XEQ 02/18/91      10:57:06     COLD CREEK FPMS,  02-15-91,    10,50,100 & 500 YR. STORMS     WS :              PAGE
         REV 03/14/88                   DISCHARGE TO I-69                                              ALT:               38P

     *****   WSP2  MICROCOMPUTER  TEST  VERSION   *****

                                          CROSS SECTION 15.8
 SCALES ARE 1 INCH =   200. CFS, AND    2.4 FEET/ ELEVATION
          I.........I.........I.........I.........I.........I.........I.........I.........I.........I.........I.........I
   970.--                                                                                                          --   970.
        -                                                                                                          -
        -                                                                                                          -
        -                                                                                                          -
        -                                                                                                          -
   968.--                                                                                                          --   968.
        -                                                                                                          -
        -                                                                                                          -
        -                                                                                                          -
        -                                                                                                          -
   966.--                                                                                                          --   966.
        -                                                                                                          -
        -                                                                                                          -
        -                                                                                                          -
        -                                                                                                          -
   964.--                                                                                                          --   964.
        -                                                                                                          -
        -                                                                  *4                                      -
        -                                                                                                          -
        -                                                                                                          -
   962.--                                          *2    *3                                                        --   962.
        -                                                                                                          -
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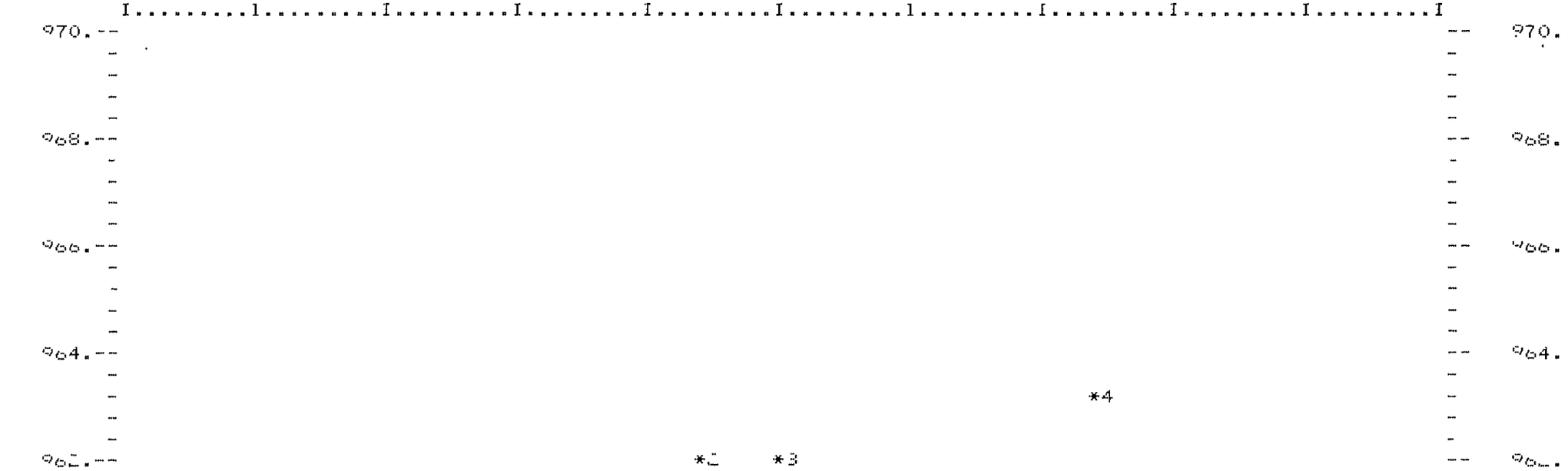
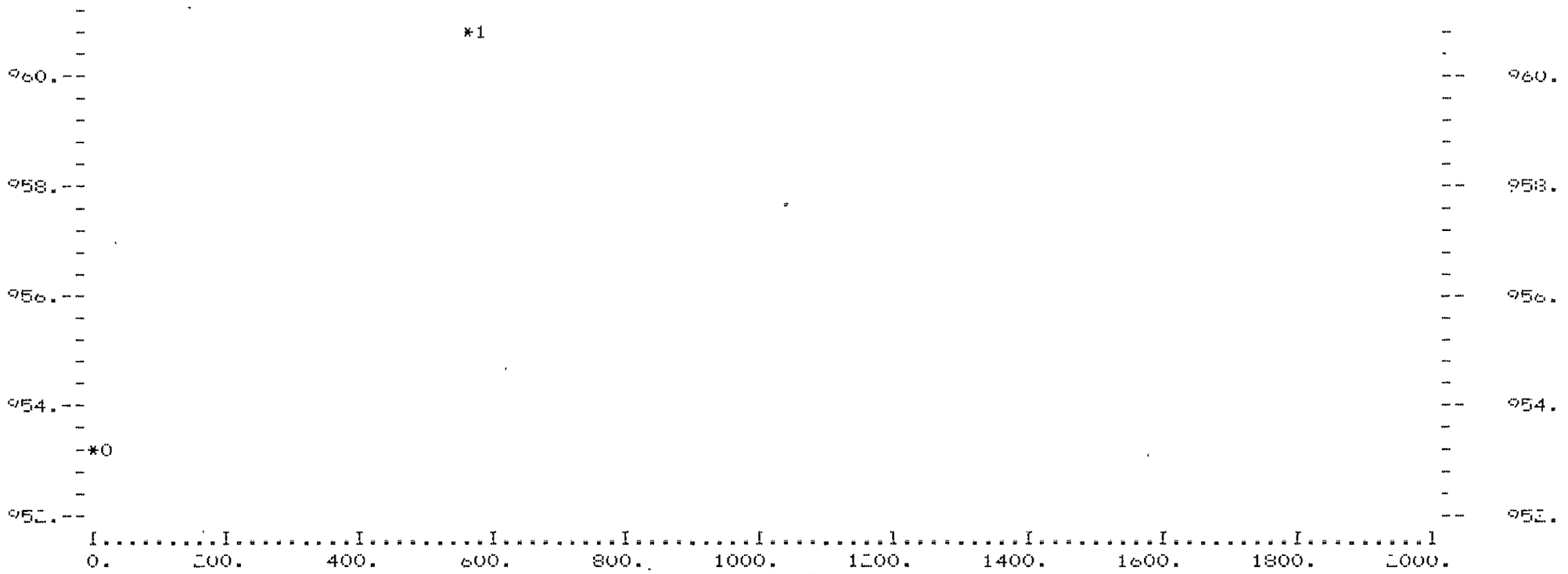




***** WSPE MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 15.9 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED: FLOODPLAIN DAMAGE	ACRES FLOODED: CHANNEL	ACRES FLOODED: TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	953.6	0.0	0.0							
LOW GRND	960.2	105.0	66.9	0.00	0.65	0.65				28.1
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
BANK FULL	961.5	452.9	288.8	0.00	0.79	13.94				674.9
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	962.0	878.3	560.0	0.00	0.81	19.72	560.00	958.2	0.00097	954.4
2	962.7	1595.6	870.0	0.00	0.81	23.02	870.00	959.3	0.00069	1114.3
3	962.8	1731.9	995.0	0.00	0.81	23.65	995.00	959.7	0.00072	1144.7
4	963.8	2974.7	1470.0	0.00	0.81	26.61	1470.00	961.3	0.00038	1288.1

SEGMENT TABLE FOR SECTION 15.9

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	560.	177.	328.	55.
560.	VELOCITY FPS	1.65	0.32	2.01	0.33
2	DISCHARGE CFS	870.	411.	343.	117.
870.	VELOCITY FPS	1.28	0.38	1.84	0.36
3	DISCHARGE CFS	995.	484.	374.	137.
995.	VELOCITY FPS	1.29	0.41	1.96	0.39
4	DISCHARGE CFS	1470.	851.	368.	251.
1470.	VELOCITY FPS	0.90	0.40	1.63	0.39

1	ELEV	962.0	KD	17753.	5154.	10959.	1647.
2	ELEV	962.7	KD	32271.	14389.	13694.	4188.
3	ELEV	962.8	KD	36561.	17339.	14261.	4961.
4	ELEV	963.8	KD	74935.	43204.	19003.	12727.

***** WSP2 MICROCOMPUTER TEST VERSION *****

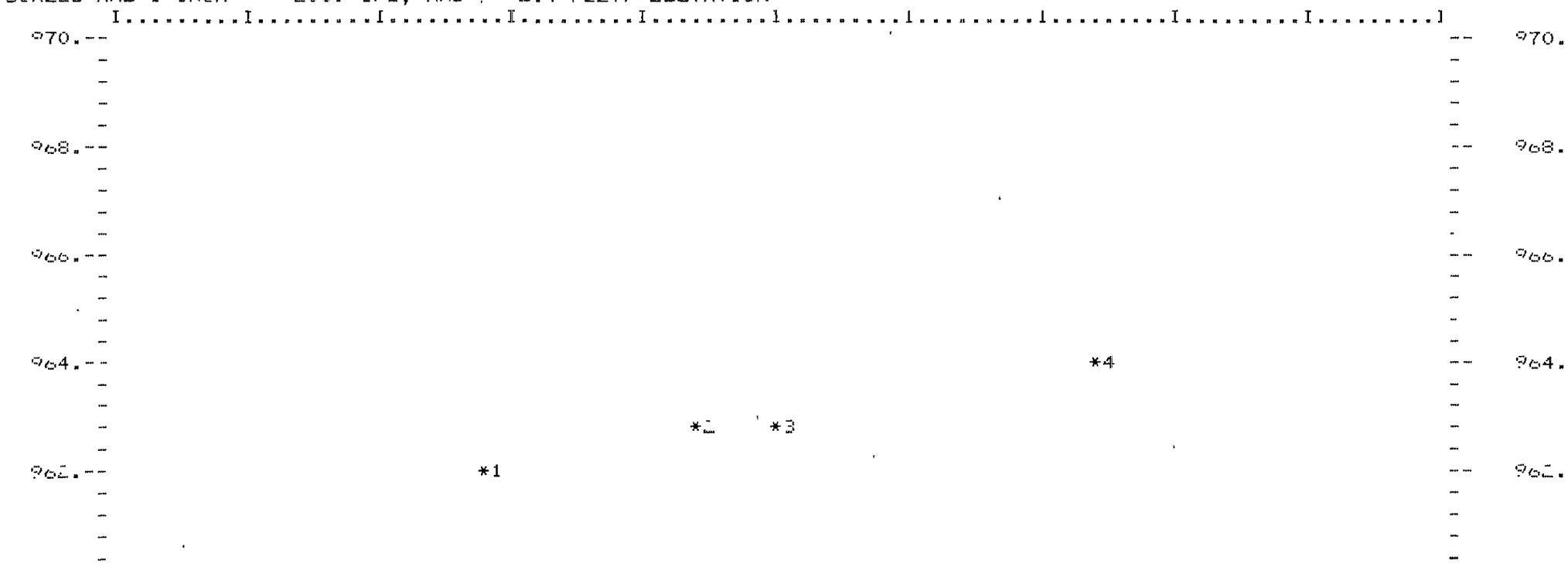
KD TABLE FOR CROSS SECTION 15.9

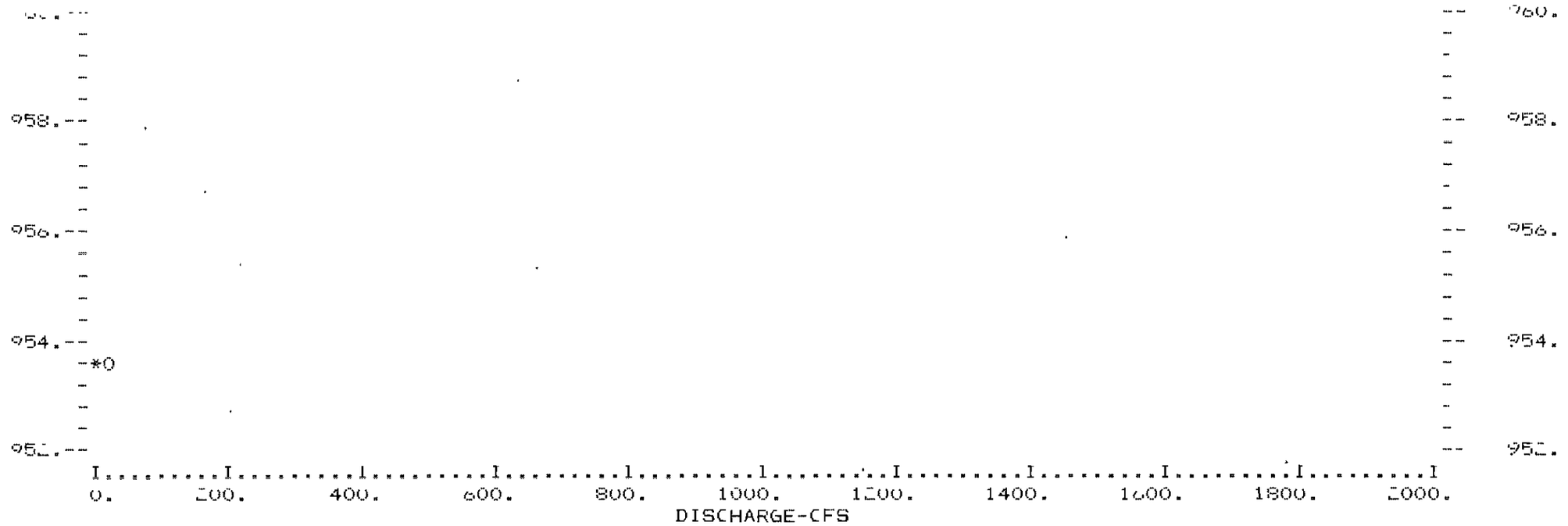
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	KD TOTAL	KD BY SEGMENT 1	2	3
953.60	0.					
954.	1.	4.	12.	1.	9.	1.
955.	9.	10.	189.	1.	187.	1.
956.	21.	13.	677.	1.	675.	1.
957.	36.	16.	1453.	1.	1451.	1.
958.	53.	19.	2528.	1.	2526.	1.
959.	75.	23.	3940.	1.	3938.	1.
960.	99.	27.	5693.	1.	5691.	1.
961.	187.	374.	8213.	66.	7927.	219.
962.	880.	955.	18055.	5168.	10957.	1653.
963.	1967.	1182.	43529.	21986.	15170.	6234.
964.	3215.	1310.	83451.	48957.	19909.	14495.
965.	4590.	1424.	136878.	85855.	25150.	25746.
966.	6019.	1435.	187915.	120116.	30370.	36332.
967.	7454.	1435.	248073.	160628.	36043.	48955.
968.	8889.	1435.	321005.	210355.	42251.	64564.
969.	10324.	1435.	408250.	270531.	49003.	83581.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 15.9

SCALES ARE 1 INCH = 200. CFS, AND 2.4 FEET/ ELEVATION





1 TABLE OF VALUES FOR BPR EQUATION

IF AN * SYMBOL APPEARS BESIDE A VARIABLE IN THIS TABLE,IT IS EXTRAPOLATED FROM FIGURES 6,7,10, OR 34 OF THE BPR MANUAL.

NO.	M	AFB	DLTAF	SIGMA	DFS	COEFF.	VNC FPS	ALPHA	ALPHAC	ALPHA3	AEXIT SQ FT	APPAR SQ FT	DCRIT FT	CRIT COEF
1	0.65	0.76	0.00	0.00	0.00	0.76	2.69	1.91	1.59	4.88	443.00	537.27	957.34	0.00

2 ORIFICE FLOW FOR THIS PROFILE. COEF = 0.80
3 ORIFICE FLOW FOR THIS PROFILE. COEF = 0.80
4 ORIFICE FLOW FOR THIS PROFILE. COEF = 0.80

***** WSPG MICROCOMPUTER TEST VERSION *****

Jonsville

ROAD SECTION 16.0

NO.	HW FT	CFS	HL FT	TW FT	STARTING CSM	BRIDGE CFS	BRIDGE AREA SQ FT	CULVERT CFS	CULVERT AREA SQ FT	WEIR CFS	WEIR AREA SQ FT	WEIR TOP WIDTH FT
0	954.20	0.0	0.00	954.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	962.32	560.0	0.24	962.08	560.00	560.0	208.4	0.0	0.0	0.0	0.0	0.0
2	963.18	870.0	0.44	962.74	870.00	870.0	209.0	0.0	0.0	0.0	0.0	0.0
3	963.43	995.0	0.56	962.87	995.00	995.0	209.0	0.0	0.0	0.0	0.0	0.0
4	964.44	1470.0	0.58	963.86	1470.00	1013.7	209.0	0.0	0.0	456.3	219.0	487.6

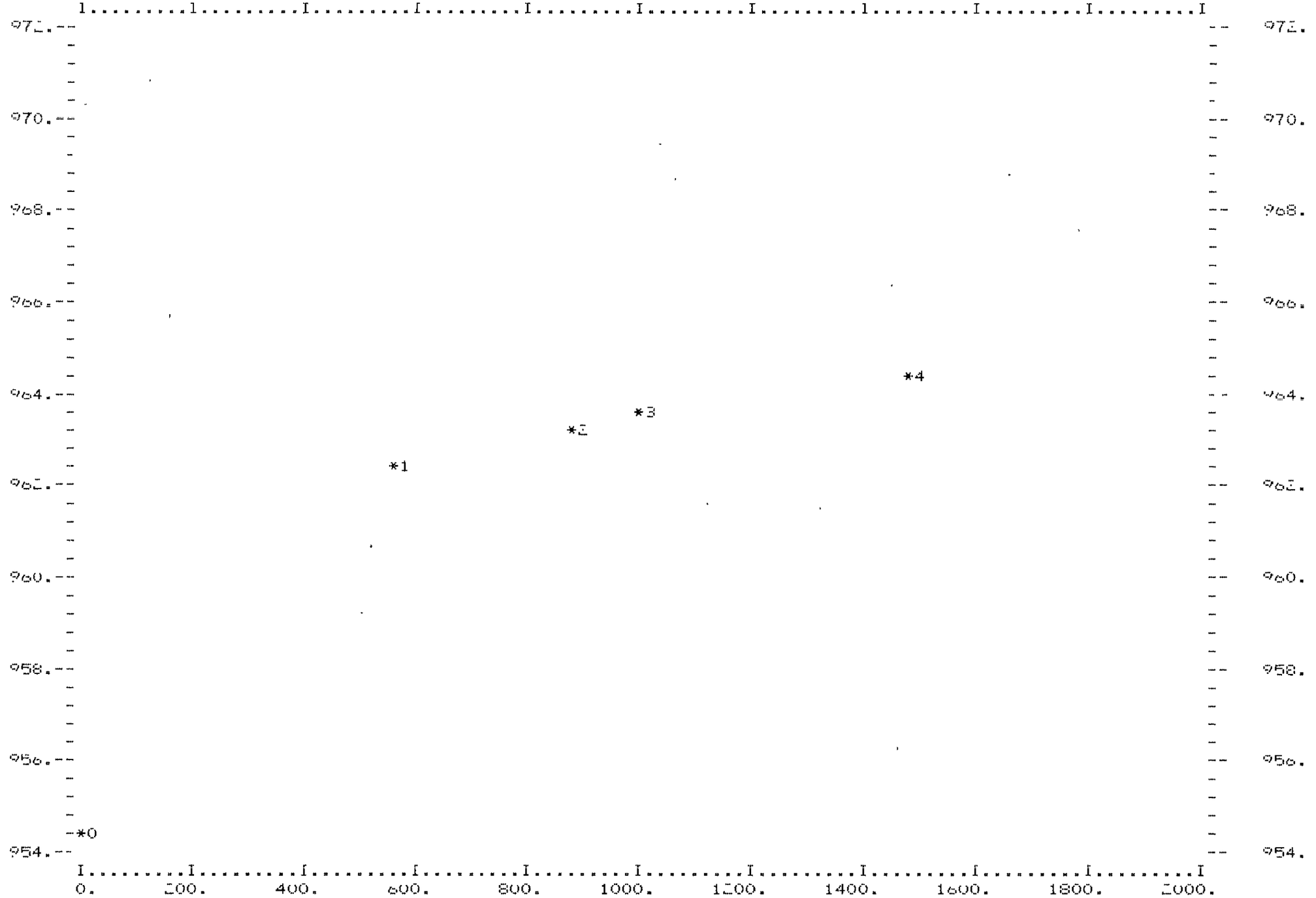
MIN ROAD ELEVATION = 963.80 FT

BRIDGE TYPE = BPR GIRDER BOTTOM ELEVATION = 962.10 FT OPENING NO.= 1

***** WSPG MICROCOMPUTER TEST VERSION *****

ROAD SECTION 16.0

SCALES ARE 1 INCH = 200. CFS, AND 2.4 FEET/ ELEVATION



***** WSP2 MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 16.1 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT

	0	954.0	0.0	0.0							
LOW	GRND	960.2	155.0	141.5	0.00	0.15	0.15				48.9
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****											
BANK	FULL	960.2	155.0	141.5	0.00	0.15	0.15				48.9
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****											
	1	962.4	613.4	560.0	0.00	0.15	1.08	560.00	958.1	0.00047	354.7
	2	963.2	942.3	870.0	0.00	0.15	1.27	870.00	958.9	0.00042	415.3
	3	963.5	1045.2	995.0	0.00	0.15	1.31	995.00	959.1	0.00042	428.6
	4	964.5	1525.7	1470.0	0.00	0.15	1.80	1470.00	960.0	0.00037	588.4

SEGMENT TABLE FOR SECTION 16.1

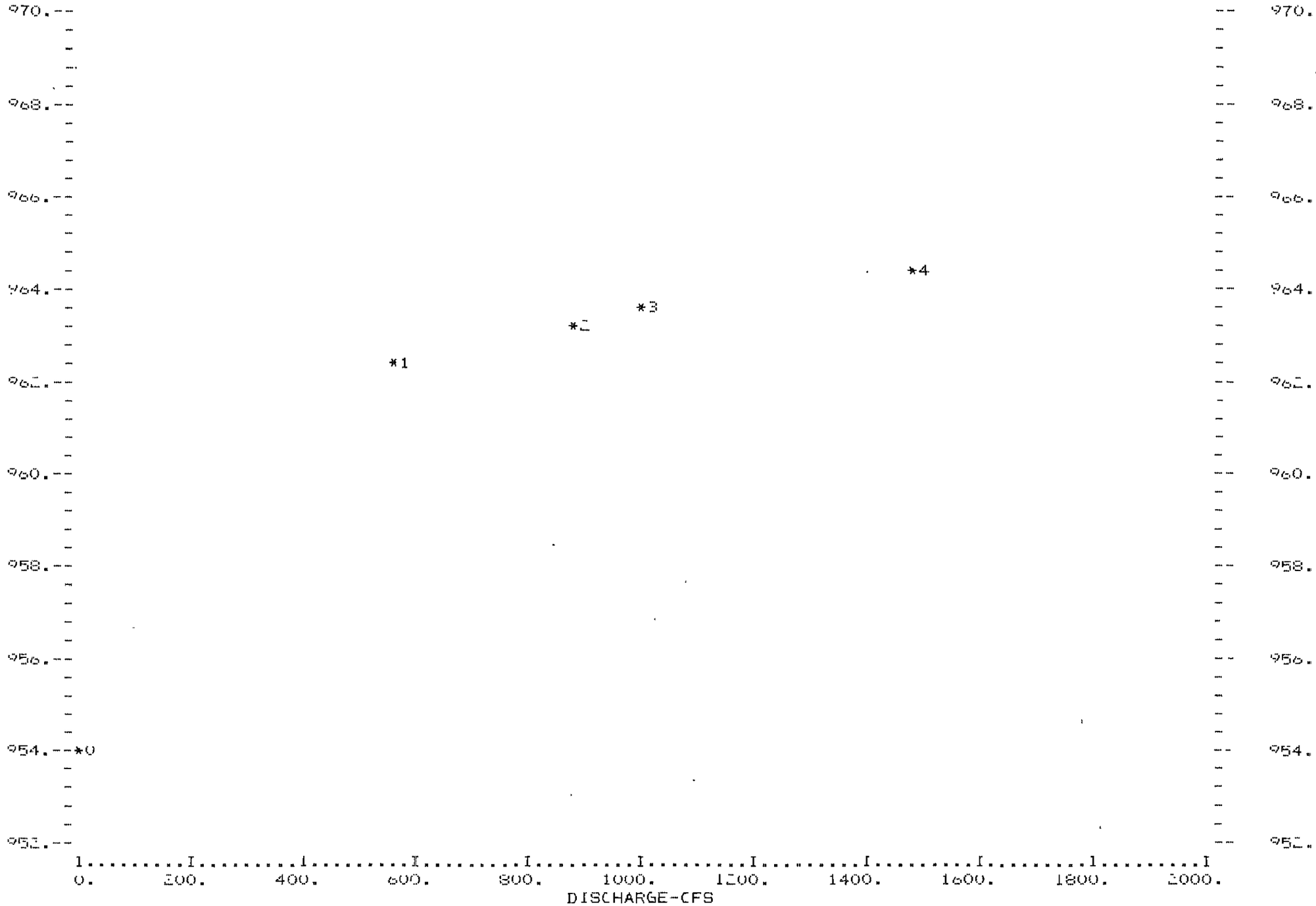
CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	560.	34.	383.	142.
560.	VELOCITY FPS	1.27	0.46	1.46	0.52
2	DISCHARGE CFS	870.	82.	465.	323.
870.	VELOCITY FPS	1.23	0.53	1.52	0.67
3	DISCHARGE CFS	995.	100.	502.	393.
995.	VELOCITY FPS	1.24	0.56	1.58	0.72
4	DISCHARGE CFS	1470.	168.	607.	695.
1470.	VELOCITY FPS	1.23	0.48	1.65	0.86
1	ELEV 962.4 H.D	25372.	1436.	18028.	5908.
2	ELEV 963.2 H.D	41878.	3736.	23199.	14943.
3	ELEV 963.5 H.D	48423.	4776.	24835.	18812.
4	ELEV 964.5 H.D	76062.	8657.	31661.	35744.

***** WSP2 MICROCOMPUTER TEST VERSION *****

H.D TABLE FOR CROSS SECTION 16.1

ELEVATION FT	AREA SQ FT	TOP WIDTH FT	H.D TOTAL	H.D BY SEGMENT 1	2	3
954.00	0.					
955.	3.	7.	50.	1.	47.	1.
956.	15.	17.	324.	1.	322.	1.
957.	37.	25.	1079.	1.	1077.	1.
958.	66.	32.	2378.	1.	2376.	1.
959.	102.	40.	4314.	1.	4312.	1.
960.	146.	47.	6979.	1.	6977.	1.
961.	255.	147.	11667.	69.	10907.	35.
962.	499.	313.	20924.	867.	16001.	3509.
963.	853.	404.	37525.	3005.	21838.	12182.
964.	1296.	506.	62477.	6760.	28373.	27113.
965.	1909.	732.	95623.	13172.	35561.	46219.
966.	2795.	1069.	141134.	22965.	43409.	66780.
967.	4056.	1551.	191378.	63444.	51870.	76083.
968.	5898.	2034.	281323.	115465.	60878.	104137.
969.	8202.	2517.	408436.	190916.	70468.	146090.
970.	10733.	2834.	592806.	300472.	80611.	210298.
971.	13884.	3000.	833757.	445065.	91248.	296499.
972.	16884.	3000.	1055649.	571849.	102046.	375885.
973.	19884.	3000.	1319644.	724857.	113433.	470451.
974.	22884.	3000.	1630375.	907695.	125408.	582067.

CROSS SECTION 16.1
SCALES ARE 1 INCH = 200. CFS, AND 2.4 FEET/ ELEVATION



***** WSP2 MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 16.5 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED: FLOODPLAIN DAMAGE	ACRES FLOODED: CHANNEL	ACRES FLOODED: TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT

0	955.0	0.0	0.0							
LOW GRND	960.3	109.1	80.9	0.00	0.45	0.45				40.4
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
BANK FULL	960.3	109.1	80.9	0.00	0.45	0.45				40.4
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	962.6	755.7	560.0	0.00	0.51	5.93	560.00	959.0	0.00048	574.0
2	963.4	1327.7	870.0	0.00	0.51	7.95	870.00	959.9	0.00034	769.3
3	963.6	1510.6	995.0	0.00	0.51	8.58	995.00	960.2	0.00031	830.5
4	964.6	2408.3	1470.0	0.00	0.51	11.45	1470.00	961.5	0.00022	1108.4

SEGMENT TABLE FOR SECTION 16.5

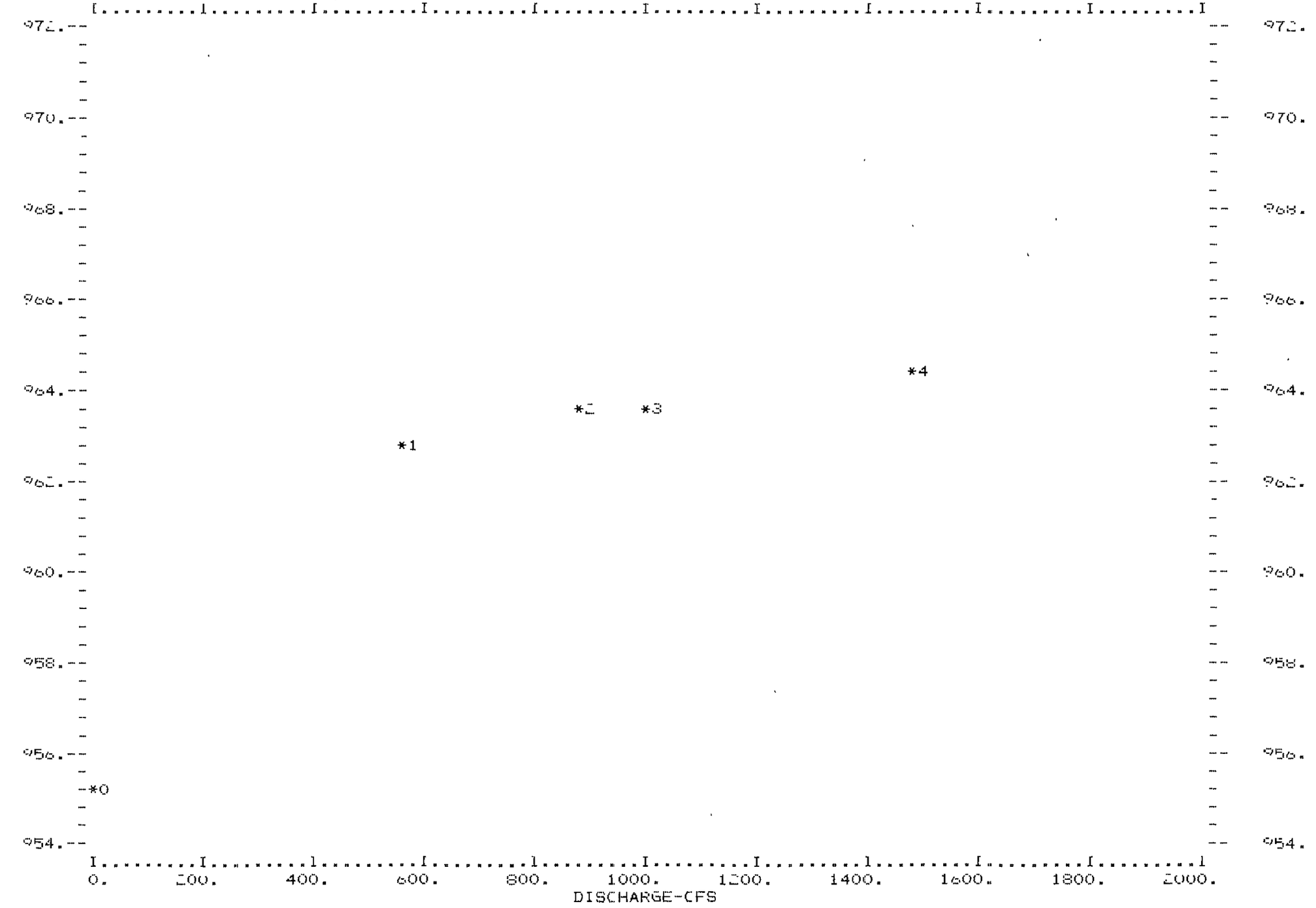
CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	560.	122.	289.	149.
560.	VELOCITY FPS	1.06	0.53	1.37	0.47
2	DISCHARGE CFS	870.	226.	307.	338.
870.	VELOCITY FPS	0.88	0.54	1.25	0.51
3	DISCHARGE CFS	995.	263.	325.	407.
995.	VELOCITY FPS	0.85	0.54	1.27	0.53
4	DISCHARGE CFS	1470.	393.	356.	721.
1470.	VELOCITY FPS	0.75	0.46	1.19	0.57
1	ELEV 963.6 KD	25468.	5513.	13260.	6695.
2	ELEV 963.4 KD	46752.	12040.	17153.	17559.
3	ELEV 963.6 KD	56063.	14841.	18440.	22782.
4	ELEV 964.6 KD	98528.	26344.	33847.	48337.

***** WSP2 MICROCOMPUTER TEST VERSION *****

KD TABLE FOR CROSS SECTION 16.5

ELEVATION FT	AREA SQ FT	TOP WIDTH FT	KD TOTAL	KD BY SEGMENT 1	2	3
955.00	0.					
956.	7.	12.	125.	1.	123.	1.
957.	22.	17.	582.	1.	580.	1.
958.	40.	21.	1388.	1.	1386.	1.
959.	65.	28.	2534.	1.	2532.	1.
960.	98.	38.	4144.	1.	4142.	1.
961.	183.	178.	7231.	124.	6773.	34.
962.	479.	409.	15423.	2208.	10407.	2097.
963.	1031.	668.	34614.	8109.	15058.	10780.
964.	1846.	934.	69736.	18519.	20363.	30452.
965.	2925.	1246.	122272.	34688.	26285.	60948.
966.	4355.	1587.	199406.	65260.	32785.	100833.
967.	6092.	1928.	306499.	114538.	39867.	151770.
968.	8156.	2268.	447368.	185891.	47495.	213983.
969.	10629.	2609.	624144.	280916.	55609.	287239.
970.	13411.	2859.	855558.	412522.	64238.	378117.
971.	16324.	2950.	1108870.	556990.	73142.	476001.
972.	19274.	2950.	1381327.	710770.	82386.	580641.
973.	22224.	2950.	1699151.	894451.	92170.	700282.
974.	25174.	2950.	2067061.	1111695.	102491.	836062.

CROSS SECTION 16.5
SCALES ARE 1 INCH = 200. CFS, AND 2.4 FEET/ ELEVATION



***** WSPG MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 16.9 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT

	0	955.1	0.0	0.0							
LOW	GRND	958.4	16.8	7.1	0.00	0.30	0.30				13.1
*****MESSAGE-	ELEV BELOW	FIRST	PROFILE.	FLOW	INTERPOLATED	LINEARLY	FROM	CHANNEL	BOTTOM*****		
BANK	FULL	958.7	24.9	10.5	0.00	0.37	0.84				40.4
*****MESSAGE-	ELEV BELOW	FIRST	PROFILE.	FLOW	INTERPOLATED	LINEARLY	FROM	CHANNEL	BOTTOM*****		
	1	962.7	1329.4	560.0	0.00	0.42	9.12	560.00	959.5	0.00008	441.4
	2	963.5	1689.9	870.0	0.00	0.42	9.79	870.00	959.7	0.00009	473.8
8.7	3	963.8	1809.1	995.0	0.00	0.42	9.94	995.00	959.7	0.00010	481.0
	4	964.7	2281.0	1470.0	0.00	0.42	10.49	1470.00	960.1	0.00011	507.6

SEGMENT TABLE FOR SECTION 16.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	560.	270.	53.	237.
560.	VELOCITY FPS	0.43	0.40	0.58	0.42
2	DISCHARGE CFS	870.	428.	74.	367.
870.	VELOCITY FPS	0.52	0.49	0.69	0.52
3	DISCHARGE CFS	995.	494.	82.	419.
995.	VELOCITY FPS	0.56	0.52	0.73	0.56
4	DISCHARGE CFS	1470.	747.	108.	614.
1470.	VELOCITY FPS	0.65	0.62	0.84	0.65
1	ELEV 962.7 A.D	62321.	29922.	6004.	26395.
2	ELEV 963.5 A.D	89301.	43960.	7632.	37709.
3	ELEV 963.8 A.D	98395.	48765.	8152.	41477.
4	ELEV 964.7 A.D	139702.	70973.	10353.	58465.

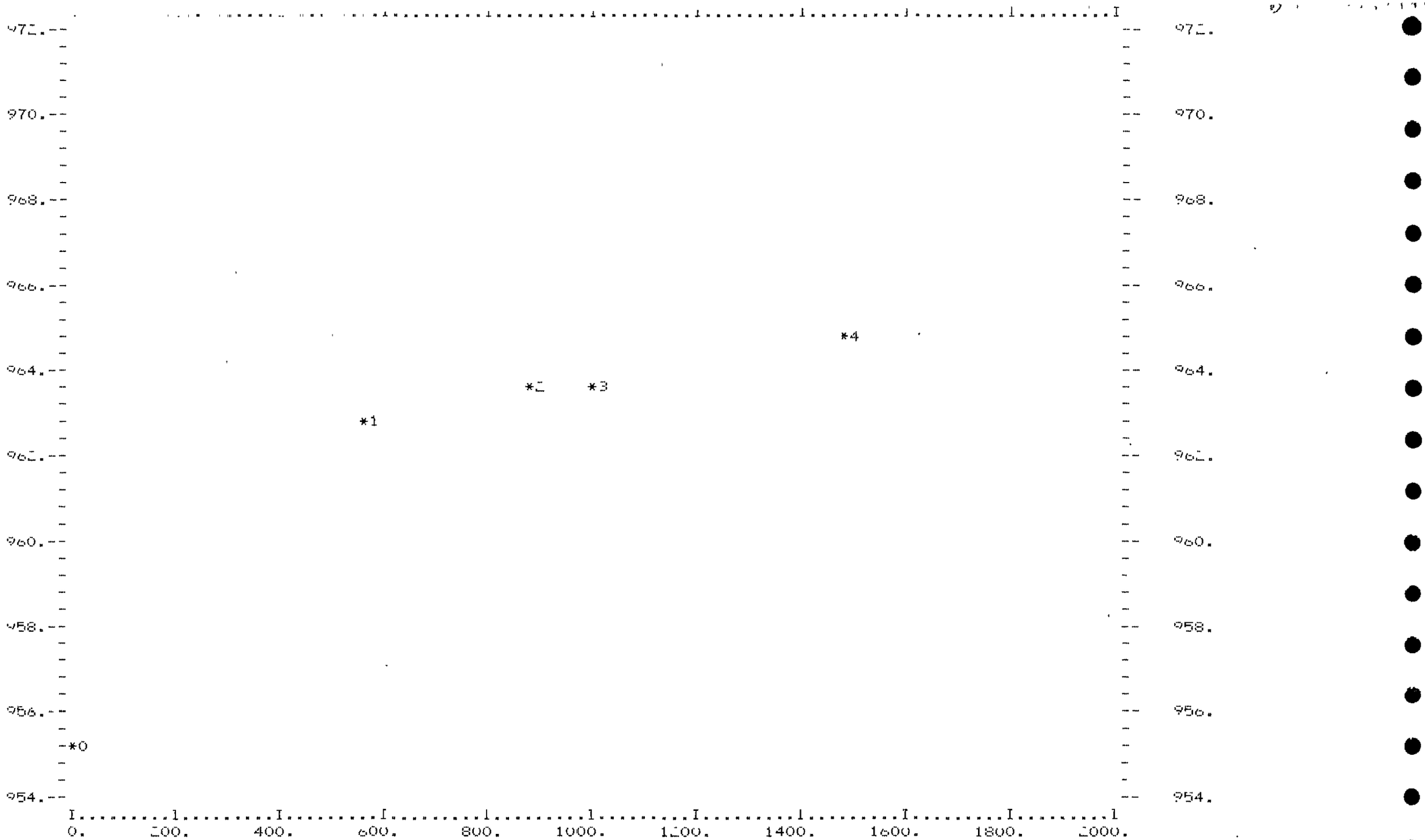
***** WSP2 MICROCOMPUTER TEST VERSION *****

A.D TABLE FOR CROSS SECTION 16.9

ELEVATION FT	AREA SQ FT	TOP WIDTH FT	A.D TOTAL	A.D BY SEGMENT 1	2	3
955.10	0.					
956.	1.	3.	16.	1.	14.	1.
957.	5.	6.	106.	1.	104.	1.
958.	12.	10.	306.	1.	303.	1.
959.	48.	76.	940.	1.	746.	114.
960.	266.	316.	5534.	788.	1716.	2333.
961.	622.	381.	19744.	8120.	3054.	8550.
962.	1021.	415.	41861.	19341.	4671.	17825.
963.	1456.	453.	71057.	34423.	6552.	30058.
964.	1927.	488.	108067.	53894.	8687.	45465.
965.	2430.	514.	153726.	78571.	11054.	64081.
966.	2952.	527.	208831.	108891.	13644.	86277.
967.	3481.	530.	268148.	141278.	16365.	110444.
968.	4011.	530.	328991.	174011.	19211.	135588.
969.	4541.	530.	389751.	211016.	22283.	163924.
970.	5071.	530.	474047.	252485.	25581.	195586.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 16.9
SCALES ARE 1 INCH = 200. CFS, AND 2.4 FEET/ ELEVATION



***** WSP2 MICROCOMPUTER TEST VERSION *****

ROAD SECTION 17.0

NO.	HW FT	CFS	HL FT	TW FT	STARTING CSM	BRIDGE CFS	BRIDGE AREA SQ FT	CULVERT CFS	CULVERT AREA SQ FT	WEIR CFS	WEIR AREA SQ FT	WEIR TOP WIDTH FT
0	956.30	0.0	0.00	956.30	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	962.94	560.0	0.14	962.79	560.00	0.0	0.0	215.6	84.0	344.4	229.5	215.3
2	963.75	870.0	0.18	963.58	870.00	0.0	0.0	200.1	84.0	669.9	450.1	315.6

4	964.94	1470.0	0.18	964.77	1470.00	0.0	0.0	501.0	84.0	1269.0	953.1	532.0

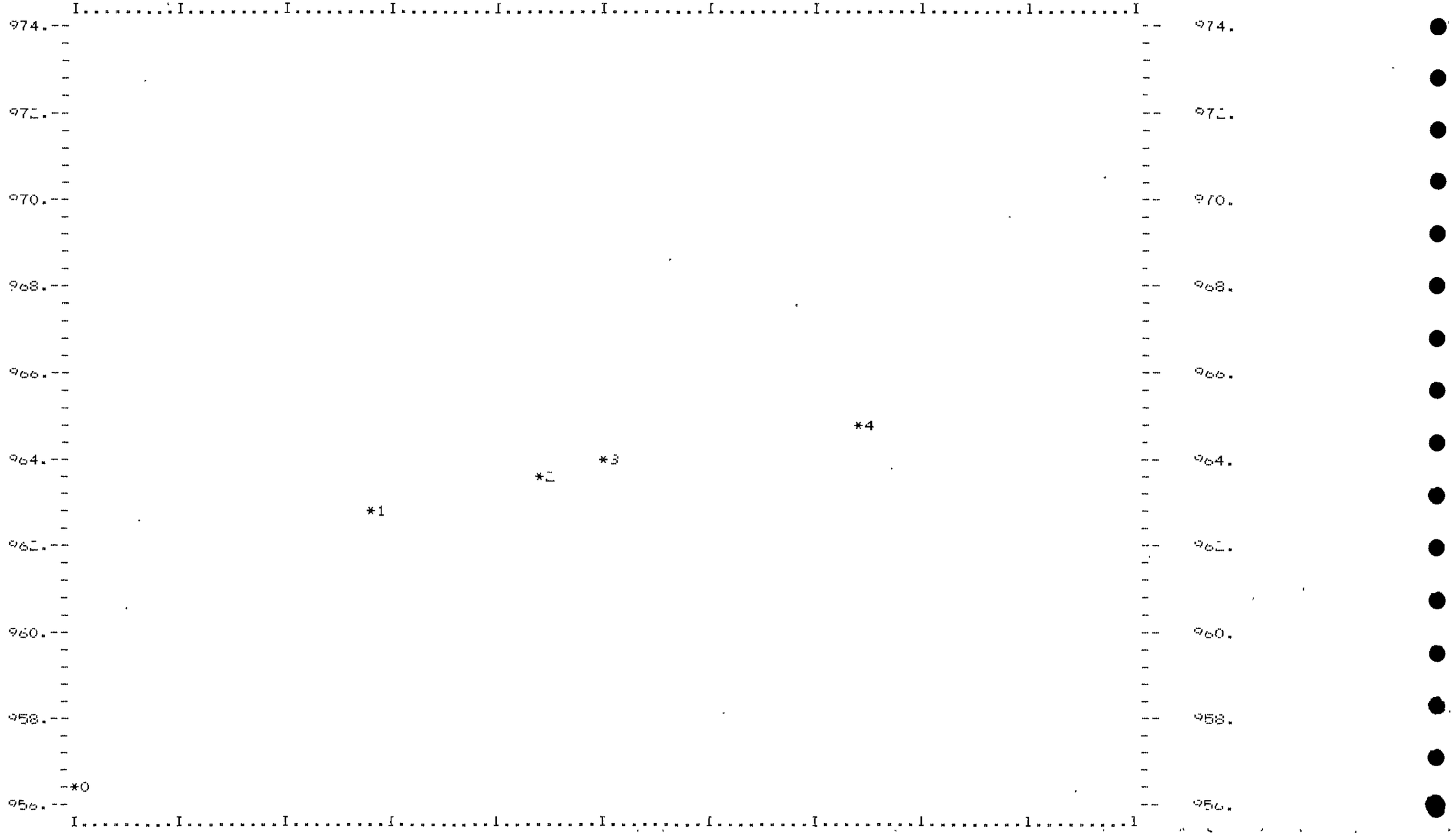
MIN ROAD ELEVATION = 960.90 FT

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	2	41122.	6.00	7.00	66.00	956.30	956.30	0.012

1 WSP2 XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR. STORMS WS : PAGE
REV 03/14/88 DISCHARGE TO I-69 ALT: 44P

***** WSP2 MICROCOMPUTER TEST VERSION *****

ROAD SECTION 17.0
SCALES ARE 1 INCH = 200. CFS, AND 2.4 FEET/ ELEVATION



***** WSPC MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 17.1 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	957.1	0.0	0.0							
LOW GRND	960.1	38.2	23.7	0.00	0.26	0.26				30.7
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
BANK FULL	960.4	81.5	50.6	0.00	0.31	2.04				237.2
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	963.0	902.7	560.0	0.00	0.31	3.29	560.00	960.6	0.00026	382.8
2	963.8	1233.3	870.0	0.00	0.31	3.71	870.00	960.8	0.00026	431.7
3	964.0	1343.5	995.0	0.00	0.31	3.86	995.00	960.8	0.00027	449.4
4	965.0	1791.9	1470.0	0.00	0.31	4.23	1470.00	961.1	0.00030	492.6

SEGMENT TABLE FOR SECTION 17.1

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	560.	311.	127.	122.
560.	VELOCITY FPS	0.66	0.57	0.90	0.56
2	DISCHARGE CFS	870.	494.	175.	201.
870.	VELOCITY FPS	0.75	0.65	1.03	0.66
3	DISCHARGE CFS	995.	567.	194.	233.
995.	VELOCITY FPS	0.79	0.68	1.09	0.70
4	DISCHARGE CFS	1470.	869.	253.	348.
1470.	VELOCITY FPS	0.87	0.77	1.19	0.78
1	ELEV 963.0 KD	35040.	19438.	8003.	7599.
2	ELEV 963.8 KD	54268.	30760.	10980.	12528.
3	ELEV 964.0 KD	60785.	34629.	11941.	14215.
4	ELEV 965.0 KD	91854.	54109.	15963.	21782.

***** WSPC MICROCOMPUTER TEST VERSION *****

KD TABLE FOR CROSS SECTION 17.1

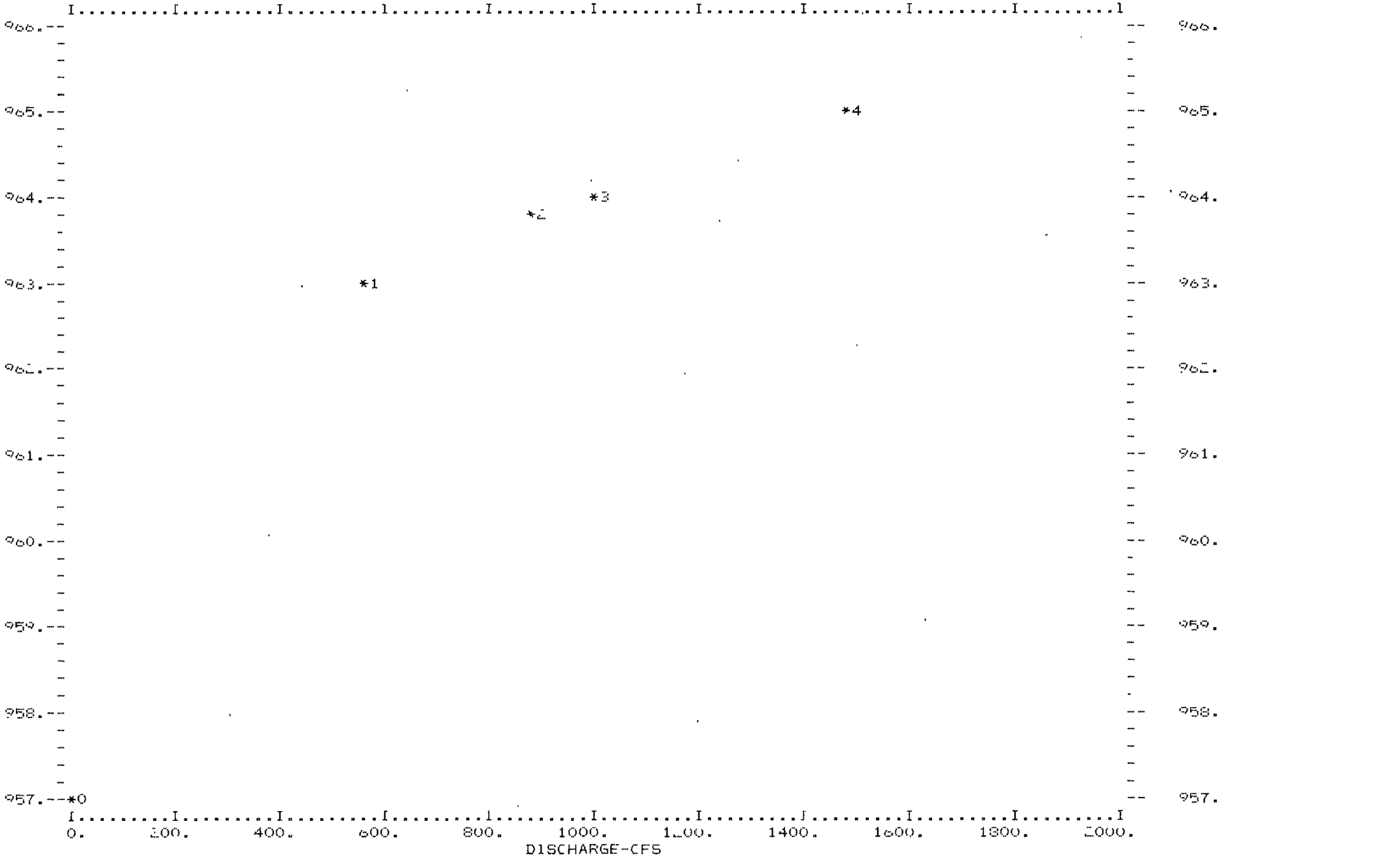
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	KD TOTAL	KD BY SEGMENT 1	2	3
957.10	0.					
958.	3.	6.	40.	1.	38.	1.
959.	14.	16.	285.	1.	283.	1.
960.	36.	29.	924.	1.	922.	1.
961.	241.	283.	5068.	1850.	2464.	570.
962.	550.	338.	17191.	8929.	4978.	3285.
963.	913.	384.	35616.	19766.	8095.	7739.
964.	1329.	447.	59887.	34084.	11808.	13977.
965.	1802.	493.	92719.	54640.	16059.	21972.
966.	2310.	522.	134665.	81781.	20826.	31827.

	967.	2841.	338.	183916.	115658.	26073.	44150.
	968.	3380.	540.	240853.	151412.	31599.	57690.
	969.	3920.	540.	298650.	188620.	37453.	72170.
	970.	4460.	540.	363942.	230839.	43787.	88667.
	971.	5000.	540.	437005.	278279.	50597.	107272.

***** WSPG MICROCOMPUTER TEST VERSION *****

CROSS SECTION 17.1

SCALES ARE 1 INCH = 200. CFS, AND 1.2 FEET/ ELEVATION



---------- LIST OF INPUT DATA WITH LIMITED EDITING----------

```
TITLE      DISCHARGE FROM CONFLUENCE OF COLD CREEK
CHANGE     DISCHARGE
DISCHARGE  -1.        305.       450.       505.       705.
COMMENT    DISCHARGE FROM XSECTION 014 OF TR2COLD.OUT
END
LINK
SEGMENT    20.5       1          N          -25.                              475
NVALUE     .060                                                              476
SEGMENT    20.5       2          C          28.                               477
NVALUE     .035                                                              478
SEGMENT    20.5       3          N          150.                              479
NVALUE     .060                                                              480
SECTION    20.5                                                              481
           -135.0     956.4      -50.0      954.1      -55.0      952.7       482
           -85.0      953.4      -25.0      954.3      -10.0      946.9       483
           -6.0       946.3      -5.0       944.3      0.0        944.0       484
           5.0        944.6      6.0        945.6      10.0       946.1       485
           20.0       951.6      28.0       953.9      40.0       953.3       486
           90.0       950.7      -150.      960.       150.       960.        487
ENDTABLE                                                                     488
----------MESSAGE - DATA POINTS ON SECTION 20.5   REORDERED BY PROGRAM ACCORDING TO X VALUES
           DUPLICATE X POINTS NOT CHANGED----------
SEGMENT    20.9       1          N          -20.                              489
NVALUE     .060                                                              490
SEGMENT    20.9       2          C          28.                               491
NVALUE     .035                                                              492
SEGMENT    20.9       3          N          75.                               493
NVALUE     .060                                                              494
SECTION    20.9                                                              495
           -50.0      961.6      -20.0      961.1      -5.0       951.9       496
           0.0        950.3      8.0        952.4      18.0       955.3       497
           28.0       961.3      33.0       961.6      50.0       960.1       498
           75.0       957.6                                                  499
ENDTABLE                                                                     500
CULV1      21.0       1          1.411.                                      501
CULV2      8.0                   56.        950.2      950.0                 502
SECTION    21.0                                                              503
           -145.0     962.9      0.0        964.0      200.0      968.0       504
           -200.0     964.3                                                  505
ENDTABLE                                                                     506
----------MESSAGE - DATA POINTS ON SECTION 21.0   REORDERED BY PROGRAM ACCORDING TO X VALUES
           DUPLICATE X POINTS NOT CHANGED----------
SEGMENT    21.5       1          N          -20.                              507
NVALUE     .060                                                              508
SEGMENT    21.5       2          C          20.                               509
NVALUE     .038                                                              510
SEGMENT    21.5       3          N          200.                              511
NVALUE     .060                                                              512
SECTION    21.5                                                              513
```


----------80/80 LIST OF INPUT DATA----------

```
           -350.0     965.0      -300.0     961.7      -250.0     961.3       514
           -200.0     961.1      -150.0     961.6      -100.0     960.9       515
           -50.0      959.9      -20.0      959.8      -7.0       952.3       516
           0.0        951.7      6.0        952.2      20.0       960.8       517
           50.0       960.4      100.0      960.4      150.0      962.4       518
           200.0      965.3                                                  519
```

Enter Cold Creek @ 132

100 - 9463

```
ENDTABLE                                                                                  520
COMPUTE   20.5      21.5      13.2
-------------------------------END OF DATA LISTING-------------------------------
1                   COMPUTE   20.5      21.5      13.2
```

start

```
-------------------------------STARTING DATA FROM PREVIOUS COMPUTATIONS-------------------------------

1    WSP2 XEQ 02/18/91      10:57:06      COLD CREEK FPMS,  02-15-91,    10,50,100 & 500 YR. STORMS      WS :          PAGE
          REV 03/14/88                   DISCHARGE FROM CONFLUENCE OF COLD CREEK                        ALT:           48

     *****   WSP2  MICROCOMPUTER  TEST  VERSION   *****

                                        RATING TABLE FOR SECTION 20.5          DA=   1.0 SQ MI
                                        -------------------------------
```

100-yr on COLD CREEK 946.3

NO.	ELEV FT	AREA SQ FT	Q CFS	------ACRES FLOODED------- FLOODPLAIN DAMAGE	CHANNEL	TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	944.0	0.0	0.0							
1	949.0	90.6	305.0	0.00	1.44	1.44	305.00	947.1	0.00163	29.6
2	949.8	113.4	450.0	0.00	1.58	1.58	450.00	947.7	0.00189	32.5
3	950.1	126.1	505.0	0.00	1.65	1.65	505.00	947.8	0.00177	33.9
LOW GRND	950.7	145.4	606.6	0.00	1.76	1.76				36.1
4	951.1	164.1	705.0	0.00	1.83	2.19	705.00	948.5	0.00178	47.6

6.7

```
                                        SEGMENT TABLE FOR SECTION 20.5

                                                      SEG NO
     CSM                        TOTAL          1            2            3
                                              N            C            N
-------------------------------------------------------------------------------------------------------------------------
   1      DISCHARGE CFS          305.          0.          305.          0.
    305.  VELOCITY FPS           3.38        0.00         3.37        0.00
   2      DISCHARGE CFS          450.          0.          450.          0.
    450.  VELOCITY FPS           3.98        0.00         3.97        0.00
   3      DISCHARGE CFS          505.          0.          505.          0.
    505.  VELOCITY FPS           4.02        0.00         4.00        0.00
   4      DISCHARGE CFS          705.          0.          703.          2.
    705.  VELOCITY FPS           4.39        0.00         4.39        0.59

   1  ELEV   949.0  KD         7565.          1.         7563.          1.
   2  ELEV   949.8  KD        10355.          1.        10353.          1.
   3  ELEV   950.1  KD        11987.          1.        11985.          1.
   4  ELEV   951.1  KD        16664.          1.        16652.         11.
1    WSP2 XEQ 02/18/91      10:57:06      COLD CREEK FPMS,  02-15-91,    10,50,100 & 500 YR. STORMS      WS :          PAGE
          REV 03/14/88                   DISCHARGE FROM CONFLUENCE OF COLD CREEK                        ALT:           48

     *****   WSP2  MICROCOMPUTER  TEST  VERSION   *****

                                        KD TABLE FOR CROSS SECTION 20.5

       ELEVATION      AREA     TOP WIDTH      KD        KD BY SEGMENT
           FT         SQ FT        FT       TOTAL          1          2          3
           944.00       0.
           945.         8.         11.       265.          1.        262.         1.
           946.        20.         15.       965.          1.        963.         1.
           947.        38.         22.      2231.          1.       2229.         1.
           948.        62.         26.      4457.          1.       4455.         1.
           949.        90.         30.      7486.          1.       7484.         1.
```

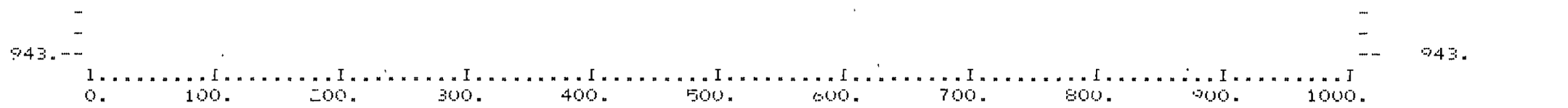
	951.	160.	45.	16207.	1.	16168.	6.
	952.	221.	75.	22298.	1.	21791.	346.
	953.	319.	104.	30400.	16.	28318.	1806.
	954.	466.	186.	41958.	692.	36229.	5001.
	955.	681.	229.	61196.	2738.	47396.	10363.
	956.	922.	251.	86398.	7864.	60282.	17839.
	957.	1182.	268.	117080.	15419.	74388.	27036.
	958.	1454.	279.	153353.	25690.	89659.	37941.
	959.	1738.	289.	194306.	37787.	105989.	50453.
	960.	2034.	297.	240533.	51851.	123323.	65126.
	961.	2332.	300.	289075.	66575.	141250.	80650.
	962.	2632.	300.	338546.	80858.	159595.	96314.
	963.	2932.	300.	393110.	97177.	179136.	113921.
	964.	3232.	300.	452982.	115695.	199881.	133590.

***** WSP2 - MICROCOMPUTER TEST VERSION *****

CROSS SECTION 20.5

SCALES ARE 1 INCH = 100. CFS, AND 1.2 FEET/ ELEVATION





***** WSPE MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 20.9 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED FLOODPLAIN CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	950.3	0.0	0.0							
1	954.7	61.7	305.0	0.00	0.81	0.81	305.00	953.8	0.00463	25.7
2	955.6	85.6	450.0	0.00	0.93	0.93	450.00	954.4	0.00410	29.4
3	955.9	93.5	505.0	0.00	0.96	0.96	505.00	954.6	0.00397	30.4
4	956.5	114.6	705.0	0.00	1.03	1.03	705.00	955.3	0.00438	32.6

SEGMENT TABLE FOR SECTION 20.9

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	305.	0.	305.	0.
305.	VELOCITY FPS	4.96	0.00	4.94	0.00
2	DISCHARGE CFS	450.	0.	450.	0.
450.	VELOCITY FPS	5.29	0.00	5.26	0.00
3	DISCHARGE CFS	505.	0.	505.	0.
505.	VELOCITY FPS	5.40	0.00	5.40	0.00
4	DISCHARGE CFS	705.	0.	705.	0.
705.	VELOCITY FPS	6.17	0.00	6.15	0.00
1	ELEV 954.7 FD	4481.	1.	4479.	1.
2	ELEV 955.6 FD	7030.	1.	7028.	1.
3	ELEV 955.9 FD	8010.	1.	8008.	1.
4	ELEV 956.5 FD	10655.	1.	10653.	1.

***** WSPE MICROCOMPUTER TEST VERSION *****

FD TABLE FOR CROSS SECTION 20.9

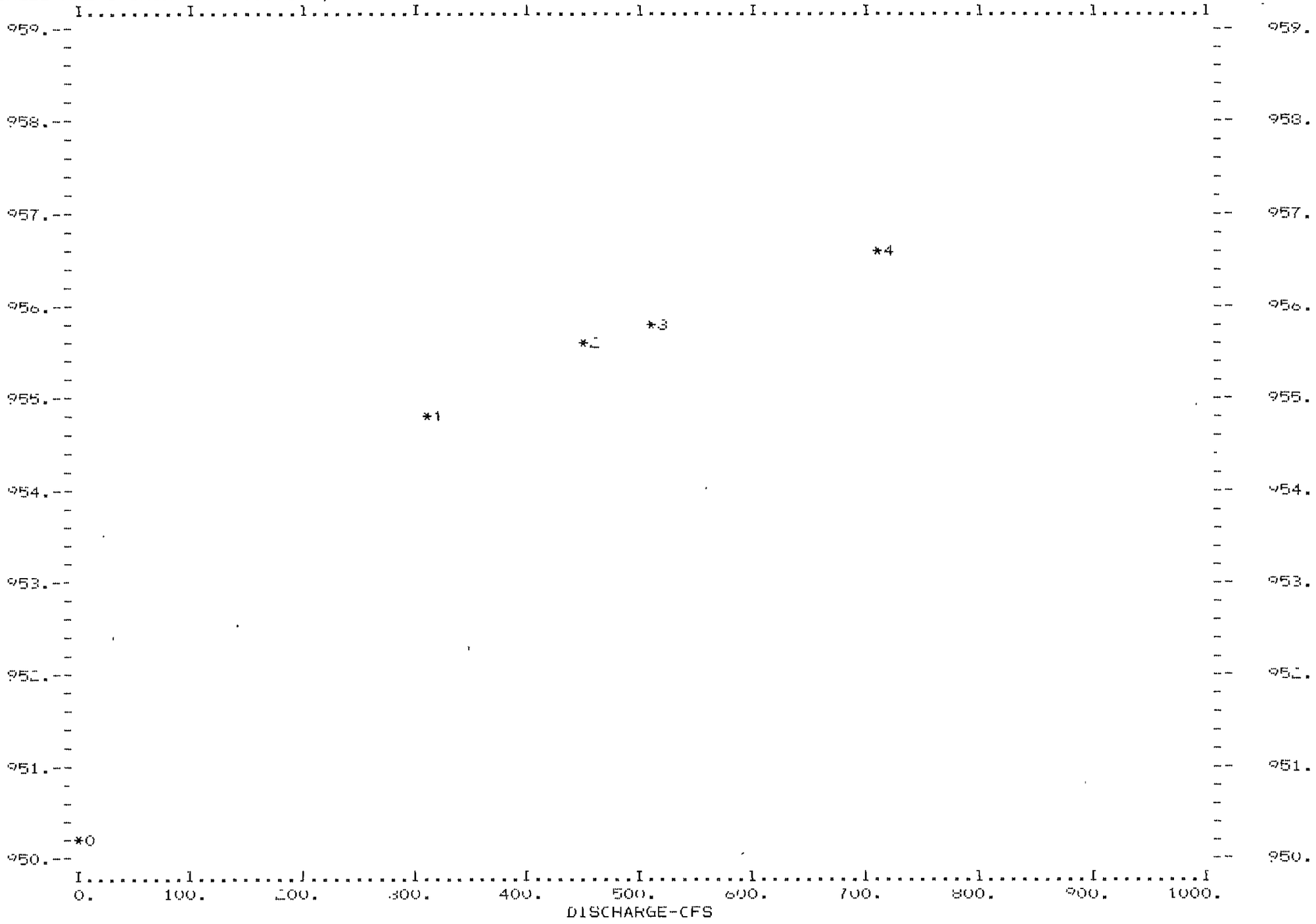
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	FD TOTAL	FD BY SEGMENT 1	2	3
950.30	0.					
951.	2.	5.	37.	1.	35.	1.
952.	10.	12.	375.	1.	373.	1.
953.	25.	17.	1271.	1.	1269.	1.
954.	44.	22.	2826.	1.	2824.	1.
955.	68.	27.	5148.	1.	5146.	1.
956.	97.	31.	8472.	1.	8470.	1.
957.	130.	34.	12725.	1.	12723.	1.
958.	168.	41.	17903.	1.	17875.	0.

	[illegible]	[illegible]	[illegible]	[illegible]	1.	[illegible]	161.
	960.	278.	68.	31856.	1.	31048.	742.
	961.	351.	83.	41114.	1.	39155.	1945.
	962.	463.	114.	54474.	127.	49804.	4041.
	963.	586.	125.	69915.	1204.	61427.	6702.
	964.	711.	125.	86294.	1899.	73341.	9184.
	965.	836.	125.	104941.	2900.	86478.	12309.
	966.	961.	125.	125784.	4308.	100868.	16183.

***** WSPG MICROCOMPUTER TEST VERSION *****

CROSS SECTION 20.9

SCALES ARE 1 INCH = 100. CFS, AND 1.2 FEET/ ELEVATION



***** WSP2 MICROCOMPUTER TEST VERSION *****

Newton Road

ROAD SECTION 21.0

NO.	HW FT	CFS	HL FT	TW FT	STARTING CSM	BRIDGE CFS	BRIDGE AREA SQ FT	CULVERT CFS	CULVERT AREA SQ FT	WEIR CFS	WEIR AREA SQ FT	WEIR TOP WIDTH FT
0	950.20	0.0	0.00	950.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	957.93	305.0	2.82	955.11	305.00	0.0	0.0	305.0	49.7	0.0	0.0	0.0
2	960.09	450.0	4.13	955.96	450.00	0.0	0.0	450.0	50.2	0.0	0.0	0.0
3	960.95	505.0	4.72	956.23	505.00	0.0	0.0	505.0	50.2	0.0	0.0	0.0
4	963.57	705.0	6.61	956.96	705.00	0.0	0.0	623.2	50.2	81.8	38.2	114.3

959.7
960.76 inlet
147.8 960.83
9666

2.19

MIN ROAD ELEVATION = 962.90 FT

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	12411.	8.00		56.00	950.20	950.00	0.021

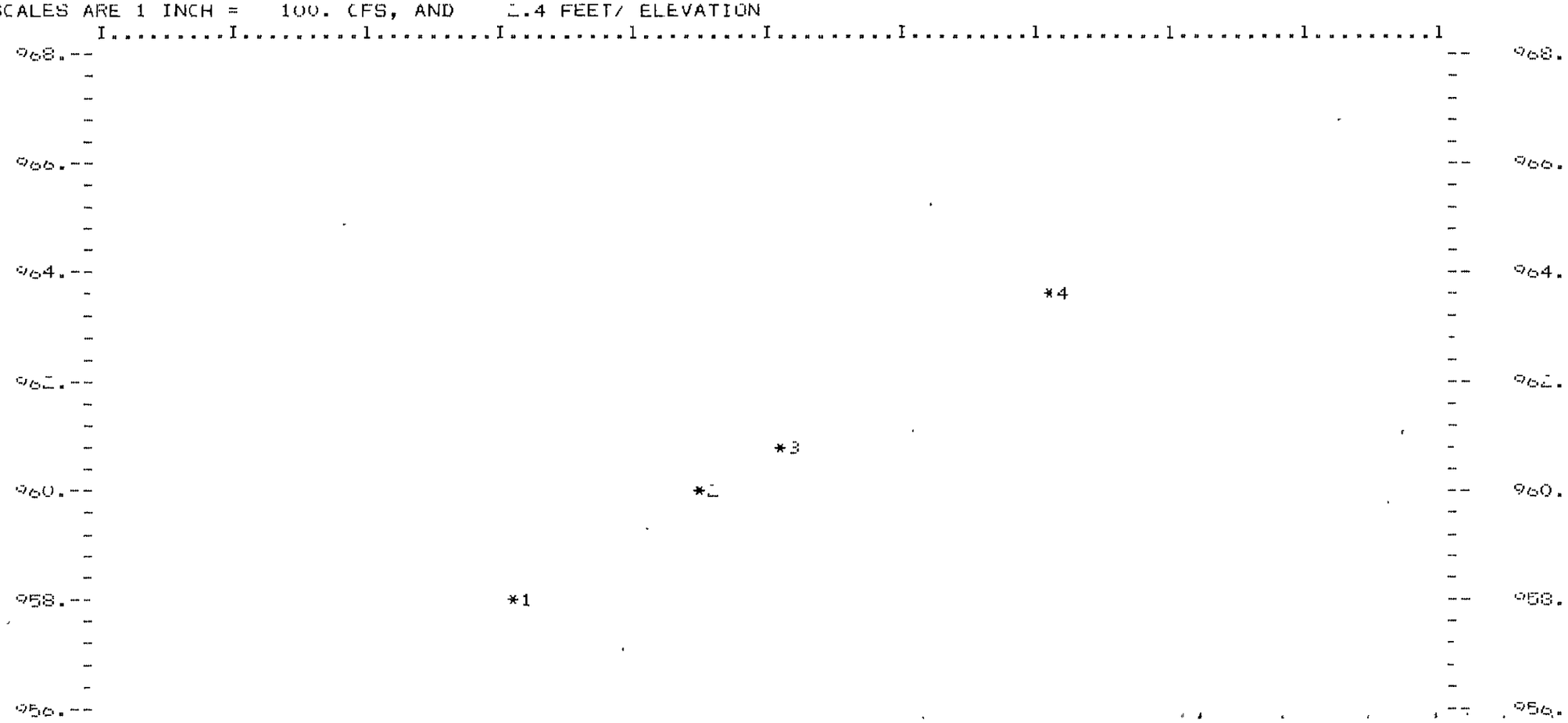
CMP projecting, 25% paved

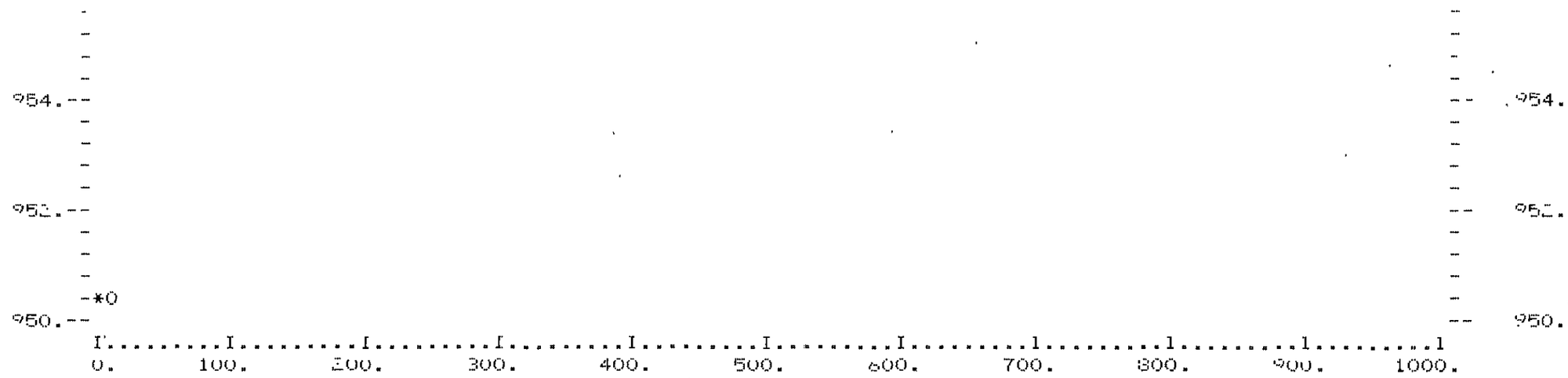
1 WSP2 XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR. STORMS WS : PAGE
REV 03/14/88 DISCHARGE FROM CONFLUENCE OF COLD CREEK ALT: 50P

***** WSP2 MICROCOMPUTER TEST VERSION *****

ROAD SECTION 21.0

SCALES ARE 1 INCH = 100. CFS, AND 2.4 FEET/ ELEVATION





***** WSP2 MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 21.5 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	951.7	0.0	0.0							
1	958.0	133.9	305.0	0.00	0.20	0.20	305.00	954.4	0.00058	32.3
LOW GRND	959.8	197.5	407.0	0.00	0.24	0.24				38.4
BANK FULL	959.8	197.5	407.0	0.00	0.24	0.24				38.4
2	960.1	224.3	450.0	0.00	0.25	0.58	450.00	955.0	0.00036	91.9
3	961.0	363.7	505.0	0.00	0.25	1.53	505.00	955.2	0.00026	241.7
4	963.6	1466.9	705.0	0.00	0.25	3.15	705.00	955.9	0.00005	498.5

9.3 →

SEGMENT TABLE FOR SECTION 21.5

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	305.	0.	305.	0.
305.	VELOCITY FPS	2.28	0.00	2.28	0.00
2	DISCHARGE CFS	450.	3.	446.	1.
450.	VELOCITY FPS	2.13	0.27	2.13	0.22
3	DISCHARGE CFS	505.	24.	468.	13.
505.	VELOCITY FPS	1.88	0.31	1.93	0.30
4	DISCHARGE CFS	705.	230.	360.	115.
705.	VELOCITY FPS	0.79	0.31	1.04	0.31
1	ELEV 958.0 FD	12676.	1.	12674.	1.
2	ELEV 960.1 FD	23536.	51.	23483.	2.
3	ELEV 961.0 FD	31127.	1192.	29461.	474.
4	ELEV 963.6 FD	101736.	32121.	53469.	16146.

***** WSP2 MICROCOMPUTER TEST VERSION *****

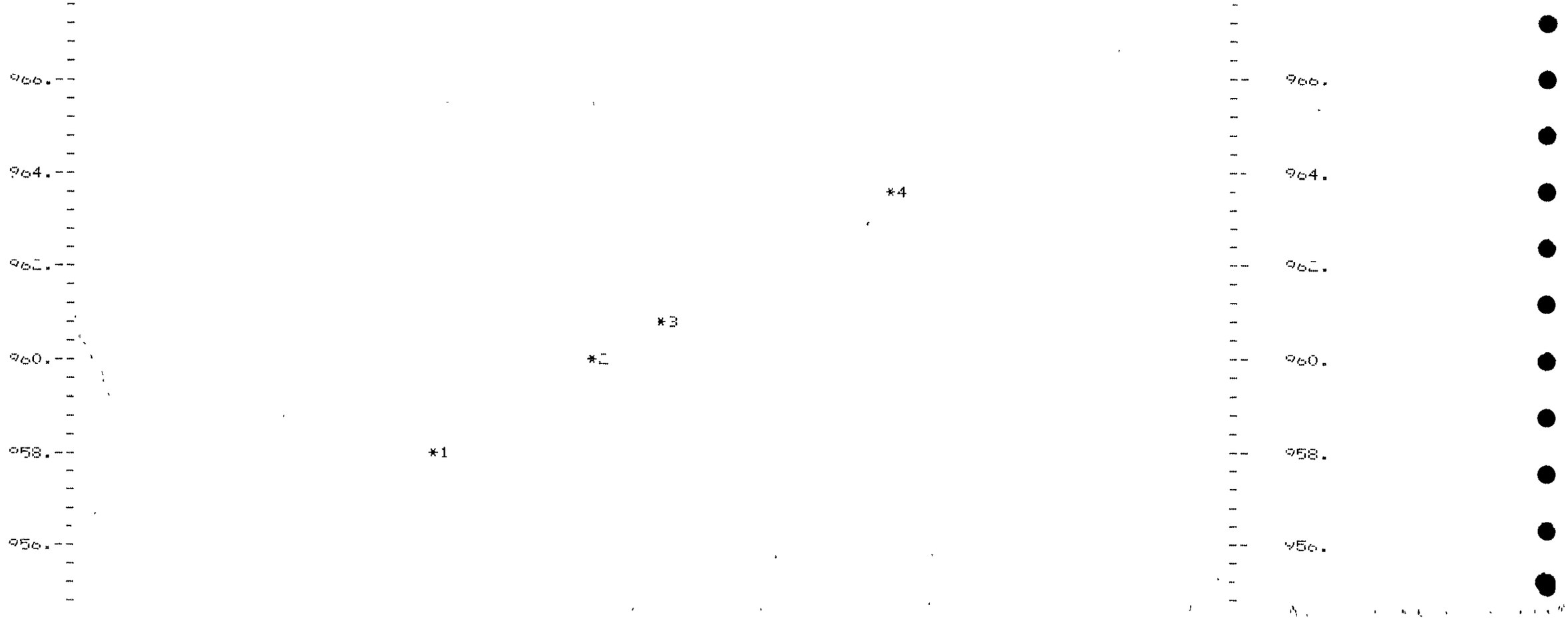
FD TABLE FOR CROSS SECTION 21.5

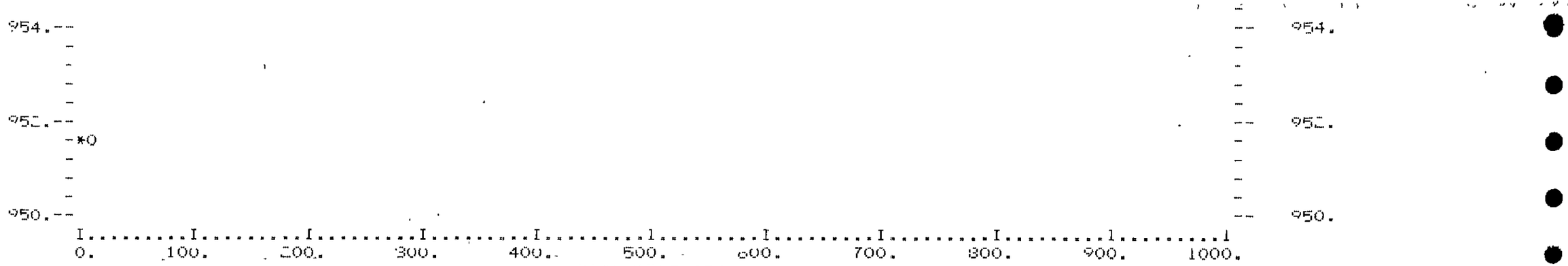
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	I.D TOTAL	I.D BY SEGMENT 1	2	3
951.70	0.					
952.	1.	7.	15.	1.	12.	1.
953.	14.	16.	516.	1.	514.	1.
954.	31.	19.	1670.	1.	1668.	1.
955.	52.	22.	3427.	1.	3425.	1.
956.	76.	26.	5818.	1.	5816.	1.
957.	103.	29.	8888.	1.	8886.	1.
958.	134.	32.	12680.	1.	12678.	1.
959.	168.	36.	17247.	1.	17245.	1.
960.	210.	74.	22799.	31.	22767.	1.
961.	377.	251.	32145.	1279.	29791.	525.
962.	723.	444.	49742.	6197.	38353.	4313.
963.	1183.	480.	80941.	21818.	47797.	11325.
964.	1682.	512.	121914.	42475.	57980.	20860.
965.	2211.	540.	173226.	70081.	68960.	33642.
966.	2756.	550.	227573.	98406.	80314.	47258.
967.	3306.	550.	284821.	126805.	92142.	61502.
968.	3856.	550.	351440.	160798.	104797.	78716.
969.	4406.	550.	428246.	201038.	118280.	99277.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 21.5

SCALES ARE 1 INCH = 100. CFS, AND 2.4 FEET/ ELEVATION





***** WSP2 MICROCOMPUTER TEST VERSION *****

---------- LIST OF INPUT DATA WITH LIMITED EDITING----------

```
TITLE     DISCHARGE TO MICHIGAN ROAD
CHANGE    DISCHARGE
DISCHARGE -1.       190.       315.       360.       520.
COMMENT   DISCHARGE FROM XSECTION 009 OF TRIOCOLD.OUT
END
CULV1     22.0      1          12111.                                    521
CULV2     8.                   68.        953.4      952.6              522
SECTION   22.0                                                          523
          -200.0    964.0      0.0        963.6      200.0      963.9   524
          -2.0      963.6      -450.      965.       900.       970.    525
ENDTABLE                                                                526
```

----------MESSAGE - DATA POINTS ON SECTION 22.0 REORDERED BY PROGRAM ACCORDING TO X VALUES
DUPLICATE X POINTS NOT CHANGED----------

```
SEGMENT   22.1      1          N          -18.                          527
NVALUE    .060                                                         528
SEGMENT   22.1      2          C          25.                           529
NVALUE    .042                                                         530
SEGMENT   22.1      3          N          800.                          531
NVALUE    .060                                                         532
SECTION   22.1                                                         533
          -100.0    963.3      -50.0      961.4      -30.0      962.0   534
          -18.0     960.4      -7.0       954.4      0.0        953.4   535
          12.0      954.4      25.0       959.8      50.0       963.5   536
          -500.     966.       800.       970.                          537
ENDTABLE
```

----------MESSAGE - DATA POINTS ON SECTION 22.1 REORDERED BY PROGRAM ACCORDING TO X VALUES
DUPLICATE X POINTS NOT CHANGED----------

```
COMPUTE   21.9      22.1       21.5
```

----------END OF DATA LISTING----------

```
1                   COMPUTE    21.9       22.1       21.5
```

----------STARTING DATA FROM PREVIOUS COMPUTATIONS----------

***** WSP2 MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 21.9 Do not plot 21.9 DA= 1.0 SQ MI

	NO.	ELEV FT	AREA SQ FT	Q CFS	------ACRES FLOODED------- FLOODPLAIN DAMAGE	CHANNEL	TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
	0	951.7	0.0	0.0							
	1	958.0	135.5	190.0	0.00	0.00	0.00	190.00	953.8	0.00022	32.5
LOW BANK	GRND FULL	959.8	197.5	372.9	0.00	0.00	0.00				38.4
		959.8	197.5	372.9	0.00	0.00	0.00				38.4
	2	960.1	228.9	315.0	0.00	0.00	0.00	315.00	954.4	0.00017	97.8
	3	961.0	372.3	360.0	0.00	0.00	0.01	360.00	954.6	0.00013	248.0
	4	963.6	1469.1	520.0	0.00	0.00	0.01	520.00	955.3	0.00003	498.7

SEGMENT TABLE FOR SECTION 21.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	190.	0.	190.	0.
190.	VELOCITY FPS	1.40	0.00	1.40	0.00
2	DISCHARGE CFS	315.	3.	312.	1.
315.	VELOCITY FPS	1.47	0.20	1.48	0.15
3	DISCHARGE CFS	360.	18.	332.	10.
360.	VELOCITY FPS	1.32	0.22	1.36	0.22
4	DISCHARGE CFS	520.	170.	265.	85.
520.	VELOCITY FPS	0.58	0.23	0.76	0.23
1	ELEV 958.0 H.D	12883.	1.	12881.	1.
2	ELEV 960.1 H.D	23781.	59.	23718.	3.
3	ELEV 961.0 H.D	31432.	1248.	29676.	507.
4	ELEV 963.6 H.D	101923.	32218.	53515.	16190.

***** WSP2 MICROCOMPUTER TEST VERSION *****

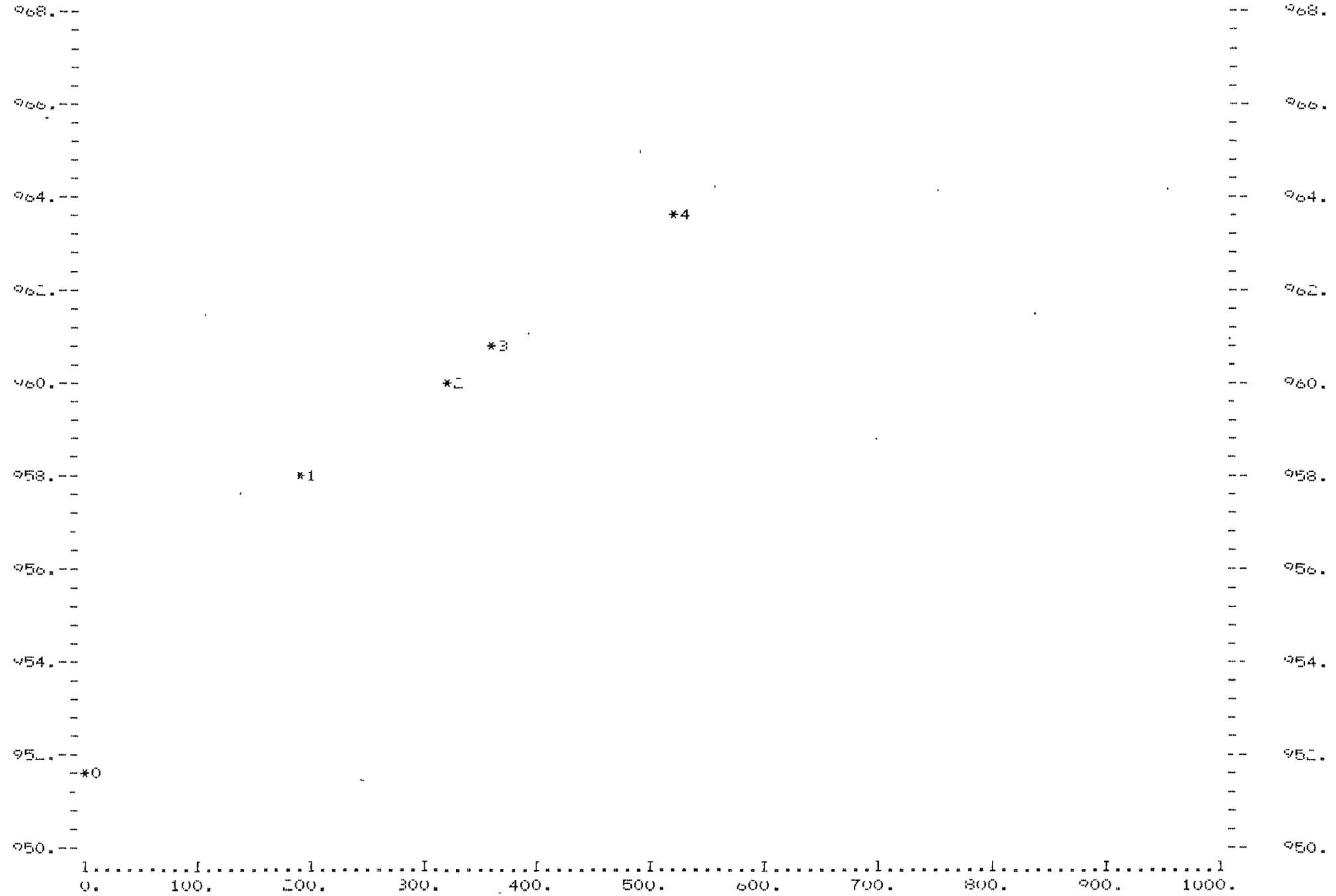
H.D TABLE FOR CROSS SECTION 21.9

ELEVATION FT	AREA SQ FT	TOP WIDTH FT	H.D TOTAL	H.D BY SEGMENT 1	2	3
951.70	0.					
952.	1.	7.	15.	1.	12.	1.
953.	14.	16.	516.	1.	514.	1.
954.	31.	19.	1670.	1.	1668.	1.
955.	52.	22.	3427.	1.	3425.	1.
956.	76.	26.	5818.	1.	5816.	1.
957.	103.	29.	8888.	1.	8886.	1.
958.	134.	32.	12680.	1.	12678.	1.
959.	168.	36.	17247.	1.	17245.	1.
960.	210.	74.	22799.	31.	22767.	1.
961.	377.	251.	32145.	1279.	29791.	525.
962.	723.	444.	49742.	6197.	38353.	4313.
963.	1182.	480.	80941.	21810.	47797.	11325.
964.	1682.	512.	121914.	42475.	57980.	20860.
965.	2211.	540.	173226.	70081.	68960.	33642.
966.	2756.	550.	227573.	98406.	80314.	47258.
967.	3306.	550.	284821.	128805.	92142.	61502.
968.	3856.	550.	351440.	160798.	104797.	78716.
969.	4406.	550.	428246.	201038.	118280.	99277.

***** WSPG MICROCOMPUTER TEST VERSION *****

CROSS SECTION 21.0

SCALES ARE 1 INCH = 100. CFS, AND 2.4 FEET/ ELEVATION



***** WSPG MICROCOMPUTER TEST VERSION *****

Michigan

ROAD SECTION 22.0

NO.	HW FT	CFS	HL FT	TW FT	STARTING CSM	BRIDGE CFS	BRIDGE AREA SQ FT	CULVERT CFS	CULVERT AREA SQ FT	WEIR CFS	WEIR AREA SQ FT	WEIR TOP WIDTH FT

0	953.40	0.0	0.00	952.60	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	959.49	190.0	1.30	958.19	190.00	0.0	0.0	190.0	41.1	0.0	0.0	0.0
2	962.01	315.0	1.76	960.25	315.00	0.0	0.0	315.0	50.2	0.0	0.0	0.0
3	963.24	360.0	2.18	961.07	360.00	0.0	0.0	360.0	50.2	0.0	0.0	0.0
4	964.18	520.0	0.59	963.59	520.00	0.0	0.0	185.2	50.2	334.8	172.8	478.6

MIN ROAD ELEVATION = 963.60 FT

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	12111.	8.00		68.00	953.40	952.60	0.032

Straw PLATE PROJ

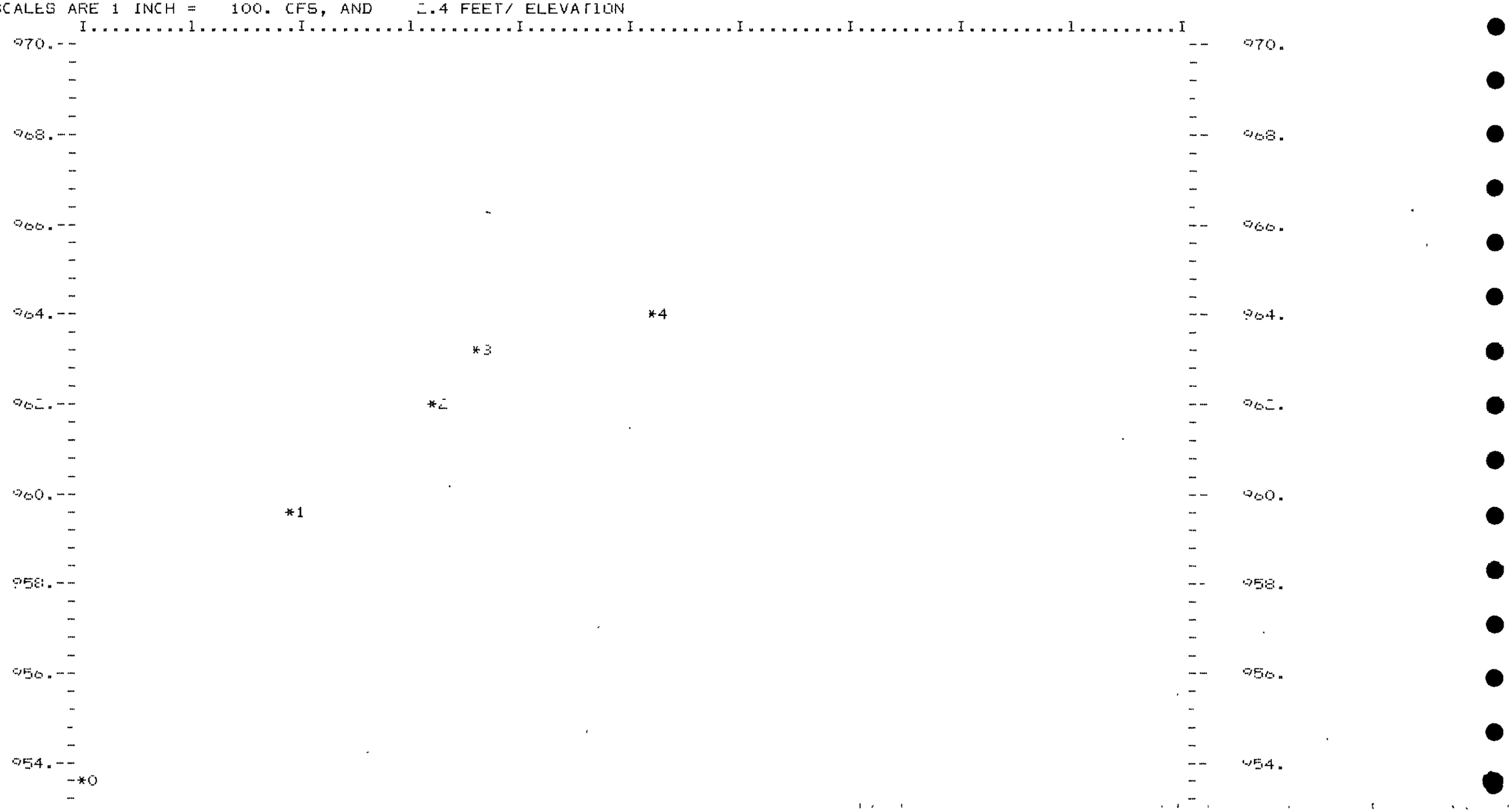
XKM=2.70

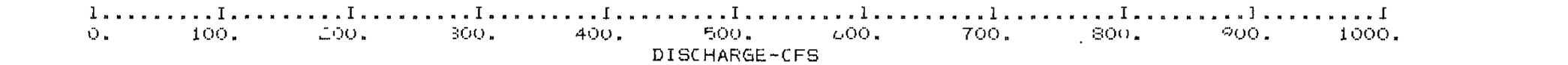
2.70

WSP2 XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR. STORMS WS : PAGE
REV 03/14/88 DISCHARGE TO MICHIGAN ROAD ALT: 54P

***** WSP2 MICROCOMPUTER TEST VERSION *****

ROAD SECTION 22.0
SCALES ARE 1 INCH = 100. CFS, AND 2.4 FEET/ ELEVATION





```
952.--                                                                                                                  --  952.
     I.........I.........I.........I.........I.........I.........I.........I.........I.........I.........I.........I
     0.       100.      200.      300.      400.      500.      600.      700.      800.      900.     1000.
                                                  DISCHARGE-CFS
1    WSP2 XEQ 02/18/91      10:57:06     COLD CREEK FPMS,  02-15-91,     10,50,100 & 500 YR. STORMS     WS :              PAGE
          REV 03/14/88                  DISCHARGE TO MICHIGAN ROAD                                     ALT:               55
```

***** WSP2 MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 22.1 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	953.4	0.0	0.0							
1	959.5	162.4	190.0	0.00	0.50	0.50	190.00	955.4	0.00019	40.7
LOW GRND	959.8	173.9	199.5	0.00	0.52	0.52				41.9
BANK FULL	959.8	173.9	199.5	0.00	0.52	0.52				41.9
2	962.0	313.9	315.0	0.00	0.53	1.20	315.00	955.9	0.00010	97.2
3	963.3	465.4	360.0	0.00	0.53	1.95	360.00	956.1	0.00006	157.4
4	964.2	712.2	520.0	0.00	0.53	4.52	520.00	956.6	0.00007	364.4

SEGMENT TABLE FOR SECTION 22.1

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	190.	0.	190.	0.
190.	VELOCITY FPS	1.17	0.00	1.17	0.00
2	DISCHARGE CFS	315.	5.	305.	5.
315.	VELOCITY FPS	1.12	0.19	1.13	0.27
3	DISCHARGE CFS	360.	22.	327.	11.
360.	VELOCITY FPS	0.97	0.21	1.02	0.28
4	DISCHARGE CFS	520.	59.	440.	21.
520.	VELOCITY FPS	1.13	0.24	1.21	0.21
1	ELEV 959.5 FD	13873.	1.	13871.	1.
2	ELEV 962.0 FD	31756.	313.	31025.	418.
3	ELEV 963.3 FD	45846.	2582.	41857.	1407.
4	ELEV 964.2 FD	59893.	6489.	51006.	2398.

```
1    WSP2 XEQ 02/18/91      10:57:06     COLD CREEK FPMS,  02-15-91,     10,50,100 & 500 YR. STORMS     WS :              PAGE
          REV 03/14/88                  DISCHARGE TO MICHIGAN ROAD                                     ALT:               55F
```

***** WSP2 MICROCOMPUTER TEST VERSION *****

FD TABLE FOR CROSS SECTION 22.1

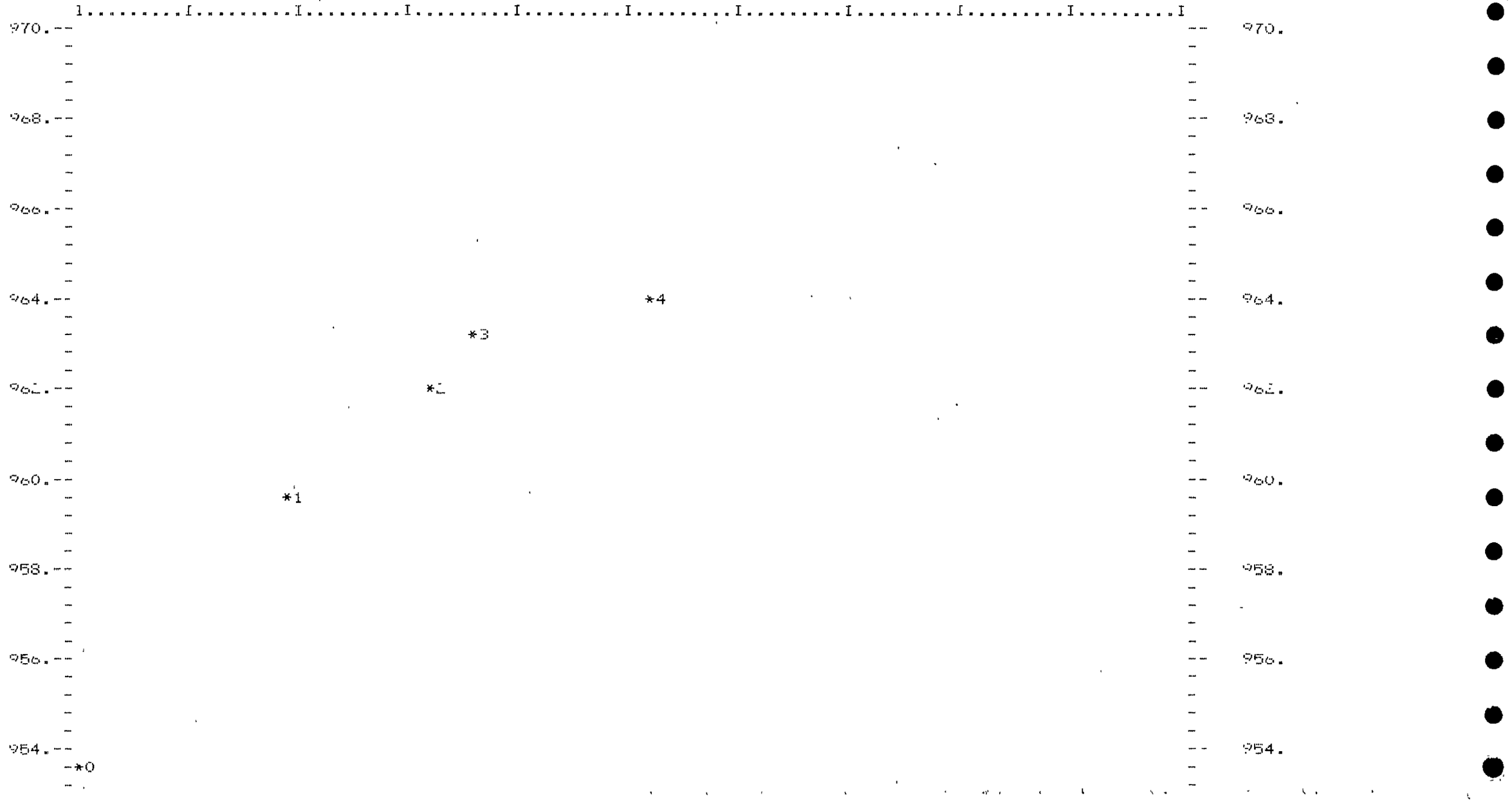
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	FD TOTAL	FD BY SEGMENT 1	FD BY SEGMENT 2	FD BY SEGMENT 3
953.40	0.					
954.	3.	11.	56.	1.	54.	1.
955.	22.	22.	762.	1.	760.	1.
956.	45.	26.	2285.	1.	2283.	1.
957.	73.	30.	4568.	1.	4566.	1.
958.	106.	34.	7632.	1.	7630.	1.
959.	142.	39.	11530.	1.	11528.	1.
960.	182.	44.	16437.	1.	16434.	2.

	961.	233.	56.	23162.	12.	23024.	67.
	962.	312.	96.	31767.	295.	30838.	406.
	963.	431.	146.	42821.	1862.	37533.	1138.
	964.	657.	316.	57001.	5462.	49067.	2177.
	965.	1116.	575.	80180.	13693.	59390.	5381.
	966.	1802.	799.	119212.	32079.	70509.	14808.
	967.	2683.	954.	180709.	65255.	82381.	32279.
	968.	3683.	1069.	264551.	110033.	94981.	59536.
	969.	4822.	1185.	367489.	161318.	108253.	97208.
	970.	6068.	1260.	495568.	220385.	122210.	151414.
	971.	7353.	1300.	638218.	282819.	136718.	215929.
	972.	8653.	1300.	779983.	341167.	151636.	277330.
	973.	9953.	1300.	943276.	407530.	167271.	351554.
	974.	11253.	1300.	1130014.	482514.	183620.	440413.

***** WSPG MICROCOMPUTER TEST VERSION *****

CROSS SECTION 22.1

SCALES ARE 1 INCH = 100. CFS, AND 2.4 FEET/ ELEVATION



***** WSPG MICROCOMPUTER TEST VERSION *****

---------- LIST OF INPUT DATA WITH LIMITED EDITING----------

```
TITLE     DISCHARGE TO BELOW SEELEY ROAD
CHANGE    DISCHARGE
DISCHARGE -1.       150.      240.      275.      380.
COMMENT   DISCHARGE FROM XSECTION 006 OF TR20COLD.OUT
END
SEGMENT   22.5      1         N         -25.                                538
NVALUE    .060                                                              539
SEGMENT   22.5      2         C         20.                                 540
NVALUE    .042                                                              541
SEGMENT   22.5      3         N         450.                                542
NVALUE    .060                                                              543
SECTION   22.5                                                              544
          -300.0    966.3     -250.0    965.0     -200.0    964.2           545
          -150.0    963.2     -100.0    962.4     -50.0     961.9           546
          -25.0     965.0     -6.0      954.6     0.0       954.5           547
          6.0       954.5     20.0      964.3     35.0      964.3           548
          50.0      960.6     100.0     961.7     150.0     962.7           549
          200.0     963.7     250.0     964.2     300.0     964.7           550
          350.0     964.3     400.0     965.6     450.0     967.2           551
ENDTABLE                                                                    552
SEGMENT   22.7      1         N         -25.                                553
NVALUE    .060                                                              554
SEGMENT   22.7      2         C         23.                                 555
NVALUE    .045                                                              556
SEGMENT   22.7      3         N         400.                                557
NVALUE    .060                                                              558
SECTION   22.7                                                              559
          -200.0    971.0     -150.0    968.7     -100.0    967.7           560
          -25.0     968.6     -5.0      958.3     0.0       957.8           561
          6.0       958.1     23.0      968.4     100.0     969.0           562
          300.0     971.6     400.0     973.5                               563
ENDTABLE                                                                    564
SEGMENT   22.9      1         N         -26.                                565
NVALUE    .060                                                              566
SEGMENT   22.9      2         C         23.                                 567
NVALUE    .045                                                              568
SEGMENT   22.9      3         N         425.                                569
NVALUE    .060                                                              570
SECTION   22.9                                                              571
          -500.0    968.7     -275.0    967.9     -75.0     967.1           572
          -26.0     970.4     -7.0      960.8     0.0       960.4           573
          6.0       960.8     23.0      968.8     75.0      968.1           574
          125.0     966.8     225.0     967.1     325.0     967.8           575
          425.0     969.2                                                   576
ENDTABLE                                                                    577
```


***** WSPG MICROCOMPUTER TEST VERSION *****

----------80/80 LIST OF INPUT DATA----------

```
CULVI     23.0      1         12111.                                      591
```

```
CULV2     7.17                 46.       960.6     960.6                 592
SECTION   23.0                                                            593
          -200.0    970.4     -100.0    970.0     0.0       970.2         594
          100.0     970.9                                                 595
ENDTABLE                                                                  596
SEGMENT   23.1      1         N         -22.                              597
NVALUE    .060                                                            598
SEGMENT   23.1      2         C         20.                               599
NVALUE    .040                                                            600
SEGMENT   23.1      3         N         650.                              601
NVALUE    .060                                                            602
SECTION   23.1                                                            603
          -575.0    968.4     -525.0    967.8     -475.0    967.5         604
          -425.0    967.3     -375.0    967.3     -325.0    967.5         605
          -275.0    967.4     -225.0    967.2     -175.0    966.9         606
          -122.0    966.7     -72.0     967.6     -22.0     968.8         607
          -8.0      961.0     0.0       960.8     8.0       961.2         608
          20.0      969.1     70.0      968.5     120.0     968.4         609
          170.0     968.9     -1150.    980.      650.      980.          610
ENDTABLE                                                                  611
---------------------MESSAGE - DATA POINTS ON SECTION 23.1   REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
SEGMENT   23.5      1         N         -40.                              612
NVALUE    .060                                                            613
SEGMENT   23.5      2         C         20.                               614
NVALUE    .040                                                            615
SEGMENT   23.5      3         N         250.                              616
NVALUE    .060                                                            617
SECTION   23.5                                                            618
          -350.0    972.3     -300.0    972.6     -250.0    971.7         619
          -200.0    970.7     -150.0    970.1     -100.0    969.9         620
          -50.0     970.6     -40.0     971.3     -9.0      960.9         621
          0.0       960.5     9.0       961.2     20.0      970.6         622
          50.0      971.4     100.0     971.2     150.0     973.0         623
          200.0     974.4     250.0     975.8                             624
ENDTABLE                                                                  625
SEGMENT   23.9      1         N         -20.                              626
NVALUE    .060                                                            627
SEGMENT   23.9      2         C         20.                               628
NVALUE    .047                                                            629
SEGMENT   23.9      3         N         600.                              630
NVALUE    .060                                                            631
SECTION   23.9                                                            632
          -70.0     969.3     -20.0     969.8     -5.0      961.0         633
          0.0       960.3     5.0       961.1     20.0      969.6         634
          70.0      970.0     -500.     980.      600.      980.          635
```

1 WSP2 XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR. STORMS WS : PAGE
REV 03/14/88 DISCHARGE TO BELOW SEELEY ROAD ALT: 58

***** WSP2 MICROCOMPUTER TEST VERSION *****

```
-----------------------------80/80 LIST OF INPUT DATA-----------------------------
ENDTABLE                                                                  636
---------------------MESSAGE - DATA POINTS ON SECTION 23.9   REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED---------------------
CULV1     24.0      1         12111.                                      637
CULV2     7.5                 32.       961.0     961.0                 638
SECTION   24.0                                                            639
          -500.0    968.8     -450.0    967.8     -400.0    967.0         640
          -300.0    966.5     -200.0    966.3     -150.0    966.0         641
          -100.0    966.5     -50.0     967.0     0.0       969.0         642
          50.0      969.8     100.0     970.5     -600.     970.          643
          -700.     972.
ENDTABLE                                                                  644
---------------------MESSAGE - DATA POINTS ON SECTION 24.0   REORDERED BY PROGRAM ACCORDING TO X VALUES
```

```
                    DUPLICATE X POINTS NOT CHANGED--------------------
SEGMENT   24.1      1          N          -17.                          645
NVALUE    .060                                                         646
SEGMENT   24.1      2          C          27.                           647
NVALUE    .047                                                         648
SEGMENT   24.1      3          N          700.                          649
NVALUE    .060                                                         650
SECTION   24.1                                                         651
          -127.0    968.1      -42.0      966.1      -17.0      967.3   652
          -11.0     964.5      0.0        961.3      11.0       962.6   653
          27.0      968.1      50.0       968.3      75.0       968.3   654
          100.0     968.3      -600.      970.       600.       970.    655
          -700.     972.       700.       972.
ENDTABLE                                                               656
--------------------MESSAGE - DATA POINTS ON SECTION 24.1   REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED--------------------
SEGMENT   24.5      1          N          -13.                          657
NVALUE    .060                                                         658
SEGMENT   24.5      2          C          15.                           659
NVALUE    .040                                                         660
SEGMENT   24.5      3          N          250.                          661
NVALUE    .060                                                         662
SECTION   24.5                                                         663
          -350.0    970.3      -300.0     969.0      -250.0     967.5   664
          -200.0    966.8      -150.0     965.8      -100.0     965.5   665
          -50.0     966.3      -13.0      968.0      -6.0       962.0   666
          0.0       961.7      6.0        962.0      15.0       969.2   667
          50.0      970.0      100.0      971.0      150.0      972.5   668
          200.0     973.5      250.0      974.3                         669
ENDTABLE                                                               670
COMPUTE   22.5      24.5       22.1
------------------------------END OF DATA LISTING------------------------------
1                   COMPUTE    22.5       24.5       22.1


------------------------------STARTING DATA FROM PREVIOUS COMPUTATIONS------------------------------

1    WSP2 XEQ 02/18/91     10:57:06     COLD CREEK FPMS,  02-15-91,    10,50,100 & 500 YR. STORMS     WS :          PAGE
          REV 03/14/88                 DISCHARGE TO BELOW SEELEY ROAD                                 ALT:           59

     *****   WSP2  MICROCOMPUTER  TEST  VERSION   *****

                                       RATING TABLE FOR SECTION 22.5          DA=   1.0 SQ MI
                                       -------------------------------

          NO.       ELEV       AREA       Q      ------ACRES FLOODED-------     STARTING        CRIT   FRICTION    FLOW TOP
                     FT       SQ FT      CFS   FLOODPLAIN                TOTAL      CSM          ELEV    SLOPE       WIDTH
                                                DAMAGE     CHANNEL                                FT     FT/FT        FT

           0       954.5       0.0        0.0
           1       959.8      107.0      150.0      0.00       0.50       0.50     150.00        956.1   0.00031      28.9
   LOW  GRND       960.6      132.4      166.0      0.00       0.55       0.55                                        31.7
           2       962.1      250.1      240.0      0.00       0.64       2.33     240.00        956.6   0.00016     145.2
           3       963.3      517.4      275.0      0.00       0.70       4.86     275.00        956.8   0.00007     302.2
           4       964.3      850.3      380.0      0.00       0.76       7.00     380.00        957.3   0.00006     435.8

                                       SEGMENT TABLE FOR SECTION 22.5

                                                        SEG NO
     CSM                       TOTAL          1            2            3
                                              N            C            N
-------------------------------------------------------------------------------------------------------------------------
   1     DISCHARGE CFS          150.          0.          150.          0.
```

150.	VELOCITY FPS	1.41	0.00	1.40	0.00
2	DISCHARGE CFS	240.	0.	223.	16.
240.	VELOCITY FPS	1.17	0.09	1.21	0.27
3	DISCHARGE CFS	275.	19.	205.	51.
275.	VELOCITY FPS	0.79	0.20	0.89	0.27
4	DISCHARGE CFS	380.	55.	230.	96.
380.	VELOCITY FPS	0.68	0.24	0.85	0.27
1	ELEV 959.8 HD	8458.	1.	8456.	1.
2	ELEV 962.1 HD	19142.	28.	17885.	1229.
3	ELEV 963.3 HD	31715.	1935.	24035.	5744.
4	ELEV 964.3 HD	49188.	7051.	29731.	12406.

***** WSP2 MICROCOMPUTER TEST VERSION *****

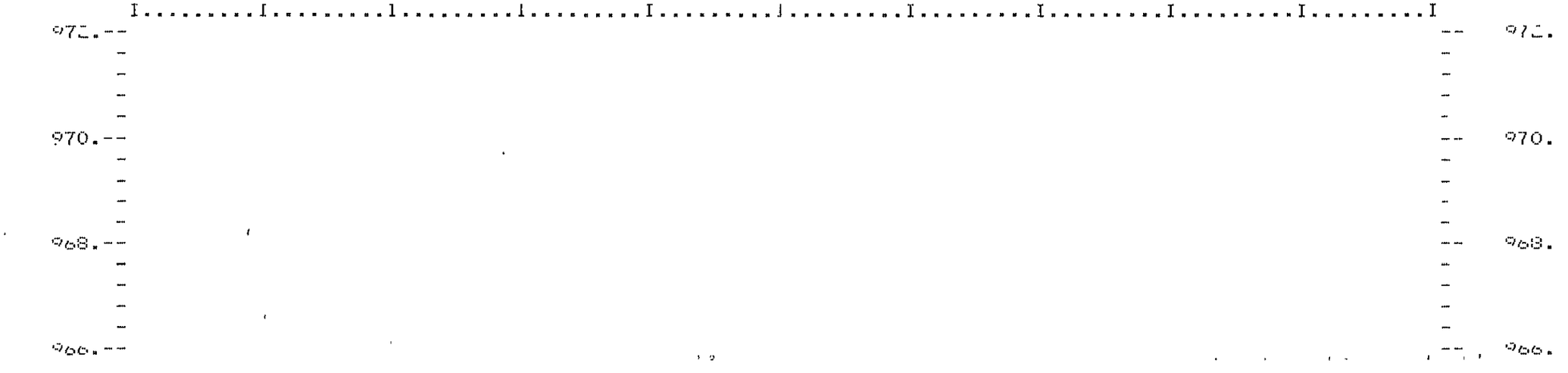
HD TABLE FOR CROSS SECTION 22.5

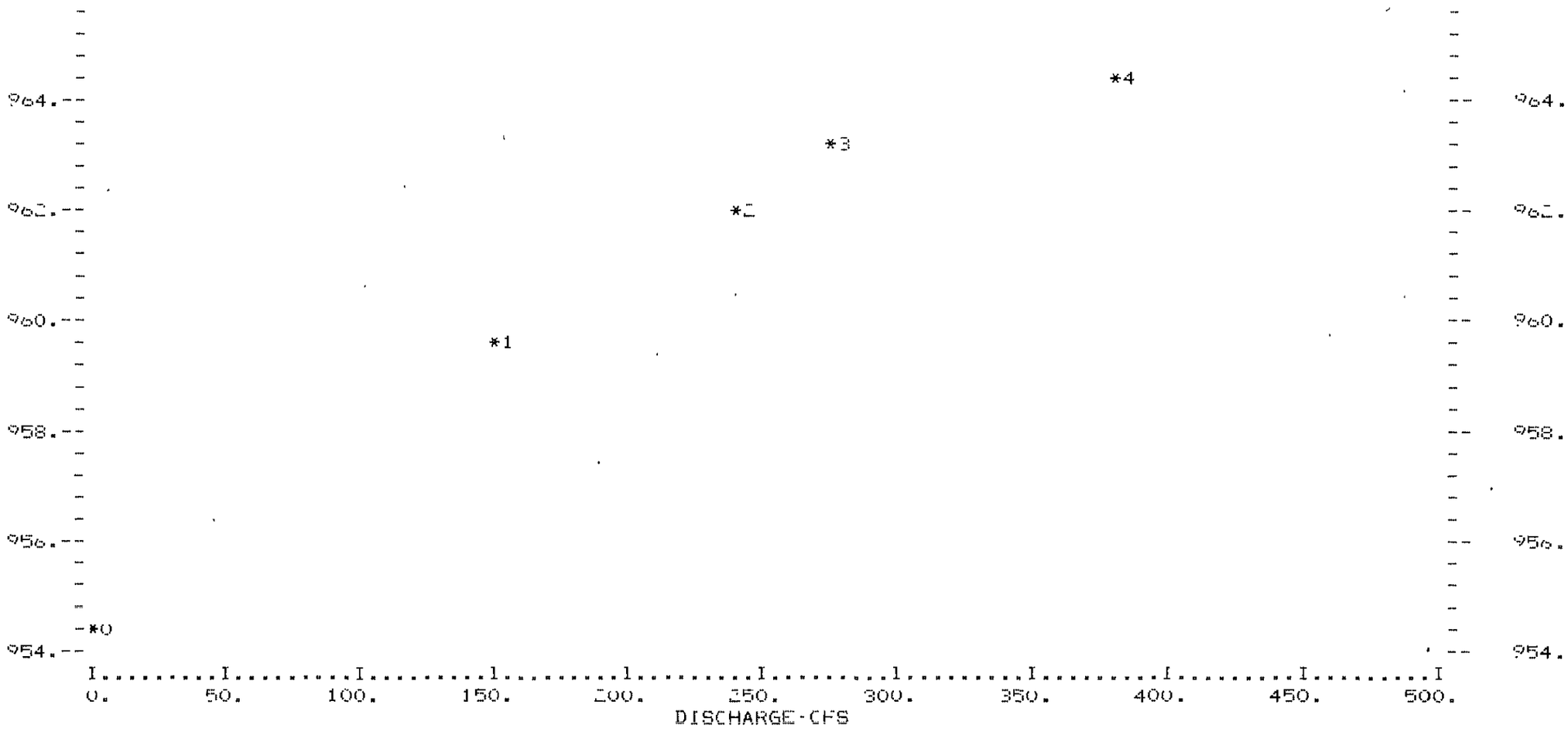
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	HD TOTAL	HD BY SEGMENT 1	2	3
954.50	0.					
955.	6.	13.	125.	1.	123.	1.
956.	21.	17.	847.	1.	845.	1.
957.	40.	20.	2103.	1.	2101.	1.
958.	61.	23.	3898.	1.	3896.	1.
959.	86.	26.	6268.	1.	6266.	1.
960.	114.	30.	9249.	1.	9246.	1.
961.	153.	53.	12988.	1.	12885.	16.
962.	236.	132.	18304.	15.	17216.	897.
963.	433.	259.	27827.	787.	22287.	4048.
964.	758.	398.	43956.	5111.	28135.	10186.
965.	1265.	627.	69852.	13628.	35283.	20941.
966.	1937.	700.	116887.	27782.	44403.	44029.
967.	2661.	738.	180791.	49455.	54379.	76313.
968.	3405.	750.	249027.	72509.	64678.	110439.
969.	4155.	750.	319725.	95063.	75410.	145352.
970.	4905.	750.	403704.	122400.	87027.	187826.
971.	5655.	750.	502360.	155127.	99538.	238853.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 22.5

SCALES ARE 1 INCH = 50. CFS, AND 2.4 FEET/ ELEVATION





***** WSP2 MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 22.7 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	957.8	0.0	0.0							
1	962.2	73.8	150.0	0.00	1.38	1.38	150.00	959.7	0.00101	25.2
2	963.7	118.3	240.0	0.00	1.57	1.57	240.00	960.2	0.00071	30.9
3	964.5	143.0	275.0	0.00	1.71	1.71	275.00	960.4	0.00056	33.6
4	965.5	178.0	380.0	0.00	1.89	1.89	380.00	960.9	0.00059	37.2

6.7

SEGMENT TABLE FOR SECTION 22.7

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	150.	0.	150.	0.
150.	VELOCITY FPS	2.03	0.00	2.03	0.00
2	DISCHARGE CFS	240.	0.	240.	0.
240.	VELOCITY FPS	2.03	0.00	2.03	0.00
3	DISCHARGE CFS	275.	0.	275.	0.
275.	VELOCITY FPS	1.93	0.00	1.92	0.00
4	DISCHARGE CFS	380.	0.	380.	0.

	3rd. VELOCITY FPS	2.14	0.00	2.13	0.00	
1	ELEV 963.2 KD	4729.	1.	4727.	1.	
2	ELEV 963.7 KD	8983.	1.	8981.	1.	
3	ELEV 964.5 KD	11618.	1.	11616.	1.	
4	ELEV 965.5 KD	15622.	1.	15620.	1.	

***** WSP2 MICROCOMPUTER TEST VERSION *****

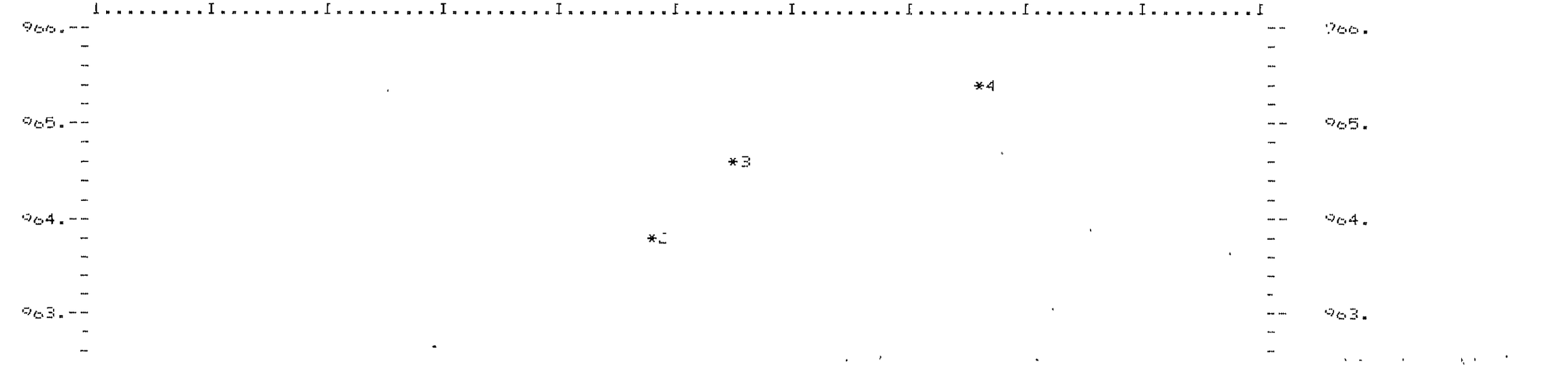
KD TABLE FOR CROSS SECTION 22.7

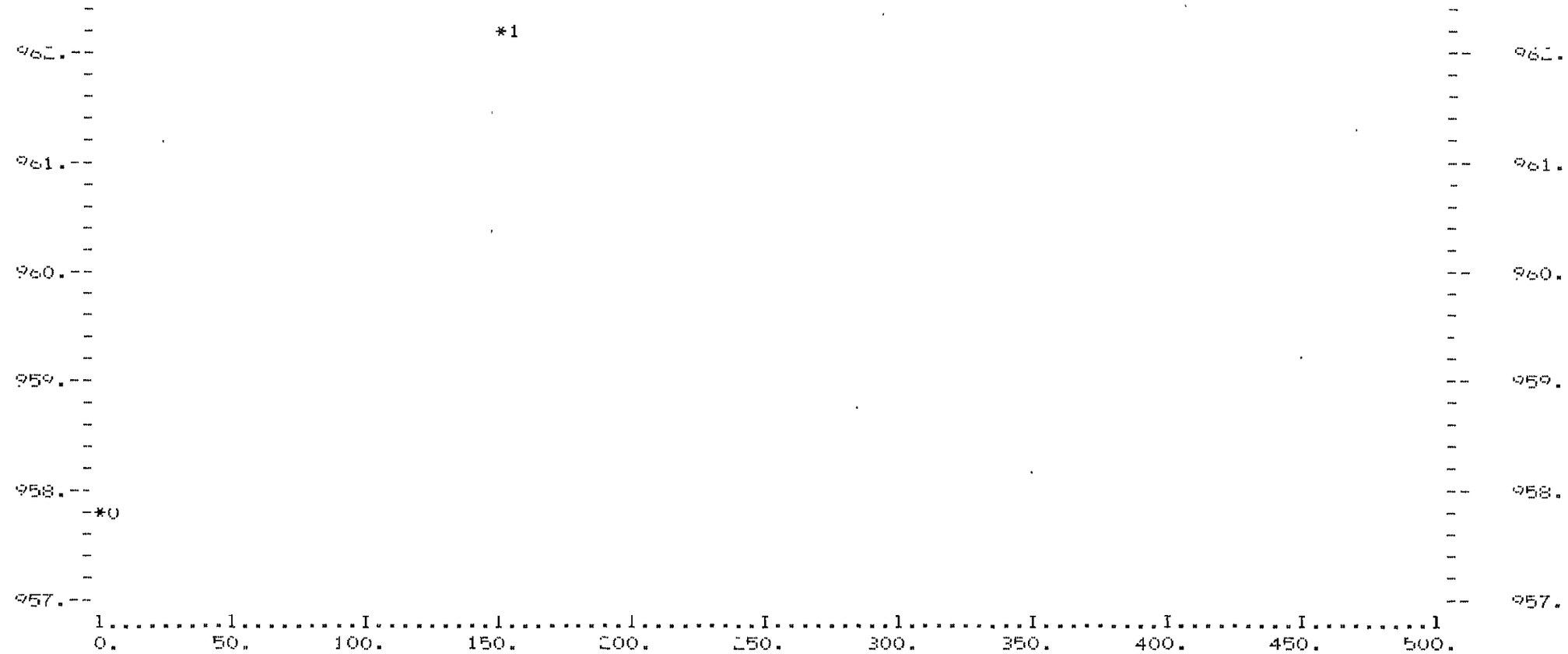
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	KD TOTAL	KD BY SEGMENT 1	2	3
957.80	0.					
958.	1.	6.	6.	1.	4.	1.
959.	12.	14.	364.	1.	362.	1.
960.	38.	17.	1213.	1.	1211.	1.
961.	47.	21.	2544.	1.	2542.	1.
962.	70.	25.	4394.	1.	4392.	1.
963.	97.	28.	6817.	1.	6815.	1.
964.	127.	32.	9850.	1.	9848.	1.
965.	160.	35.	13542.	1.	13540.	1.
966.	197.	39.	17952.	1.	17950.	1.
967.	238.	43.	23111.	1.	23109.	1.
968.	296.	86.	29228.	14.	29065.	1.
969.	476.	241.	39709.	1670.	36603.	81.
970.	773.	355.	57784.	8188.	45964.	3015.
971.	1168.	454.	84710.	18085.	56155.	10469.
972.	1664.	519.	123217.	32086.	67063.	23325.
973.	2214.	574.	172132.	49555.	78758.	43029.
974.	2749.	597.	233693.	69821.	91195.	71613.
975.	3399.	600.	306135.	92229.	104270.	108962.
976.	3999.	600.	372492.	111770.	117384.	139200.
977.	4599.	600.	448501.	134066.	131313.	175514.
978.	5199.	600.	534950.	159330.	146060.	218711.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 22.7

SCALES ARE 1 INCH = 50. CFS, AND 1.2 FEET/ ELEVATION.





***** WSPG MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 22.9 DA= 1.0 SQ MI

	NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
	0	960.4	0.0	0.0							
	1	964.5	77.9	150.0	0.00	1.43	1.43	150.00	962.1	0.00094	28.0
	2	965.7	114.4	240.0	0.00	1.67	1.67	240.00	962.6	0.00084	32.9
	3	966.2	132.2	275.0	0.00	1.78	1.78	275.00	962.8	0.00074	35.1
LOW	GRND	966.8	154.5	302.0	0.00	1.91	1.91				37.6
	4	967.1	218.8	380.0	0.00	1.98	8.78	380.00	963.2	0.00069	173.8

SEGMENT TABLE FOR SECTION 22.9

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	150.	0.	150.	0.
150.	VELOCITY FPS	1.43	0.00	1.92	0.00
	DISCHARGE CFS	240.	0.	240.	0.
240.	VELOCITY FPS	2.10	0.00	2.10	0.00
3	DISCHARGE CFS	275.	0.	275.	0.
275.	VELOCITY FPS	2.08	0.00	2.08	0.00
4	DISCHARGE CFS	380.	3.	362.	15.
330.	VELOCITY FPS	2.14	0.26	2.16	0.39

1	ELEV	964.5	H.D	4882.	1.	4880.	1.				
2	ELEV	965.7	H.D	8258.	1.	8256.	1.				
3	ELEV	966.2	H.D	10076.	1.	10074.	1.				
4	ELEV	967.1	H.D	13884.	11.	13852.	21.				

***** WSP2 MICROCOMPUTER TEST VERSION *****

H.D TABLE FOR CROSS SECTION 22.0

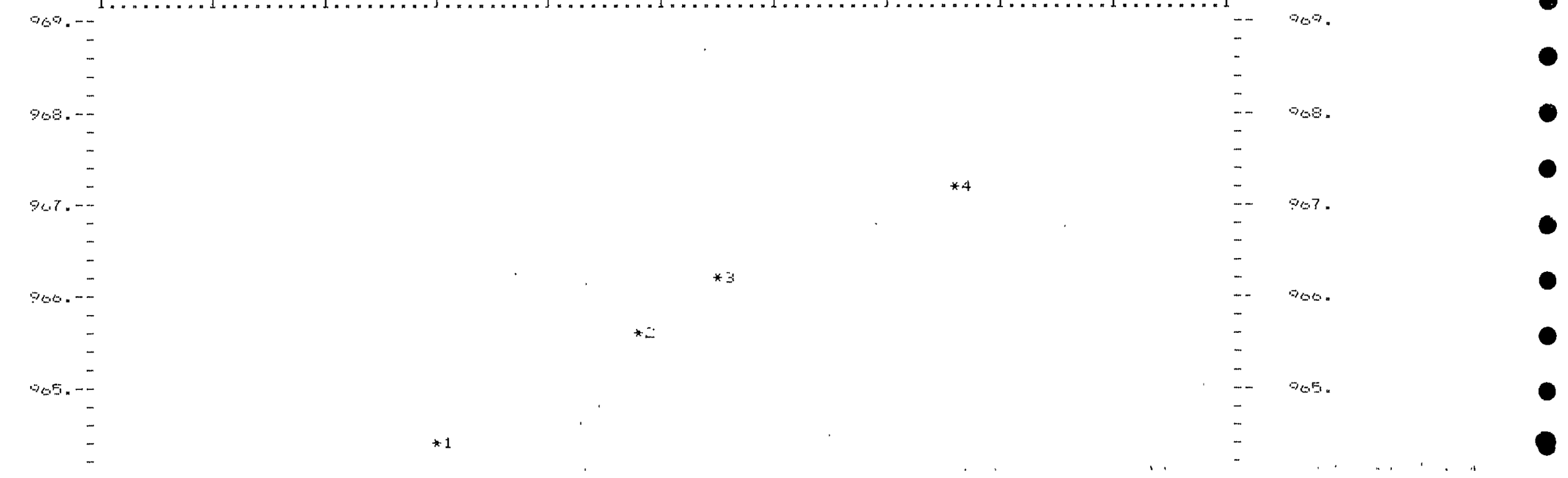
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	H.D TOTAL	H.D BY SEGMENT 1	2	3
960.40	0.					
961.	5.	14.	93.	1.	91.	1.
962.	21.	18.	766.	1.	764.	1.
963.	41.	22.	2000.	1.	1998.	1.
964.	65.	26.	3820.	1.	3818.	1.
965.	94.	30.	6279.	1.	6277.	1.
966.	126.	34.	9424.	1.	9422.	1.
967.	174.	122.	13688.	5.	13320.	7.
968.	533.	547.	23910.	1206.	18014.	3316.
969.	1253.	879.	51294.	11659.	23676.	15174.
970.	2158.	918.	107201.	37023.	30800.	39160.
971.	3081.	925.	182656.	71679.	39292.	71311.
972.	4006.	925.	266255.	108304.	48523.	104577.
973.	4931.	925.	343547.	144888.	58221.	138046.
974.	5856.	925.	440847.	189567.	68891.	178401.
975.	6781.	925.	555779.	243337.	80548.	226393.

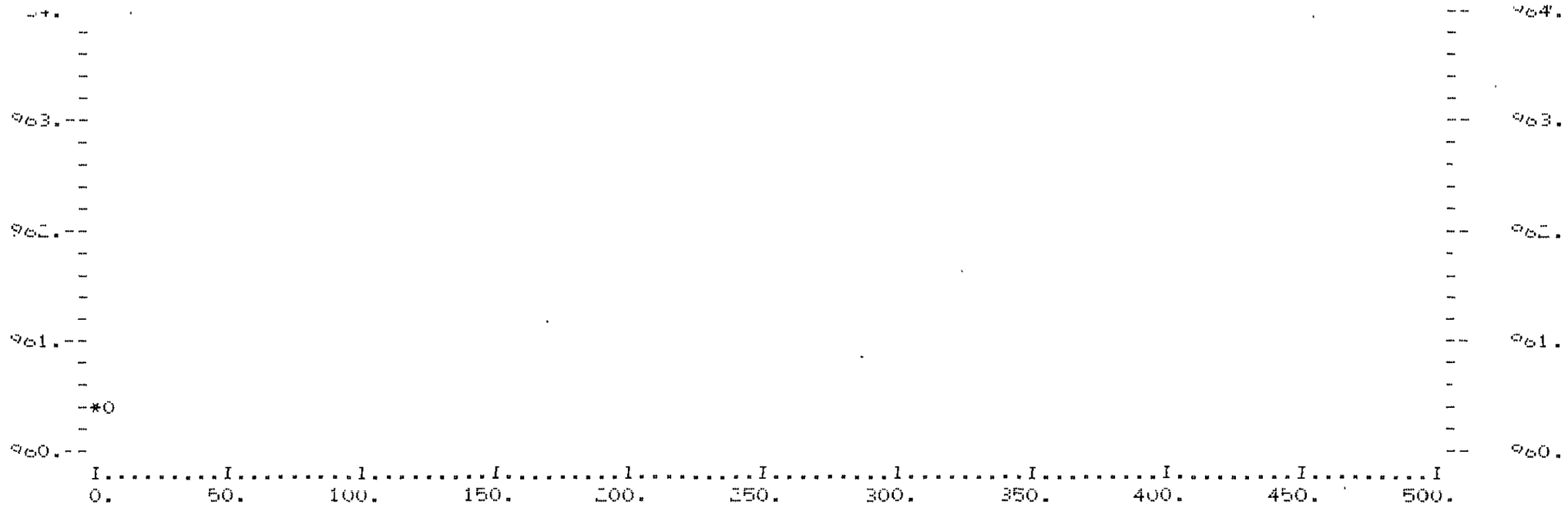
1 WSP2 XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR. STORMS WS : PAGE
REV 03/14/88 DISCHARGE TO BELOW SEELEY ROAD ALT: 61P

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 22.0

SCALES ARE 1 INCH = 50. CFS, AND 1.2 FEET/ ELEVATION





***** WSPG MICROCOMPUTER TEST VERSION *****

STATE

ROAD SECTION 23.0

NO.	HW FT	CFS	HL FT	TW FT	STARTING CSM	BRIDGE CFS	BRIDGE AREA SQ FT	CULVERT CFS	CULVERT AREA SQ FT	WEIR CFS	WEIR AREA SQ FT	WEIR TOP WIDTH FT
0	960.60	0.0	0.00	960.60	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	966.08	150.0	1.54	964.55	150.00	-0.0	0.0	150.0	33.1	0.0	0.0	0.0
2	967.82	240.0	2.10	965.72	240.00	0.0	0.0	240.0	40.4	0.0	0.0	0.0
3	968.56	275.0	2.32	966.24	275.00	0.0	0.0	275.0	40.4	0.0	0.0	0.0
4	970.23	380.0	3.06	967.17	380.00	0.0	0.0	355.6	40.4	24.4	19.5	161.3

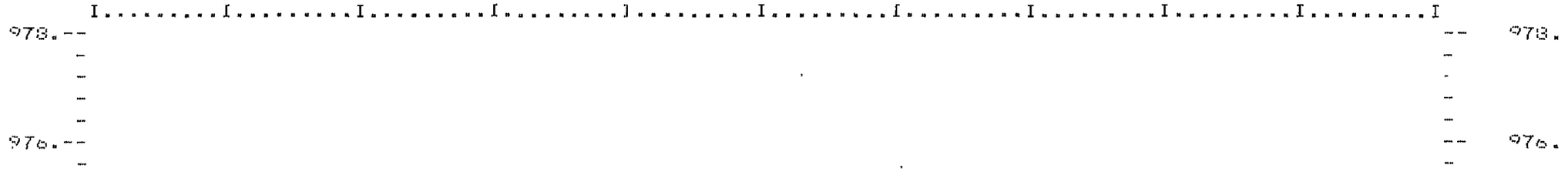
MIN ROAD ELEVATION = 970.00 FT

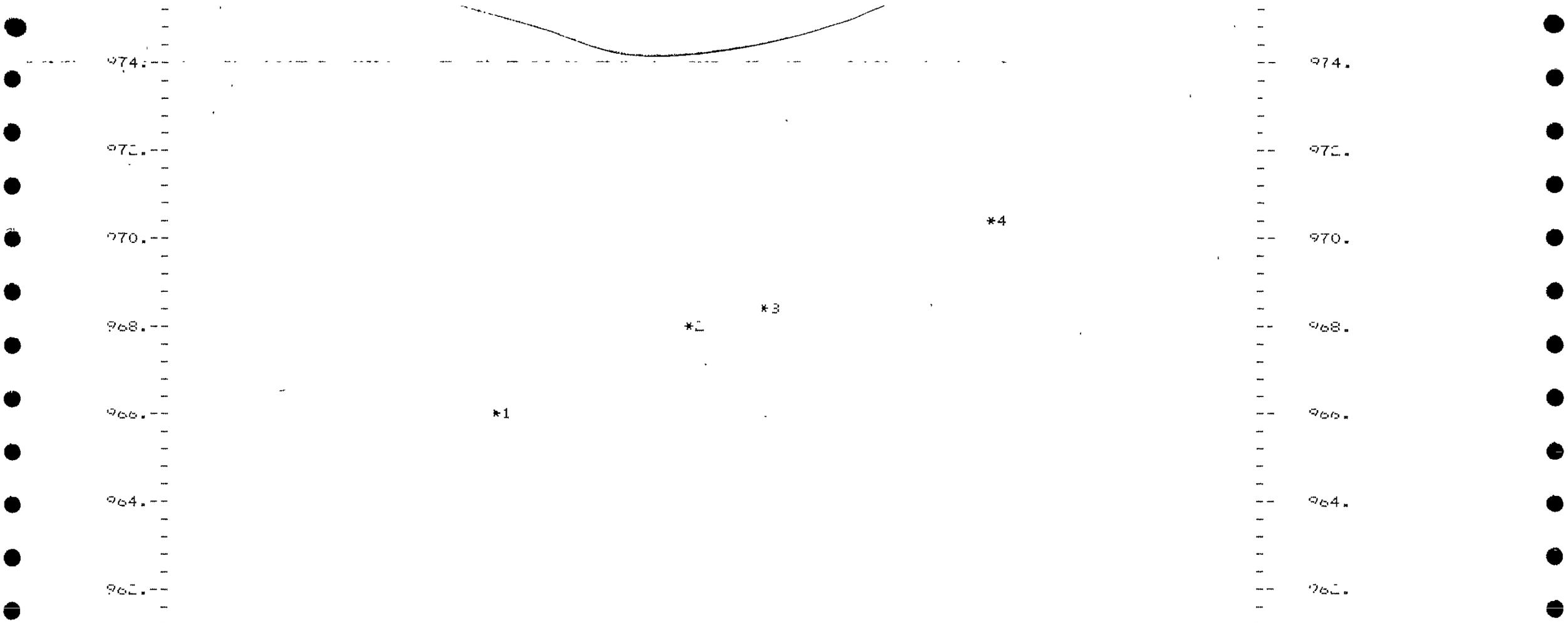
OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
		Struct plate projecting						
1	1	1211.	7.17		46.00	960.60	960.60	0.032

***** WSPG MICROCOMPUTER TEST VERSION *****

ROAD SECTION 23.0

SCALES ARE 1 INCH = 50. CFS, AND 2.4 FEET/ ELEVATION





***** WSPG MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 23.1 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	960.8	0.0	0.0							
1	966.1	134.1	150.0	0.00	0.12	0.12	150.00	962.3	0.00220	32.6
LOW GRND	966.7	144.1	155.6	0.00	0.12	0.12				34.6
2	967.8	446.2	240.0	0.00	0.14	1.72	240.00	962.8	0.00011	486.6
3	968.6	858.9	275.0	0.00	0.14	2.30	275.00	962.9	0.00005	650.6
BANK FULL	968.8	1013.3	287.1	0.00	0.15	2.58				729.4
4	970.2	2196.3	380.0	0.00	0.15	3.16	380.00	963.4	0.00001	893.2

SEGMENT TABLE FOR SECTION 23.1

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	150.	0.	150.	0.
150.	VELOCITY FPS	1.21	0.00	1.21	0.00
2	DISCHARGE CFS	240.	53.	187.	0.
240.	VELOCITY FPS	0.94	0.20	1.01	0.00
3	DISCHARGE CFS	275.	119.	155.	1.
275.	VELOCITY FPS	0.57	0.19	0.72	0.07
4	DISCHARGE CFS	380.	240.	112.	27.
380.	VELOCITY FPS	0.25	0.15	0.40	0.10
1	ELEV 966.1 H.D	10612.	1.	10610.	1.
2	ELEV 967.8 H.D	21463.	2996.	18466.	1.
3	ELEV 968.6 H.D	34056.	16469.	22566.	20.
4	ELEV 970.2 H.D	117940.	74470.	35309.	8160.

***** WSP2 MICROCOMPUTER TEST VERSION *****

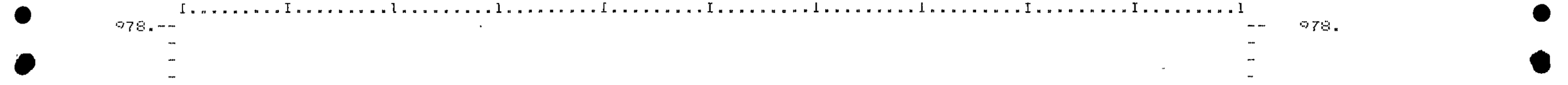
H.D TABLE FOR CROSS SECTION 23.1

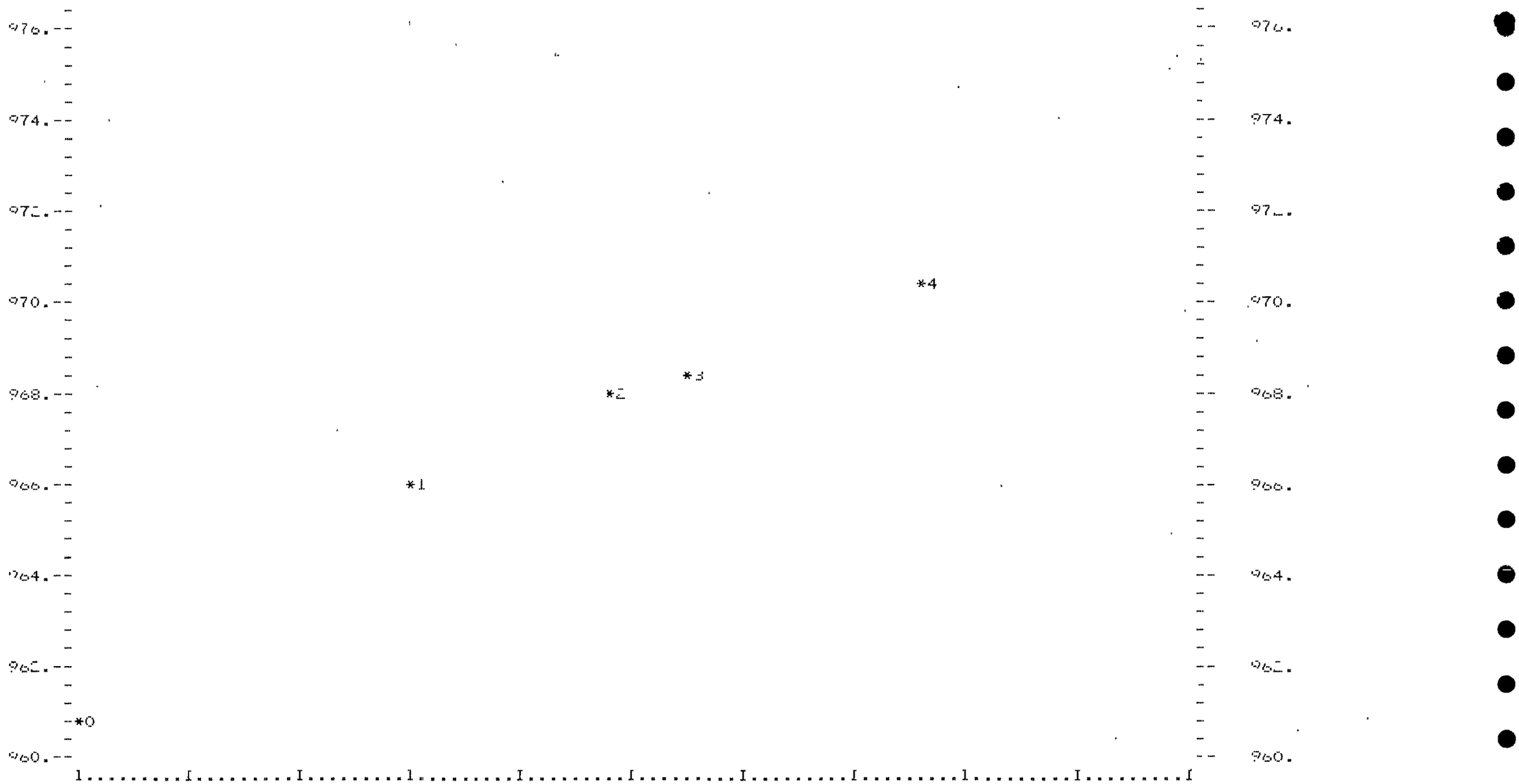
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	H D TOTAL	H D BY SEGMENT 1	2	3
960.80	0.					
961.	1.	12.	12.	1.	10.	1.
962.	18.	19.	646.	1.	644.	1.
963.	39.	22.	2026.	1.	2024.	1.
964.	63.	26.	4076.	1.	4074.	1.
965.	90.	29.	6804.	1.	6802.	1.
966.	121.	32.	10249.	1.	10247.	1.
967.	196.	185.	14815.	16.	14434.	1.
968.	537.	515.	26214.	4981.	19411.	1.
969.	1165.	769.	54485.	28295.	25351.	677.
970.	1993.	872.	104110.	64204.	33235.	5978.
971.	2911.	965.	172421.	113169.	42275.	16709.
972.	3931.	1058.	257957.	173368.	52017.	32105.
973.	5038.	1150.	362447.	246212.	62575.	53256.
974.	6235.	1243.	486107.	331442.	73910.	80449.
975.	7521.	1336.	629465.	429165.	85992.	114113.
976.	8897.	1429.	793101.	534555.	98796.	154671.
977.	10381.	1522.	976627.	662026.	112267.	202104.
978.	11956.	1614.	1182157.	798027.	126429.	257410.
979.	13610.	1705.	1411744.	948766.	141280.	321515.
980.	15354.	1791.	1667132.	1115102.	156781.	395168.
981.	17148.	1800.	1942309.	1293954.	172541.	473024.
982.	18948.	1800.	2245028.	1487996.	188946.	560348.
983.	20748.	1800.	2577656.	1704617.	206046.	658628.
984.	22548.	1800.	2941604.	1938623.	223837.	768654.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 23.1

SCALES ARE 1 INCH = 50. CFS, AND 2.4 FEET/ ELEVATION





***** WSPG MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 23.5 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	960.5	0.0	0.0							
1	966.2	154.4	150.0	0.00	0.73	0.73	150.00	962.0	0.00012	39.7
2	967.9	228.2	240.0	0.00	0.86	0.86	240.00	962.5	0.00011	46.7
3	968.6	262.9	275.0	0.00	0.91	0.91	275.00	962.6	0.00010	49.7
LOW GRND	969.9	329.3	333.5	0.00	1.01	1.01				55.0
4	970.3	382.1	380.0	0.00	1.04	2.45	380.00	963.0	0.00008	133.4

SEGMENT TABLE FOR SECTION 23.5

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	150.	0.	150.	0.
150.	VELOCITY FPS	0.97	0.00	0.97	0.00
2	DISCHARGE CFS	240.	0.	240.	0.
240.	VELOCITY FPS	1.05	0.00	1.05	0.00
3	DISCHARGE CFS	275.	0.	275.	0.
275.	VELOCITY FPS	1.05	0.00	1.05	0.00
4	DISCHARGE CFS	380.	4.	376.	0.
380.	VELOCITY FPS	1.07	0.12	1.07	0.00
1	ELEV 966.2 HD	13565.	1.	13563.	1.
2	ELEV 967.9 HD	23176.	1.	23174.	1.
3	ELEV 968.6 HD	28119.	1.	28117.	1.
4	ELEV 970.3 HD	41601.	39.	41561.	1.

1 WSP2 XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR. STORMS WS : PAGE
REV 03/14/88 DISCHARGE TO BELOW SEELEY ROAD ALT: 64P

***** WSP2 MICROCOMPUTER TEST VERSION *****

HD TABLE FOR CROSS SECTION 23.5

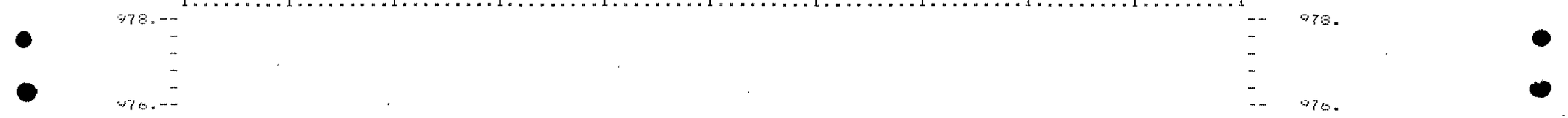
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	HD TOTAL	HD BY SEGMENT 1	2	3
960.50	0.					
961.	4.	16.	68.	1.	66.	1.
962.	24.	22.	939.	1.	937.	1.
963.	49.	26.	2639.	1.	2637.	1.
964.	77.	31.	5126.	1.	5124.	1.
965.	110.	35.	8433.	1.	8431.	1.
966.	146.	39.	12606.	1.	12604.	1.
967.	187.	43.	17702.	1.	17700.	1.
968.	233.	47.	23777.	1.	23775.	1.
969.	282.	51.	30887.	1.	30885.	1.
970.	343.	76.	39170.	3.	39067.	1.
971.	523.	259.	51296.	2052.	48678.	13.
972.	863.	397.	72427.	8772.	60988.	778.
973.	1306.	489.	104387.	22148.	75114.	5601.
974.	1823.	536.	149389.	45050.	90403.	13222.
975.	2373.	571.	205759.	74429.	106808.	24315.
976.	2961.	597.	272992.	108457.	123142.	40031.
977.	3560.	600.	337938.	137958.	141728.	54429.
978.	4160.	600.	410817.	170931.	160252.	71434.
979.	4760.	600.	494022.	209275.	179965.	92345.
980.	5360.	600.	588337.	253506.	200872.	117774.

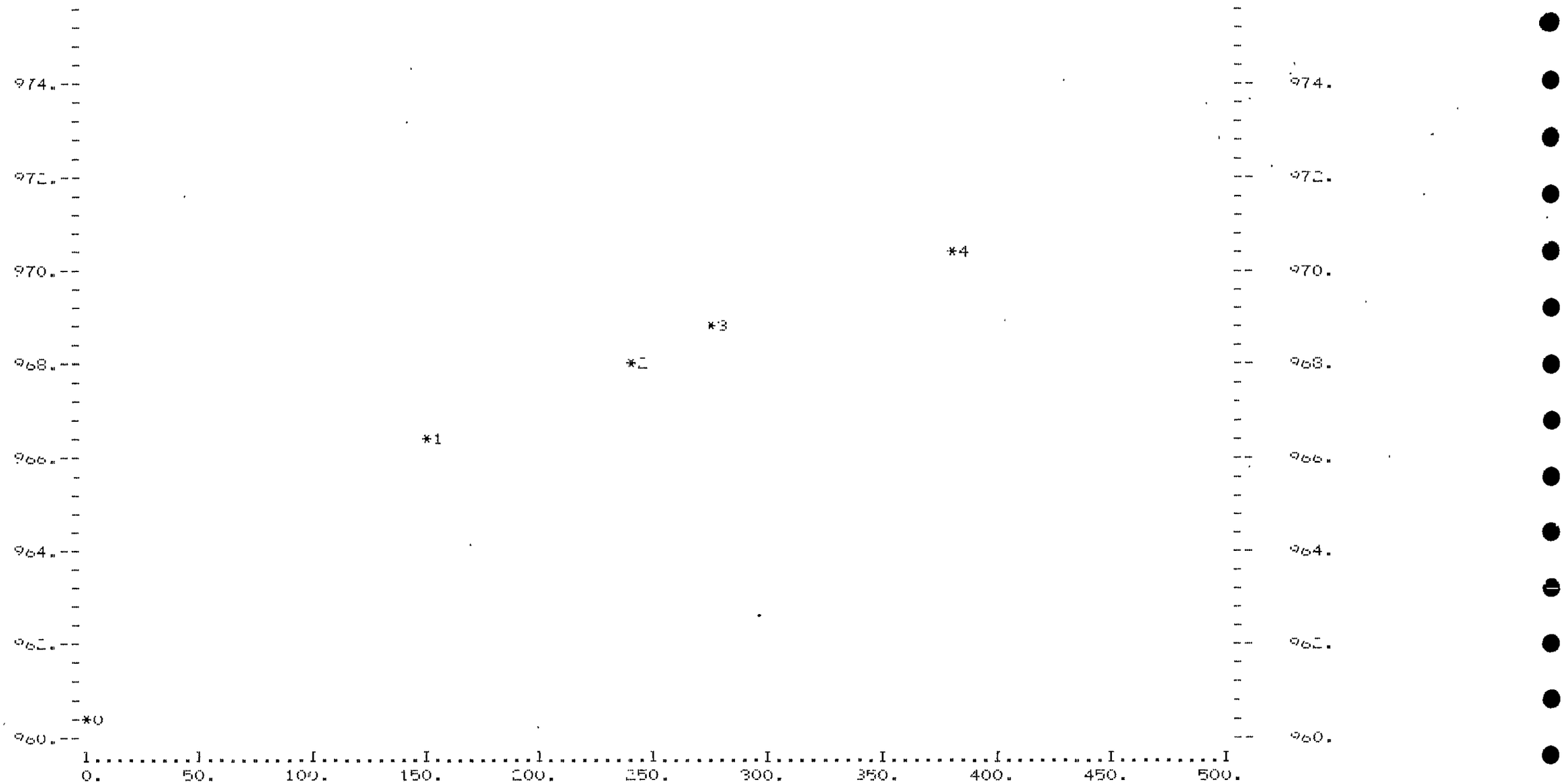
1 WSP2 XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR. STORMS WS : PAGE
REV 03/14/88 DISCHARGE TO BELOW SEELEY ROAD ALT: 64P

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 23.5

SCALES ARE 1 INCH = 50. CFS, AND 2.4 FEET/ ELEVATION





***** WSP2 MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 23.9 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	960.3	0.0	0.0							
1	966.4	106.3	150.0	0.00	0.29	0.29	150.00	962.5	0.00039	28.5
2	968.0	158.9	240.0	0.00	0.35	0.35	240.00	963.1	0.00034	34.3
3	968.8	184.0	275.0	0.00	0.38	0.38	275.00	963.3	0.00030	36.7
LOW GRND	969.3	204.3	287.5	0.00	0.40	0.40				38.6
BANK FULL	969.6	222.3	298.6	0.00	0.41	0.84				81.7
4	970.4	354.3	380.0	0.00	0.41	2.03	380.00	963.8	0.00021	196.0

SEGMENT TABLE FOR SECTION 23.9

CSM		TOTAL	SEG NO 1 N	2 C	3 N
1	DISCHARGE CFS	150.	0.	150.	0.
150.	VELOCITY FPS	1.41	0.00	1.41	0.00
2	DISCHARGE CFS	240.	0.	240.	0.
240.	VELOCITY FPS	1.51	0.00	1.51	0.00
3	DISCHARGE CFS	275.	0.	275.	0.
275.	VELOCITY FPS	1.50	0.00	1.49	0.00
4	DISCHARGE CFS	380.	22.	347.	11.
380.	VELOCITY FPS	1.37	0.32	1.41	0.28
1	ELEV 966.4 H D	7554.	1.	7552.	1.
2	ELEV 968.0 H D	12986.	1.	12984.	1.
3	ELEV 968.8 H.D	15798.	1.	15796.	1.
4	ELEV 970.4 H D	25323.	833.	24298.	192.

***** WSP2 MICROCOMPUTER TEST VERSION *****

H.D TABLE FOR CROSS SECTION 23.9

ELEVATION FT	AREA SQ FT	TOP WIDTH FT	H.D TOTAL	H.D BY SEGMENT 1	2	3
960.30	0.					
961.	3.	9.	54.	1.	52.	1.
962.	15.	13.	490.	1.	488.	1.
963.	30.	17.	1328.	1.	1326.	1.
964.	48.	20.	2592.	1.	2590.	1.
965.	70.	24.	4327.	1.	4325.	1.
966.	96.	27.	6577.	1.	6575.	1.
967.	125.	31.	9391.	1.	9389.	1.
968.	157.	34.	12808.	1.	12806.	1.
969.	193.	38.	16876.	1.	16874.	1.
970.	283.	157.	22742.	304.	21954.	35.
971.	498.	261.	34155.	3284.	28627.	1769.
972.	797.	355.	52152.	9478.	36028.	6646.
973.	1207.	448.	78285.	18814.	44021.	14924.
974.	1707.	541.	113590.	32377.	56666.	24931.
975.	2297.	634.	159464.	50624.	61935.	46368.
976.	2979.	727.	217079.	73969.	71795.	70849.
977.	3734.	820.	288015.	103254.	82269.	102492.
978.	4620.	914.	371970.	137801.	93222.	140509.
979.	5584.	1007.	471234.	179159.	104756.	186894.
980.	6617.	1084.	590436.	229299.	116845.	244001.
981.	7715.	1097.	745033.	295208.	129433.	320053.
982.	8815.	1100.	891469.	356541.	142183.	390371.
983.	9915.	1100.	1047239.	421574.	155396.	465029.
984.	11015.	1100.	1221715.	494881.	169187.	549801.
985.	12115.	1100.	1416210.	577099.	183555.	645543.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 23.9

SCALES ARE 1 INCH = 50. CFS, AND 2.4 FEET/ ELEVATION

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      J.........J.........I.........I.........I.........I.........I.........I.........I.........I.........I.........I
978.--                                                                                                        --  978.
   -                                                                                                          -
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***** WSPG MICROCOMPUTER TEST VERSION *****

Private

ROAD SECTION 24.0

NO.	HW FT	CFS	HL FT	TW FT	STARTING CSM	BRIDGE CFS	BRIDGE AREA SQ FT	CULVERT CFS	CULVERT AREA SQ FT	WEIR CFS	WEIR AREA SQ FT	WEIR TOP WIDTH FT
0	961.00	0.0	0.00	961.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	966.54	150.0	0.13	966.41	150.00	0.0	0.0	71.6	35.0	78.4	48.4	212.2
2	968.11	240.0	0.03	968.08	240.00	0.0	0.0	60.1	43.3	179.9	619.3	443.2
3	968.81	275.0	0.03	968.78	275.00	0.0	0.0	34.1	44.2	240.9	947.0	495.9
4	970.41	380.0	0.03	970.38	380.00	0.0	0.0	37.6	44.2	342.4	1917.3	714.2

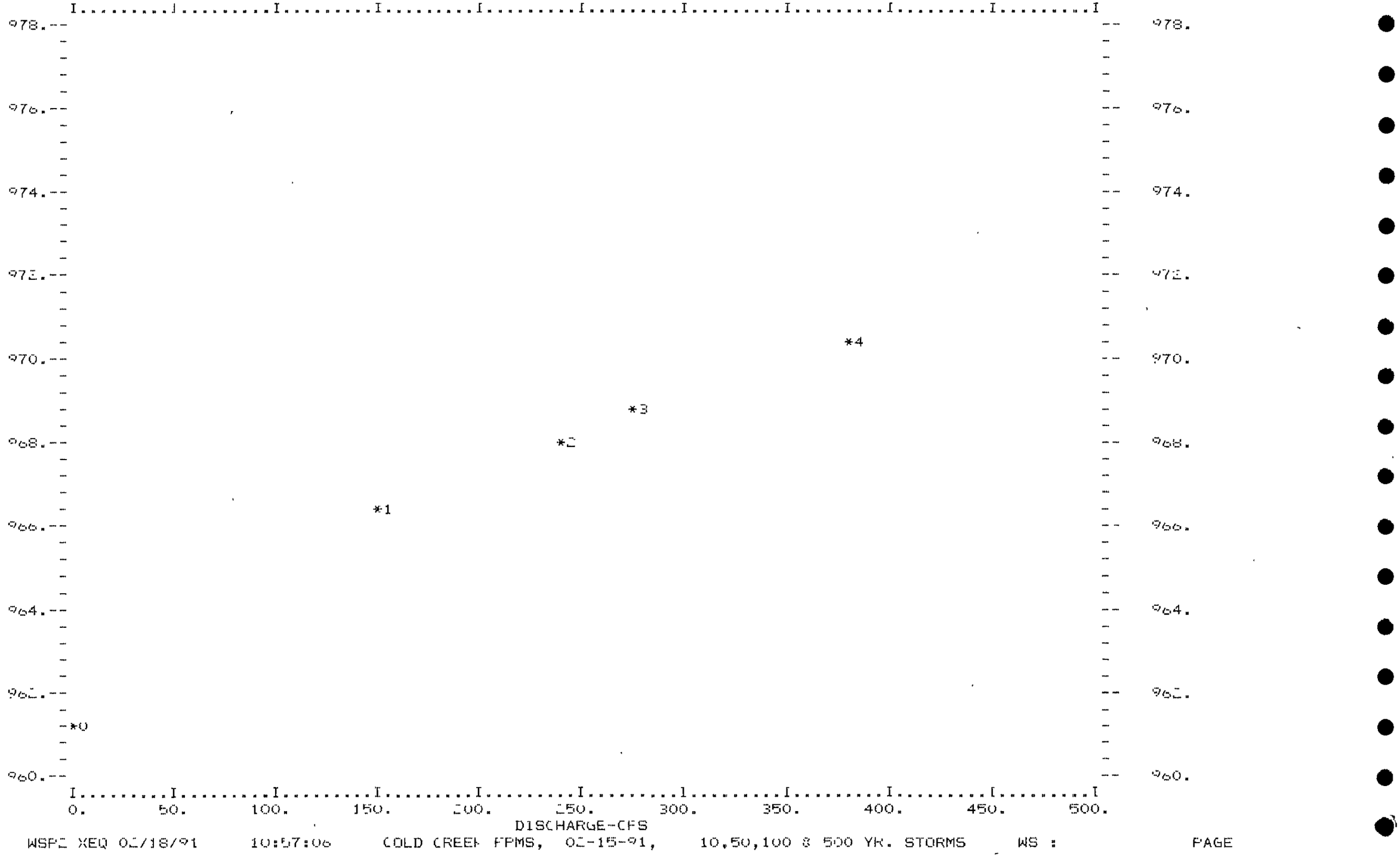
MIN ROAD ELEVATION = 980.00 FT

OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	1C111.	7.50		32.00	961.00	961.00	0.032

***** WSPC MICROCOMPUTER TEST VERSION *****

ROAD SECTION Z4.0

SCALES ARE 1 INCH = 50. CFS, AND 2.4 FEET/ ELEVATION



***** WSPC MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 24.1 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	961.3	0.0	0.0							
LOW GRND	966.1	101.4	116.3	0.00	0.14	0.14				35.6
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	966.6	130.8	150.0	0.00	0.15	0.26	150.00	963.4	0.00036	67.5
BANK FULL	967.3	193.4	181.4	0.00	0.16	0.45				117.7
2	968.1	310.1	240.0	0.00	0.17	0.64	240.00	963.9	0.00018	166.0
3	968.8	571.4	275.0	0.00	0.17	2.14	275.00	964.0	0.00011	554.3
4	970.4	2112.1	380.0	0.00	0.17	4.70	380.00	964.4	0.00002	1219.6

SEGMENT TABLE FOR SECTION 24.1

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	150.	3.	147.	0.
150.	VELOCITY FPS	1.23	0.25	1.24	0.00
2	DISCHARGE CFS	240.	44.	196.	0.
240.	VELOCITY FPS	0.98	0.35	1.07	0.19
3	DISCHARGE CFS	275.	67.	196.	12.
275.	VELOCITY FPS	0.79	0.25	0.92	0.14
4	DISCHARGE CFS	380.	153.	122.	104.
380.	VELOCITY FPS	0.29	0.15	0.43	0.13
1	ELEV 966.6 FD	7817.	29.	7786.	1.
2	ELEV 968.1 FD	17732.	3218.	14513.	1.
3	ELEV 968.8 FD	25657.	6274.	18749.	633.
4	ELEV 970.4 FD	86712.	34620.	30123.	21969.

***** WSPC MICROCOMPUTER TEST VERSION *****

FD TABLE FOR CROSS SECTION 24.1

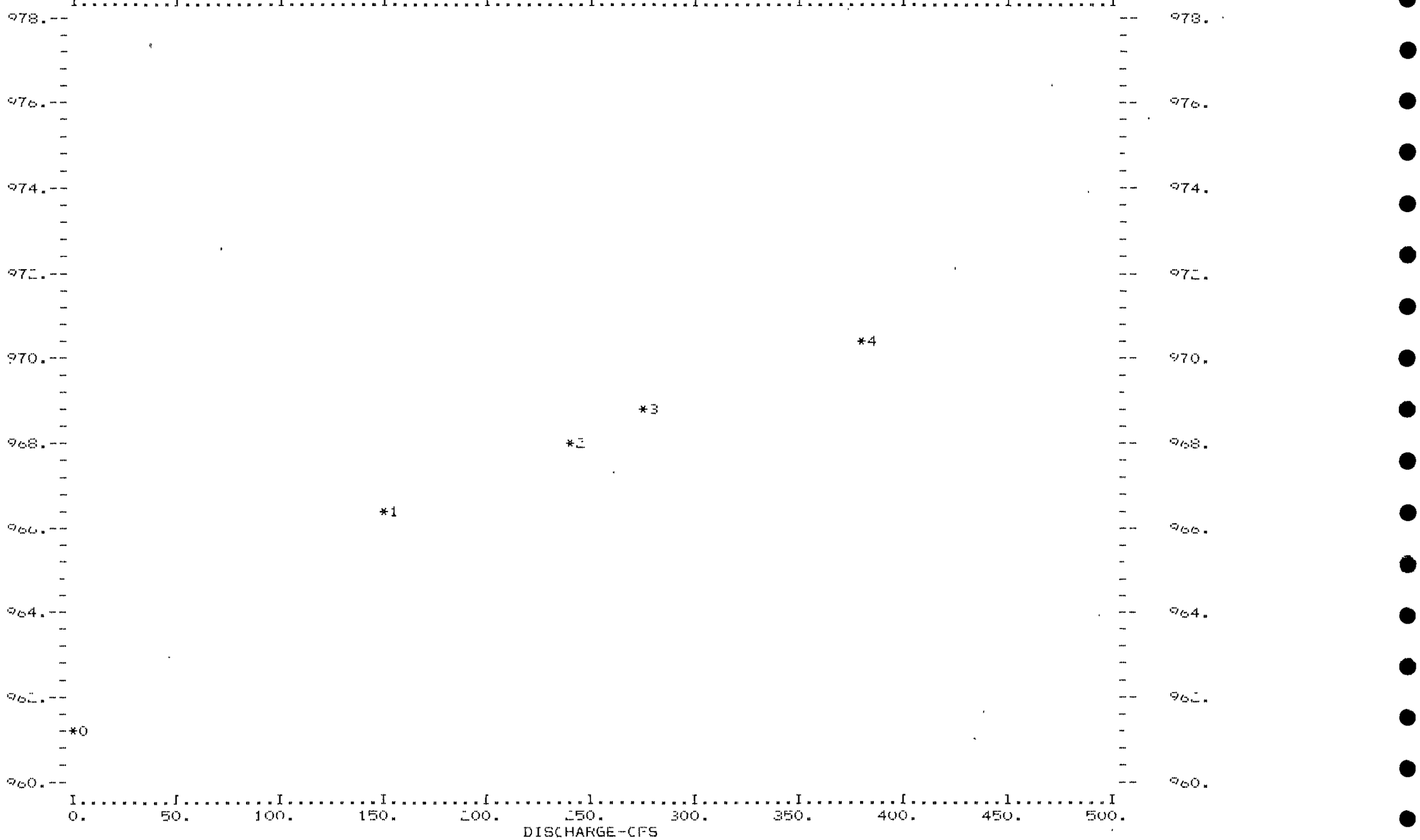
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	FD TOTAL	FD BY SEGMENT 1	2	3
961.30	0.					
962.	3.	8.	47.	1.	45.	1.
963.	17.	18.	498.	1.	496.	1.
964.	38.	24.	1581.	1.	1579.	1.
965.	65.	30.	3386.	1.	3384.	1.
966.	98.	35.	5971.	1.	5969.	1.
967.	162.	47.	9754.	359.	9361.	1.
968.	288.	149.	16661.	2678.	13873.	1.
969.	691.	657.	29754.	7658.	19904.	1665.
970.	1602.	1160.	63977.	23380.	27007.	13124.
971.	2850.	1300.	134916.	57472.	34876.	42337.
972.	4196.	1391.	234362.	105126.	43527.	85547.
973.	5595.	1400.	364089.	167715.	52872.	143290.
974.	6995.	1400.	478343.	222574.	62365.	191941.

	975.	8395.	1400.	615577.	286610.	72646.	251474.
	976.	9795.	1400.	778223.	364072.	83718.	323257.

***** WSPG MICROCOMPUTER TEST VERSION *****

CROSS SECTION G4.1

SCALES ARE 1 INCH = 50. CFS, AND 2.4 FEET/ ELEVATION



RATING TABLE FOR SECTION 24.5 (17) DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED FLOODPLAIN CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	961.7	0.0	0.0							
LOW GRND	965.5	58.6	40.5	0.00	0.39	0.39				20.5
*****MESSAGE- ELEV BELOW FIRST PROFILE. FLOW INTERPOLATED LINEARLY FROM CHANNEL BOTTOM*****										
1	966.8	217.1	150.0	0.00	0.44	3.46	150.00	963.5	0.00024	183.6
BANK FULL	968.0	502.9	224.4	0.00	0.50	5.27				280.2
2	968.2	563.1	240.0	0.00	0.50	5.41	240.00	964.0	0.00008	287.2
3	968.9	757.5	275.0	0.00	0.52	5.84	275.00	964.2	0.00005	310.1
4	970.4	1327.6	380.0	0.00	0.53	7.86	380.00	964.7	0.00002	417.7

WARNING**********PROFILE NO 4 EXCEEDS SURVEY DATA BY 0.1 FT. COMPUTATION BASED ON VERTICAL EXTENSION OF END POINTS**********

SEGMENT TABLE FOR SECTION 24.5

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	150.	43.	107.	0.
150.	VELOCITY FPS	1.07	0.33	1.23	0.00
2	DISCHARGE CFS	240.	139.	101.	0.
240.	VELOCITY FPS	0.60	0.32	0.82	0.00
3	DISCHARGE CFS	275.	178.	97.	0.
275.	VELOCITY FPS	0.47	0.29	0.69	0.00
4	DISCHARGE CFS	380.	278.	99.	4.
380.	VELOCITY FPS	0.35	0.25	0.53	0.09
1	ELEV 966.8 A*D	9514.	2490.	7023.	1.
2	ELEV 968.2 A*D	26468.	15096.	11371.	1.
3	ELEV 968.9 A*D	39605.	25650.	13953.	1.
4	ELEV 970.4 A*D	82504.	60296.	21675.	533.

1 WSPG XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR. STORMS WS : PAGE
REV 03/14/08 DISCHARGE TO BELOW SEELEY ROAD ALT: 68

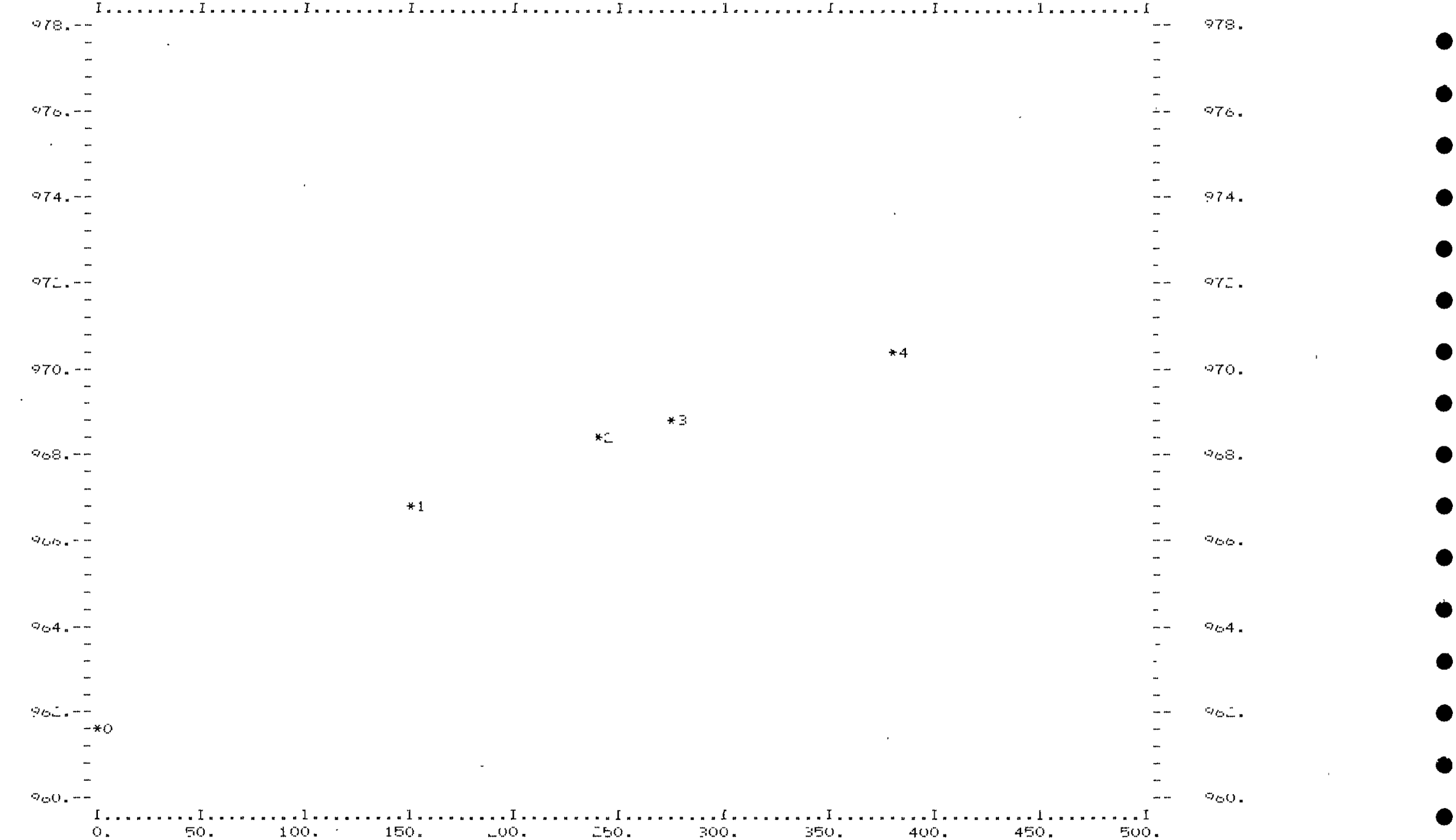
***** WSPG MICROCOMPUTER TEST VERSION *****

A*D TABLE FOR CROSS SECTION 24.5

ELEVATION FT	AREA SQ FT	TOP WIDTH FT	A*D TOTAL	A*D BY SEGMENT 1	2	3
961.70	0.					
962.	2.	10.	23.	1.	20.	1.
963.	15.	14.	555.	1.	553.	1.
964.	31.	17.	1607.	1.	1605.	1.
965.	49.	19.	3129.	1.	3127.	1.
966.	99.	107.	5479.	171.	5122.	1.
967.	260.	203.	11483.	3780.	7614.	1.
968.	503.	280.	23250.	12626.	10623.	1.
969.	801.	315.	42635.	28084.	14526.	1.
970.	1155.	389.	68523.	48840.	19369.	112.
971.	1576.	447.	105246.	78488.	24900.	1577.
972.	2041.	483.	151967.	115249.	30772.	5492.
973.	2548.	547.	206912.	157111.	37561.	11900.
974.	3102.	572.	271336.	204219.	44638.	22020.
975.	3689.	600.	342326.	253493.	52095.	35144.
976.	4289.	600.	416644.	305514.	59828.	48483.
977.	4889.	600.	500404.	356725.	68870.	65445.
978.	5489.	600.	594071.	416281.	76816.	86679.

***** WSPE MICROCOMPUTER TEST VERSION *****

CROSS SECTION 24.5
SCALES ARE 1 INCH = 50. CFS, AND 2.4 FEET/ ELEVATION



***** WSPE MICROCOMPUTER TEST VERSION *****

---------- LIST OF INPUT DATA WITH LIMITED EDITING----------

TITLE DISCHARGE TO MICHIGAN ROAD

```
CHANGE    DISCHARGE
DISCHARGE -1.       125.        195.        225.        335.
COMMENT   DISCHARGE FROM XSECTION 003 OF TR2COLD.OUT
END
SEGMENT   24.9      1           N           -21.                                    671
NVALUE    .060                                                                      672
SEGMENT   24.9      2           C           32.                                     673
NVALUE    .047                                                                      674
SEGMENT   24.9      3           N           600.                                    675
NVALUE    .060                                                                      676
SECTION   24.9                                                                      677
          -200.0    971.9       -136.0      969.4       -36.0       969.4           678
          -21.0     971.1       -15.0       970.2       -5.0        964.5           679
          0.0       964.3       7.0         964.9       18.0        970.5           680
          32.0      971.3       60.0        970.2       600.        976.            681
ENDTABLE                                                                            682
CULV1     25.0      1.          12133.                                              683
CULV2     7.0                   36.         963.2       963.2                       684
SECTION   25.0                                                                      685
          -500.0    972.1       -400.0      971.9       -300.0      971.7           686
          -200.0    971.4       -100.0      971.7       0.0         972.1           687
          100.0     972.4       200.0       972.9                                   688
ENDTABLE                                                                            689
SEGMENT   25.1      1           N           -17.                                    690
NVALUE    .060                                                                      691
SEGMENT   25.1      2           C           18.                                     692
NVALUE    .042                                                                      693
SEGMENT   25.1      3           N           50.                                     694
NVALUE    .060                                                                      695
SECTION   25.1                                                                      696
          -50.0     972.5       -17.0       971.9       -3.0        965.1           697
          0.0       964.6       5.0         965.1       18.0        971.8           698
          50.0      974.0                                                         699
ENDTABLE                                                                            700
SEGMENT   25.9      1           N           -18.                                    701
NVALUE    .060                                                                      702
SEGMENT   25.9      2           C           18.                                     703
NVALUE    .042                                                                      704
SEGMENT   25.9      3           N           38.                                     705
NVALUE    .060                                                                      706
SECTION   25.9                                                                      707
          -38.0     973.4       -18.0       974.1       -4.0        967.0           708
          0.0       966.3       4.0         966.7       18.0        973.3           709
          38.0      973.5                                                         710
1    WSP2 XEQ 02/18/91     10:57:06     COLD CREEK FPMS,  02-15-91,  10,50,100 & 500 YR. STORMS     WS :          PAGE
     REV 03/14/88                       DISCHARGE TO MICHIGAN ROAD                                  ALT:           70

     *****   WSP2  MICROCOMPUTER  TEST  VERSION   *****

 ----------------------------80/80 LIST OF INPUT DATA-------------------------------
ENDTABLE                                                                            711
CULV1     26.0      1.          12433                                               712
CULV2     6.75                  64.         966.7       966.9                       713
SECTION   26.0                                                                      714
          -200.0    977.9       0.0         977.9       200.0       978.9           715
          -860.     974.1       -1800.      975.1                                   716
ENDTABLE
 ---------------------MESSAGE - DATA POINTS ON SECTION 26.0   REORDERED BY PROGRAM ACCORDING TO X VALUES
                      DUPLICATE X POINTS NOT CHANGED--------------------
COMMENT   ADJUSTED WEIR LENGTH TO REFLECT FLOW OVER MICHIGAN ROAD
COMMENT   UPSTREAN OF CS 26.0 ON LEFT BANK
SEGMENT   26.1      1           N           -17.                                    717
NVALUE    .047                                                                      718
SEGMENT   26.1      2           C           17.                                     719
NVALUE    .047                                                                      720
```

SEGMENT	24.1	0	N	100.			721
NVALUE	.047						722
SECTION	26.1						723
	-29.0	977.0	-17.0	976.4	-3.0	967.4	724
	0.0	966.0	4.0	967.3	17.0	974.1	725
	25.0	974.3	100.	980.			726
ENDTABLE							727
COMPUTE	24.9	26.1	24.5				

----------END OF DATA LISTING----------

1 COMPUTE 24.9 26.1 24.5

----------STARTING DATA FROM PREVIOUS COMPUTATIONS----------

***** WSP2 MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 24.9 DA= 1.0 SQ MI

	NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
	0	964.3	0.0	0.0							
	1	967.9	59.8	125.0	0.00	0.42	0.42	125.00	965.9	0.00140	23.9
	2	969.0	88.5	195.0	0.00	0.49	0.49	195.00	966.4	0.00116	28.0
LOW	GRND	969.4	99.6	206.1	0.00	0.52	0.52				29.4
52	3	969.5	118.3	225.0	0.00	0.53	0.89	225.00	966.6	0.00095	50.6
	4	970.8	350.8	335.0	0.00	0.76	4.60	335.00	967.1	0.00048	262.2

SEGMENT TABLE FOR SECTION 24.9

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	125.	0.	125.	0.
125.	VELOCITY FPS	2.09	0.00	2.09	0.00
2	DISCHARGE CFS	195.	0.	195.	0.
195.	VELOCITY FPS	2.20	0.00	2.20	0.00
3	DISCHARGE CFS	225.	9.	216.	0.
225.	VELOCITY FPS	2.08	0.60	2.09	0.00
4	DISCHARGE CFS	335.	108.	219.	8.
335.	VELOCITY FPS	1.29	0.62	1.49	0.29
1	ELEV 967.9 I.D	3338.	1.	3336.	1.
2	ELEV 969.0 I.D	5730.	1.	5728.	1.
3	ELEV 969.5 I.D	7098.	4.	7093.	1.
4	ELEV 970.8 I.D	14710.	4519.	10078.	113.

***** WSP2 MICROCOMPUTER TEST VERSION *****

I D TABLE FOR CROSS SECTION 24.9

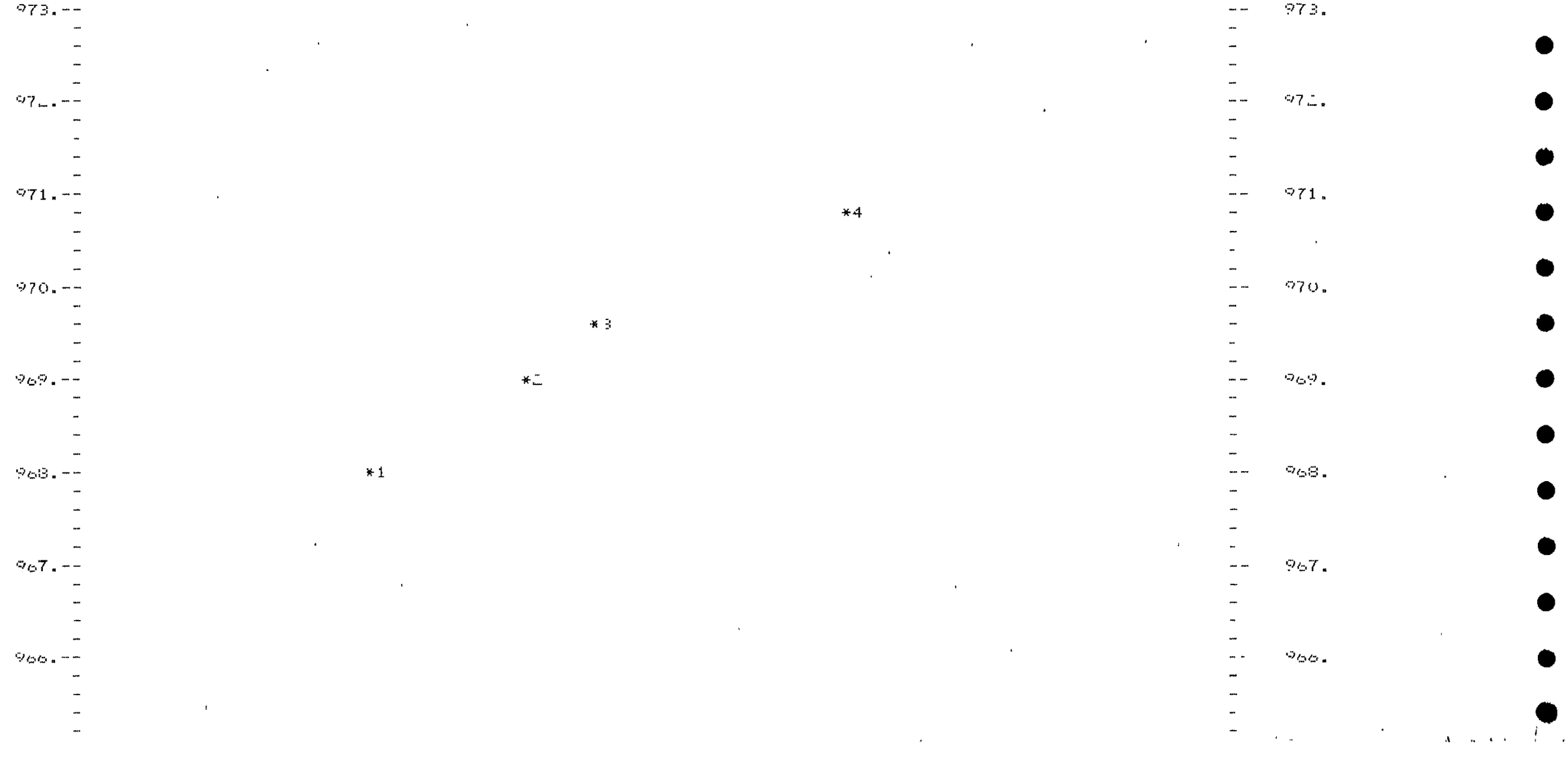
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	I.D TOTAL	I D BY SEGMENT 1	2	3

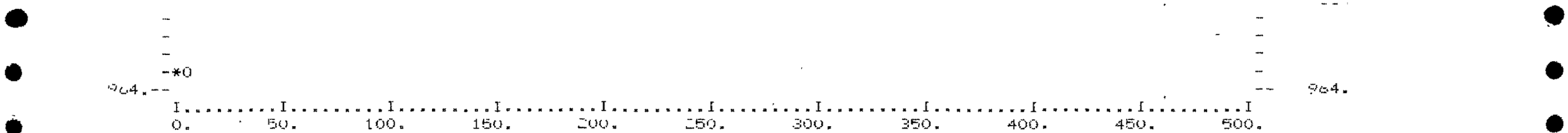
964.30	0.					
965.	6.	13.	114.	1.	112.	1.
966.	21.	17.	750.	1.	748.	1.
967.	40.	21.	1873.	1.	1871.	1.
968.	62.	24.	3507.	1.	3505.	1.
969.	88.	28.	5695.	1.	5693.	1.
970.	186.	127.	9734.	305.	9482.	1.
971.	397.	297.	16984.	6066.	10408.	510.
972.	777.	423.	35003.	14886.	15574.	4050.
973.	1249.	521.	65023.	28428.	22834.	13417.
974.	1817.	614.	106623.	45553.	31147.	29639.
975.	2484.	707.	160176.	65426.	40418.	53920.
976.	3238.	773.	229474.	88162.	50673.	90079.
977.	4021.	800.	311618.	112351.	61573.	136815.
978.	4821.	800.	392893.	135733.	72598.	180578.
979.	5621.	800.	487339.	161809.	84609.	233722.
980.	6421.	800.	595976.	190677.	97618.	297412.

***** WSPG MICROCOMPUTER TEST VERSION *****

CROSS SECTION 24.9

SCALES ARE 1 INCH = 50. CFS, AND 1.0 FEET/ ELEVATION





***** WSPG MICROCOMPUTER TEST VERSION *****

ROAD SECTION 25.0

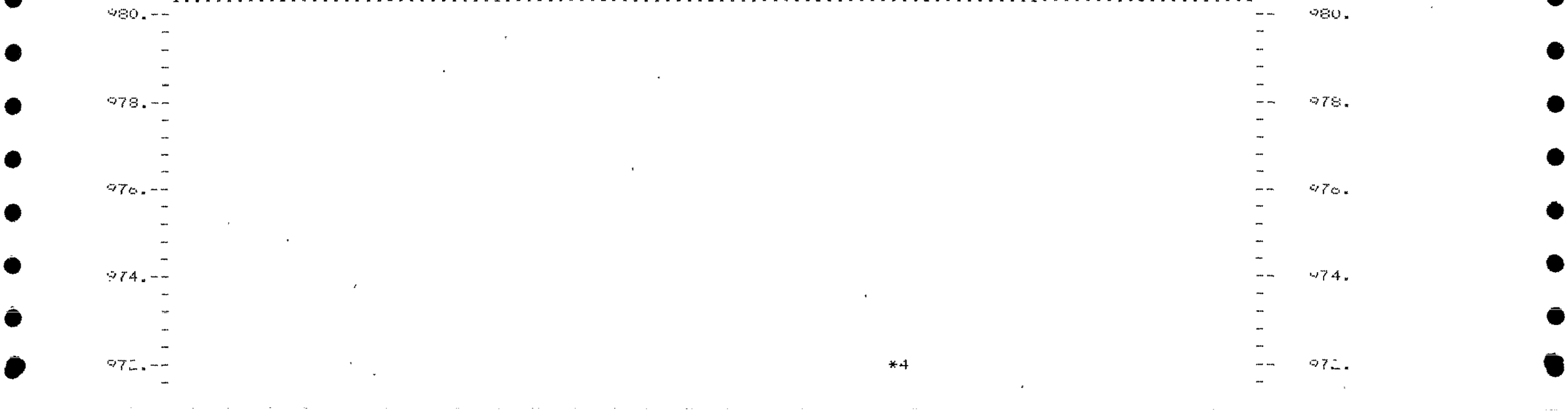
NO.	HW FT	CFS	HL FT	TW FT	STARTING CSM	BRIDGE CFS	BRIDGE AREA SQ FT	CULVERT CFS	CULVERT AREA SQ FT	WEIR CFS	WEIR AREA SQ FT	WEIR TOP WIDTH FT
0	963.20	0.0	0.00	963.20	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	968.60	125.0	0.58	968.03	125.00	0.0	0.0	125.0	31.9	0.0	0.0	0.0
2	970.05	195.0	0.93	969.12	195.00	0.0	0.0	195.0	38.3	0.0	0.0	0.0
3	970.72	225.0	1.09	969.63	225.00	0.0	0.0	225.0	38.5	0.0	0.0	0.0
4	971.86	335.0	1.02	970.84	335.00	0.0	0.0	210.7	38.5	124.3	71.6	314.9

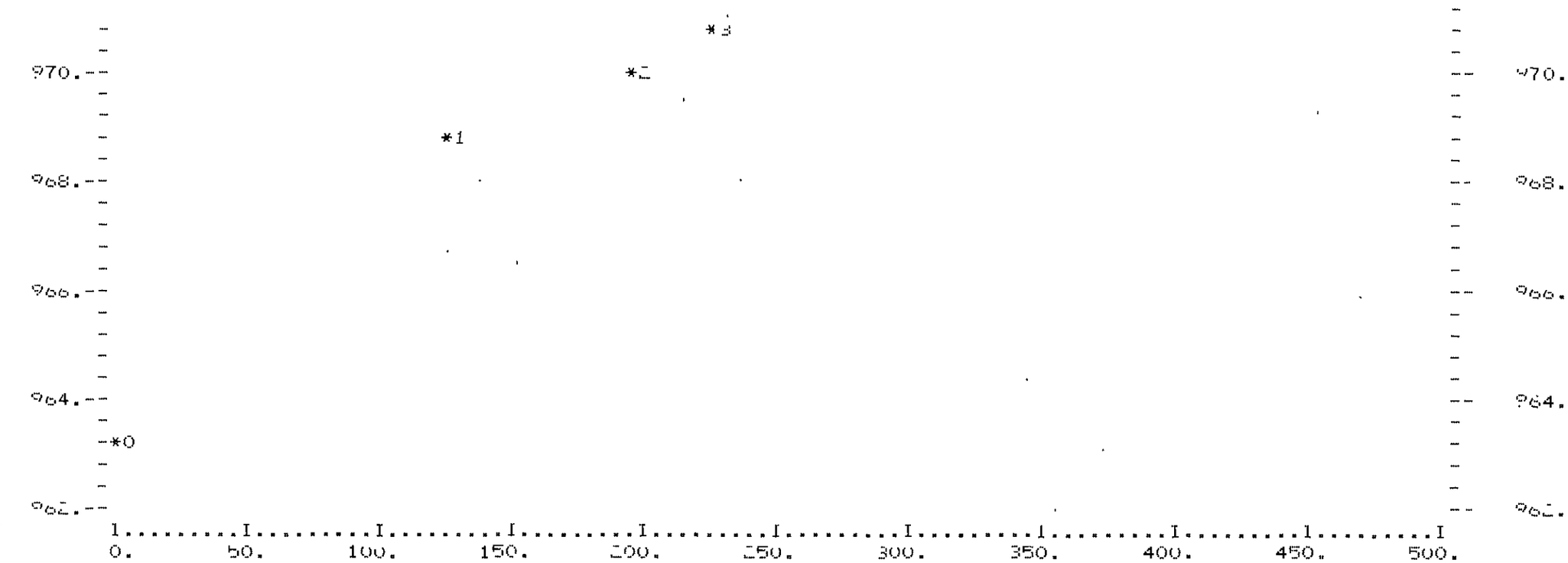
MIN ROAD ELEVATION = 971.40 FT

OPENING NO.	CULV. NO.	CULVERTS CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
		STMC PLATE w/HEAD WALL						
1	1	12133.	7.00	36.00		963.20	963.20	0.032

***** WSPG MICROCOMPUTER TEST VERSION *****

ROAD SECTION 25.0
SCALES ARE 1 INCH = 50. CFS, AND 2.4 FEET/ ELEVATION





***** WSP2 MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 25.1 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	964.6	0.0	0.0							
1	968.7-	56.0	125.0	0.00	0.13	0.13	125.00	966.6	0.00129	22.3
2	970.1-	91.7	195.0	0.00	0.16	0.16	195.00	967.1	0.00083	27.9
3	970.7-	110.9	225.0	0.00	0.18	0.18	225.00	967.3	0.00066	30.5
LOW GRND		971.8	145.4	326.8	0.00	0.20	0.20			34.8
BANK FULL		971.8	145.4	326.8	0.00	0.20	0.20			34.8
4	971.9-	148.1	335.0	0.00	0.20	0.22	335.00	967.9	0.00067	38.0

SEGMENT TABLE FOR SECTION 25.1

CSM		TOTAL	SEG NO 1 LOB N	SEG NO 2 CHAN C	SEG NO 3 ROB N
1	DISCHARGE CFS	125.	0.	125.	0.
125.	VELOCITY FPS	2.23	0.00	2.23	0.00
2	DISCHARGE CFS	195.	0.	195.	0.
195.	VELOCITY FPS	2.13	0.00	2.13	0.00
3	DISCHARGE CFS	225.	0.	225.	0.
225.	VELOCITY FPS	2.03	0.00	2.03	0.00
4	DISCHARGE CFS	335.	0.	335.	0.
335.	VELOCITY FPS	2.27	0.00	2.26	0.00
1	ELEV 968.7 FD	3481.	1.	3479.	1.
2	ELEV 970.1 FD	6763.	1.	6761.	1.

***** WSPC MICROCOMPUTER TEST VERSION *****

FD TABLE FOR CROSS SECTION 25.1

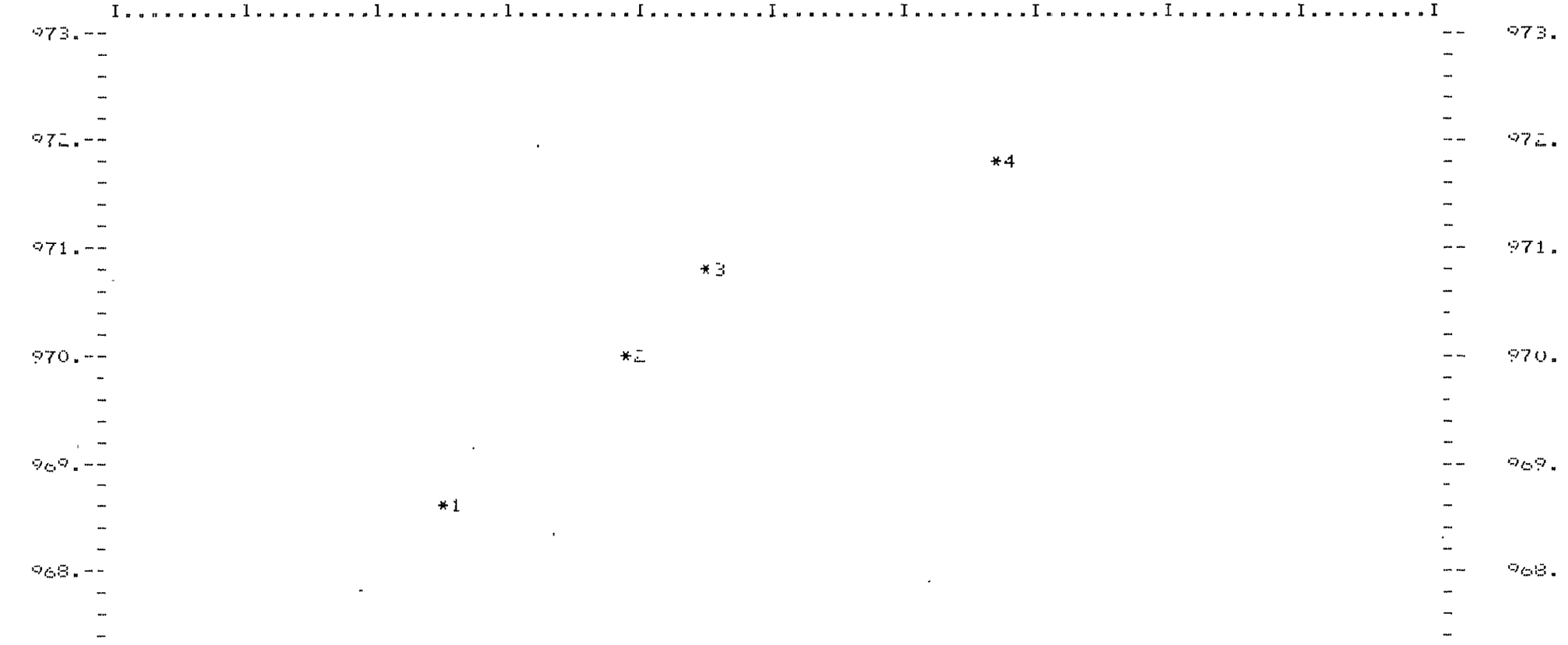
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	FD TOTAL	FD BY SEGMENT 1	2	3
964.60	0.					
965.	1.	6.	17.	1.	15.	1.
966.	11.	12.	357.	1.	355.	1.
967.	24.	16.	1121.	1.	1119.	1.
968.	43.	20.	2362.	1.	2360.	1.
969.	64.	24.	4144.	1.	4142.	1.
970.	89.	28.	6537.	1.	6535.	1.
971.	119.	32.	9601.	1.	9599.	1.
972.	153.	43.	13553.	2.	13549.	2.
973.	226.	82.	19917.	388.	19091.	147.
974.	318.	98.	28524.	2019.	25417.	919.
975.	417.	100.	37795.	3442.	31864.	1792.
976.	517.	100.	48288.	4946.	38868.	2783.
977.	617.	100.	60436.	6893.	46625.	4167.
978.	717.	100.	74334.	9363.	55146.	6045.

1 WSPC XEQ 02/18/91 10:57:06 COLD CREEK FPMS, 02-15-91, 10,50,100 & 500 YR. STORMS WS : PAGE
REV 03/14/88 DISCHARGE TO MICHIGAN ROAD ALT: 73F

***** WSPC MICROCOMPUTER TEST VERSION *****

CROSS SECTION 25.1

SCALES ARE 1 INCH = 50. CFS, AND 1.2 FEET/ ELEVATION





***** WSP2 MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 25.9- DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	966.3	0.0	0.0							
1	970.1-	49.3	125.0	0.00	0.34	0.34	125.00	968.4	0.00184	21.2
2	971.1-	73.2	195.0	0.00	0.41	0.41	195.00	968.9	0.00153	25.4
3	971.6-	86.9	225.0	0.00	0.44	0.44	225.00	969.0	0.00130	27.5
4	972.7-	118.9	335.0	0.00	0.52	0.52	335.00	969.6	0.00123	31.9

SEGMENT TABLE FOR SECTION 25.9

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	125.	0.	125.	0.
125.	VELOCITY FPS	2.54	0.00	2.53	0.00
2	DISCHARGE CFS	195.	0.	195.	0.
195.	VELOCITY FPS	2.66	0.00	2.66	0.00
3	DISCHARGE CFS	225.	0.	225.	0.
225.	VELOCITY FPS	2.60	0.00	2.59	0.00
4	DISCHARGE CFS	335.	0.	335.	0.
335.	VELOCITY FPS	2.82	0.00	2.82	0.00
1	ELEV 970.1 HD	2914.	1.	2912.	1.
2	ELEV 971.1 HD	4984.	1.	4982.	1.
3	ELEV 971.6 HD	6249.	1.	6247.	1.
4	ELEV 972.7 HD	9564.	1.	9562.	1.

***** WSP2 MICROCOMPUTER TEST VERSION *****

HD TABLE FOR CROSS SECTION 25.9

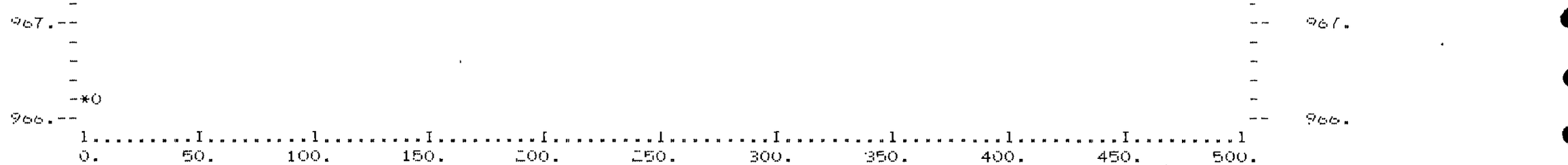
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	FD TOTAL	FD BY SEGMENT 1	2	3
966.30	0.					
967.	4.	8.	69.	1.	67.	1.
968.	14.	13.	524.	1.	522.	1.
969.	29.	17.	1415.	1.	1413.	1.
970.	48.	21.	2805.	1.	2803.	1.
971.	71.	25.	4765.	1.	4763.	1.
972.	98.	29.	7366.	1.	7364.	1.
973.	129.	33.	10671.	1.	10669.	1.
974.	182.	73.	15352.	46.	15065.	159.
975.	257.	76.	22610.	627.	20890.	994.
976.	333.	76.	30024.	1180.	26788.	1666.
977.	409.	76.	38503.	1807.	33366.	2443.
978.	485.	76.	48291.	2664.	40752.	3463.
979.	561.	76.	59453.	3804.	48962.	4768.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 25.9

SCALES ARE 1 INCH = 50. CFS, AND 1.2 FEET/ ELEVATION





***** WSPG MICROCOMPUTER TEST VERSION *****

ROAD SECTION 26.0

NO.	HW FT	CFS	HL FT	TW FT	STARTING CSM	BRIDGE CFS	BRIDGE AREA SQ FT	CULVERT CFS	CULVERT AREA SQ FT	WEIR CFS	WEIR AREA SQ FT	WEIR TOP WIDTH FT
0	966.70	0.0	0.00	966.90	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	971.64	125.0	0.99	970.65	125.00	0.0	0.0	125.0	28.1	0.0	0.0	0.0
2	973.08	195.0	1.46	971.63	195.00	0.0	0.0	195.0	35.0	0.0	0.0	0.0
3	973.71	225.0	1.63	972.08	225.00	0.0	0.0	225.0	35.3	0.0	0.0	0.0
4	974.45	335.0	1.33	973.12	335.00	0.0	0.0	228.0	35.8	107.0	69.3	393.0

MIN ROAD ELEVATION = 974.10 FT

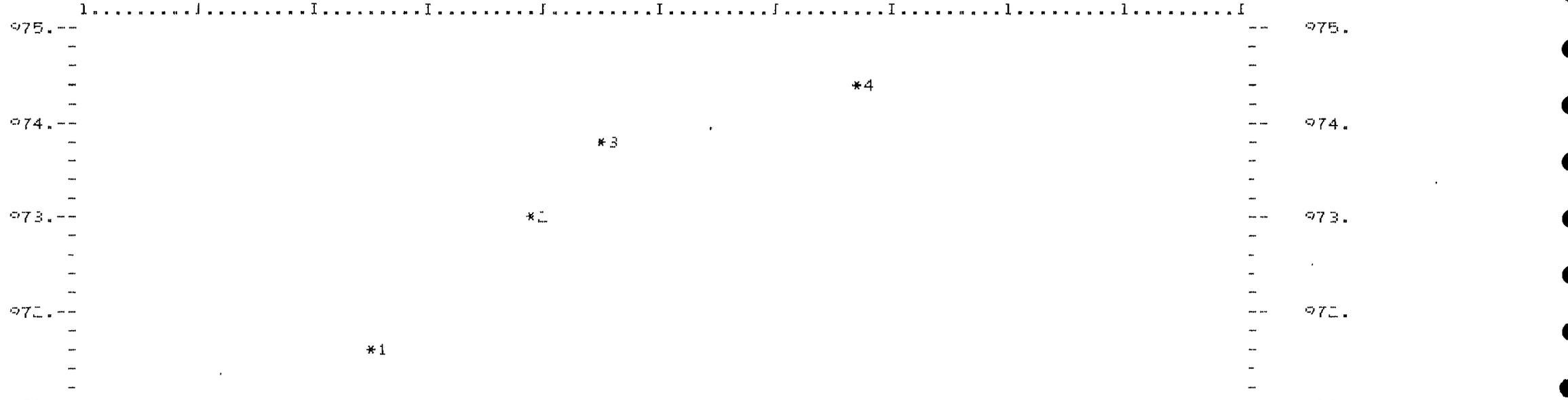
OPENING NO.	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	12433.	6.75	64.00	966.70	966.90	0.021

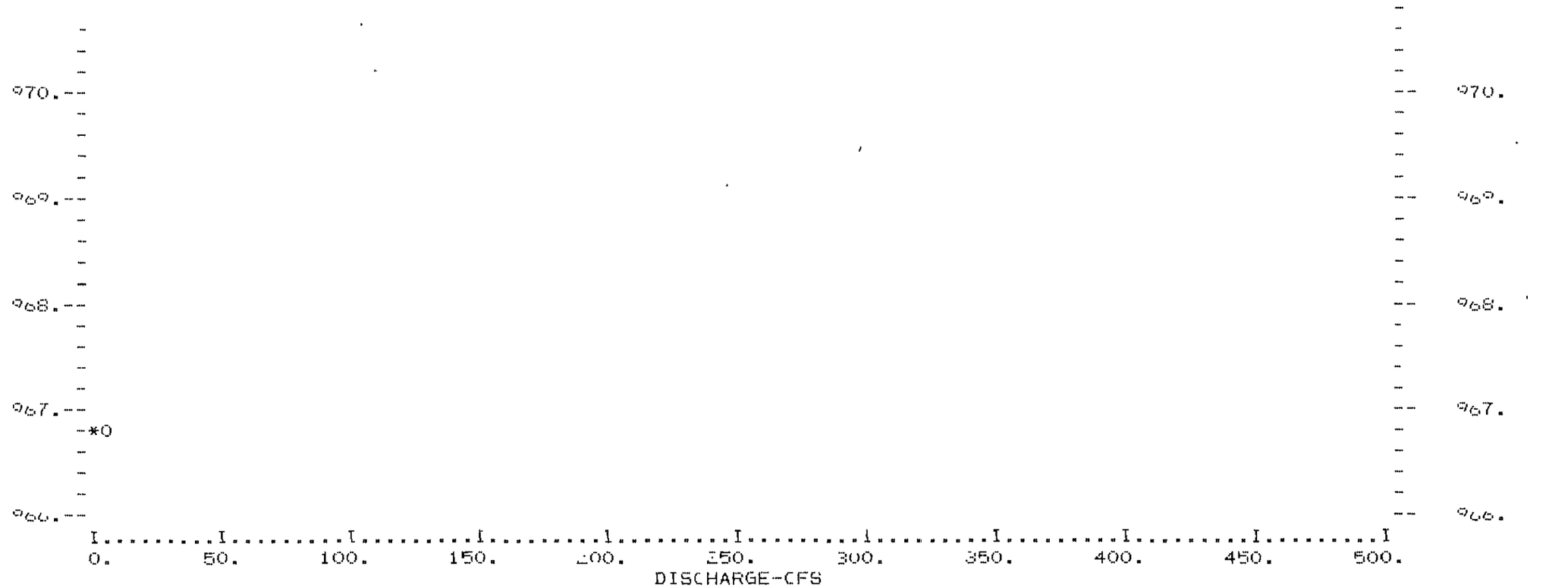
299% paved w/ Headwall

***** WSPG MICROCOMPUTER TEST VERSION *****

ROAD SECTION 26.0

SCALES ARE 1 INCH = 50. CFS, AND 1.2 FEET/ ELEVATION





***** WSPE MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 26.1 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	966.0	0.0	0.0							
1	971.7	69.1	125.0	0.00	0.20	0.20	125.00	968.7	0.00085	22.2
2	973.2	104.0	195.0	0.00	0.24	0.24	195.00	969.3	0.00069	27.2
3	973.8	121.7	225.0	0.00	0.26	0.26	225.00	969.5	0.00061	29.3
LOW GRND		974.1	131.1	262.5	0.00	0.27	0.27			30.4
BANK FULL		974.1	131.1	262.5	0.00	0.27	0.27			30.4
4	974.5	149.3	335.0	0.00	0.27	0.37	335.00	970.2	0.00081	42.3

SEGMENT TABLE FOR SECTION 26.1

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	125.	0.	125.	0.
125.	VELOCITY FPS	1.81	0.00	1.81	0.00
2	DISCHARGE CFS	195.	0.	195.	0.
195.	VELOCITY FPS	1.88	0.00	1.87	0.00
3	DISCHARGE CFS	225.	0.	225.	0.
225.	VELOCITY FPS	1.85	0.00	1.85	0.00
4	DISCHARGE CFS	335.	0.	332.	3.
335.	VELOCITY FPS	2.29	0.00	2.29	0.65
1 ELEV	971.7 FD	4279.	1.	4277.	1.

2	ELEV	973.2	FD	7473.	1.	7471.	1.			
3	ELEV	973.8	FD	9111.	1.	9109.	1.			
4	ELEV	974.5	FD	11712.	1.	11695.	16.			

***** WSPE MICROCOMPUTER TEST VERSION *****

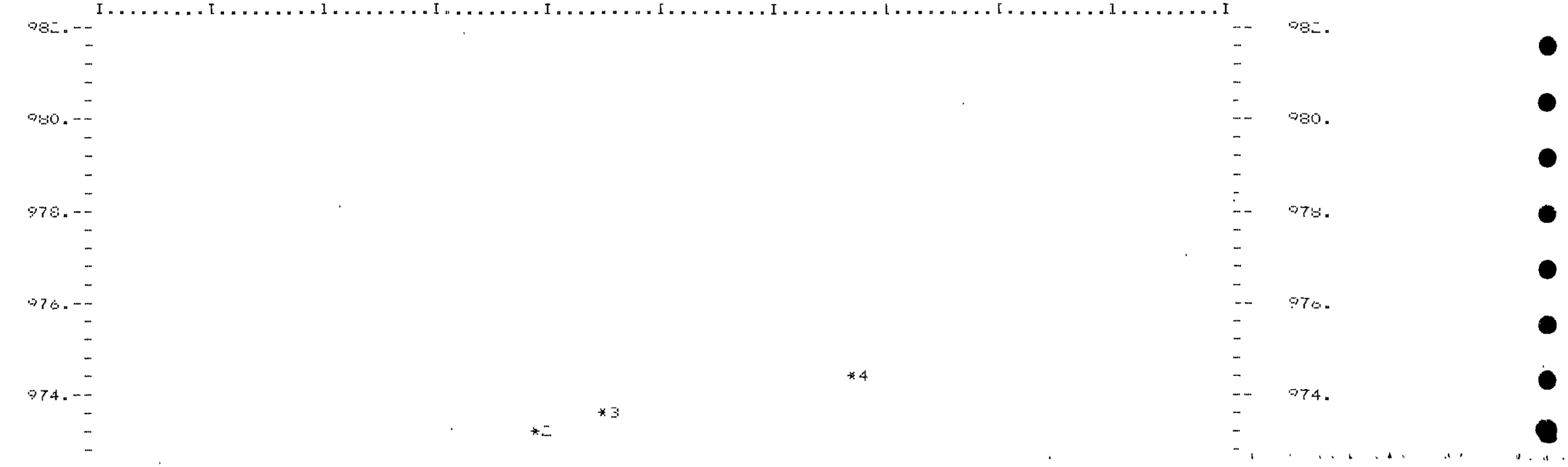
FD TABLE FOR CROSS SECTION 26.1

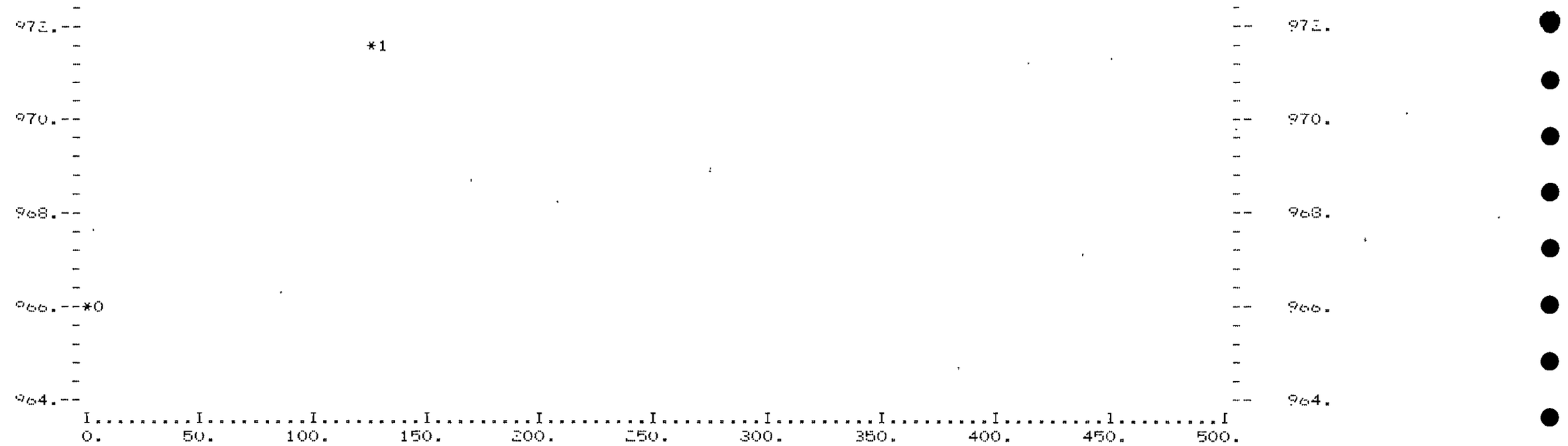
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	FD TOTAL	FD BY SEGMENT 1	2	3
966.00	0.					
967.	3.	5.	52.	1.	50.	1.
968.	10.	9.	318.	1.	316.	1.
969.	21.	13.	870.	1.	868.	1.
970.	36.	16.	1760.	1.	1758.	1.
971.	54.	20.	3045.	1.	3043.	1.
972.	75.	23.	4776.	1.	4774.	1.
973.	100.	27.	7005.	1.	7003.	1.
974.	128.	30.	9778.	1.	9776.	1.
975.	170.	49.	13731.	1.	13473.	114.
976.	227.	64.	18970.	1.	17794.	1058.
977.	304.	84.	26252.	19.	23002.	2955.
978.	398.	103.	35978.	490.	29100.	6194.
979.	506.	116.	48188.	1342.	35759.	10996.
980.	627.	129.	62938.	2391.	42955.	17592.
981.	756.	129.	77983.	3082.	50003.	23653.
982.	885.	129.	95296.	3908.	57637.	31200.
983.	1014.	129.	115045.	4884.	65867.	40470.
984.	1143.	129.	137399.	6027.	74701.	51719.

***** WSPE MICROCOMPUTER TEST VERSION *****

CROSS SECTION 26.1

SCALES ARE 1 INCH = 50. CFS, AND 2.4 FEET/ ELEVATION





***** WSPG MICROCOMPUTER TEST VERSION *****

---------- LIST OF INPUT DATA WITH LIMITED EDITING----------

```
TITLE     DISCHARGE TO PRIVATE DRIVE (CS 26.5 @ STA. 152+00)
CHANGE    DISCHARGE
DISCHARGE -1.       25.       40.       50.       75.
COMMENT   DISCHARGE FROM XSECTION 001 OF TR20COLD.OUT
END
CULV1     26.5      1         12.111.                                 728
CULV2     0.67                80.       966.3     966.6               729
SECTION   26.5                                                        730
          -20.0     974.1     0.0       974.1     20.0      974.1     731
          -940.     975.1     300.      980.
ENDTABLE                                                              732
----------MESSAGE - DATA POINTS ON SECTION 26.5  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED----------
COMMENT   ADJUSTED WEIR LENGTH TO REFLECT FLOW OVER MICHIGAN ROAD
SEGMENT   26.7      1         N         -10.                          733
NVALUE    .047                                                        734
SEGMENT   26.7      2         C         20.                           735
NVALUE    .047                                                        736
SEGMENT   26.7      3         N         300.                          737
NVALUE    .047                                                        738
SECTION   26.7                                                        739
          -100.0    973.8     -60.0     975.1     -25.0     975.0     740
          -10.0     974.4     3.0       968.2     -3.0      968.2     741
          0.0       967.9     11.0      972.9     20.0      974.0     742
          50.0      973.7     -200.     975.      300.      980.      743
ENDTABLE                                                              744
----------MESSAGE - DATA POINTS ON SECTION 26.7  REORDERED BY PROGRAM ACCORDING TO X VALUES
                    DUPLICATE X POINTS NOT CHANGED----------
COMPUTE   26.2      26.7      26.1                                    748
----------END OF DATA LISTING----------
1                   COMPUTE   26.2      26.7      26.1                          748
```

***** WSPC MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 26.2 Do Not Plot 26.2

DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED FLOODPLAIN CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	966.0	0.0	0.0							
1	971.8	70.3	25.0	0.00	0.00	0.00	25.00	967.4	0.00003	22.4
2	973.2	105.4	40.0	0.00	0.00	0.00	40.00	967.7	0.00003	27.3
3	973.8	123.2	50.0	0.00	0.00	0.00	50.00	967.8	0.00003	29.5
LOW GRND	974.1	131.1	56.7	0.00	0.00	0.00				30.4
BANK FULL	974.1	131.1	56.7	0.00	0.00	0.00				30.4
4	974.6	152.9	75.0	0.00	0.00	0.00	75.00	968.2	0.00004	43.5

SEGMENT TABLE FOR SECTION 26.2

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	25.	0.	25.	0.
25.	VELOCITY FPS	0.36	0.00	0.36	0.00
2	DISCHARGE CFS	40.	0.	40.	0.
40.	VELOCITY FPS	0.38	0.00	0.38	0.00
3	DISCHARGE CFS	50.	0.	50.	0.
50.	VELOCITY FPS	0.41	0.00	0.41	0.00
4	DISCHARGE CFS	75.	0.	74.	1.
75.	VELOCITY FPS	0.50	0.00	0.50	0.15
1	ELEV 971.8 I D	4370.	1.	4368.	1.
2	ELEV 973.2 I D	7539.	1.	7537.	1.
3	ELEV 973.8 I.D	9260.	1.	9258.	1.
4	ELEV 974.6 I D	12011.	1.	11987.	23.

***** WSPC MICROCOMPUTER TEST VERSION *****

I.D TABLE FOR CROSS SECTION 26.2

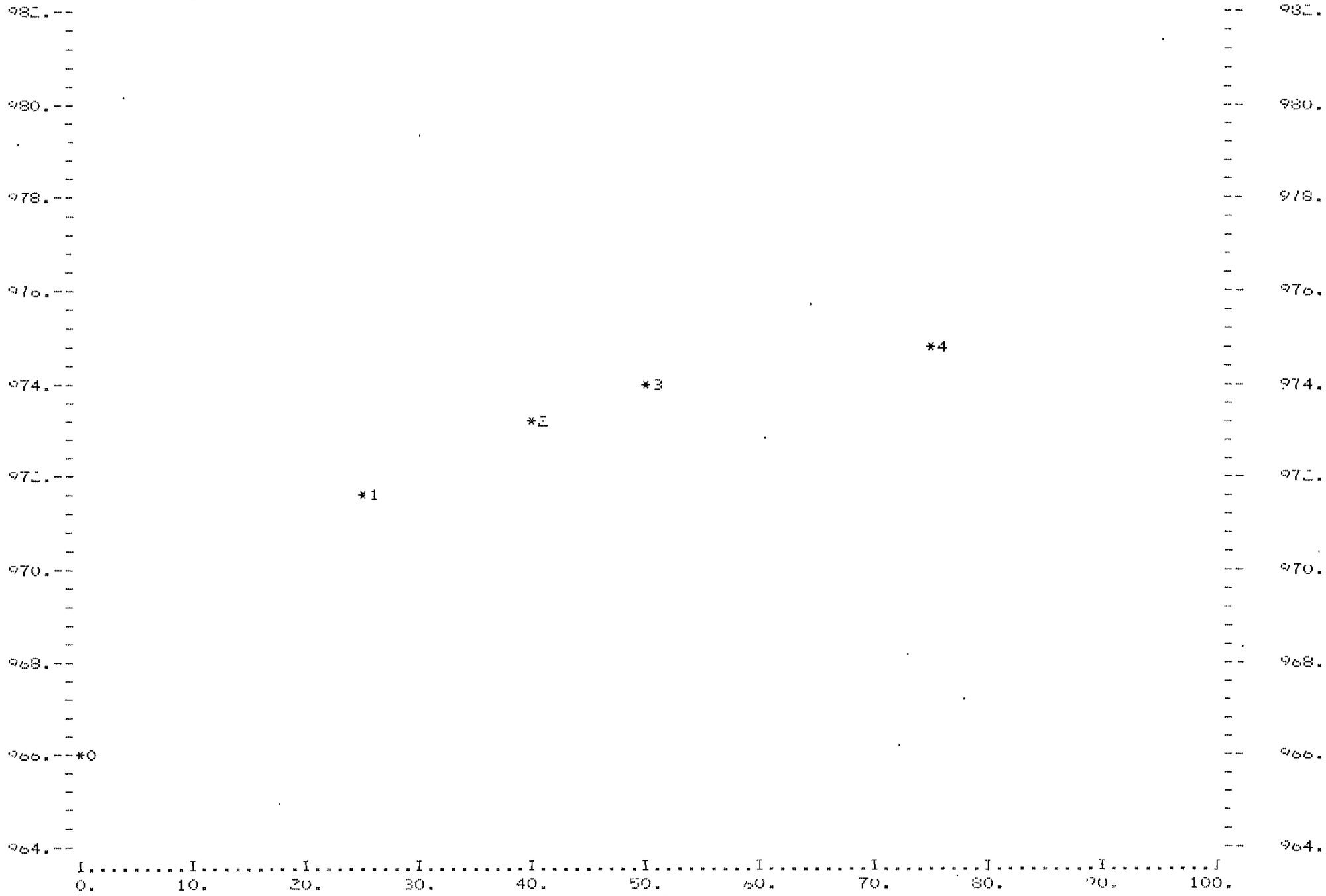
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	I D TOTAL	I D BY SEGMENT 1	2	3
966.00	0.					
967.	3.	5.	52.	1.	50.	1.
968.	10.	9.	318.	1.	316.	1.
969.	21.	13.	870.	1.	868.	1.
970.	36.	16.	1760.	1.	1758.	1.
971.	54.	20.	3045.	1.	3043.	1.
972.	75.	23.	4776.	1.	4774.	1.
973.	100.	27.	7005.	1.	7003.	1.
974.	128.	30.	9778.	1.	9776.	1.
975.	170.	49.	13731.	1.	13473.	114.
976.	227.	64.	18970.	1.	17794.	1058.
977.	304.	84.	26252.	19.	23002.	2955.

	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
979.	506.	116.	48188.	1342.	35754.	10996.	
980.	627.	129.	62938.	2391.	42955.	17592.	
981.	756.	129.	77983.	3082.	50002.	23653.	
982.	885.	129.	95296.	3708.	57637.	31200.	
983.	1014.	129.	115045.	4884.	65867.	40470.	
984.	1143.	129.	137399.	6027.	74701.	51719.	

***** WSPG MICROCOMPUTER TEST VERSION *****

CROSS SECTION 26.2

SCALES ARE 1 INCH = 10. CFS, AND 2.4 FEET/ ELEVATION



***** WSPG MICROCOMPUTER TEST VERSION *****

ROAD SECTION 26.5

NO.	HW FT	CFS	HL FT	TW FT	STARTING CSM	BRIDGE CFS	BRIDGE AREA SQ FT	CULVERT CFS	CULVERT AREA SQ FT	WEIR CFS	WEIR AREA SQ FT	WEIR TOP WIDTH FT
0	966.30	0.0	0.00	966.60	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	971.85	25.0	0.02	971.83	25.00	0.0	0.0	25.0	31.1	0.0	0.0	0.0
2	973.34	40.0	0.10	973.24	40.00	0.0	0.0	40.0	34.9	0.0	0.0	0.0
3	973.96	50.0	0.10	973.86	50.00	0.0	0.0	50.0	34.9	0.0	0.0	0.0
4	974.68	75.0	0.02	974.67	75.00	0.0	0.0	28.4	34.9	46.6	188.4	605.2

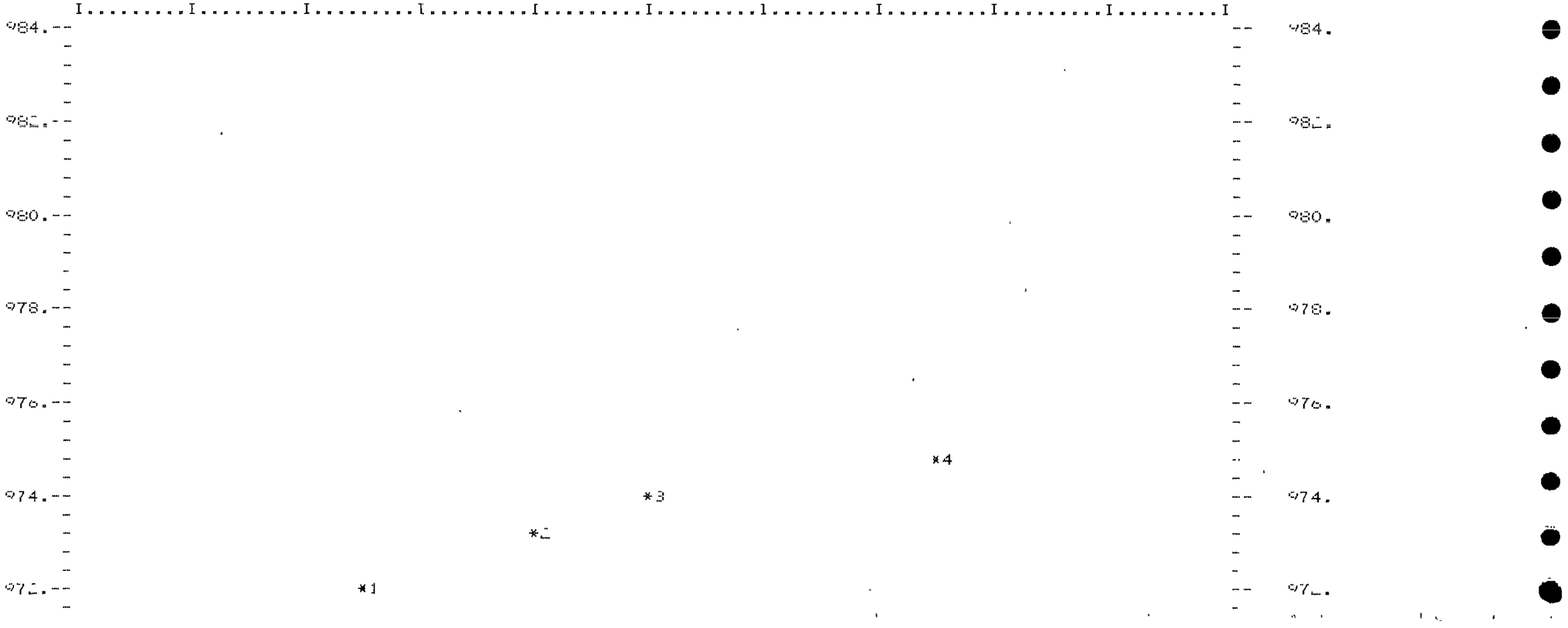
MIN ROAD ELEVATION = 974.10 FT

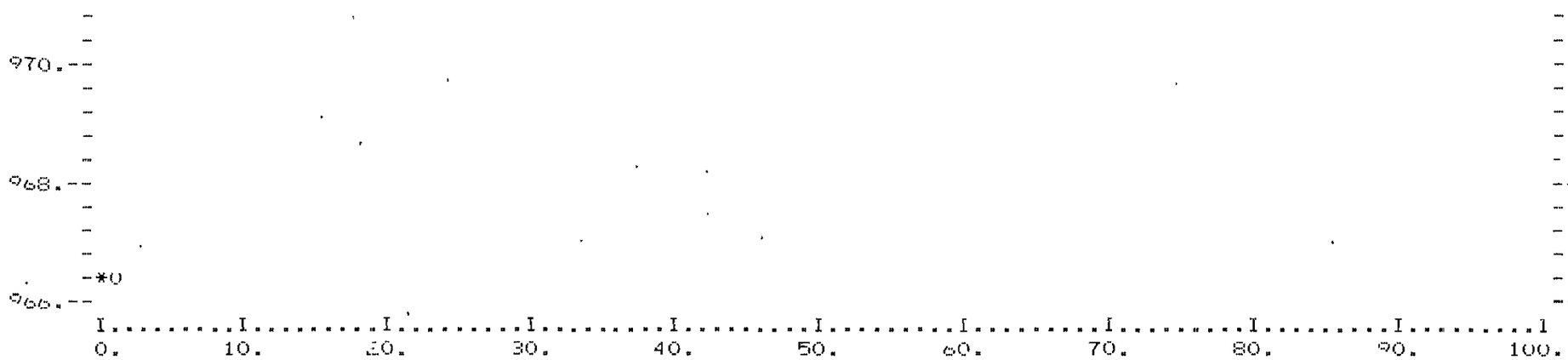
OPENING NO.	NO. CULVERTS	CULV. CODE	HEIGHT OR DIAM	WIDTH	LENGTH	U/S INVERT	D/S INVERT	(N) COEFF
1	1	12111.	6.67		80.00	966.30	966.60	0.032

***** WSPG MICROCOMPUTER TEST VERSION *****

ROAD SECTION 26.5

SCALES ARE 1 INCH = 10. CFS, AND 2.4 FEET/ ELEVATION





***** WSPG MICROCOMPUTER TEST VERSION *****

RATING TABLE FOR SECTION 26.7 DA= 1.0 SQ MI

NO.	ELEV FT	AREA SQ FT	Q CFS	ACRES FLOODED FLOODPLAIN DAMAGE	ACRES FLOODED CHANNEL	ACRES FLOODED TOTAL	STARTING CSM	CRIT ELEV FT	FRICTION SLOPE FT/FT	FLOW TOP WIDTH FT
0	967.9	0.0	0.0							
1	971.9	43.3	25.0	0.00	0.64	0.64	25.00	968.8	0.00011	16.6
2	973.4	71.8	40.0	0.00	0.93	0.93	40.00	969.1	0.00009	24.2
LOW GRND	973.7	78.8	42.5	0.00	1.03	1.03				26.8
BANK FULL	974.0	95.8	48.6	0.00	1.13	3.62				94.3
3	974.0	99.8	50.0	0.00	1.14	3.81	50.00	969.3	0.00008	99.2
4	974.7	228.8	75.0	0.00	1.15	8.07	75.00	969.6	0.00006	210.2

SEGMENT TABLE FOR SECTION 26.7

CSM		TOTAL	SEG NO 1 N	SEG NO 2 C	SEG NO 3 N
1	DISCHARGE CFS	25.	0.	25.	0.
25.	VELOCITY FPS	0.58	0.00	0.58	0.00
2	DISCHARGE CFS	40.	0.	40.	0.
40.	VELOCITY FPS	0.56	0.00	0.56	0.00
3	DISCHARGE CFS	50.	0.	49.	1.
50.	VELOCITY FPS	0.55	0.09	0.55	0.10
4	DISCHARGE CFS	75.	12.	53.	10.
75.	VELOCITY FPS	0.46	0.18	0.48	0.20
1	ELEV 971.9 FD	2362.	1.	2360.	1.
2	ELEV 973.4 FD	4297.	1.	4295.	1.
3	ELEV 974.0 FD	5436.	20.	5349.	67.
4	ELEV 974.7 FD	9242.	762.	7511.	968.

***** WSPG MICROCOMPUTER TEST VERSION *****

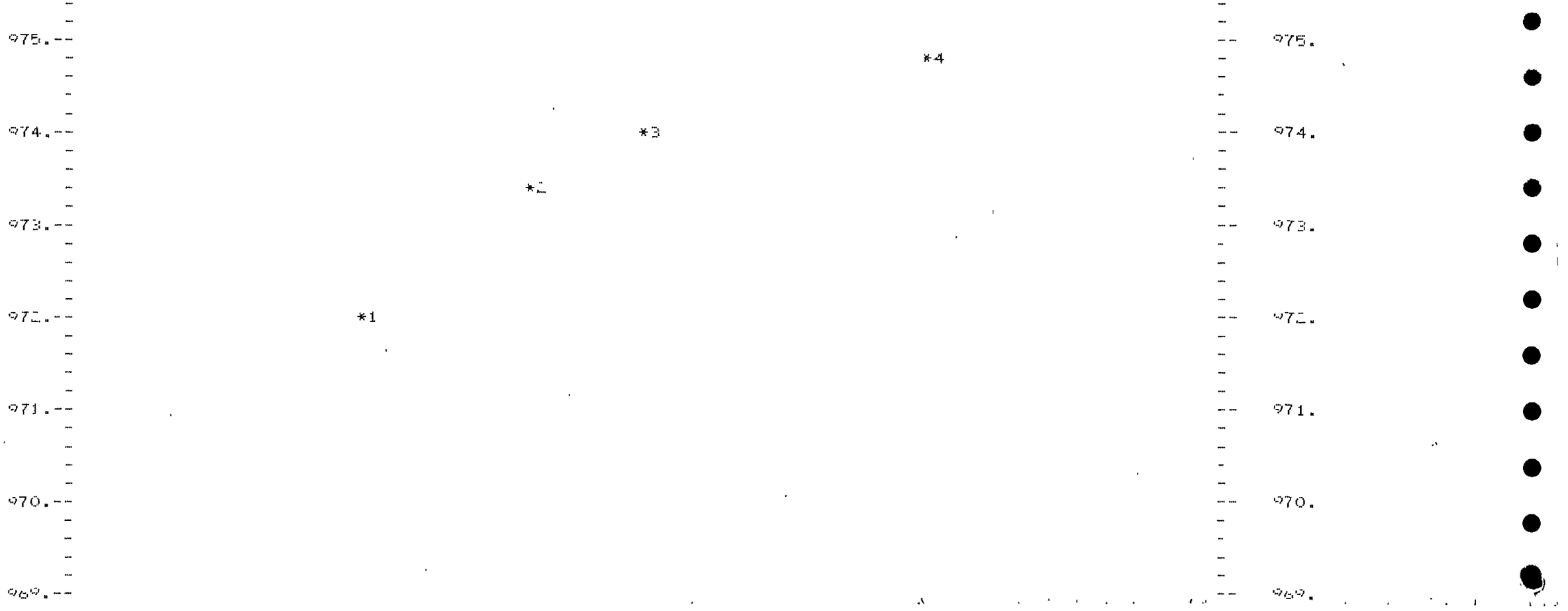
FD TABLE FOR CROSS SECTION 26.7

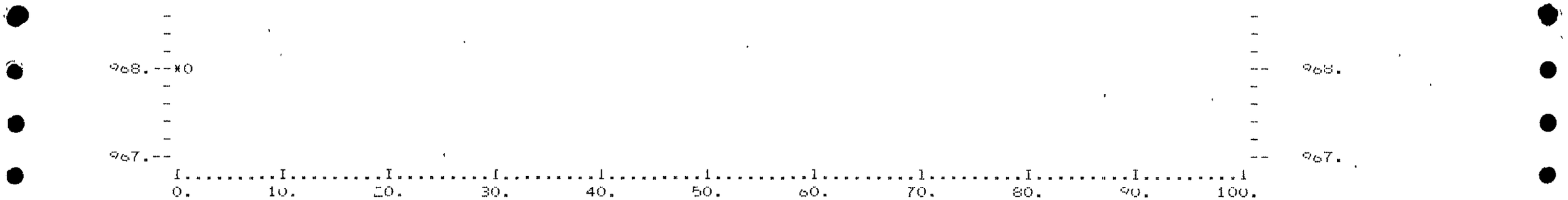
ELEVATION FT	AREA SQ FT	TOP WIDTH FT	I.D TOTAL	I.D BY SEGMENT 1	2	3
967.90	0.					
968.	0.	2.	3.	1.	2.	1.
969.	7.	8.	174.	1.	172.	1.
970.	16.	11.	623.	1.	621.	1.
971.	29.	14.	1363.	1.	1361.	1.
972.	44.	17.	2429.	1.	2427.	1.
973.	63.	21.	3761.	1.	3759.	1.
974.	96.	94.	5334.	16.	5262.	56.
975.	295.	253.	12667.	1585.	8446.	1636.
976.	546.	341.	29561.	10078.	12386.	6460.
977.	957.	381.	57969.	25798.	16898.	14994.
978.	1358.	421.	96327.	46204.	21949.	28008.
979.	1801.	460.	144380.	70589.	27499.	46108.
980.	2276.	489.	204358.	99099.	33658.	71474.
981.	2774.	500.	275236.	130121.	40012.	104828.
982.	3274.	500.	342436.	158958.	46549.	135544.
983.	3774.	500.	419711.	191471.	53596.	171465.
984.	4274.	500.	507753.	227937.	61153.	214104.

***** WSP2 MICROCOMPUTER TEST VERSION *****

CROSS SECTION 26.7

SCALES ARE 1 INCH = 10. CFS, AND 1.2 FEET/ ELEVATION





***** WSPG MICROCOMPUTER TEST VERSION *****

---------- LIST OF INPUT DATA WITH LIMITED EDITING----------

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END                                                          749
ENDJOB                                                       750
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**********NORMAL END OF JOB----------

***** WSPG MICROCOMPUTER TEST VERSION *****

---------- LIST OF INPUT DATA WITH LIMITED EDITING----------

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ENDRUN                                                       751
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00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: St. Joseph Township

3) WATERCOURSE: St. Joseph River

4) DOCUMENT TYPE: Summary & Input

00BREAK00

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*****************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08
MODIFICATIONS 52,53,54,55,56,57,58
*****************************************
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C
T1      HUD FLOOD INSURANCE STUDY                WILLIAMS AND WORKS, INC
T2      ST. JOSEPH TOWNSHIP                      83996
T3      ST. JOSEPH RIVER 100-YR  STORM           FEBRUARY, 1978

J1  ICHECK    INQ      NINV     IDTR     STRT     METRIC   HVINS    Q        WSEL     FQ

      0.       2.       0.       0.  0.000000     0.00     -1.0      0.   582.620   0.000

J2  NPROF     IFLOT    PREVS    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     34.000    1.000    3.000    4.000   35.000   27.000   28.000    0.000    0.000    0.000
NC      0.080    0.080    0.033    0.100    0.300    0.000    0.000    0.000    0.000    0.000
QT      5.000 23280.000 23280.000 27240.000 21620.000 17630.000    0.000    0.000    0.000    0.000
NH      5.000    0.070  281.000    0.033  582.000    0.060  942.000    0.033 1373.000    0.060
NH   1973.000    0.000    0.000    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

        CROSS SECTION  A

X1      2.110   49.000  281.000 1373.000    0.000    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    0.000    0.000    0.000
GR    586.300  100.000  586.300  160.000  584.900  182.000  585.200  281.000  580.700  287.000
GR    577.700  292.000  572.600  302.000  571.200  317.000  572.600  332.000  574.700  337.000
GR    575.700  387.000  576.700  417.000  576.800  427.000  577.200  447.000  577.400  467.000
GR    577.600  487.000  576.900  507.000  576.800  527.000  578.300  547.000  580.600  560.000
GR    581.900  569.000  587.800  582.000  586.500  627.000  587.400  682.000  586.600  727.000
GR    586.300  822.000  585.400  942.000  581.900  944.000  580.900  957.000  576.600  963.000
GR    573.800  973.000  571.800  988.000  570.300 1023.000  570.000 1053.000  569.900 1078.000
GR    569.400 1103.000  568.100 1133.000  568.800 1173.000  569.200 1198.000  568.800 1228.000
GR    568.800 1253.000  569.200 1273.000  570.400 1298.000  576.500 1316.000  578.400 1323.000
GR    580.600 1342.000  579.700 1355.000  582.500 1366.000  586.000 1373.000    0.000    0.000
NH      5.000    0.100  463.000    0.033 1024.000    0.080 1265.000    0.033 1428.000    0.120
NH   1865.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000

        CROSS SECTION  B

X1      2.420   57.000  463.000 1428.000 1650.000 1650.000 1650.000    0.000    0.000    0.000
X3     10.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000    0.000
GR    589.800  100.000  589.800  175.000  587.100  190.000  583.700  265.000  583.600  365.000
GR    583.300  463.000  581.300  464.000  580.200  470.000  578.700  485.000  576.700  500.000
GR    576.200  520.000  574.700  540.000  573.900  565.000  574.100  590.000  574.200  615.000
GR    573.100  645.000  572.400  665.000  571.500  685.000  570.700  705.000  569.600  740.000
GR    569.700  765.000  569.700  785.000  569.700  815.000  570.400  840.000  570.500  865.000
GR    570.500  890.000  570.900  915.000  571.000  940.000  571.700  965.000  573.400  980.000
```

GR	575.500	593.000	580.400	1011.000	581.600	1022.000	586.200	1024.000	587.700	1100.000
GR	587.200	1165.000	586.000	1265.000	582.100	1271.000	580.000	1276.000	576.900	1250.000
GR	576.400	1302.000	575.500	1321.000	572.400	1346.000	572.200	1365.000	572.300	1350.000
GR	575.300	1400.000	579.500	1415.000	581.700	1426.000	R/583.100	1428.000	581.000	1447.000
GR	580.100	1515.000	582.300	1627.000	583.500	1650.000	585.500	1665.000	589.700	1732.000
GR	588.300	1765.000	588.900	1865.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.100	320.000	0.033	982.000	0.100	1068.000	0.033	1272.000	0.070
NH	1019.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CROSS SECTION C

X1	2.690	54.000	320.000	1272.000	1373.000	1373.000	1373.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	595.000	100.000	595.000	146.000	593.200	172.000	588.700	252.000	584.100	265.000
GR	588.000	282.000	584.000	320.000 C	578.600	337.000	577.300	342.000	575.500	372.000
GR	575.100	392.000	574.500	412.000	575.300	437.000	575.900	472.000	573.800	507.000
GR	574.900	542.000	574.000	567.000	572.700	602.000	571.200	642.000	571.300	672.000
GR	571.000	702.000	570.700	737.000	570.700	772.000	571.400	792.000	570.400	822.000
GR	569.300	837.000	570.400	868.000	571.600	807.000	573.400	909.000	574.400	937.000
GR	578.100	944.000	581.300	964.000	581.800	974.000	587.600	982.000	584.500	1022.000
GR	586.500	1068.000	580.500	1097.000	575.300	1105.000	573.900	1122.000	576.100	1136.000
GR	577.300	1172.000	577.000	1192.000	575.500	1212.000	575.600	1229.000	576.800	1238.000
GR	580.900	1251.000	585.300	1252.000	R/587.500	1272.000	586.000	1372.000	585.500	1472.000
GR	585.400	1572.000	585.100	1672.000	585.100	1772.000	588.200	1819.000	0.000	0.000
NC	0.070	0.070	0.033	0.200	0.500	0.000	0.000	0.000	0.000	0.000

CROSS SECTION D -IMMED. DOWNSTREAM OF NAPIER AVE. BRIDGE

X1	2.960	29.000	311.000	767.000	1500.000	1500.000	1500.000	0.000	0.000	0.000
GR	629.300	100.000	617.400	202.000	616.800	205.000	593.900	249.000	592.100	304.000
GR	591.500	311.000	583.100	330.000	577.500	333.000	574.100	358.000	568.300	386.000
GR	567.400	415.000	567.900	444.000	569.200	473.000	567.600	499.000	566.600	501.000
GR	570.500	527.000	571.200	556.000	571.500	585.000	572.600	614.000	572.800	642.000
GR	570.800	668.000	570.900	671.000	573.700	696.000	574.100	720.000	569.700	745.000
GR	583.400	767.000	594.300	795.000	594.400	798.000	602.400	822.000	0.000	0.000
X1	2.970	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000

CROSS SECTION E -NAPIER AVE BRIDGE -DOWNSTREAM FACE

X1	2.980	35.000	311.000	767.000	1.000	1.000	1.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	595.500	602.400	0.000	0.000	0.000	0.000	0.000
GR	629.300	100.000	617.400	202.000	616.800	205.000	593.900	249.000	592.100	304.000
GR	591.500	311.000	583.100	329.700	609.600	329.800	609.600	332.300	577.500	332.500
GR	574.100	358.000	568.300	386.000	567.400	415.000	567.900	444.000	569.200	473.000
GR	567.600	498.700	603.800	498.800	603.800	501.300	566.600	501.400	570.500	527.000
GR	571.200	556.000	571.500	585.000	572.600	614.000	572.800	642.000	570.800	667.700
GR	596.700	667.800	596.700	670.300	570.900	670.400	573.700	696.000	574.100	720.000
GR	569.700	745.000	583.400	767.000	594.300	795.000	594.400	798.000	602.400	822.000

CROSS SECTION F -NAPIER AVE BRIDGE -UPSTREAM FACE

X1	2.990	0.000	0.000	0.000	70.000	70.000	70.000	0.000	0.000	0.000
X2	0.000	0.000	0.000	595.500	602.400	0.000	0.000	0.000	0.000	0.000

CROSS SECTION G -IMMED. UPSTREAM OF NAPIER AVE. BRIDGE

X1	2.995	29.000	311.000	767.000	1.000	1.000	1.000	0.000	0.000	0.000
GR	629.300	100.000	617.400	202.000	616.800	205.000	593.900	249.000	592.100	304.000
GR	591.500	311.000	583.100	330.000	577.500	333.000	574.100	358.000	568.300	386.000
GR	567.400	415.000	567.900	444.000	569.200	473.000	567.600	499.000	566.600	501.000
GR	570.500	527.000	571.200	556.000	571.500	585.000	572.600	614.000	572.800	642.000
GR	570.800	668.000	570.900	671.000	573.700	696.000	574.100	720.000	569.700	745.000
GR	583.400	767.000	594.300	795.000	594.400	798.000	602.400	822.000	0.000	0.000
X1	3.000	0.000	0.000	0.000	50.000	50.000	50.000	0.000	0.000	0.000
NC	0.080	0.050	0.033	0.100	0.300	0.000	0.000	0.000	0.000	0.000

CROSS SECTION H

X1	3.040	35.000	233.000	702.000	225.000	225.000	225.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	592.000	100.000	592.000	118.000	592.500	233.000	582.000	250.000	580.200	261.000
GR	578.500	267.000	572.700	277.000	571.300	297.000	570.400	322.000	570.200	342.000
GR	570.200	367.000	569.100	402.000	568.800	427.000	569.300	452.000	570.700	477.000
GR	572.500	512.000	572.700	552.000	573.600	572.000	574.500	607.000	574.200	627.000
GR	574.200	648.000	574.700	667.000	577.500	684.000	582.200	690.000	585.000	693.000
GR	586.700	702.000	584.100	802.000	581.300	902.000	583.700	1002.000	583.500	1102.000
GR	583.100	1202.000	582.900	1302.000	582.100	1402.000	588.200	1502.000	597.900	1548.000
NH	5.000	0.100	151.000	0.045	264.000	0.100	536.000	0.033	1065.000	0.060
NH	1300.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CROSS SECTION I

X1	3.430	51.000	536.000	1065.000	2050.000	2050.000	2050.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	151.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	608.800	100.000	595.300	117.000	594.700	132.000	586.700	151.000	583.600	201.000
GR	581.600	209.000	578.400	217.000	577.100	230.000	577.200	240.000	581.700	262.000
GR	583.500	263.000	583.600	267.000	582.800	367.000	581.700	467.000	582.900	536.000
GR	581.100	545.000	580.300	553.000	577.500	567.000	575.500	582.000	574.900	602.000
GR	575.500	632.000	574.600	667.000	573.900	707.000	573.400	757.000	572.700	786.000
GR	572.100	817.000	572.200	849.000	572.200	882.000	571.800	922.000	571.600	957.000
GR	571.300	980.000	570.000	1004.000	576.900	1033.000	582.300	1041.000	582.800	1058.000
GR	586.200	1065.000	586.400	1070.000	584.200	1086.000	582.400	1167.000	581.800	1267.000
GR	582.600	1367.000	583.100	1467.000	582.500	1567.000	582.200	1667.000	581.600	1767.000
GR	581.700	1867.000	582.400	1967.000	582.700	2067.000	582.900	2167.000	583.500	2267.000
GR	586.000	2367.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NH	5.000	0.070	1440.000	0.035	1804.000	0.100	2238.000	0.035	2467.000	0.060
NH	2540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CROSS SECTION J

X1	3.510	51.000	1440.000	2467.000	2530.000	2530.000	2530.000	0.000	0.000	0.000
QT	5.000	23190.000	23190.000	27160.000	21510.000	17490.000	0.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	1250.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	595.900	100.000	595.000	172.000	587.100	272.000	585.500	372.000	584.700	472.000
GR	584.400	572.000	583.200	672.000	583.600	772.000	584.000	872.000	584.300	972.000
GR	584.500	1072.000	584.700	1172.000	585.100	1272.000	584.600	1372.000	582.900	1440.000

GR	581.300	1448.000	574.200	1461.000	571.700	1482.000	572.700	1507.000	573.100	1542.000
GR	573.200	1577.000	573.300	1632.000	574.700	1685.000	576.100	1727.000	575.900	1742.000
GR	575.900	1770.000	582.300	1802.000	584.400	1804.000	584.100	1872.000	583.500	1972.000
GR	585.300	2072.000	585.700	2172.000	594.400	2190.000	589.200	2202.000	587.500	2212.000
GR	587.200	2219.000	588.700	2233.000	590.600	2238.000	591.200	2252.000	590.900	2261.000
GR	582.100	2263.000	577.700	2290.000	576.100	2317.000	574.900	2344.000	574.700	2377.000
GR	574.700	2416.000	577.900	2441.000	582.100	2451.000	591.800	2467.000	594.600	2497.000
GR	600.200	2540.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.060	0.070	0.033	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CROSS SECTION K

X1	4.260	36.000	114.000	561.000	1850.000	1850.000	1850.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
GR	598.500	100.000	583.900	114.000	582.900	115.000	581.400	128.000	577.700	138.000
GR	574.100	148.000	572.300	168.000	571.500	188.000	570.900	208.000	571.300	228.000
GR	571.400	248.000	572.000	268.000	572.600	288.000	573.000	308.000	573.900	328.000
GR	574.400	348.000	575.000	368.000	575.500	388.000	575.500	408.000	575.800	428.000
GR	575.800	448.000	576.000	468.000	576.000	488.000	575.500	508.000	575.300	528.000
GR	579.000	538.000	581.300	548.000	582.100	557.000	584.700	561.000	583.800	668.000
GR	582.400	758.000	584.900	868.000	583.000	968.000	582.600	988.000	583.000	1198.000
GR	602.700	1248.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NC	0.060	0.045	0.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

X1	4.500	19.000	160.000	480.000	1250.000	1250.000	1250.000	0.000	0.000	0.000
GR	610.000	100.000	600.000	130.000	584.000	150.000	581.400	160.000	577.700	167.000
GR	574.100	175.000	572.300	190.000	570.900	221.000	571.500	297.000	574.000	357.000
GR	574.300	402.000	574.500	432.000	574.000	447.000	573.800	462.000	581.300	480.000
GR	585.000	490.000	585.000	1450.000	590.000	1500.000	600.000	1575.000	0.000	0.000
NC	0.050	0.060	0.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CROSS SECTION L

X1	4.890	35.000	1158.000	1500.000	2250.000	750.000	2053.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	584.500	0.000	0.000
GR	590.000	20.000	584.900	100.000	584.200	200.000	583.400	300.000	582.900	400.000
GR	582.800	500.000	583.700	600.000	584.700	700.000	584.300	800.000	583.700	900.000
GR	584.600	1000.000	584.200	1100.000	584.500	1155.000	582.400	1158.000	581.100	1170.000
GR	579.500	1180.000	576.500	1200.000	576.400	1220.000	576.100	1240.000	575.500	1260.000
GR	574.600	1280.000	573.600	1300.000	572.600	1320.000	572.200	1340.000	571.400	1360.000
GR	570.600	1380.000	569.600	1400.000	569.300	1420.000	568.700	1440.000	569.800	1460.000
GR	577.700	1480.000	580.600	1485.000	582.400	1496.000	589.100	1500.000	619.400	1518.000
NC	0.050	0.100	0.032	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CROSS SECTION M

X1	5.420	51.000	1090.000	1611.000	1700.000	3800.000	2800.000	0.000	0.000	0.000
X3	10.000	0.000	0.000	0.000	0.000	0.000	0.000	586.600	0.000	0.000
GR	600.000	0.000	585.400	100.000	585.300	200.000	583.600	300.000	582.000	400.000
GR	583.500	500.000	585.000	600.000	585.000	700.000	583.800	800.000	586.600	900.000
GR	585.400	1000.000	584.200	1090.000	583.600	1100.000	581.300	1120.000	580.000	1140.000
GR	578.600	1160.000	577.900	1180.000	577.500	1200.000	577.000	1220.000	576.900	1240.000
GR	577.000	1260.000	576.800	1280.000	576.400	1300.000	576.300	1320.000	576.300	1340.000
GR	576.200	1360.000	575.900	1380.000	575.600	1400.000	575.300	1420.000	575.100	1440.000
GR	574.800	1460.000	574.300	1480.000	574.300	1500.000	573.900	1520.000	573.200	1540.000

GR	572.200	1560.000	574.700	1580.000	576.500	1590.000	580.500	1604.000	585.300	1611.000
GR	584.600	1700.000	584.100	1800.000	583.700	1900.000	583.400	2000.000	583.100	2100.000
GR	582.500	2200.000	581.800	2300.000	582.800	2400.000	584.200	2500.000	583.600	2600.000
GR	600.000	3500.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
EJ	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

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CCHV=   0.100 CEHV=   0.300
1490 NH CARD USED

3265 DIVIDED FLOW

   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       XACH      XNR       WTN       ELMIN       SSTA
   SLOPE     XLOBL     XLCH      XLOBR     ITRIAL    IDC       ICONT     CORAR     TOPWID      ENDST

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      585.20 ELREA=      586.00

          CROSS SECTION  A

      2.11     14.52   582.62     0.00   582.62   582.82     0.20     0.00     0.00   585.20
  23280.        0.    23279.        0.        0.   6443.        0.        0.        0.   586.00
      0.00     0.00     3.61     0.00     0.000    0.033    0.000    0.000   568.10   284.43
 0.000272        0.       0.        0.        0        0        1     0.00   708.79  1366.23

1490 NH CARD USED

3265 DIVIDED FLOW

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      583.30 ELREA=      583.10

          CROSS SECTION  B

      2.42     13.47   583.07     0.00     0.00   583.24     0.17     0.41     0.00   583.30
  23280.        0.    23280.        0.        0.   6953.        0.      253.       27.   583.10
      0.13     0.00     3.34     0.00     0.000    0.033    0.000    0.032   569.60   463.11
 0.000237     1650.    1650.     1650.        0        0        1     0.00   717.97  1427.95

1490 NH CARD USED

3265 DIVIDED FLOW

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      584.00 ELREA=      587.50

          CROSS SECTION  C

      2.69     14.10   583.41     0.00     0.00   583.55     0.14     0.30     0.00   584.00
  23280.        0.    23279.        0.        0.   7600.        0.      483.       51.   587.50
      0.26     0.00     3.06     0.00     0.000    0.032    0.000    0.032   569.30   321.84
 0.000212     1373.    1373.     1373.        1        0        1     0.00   823.04  1251.57

CCHV=   0.200 CEHV=   0.500
```

CROSS SECTION D -IMMED. DOWNSTREAM OF NAPIER AVE. BRIDGE

2.96	17.12	583.72	0.00	0.00	584.01	0.28	0.38	0.06	591.50
23280.	0.	23279.	0.	0.	5457.	0.	707.	73.	583.40
0.35	0.00	4.26	0.10	0.070	0.033	0.070	0.032	566.60	328.57
0.000320	1500.	1500.	1500.	3	0	1	0.00	439.26	767.84

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
G	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	ICC	ICONT	CORAR	TOPWID	ENDST

2.97	17.14	583.74	0.00	0.00	584.02	0.28	0.01	0.00	591.50
23280.	0.	23279.	0.	0.	5463.	0.	714.	73.	583.40
0.36	0.00	4.26	0.11	0.070	0.033	0.070	0.032	566.60	328.54
0.000318	50.	50.	50.	0	0	1	0.00	439.33	767.87

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 0 MIN ELTRD= 602.40 MAX ELLC= 595.50

CROSS SECTION E -NAPIER AVE BRIDGE -DOWNSTREAM FACE

2.98	17.14	583.74	0.00	0.00	584.03	0.29	0.00	0.00	591.50
23280.	0.	23279.	0.	0.	5378.	0.	714.	73.	583.40
0.36	0.00	4.32	0.12	0.070	0.033	0.070	0.032	566.60	328.27
0.000391	1.	1.	1.	0	0	1	0.00	431.64	767.87

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 0 MIN ELTRD= 602.40 MAX ELLC= 595.50

CROSS SECTION F -NAPIER AVE BRIDGE -UPSTREAM FACE

2.99	17.16	583.77	0.00	0.00	584.05	0.28	0.02	0.00	591.50
23280.	0.	23279.	0.	0.	5389.	0.	722.	74.	583.40
0.36	0.00	4.31	0.12	0.070	0.033	0.070	0.032	566.60	328.21
0.000389	70.	70.	70.	0	0	1	0.00	431.76	767.94

CROSS SECTION G -IMMED, UPSTREAM OF NAPIER AVE, BRIDGE

2.99	17.18	583.78	0.00	0.00	584.06	0.28	0.00	0.00	591.50
23280.	0.	23279.	0.	0.	5477.	0.	723.	74.	583.40
0.36	0.00	4.25	0.11	0.070	0.033	0.070	0.032	566.60	328.47
0.000316	1.	1.	1.	1	0	1	0.00	439.48	767.96

3.00	17.15	583.79	0.00	0.00	584.07	0.27	0.01	0.00	591.50
23280.	0.	23279.	0.	0.	5484.	0.	729.	74.	583.40
0.37	0.00	4.24	0.12	0.070	0.033	0.070	0.032	566.60	328.43
0.000314	50.	50.	50.	0	0	1	0.00	439.57	768.00

CCHV= 0.100 CEHV= 0.300

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 592.50 ELREA= 586.70

CROSS SECTION h

3.04	15.04	583.84	0.00	0.00	584.17	0.32	0.08	0.01	592.50
23280.	0.	23280.	0.	0.	5065.	0.	756.	77.	586.70
0.38	0.00	4.59	0.00	0.080	0.033	0.050	0.032	568.80	246.99
0.000412	225.	225.	225.	1	0	1	0.00	444.77	691.77

1490 NH CARD USED

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

3470 ENCROACHMENT STATIONS= 151.0 2367.0 TYPE= 1 TARGET= -151.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.90 ELREA= 586.20

CROSS SECTION I

3.43	14.67	584.67	0.00	0.00	584.91	0.24	0.73	0.00	582.90
23280.	881.	22398.	0.	903.	5575.	0.	1028.	108.	586.20
0.52	0.97	4.01	0.00	0.060	0.032	0.050	0.032	570.00	183.66
0.000314	2050.	2050.	2050.	2	0	1	0.00	878.19	1061.85

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1250.0 2540.0 TYPE= 1 TARGET= -1250.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.90 ELREA= 591.80

CROSS SECTION J

3.91	13.87	585.57	0.00	0.00	585.79	0.22	0.87	0.00	582.90
23190.	103.	23086.	0.	207.	6081.	0.	1399.	165.	591.80
0.71	0.50	3.79	0.00	0.070	0.035	0.050	0.032	571.70	1250.00
0.000383	2530.	2530.	2530.	3	0	1	0.00	1084.35	2456.72

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    3.04     15.04    583.84     0.00    583.84    584.17     0.32     0.08     0.01    592.50
  23280.        0.    23280.       0.        0.     5061.       0.     756.      77.    586.70
    0.38      0.00      4.59     0.00     0.080     0.033    0.050    0.032   568.80    247.01
 0.000413     225.      225.     225.         3         0        1     0.00   444.75    691.76

1490 NH CARD USED

3470 ENCROACHMENT STATIONS=     151.0     2367.0  TYPE=     1  TARGET=    -151.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      582.90 ELREA=      586.20

          CROSS SECTION  I

    3.43     14.67    584.67     0.00    584.67    584.91     0.24     0.73     0.00    582.90
  23280.      883.    22396.       0.      906.     5579.       0.     1028.     108.    586.20
    0.52      0.97      4.01     0.00     0.060     0.032    0.059    0.032   570.00    183.55
 0.000313    2050.     2050.    2050.         3         0        1     0.00   878.32   1061.87

1490 NH CARD USED

3265 DIVIDED FLOW

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

3470 ENCROACHMENT STATIONS=    1250.0     2540.0  TYPE=     1  TARGET=   -1250.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA=      582.90 ELREA=      591.80

          CROSS SECTION  J

    3.91     13.87    585.57     0.00    585.57    585.79     0.22     0.87     0.00    582.90
  23190.      103.    23086.       0.      207.     6081.       0.     1399.     165.    591.80
    0.71      0.50      3.79     0.00     0.070     0.035    0.059    0.032   571.70   1250.00
 0.000383    2530.     2530.    2530.         5         0        1     0.00  1084.32   2456.72

2800 NAT Q1=  12461.63  WSEL=     586.21  ENC Q1=  12461.63  WSEL=     586.31  RATIO=  0.0000
NAT Q1=  12678.  RATIOS LOB,CH,ROB=  0.0000  0.9352  0.0647  WSEL=     586.31

3470 ENCROACHMENT STATIONS=     114.0     1074.8  TYPE=     4  TARGET=       0.017

          CROSS SECTION  K

    4.26     15.32    586.22     0.00    586.21    586.49     0.27     0.68     0.01    583.90
  23190.        0.    22096.    1093.        0.     5128.    1374.    1670.     208.    584.70
    0.83      0.00      4.30     0.79     0.060     0.033    0.070    0.032   570.90    114.00
 0.000360    1850.     1850.    1850.         3         0        1     0.00   960.82   1074.82

2800 NAT Q1=  11798.48  WSEL=     586.59  ENC Q1=  11798.48  WSEL=     586.69  RATIO=  0.0000
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 NAT Q1=  12013.  RATICS LOB,CH,RCB=  0.0021  0.9319  0.0659  WSEL=    586.69

3470 ENCROACHMENT STATIONS=     160.0    1217.2  TYPE=     4  TARGET=       0.017
    4.50    15.71   586.61     0.00   586.59   587.01.     0.39     0.47     0.03   581.40
   23190.       0.   22064.    1125.       0.    4272.    1209.    1842.     237.    581.30
    0.90     0.00     5.16     0.92    0.060    0.032    0.045    0.032   570.90   160.00
0.000404     1250.    1250.    1250.        4        0        1     0.00  1057.23  1217.23


2800 NAT Q1=  14384.27  WSEL=    587.39  ENC Q1=  14384.27  WSEL=    587.49  RATIO=  0.0000
 NAT Q1=  14651.  RATICS LOB,CH,RCB=  0.1844  0.8155  0.0000  WSEL=    587.49

3470 ENCROACHMENT STATIONS=     226.1    1500.0  TYPE=     4  TARGET=       0.018

          CROSS SECTION  L

    4.89    18.75   587.45     0.00   587.39   587.68     0.23     0.65     0.01   582.40
   23190.    3886.   19303.       0.    3371.    4579.       0.    2148.     283.    589.10
    1.06     1.15     4.21     0.00    0.050    0.032    0.060    0.032   568.70   226.10
0.000263     2250.    2053.     750.        3        0        1     0.00  1272.90  1499.01


2800 NAT Q1=  18646.37  WSEL=    588.06  ENC Q1=  18646.36  WSEL=    588.16  RATIO=  0.0000
 NAT Q1=  19044.  RATICS LOB,CH,RCB=  0.1406  0.7476  0.1117  WSEL=    588.16

3470 ENCROACHMENT STATIONS=     208.6    2568.7  TYPE=     4  TARGET=       0.020

          CROSS SECTION  M

    5.42    15.92   588.12     0.00   588.06   588.23     0.10     0.53     0.01   584.20
   23190.    3066.   17742.    2380.    3289.    6000.    4487.    2814.     388.    585.30
    1.36     0.93     2.95     0.53    0.050    0.032    0.100    0.032   572.20   208.66
0.000156     1700.    2800.    3800.        3        0        1     0.00  2360.11  2568.78
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**********************************************
HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08
MODIFICATIONS 52,53,54,55,56,57,58
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T1      HUD FLOOD INSURANCE STUDY          WILLIAMS AND WORKS, INC.
T2      ST. JOSEPH TOWNSHIP                83996
T3      ST. JOSEPH R. 500 YR.              FEBRUARY, 1978

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.       4.        0.        0.  0.000000      0.00     -1.0       0.    583.090     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 141 3

PRINTED IN U.S.A.

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED

3265 DIVIDED FLOW

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

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 585.20 ELREA= 586.00

CROSS SECTION A

2.11	14.98	583.09	0.00	583.09	583.34	0.25	0.00	0.00	585.20
27240.	0.	27239.	0.	0.	6776.	0.	0.	0.	586.00
0.00	0.00	4.01	0.00	0.000	0.032	0.000	0.000	568.10	283.81
0.000322	0.	0.	0.	0	0	1	0.00	711.66	1367.17

1490 NH CARD USED

3265 DIVIDED FLOW

CROSS SECTION B

2.42	14.02	583.62	0.00	0.00	583.83	0.20	0.48	0.00	583.30
27240.	1.	27038.	200.	17.	7349.	526.	277.	33.	583.10
0.12	0.07	3.67	0.37	0.099	0.033	0.119	0.032	569.60	343.14
0.000269	1650.	1650.	1650.	0	0	1	0.00	1061.98	1650.91

1490 NH CARD USED

3265 DIVIDED FLOW

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.00 ELREA= 587.50

CROSS SECTION C

2.69	14.70	584.00	0.00	0.00	584.18	0.17	0.34	0.00	584.00
27240.	0.	27239.	0.	0.	8089.	0.	529.	63.	587.50
0.23	0.00	3.36	0.00	0.099	0.032	0.119	0.032	569.30	319.93
0.000240	1373.	1373.	1373.	3	0	1	0.00	828.76	1251.70

CCHV= 0.200 CEHV= 0.500

CROSS SECTION D -IMPEC. DOWNSTREAM OF NAPIER AVE. BRIDGE

2.96	17.76	584.36	0.00	0.00	584.71	0.35	0.44	0.08	591.50

27240.	0.	27235.	0.	0.	5735.	1.	767.	85.	583.40
0.32	0.00	4.74	0.24	0.070	0.033	0.070	0.032	566.60	327.14
0.000372	1500.	1500.	1500.	3	0	1	0.00	442.33	769.47

SECNO	DEPTH	CRSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
G	QLOB	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
2.97	17.78	584.38	0.00	0.00	584.73	0.34	0.01	0.00	591.50
27240.	0.	27239.	0.	0.	5742.	1.	774.	85.	583.40
0.32	0.00	4.74	0.24	0.070	0.033	0.070	0.032	566.60	327.10
0.000371	50.	50.	50.	0	0	1	0.00	442.40	769.51

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 0 MIN ELTRD= 602.40 MAX ELLC= 595.50

CROSS SECTION E -NAPIER AVE BRIDGE -DOWNSTREAM FACE

2.98	17.77	584.37	0.00	0.00	584.73	0.36	0.00	0.00	591.50
27240.	0.	27239.	0.	0.	5653.	1.	774.	85.	583.40
0.32	0.00	4.81	0.26	0.070	0.033	0.070	0.032	566.60	326.85
0.000460	1.	1.	1.	0	0	1	0.00	434.70	769.51

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 0 MIN ELTRD= 602.40 MAX ELLC= 595.50

CROSS SECTION F -NAPIER AVE BRIDGE -UPSTREAM FACE

2.99	17.81	584.41	0.00	0.00	584.77	0.35	0.03	0.00	591.50
27240.	0.	27239.	0.	0.	5666.	1.	783.	86.	583.40
0.33	0.00	4.80	0.27	0.070	0.033	0.070	0.032	566.60	326.78
0.000457	70.	70.	70.	0	0	1	0.00	434.84	769.58

CROSS SECTION G -IMMED. UPSTREAM OF NAPIER AVE. BRIDGE

2.99	17.82	584.42	0.00	0.00	584.77	0.34	0.00	0.00	591.50
27240.	0.	27239.	0.	0.	5759.	1.	783.	86.	583.40
0.33	0.00	4.72	0.24	0.070	0.033	0.070	0.032	566.60	327.02
0.000368	1.	1.	1.	1	0	1	0.00	442.59	769.61
3.00	17.84	584.44	0.00	0.00	584.79	0.34	0.01	0.00	591.50
27240.	0.	27239.	0.	0.	5768.	1.	790.	87.	583.40
0.33	0.00	4.72	0.25	0.070	0.033	0.070	0.032	566.60	326.97

0.000366	50.	50.	50.	0	0	1	0.00	442.69	769.66

CCHV= 0.100 CEHV= 0.300

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 592.50 ELREA= 586.70

CROSS SECTION H

3.04	15.69	584.49	0.00	0.00	584.90	0.40	0.09	0.01	592.50
27240.	0.	27240.	0.	0.	5353.	0.	819.	89.	586.70
0.34	0.00	5.08	0.00	0.080	0.033	0.050	0.032	568.80	245.95
0.000473	225.	225.	225.	3	0	1	0.00	446.51	692.46

1490 NH CARD USED

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	QLOSS	BANK ELEV
G	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

3470 ENCROACHMENT STATIONS= 151.0 2367.0 TYPE= 1 TARGET= -151.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.90 ELREA= 586.20

CROSS SECTION I

3.43	15.44	585.44	0.00	0.00	585.72	0.28	0.81	0.01	582.90
27240.	1253.	25986.	0.	1181.	5983.	0.	1113.	120.	586.20
0.48	1.06	4.34	0.00	0.063	0.032	0.050	0.032	570.00	171.19
0.000338	2050.	2050.	2050.	2	0	1	0.00	892.26	1063.45

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1250.0 2540.0 TYPE= 1 TARGET= -1250.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.90 ELREA= 591.80

CROSS SECTION J

3.91	14.72	586.42	0.00	0.00	586.65	0.23	0.92	0.00	582.90
27160.	254.	26905.	0.	369.	6870.	0.	1531.	179.	591.80
0.66	0.68	3.91	0.00	0.069	0.035	0.050	0.032	571.70	1250.00
0.000397	2530.	2530.	2530.	3	0	1	0.00	1119.61	2458.13

CROSS SECTION K

4.26	16.18	587.08	0.00	0.00	587.37	0.29	0.69	0.01	583.90

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27160.	2.	24889.	2268.	4.	5515.	2357.	1852.	226.	584.70
0.78	0.49	4.51	0.96	0.060	0.033	0.070	0.032	570.90	111.04
0.000356	1850.	1850.	1850.	3	0	1	0.00	1097.32	1208.35
4.50	16.57	587.47	0.00	0.00	587.86	0.39	0.46	0.03	581.40
27160.	68.	24179.	2912.	55.	4546.	2447.	2067.	261.	581.30
0.85	1.24	5.31	1.18	0.060	0.032	0.045	0.032	570.90	145.65
0.000386	1250.	1250.	1250.	3	0	1	0.00	1329.06	1474.72

CROSS SECTION L

4.89	19.57	588.27	0.00	0.00	588.51	0.23	0.62	0.01	582.40
27160.	6035.	21124.	0.	4713.	4862.	0.	2433.	314.	589.10
1.01	1.28	4.34	0.00	0.050	0.032	0.060	0.032	568.70	47.01
0.000259	2250.	2053.	750.	2	0	1	0.00	1452.49	1499.50

CROSS SECTION M

5.42	16.73	588.93	0.00	0.00	589.03	0.10	0.51	0.01	584.20
27160.	4441.	19349.	3369.	4433.	6420.	6203.	3244.	439.	585.30
1.32	1.00	3.01	0.54	0.050	0.032	0.100	0.032	572.20	75.80
0.000148	1700.	2800.	3800.	4	0	1	0.00	2816.81	2892.61

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HEC2 VERSION UPDATED JAN 1976
ERROR CORRECTIONS 01,02,03,04,05,06,07,08
MODIFICATIONS 52,53,54,55,56,57,58
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T1 HLD FLOOD INSURANCE STUDY WILLIAMS AND WORKS, INC.
T2 ST. JOSEPH TOWNSHIP 83996
T3 ST. JOSEPH R. 50 YR. FEBRUARY , 1978

J1	ICHECK	INQ	NINV	ICIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0.	5.	0.	0.	0.000000	0.00	-1.0	0.	582.440	0.000

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	4.000	0.000	-1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2.11	14.33	582.44	0.00	582.44	582.62	0.18	0.00	0.00	585.20
21620.	0.	21619.	0.	0.	6315.	0.	0.	0.	586.00
0.00	0.00	3.42	0.00	0.000	0.032	0.000	0.000	568.10	284.68
0.000249	0.	0.	0.	0	0	1	0.00	707.58	1365.76

1490 NH CARD USED

3265 DIVIDED FLOW

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 585.20 ELREA= 586.00

CROSS SECTION A

2.11	14.33	582.44	0.00	582.44	582.62	0.18	0.00	0.00	585.20
21620.	0.	21619.	0.	0.	6315.	0.	0.	0.	586.00
0.00	0.00	3.42	0.00	0.000	0.032	0.000	0.000	568.10	284.68
0.000249	0.	0.	0.	0	0	1	0.00	707.58	1365.76

1490 NH CARD USED

3265 DIVIDED FLOW

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.30 ELREA= 583.10

CROSS SECTION B

2.42	13.25	582.85	0.00	0.00	583.00	0.15	0.38	0.00	583.30
21620.	0.	21620.	0.	0.	6796.	0.	248.	26.	583.10
0.14	0.00	3.18	0.00	0.000	0.032	0.000	0.032	569.60	463.22
0.000219	1650.	1650.	1650.	0	0	1	0.00	717.11	1427.64

1490 NH CARD USED

3265 DIVIDED FLOW

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.00 ELREA= 587.50

CROSS SECTION C

2.69	13.86	583.16	0.00	0.00	583.29	0.13	0.28	0.00	584.00
21620.	0.	21620.	0.	0.	7401.	0.	472.	51.	587.50
0.27	0.00	2.92	0.00	0.000	0.033	0.000	0.032	569.30	322.60
0.000199	1373.	1373.	1373.	0	0	1	0.00	820.72	1251.51

CCHV= 0.200 CEHV= 0.500

FORM 1413
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CROSS SECTION D -IMMED. DOWNSTREAM OF NAPIER AVE. BRIDGE

2.96	16.86	583.46	0.00	0.00	583.72	0.25	0.36	0.06	591.50
21620.	0.	21620.	0.	0.	5342.	0.	691.	72.	583.40
0.37	0.00	4.04	0.00	0.070	0.033	0.070	0.032	566.60	329.17
0.000295	1500.	1500.	1500.	3	0	1	0.00	437.99	767.16

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

2.97	16.88	583.48	0.00	0.00	583.73	0.25	0.01	0.00	591.50
21620.	0.	21620.	0.	0.	5347.	0.	697.	73.	583.40
0.38	0.00	4.04	0.00	0.070	0.033	0.070	0.032	566.60	329.14
0.000294	50.	50.	50.	0	0	1	0.00	438.05	767.20

3265 DIVICED FLOW

NORMAL BRIDGE,NRD= 0 MIN ELTRD= 602.40 MAX ELLC= 595.50

CROSS SECTION E -NAPIER AVE BRIDGE -DOWNSTREAM FACE

2.98	16.87	583.47	0.00	0.00	583.73	0.26	0.00	0.00	591.50
21620.	0.	21619.	0.	0.	5265.	0.	697.	73.	583.40
0.38	0.00	4.10	0.00	0.070	0.033	0.070	0.032	566.60	328.85
0.000360	1.	1.	1.	0	0	1	0.00	430.37	767.20

3265 DIVICED FLOW

NORMAL BRIDGE,NRD= 0 MIN ELTRD= 602.40 MAX ELLC= 595.50

CROSS SECTION F -NAPIER AVE BRIDGE -UPSTREAM FACE

2.99	16.90	583.50	0.00	0.00	583.76	0.26	0.02	0.00	591.50
21620.	0.	21620.	0.	0.	5275.	0.	706.	74.	583.40
0.38	0.00	4.09	0.00	0.070	0.033	0.070	0.032	566.60	328.80
0.000358	70.	70.	70.	0	0	1	0.00	430.48	767.26

CROSS SECTION G -IMMED. UPSTREAM OF NAPIER AVE. BRIDGE

2.99	16.91	583.51	0.00	0.00	583.76	0.25	0.00	0.00	591.50
21620.	0.	21620.	0.	0.	5360.	0.	706.	74.	583.40
0.38	0.00	4.03	0.00	0.070	0.033	0.070	0.032	566.60	329.07
0.000292	1.	1.	1.	1	0	1	0.00	438.19	767.27

3.00	16.92	583.52	0.00	0.00	583.78	0.25	0.01	0.00	591.50
21620.	0.	21620.	0.	0.	5367.	0.	712.	74.	583.40
0.38	0.00	4.02	0.00	0.070	0.033	0.070	0.032	566.60	329.04
0.000291	50.	50.	50.	0	0	1	0.00	438.27	767.31

CCHV= 0.100 CEHV= 0.300

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 592.50 ELREA= 586.70

CROSS SECTION H

3.04	14.77	583.57	0.00	0.00	583.86	0.29	0.07	0.01	592.50
21620.	0.	21619.	0.	0.	4944.	0.	739.	76.	586.70
0.40	0.00	4.37	0.00	0.080	0.033	0.050	0.032	568.80	247.43
0.000385	225.	225.	225.	1	0	1	0.00	444.04	691.48

1490 NH CARD USED

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= 151.0 2367.0 TYPE= 1 TARGET= -151.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.90 ELREA= 586.20

CROSS SECTION I

3.43	14.34	584.34	0.00	0.00	584.57	0.22	0.69	0.00	582.90
21620.	746.	20873.	0.	789.	5404.	0.	1001.	107.	586.20
0.55	0.94	3.86	0.00	0.058	0.033	0.050	0.032	570.00	188.93
0.000301	2050.	2050.	2050.	2	0	1	0.00	872.24	1061.18

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1250.0 2540.0 TYPE= 1 TARGET= -1250.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.90 ELREA= 591.80

CROSS SECTION J

3.91	13.50	585.20	0.00	0.00	585.41	0.21	0.84	0.00	582.90
21510.	60.	21449.	0.	138.	5774.	0.	1352.	162.	591.80
0.74	0.43	3.71	0.00	0.069	0.035	0.050	0.032	571.70	1250.00
0.000373	2530.	2530.	2530.	1	0	1	0.00	1010.83	2456.13

CROSS SECTION K

4.26	14.93	585.83	0.00	0.00	586.08	0.24	0.65	0.01	583.90
21510.	0.	20382.	1127.	1.	4957.	1551.	1616.	207.	584.70
0.87	0.34	4.11	0.72	0.060	0.033	0.070	0.032	570.90	112.19
0.000340	1850.	1850.	1850.	0	0	1	0.00	1092.99	1205.19
4.50	15.30	586.20	0.00	0.00	586.57	0.36	0.45	0.03	581.40
21510.	39.	20579.	850.	38.	4141.	1196.	1787.	241.	581.30
0.94	1.04	4.96	0.74	0.060	0.032	0.045	0.032	570.90	147.24
0.000382	1250.	1250.	1250.	5	0	1	0.00	1314.82	1462.06

CROSS SECTION L

4.89	18.30	587.00	0.00	0.00	587.22	0.22	0.63	0.01	582.40
21510.	3408.	18101.	0.	3310.	4427.	0.	2085.	294.	589.10
1.10	1.02	4.08	0.00	0.050	0.032	0.060	0.032	568.70	66.98
0.000259	2250.	2053.	750.	2	0	1	0.00	1431.76	1498.74

CROSS SECTION M

5.42	15.47	587.67	0.00	0.00	587.77	0.10	0.53	0.01	584.20
21510.	2676.	16619.	2214.	3161.	5763.	4632.	2741.	415.	585.30
1.41	0.84	2.88	0.47	0.050	0.032	0.100	0.032	572.20	84.43
0.000157	1700.	2800.	3800.	3	0	1	0.00	2739.03	2823.47

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

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T1      HUD FLOOD INSURANCE STUDY          WILLIAMS AND WORKS, INC.
T2      ST. JOSEPH TOWNSHIP                83996
T3      ST. JOSEPH R. PROFILES             FEBRUARY, 1978

J1  ICHECK      INQ       NINV      IDIR       STRT      METRIC     HVINS      Q         WSEL      FQ
        0.        6.        0.        0.  0.000000        0.00      -1.0        0.      582.020   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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CCHV= 0.100 CEHV= 0.300
1490 NH CARD USED

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
G	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2.11	14.91	582.02	0.00	582.02	582.15	0.13	0.00	0.00	585.20
17630.	0.	17629.	0.	0.	6019.	0.	0.	0.	586.00
0.00	0.00	2.92	0.00	0.000	0.032	0.000	0.000	568.10	285.24
0.000190	0.	0.	0.	0	0	1	0.00	704.20	1364.11

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 585.20 ELREA= 586.00

CROSS SECTION A

1490 NH CARD USED

3265 DIVIDED FLOW

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 583.30 ELREA= 583.10

CROSS SECTION B

2.42	12.73	582.33	0.00	0.00	582.45	0.11	0.29	0.00	583.30
17630.	0.	17629.	0.	0.	6425.	0.	235.	26.	583.10
0.16	0.00	2.74	0.00	0.000	0.033	0.000	0.032	569.60	463.48
0.000173	1650.	1650.	1650.	0	0	1	0.00	715.10	1426.90

1490 NH CARD USED

3265 DIVIDED FLOW

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 584.00 ELREA= 587.50

CROSS SECTION C

2.69	13.20	582.58	0.00	0.00	582.68	0.10	0.23	0.00	584.00
17630.	0.	17630.	0.	0.	6918.	0.	446.	50.	587.50
0.31	0.00	2.54	0.00	0.000	0.032	0.000	0.032	569.30	324.46
0.000162	1373.	1373.	1373.	0	0	1	0.00	815.06	1251.38

CCHV= 0.200 CEHV= 0.500

CROSS SECTION D -IMMED. DOWNSTREAM OF NAPIER AVE. BRIDGE

2.96	16.23	582.83	0.00	0.00	583.01	0.18	0.28	0.04	591.50
17630.	0.	17630.	0.	0.	5066.	0.	652.	72.	583.40
0.43	0.00	3.47	0.00	0.070	0.033	0.070	0.032	566.60	330.14
0.000233	1500.	1500.	1500.	0	0	1	0.00	435.95	766.09

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
G	GLOB	GCH	GROB	ALOB	ACH	AROB	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XACH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST
2.97	16.24	582.84	0.00	0.00	583.03	0.18	0.01	0.00	591.50
17630.	0.	17630.	0.	0.	5070.	0.	658.	73.	583.40
0.44	0.00	3.47	0.00	0.070	0.033	0.070	0.032	566.60	330.13
0.000232	50.	50.	50.	0	0	1	0.00	435.97	766.10

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 0 MIN ELTRD= 602.40 MAX ELLC= 595.50

CROSS SECTION E -NAPIER AVE BRIDGE -DOWNSTREAM FACE

2.98	16.24	582.84	0.00	0.00	583.03	0.19	0.00	0.00	591.50
17630.	0.	17630.	0.	0.	4993.	0.	658.	73.	583.40
0.44	0.00	3.53	0.00	0.070	0.033	0.070	0.032	566.60	332.46
0.000281	1.	1.	1.	0	0	1	0.00	428.42	766.10

3265 DIVIDED FLOW

NORMAL BRIDGE,NRD= 0 MIN ELTRD= 602.40 MAX ELLC= 595.50

CROSS SECTION F -NAPIER AVE BRIDGE -UPSTREAM FACE

2.99	16.26	582.86	0.00	0.00	583.05	0.19	0.01	0.00	591.50
17630.	0.	17630.	0.	0.	5001.	0.	666.	73.	583.40
0.44	0.00	3.52	0.00	0.070	0.033	0.070	0.032	566.60	332.46
0.000280	70.	70.	70.	0	0	1	0.00	428.44	766.13

CROSS SECTION G -IMMED. UPSTREAM OF NAPIER AVE. BRIDGE

2.99	16.26	582.86	0.00	0.00	583.05	0.18	0.00	0.00	591.50
17630.	0.	17630.	0.	0.	5078.	0.	666.	73.	583.40
0.44	0.00	3.47	0.00	0.070	0.033	0.070	0.032	566.60	330.12
0.000231	1.	1.	1.	0	0	1	0.00	436.01	766.13

3.00	16.28	582.88	0.00	0.00	583.06	0.18	0.01	0.00	591.50
17630.	0.	17630.	0.	0.	5084.	0.	672.	74.	583.40
0.45	0.00	3.46	0.00	0.070	0.033	0.070	0.032	566.60	330.12
0.000230	50.	50.	50.	0	0	1	0.00	436.03	766.15

CCHV= 0.100 CEHV= 0.300

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 592.50 ELREA= 586.70

CROSS SECTION H

3.04	14.11	582.91	0.00	0.00	583.13	0.22	0.05	0.01	592.50
17630.	0.	17630.	0.	0.	4651.	0.	697.	76.	586.70
0.46	0.00	3.79	0.00	0.080	0.033	0.050	0.032	568.80	248.50
0.000311	225.	225.	225.	1	0	1	0.00	442.26	690.77

1490 NH CARD USED

3265 DIVIDED FLOW

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
C	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= 151.0 2367.0 TYPE= 1 TARGET= -151.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.90 ELREA= 586.20

CROSS SECTION I

3.43	13.54	583.54	0.00	0.00	583.72	0.17	0.58	0.00	582.90
17630.	472.	17157.	0.	517.	4984.	0.	936.	106.	586.20
0.63	0.91	3.44	0.00	0.052	0.032	0.050	0.032	570.00	201.21
0.000261	2050.	2050.	2050.	2	0	1	0.00	849.64	1059.53

1490 NH CARD USED

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1250.0 2540.0 TYPE= 1 TARGET= -1250.000

OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 582.90 ELREA= 591.80

CROSS SECTION J

3.91	12.59	584.29	0.00	0.00	584.48	0.18	0.75	0.00	582.90
17490.	11.	17478.	0.	38.	5047.	0.	1243.	154.	591.80
0.83	0.30	3.46	0.00	0.069	0.035	0.050	0.032	571.70	1384.24
0.000339	2530.	2530.	2530.	2	0	1	0.00	799.86	2454.61

3265 DIVIDED FLOW

CROSS SECTION K

4.26	13.98	584.88	0.00	0.00	585.09	0.21	0.60	0.00	583.90
17490.	0.	16989.	500.	0.	4533.	941.	1468.	194.	584.70
0.97	0.21	3.74	0.52	0.060	0.033	0.070	0.032	570.90	113.08
0.000318	1850.	1850.	1850.	2	0	1	0.00	1088.23	1202.78
4.50	14.33	585.23	0.00	0.00	585.54	0.31	0.42	0.03	581.40
17490.	21.	17396.	71.	26.	3828.	241.	1605.	229.	581.30
1.05	0.82	4.54	0.29	0.060	0.032	0.045	0.032	570.90	148.46
0.000354	1250.	1250.	1250.	4	0	1	0.00	1303.83	1452.29

CROSS SECTION L

4.89	17.26	585.96	0.00	0.00	586.17	0.20	0.61	0.01	582.40
17490.	1754.	15735.	0.	2189.	4075.	0.	1851.	281.	589.10
1.21	0.80	3.66	0.00	0.050	0.032	0.060	0.032	568.70	83.23
0.000257	2250.	2053.	750.	2	0	1	0.00	1414.89	1498.13

CROSS SECTION M

5.42	14.44	586.64	0.00	0.00	586.74	0.10	0.55	0.01	584.20
17490.	1522.	14536.	1430.	2134.	5230.	3419.	2383.	399.	585.30
1.53	0.71	2.77	0.41	0.050	0.032	0.100	0.032	572.20	91.45
0.000166	1700.	2800.	3800.	3	0	1	0.00	2675.80	2767.26

FORM 113
PRINTED IN U.S.A.

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

ST. JOSEPH R. PROFILES

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	TQ	CWSEL	EG	TOPWID	ITYENC	STENCL	STENCR
2.11	0.00	0.00	0.00	568.09	23280.00	14097.01	582.61	582.82	708.79	0.00	0.00	0.00
2.11	0.00	0.00	0.00	568.09	23280.00	14097.01	582.61	582.82	708.79	4.00	281.00	1373.00
2.11	0.00	0.00	0.00	568.09	27240.00	15170.00	583.08	583.34	711.66	0.00	0.00	0.00
2.11	0.00	0.00	0.00	568.09	21620.00	13696.67	582.43	582.62	707.58	0.00	0.00	0.00
2.11	0.00	0.00	0.00	568.09	17630.00	12786.57	582.01	582.15	704.20	0.00	0.00	0.00
2.42	1650.00	0.00	0.00	569.59	23280.00	15112.32	583.07	583.24	717.97	0.00	0.00	0.00
2.42	1650.00	0.00	0.00	569.59	23280.00	15113.78	583.07	583.24	717.97	4.00	463.00	1428.00
2.42	1650.00	0.00	0.00	569.59	27240.00	16588.14	583.62	583.83	1061.98	0.00	0.00	0.00
2.42	1650.00	0.00	0.00	569.59	21620.00	14590.52	582.85	583.00	717.11	0.00	0.00	0.00
2.42	1650.00	0.00	0.00	569.59	17630.00	13390.61	582.33	582.45	715.10	0.00	0.00	0.00
2.69	1373.00	0.00	0.00	569.29	23280.00	15960.69	583.40	583.55	823.04	0.00	0.00	0.00
2.69	1373.00	0.00	0.00	569.29	23280.00	15947.69	583.41	583.55	822.99	4.00	320.00	1272.00
2.69	1373.00	0.00	0.00	569.29	27240.00	17572.89	584.00	584.18	828.76	0.00	0.00	0.00
2.69	1373.00	0.00	0.00	569.29	21620.00	15321.51	583.16	583.29	820.72	0.00	0.00	0.00
2.69	1373.00	0.00	0.00	569.29	17630.00	13815.47	582.58	582.68	815.06	0.00	0.00	0.00
2.96	1500.00	0.00	0.00	566.59	23280.00	13012.19	583.72	584.01	439.26	0.00	0.00	0.00
2.96	1500.00	0.00	0.00	566.59	23280.00	13013.00	583.72	584.01	438.42	4.00	311.00	767.00
2.96	1500.00	0.00	0.00	566.59	27240.00	14105.50	584.36	584.71	442.33	0.00	0.00	0.00
2.96	1500.00	0.00	0.00	566.59	21620.00	12569.97	583.46	583.72	437.99	0.00	0.00	0.00
2.96	1500.00	0.00	0.00	566.59	17630.00	11546.94	582.83	583.01	435.95	0.00	0.00	0.00
2.97	50.00	0.00	0.00	566.59	23280.00	13034.74	583.74	584.02	439.33	0.00	0.00	0.00
2.97	50.00	0.00	0.00	566.59	23280.00	13041.78	583.74	584.02	438.46	4.00	311.00	767.00
2.97	50.00	0.00	0.00	566.59	27240.00	14132.24	584.38	584.73	442.40	0.00	0.00	0.00
2.97	50.00	0.00	0.00	566.59	21620.00	12590.57	583.48	583.73	438.05	0.00	0.00	0.00
2.97	50.00	0.00	0.00	566.59	17630.00	11562.80	582.84	583.03	435.97	0.00	0.00	0.00
2.98	1.00	602.39	595.50	566.59	23280.00	11766.95	583.74	584.03	431.64	0.00	0.00	0.00
2.98	1.00	602.39	595.50	566.59	23280.00	11765.36	583.74	584.03	430.76	4.00	311.00	767.00
2.98	1.00	602.39	595.50	566.59	27240.00	12695.18	584.37	584.73	434.70	0.00	0.00	0.00
2.98	1.00	602.39	595.50	566.59	21620.00	11389.51	583.47	583.73	430.37	0.00	0.00	0.00
2.98	1.00	602.39	595.50	566.59	17630.00	10503.63	582.84	583.03	428.42	0.00	0.00	0.00
2.99	70.00	602.39	595.50	566.59	23280.00	11802.62	583.76	584.05	431.76	0.00	0.00	0.00
2.99	70.00	602.39	595.50	566.59	23290.00	11808.07	583.77	584.06	430.82	4.00	311.00	767.00
2.99	70.00	602.39	595.50	566.59	27240.00	12738.13	584.41	584.77	434.84	0.00	0.00	0.00
2.99	70.00	602.39	595.50	566.59	21620.00	11422.01	583.50	583.76	430.48	0.00	0.00	0.00
2.99	70.00	602.39	595.50	566.59	17630.00	10528.85	582.86	583.05	428.44	0.00	0.00	0.00
2.99	1.00	0.00	0.00	566.59	23280.00	13089.23	583.78	584.06	439.48	0.00	0.00	0.00
2.99	1.00	0.00	0.00	566.59	23280.00	13118.26	583.78	584.06	438.56	4.00	311.00	767.00
2.99	1.00	0.00	0.00	566.59	27240.00	14199.28	584.42	584.77	442.59	0.00	0.00	0.00
2.99	1.00	0.00	0.00	566.59	21620.00	12639.58	583.51	583.76	438.19	0.00	0.00	0.00
2.99	1.00	0.00	0.00	566.59	17630.00	11592.20	582.86	583.05	436.01	0.00	0.00	0.00

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORD	MIN EL GROUND	DISCHARGE (CFS)	TQ	CWSEL	EG	TOPWID	ITYENC	STENCL	STENCR
3.00	50.00	0.00	0.00	566.59	23280.00	13119.10	583.79	584.07	439.57	0.00	0.00	0.00
3.00	50.00	0.00	0.00	566.59	23280.00	13131.13	583.79	584.07	438.58	4.00	311.00	767.00
3.00	50.00	0.00	0.00	566.59	27240.00	14235.53	584.44	584.79	442.69	0.00	0.00	0.00
3.00	50.00	0.00	0.00	566.59	21620.00	12666.79	583.52	583.78	438.27	0.00	0.00	0.00
3.00	50.00	0.00	0.00	566.59	17630.00	11612.69	582.88	583.06	436.03	0.00	0.00	0.00
3.04	225.00	0.00	0.00	568.79	23280.00	11455.76	583.84	584.17	444.77	0.00	0.00	0.00
3.04	225.00	0.00	0.00	568.79	23280.00	11441.92	583.84	584.17	444.75	4.00	233.00	702.00
3.04	225.00	0.00	0.00	568.79	27240.00	12521.02	584.49	584.90	446.51	0.00	0.00	0.00
3.04	225.00	0.00	0.00	568.79	21620.00	11017.77	583.57	583.86	444.04	0.00	0.00	0.00
3.04	225.00	0.00	0.00	568.79	17630.00	9986.13	582.91	583.13	442.26	0.00	0.00	0.00
3.43	2050.00	0.00	0.00	570.00	23280.00	13135.25	584.67	584.91	878.19	1.00	151.00	2367.00
3.43	2050.00	0.00	0.00	570.00	23280.00	13149.80	584.67	584.91	878.32	1.00	151.00	2367.00
3.43	2050.00	0.00	0.00	570.00	27240.00	14806.71	585.44	585.72	892.26	1.00	151.00	2367.00
3.43	2050.00	0.00	0.00	570.00	21620.00	12461.08	584.34	584.57	872.24	1.00	151.00	2367.00
3.43	2050.00	0.00	0.00	570.00	17630.00	10894.01	583.54	583.72	849.64	1.00	151.00	2367.00
3.91	2530.00	0.00	0.00	571.69	23190.00	11838.63	585.57	585.79	1084.35	1.00	1250.00	2540.00
3.91	2530.00	0.00	0.00	571.69	23190.00	11838.38	585.57	585.79	1084.32	1.00	1250.00	2540.00
3.91	2530.00	0.00	0.00	571.69	27160.00	13616.72	586.42	586.65	1119.61	1.00	1250.00	2540.00
3.91	2530.00	0.00	0.00	571.69	21510.00	11135.23	585.20	585.41	1010.83	1.00	1250.00	2540.00
3.91	2530.00	0.00	0.00	571.69	17490.00	9485.68	584.29	584.48	799.86	1.00	1250.00	2540.00
4.26	1850.00	0.00	0.00	570.89	23190.00	12461.63	586.21	586.47	1094.32	0.00	0.00	0.00
4.26	1850.00	0.00	0.00	570.89	23190.00	12219.71	586.22	586.49	960.82	4.00	114.00	1074.82
4.26	1850.00	0.00	0.00	570.89	27160.00	14393.18	587.08	587.37	1097.32	0.00	0.00	0.00
4.26	1850.00	0.00	0.00	570.89	21510.00	11654.35	585.83	586.08	1092.99	0.00	0.00	0.00
4.26	1850.00	0.00	0.00	570.89	17490.00	9794.49	584.88	585.09	1088.23	0.00	0.00	0.00
4.50	1250.00	0.00	0.00	570.89	23190.00	11798.48	586.59	586.97	1319.17	0.00	0.00	0.00
4.50	1250.00	0.00	0.00	570.89	23190.00	11529.70	586.61	587.00	1057.23	4.00	160.00	1217.23
4.50	1250.00	0.00	0.00	570.89	27160.00	13815.67	587.47	587.86	1329.06	0.00	0.00	0.00
4.50	1250.00	0.00	0.00	570.89	21510.00	11003.99	586.20	586.57	1314.82	0.00	0.00	0.00
4.50	1250.00	0.00	0.00	570.89	17490.00	9286.62	585.22	585.54	1303.83	0.00	0.00	0.00
4.89	2053.00	0.00	0.00	568.69	23190.00	14384.27	587.39	587.62	1438.18	0.00	0.00	0.00
4.89	2053.00	0.00	0.00	568.69	23190.00	14273.25	587.45	587.68	1272.90	4.00	226.10	1500.00
4.89	2053.00	0.00	0.00	568.69	27160.00	16844.69	588.27	588.51	1452.49	0.00	0.00	0.00
4.89	2053.00	0.00	0.00	568.69	21510.00	13357.35	587.00	587.22	1431.76	0.00	0.00	0.00
4.89	2053.00	0.00	0.00	568.69	17490.00	10905.95	585.96	586.17	1414.89	0.00	0.00	0.00
5.42	2800.00	0.00	0.00	572.19	23190.00	18646.37	588.06	588.16	2763.13	0.00	0.00	0.00
5.42	2800.00	0.00	0.00	572.19	23190.00	18511.16	588.12	588.23	2360.11	4.00	208.66	2568.78
5.42	2800.00	0.00	0.00	572.19	27160.00	22252.57	588.93	589.03	2816.81	0.00	0.00	0.00
5.42	2800.00	0.00	0.00	572.19	21510.00	17142.58	587.67	587.77	2739.03	0.00	0.00	0.00
5.42	2800.00	0.00	0.00	572.19	17490.00	13553.32	586.64	586.74	2675.80	0.00	0.00	0.00

SECTION NUMBER	DISCHARGE CFS	CWSEL	CWSEL DIFF EACH Q	CWSEL DIFF EACH SECTION	CWSEL-WSELK	TOPWID	T.W. DIFF	LENGTH
2.110	23280.000	582.619	0.000	0.000	0.000	708.757	0.000	0.000
2.110	23280.000	582.619	0.000	0.000	0.000	708.797	0.000	0.000
2.110	27240.000	583.089	0.470	0.000	0.000	711.668	-2.870	0.000
2.110	21620.000	582.439	-0.650	0.000	0.000	707.582	1.215	0.000
2.110	17630.000	582.019	-0.420	0.000	0.000	704.206	4.551	0.000

FORM 4113

PRINTED IN U.S.A.

2.420	23280.000	583.070	0.000	0.450	0.000	717.973	0.000	1650.000
2.420	23280.000	583.070	0.000	0.450	0.000	717.975	-0.002	1650.000
2.420	27240.000	583.621	0.551	0.531	0.000	1061.989	-344.016	1650.000
2.420	21620.000	582.852	-0.769	0.412	0.000	717.119	0.854	1650.000
2.420	17630.000	582.337	-0.515	0.317	0.000	715.100	2.872	1650.000
2.650	23280.000	583.409	0.000	0.339	0.000	823.045	0.000	1373.000
2.650	23280.000	583.410	0.000	0.339	0.000	822.998	0.046	1373.000
2.650	27240.000	584.006	0.596	0.384	0.000	828.762	-5.717	1373.000
2.650	21620.000	583.166	-0.840	0.313	0.000	820.722	2.322	1373.000
2.650	17630.000	582.585	-0.581	0.248	0.000	815.068	7.976	1373.000
2.960	23280.000	583.728	0.000	0.318	0.000	439.267	0.000	1500.000
2.960	23280.000	583.729	0.000	0.319	0.000	438.424	0.842	1500.000
2.960	27240.000	584.363	0.634	0.356	0.000	442.332	-3.065	1500.000
2.960	21620.000	583.466	-0.897	0.299	0.000	437.997	1.269	1500.000
2.960	17630.000	582.831	-0.634	0.246	0.000	435.950	3.316	1500.000
2.970	23280.000	583.745	0.000	0.016	0.000	439.331	0.000	50.000
2.970	23280.000	583.746	0.000	0.016	0.000	438.462	0.868	50.000
2.970	27240.000	584.382	0.636	0.019	0.000	442.406	-3.074	50.000
2.970	21620.000	583.481	-0.901	0.015	0.000	438.057	1.274	50.000
2.970	17630.000	582.843	-0.637	0.011	0.000	435.972	3.359	50.000
2.980	23280.000	583.741	0.000	-0.004	0.000	431.641	0.000	1.000
2.980	23280.000	583.741	0.000	-0.004	0.000	430.760	0.881	1.000
2.980	27240.000	584.377	0.635	-0.005	0.000	434.708	-3.067	1.000
2.980	21620.000	583.477	-0.900	-0.003	0.000	430.370	1.270	1.000
2.980	17630.000	582.840	-0.636	-0.002	0.000	428.420	3.220	1.000
2.990	23280.000	583.769	0.000	0.028	0.000	431.760	0.000	70.000
2.990	23280.000	583.770	0.001	0.028	0.000	430.827	0.933	70.000
2.990	27240.000	584.411	0.640	0.033	0.000	434.848	-3.087	70.000
2.990	21620.000	583.504	-0.907	0.026	0.000	430.480	1.280	70.000
2.990	17630.000	582.861	-0.642	0.020	0.000	428.449	3.310	70.000
2.995	23280.000	583.781	0.000	0.011	0.000	439.486	0.000	1.000
2.995	23280.000	583.782	0.001	0.011	0.000	438.564	0.921	1.000
2.995	27240.000	584.425	0.642	0.014	0.000	442.590	-3.104	1.000
2.995	21620.000	583.514	-0.911	0.010	0.000	438.198	1.287	1.000
2.995	17630.000	582.868	-0.645	0.007	0.000	436.011	3.475	1.000
3.000	23280.000	583.797	0.000	0.016	0.000	439.571	0.000	50.000
3.000	23280.000	583.798	0.001	0.016	0.000	438.581	0.989	50.000
3.000	27240.000	584.445	0.646	0.019	0.000	442.690	-3.118	50.000
3.000	21620.000	583.529	-0.916	0.015	0.000	438.276	1.294	50.000
3.000	17630.000	582.880	-0.649	0.011	0.000	436.038	3.532	50.000
3.040	23280.000	583.844	0.000	0.047	0.000	444.773	0.000	225.000
3.040	23280.000	583.845	0.000	0.046	0.000	444.750	0.023	225.000
3.040	27240.000	584.499	0.654	0.054	0.000	446.511	-1.738	225.000
3.040	21620.000	583.572	-0.926	0.043	0.000	444.040	0.733	225.000
3.040	17630.000	582.914	-0.657	0.034	0.000	442.264	2.508	225.000
3.430	23280.000	584.674	0.000	0.829	0.000	878.193	0.000	2050.000
3.430	23280.000	584.676	0.001	0.830	0.000	878.320	-0.126	2050.000
3.430	27240.000	585.448	0.772	0.948	0.000	892.260	-14.067	2050.000
3.430	21620.000	584.348	-1.100	0.775	0.000	872.248	5.945	2050.000
3.430	17630.000	583.547	-0.800	0.632	0.000	849.647	28.546	2050.000

3.910	23190.000	585.571	0.000	0.896	0.000	1084.351	0.000	2530.000
3.910	23190.000	585.571	-0.000	0.895	0.000	1084.320	0.030	2530.000
3.910	27160.000	586.423	0.852	0.975	0.000	1119.612	-35.260	2530.000
3.910	21510.000	585.204	-1.218	0.856	0.000	1010.838	73.512	2530.000
3.910	17490.000	584.293	-0.910	0.746	0.000	799.863	284.488	2530.000
4.260	23190.000	586.217	0.000	0.646	0.000	1094.326	0.000	1850.000
4.260	23190.000	586.222	0.004	0.650	0.000	960.824	133.501	1850.000
4.260	27160.000	587.080	0.858	0.657	0.000	1097.326	-2.959	1850.000
4.260	21510.000	585.839	-1.241	0.634	0.000	1092.956	1.330	1850.000
4.260	17490.000	584.884	-0.954	0.590	0.000	1088.239	6.086	1850.000
4.500	23190.000	586.593	0.000	0.375	0.000	1319.172	0.000	1250.000
4.500	23190.000	586.615	0.022	0.393	0.000	1057.232	261.940	1250.000
4.500	27160.000	587.472	0.857	0.391	0.000	1329.067	-9.854	1250.000
4.500	21510.000	586.206	-1.265	0.367	0.000	1314.827	4.344	1250.000
4.500	17490.000	585.229	-0.976	0.345	0.000	1303.837	15.335	1250.000
4.850	23190.000	587.399	0.000	0.806	0.000	1438.186	0.000	2053.000
4.850	23190.000	587.451	0.052	0.836	0.000	1272.908	165.277	2053.000
4.850	27160.000	588.277	0.826	0.805	0.000	1452.497	-14.311	2053.000
4.850	21510.000	587.004	-1.273	0.797	0.000	1431.760	6.426	2053.000
4.850	17490.000	585.968	-1.035	0.738	0.000	1414.896	23.289	2053.000
5.420	23190.000	588.062	0.000	0.663	0.000	2763.131	0.000	2800.000
5.420	23190.000	588.128	0.065	0.677	0.000	2360.111	403.020	2800.000
5.420	27160.000	588.932	0.803	0.654	0.000	2816.811	-53.679	2800.000
5.420	21510.000	587.672	-1.260	0.667	0.000	2739.034	24.097	2800.000
5.420	17490.000	586.648	-1.023	0.679	0.000	2675.807	87.323	2800.000

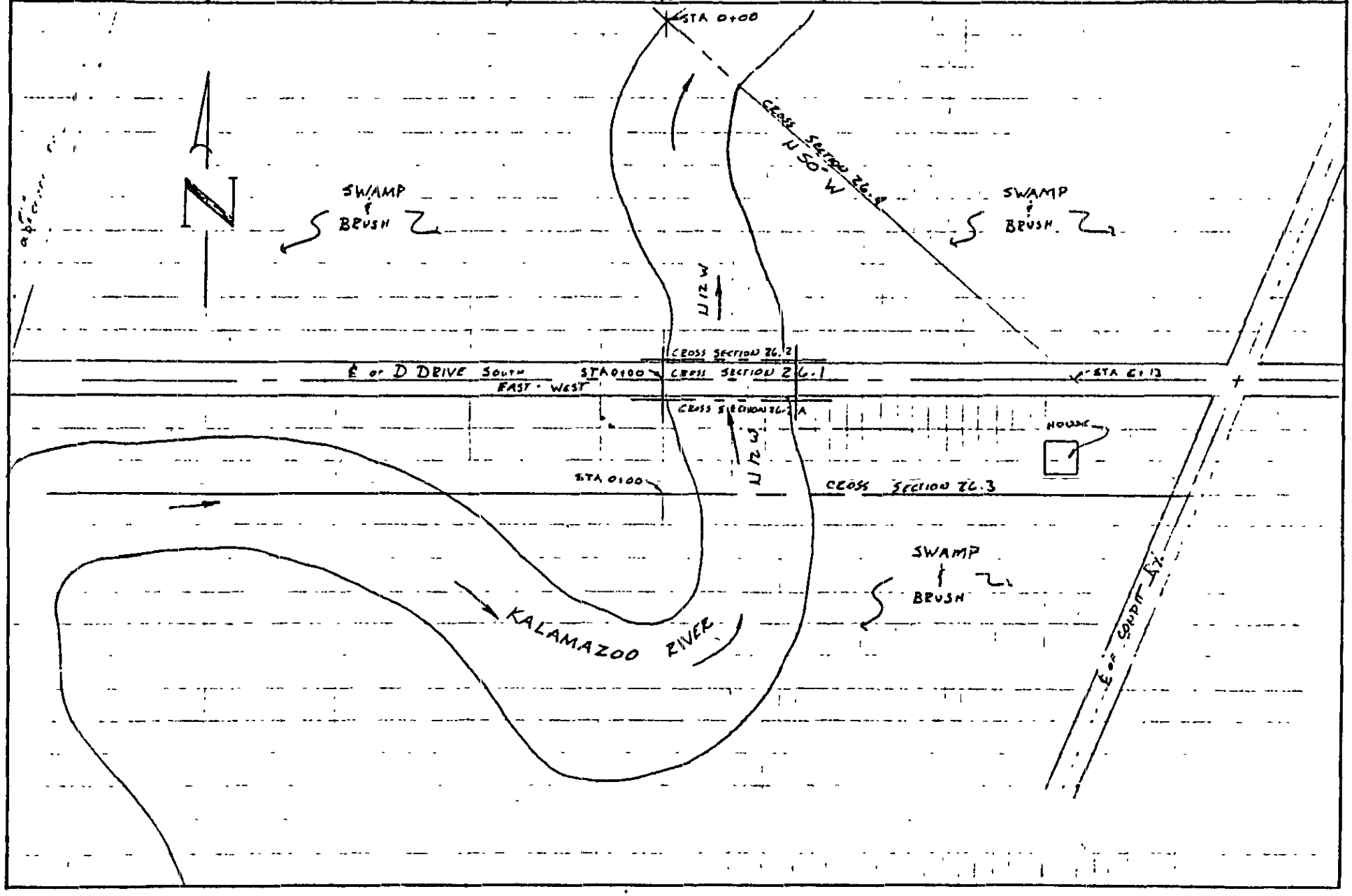
DATA FOR LAST CROSS SECTION

PROFILE	TYPE ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.000	0.000	421.416	0.000
2	4.000	0.020	388.393	-33.022
3	0.000	0.000	439.431	18.015
4	0.000	0.000	415.793	-5.622
5	0.000	0.000	399.779	-21.636

FORM 14113-1
PRINTED IN U.S.A.

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY BEARINGER, HERZ			
DATE: 11-13-78	INSTRUMENTS: NH 2	TEMP (DRY BULB)	WET BULB	RH %	BAR
PROJECT: HUD	LOCATION: ALBION TOWNSHIP, MICH. CROSS SECTION 26			CHECKED BY DATE	



ACTIVITY CROSS SECTION 26 BOOK 21-20 PAGE 22

PLAN VIEW STA.

General Fieldbook Form S-127

756-72

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, BEAZINGER, HERR

DATE: 11-13-78

INSTRUMENTS:

TEMP (DRY BULB)

WET BULB

RH %

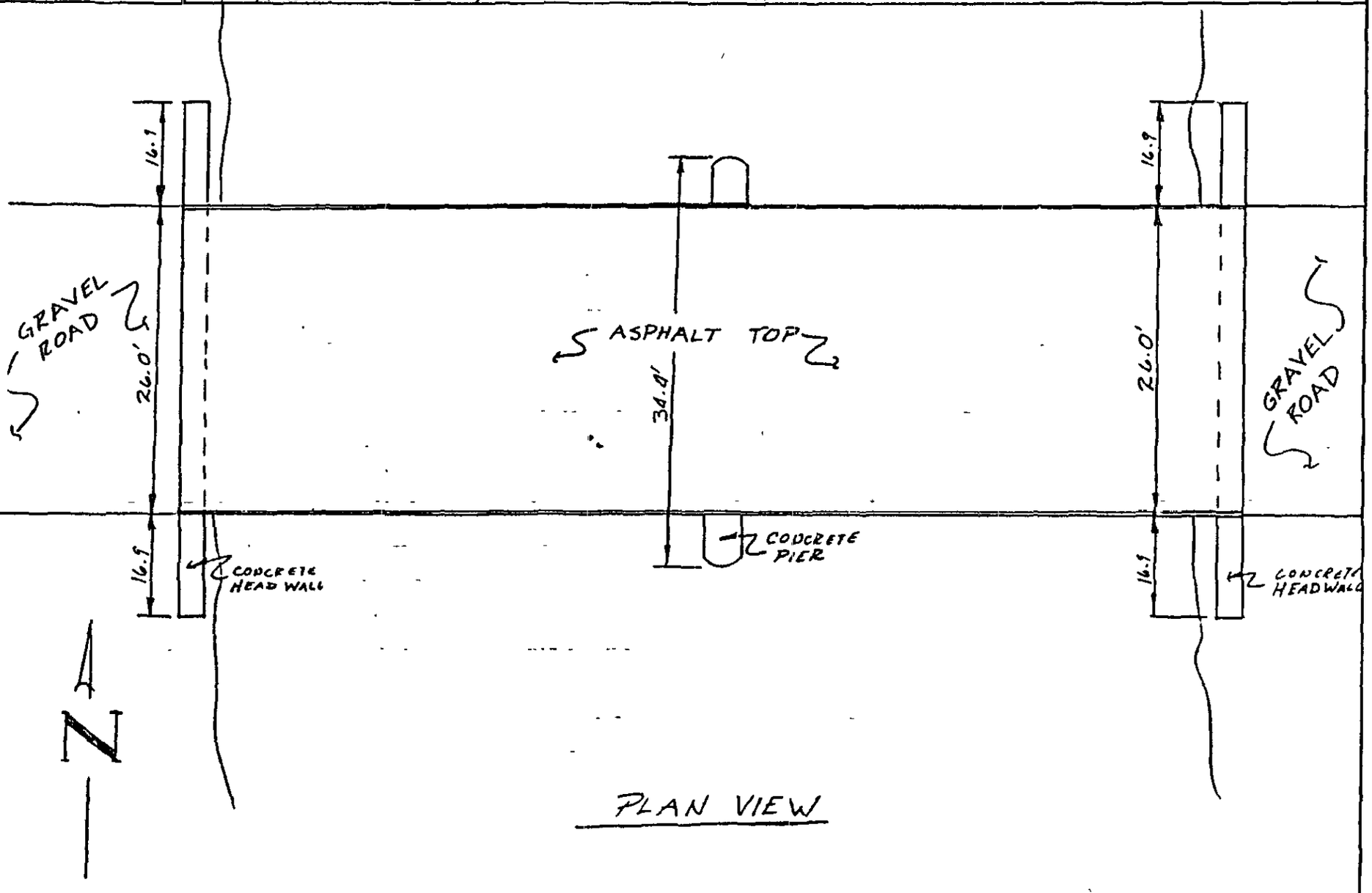
BAR

PROJECT: HUD

LOCATION: ALBION TOWNSHIP, MICH. CROSS SECTION 26.2

CHECKED BY

DATE



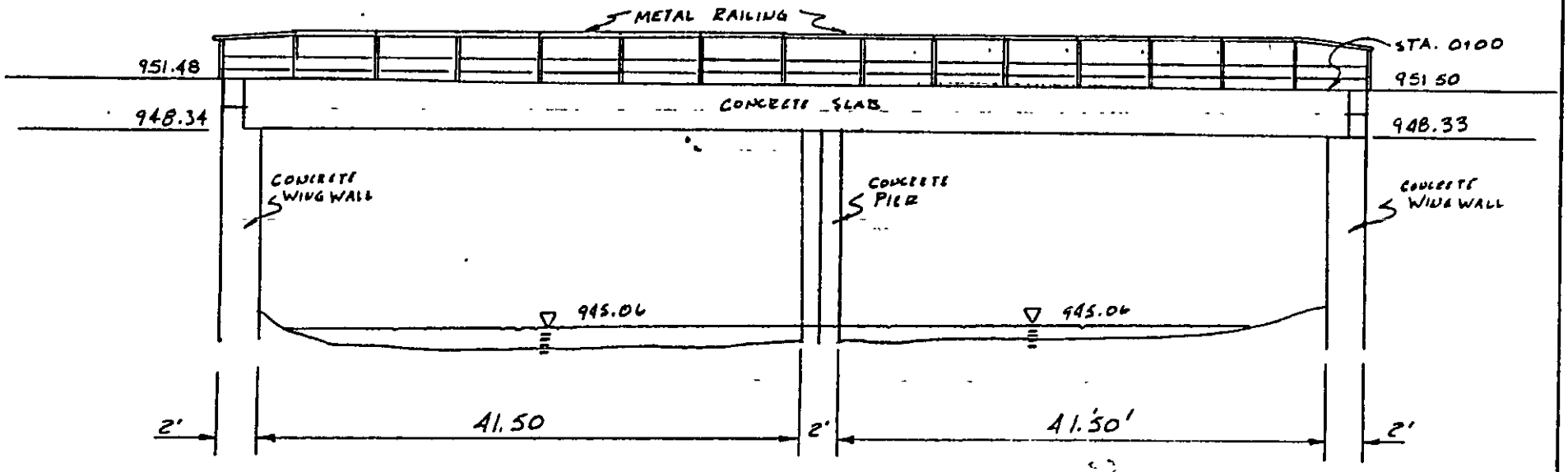
PLAN VIEW

ACTIVITY Cross Section 26.2 BOOK 2.1-20 PAGE 29

PLAN VIEW STA.

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY, BEARINGER, HERR			
DATE: 11-13-78	INSTRUMENTS:	TEMP (DRY BULB)	WET BULB	RH %	BAR
PROJECT: HUD	LOCATION: ALBION TOWNSHIP CROSS SECTION @ 26.2			CHECKED BY DATE	

ACTIVITY SIDE VIEW of BRIDGE @ CROSS SECTION @ 26.2 BOOK 21-20 PAGE 30 STA.



SIDE VEIW
LOOKING UPSTREAM

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY BEARINGER, HEER

DATE: 11-14-78

INSTRUMENTS:

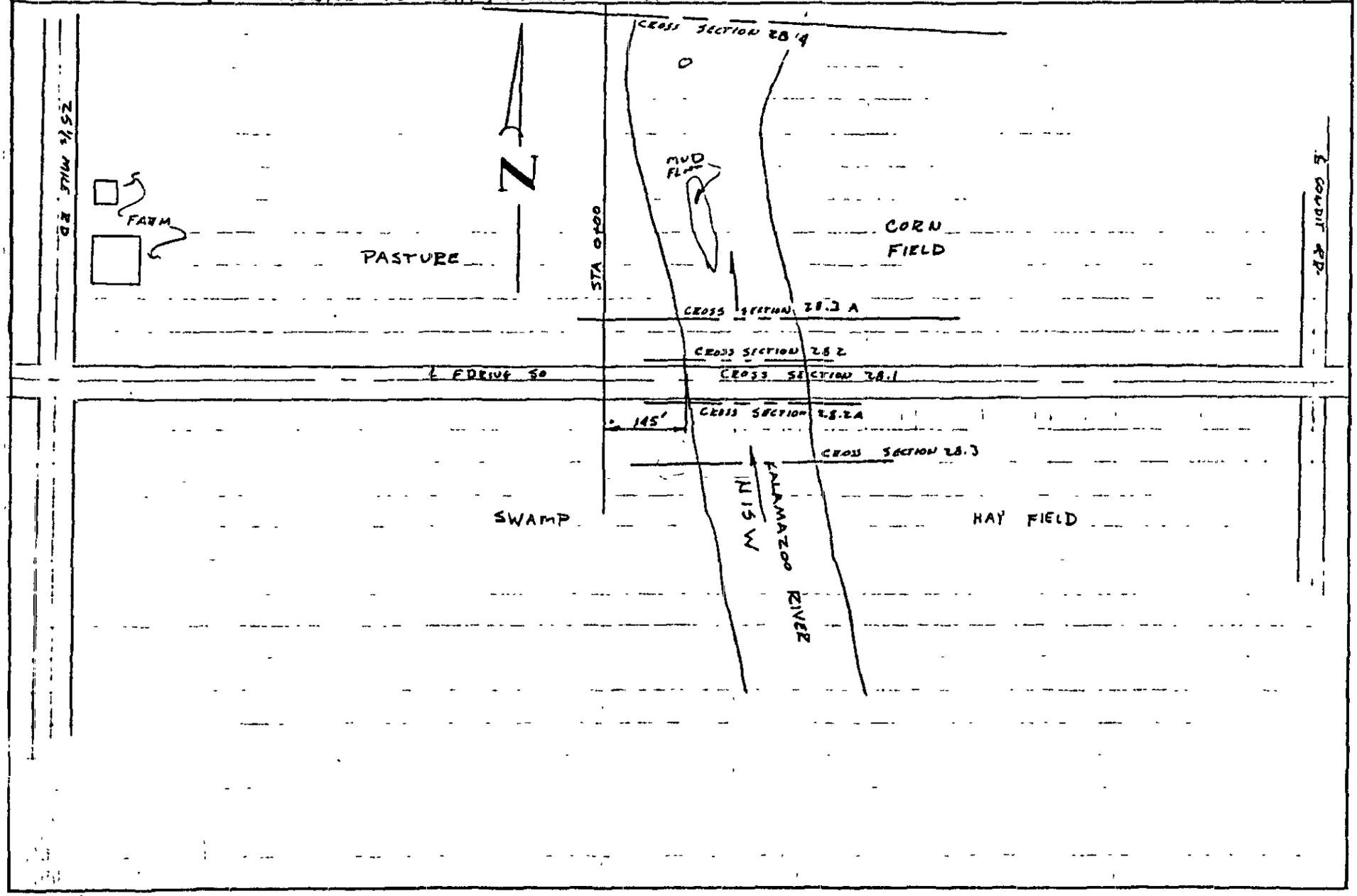
TEMP (DRY BULB) 40 | WET BULB | RH % | BAR

PROJECT: HUD

LOCATION: ALBION TOWNSHIP, MICH. CROSS SECTION 28.

CHECKED BY

DATE



ACTIVITY Cross Section 28 BOOK 2.1-20 PAGE 53

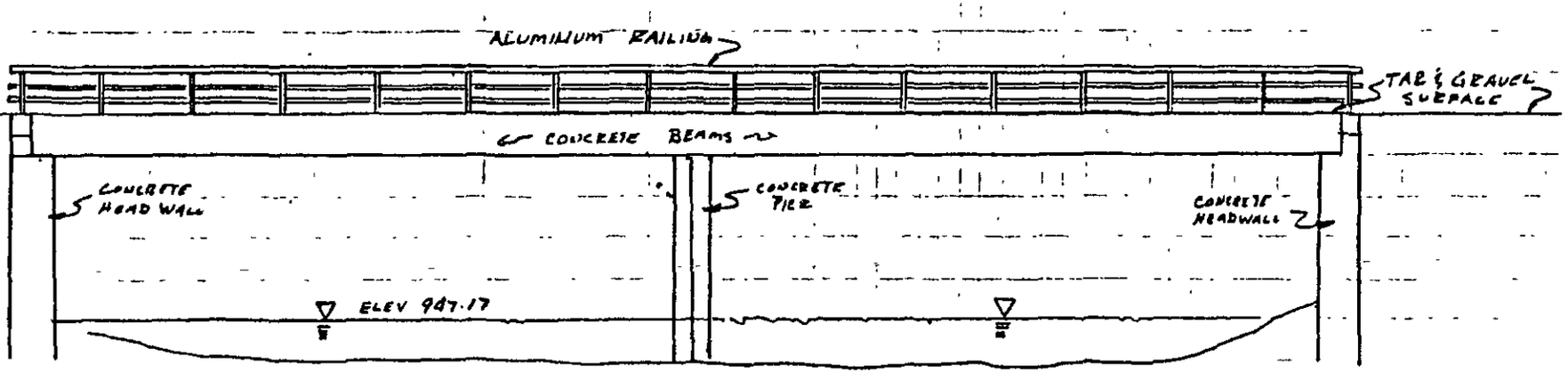
PLAN VIEW STA.

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY, BEARINGER, HERR			
DATE: 11-14-78	INSTRUMENTS.	TEMP (DRY BULB)	WET BULB	RH %	BAR.
PROJECT: HUD	LOCATION: ALBION, TOWNSHIP Cross Section 28 SIDE VEIW	CHECKED BY DATE			

ACTIVITY SIDE VIEW BOOK 21-20 PAGE 60

STA.



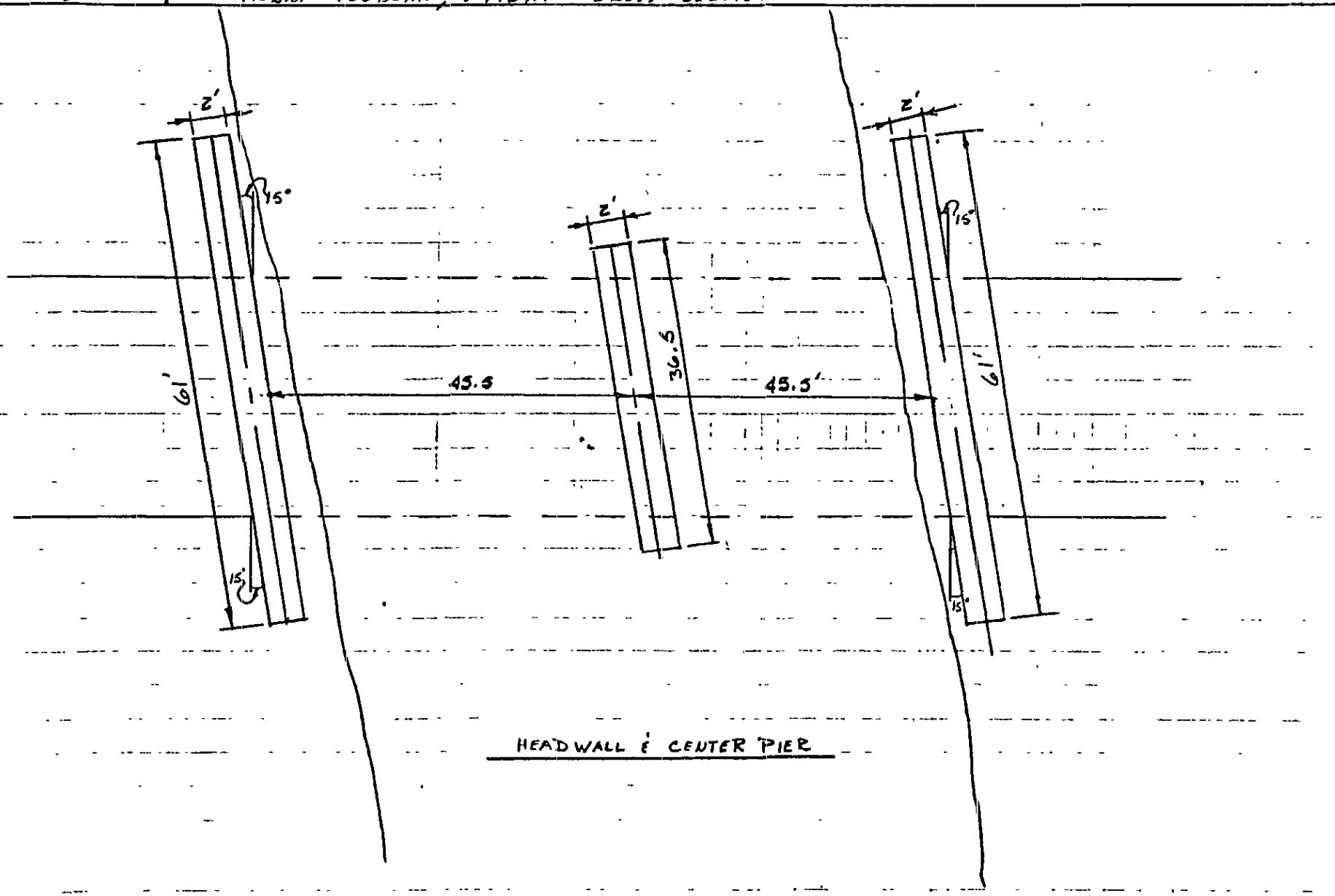
SIDE VEIW

FOR BOTH UPSTREAM & DOWNSTREAM FACE

NOTE: BRIDGE ON 15° SKEW

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY, BEARINGER, HERR				
DATE: 11-16-78	INSTRUMENTS: NA 2	TEMP (DRY BULB) 35	WET BULB	RH %	BAR	
PROJECT: HUD	LOCATION: ALBION TOWNSHIP, MICH. CROSS SECTION 28.2	CHECKED BY DATE				



HEADWALL & CENTER PIER

ACTIVITY Cross Section 28.2 BOOK 1-20 PAGE 60A

STA.

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, BEARWOOD, NEER

DATE: 11-16-78

INSTRUMENTS: UA 2

TEMP (DRY BULB) 38 WET BULB RH % BAR.

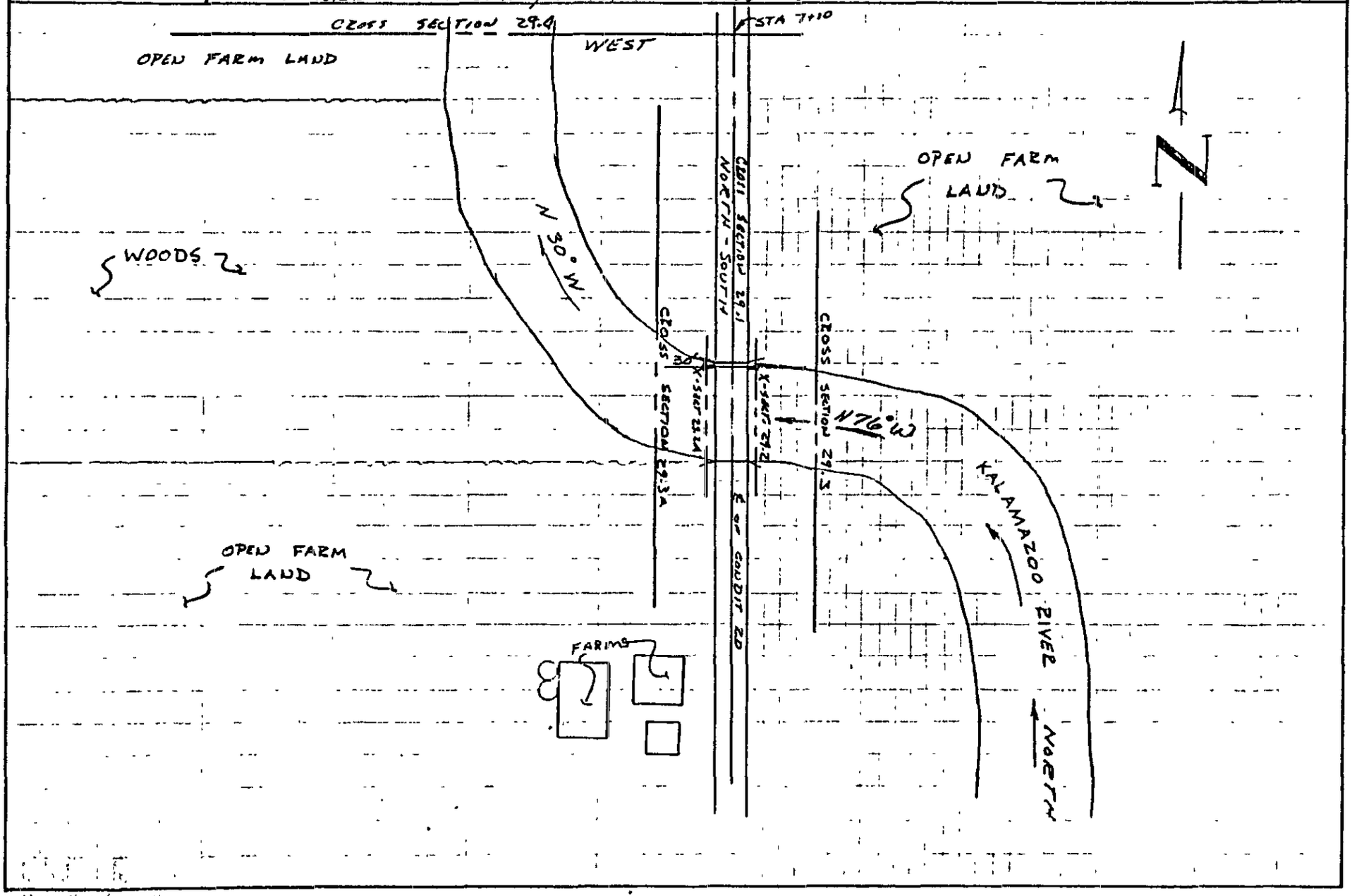
PROJECT: HUD

LOCATION: ALBION TOWNSHIP, MICH. CROSS SECTION 29

CHECKED BY DATE

ACTIVITY Cross Section 29 BOOK 2-1-20 PAGE 73

Plan View STA.

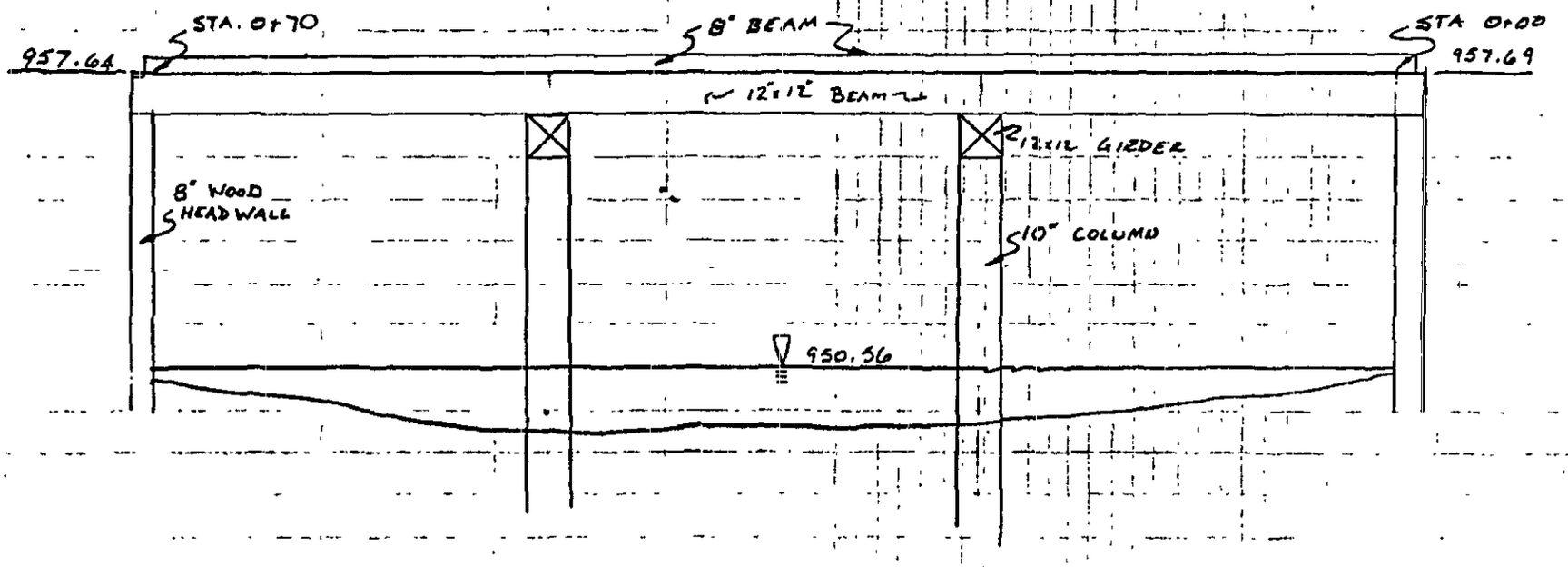


General Fieldnote Form S-127

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY, BEARINGER, HEER			
DATE: 11-20-78	INSTRUMENTS: NA 2	TEMP (DRY BULB) 32	WET BULB	RH %	BAR
PROJECT: HUD	LOCATION: ALBION TOWNSHIP, MICH CROSS SECTION 29.2			CHECKED BY DATE	

ACTIVITY Cross Section 29.2 BOOK 2.1-20 PAGE 79

STA. 15' DOWNSTREAM



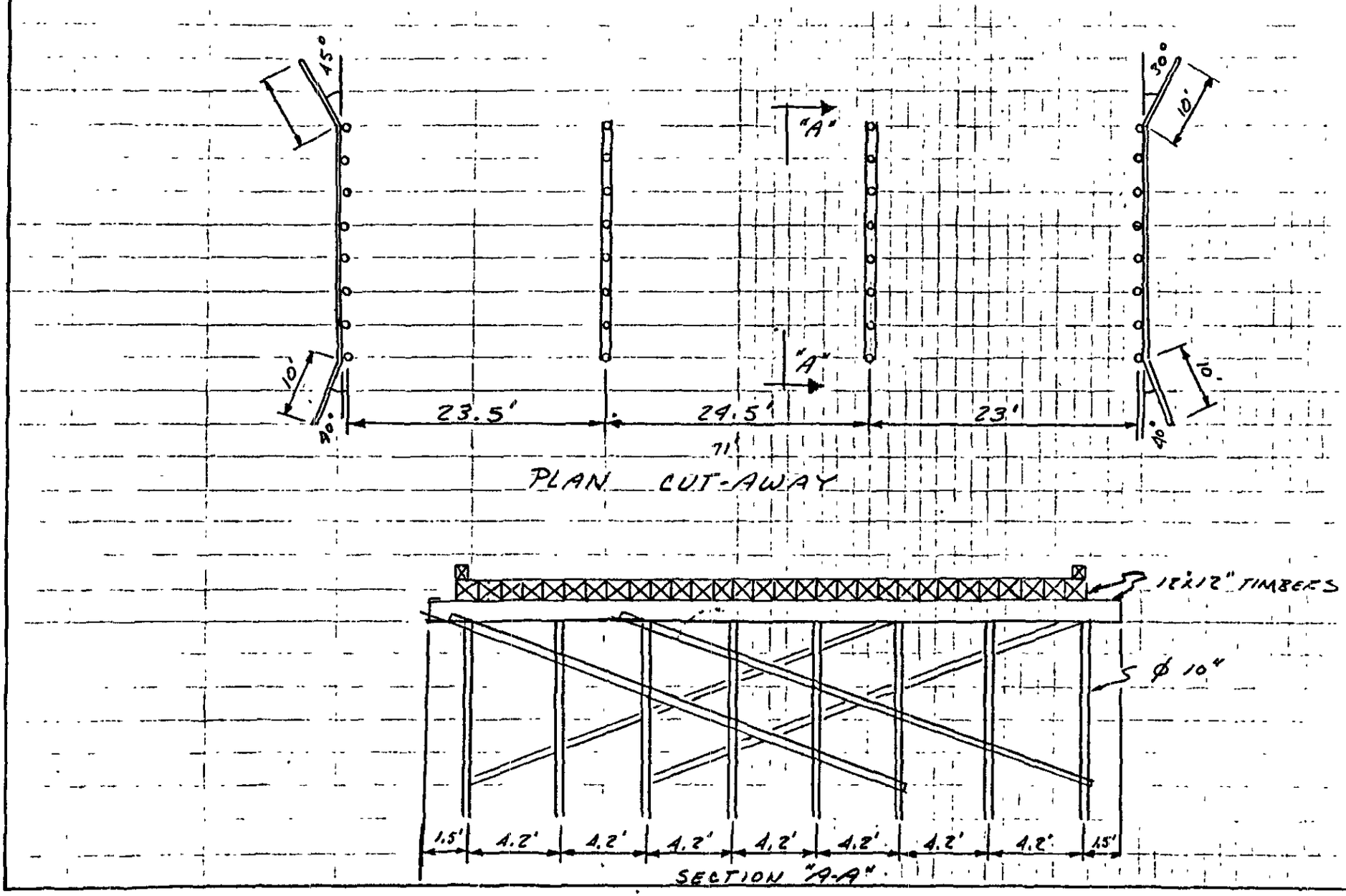
SIDE VIEW

LOOKING UPSTREAM

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY, BEARINGER, HERR			
DATE: 11-16-78	INSTRUMENTS:	TEMP (DRY BULB) 40°	WET BULB	RH %	BAR.
PROJECT: HUD	LOCATION: ALBION TOWNSHIP CUTAWAY PLAN			CHECKED BY DATE	

ACTIVITY PLAN CUTAWAY BOOK 21-20 PAGE 80
STA. CONDIT RH



General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

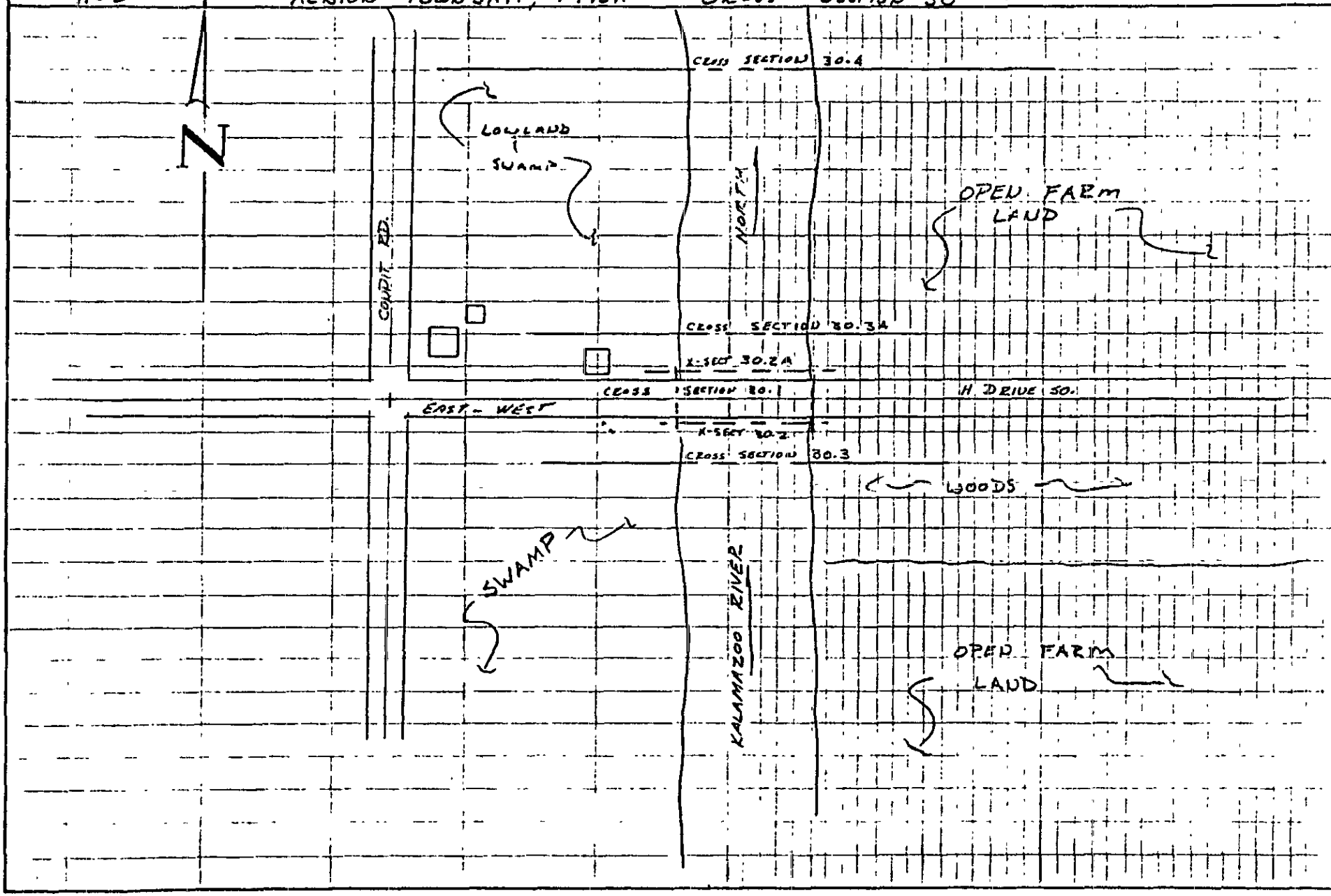
CREW: FOUTY, BEARINGER, HEEL

DATE: 11-20-78 | INSTRUMENTS: HA 2 | TEMP (DRY BULB) 30 | WET BULB | RH % | BAR.

PROJECT: HUD | LOCATION: ALBION TOWNSHIP, MICH. CROSS SECTION 30 | CHECKED BY | DATE

ACTIVITY Cross Section 30 BOOK 21-20 PAGE 92

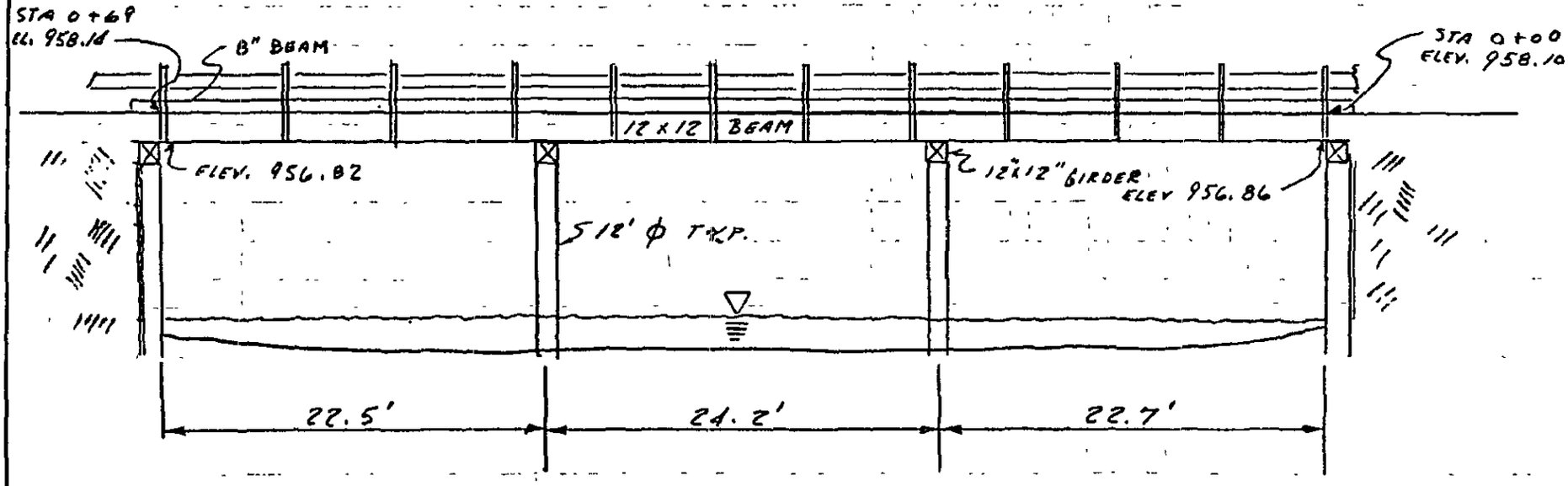
PLAN VIEW STA.



General Fieldnote Form S-127

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY, HERR			
DATE: 11-21-78	INSTRUMENTS: NA"2	TEMP (DRY BULB)	WET BULB	RH %	BAR.
PROJECT: HUD	LOCATION: ALBION, MICH. TOWNSHIP SIDE VIEW CROSS SEC. "30			CHECKED BY DATE	

ACTIVITY Cross Section 30 Side View STA. BOOK 21-20 PAGE 27



SIDE VIEW

LOOKING UPSTREAM

General Fieldnote Form S-127

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, BEARINGER, HERR

DATE: 11-20 78

INSTRUMENTS:

TEMP (DRY ~~BULB~~) 33° WET BULB RH % BAR

PROJECT: HUD

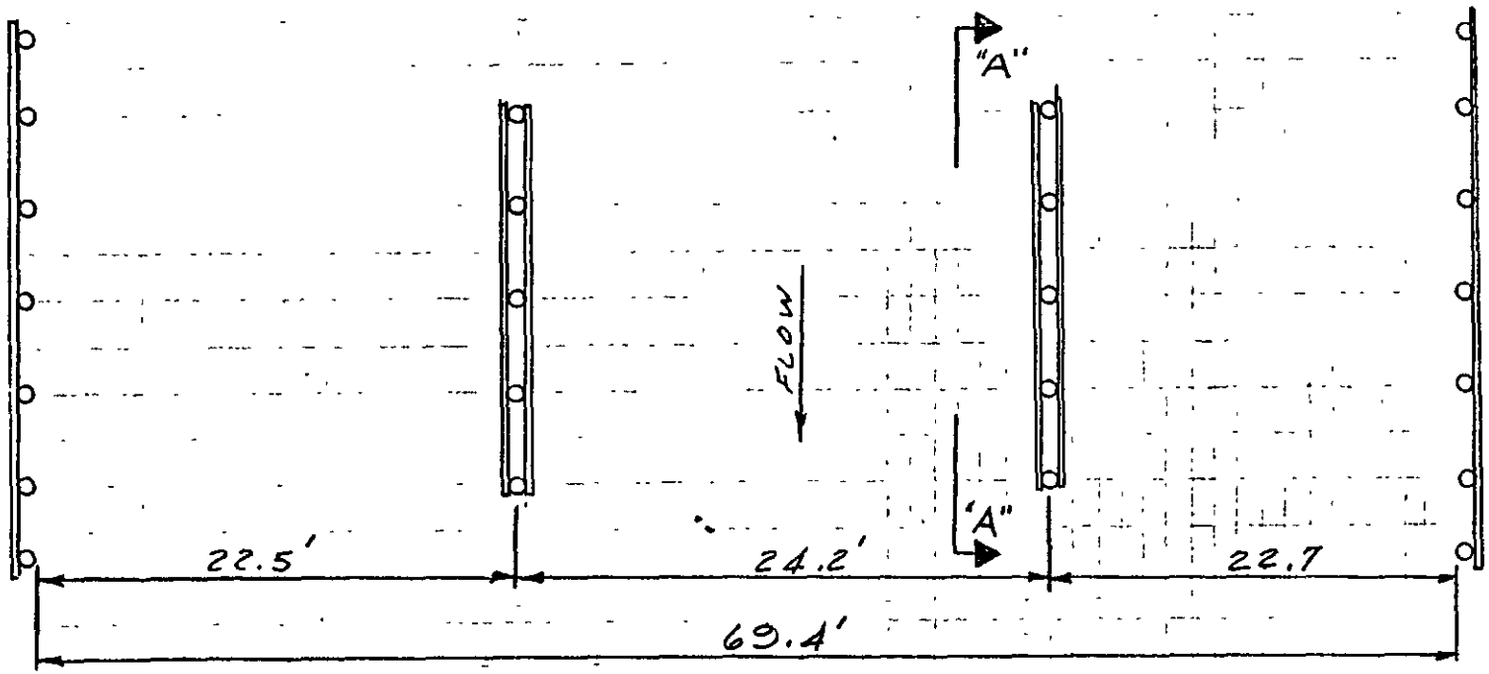
LOCATION: ALBION TOWNSHIP CROSS SECTION #30

CHECKED BY

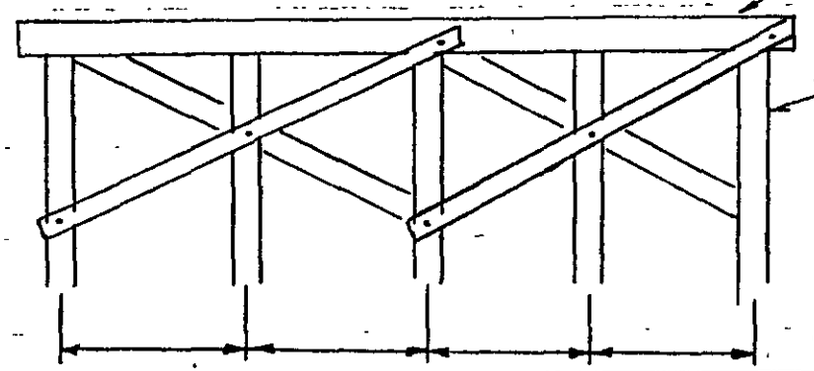
DATE

ACTIVITY CROSS SECTION 30 BOOK 2.1-20 PAGE 48

STA.



PLAN CUTAWAY



SECTION "A-A"

General Fieldnote Form S-127

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, HERR

DATE: 11-21-78

INSTRUMENTS:

TEMP (DRY BULB) 38° WET BULB RH % BAR

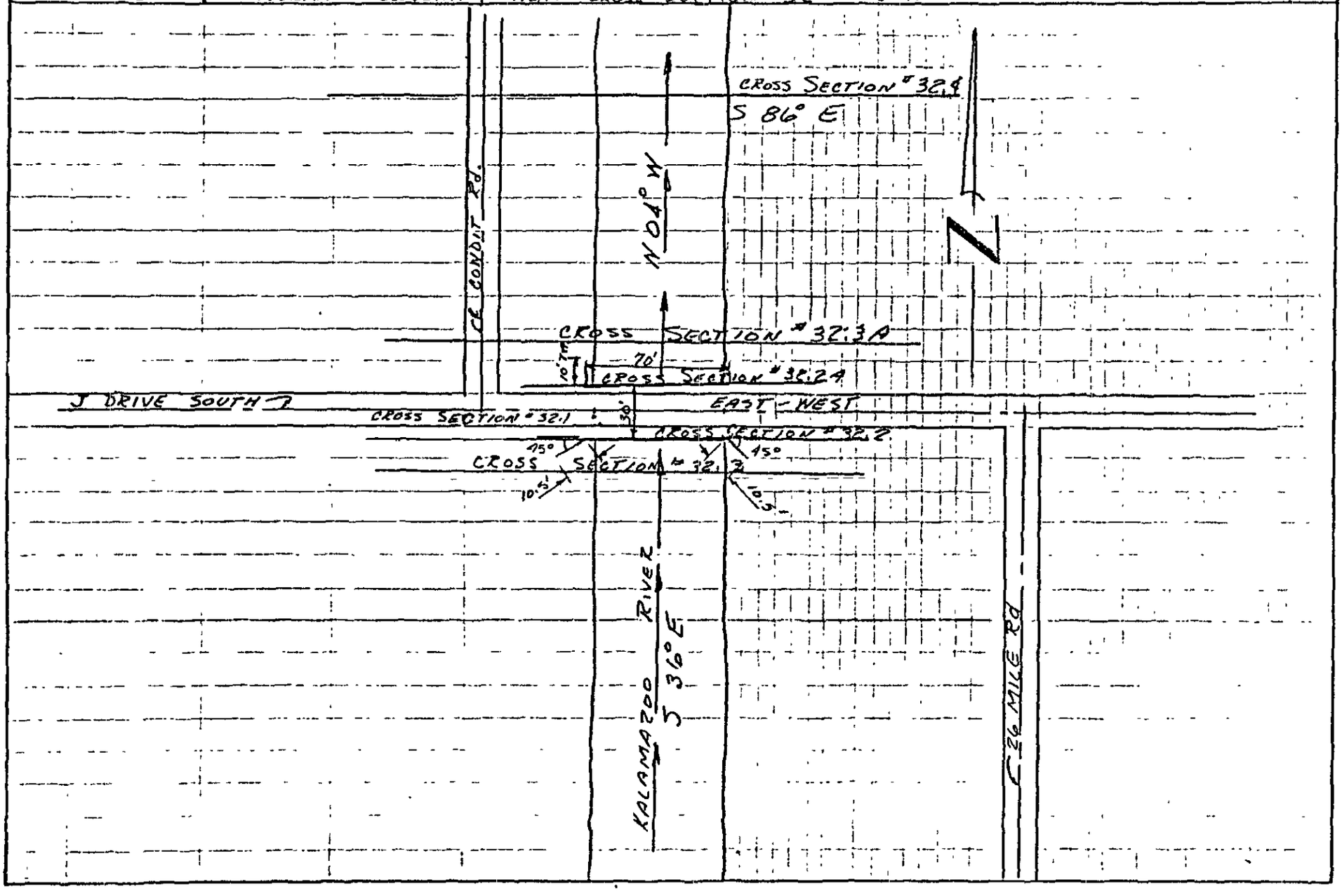
PROJECT: HUD

LOCATION: ALBION TOWNSHIP, MICH. CROSS SECTION 32 PLAN

CHECKED BY DATE

ACTIVITY CROSS SECTION 32 PLAN BOOK 21-20 PAGE 116

STA.



General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, HERR, EGNATUK

DATE: 11-21-78

INSTRUMENTS:

TEMP (DRY BULB) 36°

WET BULB

RH % BAR.

PROJECT: HUD

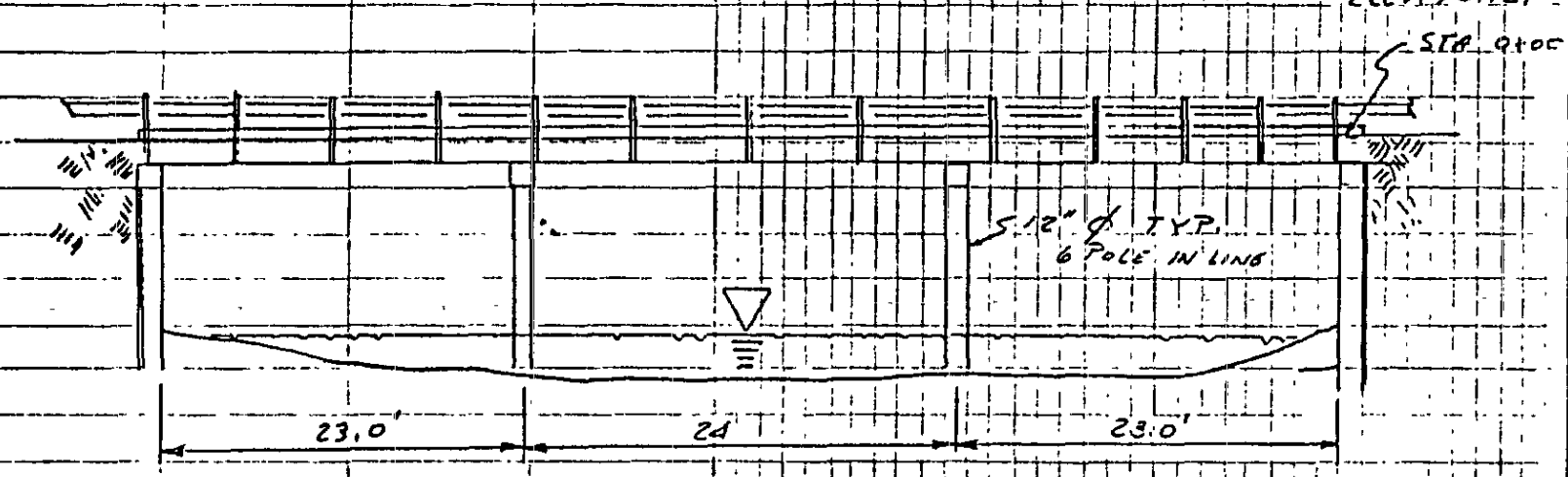
LOCATION: ALBION TOWNSHIP, MICH. CROSS SECTION 32.2

CHECKED BY

DATE

ACTIVITY CROSS SECTION 32.2 BOOK 21-20 PAGE 121

STA. 15' UP STREAM



SIDE VIEW

LOOKING UPSTREAM (SOUTH)

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, BEARINGER, HERR, EGAN

DATE: 11-27-78

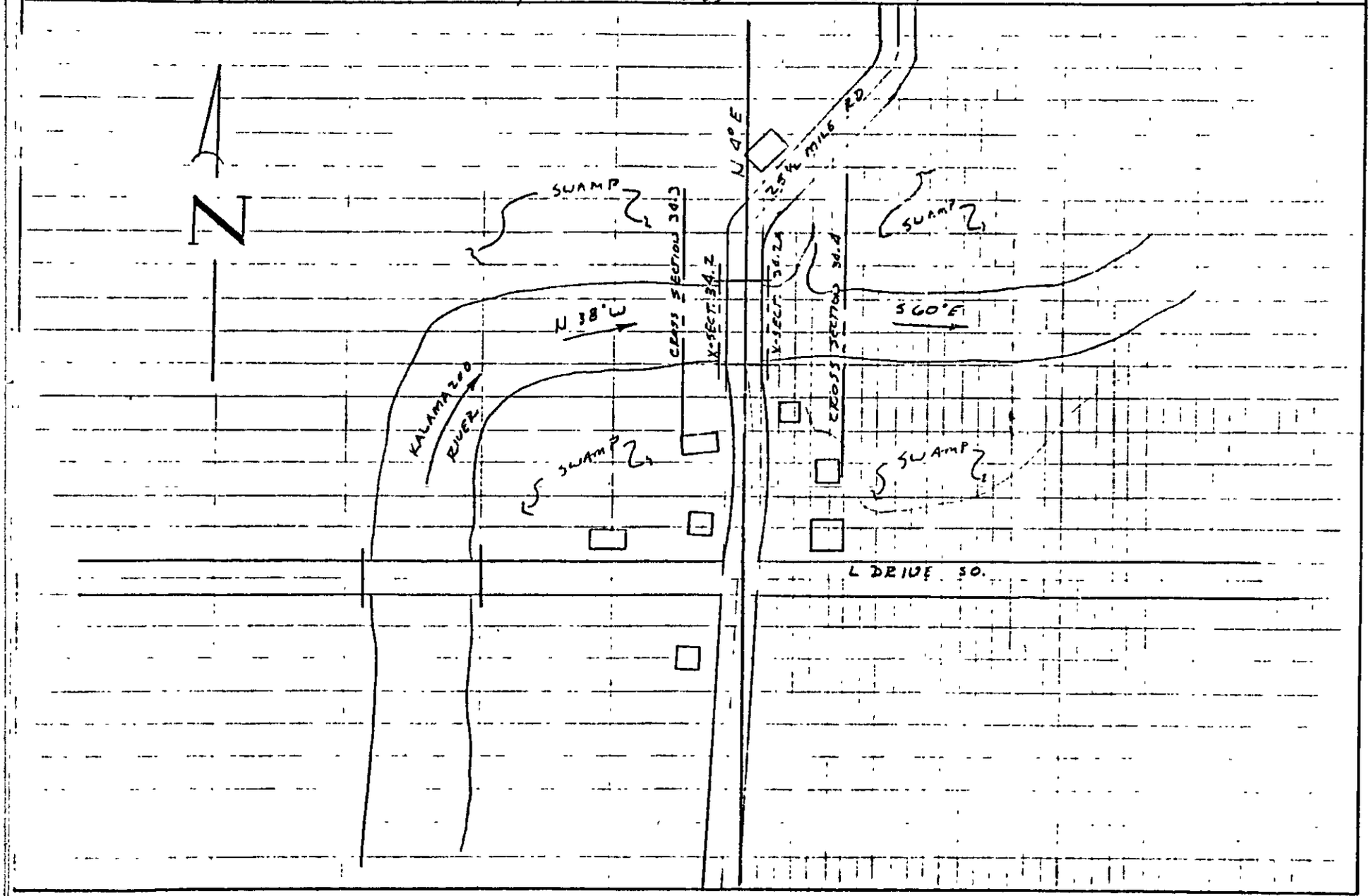
INSTRUMENTS: WA 2

TEMP (DRY BULB) 23 | WET BULB | RH % | BAR.

PROJECT: HUD

LOCATION: ALBION TOWNSHIP, MICH CROSS SECTION 34

CHECKED BY DATE



ACTIVITY Cross Section 34

PLAN VIEW

STA.

BOOK 2.1-20 PAGE 142

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, BEARINGER, HERR

DATE: 11-27-78

INSTRUMENTS:

TEMP (DRY BULB)

WET BULB

RH %

BAR

PROJECT: HUD

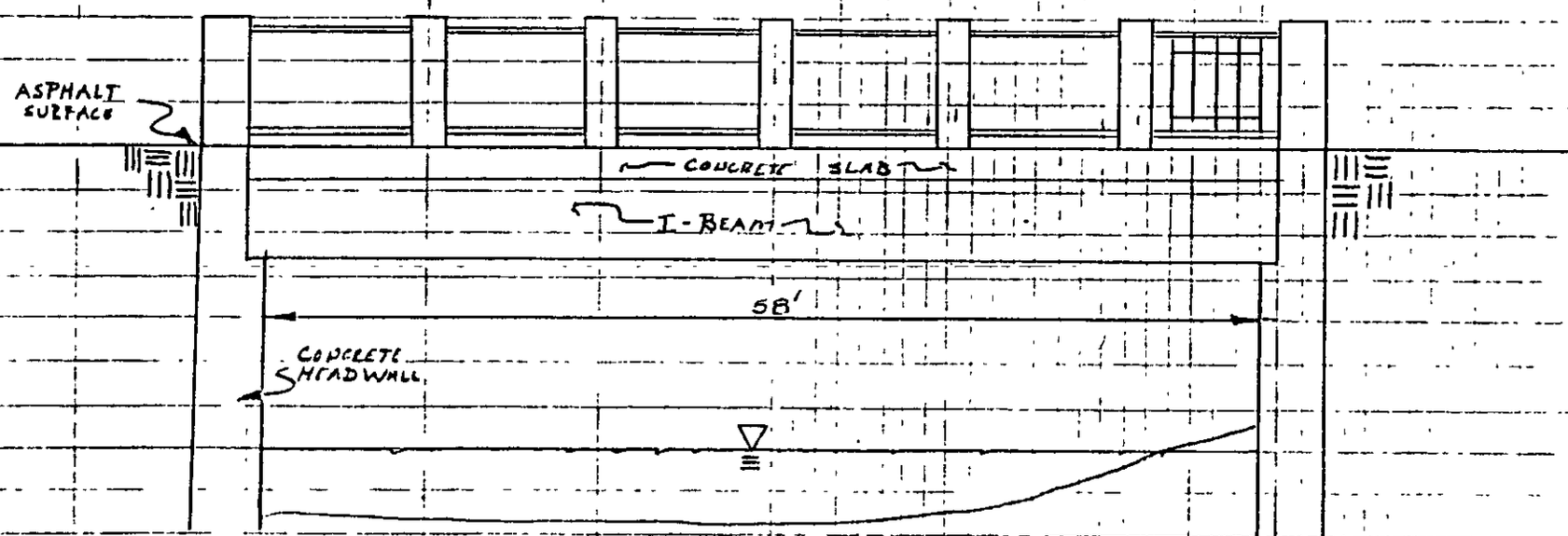
LOCATION: ALBION TOWNSHIP, MICH. CROSS SECTION 34.2

CHECKED BY

DATE

ACTIVITY CROSS SECTION 34.2 BOOK 7-1-20 PAGE 143

SIDE VIEW - LOOKING UPSTREAM STA.



SIDE VIEW

LOOKING UPSTREAM

BRIDGE ON SLIGHT SKEW

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, BEACHLEY, HEER

DATE: 11-27-78

INSTRUMENTS:

TEMP (DRY BULB)

WET BULB

RH %

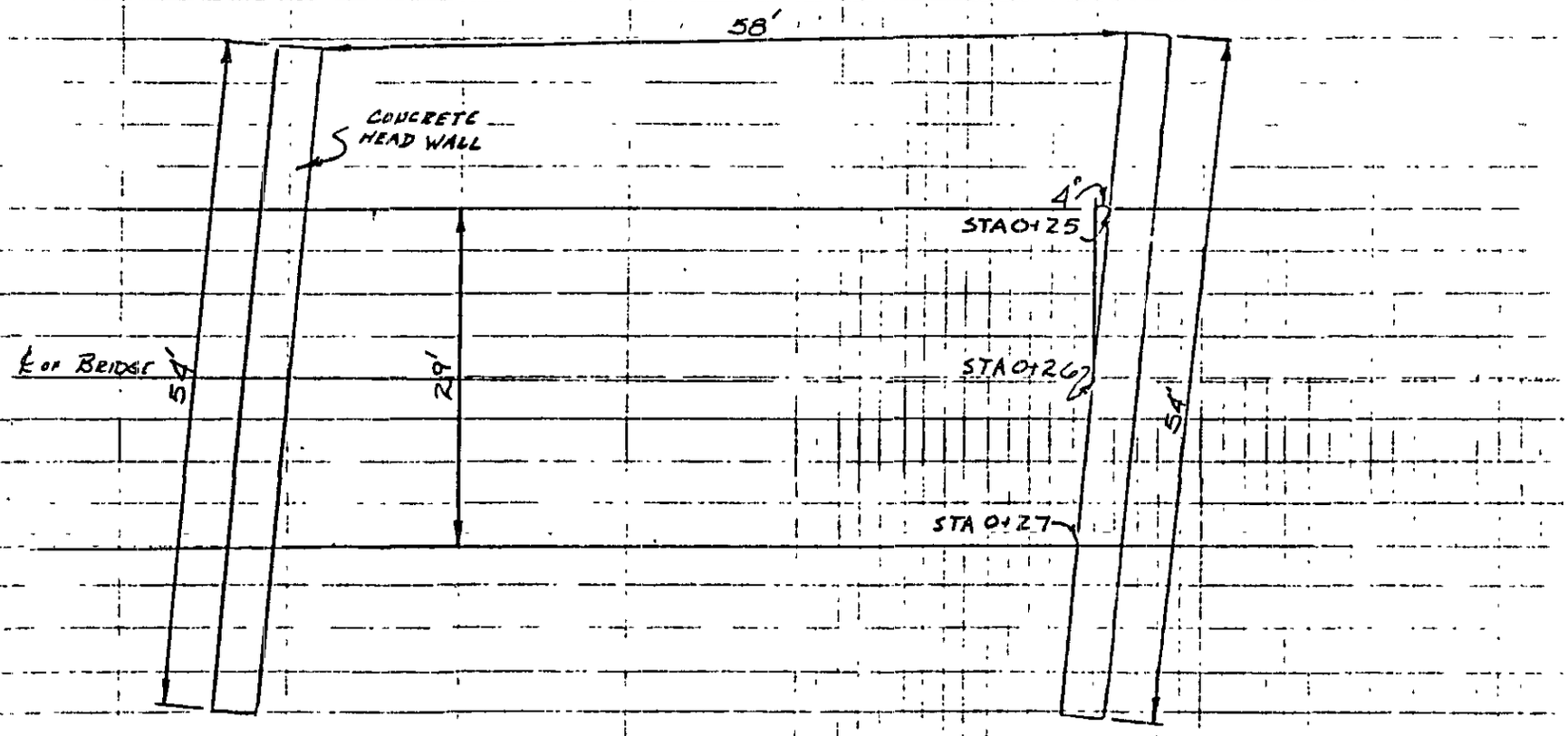
BAR

PROJECT: HUD

LOCATION: ALBION TOWNSHIP, MICH. CROSS SECTION 34-2

CHECKED BY

DATE



Z

ACTIVITY Cross Section 34-2 BOOK 21-20 PAGE 148A

HEAD WALL CUT STA.

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

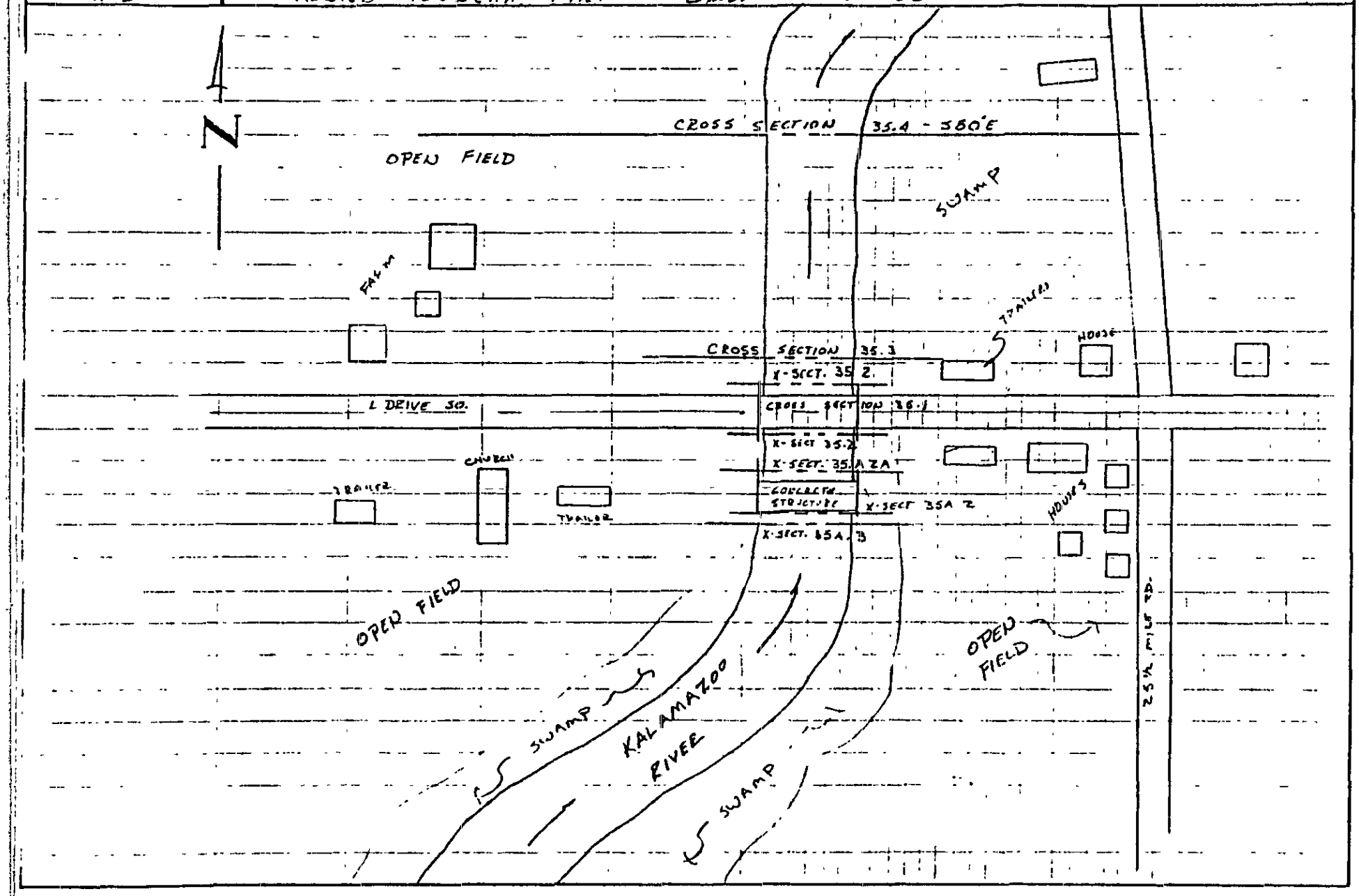
CREW: FOUTY, BEARINGER, HERR

DATE: 11-28-78 | INSTRUMENTS: NA 2 | TEMP (DRY BULB) | WET BULB | RH % | BAR

PROJECT: HUD | LOCATION: ALBION TOWNSHIP MICH. CROSS SECTION 35 | CHECKED BY | DATE

ACTIVITY CROSS SECTION 35 & 35A BOOK 21-20 PAGE 1/21

PLAN VIEW STA.



General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

CREW: FOUTY, BEARINGER, HERZ

DATE: 11-29-78

INSTRUMENTS:

TEMP (DRY BULB)

WET BULB

RH %

BAR.

SUBJECT: HUD

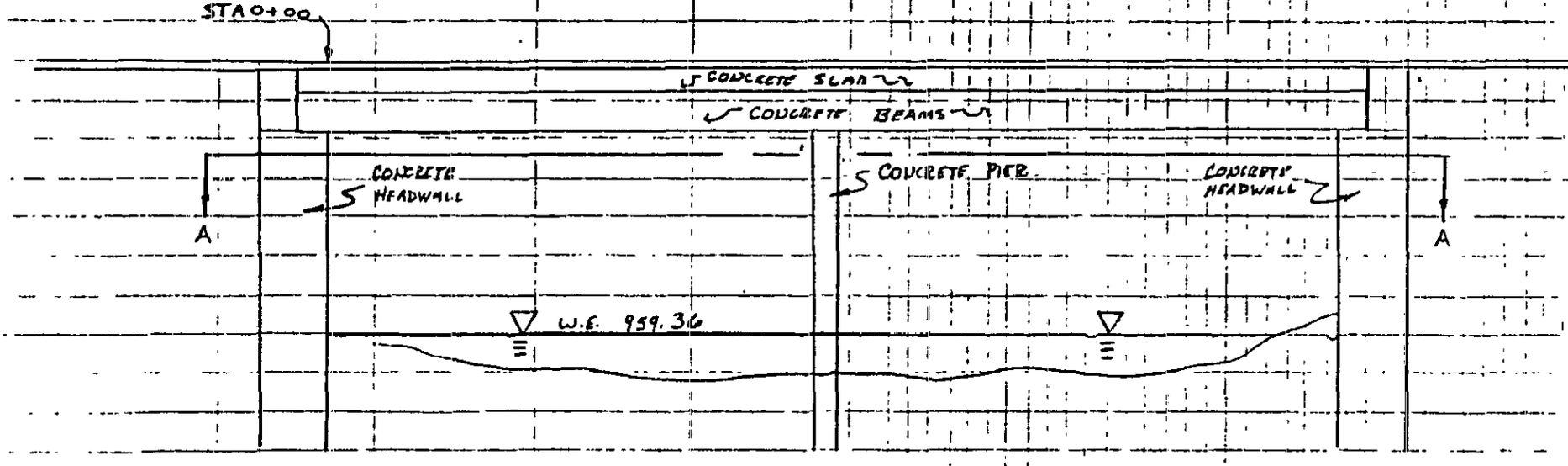
LOCATION: ALBION TOWNSHIP, MICH. CROSS SECTION 35.2

CHECKED BY

DATE

ACTIVITY CROSS SECTION 35.2 BOOK 2.1-20 PAGE 167

STA.



SIDE VIEW

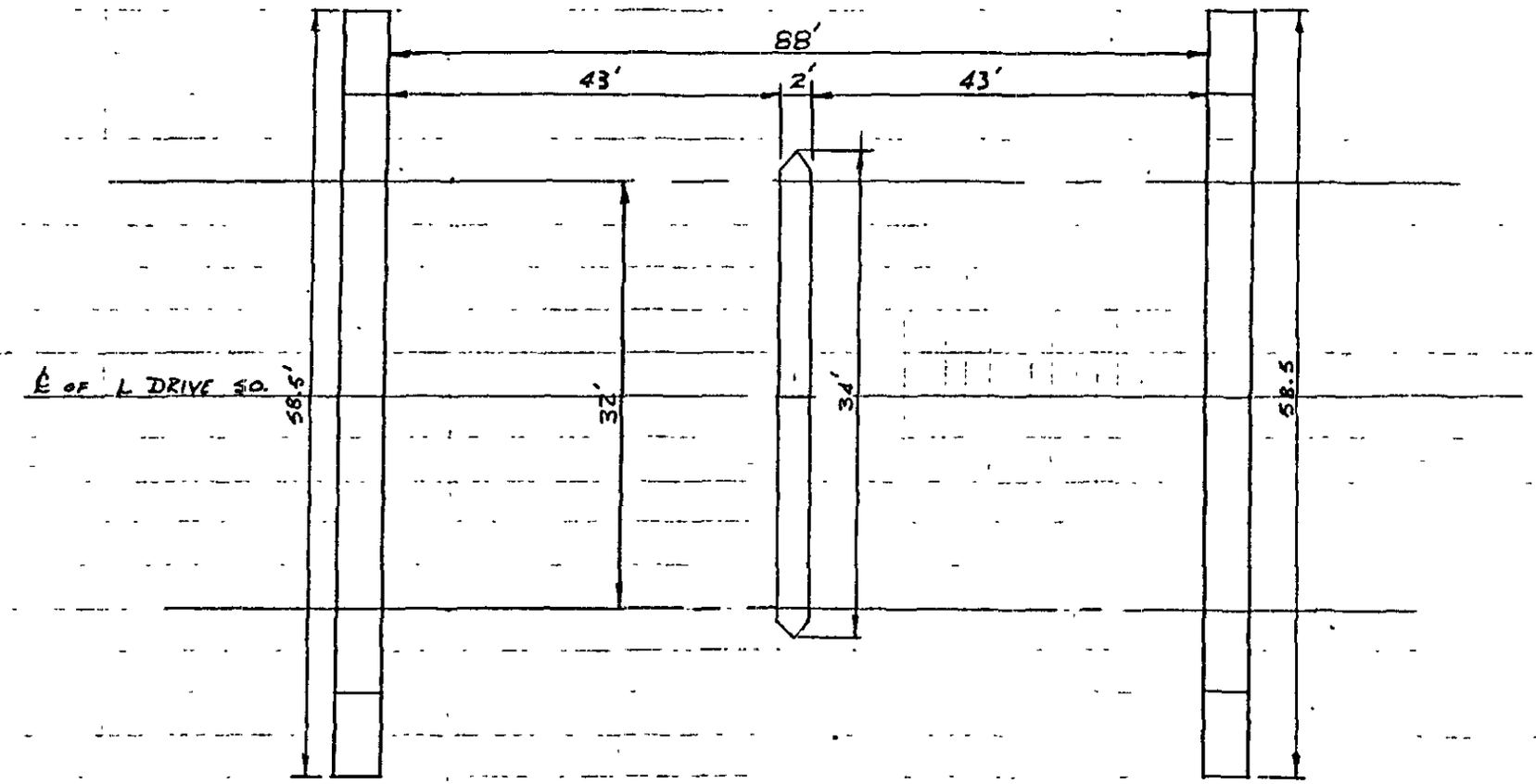
LOOKING DOWNSTREAM

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY, BEARINGER, HEBB			
DATE: 11-29-78	INSTRUMENTS:	TEMP (DRY BULB)	WET BULB	RH %	BAR
PROJECT: HUD	LOCATION: ALBION TOWNSHIP, MICH. CROSS SECTION 35.2			CHECKED BY DATE	

ACTIVITY Cross Section 35.2 BOOK 2.1-20 PAGE 167A

STA.

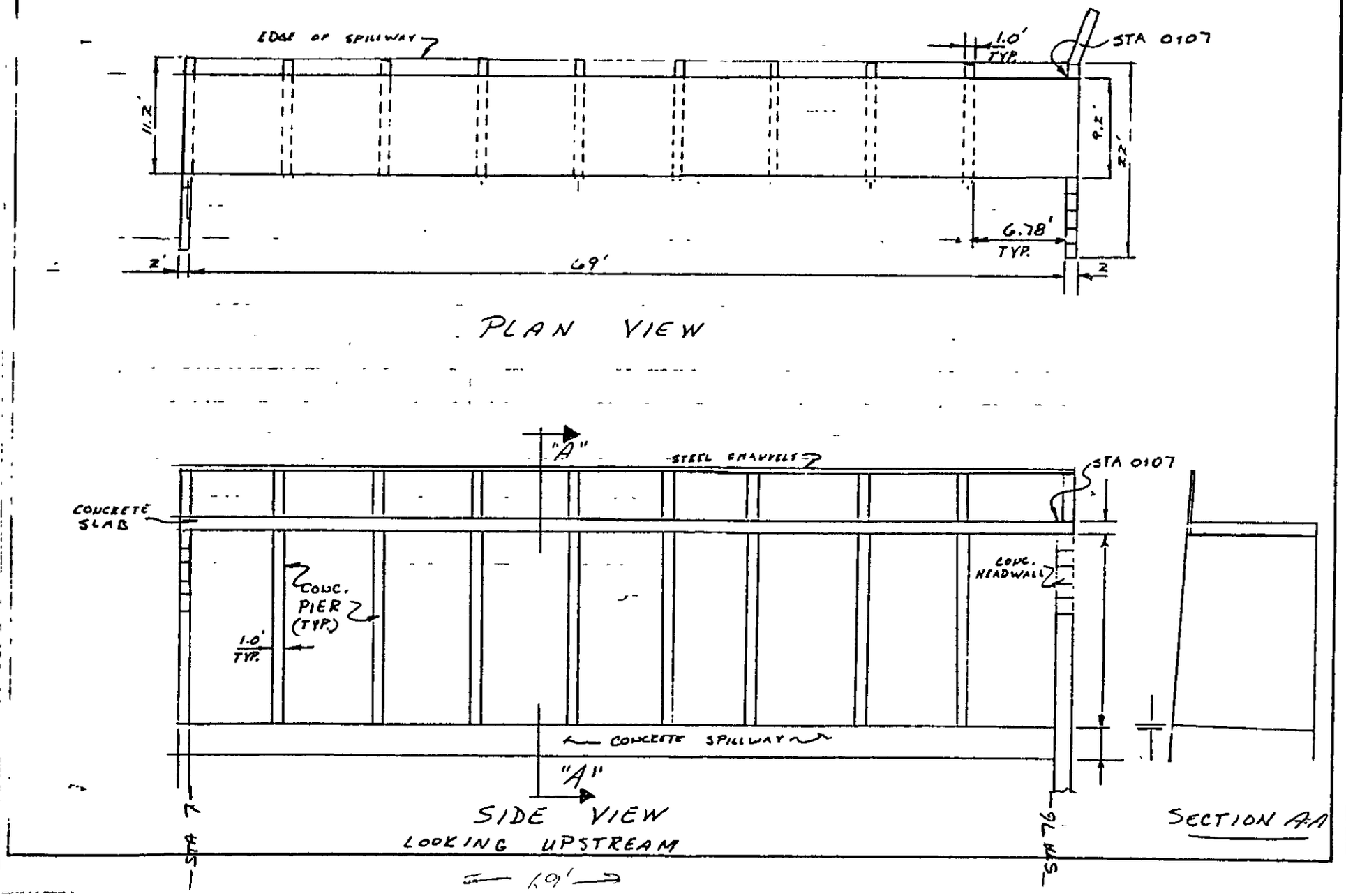


HEAD WALL & CENTER PIER

SECTION A-A

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY, BEARINGER, HERR			
DATE: 11-29-30	INSTRUMENTS:	TEMP (DRY BULB) 38'	WET BULB	RH %	BAR.
PROJECT: HUD	LOCATION: ALBION TOWNSHIP, MICH. CROSS SECTION 35.A1			CHECKED BY DATE	



ACTIVITY CROSS SECTION 35.A PLAN

BOOK [illegible] PAGE 174

STA.

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

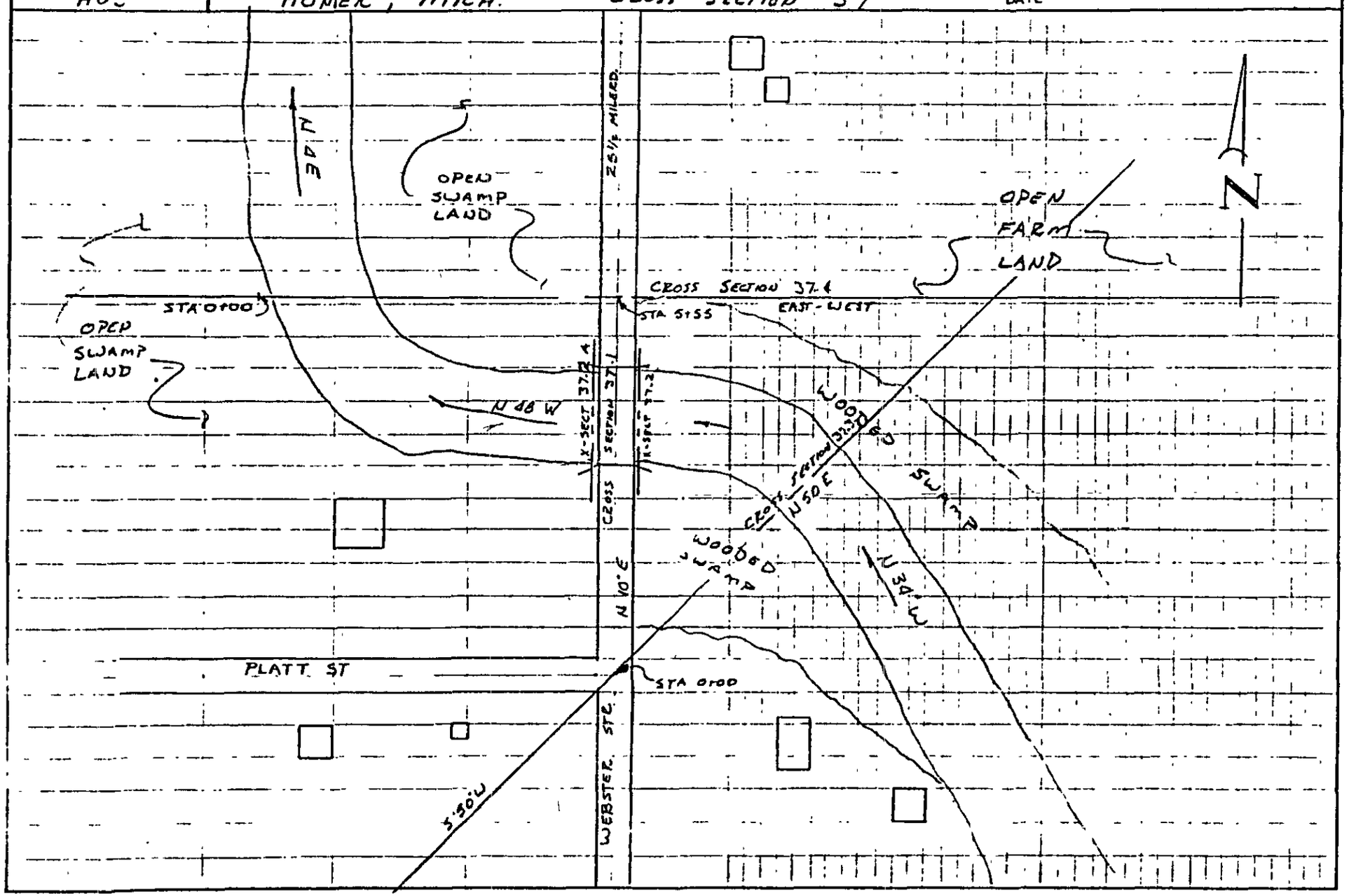
CREW: FOUTY, BEARINGER, HERR

DATE: 11-30-78 | INSTRUMENTS: WA 2 | TEMP (DRY BULB) 21 | WET BULB | RH % | BAR

PROJECT: HU; | LOCATION: HOMER, MICH. Cross Section 37 | CHECKED BY | DATE

ACTIVITY Cross Section 37 BOOK 2.1-25 PAGE 1

PLAN VIEW



General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

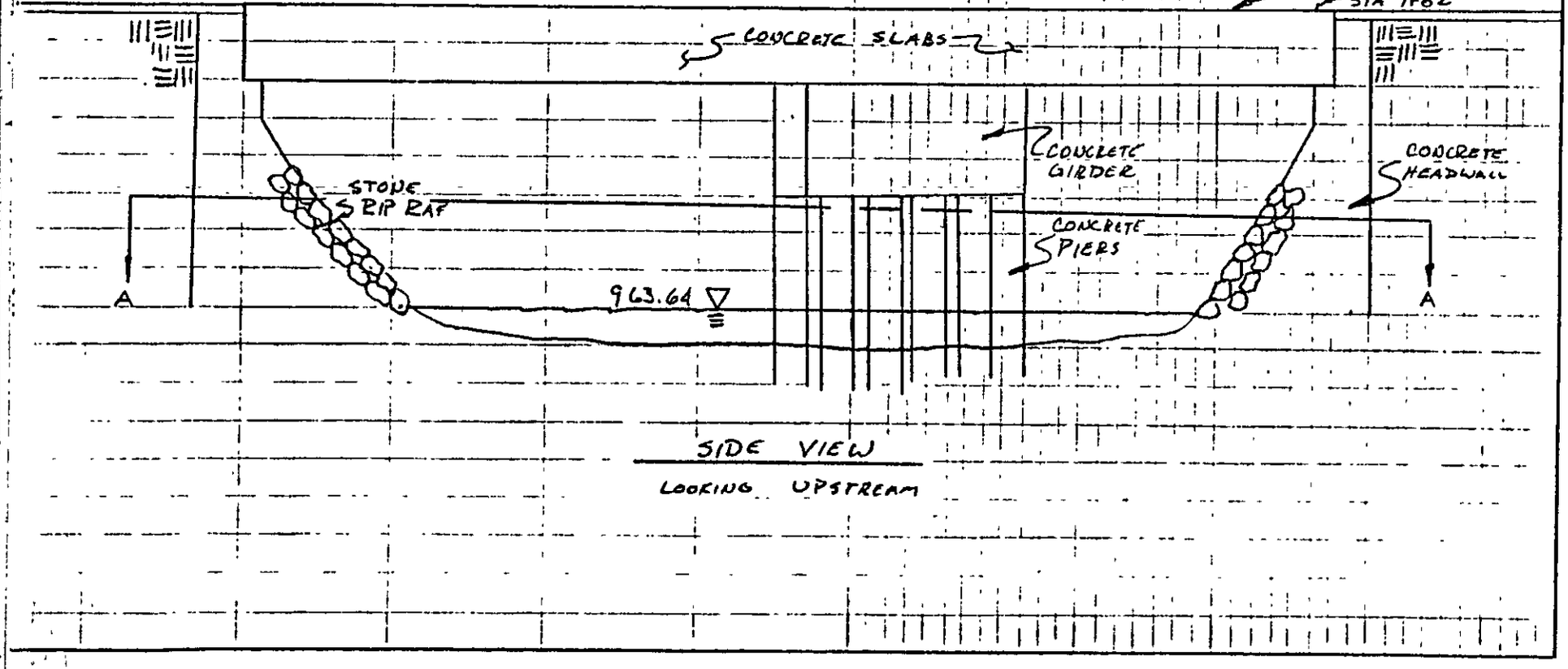
CREW: FOUTY, BEARINGER, HERR

DATE: 11-30-78 | INSTRUMENTS: NA 2 | TEMP (DRY BULB) 23 | WET BULB | RH % | BAR.

PROJECT: HUD | LOCATION: HOMER, MICH. CROSS SECTION 37.2 | CHECKED BY DATE

ACTIVITY Cross Section 37.2 BOOK 2.1-25 PAGE 6

STA. 16' DOWNSTREAM



SIDE VIEW

LOOKING UPSTREAM

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.

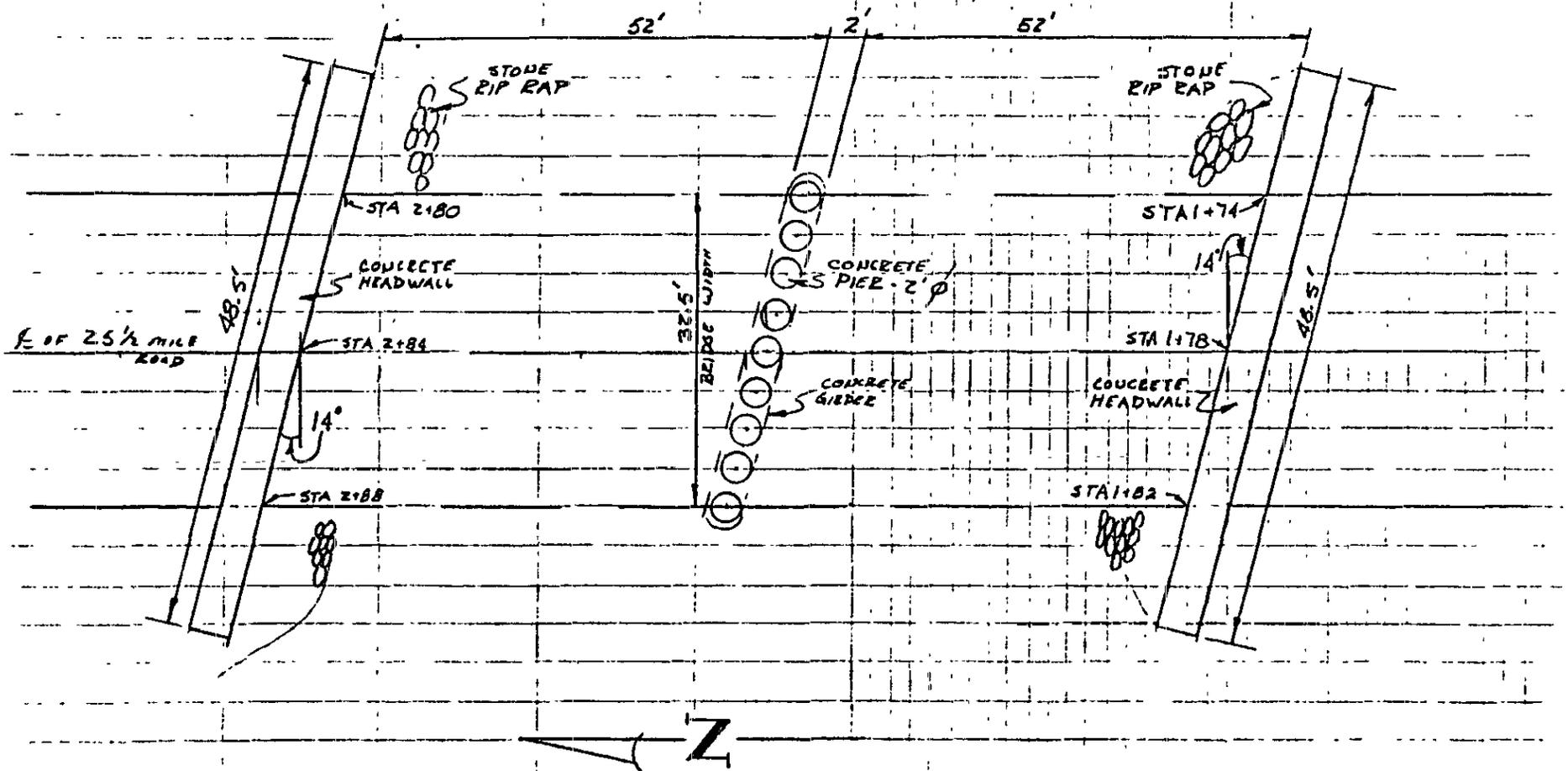
CREW: FOUTY, BEARINGER, HERR

DATE: 11-30-78 | INSTRUMENTS: WA 2 | TEMP (DRY BULB) | WET BULB | RH % | BAR

PROJECT: HUD | LOCATION: HOMER, MICH. Cross Section 37.2 | CHECKED BY | DATE

ACTIVITY Cross Section 37.2 BOOK 2.1-25 PAGE 7

STA.

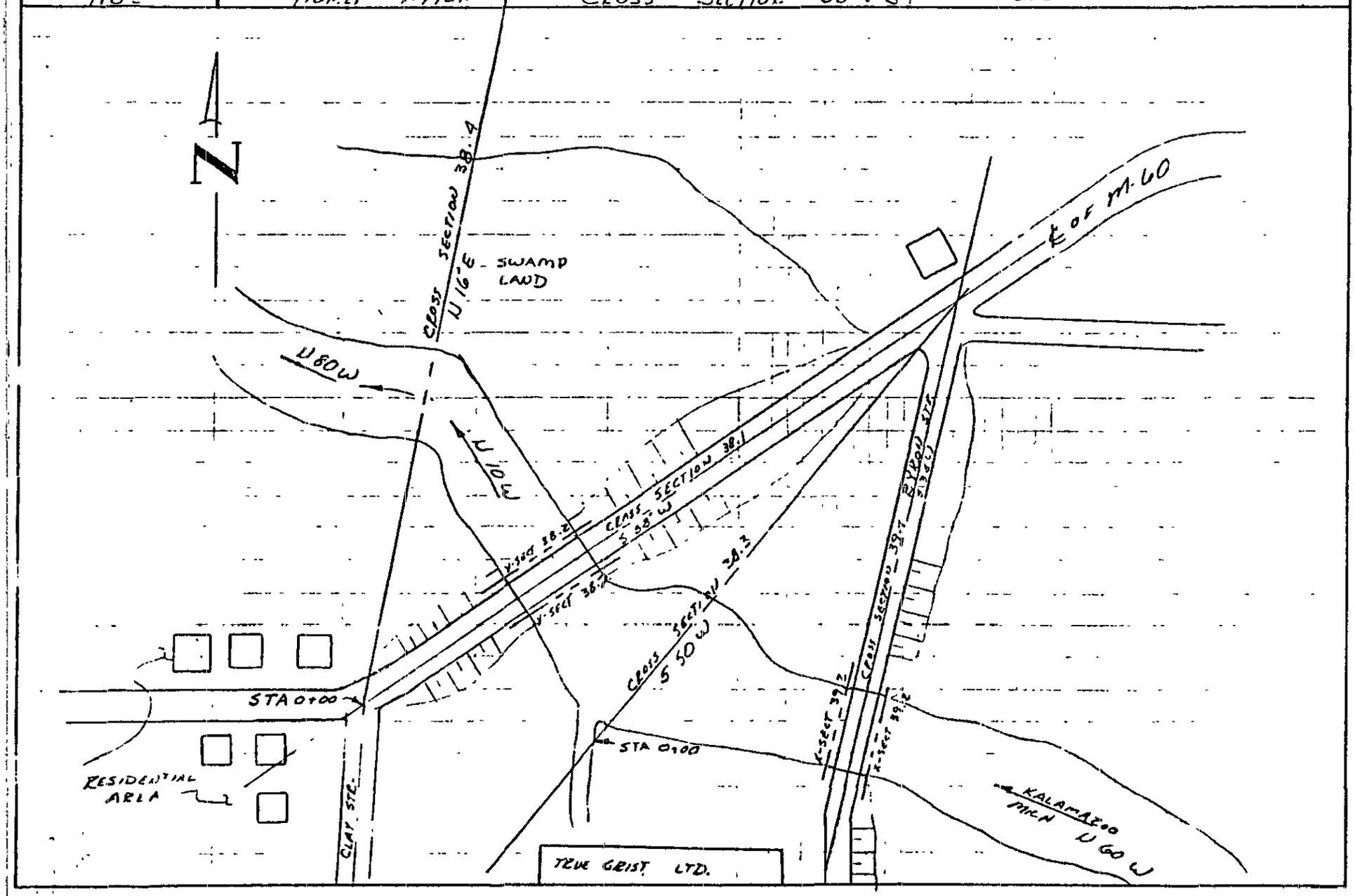


HEADWALL & PIER

SECTION A-A

General Fieldnote Form S-127A

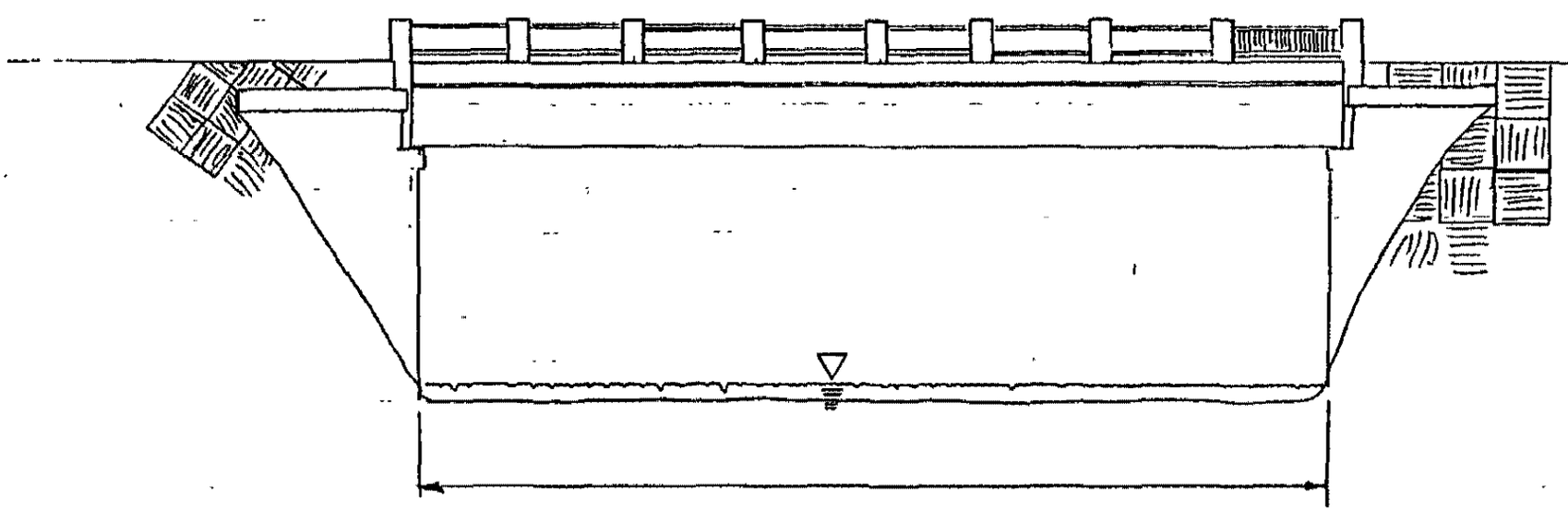
COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY, BEARINGER, HEPP			
DATE: 12-4-78	INSTRUMENTS:	TEMP (DRY BULB)	WET BULB	RH %	BAR.
PROJECT: HUC	LOCATION: HOMER MICH CROSS SECTION 38 & 39			CHECKED BY DATE	



ACTIVITY Cross Section 38 & 39 BOOK 2.1-(25) PAGE 22
PLAN VIEW STA.

General Fieldnote Form S-127A

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY, BEARINGER, HERR			
DATE: 12-1-78	INSTRUMENTS:	TEMP (DRY BULB) 23°	WET BULB	RH %	BAR
PROJECT: HUD	LOCATION: HOMER, MICH. CROSS SECTION 38.2			CHECKED BY DATE	



SIDE VIEW

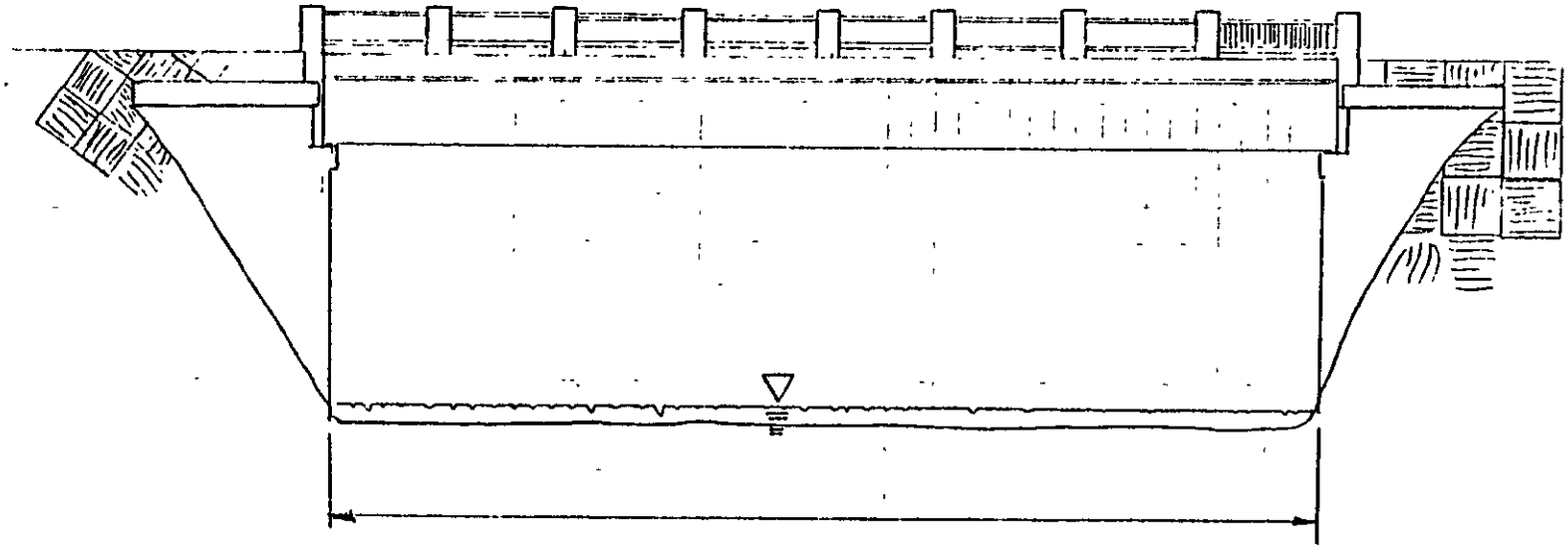
LOOKING DOWNSTREAM

ACTIVITY Cross Section 38.2 BOOK 201 - 25 PAGE 25

STA.

General Fieldwate Form S-127

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY BEARINGER, HERR			
DATE: 12-4-78	INSTRUMENTS:	TEMP (DRY BULB) 23°	WET BULB	RH %	BAR
PROJECT: HUD	LOCATION: HOMER, MICH. CROSS SECTION 38.2			CHECKED BY DATE	



SIDE VIEW

LOOKING DOWNSTREAM

ACTIVITY [illegible] SECTION 38.2 BOOK [illegible] PAGE 25

STA.

COMMONWEALTH ASSOCIATES INC.

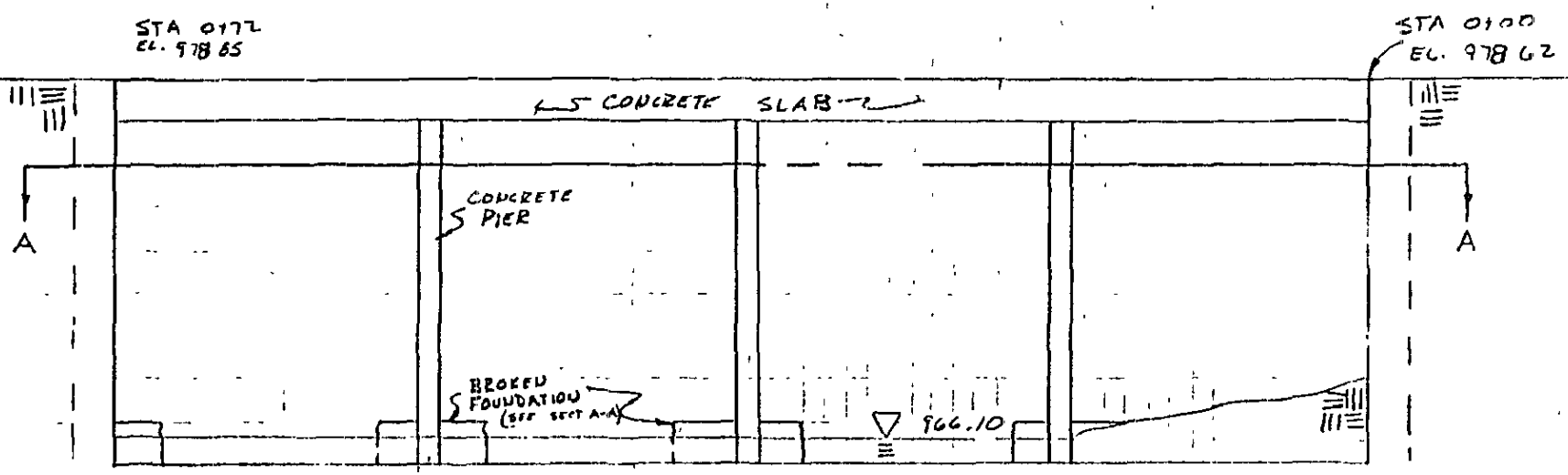
CREW: FOUTY, BEARINGER, HERR

DATE: 12-5-78 | INSTRUMENTS: | TEMP (DRY BULB) 32 | WET BULB | RH % | BAR

PROJECT: HITD | LOCATION: Homer Mich. Cross Section 39.2 | CHECKED BY DATE

ACTIVITY Cross Section 39.2 BOOK 21-22 PAGE

STA.

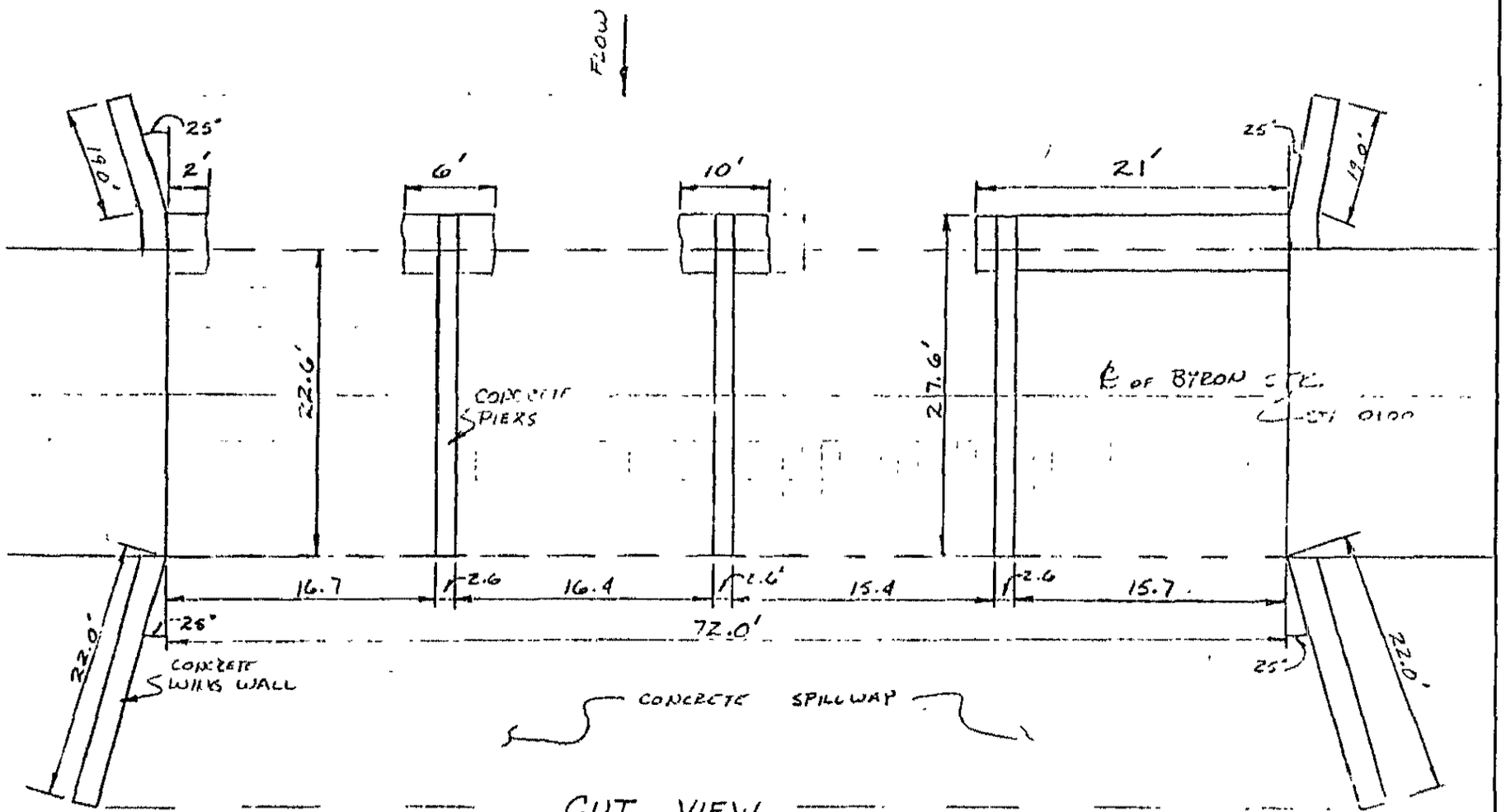


SIDE VIEW

LOOKING UPSTREAM

General Fieldwork Form S-12/

COMMONWEALTH ASSOCIATES INC.		CREW: FOUTY BEARINGER, HERR			
DATE: 12-5-78	INSTRUMENTS NA 2	TEMP (DRY BULB) 32	WET BULB	RH %	BAR
PROJECT: HUD	LOCATION: Homer, Mich CROSS SECTION 39.2			CHECKED BY DATE	



CUT VIEW

SECTION A-A

ACTIVITY

STA.

BOOK

PAGE 40

APPENDIX C

WATER SURFACE PROFILES INDICATING 10, 50, 100 AND 500-YEAR FLOODS

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: St. Joseph Township

3) WATERCOURSE: Hickory Creek

4) DOCUMENT TYPE: 100-YR ENCROACHED

00BREAK00

```
**********************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**********************************************************

T1      HICKORY CR. W/ ENCROACHMENTS     WILLIAMS AND WORKS, INC.
T2      ST. JOSEPH TOWNSHIP              83996
T3      HICKORY CR. 100 YR FLOOD         JULY, 1978

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

       0.        3.        0.        0.  0.0             0.0      -1.0         0.   583.500     0.0

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

    2.000       0.0    -1.000       0.0       0.0       0.0       0.0       0.0       0.0       0.0
```

```
 *PROF 2

CCHV=   0.100 CEHV=   0.300
 *SECNO .0
  2800 NAT Q1=     223.42  WSEL=     583.50  ENC Q1=     231.22  WSEL=     583.60  RATIO= -0.0349
  NAT Q1=     231.  RATIOS LOB,CH,ROB=  0.0      1.0000  0.0000  WSEL=     583.60
     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=      201.0     263.0  TYPE=    4  TARGET=        0.000

           CROSS SECTION A

       0.0       6.40    583.50      0.0     583.50    583.67      0.17      0.0       0.0     583.60
       860.       0.      860.       0.        0.      263.        0.        0.        0.      583.50
       0.0       0.0      3.26      0.0      0.070     0.045     0.100     0.0      577.10    201.40
  0.001482        0.       0.        0.        0         0         0       0.0       61.60    263.00

 *SECNO .100
  2800 NAT Q1=     235.51  WSEL=     583.65  ENC Q1=     244.85  WSEL=     583.75  RATIO= -0.0397
  NAT Q1=     245.  RATIOS LOB,CH,ROB=  0.0000  0.9998  0.0002  WSEL=     583.75

 3470 ENCROACHMENT STATIONS=      201.0     263.0  TYPE=    4  TARGET=        0.000
       0.10      6.55    583.65      0.0     583.65    583.81      0.15      0.14      0.00    583.60
       860.       0.      860.       0.        0.      272.        0.        1.        0.      583.50
       0.01      0.0      3.16      0.0      0.070     0.045     0.100     0.045     577.10    201.00
  0.001350       100.     100.      100.        1         0         0       0.0       62.00    263.00


 *SECNO .200
  2800 NAT Q1=     248.64  WSEL=     583.79  ENC Q1=     257.37  WSEL=     583.89  RATIO= -0.0351
  NAT Q1=     258.  RATIOS LOB,CH,ROB=  0.0002  0.9994  0.0005  WSEL=     583.89

 3470 ENCROACHMENT STATIONS=      201.0     263.0  TYPE=    4  TARGET=        0.001
       0.20      6.69    583.79      0.0     583.79    583.94      0.15      0.13      0.00    583.60
       860.       0.      860.       0.        0.      281.        0.        1.        0.      583.50
       0.02      0.0      3.06      0.0      0.070     0.045     0.100     0.045     577.10    201.00
  0.001222       100.     100.      100.        1         0         0       0.0       62.00    263.00


 *SECNO .300
  2800 NAT Q1=     260.03  WSEL=     583.91  ENC Q1=     268.81  WSEL=     584.01  RATIO= -0.0338
  NAT Q1=     269.  RATIOS LOB,CH,ROB=  0.0004  0.9988  0.0008  WSEL=     584.01

 3470 ENCROACHMENT STATIONS=      201.0     263.0  TYPE=    4  TARGET=        0.001
       0.30      6.82    583.92      0.0     583.91    584.05      0.14      0.12      0.00    583.60
       860.       0.      860.       0.        0.      289.        0.        2.        0.      583.50
       0.03      0.0      2.98      0.0      0.070     0.045     0.100     0.045     577.10    201.00
  0.001121       100.     100.      100.        1         0         0       0.0       62.00    263.00


 *SECNO .400
  2800 NAT Q1=     270.51  WSEL=     584.02  ENC Q1=     279.46  WSEL=     584.12  RATIO= -0.0331
  NAT Q1=     280.  RATIOS LOB,CH,ROB=  0.0007  0.9981  0.0012  WSEL=     584.12
     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

3470 ENCROACHMENT STATIONS= 201.0 263.0 TYPE= 4 TARGET= 0.002

0.40	6.93	584.03	0.0	584.02	584.16	0.13	0.11	0.00	583.60
860.	0.	860.	0.	0.	296.	0.	3.	1.	583.50
0.04	0.0	2.91	0.0	0.070	0.045	0.100	0.045	577.10	201.00
0.001038	100.	100.	100.	1	0	0	0.0	62.00	263.00

*SECNO .500

2800 NAT Q1= 280.50 WSEL= 584.13 ENC Q1= 289.42 WSEL= 584.23 RATIO= -0.0318

NAT Q1= 290. RATIOS LOB,CH,ROB= 0.0011 0.9972 0.0017 WSEL= 584.23

3470 ENCROACHMENT STATIONS= 201.0 263.0 TYPE= 4 TARGET= 0.003

0.50	7.04	584.14	0.0	584.13	584.26	0.13	0.10	0.00	583.60
860.	0.	860.	0.	0.	303.	0.	3.	1.	583.50
0.05	0.0	2.84	0.0	0.070	0.045	0.100	0.045	577.10	201.00
0.000968	100.	100.	100.	1	0	0	0.0	62.00	263.00

*SECNO .600

2800 NAT Q1= 289.99 WSEL= 584.22 ENC Q1= 298.83 WSEL= 584.32 RATIO= -0.0305

NAT Q1= 300. RATIOS LOB,CH,ROB= 0.0015 0.9963 0.0022 WSEL= 584.32

3470 ENCROACHMENT STATIONS= 201.0 263.0 TYPE= 4 TARGET= 0.004

0.60	7.14	584.24	0.0	584.22	584.36	0.12	0.09	0.00	583.60
860.	0.	860.	0.	0.	309.	0.	4.	1.	583.50
0.06	0.0	2.79	0.0	0.070	0.045	0.100	0.045	577.10	201.00
0.000911	100.	100.	100.	0	0	0	0.0	62.00	263.00

*SECNO .700

2800 NAT Q1= 299.03 WSEL= 584.31 ENC Q1= 307.73 WSEL= 584.41 RATIO= -0.0291

NAT Q1= 309. RATIOS LOB,CH,ROB= 0.0020 0.9953 0.0027 WSEL= 584.41

3470 ENCROACHMENT STATIONS= 201.0 263.0 TYPE= 4 TARGET= 0.005

0.70	7.23	584.33	0.0	584.31	584.45	0.12	0.09	0.00	583.60
860.	0.	860.	0.	0.	314.	0.	5.	1.	583.50
0.07	0.0	2.74	0.0	0.070	0.045	0.100	0.045	577.10	201.00
0.000860	100.	100.	100.	0	0	0	0.0	62.00	263.00

*SECNO .800

2800 NAT Q1= 307.67 WSEL= 584.40 ENC Q1= 316.19 WSEL= 584.50 RATIO= -0.0277

NAT Q1= 318. RATIOS LOB,CH,ROB= 0.0025 0.9942 0.0032 WSEL= 584.50

3470 ENCROACHMENT STATIONS= 201.0 263.0 TYPE= 4 TARGET= 0.006

0.80	7.32	584.42	0.0	584.40	584.53	0.11	0.08	0.00	583.60
860.	0.	860.	0.	0.	320.	0.	5.	1.	583.50
0.08	0.0	2.69	0.0	0.070	0.045	0.100	0.045	577.10	201.00
0.000814	100.	100.	100.	0	0	0	0.0	62.00	263.00

*SECNO .900

2800 NAT Q1= 315.98 WSEL= 584.48 ENC Q1= 324.28 WSEL= 584.58 RATIO= -0.0263

NAT Q1= 327. RATIOS LOB,CH,ROB= 0.0031 0.9931 0.0038 WSEL= 584.58

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

3470 ENCROACHMENT STATIONS= 201.0 263.0 TYPE= 4 TARGET= 0.007

```
      0.90      7.40    584.50      0.0     584.48    584.61      0.11      0.08      0.00    583.60
      860.        0.      860.       0.        0.      325.        0.        6.        1.     583.50
      0.09       0.0      2.65      0.0     0.070     0.045     0.100     0.045    577.10    201.00
 0.000774      100.      100.      100.         0         0         0       0.0     62.00    263.00


 *SECNO 1.000
  2800 NAT Q1=     323.97  WSEL=     584.55  ENC Q1=     332.01  WSEL=     584.65  RATIO= -0.0248
  NAT Q1=     335.  RATIOS LOB,CH,ROB=  0.0037  0.9920  0.0043  WSEL=     584.65

 3470 ENCROACHMENT STATIONS=      201.0      263.0  TYPE=      4  TARGET=       0.008
      1.00      7.48    584.58      0.0     584.55    584.69      0.11      0.08      0.00    583.60
      860.        0.      860.       0.        0.      330.        0.        7.        1.     583.50
      0.10       0.0      2.61      0.0     0.070     0.045     0.100     0.045    577.10    201.00
 0.000739      100.      100.      100.         0         0         0       0.0     62.00    263.00


 *SECNO 1.100
  2800 NAT Q1=     331.68  WSEL=     584.63  ENC Q1=     339.45  WSEL=     584.73  RATIO= -0.0234
  NAT Q1=     343.  RATIOS LOB,CH,ROB=  0.0043  0.9908  0.0049  WSEL=     584.73

 3470 ENCROACHMENT STATIONS=      201.0      263.0  TYPE=      4  TARGET=       0.009
      1.10      7.56    584.66      0.0     584.63    584.76      0.10      0.07      0.00    583.60
      860.        0.      860.       0.        0.      335.        0.        8.        2.     583.50
      0.11       0.0      2.57      0.0     0.070     0.045     0.100     0.045    577.10    201.00
 0.000707      100.      100.      100.         0         0         0       0.0     62.00    263.00


 *SECNO 1.200
  2800 NAT Q1=     339.16  WSEL=     584.70  ENC Q1=     346.57  WSEL=     584.80  RATIO= -0.0218
  NAT Q1=     350.  RATIOS LOB,CH,ROB=  0.0049  0.9897  0.0054  WSEL=     584.80

 3470 ENCROACHMENT STATIONS=      201.0      263.0  TYPE=      4  TARGET=       0.010
      1.20      7.63    584.73      0.0     584.70    584.83      0.10      0.07      0.00    583.60
      860.        0.      860.       0.        0.      339.        0.        8.        2.     583.50
      0.12       0.0      2.54      0.0     0.070     0.045     0.100     0.045    577.10    201.00
 0.000678      100.      100.      100.         0         0         0       0.0     62.00    263.00


 *SECNO 1.300
  2800 NAT Q1=     346.39  WSEL=     584.76  ENC Q1=     353.43  WSEL=     584.86  RATIO= -0.0203
  NAT Q1=     358.  RATIOS LOB,CH,ROB=  0.0056  0.9885  0.0059  WSEL=     584.86

 3470 ENCROACHMENT STATIONS=      201.0      263.0  TYPE=      4  TARGET=       0.012
      1.30      7.70    584.80      0.0     584.76    584.89      0.10      0.07      0.00    583.60
      860.        0.      860.       0.        0.      343.        0.        9.        2.     583.50
      0.13       0.0      2.50      0.0     0.070     0.045     0.100     0.045    577.10    201.00
 0.000652      100.      100.      100.         0         0         0       0.0     62.00    263.00


 *SECNO 1.400
  2800 NAT Q1=     427.81  WSEL=     584.85  ENC Q1=     427.81  WSEL=     584.95  RATIO=  0.0000
  NAT Q1=     444.  RATIOS LOB,CH,ROB=  0.0698  0.9231  0.0071  WSEL=     584.95
    SECNO     DEPTH     CWSEL     CRIWS     WSELK        EG        HV        HL      OLOSS   BANK ELEV
    Q         QLOB      QCH       QROB      ALOB      ACH       AROB      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=      213.7      338.0  TYPE=      4  TARGET=       0.037

          CROSS SECTION B

      1.40      7.99    584.89      0.0     584.85    584.95      0.06      0.05      0.00    583.80
      860.       34.      826.       0.       66.      401.        0.       10.        2.     584.30
```

```
      0.14      0.51      2.06      0.0      0.070     0.045     0.100     0.045   576.90   213.66
  0.000427     100.      100.      100.          2         0         0       0.0   124.34   338.00


 *SECNO 1.500
  2800 NAT Q1=     437.39  WSEL=     584.89  ENC Q1=     437.39  WSEL=     584.99  RATIO=   0.0
  NAT Q1=     453.  RATIOS LOB,CH,ROB=  0.0719  0.9174  0.0107  WSEL=     584.99

 3470 ENCROACHMENT STATIONS=      206.5      338.0  TYPE=      4  TARGET=        0.034
      1.50      8.03    584.93      0.0    584.89    584.99      0.06      0.04      0.00   583.80
      860.       41.      819.       0.      79.      404.       0.        11.        2.    584.30
      0.16      0.52      2.03      0.0     0.070     0.045     0.070     0.045   576.90   206.47
  0.000410     100.      100.      100.          0         0         0       0.0   131.53   338.00


 *SECNO 1.600
  2800 NAT Q1=     442.49  WSEL=     584.93  ENC Q1=     442.49  WSEL=     585.03  RATIO=   0.0000
  NAT Q1=     460.  RATIOS LOB,CH,ROB=  0.0741  0.9146  0.0114  WSEL=     585.03

 3470 ENCROACHMENT STATIONS=      208.0      338.0  TYPE=      4  TARGET=        0.037
      1.60      8.07    584.97      0.0    584.93    585.03      0.06      0.04      0.00   583.80
      860.       41.      819.       0.      79.      407.       0.        12.        3.    584.30
      0.17      0.52      2.01      0.0     0.070     0.045     0.070     0.045   576.90   208.01
  0.000399     100.      100.      100.          0         0         0       0.0   129.99   338.00


 *SECNO 1.700
  2800 NAT Q1=     448.93  WSEL=     584.97  ENC Q1=     448.93  WSEL=     585.07  RATIO=   0.0000
  NAT Q1=     466.  RATIOS LOB,CH,ROB=  0.0762  0.9118  0.0120  WSEL=     585.07

 3470 ENCROACHMENT STATIONS=      206.8      338.0  TYPE=      4  TARGET=        0.037
      1.70      8.11    585.01      0.0    584.97    585.07      0.06      0.04      0.00   583.80
      860.       44.      816.       0.      83.      410.       0.        13.        3.    584.30
      0.19      0.53      1.99      0.0     0.070     0.045     0.070     0.045   576.90   206.80
  0.000388     100.      100.      100.          0         0         0       0.0   131.20   338.00


 *SECNO 1.800
  2800 NAT Q1=     455.34  WSEL=     585.01  ENC Q1=     455.34  WSEL=     585.11  RATIO=   0.0
  NAT Q1=     473.  RATIOS LOB,CH,ROB=  0.0783  0.9092  0.0126  WSEL=     585.11

 3470 ENCROACHMENT STATIONS=      205.5      338.0  TYPE=      4  TARGET=        0.037
      1.80      8.15    585.05      0.0    585.01    585.11      0.06      0.04      0.00   583.80
      860.       46.      814.       0.      88.      413.       0.        15.        3.    584.30
      0.20      0.53      1.97      0.0     0.070     0.045     0.070     0.045   576.90   205.54
  0.000376     100.      100.      100.          0         0         0       0.0   132.46   338.00


 *SECNO 1.900
  2800 NAT Q1=     461.65  WSEL=     585.04  ENC Q1=     461.65  WSEL=     585.14  RATIO=   0.0000
  NAT Q1=     479.  RATIOS LOB,CH,ROB=  0.0803  0.9066  0.0132  WSEL=     585.14
    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


 3470 ENCROACHMENT STATIONS=      204.3      338.0  TYPE=      4  TARGET=        0.037
      1.90      8.19    585.09      0.0    585.04    585.15      0.06      0.04      0.00   583.80
      860.       49.      811.       0.      92.      416.       0.        16.        4.    584.30
      0.22      0.53      1.95      0.0     0.070     0.045     0.070     0.045   576.90   204.35
  0.000366     100.      100.      100.          0         0         0       0.0   133.65   338.00


 *SEC 0.2.000
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2800 NAT Q1= 467.84 SEL= 585.08 ENC Q1= 467.84 WSEL= 585.18 RATIO= 0.0
NAT Q1= 486. RATIOS LOB,CH,ROB= 0.0822 0.9041 0.0137 WSEL= 585.18

3470 ENCROACHMENT STATIONS= 203.2 338.0 TYPE= 4 TARGET= 0.037

2.00	8.23	585.13	0.0	585.08	585.18	0.05	0.04	0.00	583.80
860.	51.	809.	0.	96.	419.	0.	17.	4.	584.30
0.23	0.53	1.93	0.0	0.070	0.045	0.070	0.045	576.90	203.18
0.000356	100.	100.	100.	0	0	0	0.0	134.82	338.00

*SECNO 2.100
2800 NAT Q1= 473.86 WSEL= 585.11 ENC Q1= 473.86 WSEL= 585.21 RATIO= 0.0
NAT Q1= 492. RATIOS LOB,CH,ROB= 0.0841 0.9017 0.0143 WSEL= 585.21

3470 ENCROACHMENT STATIONS= 202.2 338.0 TYPE= 4 TARGET= 0.036

2.10	8.26	585.16	0.0	585.11	585.22	0.05	0.04	0.00	583.80
860.	54.	806.	0.	100.	421.	0.	18.	4.	584.30
0.25	0.54	1.91	0.0	0.070	0.045	0.070	0.045	576.90	202.22
0.000346	100.	100.	100.	0	0	0	0.0	135.78	338.00

*SECNO 2.200
2800 NAT Q1= 479.81 WSEL= 585.15 ENC Q1= 479.81 WSEL= 585.25 RATIO= 0.0
NAT Q1= 498. RATIOS LOB,CH,ROB= 0.0859 0.8993 0.0148 WSEL= 585.25

3470 ENCROACHMENT STATIONS= 201.3 338.0 TYPE= 4 TARGET= 0.036

2.20	8.30	585.20	0.0	585.15	585.25	0.05	0.03	0.00	583.80
860.	56.	804.	0.	105.	424.	0.	19.	4.	584.30
0.26	0.54	1.90	0.0	0.070	0.045	0.070	0.045	576.90	201.25
0.000338	100.	100.	100.	0	0	0	0.0	136.75	338.00

*SECNO 3.000
WATER EL=X5 CARD= 585.810

3470 ENCROACHMENT STATIONS= 597.0 703.0 TYPE= 1 TARGET= 106.000

CROSS SECTION D DOWNSTREAM OF NILES AVE. BRIDGE

3.00	9.41	585.81	0.0	585.81	586.27	0.46	0.88	0.12	585.10
2678.	1.	2615.	63.	1.	473.	35.	27.	6.	583.60
0.30	0.66	5.53	1.78	0.070	0.045	0.070	0.045	576.40	597.00
0.003096	630.	630.	630.	0	0	0	0.0	106.00	703.00

CCHV= 0.200 CEHV= 0.500
*SECNO 3.070
CCHV= 0.200 CEHV= 0.500
2800 NAT Q1= 503.07 WSEL= 585.94 ENC Q1= 515.40 WSEL= 586.04 RATIO= -0.0245
NAT Q1= 515. RATIOS LOB,CH,ROB= 0.0 1.0000 0.0 WSEL= 586.04

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

3470 ENCROACHMENT STATIONS= 622.0 682.0 TYPE= 4 TARGET= 0.0

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 590.20 ELREA= 592.10

3.07	8.86	585.96	0.0	585.94	586.57	0.61	0.22	0.07	579.90
2678.	0.	2678.	0.	0.	426.	0.	28.	6.	582.50
0.30	0.0	6.29	0.0	0.070	0.045	0.070	0.045	577.10	622.00
0.003292	70.	70.	70.	2	0	0	0.0	60.00	682.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.0	1.49	3.00	0.0	60.00	0.0	602.00	0.0	575.90	577.10

*SECNO 3.130

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.0 EGLWC= 586.813 ELLC= 589.300 PCWSE= 585.958 ELTRD= 590.300
2800 NAT Q1= 515.62 WSEL= 586.13 ENC Q1= 526.58 WSEL= 586.23 RATIO= -0.0212
NAT Q1= 527. RATIOS LOB,CH,ROB= 0.0 1.0000 0.0 WSEL= 586.23
WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 518.0 578.0 TYPE= 4 TARGET= 0.0

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 590.20 ELREA= 592.10

3.13	10.25	586.15	0.0	586.13	586.74	0.59	0.19	0.00	578.70
2678.	0.	2678.	0.	0.	433.	0.	28.	6.	582.50
0.30	0.0	6.18	0.0	0.070	0.045	0.070	0.045	575.90	518.00
0.003207	60.	60.	60.	0	0	0	0.0	60.00	578.00

CCHV= 0.100 CEHV= 0.300
*SECNO 3.200

3470 ENCROACHMENT STATIONS= 480.0 680.0 TYPE= 1 TARGET= 200.000

CROSS SECTION E UPSTREAM OF NILES AVE. BRIDGE

3.20	10.05	586.75	0.0	586.73	586.87	0.12	0.08	0.05	582.50
2678.	204.	1938.	536.	164.	605.	401.	29.	7.	582.50
0.31	1.25	3.20	1.34	0.070	0.045	0.070	0.045	576.70	480.00
0.000577	70.	70.	70.	2	0	0	0.0	200.00	680.00

*SECNO 3.800

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 0.0 582.0 TYPE= 1 TARGET= 581.999

CROSS SECTION F

3.80	10.24	586.94	0.0	586.92	587.82	0.88	0.72	0.23	582.50
2678.	210.	2401.	67.	115.	302.	30.	41.	9.	582.50
0.33	1.83	7.94	2.20	0.070	0.045	0.070	0.045	576.70	379.82
0.003980	650.	600.	550.	3	0	0	0.0	162.79	542.62

*SECNO 4.500
2800 NAT Q1= 1970.88 WSEL= 588.35 ENC Q1= 1970.88 WSEL= 588.45 RATIO= 0.0000
NAT Q1= 2031. RATIOS LOB,CH,ROB= 0.5207 0.2739 0.2054 WSEL= 588.45

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 219.9 713.5 TYPE= 4 TARGET= 0.029

CROSS SECTION G

3.50	9.77	588.37	0.0	588.35	588.39	0.02	0.48	0.09	584.90

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	2669.	1386.	759.	52+.	1599.	426.	621.	73.	16.	584.40
	0.56	0.87	1.78	0.84	0.070	0.045	0.070	0.045	578.60	219.94
0.000192		900.	950.	950.	2	0	0	0.0	493.57	713.51

*SECNO 5.200

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
5.20	9.80	588.40	0.0	588.35	588.83	0.43	0.31	0.12	586.40
2669.	69.	2486.	114.	45.	458.	58.	98.	21.	584.80
0.60	1.53	5.43	1.98	0.070	0.045	0.070	0.045	578.60	400.00
0.002069	600.	700.	800.	3	0	0	0.0	100.00	500.00

3470 ENCROACHMENT STATIONS= 400.0 500.0 TYPE= 1 TARGET= 100.000

CROSS SECTION H DOWNSTREAM OF WASH. AVE. BRIDGE

*SECNO 5.280

CCHV= 0.200 CEHV= 0.500

2800 NAT Q1= 600.10 WSEL= 588.45 ENC Q1= 611.48 WSEL= 588.55 RATIO= -0.0190

NAT Q1= 611. RATIOS LOB,CH,ROB= 0.0 1.0000 0.0 WSEL= 588.55

3470 ENCROACHMENT STATIONS= 430.0 480.0 TYPE= 4 TARGET= 0.0

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 593.30 ELREA= 590.80

5.28	9.61	588.51	0.0	588.45	589.07	0.56	0.18	0.06	579.90
2669.	0.	2669.	0.	0.	446.	0.	99.	21.	581.10
0.60	0.0	5.99	0.0	0.070	0.045	0.070	0.045	578.90	430.00
0.002598	77.	77.	77.	2	0	0	0.0	50.00	480.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.0	1.43	2.60	0.0	50.00	0.0	470.00	0.0	578.90	578.90

*SECNO 5.320

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.0 EGLWC= 589.201 ELLC= 589.500 PCWSE= 588.510 ELTRD= 591.200

2800 NAT Q1= 545.21 WSEL= 588.56 ENC Q1= 554.85 WSEL= 588.66 RATIO= -0.0177

NAT Q1= 555. RATIOS LOB,CH,ROB= 0.0 1.0000 0.0 WSEL= 588.66

WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 306.0 356.0 TYPE= 4 TARGET= 0.0

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 593.30 ELREA= 590.80

5.32	9.73	588.63	0.0	588.56	589.17	0.54	0.12	0.00	579.90
2669.	0.	2669.	0.	0.	452.	0.	99.	21.	581.10
0.60	0.0	5.91	0.0	0.070	0.045	0.070	0.045	578.90	306.00
0.002500	46.	46.	46.	0	0	0	0.0	50.00	356.00

CCHV= 0.100 CEHV= 0.300

*SECNO 5.960

3+70 ENCROACH EN STATIONS= 223.0 427.0 TYPE= 1 TARGET= 204.000

CROSS SECTION I UPSTREAM OF WASH. AVE. BRIDGE

5.96	10.91	589.21	0.0	589.16	589.27	0.06	0.06	0.05	581.60
2669.	714.	942.	1013.	537.	347.	672.	101.	21.	581.90
0.62	1.33	2.72	1.51	0.070	0.045	0.070	0.045	578.30	223.00
0.000355	77.	77.	77.	2	0	0	0.0	204.00	427.00

*SECNO 6.550

2800 NAT Q1= 3019.02 WSEL= 589.30 ENC Q1= 3019.02 WSEL= 589.40 RATIO= 0.0

NAT Q1= 3094. RATIOS LOB,CH,ROB= 0.6413 0.1596 0.1991 WSEL= 589.40

3470 ENCROACHMENT STATIONS= 178.3 717.7 TYPE= 4 TARGET= 0.024

6.55	10.36	589.36	0.0	589.30	589.37	0.01	0.09	0.01	582.50
2669.	1720.	437.	512.	2529.	342.	804.	137.	26.	582.50
0.83	0.68	1.28	0.64	0.070	0.045	0.070	0.045	579.00	178.28
0.000080	590.	590.	590.	1	0	0	0.0	539.38	717.66

*SECNO 7.360

2800 NAT Q1= 2377.71 WSEL= 589.39 ENC Q1= 2377.71 WSEL= 589.49 RATIO= 0.0000

NAT Q1= 2445. RATIOS LOB,CH,ROB= 0.6379 0.1707 0.1914 WSEL= 589.49

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

3470 ENCROACHMENT STATIONS= 184.7 708.6 TYPE= 4 TARGET= 0.027

CROSS SECTION J

7.36	9.44	589.44	0.0	589.39	589.46	0.01	0.09	0.00	583.50
2669.	1712.	470.	487.	2170.	309.	658.	208.	37.	583.50
1.11	0.79	1.52	0.74	0.070	0.045	0.070	0.045	580.00	184.69
0.000129	910.	910.	910.	0	0	0	0.0	523.92	708.61

*SECNO 8.360

3470 ENCROACHMENT STATIONS= 418.0 976.0 TYPE= 1 TARGET= -418.000

8.36	9.18	589.58	0.0	589.52	589.59	0.02	0.14	0.00	583.90
2669.	1478.	493.	698.	1698.	300.	914.	274.	49.	583.90
1.38	0.87	1.65	0.76	0.070	0.045	0.070	0.045	580.40	418.00
0.000158	882.	1000.	1118.	2	0	0	0.0	516.76	934.76

*SECNO 9.060

3470 ENCROACHMENT STATIONS= 593.0 724.0 TYPE= 1 TARGET= 131.000

ELENCL= 590.84 ELENCR= 590.24

CROSS SECTION K DOWNSTREAM OF CLEV. AVE. BRIDGE

9.06	8.91	589.61	0.0	589.56	589.94	0.33	0.25	0.10	585.70
2669.	293.	2115.	261.	149.	414.	138.	302.	54.	585.70
1.42	1.97	5.11	1.89	0.070	0.045	0.070	0.045	580.70	593.00
0.001636	618.	700.	782.	2	0	0	0.0	131.00	724.00

*SECNO 9.150

CCHV= 0.200 CEHV= 0.500

3470 ENCROACHMENT STATIONS= 608.0 682.0 TYPE= 1 TARGET= 74.000
ELENCL= 591.00 ELENCR= 590.40

9.15	8.98	589.78	0.0	589.73	590.08	0.30	0.13	0.01	582.60
2669.	0.	2669.	0.	0.	605.	0.	304.	54.	590.40
1.42	0.0	4.41	0.0	0.070	0.045	0.070	0.045	580.80	608.00
0.001400	86.	86.	86.	2	0	0	0.0	74.00	682.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
0.09	1.74	3.00	0.0	74.00	2.50	560.70	0.0	580.80	580.80

*SECNO 9.260
WATER EL=X5 CARD= 590.106

3470 ENCROACHMENT STATIONS= 526.0 600.0 TYPE= 1 TARGET= 74.000
ELENCL= 591.00 ELENCR= 590.40

9.26	9.31	590.11	0.0	590.06	590.39	0.28	0.14	0.00	582.60
2669.	0.	2669.	0.	0.	630.	0.	305.	54.	590.40
1.43	0.0	4.24	0.0	0.070	0.045	0.070	0.045	580.80	526.00
0.001239	110.	110.	110.	0	0	0	0.0	74.00	600.00

CCHV= 0.100 CEHV= 0.300
*SECNO 9.310

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 427.0 729.0 TYPE= 1 TARGET= 302.000
ELENCL= 591.26 ELENCR= 590.66

9.31	9.53	590.43	0.0	590.39	590.47	0.04	0.06	0.02	584.40
2588.	783.	945.	860.	724.	423.	769.	308.	55.	585.10
1.45	1.08	2.23	1.12	0.070	0.045	0.070	0.045	580.90	427.00
0.000268	114.	114.	114.	2	0	0	0.0	302.00	729.00

*SECNO 9.360

3470 ENCROACHMENT STATIONS= 313.0 843.0 TYPE= 1 TARGET= 530.000
ELENCL= 591.26 ELENCR= 590.66

CROSS SECTION L UPSTREAM OF CLEV. AVE. BRIDGE

9.36	9.57	590.47	0.0	590.44	590.49	0.01	0.02	0.00	584.40
2588.	969.	565.	1055.	1445.	426.	1523.	315.	56.	585.10
1.49	0.67	1.33	0.69	0.070	0.045	0.070	0.045	580.90	313.00
0.000094	114.	114.	114.	2	0	0	0.0	530.00	843.00

*SECNO 10.960

3470 ENCROACHMENT STATIONS= 450.0 1298.0 TYPE= 1 TARGET= -450.000

CROSS SECTION M

10.96	9.43	590.63	0.0	590.60	590.64	0.01	0.15	0.00	586.60
2588.	1335.	517.	736.	2236.	427.	1269.	450.	80.	587.30
2.11	0.60	1.21	0.58	0.070	0.045	0.070	0.045	581.20	450.00
0.000099	1600.	1600.	1600.	2	0	0	0.0	803.52	1253.52

*SECNO 11.660

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 380.0 813.0 TYPE= 1 TARGET= -380.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 587.60 ELREA= 591.50

CROSS SECTION N

11.66	9.47	590.77	0.0	590.73	590.81	0.04	0.16	0.01	587.60
2588.	1866.	722.	0.	1459.	336.	0.	507.	92.	591.50
2.27	1.28	2.15	0.0	0.070	0.045	0.070	0.045	581.30	380.00
0.000426	1000.	700.	600.	2	0	0	0.0	348.61	731.00

*SECNO 13.160

3470 ENCROACHMENT STATIONS= 500.0 954.0 TYPE= 1 TARGET= -500.000

CROSS SECTION O

13.16	9.22	591.42	0.0	591.40	591.47	0.05	0.66	0.00	587.20
2588.	1291.	903.	394.	1100.	329.	351.	569.	105.	587.40
2.52	1.17	2.74	1.12	0.070	0.045	0.070	0.045	582.20	500.00
0.000459	1500.	1500.	1500.	2	0	0	0.0	395.24	895.24

*SECNO 15.360

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= 135.0 240.0 TYPE= 1 TARGET= 105.000

CROSS SECTION P DOWNSTREAM OF MAIDEN LANE BRIDGE

15.36	9.72	593.12	0.0	593.12	593.93	0.81	2.23	0.23	588.80
2588.	230.	2275.	82.	82.	299.	51.	625.	117.	591.20
2.60	2.81	7.62	1.60	0.070	0.045	0.070	0.045	583.40	140.19
0.003832	2200.	2200.	2200.	3	0	0	0.0	99.81	240.00

*SECNO 15.420

3470 ENCROACHMENT STATIONS= 154.0 222.0 TYPE= 1 TARGET= 68.000

ELENCL= 600.40 ELENCR= 599.30

15.42	9.90	593.30	0.0	593.31	594.18	0.87	0.23	0.02	588.80
2588.	155.	2378.	55.	55.	305.	30.	625.	117.	591.20
2.61	2.84	7.79	1.83	0.070	0.045	0.070	0.045	583.40	154.00
0.003883	60.	60.	60.	2	0	0	0.0	68.00	222.00

CCHV= 0.200 CEHV= 0.500

*SECNO 15.450

2800 NAT Q1= 541.26 WSEL= 593.70 ENC Q1= 551.15 WSEL= 593.80 RATIO= -0.0183

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NAT Q1= 551. RATIOS LOB,CH,ROB= 0.0 1.0000 0.0 WSEL= 593.80

3470 ENCROACHMENT STATIONS= 168.0 216.0 TYPE= 4 TARGET= 0.0

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.40 ELREA= 599.30

15.45	10.72	593.72	0.0	593.70	594.32	0.60	0.08	0.05	585.20
2588.	0.	2588.	0.	0.	416.	0.	625.	117.	587.80
2.61	0.0	6.22	0.0	0.070	0.045	0.070	0.045	583.00	168.00
0.002949	25.	25.	25.	2	0	0	0.0	48.00	216.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.0	1.37	2.80	0.0	48.00	0.0	510.00	0.0	583.00	583.00

*SECNO 15.480

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.0 EGLWC= 594.491 ELLC= 595.900 PCWSE= 593.716 ELTRD= 599.300

2800 NAT Q1= 552.41 WSEL= 593.82 ENC Q1= 562.50 WSEL= 593.92 RATIO= -0.0183

NAT Q1= 562. RATIOS LOB,CH,ROB= 0.0 1.0000 0.0 WSEL= 593.92

WATER EL=CHANGE FROM NATURAL PROFILES BRIDGE

3470 ENCROACHMENT STATIONS= 168.0 216.0 TYPE= 4 TARGET= 0.0

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.40 ELREA= 599.30

CROSS SECTION Q UPSTREAM FACE OF MAIDEN LANE BRIDGE

15.48	10.83	593.83	0.0	593.82	594.41	0.59	0.12	0.00	585.20
2588.	0.	2588.	0.	0.	421.	0.	626.	117.	587.80
2.61	0.0	6.14	0.0	0.070	0.045	0.070	0.045	583.00	168.00
0.002840	42.	42.	42.	0	0	0	0.0	48.00	216.00

PRINTED IN U.S.A.



1) COUNTY: Berrien

2) STUDY NAME: St. Joseph Township

3) WATERCOURSE: Hickory Creek

4) DOCUMENT TYPE: 100-YR NATURAL



7-26-76

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**************************************************
  HEC2 RELEASE DATED NOV 76 UPDATED  AUG1977
  ERROR CORR -  01,02
  MODIFICATION -  50,51,52,53
**************************************************

C
T1      HUD FLOOD INSURANCE STUDY          WILLIAMS AND WORKS, INC.
T2      ST. JOSEPH TOWNSHIP                83996
T3      HICKORY CR. 100 YR FLOOD           JULY, 1978
J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ
        0.      2.        0.        0.  0.0             0.0      -1.0       0.    583.500     0.0
J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE
      0.0       0.0    -1.000       0.0       0.0       0.0       0.0       0.0       0.0       0.0
J3  VARIABLE CODES FOR SUMMARY PRINTOUT
     38.000    39.000    43.000     1.000     3.000     5.000     4.000    42.000    10.000    27.000

     28.000    34.000    25.000       0.0       0.0       0.0       0.0       0.0       0.0       0.0
NC   0.070     0.100     0.045     0.100     0.300       0.0       0.0       0.0       0.0       0.0
QT   5.000   860.000   860.000   770.000   840.000   860.000       0.0       0.0       0.0       0.0
ET     0.0       0.0     1.400       0.0       0.0       0.0       0.0       0.0       0.0       0.0

              CROSS SECTION A

X1     0.0    13.000   201.000   263.000       0.0       0.0       0.0       0.0       0.0       0.0
GR 608.800   100.000   595.300   117.000   594.700   132.000   586.700   151.000   583.600   201.000
GR 581.600   209.000   578.400   217.000   577.100   230.000   577.200   240.000   581.700   262.000
GR 583.500   263.000   583.600   267.000   586.000   300.000       0.0       0.0       0.0       0.0

X1   0.100       0.0       0.0       0.0   100.000   100.000   100.000       0.0       0.0       0.0

X1   0.200       0.0       0.0       0.0   100.000   100.000   100.000       0.0       0.0       0.0

X1   0.300       0.0       0.0       0.0   100.000   100.000   100.000       0.0       0.0       0.0

X1   0.400       0.0       0.0       0.0   100.000   100.000   100.000       0.0       0.0       0.0

X1   0.500       0.0       0.0       0.0   100.000   100.000   100.000       0.0       0.0       0.0

X1   0.600       0.0       0.0       0.0   100.000   100.000   100.000       0.0       0.0       0.0

X1   0.700       0.0       0.0       0.0   100.000   100.000   100.000       0.0       0.0       0.0
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X1	0.800	0.0	0.0	0.0	100.000	100.000	100.000	0.0	0.0	0.0
X1	0.900	0.0	0.0	0.0	100.000	100.000	100.000	0.0	0.0	0.0
X1	1.000	0.0	0.0	0.0	100.000	100.000	100.000	0.0	0.0	0.0
X1	1.100	0.0	0.0	0.0	100.000	100.000	100.000	0.0	0.0	0.0
X1	1.200	0.0	0.0	0.0	100.000	100.000	100.000	0.0	0.0	0.0
X1	1.300	0.0	0.0	0.0	100.000	100.000	100.000	0.0	0.0	0.0

CROSS SECTION B

X1	1.400	17.000	264.000	338.000	100.000	100.000	100.000	0.0	0.0	0.0
GR	600.000	100.000	590.600	128.000	590.600	144.000	586.200	160.000	583.200	194.000
GR	583.800	264.000	581.900	269.000	579.100	280.000	576.900	290.000	577.300	300.000
GR	577.900	310.000	579.000	320.000	581.900	330.000	584.300	338.000	583.800	361.000
GR	585.000	366.000	590.000	370.000	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.0	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
X1	1.500	0.0	0.0	0.0	100.000	100.000	100.000	0.0	0.0	0.0
X1	1.600	0.0	0.0	0.0	100.000	100.000	100.000	0.0	0.0	0.0
X1	1.700	0.0	0.0	0.0	100.000	100.000	100.000	0.0	0.0	0.0
X1	1.800	0.0	0.0	0.0	100.000	100.000	100.000	0.0	0.0	0.0
X1	1.900	0.0	0.0	0.0	100.000	100.000	100.000	0.0	0.0	0.0
X1	2.000	0.0	0.0	0.0	100.000	100.000	100.000	0.0	0.0	0.0
X1	2.100	0.0	0.0	0.0	100.000	100.000	100.000	0.0	0.0	0.0
X1	2.200	0.0	0.0	0.0	100.000	100.000	100.000	0.0	0.0	0.0
QT	5.000	2678.000	2678.000	3416.000	2334.000	1438.000	0.0	0.0	0.0	0.0

CROSS SECTION D DOWNSTREAM OF NILES AVE. BRIDGE

X1	3.000	33.000	598.000	686.000	630.000	630.000	630.000	0.0	0.0	0.0
X3	0.0	0.0	0.0	597.000	0.0	703.000	0.0	0.0	0.0	0.0
X5	5.000	585.810	585.810	586.080	585.680	585.300	0.0	0.0	0.0	0.0
GR	601.700	100.000	597.300	107.000	594.400	138.000	589.900	173.000	583.900	338.000
GR	581.800	398.000	580.400	453.000	581.900	478.000	583.500	487.000	580.100	497.000
GR	581.400	583.000	585.100	598.000	583.100	602.000	582.500	622.000	580.000	632.000
GR	578.600	642.000	578.500	652.000	576.400	662.000	578.300	672.000	582.500	678.000
GR	583.600	686.000	584.700	750.000	583.600	863.000	587.200	1003.000	591.200	1023.000
GR	591.200	1043.000	588.500	1051.000	588.200	1073.000	589.600	1083.000	590.300	1138.000
GR	592.700	1238.000	595.900	1598.000	599.900	1615.000	0.0	0.0	0.0	0.0

NC	0.0	0.0	0.0	0.200	0.500	0.0	0.0	0.0	0.0	0.0
X1	3.070	38.000	622.000	682.000	70.000	70.000	70.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	590.200	592.100	0.0
NC	0.0	0.0	0.0	0.200	0.500	0.0	0.0	0.0	0.0	0.0
GR	601.700	100.000	597.300	107.000	594.400	138.000	589.900	173.000	583.900	338.000
GR	581.800	398.000	580.400	453.000	581.900	478.000	583.500	487.000	580.100	497.000
GR	581.400	583.000	585.100	598.000	583.100	602.000	579.900	622.000	577.100	643.000
GR	577.400	653.000	577.900	663.000	581.400	673.000	582.500	682.000	583.600	690.000
GR	584.700	754.000	582.500	756.000	576.300	766.000	575.600	792.000	575.300	817.000
GR	578.000	842.000	582.500	865.000	583.600	867.000	587.200	1007.000	591.200	1027.000
GR	591.200	1047.000	588.500	1055.000	588.200	1077.000	589.600	1087.000	590.300	1142.000
GR	592.700	1242.000	595.900	1602.000	599.900	1619.000	0.0	0.0	0.0	0.0
SB	0.0	1.490	3.000	0.0	60.000	0.0	602.000	0.0	575.900	577.100
X1	3.130	25.000	518.000	578.000	60.000	60.000	60.000	0.0	0.0	0.0
X2	0.0	0.0	1.000	589.300	590.300	0.0	0.0	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	590.200	592.100	0.0
BT	7.000	282.000	592.400	592.400	450.000	590.300	590.300	515.000	591.300	591.300
BT	518.000	591.400	588.600	539.000	591.700	588.600	569.000	592.000	589.200	578.000
BT	592.100	589.300	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	600.000	100.000	594.300	108.000	589.300	150.000	582.200	267.000	581.000	282.000
GR	581.400	450.000	582.800	515.000	578.700	518.000	575.900	539.000	577.900	549.000
GR	579.900	559.000	582.500	569.000	582.500	578.000	583.200	583.000	582.100	593.000
GR	582.400	695.000	590.500	710.000	591.400	751.000	583.200	771.000	583.100	813.000
GR	584.000	818.000	584.700	838.000	585.300	938.000	587.600	1038.000	600.000	1130.000
NC	0.0	0.0	0.0	0.100	0.300	0.0	0.0	0.0	0.0	0.0

CROSS SECTION E UPSTREAM OF NILES AVE. BRIDGE

X1	3.200	28.000	518.000	590.000	70.000	70.000	70.000	0.0	0.0	0.0
X3	0.0	0.0	0.0	480.000	0.0	680.000	0.0	0.0	0.0	0.0
GR	600.000	100.000	594.300	108.000	589.300	150.000	582.200	267.000	581.000	282.000
GR	581.400	450.000	582.800	515.000	582.500	518.000	579.300	528.000	576.900	538.000
GR	576.700	548.000	577.700	558.000	578.100	568.000	578.200	578.000	579.500	588.000
GR	582.500	590.000	583.200	595.000	582.100	605.000	582.400	707.000	590.500	722.000
GR	591.400	763.000	583.200	783.000	583.100	825.000	584.000	830.000	584.700	850.000
GR	585.300	950.000	587.600	1050.000	600.000	1142.000	0.0	0.0	0.0	0.0

CROSS SECTION F

X1	3.800	20.000	491.000	529.000	650.000	550.000	600.000	0.0	0.0	0.0
X3	0.0	0.0	0.0	0.0	0.0	582.000	591.100	0.0	0.0	0.0
GR	600.000	100.000	588.200	273.000	586.100	451.000	583.600	490.000	582.500	491.000
GR	580.000	501.000	576.700	510.000	576.700	520.000	581.300	527.000	582.500	529.000
GR	590.000	552.000	589.400	567.000	591.100	582.000	589.900	662.000	589.600	703.000
GR	583.300	715.000	590.800	735.000	589.500	917.000	593.400	1002.000	600.000	1015.000

CROSS SECTION G

X1	4.500	16.000	538.000	590.000	900.000	950.000	950.000	0.0	0.0	0.0
QT	5.000	2669.000	2669.000	3400.000	2327.000	1439.000	0.0	0.0	0.0	0.0
GR	621.000	100.000	590.700	130.000	584.200	230.000	582.500	330.000	582.800	430.000
GR	584.900	538.000	582.600	540.000	578.600	545.000	578.600	560.000	579.100	575.000
GR	582.600	581.000	584.400	590.000	583.000	603.000	583.600	717.000	598.500	749.000
GR	602.400	769.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CROSS SECTION H DOWNSTREAM OF WASH. AVE. BRIDGE

X1	5.200	22.000	420.000	484.000	600.000	800.000	700.000	0.0	0.0	0.0

X3	0.0	0.0	0.0	400.000	0.0	500.000	0.0	0.0	0.0	0.0
GR	613.000	100.000	607.000	113.000	586.000	155.000	585.400	200.000	582.900	300.000
GR	585.900	400.000	586.400	420.000	582.700	430.000	580.100	440.000	579.900	450.000
GR	579.700	460.000	578.600	470.000	582.700	477.000	584.800	484.000	584.800	500.000
GR	584.400	600.000	583.800	700.000	583.600	738.000	587.500	748.000	588.000	800.000
GR	594.800	900.000	606.600	940.000	0.0	0.0	0.0	0.0	0.0	0.0

X1	5.280	21.000	430.000	480.000	77.000	77.000	77.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	593.300	590.800	0.0
NC	0.0	0.0	0.0	0.200	0.500	0.0	0.0	0.0	0.0	0.0
GR	613.000	100.000	607.000	113.000	586.000	155.000	585.400	200.000	582.900	300.000
GR	585.900	400.000	586.400	420.000	579.900	430.000	580.400	440.000	578.900	455.000
GR	578.900	470.000	581.100	480.000	584.800	487.000	584.800	503.000	584.400	603.000
GR	583.800	703.000	583.600	741.000	587.500	751.000	588.000	803.000	594.800	903.000
GR	606.600	943.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SB	0.0	1.430	2.600	0.0	50.000	0.0	470.000	0.0	0.0	0.0

X1	5.320	16.000	306.000	356.000	46.000	46.000	46.000	0.0	0.0	0.0
X2	0.0	0.0	1.000	589.500	591.200	0.0	0.0	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	593.300	590.800	0.0
BT	7.000	288.000	593.800	593.800	306.000	593.300	589.500	356.000	592.300	588.500
BT	401.000	591.500	591.500	501.000	591.200	591.200	601.000	591.800	591.800	701.000
BT	595.200	595.200	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
GR	606.600	100.000	584.400	143.000	583.600	188.000	582.600	288.000	579.900	306.000
GR	580.400	316.000	578.900	331.000	578.900	346.000	581.100	356.000	580.900	401.000
GR	581.400	501.000	581.400	601.000	585.000	701.000	586.600	736.000	593.400	746.000
GR	603.200	801.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.100	0.300	0.0	0.0	0.0	0.0	0.0

CROSS SECTION I UPSTREAM OF WASH. AVE. BRIDGE

X1	5.960	16.000	306.000	343.000	77.000	77.000	77.000	0.0	0.0	0.0
X3	0.0	0.0	0.0	223.000	0.0	427.000	0.0	0.0	0.0	0.0
GR	606.600	100.000	584.400	143.000	583.600	188.000	582.600	288.000	581.600	306.000
GR	578.300	313.000	579.400	328.000	580.500	333.000	581.900	343.000	580.900	388.000
GR	581.400	488.000	581.400	588.000	585.000	688.000	586.600	723.000	593.400	733.000
GR	603.200	788.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

X1	6.550	15.000	552.000	588.000	590.000	590.000	590.000	0.0	-1.000	0.0
GR	621.700	100.000	606.700	115.000	586.300	170.000	583.500	270.000	582.900	370.000
GR	583.200	470.000	583.500	552.000	583.300	553.000	580.900	555.000	580.200	570.000
GR	580.000	580.000	583.500	588.000	583.700	670.000	587.500	735.000	603.700	770.000

CROSS SECTION J

X1	7.360	0.0	0.0	0.0	910.000	910.000	910.000	0.0	1.000	0.0

X1	8.360	15.000	700.000	736.000	882.000	1118.000	1000.000	0.0	0.0	0.0
X3	0.0	0.0	0.0	418.000	0.0	0.0	0.0	0.0	0.0	0.0
GR	622.100	100.000	607.100	120.000	586.700	193.000	583.900	326.000	583.300	458.000
GR	583.600	591.000	583.900	700.000	583.700	701.000	581.300	703.000	580.600	718.000
GR	580.400	728.000	583.900	736.000	584.100	844.000	587.900	930.000	604.100	976.000

CROSS SECTION K DOWNSTREAM OF CLEV. AVE. BRIDGE

X1	9.060	27.000	632.000	685.000	618.000	782.000	700.000	0.0	0.0	0.0
X3	0.0	0.0	0.0	593.000	590.840	724.000	590.240	0.0	0.0	0.0
GR	601.300	100.000	587.900	137.000	584.600	232.000	591.000	249.000	589.600	332.000
GR	589.100	432.000	586.200	532.000	585.700	632.000	583.700	637.000	580.700	642.000

GR	580.800	652.000	580.800	662.000	580.900	672.000	583.700	682.000	585.700	685.000
GR	586.600	732.000	587.200	832.000	588.100	932.000	587.900	1032.000	587.900	1132.000
GR	590.200	1232.000	590.900	1332.000	593.300	1432.000	592.800	1447.000	590.500	1457.000
GR	591.300	1572.000	603.300	1597.000	0.0	0.0	0.0	0.0	0.0	0.0
X1	9.150	27.000	608.000	682.000	86.000	86.000	86.000	0.0	0.0	0.0
X3	0.0	0.0	0.0	608.000	591.000	682.000	590.400	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.200	0.500	0.0	0.0	0.0	0.0	0.0
GR	601.300	100.000	587.900	137.000	584.600	232.000	591.000	249.000	589.600	332.000
GR	589.100	432.000	586.200	532.000	585.800	603.000	582.600	608.000	582.200	627.000
GR	581.200	644.000	581.600	647.000	580.800	664.000	581.300	682.000	585.700	685.000
GR	586.600	732.000	587.200	832.000	588.100	932.000	587.900	1032.000	587.900	1132.000
GR	590.200	1232.000	590.900	1332.000	593.300	1432.000	592.800	1447.000	590.500	1457.000
GR	591.300	1572.000	603.300	1597.000	0.0	0.0	0.0	0.0	0.0	0.0
SB	0.090	1.740	3.000	0.0	74.000	2.500	560.700	0.0	0.0	0.0
X1	9.260	20.000	526.000	600.000	110.000	110.000	110.000	0.0	0.0	0.0
X2	0.0	0.0	1.000	589.500	590.600	0.0	0.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	526.000	591.000	600.000	590.400	0.0	0.0	0.0
X5	-1.000	0.0	0.330	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BT	13.000	200.000	594.400	594.400	300.000	591.900	591.900	400.000	591.000	591.000
BT	500.000	591.200	591.200	526.000	591.400	589.500	600.000	591.400	589.500	602.000
BT	591.400	591.400	702.000	591.000	591.000	802.000	590.700	590.700	902.000	590.600
BT	590.600	1002.000	591.000	591.000	1092.000	591.400	591.400	1147.000	592.500	592.500
GR	600.600	100.000	585.400	160.000	585.400	200.000	584.900	300.000	583.800	400.000
GR	585.100	500.000	584.700	524.000	582.600	526.000	582.200	545.000	581.200	562.000
GR	581.600	565.000	580.800	582.000	581.300	600.000	585.100	602.000	583.900	702.000
GR	583.900	802.000	584.000	902.000	584.600	1002.000	586.800	1092.000	601.600	1147.000
NC	0.0	0.0	0.0	0.100	0.300	0.0	0.0	0.0	0.0	0.0
X1	9.310	20.000	553.000	602.000	114.000	114.000	114.000	0.0	0.0	0.0
QT	5.000	2588.000	2588.000	3280.000	2265.000	1420.000	0.0	0.0	0.0	0.0
X3	0.0	0.0	0.0	427.000	591.260	729.000	590.660	0.0	0.0	0.0
GR	600.600	100.000	585.400	160.000	585.400	200.000	584.900	300.000	583.800	400.000
GR	585.100	500.000	584.400	553.000	583.700	555.000	580.900	565.000	581.100	575.000
GR	581.300	585.000	581.300	595.000	583.700	600.000	585.100	602.000	583.900	702.000
GR	583.900	802.000	584.000	902.000	584.600	1002.000	586.800	1092.000	601.600	1147.000

CROSS SECTION L UPSTREAM OF CLEV. AVE. BRIDGE

X1	9.360	0.0	0.0	0.0	114.000	114.000	114.000	0.0	0.0	0.0
X3	0.0	0.0	0.0	313.000	591.260	843.000	590.660	0.0	0.0	0.0

CROSS SECTION M

X1	10.960	16.000	915.000	973.000	1600.000	1600.000	1600.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	450.000	0.0	0.0	0.0	0.0	0.0	0.0
GR	608.800	100.000	600.800	118.000	588.000	174.000	586.000	318.000	585.600	518.000
GR	585.600	718.000	586.600	915.000	583.200	918.000	581.200	928.000	581.400	938.000
GR	583.200	953.000	587.300	973.000	586.100	988.000	586.100	1018.000	585.800	1241.000
GR	607.800	1298.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CROSS SECTION N

X1	11.660	18.000	672.000	731.000	1000.000	600.000	700.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	380.000	0.0	0.0	0.0	0.0	0.0	0.0
GR	628.600	100.000	589.100	185.000	586.100	241.000	585.000	341.000	584.800	441.000
GR	585.300	491.000	585.600	541.000	587.100	641.000	587.600	672.000	581.300	683.000
GR	582.000	693.000	582.300	702.000	586.500	709.000	586.600	715.000	591.500	731.000
GR	590.500	736.000	591.100	741.000	623.600	813.000	0.0	0.0	0.0	0.0

CROSS SECTION O

X1	13.160	23.000	763.000	803.000	1500.000	1500.000	1500.000	0.0	0.0	0.0
X3	0.0	0.0	0.0	500.000	0.0	0.0	0.0	0.0	0.0	0.0
GR	625.000	100.000	602.900	163.000	588.700	234.000	587.600	363.000	586.700	463.000
GR	587.000	531.000	586.100	535.000	586.900	538.000	586.800	563.000	587.000	663.000
GR	588.600	754.000	587.200	763.000	582.900	768.000	582.400	776.000	582.200	787.000
GR	582.800	797.000	587.400	803.000	587.900	810.000	589.700	817.000	587.100	827.000
GR	587.300	863.000	586.900	888.000	628.100	954.000	0.0	0.0	0.0	0.0

CROSS SECTION P DOWNSTREAM OF MAIDEN LANE BRIDGE

X1	15.360	16.000	168.000	205.000	2200.000	2200.000	2200.000	0.0	0.0	0.0
X3	0.0	0.0	0.0	135.000	0.0	240.000	0.0	0.0	0.0	0.0
GR	612.500	100.000	590.800	145.000	588.800	168.000	584.500	176.000	583.400	184.000
GR	584.100	199.000	591.200	205.000	592.300	233.000	590.200	240.000	589.300	268.000
GR	588.700	328.000	588.900	368.000	589.000	468.000	592.400	568.000	592.500	640.000
GR	631.300	708.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

X1	15.420	0.0	0.0	0.0	60.000	60.000	60.000	0.0	0.0	0.0
X3	0.0	0.0	0.0	154.000	600.400	222.000	599.300	0.0	0.0	0.0
NC	0.0	0.0	0.0	0.200	0.500	0.0	0.0	0.0	0.0	0.0

X1	15.450	19.000	168.000	216.000	25.000	25.000	25.000	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	600.400	599.300	0.0
GR	612.500	100.000	590.800	145.000	585.200	168.000	583.600	182.000	585.100	184.000
GR	585.000	187.000	583.000	195.000	584.200	201.000	587.200	206.000	587.800	216.000
GR	592.300	244.000	590.200	251.000	589.300	279.000	588.700	339.000	588.900	379.000
GR	589.000	479.000	592.400	579.000	592.500	651.000	631.300	719.000	0.0	0.0
SB	0.0	1.370	2.800	0.0	48.000	0.0	510.000	0.0	0.0	0.0

CROSS SECTION Q UPSTREAM FACE OF MAIDEN LANE BRIDGE

X1	15.480	0.0	0.0	0.0	42.000	42.000	42.000	0.0	0.0	0.0
X2	0.0	0.0	1.000	595.900	599.300	0.0	0.0	0.0	0.0	0.0
X3	10.000	0.0	0.0	0.0	0.0	0.0	0.0	600.400	599.300	0.0
BT	7.000	168.000	600.400	595.900	201.000	599.700	595.200	216.000	599.700	595.200
BT	244.000	599.400	599.400	251.000	599.400	599.400	279.000	599.300	599.300	339.000
BT	601.200	601.200	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EJ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*PROF 1

CCHV= 0.100 CEHV= 0.300

*SECNO .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
				CROSS SECTION A					
	0.0	6.40	583.50	0.0	583.50	583.67	0.17	0.0	0.0	583.60
	860.	0.	860.	0.	0.	263.	0.	0.	0.	583.50
	0.0	0.0	3.26	0.0	0.070	0.045	0.100	0.0	577.10	201.40
	0.001482	0.	0.	0.	0	0	0	0.0	61.60	263.00

*SECNO .100

	0.10	6.55	583.65	0.0	0.0	583.81	0.15	0.14	0.00	583.60
	860.	0.	860.	0.	0.	273.	0.	1.	0.	583.50
	0.01	0.01	3.15	0.11	0.070	0.045	0.100	0.045	577.10	200.23
	0.001333	100.	100.	100.	0	0	0	0.0	67.43	267.66

*SECNO .200

	0.20	6.69	583.79	0.0	0.0	583.93	0.14	0.13	0.00	583.60
	860.	0.	860.	0.	0.	282.	1.	1.	0.	583.50
	0.02	0.15	3.05	0.18	0.070	0.045	0.100	0.045	577.10	197.89
	0.001196	100.	100.	100.	0	0	0	0.0	71.76	269.65

*SECNO .300

	0.30	6.81	583.91	0.0	0.0	584.05	0.14	0.11	0.00	583.60
	860.	0.	859.	0.	1.	289.	2.	2.	0.	583.50
	0.03	0.20	2.97	0.22	0.070	0.045	0.100	0.045	577.10	195.92
	0.001094	100.	100.	100.	0	0	0	0.0	75.42	271.33

*SECNO .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
	0.40	6.92	584.02	0.0	0.0	584.15	0.13	0.11	0.00	583.60
	860.	0.	859.	1.	1.	296.	3.	3.	1.	583.50
	0.04	0.24	2.90	0.24	0.070	0.045	0.100	0.045	577.10	194.14
	0.001011	100.	100.	100.	0	0	0	0.0	78.72	272.85

*SECNO .500

	0.50	7.03	584.13	0.0	0.0	584.25	0.12	0.10	0.00	583.60
	860.	1.	858.	1.	2.	302.	4.	3.	1.	583.50
	0.05	0.27	2.84	0.26	0.070	0.045	0.100	0.045	577.10	192.47
	0.000940	100.	100.	100.	0	0	0	0.0	81.79	274.27

*SECNO .600

	0.60	7.12	584.22	0.0	0.0	584.34	0.12	0.09	0.00	583.60

	860.	1.	858.	1.	3.	308.	5.	4.	1.	583.50
	0.06	0.29	2.78	0.27	0.070	0.045	0.100	0.045	577.10	190.93
0.000880	100.	100.	100.	0	0	0	0.0	84.66	275.59	

*SECNO .700

0.70	7.21	584.31	0.0	0.0	584.43	0.12	0.09	0.00	583.60
860.	1.	857.	2.	4.	314.	7.	5.	1.	583.50
0.07	0.31	2.73	0.28	0.070	0.045	0.100	0.045	577.10	189.48
0.000827	100.	100.	100.	0	0	0	0.0	87.35	276.82

*SECNO .800

0.80	7.30	584.40	0.0	0.0	584.51	0.11	0.08	0.00	583.60
860.	2.	856.	2.	5.	319.	8.	6.	1.	583.50
0.08	0.32	2.68	0.29	0.070	0.045	0.100	0.045	577.10	188.12
0.000781	100.	100.	100.	0	0	0	0.0	89.87	277.98

*SECNO .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
0.90	7.38	584.48	0.0	0.0	584.59	0.11	0.08	0.00	583.60
860.	2.	855.	3.	6.	324.	9.	6.	2.	583.50
0.09	0.33	2.64	0.30	0.070	0.045	0.100	0.045	577.10	186.83
0.000741	100.	100.	100.	0	0	0	0.0	92.25	279.08

*SECNO 1.000

1.00	7.45	584.55	0.0	0.0	584.66	0.10	0.07	0.00	583.60
860.	3.	854.	3.	7.	329.	10.	7.	2.	583.50
0.10	0.34	2.60	0.30	0.070	0.045	0.100	0.045	577.10	185.61
0.000705	100.	100.	100.	0	0	0	0.0	94.52	280.12

*SECNO 1.100

1.10	7.53	584.63	0.0	0.0	584.73	0.10	0.07	0.00	583.60
860.	3.	853.	4.	8.	333.	12.	8.	2.	583.50
0.11	0.35	2.56	0.31	0.070	0.045	0.100	0.045	577.10	184.44
0.000672	100.	100.	100.	0	0	0	0.0	96.67	281.11

*SECNO 1.200

1.20	7.60	584.70	0.0	0.0	584.79	0.10	0.07	0.00	583.60
860.	3.	853.	4.	10.	338.	13.	9.	2.	583.50
0.12	0.36	2.53	0.31	0.070	0.045	0.100	0.045	577.10	183.33
0.000643	100.	100.	100.	0	0	0	0.0	98.73	282.06

*SECNO 1.300

1.30	7.66	584.76	0.0	0.0	584.86	0.10	0.06	0.00	583.60
860.	4.	852.	4.	11.	342.	14.	10.	3.	583.50
0.13	0.37	2.49	0.31	0.070	0.045	0.100	0.045	577.10	182.28
0.000616	100.	100.	100.	0	0	0	0.0	100.69	282.96

*SECNO 1.400

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

1.40	7.95	584.85	0.0	0.0	584.91	0.06	0.05	0.00	583.80
860.	55.	800.	5.	110.	398.	21.	11.	3.	584.30
0.15	0.50	2.01	0.25	0.070	0.045	0.100	0.045	576.90	175.29
0.000404	100.	100.	100.	2	0	0	0.0	190.09	365.38

*SECNO 1.500

1.50	7.99	584.89	0.0	0.0	584.95	0.06	0.04	0.00	583.80
860.	57.	795.	8.	115.	402.	22.	12.	3.	584.30
0.16	0.50	1.98	0.36	0.070	0.045	0.070	0.045	576.90	174.71
0.000387	100.	100.	100.	0	0	0	0.0	190.88	365.59

*SECNO 1.600

1.60	8.03	584.93	0.0	0.0	584.99	0.06	0.04	0.00	583.80
860.	59.	793.	8.	117.	404.	23.	13.	4.	584.30
0.18	0.50	1.96	0.37	0.070	0.045	0.070	0.045	576.90	174.37
0.000378	100.	100.	100.	0	0	0	0.0	191.35	365.72

*SECNO 1.700

1.70	8.07	584.97	0.0	0.0	585.02	0.05	0.04	0.00	583.80
860.	61.	790.	9.	121.	407.	24.	14.	4.	584.30
0.19	0.50	1.94	0.37	0.070	0.045	0.070	0.045	576.90	173.94
0.000367	100.	100.	100.	0	0	0	0.0	191.93	365.87

*SECNO 1.800

1.80	8.11	585.01	0.0	0.0	585.06	0.05	0.04	0.00	583.80
860.	63.	788.	9.	124.	410.	25.	16.	5.	584.30
0.21	0.50	1.92	0.38	0.070	0.045	0.070	0.045	576.90	173.52
0.000357	100.	100.	100.	0	0	0	0.0	192.49	366.01

*SECNO 1.900

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
1.90	8.14	585.04	0.0	0.0	585.10	0.05	0.04	0.00	583.80
860.	64.	786.	10.	127.	413.	26.	17.	5.	584.30
0.22	0.50	1.90	0.38	0.070	0.045	0.070	0.045	576.90	173.10
0.000347	100.	100.	100.	0	0	0	0.0	192.93	366.03

*SECNO 2.000

2.00	8.18	585.08	0.0	0.0	585.13	0.05	0.03	0.00	583.80
860.	66.	784.	10.	131.	415.	27.	18.	6.	584.30
0.24	0.51	1.89	0.38	0.070	0.045	0.070	0.045	576.90	172.70
0.000338	100.	100.	100.	0	0	0	0.0	193.36	366.06

*SECNO 2.100

2.10	8.21	585.11	0.0	0.0	585.16	0.05	0.03	0.00	583.80
860.	68.	782.	11.	134.	418.	28.	19.	6.	584.30
0.25	0.51	1.87	0.39	0.070	0.045	0.070	0.045	576.90	172.32
0.000329	100.	100.	100.	0	0	0	0.0	193.77	366.09

*SECNO 2.200

2.20	8.25	585.15	0.0	0.0	585.20	0.05	0.03	0.00	583.80

	860.	69.	779.	11.	137.	420.	29.	21.	6.	584.30
	0.27	0.51	1.85	0.39	0.070	0.045	0.070	0.045	576.90	171.94
0.000321	100.	100.	100.	0	0	0	0.0	194.18	366.12	

*SECNO 3.000
WATER EL=X5 CARD= 585.810

3470 ENCROACHMENT STATIONS= 597.0 703.0 TYPE= 1 TARGET= 106.000

CROSS SECTION D DOWNSTREAM OF NILES AVE. BRIDGE

3.00	9.41	585.81	0.0	0.0	586.27	0.46	0.85	0.12	585.10
2678.	1.	2615.	63.	1.	473.	35.	29.	9.	583.60
0.30	0.66	5.53	1.78	0.070	0.045	0.070	0.045	576.40	597.00
0.003096	630.	630.	630.	0	0	0	0.0	106.00	703.00

CCHV= 0.200 CEHV= 0.500
*SECNO 3.070
CCHV= 0.200 CEHV= 0.500

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

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 590.20 ELREA= 592.10

3.07	8.84	585.94	0.0	0.0	586.56	0.62	0.21	0.08	579.90
2678.	0.	2678.	0.	0.	425.	0.	29.	9.	582.50
0.31	0.0	6.31	0.0	0.070	0.045	0.070	0.045	577.10	622.00
0.002834	70.	70.	70.	1	0	0	0.0	60.00	682.00

SPECIAL BRIDGE

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.0	1.49	3.00	0.0	60.00	0.0	602.00	0.0	575.90	577.10

*SECNO 3.130

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.0 EGLWC= 585.656 ELLC= 589.300 PCWSE= 585.940 ELTRD= 590.300

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 590.30 MAX ELLC= 589.30

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 590.20 ELREA= 592.10

3.13	10.23	586.13	0.0	0.0	586.73	0.60	0.17	0.00	578.70
2678.	0.	2678.	0.	0.	433.	0.	30.	9.	582.50
0.31	0.0	6.19	0.0	0.070	0.045	0.070	0.045	575.90	518.00
0.002697	60.	60.	60.	2	0	0	0.0	60.00	578.00

CCHV= 0.100 CEHV= 0.300
*SECNO 3.200

3470 ENCROACHMENT STATIONS= 480.0 680.0 TYPE= 1 TARGET= 200.000

CROSS SECTION E UPSTREAM OF NILES AVE. BRIDGE

3.20	10.03	586.73	0.0	0.0	586.85	0.12	0.08	0.05	582.50

	2078.	204.	1940.	534.	163.	603.	399.	31.	9.	582.50
	0.32	1.25	3.21	1.34	0.070	0.045	0.070	0.045	576.70	480.00
1	0.000583	70.	70.	70.	2	0	0	0.0	200.00	680.00

*SECNO 3.800

3301 HV CHANGED MORE THAN HVINS

3470 ENCROACHMENT STATIONS= 0.0 582.0 TYPE= 1 TARGET= 581.999

CROSS SECTION F

3.80	10.22	586.92	0.0	0.0	587.81	0.89	0.73	0.23	582.50
2678.	208.	2404.	66.	113.	302.	30.	42.	12.	582.50
0.34	1.83	7.97	2.21	0.070	0.045	0.070	0.045	576.70	381.34
0.004021	650.	600.	550.	3	0	0	0.0	161.22	542.56

*SECNO 4.500

3301 HV CHANGED MORE THAN HVINS

CROSS SECTION G

4.50	9.75	588.35	0.0	0.0	588.37	0.02	0.47	0.09	584.90
2669.	1384.	738.	546.	1687.	425.	660.	76.	19.	584.40
0.58	0.82	1.74	0.83	0.070	0.045	0.070	0.045	578.60	166.20
0.000183	900.	950.	950.	3	0	0	0.0	560.99	727.19

*SECNO 5.200

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= 400.0 500.0 TYPE= 1 TARGET= 100.000

CROSS SECTION H DOWNSTREAM OF WASH. AVE. BRIDGE

5.20	9.75	588.35	0.0	0.0	588.79	0.44	0.30	0.12	586.40
2669.	67.	2488.	113.	44.	455.	57.	102.	24.	584.80
0.62	1.53	5.47	1.99	0.070	0.045	0.070	0.045	578.60	400.00
0.002112	600.	700.	800.	3	0	0	0.0	100.00	500.00

*SECNO 5.280

CCHV= 0.200 CEHV= 0.500

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 593.30 ELREA= 590.80

5.28	9.55	588.45	0.0	0.0	589.01	0.57	0.16	0.06	579.90
2669.	0.	2669.	0.	0.	442.	0.	103.	24.	581.10
0.62	0.0	6.03	0.0	0.070	0.045	0.070	0.045	578.90	430.00
0.001978	77.	77.	77.	0	0	0	0.0	50.00	480.00

SPECIAL BRIDGE

5070 VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD

0.0	1.43	2.60	0.0	50.00	0.0	470.00	0.0	578.90	578.90

*SECNO 5.320

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.0 EGLWC= 589.012 ELLC= 589.500 PCWSE= 588.448 ELTRD= 591.200

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 591.20 MAX ELLC= 589.50

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 593.30 ELREA= 590.80

5.32	9.66	588.56	0.0	0.0	589.12	0.55	0.10	0.00	579.90
2669.	0.	2669.	0.	0.	448.	0.	103.	24.	581.10
0.62	0.0	5.96	0.0	0.070	0.045	0.070	0.045	578.90	306.00
0.002396	46.	46.	46.	2	0	0	-1.49	50.00	356.00

CCHV= 0.100 CEHV= 0.300

*SECNO 5.960

3470 ENCROACHMENT STATIONS= 223.0 427.0 TYPE= 1 TARGET= 204.000

CROSS SECTION I UPSTREAM OF WASH. AVE. BRIDGE

5.96	10.86	589.16	0.0	0.0	589.22	0.06	0.06	0.05	581.60
2669.	712.	943.	1013.	532.	345.	668.	105.	25.	581.90
0.63	1.34	2.74	1.52	0.070	0.045	0.070	0.045	578.30	223.00
0.000363	77.	77.	77.	2	0	0	0.0	204.00	427.00

*SECNO 6.550

6.55	10.30	589.30	0.0	0.0	589.31	0.01	0.09	0.01	582.50
2669.	1711.	429.	529.	2568.	340.	864.	141.	30.	582.50
0.85	0.67	1.26	0.61	0.070	0.045	0.070	0.045	579.00	159.21
0.000078	590.	590.	590.	2	0	0	0.0	581.85	741.06

*SECNO 7.360

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

CROSS SECTION J

7.36	9.39	589.39	0.0	0.0	589.40	0.01	0.09	0.00	583.50
2669.	1701.	460.	508.	2210.	307.	725.	214.	42.	583.50
1.14	0.77	1.50	0.70	0.070	0.045	0.070	0.045	580.00	161.67
0.000126	910.	910.	910.	2	0	0	0.0	577.41	739.08

*SECNO 8.360

3470 ENCROACHMENT STATIONS= 418.0 976.0 TYPE= 1 TARGET= -418.000

8.36	9.12	589.52	0.0	0.0	589.54	0.02	0.14	0.00	583.90
2669.	1479.	495.	695.	1682.	298.	903.	282.	54.	583.90
1.40	0.88	1.66	0.77	0.070	0.045	0.070	0.045	580.40	418.00
0.000163	882.	1000.	1118.	2	0	0	0.0	516.61	934.61

*SECNO 9.060

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3470 ENCROACHMENT STATIONS= 593.0 724.0 TYPE= 1 TARGET= 131.000
ELENCL= 590.84 ELENCR= 590.24

CROSS SECTION K DOWNSTREAM OF CLEV. AVE. BRIDGE

9.06	8.86	589.56	0.0	0.0	589.90	0.34	0.26	0.10	585.70
2669.	291.	2120.	258.	147.	411.	136.	310.	59.	585.70
1.45	1.98	5.16	1.90	0.070	0.045	0.070	0.045	580.70	593.00
0.001680	618.	700.	782.	2	0	0	0.0	131.00	724.00

*SECNO 9.150
CCHV= 0.200 CEHV= 0.500

3470 ENCROACHMENT STATIONS= 608.0 682.0 TYPE= 1 TARGET= 74.000
ELENCL= 591.00 ELENCR= 590.40

9.15	8.93	589.73	0.0	0.0	590.04	0.31	0.13	0.01	582.60
2669.	0.	2669.	0.	0.	602.	0.	311.	59.	590.40
1.45	0.0	4.43	0.0	0.070	0.045	0.070	0.045	580.80	608.00
0.001423	86.	86.	86.	2	0	0	0.0	74.00	682.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.09	1.74	3.00	0.0	74.00	2.50	560.70	0.0	580.80	580.80

*SECNO 9.260
3700. BRIDGE STENCL= 526.00 STENCR= 600.00
PRESSURE FLOW

EGPRS	EGLWC	H3	QWEIR	QPR	BAREA	TRAPEZOID AREA	ELLC	ELTRD
590.34	590.04	-0.00	0.	2669.	561.	622.	589.50	590.60

3470 ENCROACHMENT STATIONS= 526.0 600.0 TYPE= 1 TARGET= 74.000
ELENCL= 591.00 ELENCR= 590.40

9.26	9.26	590.06	0.0	0.0	590.34	0.28	0.31	0.0	582.60
2669.	0.	2669.	0.	0.	627.	0.	312.	60.	590.40
1.46	0.0	4.26	0.0	0.070	0.045	0.070	0.045	580.80	526.00
0.001259	110.	110.	110.	2	0	0	0.0	74.00	600.00

CCHV= 0.100 CEHV= 0.300
*SECNO 9.310

SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	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= 427.0 729.0 TYPE= 1 TARGET= 302.000
ELENCL= 591.26 ELENCR= 590.66

9.31	9.49	590.39	0.0	0.0	590.43	0.04	0.06	0.02	584.40
2588.	781.	948.	859.	719.	422.	764.	316.	60.	585.10
1.48	1.09	2.25	1.12	0.070	0.045	0.070	0.045	580.90	427.00
0.000274	114.	114.	114.	2	0	0	0.0	302.00	729.00

*SECNO 9.360

3470 ENCROACHMENT STATIONS= 313.0 843.0 TYPE= 1 TARGET= 530.000
ELENCL= 591.26 ELENCR= 590.66

CROSS SECTION L UPSTREAM OF CLEV. AVE. BRIDGE

9.36	9.54	590.44	0.0	0.0	590.45	0.01	0.02	0.00	584.40
2588.	968.	566.	1054.	1436.	424.	1514.	323.	61.	585.10
1.52	0.67	1.33	0.70	0.070	0.045	0.070	0.045	580.90	313.00
0.000096	114.	114.	114.	2	0	0	0.0	530.00	843.00

*SECNO 10.960

3470 ENCROACHMENT STATIONS= 450.0 1298.0 TYPE= 1 TARGET= -450.000

CROSS SECTION M

10.96	9.40	590.60	0.0	0.0	590.60	0.01	0.16	0.00	586.60
2588.	1334.	519.	735.	2220.	425.	1259.	456.	86.	587.30
2.14	0.60	1.22	0.58	0.070	0.045	0.070	0.045	581.20	450.00
0.000101	1600.	1600.	1600.	2	0	0	0.0	803.42	1253.42

*SECNO 11.660

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 380.0 813.0 TYPE= 1 TARGET= -380.000

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 587.60 ELREA= 591.50

CROSS SECTION N

11.66	9.43	590.73	0.0	0.0	590.77	0.04	0.16	0.01	587.60
2588.	1864.	724.	0.	1450.	335.	0.	513.	97.	591.50
2.29	1.29	2.16	0.0	0.070	0.045	0.070	0.045	581.30	380.00
0.000434	1000.	700.	600.	2	0	0	0.0	348.50	731.00

*SECNO 13.160

3470 ENCROACHMENT STATIONS= 500.0 954.0 TYPE= 1 TARGET= -500.000

CROSS SECTION O

13.16	9.20	591.40	0.0	0.0	591.45	0.05	0.67	0.00	587.20
2588.	1289.	905.	394.	1094.	328.	349.	574.	110.	587.40
2.54	1.18	2.76	1.13	0.070	0.045	0.070	0.045	582.20	500.00
0.000465	1500.	1500.	1500.	2	0	0	0.0	395.20	895.20

*SECNO 15.360

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= 135.0 240.0 TYPE= 1 TARGET= 105.000

CROSS SECTION P DOWNSTREAM OF MAIDEN LANE BRIDGE

15.36	9.72	593.12	0.0	0.0	593.93	0.80	2.25	0.22	588.80
2588.	231.	2275.	83.	82.	299.	52.	630.	123.	591.20
2.62	2.81	7.62	1.60	0.070	0.045	0.070	0.045	583.40	140.18
0.003827	2200.	2200.	2200.	3	0	0	0.0	99.82	240.00

*SECNO 15.420

3470 ENCROACHMENT STATIONS= 154.0 222.0 TYPE= 1 TARGET= 68.000

ELENCL= 600.40 ELENCR= 599.30

15.42	9.91	593.31	0.0	0.0	594.18	0.87	0.23	0.02	588.80
2588.	155.	2378.	55.	55.	305.	30.	631.	123.	591.20
2.63	2.84	7.79	1.83	0.070	0.045	0.070	0.045	583.40	154.00
0.003880	60.	60.	60.	2	0	0	0.0	68.00	222.00

CCHV= 0.200 CEHV= 0.500

*SECNO 15.450

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.40 ELREA= 599.30

15.45	10.70	593.70	0.0	0.0	594.31	0.60	0.07	0.05	585.20
2588.	0.	2588.	0.	0.	415.	0.	631.	123.	587.80
2.63	0.0	6.23	0.0	0.070	0.045	0.070	0.045	583.00	168.00
0.002286	25.	25.	25.	2	0	0	0.0	48.00	216.00

SPECIAL BRIDGE

5070,VARIABLE ELCHU OR ELCHD ON CARD SB NOT SPECIFIED

SB	XK	XKOR	COFQ	RDLEN	BWC	BWP	BAREA	SS	ELCHU	ELCHD
	0.0	1.37	2.80	0.0	48.00	0.0	510.00	0.0	583.00	583.00

*SECNO 15.480

6070,LOW FLOW BY NORMAL BRIDGE

EGPRS= 0.0 EGLWC= 594.307 ELLC= 595.900 PCWSE= 593.704 ELTRD= 599.300

3370 NORMAL BRIDGE,NRD= 7 MIN ELTRD= 599.30 MAX ELLC= 595.90

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE,ELLEA= 600.40 ELREA= 599.30

CROSS SECTION Q UPSTREAM FACE OF MAIDEN LANE BRIDGE

15.48	10.82	593.82	0.0	0.0	594.40	0.59	0.09	0.00	585.20
2588.	0.	2588.	0.	0.	421.	0.	631.	123.	587.80
2.63	0.0	6.15	0.0	0.070	0.045	0.070	0.045	583.00	168.00
0.002195	42.	42.	42.	2	0	0	0.0	48.00	216.00

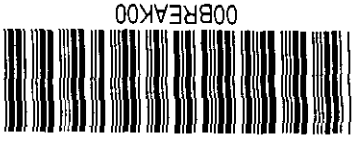


1) COUNTY: Berrien

2) STUDY NAME: St. Joseph Township

3) WATERCOURSE: Hickory Creek

4) DOCUMENT TYPE: Report



HYDRAULIC ANALYSIS OF HICKORY CREEK
ST. JOSEPH TOWNSHIP, BERRIEN COUNTY

A. Historical Flooding

Although overbank flooding commonly occurs along Hickory Creek during the spring, there is no reported history of property damage due to the absence of development in the floodplain areas. Discussions with local officials regarding flooding on Hickory Creek did not reveal any historical problem areas in the Township.

B. Hydraulic Computations

The stream was analyzed using the November, 1976 (updated August, 1977) version of the Corps of Engineers HEC-2 water surface profile computer program.

The flood discharges used in the analysis were as follows:

10 year	-	1,438 cfs
50 year	-	2,334 cfs
100 year	-	2,678 cfs
500 year	-	3,416 cfs

Based upon the results of the hydrologic analysis using the S.C.S. TR-20 computer program, the flows were reduced in the upstream reach to reflect a reduction in drainage area. These discharges are in agreement with those previously used in the Flood Insurance Study for Hickory Creek in Lincoln Township, which is immediately upstream, and were approved by the DNR.

The starting water surface elevations at the confluence of Hickory Creek with the St. Joseph River (Cross Section A) were based upon the flood elevations of the St. Joseph River. For the 10-year event, the approximate normal high water elevation of 582.5 on the St. Joseph River was used. For the 50 and 100 year events, the approximate 10-year flood stage of 583.5 on the St. Joseph River was used; while for the 500 year event, the approximate 100 year flood stage of 584.4 on the St. Joseph River was used.

The Mannings roughness coefficients which were used in the analyses are shown on the plotted cross-sections, Overbank roughness coefficients ranged for 0,07 for areas with medium brush to 0,10 for areas with heavy brush and scattered trees, A uniform roughness coefficient of 0,045 was used for the channel and banks as being representative of the generally regular channel section with light to medium brush on the side banks. Gradual expansion and contraction coefficients of 0,3 and 0,1 were used between cross-sections, The coefficients were increased to 0,5 and 0,2 immediately upstream and downstream of the bridge sections to reflect the more abrupt flow transitions at these points.

The HEC-2 computations of the bridge hydraulics were separately checked using the techniques presented in the Bureau of Public Roads publication Hydraulics of Bridge Waterways. In all cases, close agreement with the HEC-2 analysis was found, and thus no changes were made.

In the hydraulic analyses, artificial encroachment stations were utilized to delete ineffective flow areas from the computations. This was particularly true of the cross-sections immediately upstream and downstream of the bridge sections. In the analysis, it was assumed that the effective flow lines would expand on a slope of approximately 45° upstream and 20° downstream from the bridge openings. The locations of assumed encroachments are shown on the plotted cross-sections.

The determination of the floodway area was made utilizing Method 4 of the HEC-2 program. A maximum allowable flood stage increase of 0.10 feet above the computed natural 100-year flood stage was specified. The floodways are shown on the plotted cross-sections and on the plan.

C. Results

As no historical flood profile or discharge data was available for Hickory Creek, verification of the computer model in comparison to historical flooding was not possible. However, a verification of the model was made with the approximate flood discharge and water surface profile which was observed on

March 22, 1978. On this date, it was estimated that the stream discharge was 750 cfs. The approximate water surface was measured at the Niles Road, Washington Avenue, Cleveland Avenue, and Maiden Lane Bridges. A comparison of the water surfaces determined through use of the computer model with the observed water surfaces is presented in Table 1. As shown on Table 1, the computed water surfaces are somewhat higher than the observed elevations. However, as the flood discharge of 750 cfs was an estimated value, this may be the result of an error in the discharge. In general, the pattern and results of the model are in relatively close agreement with the observed data and indicate the model is functioning correctly.

A second verification of the computer model was made by comparing the computed water surfaces upstream of the Maiden Lane Bridge with those determined for the Flood Insurance Study in Lincoln Township. This comparison is shown on Table 2 and indicates that the two studies resulted in similar flood elevation determinations.

TABLE 1

COMPARISIONS OF HICKORY CREEK FLOOD ELEVATIONS

FOR THE MARCH 22, 1978 FLOOD EVENT

Location	Observed Elevation	Computed Elevation
Niles Road	581.8±	582.2
Washington Ave.	584.5±	585.2
Cleveland Ave.	586.5±	586.6
Maiden Lane	589.9±	590.6

TABLE 2

COMPARISON OF HICKORY CREEK FLOOD ELEVATIONS

AT THE MAIDEN LANE BRIDE

Event	Lincoln Twp Study	St. Joseph Twp Study
10 year	593.03	592.41
50 year	593.83	593.88
100 year	594.25	594.38
500 year	595.04	495.37

WILLIAMS & WORKS
ENGINEERS / SURVEYORS / PLANNERS / GEOLOGISTS
GRAND RAPIDS MICHIGAN

Calculation Sheet

Computed by
Checked by
Subject
Client
Sheet 1 of 5
Job No
Date

Hickory Creek Photos



Confluence of Hickory Creek and St. Joseph River (Hickory Creek on right)

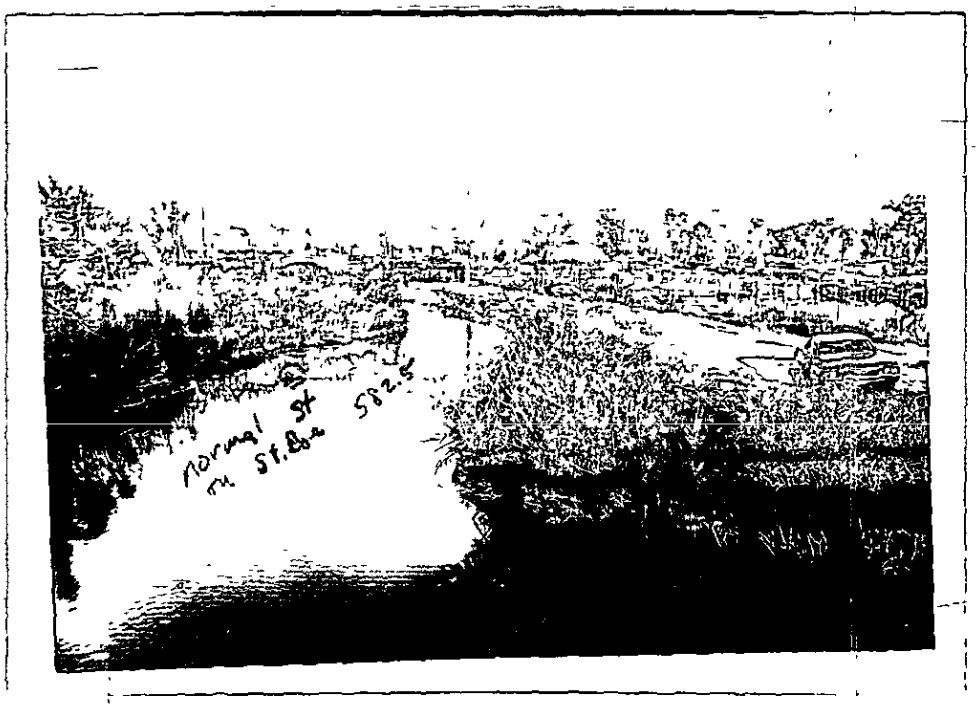


Looking upstream from Cross-Section 1.20 (B).

WILLIAMS & WORKS
ENGINEERS / SURVEYORS / PLANNERS / GEOLOGISTS
GRAND RAPIDS, MICHIGAN

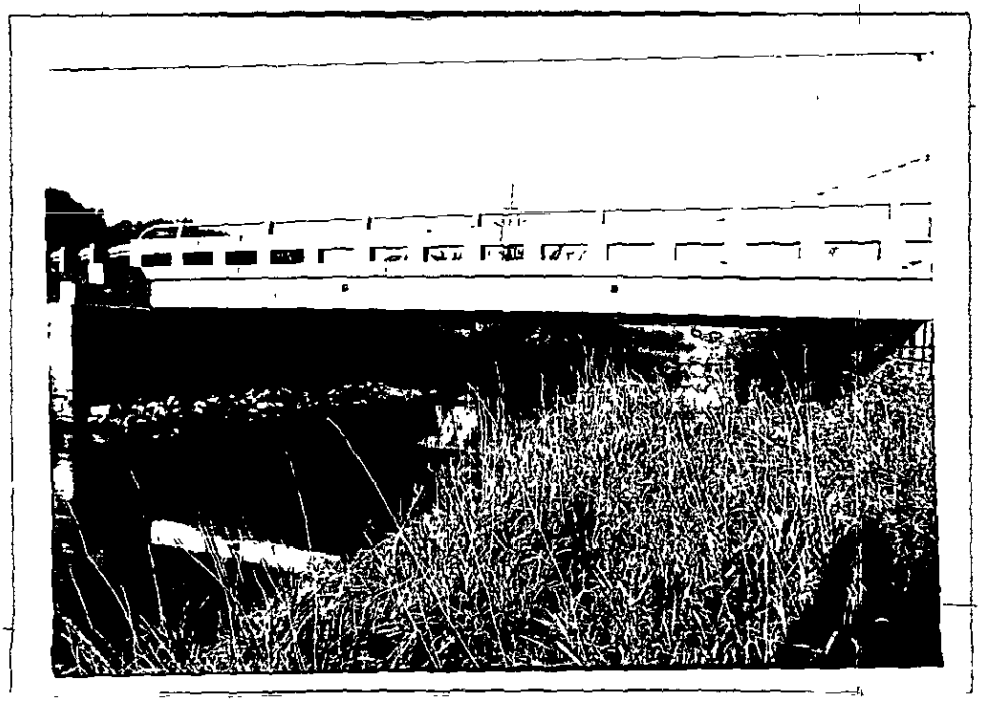
Calculation Sheet

Computed by	Subject	Sheet 2 of 5
Checked by		Job No
	Client	Date



Looking downstream from Niles Ave Bridge.

100 yr 587.5



Niles Ave. Bridge: Viewed from upstream.

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Calculation Sheet

Computed by _____
Checked by _____
Subject _____
Client _____
Sheet 3 of 5
Job No _____
Date _____



Looking upstream from Niles Avenue Bridge



Washington Ave. Bridge: downstream side

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Calculation Sheet

Computed by
Checked by
Subject
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Sheet 4 of 5
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Looking upstream from Washington Ave. Bridge



Looking downstream from Cleveland Avenue Bridge

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Calculation Sheet

Computed by
Checked by
Subject
Client
Sheet 5 of 5
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Date



Looking upstream from Cleveland Ave. Bridge



Looking downstream from Maiden Lane Bridge

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Calculation Sheet

Computed by _____
Checked by _____
Subject Hickory Creek
Client St. Joseph Twp
Sheet 1 of 3
Job No 83796
Date 7-31-78

HYDRAULIC ANALYSIS of HICKORY CREEK from NILES AVE. to ST. JOSEPH R.

The right bank of the Creek from Niles Avenue to the St. Joseph River is defined by an access road to a marina located in the right overbank area. This roadway has a top elevation which varies from 585.0 at Section B to 584.7 at Section D. Since the original HEC-2 analysis indicated the 100-year flood elevation would be 588+ at Section D if all of the flow was assumed to remain within the stream banks, a re-analysis of the stream was made based on the assumption that a portion of the flow would pass over the roadway and flow to the St. Joseph River thru the marina area.

In order to determine the water surface profile which would result from the above flow condition, separate profiles were developed from the channel and weir flows. The channel profile was developed by utilizing the HEC-2 program to compute profiles for a range of flows from 300 to 1,000 cfs for each of the starting water surface elevations. The profile for the weir flow condition

was determined based upon the assumption that the roadway would act as a lateral weir, and thus the profile could be approximated from the equations presented in Open Channel Flow by F. M. Henderson. A series of profiles were computed for different flow values and assumed water surface elevations at Section D. Based upon the fact that the total of the combined weir and channel flows must equal the known flood flow, a trial and error solution was then employed to determine the points at which the two profiles would intersect for each of the flood conditions. The channel profile, with the appropriate flow value, was then utilized in the final HEC-2 program to produce the stream profile up to the point at which the two profiles intersected. The weir profile was then employed to determine the water surface elevation at Section D, and this elevation was read into the final model as a known water surface elevation. A summary of the starting water surface elevations, channel flow, weir flow, and water surfaces at Section D is presented in the following table.

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Calculation Sheet

Computed by
Checked by
Subject
Client
Sheet 2 of 2
Job No.
Date

SUMMARY OF HYDRAULIC ANALYSIS

Flood Event	Starting W.S.	Q - Channel	Q - Weir	W.S. at Sect. D
10 Year	582.50	860	578	585.30
50 Year	583.50	840	1,494	585.68
100 Year	-583.50	860	1,818	585.81
500 Year	584.40	770	2,646	586.08

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GRAND RAPIDS MICHIGAN

Calculation Sheet

Computed by _____
Checked by _____
Subject HICKORY CREEK
Client ST. JOSEPH TWP
Sheet 1 of 2
Job No 83996
Date 7-10-78

COMPUTATION OF "XKOR" COEFFICIENTS

1. NILES AVE BRIDGE

AREA OF OPENING = 602.4 FT²

WETTED PERIMETER = 136.9 FT

∴ R_H = 602.4 / 136.9 = 4.40

LENGTH = 48 FT

n = 0.045

∴ $K_f = 29(0.045)^2(48) / (4.40)^{1.33} = 0.39$

K_e (flush entrance) = 0.1 ?

XKOR = 1 + 0.39 + 0.1 = 1.49 → C = 0.81 ?

C of 0.8 before

2. WASHINGTON AVE. BRIDGE

AREA of OPENING = 470.25 FT²

W.P. = 117.3 FT

∴ R_H = 470.5 / 117.3 = 4.01

LENGTH = 36 FT

n = 0.045

∴ $K_f = 29(0.045)^2(36) / (4.01)^{1.33} = 0.33$

K_e (flush entrance) = 0.1

XKOR = 1 + 0.33 + 0.1 = 1.43

↓

C = 0.83C

C of 0.8 before

3. CLEVELAND AVE. BRIDGE

AREA of OPENING = 560.7 FT²

W.P. = 173.4 FT

∴ R_H = 560.7 / 173.4 = 3.23

LENGTH = 48 FT

n = 0.045

∴ $K_f = 29(0.045)^2(48) / (3.23)^{1.33} = 0.59$

K_e (flush entrance) = 0.1

C = 0.758

∴ XKOR = 1 + 0.59 + 0.1 + 0.05(pier) = 1.74

4 MAIDEN LANE BRIDGE

AREA of OPENING = 510 FT²

W.P. = 120 FT

∴ R_H = 510 / 120 = 4.25

LENGTH = 32 FT

n = 0.045

∴ $K_f = 29(0.045)^2(32)/(4.25)^{1.33} = 0.27$

K_e (flush entrance) = 0.1

XKOR = 1 + 0.27 + 0.1 = 1.37

C = 0.854

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Calculation Sheet

Computed by RCK	Subject Hickory Creek	Sheet 1 of 6
Checked by	Client HUD - H4538	Job No 83996
		Date 3/16/-8

Niles Ave. Bridge Hydraulics - Hickory Creek

10-YR - Low Flow CWSEL @ 586.53 ELLC = 589.30

50-YR - Low Flow CWSEL @ 588.02 ELLC = 589.30

100-YR - Low Flow CWSEL @ 588.50 ELLC = 589.30

500-YR - Pressure Flow

$Q = .80 \times b_N z (2g \Delta h)^{1/2}$

$b_N z$ = Net Area = 550 ft²

$\therefore \quad 3416 = .80 \times 550 \sqrt{64.4 \Delta h}$

$7.76^2 = 64.4 \Delta h$

$\Rightarrow \Delta h \doteq .94'$

$\therefore$ EG Upstream = 589.21 + .94' = 590.15

HEC-2 (w/ Low Flow By Normal Bridge) = 590.06 $\Rightarrow$ OK

WASHINGTON AVE BRIDGE
- HICKORY CRK

10 YR - LOW FLOW ✓

50 YR - PRESSURE FLOW

$Q = (0.8)(b_N)(Z)(2g\Delta h)^{1/2}$

$(b_N)(Z)$ = AREA UNDER bridge = 500

Δh = E.G. upstream - W.S downstream

$\therefore 2327 = (0.8)(500)(64.4\Delta h)^{1/2}$

$5.82 \quad (64.4\Delta h)^{1/2}$

$33.8 = 64.4\ \Delta h$

$\Delta h = 0.53$

w/ W.S.(d.s) = 588.76 , E.G(u.s) = 589.29

HEC-2 E.G(US) = 589.27 - OK

100 YR - PRESSURE FLOW

$2669 = (0.8)(500)(64.4\ \Delta h)^{1/2}$

$6.67 = (64.4\Delta h)^{1/2}$

$44.5 = 64.4\ \Delta h$

$\Delta h = 0.69$ ✓

w/ W.S. (ds) = 589.27 , E.G.(us) = 589.96

HEC-2 : EG(us) = 589.93 - OK

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Calculation Sheet

Computed by LVL	Subject	Sheet 3 of 6
Checked by RGK		Job No
	Client	Date

500 YR - PRESSURE FLOW

$3400 = (0.8)(500)(64.4\,\Delta h)^{1/2}$

$8.5 = (64.4\,\Delta h)^{1/2}$

$72.2 = 64.4\,\Delta h$

$\Delta h = 1.12$ ✓

w/. W.S (ds) = 590.33) EG (us) = 591.45

HEC-2 · EG (us) = 591.40 - OK

HICKORY CRK - CLEVELAND AVE. BRIDGE

10 YR - LOW FLOW (Class A)

50 YR - PRESSURE FLOW

$Q = (0.8)(b_N)(Z)(2g\,\Delta h)^{1/2}$

$(b_N)(Z)$ = AREA = 570

$\therefore 2327 = (0.8)(570)(2g\,\Delta h)^{1/2}$

$5.1 = (64.4\,\Delta h)^{1/2}$

$26.0 = 64.4\,\Delta h$

$\Delta h = 0.40$ ✓ $\therefore$ EG(us) = 590.04 + 0.4 = 590.44

HEC-2 (Low Flow) = 590.47 - ok

100 YR - PRESSURE FLOW

$2069 = (0.8)(570)(2g\,\Delta h)^{1/2}$

$5.85 = (64.4\,\Delta h)^{1/2}$

$34.2 = 64.4\,\Delta h$

$\Delta h = 0.53$ ✓ $\therefore$ E.G.(us) = 590.65 + 0.53 = 591.18

HEC-2 = 591.16 - ok

500 YR - PRESSURE & WEIR FLOW

(See Sheets 5 & 6)

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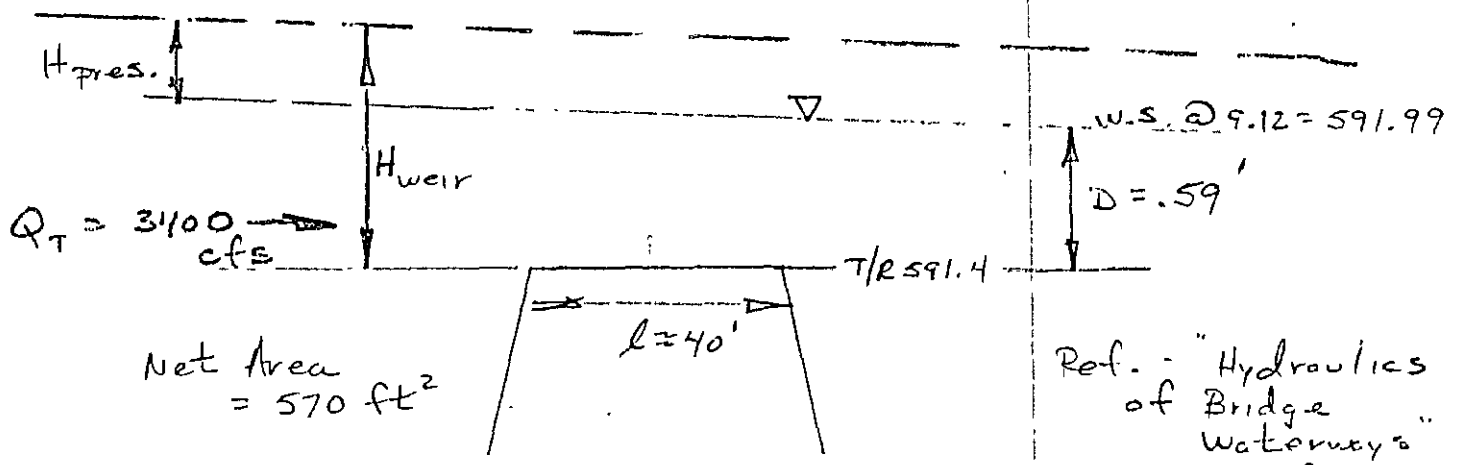
Calculation Sheet

Computed by RLR	Subject Hickory Creek	Sheet 5 of 6
Checked by	Client S.J. Joseph T.W.D.	Job No. 83996
		Date 3/16/78

Cleveland Ave. Bridge - 500 yr Flood Hydraulics



Net Area = 570 ft²

Ref. - "Hydraulics of Bridge Waterways" Dept. of Transp. Pg. 41-47

Pressure flow: $Q = .80\, b_N\, 2\, (2g\,H)^{1/2}$

where H = Upstream Hg - downstream W.S.

Weir flow: $Q = C_f\, L\, H^{3/2} \cdot C_s/C_f$

where H = Upstream Hg - roadway elev.

① Try Upstream Hg @ 592.50

$H_{pressure} = 592.50 - 591.99 = .51'$

$H_{weir} = 592.50 - 591.4 = 1.1'$

Effective Weir Length = 150' Per Field Observations & Existing X-Section

$Q_{PR} = .80 \times 570 \times \sqrt{64.4 \times .51'} = 2613$ cfs

$\frac{H}{\ell} = \frac{1.1}{10} = .0275 \Rightarrow$ from Curve A Pg 46 - $C_f = 3.04$

$\frac{D}{H} = \frac{.59}{1.1} = .54 \Rightarrow$ from Curve C $C_s/C_f = 1.0$

$Q_{weir} = 3.04 \times 150 \times 1.1^{3/2} = 526$ cfs

$Q_{TOTAL} = 526 + 2613 = 3139$ cfs

(2) Try Upstream Hg @ 593.00

$H_{pressure} = 593 - 591.99 = 1.01'$

$H_{weir} = 593 - 591.4 = 1.6'$

$Q_{PR} = .80 \times 570 \times \sqrt{64.4 \times 1.01} = 3677 \Rightarrow$ Hg too high -

(3) Try Upstream Hg @ 592.75

$H_{pressure} = .76'$

$H_{weir} = 1.35'$

$Q_{pr} = 456 \sqrt{64.4 \times .76} = 3190$

$Q_{weir} = 3.04 \times 150 \times (1.35)^{3/2}$

$= 715$

$Q_{TOTAL} = 3190 + 715 = 3905$

$\Rightarrow$ Hg too high

(11) Hg @ 592.60

$H_{pressure} = .61$

$H_{weir} = 1.2'$

$Q_{pr} = .456 \sqrt{64.4 \times .61} = 2858$ cfs

$C_f = 3.04$

$\frac{D}{H} = \frac{.59}{1.2} = .49$

$\Rightarrow C_s/C_f = 1$

$Q_{weir} = 3.04 \times 150 \times 1.2^{3/2}$

$= 599$ cfs

$Q_{TOTAL} = 2858 + 599 = 3457$

(5) Hg @ 592.55

$H_{pressure} = .56'$

$H_{weir} = 1.15'$

$Q_{pres} = 2738$ cfs

$Q_{weir} = 562$

$Q_{TOTAL} = 3300.$

$\Rightarrow 592.55 < Hg < 592.60'$

HEC2 Run slows Hg @ 592.49 $\Rightarrow$ Computer Handles Hydraulics OK $\rightarrow$ Leave as is -

00BREAK00

1) COUNTY: Berrien

2) STUDY NAME: St. Joseph Township

3) WATERCOURSE: Hickory Creek

4) DOCUMENT TYPE: Summary

00BREAK00

****
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

HICKORY CR. 100 YR FLOOD

SUMMARY PRINTOUT

	SECNO	XLCH	Q	CWSEL	EG	10K*S	TOPWID	ELMIN	HV	STENCL	STENCR	.01K	AREA
	0.0	0.0	860.00	583.50	583.67	14.82	61.60	577.10	0.17	0.0	0.0	223.42	263.47
	0.0	0.0	860.00	583.50	583.67	14.82	61.60	577.10	0.17	201.00	263.00	223.42	263.47
"A"	0.0	0.0	770.00	584.40	584.49	6.26	89.90	577.10	0.09	0.0	0.0	307.77	332.20
	0.0	0.0	840.00	583.50	583.66	14.14	61.60	577.10	0.16	0.0	0.0	223.42	263.47
	0.0	0.0	860.00	582.50	582.78	30.93	57.04	577.10	0.28	0.0	0.0	154.64	204.15
100Yr	0.100	100.00	860.00	583.65	583.81	13.33	67.43	577.10	0.15	0.0	0.0	235.51	273.05
100Yr w/encroachment	0.100	100.00	860.00	583.65	583.81	13.50	62.00	577.10	0.15	201.00	263.00	234.06	272.37
500Yr	0.100	100.00	770.00	584.46	584.55	6.00	91.77	577.10	0.09	0.0	0.0	314.26	337.88
50Yr	0.100	100.00	840.00	583.65	583.79	12.79	67.23	577.10	0.15	0.0	0.0	234.90	272.59
10 Yr	0.100	100.00	860.00	582.82	583.05	24.16	58.48	577.10	0.23	0.0	0.0	174.96	222.30
	0.200	100.00	860.00	583.79	583.93	11.96	71.76	577.10	0.14	0.0	0.0	248.64	283.12
	0.200	100.00	860.00	583.79	583.94	12.22	62.00	577.10	0.15	201.00	263.00	246.01	281.02
	0.200	100.00	770.00	584.52	584.61	5.76	93.63	577.10	0.08	0.0	0.0	320.81	343.65
	0.200	100.00	840.00	583.78	583.92	11.53	71.36	577.10	0.14	0.0	0.0	247.43	282.18
	0.200	100.00	860.00	583.07	583.27	19.99	59.64	577.10	0.20	0.0	0.0	192.36	237.39
	0.300	100.00	860.00	583.91	584.05	10.94	75.42	577.10	0.14	0.0	0.0	260.03	292.14
	0.300	100.00	860.00	583.92	584.05	11.21	62.00	577.10	0.14	201.00	263.00	256.90	288.86
	0.300	100.00	770.00	584.58	584.67	5.54	95.37	577.10	0.08	0.0	0.0	327.02	349.16
	0.300	100.00	840.00	583.89	584.03	10.57	74.89	577.10	0.13	0.0	0.0	258.36	290.80
	0.300	100.00	860.00	583.28	583.46	17.17	60.62	577.10	0.18	0.0	0.0	207.56	250.28
	0.400	100.00	860.00	584.02	584.15	10.11	78.72	577.10	0.13	0.0	0.0	270.51	300.65
	0.400	100.00	860.00	584.03	584.16	10.38	62.00	577.10	0.13	201.00	263.00	266.98	296.03
	0.400	100.00	770.00	584.64	584.72	5.34	97.06	577.10	0.08	0.0	0.0	333.11	354.61
	0.400	100.00	840.00	584.00	584.13	9.79	78.08	577.10	0.13	0.0	0.0	268.48	298.98
	0.400	100.00	860.00	583.46	583.62	15.19	61.43	577.10	0.17	0.0	0.0	220.67	261.20
	0.500	100.00	860.00	584.13	584.25	9.40	81.79	577.10	0.12	0.0	0.0	280.50	308.92
	0.500	100.00	860.00	584.14	584.26	9.68	62.00	577.10	0.13	201.00	263.00	276.45	302.68
	0.500	100.00	770.00	584.69	584.77	5.16	98.68	577.10	0.08	0.0	0.0	339.00	359.92
	0.500	100.00	840.00	584.10	584.22	9.13	81.05	577.10	0.12	0.0	0.0	278.07	306.89
	0.500	100.00	860.00	583.61	583.77	13.66	66.50	577.10	0.16	0.0	0.0	232.72	270.96

not included in main channel

SECNO	XLCH	Q	CWSEL	EG	10K*S	TOPWID	ELMIN	HV	STENCL	STENCR	.01K	AREA
0.600	100.00	860.00	584.22	584.34	8.80	84.66	577.10	0.12	0.0	0.0	289.99	316.90
0.600	100.00	860.00	584.24	584.36	9.11	62.00	577.10	0.12	201.00	263.00	284.89	308.54
0.600	100.00	770.00	584.75	584.82	4.99	100.25	577.10	0.08	0.0	0.0	344.77	365.14
0.600	100.00	840.00	584.20	584.31	8.55	83.83	577.10	0.12	0.0	0.0	287.22	314.56
0.600	100.00	860.00	583.75	583.90	12.30	70.65	577.10	0.15	0.0	0.0	245.26	280.50
0.700	100.00	860.00	584.31	584.43	8.27	87.35	577.10	0.12	0.0	0.0	299.03	324.63
0.700	100.00	860.00	584.33	584.45	8.60	62.00	577.10	0.12	201.00	263.00	293.33	314.36
0.700	100.00	770.00	584.80	584.87	4.83	101.76	577.10	0.08	0.0	0.0	350.38	370.24
0.700	100.00	840.00	584.28	584.39	8.06	86.44	577.10	0.11	0.0	0.0	295.96	322.00
0.700	100.00	860.00	583.88	584.02	11.21	74.40	577.10	0.14	0.0	0.0	256.85	289.60
0.800	100.00	860.00	584.40	584.51	7.81	89.87	577.10	0.11	0.0	0.0	307.67	332.11
0.800	100.00	860.00	584.42	584.53	8.14	62.00	577.10	0.11	201.00	263.00	301.39	319.85
0.800	100.00	770.00	584.85	584.92	4.68	103.23	577.10	0.07	0.0	0.0	355.88	375.27
0.800	100.00	840.00	584.37	584.47	7.62	88.89	577.10	0.11	0.0	0.0	304.31	329.19
0.800	100.00	860.00	583.99	584.12	10.33	77.80	577.10	0.13	0.0	0.0	267.59	298.26
0.900	100.00	860.00	584.48	584.59	7.41	92.25	577.10	0.11	0.0	0.0	315.98	339.38
0.900	100.00	860.00	584.50	584.61	7.74	62.00	577.10	0.11	201.00	263.00	309.07	325.04
0.900	100.00	770.00	584.89	584.97	4.54	104.65	577.10	0.07	0.0	0.0	361.26	380.22
0.900	100.00	840.00	584.44	584.55	7.23	91.21	577.10	0.10	0.0	0.0	312.33	336.18
0.900	100.00	860.00	584.10	584.22	9.59	80.95	577.10	0.13	0.0	0.0	277.74	306.61
1.000	100.00	860.00	584.55	584.66	7.05	94.52	577.10	0.10	0.0	0.0	323.97	346.45
1.000	100.00	860.00	584.58	584.69	7.39	62.00	577.10	0.11	201.00	263.00	316.40	329.96
1.000	100.00	770.00	584.94	585.01	4.41	106.02	577.10	0.07	0.0	0.0	366.50	385.05
1.000	100.00	840.00	584.52	584.62	6.89	93.42	577.10	0.10	0.0	0.0	320.09	343.01
1.000	100.00	860.00	584.20	584.32	8.96	83.86	577.10	0.12	0.0	0.0	287.31	314.64
1.100	100.00	860.00	584.63	584.73	6.72	96.67	577.10	0.10	0.0	0.0	331.68	353.33
1.100	100.00	860.00	584.66	584.76	7.07	62.00	577.10	0.10	201.00	263.00	323.49	334.68
1.100	100.00	770.00	584.98	585.05	4.29	107.36	577.10	0.07	0.0	0.0	371.68	389.85
1.100	100.00	840.00	584.59	584.69	6.58	95.52	577.10	0.10	0.0	0.0	327.56	349.65
1.100	100.00	860.00	584.29	584.41	8.42	86.59	577.10	0.12	0.0	0.0	296.46	322.42
1.200	100.00	860.00	584.70	584.79	6.43	98.73	577.10	0.10	0.0	0.0	339.16	360.06
1.200	100.00	860.00	584.73	584.83	6.78	62.00	577.10	0.10	201.00	263.00	330.29	339.18
1.200	100.00	770.00	585.03	585.10	4.18	108.66	577.10	0.07	0.0	0.0	376.73	394.54
1.200	100.00	840.00	584.66	584.75	6.30	97.52	577.10	0.10	0.0	0.0	334.77	356.11
1.200	100.00	860.00	584.37	584.49	7.94	89.15	577.10	0.11	0.0	0.0	305.21	329.97
1.300	100.00	860.00	584.76	584.86	6.16	100.69	577.10	0.10	0.0	0.0	346.39	366.61
1.300	100.00	860.00	584.80	584.89	6.52	62.00	577.10	0.10	201.00	263.00	336.83	343.48
1.300	100.00	770.00	585.07	585.14	4.07	109.92	577.10	0.07	0.0	0.0	381.67	399.16
1.300	100.00	840.00	584.72	584.81	6.04	99.44	577.10	0.09	0.0	0.0	341.78	362.43
1.300	100.00	860.00	584.46	584.56	7.52	91.58	577.10	0.11	0.0	0.0	313.60	337.30
1.400	100.00	860.00	584.85	584.91	4.04	190.09	576.90	0.06	0.0	0.0	427.81	529.18
1.400	100.00	860.00	584.89	584.95	4.27	124.34	576.90	0.06	213.66	338.00	415.97	466.54
1.400	100.00	770.00	585.13	585.17	2.62	194.01	576.90	0.04	0.0	0.0	475.51	583.37
1.400	100.00	840.00	584.81	584.86	3.99	189.40	576.90	0.06	0.0	0.0	420.58	520.75
1.400	100.00	860.00	584.56	584.63	5.07	185.57	576.90	0.07	0.0	0.0	381.85	474.43

"B"

	SECNO	XLCH	Q	CWSEL	EG	10K*S	TOPWID	ELMIN	HV	STENCL	STENCR	.01K	AREA
	1.500	100.00	860.00	584.89	584.95	3.87	190.88	576.90	0.06	0.0	0.0	437.39	538.85
	1.500	100.00	860.00	584.93	584.99	4.10	131.53	576.90	0.06	206.47	338.00	424.76	482.89
	1.500	100.00	770.00	585.16	585.20	2.54	194.42	576.90	0.04	0.0	0.0	483.30	589.82
	1.500	100.00	840.00	584.85	584.90	3.82	190.18	576.90	0.06	0.0	0.0	429.89	530.29
	1.500	100.00	860.00	584.61	584.68	4.83	186.47	576.90	0.07	0.0	0.0	391.31	485.19
	1.600	100.00	860.00	584.93	584.99	3.78	191.35	576.90	0.06	0.0	0.0	442.49	544.64
	1.600	100.00	860.00	584.97	585.03	3.99	129.99	576.90	0.06	208.01	338.00	430.28	486.02
	1.600	100.00	770.00	585.19	585.22	2.50	194.65	576.90	0.04	0.0	0.0	486.76	593.57
	1.600	100.00	840.00	584.89	584.94	3.73	190.65	576.90	0.05	0.0	0.0	434.89	536.01
	1.600	100.00	860.00	584.66	584.73	4.66	187.15	576.90	0.06	0.0	0.0	398.21	493.40
	1.700	100.00	860.00	584.97	585.02	3.67	191.93	576.90	0.05	0.0	0.0	448.93	551.89
	1.700	100.00	860.00	585.01	585.07	3.88	131.20	576.90	0.06	206.80	338.00	436.77	493.33
	1.700	100.00	770.00	585.21	585.25	2.46	194.96	576.90	0.04	0.0	0.0	491.30	598.47
	1.700	100.00	840.00	584.92	584.98	3.63	191.23	576.90	0.05	0.0	0.0	441.17	543.14
	1.700	100.00	860.00	584.71	584.77	4.49	187.89	576.90	0.06	0.0	0.0	405.73	502.28
	1.800	100.00	860.00	585.01	585.06	3.57	192.49	576.90	0.05	0.0	0.0	455.34	559.07
	1.800	100.00	860.00	585.05	585.11	3.76	132.46	576.90	0.06	205.54	338.00	443.28	500.76
	1.800	100.00	770.00	585.24	585.27	2.41	195.26	576.90	0.04	0.0	0.0	495.77	603.28
	1.800	100.00	840.00	584.96	585.01	3.52	191.80	576.90	0.05	0.0	0.0	447.47	550.25
	1.800	100.00	860.00	584.76	584.82	4.33	188.60	576.90	0.06	0.0	0.0	413.15	510.97
	1.900	100.00	860.00	585.04	585.10	3.47	192.93	576.90	0.05	0.0	0.0	461.65	566.08
	1.900	100.00	860.00	585.09	585.15	3.66	133.65	576.90	0.06	204.35	338.00	449.65	508.00
	1.900	100.00	770.00	585.26	585.30	2.37	195.55	576.90	0.04	0.0	0.0	500.18	608.00
	1.900	100.00	840.00	585.00	585.05	3.43	192.35	576.90	0.05	0.0	0.0	453.57	557.10
	1.900	100.00	860.00	584.80	584.86	4.19	189.29	576.90	0.06	0.0	0.0	420.34	519.32
	2.000	100.00	860.00	585.08	585.13	3.38	193.36	576.90	0.05	0.0	0.0	467.84	572.92
	2.000	100.00	860.00	585.13	585.18	3.56	134.82	576.90	0.05	203.18	338.00	455.92	515.15
	2.000	100.00	770.00	585.28	585.32	2.33	195.84	576.90	0.04	0.0	0.0	504.57	612.68
	2.000	100.00	840.00	585.03	585.08	3.34	192.79	576.90	0.05	0.0	0.0	459.61	563.82
	2.000	100.00	860.00	584.84	584.90	4.05	189.95	576.90	0.06	0.0	0.0	427.42	527.46
	2.100	100.00	860.00	585.11	585.16	3.29	193.77	576.90	0.05	0.0	0.0	473.86	579.53
	2.100	100.00	860.00	585.16	585.22	3.46	135.78	576.90	0.05	202.22	338.00	462.05	521.90
	2.100	100.00	770.00	585.31	585.34	2.29	196.13	576.90	0.04	0.0	0.0	508.98	617.37
	2.100	100.00	840.00	585.07	585.11	3.26	193.20	576.90	0.05	0.0	0.0	465.53	570.37
	2.100	100.00	860.00	584.88	584.94	3.92	190.59	576.90	0.06	0.0	0.0	434.28	535.31
	2.200	100.00	860.00	585.15	585.20	3.21	194.18	576.90	0.05	0.0	0.0	479.81	586.02
	2.200	100.00	860.00	585.20	585.25	3.38	136.75	576.90	0.05	201.25	338.00	468.05	528.57
	2.200	100.00	770.00	585.33	585.37	2.25	196.41	576.90	0.04	0.0	0.0	513.23	621.88
	2.200	100.00	840.00	585.10	585.15	3.18	193.60	576.90	0.05	0.0	0.0	471.36	576.79
	2.200	100.00	860.00	584.92	584.98	3.80	191.21	576.90	0.06	0.0	0.0	441.01	542.96
* 100%	3.000	630.00	2678.00	585.81	586.27	30.96	106.00	576.40	0.46	597.00	703.00	481.28	509.00
* 100% w/o n	3.000	630.00	2678.00	585.81	586.27	30.96	106.00	576.40	0.46	597.00	703.00	481.28	509.00
* 500 n	3.000	630.00	3416.00	586.08	586.76	42.54	106.00	576.40	0.68	597.00	703.00	523.75	537.62
* 30 D	3.000	630.00	2334.00	585.68	586.05	25.59	106.00	576.40	0.37	597.00	703.00	461.34	495.21
* 10%	3.000	630.00	1438.00	585.30	585.47	12.60	106.00	576.40	0.17	597.00	703.00	405.17	454.94

	SECNO	XLCH	Q	CWSEL	EG	10K*S	TOPWID	ELMIN	HV	STENCL	STENCR	.01K	AREA
	3.070	70.00	2678.00	585.94	586.56	28.34	60.00	577.10	0.62	0.0	0.0	503.07	424.54
	3.070	70.00	2678.00	585.96	586.57	32.92	60.00	577.10	0.61	622.00	682.00	466.75	425.98
	3.070	70.00	3416.00	586.25	587.17	40.21	60.00	577.10	0.92	0.0	0.0	538.68	442.66
	3.070	70.00	2334.00	585.79	586.28	23.08	60.00	577.10	0.49	0.0	0.0	485.80	415.58
	3.070	70.00	1438.00	585.36	585.57	10.80	60.00	577.10	0.21	0.0	0.0	437.54	389.90
	3.130	60.00	2678.00	586.13	586.73	26.97	60.00	575.90	0.60	0.0	0.0	515.62	432.60
	3.130	60.00	2678.00	586.15	586.74	32.07	60.00	575.90	0.59	518.00	578.00	472.92	433.31
	3.130	60.00	3416.00	586.54	587.41	36.80	60.00	575.90	0.87	0.0	0.0	563.11	456.60
	3.130	60.00	2334.00	585.94	586.42	22.36	60.00	575.90	0.48	0.0	0.0	493.63	421.21
	3.130	60.00	1438.00	585.42	585.64	10.91	60.00	575.90	0.21	0.0	0.0	435.36	390.09
	3.200	70.00	2678.00	586.73	586.85	5.83	200.00	576.70	0.12	480.00	680.00	1109.55	1165.55
	3.200	70.00	2678.00	586.75	586.87	5.77	200.00	576.70	0.12	480.00	680.00	1114.99	1169.53
"E"	3.200	70.00	3416.00	587.42	587.58	6.85	200.00	576.70	0.16	480.00	680.00	1305.01	1303.92
	3.200	70.00	2334.00	586.42	586.52	5.18	200.00	576.70	0.11	480.00	680.00	1025.81	1103.16
	3.200	70.00	1438.00	585.63	585.69	3.02	200.00	576.70	0.06	480.00	680.00	827.58	946.05
	3.800	600.00	2678.00	586.92	587.81	40.21	161.22	576.70	0.89	0.00	582.00	422.34	444.85
	3.800	600.00	2678.00	586.94	587.82	39.80	162.79	576.70	0.88	0.00	582.00	424.50	447.76
"F"	3.800	600.00	3416.00	587.66	588.67	42.59	226.65	576.70	1.00	0.00	582.00	523.41	589.32
	3.800	600.00	2334.00	586.60	587.38	36.55	133.29	576.70	0.78	0.00	582.00	386.07	398.03
	3.800	600.00	1438.00	585.76	586.18	22.26	82.69	576.70	0.42	0.00	582.00	304.81	312.80
	4.500	950.00	2669.00	588.35	588.37	1.83	560.99	578.60	0.02	0.0	0.0	1970.88	2772.44
	4.500	950.00	2669.00	588.37	588.39	1.92	493.57	578.60	0.02	219.94	713.51	1924.00	2647.10
"G"	4.500	950.00	3400.00	589.21	589.23	1.82	576.14	578.60	0.02	0.0	0.0	2517.26	3263.63
	4.500	950.00	2327.00	587.90	587.92	1.85	553.13	578.60	0.02	0.0	0.0	1711.35	2522.51
	4.500	950.00	1439.00	586.62	586.64	1.83	530.68	578.60	0.02	0.0	0.0	1064.21	1828.67
	5.200	700.00	2669.00	588.35	588.79	21.12	100.00	578.60	0.44	400.00	500.00	580.79	555.90
	5.200	700.00	2669.00	588.40	588.83	20.69	100.00	578.60	0.43	400.00	500.00	586.83	559.97
"H"	5.200	700.00	3400.00	589.15	589.70	23.37	100.00	578.60	0.55	400.00	500.00	703.25	635.14
	5.200	700.00	2327.00	587.94	588.32	19.97	100.00	578.60	0.38	400.00	500.00	520.78	514.50
	5.200	700.00	1439.00	586.75	586.98	15.57	100.00	578.60	0.24	400.00	500.00	364.74	395.35
	5.280	77.00	2669.00	588.45	589.01	19.78	50.00	578.90	0.57	0.0	0.0	600.10	442.41
	5.280	77.00	2669.00	588.51	589.07	25.98	50.00	578.90	0.56	430.00	480.00	523.62	445.76
	5.280	77.00	3400.00	589.22	589.99	24.56	50.00	578.90	0.78	0.0	0.0	686.01	481.19
	5.280	77.00	2327.00	588.04	588.51	17.51	50.00	578.90	0.47	0.0	0.0	556.13	421.86
	5.280	77.00	1439.00	586.84	587.09	10.93	50.00	578.90	0.24	0.0	0.0	435.29	362.30
	5.320	46.00	2669.00	588.56	589.12	23.96	50.00	578.90	0.55	0.0	0.0	545.21	447.69
	5.320	46.00	2669.00	588.63	589.17	25.00	50.00	578.90	0.54	306.00	356.00	533.76	451.55
	5.320	46.00	3400.00	589.67	590.38	21.18	50.00	578.90	0.71	0.0	0.0	738.79	504.23
	5.320	46.00	2327.00	588.13	588.59	16.86	50.00	578.90	0.46	0.0	0.0	566.72	426.86
	5.320	46.00	1439.00	586.89	587.14	10.67	50.00	578.90	0.24	0.0	0.0	440.55	365.00
	5.960	77.00	2669.00	589.16	589.22	3.63	204.00	578.30	0.06	223.00	427.00	1401.76	1544.64
	5.960	77.00	2669.00	589.21	589.27	3.55	204.00	578.30	0.06	223.00	427.00	1417.15	1555.40
"I"	5.960	77.00	3400.00	590.43	590.50	3.61	204.00	578.30	0.07	223.00	427.00	1788.92	1803.08
	5.960	77.00	2327.00	588.63	588.68	3.46	204.00	578.30	0.06	223.00	427.00	1250.67	1436.52
	5.960	77.00	1439.00	587.16	587.19	2.75	204.00	578.30	0.03	223.00	427.00	867.53	1136.49

	SECNO	XLCH	Q	CWSEL	EG	10K*S	TOPWID	ELMIN	HV	STENCL	STENCR	.01K	AREA
	6.550	590.00	2669.00	589.30	589.31	0.78	581.85	579.00	0.01	0.0	0.0	3019.02	3771.51
	6.550	590.00	2669.00	589.36	589.37	0.80	539.38	579.00	0.01	178.28	717.66	2981.99	3673.93
	6.550	590.00	3400.00	590.58	590.59	0.72	588.03	579.00	0.01	0.0	0.0	4018.93	4515.89
	6.550	590.00	2327.00	588.77	588.77	0.78	579.23	579.00	0.01	0.0	0.0	2632.89	3458.88
	6.550	590.00	1439.00	587.27	587.27	0.73	571.95	579.00	0.01	0.0	0.0	1679.65	2595.79
	7.360	910.00	2669.00	589.39	589.40	1.26	577.41	580.00	0.01	0.0	0.0	2377.71	3242.26
	7.360	910.00	2669.00	589.44	589.46	1.29	523.92	580.00	0.01	184.69	708.61	2351.65	3136.44
"J"	7.360	910.00	3400.00	590.65	590.67	1.07	583.55	580.00	0.01	0.0	0.0	3281.63	3975.23
	7.360	910.00	2327.00	588.85	588.87	1.31	574.81	580.00	0.01	0.0	0.0	2031.70	2933.10
	7.360	910.00	1439.00	587.35	587.36	1.45	565.34	580.00	0.01	0.0	0.0	1194.18	2076.80
	8.360	1000.00	2669.00	589.52	589.54	1.63	516.61	580.40	0.02	418.00	976.00	2093.34	2883.39
	8.360	1000.00	2669.00	589.58	589.59	1.58	516.76	580.40	0.02	418.00	976.00	2125.20	2911.16
	8.360	1000.00	3400.00	590.77	590.78	1.39	520.14	580.40	0.02	418.00	976.00	2880.76	3527.67
	8.360	1000.00	2327.00	588.99	589.01	1.69	515.10	580.40	0.02	418.00	976.00	1789.21	2609.10
	8.360	1000.00	1439.00	587.51	587.52	1.86	503.12	580.40	0.01	418.00	976.00	1054.90	1849.09
	9.060	700.00	2669.00	589.56	589.90	16.80	131.00	580.70	0.34	593.00	724.00	651.26	693.46
	9.060	700.00	2669.00	589.61	589.94	16.36	131.00	580.70	0.33	593.00	724.00	659.90	700.08
"K"	9.060	700.00	3400.00	590.78	591.09	13.83	761.33	580.70	0.31	593.00	724.00	914.33	1153.40
	9.060	700.00	2327.00	589.05	589.37	16.84	131.00	580.70	0.32	593.00	724.00	566.98	626.85
	9.060	700.00	1439.00	587.63	587.87	16.02	131.00	580.70	0.24	593.00	724.00	359.49	440.09
	9.150	86.00	2669.00	589.73	590.04	14.23	74.00	580.80	0.31	608.00	682.00	707.46	602.19
	9.150	86.00	2669.00	589.78	590.08	14.00	74.00	580.80	0.30	608.00	682.00	713.40	605.46
	9.150	86.00	3400.00	591.25	591.34	51.88	1319.78	580.80	0.09	608.00	682.00	472.06	2070.30
	9.150	86.00	2327.00	589.24	589.50	13.11	74.00	580.80	0.26	608.00	682.00	642.61	565.95
	9.150	86.00	1439.00	587.85	588.00	9.41	74.00	580.80	0.15	608.00	682.00	469.04	462.57
	9.260	110.00	2669.00	590.06	590.34	12.59	74.00	580.80	0.28	526.00	600.00	752.27	626.63
*	9.260	110.00	2669.00	590.11	590.39	12.39	74.00	580.80	0.28	526.00	600.00	758.28	629.88
	9.260	110.00	3400.00	591.61	591.68	22.62	941.74	580.80	0.07	526.00	600.00	714.85	2385.94
	9.260	110.00	2327.00	589.46	589.71	12.02	74.00	580.80	0.25	526.00	600.00	671.10	582.01
	9.260	110.00	1439.00	587.84	587.99	9.42	74.00	580.80	0.15	526.00	600.00	468.93	462.51
	9.310	114.00	2588.00	590.39	590.43	2.74	302.00	580.90	0.04	427.00	729.00	1564.51	1904.39
	9.310	114.00	2588.00	590.43	590.47	2.68	302.00	580.90	0.04	427.00	729.00	1580.10	1916.48
	9.310	114.00	3280.00	591.71	591.74	2.14	940.17	580.90	0.03	427.00	729.00	2239.82	2809.25
	9.310	114.00	2265.00	589.75	589.79	2.92	302.00	580.90	0.04	427.00	729.00	1324.83	1711.95
	9.310	114.00	1420.00	588.03	588.07	3.47	302.00	580.90	0.04	427.00	729.00	762.56	1193.55
	9.360	114.00	2588.00	590.44	590.45	0.96	530.00	580.90	0.01	313.00	843.00	2644.66	3373.72
	9.360	114.00	2588.00	590.47	590.49	0.94	530.00	580.90	0.01	313.00	843.00	2670.28	3394.04
"L"	9.360	114.00	3280.00	591.75	591.76	0.79	940.61	580.90	0.01	313.00	843.00	3678.80	4419.39
	9.360	114.00	2265.00	589.80	589.81	1.03	530.00	580.90	0.01	313.00	843.00	2232.92	3035.74
	9.360	114.00	1420.00	588.08	588.09	1.25	530.00	580.90	0.01	313.00	843.00	1270.06	2126.62
	10.960	1600.00	2588.00	590.60	590.60	1.01	803.42	581.20	0.01	450.00	1298.00	2576.97	3903.85
	10.960	1600.00	2588.00	590.63	590.64	0.99	803.52	581.20	0.01	450.00	1298.00	2607.04	3932.32
"M"	10.960	1600.00	3280.00	591.88	591.89	0.76	806.74	581.20	0.01	450.00	1298.00	3752.75	4935.12
	10.960	1600.00	2265.00	589.98	589.99	1.19	801.82	581.20	0.01	450.00	1298.00	2075.74	3407.59
	10.960	1600.00	1420.00	588.34	588.35	2.12	797.57	581.20	0.01	450.00	1298.00	974.66	2095.80

	SECNO	XLCH	Q	CWSEL	EG	10K*S	TOPWID	ELMIN	HV	STENCL	STENCR	.01K	AREA
	11.660	700.00	2588.00	590.73	590.77	4.34	348.50	581.30	0.04	380.00	813.00	1242.30	1784.56
	11.660	700.00	2588.00	590.77	590.81	4.26	348.61	581.30	0.04	380.00	813.00	1254.60	1795.88
	11.660	700.00	3280.00	591.98	592.02	3.47	362.95	581.30	0.04	380.00	813.00	1759.90	2232.10
"N"	11.660	700.00	2265.00	590.14	590.18	4.86	346.57	581.30	0.04	380.00	813.00	1027.23	1578.72
	11.660	700.00	1420.00	588.61	588.65	6.50	341.57	581.30	0.04	380.00	813.00	556.93	1052.46
	13.160	1500.00	2588.00	591.40	591.45	4.65	395.20	582.20	0.05	500.00	954.00	1199.54	1771.84
	13.160	1500.00	2588.00	591.42	591.47	4.59	395.24	582.20	0.05	500.00	954.00	1208.11	1780.31
	13.160	1500.00	3280.00	592.51	592.57	3.81	396.99	582.20	0.05	500.00	954.00	1681.25	2215.10
"O"	13.160	1500.00	2265.00	590.88	590.93	5.13	394.37	582.20	0.06	500.00	954.00	1000.33	1566.75
	13.160	1500.00	1420.00	589.55	589.61	6.24	391.09	582.20	0.06	500.00	954.00	568.36	1045.25
	15.360	2200.00	2588.00	593.12	593.93	38.27	99.82	583.40	0.80	135.00	240.00	418.37	432.21
	15.360	2200.00	2588.00	593.12	593.93	38.32	99.81	583.40	0.81	135.00	240.00	418.08	431.96
	15.360	2200.00	3280.00	593.86	594.82	42.37	101.34	583.40	0.97	135.00	240.00	503.88	505.95
"P"	15.360	2200.00	2265.00	592.78	593.49	35.18	99.11	583.40	0.71	135.00	240.00	381.86	398.39
	15.360	2200.00	1420.00	591.73	592.17	24.93	80.79	583.40	0.43	135.00	240.00	284.41	300.53
	15.420	60.00	2588.00	593.31	594.18	38.80	68.00	583.40	0.87	154.00	222.00	415.46	390.07
	15.420	60.00	2588.00	593.30	594.18	38.83	68.00	583.40	0.87	154.00	222.00	415.29	389.95
	15.420	60.00	3280.00	594.00	595.14	46.11	68.00	583.40	1.14	154.00	222.00	483.04	436.92
	15.420	60.00	2265.00	592.97	593.71	34.80	68.00	583.40	0.75	154.00	222.00	383.97	367.07
	15.420	60.00	1420.00	591.88	592.31	23.78	68.00	583.40	0.43	154.00	222.00	291.18	293.09
	15.450	25.00	2588.00	593.70	594.31	22.86	48.00	583.00	0.60	0.0	0.0	541.26	415.33
	15.450	25.00	2588.00	593.72	594.32	29.49	48.00	583.00	0.60	168.00	216.00	476.58	415.90
	15.450	25.00	3280.00	594.48	595.29	27.92	48.00	583.00	0.82	0.0	0.0	620.78	452.51
	15.450	25.00	2265.00	593.32	593.83	20.25	48.00	583.00	0.51	0.0	0.0	503.32	396.94
	15.450	25.00	1420.00	592.11	592.39	13.26	48.00	583.00	0.27	0.0	0.0	389.99	338.90
	15.480	42.00	2588.00	593.82	594.40	21.95	48.00	583.00	0.59	0.0	0.0	552.41	420.65
	15.480	42.00	2588.00	593.83	594.41	28.40	48.00	583.00	0.59	168.00	216.00	485.62	421.19
	15.480	42.00	3280.00	594.62	595.41	26.64	48.00	583.00	0.79	0.0	0.0	635.47	459.20
"Q"	15.480	42.00	2265.00	593.42	593.91	19.51	48.00	583.00	0.49	0.0	0.0	512.76	401.56
	15.480	42.00	1420.00	592.17	592.44	12.90	48.00	583.00	0.27	0.0	0.0	395.41	341.80

SUMMARY OF ERRORS

NOTE SECNO= 3.000 PROFILE= 1 WSEL BASED ON X5 CARD
NOTE SECNO= 3.000 PROFILE= 2 WSEL BASED ON X5 CARD
NOTE SECNO= 3.000 PROFILE= 3 WSEL BASED ON X5 CARD
NOTE SECNO= 3.000 PROFILE= 4 WSEL BASED ON X5 CARD
NOTE SECNO= 3.000 PROFILE= 5 WSEL BASED ON X5 CARD

NOTE SECNO= 9.260 PROFILE= 2 WSEL BASED ON X5 CARD

FLOODPLAIN BOUNDARY

FLOODWAY BOUNDARY

WHERE THE BOUNDARIES ARE COLINEAR OR CLOSE TOGETHER, ONLY THE FLOODPLAIN BOUNDARY IS SHOWN

PREVIOUS FLOODWAY

PREVIOUS FLOODPLAIN

NORTH

627 AVE

FLOODPLAIN

Rac

Picnic Area

3.43 "I"

3.57 "AA"

3.68 "BB"

3.78 "CC"

3.83 "DD"

3.90 "EE"

3.95 "FF"

4.01 "GG"

"HH" 4.09

"II" 4.15

"JJ" 4.25

EAGLE POINTE MARINA

01	REVISE FLOODWAY BOUNDARY	JAB	10/22/91
NO.	REVISION DESCRIPTION:	BY:	DATE:

THE ABONMARCHE GROUP
95 West Main Street, Benton Harbor, Michigan (616) 927-2295
601 Franklin Street, Michigan City, Indiana (219) 879-1109
ARCHITECTS / ENGINEERS / LAND SURVEYORS
ENVIRONMENTAL / INTERIOR DESIGN / REAL ESTATE SERVICES

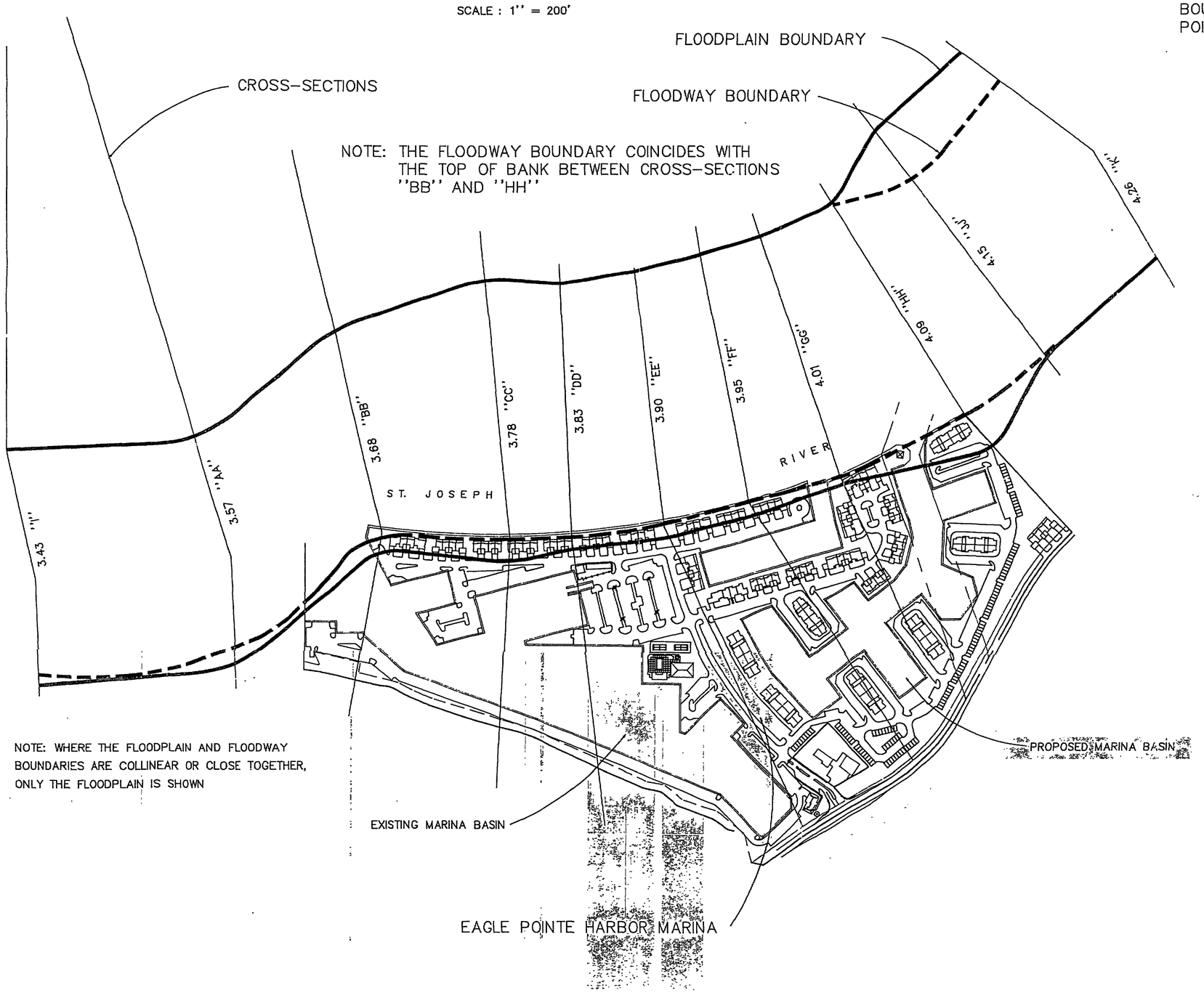
EXHIBIT 1
FLOOD BOUNDARY AND FLOODWAY MAP
EAGLE POINTE HARBOR
ST. JOSEPH RIVER

SCALES: VERTICAL: HORIZONTAL: 1" = 200'	SHEET 1
DATE: 4/22/91	
DESIGNED: JAB	
DRAWN: JAB	
APPROVED: JAB	
JOB NO. 90-582.BRD	OF 1 SHEETS

EXHIBIT 2
FLOODPLAIN AND FLOODWAY
BOUNDARY MAP ON EAGLE
POINTE MARINA SITE PLAN

N

SCALE : 1'' = 200'



NOTE: WHERE THE FLOODPLAIN AND FLOODWAY BOUNDARIES ARE COLLINEAR OR CLOSE TOGETHER, ONLY THE FLOODPLAIN IS SHOWN

NO.	REVISION DESCRIPTION:	BY:	DATE:
01	REVISE FLOODWAY BOUNDARY	JAB	10/22/91

THE ABONMARCHE GROUP
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ARCHITECTS / ENGINEERS / LAND SURVEYORS
ENVIRONMENTAL / INTERIOR DESIGN / REAL ESTATE SERVICES

FLOODWAY STUDY
ST. JOSEPH RIVER AT EAGLE POINTE HARBOR
ST. JOSEPH CHARTER TOWNSHIP
BERRIEN COUNTY, MICHIGAN

SCALES: VERTICAL: HORIZONTAL: 1" = 200'	SHEET 1
DATE: 3/20/91	
DESIGNED: JAB	
DRAWN: GMK	
APPROVED: JAB	
JOB NO. 90-582.BAS	OF 1 SHEETS

TOWNSHIP OF ST. JOSEPH

BERRIEN COUNTY, MICHIGAN

WORK MAP

PREPARED BY

WILLIAMS & WORKS, INC.

GRAND RAPIDS, MICHIGAN

FOR

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

FEDERAL INSURANCE ADMINISTRATION

1000 0 1000 2000

SCALE IN FEET

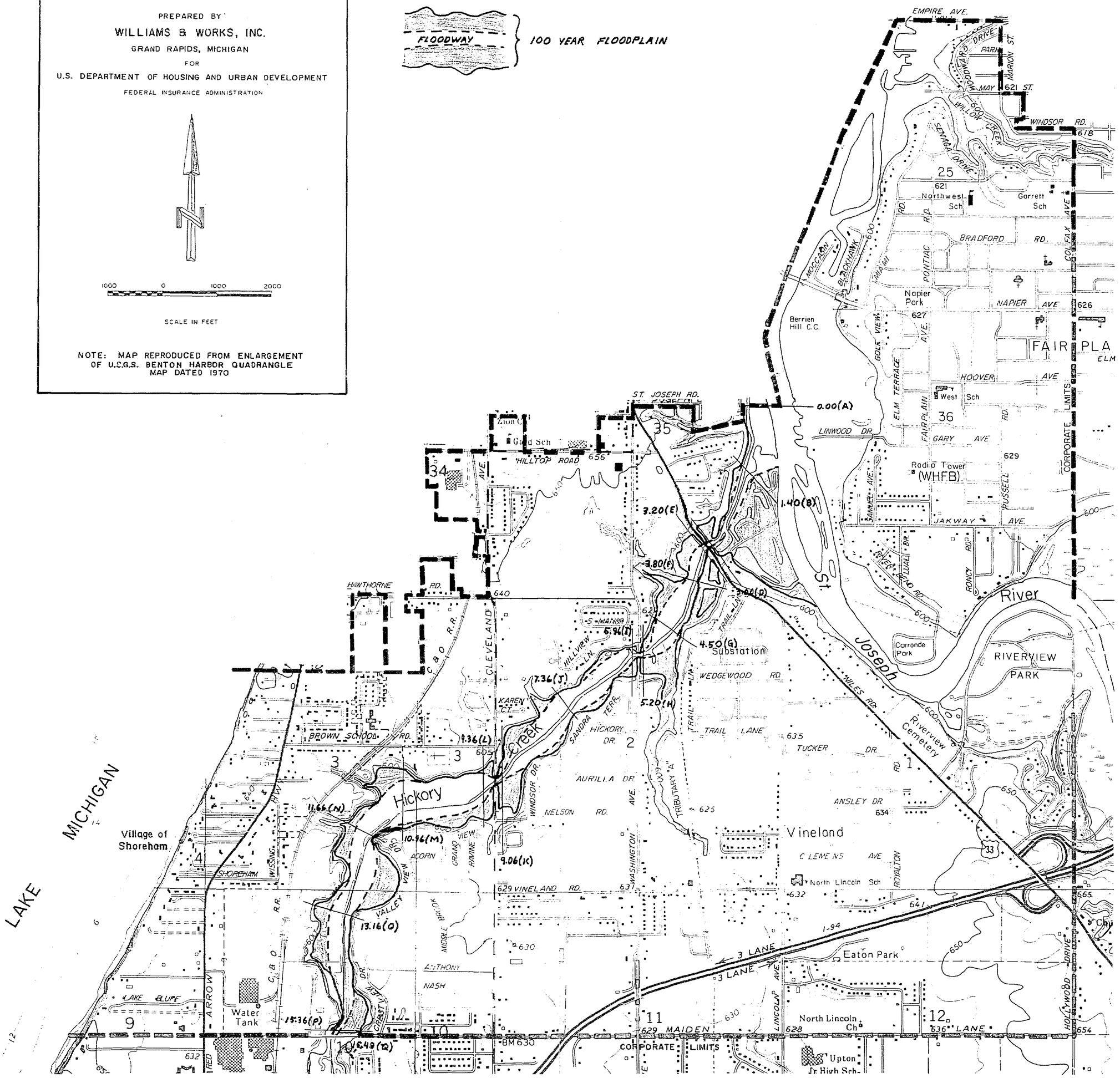
NOTE: MAP REPRODUCED FROM ENLARGEMENT OF U.S.G.S. BENTON HARBOR QUADRANGLE MAP DATED 1970

HICKORY CREEK HYDRAULICS

(AS REVISED 8-1-78)

F.20(H) ——— CROSS-SECTION

FLOODWAY } 100 YEAR FLOODPLAIN





1) COUNTY: BERRIEN

2) STUDY NAME: ST. JOSEPH TWP

3) WATERCOURSE: ST. JOSEPH RIVER

4) DOCUMENT TYPE: REPORT



HYDRAULIC ANALYSIS

ST. JOSEPH RIVER
CHARTER TOWNSHIP OF ST. JOSEPH
BERRIEN COUNTY
MICHIGAN

ENGINEER:

ABONMARCHE CONSULTANTS, INC.
95 W. MAIN STREET
BENTON HARBOR, MI 49022
(616) 927-2295

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OCT 3 1 1991

NATURAL RESOURCES
LAND & WATER MGMT.

REVISION 1
OCTOBER 1991

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EXHIBITS

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Exhibit 2 - Flood Plain and Floodway Boundary Map (Eagle Pointe Harbor)
Exhibit 3 - 100 Year Flood Profile
Exhibit 4 - Overbank Photographs

1.0 INTRODUCTION

1.1 Purpose of Study

The purpose of this hydraulic study is to more accurately define the St. Joseph River 100 year flood plain and floodway boundaries in the area of Eagle Pointe Harbor Marina, in the Charter Township of St. Joseph, Michigan (Berrien County).

A previous Flood Insurance Study for the Charter Township of St. Joseph was prepared in December 1979 by the firm of Williams & Works, Inc., Grand Rapids, Michigan (Reference 1). Due to the study's large reach lengths in the vicinity of the marina (1850 and 2530 feet) and changes in the river channel and overbank cross-sections (i.e., channel islands and marina basins), this study was performed to more accurately define the flood plain and floodway boundaries of the St. Joseph River in the area of the marina.

1.2 Project Authorization

This hydraulic study was authorized by:

Eagle Pointe Harbor Associates
41700 Conger Bay Drive
Mt. Clemens, Michigan 48045

1.3 Scope of Study

The scope of this study is limited to determining the 100-year flood plain and floodway boundaries of the St. Joseph River, in the Charter Township of St. Joseph, between previously surveyed cross-section "I" and "K", as defined in Reference 2 (see Figure 1). In addition to cross-sections "I" and "K", nine (9) new cross-sections were surveyed to determine the boundaries (see Figure 2).

2.0 ENGINEERING METHODS

2.1 Computer Analysis Program

This study utilized the U.S. Army Corps of Engineers (USCOE), Hydrologic Engineering Center, HEC-2 Water Surface Profiles Computer Analysis Program (Reference 3) to calculate water surface profiles.

2.2 Hydrologic Analyses

Hydrologic analyses were performed to determine the peak discharge-frequency relationships for floods of selected recurrence intervals for the St. Joseph River

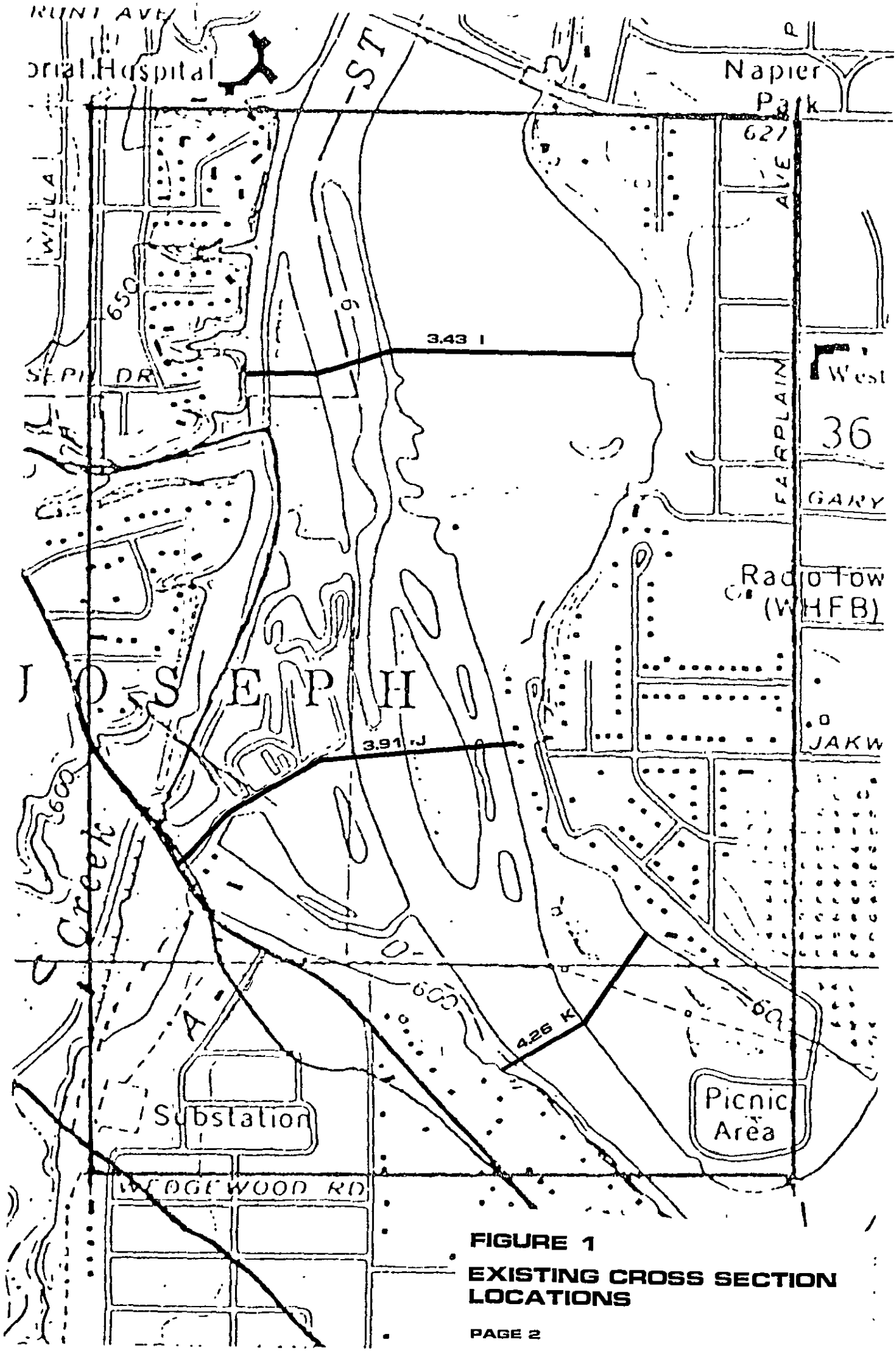

FIGURE 1

EXISTING CROSS SECTION LOCATIONS

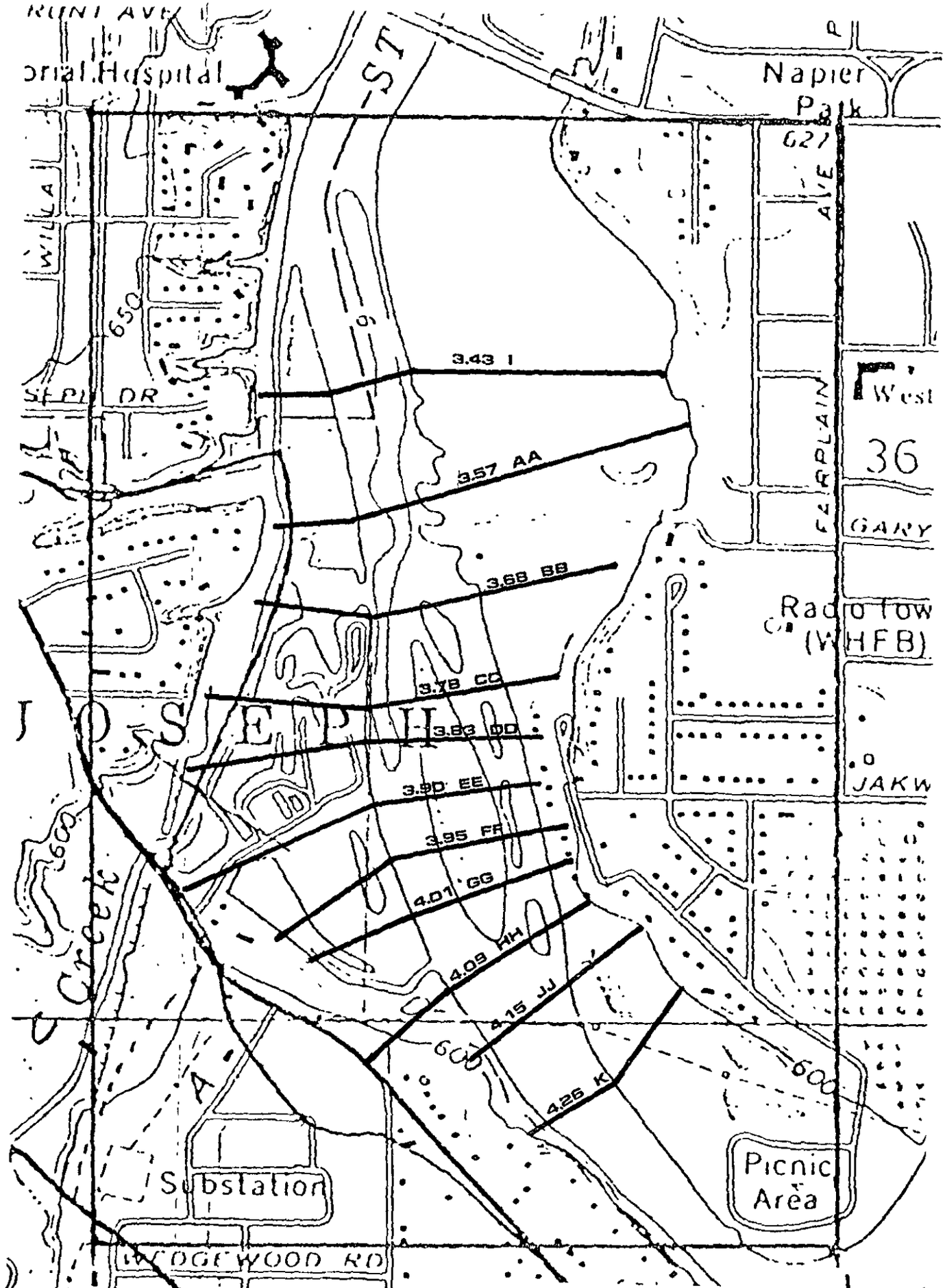

FIGURE 2

NEW CROSS SECTION LOCATIONS

and Hickory Creek, in the Charter Township of St. Joseph.

Flood flow data for the St. Joseph River were obtained from the previous hydraulic analysis conducted by the firm of Johnson and Anderson, Inc., which was in turn utilized by the firm of Williams & Works, Inc. in the preparation of their hydraulic study. The analyses were performed in conjunction with Flood Insurance Studies for the City of St. Joseph and the Township of Royalton (Reference 4 and 5 respectively).

The peak discharge used in this study for the 100-year flood event on the St. Joseph River was 23,280 cubic feet per second (CFS), at cross-section "I". The discharge was reduced to 23,190 CFS (as was done in Reference 2) at cross-section "AA" to take into consideration of the in flow of Hickory Creek into the St. Joseph River downstream of cross-section "I".

2.3 Hydraulic Analyses

To determine the elevations of the 100-year flood event, an analysis of the hydraulic characteristics of the St. Joseph River was performed.

A total of eleven (11) cross-sections were utilized in the preparation of the St. Joseph River model in this study. Two (2) cross-sections ("I" and "K" surveyed in 1975) were taken from the previous hydraulic analysis, and represent the starting and ending point of this analysis. Nine (9) additional cross-sections were surveyed between "I" and "K", in March 1991. Locations of the cross-sections are shown on Figure 2.

Roughness coefficients of the channel and overbanks of the St. Joseph River were determined by a comparison with the previous hydraulic analysis and upon a comparison of the existing field conditions with descriptions presented in References 6, 7, and 8. The coefficient ranged from 0.033 to 0.035 for the river, and from 0.030 to 0.100 for the overbank. The coefficient for the Hickory Creek channel was determined to be 0.045, as used in the previous hydraulic analysis.

Water surface elevations for the 100-year flood event on the St. Joseph River were computed using the USCOE HEC-2 computer program. The starting water surface elevation at cross-section "I" was 584.67, as obtained from the computed water surface elevation of the 100-year flood for the Charter Township of St. Joseph (Reference 2).

Expansion and contraction coefficients used in this study were 0.3 and 0.1, respectively.

Artificial encroachments were utilized in this study to prevent flow to low overbank areas until the water surface elevation had risen above the high points on the overbanks. Also, it was assumed that the marina basins and inlet basin do not convey flow as there are no avenues for the water to flow between basins.

The hydraulic analysis for this study is based upon unobstructed flow. The flood elevations shown are considered valid only if the hydraulic structures, in general, remain unobstructed and if the channel and overbank conditions remain essentially the same as determined during this study.

All elevations are referenced from National Geodetic Vertical Datum of 1929 (NGVD).

3.0 DISCUSSIONS

3.1 Channel and Overbank Description

The St. Joseph River, within the scope of this study, flows in a curvulas direction, with an approximate radius of 2000 feet. The channel width is approximately 500 feet at the downstream location (cross-section "I"), widens to approximately 900 feet at the marina (cross-section "EE"), and is reduced to approximately 400 feet at the upstream location (cross-section "K"). In the area, there is one large island (approximately 350 feet wide) and four small islands (approximately 30 - 80 feet wide), which split the river flow during "normal" flow. The channel itself has a silty bottom, with weeds and brush at the banks, and stone rip-rap on the banks of the marina. The overbank areas range from manicured lawns (golf course, residential areas, and marina area) to wooded with heavy brush (islands and areas east of river). (See Exhibit 4 for photographs of overbank conditions). Also, in the marina, several basins exist for the storage of boats, and are dredged to a depth of approximately 572.0. The configuration of the existing basins closely resemble the basins as outlined in the previous study.

3.2 Flood Boundary

The boundary of the 100-year flood has been delineated using the elevations determined at each cross-section. The boundary was interpolated between cross-sections, using topographic maps photo enlarged to a scale of 1" = 200', with contour intervals of 10 feet (Reference 9).

The boundary of the 100-year flood is shown on the Flood Boundary and Floodway Map (Exhibit 1). Small areas within the flood boundaries may lie above the flood elevations, and therefore not subject to flooding. However, due to the lack of topographic information or to limitations of the map scale, such areas are not shown. A map further delineated the boundary at Eagle Pointe Marina is shown on Exhibit 2. A profile showing the river bottom, water surface elevation, and energy grade line is shown on Exhibit 3.

3.3 Floodways

The area of the 100-year flood is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent flood plain areas, which must be kept free of encroachment in order that the 100-year flood be carried without substantial increases in flood heights. In Michigan, under Michigan Act 245, Public Acts of 1929, as amended by Act 167, Public Acts of 1968 (Reference 10), encroachment in the flood plain is limited to that which will cause only an insignificant increase in flood heights. For this study, a floodway having no more than 0.1 foot surcharge has been utilized.

The floodway computations were made on the basis of equal conveyance reductions from each side of the flood plain. The results of these computations at the selected cross-sections are shown in Table 1.

The boundaries of the floodway were determined at the selected cross-sections, and interpolated between cross-sections, as shown on the Flood Boundary and Floodway Map (Exhibits 1 and 2). Where the boundaries of the floodway and the 100-year flood plain are either close together or collinear, only the flood plain boundary has been shown.

The 100-year flood plain is separated into the floodway and floodway fringe. The floodway fringe encompasses the portion of the flood plain which could be totally obstructed without increasing the water surface elevation of the 100-year flood more than 0.1 foot at any point. A typical relationship between the floodway, the floodway fringe, and the significance to flood plain development is shown in Figure 3.

TABLE 1 - FLOODWAY DATA
ST. JOSEPH RIVER

CROSS SECTION [1]	SECTION	FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
		WIDTH (FT)	SECTION AREA (SQ. FT)	MEAN VELOCITY (FT/SEC)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT)
3.43	I	829	6304	3.7	584.7	584.7	584.7	0.0
3.57	AA	884	6131	3.8	584.9	584.9	584.9	0.0
3.68	BB	849	6922	3.4	585.2	585.2	585.2	0.0
3.78	CC	1100	7612	3.0	585.4	585.4	585.4	0.0
3.83	DD	999	7049	3.3	585.5	585.5	585.5	0.0
3.90	EE	1013	6869	3.4	585.6	585.6	585.6	0.0
3.95	FF	1008	6381	3.6	585.7	585.7	585.7	0.0
4.01	GG	1007	7047	3.3	585.8	585.8	585.8	0.0
4.09	HH	949	8021	2.9	586.0	586.0	586.0	0.0
4.15	JJ	804	7325	3.2	586.1	586.1	586.1	0.0
4.26	K	912	6261	3.7	586.1	586.1	586.1	0.0

1. Miles above mouth

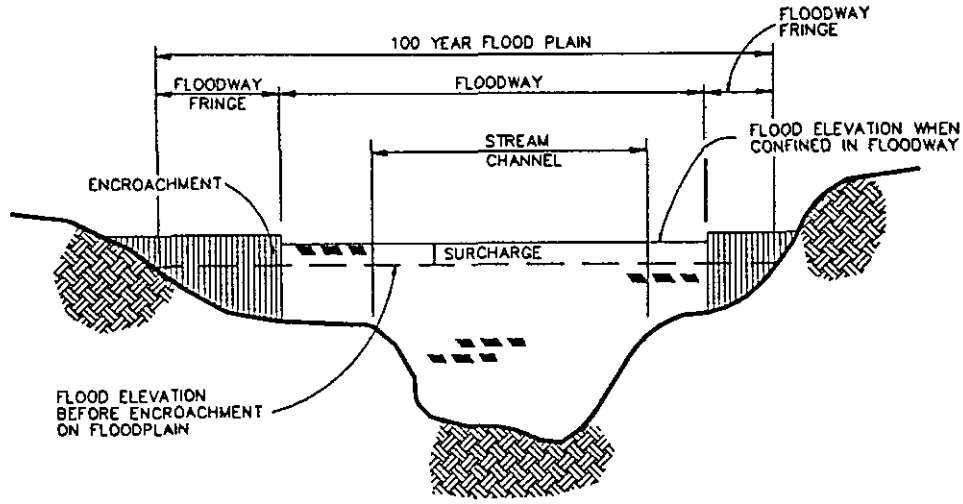

Figure 3 - Floodway Schematic

3.4 Results

Through the checking of the accuracy of the previous study's data and methodology, a surveying error was discovered on the large island in the river (previous cross-section "J" of Reference 2). The previous survey at cross-section "J" had showed that a 71 foot wide strip (station 2190 to 2261) on the island was above elevation 587.2, with one point as high as 594.4. However, through a thorough resurvey of the island, the highest point was found to be approximately 587.0.

The flood elevations presented in this study are compatible to those presented in the previous hydraulic study prepared for the Charter Township of St. Joseph (Reference 1). The starting water surface elevation utilized in this study (584.67) at cross-section "I" was the computed water elevation at cross-section "I" in the previous study, for the 100-year flood event. The final computed water surface elevation at cross-section "K" in this study is 586.13, compared to the computed water surface elevation of 586.11 at cross-section "K" in the previous study.

The completed floodway width in this study was found to be closer to the river channel, as compared to the previous study. However, this is due to the increased accuracy of the results due to the increased number of cross-sections and the fact that an error existed in the previous survey, which in essence, extended over a 2200 feet length of the river.

The floodway boundary on the east side of the river at cross-section "CC" was adjusted to coincide with the boundary as delineated in the previous study by Williams & Works, Inc., rather than extending further eastward as our results indicate. Also, the floodway boundary on the west side of the river was adjusted from cross-sections "BB" to "GG" to coincide with the existing river top of bank. This adjustment is due to the analysis determining that for these cross-sections, a maximum of only 0.3% of the river flow is located in the overbank area. Therefore, the elimination of the flow in the overbank area, between these cross-sections, will not significantly increase the computed water surface elevations.

Therefore, this study should supersede, in the area studied, all previous studies published for the St. Joseph River, and should be considered authoritative for the purposes of the National Flood Insurance Program.

REFERENCES AND BIBLIOGRAPHY

1. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Insurance Study, Charter Township of St. Joseph, Michigan, December 1979.

2. Williams & Works, Inc., Hydraulic Analysis of St. Joseph River in Charter Township of St. Joseph, Michigan.

3. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles Computer Analysis Program, Version 4.6.0, February 1991.

4. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Insurance Study, City of St. Joseph, Michigan, February 1978.

5. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Insurance Study, Township of Royalton, Michigan, December 1977.

6. Chow, Ven Te, Open-Channel Hydraulics, McGraw-Hill Book Company, Inc., New York, 1959.

7. Henderson, F.M., Open Channel Flow, MacMillian Co., New York, 1966.

8. U.S. Department of Agriculture, Soil Conservation Service, Guide for Selecting Roughness Coefficient "n" Values for Channels, Lincoln, Nebraska, December 1963.

9. U.S. Geological Survey, 7.5 Minute Series Topographic Map, Scale 1:24,000, Contour Interval 10 feet: SW/4 Benton Harbor Quadrangle, Michigan, 1970.

10. State of Michigan, Floodplain Control Act of 1968, Act 245, P.A. 1929 as amended by Act 167, P.A. 1968, Michigan Water Resources Commission, Lansing, Michigan, 1968.

EXHIBITS 1, 2, AND 3

DRAWINGS

Remainder of file in
PCU - 90-12-310

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ABONMARCHE
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NATURAL RESOURCES
LAND & WATER MGMT.

Mary Ann Dolehanty
Michigan Department of Natural Resources
Floodplain Regulation
Land and Water Management Division
P.O. Box 30028
Lansing, Michigan 48909

Re: Eagle Pointe Harbor, St. Joseph Charter Township, Michigan
Project No. 90-582

Dear Ms. Dolehanty:

Enclosed please find for your approval the revised Hydraulic Analysis, dated October 1991, for Eagle Pointe Harbor, in St. Joseph Charter Township, Michigan.

In accordance with our telephone conversation on October 16, we have revised the floodway boundary for the St. Joseph River in the vicinity of Eagle Pointe Harbor. Included are revising the eastern boundary at cross-section "CC" to coincide with the previous study performed by Williams & Works, Inc., and revising the western boundary from cross-sections "BB" to "GG" to coincide with the existing river's top of bank. The latter revision is due to the analysis determining that for these cross-sections, a maximum of only 0.3% of the river flow is located in the overbank area. Therefore, the water surface elevation of the river will not increase significantly due to the elimination of the overbank flow between these cross-sections.

Should you have any questions regarding our analysis, please do not hesitate to contact our Benton Harbor office.

Sincerely,

ABONMARCHE CONSULTANTS, INC.

Jeffrey A. Bartoszek, P.E.
Director of Engineering

JAB/skd

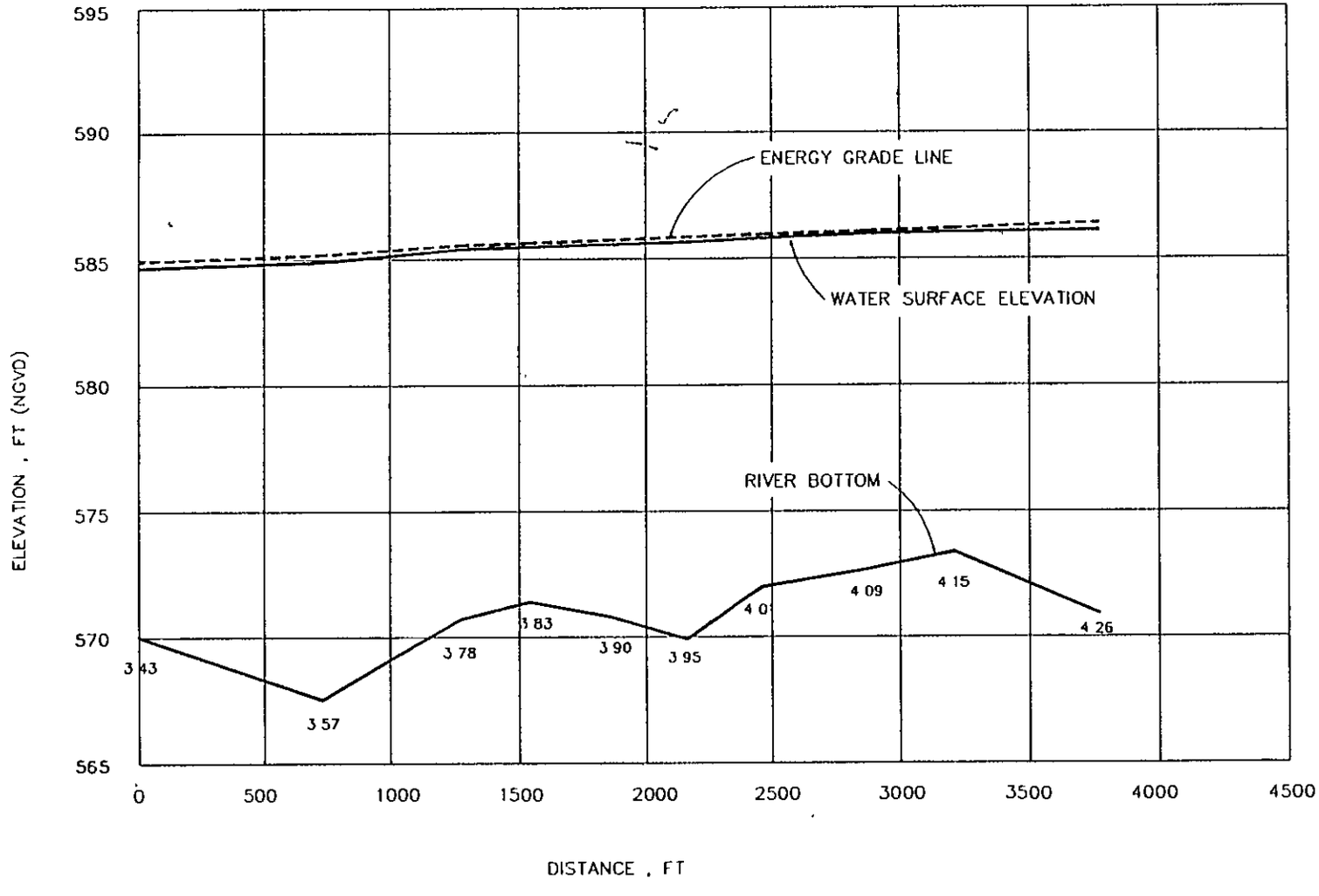
Encl.

cc: Marc Howard, Eagle Pointe Harbor
Isadore DiMaggio, St. Joseph Charter Township

EXHIBIT 3

100 YEAR FLOOD PROFILE

ST JOSEPH RIVER
100 YEAR FLOOD



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HYDRAULIC PROFILE
ST JOSEPH RIVER
EAGLE POINTE HARBOR
ST JOSEPH TOWNSHIP, MICHIGAN

REVISIONS

SHEET 1 of 1 sheets

EXHIBIT 4

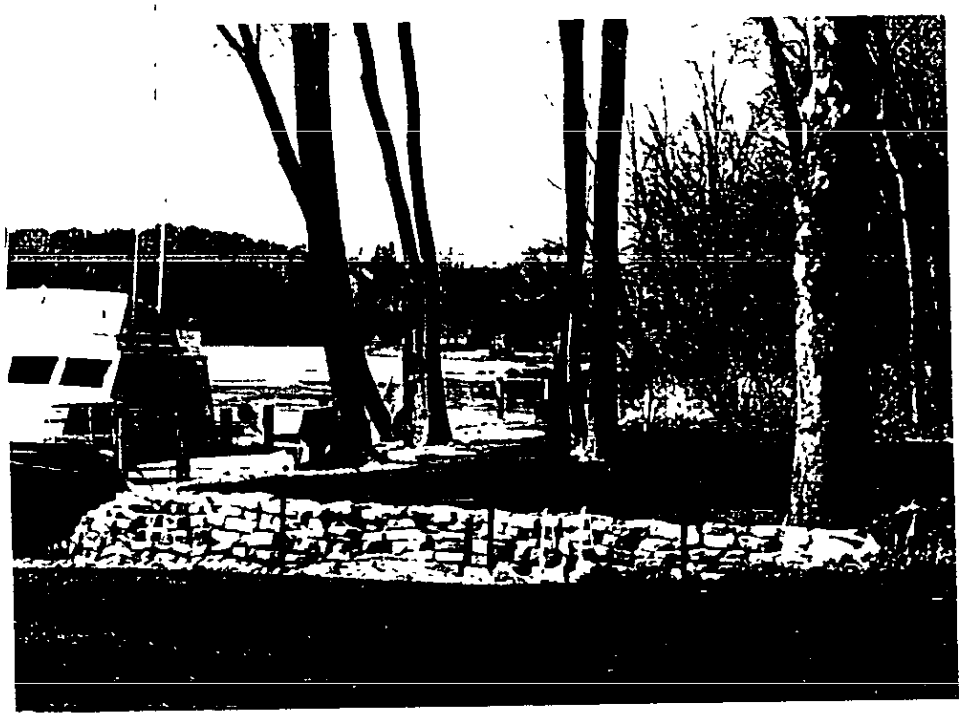
OVERBANK PHOTOGRAPHS



WEST SIDE OF RIVER, LOOKING EAST AT SECTION "AA"

EAST SIDE OF RIVER, LOOKING WEST AT SECTION "CC"





EAST SIDE OF RIVER, LOOKING NORTH AT SECTION "CC"

EAST SIDE OF RIVER, LOOKING NORTHWEST AT SECTION "CC"





EAST SIDE OF RIVER, LOOKING WEST AT SECTION "DD"

EAST SIDE OF RIVER, LOOKING WEST AT SECTION "EE"





EAST SIDE OF RIVER, LOOKING SOUTH AT SECTION "CC"

EAST SIDE OF RIVER, LOOKING WEST AT SECTION "GG"





EAST SIDE OF RIVER, LOOKING SOUTHWEST AT SECTION "III"

EAST SIDE OF RIVER, LOOKING SOUTH AT SECTION "III"





SOUTH OF SECTION "K", LOOKING NORTH AT MARINA

WEST SIDE OF RIVER LOOKING NORTH AT SECTION "AA"





WEST SIDE OF RIVER LOOKING NORTH AT SECTION "BB"

WEST SIDE OF RIVER, LOOKING NORTH AT HICKORY CREEK AT SECTION "DD"





WEST SIDE OF RIVER, LOOKING SOUTH AT SECTION "BB"

WEST SIDE OF RIVER, LOOKING SOUTH AT SECTION "CC"





WEST SIDE OR RIVER, LOOKING EAST AT SECTION "FF"

WEST SIDE OF RIVER, LOOKING SOUTH AT SECTION "EE"





WEST SIDE OF RIVER, LOOKING SOUTHWEST AT SECTION "FF"

WEST SIDE OF RIVER, LOOKING SOUTH AT SECTION "GG"



ABONMARCHE CONSULTANTS, INC.

CALCULATION COVER SHEET

TITLE: HYDRAULIC ANALYSIS

PROJECT: EAGLE POINTE HARBOR

PROJECT NUMBER: 90-582

CALCULATED BY: JEFF BARTOSZEK, P.E. DATE: 4/11/91

CHECKED BY: ERIC NELSON, E.I.T. DATE: 4/30/91

REVISION: ϕ PAGES: _____ DATE: _____

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PROJECT EAGLE POINTE JOB NO. 90-582
TITLE HYDRAULIC ANALYSIS
CALCULATED BY JAB DATE 3/91
CHECKED BY _____ DATE _____
SHEET 1 OF _____

PURPOSE : TO BETTER DEFINE THE MAPPED FLOODWAY FOR THE ST. JOSEPH RIVER IN THE VICINITY OF EAGLE POINTE HARBOR, ST. JOSEPH TOWNSHIP, MICHIGAN.

REFERENCES:

(A) "FLOODWAY INSURANCE STUDY FOR TOWNSHIP OF ST. JOSEPH, MICHIGAN", DECEMBER 1979, BY WILLIAMS & WORKS, FOR FEDERAL EMERGENCY MANAGEMENT AGENCY

(B) HYDRAULIC ANALYSIS OF ST. JOSEPH RIVER, DECEMBER 1979, BY WILLIAMS & WORKS

(C) "OPEN - CHANNEL HYDRAULICS", VEN TE CHOW, McGRAW - HILL BOOK CO., 1959

(D) "OPEN CHANNEL FLOW", F. M. HENDERSON, MacMILLIAN CO., 1966

(E) HEC-2 COMPUTER ANALYSIS PROGRAM, U.S. ARMY CORPS OF ENGINEERS HYDROLOGIC ENGINEERING CENTER, VERSION 4.6.0, FEBRUARY 1991

(F) "GUIDE FOR SELECTING ROUGHNESS COEFFICIENT "n" VALUES FOR CHANNELS", SOIL CONSERVATION SERVICE, 1963

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ASSUMPTIONS:

(1) STARTING WATER ELEVATION AT EXISTING SECTION I IS 584.67 NGVD (100 YEAR FLOOD & FLOODWAY)

(2) STARTING FLOW AT EXISTING SECTION I IS 23,280 CFS. FLOW DECREASES TO 23,190 CFS AT NEW SECTION AA DUE TO LOSS OF FLOW FROM HICKORY CREEK.

(3) USE THE FOLLOWING VALUES FOR MANNINGS COEFFICIENTS:

.033-.035	ST. JOSEPH RIVER CHANNEL
.045	HICKORY CREEK CHANNEL
0.100	WOODED / DENSE BRUSH OVERBANKS
0.03-0.035	MARINA BASINS
0.05-0.07	LIGHT BRUSH / SCATTERED TREES
0.03-0.05	SMOOTH GRASS / EARTH

(4) FLOW OF WATER IS CONTAINED WITHIN RIVER CHANNEL & HIGH SPOTS ON LAND, UNTIL THE HIGH SPOTS ARE OVERTOPPED.

(5) CONTRACTION AND EXPANSION COEFFICIENTS ARE 0.1 AND 0.3 RESPECTIVELY.

(6) TO DETERMINE FLOODWAY, TARGET RISE IN WATER ELEVATION TO BE 0.1 FT. USE ENCROACHMENT METHOD 4 (EQUAL CONVEYANCE REDUCTION) FOR FLOODWAY DETERMINATION.

(7) FLOODPLAIN AND FLOODWAY DATA WILL BE DETERMINED USING REFERENCE (E).

DISCUSSION:

THE PURPOSE OF THE ANALYSIS IS TO DETERMINE A MORE ACCURATE LOCATION FOR THE FLOODWAY BOUNDARY OF THE ST. JOSEPH RIVER, AT EAGLE POINTE HARBOR. THE HYDRAULIC ANALYSIS PERFORMED BY WILLIAMS & WORKS, FOR THE ST. JOSEPH TOWNSHIP FLOOD INSURANCE STUDY CONTAINED A CROSS-SECTION AT THE CENTER OF EAGLE POINTE MARINA, ONE 2530 FEET DOWNSTREAM, AND ONE 1850 FEET UPSTREAM (AMONG OTHERS). HOWEVER, DUE TO THE RAPIDLY CHANGING FEATURES IN THE AREA (MARINA BASINS, CONTRACTIONS & EXPANSIONS, NUMEROUS ISLANDS, ETC.), THE FLOODWAY BOUNDARY LOCATION IS NOT AS ACCURATE AS IT COULD BE WITH ADDITIONAL CROSS-SECTIONS THROUGH THE AREA. ALSO, WE BELIEVE A SURVEY ERROR EXISTS IN THE ORIGINAL CROSS-SECTION "J", ON THE ISLAND WHERE ELEVATIONS AS HIGH AS 594.4 WERE TAKEN. THIS ELEVATION WOULD MEAN THAT A POINT ON THE ISLAND IS ONLY ABOUT 1 FOOT BELOW THE CENTERLINE OF NILES AVENUE. THROUGH A VISUAL INSPECTION OF THE ISLAND AND A SUBSEQUENT SURVEY, ELEVATIONS ON THE ISLAND WERE NO HIGHER THAN 587.0. THEREFORE, THIS WOULD ALSO CAUSE AN ERROR IN THE FLOOD WATER ELEVATIONS AND IN THE FLOODWAY WIDTH.

THIS ANALYSIS WILL CALCULATE WATER SURFACE ELEVATIONS STARTING AT EXISTING SECTION "I" (IN ORIGINAL STUDY) AND END AT EXISTING SECTION "K". NINE (9) ADDITIONAL SECTIONS WILL BE TAKEN BETWEEN "I" AND "K", INCLUDING ONE TO REPLACE EXISTING SECTION "J". STARTING WATER SURFACE ELEVATION AT SECTION "I" FOR THE 100 YEAR FLOOD WILL BE 584.67 FT (AS DETERMINED BY REFERENCE (A)). THE STARTING RIVER FLOW AT SECTION "I" WILL BE 23,280 CUBIC FEET/SECOND (CFS), AS USED IN REFERENCE (A). ALSO, THE FLOW FOR SECTION "I" INCLUDES THE FLOW FROM HICKORY CREEK, SINCE HICKORY CREEK ENTERS THE ST. JOSEPH RIVER BETWEEN EXISTING SECTIONS "I" AND "H". HOWEVER, THE FLOW USED IN THIS ANALYSIS WILL BE REDUCED TO 23,190 CFS AT NEW SECTION "AA", BECAUSE

HICKORY CREEK NO LONGER CONTRIBUTES FLOW TO THE ST. JOSEPH RIVER BETWEEN SECTIONS "I" AND "AA". (THE ORIGINAL STUDY DECREASED THE FLOW TO 23,190 CFS BETWEEN SECTIONS "I" AND "J")

PROFILE SURVEY DATA FOR EACH CROSS-SECTION WAS DETERMINED AS STATION - ELEVATION, WITH THE STATIONING STARTING AT THE LEFT (IF LOOKING DOWNSTREAM). THE STATIONING WAS THEN ADJUSTED USING A STRAIGHT LINE FROM EXISTING SECTION "I" TO EXISTING SECTION "K". THIS WAS DONE TO GET TRUE RELATIVE LOCATIONS OF THE CROSS-SECTIONS, SINCE THE ANALYSIS WAS PLANNED TO BE PERFORMED USING THE BOSS HEC-2 PROGRAM, WHICH GIVES A THREE-DIMENSIONAL MESH PLOT OF THE RIVER AREA.

ALONG EAGLE POINTE HARBOR, THE FLOW OF THE WATER WILL BE CONTAINED WITHIN THE OVERBANK HIGH SPOTS, UNTIL OVERTOPPING OCCURS ON THESE HIGH SPOTS. THIS IS TRUE SINCE THE MARINA BASINS ARE "ISOLATED" - THAT IS THRU-FLOW IS NOT ALLOWED BETWEEN BASINS. THEREFORE, FLOW TO THE LEFT (LOOKING DOWNSTREAM) OF THE HIGH OVERBANK AREAS WILL NOT OCCUR UNTIL THE WATER SURFACE ELEVATION EXCEEDS THE OVERBANK ELEVATIONS.

ROUGHNESS COEFFICIENTS FOR USE IN THE MANNING'S EQUATION WERE DETERMINED FROM REFERENCES (D), (E), & (F). THE COEFFICIENTS FOR A PARTICULAR CROSS-SECTION WERE DETERMINED CONSIDERING THE AREA HALF-WAY TO THE NEXT DOWNSTREAM SECTION, AND HALF-WAY TO THE NEXT UPSTREAM SECTION. CONSIDERATION WAS ALSO GIVEN TO VARIATIONS OF SUCCESSIVE CROSS-SECTIONS IN SIZE AND SHAPE, OBSTRUCTIONS IN THE CHANNEL WHICH AFFECT THE FLOW, AND CHANNEL MEANDERING.

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PROJECT EAGLE POINTE JOB NO. 90-582
TITLE HYDRAULIC ANALYSIS
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SURVEY DATA

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TITLE HYDRAULIC ANALYSIS
CALCULATED BY JAB DATE 3/21/91
CHECKED BY _____ DATE _____
SHEET 1I OF 2I

CROSS-SECTION # I (EXISTING)

POINT #	STATION	ELEVATION	DESCRIPTION
100 →	1564	608.8	
117 →	1581	595.3	
132 →	1596	594.7	
151 →	1615	586.7	
201 →	1665	583.6	T/B
209 →	1673	581.6	↑
217 →	1681	578.4	
230 →	1694	577.1	HICKORY CREEK
240 →	1704	577.2	↓
262 →	1726	581.7	
263 →	1727	583.5	T/B
267 →	1731	583.6	↑
367 →	1831	582.8	ISLAND
467 →	1931	581.7	↓
536 →	2000	582.9	T/B
545 →	2009	581.1	
553 →	2017	580.3	
567 →	2031	577.5	
582 →	2046	575.5	
602 →	2066	574.9	
632 →	2096	575.5	↑
667 →	2131	574.6	
707 →	2171	573.9	ST. JOSEPH RIVER
757 →	2221	573.4	
786 →	2250	572.7	
817 →	2281	572.1	
849 →	2313	572.2	
882 →	2346	572.2	
922 →	2386	571.8	
957 →	2421	571.6	
980 →	2444	571.3	

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PROJECT EAGLE POINTE JOB NO. 90-532
TITLE HYDRAULIC ANALYSIS
CALCULATED BY JAB DATE 8/21/91
CHECKED BY _____ DATE _____
SHEET 2I OF 2I

CROSS-SECTION # I (EXISTING)

POINT #	STATION	ELEVATION	DESCRIPTION
	1004 → 2468	570.0	
	1033 → 2497	576.9	
	1041 → 2505	582.3	
	1058 → 2522	582.8	↓
	1065 → 2529	586.2	T/B
	1070 → 2534	586.4	
	1086 → 2550	584.2	
	1167 → 2631	582.4	
	1267 → 2731	581.8	
	1367 → 2831	582.6	
	1467 → 2931	583.1	
	1567 → 3031	582.5	
	1667 → 3131	582.2	
	1767 → 3231	581.6	
	1867 → 3331	581.7	
	1967 → 3431	582.4	
	2067 → 3531	582.7	
	2167 → 3631	582.9	
	2267 → 3731	583.5	
	2367 → 3831	586.0	

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PROJECT EAGLE POINTE JOB NO. 90-532
TITLE HYDRAULIC ANALYSIS
CALCULATED BY JAB DATE 3/20/91
CHECKED BY _____ DATE _____
SHEET 1AA OF 2AA

CROSS-SECTION # AA

POINT #	STATION	ELEVATION	DESCRIPTION
2749	100 → 1421	600.2	ON SLOPE OF HILL
2748	122 → 1443	591.7	T/S RR GRADE
2747	134 → 1455	591.5	T/B " "
2746	147 → 1468	586.3	T/S
2745	196 → 1517	583.2	T/B
2744	212 → 1533	581.4	T/B
2743	213 → 1534	580.5	E/W HICKORY CREEK
2742	274 → 1595	580.5	E/W HICKORY CREEK
2741	276 → 1597	584.2	T/B
2740	304 → 1625	581.8	↑
2739	366 → 1687	582.6	ISLAND
2738	473 → 1794	582.7	↓
2703	576 → 1897	584.0	GRN I.P.A.
2719	592 → 1913	583.3	T/B
2720	598 → 1919	580.7	R/B E/W
2721	646 → 1967	575.9	
2722	674 → 1995	575.5	
2723	686 → 2007	574.9	↑
2724	722 → 2043	574.5	
2725	741 → 2062	573.7	
2726	747 → 2068	573.1	ST. JOSEPH
2727	766 → 2087	572.7	RIVER
2728	788 → 2109	572.7	
2729	826 → 2147	570.9	
2730	836 → 2157	569.7	
2731	862 → 2183	568.3	
2732	886 → 2207	567.5	
2733	905 → 2226	567.5	
2734	936 → 2257	569.5	
2735	942 → 2263	569.7	
2736	971 → 2298	573.5	

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PROJECT EAGLE POINTE JOB NO. 90-532
TITLE HYDRAULIC ANALYSIS
CALCULATED BY JAB DATE 3/20/91
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SHEET 2AA OF 2AA

CROSS-SECTION # AA

POINT #	STATION	ELEVATION	DESCRIPTION
2737	997 → 2318	578.8	↓
3102	1022 → 2353	580.3	E/W
2704	1043 → 2364	584.9	I.P. AA
3103	1144 → 2465	585.1	
3104	1251 → 2572	585.6	
3105	1552 → 2673	583.9	
3106	1453 → 2774	583.3	
3107	1556 → 2877	583.1	
3108	1653 → 2979	582.3	
3109	1759 → 3080	581.8	
3110	1829 → 3150	581.2	T/B
~~3111~~	~~1937 → 3158~~	~~579.2~~	~~T/S~~ DELETE POINTS SANDTRAP
~~3112~~	~~1989 → 3210~~	~~578.3~~	~~T/S~~
3113	1903 → 3224	582.2	T/B
3114	2002 → 3323	581.8	
3115	2018 → 3419	581.2	
3116	2194 → 3515	583.9	
3117	2294 → 3615	583.4	
3118	2393 → 3714	584.7	
3119	2490 → 3811	588.5	
3120	2586 → 3907	592.7	
3121	2732 → 4053	600.9	BASE OF RIDGE

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CALCULATED BY JAB DATE 3/21/91
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SHEET 1BB OF 2BB

CROSS-SECTION # BB

POINT #	STATION	ELEVATION	DESCRIPTION
2999	100 → 1141	594.7	
3000	111 → 1152	591.0	T/S RR GRADE
3001	126 → 1167	590.8	
3002	142 → 1183	585.0	T/S
3003	200 → 1241	583.1	T/B
3004	212 → 1253	582.4	E/W HICKORY
3133	282 → 1323	580.5	E/W CREEK
3134	291 → 1332	585.5	T/B
3137	419 → 1460	586.1	TOP OF WALL @ BASIN
3140	420 → 1461	577.3	↑
3138	447 → 1488	572.1	
3136	665 → 1706	572.4	BASIN
3139	704 → 1745	575.8	↓
3135	705 → 1746	585.5	TOP OF WALL @ BASIN
2717	803 → 1844	584.7	I.P. B
2750	845 → 1886	570.5	
2751	882 → 1923	570.7	↑
2752	907 → 1948	571.7	
2753	941 → 1982	572.7	
2754	974 → 2015	572.7	
2755	1005 → 2046	573.2	ST. JOSEPH
2756	1040 → 2081	573.7	RIVER
2757	1087 → 2128	574.3	
2758	1130 → 2171	573.9	↓
2759	1143 → 2184	577.3	
2760	1181 → 2222	579.1	
2761	1232 → 2273	577.1	
2762	1282 → 2323	576.9	
2763	1328 → 2369	576.6	
2764	1378 → 2419	576.4	
3122	1469 → 2510	579.2	E/W

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SHEET 2BB OF 2BB

CROSS-SECTION # BB

POINT #	STATION	ELEVATION	DESCRIPTION
2718	1497 → 2538	583.9	I.P. BB
3123	1572 → 2613	582.6	
3124	1591 → 2632	585.6	
3127	1658 → 2699	585.0	
3125	1714 → 2755	586.1	
3126	1872 → 2913	585.2	
3128	1957 → 2998	584.2	
3129	2079 → 3120	583.9	
3130	2136 → 3177	584.7	
3131	2188 → 3229	586.5	
3132	2286 → 3327	589.0	

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PROJECT EAGLE POINTE JOB NO 90-532
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CALCULATED BY JAB DATE 3/21/91
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SHEET 1 CC OF 2 CC

CROSS-SECTION # CC

POINT #	STATION	ELEVATION	DESCRIPTION
2997	100 → 748	599.9	
2996	129 → 777	591.9	T/S RR GRADE
2995	142 → 790	591.7	T/B
2994	210 → 858	581.0	SWAMPY AREA
2993	310 → 958	581.0	" "
2992	324 → 972	581.9	T/B } HICKORY
2991	326 → 974	580.0	E/W } CREEK
2990	373 → 1021	579.8	E/W }
2989	379 → 1027	584.3	T/B
2987	430 → 1078	585.9	TOP OF WALL @ BASIN
2988	431 → 1079	574.5	↑
2986	545 → 1193	572.4	
2985	628 → 1276	573.2	BASIN
2984	735 → 1383	573.1	↓
2983	793 → 1441	574.8	
2981	832 → 1480	576.5	
2982	833 → 1481	586.1	TOP OF WALL @ BASIN
2980	916 → 1564	586.0	
2705	1015 → 1663	583.9	I.P. C
2978	1028 → 1676	583.9	T/B
2979	1040 → 1688	578.2	RIP RAP IN RIVER
2772	1068 → 1716	570.7	
2773	1095 → 1743	571.7	↑
2774	1144 → 1792	572.0	
2775	1184 → 1832	573.3	
2776	1217 → 1865	573.5	ST. JOSEPH RIVER
2777	1253 → 1901	573.7	
2778	1272 → 1920	574.5	
2779	1299 → 1947	575.1	
2780	1318 → 1966	575.3	
2781	1334 → 1982	575.7	
2782	1347 → 1995	575.2	

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PROJECT EAGLE POINTE JOB NO. 90-532
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CALCULATED BY JAB DATE 3/21/91
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SHEET ZCC OF ZCC

CROSS-SECTION ≠ CC

POINT #	STATION	ELEVATION	DESCRIPTION
2766	1397 → 2045	580.5	E/W
2765	1404 → 2052	581.5	I.P. CC
2767	1444 → 2092	583.5	↑ ISLAND
2768	1477 → 2125	581.7	↓
2769	1539 → 2187	582.6	T/B
2770	1546 → 2194	580.5	E/W
2771	1560 → 2208	579.1	↑ RIVER
3006	1579 → 2227	579.3	↓
3007	1602 → 2250	580.2	E/W
3008	1641 → 2289	581.0	GROUND (ISLAND)
3009	1695 → 2343	580.3	E/W
3010	1729 → 2377	579.4	↑
3011	1744 → 2392	578.4	
2783	1783 → 2431	575.0	ST. JOSEPH
3012	1787 → 2435	574.6	RIVER
2784	1791 → 2439	575.0	
3013	1800 → 2448	575.0	↓
2785	1816 → 2464	574.9	
3014	1824 → 2472	575.0	
2786	1832 → 2480	575.2	
3015	1846 → 2494	575.1	
2787	1854 → 2502	574.5	
2788	1872 → 2520	575.1	
3016	1875 → 2523	574.4	
3017	1895 → 2543	574.3	
3019	1915 → 2563	580.4	E/W
3018	1917 → 2565	584.0	T/B
2789	1920 → 2568	584.3	I.P. CCC
3020	2023 → 2671	584.0	
3021	2113 → 2761	590.2	
3022	2191 → 2839	595.9	

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TITLE HYDRAULIC ANALYSIS
CALCULATED BY JAB DATE 3/21/91
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SHEET 1DD OF 2DD

CROSS-SECTION # DD

POINT #	STATION	ELEVATION	DESCRIPTION
2960	100 → 515	591.3	
2961	141 → 556	590.0	℄ R.R. GRADE
2962	222 → 637	587.1	
2963	295 → 710	582.5	T/B
2964	298 → 713	580.0	E/W } HICKORY
2965	344 → 759	580.3	E/W } CREEK
2966	348 → 763	584.6	T/B
2967	417 → 832	586.0	TOP OF WALL @ BASIN
2968	418 → 833	574.7	↑ BASIN
2969	460 → 875	573.5	↓
2970	783 → 1198	586.0	TOP OF WALL @ BASIN
2971	861 → 1276	585.7	TOP OF WALL @ BASIN
2972	950 → 1365	574.2	BASIN
2974	1015 → 1430	586.2	TOP OF WALL @ BASIN
2975	1107 → 1522	586.5	
2706	1180 → 1595	585.0	I.P. D
2976	1197 → 1612	584.3	T/B
2977	1209 → 1624	578.5	
2801	1243 → 1658	571.4	↑
2802	1289 → 1704	571.6	
2803	1327 → 1742	571.6	
2804	1349 → 1764	572.4	ST. JOSEPH
2805	1389 → 1804	572.9	RIVER
2806	1436 → 1851	574.3	
2807	1459 → 1874	574.9	↓
2808	1476 → 1891	573.3	
2809	1493 → 1908	575.4	
2810	1529 → 1944	575.4	
2792	1558 → 1973	580.4	E/W
2793	1561 → 1976	582.8	T/B

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☒ BENTON HARBOR, MICHIGAN
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CHECKED BY _____ DATE _____
SHEET 2DD OF 2DD

CROSS-SECTION # DD

POINT #	STATION	ELEVATION	DESCRIPTION
2794	1600 → 2015	584.1	↑
2795	1650 → 2065	583.1	
2796	1708 → 2123	581.4	ISLAND
2797	1748 → 2163	583.2	↓
2798	1828 → 2243	584.2	T/B
2799	1834 → 2249	581.4	T/S
2800	1841 → 2256	580.4	E/W
3023	1849 → 2264	579.9	↑
3024	1878 → 2293	580.0	RIVER
3025	1930 → 2345	581.1	↓ T/B
3026	1939 → 2354	582.8	GRN (ISLAND)
3027	1969 → 2384	583.4	T/B
3028	1977 → 2392	580.4	E/W
3029	1987 → 2402	578.7	
3038	2010 → 2425	574.8	↑
3039	2016 → 2431	574.9	
3040	2030 → 2445	574.2	ST. JOSEPH
3041	2040 → 2455	574.7	RIVER
3042	2053 → 2468	574.6	
3043	2072 → 2487	575.0	↓
3044	2098 → 2513	574.1	
3035	2123 → 2538	576.0	
3034	2124 → 2539	584.8	T/B
2866	2138 → 2553	584.7	I.P. DDD
3031	2163 → 2578	585.9	T/S
3032	2193 → 2608	592.0	T/B
3033	2227 → 2642	594.3	

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SHEET 1EE OF 2EE

CROSS-SECTION # EE

POINT #	STATION	ELEVATION	DESCRIPTION
3060	100 → 300	591.8	
3059	130 → 330	585.8	
3058	153 → 353	585.9	
3062	193 → 393	584.9	TOP OF WALL @ BASIN
3064	194 → 394	575.4	BASIN
3063	243 → 443	576.4	
3061	244 → 444	584.9	TOP OF WALL @ BASIN
3057	251 → 451	584.9	
3056	350 → 550	584.7	
3055	450 → 650	584.4	
3054	551 → 751	584.9	
3053	651 → 851	584.9	
3052	753 → 953	585.1	
3051	856 → 1056	585.4	
3045	960 → 1160	586.8	I.P.
3050	1047 → 1247	587.2	
3049	1150 → 1350	587.9	
3048	1252 → 1452	586.9	
2708	1352 → 1552	584.7	I.P. E
3046	1366 → 1566	584.4	T/B
3047	1377 → 1577	579.7	E/W
2819	1407 → 1607	571.8	
2820	1435 → 1635	571.5	↑
2821	1458 → 1658	571.8	
2822	1493 → 1693	570.8	ST. JOSEPH RIVER
2823	1527 → 1727	571.5	
2824	1575 → 1775	573.5	
2825	1601 → 1801	573.6	↓
2826	1625 → 1825	574.0	
2827	1646 → 1846	575.3	
2828	1675 → 1875	576.0	

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SHEET ZEE OF ZEE

CROSS-SECTION = EE

POINT #	STATION	ELEVATION	DESCRIPTION
2812	1718 → 1918	580.5	E/W
2813	1723 → 1923	582.6	T/B
2709	1777 → 1977	584.3	I.P. EE
2814	1876 → 2076	583.8	ISLAND
2815	1967 → 2167	585.0	
2816	2064 → 2264	585.6	T/B
2817	2066 → 2266	582.1	T/S
2818	2078 → 2278	580.5	E/W
2885	2178 → 2378	576.0	↑
2886	2197 → 2397	575.6	
2887	2232 → 2432	574.1	ST. JOSEPH
2888	2259 → 2459	573.3	RIVER
2889	2287 → 2487	572.9	↓
2883	2305 → 2505	575.9	TOP OF
2882	2306 → 2506	583.6	SEAWALL
2829	2317 → 2517	584.3	I.P. EEE
2880	2323 → 2523	584.6	
2881	2338 → 2538	594.2	

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SHEET 1FF OF 2FF

CROSS-SECTION # FF

POINT #	STATION	ELEVATION	DESCRIPTION
3083	100 → 400	604.5	
3082	127 → 427	595.4	
3091	229 → 529	593.4	
3080	329 → 629	592.0	
3079	450 → 750	582.8	
3078	452 → 752	580.3	POND
3084	570 → 870	579.2	POND
3077	678 → 978	580.5	POND
3076	693 → 993	582.3	
3075	800 → 1100	582.8	
3074	881 → 1181	585.8	
3072	988 → 1288	586.0	TOP OF WALL @ BASIN
3073	989 → 1289	577.0	↑
3071	1023 → 1323	572.8	BASIN
3070	1084 → 1384	573.0	↓
3068	1118 → 1418	577.0	
3067	1119 → 1419	586.1	TOP OF WALL @ BASIN
2710	1190 → 1490	585.9	I.P. F
3065	1262 → 1562	584.8	T/B
3066	1270 → 1570	579.4	E/W
2842	1293 → 1593	569.9	
2843	1317 → 1617	570.8	↑
2844	1351 → 1651	571.4	
2845	1392 → 1682	571.9	ST. JOSEPH RIVER
2846	1417 → 1717	573.4	
2847	1427 → 1727	573.2	
2848	1462 → 1762	573.4	↓
2849	1476 → 1776	573.4	
2850	1499 → 1799	573.9	
2851	1521 → 1821	573.9	
2830	1584 → 1884	580.4	E/W

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SHEET 2FF OF 2FF

CROSS-SECTION # FF

POINT #	STATION	ELEVATION	DESCRIPTION
2831	1605 → 1905	582.3	T/S
2832	1610 → 1910	584.4	T/B
2711	1617 → 1917	584.6	I.P. FF
2833	1652 → 1952	584.3	↑
2834	1707 → 2007	583.8	ISLAND
2835	1735 → 2035	581.5	
2836	1758 → 2058	584.8	↓
2837	1837 → 2137	583.9	
2838	1939 → 2239	585.8	T/B
2839	1946 → 2246	581.4	T/S
2840	2023 → 2323	583.2	T/B ISLAND
2841	2033 → 2333	580.4	E/W
2874	2067 → 2367	575.1	
2875	2081 → 2381	575.3	↑
2876	2096 → 2396	574.3	
2877	2116 → 2416	574.1	ST. JOSEPH RIVER
2878	2145 → 2445	575.3	
2879	2169 → 2469	575.6	↓
2868	2192 → 2482	576.6	
2867	2183 → 2483	580.8	E/W
2869	2184 → 2484	584.6	
2852	2199 → 2499	584.8	I.P. FFF
2870	2212 → 2512	585.6	
2871	2233 → 2533	589.6	
2872	2280 → 2580	592.1	
2873	2318 → 2618	599.5	

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SHEET 1GG OF 2GG

CROSS-SECTION # GG

POINT #	STATION	ELEVATION	DESCRIPTION
3094	-82 → 904	594.9	
3093	-51 → 935	583.9	
3092	-29 → 957	581.6	E/W } INLET BASIN
3091	168 → 1154	580.8	E/W }
3090	242 → 1228	582.8	
3089	324 → 1310	587.0	
3088	466 → 1452	583.1	
3087	544 → 1530	586.1	
2712	569 → 1555	584.1	I.P. G
3085	575 → 1561	582.6	T/B
3086	578 → 1564	579.5	E/W
2853	623 → 1609	572.0	
2854	664 → 1650	573.8	
2855	716 → 1702	574.8	↑
2856	746 → 1732	574.8	
2857	781 → 1767	575.0	ST JOSEPH
2858	814 → 1800	575.0	RIVER
2859	846 → 1832	574.8	
2860	861 → 1847	575.3	
2861	885 → 1871	575.3	
2862	902 → 1888	575.5	↓
2863	919 → 1905	575.6	
2864	967 → 1953	580.8	E/W
2891	978 → 1964	584.0	T/B
2713	1006 → 1992	583.9	I.P. GG
2892	1039 → 2025	584.2	↑
2893	1089 → 2075	584.4	ISLAND
2894	1119 → 2105	582.3	
2895	1141 → 2127	587.0	↓
2896	1236 → 2222	586.1	T/B
2897	1240 → 2226	581.9	T/S

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SHEET 2GG OF 2GG

CROSS-SECTION # GG

POINT #	STATION	ELEVATION	DESCRIPTION
2898	1254 → 2240	580.9	E/W
2902	1313 → 2299	576.7	
2903	1328 → 2314	577.2	↑
2904	1381 → 2367	577.3	
2905	1409 → 2395	577.3	ST. JOSEPH
2906	1441 → 2427	578.9	RIVER
2907	1466 → 2452	578.4	
2908	1477 → 2463	575.9	↓
2909	1521 → 2507	576.7	
2899	1531 → 2517	580.7	E/W
2865	1551 → 2537	585.2	I P. GGG
2900	1578 → 2564	590.4	
2901	1624 → 2610	593.3	

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SHEET 1 HH OF 2 HH

CROSS-SECTION = HH

POINT #	STATION	ELEVATION	DESCRIPTION
3101	100 → 1349	594.5	
3100	180 → 1429	587.1	
3099	281 → 1530	583.9	
73	391 → 1630	584.3	I.P. H
3098	394 → 1643	580.6	E/W
2914	448 → 1697	572.7	
2915	434 → 1733	573.7	
2916	554 → 1803	574.2	
2917	607 → 1856	574.2	
2918	651 → 1900	574.7	
2919	678 → 1927	575.2	ST JOSEPH
2920	744 → 1993	575.9	RIVER
2921	798 → 2047	576.9	
2922	849 → 2098	578.2	
2923	899 → 2148	578.7	
2924	924 → 2173	578.4	
2925	954 → 2203	578.2	
2926	1019 → 2268	578.4	
2910	1048 → 2297	580.7	E/W
2911	1057 → 2306	585.4	T/B
2714	1069 → 2318	585.6	I.P. HH
2912	1098 → 2347	585.1	T/B
2913	1100 → 2349	580.7	E/W
2931	1121 → 2370	576.6	
2930	1137 → 2386	576.7	
2929	1161 → 2410	576.8	ISLAND
2927	1209 → 2458	577.3	
2928	1214 → 2463	577.2	
2932	1257 → 2506	580.7	E/W
2933	1259 → 2508	583.4	T/B
2934	1324 → 2573	585.2	

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SHEET 2HH OF 2HH

CROSS-SECTION # HH

POINT #	STATION	ELEVATION	DESCRIPTION
2935	1350 → 2599	588.5	ST. JOSEPH RIVER
2936	1385 → 2634	590.9	T/S
2937	1424 → 2673	604.7	T/B

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SHEET 1JJ OF 1JJ

CROSS-SECTION # JJ

POINT #	STATION	ELEVATION	DESCRIPTION
3097	100 → 1672	598.0	GRN
2715	173 → 1745	592.7	I.P. J
3096	178 → 1750	591.5	
3095	199 → 1771	581.4	
2946	231 → 1803	573.4	BOTTOM RIVER
2947	286 → 1858	574.4	
2948	351 → 1923	574.7	
2949	409 → 1981	574.0	
2950	461 → 2033	574.6	
2951	501 → 2073	575.0	
2952	521 → 2093	574.9	ST. JOSEPH
2953	561 → 2133	575.9	RIVER
2954	621 → 2193	575.7	
2955	626 → 2198	576.0	
2956	651 → 2223	576.4	
2957	696 → 2268	577.0	
2958	746 → 2318	577.3	
2959	831 → 2403	577.3	
2938	869 → 2441	580.7	E/W
2939	873 → 2445	583.4	T/B
2716	881 → 2453	583.9	I.P. JJ
2940	979 → 2551	582.3	
2941	1142 → 2714	582.8	
2942	1245 → 2817	584.3	
2943	1332 → 2904	592.2	
2945	1393 → 2965	602.3	

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SHEET 1K OF 2K

CROSS-SECTION # K (EXISTING)

POINT #	STATION	ELEVATION	DESCRIPTION
	100 → 2000	598.9	
	114 → 2014	593.9	T/E
	115 → 2015	592.9	
	128 → 2028	581.4	
	138 → 2038	577.7	
	148 → 2048	574.1	
	168 → 2068	572.3	
	188 → 2088	571.5	
	208 → 2108	570.9	
	228 → 2128	571.3	
	248 → 2148	571.4	
	268 → 2168	572.0	
	288 → 2188	572.6	ST. JOSEPH
	308 → 2208	573.0	RIVER
	328 → 2228	573.9	
	348 → 2248	574.4	
	368 → 2268	575.0	
	388 → 2288	575.5	
	408 → 2308	575.5	
	428 → 2328	575.8	
	448 → 2348	575.8	
	468 → 2368	576.0	
	488 → 2388	576.0	
	508 → 2408	575.5	
	528 → 2428	575.3	
	538 → 2438	579.0	
	548 → 2448	581.3	
	557 → 2457	582.1	
	561 → 2461	584.7	T/B
	668 → 2568	583.8	
	758 → 2658	582.4	P.O.B. SWAMP

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SHEET 2K OF 2K

CROSS-SECTION # K (EXISTING)

POINT #	STATION	ELEVATION	DESCRIPTION
	868 → 2768	534.9	
	968 → 2868	583.0	
	988 → 2888	582.6	P.O.B. OPEN WATER
	1198 → 3098	583.0	P.O.E. OPEN WATER
	1248 → 3148	602.7	

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TITLE HYDRAULIC ANALYSIS
CALCULATED BY JAB DATE 9/29/91
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SHEET 1 ADD OF 2 ADD

ADDITIONAL POINTS

CROSS-SECTION	STATION	ELEVATION	DESCRIPTION
AA	613 → 1934	577.2	RIVER
BB	816 → 1857	575.4	RIVER
CC	1050 → 1698	574.0	RIVER
CC	1380 → 2028	576.9	RIVER
DD	459 → 874	575.0	BASIN
DD	862 → 1277	575.4	BASIN
DD	1014 → 1429	575.3	BASIN
DD	1221 → 1636	573.1	RIVER
DD	1548 → 1963	576.9	RIVER
EE	1391 → 1591	574.7	RIVER
EE	1702 → 1902	577.1	RIVER
FF	1565 → 1865	575.3	RIVER
GG	591 → 1577	574.9	RIVER
GG	950 → 1936	577.1	RIVER
GG	1267 → 2253	577.9	RIVER

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SHEET 2 ADD OF 2 ADD

CROSS-SECTION	STATION	ELEVATION	DESCRIPTION
HH	403 → 1652	575.2	RIVER
HH	1238 → 2487	577.8	RIVER
JJ	214 → 1786	576.5	RIVER
JJ	847 → 2419	577.7	RIVER

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TITLE HYDRAULIC ANALYSIS
CALCULATED BY JAB DATE 3/31
CHECKED BY _____ DATE _____
SHEET _____ OF _____

COMPUTER ANALYSIS

```
*********************************************
*  HEC-2 WATER SURFACE PROFILES             *
*                                           *
*  Version   4.6.0;  February 1991          *
*                                           *
*  RUN DATE    09APR91    TIME   14:33:20   *
*********************************************
```


```
*****************************************
*  U.S. ARMY CORPS OF ENGINEERS         *
*  HYDROLOGIC ENGINEERING CENTER        *
*  609 SECOND STREET, SUITE D           *
*  DAVIS, CALIFORNIA 95616-4687         *
*          (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
```

THIS RUN EXECUTED 09APR91 14:33:20

```
**************************************
 HEC-2 WATER SURFACE PROFILES

 Version  4.6.0;  February 1991
**************************************


T1      HYDRAULIC ANALYSIS              ABONMARCHE CONSULTANTS, INC.
T2      EAGLE POINTE HARBOR             MARCH 20, 1991
T3      ST JOSEPH R. 100 YR STM

        STARTING WATER ELEVATION = 584.67 FT; USE 2ND FIELD ON QT CARD FOR FLOW

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                                                                 584.67

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

      1                 -1


        SUMMARY TABLE VARIABLE SELECTION

J3  VARIABLE CODES FOR SUMMARY PRINTOUT

    150
    200

        MANNINGS EQUATION COEFFICIENTS

NC     0.08       0.08       0.033        0.1         0.3

        FLOW CARD
QT        2       23280      23280

        ALTER MANNINGS COEFFICIENTS FOR CROSS-SECTION I
NH        5        0.1        1615       0.045        1727         0.1        2000       0.033        2529        0.04
NH     3831

        ENCROACHMENT METHOD CARD
ET                          1.4

        CROSS-SECTION I INPUT DATA

                EXISTING CROSS-SECTION I
```

SECTION NUMBER 3.43

X1	3.43	51	2000	2529						
X3	10									
GR	608.8	1564	595.3	1581	594.7	1596	586.7	1615	583.6	1665
GR	581.6	1673	578.4	1681	577.1	1694	577.2	1704	581.7	1726
GR	583.5	1727	583.6	1731	582.8	1831	581.7	1931	582.9	2000
GR	581.1	2009	580.3	2017	577.5	2031	575.5	2046	574.9	2066
GR	575.5	2096	574.6	2131	573.9	2171	573.4	2221	572.7	2250
GR	572.1	2281	572.2	2313	572.2	2346	571.8	2386	571.6	2421
GR	571.3	2444	570.0	2468	576.9	2497	582.3	2505	582.8	2522
GR	586.2	2529	586.4	2534	584.2	2550	582.4	2631	581.8	2731
GR	582.6	2831	583.1	2931	582.5	3031	582.2	3131	581.6	3231
GR	581.7	3331	582.4	3431	582.7	3531	582.9	3631	583.5	3731
GR	586.0	3831								

ALTER MANNINGS COEFFICIENTS FOR CROSS-SECTION AA

NH	5	0.1	1517	0.045	1597	0.1	1913	0.033	2364	0.05
NH	4053									

CROSS-SECTION AA INPUT DATA

QT	2	23190	23190

NEW CROSS-SECTION AA
SECTION NUMBER 3.57

X1	3.57	51	1913	2364	710	730	730			
X3	10					2562	585.6			
X4	1	577.2	1934							
GR	600.2	1421	591.7	1443	591.5	1455	586.3	1468	583.2	1517
GR	581.4	1533	580.5	1534	580.5	1595	584.2	1597	581.8	1625
GR	582.6	1687	582.7	1794	584.0	1897	583.3	1913	580.7	1919
GR	575.9	1967	575.5	1995	574.9	2007	574.5	2043	573.7	2062
GR	573.1	2068	572.7	2087	572.7	2109	570.9	2147	569.7	2157
GR	568.3	2183	567.5	2207	567.5	2226	569.5	2257	569.7	2263
GR	573.5	2298	578.8	2318	580.8	2353	584.9	2364	585.1	2465
GR	585.6	2572	583.9	2673	583.3	2774	583.1	2877	582.3	2979
GR	581.8	3080	581.2	3150	582.2	3224	581.8	3323	581.2	3419
GR	583.9	3515	583.4	3615	584.7	3714	588.5	3811	592.7	3907
GR	600.9	4053								

ALTER MANNINGS COEFFICIENTS FOR CROSS-SECTION BB

NH	6	0.1	1241	0.045	1332	0.06	1460	0.035	1844	0.033
NH	2538	0.1	3327							

CROSS-SECTION BB INPUT DATA

NEW CROSS-SECTION BB
SECTION NUMBER 3.68

X1	3.68	42	1844	2538	590	630	610			
X3	10			1746	585.5	2632	585.6			
X4	1	575.4	1857							
GR	594.7	1141	591.0	1152	590.8	1167	585.0	1183	583.1	1241
GR	582.4	1253	580.5	1323	585.5	1332	586.1	1460	577.3	1461
GR	572.1	1488	572.4	1706	575.8	1745	585.5	1746	584.7	1844
GR	570.5	1886	570.7	1923	571.7	1948	572.7	1982	572.7	2015
GR	573.2	2046	573.7	2081	574.3	2128	573.9	2171	577.3	2184
GR	579.1	2222	577.1	2273	576.9	2323	576.6	2369	576.4	2419
GR	579.2	2510	583.9	2538	582.6	2613	585.6	2632	585.0	2699
GR	586.1	2755	585.2	2913	584.2	2998	583.9	3120	584.7	3177
GR	586.5	3229	589.0	3327						

ALTER MANNINGS COEFFICIENTS FOR CROSS-SECTION CC

NH	6	0.1	790	0.045	1078	0.035	2052	0.1	2289	0.035
NH	2565	0.1	2839							

CROSS-SECTION CC INPUT DATA

NEW CROSS-SECTION CC
SECTION NUMBER 3.78

X1	3.78	63	1676	2565	480	570	540			
X3	10			1481	586.1					
X4	2	574.0	1698	576.9	2028					
GR	599.9	748	591.9	777	591.7	790	581.0	858	581.0	958
GR	581.9	972	580.0	974	579.8	1021	584.3	1027	585.9	1078
GR	574.5	1079	572.4	1193	573.2	1276	573.1	1383	574.8	1441
GR	576.5	1480	586.1	1481	586.0	1564	583.9	1663	583.9	1676
GR	578.2	1688	570.7	1716	571.7	1743	572.0	1792	573.3	1832
GR	573.5	1865	573.7	1901	574.5	1920	575.1	1947	575.3	1966
GR	575.7	1982	575.2	1995	580.5	2045	581.5	2052	583.5	2092
GR	581.7	2125	582.6	2187	580.5	2194	579.1	2208	579.3	2227
GR	580.2	2250	581.0	2289	580.3	2343	579.4	2377	578.4	2392
GR	575.0	2431	574.6	2435	575.0	2439	575.0	2448	574.9	2464
GR	575.0	2472	575.2	2480	575.1	2494	574.5	2502	575.1	2520
GR	574.4	2523	574.3	2543	580.4	2563	584.0	2565	584.3	2568
GR	584.0	2671	590.2	2761	595.9	2839				

ALTER MANNINGS COEFFICIENTS FOR CROSS-SECTION DD

NH	6	0.1	710	0.045	832	0.035	1976	0.1	2384	0.035
NH	2539	0.05	2642							

CROSS-SECTION DD INPUT DATA

NEW CROSS-SECTION DD
SECTION NUMBER 3.83

X1	3.83	57	1612	2539	270	270	270			
X3	10			1522	586.5					
X4	5	575.0	1197	575.4	1277	575.3	1429	573.1	1636	576.9
X4	1963									
GR	591.3	515	590.0	556	587.1	637	582.5	710	580.0	713
GR	580.3	759	584.6	763	586.0	832	574.7	833	573.5	875
GR	586.0	1198	585.7	1276	574.2	1365	586.2	1430	586.5	1522
GR	585.0	1595	584.3	1612	578.5	1624	571.4	1658	571.6	1704
GR	571.6	1742	572.4	1764	572.9	1804	574.3	1851	574.9	1874
GR	573.3	1891	575.4	1908	575.4	1944	580.4	1973	582.8	1976
GR	584.1	2015	583.1	2065	581.4	2123	583.2	2163	584.2	2243
GR	581.4	2249	580.4	2256	579.9	2264	580.0	2293	581.1	2345
GR	582.8	2354	583.4	2384	580.4	2392	578.7	2402	574.8	2425
GR	574.9	2431	574.2	2445	574.7	2455	574.6	2468	575.0	2487
GR	574.1	2513	576.0	2538	584.8	2539	584.7	2553	585.9	2578
GR	592.0	2608	594.3	2642						

ALTER MANNINGS COEFFICIENTS FOR CROSS-SECTION EE

NH	4	0.035	1923	0.1	2264	0.035	2506	0.05	2538

CROSS-SECTION EE INPUT DATA

NEW CROSS-SECTION EE
(EXISTING CROSS-SECTION J)
SECTION NUMBER 3.90

X1	3.90	49	1566	2506	320	320	320			
X3	10			1350	587.9					
X4	2	574.7	1591	577.1	1902					
GR	591.8	300	585.8	330	585.9	353	584.9	393	575.4	394
GR	576.4	443	584.9	444	584.9	451	584.7	550	584.4	650
GR	584.9	751	584.9	851	585.1	953	585.4	1056	586.8	1160
GR	587.2	1247	587.9	1350	586.9	1452	584.7	1552	584.4	1566
GR	579.7	1577	571.8	1607	571.5	1635	571.8	1658	570.8	1693
GR	571.5	1727	573.5	1775	573.6	1801	574.0	1825	575.3	1846
GR	576.0	1875	580.5	1918	582.6	1923	584.3	1977	583.8	2076
GR	585.0	2167	585.6	2264	582.1	2266	580.5	2278	576.0	2378
GR	575.6	2397	574.1	2432	573.3	2459	572.9	2487	575.9	2505
GR	583.6	2506	584.3	2517	584.6	2523	594.2	2538		

ALTER MANNINGS COEFFICIENTS FOR CROSS-SECTION FF

NH	6	0.04	1288	0.03	1419	0.035	1910	0.1	2323	0.035
NH	2484	0.05	2618							

CROSS-SECTION FF INPUT DATA

NEW CROSS-SECTION FF
SECTION NUMBER 3.95

X1	3.95	57	1562	2484	300	300	300			
X3	10			1419	586.1					
X4	1	575.3	1865							
GR	604.5	400	595.4	427	593.4	529	592.0	629	582.8	750
GR	580.3	752	579.2	870	580.5	978	582.3	993	582.8	1100
GR	585.8	1181	586.0	1288	577.0	1289	572.8	1323	573.0	1384
GR	577.0	1418	586.1	1419	585.9	1490	584.8	1562	579.4	1570
GR	569.9	1593	570.8	1617	571.4	1651	571.9	1682	573.4	1717
GR	573.2	1727	573.4	1762	573.4	1776	573.9	1799	573.9	1821
GR	580.4	1884	582.3	1905	584.4	1910	584.6	1917	584.3	1952
GR	583.8	2007	581.5	2035	584.8	2058	583.9	2137	585.8	2239
GR	581.4	2246	583.2	2323	580.4	2333	575.1	2367	575.3	2381
GR	574.3	2396	574.1	2416	575.3	2445	575.6	2469	576.6	2482
GR	580.8	2483	584.6	2484	584.8	2499	585.6	2512	589.6	2533
GR	592.1	2580	599.5	2618						

ALTER MANNINGS COEFFICIENTS FOR CROSS-SECTION GG

NH	5	0.05	1561	0.035	1964	0.1	2222	0.035	2537	0.06
NH	2610									

CROSS-SECTION GG INPUT DATA

NEW CROSS-SECTION GG
SECTION NUMBER 4.01

X1	4.01	44	1561	2537	400	220	300			
X3	10			1530	586.1					
X4	3	574.9	1577	577.1	1936	577.9	2253			
GR	594.9	904	583.9	935	581.6	957	580.8	1154	582.8	1228
GR	587.0	1310	583.1	1452	586.1	1530	584.1	1555	582.6	1561
GR	579.5	1564	572.0	1609	573.8	1650	574.8	1702	574.8	1732
GR	575.0	1767	575.0	1800	574.8	1832	575.3	1847	575.3	1871
GR	575.5	1888	575.6	1905	580.8	1953	584.0	1964	583.9	1992
GR	584.2	2025	584.4	2075	582.3	2105	587.0	2127	586.1	2222
GR	581.9	2226	580.9	2240	576.7	2299	577.2	2314	577.3	2367
GR	577.3	2395	578.9	2427	578.4	2452	575.9	2463	576.7	2507
GR	580.7	2517	585.2	2537	590.4	2564	593.3	2610		

ALTER MANNINGS COEFFICIENTS FOR CROSS SECTION HH

NH	5	0.05	1630	0.035	2306	0.1	2508	0.035	2599	0.07
NH	2673									

CROSS-SECTION HH INPUT DATA

NEW CROSS-SECTION HH
SECTION NUMBER 4.09

X1	4.09	34	1630	2599	500	300	410			
X3	10									
X4	2	575.2	1652	577.8	2487					
GR	594.5	1349	587.1	1429	583.9	1530	584.3	1630	580.6	1643
GR	572.7	1697	573.7	1733	574.2	1803	574.2	1856	574.7	1900
GR	575.2	1927	575.9	1993	576.9	2047	578.2	2098	578.7	2148
GR	578.4	2173	578.2	2203	578.4	2268	580.7	2297	585.4	2306
GR	585.6	2318	585.1	2347	580.7	2349	576.6	2370	576.7	2386
GR	576.8	2410	577.3	2458	577.2	2463	580.7	2506	583.4	2508
GR	585.2	2573	588.5	2599	590.9	2634	604.7	2673		

ALTER MANNINGS COEFFICIENTS FOR CROSS-SECTION JJ

NC	0.07	0.1	0.033

CROSS-SECTION JJ INPUT DATA

NEW CROSS-SECTION JJ
SECTION NUMBER 4.15

X1	4.15	26	1771	2445	380	300	340			
X3	10									
X4	2	576.5	1786	577.7	2419					
GR	598.0	1672	592.7	1745	591.5	1750	581.4	1771	573.4	1803
GR	574.4	1858	574.7	1923	574.0	1981	574.6	2033	575.0	2073
GR	574.9	2093	575.9	2133	575.7	2193	576.0	2198	576.4	2223
GR	577.0	2268	577.3	2318	577.3	2403	580.7	2441	583.4	2445
GR	583.9	2453	582.3	2551	582.8	2714	584.3	2817	592.2	2904
GR	602.3	2965								

ALTER MANNINGS COEFFICIENTS FOR CROSS-SECTION K

NC	0.07	0.1	0.033

CROSS-SECTION K INPUT DATA

EXISTING CROSS-SECTION K
SECTION NUMBER 4.26

X1	4.26	36	2014	2461	560	560	560			
X3	10									
GR	598.9	2000	583.9	2014	582.9	2015	581.4	2028	577.7	2038
GR	574.1	2048	572.3	2068	571.5	2088	570.9	2108	571.3	2128
GR	571.4	2148	572.0	2168	572.6	2188	573.0	2208	573.9	2228
GR	574.4	2248	575.0	2268	575.5	2288	575.5	2308	575.8	2328
GR	575.8	2348	576.0	2368	576.0	2388	575.5	2408	575.3	2428
GR	579.0	2438	581.3	2448	582.1	2457	584.7	2461	583.8	2568
GR	582.4	2658	584.9	2768	583.0	2868	582.6	2888	583.0	3098
GR	602.7	3148								

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

*PROF 1

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 3.430

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 582.90 ELREA= 586.20

EXISTING CROSS-SECTION I
SECTION NUMBER 3.43

3.430	14.67	584.67	.00	584.67	584.91	.24	.00	.00	582.90
23280.0	921.0	22359.0	.0	902.2	5573.5	.0	.0	.0	586.20
.00	1.02	4.01	.00	.060	.033	.000	.000	570.00	1647.74
.000344	0.	0.	0.	0	0	0	.00	878.11	2525.85

1490 NH CARD USED
*SECNO 3.570

3470 ENCROACHMENT STATIONS= .0 2562.0 TYPE= 1 TARGET= 2561.999

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 583.30 ELREA= 584.90

NEW CROSS-SECTION AA
SECTION NUMBER 3.57

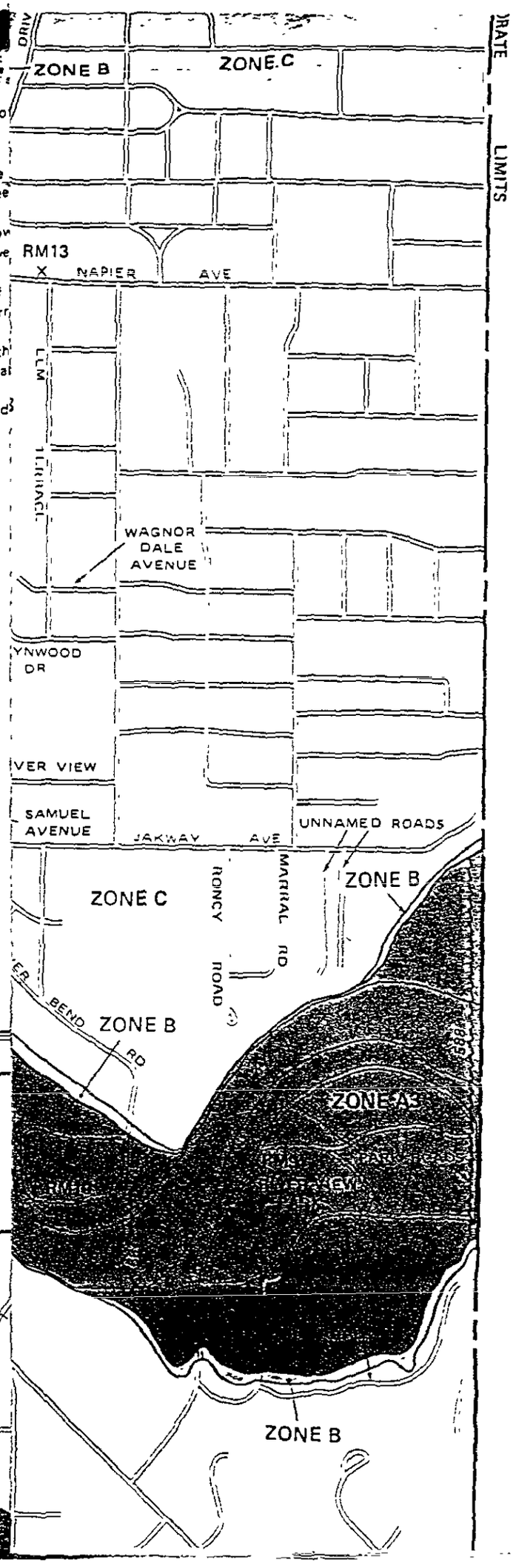
3.570	17.40	584.90	.00	.00	585.18	.28	.26	.01	583.30
23190.0	822.9	22367.1	.0	982.4	5131.0	.0	105.1	14.5	584.90
.05	.84	4.36	.00	.066	.033	.000	.000	567.50	1490.15
.000369	710.	730.	730.	2	0	0	.00	873.85	2364.00

1490 NH CARD USED
*SECNO 3.680

3470 ENCROACHMENT STATIONS= 1746.0 2632.0 TYPE= 1 TARGET= 886.000
ELENCL= 585.50 ELENCR= 585.60

NEW CROSS-SECTION BB

		south side of the southeast of the southwest bank of the
RM 10	585.46	Railroad spike on the northwest side o bank of the St Joseph River
RM 11	600.93	Railroad spike on the east side of the centerline of River Bend Road, four fee
RM 12	584.97	Railroad spike on the north side of pow approximately 800 feet east of the we
RM 13	629.10	Railroad spike on the south side of approximately 16 feet west of Elm Terr
RM 14	595.18	Chiseled square on the south end of th River, about nine feet below the sidewal
RM 15	589.45	Point of the arrow on the fire hyd



SECTION NUMBER 3.68

3.680	14.71	585.21	.00	.00	585.39	.18	.20	.01	584.70
23190.0	4.5	23121.6	63.9	15.8	6729.1	168.4	196.1	26.5	583.90
.10	.29	3.44	.38	.035	.033	.100	.000	570.50	1781.81
.000284	590.	610.	630.	2	0	0	.00	847.71	2629.51

1490 NH CARD USED
*SECNO 3.780

3470 ENCROACHMENT STATIONS= 1481.0 2839.0 TYPE= 1 TARGET= -1481.000
ELENCL= 586.10 ELENCR= 100000.00

NEW CROSS-SECTION CC
SECTION NUMBER 3.78

3.780	14.70	585.40	.00	.00	585.56	.15	.16	.00	583.90
23190.0	52.6	23093.6	43.8	72.9	7380.7	147.2	286.1	38.5	584.00
.15	.72	3.13	.30	.035	.034	.100	.000	570.70	1592.10
.000316	480.	540.	570.	2	0	0	.00	1099.28	2691.38

1490 NH CARD USED
*SECNO 3.830

3470 ENCROACHMENT STATIONS= 1522.0 2642.0 TYPE= 1 TARGET= -1522.000
ELENCL= 586.50 ELENCR= 100000.00

NEW CROSS-SECTION DD
SECTION NUMBER 3.83

3.830	14.08	585.48	.00	.00	585.65	.17	.09	.01	584.30
23190.0	11.7	23171.7	6.6	19.9	7002.6	16.7	331.5	45.0	584.80
.17	.59	3.31	.39	.035	.032	.050	.000	571.40	1571.41
.000348	270.	270.	270.	0	0	0	.00	997.94	2569.35

1490 NH CARD USED
*SECNO 3.900

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1350.0 2538.0 TYPE= 1 TARGET= -1350.000
ELENCL= 587.90 ELENCR= 100000.00

NEW CROSS-SECTION EE
(EXISTING CROSS-SECTION J)

SECTION NUMBER 3.90

3.900	14.78	585.58	.00	.00	585.76	.18	.10	.00	584.40
23190.0	18.8	23154.0	17.1	32.4	6801.3	25.6	382.5	52.4	583.60
.19	.58	3.40	.67	.035	.028	.050	.000	570.80	1511.70
.000308	320.	320.	320.	0	0	0	.00	1010.67	2524.54

1490 NH CARD USED
*SECNO 3.950

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1419.0 2618.0 TYPE= 1 TARGET= -1419.000
ELENCL= 586.10 ELENCR= 100000.00

NEW CROSS-SECTION FF
SECTION NUMBER 3.95

3.950	15.76	585.66	.00	.00	585.87	.21	.10	.01	584.80
23190.0	11.9	23167.6	10.5	24.7	6326.4	20.7	428.1	59.3	584.60
.22	.48	3.66	.51	.035	.029	.050	.000	569.90	1505.08
.000389	300.	300.	300.	1	0	0	.00	1000.07	2512.37

1490 NH CARD USED
*SECNO 4.010

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1530.0 2610.0 TYPE= 1 TARGET= -1530.000
ELENCL= 586.10 ELENCR= 100000.00

NEW CROSS-SECTION GG
SECTION NUMBER 4.01

4.010	13.81	585.81	.00	.00	585.98	.17	.11	.00	582.60
23190.0	23.0	23166.8	.2	33.1	7005.6	1.0	474.3	65.9	585.20
.24	.70	3.31	.20	.050	.032	.060	.000	572.00	1533.61
.000327	400.	300.	220.	2	0	0	.00	905.72	2540.17

1490 NH CARD USED
*SECNO 4.090

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 584.30 ELREA= 588.50

NEW CROSS-SECTION HH
SECTION NUMBER 4.09

4.090	13.29	585.99	.00	.00	586.11	.13	.13	.00	584.30
23190.0	183.8	23006.2	.0	257.3	8015.6	.0	546.7	75.6	588.50
.28	.71	2.87	.00	.050	.037	.000	.000	572.70	1464.16
.000298	500.	410.	300.	2	0	0	.00	1115.03	2579.19

*SECNO 4.150

NEW CROSS-SECTION JJ
SECTION NUMBER 4.15

4.150	12.65	586.05	.00	.00	586.21	.16	.09	.01	581.40
23190.0	12.0	22621.2	556.7	22.5	6924.8	1153.7	610.2	84.1	583.40
.31	.53	3.27	.48	.070	.033	.100	.000	573.40	1761.33
.000237	380.	340.	300.	2	0	0	.00	1074.96	2836.29

*SECNO 4.260

EXISTING CROSS-SECTION K
SECTION NUMBER 4.26

4.260	15.23	586.13	.00	.00	586.41	.28	.16	.04	583.90
23190.0	.8	22197.9	991.3	2.3	5090.5	1743.2	706.2	98.0	584.70
.35	.34	4.36	.57	.070	.033	.100	.000	570.90	2011.92
.000370	560.	560.	560.	2	0	0	.00	1094.03	3105.94

T1 HYDRAULIC ANALYSIS ABONMARCHE CONSULTANTS, INC.
T2 EAGLE POINTE HARBOR MARCH 20, 1991
T3 ST JOSEPH RIV. FLOODWAY

STARTING WATER ELEVATION = 584.67 FT; USE 3RD FIELD ON QT CARD FOR FLOW

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
	0	3	0	0	0	0	0	0	584.67	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	15		-1							

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

*PROF 2

CCHV= .100 CEHV= .300
1490 NH CARD USED
*SECNO 3.430
2800 NAT Q1= 12552.25 WSEL= 584.67 ENC Q1= 12552.25 WSEL= 584.77 RATIO= .0000
NAT Q1= 12761. RATIOS LOB, CH, ROB= .0406 .9594 .0000 WSEL= 584.77

3470 ENCROACHMENT STATIONS= 1696.4 2529.0 TYPE= 4 TARGET= .016

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 582.90 ELREA= 586.20

EXISTING CROSS-SECTION I
SECTION NUMBER 3.43

3.430	14.67	584.67	.00	584.67	584.92	.25	.00	.00	582.90
23280.0	557.0	22723.0	.0	730.7	5573.5	.0	.0	.0	586.20
.00	.76	4.08	.00	.070	.033	.000	.000	570.00	1696.44
.000355	0.	0.	0.	0	0	0	.00	829.41	2525.85

1490 NH CARD USED
*SECNO 3.570

3470 ENCROACHMENT STATIONS= .0 2562.0 TYPE= 1 TARGET= 2561.999

NEW CROSS-SECTION AA
SECTION NUMBER 3.57

3.570	17.41	584.91	.00	584.90	585.19	.28	.26	.01	583.30
23190.0	829.6	22360.4	.0	991.0	5140.1	.1	103.8	14.2	584.90
.05	.84	4.35	.01	.066	.033	.050	.000	567.50	1489.83
.000367	710.	730.	730.	1	0	0	.00	883.79	2373.62

1490 NH CARD USED
*SECNO 3.680

3470 ENCROACHMENT STATIONS= 1746.0 2632.0 TYPE= 1 TARGET= 886.000
ELENCL= 585.50 ELENCR= 585.60

NEW CROSS-SECTION BB
SECTION NUMBER 3.68

3.680	14.72	585.22	.00	585.21	585.40	.18	.20	.01	584.70
23190.0	4.8	23120.8	64.4	16.5	6736.5	169.3	195.0	26.2	583.90
.10	.29	3.43	.38	.035	.033	.100	.000	570.50	1780.51
.000283	590.	610.	630.	2	0	0	.00	849.08	2629.58

1490 NH CARD USED
*SECNO 3.780

3470 ENCROACHMENT STATIONS= 1481.0 2839.0 TYPE= 1 TARGET= -1481.000
ELENCL= 586.10 ELENCR= 100000.00

NEW CROSS-SECTION CC
SECTION NUMBER 3.78

3.780	14.71	585.41	.00	585.40	585.56	.15	.16	.00	583.90
23190.0	53.3	23092.4	44.3	73.7	7389.4	148.5	285.1	38.3	584.00
.15	.72	3.13	.30	.035	.034	.100	.000	570.70	1591.64
.000315	480.	540.	570.	2	0	0	.00	1099.88	2691.52

1490 NH CARD USED
*SECNO 3.830

3470 ENCROACHMENT STATIONS= 1522.0 2642.0 TYPE= 1 TARGET= -1522.000
ELENCL= 586.50 ELENCR= 100000.00

NEW CROSS-SECTION DD
SECTION NUMBER 3.83

3.830	14.09	585.49	.00	585.48	585.66	.17	.09	.01	584.30
23190.0	12.0	23171.3	6.7	20.3	7011.5	17.0	330.6	44.8	584.80
.17	.59	3.30	.39	.035	.032	.050	.000	571.40	1570.94
.000347	270.	270.	270.	0	0	0	.00	998.61	2569.55

1490 NH CARD USED
*SECNO 3.900

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1350.0 2538.0 TYPE= 1 TARGET= -1350.000
ELENCL= 587.90 ELENCR= 100000.00

NEW CROSS-SECTION EE

(EXISTING CROSS-SECTION J)
SECTION NUMBER 3.90

3.900	14.79	585.59	.00	585.58	585.77	.18	.10	.00	584.40
23190.0	19.2	23153.5	17.3	32.9	6810.0	25.8	381.7	52.2	583.60
.19	.58	3.40	.67	.035	.028	.050	.000	570.80	1511.28
.000308	320.	320.	320.	0	0	0	.00	1012.61	2524.56

1490 NH CARD USED
*SECNO 3.950

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1419.0 2618.0 TYPE= 1 TARGET= -1419.000
ELENCL= 586.10 ELENCR= 100000.00

NEW CROSS-SECTION FF
SECTION NUMBER 3.95

3.950	15.77	585.67	.00	585.66	585.88	.21	.10	.01	584.80
23190.0	12.2	23167.1	10.7	25.3	6334.7	20.9	427.3	59.1	584.60
.22	.48	3.66	.51	.035	.029	.050	.000	569.90	1504.49
.000388	300.	300.	300.	1	0	0	.00	1001.21	2512.41

1490 NH CARD USED
*SECNO 4.010

3265 DIVIDED FLOW

3470 ENCROACHMENT STATIONS= 1530.0 2610.0 TYPE= 1 TARGET= -1530.000
ELENCL= 586.10 ELENCR= 100000.00

NEW CROSS-SECTION GG
SECTION NUMBER 4.01

4.010	13.82	585.82	.00	585.81	585.99	.17	.11	.00	582.60
23190.0	23.2	23166.6	.2	33.3	7013.0	1.0	473.6	65.7	585.20
.24	.70	3.30	.20	.050	.032	.060	.000	572.00	1533.50
.000326	400.	300.	220.	2	0	0	.00	905.92	2540.22

1490 NH CARD USED
*SECNO 4.090
2800 NAT Q1= 13440.09 WSEL= 585.99 ENC Q1= 13574.82 WSEL= 586.09 RATIO= -.0100
NAT Q1= 13692. RATIOS LOB, CH, ROB= .0085 .9915 .0000 WSEL= 586.09

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

3470 ENCROACHMENT STATIONS= 1630.0 2599.0 TYPE= 4 TARGET= .009

3495 OVERBANK AREA ASSUMED NON-EFFECTIVE, ELLEA= 584.30 ELREA= 588.50

NEW CROSS-SECTION HH
SECTION NUMBER 4.09

4.090	13.29	585.99	.00	585.99	586.12	.13	.13	.00	584.30
23190.0	.0	23190.0	.0	.0	8021.1	.0	544.6	74.5	588.50
.28	.00	2.89	.00	.000	.037	.000	.000	572.70	1630.00
.000303	500.	410.	300.	2	0	0	.00	949.24	2579.24

*SECNO 4.150
2800 NAT Q1= 15076.69 WSEL= 586.05 ENC Q1= 15076.69 WSEL= 586.15 RATIO= .0000
NAT Q1= 15336. RATIOS LOB, CH, ROB= .0005 .9746 .0249 WSEL= 586.15

3470 ENCROACHMENT STATIONS= 1771.0 2574.7 TYPE= 4 TARGET= .017

NEW CROSS-SECTION JJ
SECTION NUMBER 4.15

4.150	12.66	586.06	.00	586.05	586.23	.17	.09	.01	581.40
23190.0	.0	22997.9	192.1	.0	6928.1	397.1	604.3	81.3	583.40
.31	.00	3.32	.48	.000	.033	.100	.000	573.40	1771.00
.000246	380.	340.	300.	2	0	0	.00	803.70	2574.70

*SECNO 4.260
2800 NAT Q1= 12055.95 WSEL= 586.13 ENC Q1= 12055.95 WSEL= 586.23 RATIO= .0000
NAT Q1= 12256. RATIOS LOB, CH, ROB= .0000 .9554 .0446 WSEL= 586.23

3470 ENCROACHMENT STATIONS= 2014.0 2925.8 TYPE= 4 TARGET= .016

EXISTING CROSS-SECTION K
SECTION NUMBER 4.26

4.260	15.24	586.14	.00	586.13	586.43	.30	.17	.04	583.90
23190.0	.0	22552.7	637.3	.0	5093.9	1166.9	691.6	92.3	584.70
.35	.00	4.43	.55	.000	.033	.100	.000	570.90	2014.00
.000384	560.	560.	560.	2	0	0	.00	911.76	2925.76

THIS RUN EXECUTED 09APR91 14:33:50

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.0; February 1991
****

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

ST JOSEPH R. 100 YR STM

SUMMARY PRINTOUT TABLE 150

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10*KS	VCH	AREA	.01K
3.430	.00	.00	.00	570.00	23280.00	584.67	.00	584.91	3.44	4.01	6475.71	12552.25
3.430	.00	.00	.00	570.00	23280.00	584.67	.00	584.92	3.55	4.08	6304.14	12351.17
3.570	730.00	.00	.00	567.50	23190.00	584.90	.00	585.18	3.69	4.36	6113.34	12065.74
3.570	730.00	.00	.00	567.50	23190.00	584.91	.00	585.19	3.67	4.35	6131.20	12105.21
3.680	610.00	.00	.00	570.50	23190.00	585.21	.00	585.39	2.84	3.44	6913.29	13762.11
3.680	610.00	.00	.00	570.50	23190.00	585.22	.00	585.40	2.83	3.43	6922.30	13787.67
3.780	540.00	.00	.00	570.70	23190.00	585.40	.00	585.56	3.16	3.13	7600.78	13052.21
3.780	540.00	.00	.00	570.70	23190.00	585.41	.00	585.56	3.15	3.13	7611.52	13074.97
3.830	270.00	.00	.00	571.40	23190.00	585.48	.00	585.65	3.48	3.31	7039.22	12428.27
3.830	270.00	.00	.00	571.40	23190.00	585.49	.00	585.66	3.47	3.30	7048.85	12447.89
3.900	320.00	.00	.00	570.80	23190.00	585.58	.00	585.76	3.08	3.40	6859.24	13204.56
3.900	320.00	.00	.00	570.80	23190.00	585.59	.00	585.77	3.08	3.40	6868.63	13224.25
3.950	300.00	.00	.00	569.90	23190.00	585.66	.00	585.87	3.89	3.66	6371.85	11758.11
3.950	300.00	.00	.00	569.90	23190.00	585.67	.00	585.88	3.88	3.66	6380.89	11775.42
4.010	300.00	.00	.00	572.00	23190.00	585.81	.00	585.98	3.27	3.31	7039.66	12830.89
4.010	300.00	.00	.00	572.00	23190.00	585.82	.00	585.99	3.26	3.30	7047.34	12850.36
4.090	410.00	.00	.00	572.70	23190.00	585.99	.00	586.11	2.98	2.87	8272.90	13440.09
4.090	410.00	.00	.00	572.70	23190.00	585.99	.00	586.12	3.03	2.89	8021.08	13326.52
4.150	340.00	.00	.00	573.40	23190.00	586.05	.00	586.21	2.37	3.27	8101.00	15076.69
4.150	340.00	.00	.00	573.40	23190.00	586.06	.00	586.23	2.46	3.32	7325.19	14773.74
4.260	560.00	.00	.00	570.90	23190.00	586.13	.00	586.41	3.70	4.36	6836.01	12055.95
4.260	560.00	.00	.00	570.90	23190.00	586.14	.00	586.43	3.84	4.43	6260.79	11840.38

ST JOSEPH R. 100 YR STM

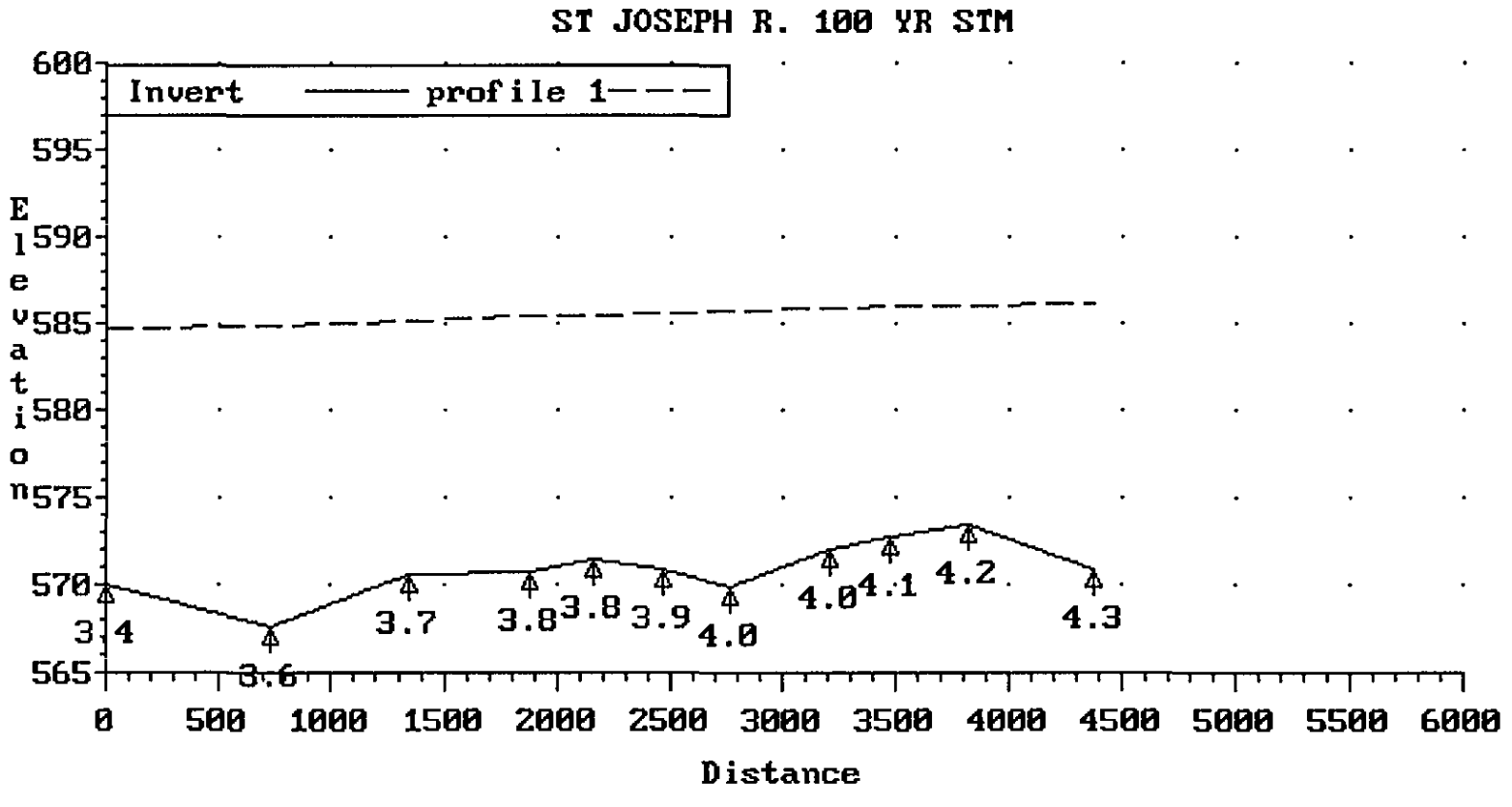
SUMMARY PRINTOUT TABLE 150

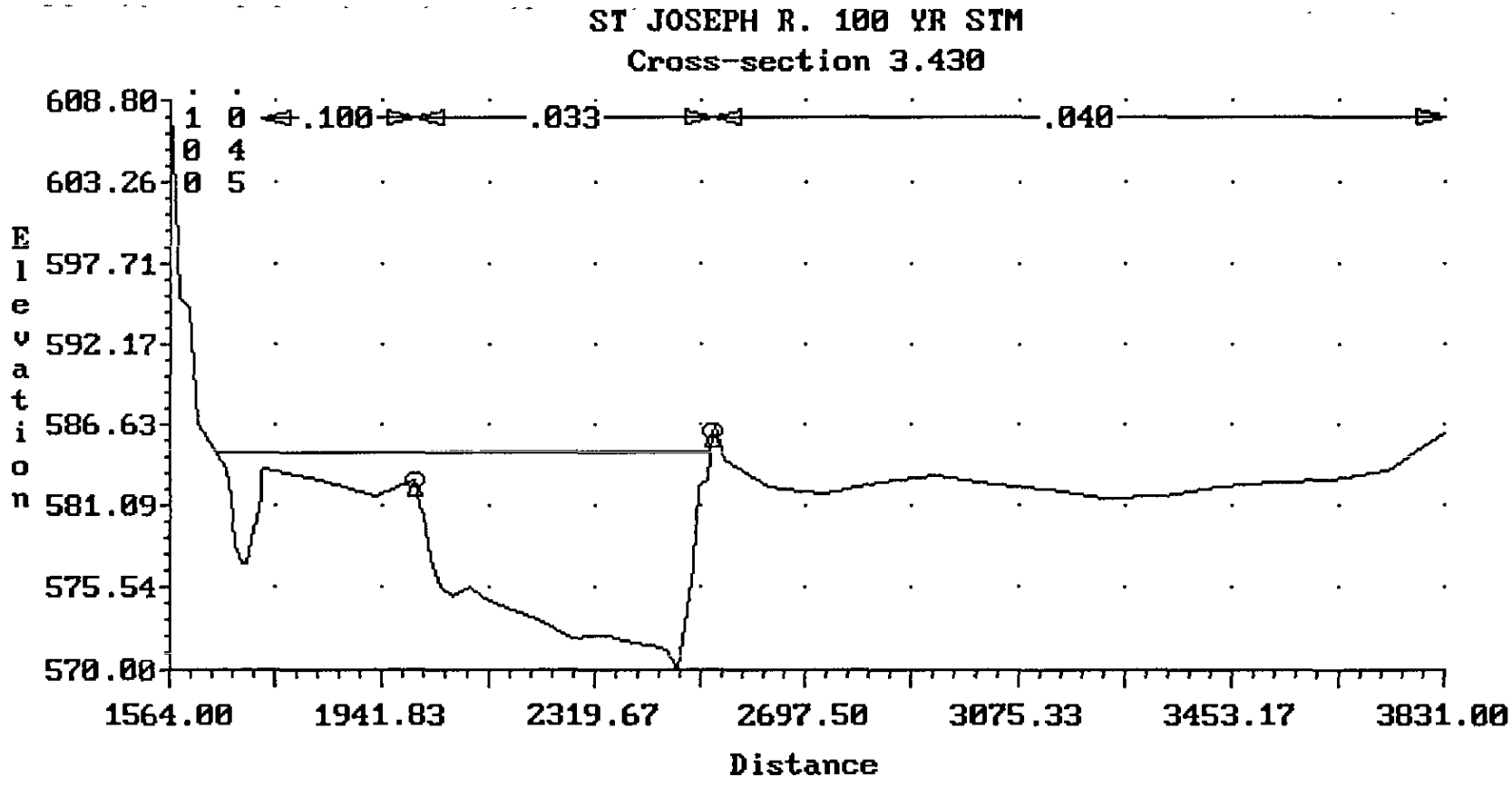
SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
3.430	23280.00	584.67	.00	.00	.00	878.11	.00
3.430	23280.00	584.67	.00	.00	.00	829.41	.00
3.570	23190.00	584.90	.00	.23	.00	873.85	730.00
3.570	23190.00	584.91	.01	.24	.01	883.79	730.00
3.680	23190.00	585.21	.00	.31	.00	847.71	610.00
3.680	23190.00	585.22	.01	.31	.01	849.08	610.00
3.780	23190.00	585.40	.00	.20	.00	1099.28	540.00
3.780	23190.00	585.41	.01	.20	.01	1099.88	540.00
3.830	23190.00	585.48	.00	.08	.00	997.94	270.00
3.830	23190.00	585.49	.01	.08	.01	998.61	270.00
3.900	23190.00	585.58	.00	.10	.00	1010.67	320.00
3.900	23190.00	585.59	.01	.10	.01	1012.61	320.00
3.950	23190.00	585.66	.00	.08	.00	1000.07	300.00
3.950	23190.00	585.67	.01	.08	.01	1001.21	300.00
4.010	23190.00	585.81	.00	.15	.00	905.72	300.00
4.010	23190.00	585.82	.01	.15	.01	905.92	300.00
4.090	23190.00	585.99	.00	.17	.00	1115.03	410.00
4.090	23190.00	585.99	.01	.17	.01	949.24	410.00
4.150	23190.00	586.05	.00	.07	.00	1074.96	340.00
4.150	23190.00	586.06	.00	.06	.00	803.70	340.00
4.260	23190.00	586.13	.00	.08	.00	1094.03	560.00
4.260	23190.00	586.14	.01	.08	.01	911.76	560.00

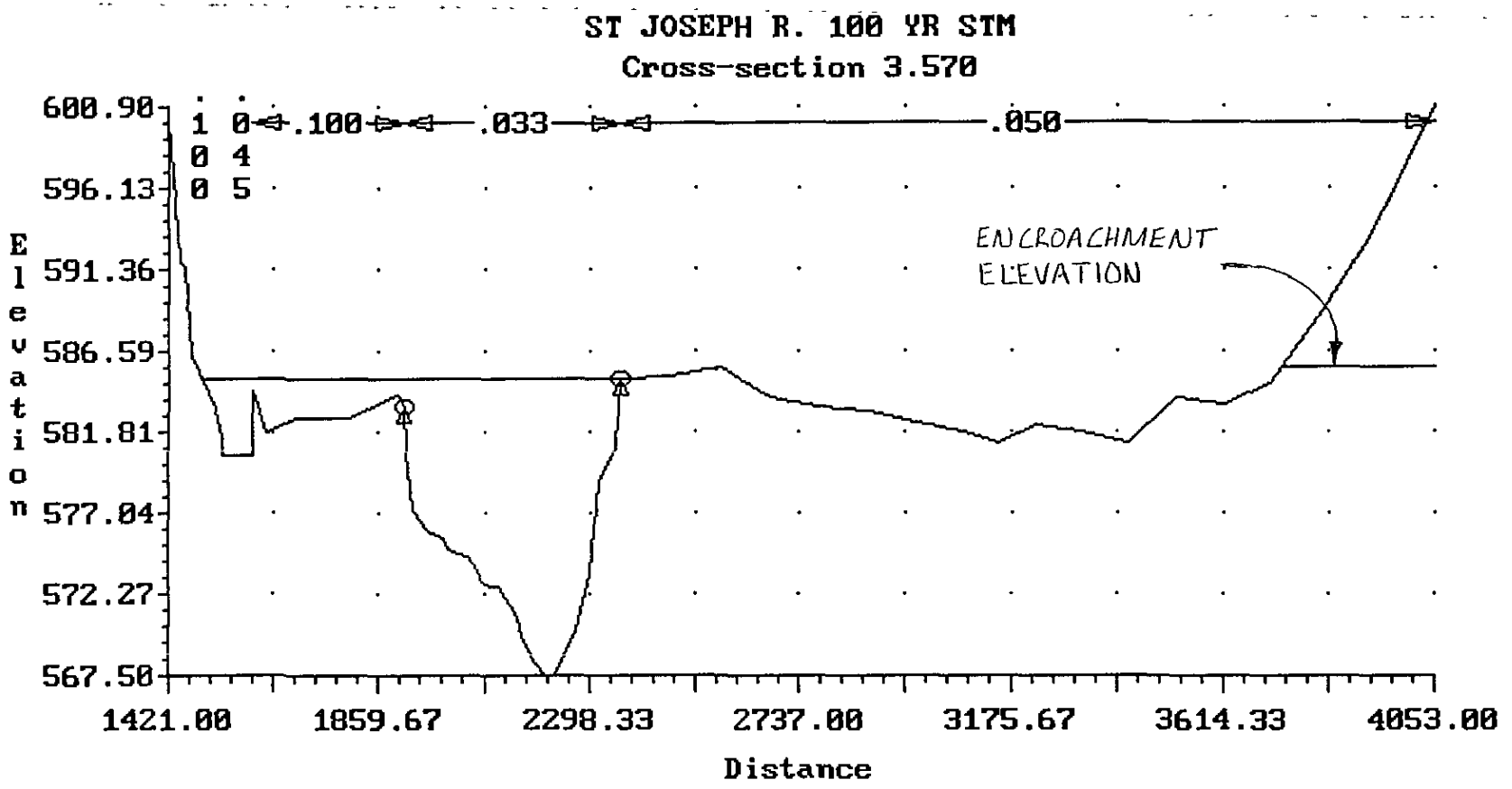
SUMMARY OF ERRORS AND SPECIAL NOTES

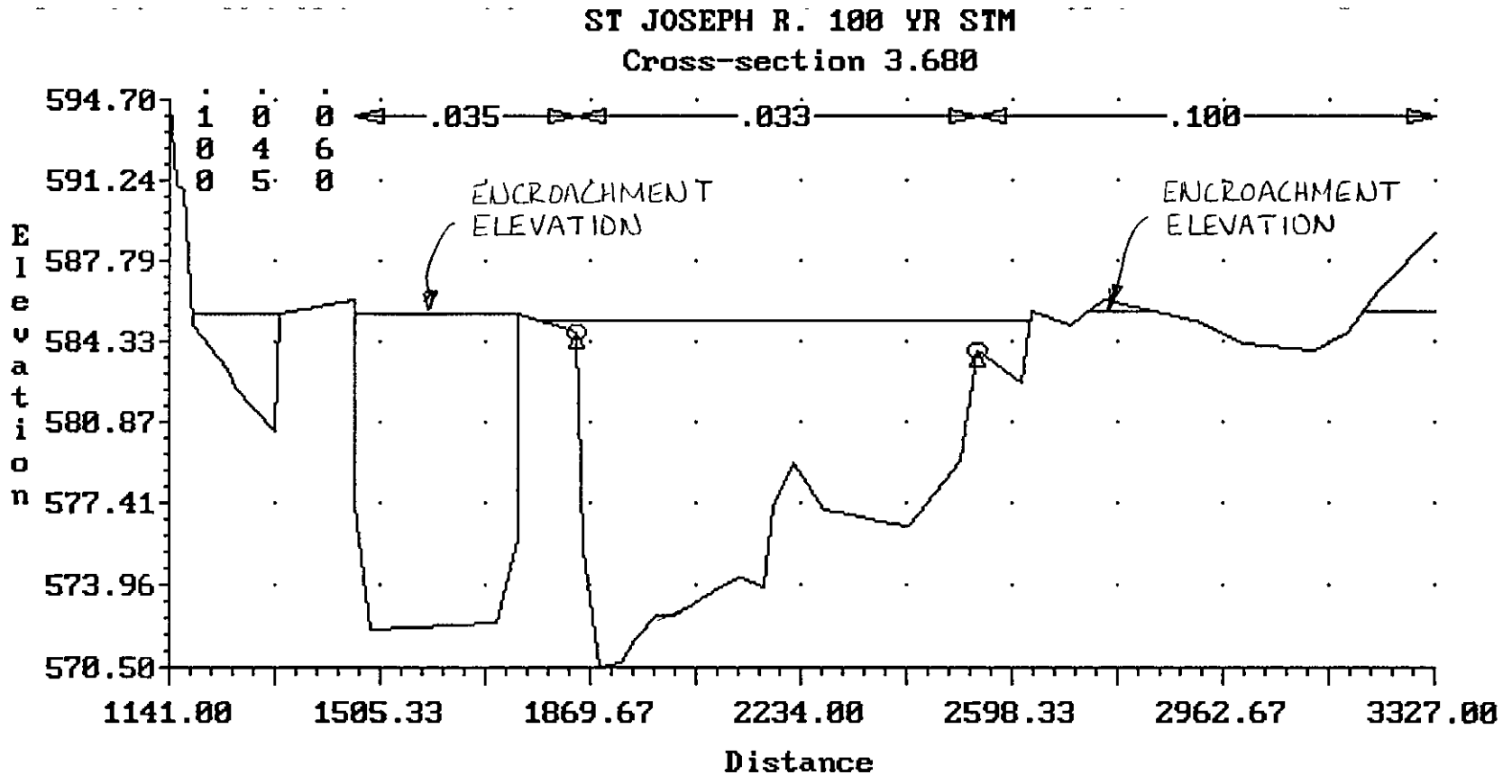
FLOODWAY DATA, ST JOSEPH R. 100 YR STM
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
3.430	829.	6304.	3.7	584.7	584.7	.0
3.570	884.	6131.	3.8	584.9	584.9	.0
3.680	849.	6922.	3.4	585.2	585.2	.0
3.780	1100.	7612.	3.0	585.4	585.4	.0
3.830	999.	7049.	3.3	585.5	585.5	.0
3.900	1013.	6869.	3.4	585.6	585.6	.0
3.950	1008.	6381.	3.6	585.7	585.7	.0
4.010	1007.	7047.	3.3	585.8	585.8	.0
4.090	949.	8021.	2.9	586.0	586.0	.0
4.150	804.	7325.	3.2	586.1	586.1	.0
4.260	912.	6261.	3.7	586.1	586.1	.0


ST JOSEPH R. 100 YR STM
Invert
profile 1
Elevation
600
595
590
585
580
575
570
565
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Distance
3.4
3.6
3.7
3.8
3.8
3.9
4.0
4.0
4.1
4.2
4.3


ST JOSEPH R. 100 YR STM
Cross-section 3.430
608.80
603.26
597.71
592.17
586.63
581.09
575.54
570.00
Elevation
1 0
0 4
0 5
.100
.033
.040
1564.00
1941.83
2319.67
2697.50
3075.33
3453.17
3831.00
Distance


ST JOSEPH R. 100 YR STM
Cross-section 3.570
600.90
596.13
591.36
586.59
581.81
577.04
572.27
567.50
Elevation
1 0 .100 .033 .050
0 4
0 5
ENCROACHMENT
ELEVATION
1421.00
1859.67
2298.33
2737.00
3175.67
3614.33
4053.00
Distance


ST JOSEPH R. 100 YR STM
Cross-section 3.680
1 0 0
0 4 6
0 5 0
.035
.033
.100
ENCROACHMENT ELEVATION
ENCROACHMENT ELEVATION
Elevation
594.70
591.24
587.79
584.33
580.87
577.41
573.96
570.50
1141.00
1505.33
1869.67
2234.00
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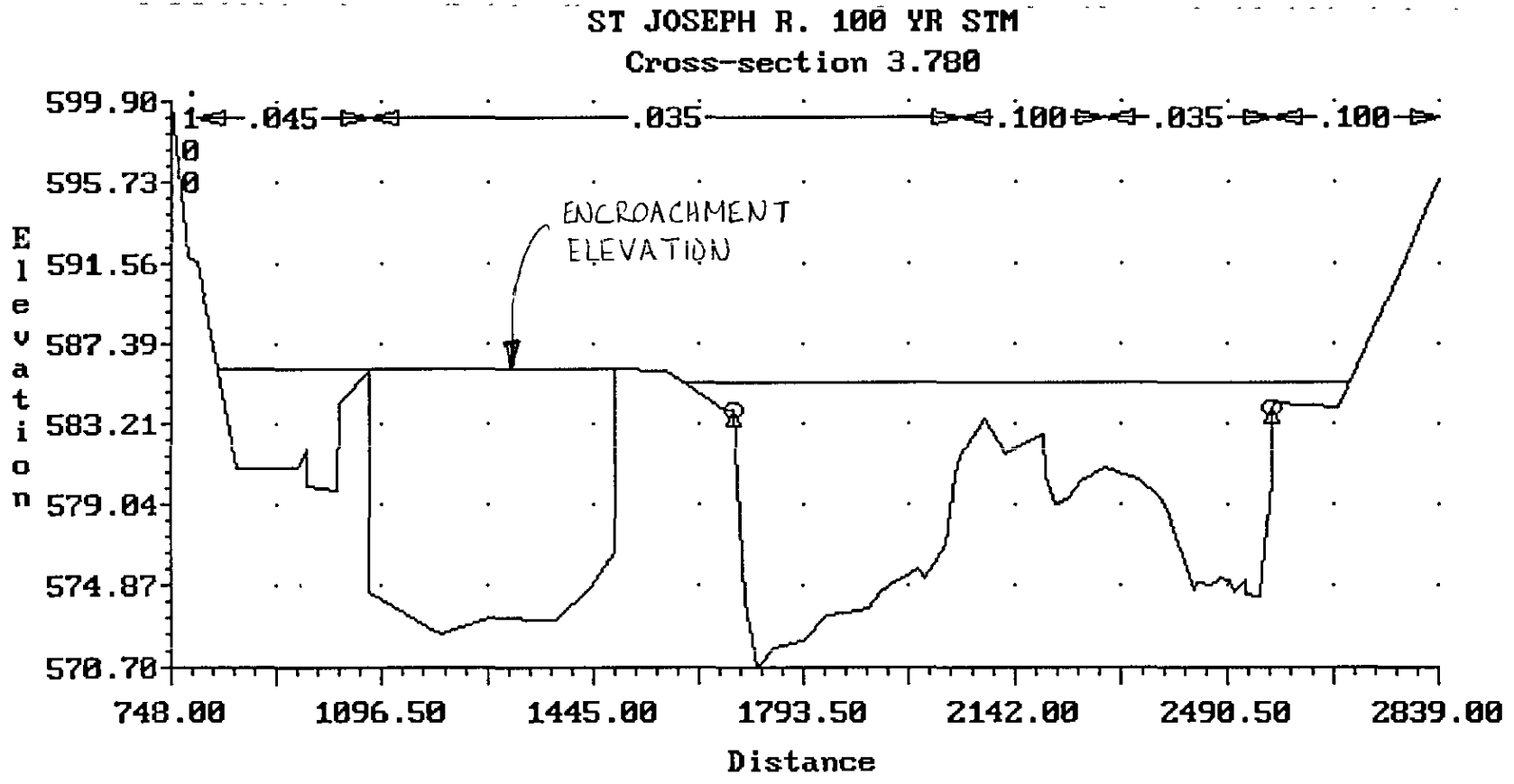
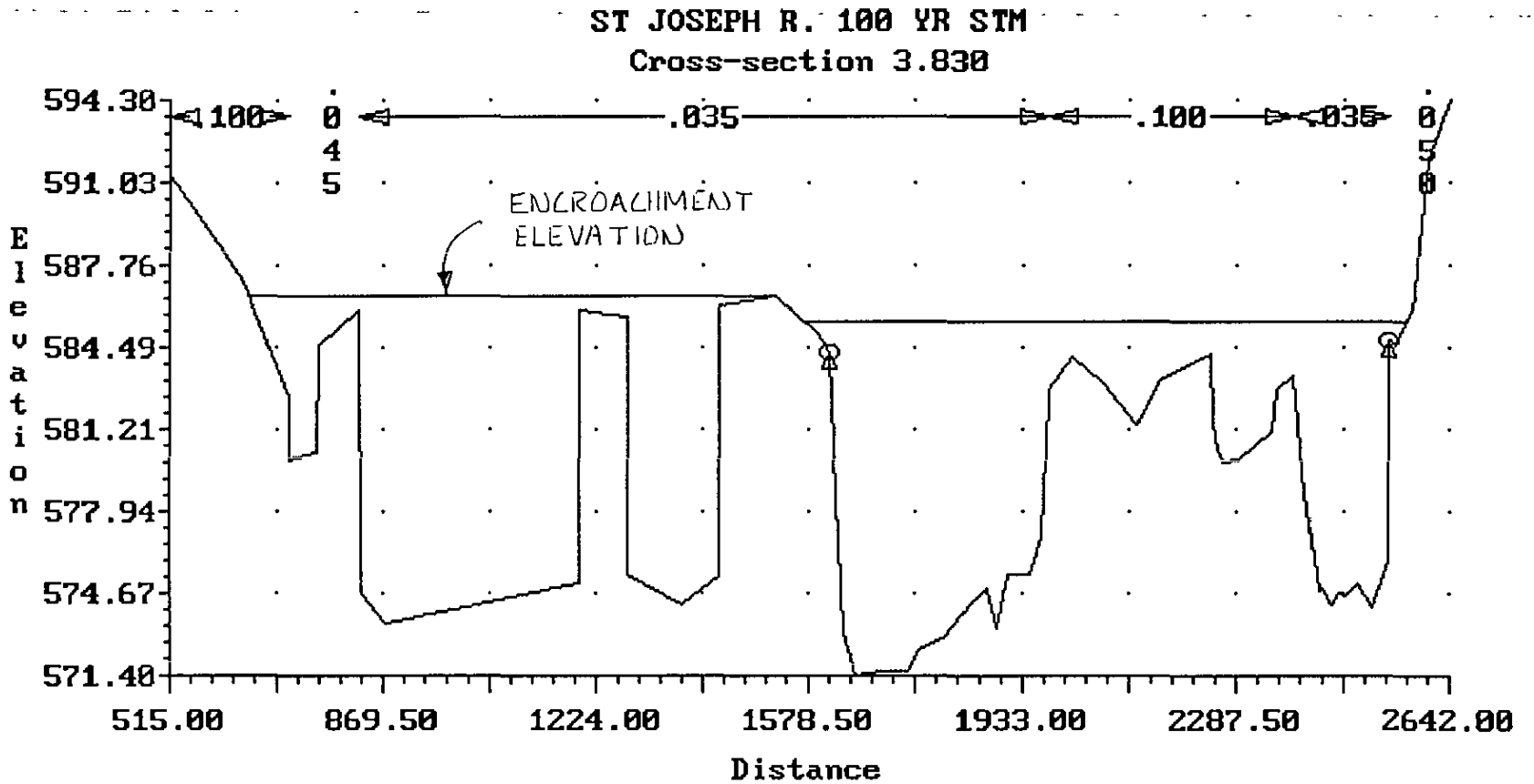
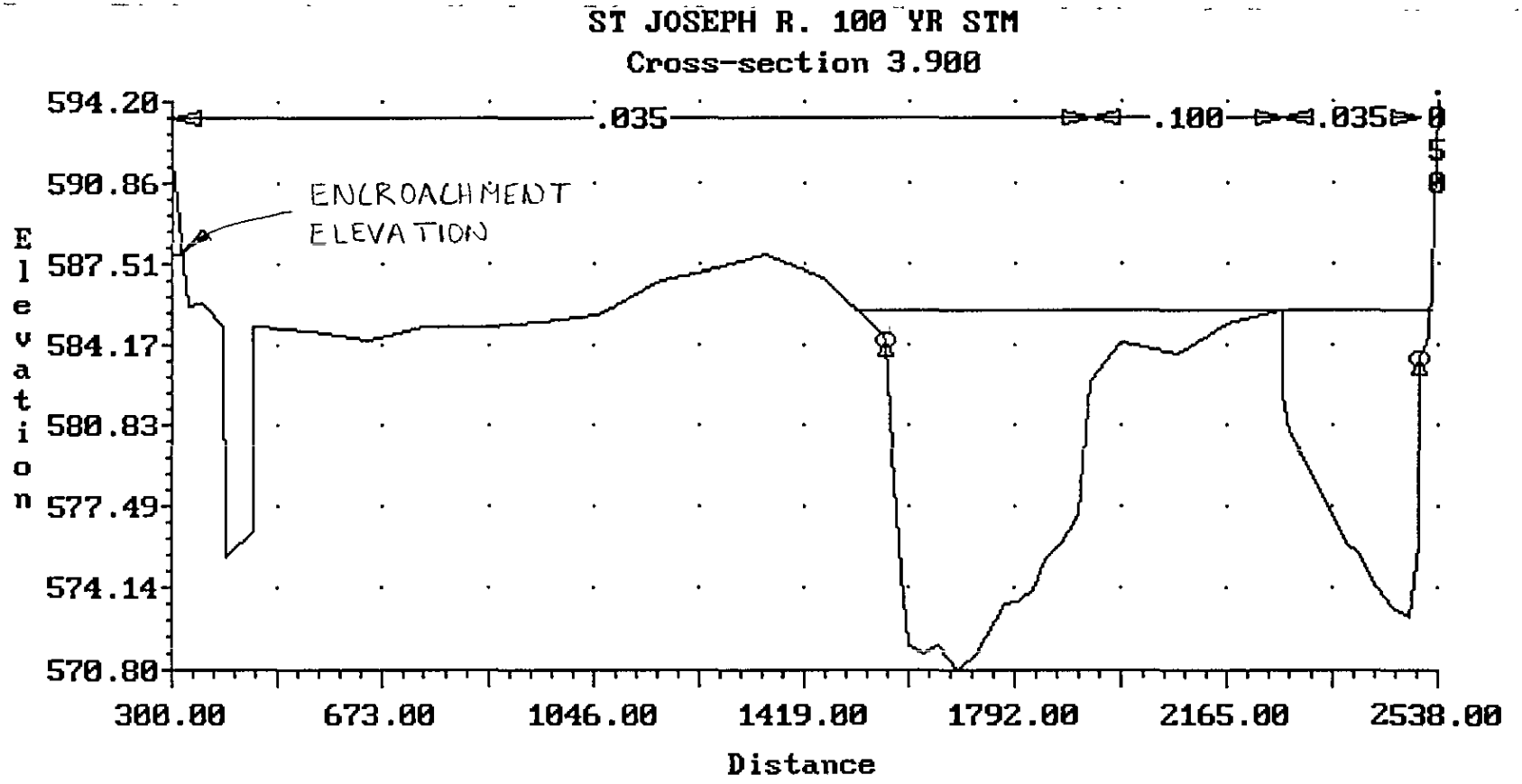
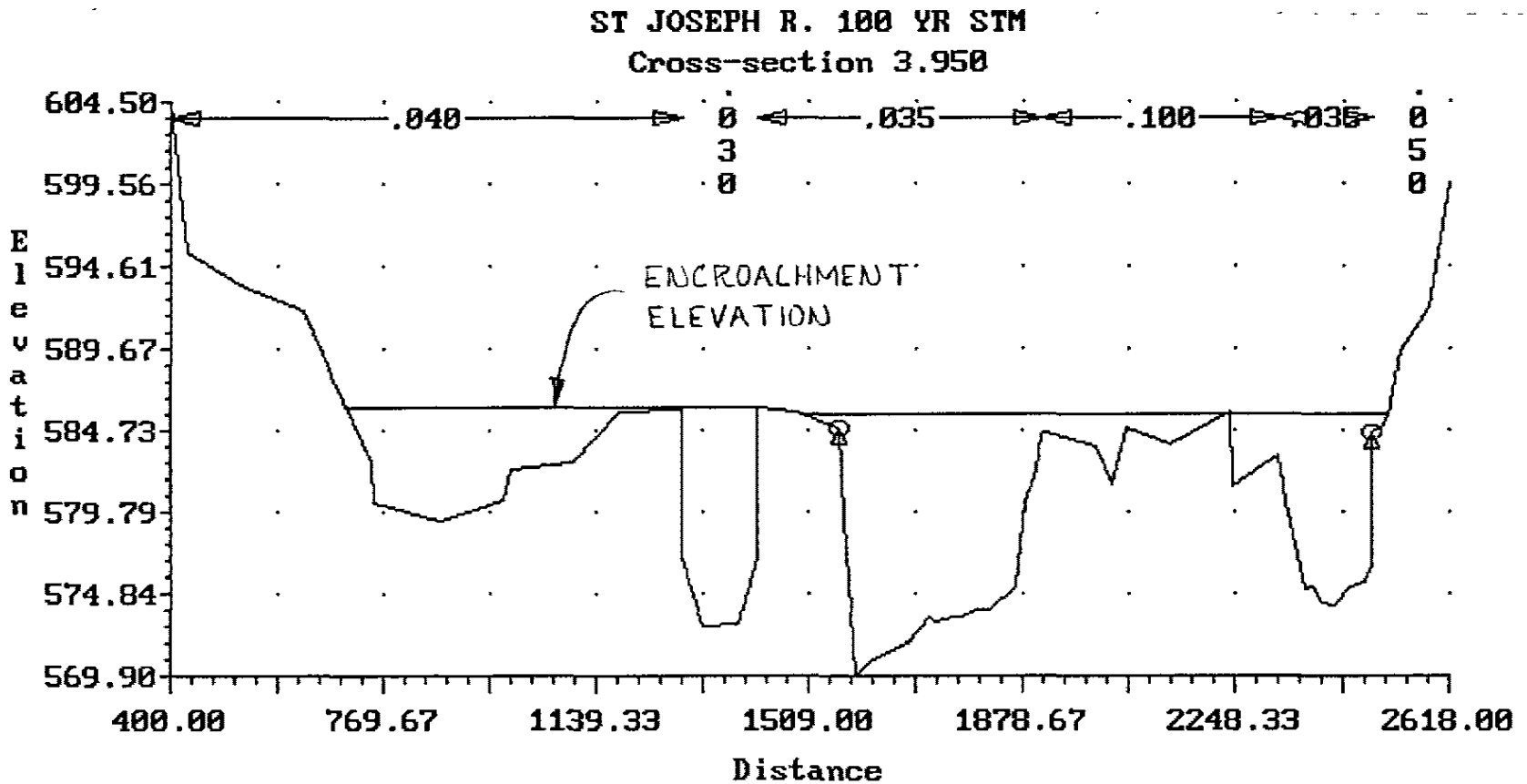
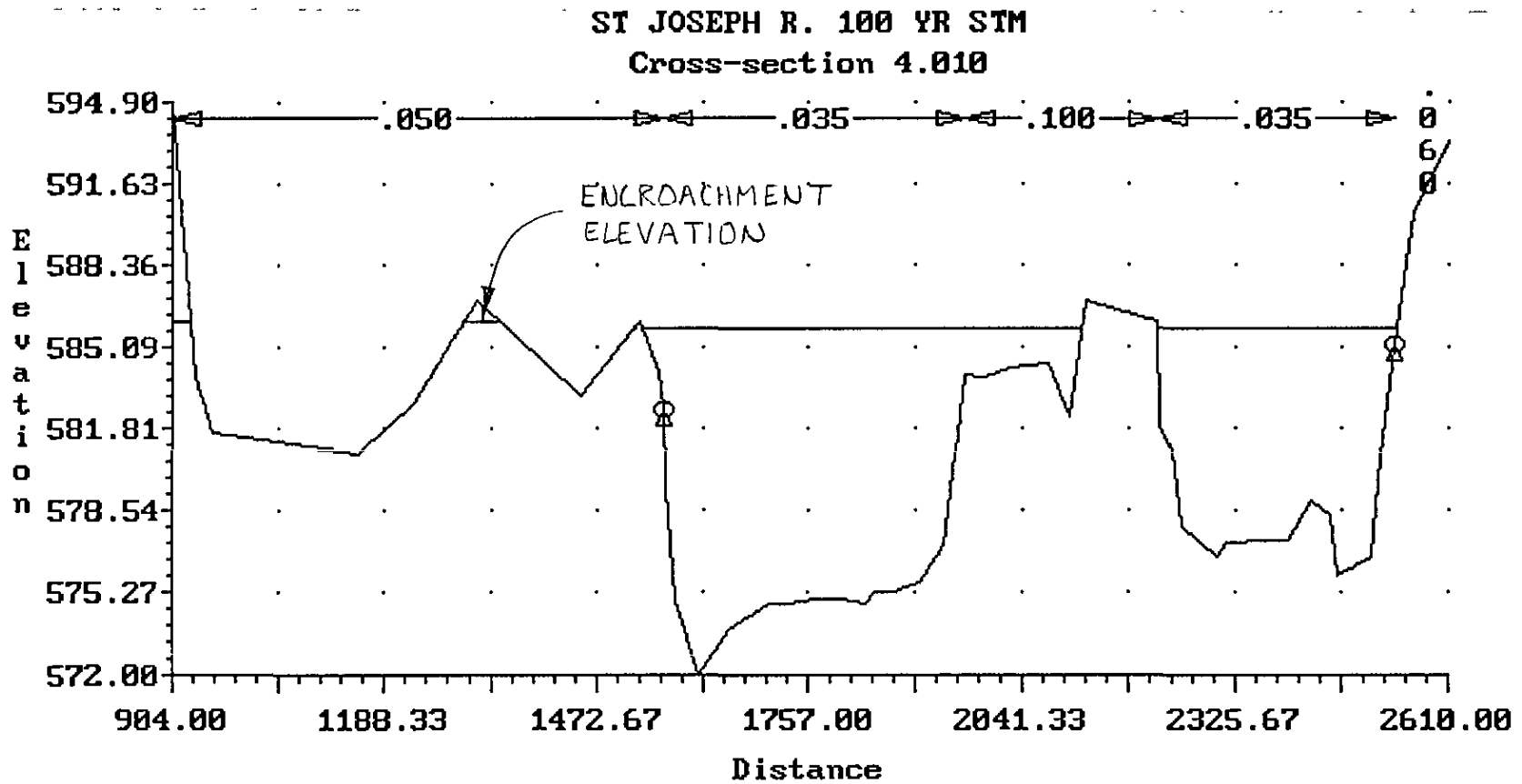
2962.67
3327.00
Distance


ST JOSEPH R. 100 YR STM
Cross-section 3.780
599.90
595.73
591.56
587.39
583.21
579.04
574.87
570.70
Elevation
1
0
0
.045
.035
.100
.035
.100
ENCROACHMENT
ELEVATION
748.00
1096.50
1445.00
1793.50
2142.00
2490.50
2839.00
Distance


ST JOSEPH R. 100 YR STM
Cross-section 3.830
.100
0
4
5
.035
.035
.100
0
5
0
ENCROACHMENT
ELEVATION
Elevation
594.30
591.03
587.76
584.49
581.21
577.94
574.67
571.40
515.00
869.50
1224.00
1578.50
1933.00
2287.50
2642.00
Distance


ST JOSEPH R. 100 YR STM
Cross-section 3.900
.035
.100
.035
ENCROACHMENT
ELEVATION
Elevation
594.20
590.86
587.51
584.17
580.83
577.49
574.14
570.80
300.00
673.00
1046.00
1419.00
1792.00
2165.00
2538.00
Distance


ST JOSEPH R. 100 YR STM
Cross-section 3.950
.040
0
3
0
.035
.100
.035
0
5
0
ENCROACHMENT
ELEVATION
604.50
599.56
594.61
589.67
584.73
579.79
574.84
569.90
Elevation
400.00
769.67
1139.33
1509.00
1878.67
2248.33
2618.00
Distance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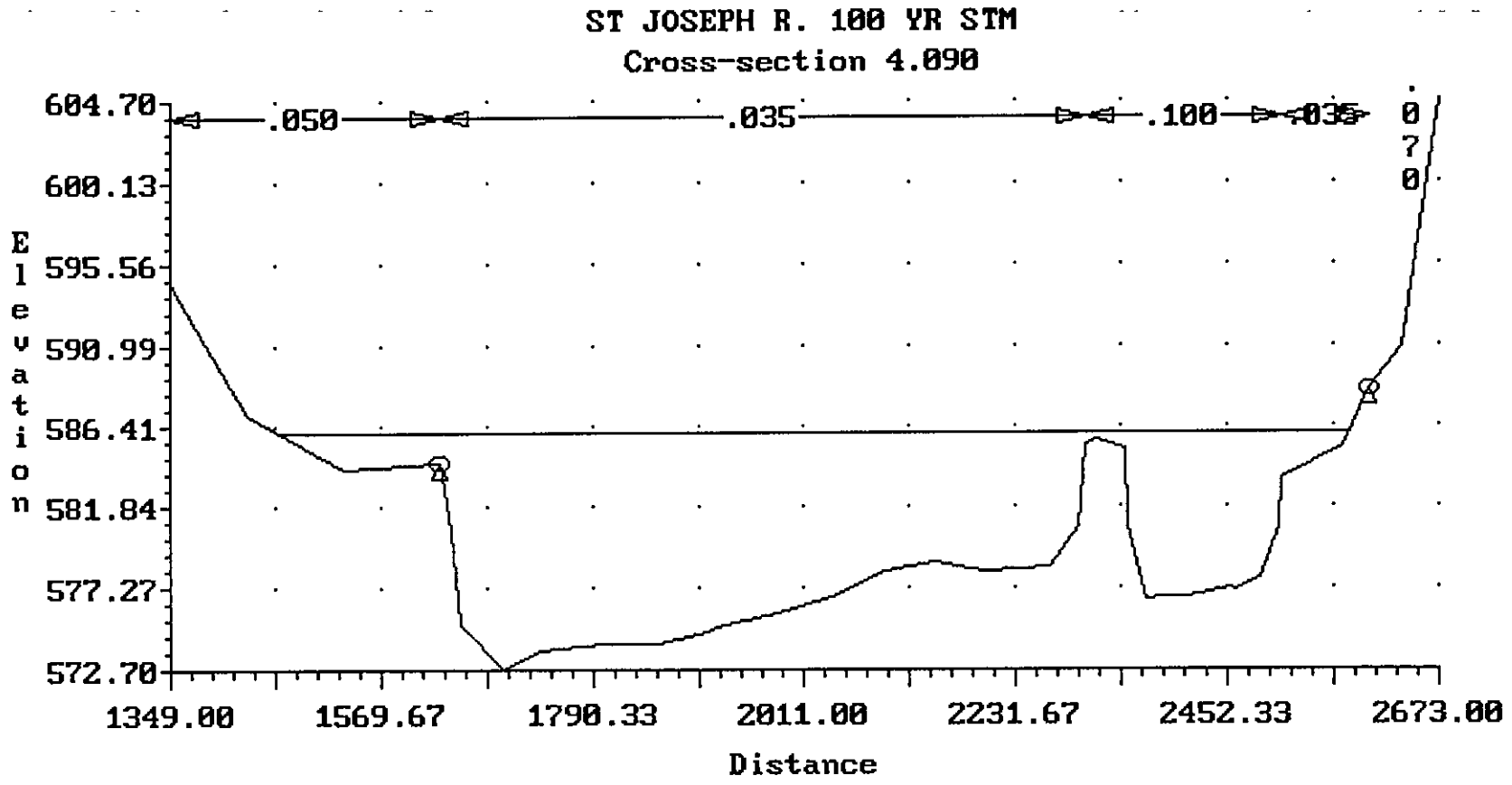
Cross-section 4.010
.050
.035
.100
.035
0
6
0
ENCROACHMENT
ELEVATION
Elevation
594.90
591.63
588.36
585.09
581.81
578.54
575.27
572.00
904.00
1188.33
1472.67
1757.00
2041.33
2325.67
2610.00
Distance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Cross-section 4.090
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.035
.100
.035
0
7
0
604.70
600.13
595.56
590.99
586.41
581.84
577.27
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Elevation
1349.00
1569.67
1790.33
2011.00
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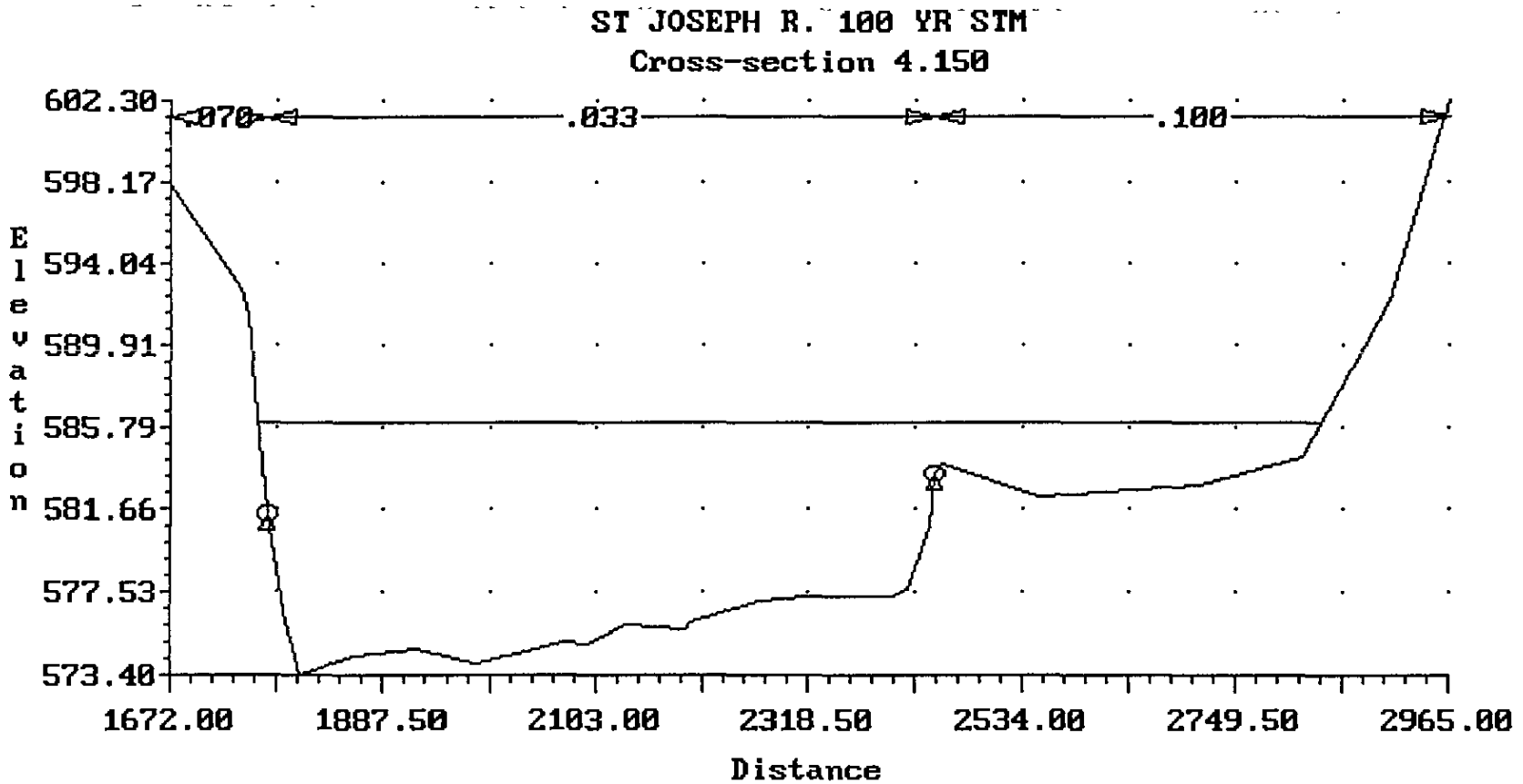
2452.33
2673.00
Distance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Cross-section 4.150
.070
.033
.100
602.30
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594.04
589.91
585.79
581.66
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573.40
Elevation
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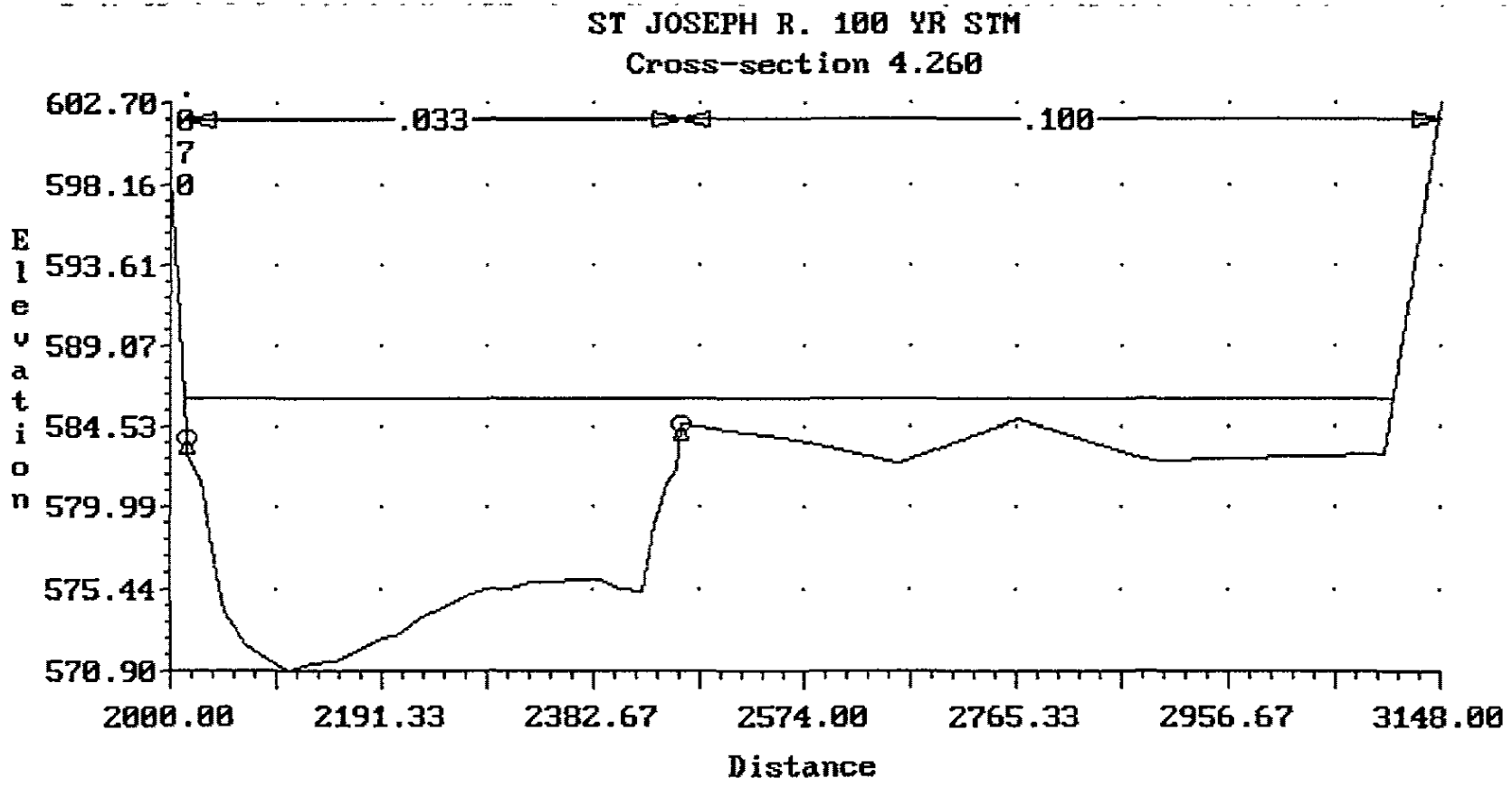
1887.50
2103.00
2318.50
2534.00
2749.50
2965.00
Distance


ST JOSEPH R. 100 YR STM
Cross-section 4.260
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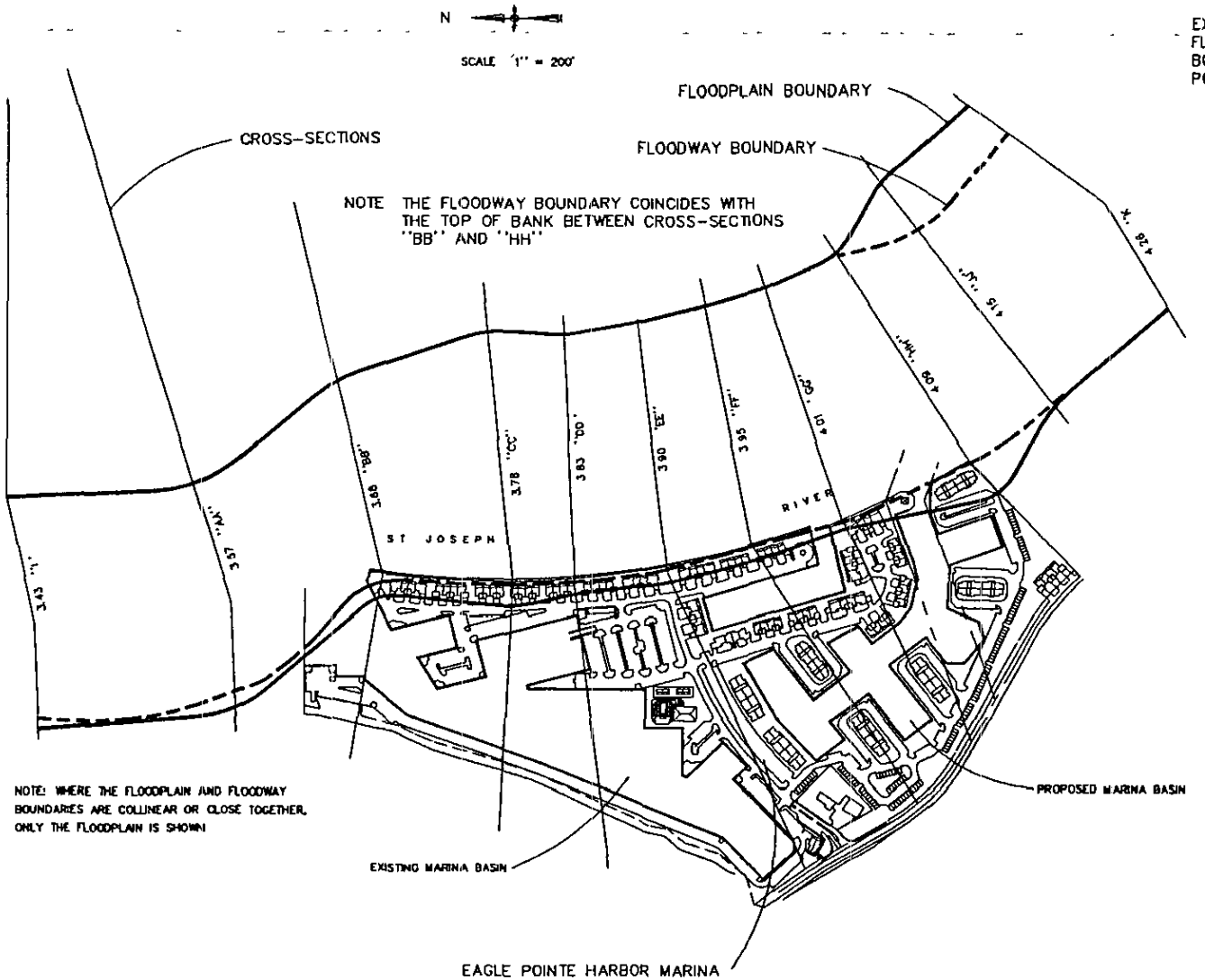
598.16
593.61
589.07
584.53
579.99
575.44
570.90
Elevation
0
7
0
.033
.100
2000.00
2191.33
2382.67
2574.00
2765.33
2956.67
3148.00
Distance

THE ABONMARCHE GROUP
ARCHITECTS / ENGINEERS / LAND SURVEYORS
☒ BENTON HARBOR, MICHIGAN
☐ GRAND RAPIDS, MICHIGAN

PROJECT EAGLE POINTE JOB NO. 90-582
TITLE HYDRAULIC ANALYSIS
CALCULATED BY JAB DATE 3/91
CHECKED BY _____ DATE _____
SHEET _____ OF _____

DRAWINGS

EXHIBIT 2
FLOODPLAIN AND FLOODWAY BOUNDARY MAP ON EAGLE POINTE MARINA SITE PLAN



NO.	REVISION DESCRIPTION:	BY:	DATE
01	REVISE FLOODWAY BOUNDARY	JAB	10/22/91

THE ABONMARCHE GROUP
ARCHITECTS / ENGINEERS / LAND SURVEYORS
INTERIOR DESIGN / REAL ESTATE SERVICES

FLOODWAY STUDY
ST JOSEPH RIVER AT EAGLE POINTE HARBOR
ST JOSEPH CHARTER TOWNSHIP
BERRIEN COUNTY, MICHIGAN

SCALE: VERTICAL, HORIZONTAL 1" = 200'
DATE: 3/20/91
DESIGNED: JAB
DRAWN: GMK
APPROVED: JAB
JOB NO 90-362 BAB

SHEET 1 OF 1 SHEETS

W/ENT. CONTROL -35th ORDER

RAMP -HWD 34.30. 12-12-77

	ELEV.	LOCATION	DESC
RM-1	627.362	E. SIDE C/O RR, 1000'± N of MAIDEN LANE, 2' ± S. OF SOUTH RAIL OF BRIDGE, 88'± W OF CENTERLINE OF RP TANGENT SECTION, 39.9	STENCILED + NAIL-TYPE P.K. IN CONCRETE SIDE, 2"± E. OF SILL
RM-2	622.01	SW COR. INTER-X BROWN SCHOOL RD & C/O RR.	HIGH PT. ON EL / RR IRON SPIKE (OF SS) IN CROSSING TIE
TBM 2	631.82	BROWN SCHOOL RD, SW SIDE OF R.R. X-ING.	TOP NE COR. CONCRETE POST W/ HSE # 1762, 2.5 ABOVE GROUND
RM-3	607.01	@ NE COR. INTER-N BROWN SCHOOL RD & C/O RR.	TOP SE COR. CONC. POST W/ N. SIDE OF DRIVE 2.3 ABOVE GRADE
TBM 4	592.05	@ CENTERLINE OF BRIDGE OVER HICKORY CREEK	D'CUT TOP OF N. WING WALL, 2.5' W OF U.S. 29 BUSINESS
RM-4	629.46	@ NW COR. INTER-X WINDSOR DR & NELSON RD	3/4" PIN
TBM 5 RM-5	628.56	200'± N OF INTER-X SELDERVILLE & HICKORY DR	TOP SE COR CONC DR. TO HSE # 2823 SELDERVILLE DR. (20'± SW OF SW POINT)
TBM 6	593.72	WASHINGTON AVE @ HICKORY CREEK	TOP NE COR OF E. BRIDGE WALL, BELOW N. END OF BRIDGE RAIL
RM-6	601.78	600' NILES RD, 300'± S of HICKORY CREEK, 100' E of A&L SUB. STATION	D'CUT IN CONC BASE, SW SIDE OF STEEL POWER POLE
TBM 9 RM-7	590.86	3RD POLE W. of NILES RD, 100'± S of HICKORY CREEK	60d NAIL IN N. SIDE POWER POLE
TBM 10	592.52	@ SE COR BRIDGE OVER HICKORY CREEK ON NILES RD	D'CUT TOP SE COR CONC WING WALL (OF NILES RD)
TBM 11 RM-8	584.02	1000'± E of NILES RD, 150'± NELY of CREEK 50'± NELY of FORK IN DRIVES	60d NAIL IN E. SIDE POWER POLE (OF MAIN LINE #)